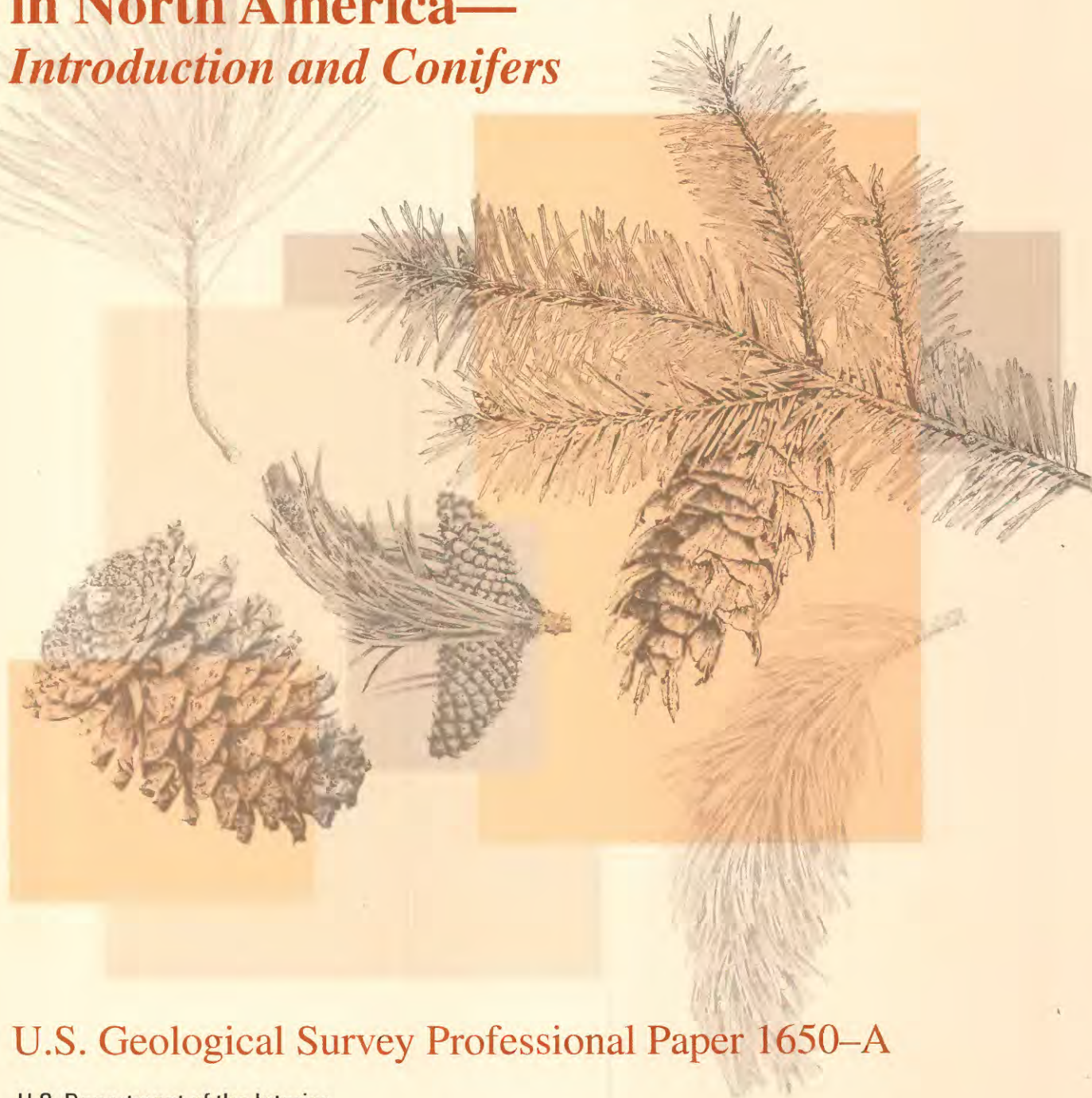


**Atlas of Relations Between
Climatic Parameters and Distributions
of Important Trees and Shrubs
in North America—
*Introduction and Conifers***



U.S. Geological Survey Professional Paper 1650–A

U.S. Department of the Interior
U.S. Geological Survey



Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America— *Introduction and Conifers*

By Robert S. Thompson, Katherine H. Anderson, *and* Patrick J. Bartlein

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Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America— *Introduction and Conifers*

By Robert S. Thompson,¹ Katherine H. Anderson,² and Patrick J. Bartlein³

Abstract

This atlas explores the continental-scale relations between the geographic ranges of woody plant species and climate in North America. A 25-km equal-area grid of modern climatic and bioclimatic parameters was constructed from instrumental weather records. The geographic distributions of selected tree and shrub species were digitized, and the presence or absence of each species was determined for each cell on the 25-km grid, thus providing a basis for comparing climatic data and species' distributions. The relations between climate and plant distributions are explored in graphical and tabular form. The results of this effort are primarily intended for use in biogeographic, paleoclimatic, and global-change research.

Introduction

On the continental scale, climate is the primary determinant for the overall geographic ranges of plant species (Woodward, 1987; Woodward and Williams, 1987). Geologic studies reveal that the geographic locations and extents of plant species have changed greatly as climate has varied in the past (e.g., Huntley and Webb, 1988; Wright and others, 1993). In this volume we explore the climatic parameters that may likely control the modern distributions of selected plant taxa for North America. The data presented here may be used in the reconstruction of past climates from paleoecological data, in the estimation of the potential future ranges of important trees and shrubs under various global-change scenarios (such as those depicted by Houghton and others, 1996, and Thompson and others, 1998), and in validation exercises that compare past plant distributions with those simulated based on numerical-climate-model simulations of past climates (Bartlein and others, 1998). This information may also be useful in a variety of ecological and biogeographic studies, particularly in generating hypotheses for testing.

This atlas presents information on the modern relations between climate and the distributions of 407 plant taxa and biogeographic entities from across North America. Included among these are 115 conifer species, 32 conifer groups (such as the genera and subgenera), 239 hardwood species, and 21 hardwood groups.

The atlas is divided into two volumes. The first volume, U.S. Geological Survey (USGS) Professional Paper 1650-A, contains the Abstract, Introduction (including supporting figures and tables), References Cited, and the atlas pages for conifers. The second volume, USGS Professional Paper 1650-B, contains the Abstract, an abbreviated Introduction (including supporting tables), and the atlas pages for hardwoods. These two volumes are published together and are not available separately.

In the first part of each volume, we provide atlas pages of graphical displays of the modern relations between climate and distributions of important trees and shrubs in North America. The graphical displays include (1) maps of geographic distributions of taxa; (2) univariate plots that indicate the presence or absence of the taxon under consideration in relation to single climatic (mean January, July, and annual temperature; mean January, July, and annual precipitation) and bioclimatic (growing degree days, mean temperature of the coldest month, and moisture index) variables; (3) bivariate plots that illustrate the presence and absence of the taxon for various combinations of seasonal temperatures, seasonal precipitation, July temperature (a proxy for growing-season temperature), and annual precipitation; and (4) complex displays that indicate the presence and absence of the taxon in relation to combinations of the three bioclimatic variables.

In the second part of each volume, we provide atlas pages of histograms for each taxon that display the percentage of the total number of grid points for the taxon that occur within a specified range of each climatic or bioclimatic variable. This information permits the user to see where the taxon is most abundant and also to examine the variability of a taxon along specific environmental gradients.

In the third part of each volume, the histogram data are presented in tabular form so that users can obtain quantitative information without having to interpret the data from the visual displays. (*Text continues on page 16*)

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Figure 1. The 25-km grid used in this atlas. Modern glaciers and lakes are omitted from the grid.

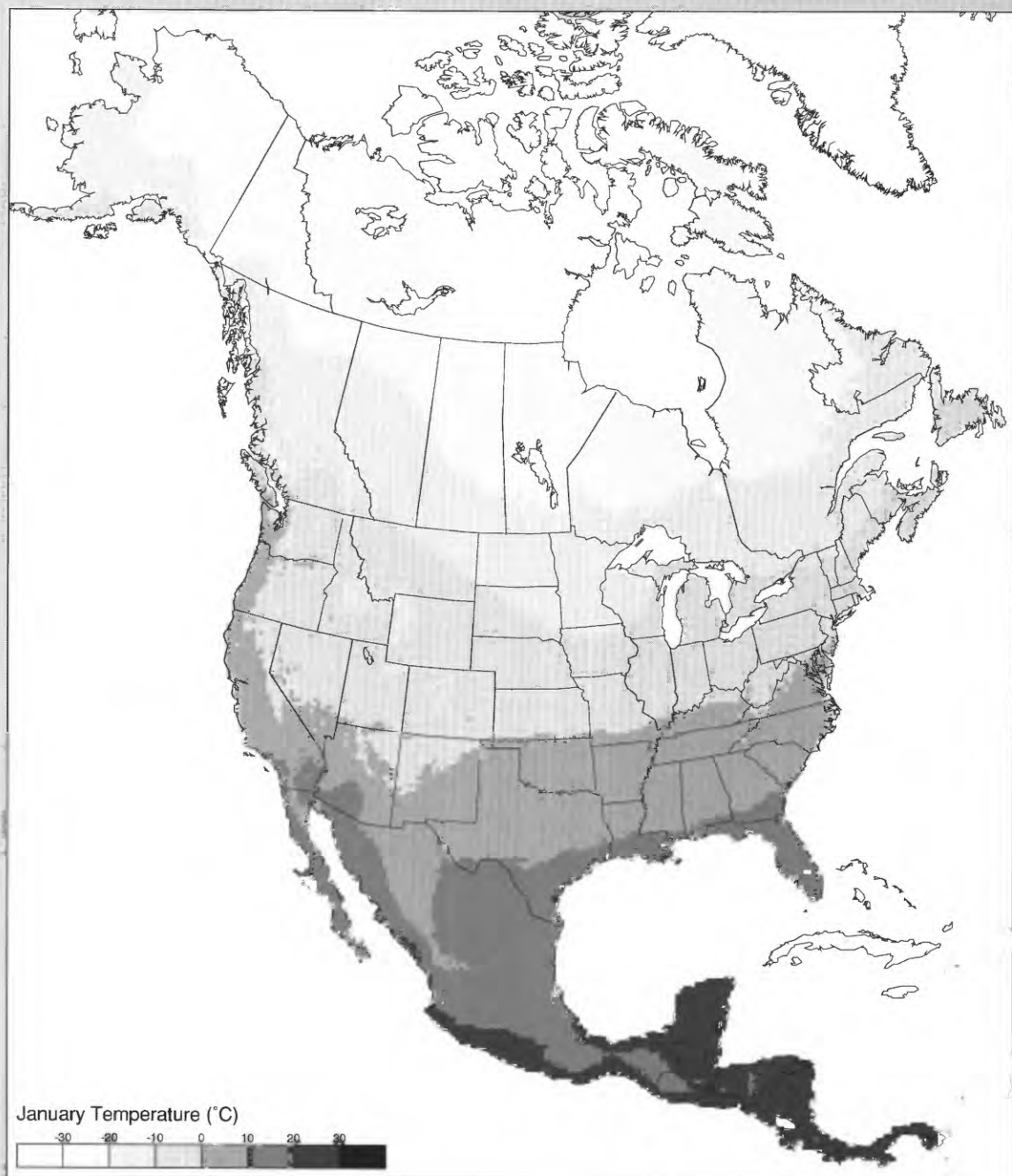


Figure 2. Mean January temperature on the 25-km grid.

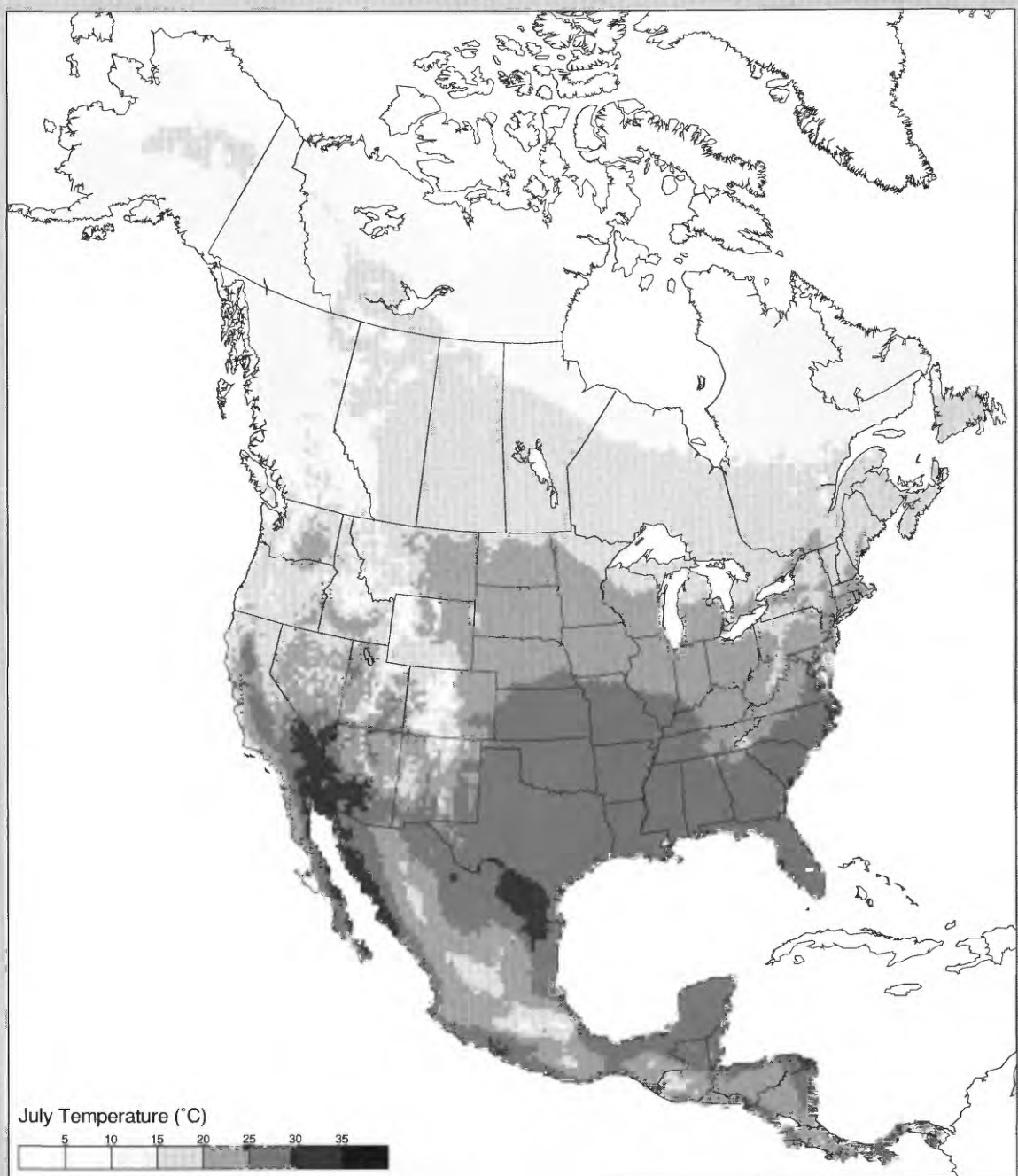


Figure 3. Mean July temperature on the 25-km grid.

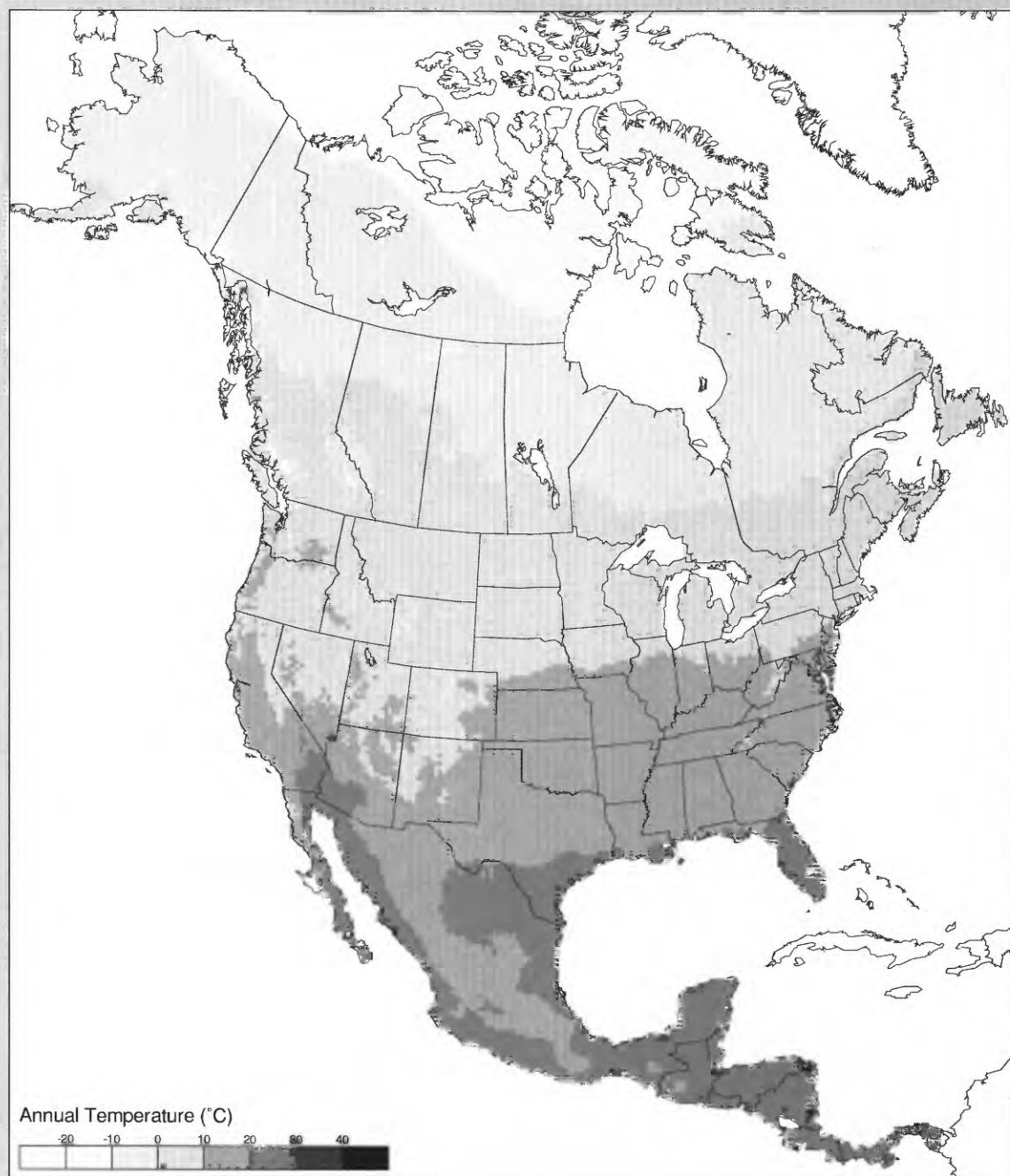


Figure 4. Mean annual temperature on the 25-km grid.

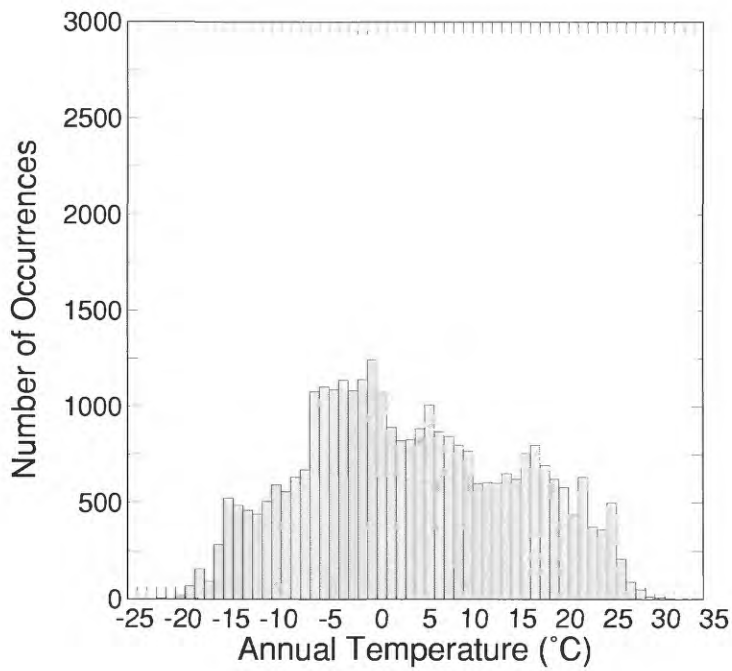
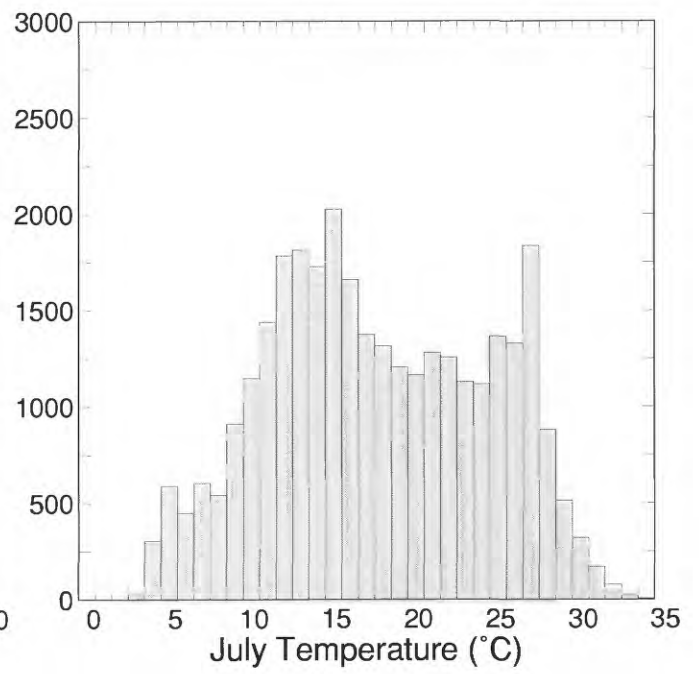
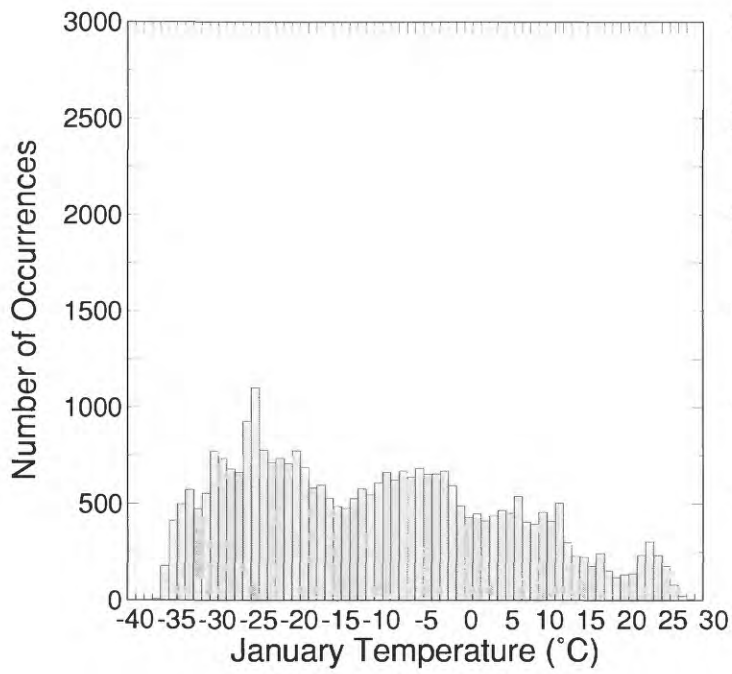


Figure 5. Histograms illustrating distributions of mean January, July, and annual temperatures among points of the 25-km grid for North America. The height of each column represents the number of grid points that occur within the specified range of temperature on the horizontal axis.

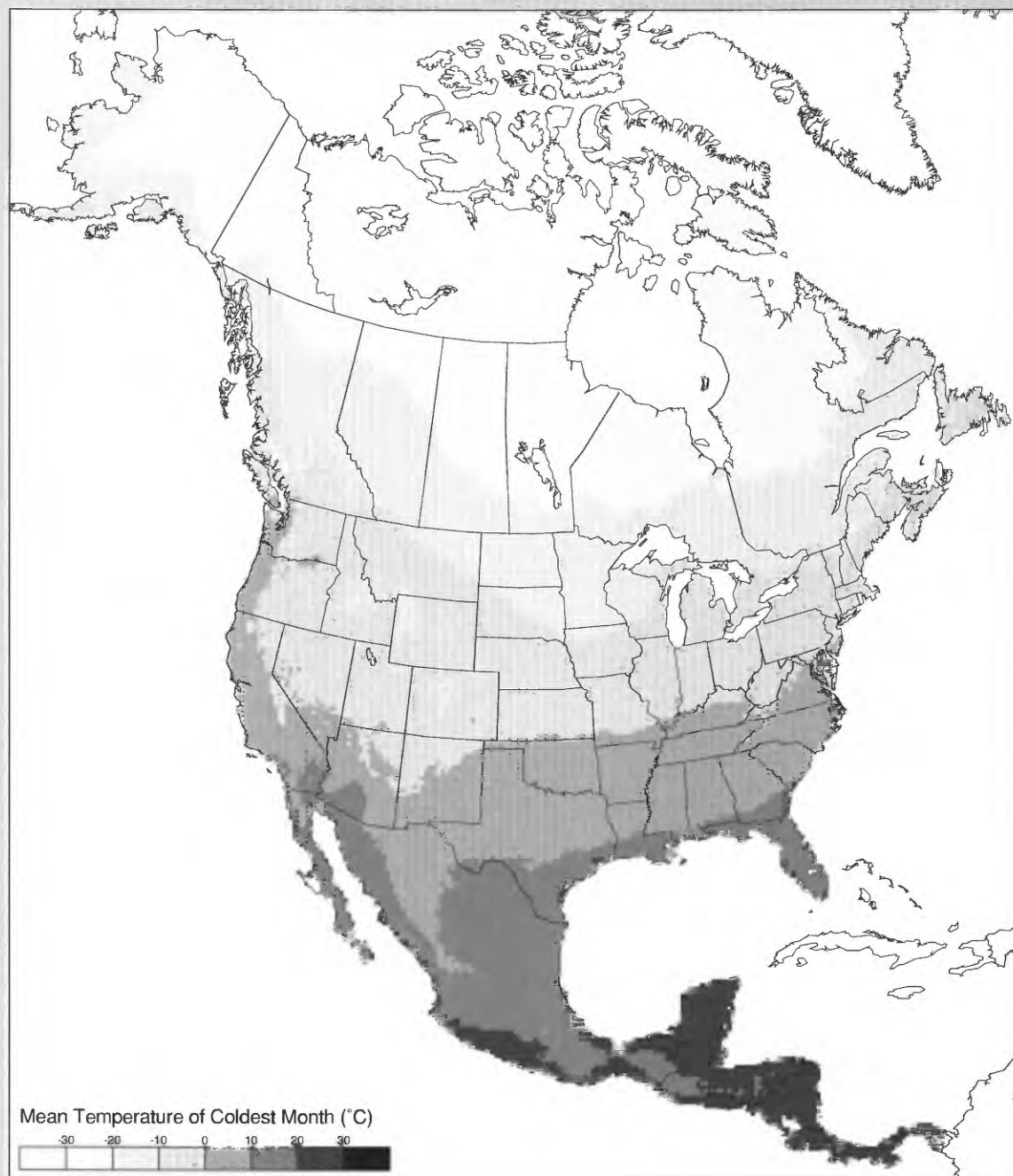


Figure 6. Mean temperature of the coldest month on the 25-km grid. Across most of North America, January is the coldest month. However, comparison with figure 2 reveals some differences in Central America and in the Arctic region.

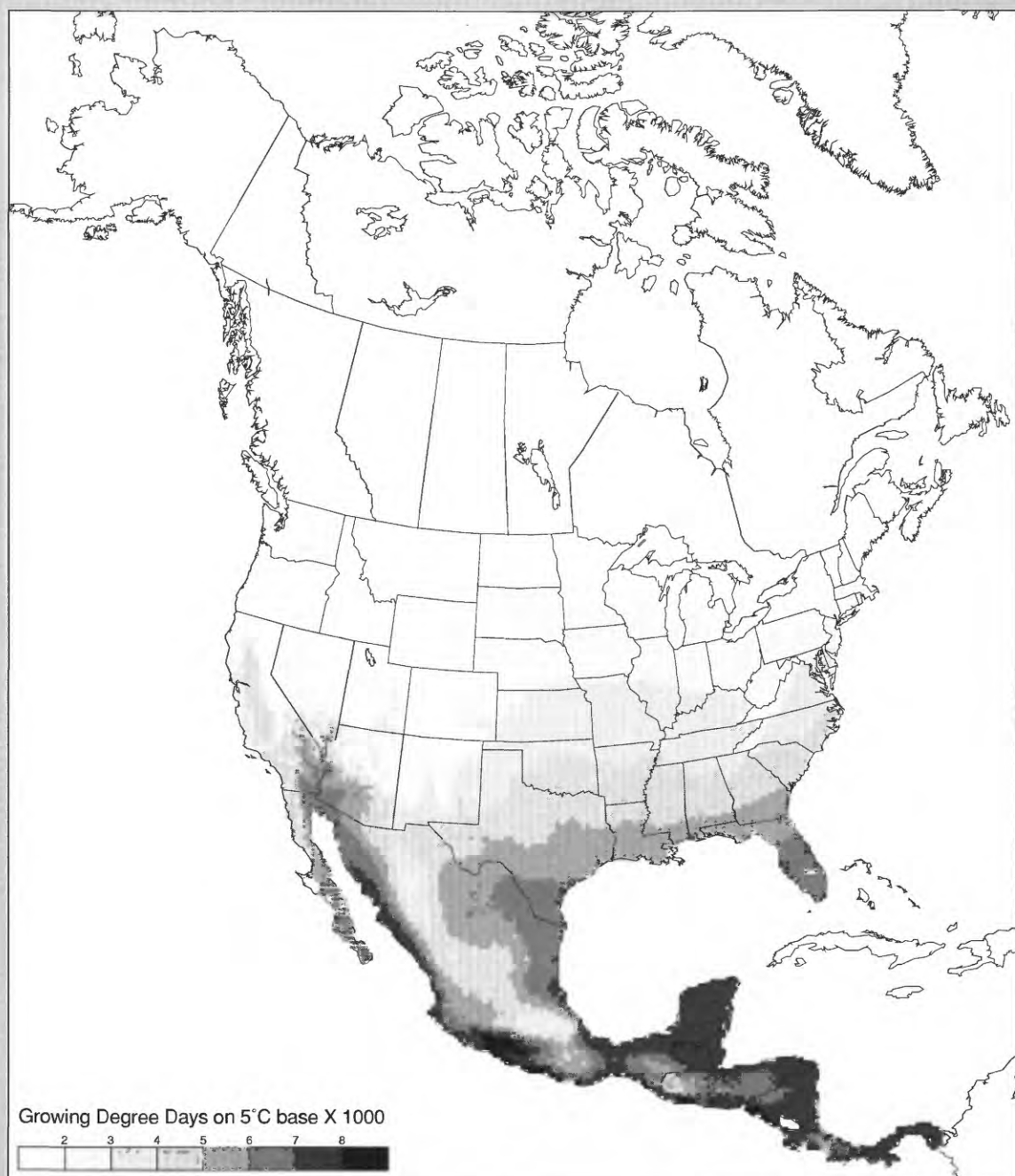


Figure 7. Growing degree days (on 5°C base—GDD₅) on the 25-km grid.

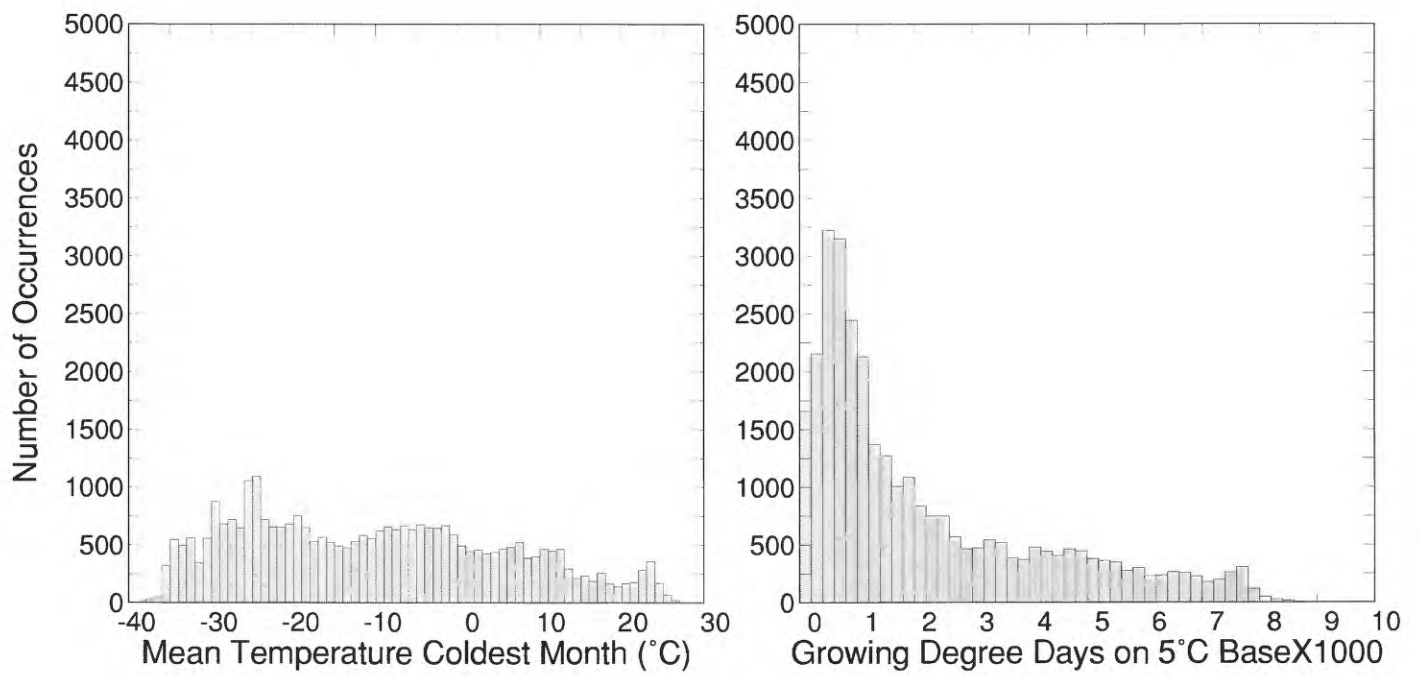


Figure 8. Histograms illustrating distributions of bioclimatic temperature variables (mean temperature of the coldest month (MTCO) and growing degree days (on a 5°C base—GDD₅)) among points of the 25-km grid for North America. The height of each column represents the number of grid points that occur within the specified range of the bioclimatic variable on the horizontal axis.

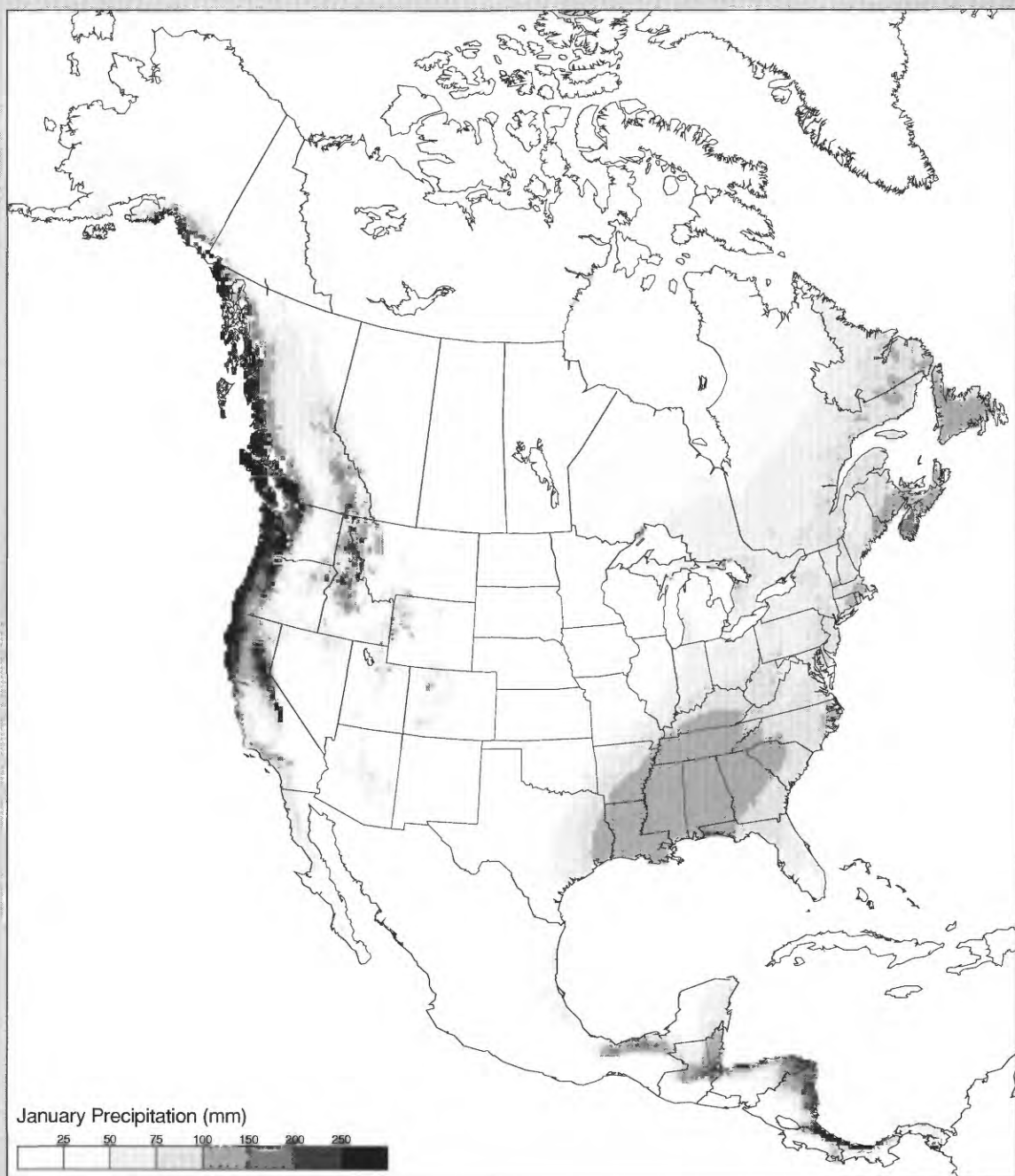


Figure 9. Mean January precipitation on the 25-km grid.

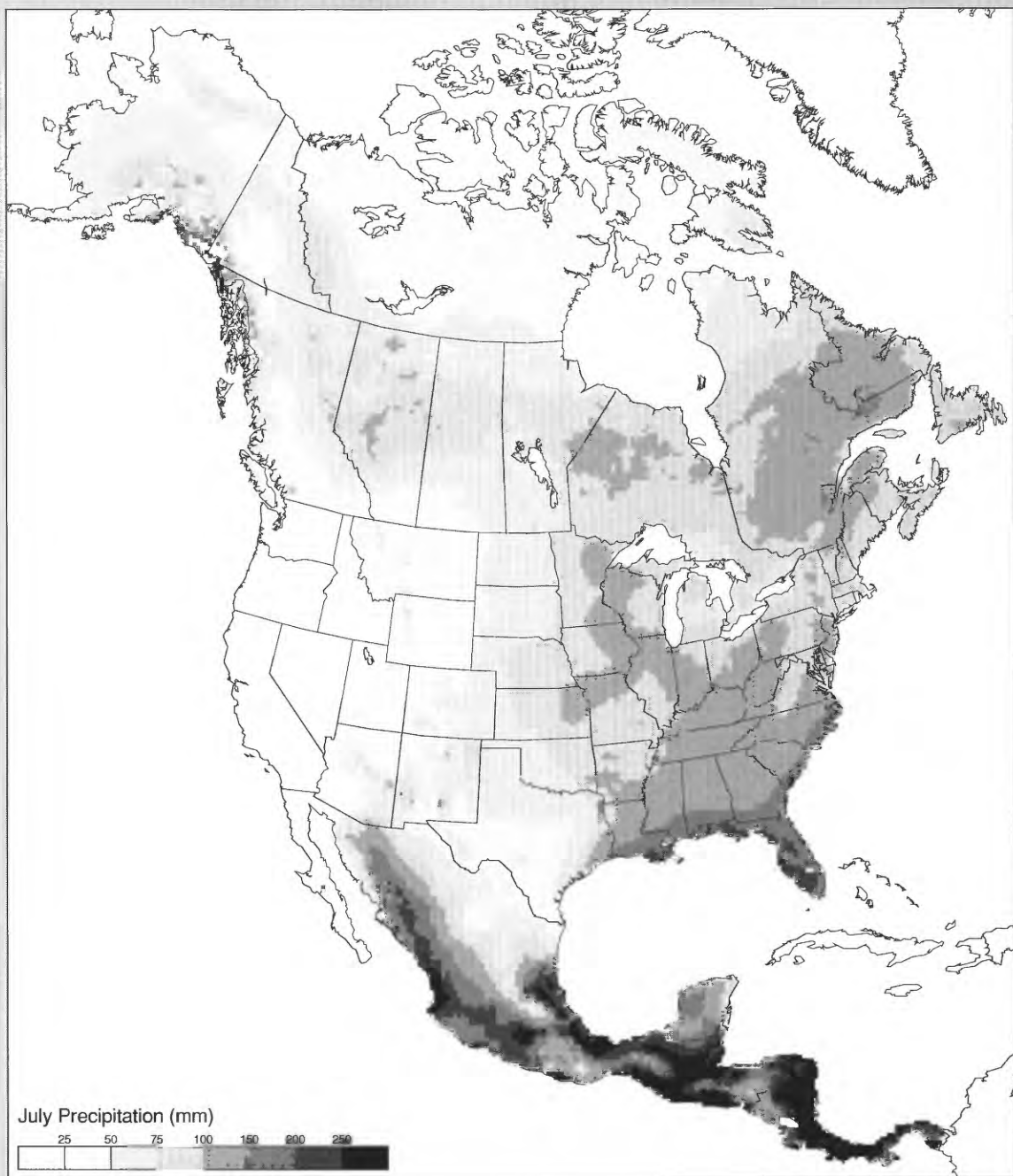


Figure 10. Mean July precipitation on the 25-km grid.

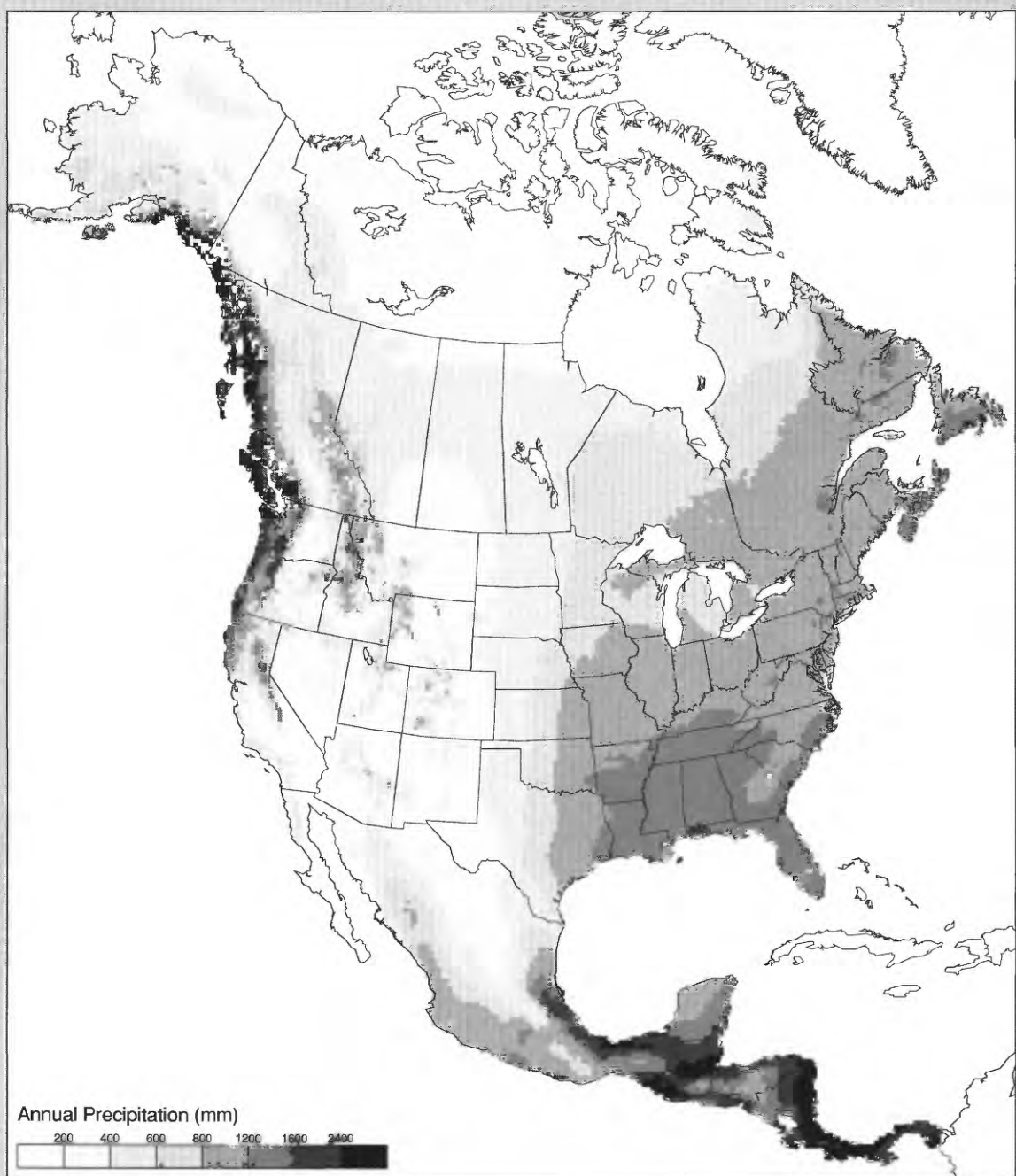


Figure 11. Mean annual precipitation on the 25-km grid.

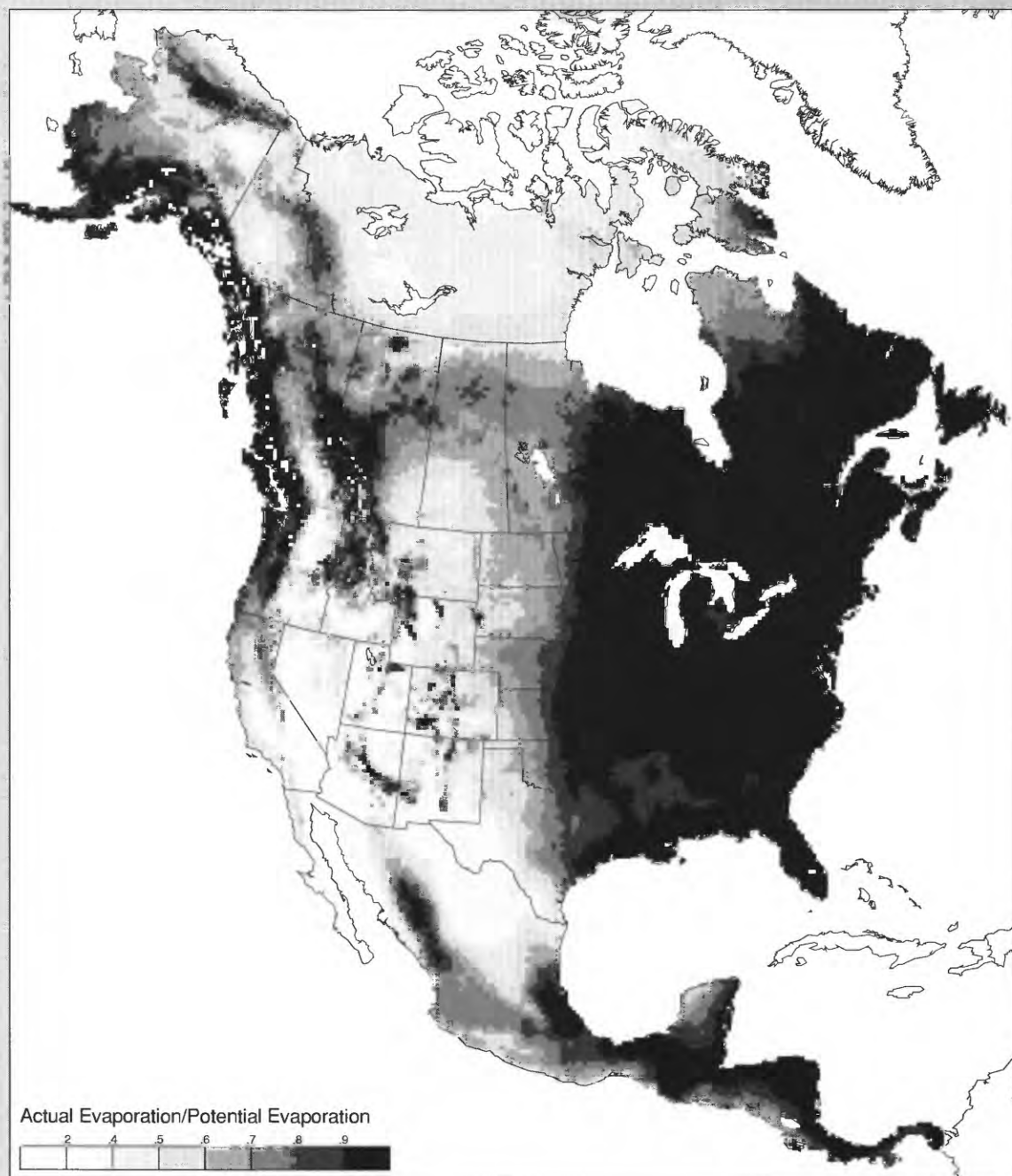


Figure 12. Actual evaporation divided by potential evaporation on the 25-km grid. In this version, eight divisions are shown, and more detail is available than is shown in figure 13.

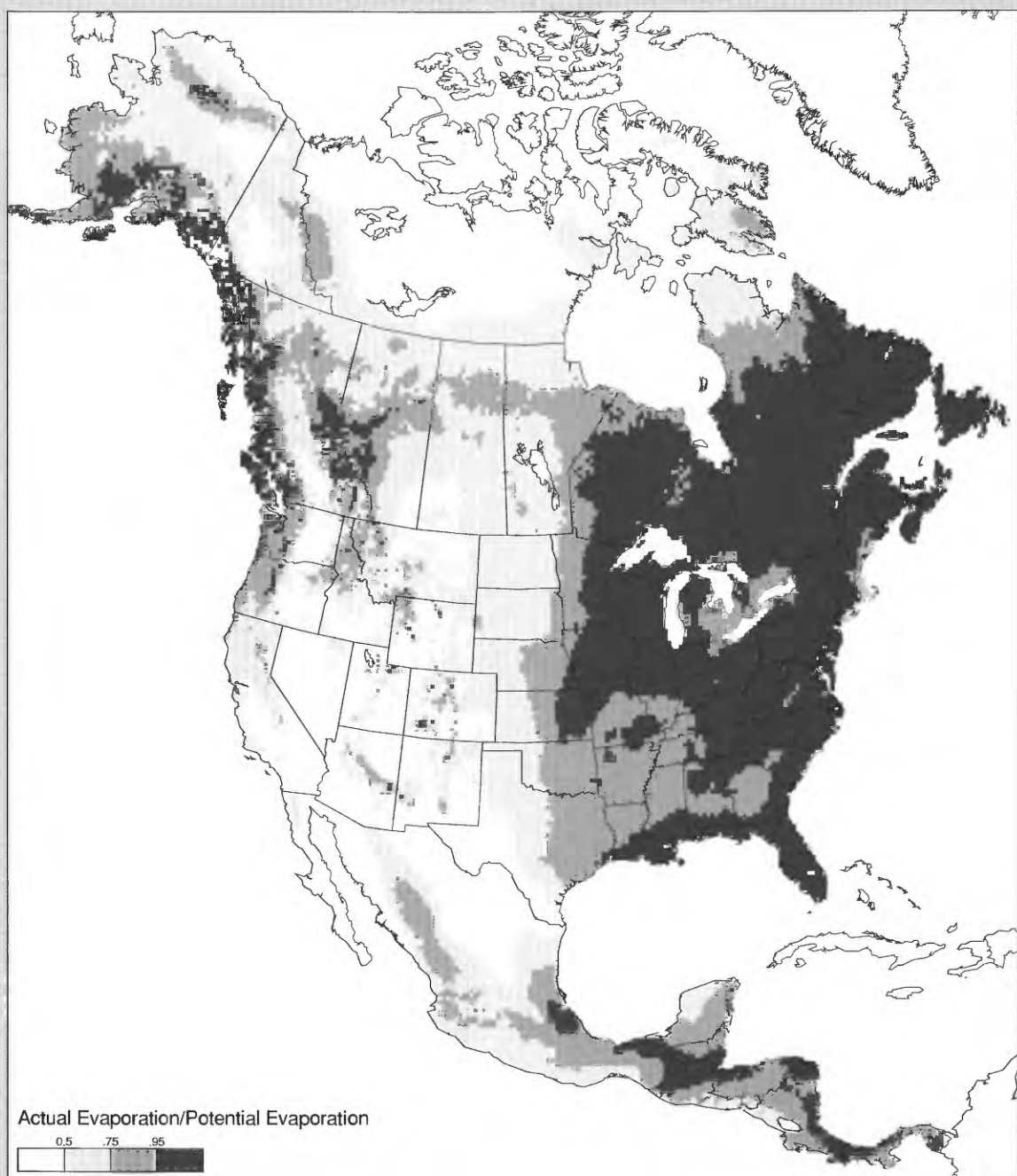


Figure 13. Actual evaporation divided by potential evaporation on the 25-km grid. In this version, only the four divisions that are employed in the graphical displays later in the atlas are shown.

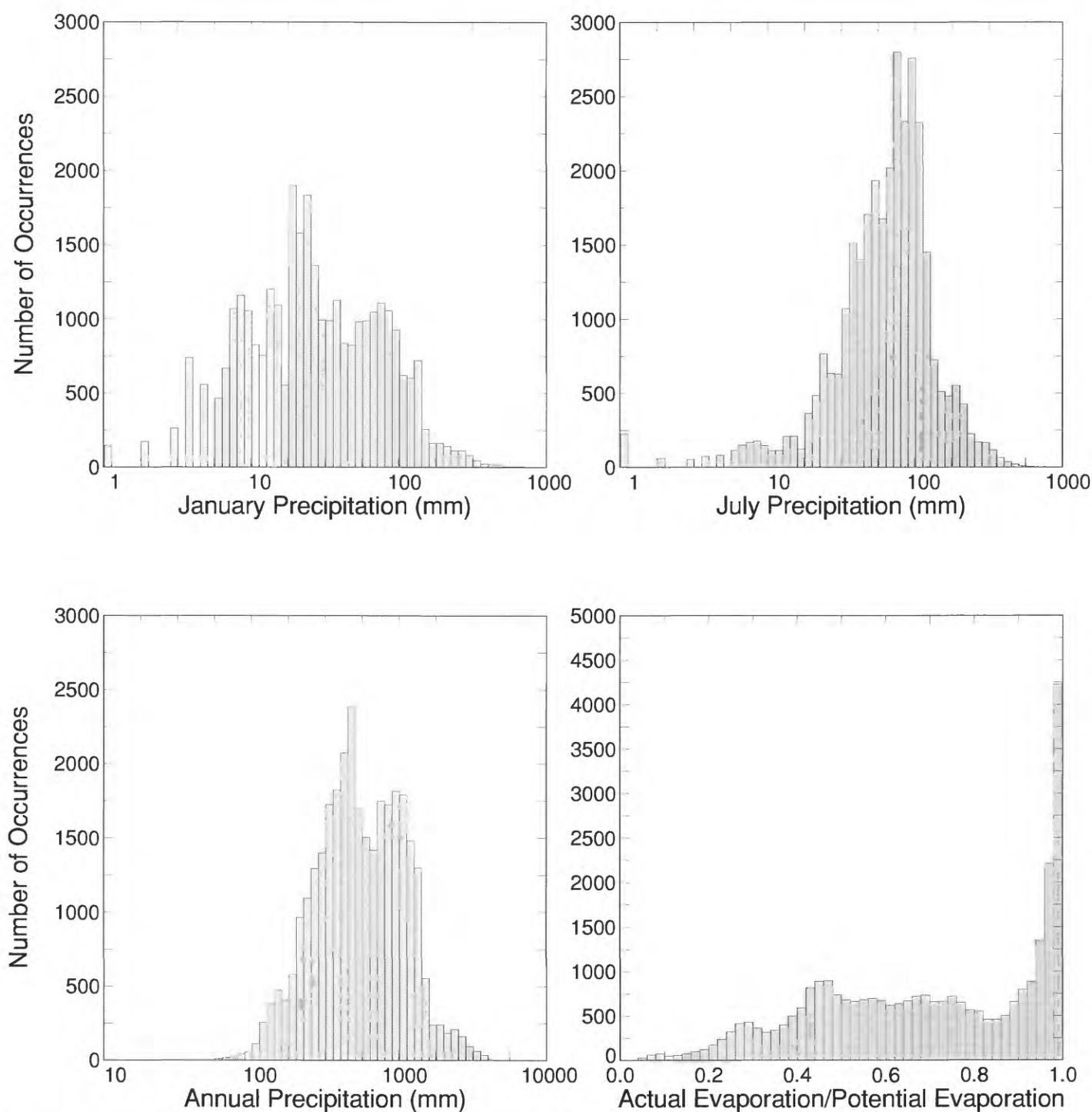


Figure 14. Histograms illustrating distributions of mean January, July, and annual precipitation, and moisture index (MI—moisture index equals actual evaporation divided by potential evaporation) among points of the 25-km grid for North America. The height of each column represents the number of grid points that occur within the specified range of the climatic or bioclimatic variable on the horizontal axis.

Methodology and Sources of Data

We constructed an equal-area grid for North America, each point of which was approximately 25 km from each adjacent point ("25-km grid" in this report), to compare the modern distributions of plant taxa with climatic parameters (fig. 1). Thirty-year climate "normals" for the period 1951 to 1980 were taken where possible from more than 8,000 weather stations in Canada, the United States, Mexico, and Central America (Canadian Climate Program, 1982a, 1982b; WeatherDisc Associates, 1989; Willmott and others, 1981). In some regions, when data were sparse, a small number of stations were included with different, and possibly shorter, normal periods. There are few weather stations in the Arctic and parts of Central America, and in these regions we supplemented the station data with data digitized from the World Meteorological Organization atlas for North America (Steinhauser, 1979). Information is also sparse on snowfall in the mountains of the Western United States, and in this area we used SNOTEL data (Dolph and Marks, 1992; Barton and Burke, 1977; Rallison, 1981) to augment the available information from weather stations.

We used the singular value decomposition least-squares estimation technique (Press and others, 1986) with the modern climatic data to develop regression equations that allowed us to estimate the monthly and annual values for temperature and precipitation at each point on the 25-km grid as functions of location and elevation (figs. 2 through 14) (Lipsitz, 1988; Bartlein and others, 1994). A separate regression equation was used for each target grid point using observations from the vicinity of the target point. Elevation data from the ETOPO5 5-minute topographic grid (Edwards, 1992) were used to provide information for the estimates at each grid point—experimentation revealed that elevation was a reliable predictor of temperature, whereas smoothed elevation worked best for estimation of precipitation. After estimating the monthly temperature and precipitation values, we calculated a series of "bioclimatic" variables that have been demonstrated to more directly control plant distributions than do temperature and precipitation (Prentice and others, 1992; Sykes and others, 1996). The bioclimatic variables employed here are (1) the mean temperature of the coldest month (MTCO, Prentice and others, 1992), (2) growing degree days on a 5°C base (GDD₅, Newman, 1980), and (3) a moisture index (MI) that incorporates the full seasonal cycle of precipitation and evapotranspiration (actual evaporation/potential evaporation (AE/PE), based on Thornthwaite and Mather, 1955, 1957; Willmott and others, 1985).

Nearly all of the range maps were obtained from atlases of tree and shrub distributions compiled by Elbert L. Little, Jr. and his associates at the Forest Service of the U.S. Department of Agriculture (Little, 1971, 1976, 1977; Critchfield and Little, 1966). Additional distribution maps were obtained from Bailey (1970), Benson and Darrow (1981) and Yang (1970). The original source for each map is listed in table 1, and table 2 shows the species comprising the groups listed in table 1. For each taxon, we digitized the distribution map and determined at which of the points on the 25-km grid the taxon was present. This information was merged with climate information to create a presence-absence matrix of plant distributions associated with modern climatic (and bioclimatic) data. Graphical displays were then prepared to illustrate the modern geographic distribution of the taxon under consideration and the relations between the plant's distribution and climatic parameters. There have been no mathematical manipulations of the presence-absence data in the

following figures and tables. Instead, these figures and tables display the relationships between plant distributions and climate simply by plotting both the presences and absences of the plants in relation to climatic parameters.

Displays of Geographic Distributions and Climatic Relations

A sample graphical display presented in this atlas is shown in figure 15. In this portrayal of the relationships among the modern geographic distribution and climatic parameters for *Pinus edulis* (pinyon pine), each panel (or groups of panels) is labeled with a letter that is used to demarcate a portion of the atlas page for the following discussion.

Panel "a" on each atlas page (graphical display) illustrates the modern distribution of the taxon on the 25-km grid. Figure 16 (page 24) illustrates the distributions (taken from the individual atlas pages for these taxa) of four species of pines that inhabit different areas of North America and that presumably have very different climatic tolerances. Each species is portrayed by depicting the grid points where the taxon is present and omitting those where the taxon is absent. In the sample shown here, *Pinus edulis* inhabits the mesas and mountain slopes of the Colorado Plateau region of the American Southwest; *P. engelmannii* (Apache pine) lives in subtropical semiarid northwestern Mexico; *P. banksiana* (jack pine) forms a major constituent of the boreal forest and northern mixed forest of Canada and the Northeastern United States; and *P. clausa* (sand pine) lives in moist subtropical environments in central Florida.

Panel "b" on each atlas page shows univariate plots of the presence and absence of each taxon relative to single climatic parameters. Each box contains two lines of points: the upper line illustrates climate values at which the taxon is present, whereas the lower line indicates those where it is absent. Together, these two lines represent all grid points from across North America. In all cases, a given plant is absent from many sites where the recording of "presences" indicate that it should be able to survive under the environmental conditions represented by a single variable. This is probably because other climatic and (or) environmental variables, not portrayed in any one univariate view, control the plant's distribution. For example, for the four pine species (fig. 17), the upper three boxes in each panel represent mean annual, January, and July temperature (in °C). The three central boxes represent mean annual, January, and July precipitation (in mm) plotted on a logarithmic scale, which stretches out the distance between points on the lower end of the scale. The lower three boxes represent bioclimatic variables (discussed above) that should be more closely tied to the physiological limits of the plants than are temperature and precipitation (Prentice and others, 1992). The mean temperature of the coldest month (MTCO) represents the coldest conditions experienced by the plant over the course of a year—MTCO is usually, but not always, January in North America. Growing degree days on a 5°C base (GDD₅, Newman, 1980) represents the total amount of energy available to the plant through the course of the year (incorporation of information on both the length and intensity of the growing season), and actual evaporation divided by potential evaporation is a moisture index (MI) based on Thornthwaite and Mather (1955, 1957) and implemented by Willmott and others (1985). The latter index

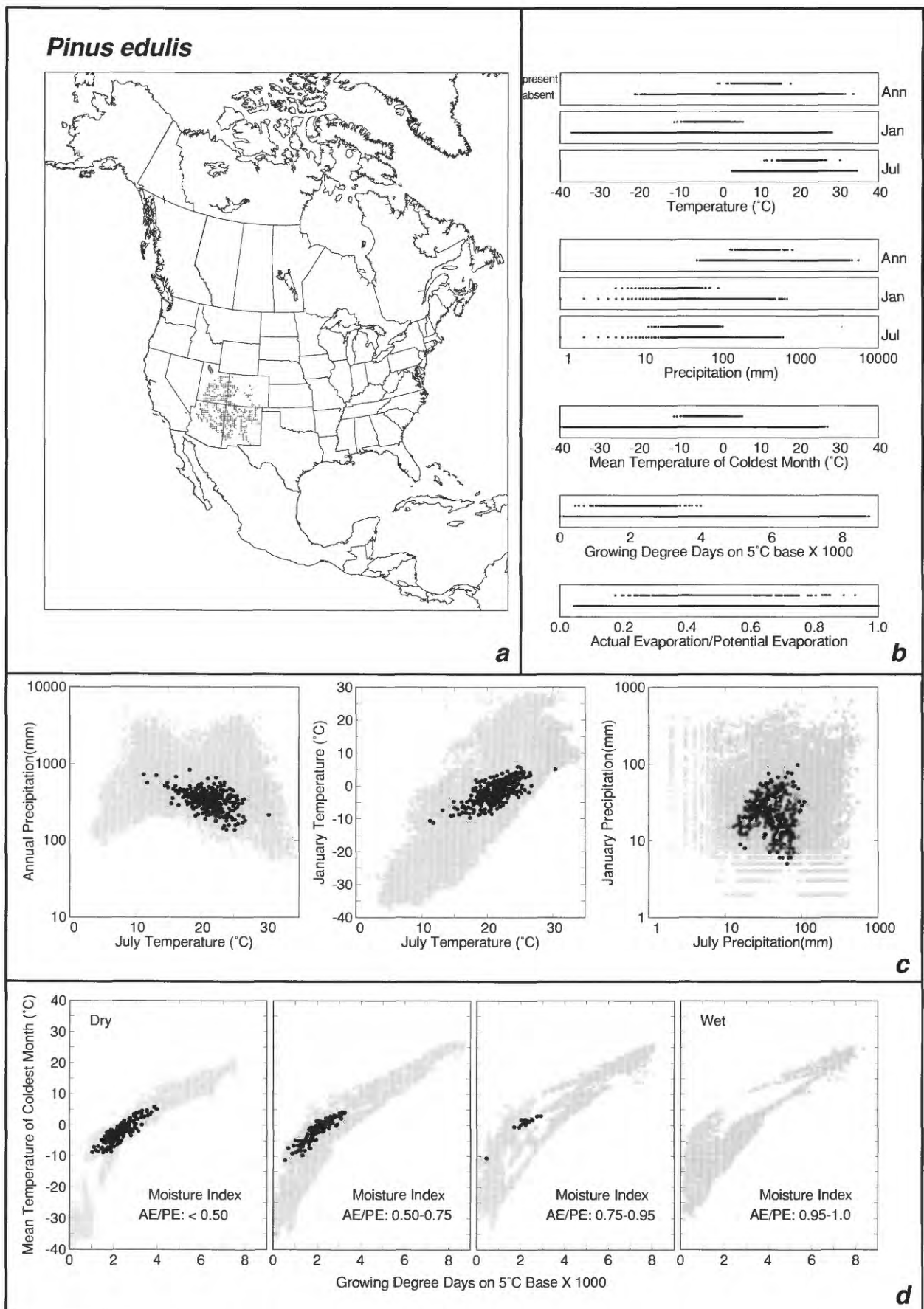


Figure 15. Sample page (for *Pinus edulis*) for graphical displays in this atlas. Letters in each division on the page provide a key for figures 16 through 19.

Table 1. List of conifer taxa, their common names, and original data source.

Scientific name	Common name	Original source	Map or page number in original reference
CONIFER SPECIES			
<i>Abies amabilis</i> (Dougl.) Forbes	Pacific silver fir	Little (1971)	1-W, 1-N
<i>Abies balsamea</i> (L.) Mill.	balsam fir	Little (1971)	2-N, 2-E
<i>Abies bracteata</i> D. Don	bristlecone fir	Little (1971)	3-W
<i>Abies concolor</i> (Gord. & Glend.) Lindl.	white fir	Little (1971)	5-W
<i>Abies fraseri</i> (Pursh) Poir.	Fraser fir	Little (1971)	4-E
<i>Abies grandis</i> (Dougl.) Lindl.	grand fir	Little (1971)	6-W
<i>Abies lasiocarpa</i> (Hook.) Nutt.	subalpine fir	Little (1971)	7-W, 7-N
<i>Abies magnifica</i> A. Murr.	California red fir	Little (1971)	8-W
<i>Abies procera</i> Rehd.	noble fir	Little (1971)	9-W
<i>Chamaecyparis lawsoniana</i> (A. Murr.) Parl.	Port-Orford-cedar	Little (1971)	10-W
<i>Chamaecyparis nootkatensis</i> (D. Don.) Spach	Alaska-cedar	Little (1971)	12-W, 12-N
<i>Chamaecyparis thyoides</i> (L.) B.S.P.	Atlantic white-cedar	Little (1971)	11-E
<i>Cupressus arizonica</i> Greene	Arizona cypress	Little (1971)	13-W
<i>Cupressus bakeri</i> Jeps.	Modoc cypress	Little (1971)	14-W
<i>Cupressus goveniana</i> Gord.	Gowen cypress	Little (1971)	15-W
<i>Cupressus guadalupensis</i> S. Wats.	Tecate cypress	Little (1971)	16-W
<i>Cupressus macnabiana</i> A. Murr.	MacNab cypress	Little (1971)	17-W
<i>Cupressus macrocarpa</i> Hartw.	Monterey cypress	Little (1971)	18-W
<i>Cupressus sargentii</i> Jeps.	Sargent cypress	Little (1971)	19-W
<i>Juniperus ashei</i> Buchholz	Ashe juniper	Little (1971)	21-W, 21-E
<i>Juniperus californica</i> Carr.	California juniper	Little (1971)	20-W
<i>Juniperus communis</i> L.	common juniper	Little (1971)	22-W, 22-E, 22-N
<i>Juniperus deppeana</i> Steud.	alligator juniper	Little (1971)	23-W, 23-N
<i>Juniperus flaccida</i> Schlecht.	drooping juniper	Little (1971)	24-W, 24-N
<i>Juniperus horizontalis</i> Moench	creeping juniper	Little (1971)	22.1-N, 22.1-W, 22.1-E
<i>Juniperus monosperma</i> (Engelm.) Sarg.	one-seed juniper	Little (1971)	25-W, 25-N
<i>Juniperus occidentalis</i> Hook.	western juniper	Little (1971)	26-W
<i>Juniperus osteosperma</i> (Torr.) Little	Utah juniper	Little (1971)	27-W
<i>Juniperus pinchotii</i> Sudw.	Pinchot juniper	Little (1971)	28-W
<i>Juniperus scopulorum</i> Sarg.	Rocky Mountain juniper	Little (1971)	30-W, 30-N
<i>Juniperus silicicola</i> (Small) Bailey	southern redcedar	Little (1971)	29-E
<i>Juniperus virginiana</i> L.	eastern redcedar	Little (1971)	31-W, 31-E
<i>Larix laricina</i> (Du Roi) K. Koch	tamarack	Little (1971)	32-N, 32-E
<i>Larix lyallii</i> Parl.	subalpine larch	Little (1971)	33-W
<i>Larix occidentalis</i> Nutt.	western larch	Little (1971)	34-W
<i>Libocedrus decurrens</i> Torr.	incense-cedar	Little (1971)	35-W
<i>Picea breweriana</i> S. Wats.	Brewer spruce	Little (1971)	36-W
<i>Picea engelmannii</i> Parry	Engelmann spruce	Little (1971)	37-W, 37-N
<i>Picea glauca</i> (Moench) Voss	white spruce	Little (1971)	39-W, 39-E, 39-N

Table 1. List of conifer taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
CONIFER SPECIES—Continued			
<i>Picea mariana</i> (Mill.) B.S.P.	black spruce	Little (1971)	38-N, 38-E
<i>Picea pungens</i> Engelm.	blue spruce	Little (1971)	40-W
<i>Picea rubens</i> Sarg.	red spruce	Little (1971)	41-N, 41-E
<i>Picea sitchensis</i> (Bong.) Carr.	Sitka spruce	Little (1971)	42-W, 42-N
<i>Pinus albicaulis</i> Engelm.	whitebark pine	Little (1971)	43-W, 43-N
<i>Pinus aristata</i> Engelm.	bristlecone pine	Bailey (1970); Little (1971)	p. 215, 44-W
<i>Pinus attenuata</i> Lemm.	knobcone pine	Little (1971)	48-W
<i>Pinus ayacahuite</i> Ehrenb.	Mexican white pine	Critchfield & Little (1966)	Map 9
<i>Pinus balfouriana</i> Grev. & Balf.	foxtail pine	Little (1971)	45-W
<i>Pinus banksiana</i> Lamb.	jack pine	Little (1971)	46-N, 46-E
<i>Pinus caribaea</i> Morelet	Caribbean pine	Critchfield & Little (1966)	Map 46
<i>Pinus cembroides</i> Zucc.	Mexican pinyon	Little (1971)	47-W, 47-N
<i>Pinus clausa</i> (Chapm.) Vasey	sand pine	Little (1971)	49-E
<i>Pinus contorta</i> Dougl.	lodgepole pine	Little (1971)	50-W, 50-N
<i>Pinus cooperi</i> C. E. Blanco	Cooper pine	Critchfield & Little (1966)	Map 51
<i>Pinus coulteri</i> D. Don	Coulter pine	Little (1971)	51-W
<i>Pinus douglasiana</i> Martínez	Douglas pine	Critchfield & Little (1966)	Map 52
<i>Pinus durangensis</i> Martínez	Durango pine	Critchfield & Little (1966)	Map 50
<i>Pinus echinata</i> Mill.	shortleaf pine	Little (1971)	52-E
<i>Pinus edulis</i> Engelm.	pinyon	Little (1971)	53-W
<i>Pinus elliotii</i> Engelm.	slash pine	Little (1971)	54-E
<i>Pinus engelmannii</i> Carr.	Apache pine	Little (1971)	55-W, 55-N
<i>Pinus flexilis</i> James	limber pine	Little (1971)	56-W, 56-N
<i>Pinus glabra</i> Walt.	spruce pine	Little (1971)	58-E
<i>Pinus greggii</i> Engelm.	Gregg pine	Critchfield & Little (1966)	Map 60
<i>Pinus hartwegii</i> Lindl.	Hartweg pine	Critchfield & Little (1966)	Map 51
<i>Pinus jeffreyi</i> Grev. & Balf.	Jeffrey pine	Little (1971)	57-W
<i>Pinus lambertiana</i> Dougl.	sugar pine	Little (1971)	59-W
<i>Pinus lawsonii</i> Roetzl.	Lawson pine	Critchfield & Little (1966)	Map 53
<i>Pinus leiophylla</i> Schiede & Deppe	Chihuahua pine	Critchfield & Little (1966)	Map 22
<i>Pinus longaeva</i> Bailey	Intermountain bristlecone pine	Bailey (1970); Little (1971)	p. 215, 44-W
<i>Pinus lumholtzii</i> Robins. & Fern.	Lumholtz pine	Critchfield & Little (1966)	Map 23
<i>Pinus michoacana</i> Martínez	Michoacan pine	Critchfield & Little (1966)	Map 50
<i>Pinus monophylla</i> Torr. & Frém.	singleleaf pinyon	Little (1971)	60-W
<i>Pinus montezumae</i> Lamb.	Montezuma pine	Critchfield & Little (1966)	Map 49
<i>Pinus monticola</i> Dougl.	western white pine	Little (1971)	62-W
<i>Pinus muricata</i> D. Don	bishop pine	Little (1971)	63-W
<i>Pinus nelsonii</i> Shaw	Nelson pinyon	Critchfield & Little (1966)	Map 18
<i>Pinus oocarpa</i> Schiede		Critchfield & Little (1966)	Map 61

Table 1. List of conifer taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
CONIFER SPECIES—Continued			
<i>Pinus palustris</i> Mill.	longleaf pine	Little (1971)	65-E
<i>Pinus patula</i> Schiede & Deppe	Mexican weeping pine	Critchfield & Little (1966)	Map 60
<i>Pinus pinceana</i> Gord.	Pince pinyon	Critchfield & Little (1966)	Map 18
<i>Pinus ponderosa</i> Laws.	ponderosa pine	Little (1971)	64-W, 64-N
<i>Pinus pringlei</i> Shaw	Pringle pine	Critchfield & Little (1966)	Map 61
<i>Pinus pseudostrobus</i> Lindl.		Critchfield & Little (1966)	Map 52
<i>Pinus pungens</i> Lamb.	Table-Mountain pine	Little (1971)	66-E
<i>Pinus quadrifolia</i> Parl.	Parry pinyon	Little (1971)	67-W
<i>Pinus radiata</i> D. Don	Monterey pine	Little (1971)	68-W
<i>Pinus resinosa</i> Ait.	red pine	Little (1971)	69-N, 69-E
<i>Pinus rigida</i> Mill.	pitch pine	Little (1971)	71-E
<i>Pinus sabiniana</i> Dougl.	Digger pine	Little (1971)	70-W
<i>Pinus serotina</i> Michx.	pond pine	Little (1971)	74-E
<i>Pinus strobiformis</i> Engelm.	southwestern white pine	Little (1971)	72-W, 72-N
<i>Pinus strobus</i> L.	eastern white pine	Little (1971)	73-N, 73-E
<i>Pinus taeda</i> L.	loblolly pine	Little (1971)	75-E
<i>Pinus teocote</i> Schiede & Deppe		Critchfield & Little (1966)	Map 53
<i>Pinus torreyana</i> Parry	Torrey pine	Little (1971)	76-W
<i>Pinus virginiana</i> Mill.	Virginia pine	Little (1971)	77-E
<i>Pinus washoensis</i> Mason & Stockwell	Washoe pine	Little (1971)	78-W
<i>Pseudotsuga macrocarpa</i> (Vasey) Mayr	bigcone Douglas-fir	Little (1971)	79-W
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Douglas-fir	Little (1971)	80-W, 80-N
<i>Sequoia sempervirens</i> (D. Don) Endl.	redwood	Little (1971)	81-W
<i>Sequoiadendron giganteum</i> (Lindl.) Buchholz	giant sequoia	Little (1971)	82-W
<i>Taxodium distichum</i> (L.) Rich.	baldcypress	Little (1971)	84-E
<i>Taxodium mucronatum</i> Ten.	Montezuma baldcypress	Little (1971)	83-W, 83-N
<i>Taxus brevifolia</i> Nutt.	Pacific yew	Little (1971)	86-W, 86-N
<i>Taxus canadensis</i> Marsh.	Canada yew	Little (1971)	86.1-N, 86.1-E
<i>Taxus floridana</i> Nutt.	Florida yew	Little (1971)	85-E
<i>Thuja occidentalis</i> L.	northern white-cedar	Little (1971)	89-N, 89-E
<i>Thuja plicata</i> Donn	western redcedar	Little (1971)	90-W, 90-N
<i>Torreya californica</i> Torr.	California torreyia	Little (1971)	87-W
<i>Torreya taxifolia</i> Arn.	Florida torreyia	Little (1971)	88-E
<i>Tsuga canadensis</i> (L.) Carr.	eastern hemlock	Little (1971)	91-N, 91-E
<i>Tsuga caroliniana</i> Engelm.	Carolina hemlock	Little (1971)	94-E
<i>Tsuga heterophylla</i> (Raf.) Sarg.	western hemlock	Little (1971)	92-W, 92-N
<i>Tsuga mertensiana</i> (Bong.) Carr.	mountain hemlock	Little (1971)	93-W, 93-N

Table 1. List of conifer taxa, their common names, and original data source—*Continued*.

Scientific name	Common name
CONIFER GENERA & GROUPS (see table 2)	
<i>ABIES</i>	fir
<i>ABIES</i> EAST	fir in eastern North America
<i>ABIES</i> WEST	fir in western North America
CUPRESSACEAE EAST	cedar family in eastern North America
<i>JUNIPERUS</i>	juniper
<i>JUNIPERUS</i> BOREAL	boreal juniper
<i>JUNIPERUS</i> EAST	juniper in eastern North America
<i>JUNIPERUS</i> WEST	juniper in western North America
<i>JUNIPERUS</i> WEST WOODLAND	woodland juniper in western North America
<i>LARIX</i>	larch
<i>LARIX/PSEUDOTSUGA</i>	larch and Douglas-fir
<i>PICEA</i>	spruce
<i>PICEA</i> NORTH/EAST	spruce in northern and eastern North America
<i>PICEA</i> WEST	spruce in western North America
<i>PICEA</i> WEST INTERIOR	spruce in interior western North America
<i>PINUS</i>	pine
<i>PINUS</i> EAST	pine in eastern North America
<i>PINUS</i> NORTHEAST	pine in northeastern North America
<i>PINUS</i> NORTHEAST YELLOW	yellow pine in northeastern North America
<i>PINUS</i> SOUTHEAST	pine in southeastern North America
<i>PINUS</i> WEST	pine in western North America
<i>PINUS</i> WEST WHITE	white pine in western North America
<i>PINUS</i> WEST PINYONS	pinyon pine in western North America
<i>PINUS</i> WEST YELLOW	yellow pine in western North America
<i>PSEUDOTSUGA</i>	Douglas-fir
<i>TAXODIUM</i>	baldcypress
TCT (TAXODIACEAE/ CUPRESSACEAE/TAXACEAE)	yew, cedar, and baldcypress families
TCT (TAXODIACEAE/ CUPRESSACEAE/TAXACEAE) EAST ..	TCT in eastern North America
TCT (TAXODIACEAE/ CUPRESSACEAE/TAXACEAE) WEST ..	TCT in western North America
<i>TSUGA</i>	hemlock
<i>TSUGA</i> EAST	hemlock in eastern North America
<i>TSUGA</i> WEST	hemlock in western North America

Table 2. Conifer species comprising groups listed in table 1.

<i>ABIES</i> : <i>Abies amabilis</i> , <i>Abies balsamea</i> , <i>Abies concolor</i> , <i>Abies fraseri</i> , <i>Abies grandis</i> , <i>Abies lasiocarpa</i> , <i>Abies magnifica</i> , <i>Abies procera</i>
<i>ABIES EAST</i> : <i>Abies balsamea</i> , <i>Abies fraseri</i>
<i>ABIES WEST</i> : <i>Abies amabilis</i> , <i>Abies concolor</i> , <i>Abies grandis</i> , <i>Abies lasiocarpa</i> , <i>Abies magnifica</i> , <i>Abies procera</i>
<i>CUPRESSACEAE EAST</i> : <i>Chamaecyparis thyoides</i> , <i>Juniperus ashei</i> , <i>Juniperus silicicola</i> , <i>Juniperus virginiana</i> , <i>Thuja occidentalis</i>
<i>JUNIPERUS</i> : <i>Juniperus ashei</i> , <i>Juniperus californica</i> , <i>Juniperus communis</i> , <i>Juniperus deppeana</i> , <i>Juniperus flaccida</i> , <i>Juniperus horizontalis</i> , <i>Juniperus monosperma</i> , <i>Juniperus occidentalis</i> , <i>Juniperus osteosperma</i> , <i>Juniperus pinchotii</i> , <i>Juniperus scopulorum</i> , <i>Juniperus silicicola</i> , <i>Juniperus virginiana</i>
<i>JUNIPERUS BOREAL</i> : <i>Juniperus communis</i> , <i>Juniperus horizontalis</i>
<i>JUNIPERUS EAST</i> : <i>Juniperus ashei</i> , <i>Juniperus silicicola</i> , <i>Juniperus virginiana</i>
<i>JUNIPERUS WEST</i> : <i>Juniperus californica</i> , <i>Juniperus deppeana</i> , <i>Juniperus flaccida</i> , <i>Juniperus monosperma</i> , <i>Juniperus occidentalis</i> , <i>Juniperus osteosperma</i> , <i>Juniperus pinchotii</i> , <i>Juniperus scopulorum</i>
<i>JUNIPERUS WEST WOODLAND</i> : <i>Juniperus californica</i> , <i>Juniperus monosperma</i> , <i>Juniperus occidentalis</i> , <i>Juniperus osteosperma</i> , <i>Juniperus pinchotii</i>
<i>LARIX</i> : <i>Larix laricina</i> , <i>Larix lyallii</i> , <i>Larix occidentalis</i>
<i>LARIX/PSEUDOTSUGA</i> : <i>Larix laricina</i> , <i>Larix lyallii</i> , <i>Larix occidentalis</i> , <i>Pseudotsuga macrocarpa</i> , <i>Pseudotsuga menziesii</i>
<i>PICEA</i> : <i>Picea breweriana</i> , <i>Picea engelmannii</i> , <i>Picea glauca</i> , <i>Picea mariana</i> , <i>Picea pungens</i> , <i>Picea rubens</i> , <i>Picea sitchensis</i>
<i>PICEA NORTH/EAST</i> : <i>Picea glauca</i> , <i>Picea mariana</i> , <i>Picea rubens</i>
<i>PICEA WEST</i> : <i>Picea breweriana</i> , <i>Picea engelmannii</i> , <i>Picea pungens</i> , <i>Picea sitchensis</i>
<i>PICEA WEST INTERIOR</i> : <i>Picea engelmannii</i> , <i>Picea pungens</i>
<i>PINUS</i> : <i>Pinus albicaulis</i> , <i>Pinus aristata</i> , <i>Pinus attenuata</i> , <i>Pinus ayacahuite</i> , <i>Pinus balfouriana</i> , <i>Pinus banksiana</i> , <i>Pinus caribaea</i> , <i>Pinus cembroides</i> , <i>Pinus clausa</i> , <i>Pinus contorta</i> , <i>Pinus cooperi</i> , <i>Pinus coulteri</i> , <i>Pinus douglasiana</i> , <i>Pinus durangensis</i> , <i>Pinus echinata</i> , <i>Pinus edulis</i> , <i>Pinus elliotii</i> , <i>Pinus engelmannii</i> , <i>Pinus flexilis</i> , <i>Pinus glabra</i> , <i>Pinus greggii</i> , <i>Pinus hartwegii</i> , <i>Pinus jeffreyi</i> , <i>Pinus lambertiana</i> , <i>Pinus lawsonii</i> , <i>Pinus leiophylla</i> , <i>Pinus lumholtzii</i> , <i>Pinus michoacana</i> , <i>Pinus monophylla</i> , <i>Pinus montezumae</i> , <i>Pinus monticola</i> , <i>Pinus muricata</i> , <i>Pinus nelsonii</i> , <i>Pinus oocarpa</i> , <i>Pinus palustris</i> , <i>Pinus patula</i> , <i>Pinus pinceana</i> , <i>Pinus ponderosa</i> , <i>Pinus pringlei</i> , <i>Pinus pseudostrobus</i> , <i>Pinus pungens</i> , <i>Pinus quadrifolia</i> , <i>Pinus radiata</i> , <i>Pinus resinosa</i> , <i>Pinus rigida</i> , <i>Pinus sabiniana</i> , <i>Pinus serotina</i> , <i>Pinus strobus</i> , <i>Pinus taeda</i> , <i>Pinus teocote</i> , <i>Pinus torreyana</i> , <i>Pinus virginiana</i> , <i>Pinus washoensis</i>
<i>PINUS EAST</i> : <i>Pinus banksiana</i> , <i>Pinus clausa</i> , <i>Pinus echinata</i> , <i>Pinus elliotii</i> , <i>Pinus glabra</i> , <i>Pinus palustris</i> , <i>Pinus pungens</i> , <i>Pinus resinosa</i> , <i>Pinus rigida</i> , <i>Pinus serotina</i> , <i>Pinus strobus</i> , <i>Pinus taeda</i> , <i>Pinus virginiana</i>
<i>PINUS NORTHEAST</i> : <i>Pinus banksiana</i> , <i>Pinus resinosa</i> , <i>Pinus rigida</i> , <i>Pinus strobus</i>
<i>PINUS NORTHEAST YELLOW</i> : <i>Pinus banksiana</i> , <i>Pinus resinosa</i> , <i>Pinus rigida</i>
<i>PINUS SOUTHEAST</i> : <i>Pinus clausa</i> , <i>Pinus echinata</i> , <i>Pinus elliotii</i> , <i>Pinus glabra</i> , <i>Pinus palustris</i> , <i>Pinus pungens</i> , <i>Pinus serotina</i> , <i>Pinus taeda</i> , <i>Pinus virginiana</i>

Table 2. Conifer species comprising groups listed in table 1—*Continued.*

PINUS WEST: *Pinus albicaulis*, *Pinus aristata*, *Pinus attenuata*, *Pinus balfouriana*, *Pinus cembroides*, *Pinus contorta*, *Pinus coulteri*, *Pinus edulis*, *Pinus engelmannii*, *Pinus flexilis*, *Pinus jeffreyi*, *Pinus lambertiana*, *Pinus leiophylla*, *Pinus longaeva*, *Pinus monophylla*, *Pinus monticola*, *Pinus ponderosa*, *Pinus quadrifolia*, *Pinus sabiniana*, *Pinus strobiformis*

PINUS WEST WHITE excluding pinyon pines: *Pinus albicaulis*, *Pinus aristata*, *Pinus balfouriana*, *Pinus flexilis*, *Pinus lambertiana*, *Pinus longaeva*, *Pinus monticola*, *Pinus strobiformis*

PINUS WEST PINYONS: *Pinus cembroides*, *Pinus edulis*, *Pinus monophylla*, *Pinus quadrifolia*

PINUS WEST YELLOW: *Pinus attenuata*, *Pinus contorta*, *Pinus coulteri*, *Pinus engelmannii*, *Pinus jeffreyi*, *Pinus leiophylla*, *Pinus ponderosa*, *Pinus sabiniana*

PSEUDOTSUGA: *Pseudotsuga macrocarpa*, *Pseudotsuga menziesii*

TAXODIUM: *Taxodium distichum*, *Taxodium mucronatum*

TCT (Taxodiaceae/Cupressaceae/Taxaceae): *Chamaecyparis lawsoniana*, *Chamaecyparis nootkatensis*, *Chamaecyparis thyoides*, *Cupressus arizonica*, *Cupressus bakeri*, *Cupressus goveniana*, *Cupressus guadalupensis*, *Cupressus macnabiana*, *Cupressus macrocarpa*, *Cupressus sargentii*, *Juniperus ashei*, *Juniperus californica*, *Juniperus communis*, *Juniperus deppeana*, *Juniperus flaccida*, *Juniperus horizontalis*, *Juniperus monosperma*, *Juniperus occidentalis*, *Juniperus osteosperma*, *Juniperus pinchotii*, *Juniperus scopulorum*, *Juniperus silicicola*, *Juniperus virginiana*, *Libocedrus decurrens*, *Sequoia sempervirens*, *Sequoiadendron giganteum*, *Taxodium distichum*, *Taxodium mucronatum*, *Taxus brevifolia*, *Taxus canadensis*, *Taxus floridana*, *Torreya californica*, *Torreya taxifolia*, *Thuja occidentalis*, *Thuja plicata*

TCT EAST: *Chamaecyparis thyoides*, *Juniperus ashei*, *Juniperus silicicola*, *Juniperus virginiana*, *Taxodium distichum*, *Taxus canadensis*, *Taxus floridana*, *Torreya taxifolia*, *Thuja occidentalis*

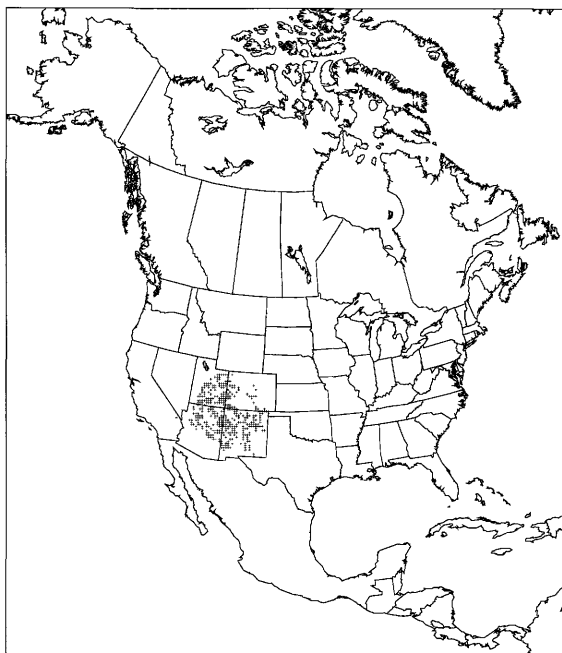
TCT WEST: *Chamaecyparis lawsoniana*, *Chamaecyparis nootkatensis*, *Cupressus arizonica*, *Cupressus bakeri*, *Cupressus goveniana*, *Cupressus guadalupensis*, *Cupressus macnabiana*, *Cupressus macrocarpa*, *Cupressus sargentii*, *Juniperus californica*, *Juniperus deppeana*, *Juniperus flaccida*, *Juniperus monosperma*, *Juniperus occidentalis*, *Juniperus osteosperma*, *Juniperus pinchotii*, *Juniperus scopulorum*, *Libocedrus decurrens*, *Sequoia sempervirens*, *Sequoiadendron giganteum*, *Taxus brevifolia*, *Torreya californica*, *Thuja plicata*

TSUGA: *Tsuga canadensis*, *Tsuga caroliniana*, *Tsuga heterophylla*, *Tsuga mertensiana*

TSUGA EAST: *Tsuga canadensis*, *Tsuga caroliniana*

TSUGA WEST: *Tsuga heterophylla*, *Tsuga mertensiana*

Pinus edulis



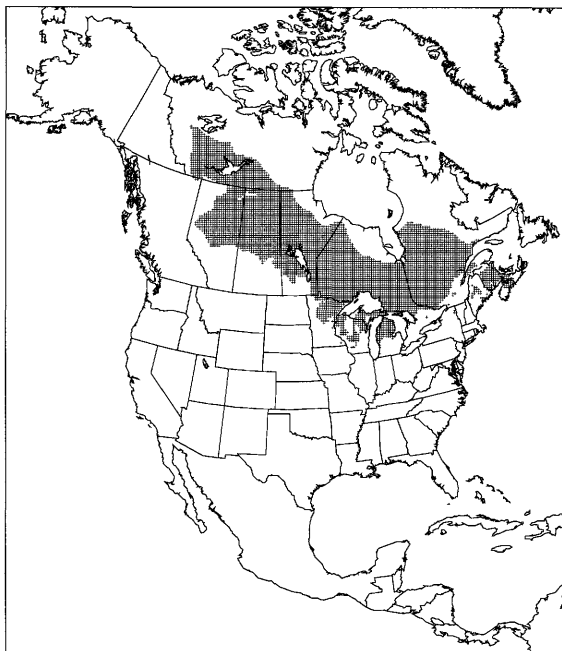
a

Pinus engelmannii



a

Pinus banksiana



a

Pinus clausa



a

Figure 16. Panel "a:" Range maps for *P. edulis*, *P. engelmannii*, *P. banksiana*, and *P. clausa* on the 25-km North American climate grid (original distributions digitized from Little, 1971). Each "+" denotes the presence of the species at the grid points.

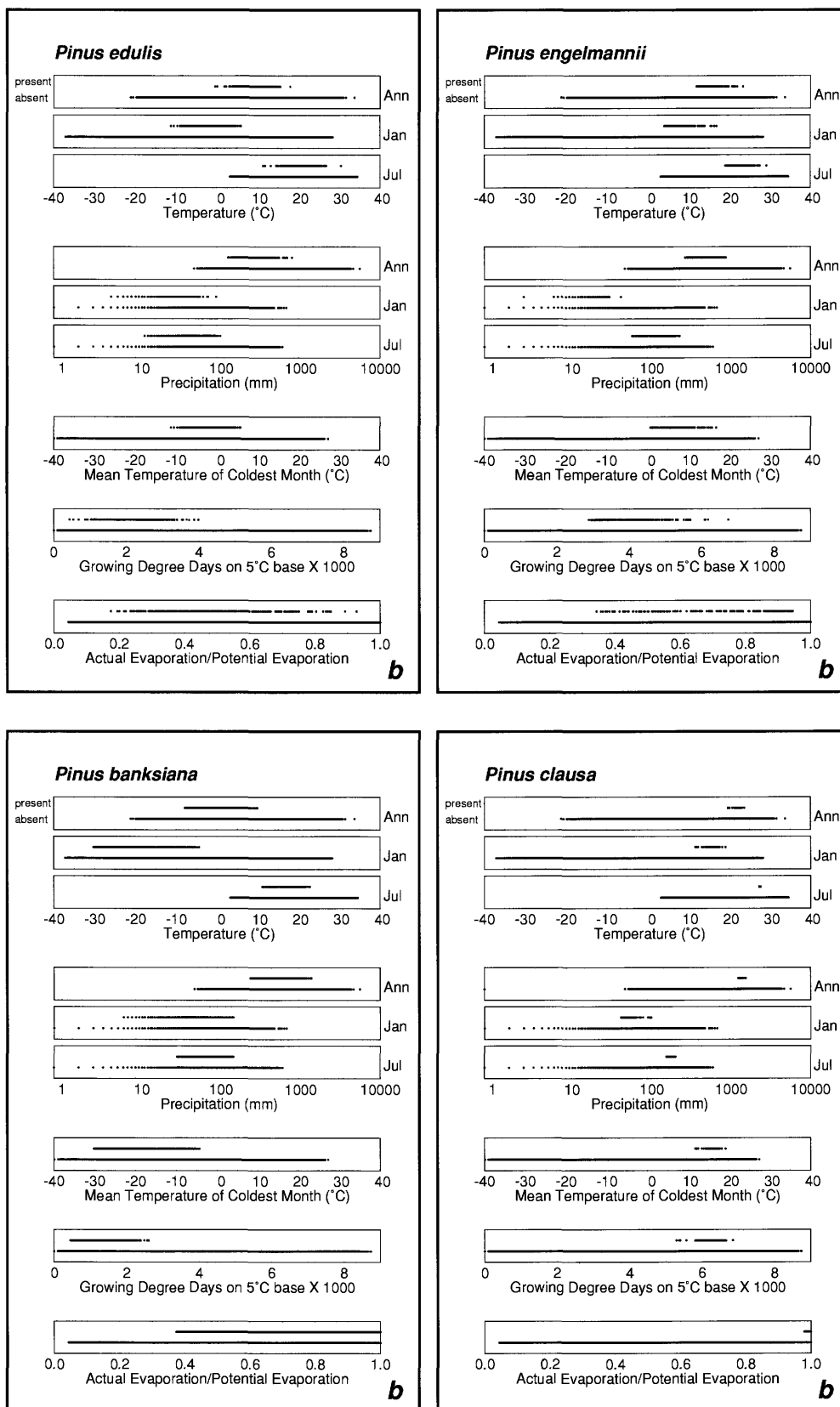


Figure 17. Panel “b:” Displays of distributions for *P. edulis*, *P. engelmannii*, *P. banksiana*, and *P. clausa* in relation to single climatic or bioclimatic variables. Ann, mean annual; Jan, mean January; Jul, mean July. The upper row of dots within each horizontal box (for example, for mean annual temperature under *Pinus edulis*) represent grid points where the taxon is present. The lower row represents grid points where it is absent.

incorporates the full seasonal cycle of precipitation and temperature, as well as soil moisture and moisture storage in snow-pack. This index is probably a more realistic depiction of the moisture conditions experienced by plants than either seasonal or mean annual precipitation. Regions where moisture is sufficient to maintain evaporation at its potential rate (i.e., humid regions) have moisture-index values close to 1.0, whereas dry regions have moisture-index values somewhat less than 1.0

The comparison of the four pine species shown in figure 17 illustrates their different adaptations in regard to temperature. *Pinus clausa* is limited to environments where mean January temperatures are above 10°C and mean July temperatures are in a limited range at the very warm part of the scale. *P. engelmannii* is also apparently intolerant of freezing temperatures, but it is not as limited by cold as is *P. clausa*. It also has a larger range of acceptable July temperatures than does *P. clausa*. *P. edulis* can survive freezing temperatures but does not survive mean winter temperatures below -10°C. *P. banksiana* lives in a summer temperature regime that is slightly cooler than that of *P. edulis*, but it lives under much colder winter climates (well below -10°C). Similar patterns are evident in the comparisons of the MTCO and GDD₅ for these taxa.

Panel “c” of figure 15 uses bivariate plots to illustrate potential interactions among climatic variables in controlling plant species’ ranges. Here, gray dots represent where the taxon is absent, black dots where it is present. Gray and black together represent the total climate space of North America as depicted for the particular combination of climatic parameters presented. For example, the left-hand box in panel “c” illustrates the presence (or absence) of the species in relation to mean July temperature and mean annual precipitation. For most sites, these two parameters should provide a measure of growing-season temperature versus total moisture through the year. Comparisons among the four pine species in figure 18 shows that, in this “climate space,” *Pinus clausa* inhabits a remarkably small area where mean July temperatures are very warm and mean annual rainfall is very high—these are some of the hottest and wettest environments in North America (it may also be that *P. clausa* is further limited to sandy substrates, as its name implies). *P. engelmannii*, the other subtropical pine in this group of four species, lives under a wider range of summer temperatures and moisture conditions than *P. clausa*, and it also occupies a much greater geographic range. In contrast, *P. banksiana*, lives in relatively cool summer environments under a wide range of moisture conditions. *P. edulis* inhabits environments with mean July temperatures between those of *P. engelmannii* and *P. banksiana*, but it lives in generally drier regions than either of these two other pines. The central box in panel “c” on figure 15 illustrates the presence (or absence) of the species relative to the seasonal extremes of mean January and July temperature. In the example shown here (fig. 18), *P. clausa* lives under a narrow band of hot July conditions and a slightly broader range of warm January temperatures. *P. engelmannii* has a broader range of tolerance for July and January temperatures, although still within the warm end of the spectrum for both months. *P. edulis* lives in moderately warm July environments with January temperatures generally near freezing, whereas *P. banksiana* is adapted to

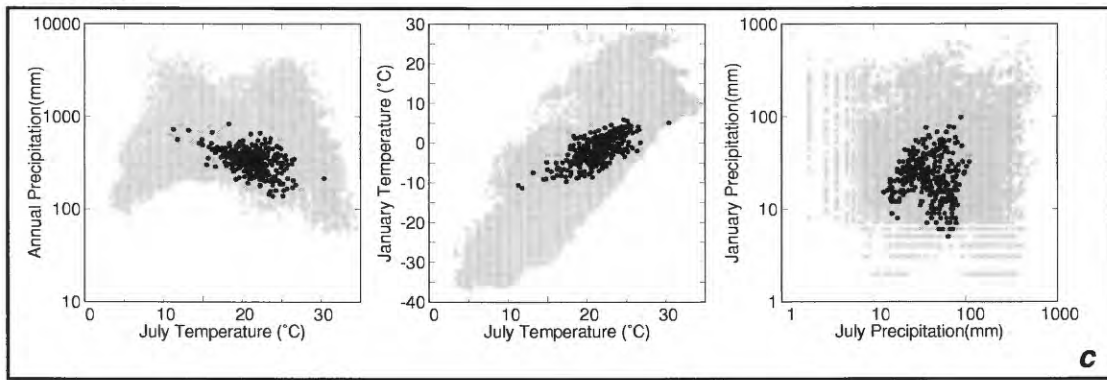
moderate July temperatures and very cold January temperatures. The right-hand box in panel “c” (figs. 15 and 18) provides a similar view of species presence (or absence) in relation to mean January and July precipitation. Here, it can be seen that *P. engelmannii* lives under a strongly summer precipitation dominated regime with little January precipitation; *P. clausa* receives abundant rainfall in both seasons; *P. banksiana* lives under a relatively narrow range of July precipitation and a larger range of January precipitation; and *P. edulis* is adapted to moderate levels of precipitation in both winter and summer.

Panel “d” (fig. 15) incorporates the three bioclimatic variables into a single figure (see Huntley and others, 1995, for a similar presentation of correspondences between climatic parameters and tree distributions in Europe). Each of the four boxes within this panel represents a quartile of the moisture conditions in North America, from the driest quarter of the grid cells on the left to the wettest on the right. Within each box, the presence (black) or absence (gray) of each species is plotted relative to GDD₅ and MTCO. In the example shown in figure 19, *Pinus clausa* lives in a very restricted range in the wettest and warmest environments of North America. In contrast, *P. banksiana* lives across the spectrum from dry to wet sites but is restricted to locations where MTCO is below freezing and GDD₅ is less than approximately 2,500. *P. edulis* and *P. engelmannii* both inhabit environments in the lower three quartiles of the moisture index, with *P. edulis* more common toward the dry end. MTCO and GDD₅ differentiate the climates of these two pines, with *P. engelmannii* restricted to environments with warmer winters and greater total energy inputs (GDD₅) over the course of the year.

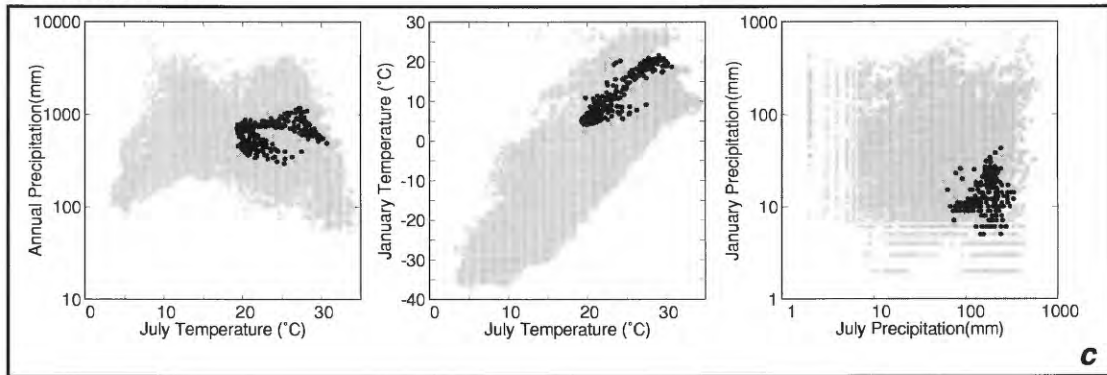
In terms of precipitation and moisture conditions, the climatic distribution of *P. clausa* falls at the extreme wet end of the moisture index (>0.9), and the precipitation plots indicate that it receives more moisture in July than in January. The other three pine species survive in a fairly wide range of moisture conditions (as seen in the moisture-index plots), but live in different seasonal precipitation regimes. *P. engelmannii* lives under moisture conditions ranging from only slightly drier than the moisture-requiring *P. clausa* to moderately dry environments, with July precipitation dominant over January. *P. edulis* is the most drought-adapted of the four pines and lives under a nearly even mix of January and July precipitation. *P. banksiana* lives under moisture conditions that range from moderately dry to very moist, with January and July precipitation nearly equally dominant.

For species with five or fewer occurrences on the North American climate grid (18 conifer species, 9 hardwood species), we identified grid points closest to the digitized polygons that represent the range of each species and used these grid points to approximate climatic parameters. The atlas pages with graphical displays for these species have the text “minimal data—nearest grid points used with environmental parameters” after the species name at the top of the page. These species were treated differently than more abundant species in that (1) large dots were used on the species map to indicate the grid points used in the analysis, (2) “absence data” were not plotted on the displays of distribution against climatic parameters, and (3) the species were not included in the histograms or tables.

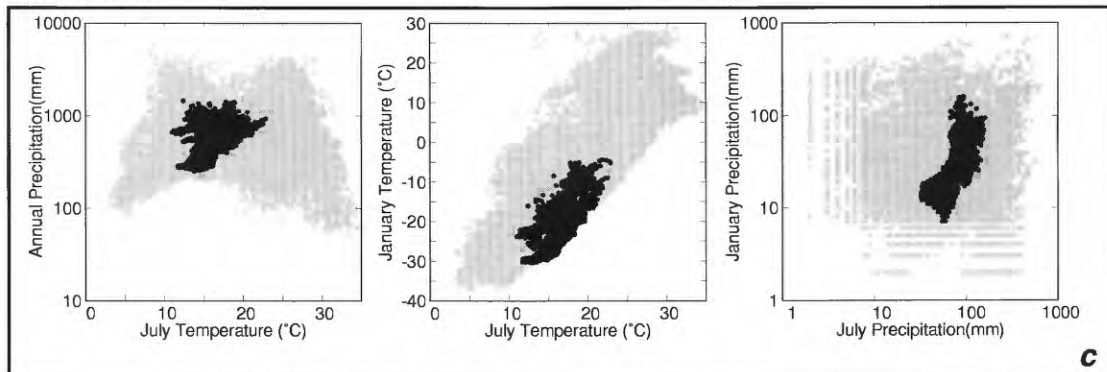
Pinus edulis



Pinus engelmannii



Pinus banksiana



Pinus clausa

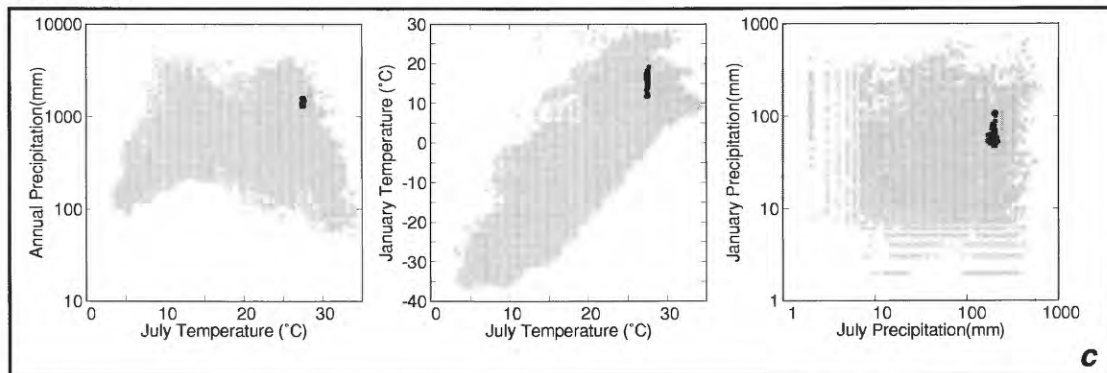
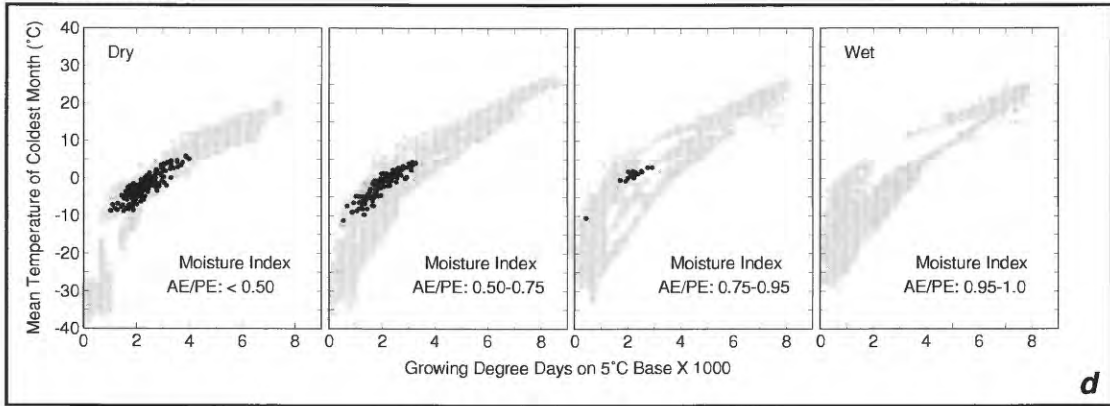
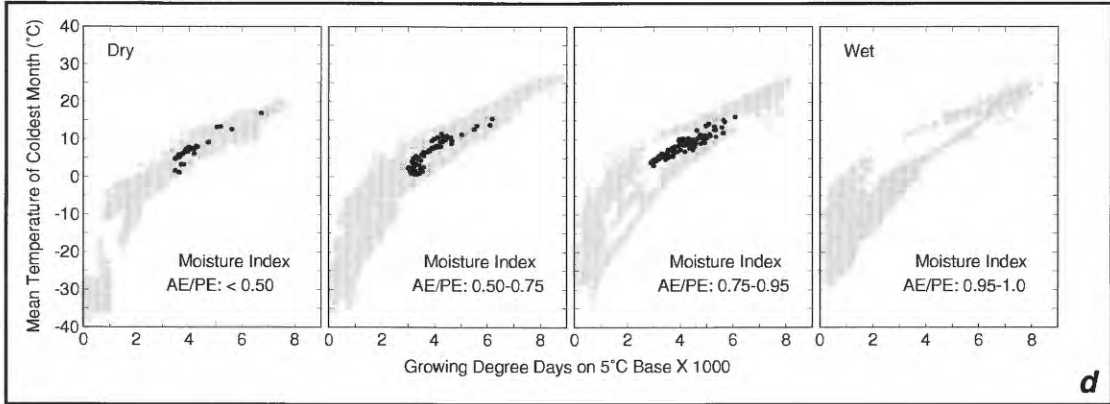


Figure 18. Panel "c:" Displays of distributions of for *P. edulis*, *P. engelmannii*, *P. banksiana*, and *P. clausa* in relation to paired climatic and (or) bioclimatic variables.

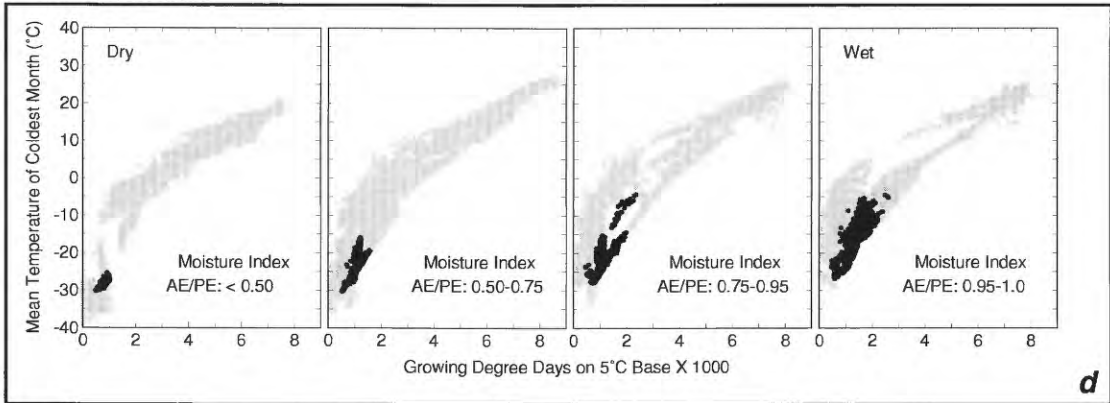
Pinus edulis



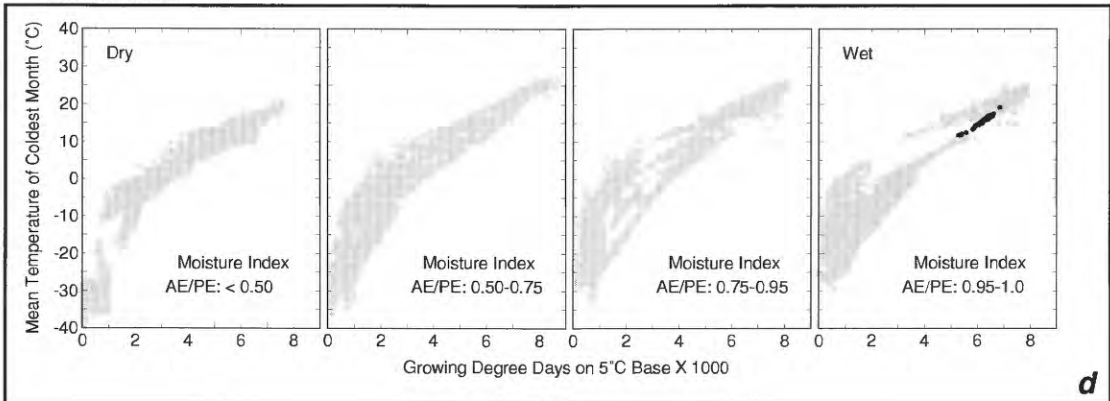
Pinus engelmannii



Pinus banksiana



Pinus clausa



Histograms of Relations Between Plant Distributions and Single Climatic Variables

Histograms that depict the number of occurrences of each taxon in relation to a given range of each of the climatic and bioclimatic variables are also presented in this atlas. For example, in figure 20 the width of each bar represents a specified range (1°C) of mean annual (left), January (middle), or July (right) temperature. The height of each bar represents the percentage of the total number of occurrences of a taxon relative to the total number of grid cells at that specified range of temperature. The gray histograms at the bottom of the page show the number of grid cells within each specified temperature range for all of North America. The nine pine species illustrated here represent north-to-south transects in western (*Pinus flexilis* [limber pine], *P. ponderosa* [ponderosa pine], *P. edulis*, *P. engelmannii*) and eastern (*P. banksiana*, *P. resinosa* [red pine], *P. rigida* [pitch pine], *P. serotina* [pond pine], *P. clausa*) North America.

Some taxa (e.g., *P. clausa*) have very narrow ranges of temperature requirements. Others, such as *P. flexilis* and *P. ponderosa*, live under a broader range of temperatures. Some appear to be limited by freezing winter temperatures (look at mean January temperature for *P. engelmannii* and *P. serotina*), whereas some require warmer winters (*P. clausa*). Many taxa have near-Gaussian distributions for temperature response, although some (for example, *P. engelmannii*) exhibit bimodal responses.

The same format is used in figure 21 to illustrate the species' distributions relative to mean annual, January, and July precipitation (log scale). As with temperature, some species live in narrow, clearly defined ranges (most of the eastern pines), whereas others (especially *P. ponderosa*) live under a wide range of precipitation regimes. Figure 22 shows the species' distributions in relation to the bioclimatic variables. The patterning for MTCO is very similar to that for mean January temperature. The histograms for GDD₅ are similar to those for mean July temperature, but with some differences. *P. clausa* and *P. serotina* live under very narrow ranges of July temperatures but have broader ranges relative to GDD₅. In regard to the moisture index (actual evaporation divided by potential evaporation), all the pines from eastern North America (except for *P. banksiana*) are at the wet end of the scale (MI = 0.9 and above). In contrast, western pines live under a variety of moisture conditions but are generally found in much drier habitats than their eastern counterparts.

Figure 19 (facing page). Panel "d": Displays of distributions of *P. edulis*, *P. engelmannii*, *P. banksiana*, and *P. clausa* in relation to the three bioclimatic variables. In this figure, each of the four boxes represents approximately 25 percent of the grid points in North America in relation to the moisture index (see caption for fig. 14 for explanation), ranging from the driest quartile on the left to the wettest quartile on the right. Within each box the mean temperature of the coldest month is arrayed on the vertical axis and growing degree days (5°C base) on the horizontal axis.

Tables of Relations of Plant Distributions to Single Climatic Variables

The histograms presented above provide visual displays of the relations between species' distributions and climatic parameters. Tables 3 and 4 provide examples of data taken from these tables: the entries represent the climatic or bioclimatic variables that correspond with chosen cumulative percentages of the total number of grid points for each taxon. To obtain these values, we started a counter for each parameter at the left (low) end of the climatic or bioclimatic range and then moved up the scale until the first occurrence of the plant was encountered—this was labeled as the "0 percent" point. We then continued to move up the climatic scale until 10 percent of the total number of occurrences of the taxon had been encountered. This value on the climatic scale represents the conditions that correspond with 10 percent of the cumulative occurrences of the species. The same method was then employed to identify 25, 50, 75, 90, and 100 percent of the plant's distribution relative to the chosen climatic parameter. Although many of the distributions appear to be Gaussian, many are not, so we did not choose percentage values that would imply Gaussian distributions. The 0 to 100 percent values identify the total range of the taxon in relation to the given climatic or bioclimatic variable, although 10 to 90 percent may be more realistic representations of the taxon's range, given potential errors in modern climate estimation and range maps.

Table 3 illustrates these values for *Pinus edulis*, and inspection of these values provides a broad characterization of the distribution of this species in relation to climatic parameters. As an example of how to read this information, the first row of data indicates that this pine lives under mean January temperatures that range from -11.4°C (0 percent) to 5.8°C (100 percent), with the median (50 percent) temperature at -2.0°C . Comparisons of the breadth of climatic estimates for the apparent total range (0 to 100 percent) reveal that they are 1.75 to 3.0 times greater than those for the 10- to 90-percent band. This suggests that the total apparent climatic range includes outliers that may represent problems with the original range maps and (or) our estimates of present-day climatic means, and thus the apparent total range is probably overestimating the climatic tolerance of the taxon.

Table 4 provides comparisons of the median (50 percent) values for the distributions of the nine pine species discussed above relative to each of the climatic parameters. The median value represents the midpoint or most likely value for the occurrence of each species and thus provides a good starting point for comparing the climatic tolerances of the taxa. In table 4, the north-to-south gradients of the western pines (the first four species) and of the eastern pines (the last five species) are clearly evident in the temperature, MTCO, and GDD₅ data. The precipitation and MI data reveal that the plants live under a variety of moisture regimes and that there are no simple north-to-south gradients in regard to moisture conditions.

Figure 20. Comparisons of distributions of nine species of pine in relation to temperature variables in North America. The lower row of gray histograms illustrates the climate of North America in regard to temperature variables—here, the height of each column indicates the number of grid points that fall within the temperature range covered by the column. The black histograms illustrate the distribution of each species in relation to the given temperature variable. Here, the height of each column represents the percentage of the total number of grid points where the species is present (given as “*n*” on the right side) that occur within the temperature range covered by the column.

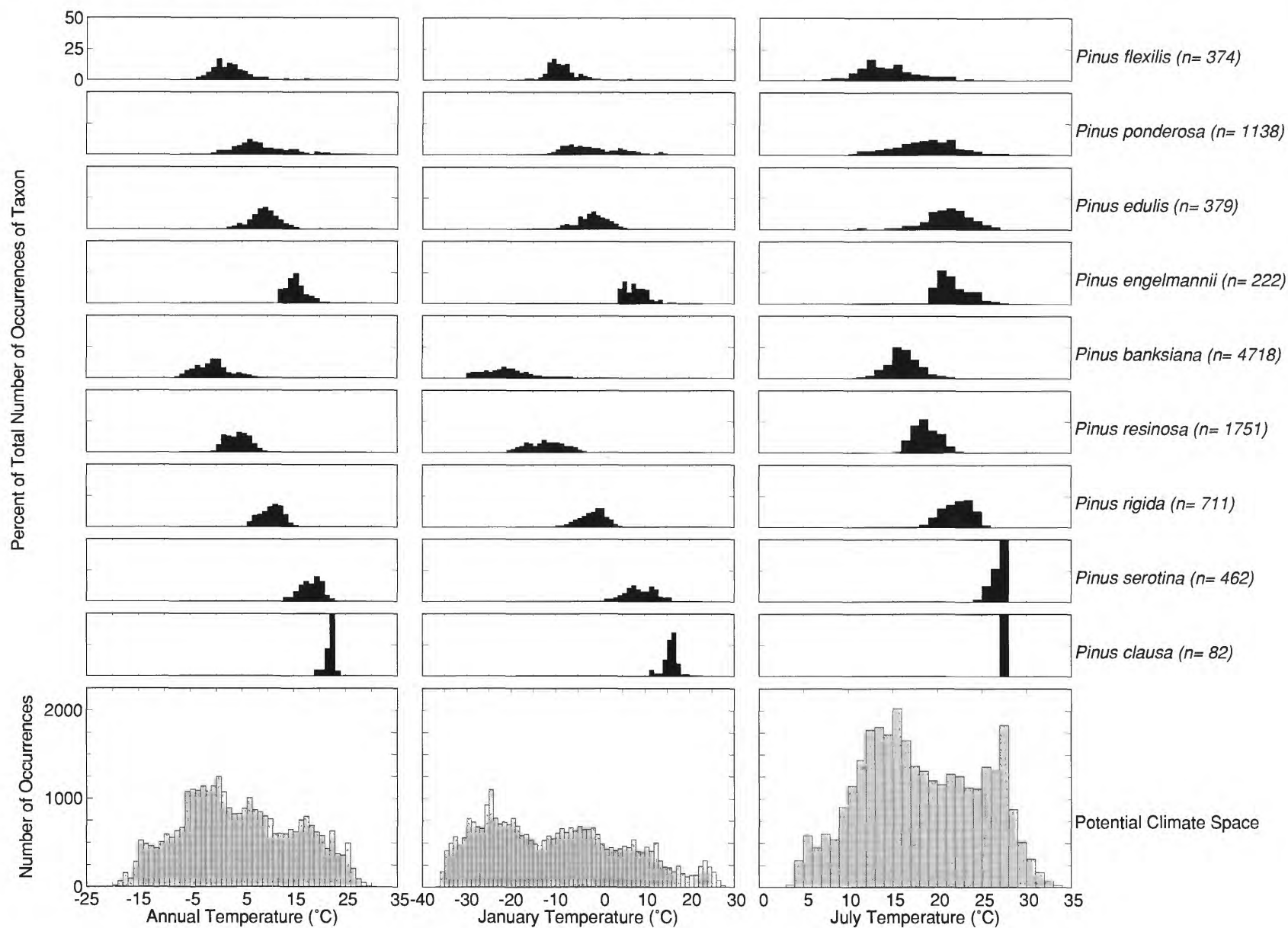


Figure 21. Comparisons of distributions of nine species of pine in relation to precipitation variables in North America. The lower row of gray histograms illustrates the climate of North America in regard to precipitation variables—here, the height of each column indicates the number of grid points that fall within the precipitation range covered by the column. The black histograms illustrate the distribution of each species in relation to the given precipitation variable. Here, the height of each column represents the percentage of the total number of grid points where the species is present (given as “*n*” on the right side) that occur within the precipitation range covered by the column.

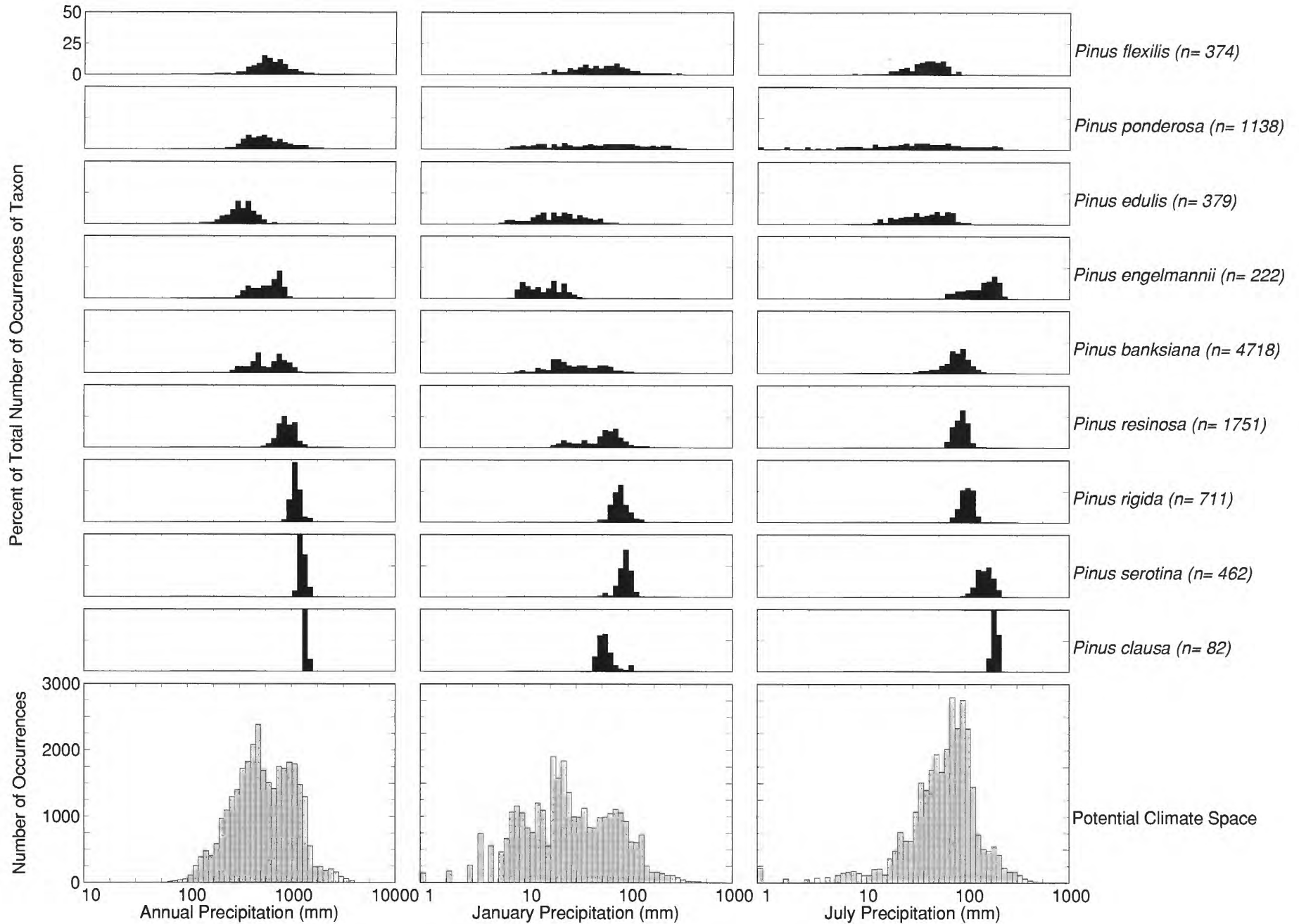


Figure 22. Comparisons of distributions of nine species of pine in relation to bioclimatic variables in North America. The lower row of gray histograms illustrates the climate of North America in regard to bioclimatic variables—here, the height of each column indicates the number of grid points that fall within the bioclimatic range covered by the column. The black histograms illustrate the distribution of each species in relation to the given bioclimatic variable. Here, the height of each column represents the percentage of the total number of grid points where the species is present (given as “*n*” on the right side) that occur within the bioclimatic range covered by the column.

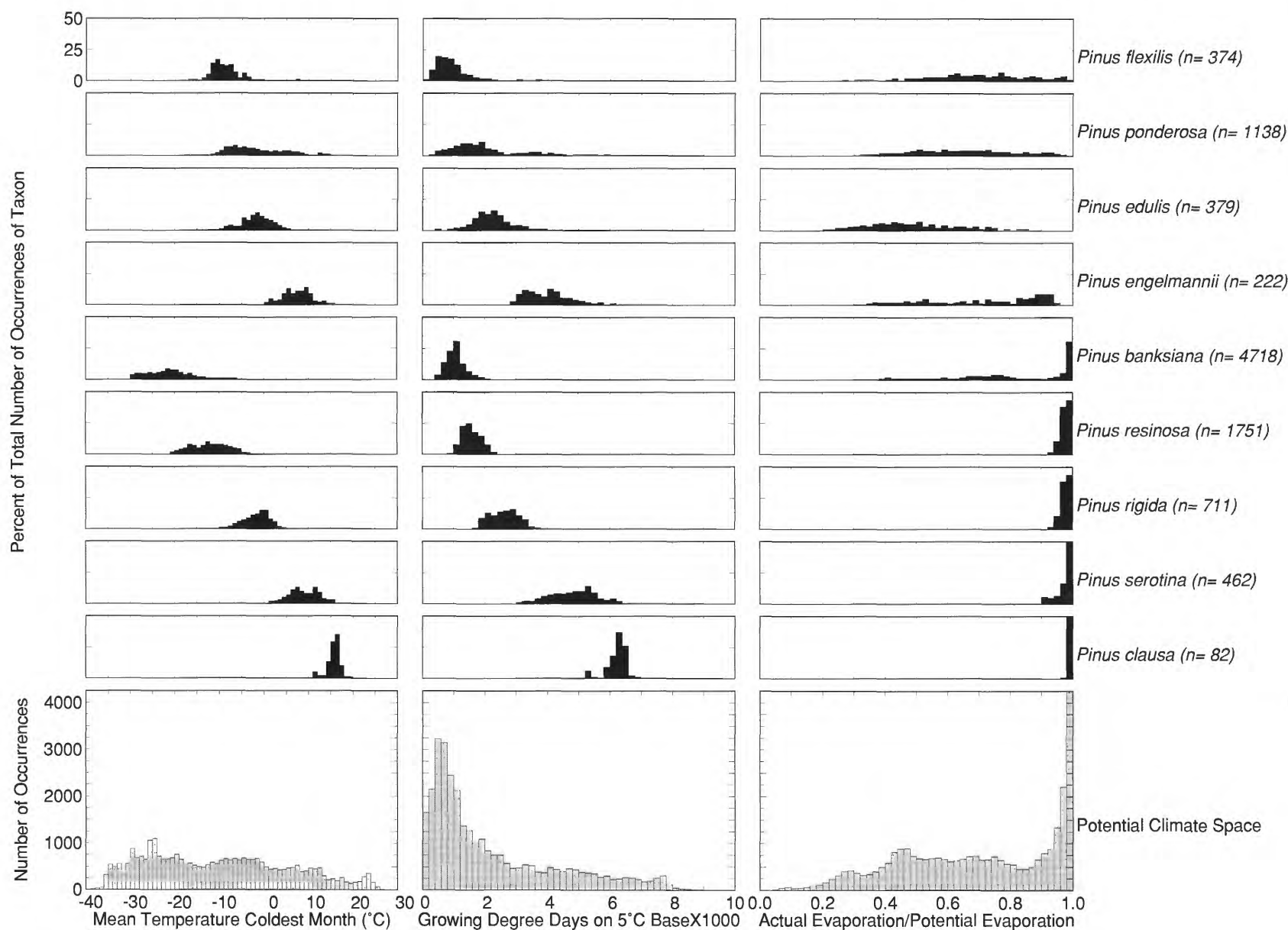


Table 3. Climatic data for *Pinus edulis* (pinyon pine, $n=379$).

[Moisture index (MI) equals actual evaporation (AE) divided by potential evaporation (PE)]

Variable	Cumulative percentage of grid points						
	0%	10%	25%	50%	75%	90%	100%
Mean January temperature (°C)	-11.4	-6.6	-4.2	-2.0	0.5	2.4	5.8
Mean July temperature (°C)	11.2	17.9	19.6	21.2	22.6	24.2	30.3
Mean annual temperature (°C)	-0.6	5.9	7.7	9.3	10.8	12.5	17.8
Mean temperature of coldest month (MTCO)	-11.4	-6.6	-4.2	-2.0	0.5	2.3	5.7
Growing degree days on 5°C base \times 1,000 (GDD ₅)	0.4	1.5	1.9	2.2	2.5	2.9	4.0
Mean January precipitation (mm)	5	10	14	21	32	44	98
Mean July precipitation (mm)	13	20	28	43	60	73	109
Mean annual precipitation (mm)	135	220	275	320	395	460	830
Moisture index	0.17	0.29	0.37	0.46	0.57	0.68	0.92

Table 4. Comparison of median climatic tolerance values for nine pine species from across North America.

[Moisture index (MI) equals actual evaporation (AE) divided by potential evaporation (PE)]

	<i>Pinus flexilis</i>	<i>Pinus ponderosa</i>	<i>Pinus edulis</i>	<i>Pinus engelmannii</i>	<i>Pinus banksiana</i>	<i>Pinus resinosa</i>	<i>Pinus rigida</i>	<i>Pinus serotina</i>	<i>Pinus clausa</i>
Number (n)	374	1,138	379	222	4,718	1,751	711	462	82
Mean January temperature (°C)	-9.3	-3.0	-2.0	7.5	-21.5	-12.4	-1.4	8.7	15.8
Mean July temperature (°C)	13.9	18.7	21.2	21.3	16.0	18.5	22.1	27.0	27.4
Mean annual temperature (°C)	1.9	7.5	9.3	15.1	-0.9	4.1	10.8	18.3	22.1
Mean temperature of coldest month (°C)	-9.3	-3.0	-2.0	7.4	-21.5	-12.4	-1.4	8.7	15.8
Growing degree days on a 5°C base \times 1,000	0.8	1.7	2.2	4.0	1.1	1.6	2.6	4.9	6.3
Mean January precipitation (mm)	52	46	21	16	27	61	83	95	58
Mean July precipitation (mm)	41	34	43	157	84	93	106	156	199
Mean annual precipitation (mm)	595	530	320	605	615	880	1,085	1,250	1,320
Moisture index	0.70	0.64	0.46	0.77	0.92	0.98	0.97	0.99	0.99

Climatic Parameters and Plant Distributions

Examination of the figures and tables in this atlas will convince most readers that climate is an important element in the distribution of North American plant taxa, at least on the scale of the entire continent. On finer scales, competition among species, soil conditions, and other environmental factors strongly influence the actual distributions of plant species. As climate is constantly changing, it is highly likely that many species are currently adjusting their ranges, and thus the data in this atlas may underestimate the climatic tolerances of some taxa. It is also probable that some species could prosper in areas far from their native habitats, as planted Douglas-fir trees (native to western North America) do in parts of northeastern North America today. However, intervening natural barriers to immigration, such as the dry climates of the Great Plains for Douglas-fir, have prevented these species from colonizing these far-away habitats.

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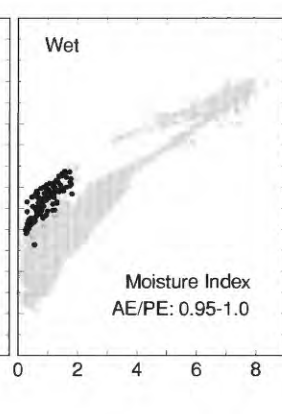
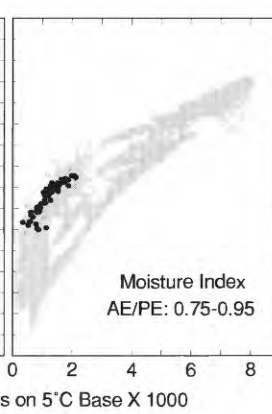
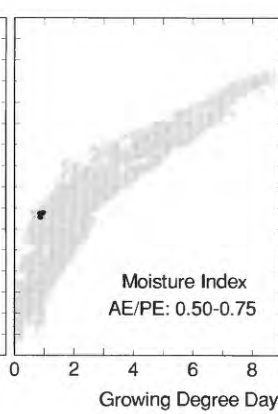
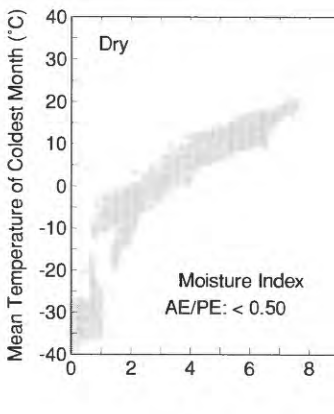
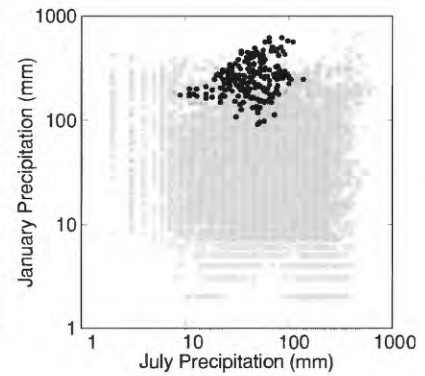
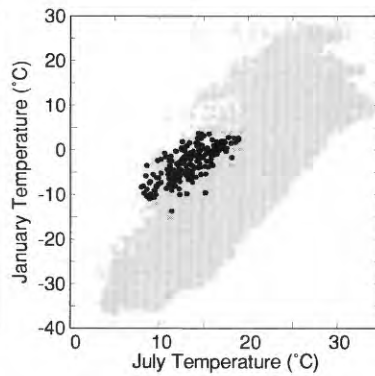
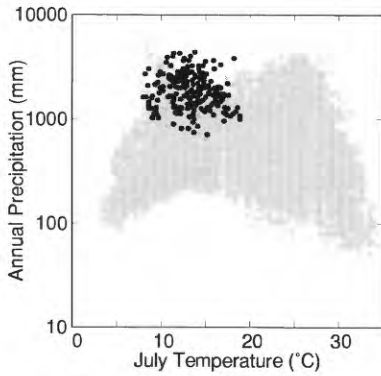
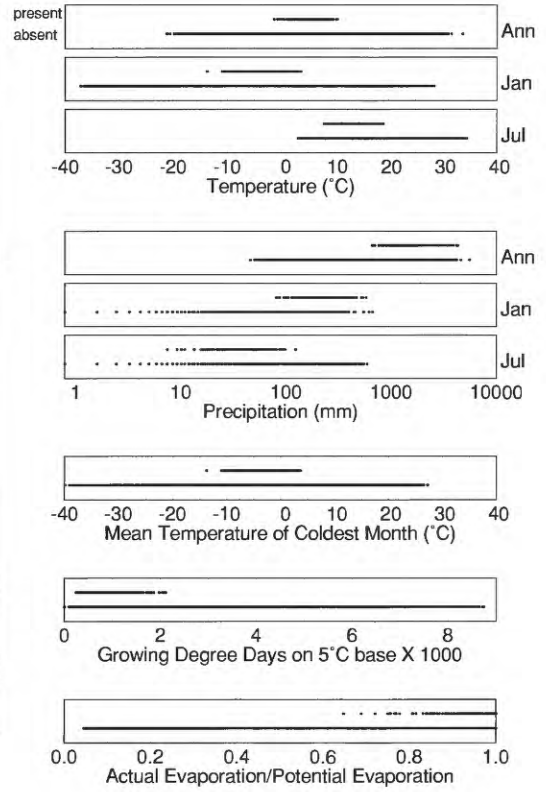
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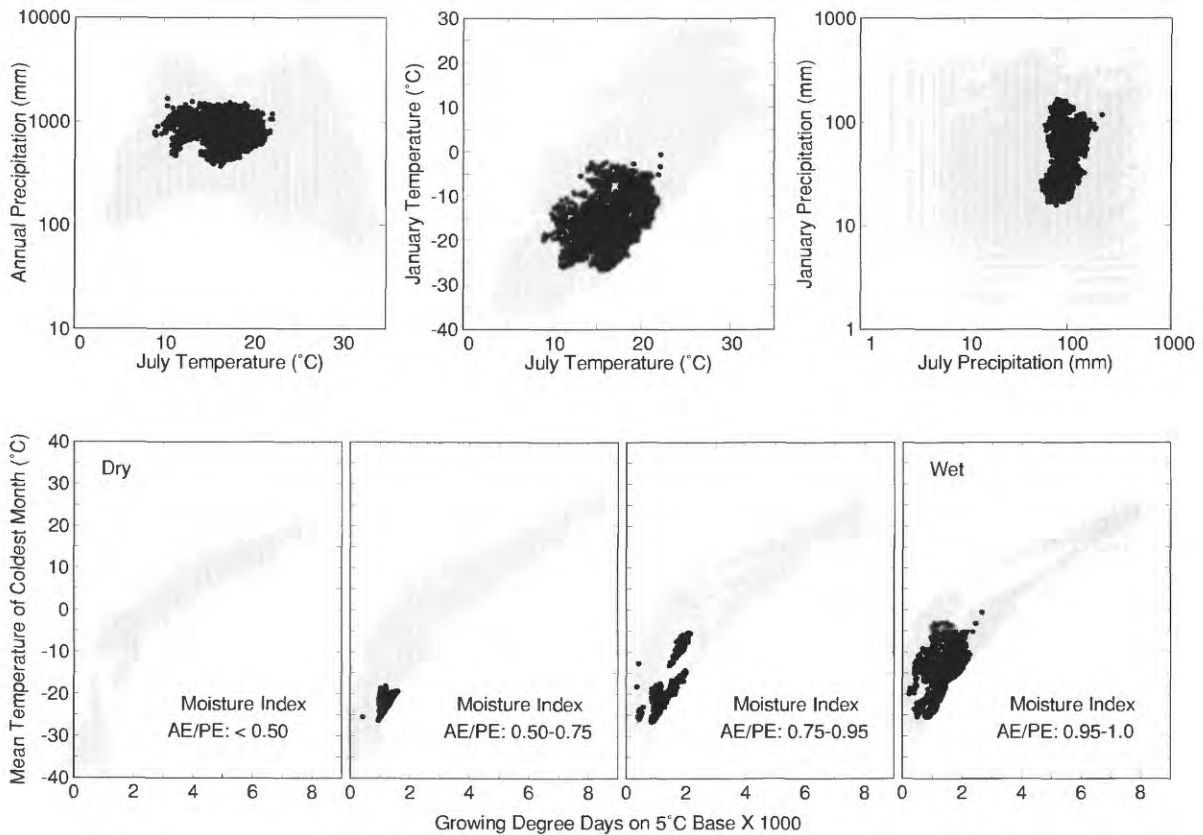
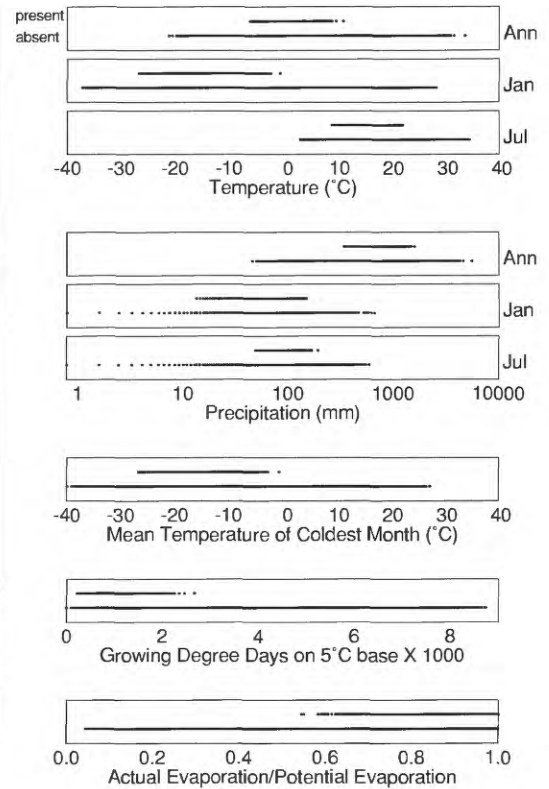
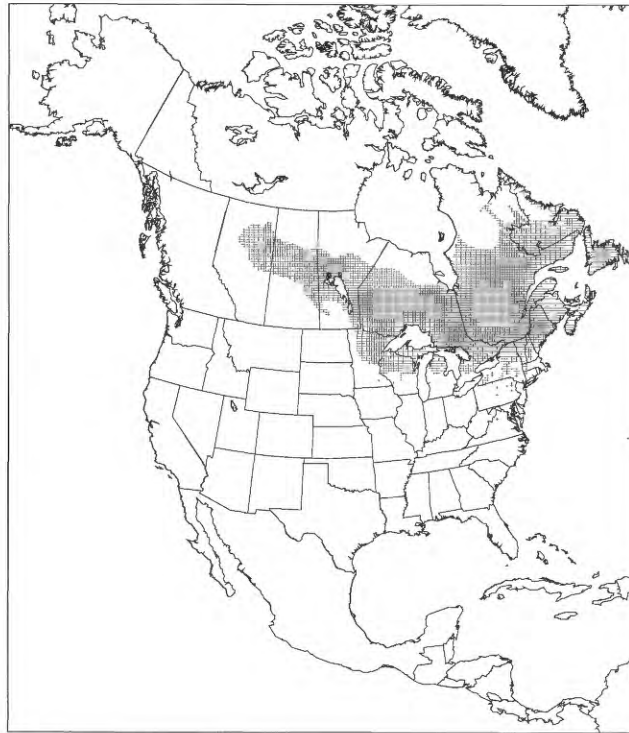
Conifer Species— Graphical Displays



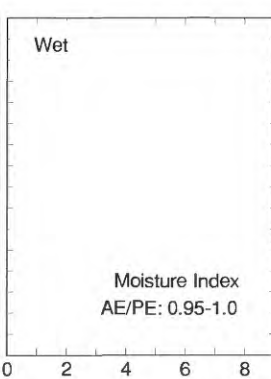
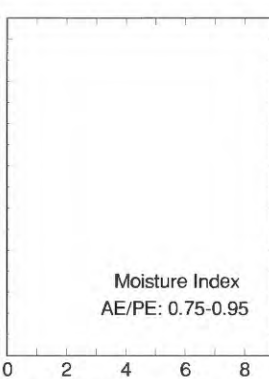
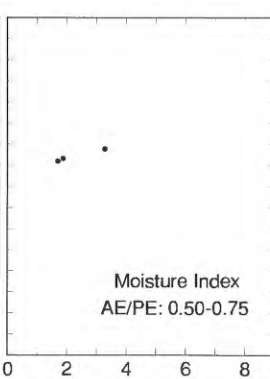
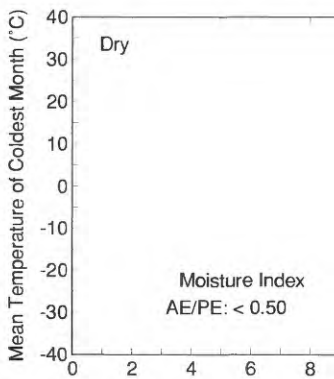
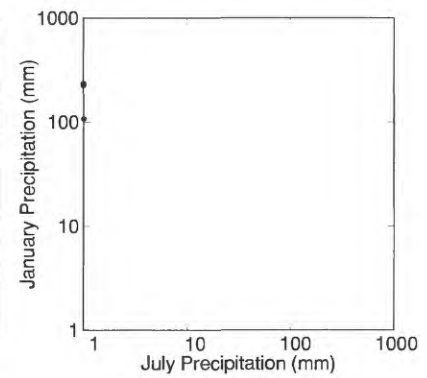
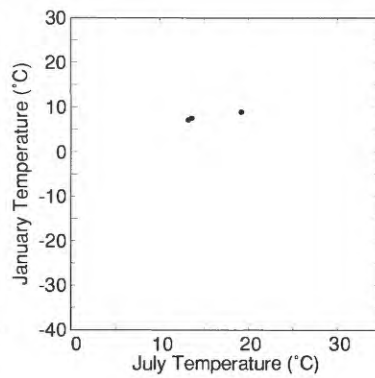
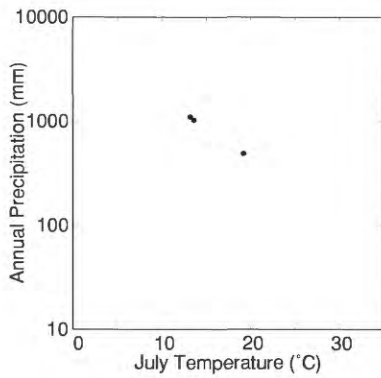
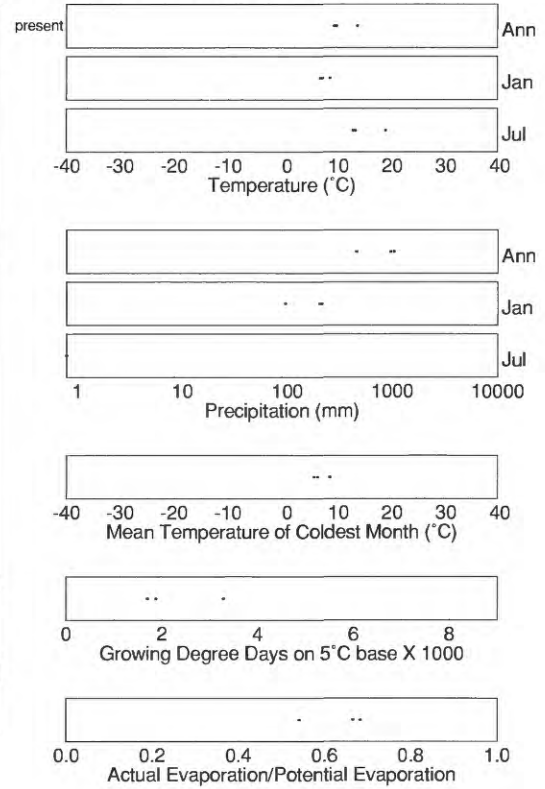
Abies amabilis



Abies balsamea

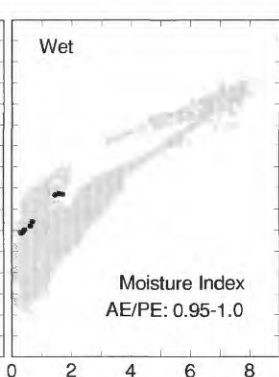
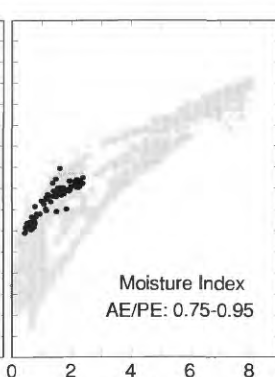
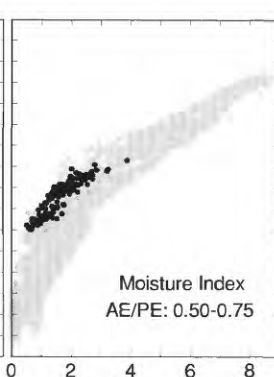
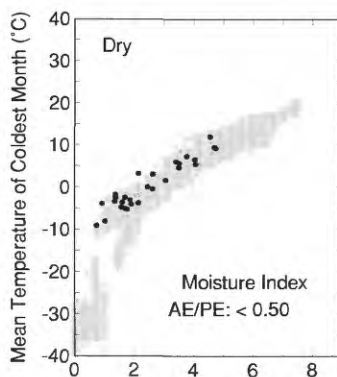
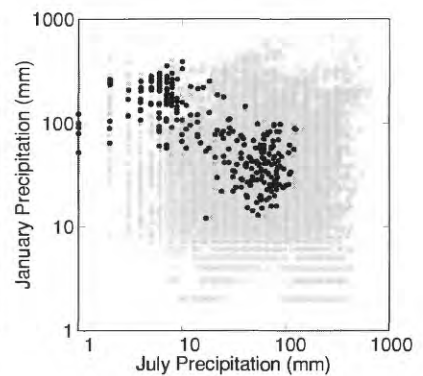
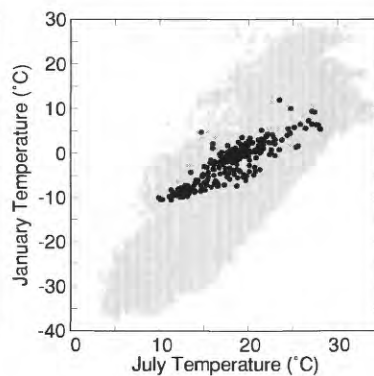
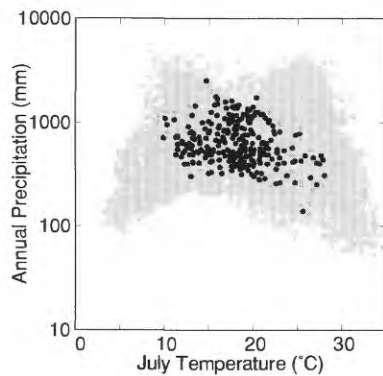
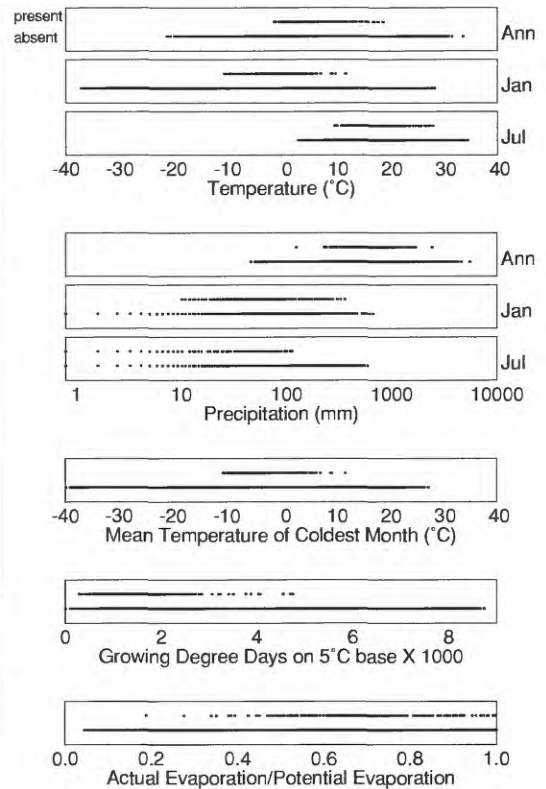


Abies bracteata (minimal data - nearest grid points used with environmental parameters)



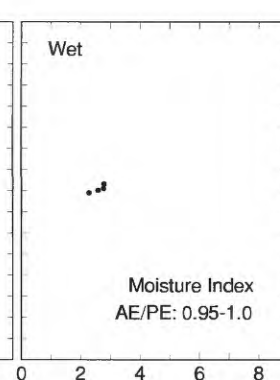
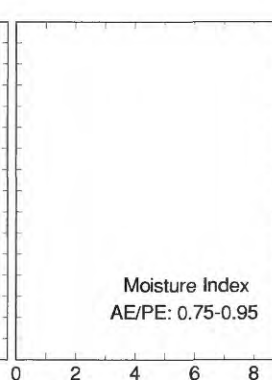
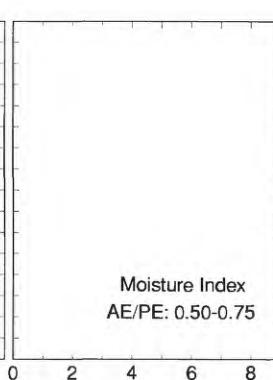
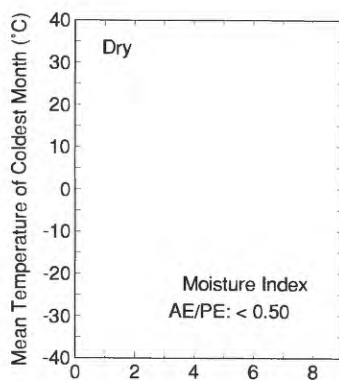
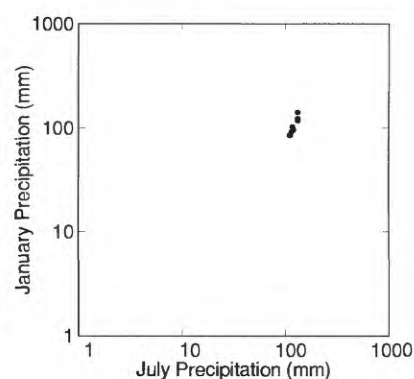
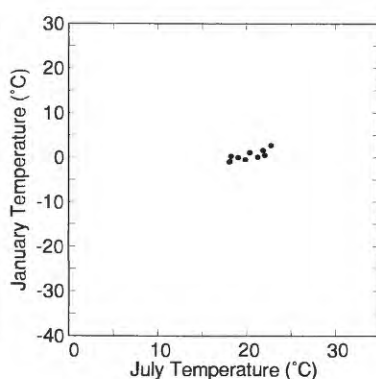
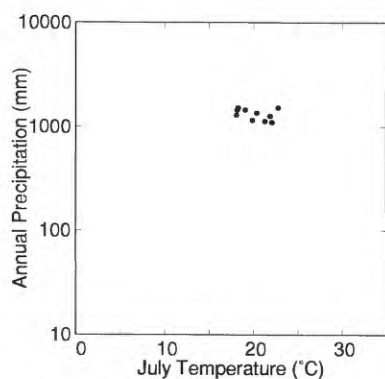
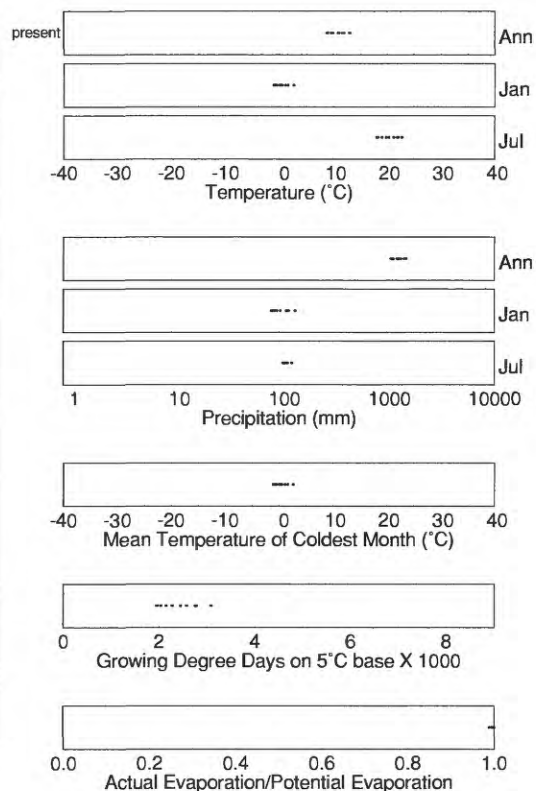
Growing Degree Days on 5°C Base X 1000

Abies concolor



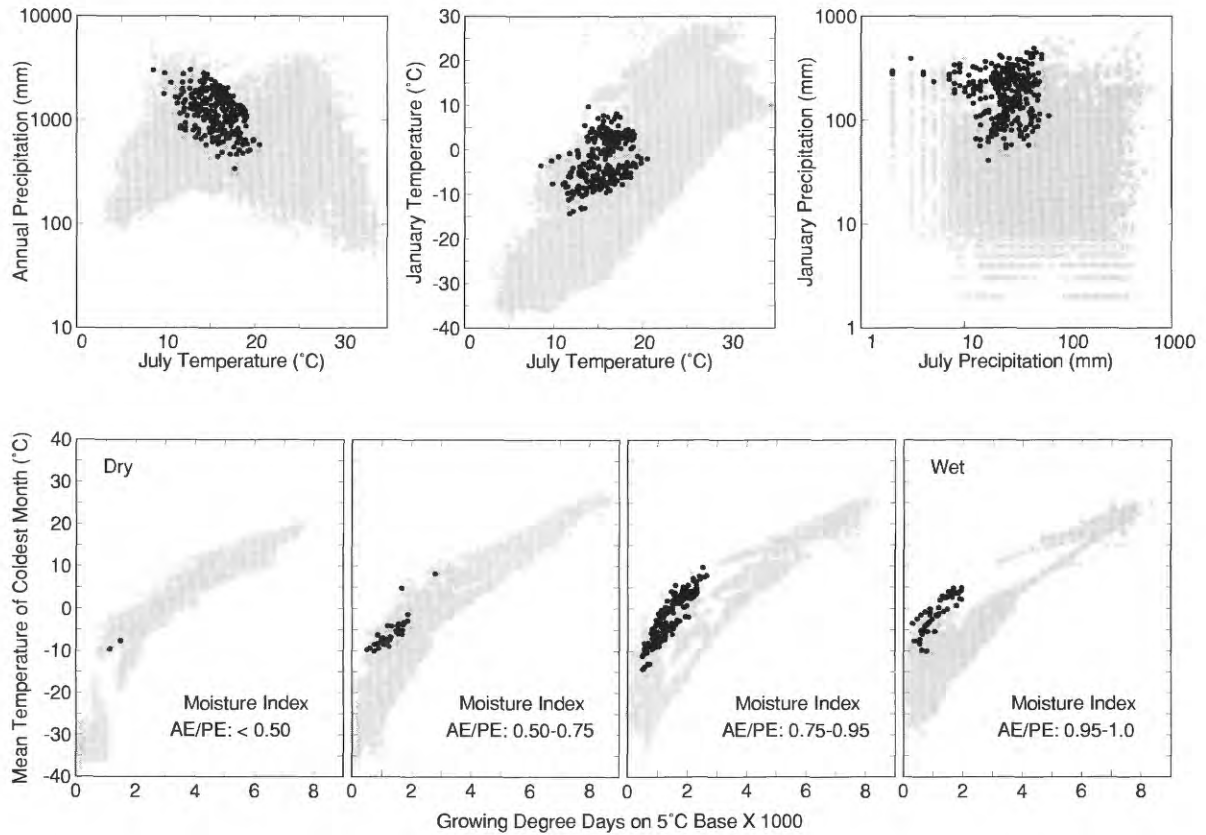
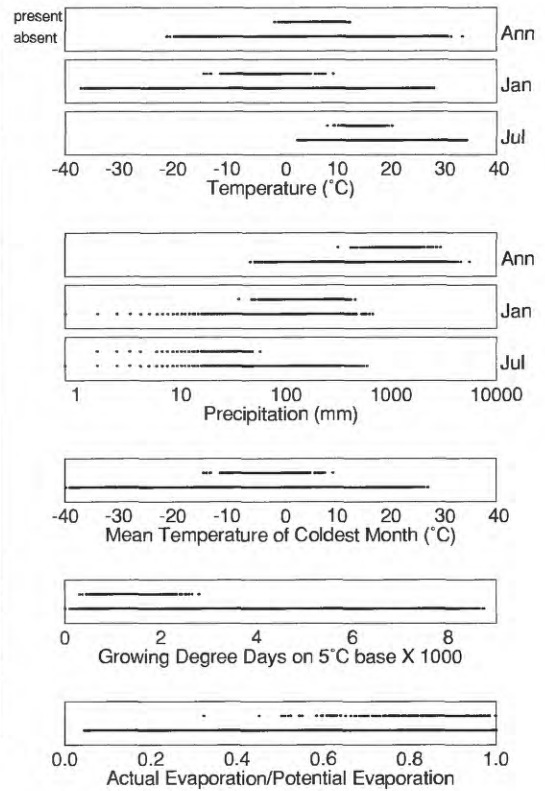
Growing Degree Days on 5°C Base X 1000

Abies fraseri (minimal data - nearest grid points used with environmental parameters)

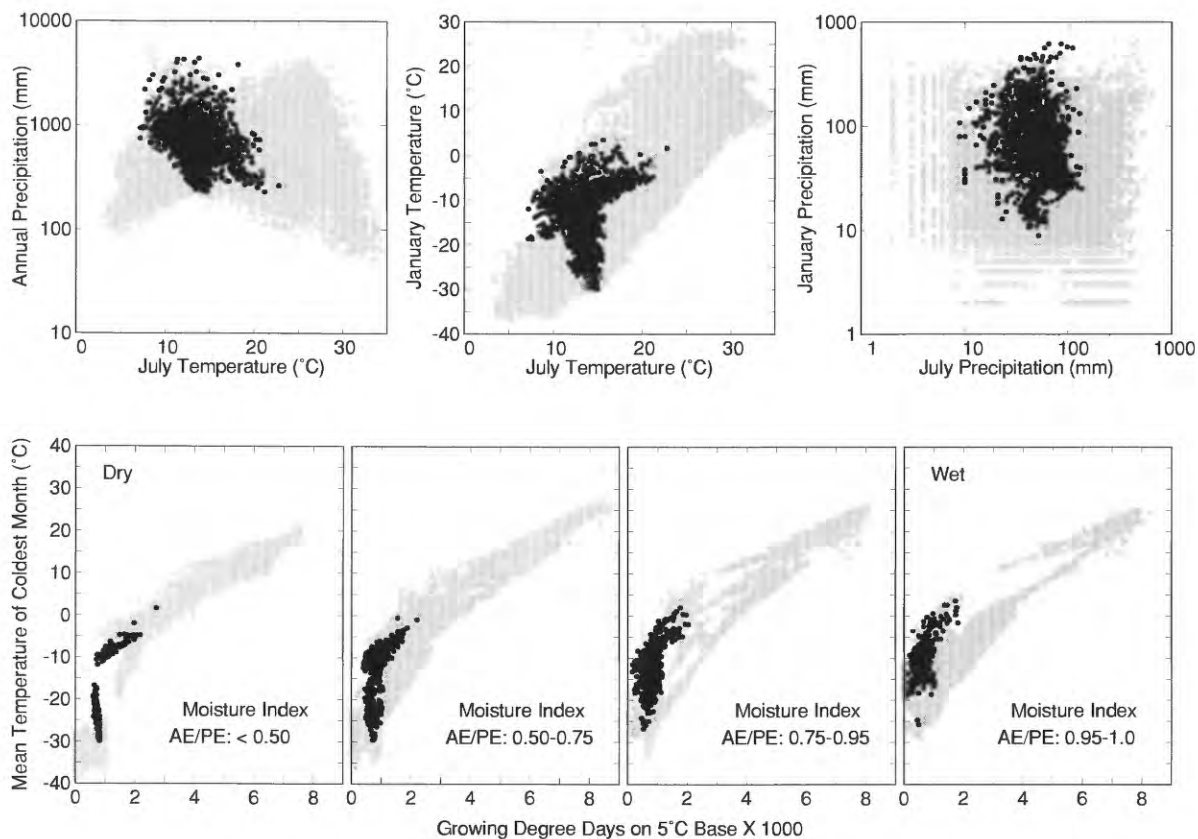
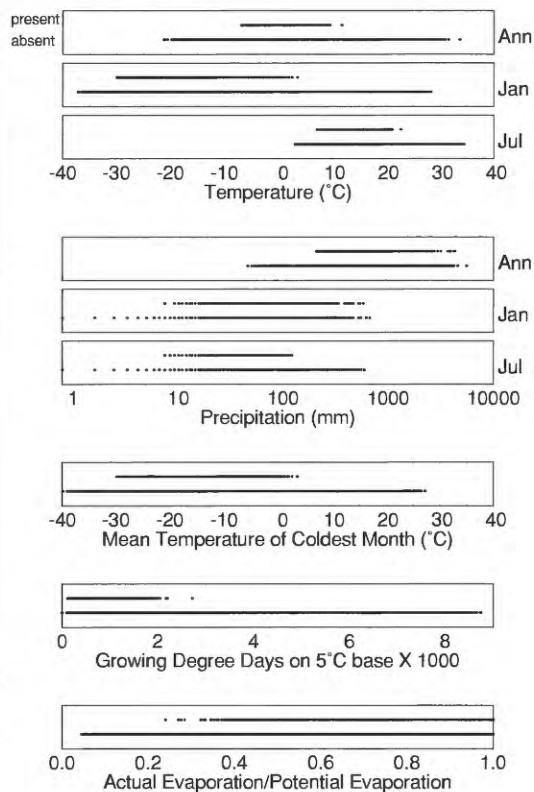


Growing Degree Days on 5°C Base X 1000

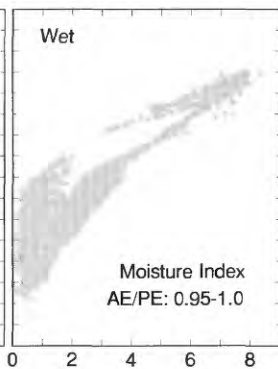
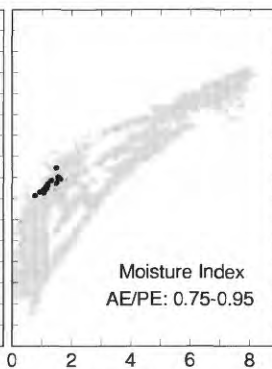
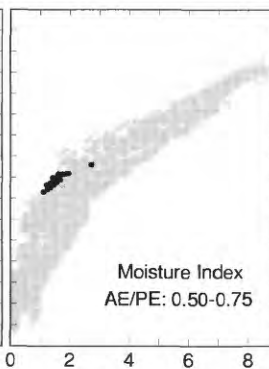
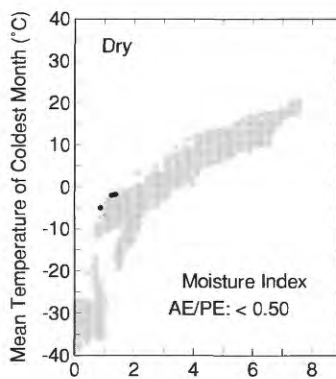
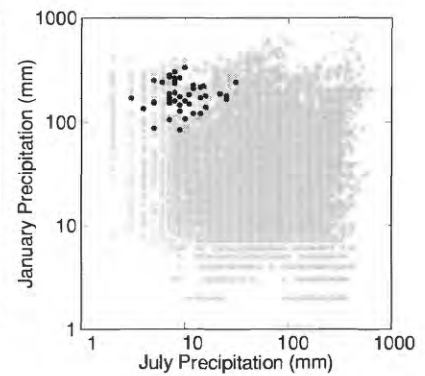
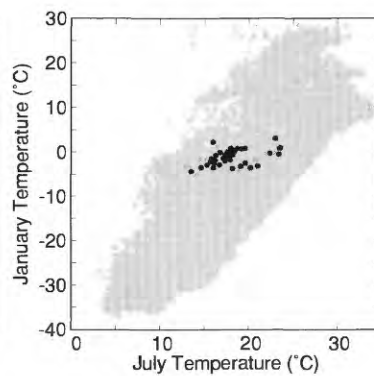
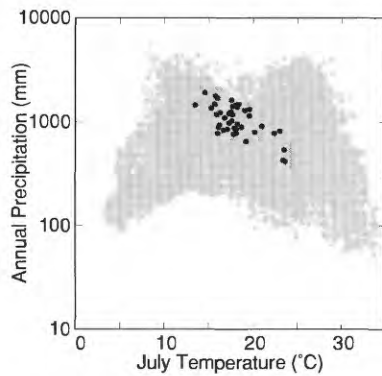
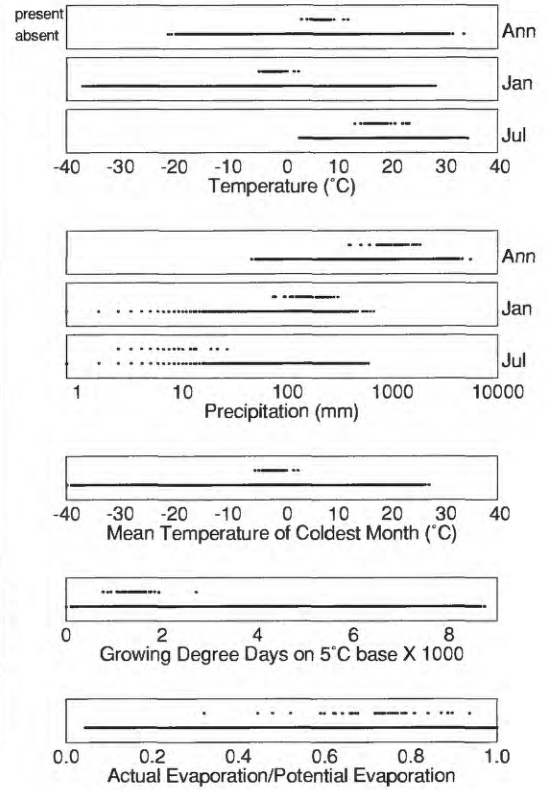
Abies grandis



Abies lasiocarpa

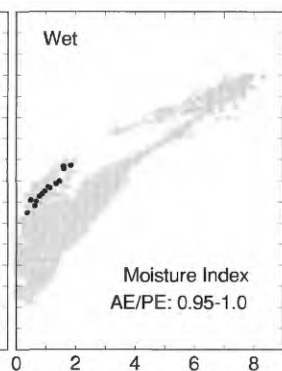
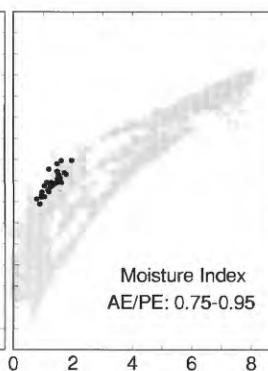
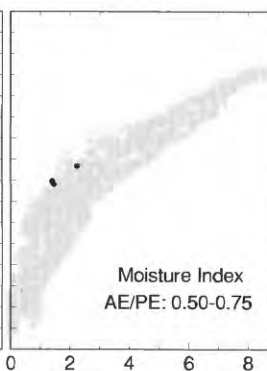
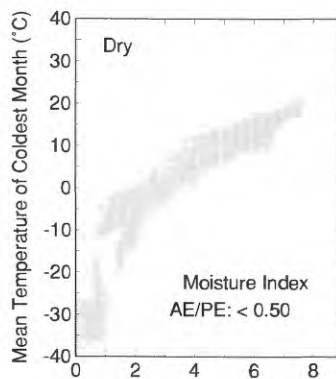
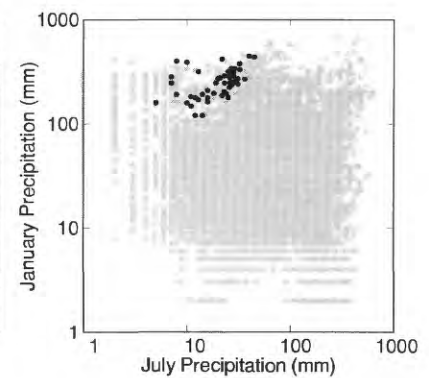
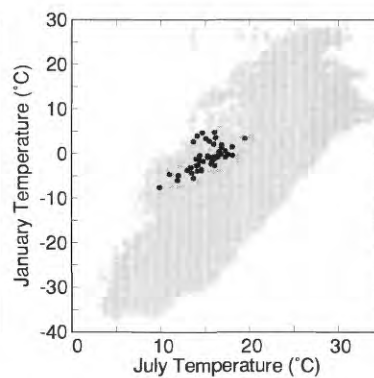
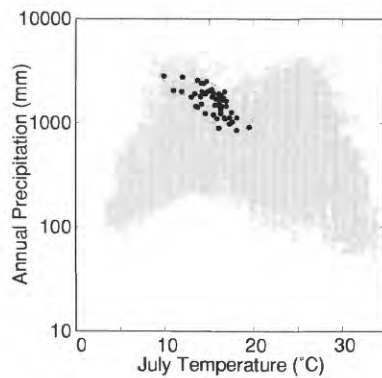
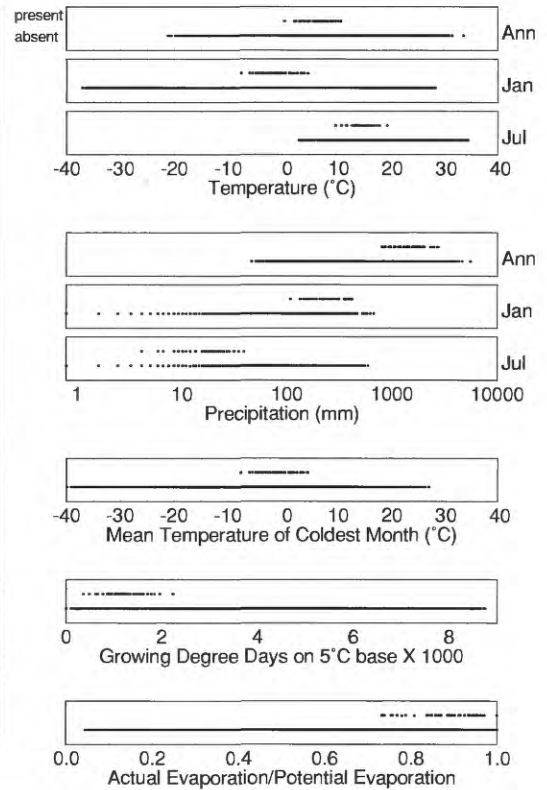


Abies magnifica

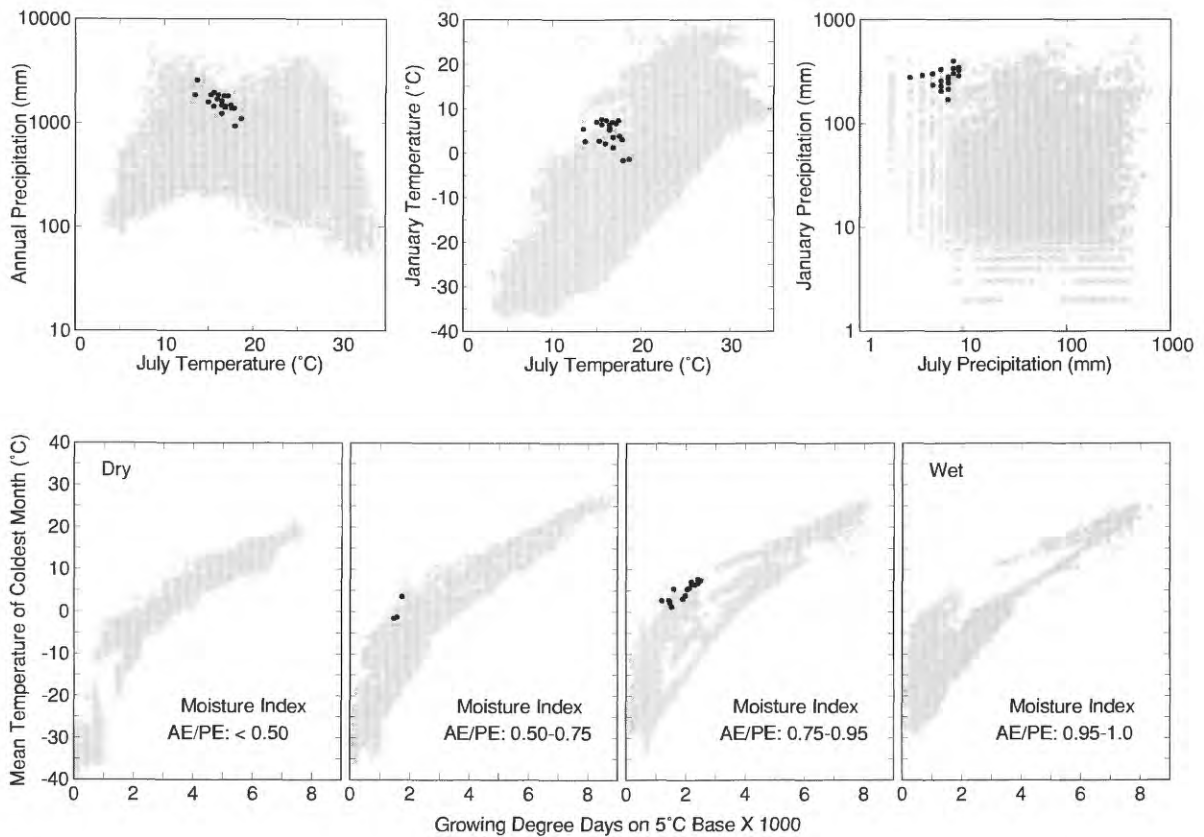
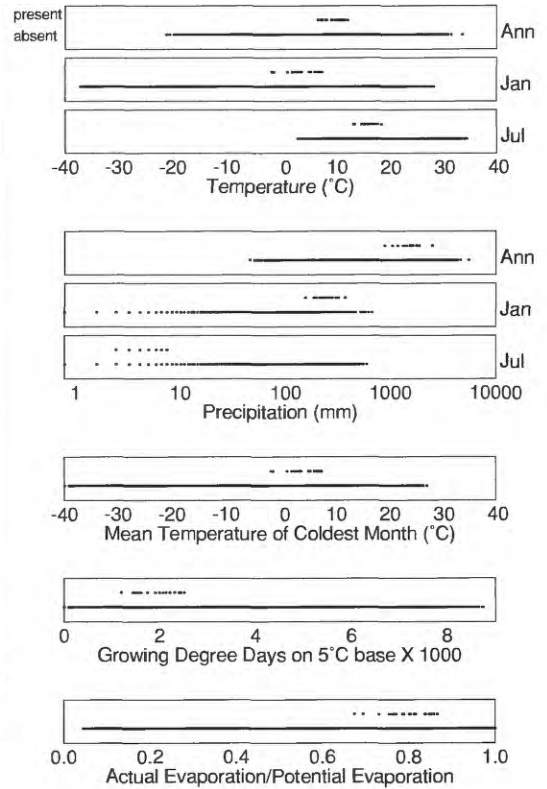


Growing Degree Days on 5°C Base X 1000

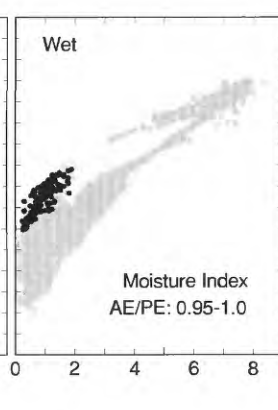
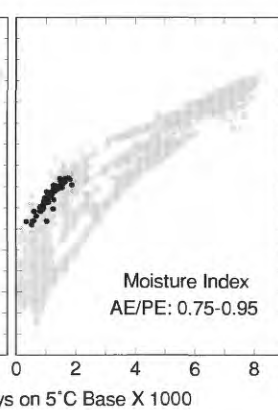
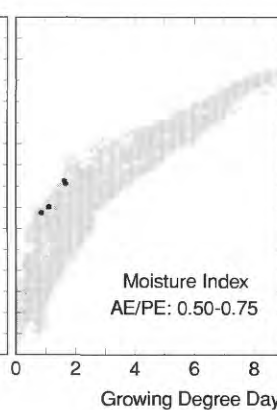
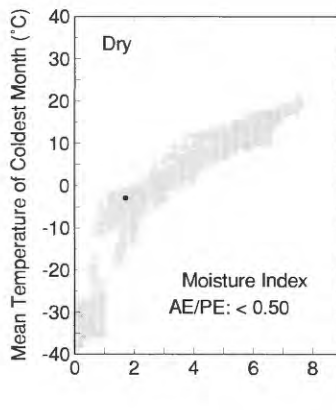
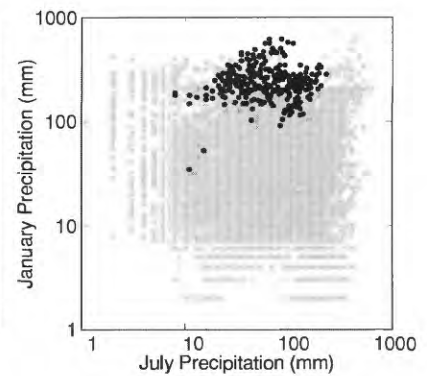
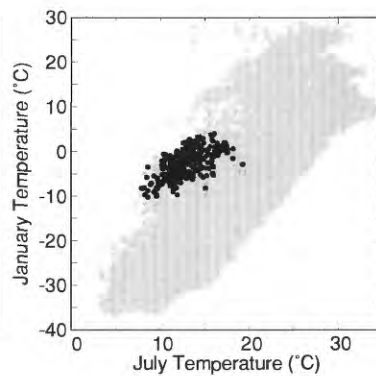
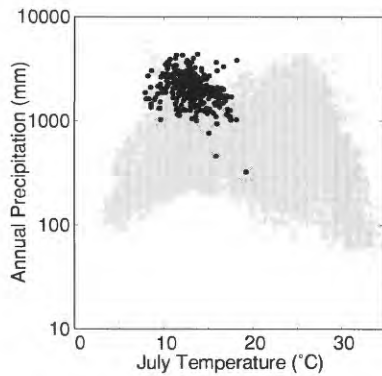
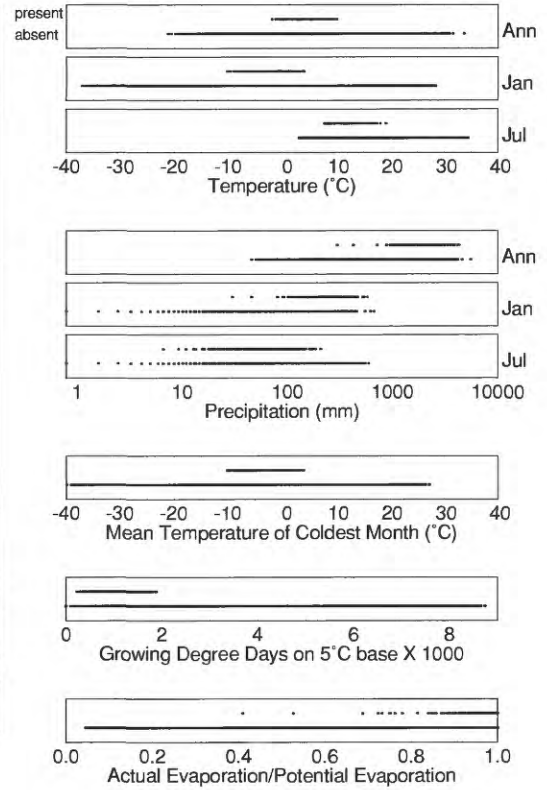
Abies procera



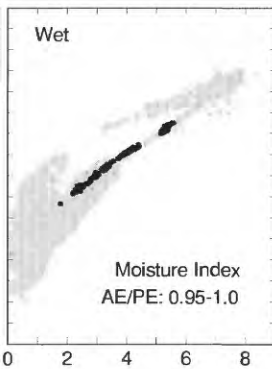
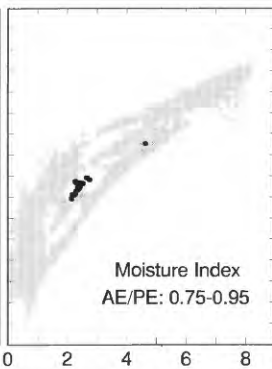
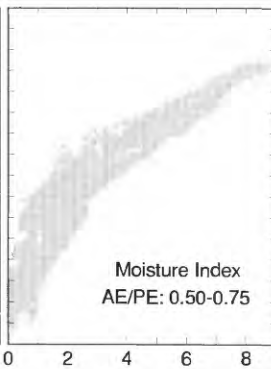
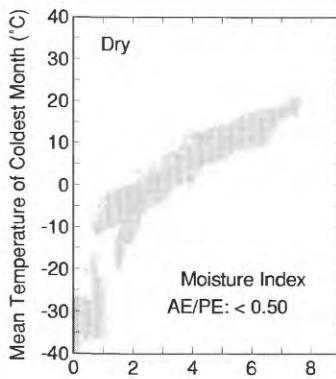
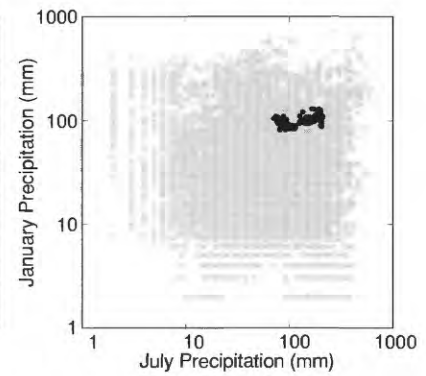
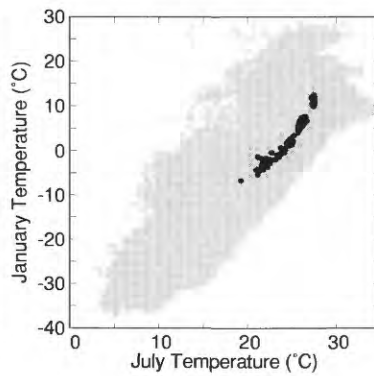
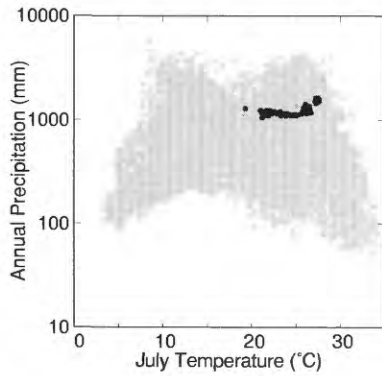
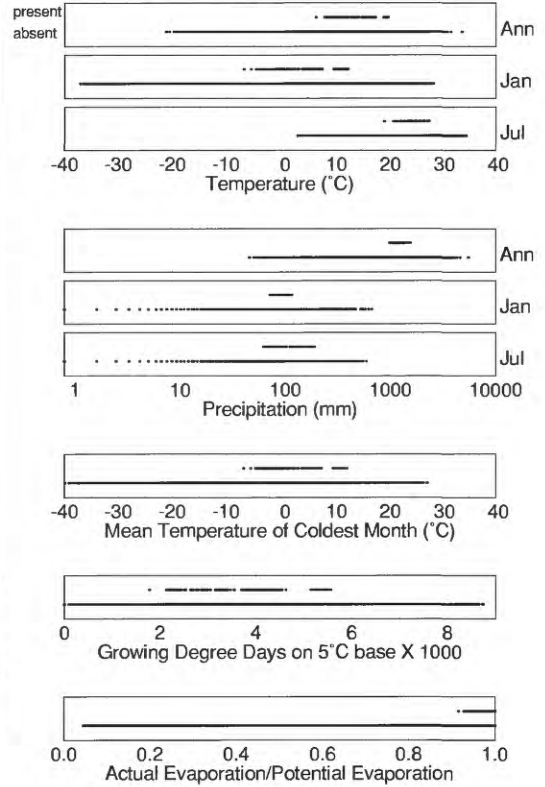
Chamaecyparis lawsoniana



Chamaecyparis nootkatensis

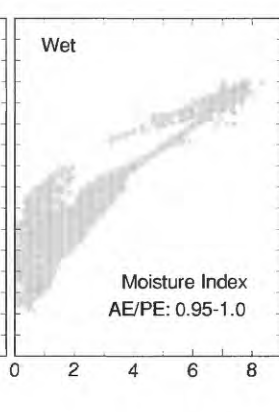
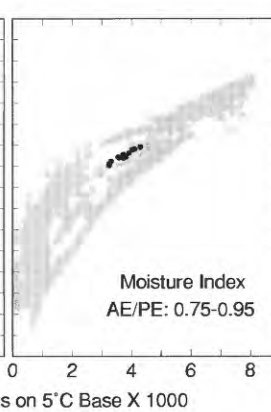
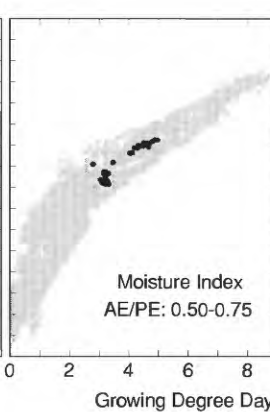
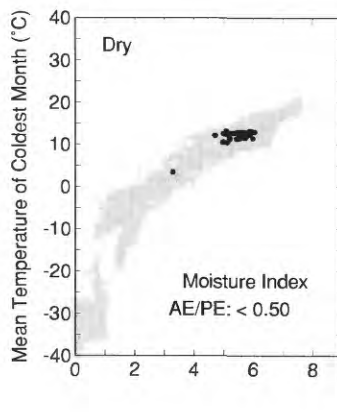
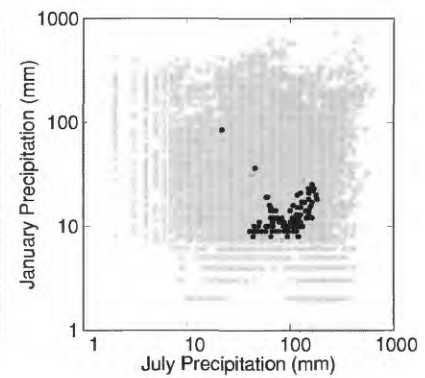
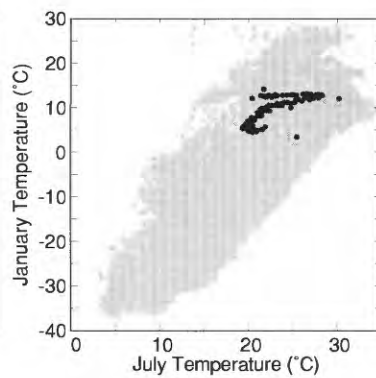
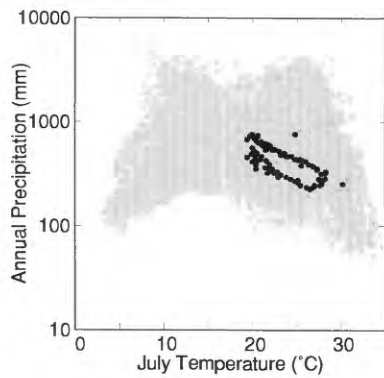
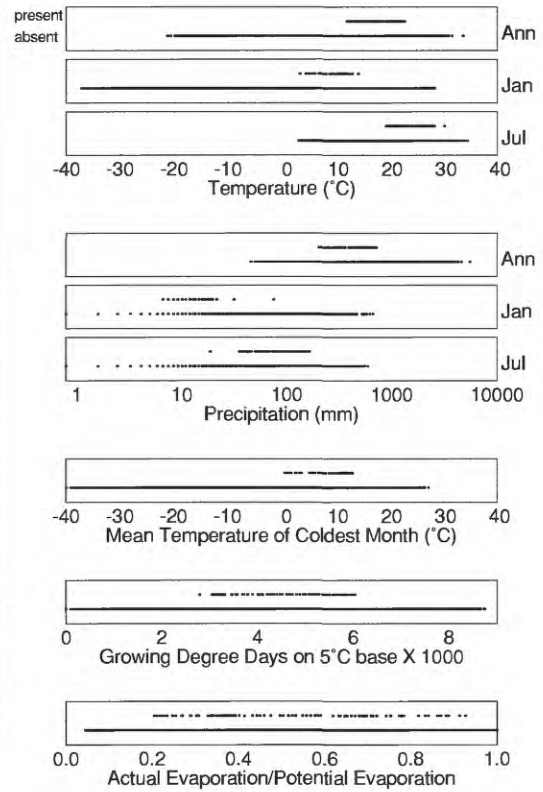


Chamaecyparis thyoides

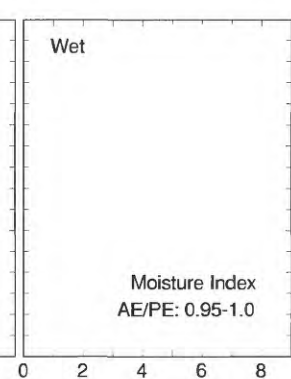
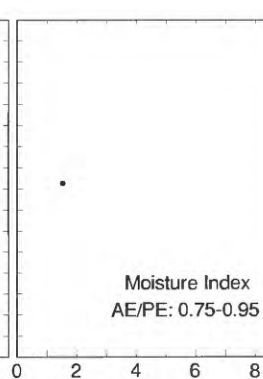
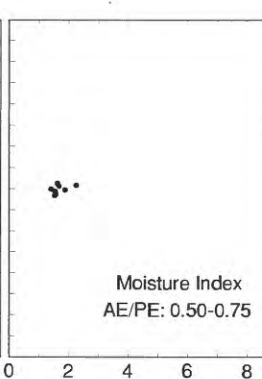
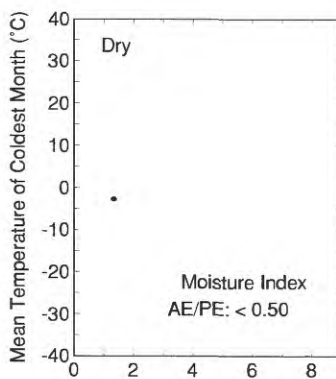
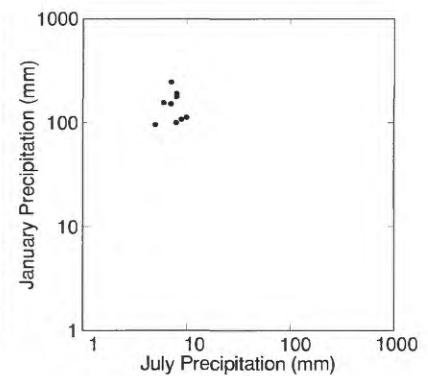
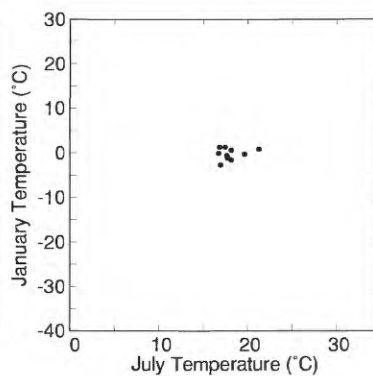
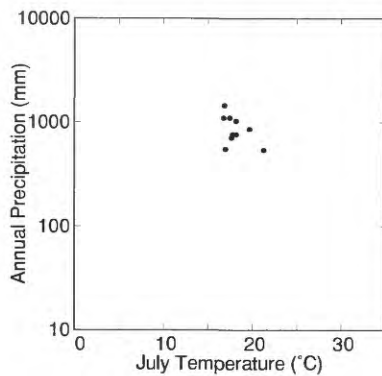
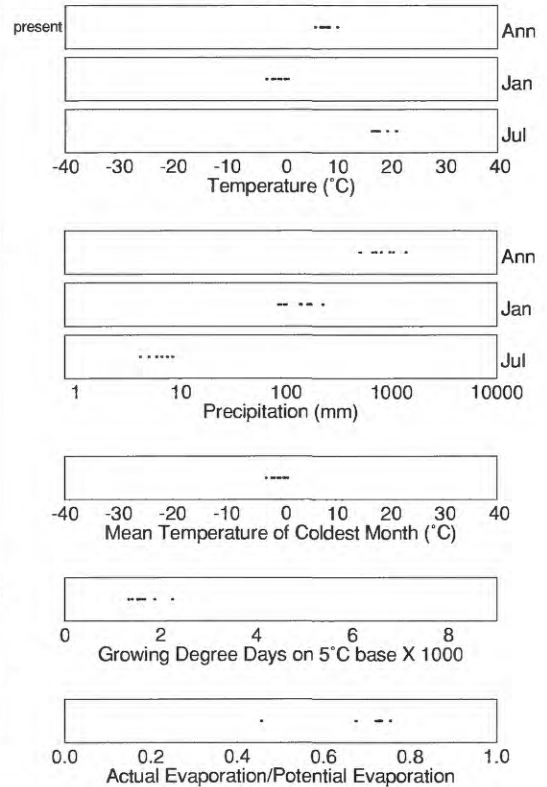


Growing Degree Days on 5°C Base X 1000

Cupressus arizonica

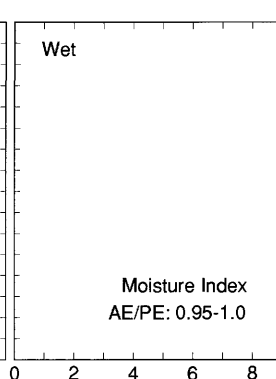
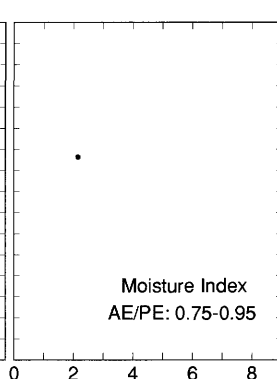
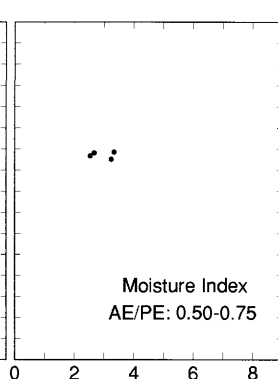
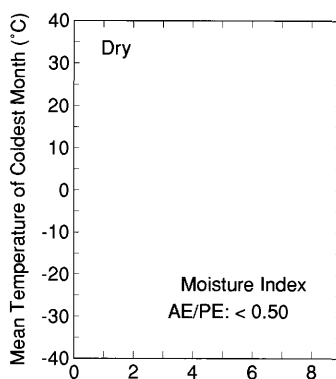
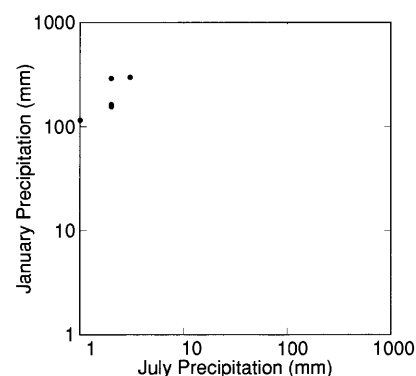
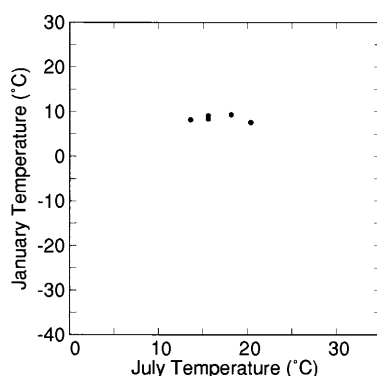
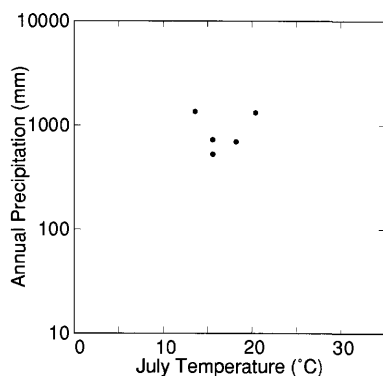
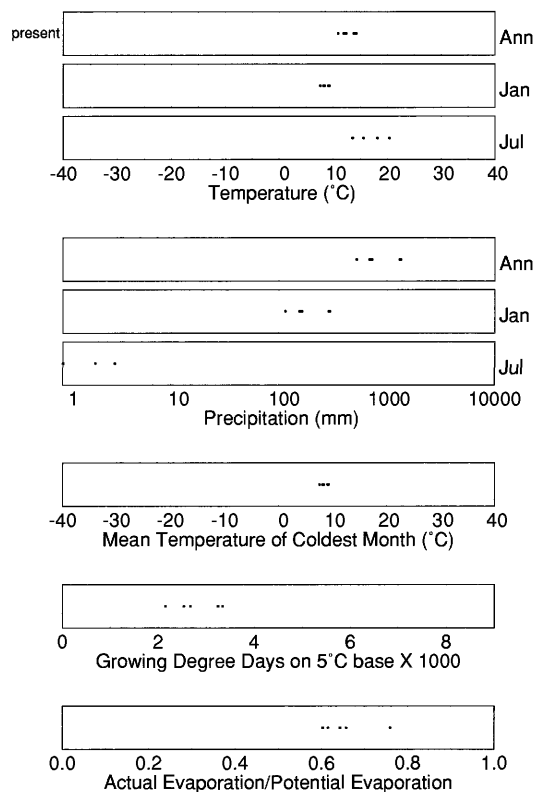


Cupressus bakeri (minimal data - nearest grid points used with environmental parameters)

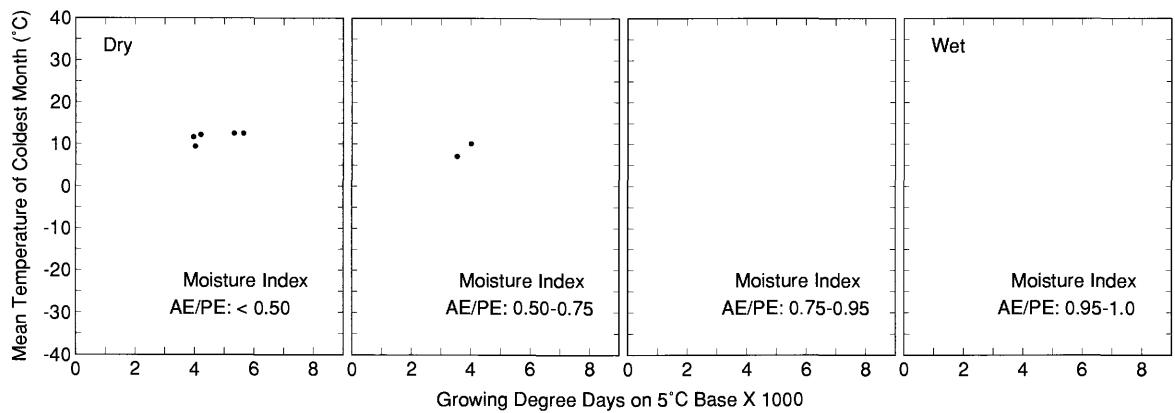
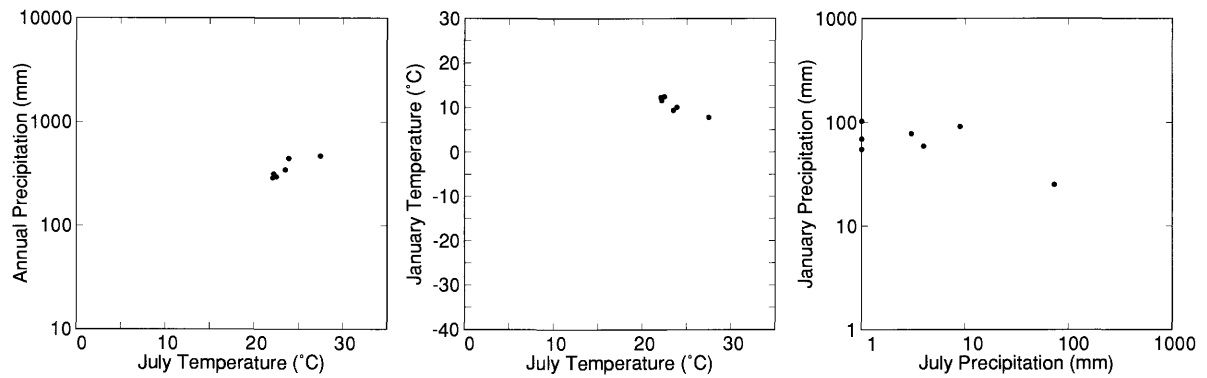
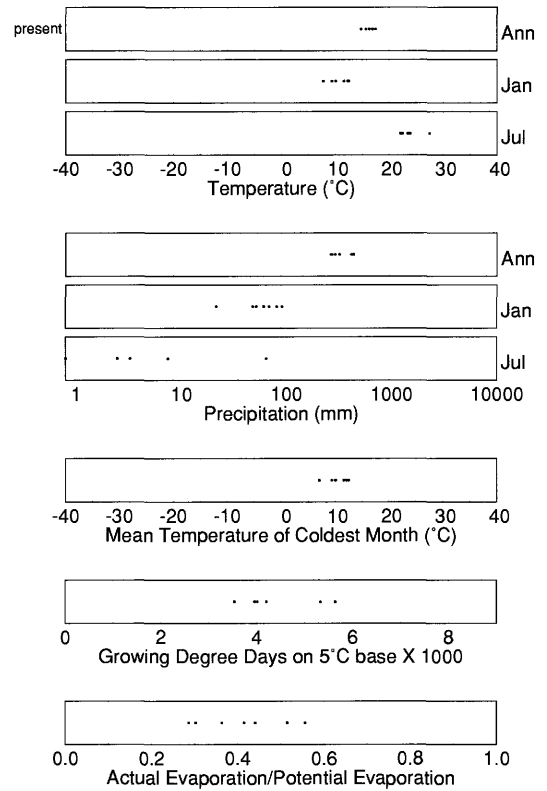


Growing Degree Days on 5°C Base X 1000

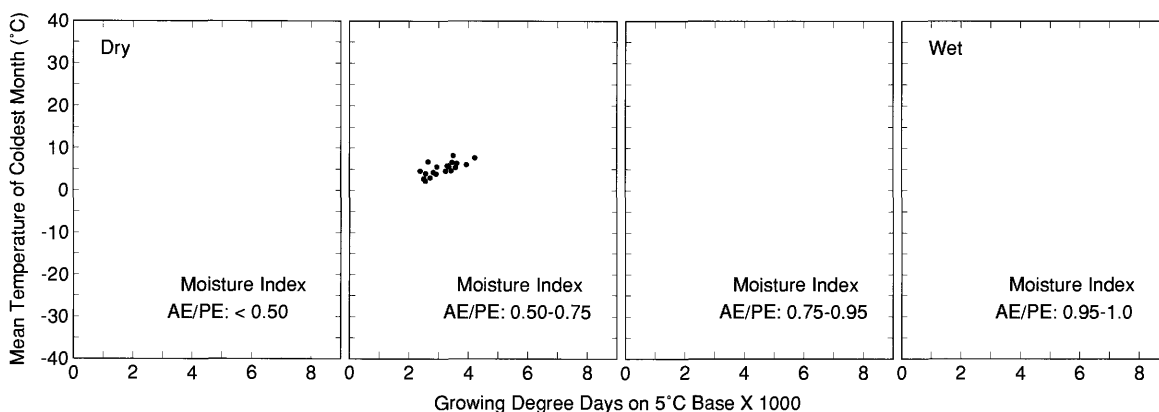
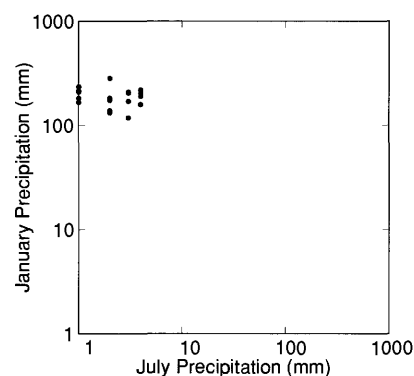
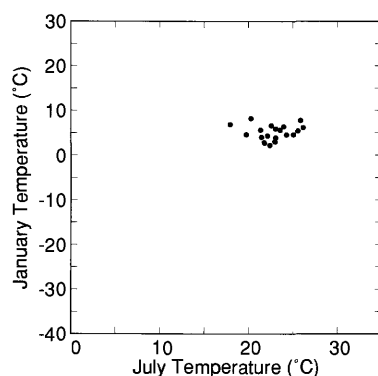
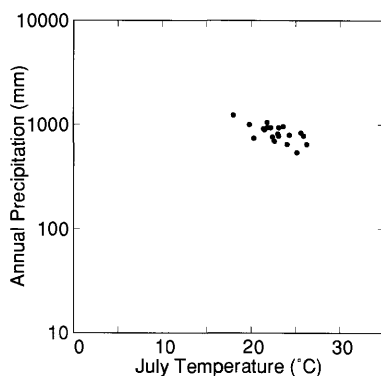
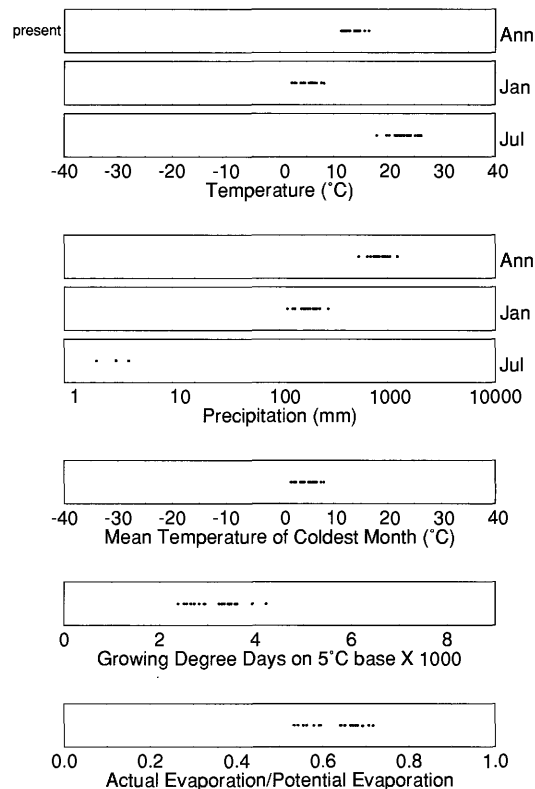
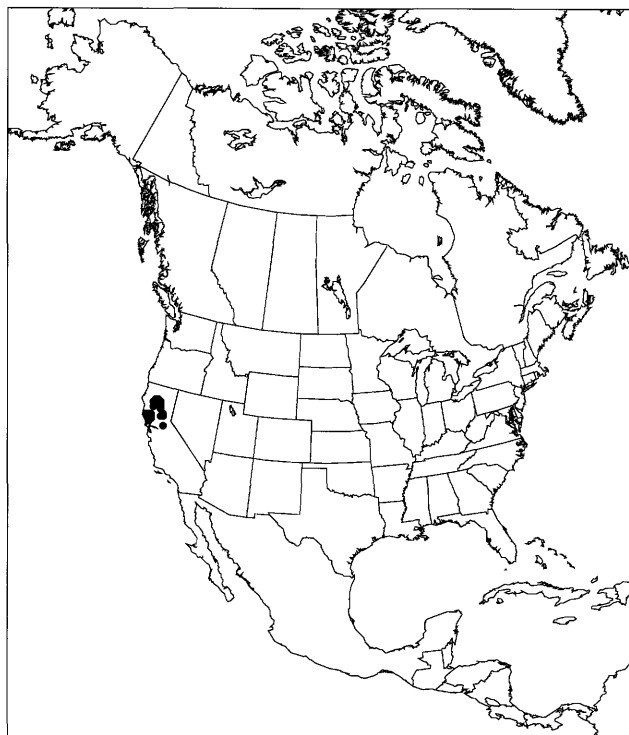
Cupressus goveniana (minimal data - nearest grid points used with environmental parameters)



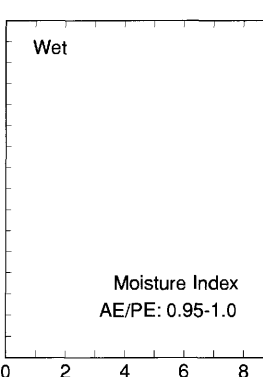
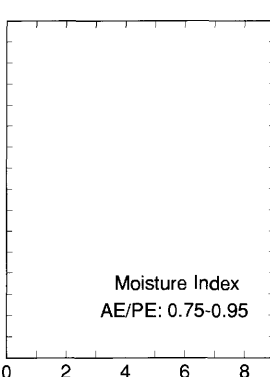
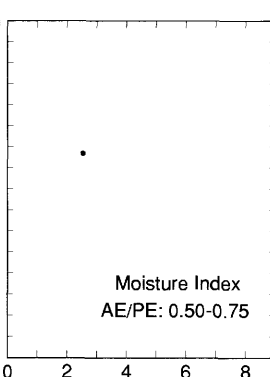
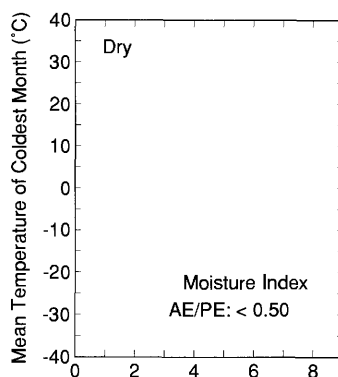
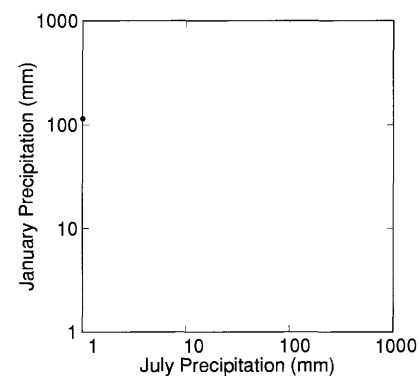
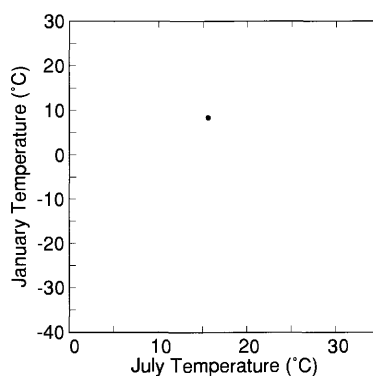
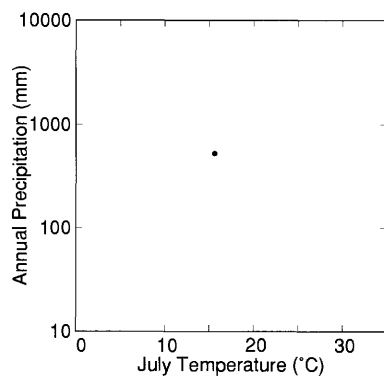
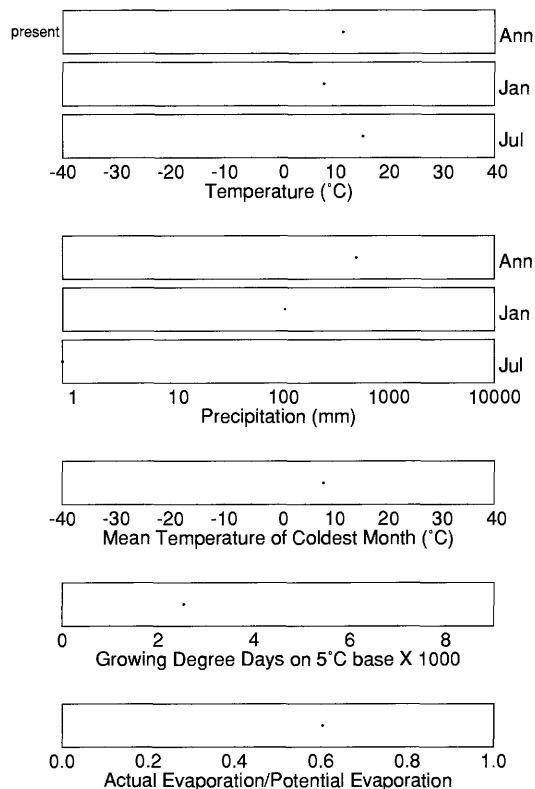
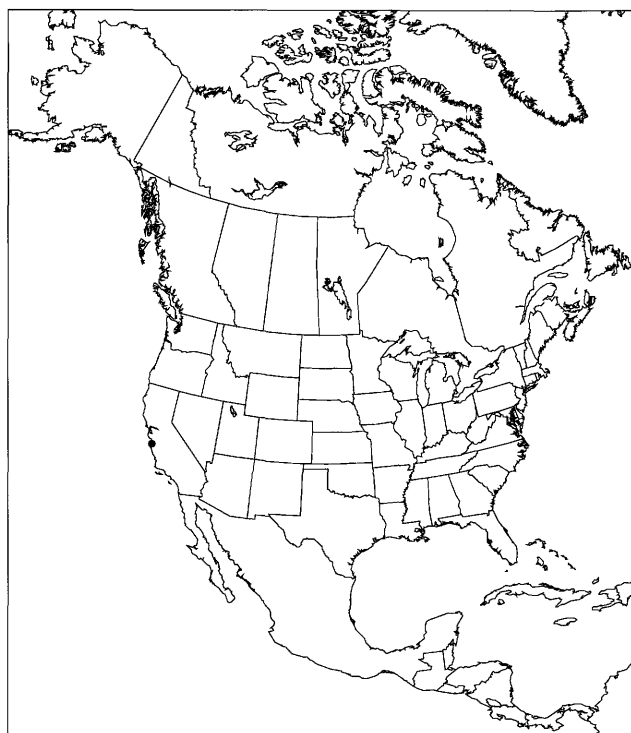
Cupressus guadalupensis (minimal data - nearest grid points used with environmental parameters)



Cupressus macnabiana (minimal data - nearest grid points used with environmental parameters)

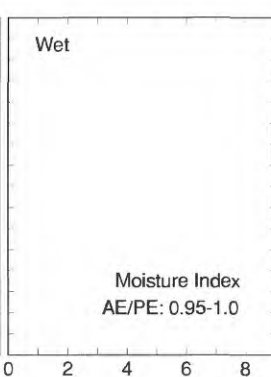
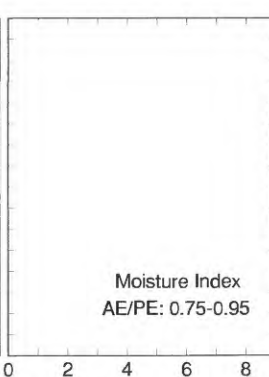
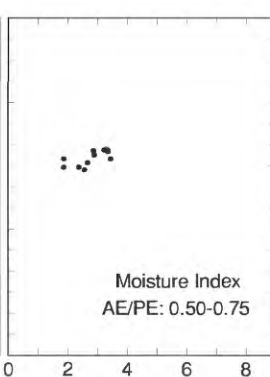
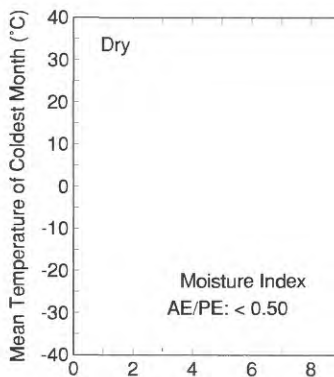
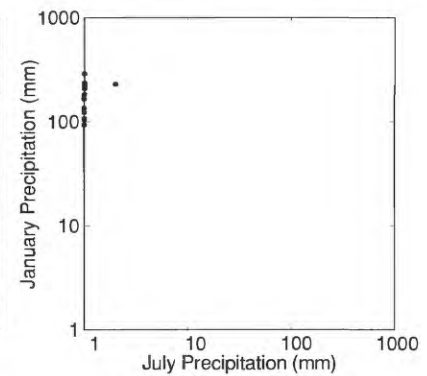
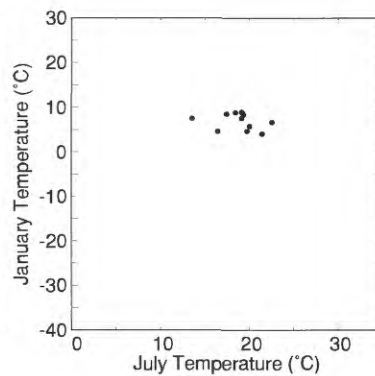
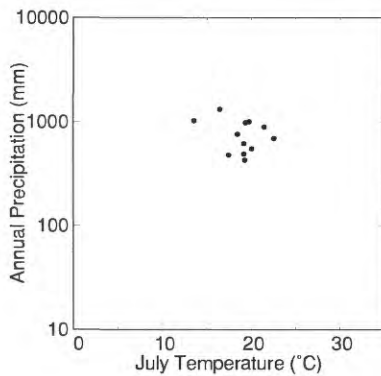
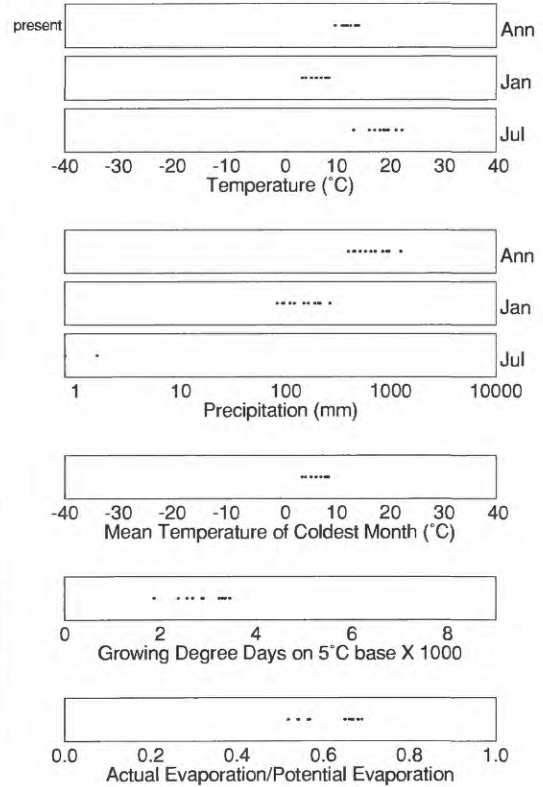


Cupressus macrocarpa (minimal data - nearest grid points used with environmental parameters)

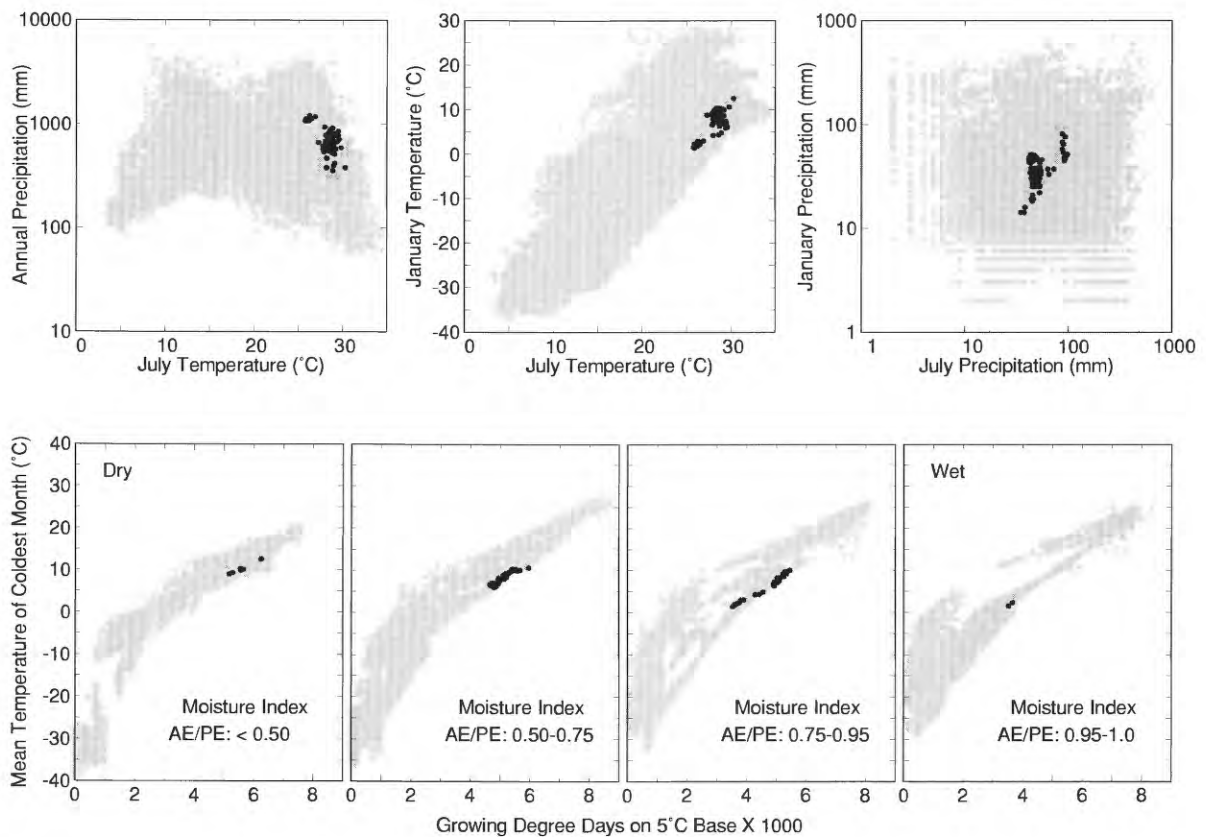
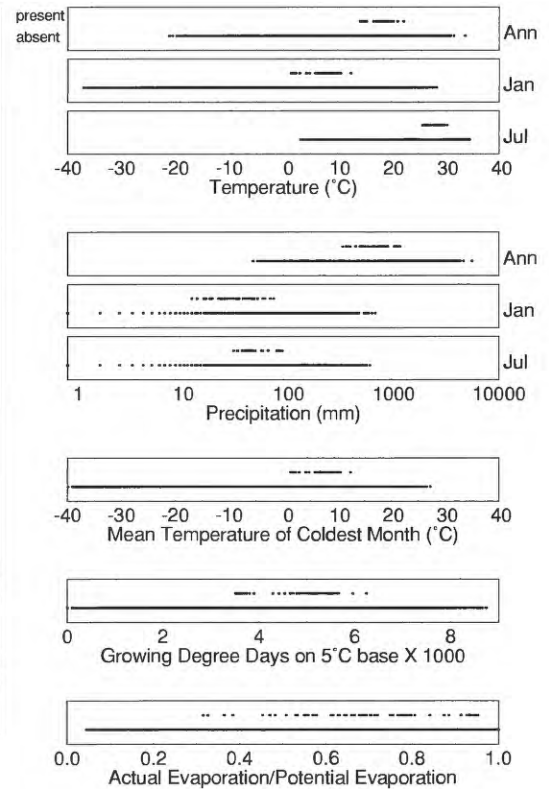


Growing Degree Days on 5°C Base X 1000

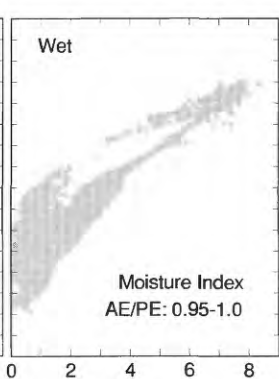
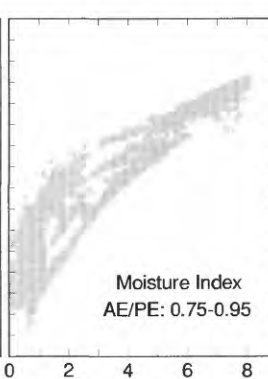
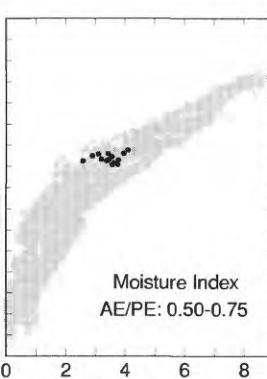
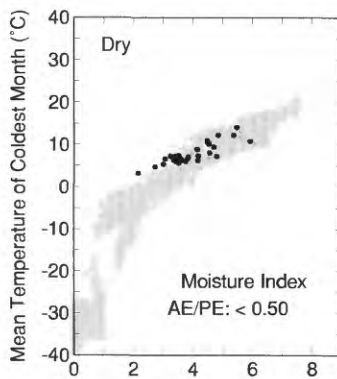
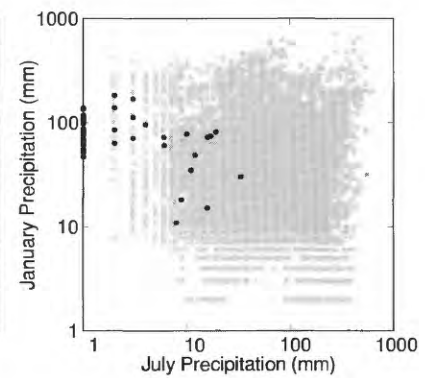
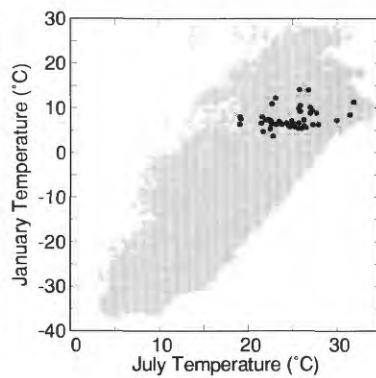
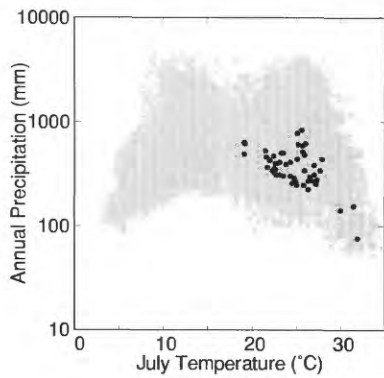
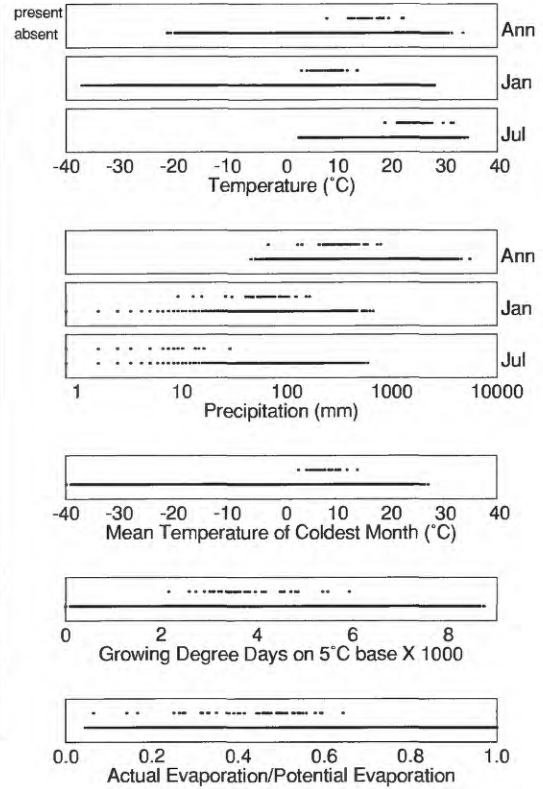
Cupressus sargentii (minimal data - nearest grid points used with environmental parameters)



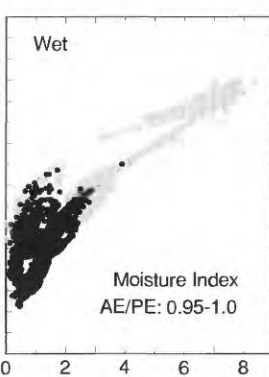
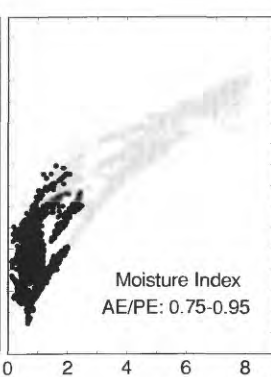
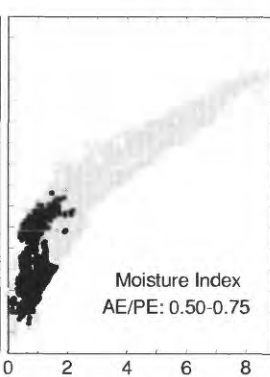
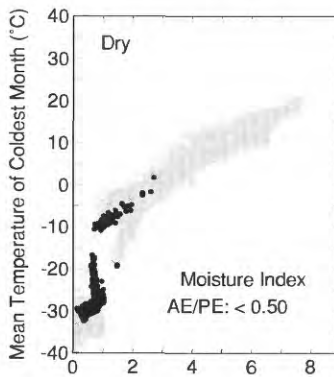
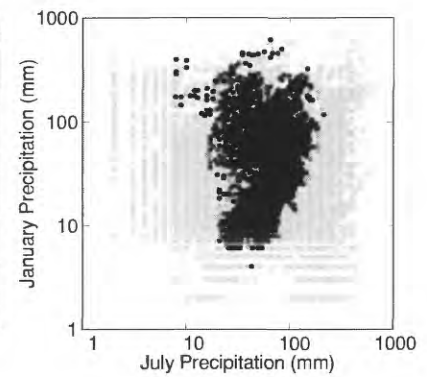
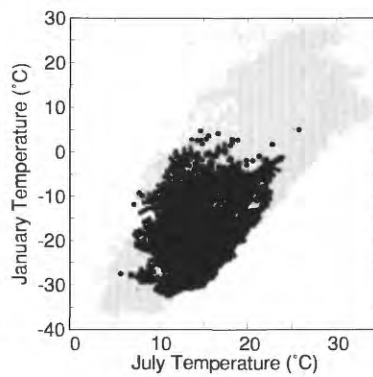
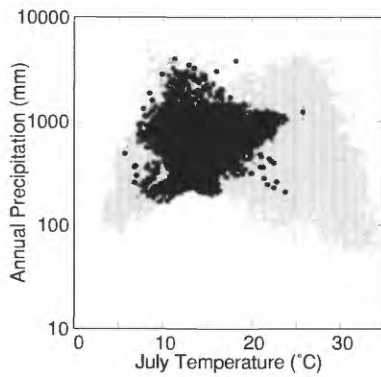
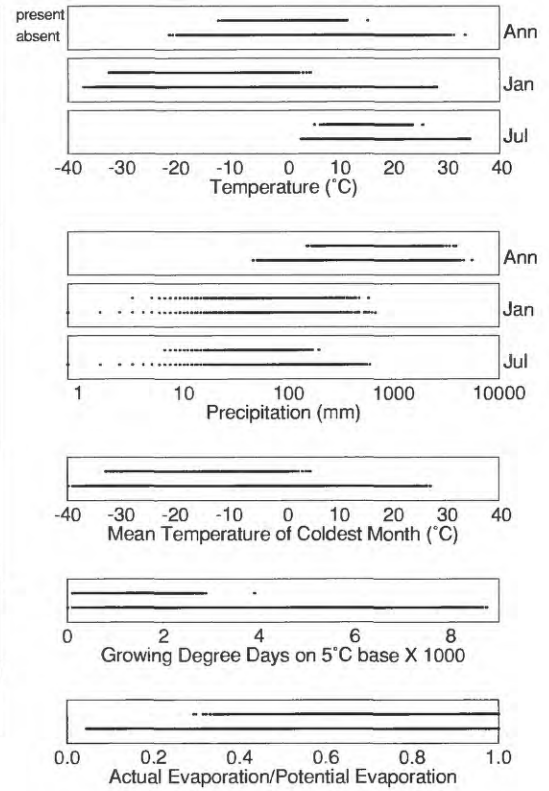
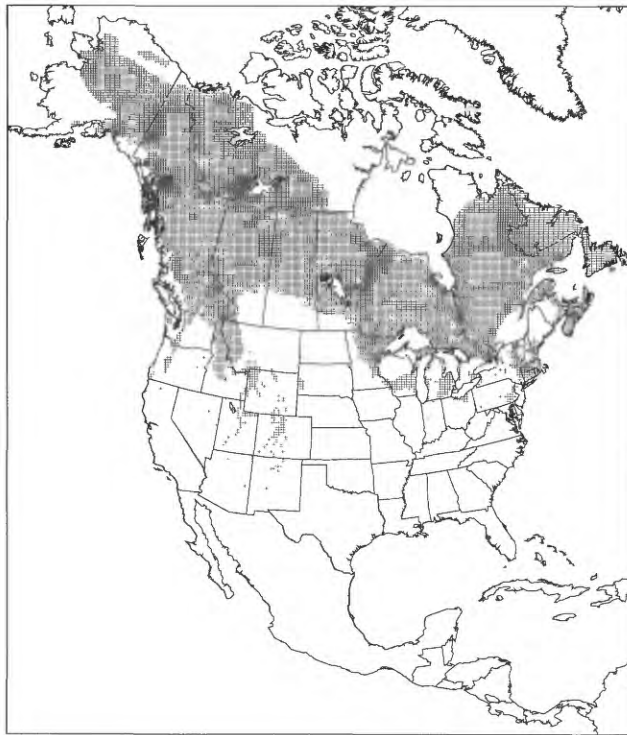
Juniperus ashei



Juniperus californica

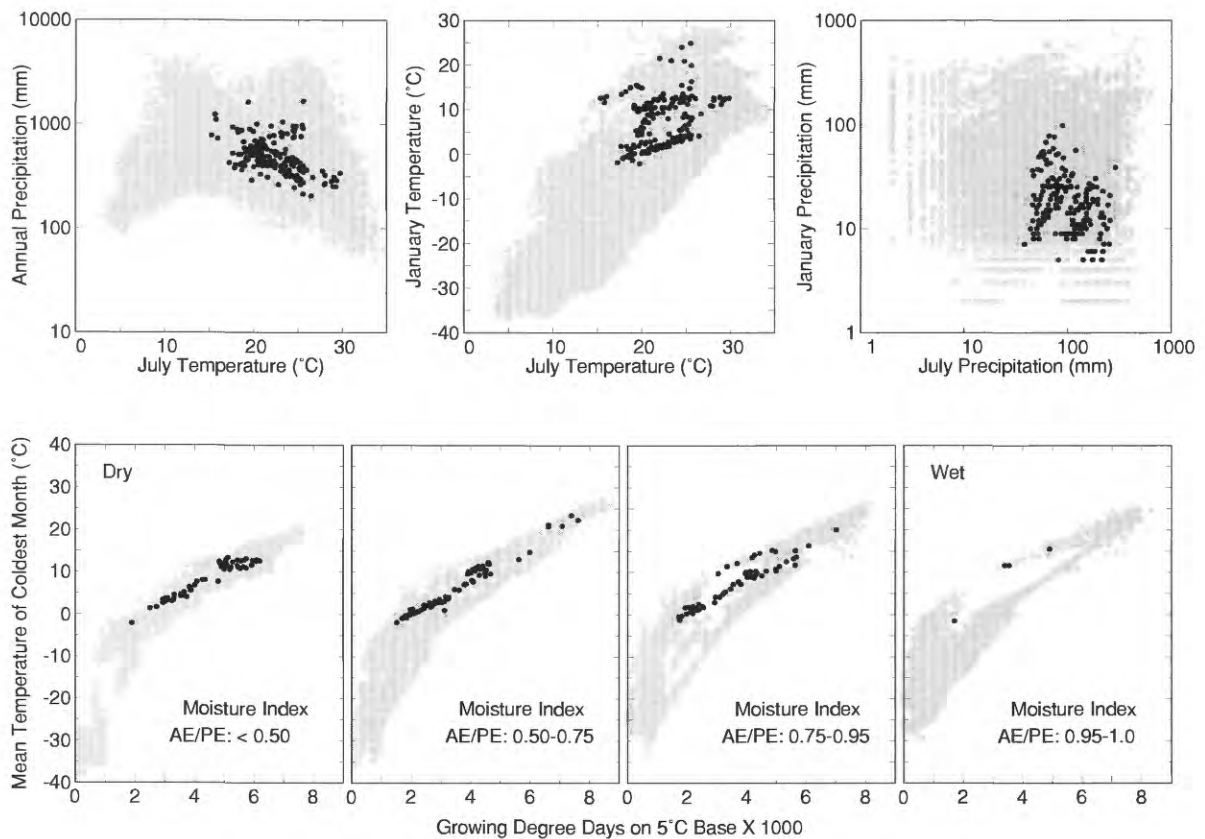
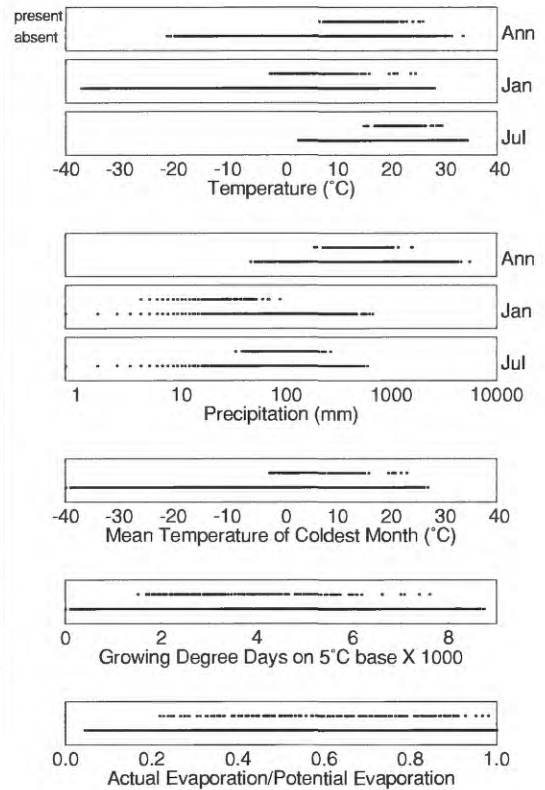


Juniperus communis

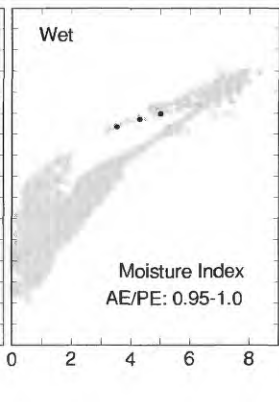
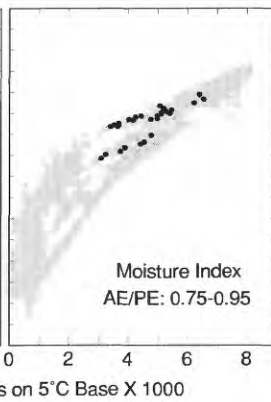
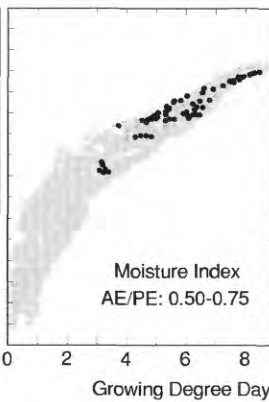
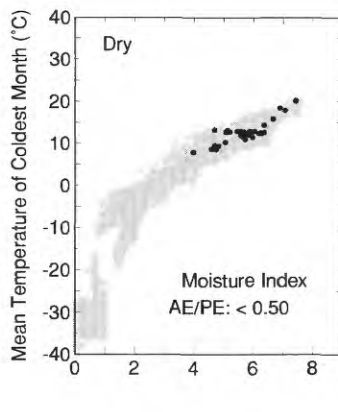
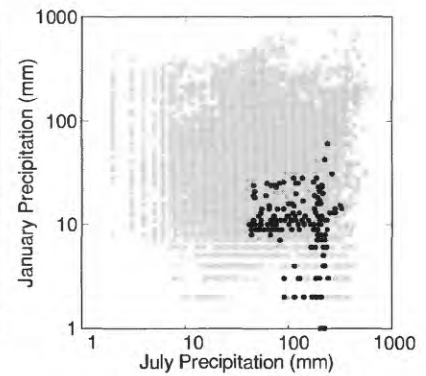
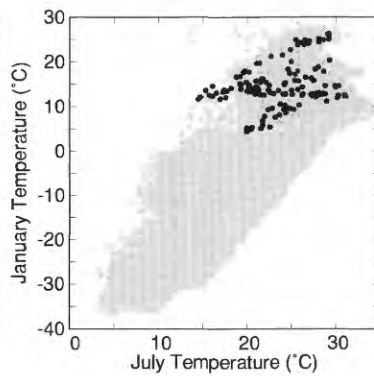
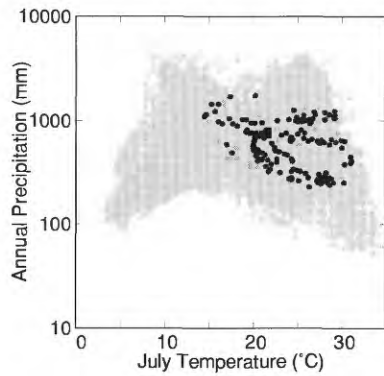
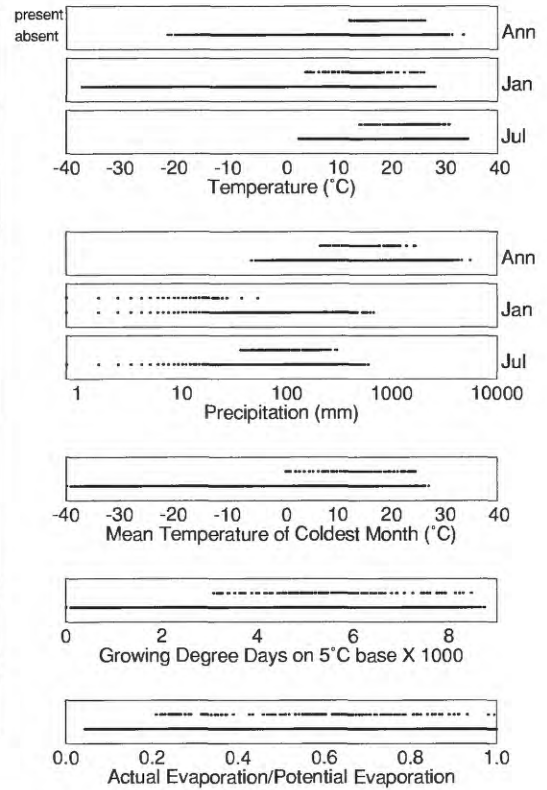


Growing Degree Days on 5°C Base X 1000

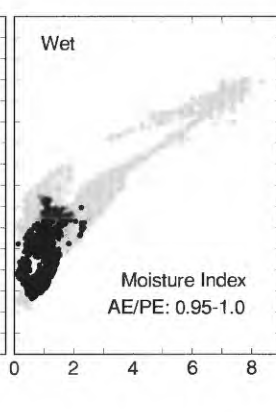
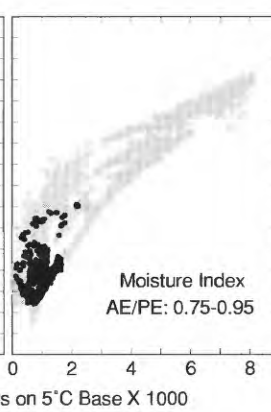
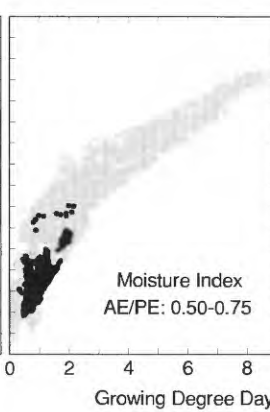
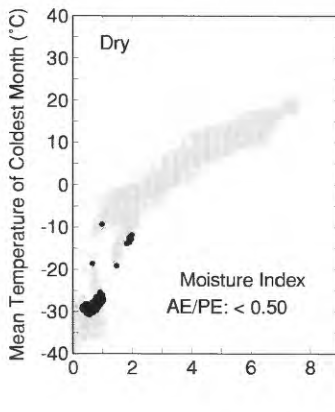
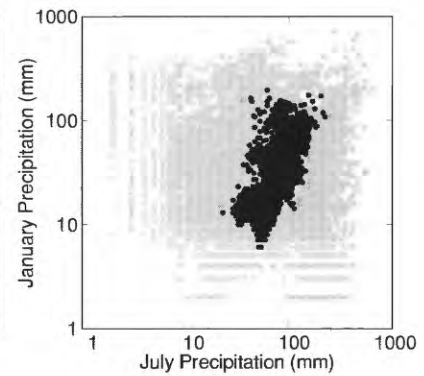
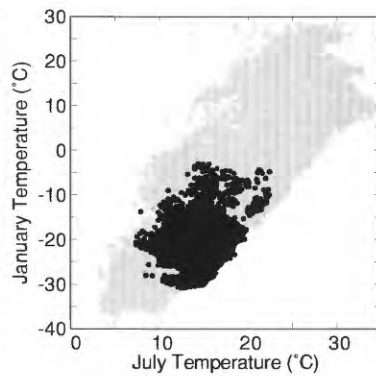
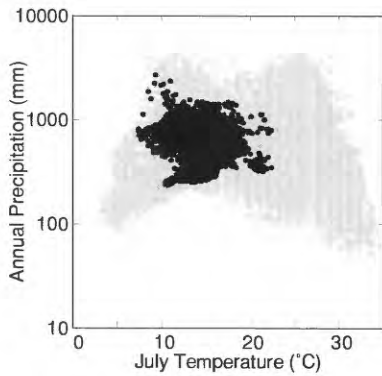
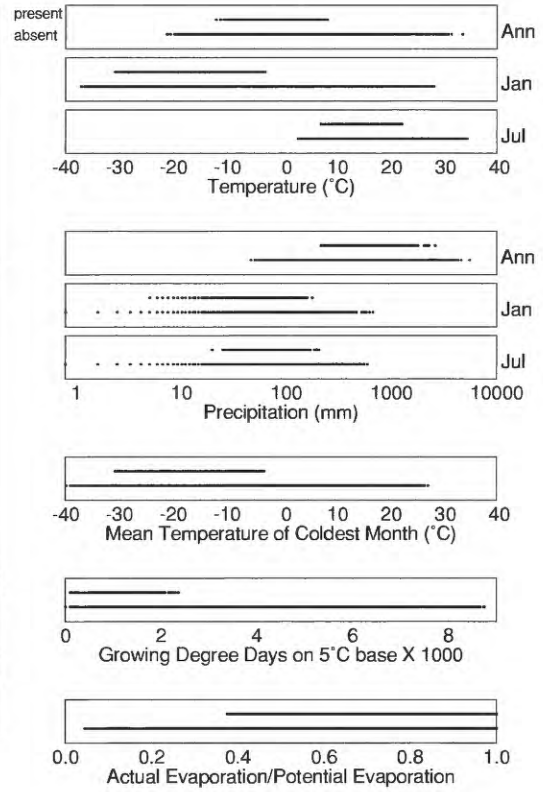
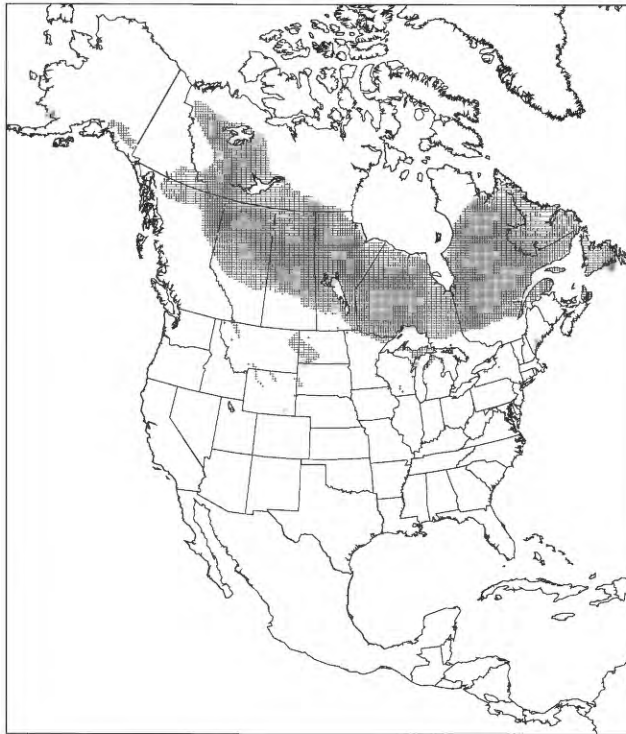
Juniperus deppeana



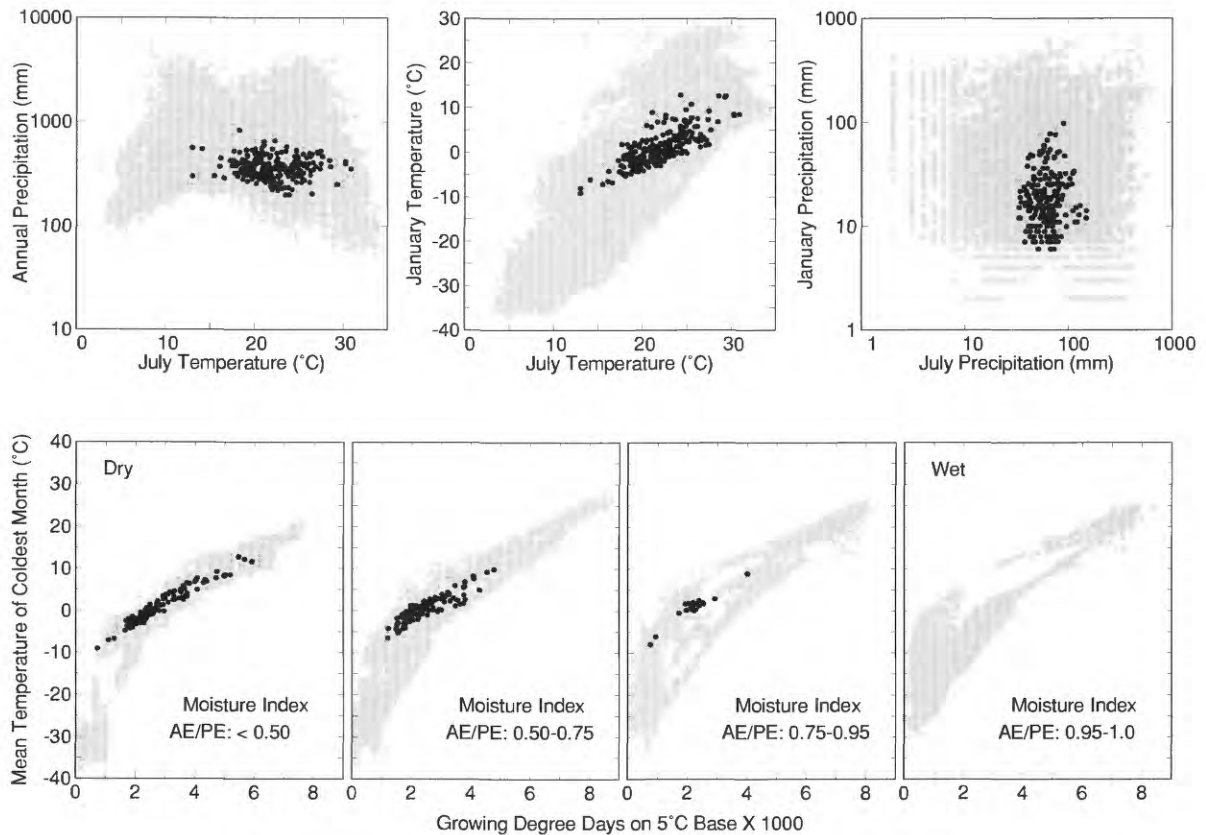
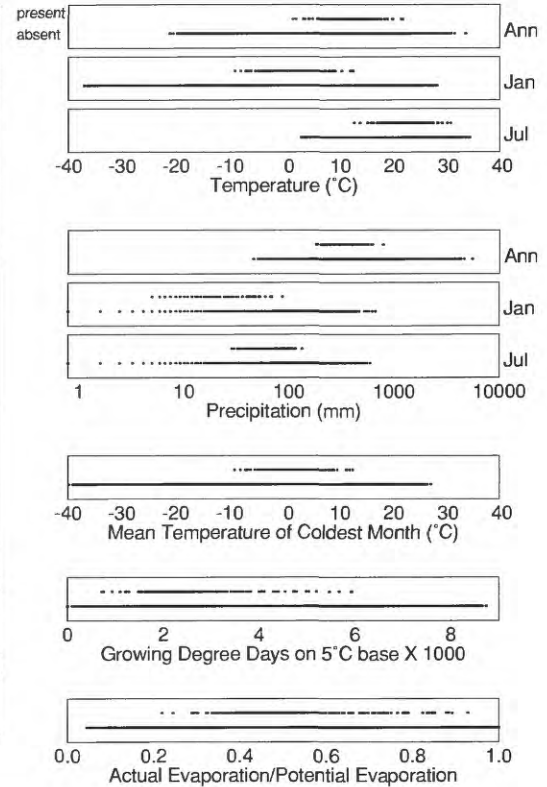
Juniperus flaccida



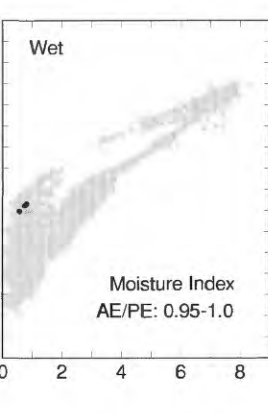
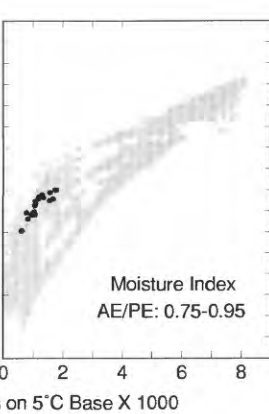
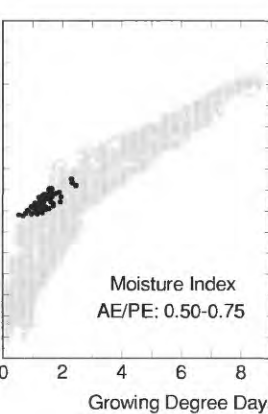
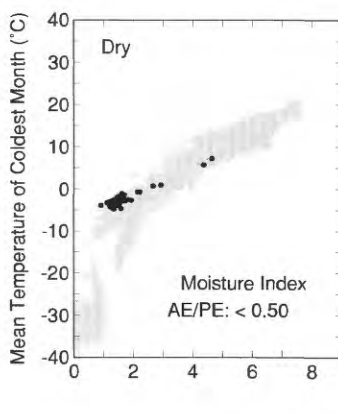
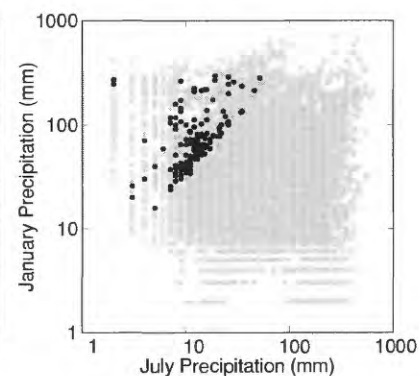
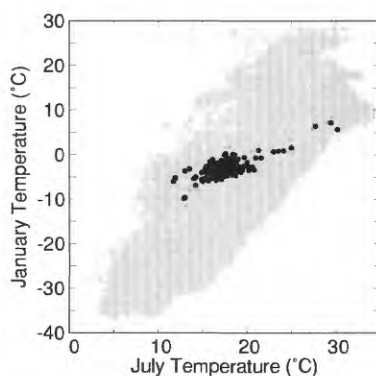
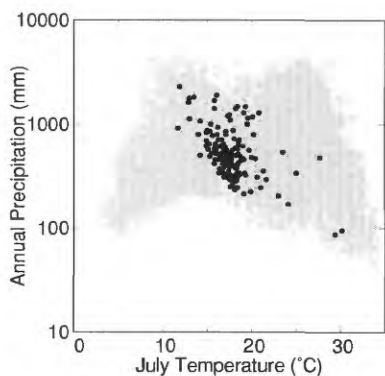
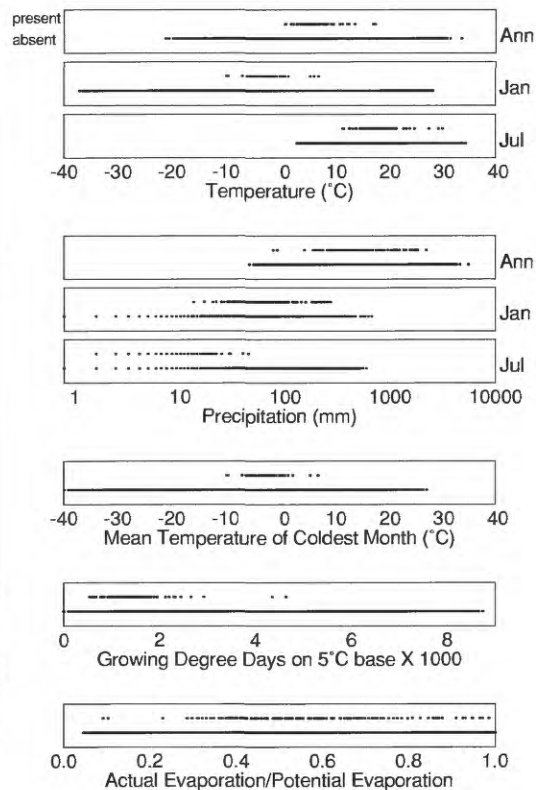
Juniperus horizontalis



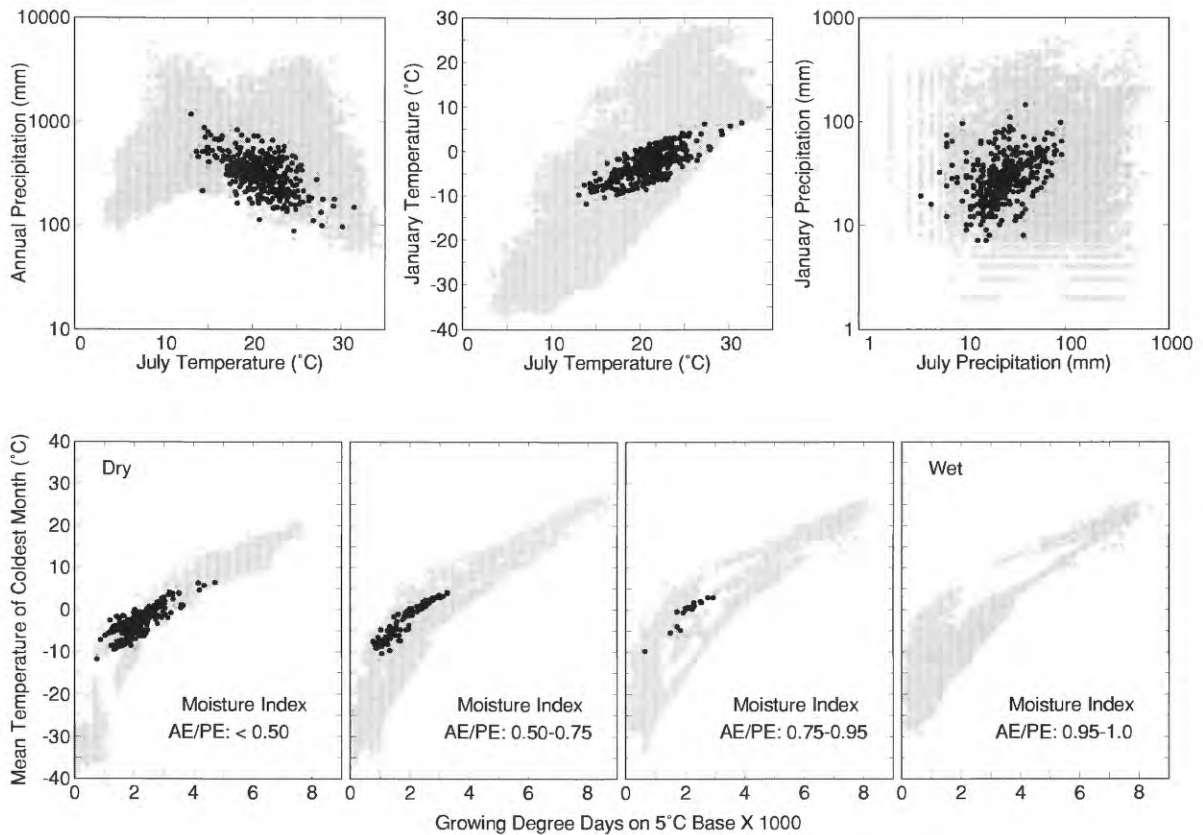
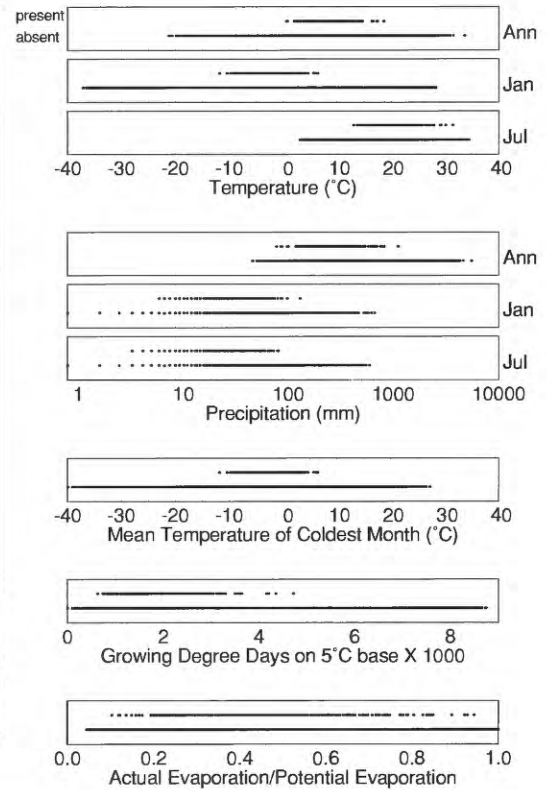
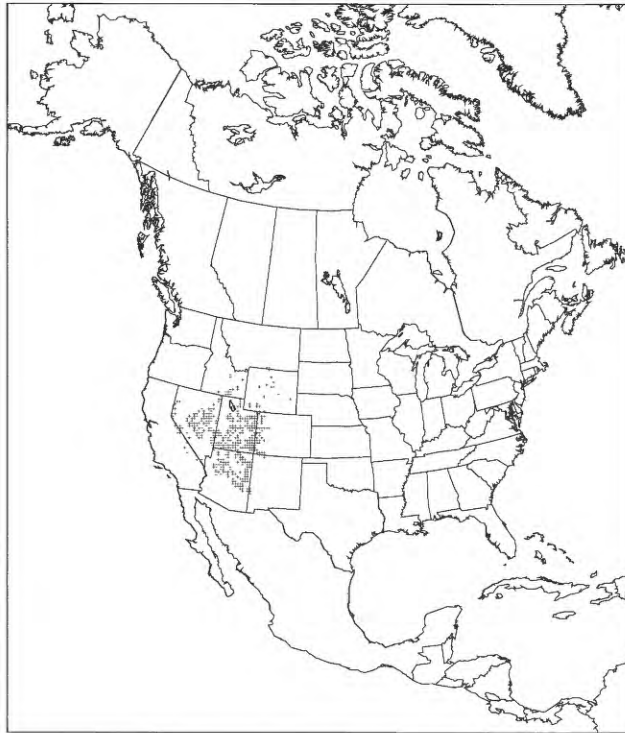
Juniperus monosperma



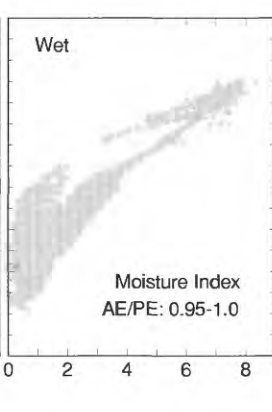
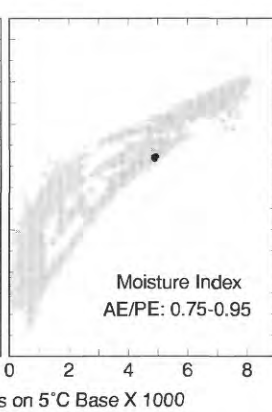
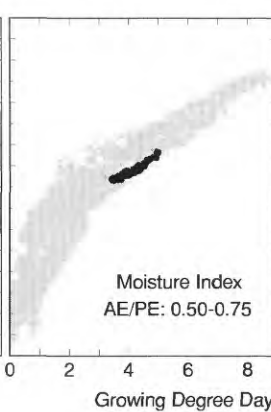
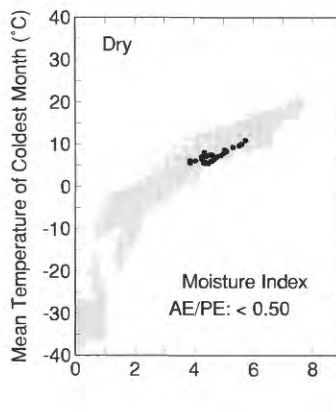
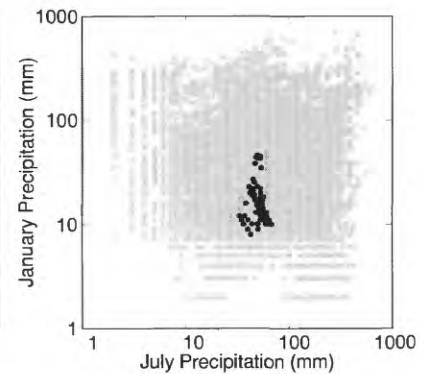
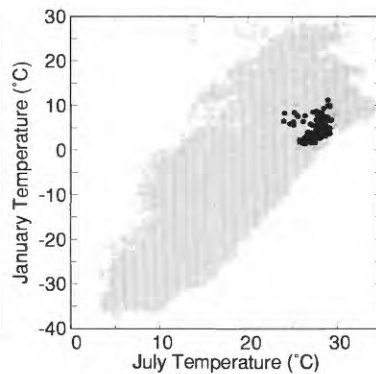
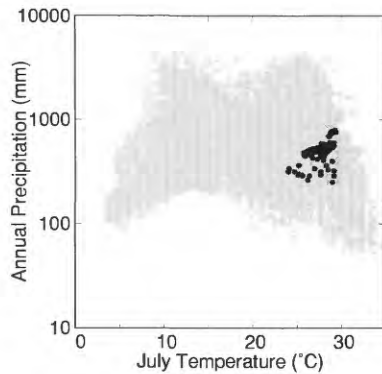
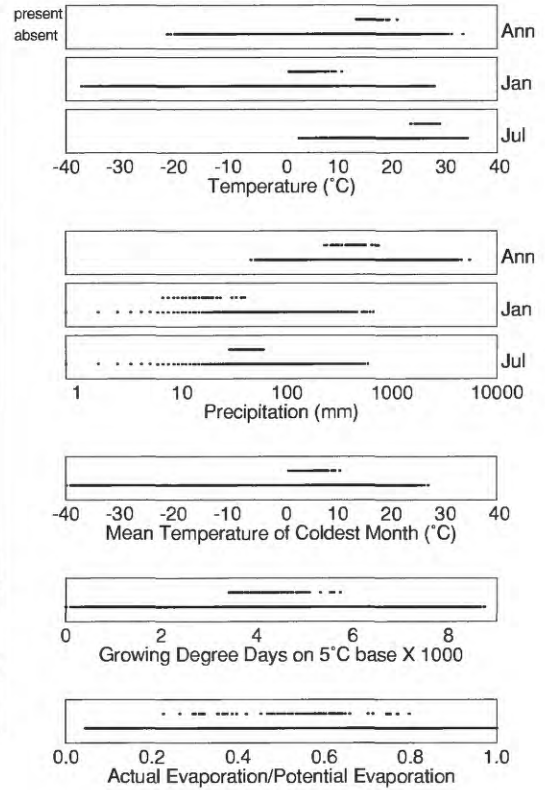
Juniperus occidentalis



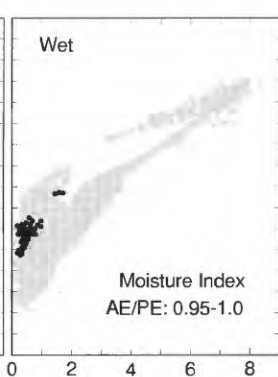
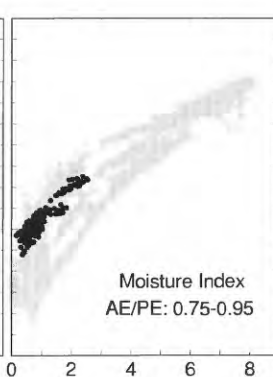
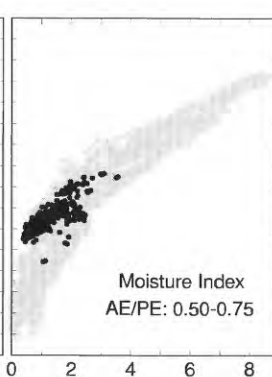
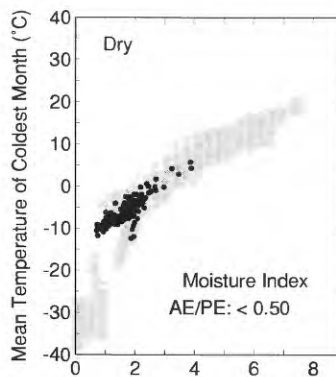
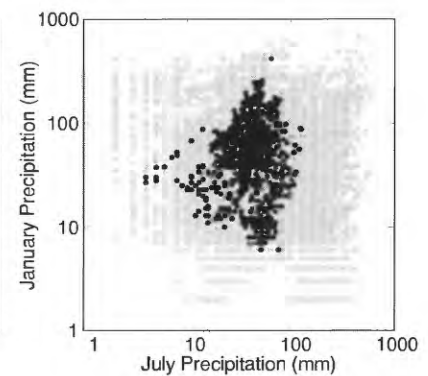
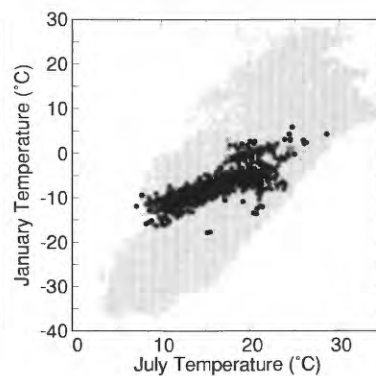
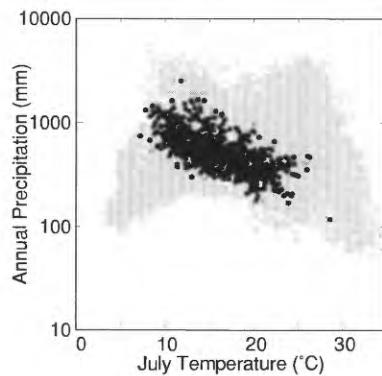
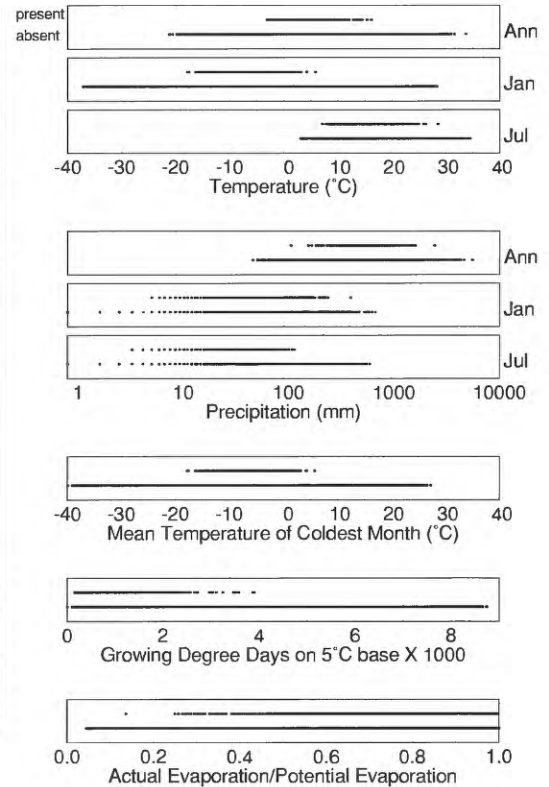
Juniperus osteosperma



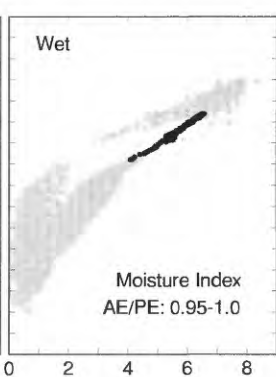
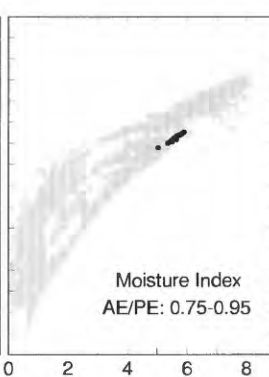
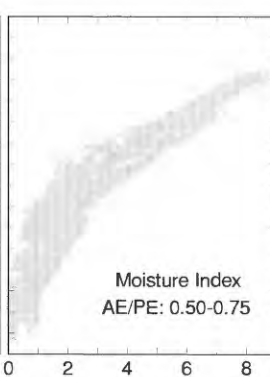
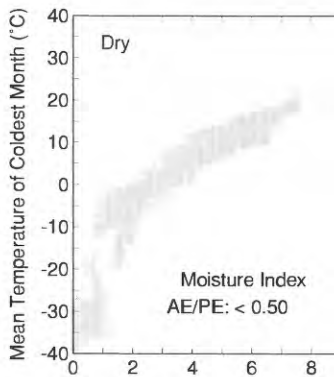
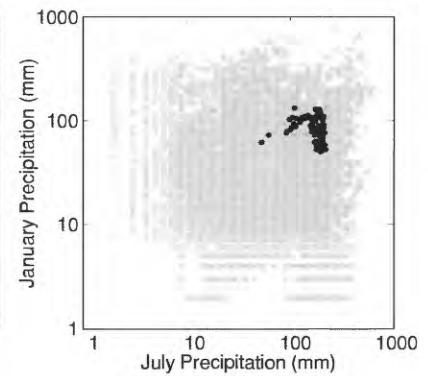
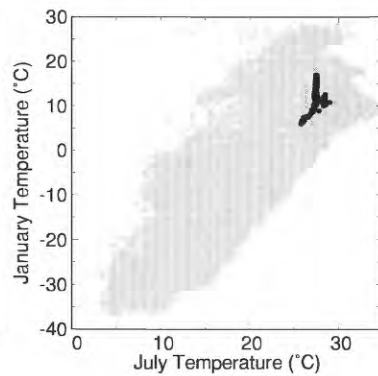
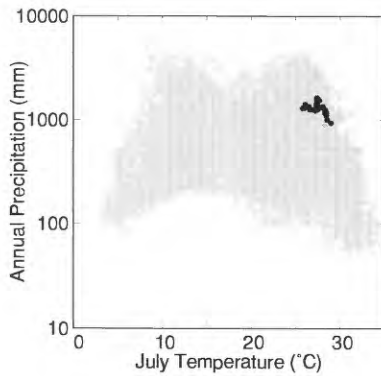
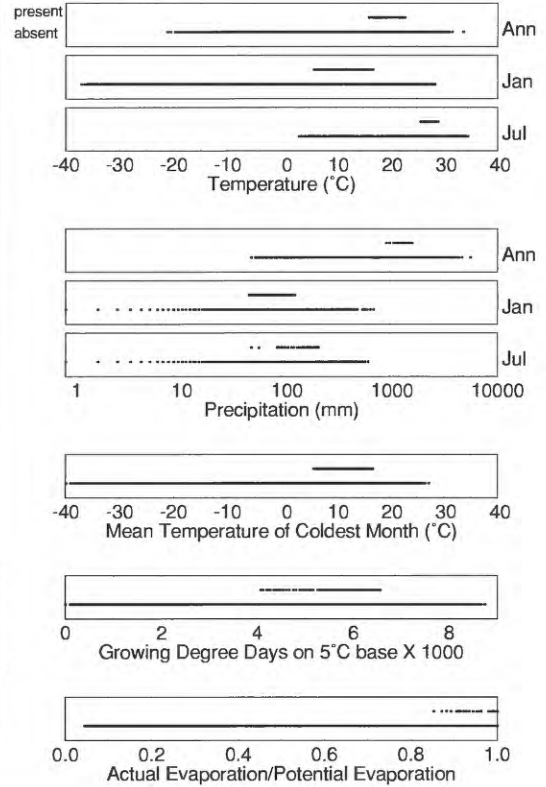
Juniperus pinchotii



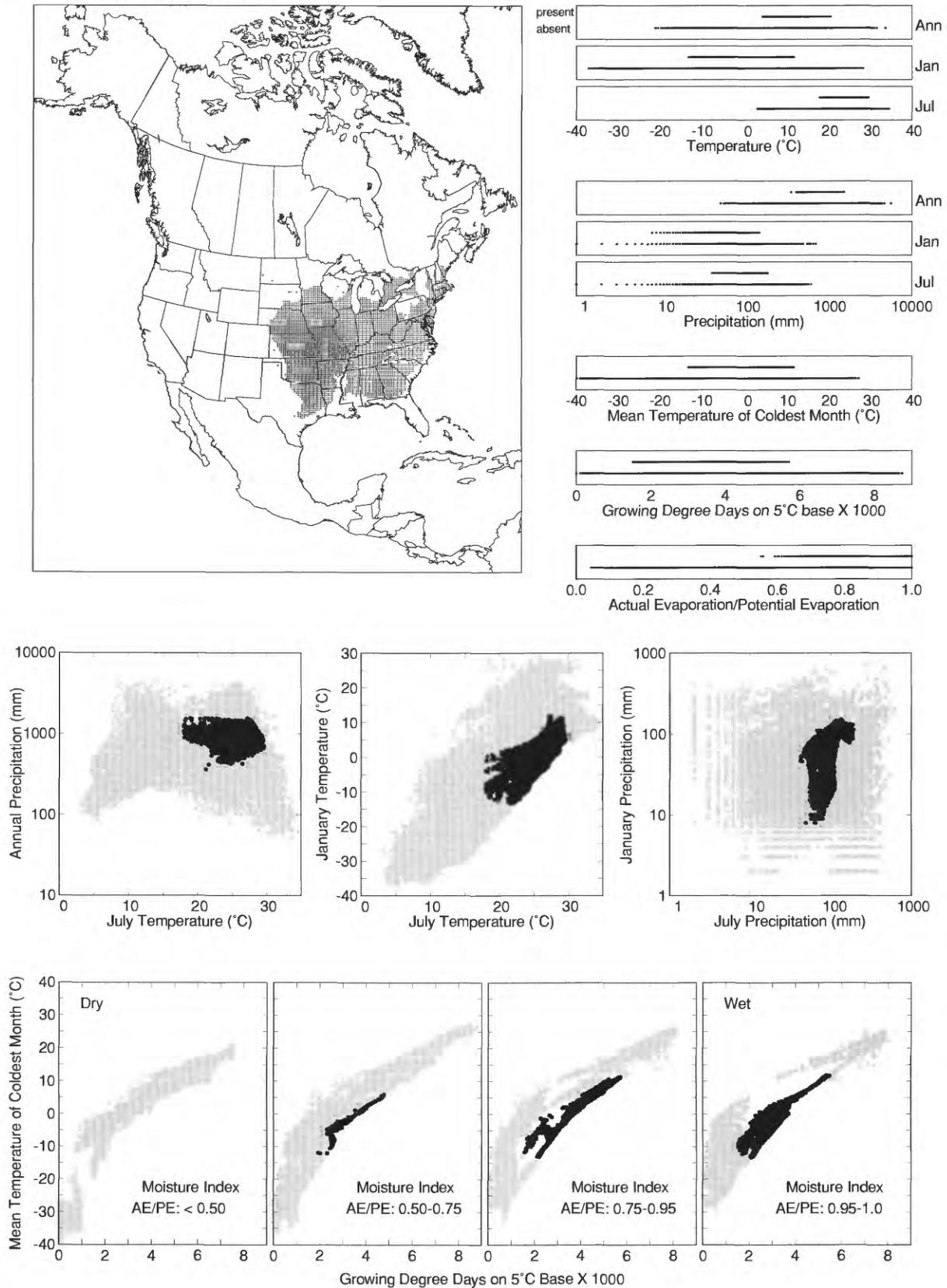
Juniperus scopulorum



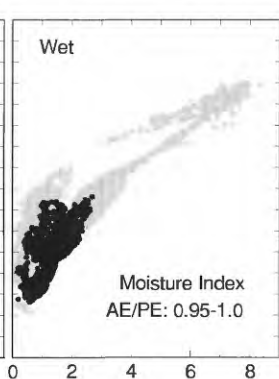
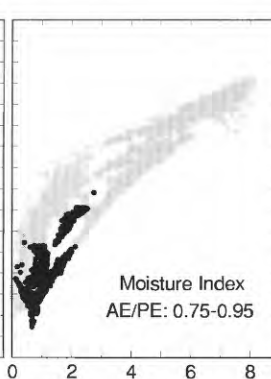
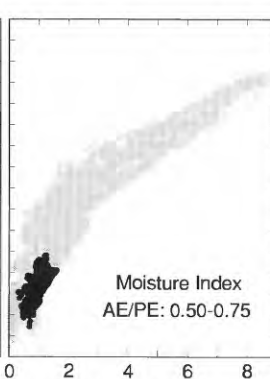
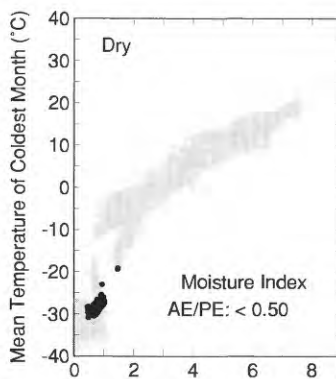
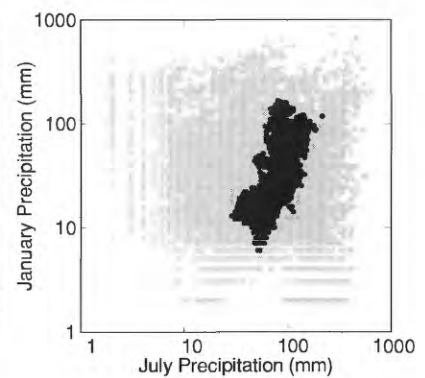
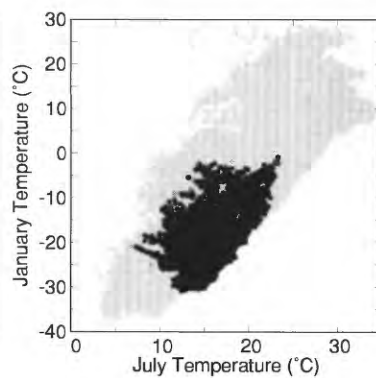
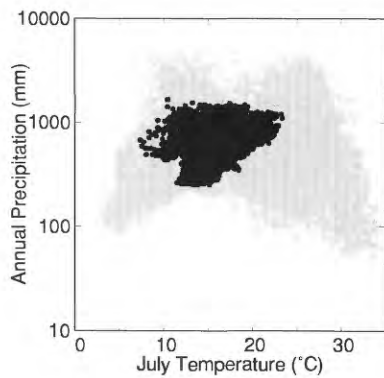
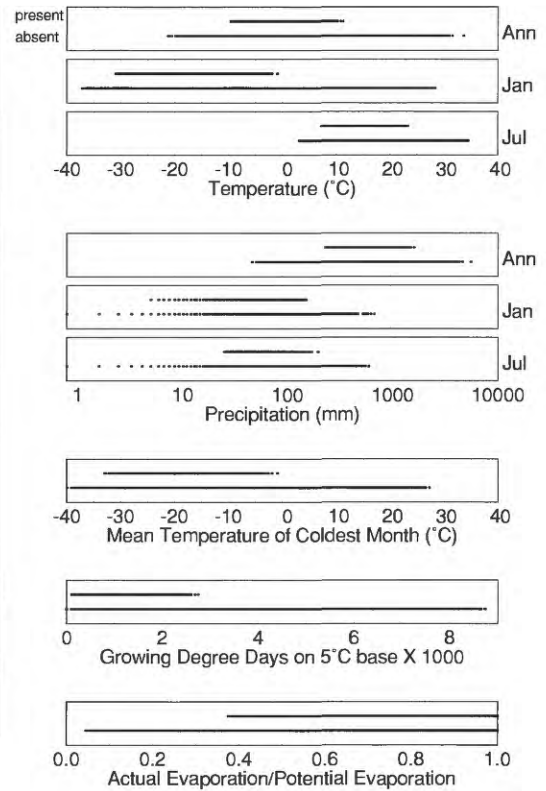
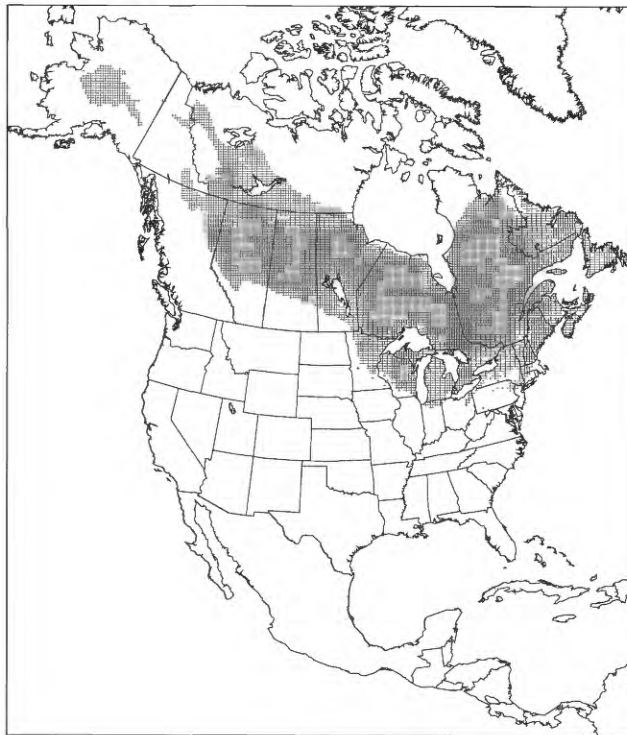
Juniperus silicicola



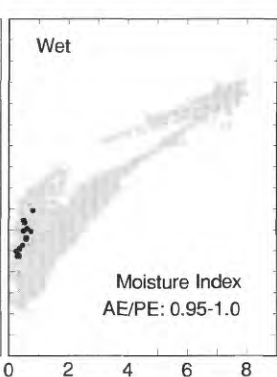
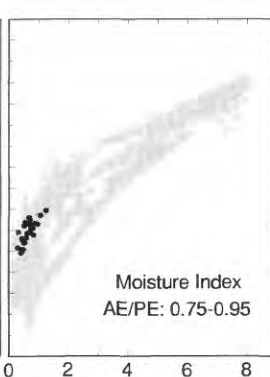
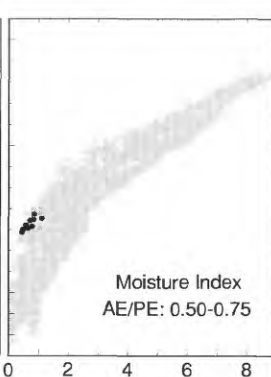
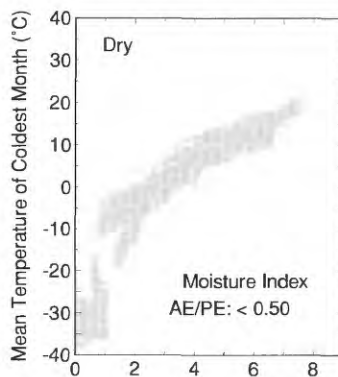
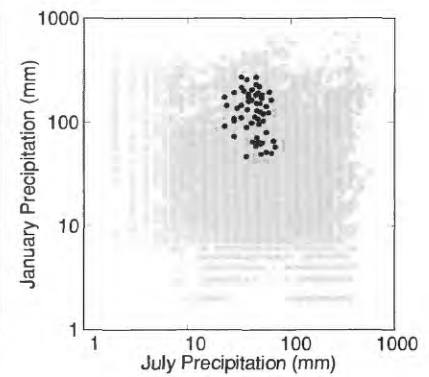
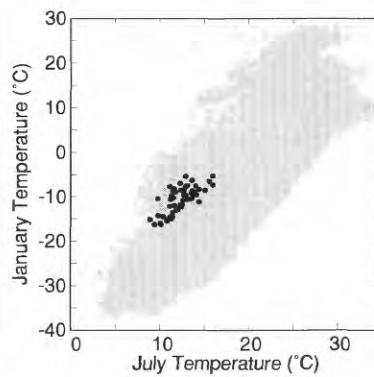
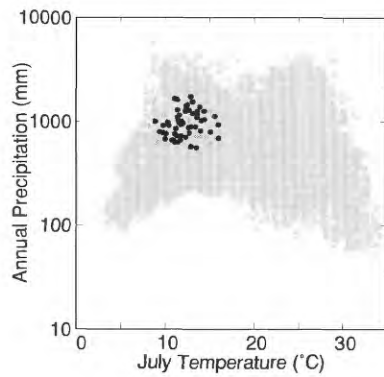
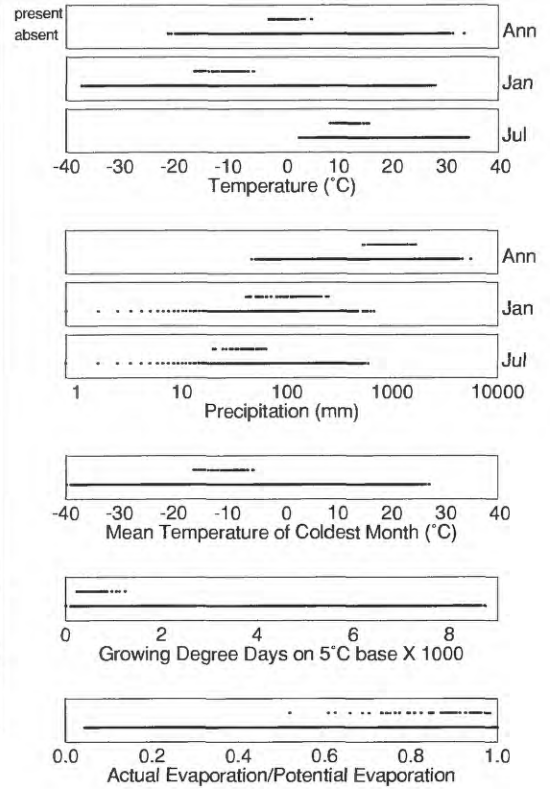
Juniperus virginiana



Larix laricina

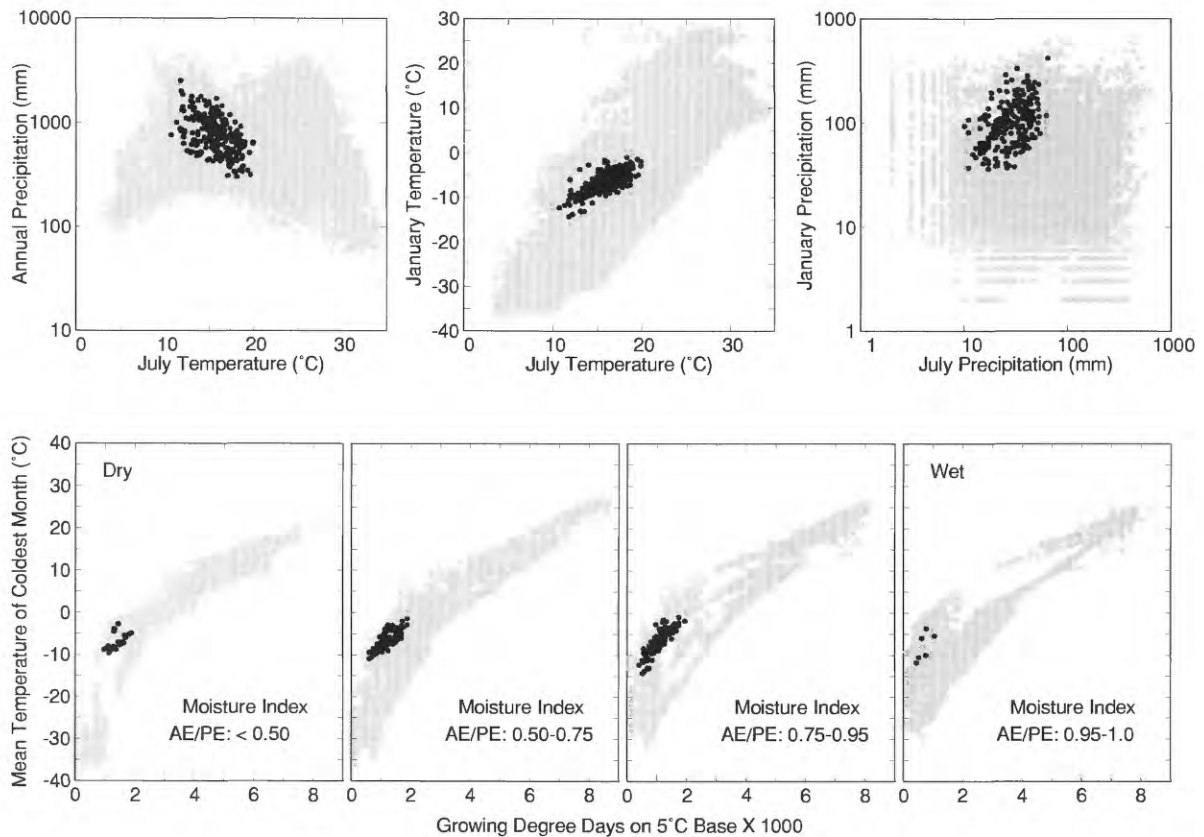
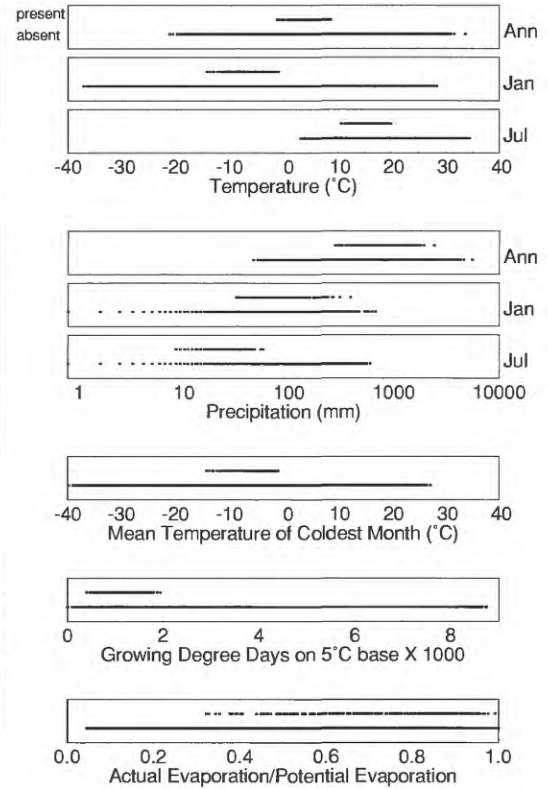
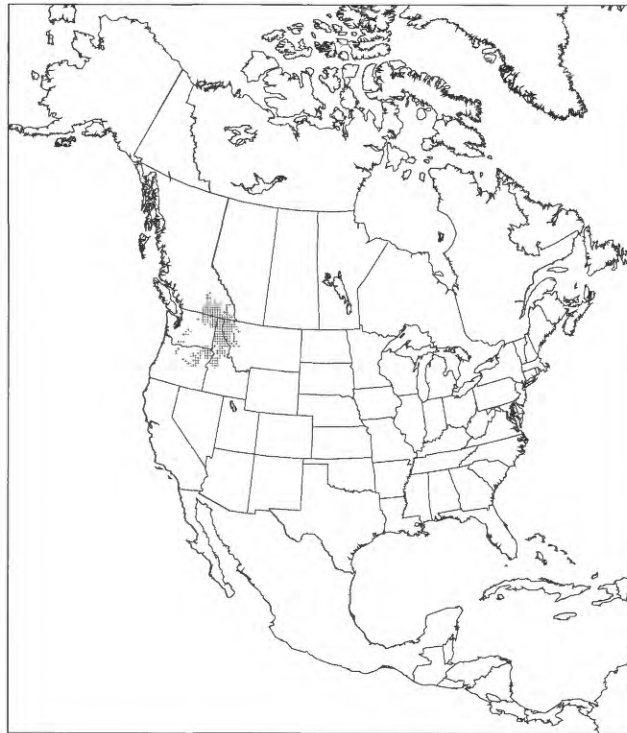


Larix lyallii

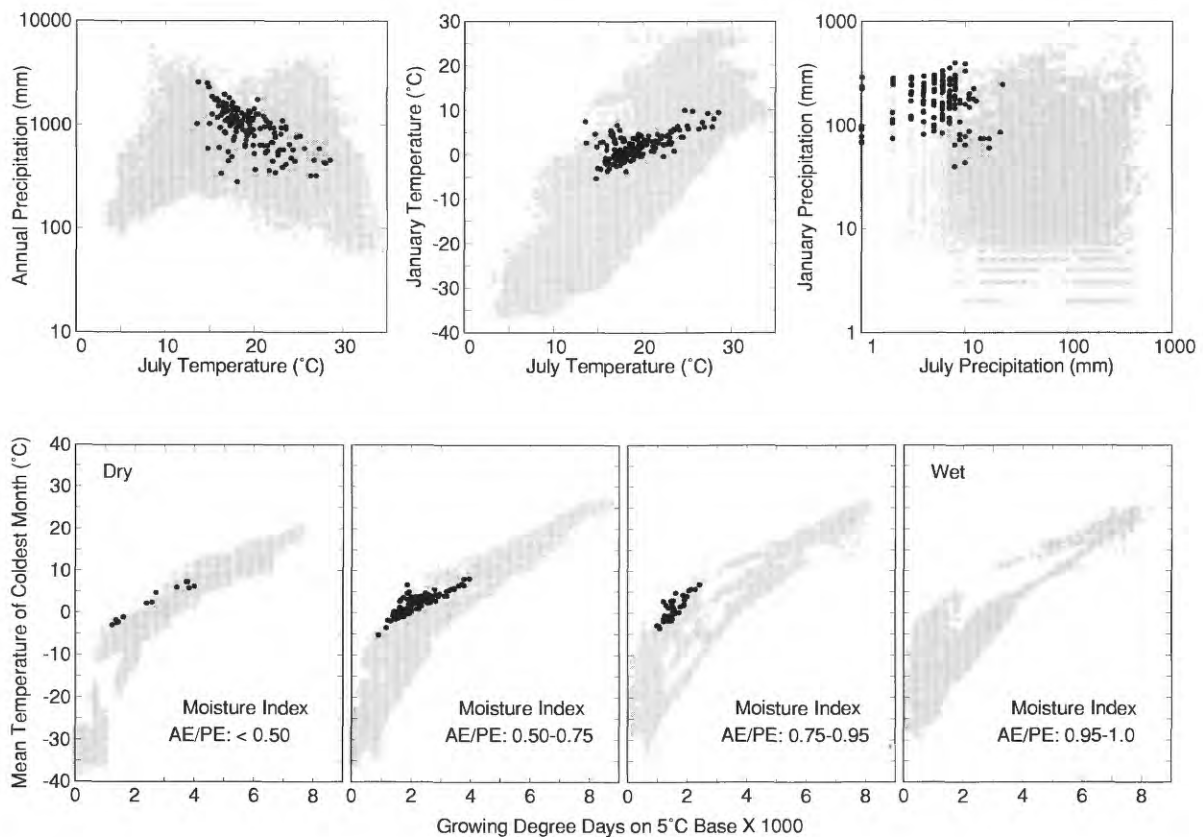
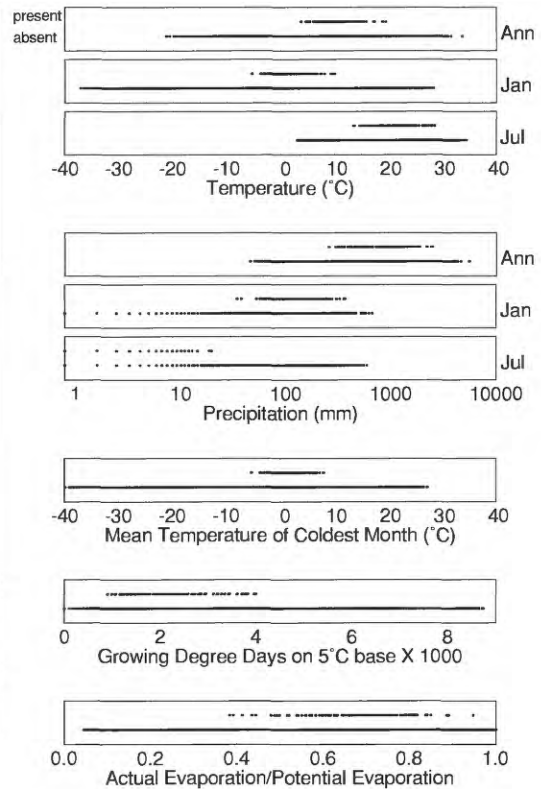


Growing Degree Days on 5°C Base X 1000

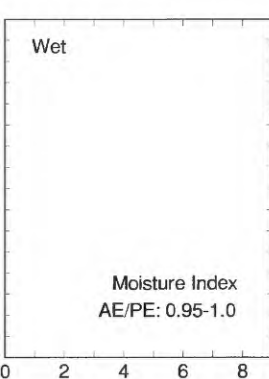
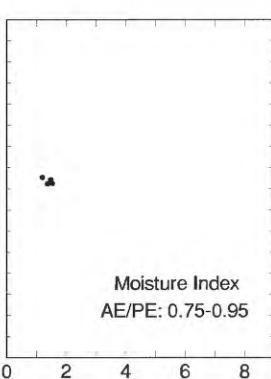
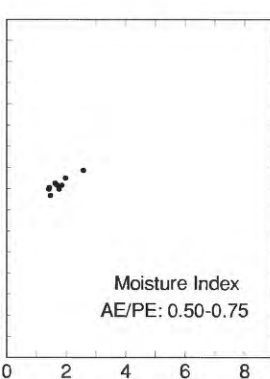
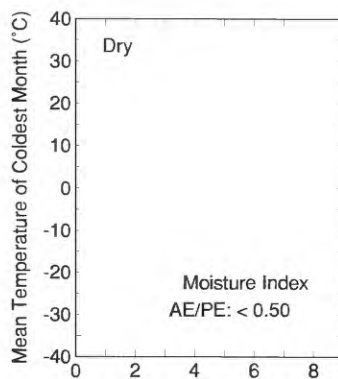
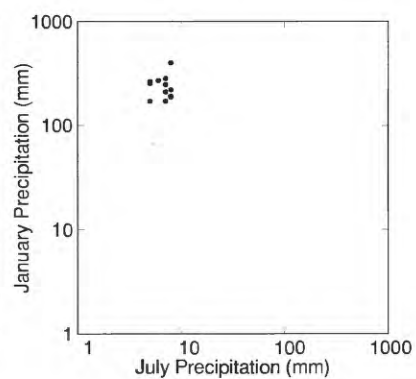
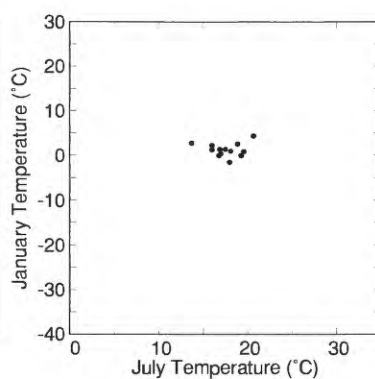
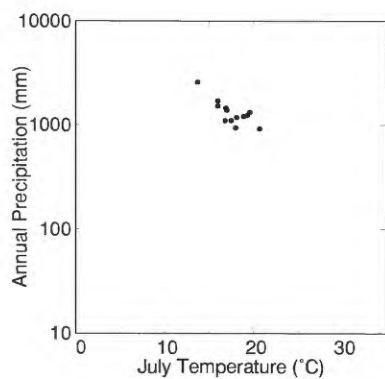
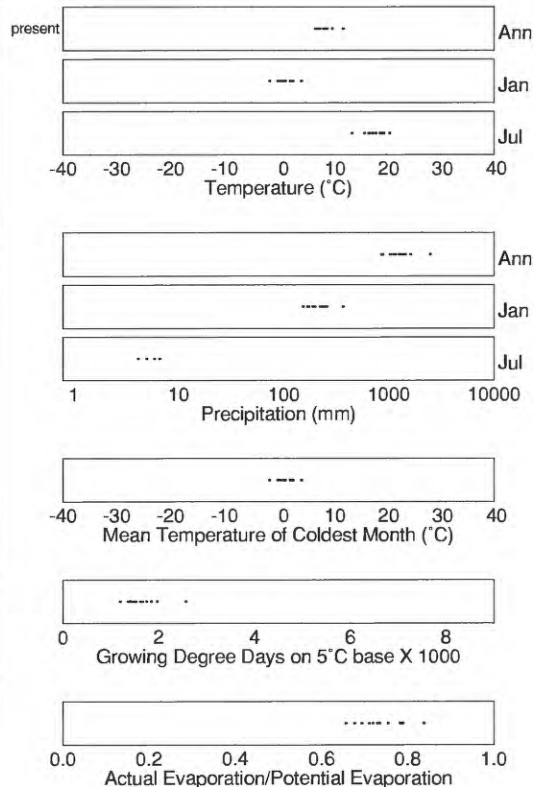
Larix occidentalis



Libocedrus decurrens

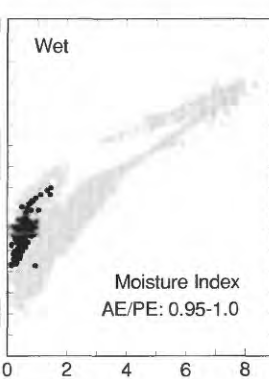
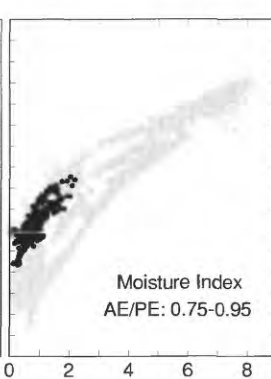
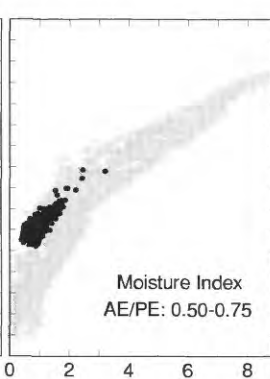
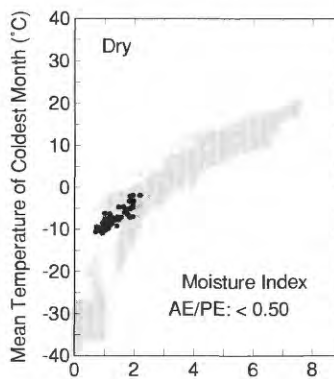
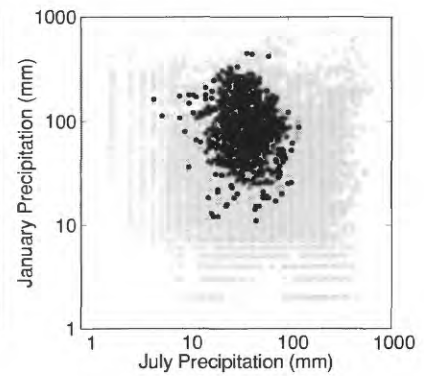
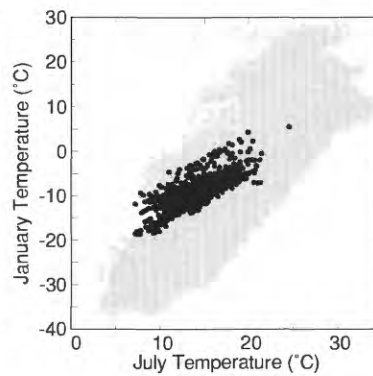
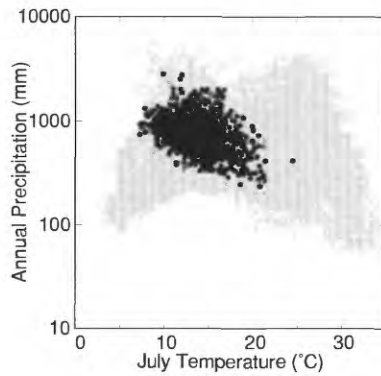
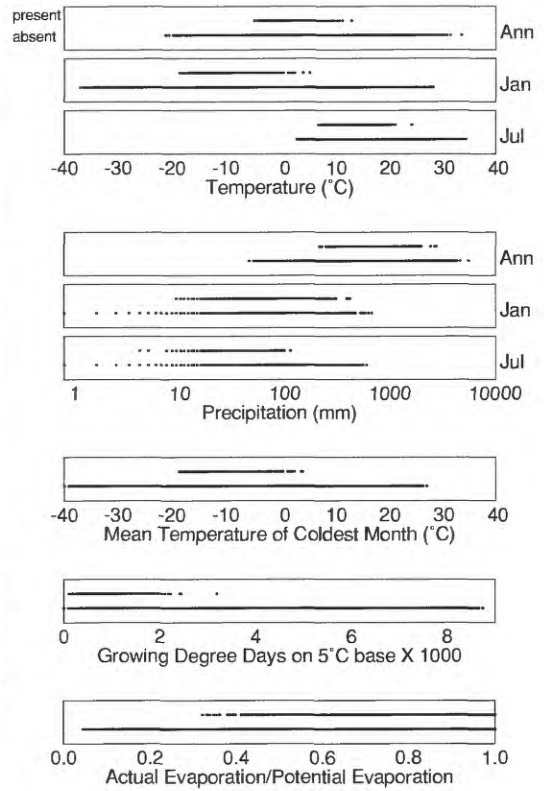
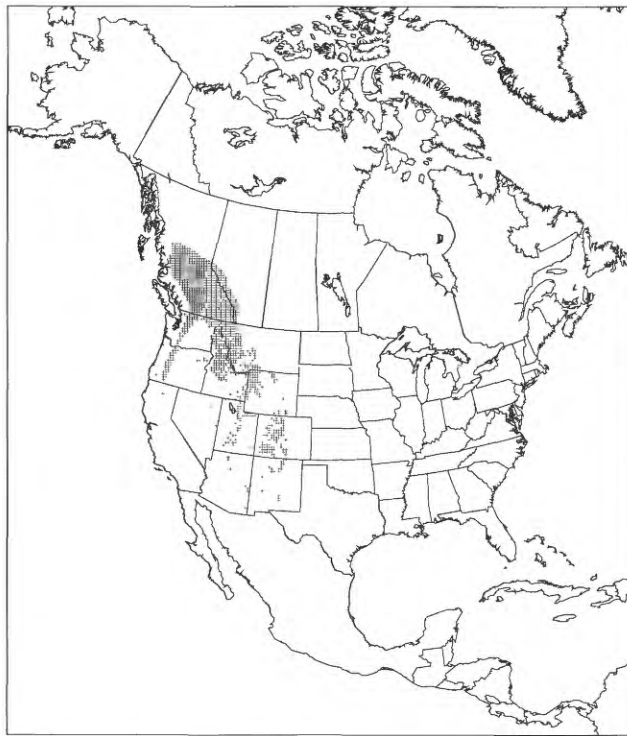


Picea breweriana (minimal data - nearest grid points used with environmental parameters)



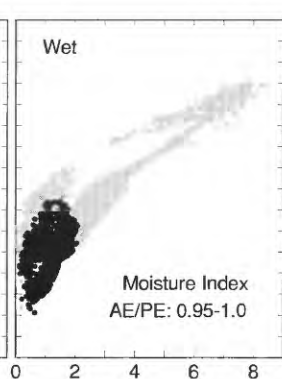
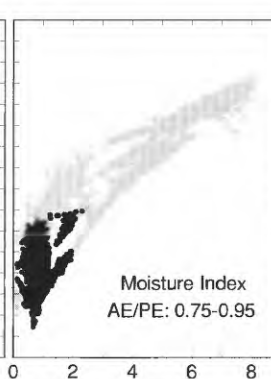
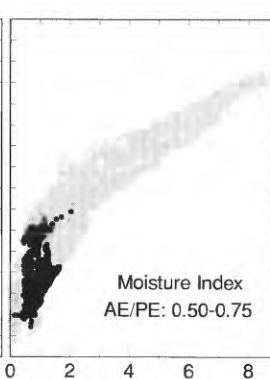
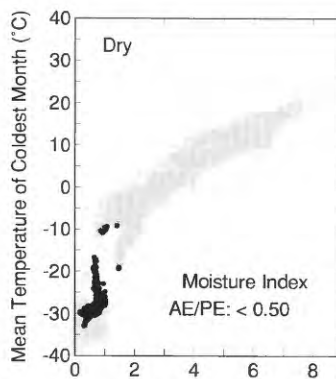
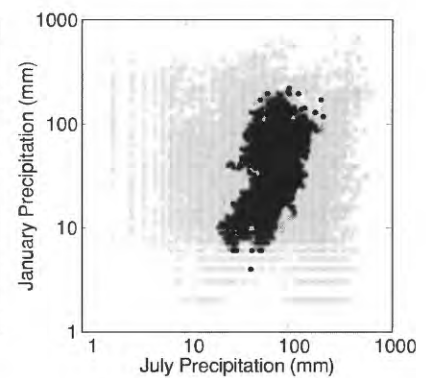
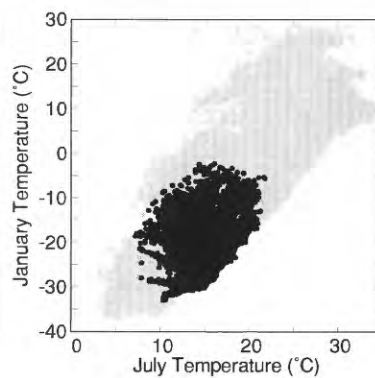
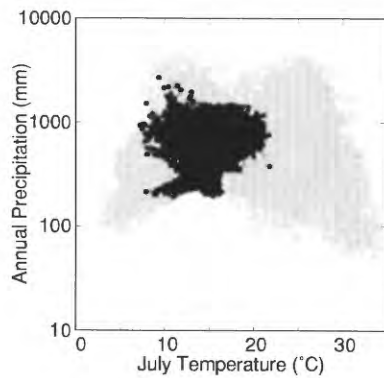
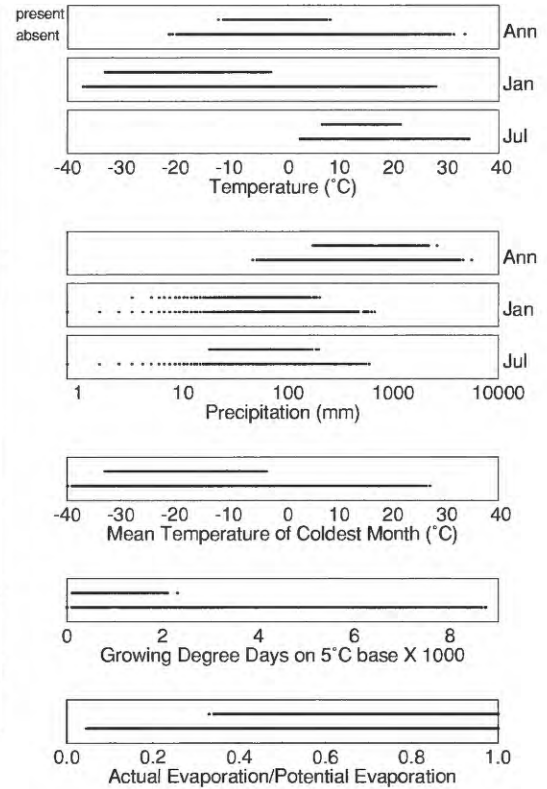
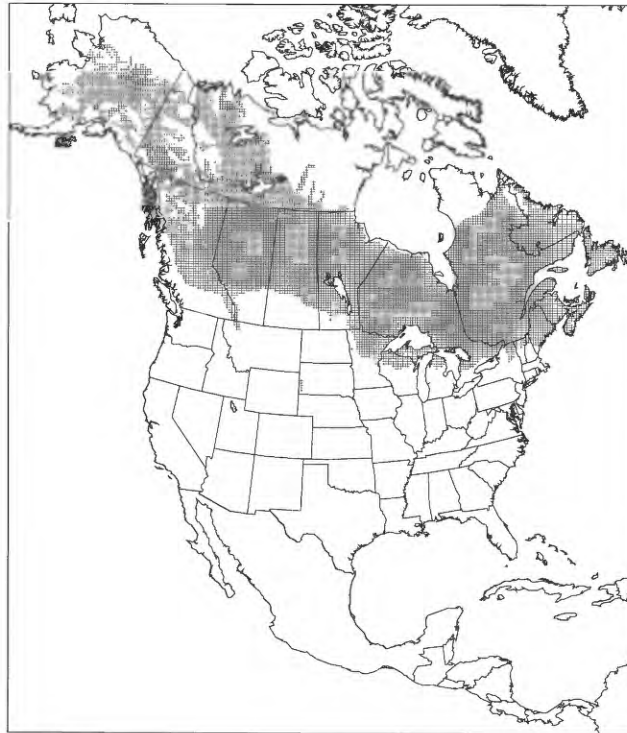
Growing Degree Days on 5°C Base X 1000

Picea engelmannii

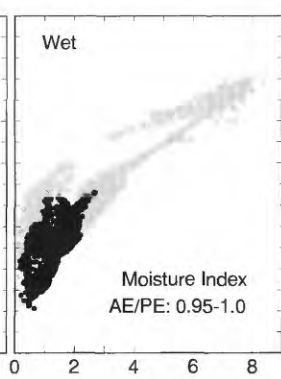
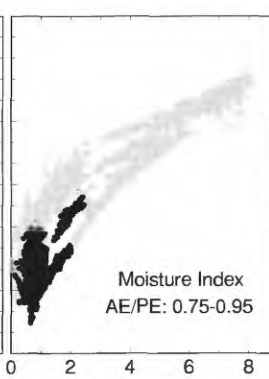
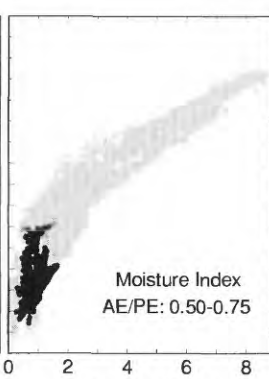
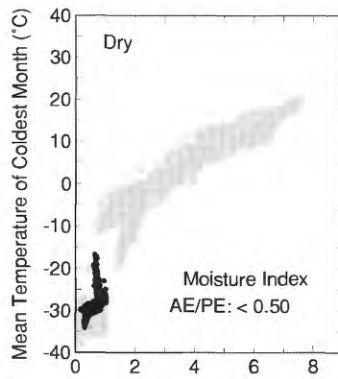
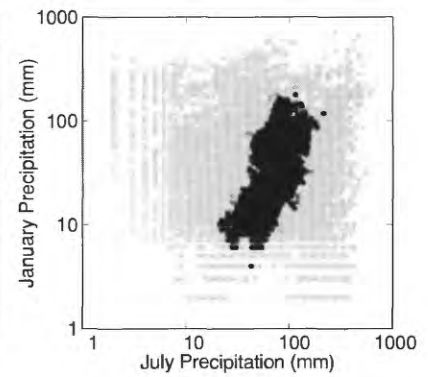
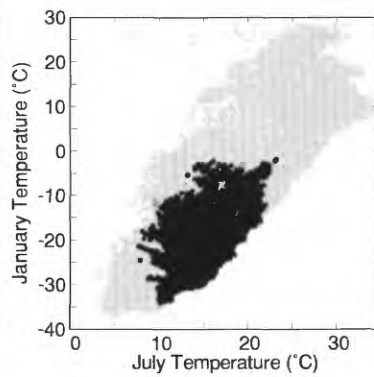
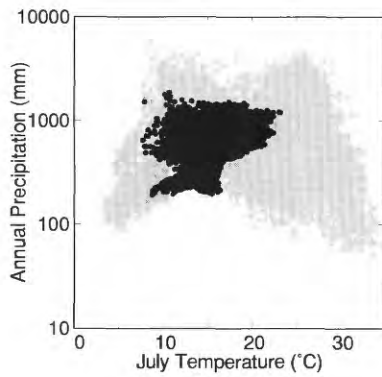
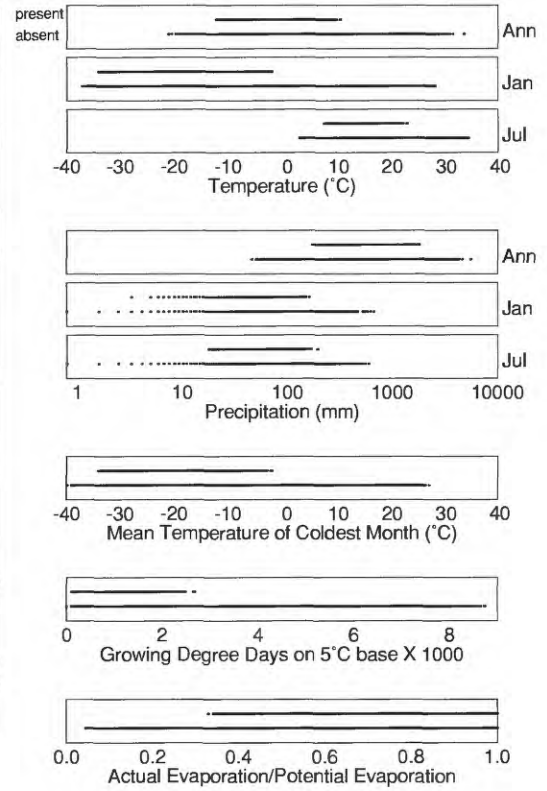
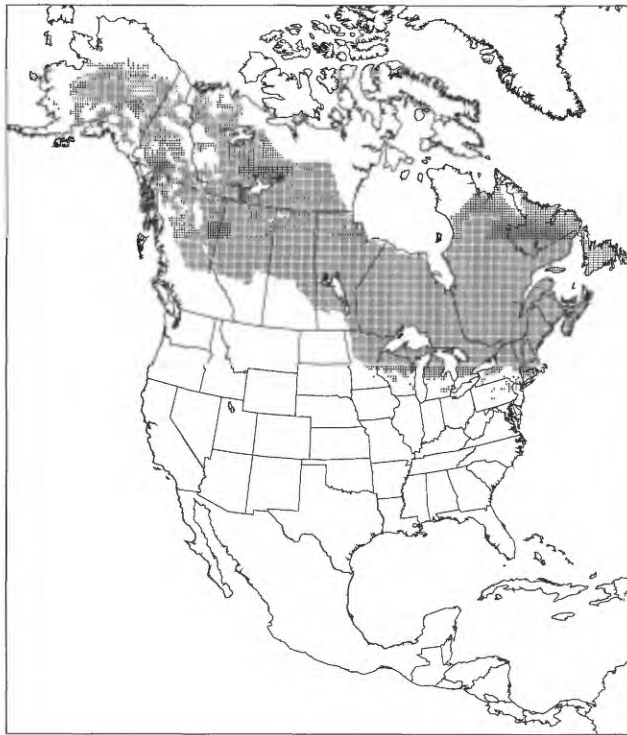


Growing Degree Days on 5°C Base X 1000

Picea glauca

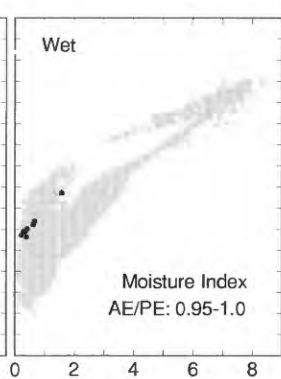
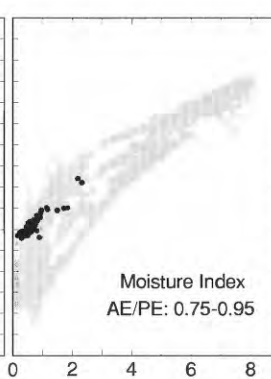
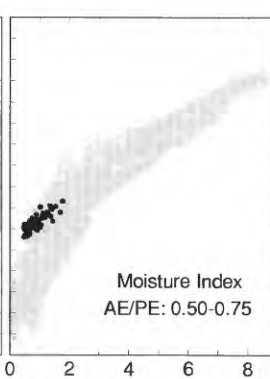
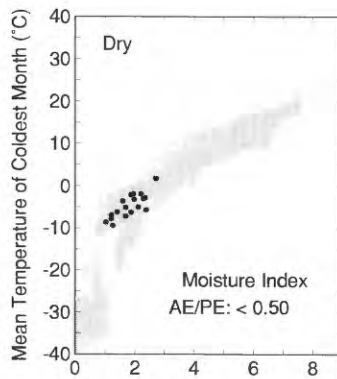
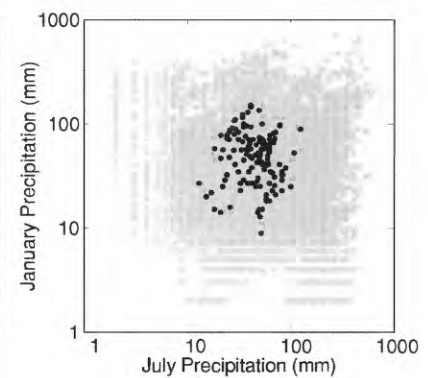
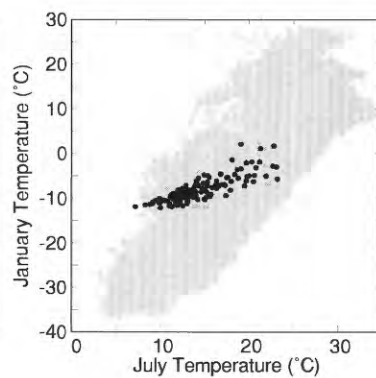
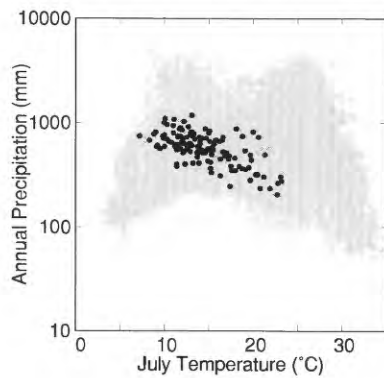
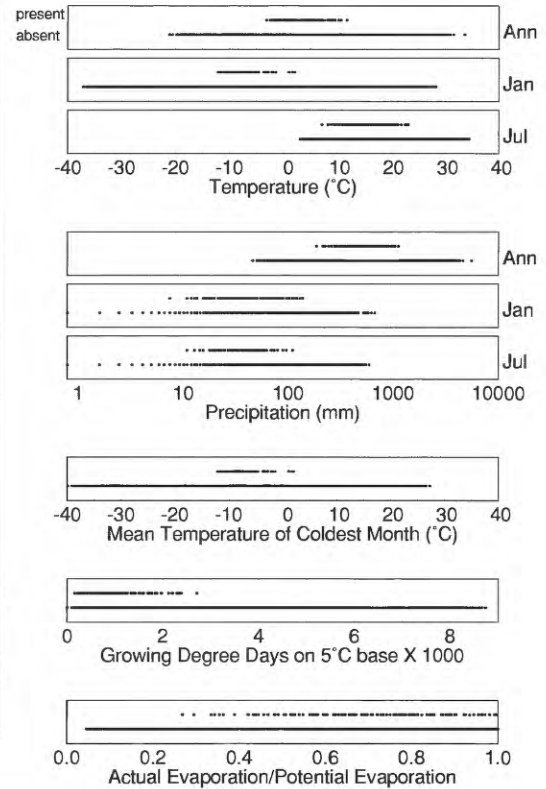


Picea mariana

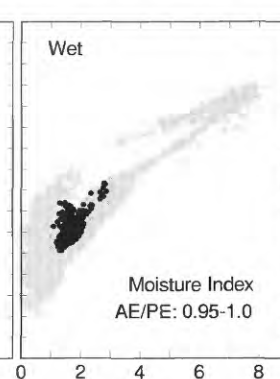
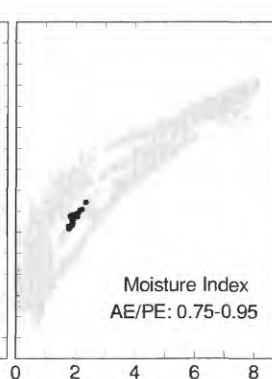
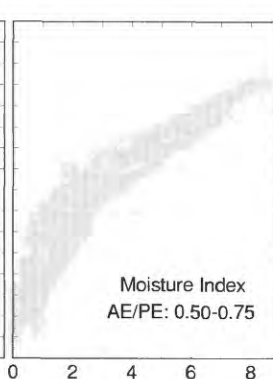
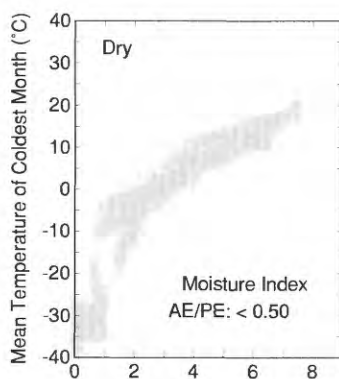
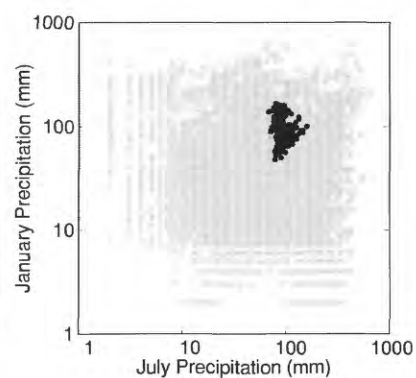
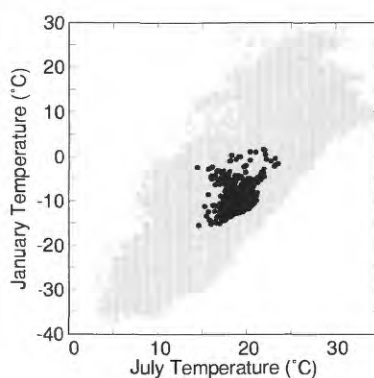
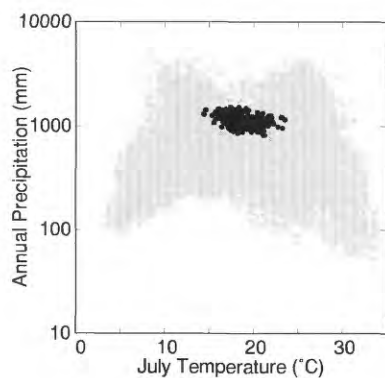
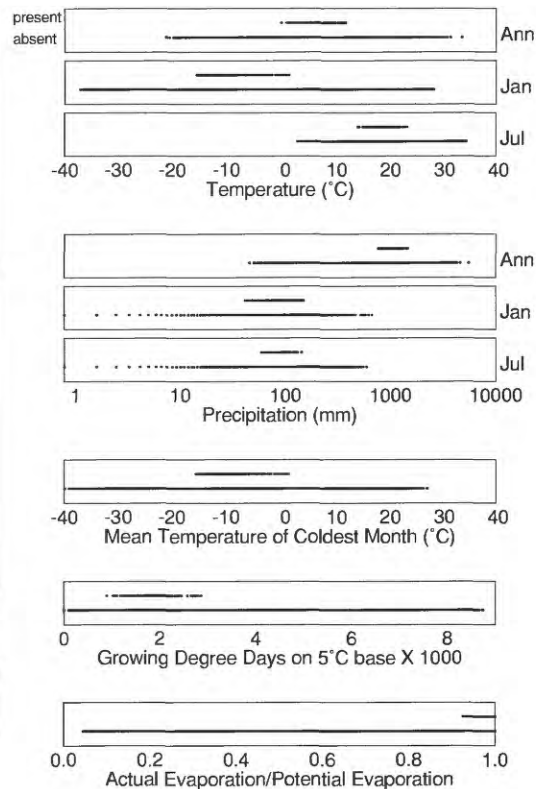


Growing Degree Days on 5°C Base X 1000

Picea pungens

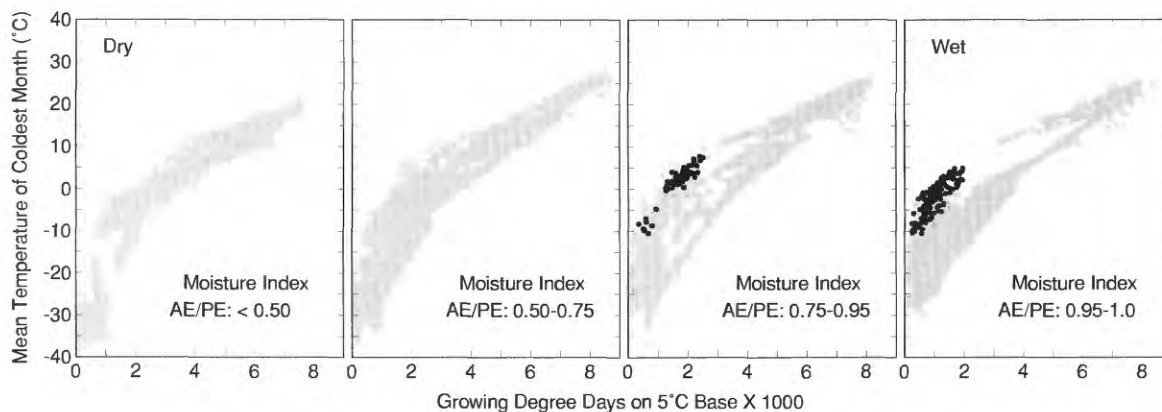
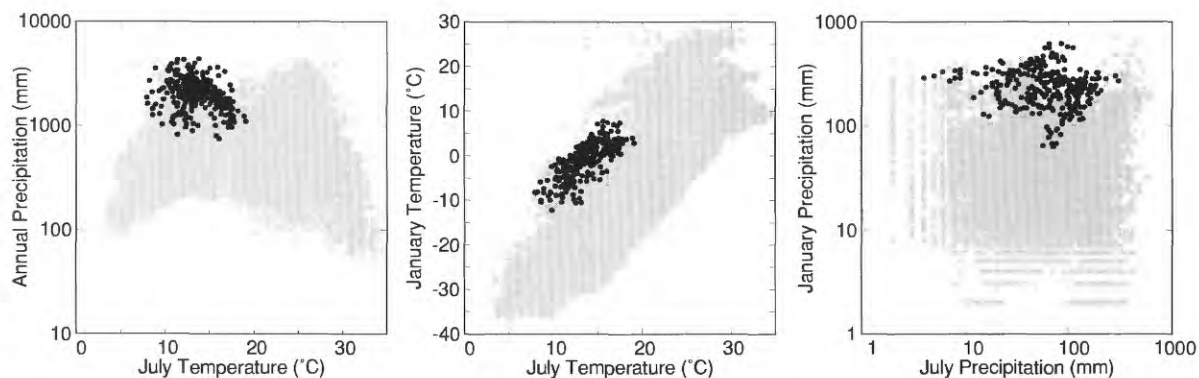
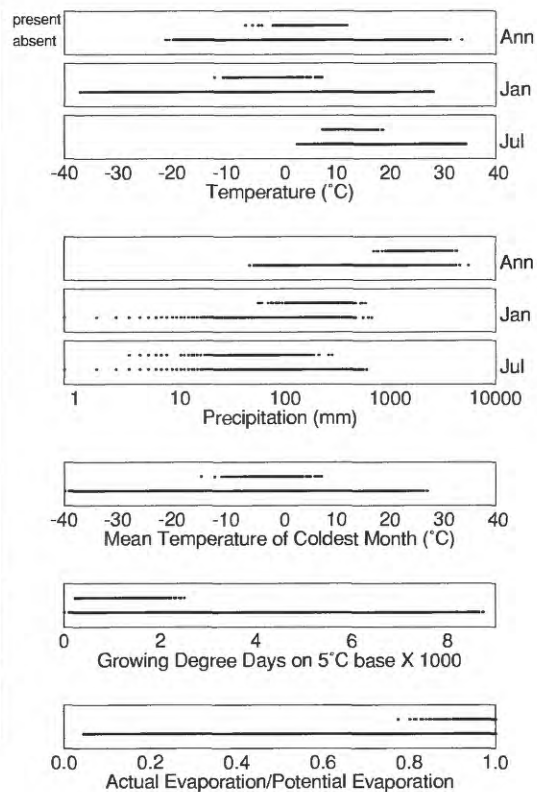


Picea rubens

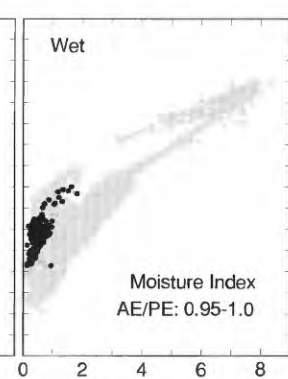
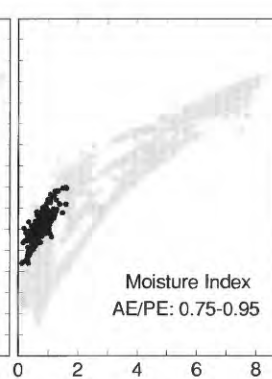
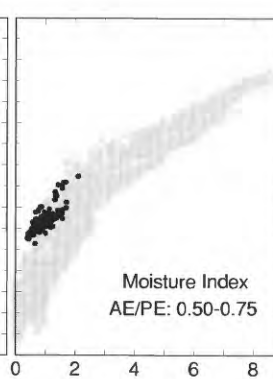
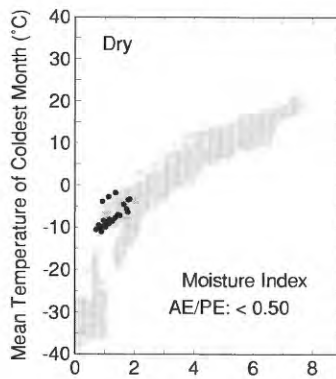
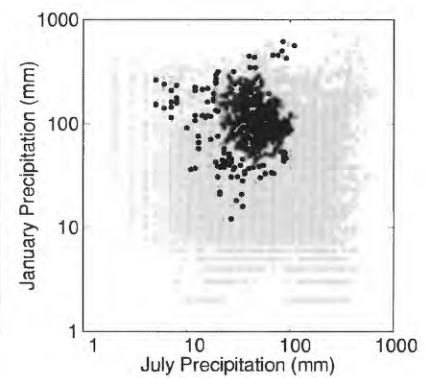
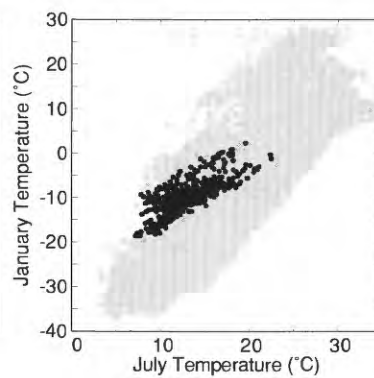
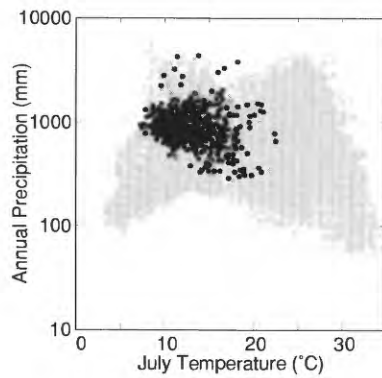
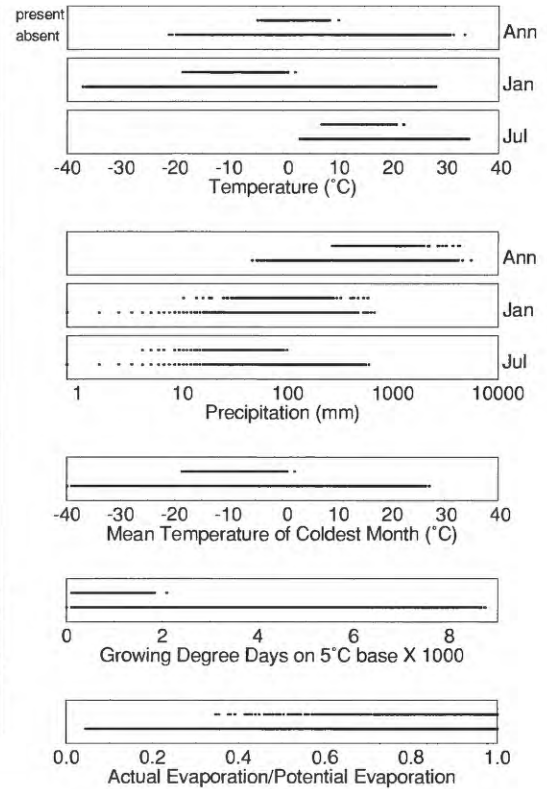


Growing Degree Days on 5°C Base X 1000

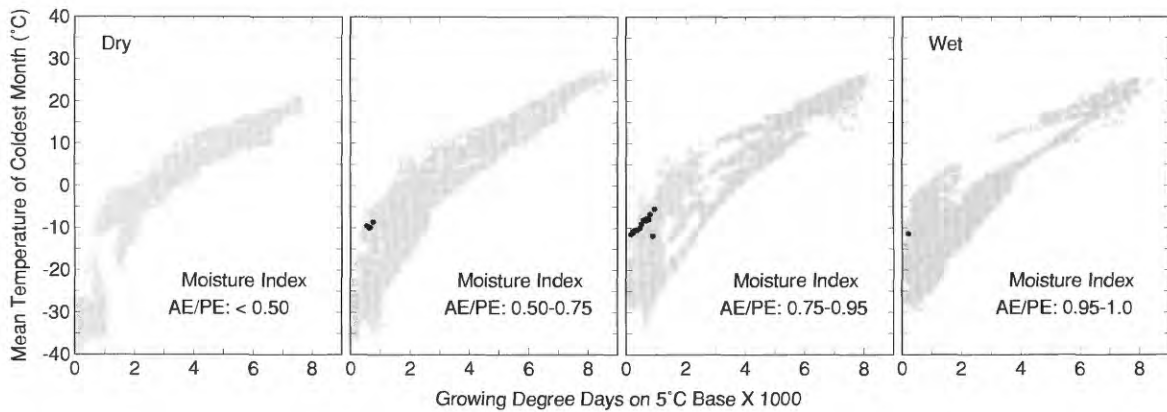
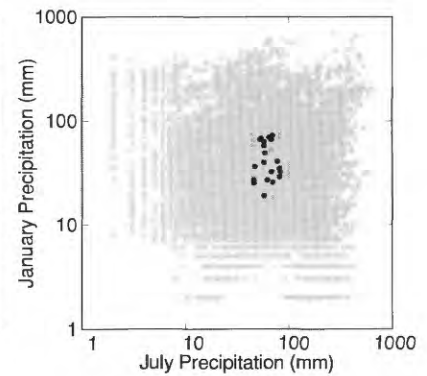
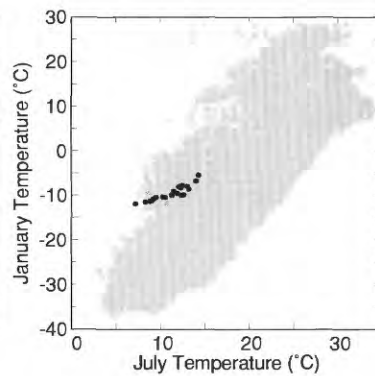
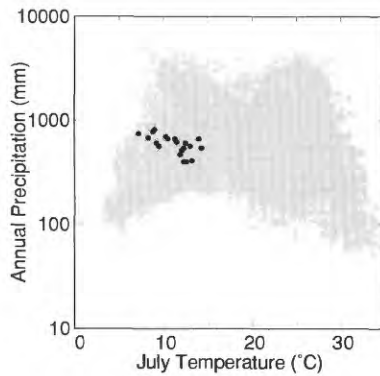
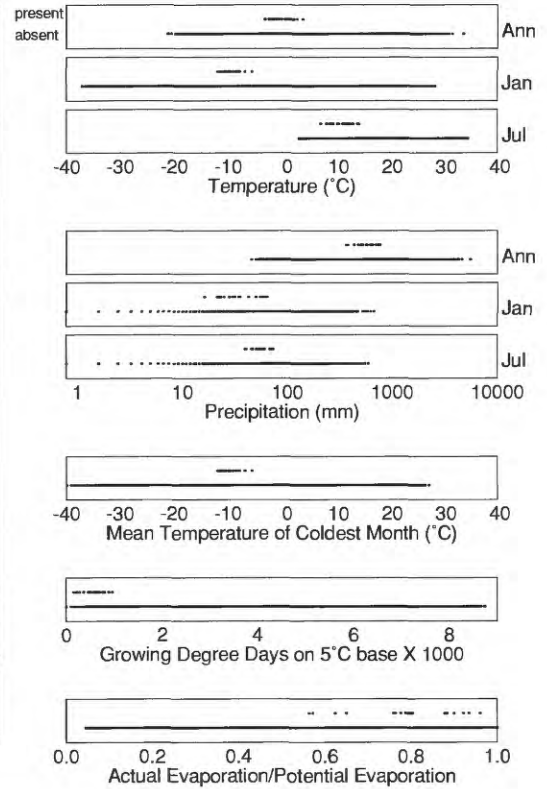
Picea sitchensis



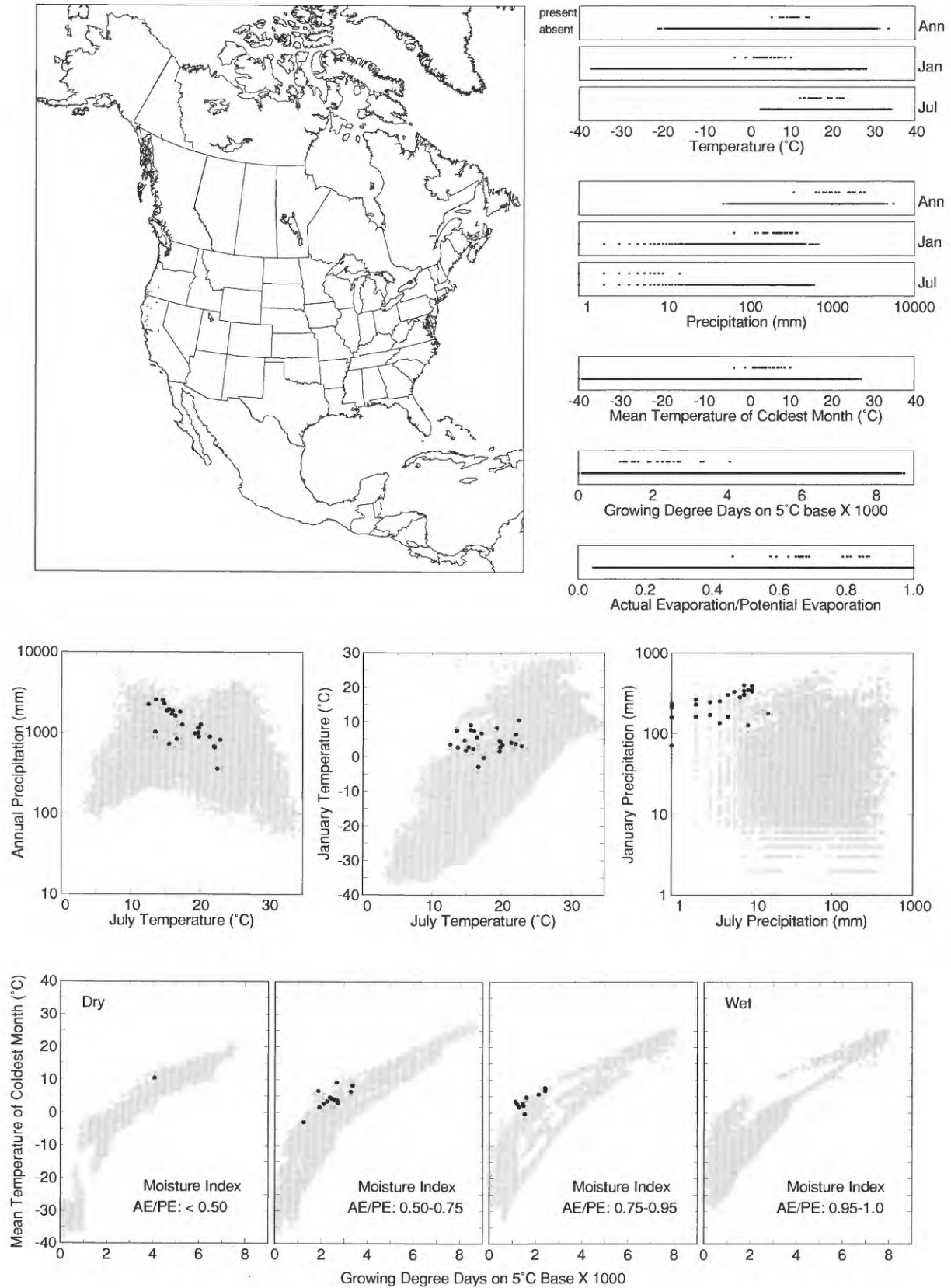
Pinus albicaulis



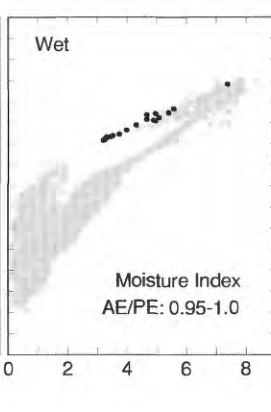
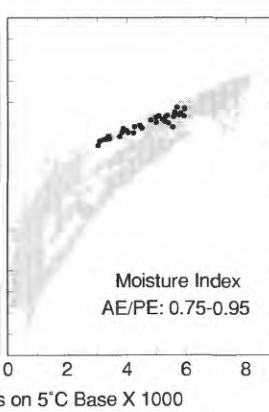
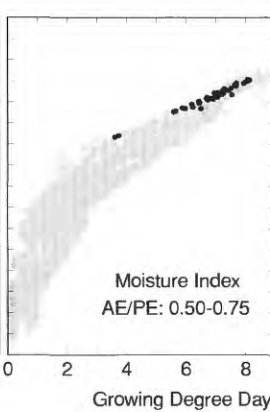
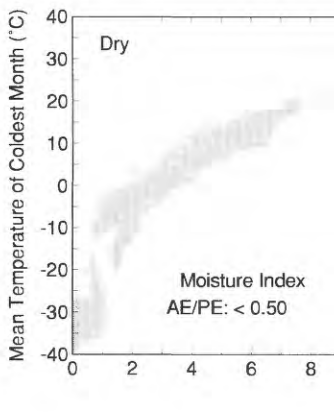
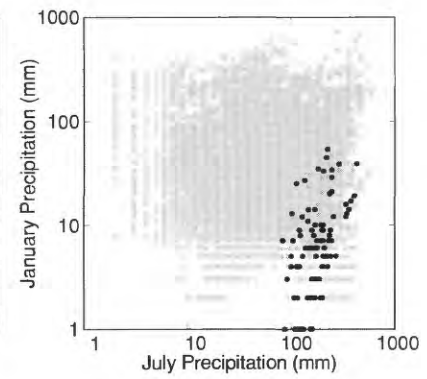
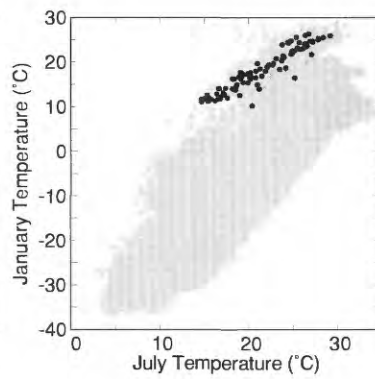
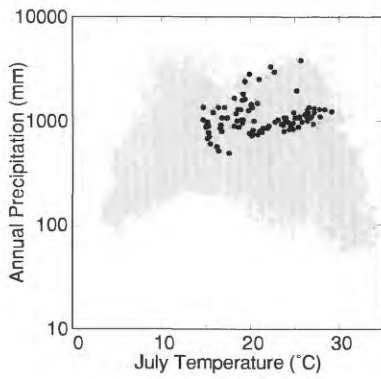
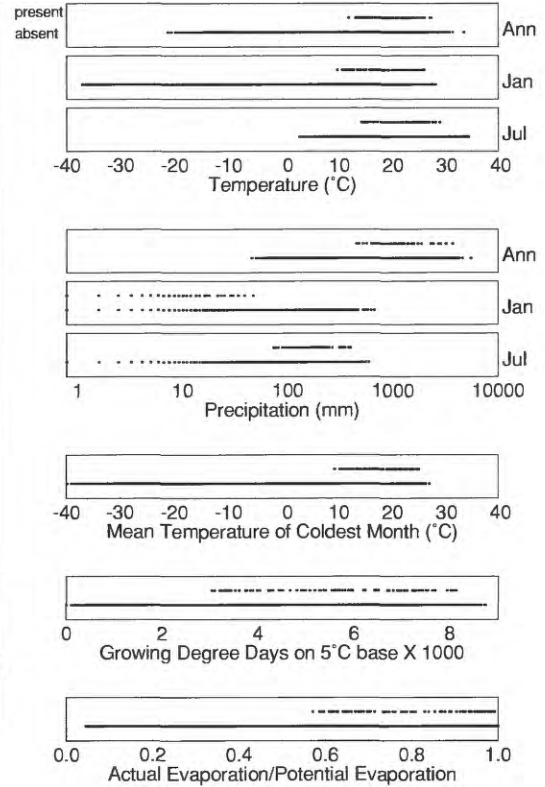
Pinus aristata



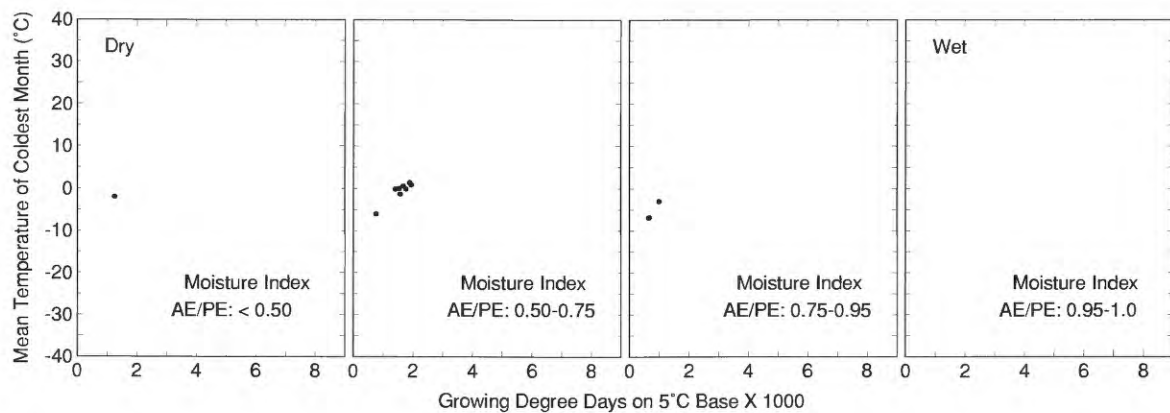
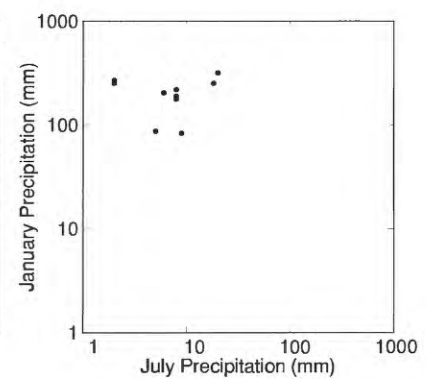
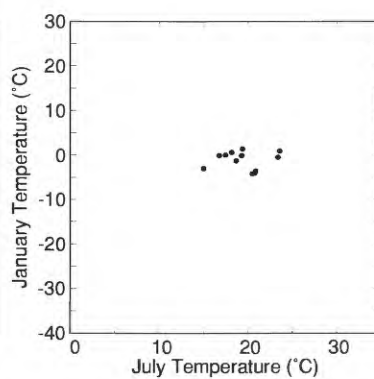
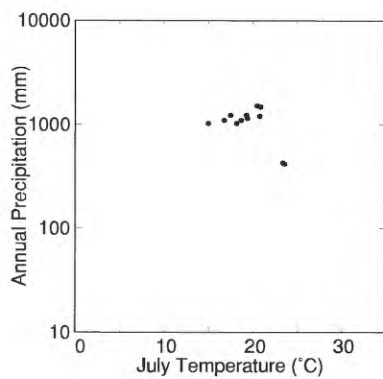
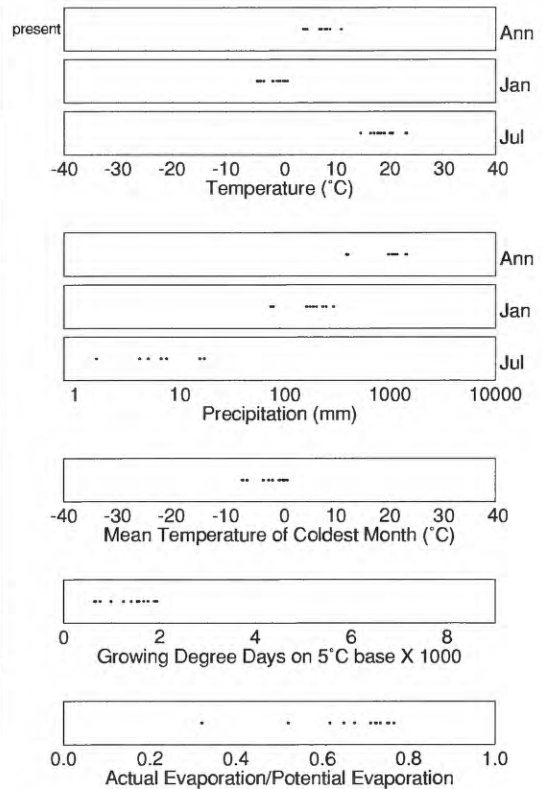
Pinus attenuata



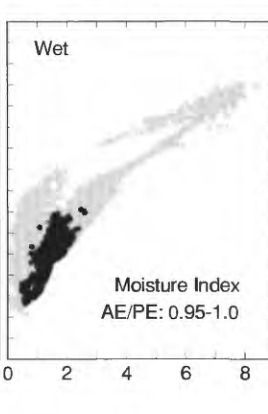
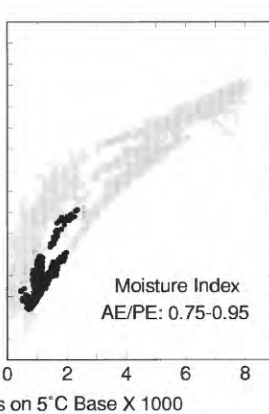
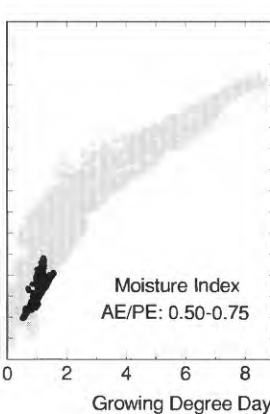
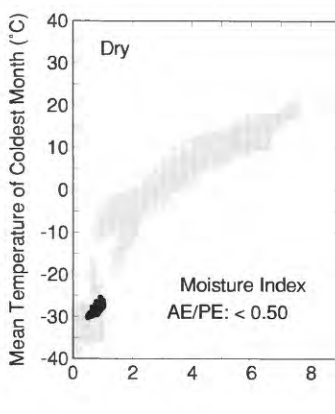
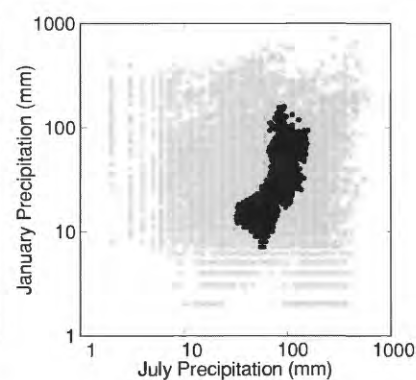
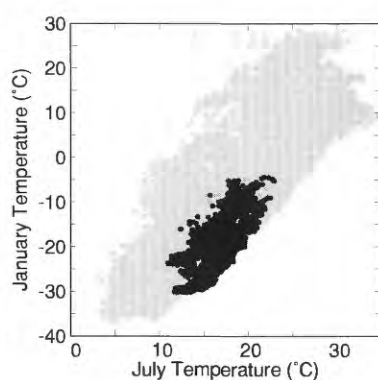
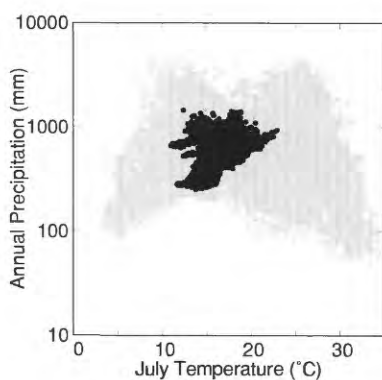
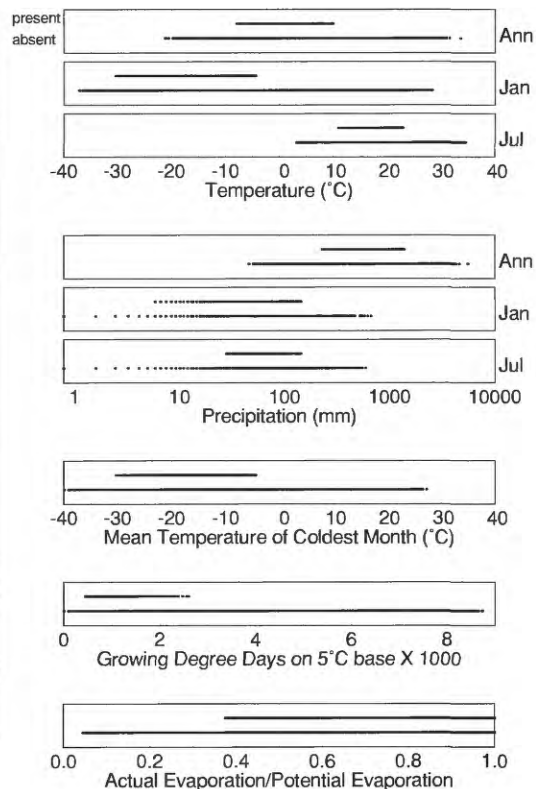
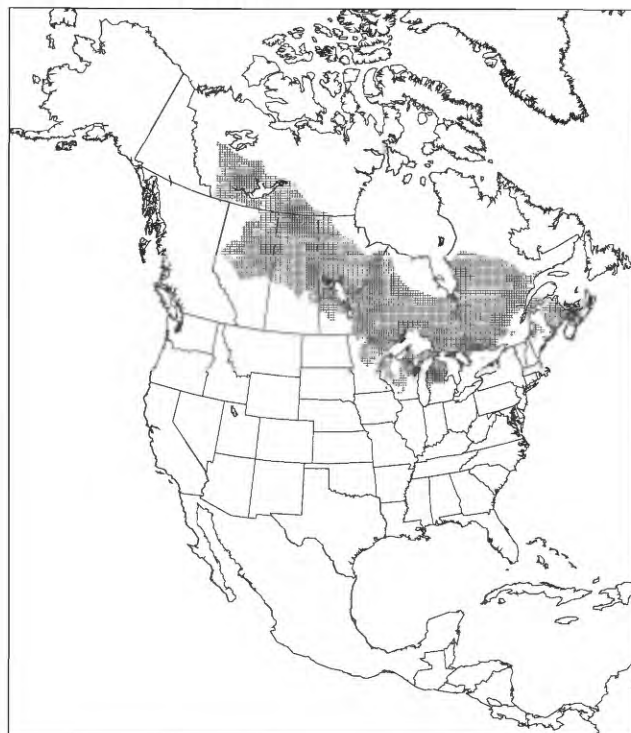
Pinus ayacahuite



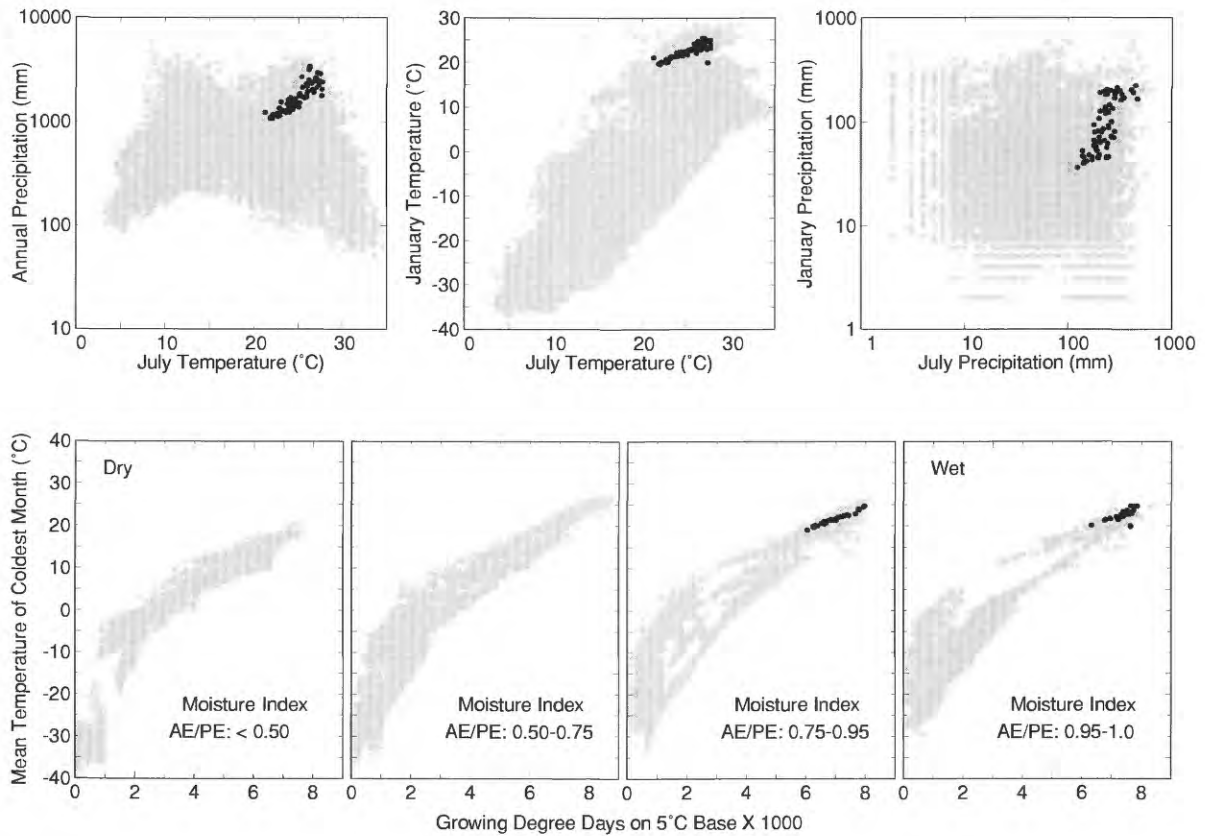
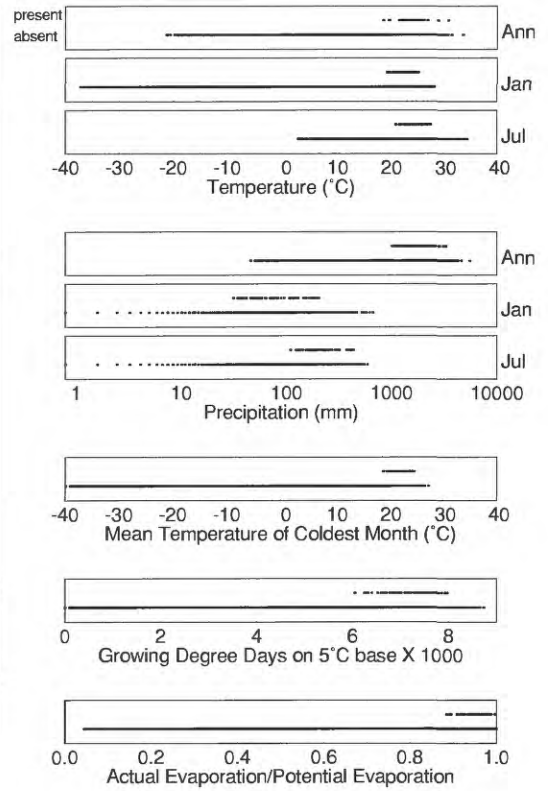
Pinus balfouriana (minimal data - nearest grid points used with environmental parameters)



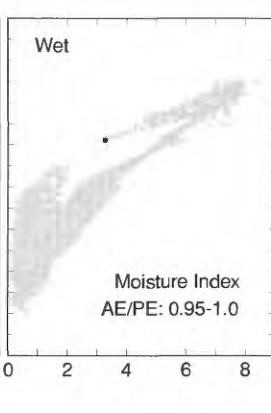
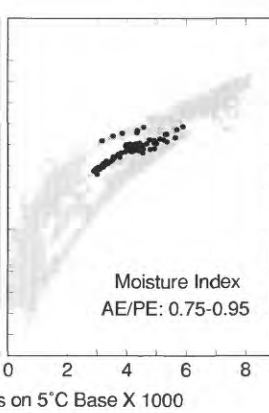
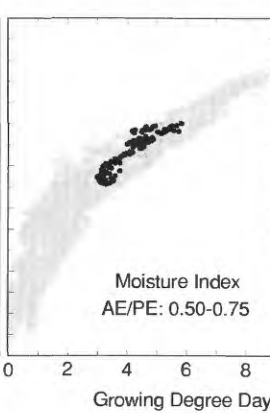
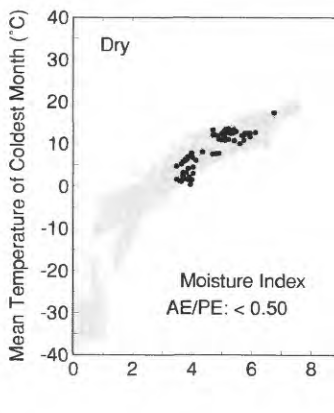
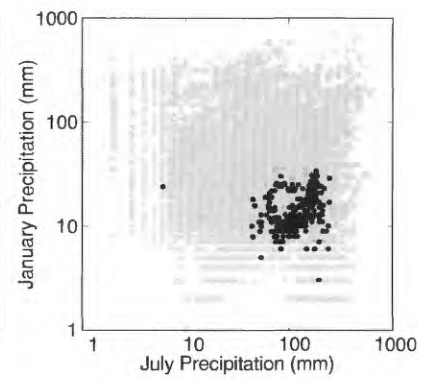
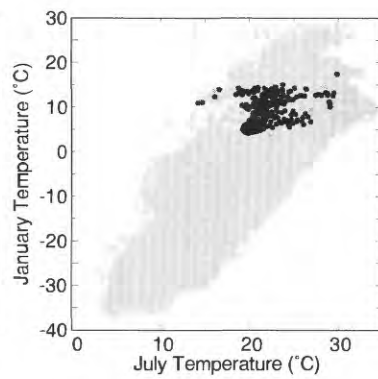
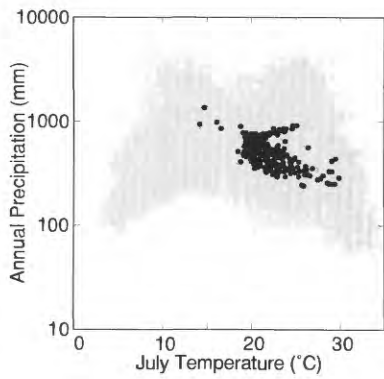
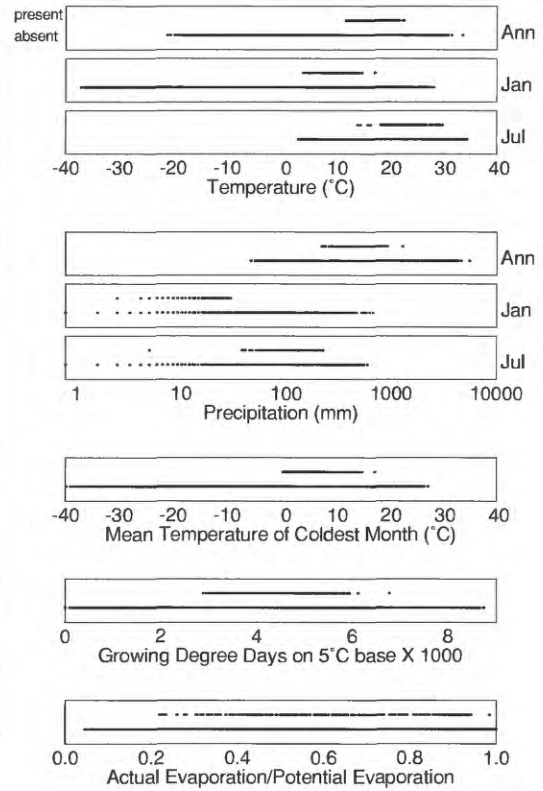
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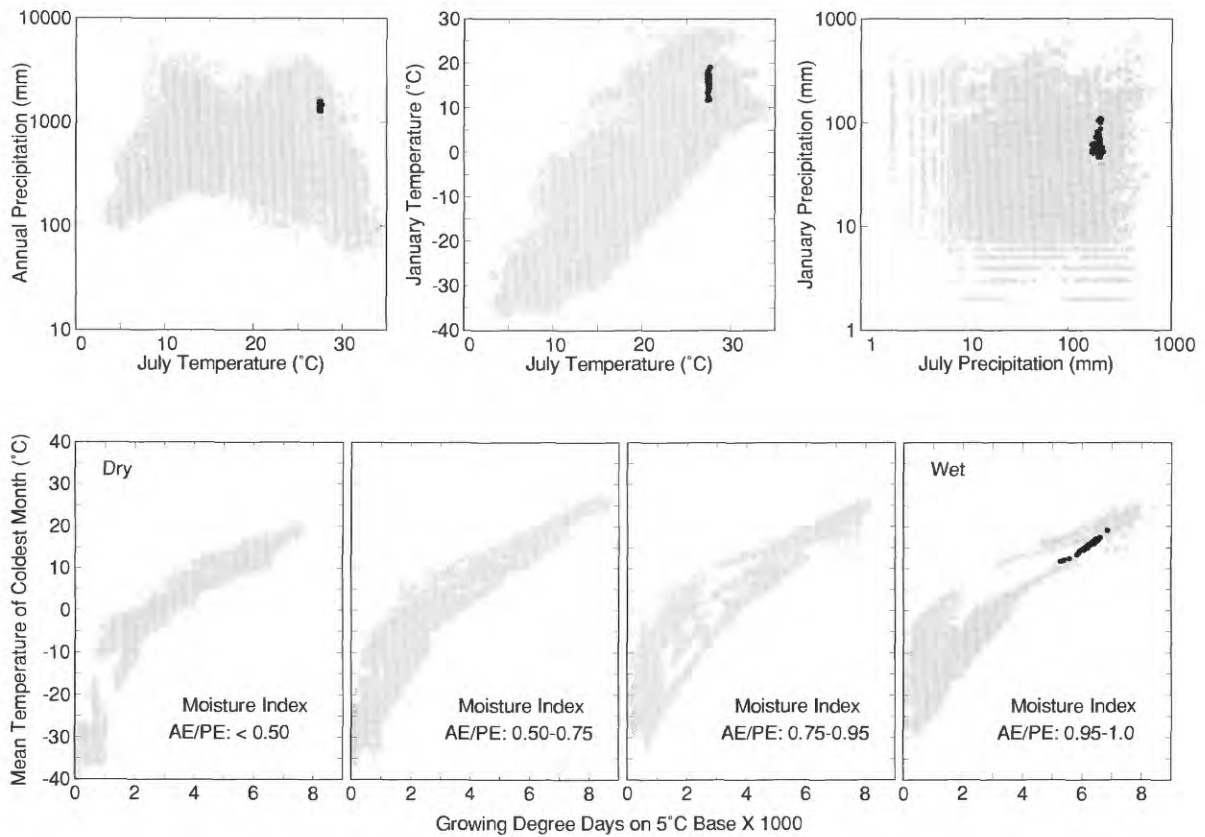
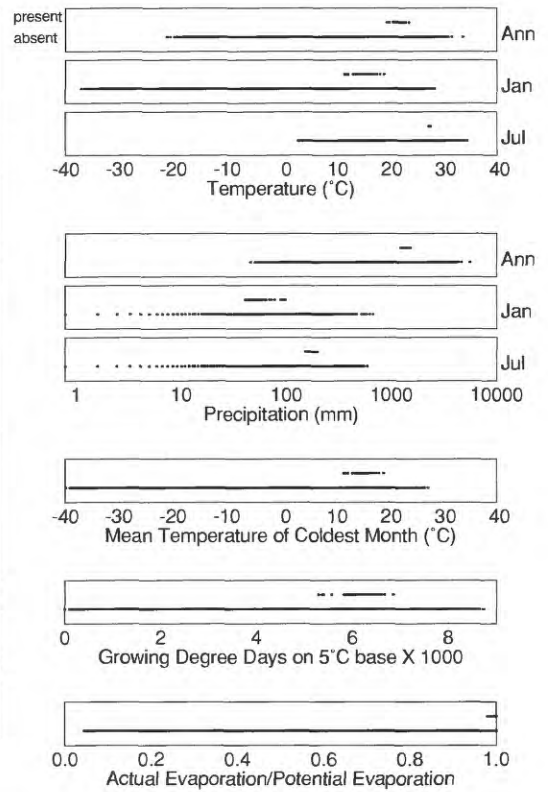
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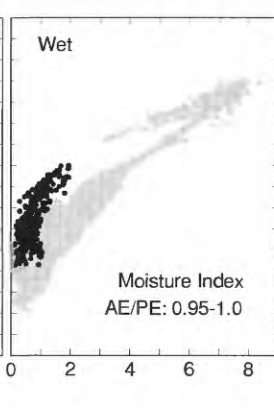
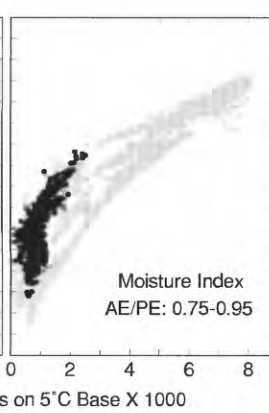
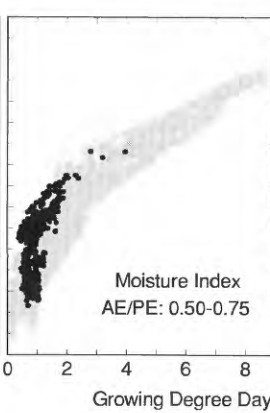
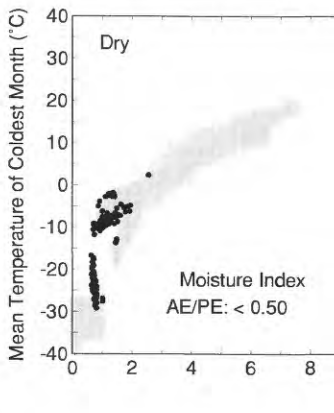
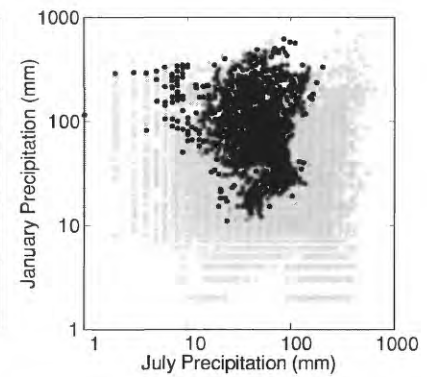
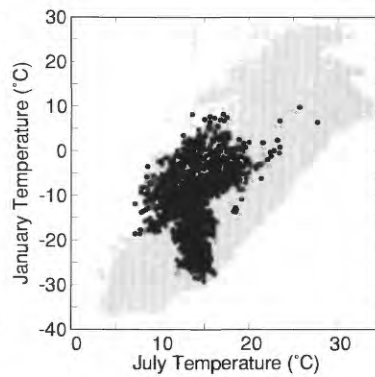
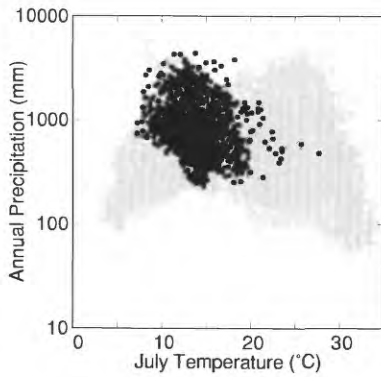
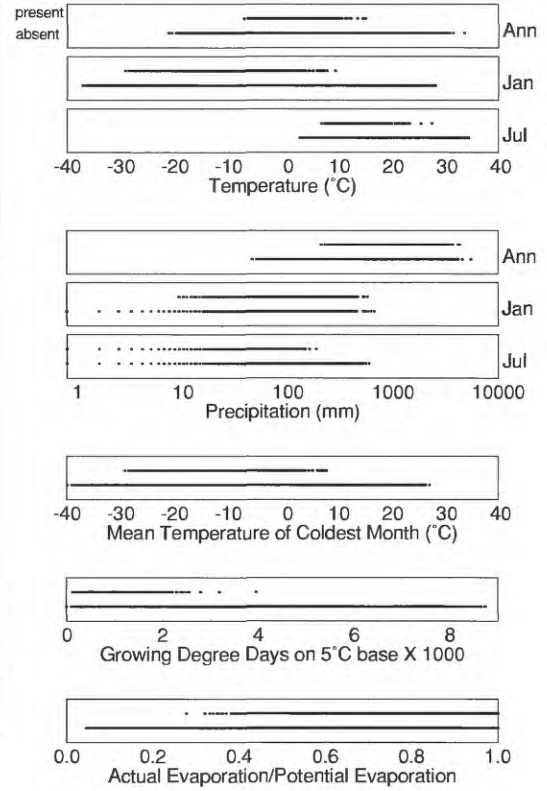
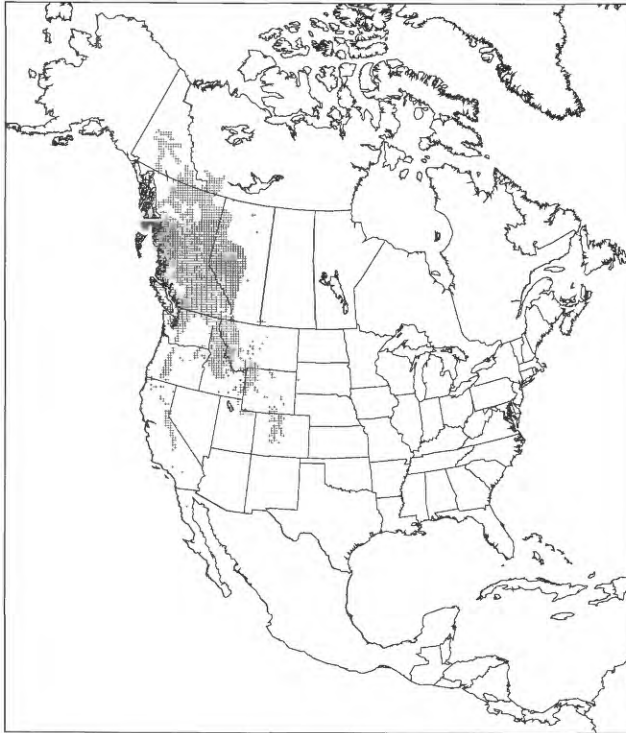
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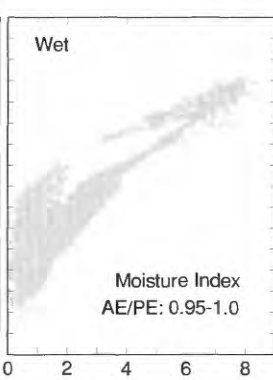
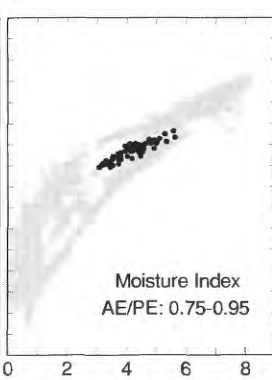
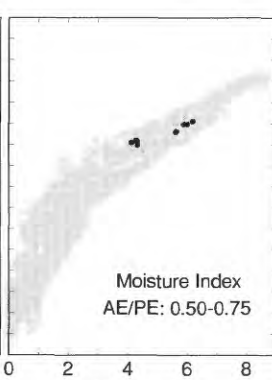
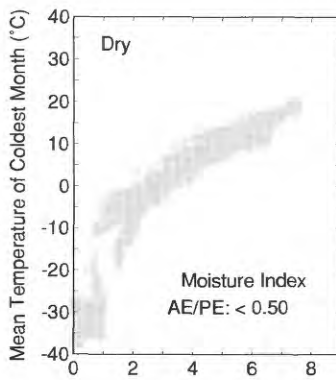
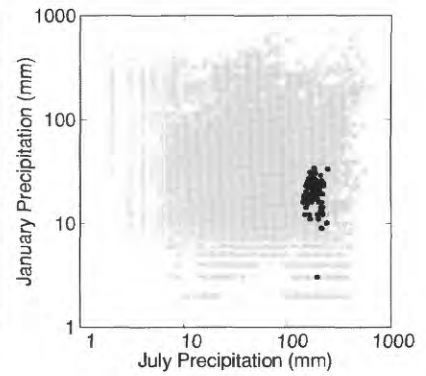
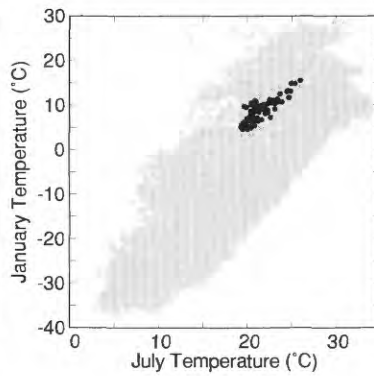
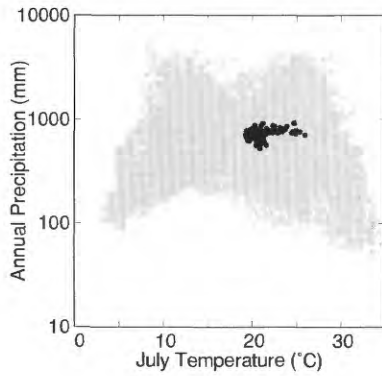
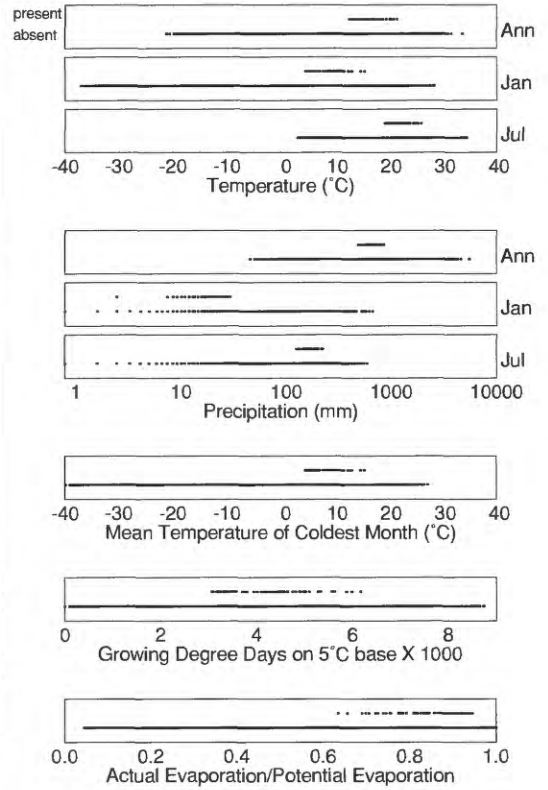
Pinus clausa



Pinus contorta

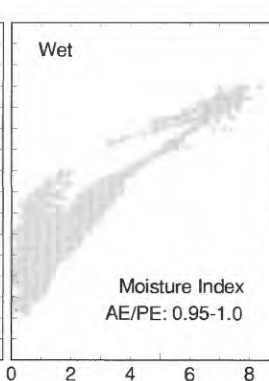
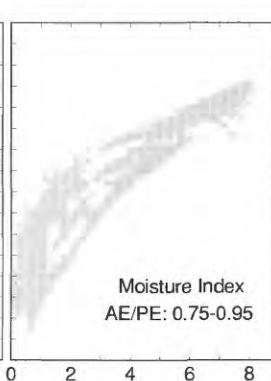
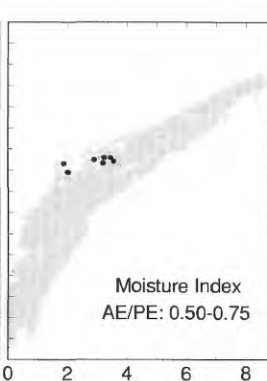
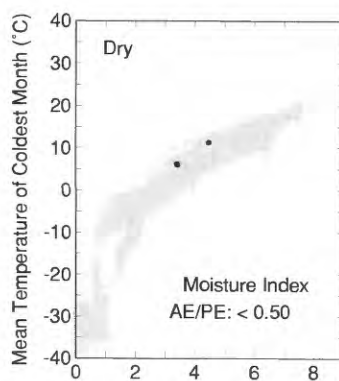
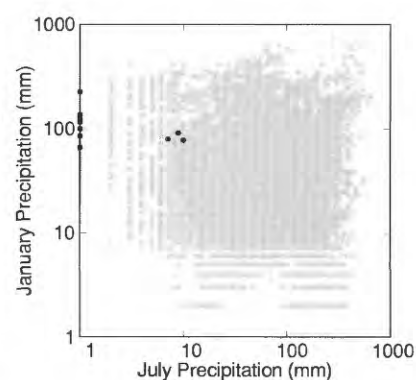
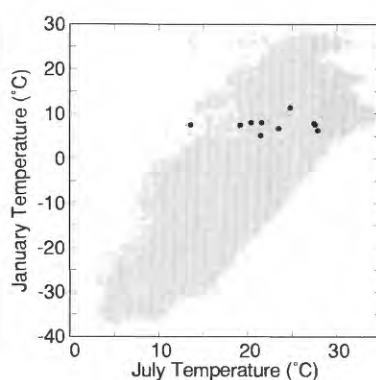
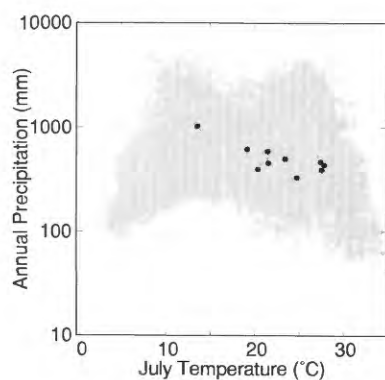
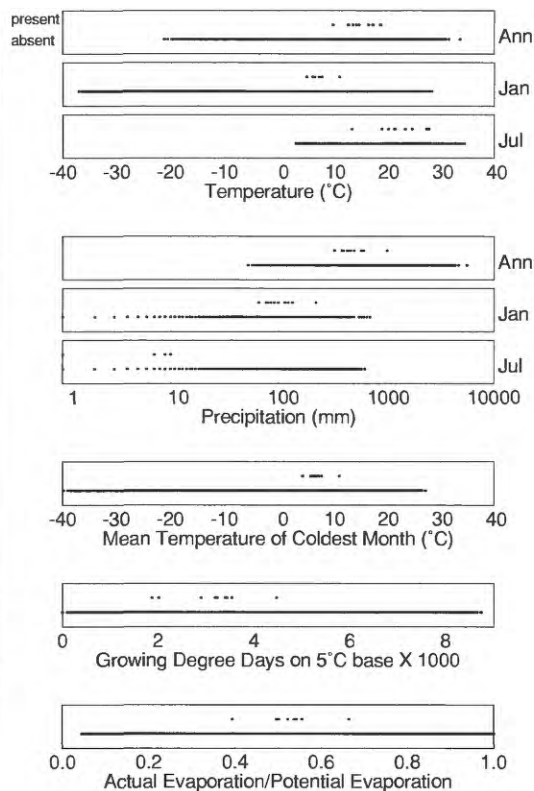


Pinus cooperi

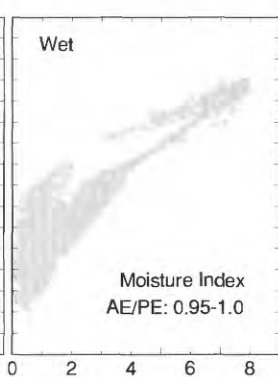
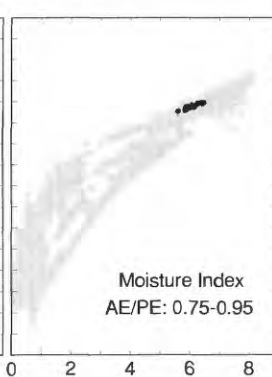
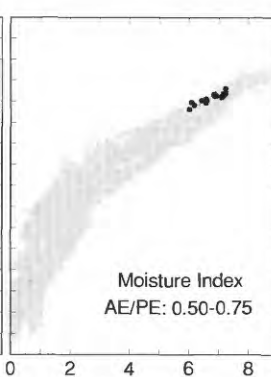
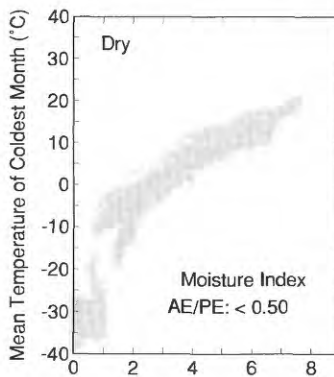
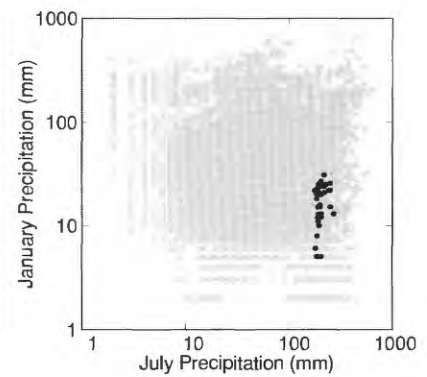
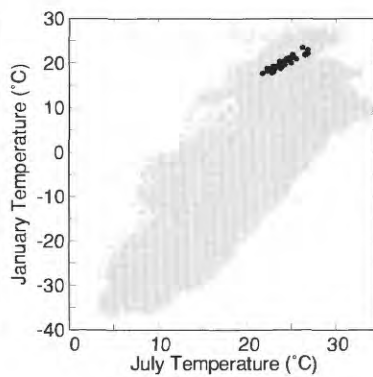
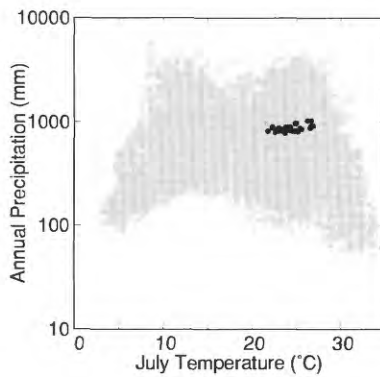
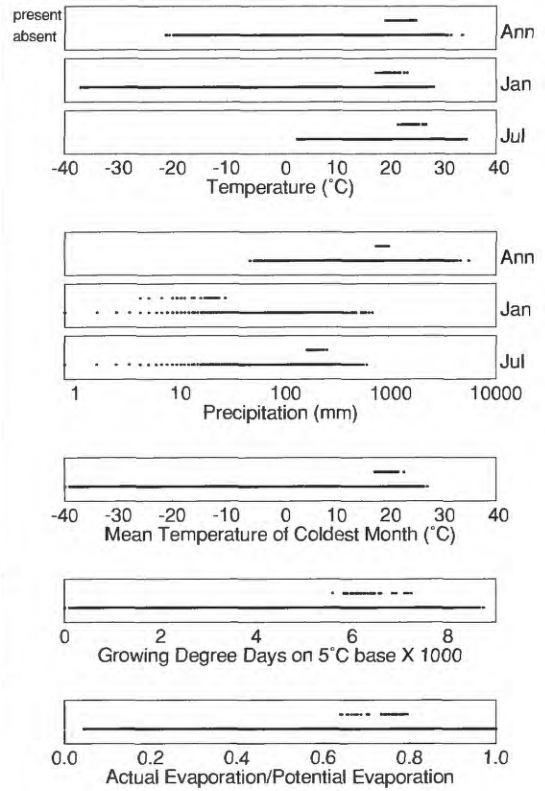


Growing Degree Days on 5°C Base X 1000

Pinus coulteri

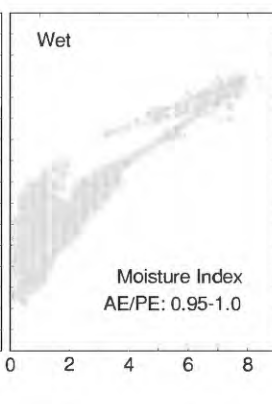
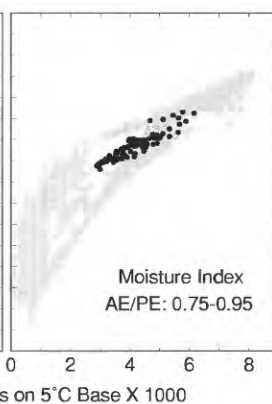
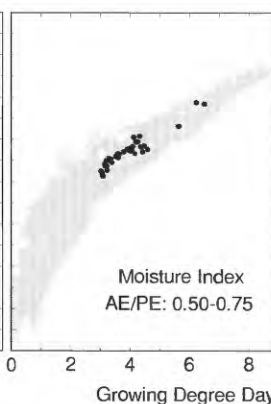
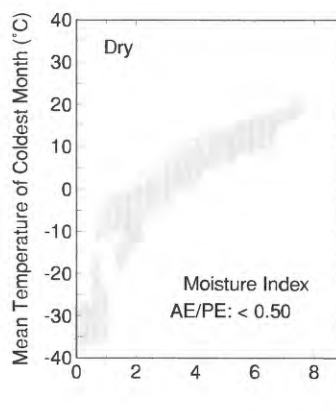
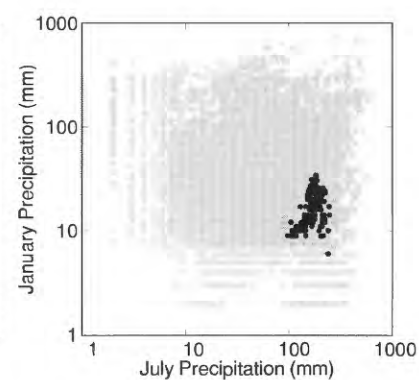
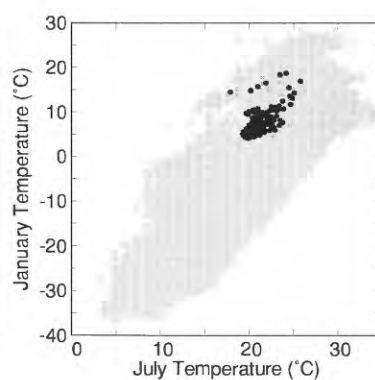
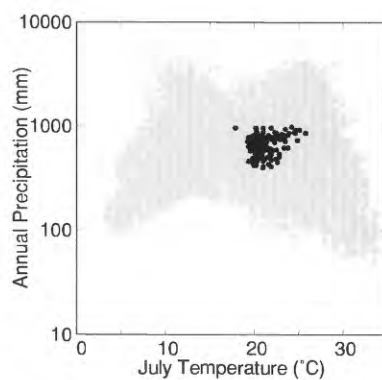
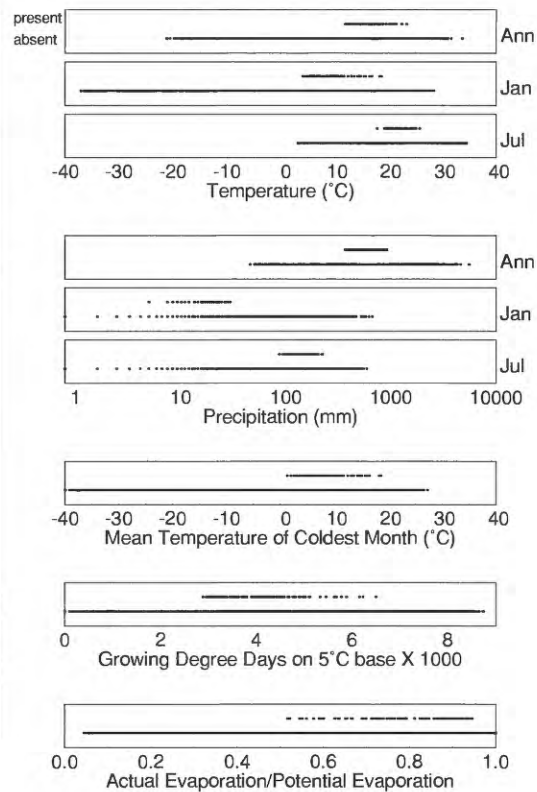


Pinus douglasiana

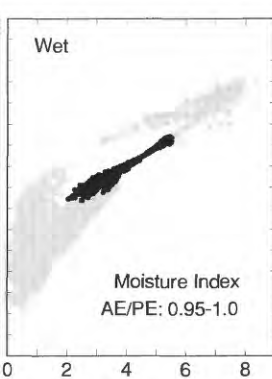
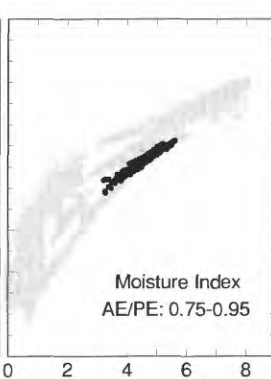
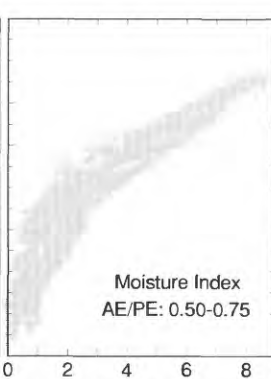
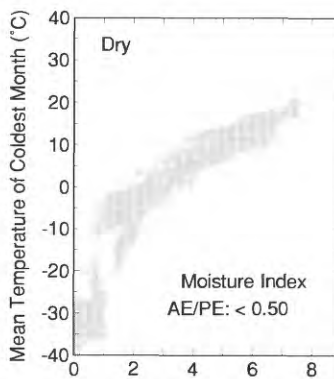
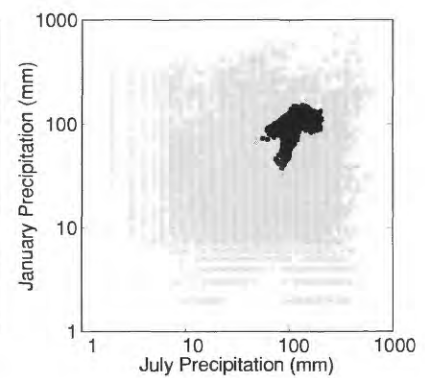
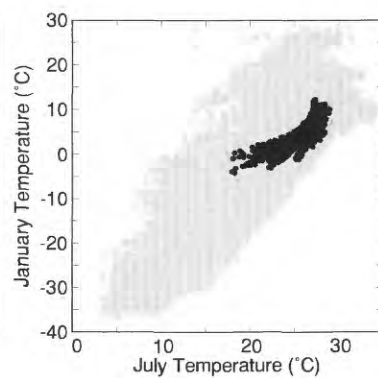
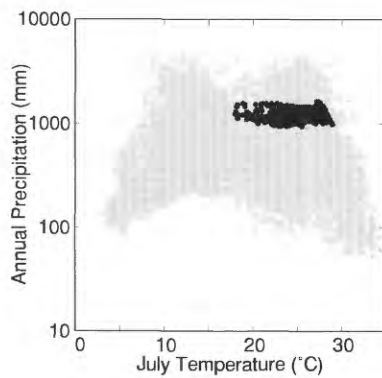
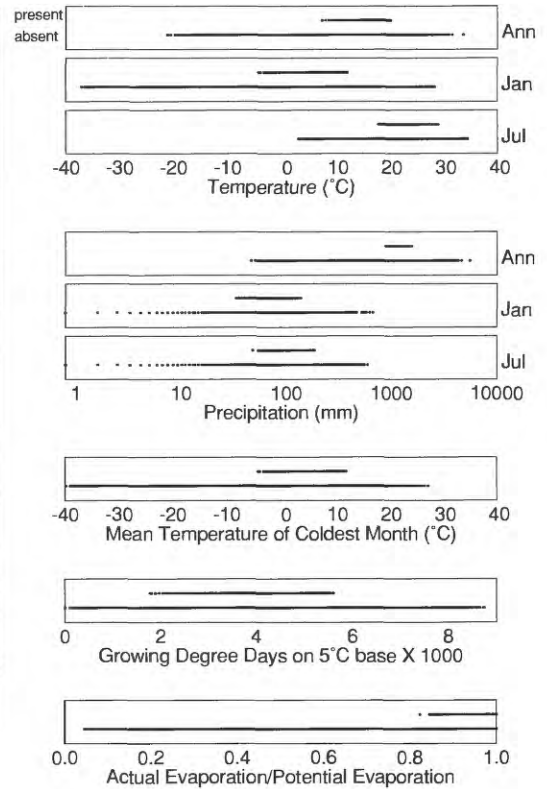
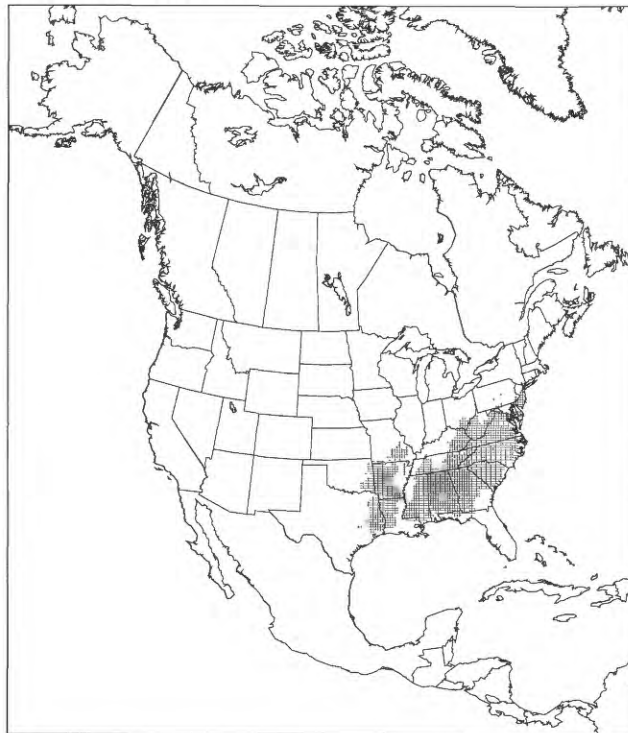


Growing Degree Days on 5°C Base X 1000

Pinus durangensis

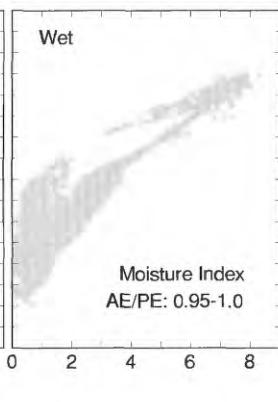
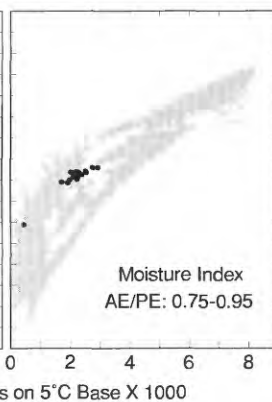
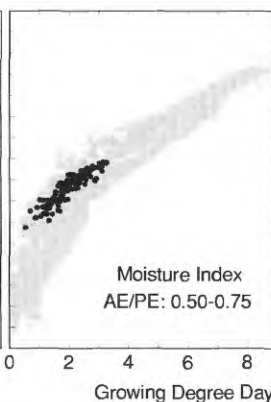
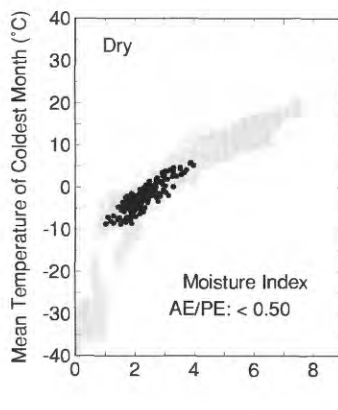
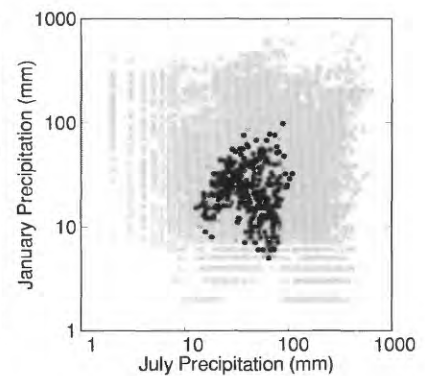
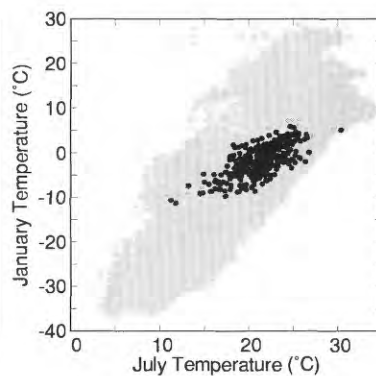
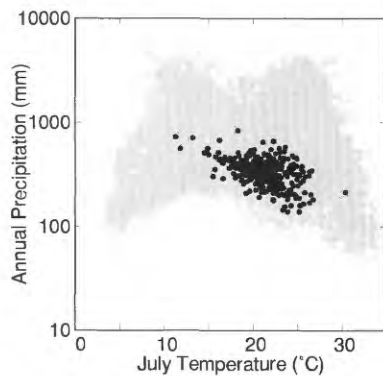
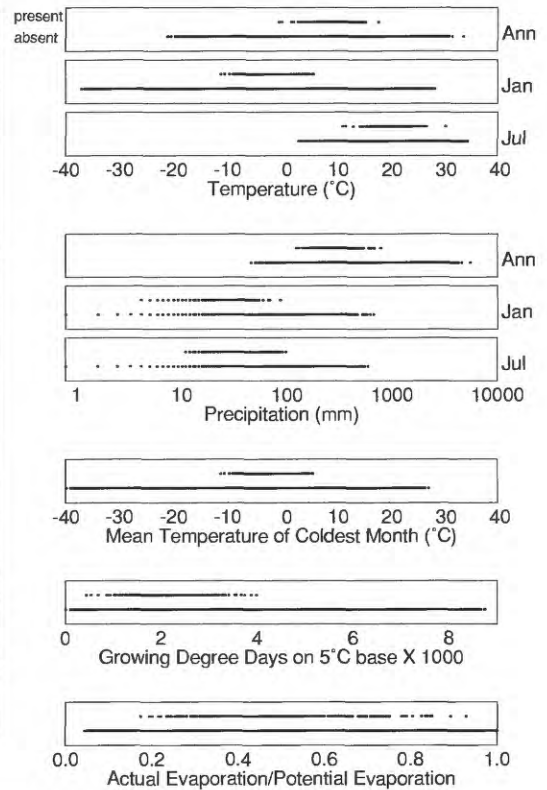
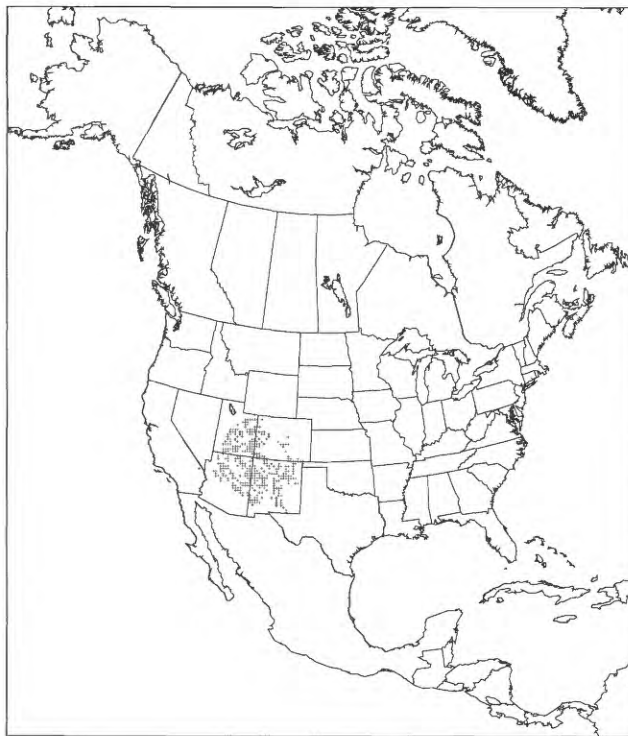


Pinus echinata

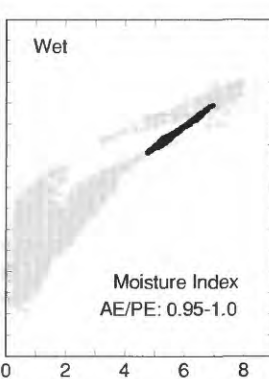
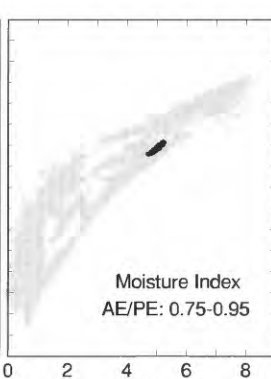
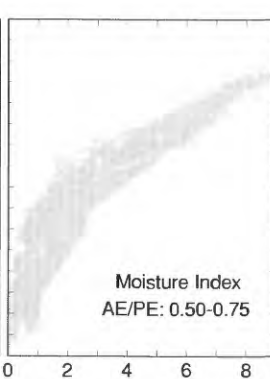
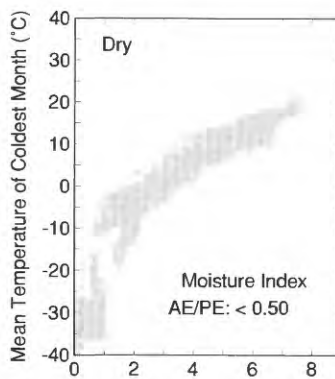
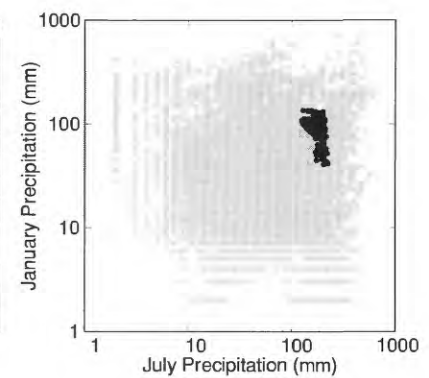
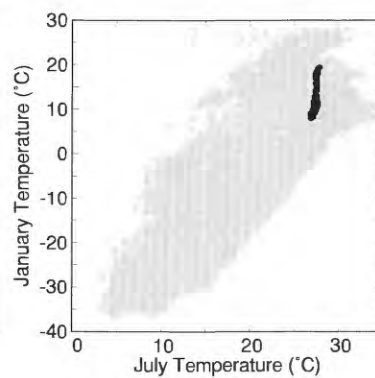
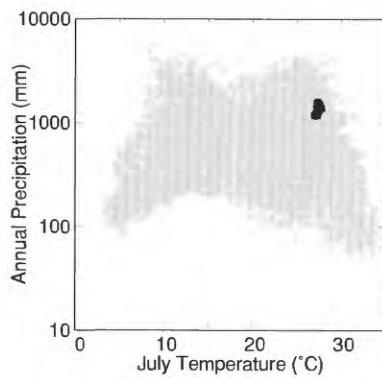
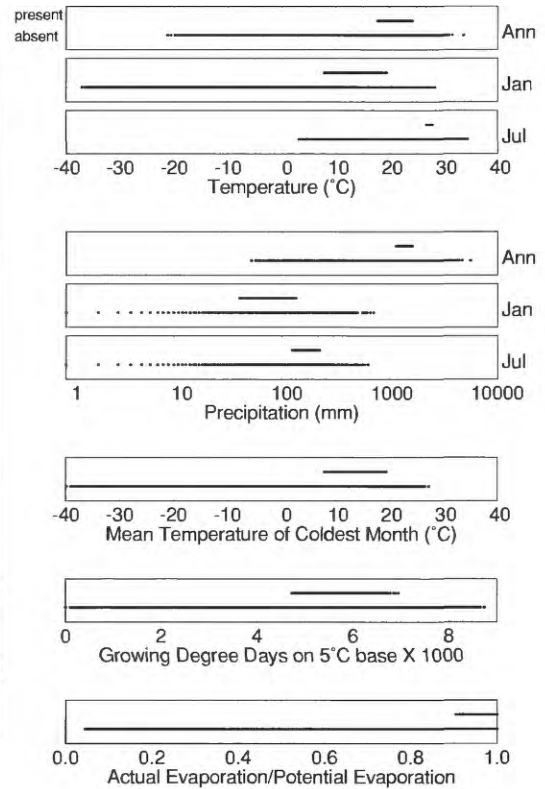


Growing Degree Days on 5°C Base X 1000

Pinus edulis

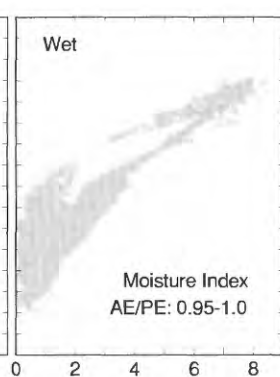
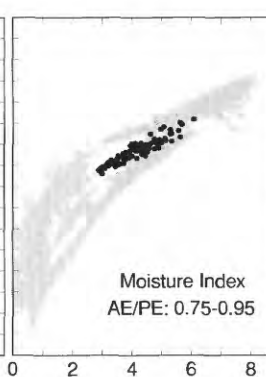
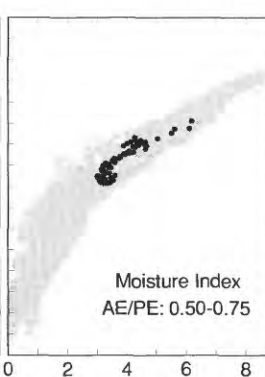
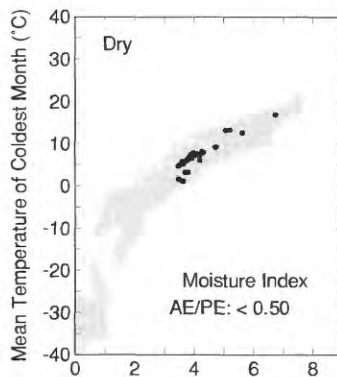
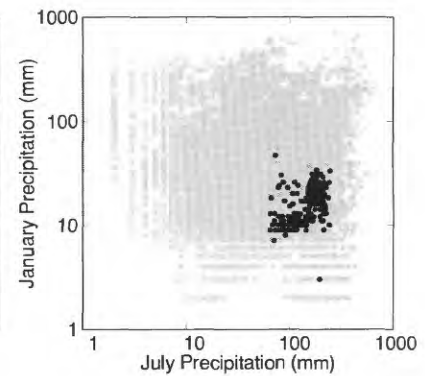
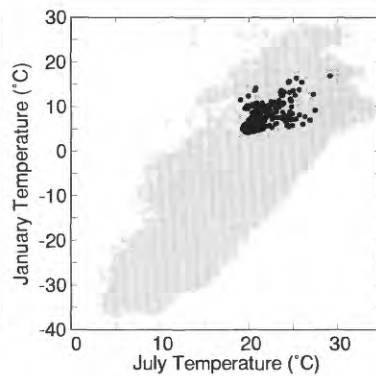
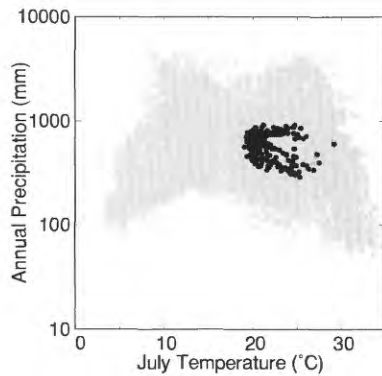
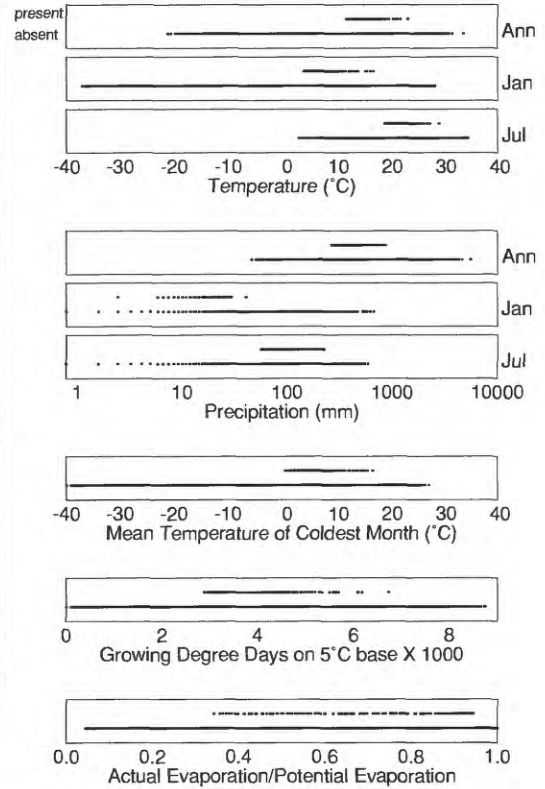


Pinus elliottii

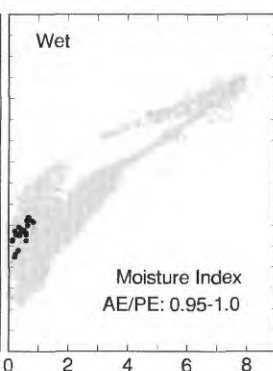
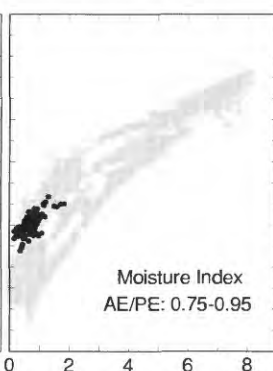
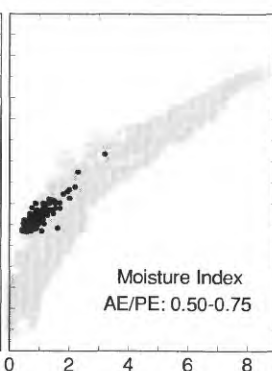
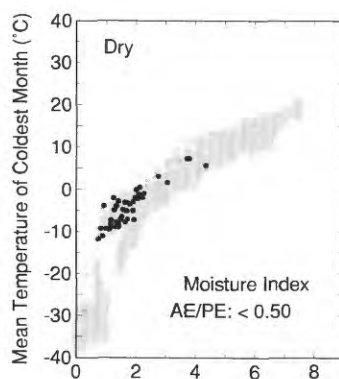
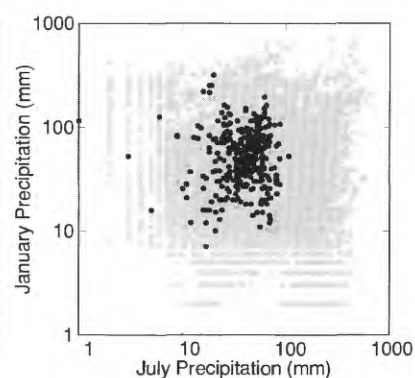
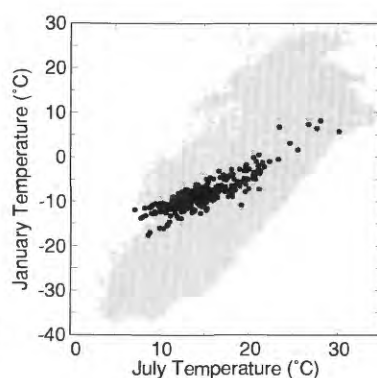
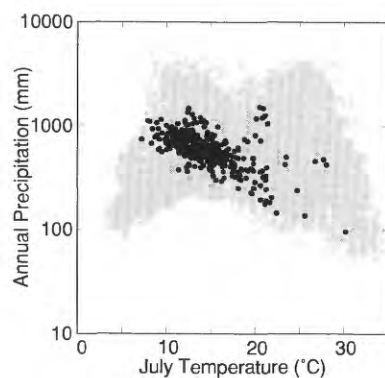
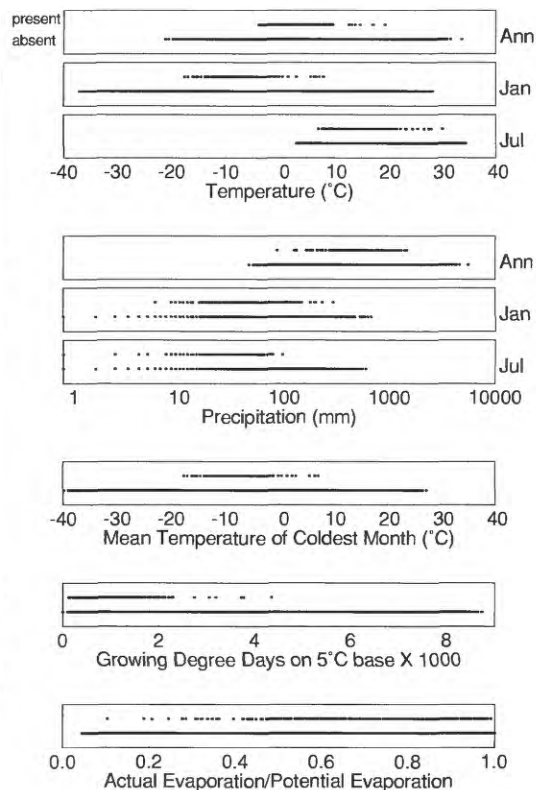


Growing Degree Days on 5°C Base X 1000

Pinus engelmannii

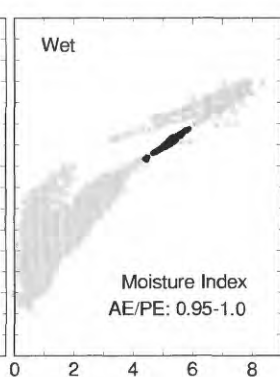
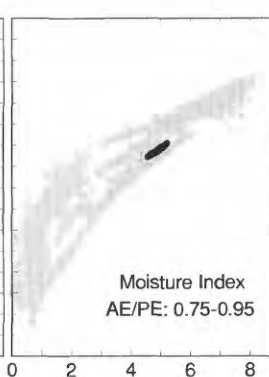
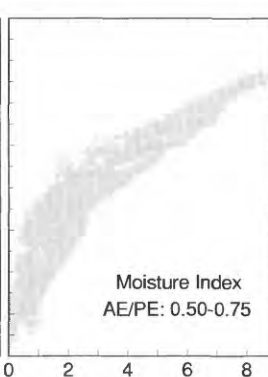
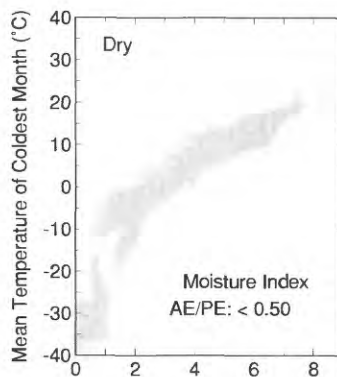
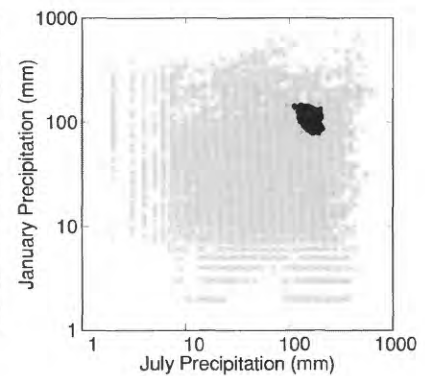
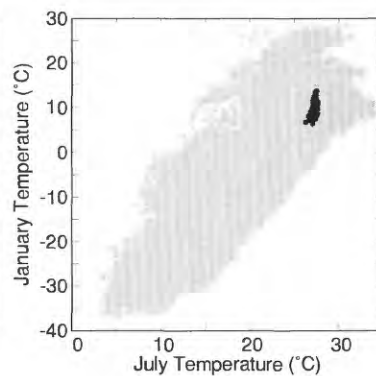
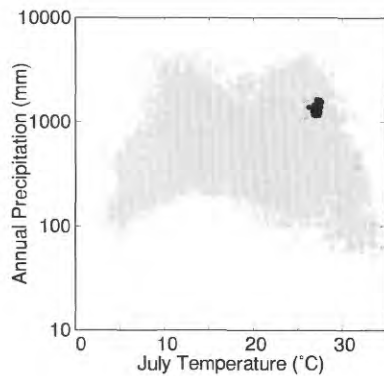
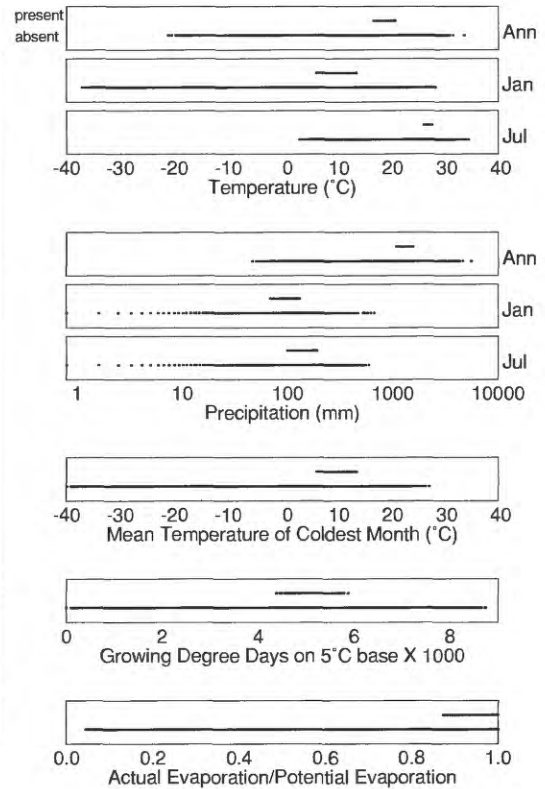


Pinus flexilis

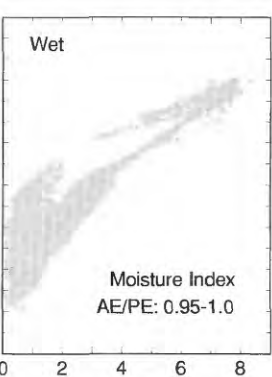
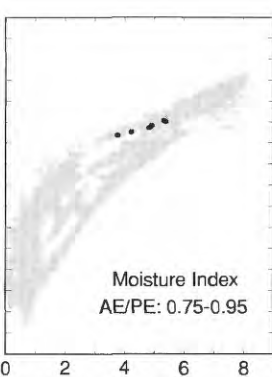
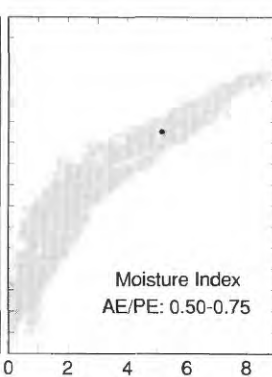
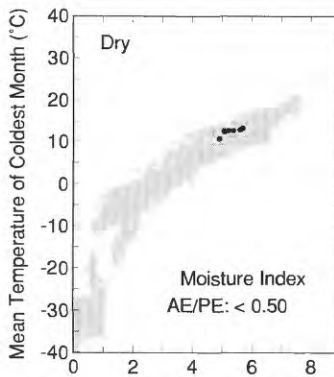
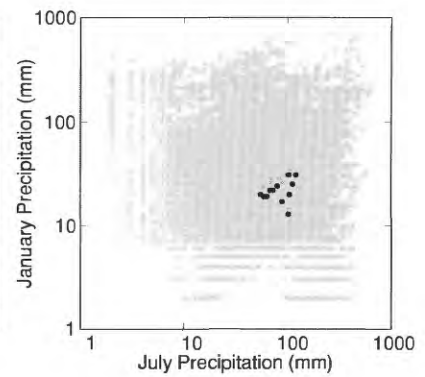
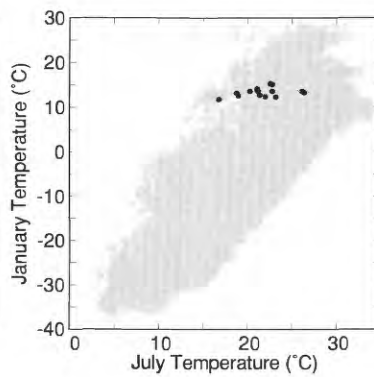
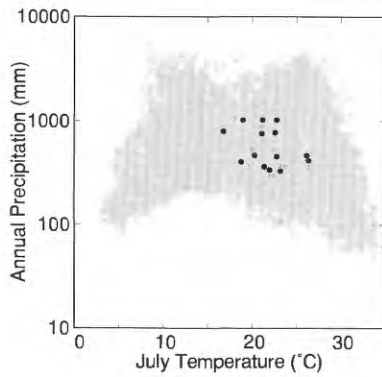
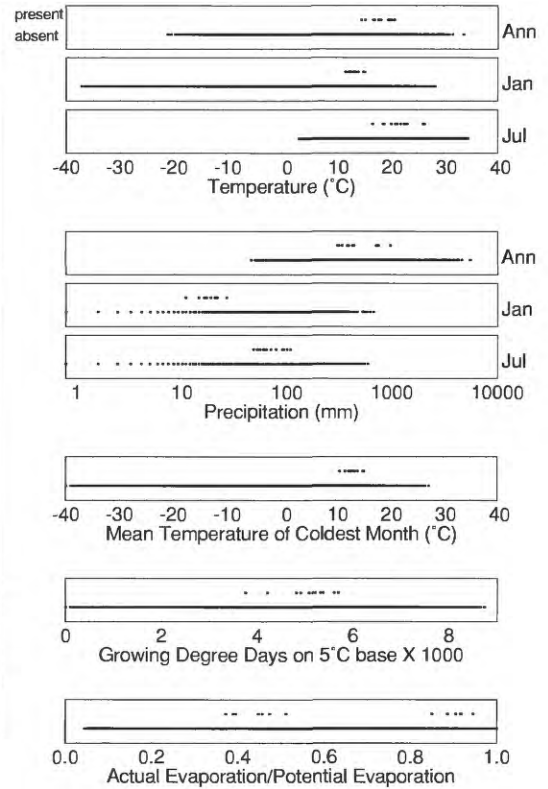


Growing Degree Days on 5°C Base X 1000

Pinus glabra

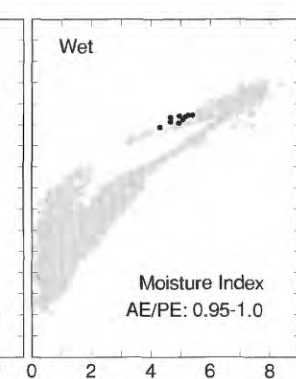
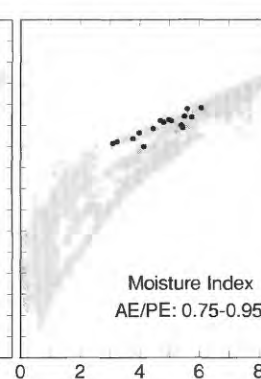
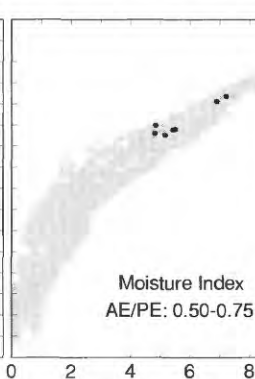
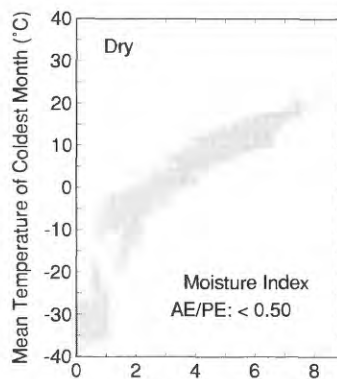
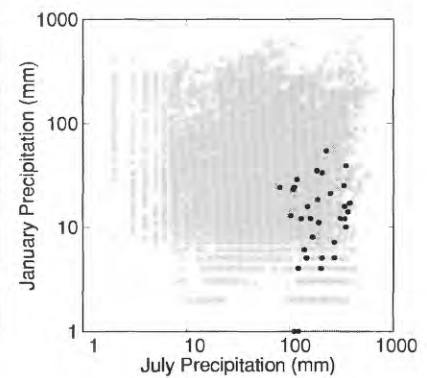
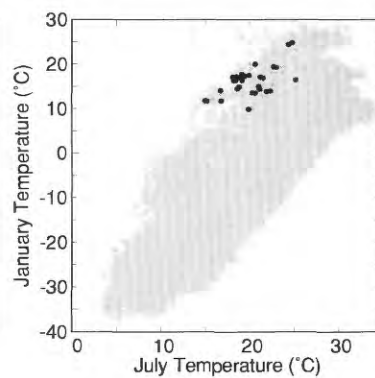
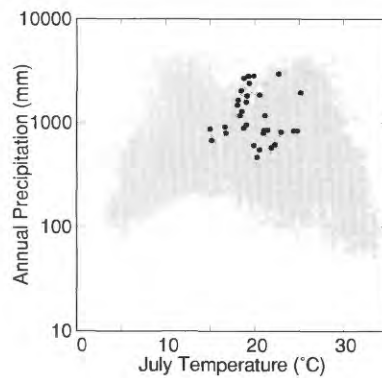
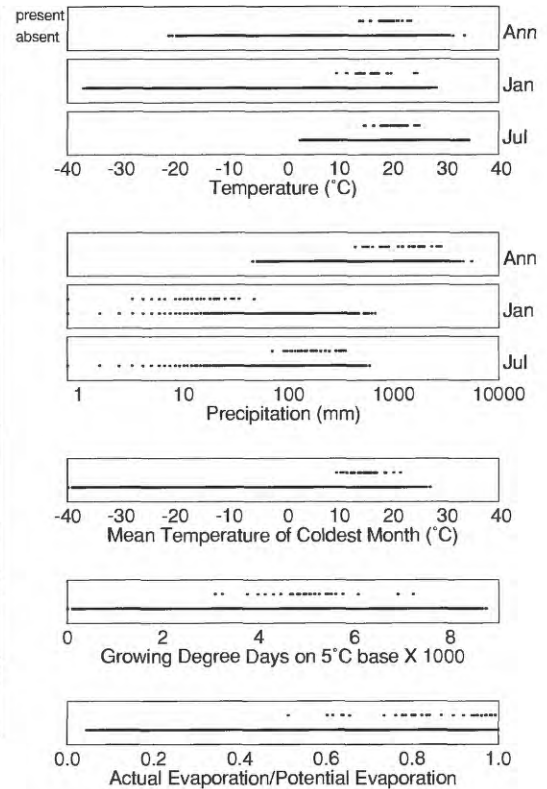


Pinus greggii



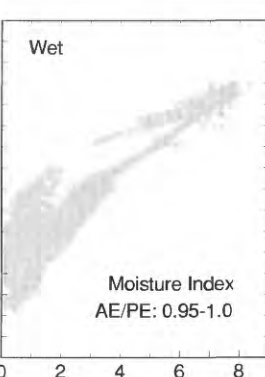
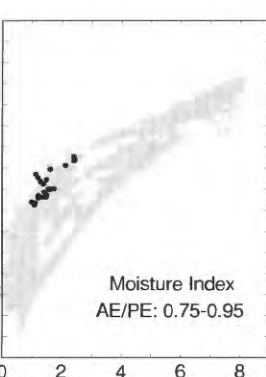
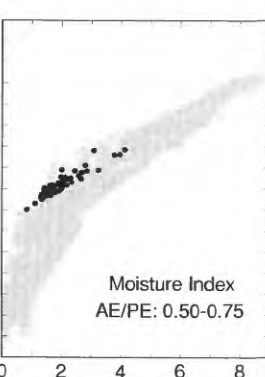
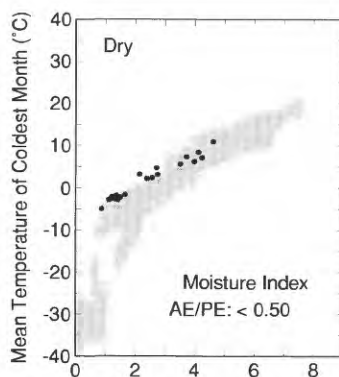
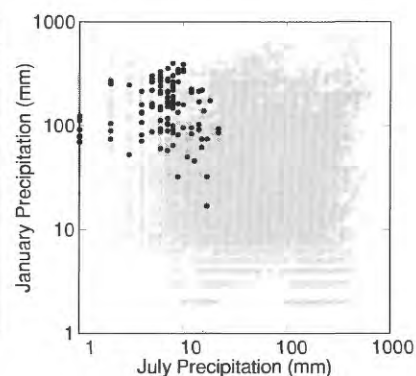
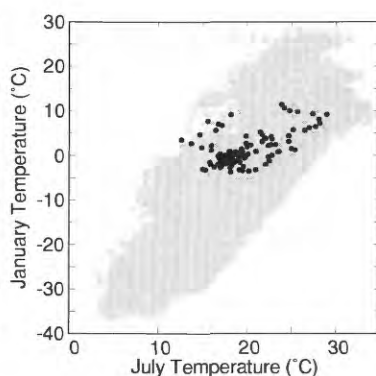
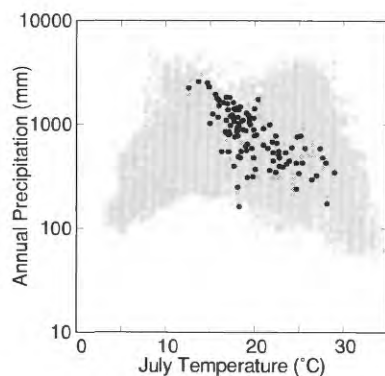
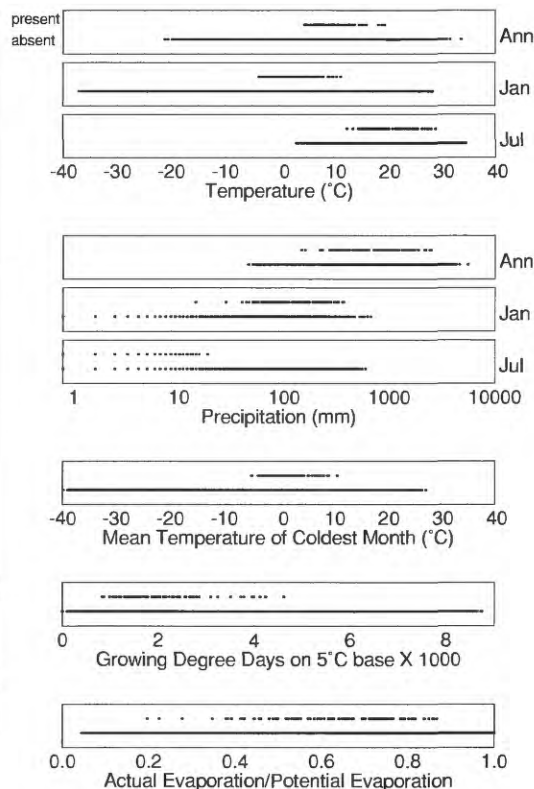
Growing Degree Days on 5°C Base X 1000

Pinus hartwegii



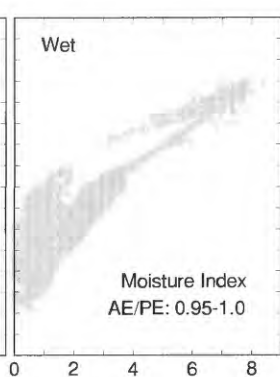
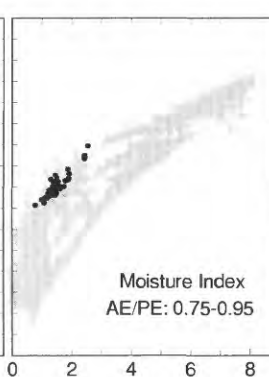
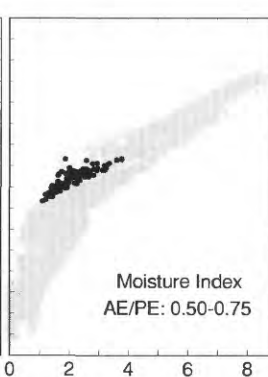
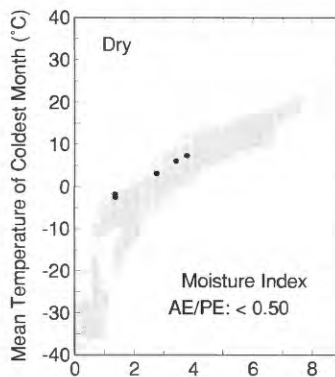
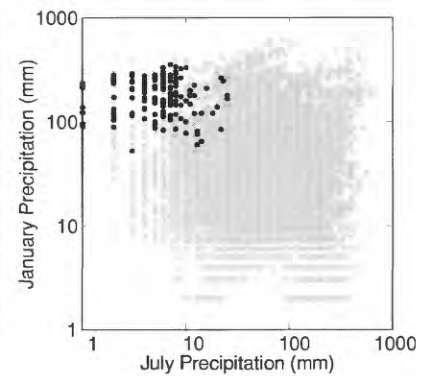
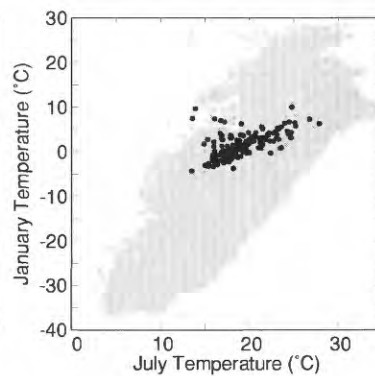
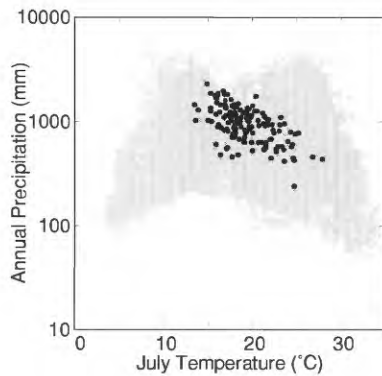
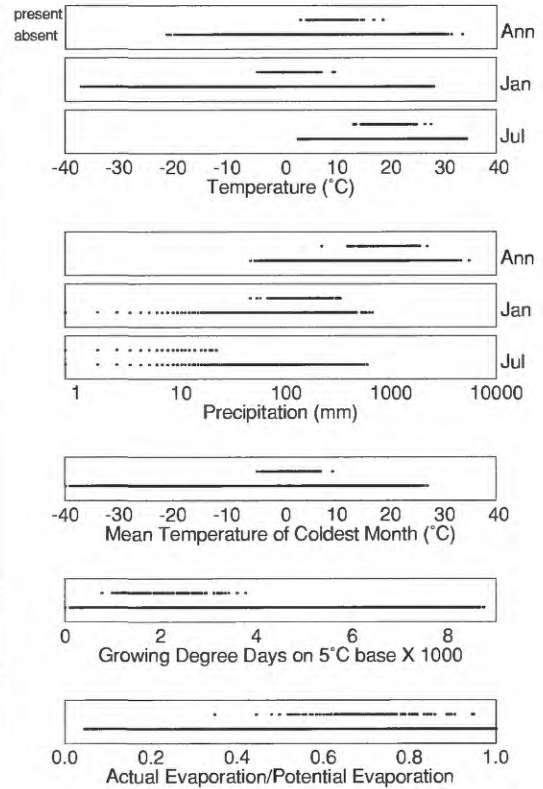
Growing Degree Days on 5°C Base X 1000

Pinus jeffreyi



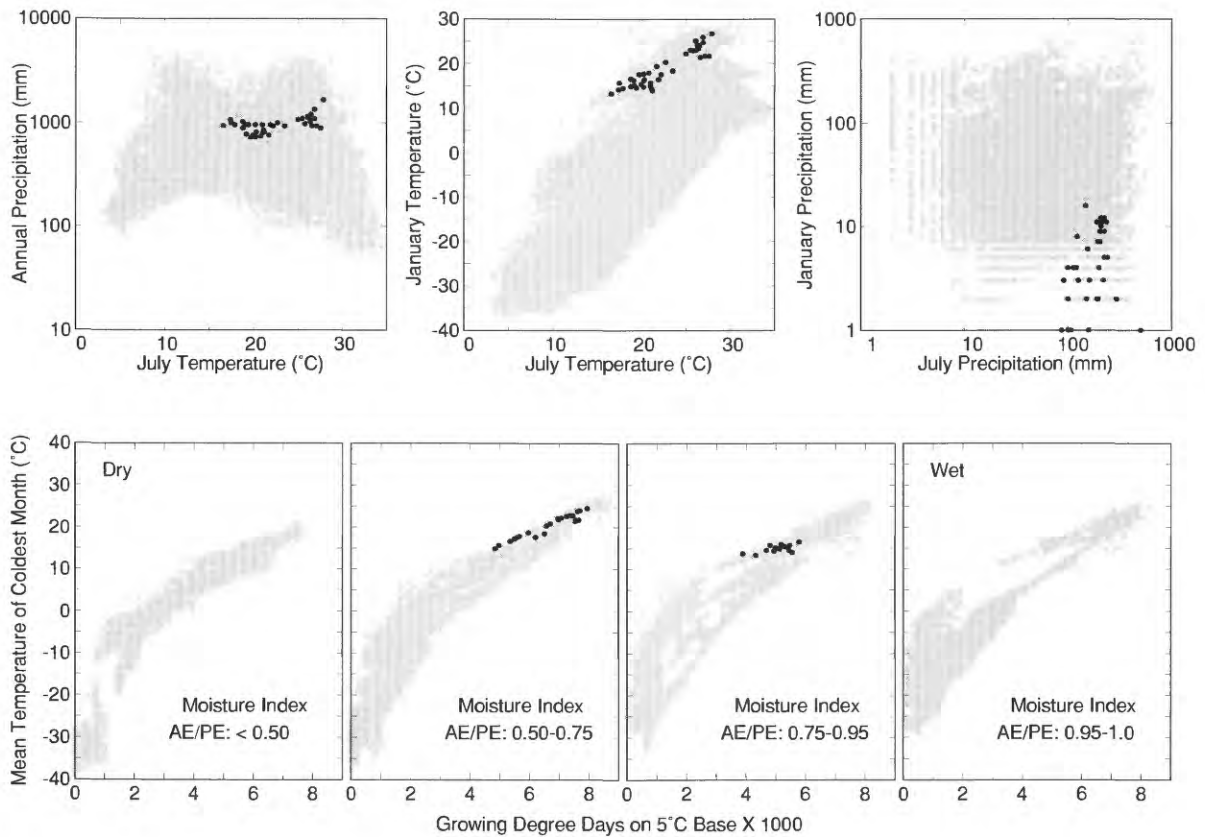
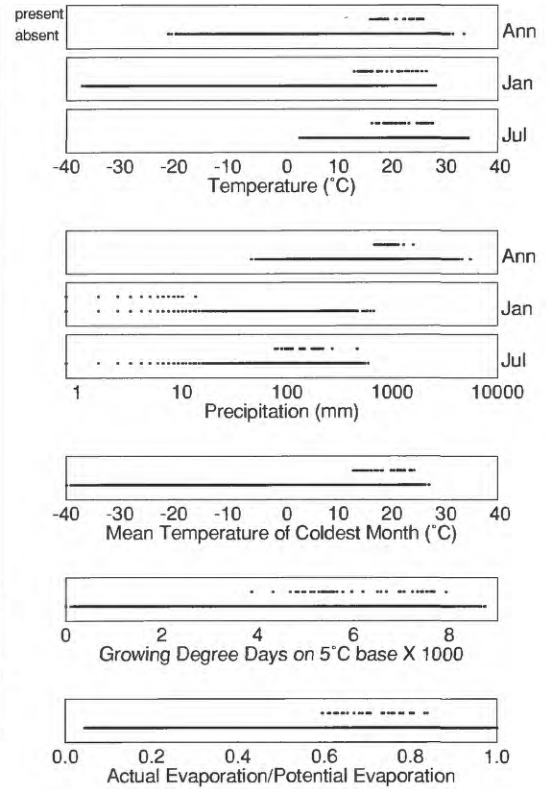
Growing Degree Days on 5°C Base X 1000

Pinus lambertiana

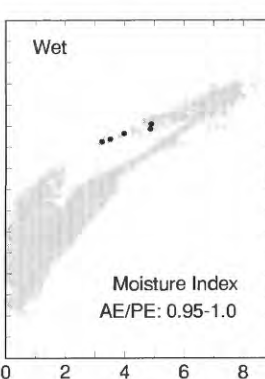
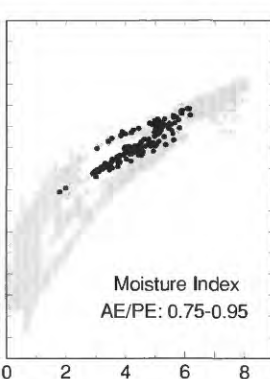
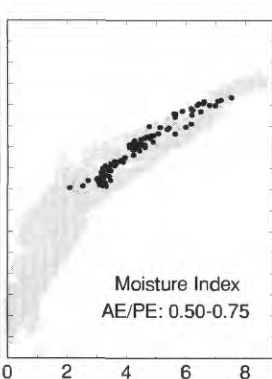
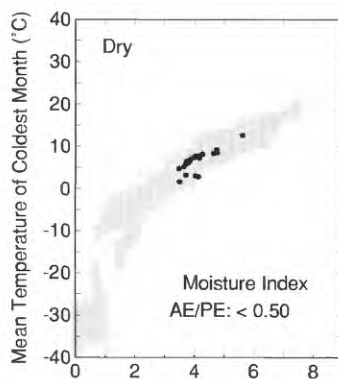
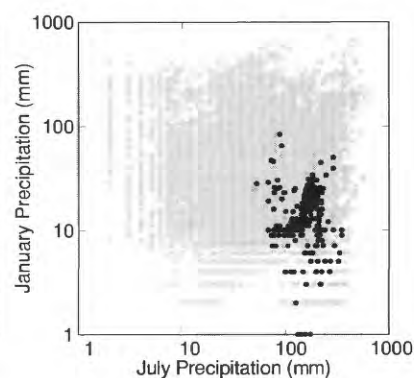
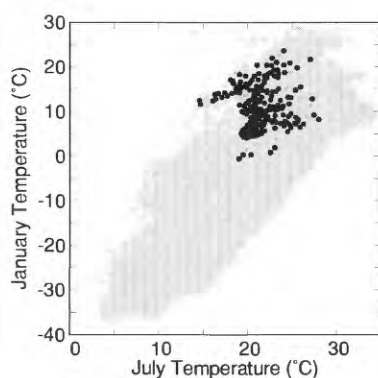
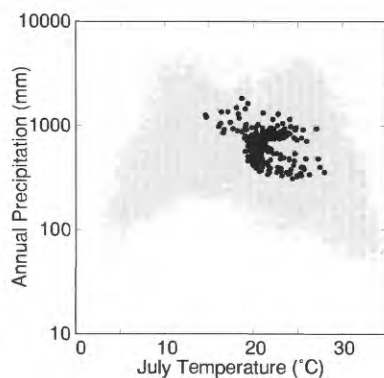
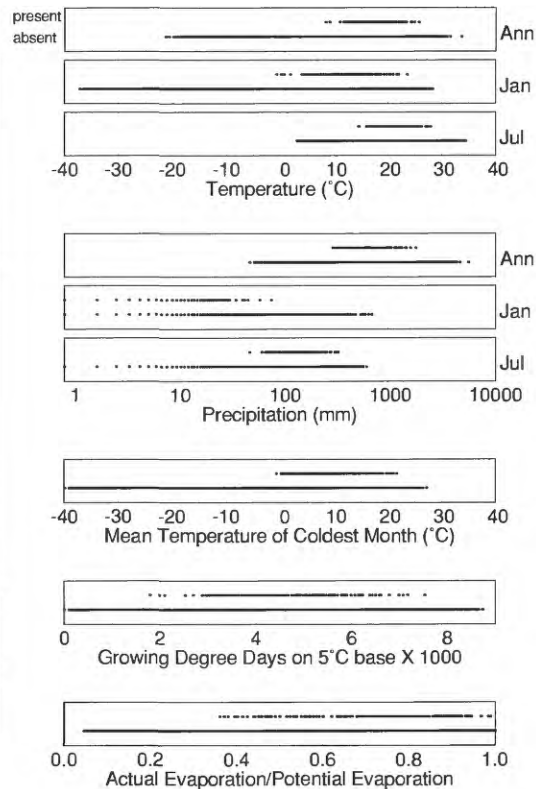


Growing Degree Days on 5°C Base X 1000

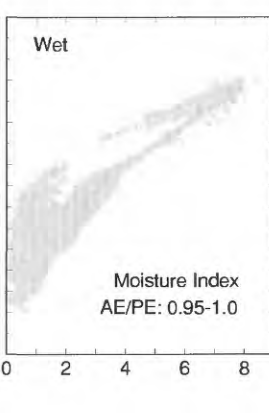
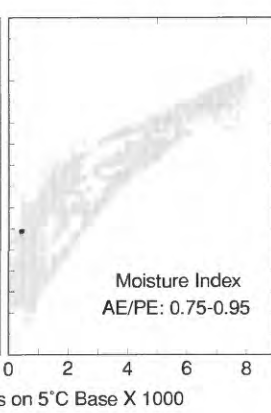
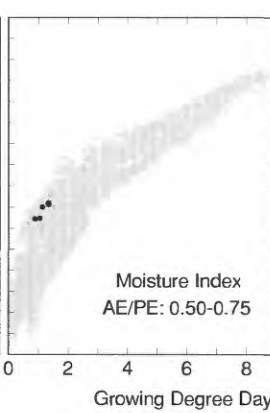
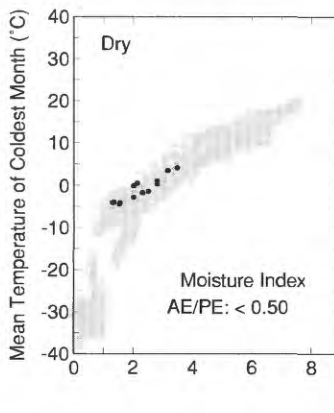
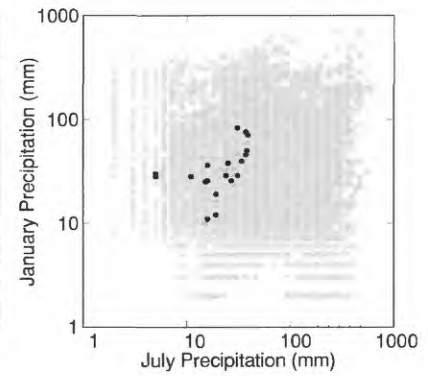
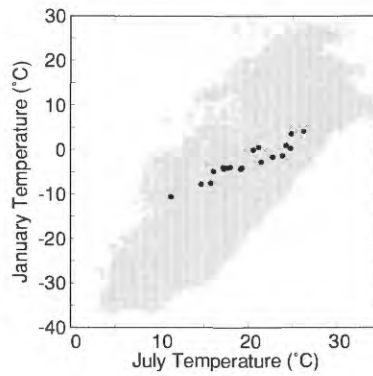
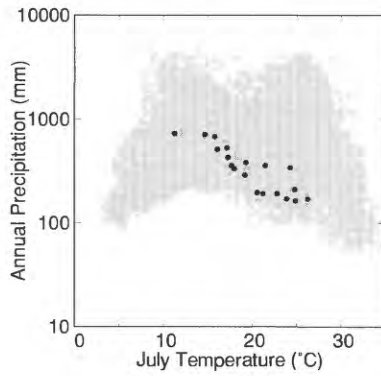
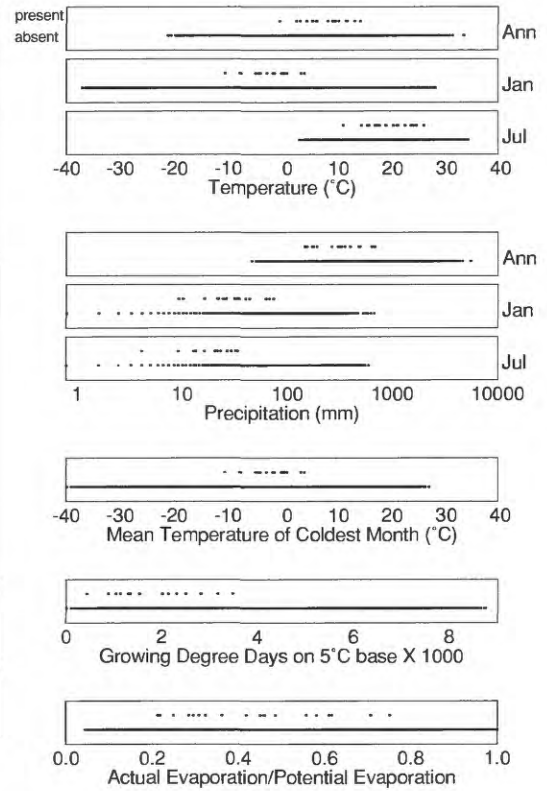
Pinus lawsonii



Pinus leiophylla

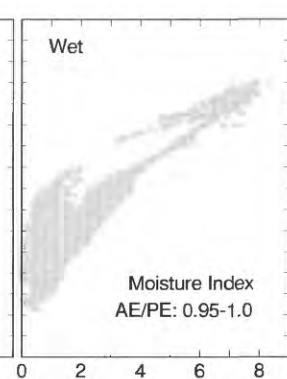
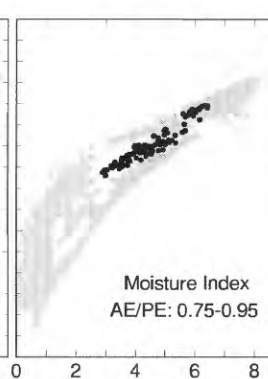
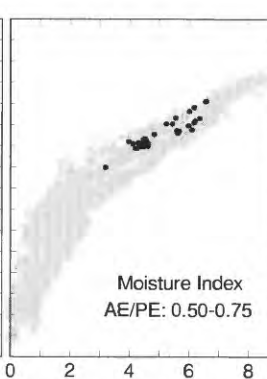
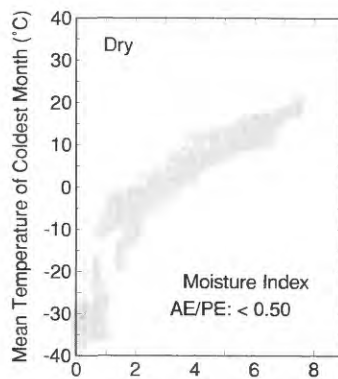
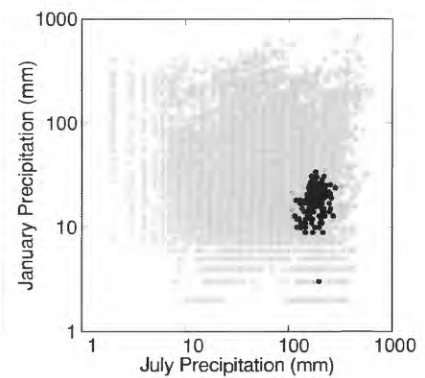
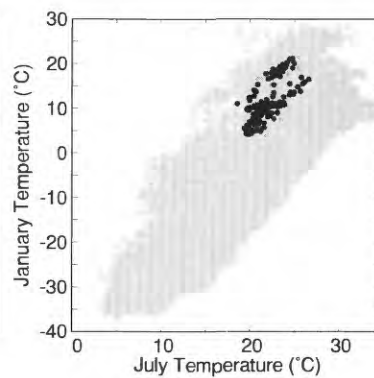
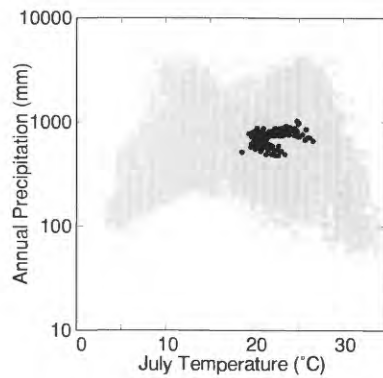
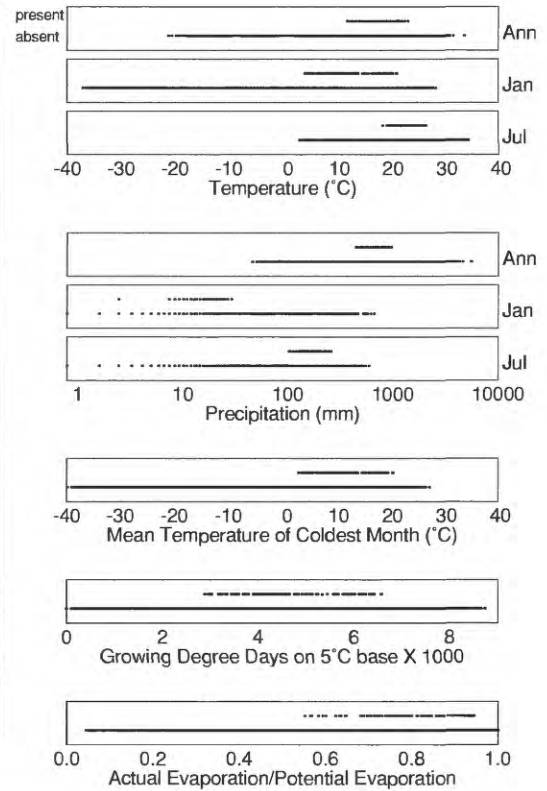


Pinus longaeva

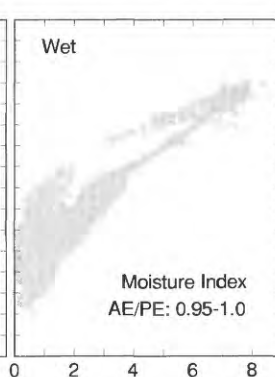
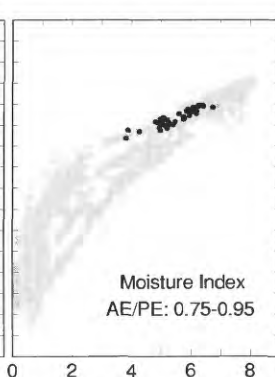
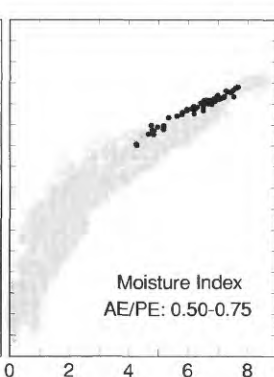
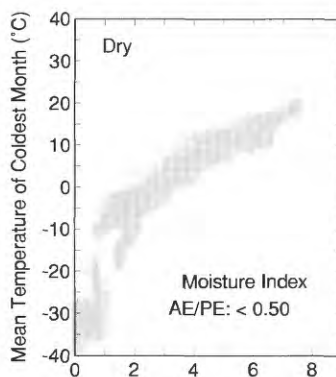
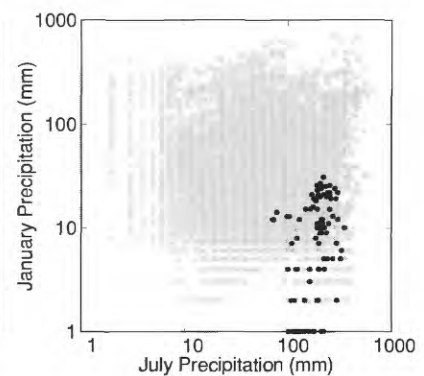
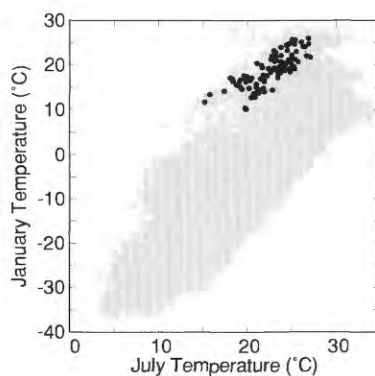
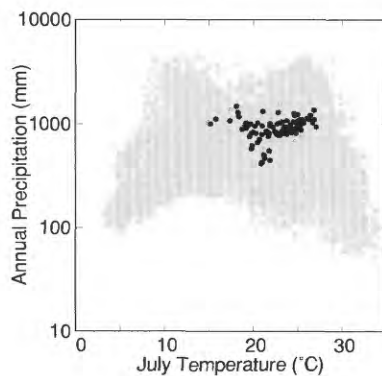
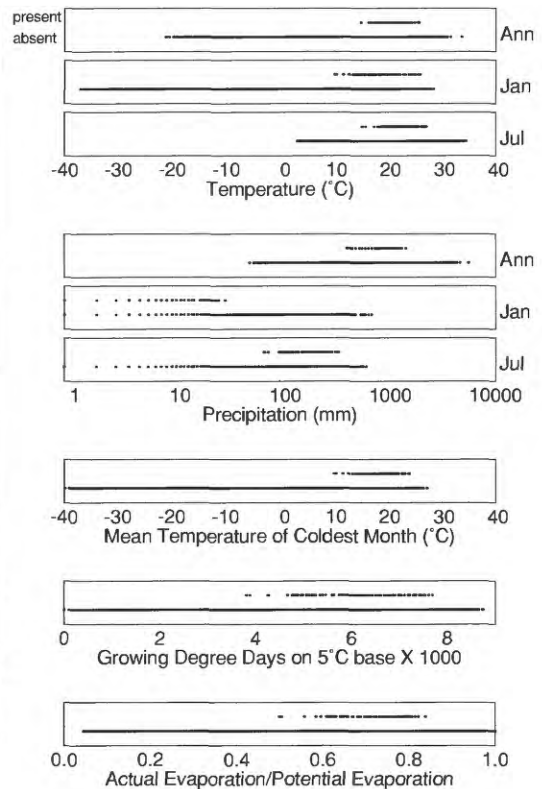


Growing Degree Days on 5°C Base X 1000

Pinus lumholtzii

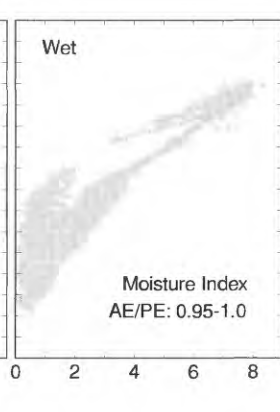
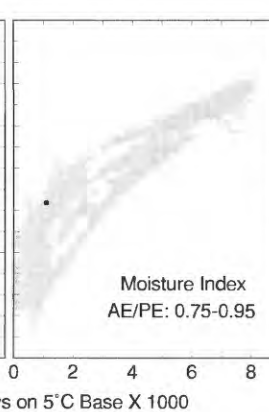
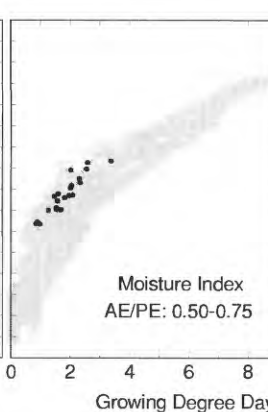
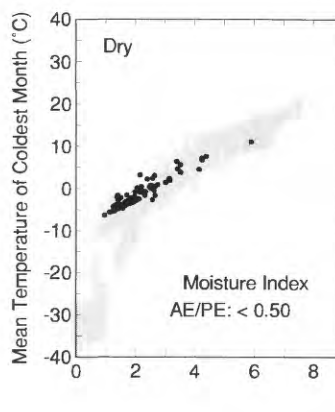
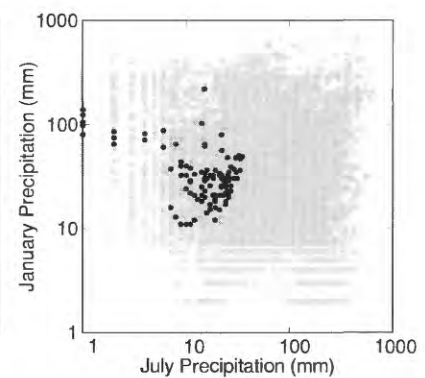
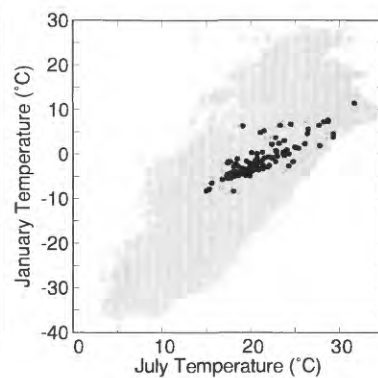
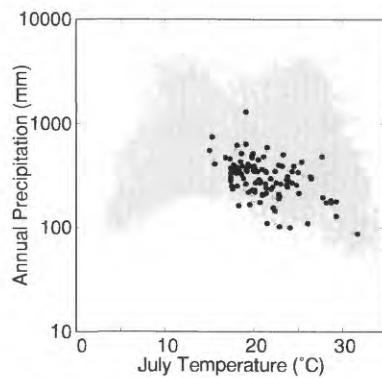
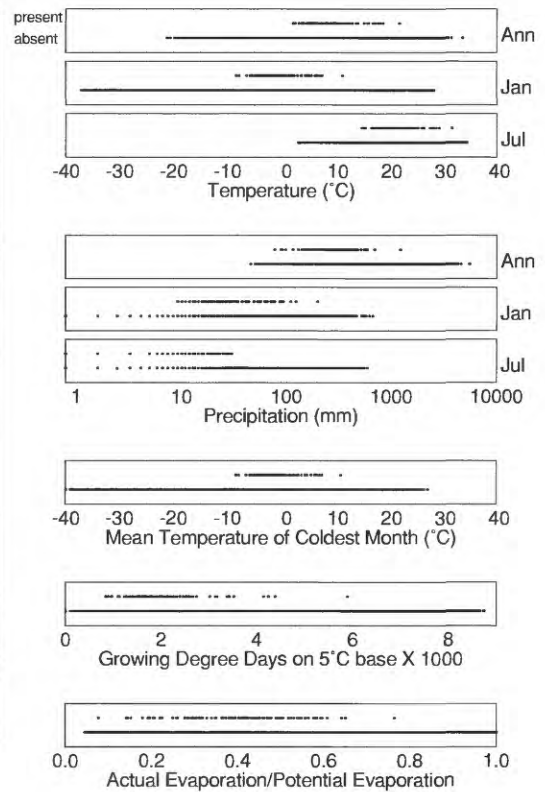


Pinus michoacana

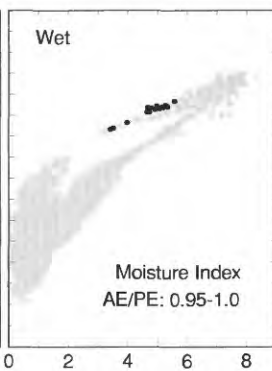
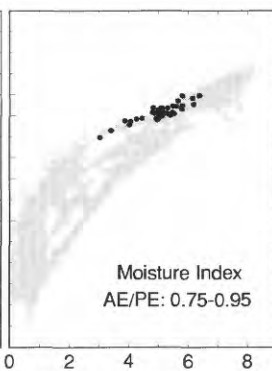
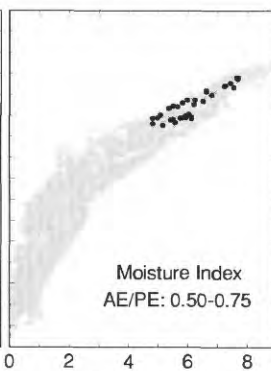
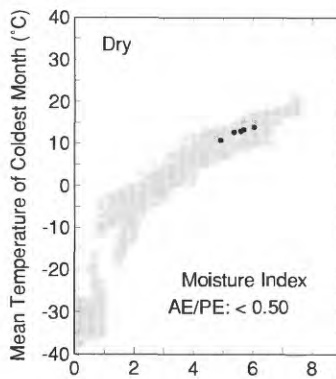
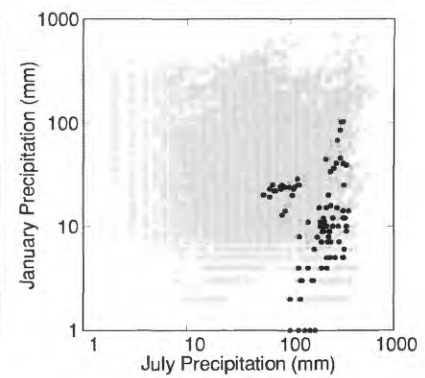
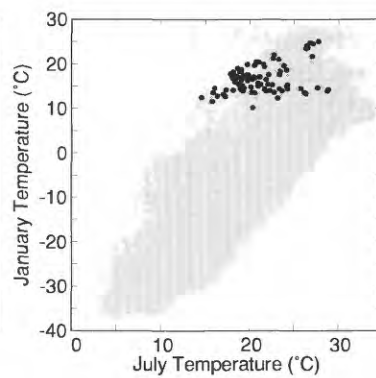
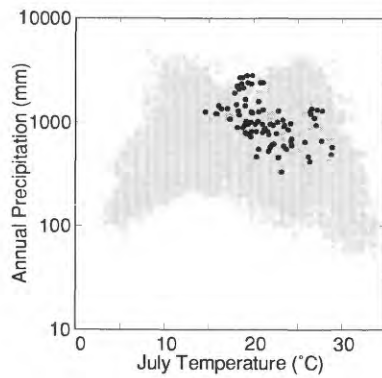
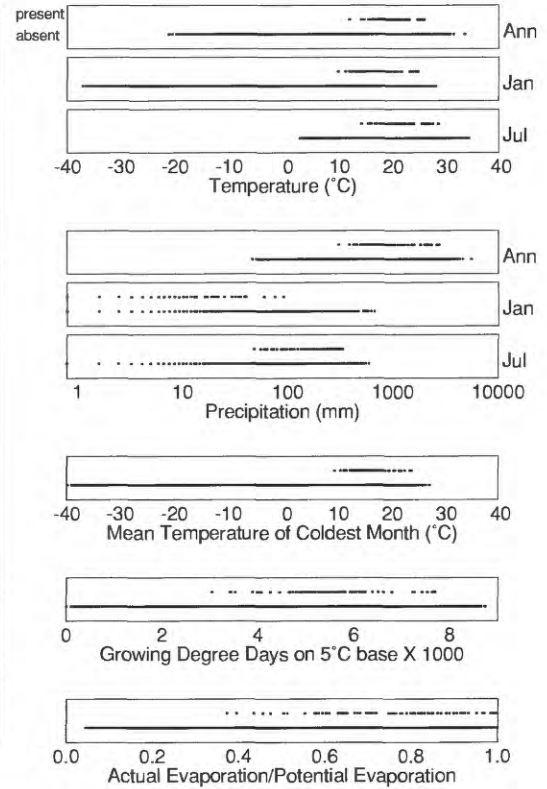


Growing Degree Days on 5°C Base X 1000

Pinus monophylla

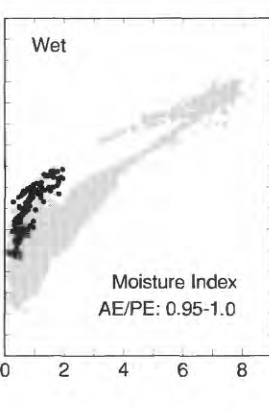
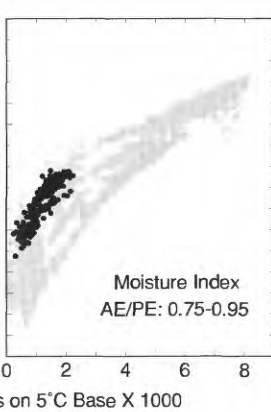
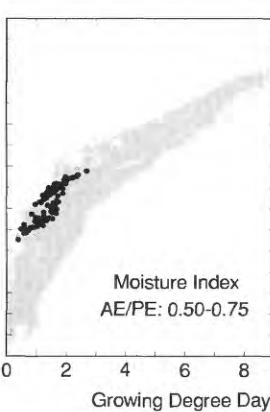
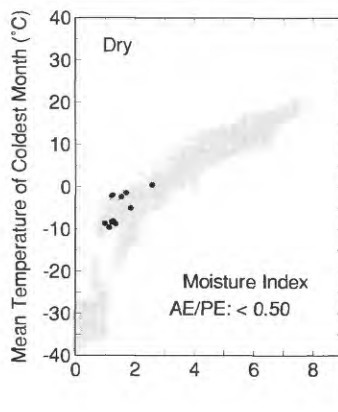
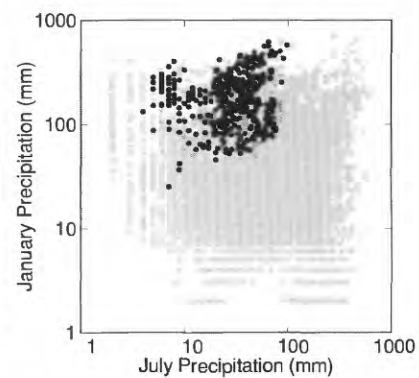
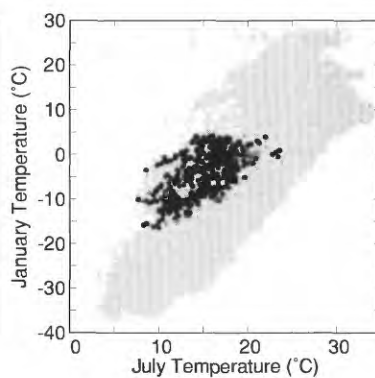
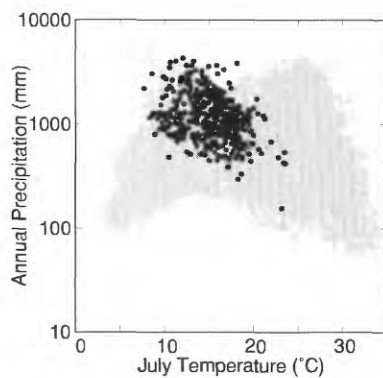
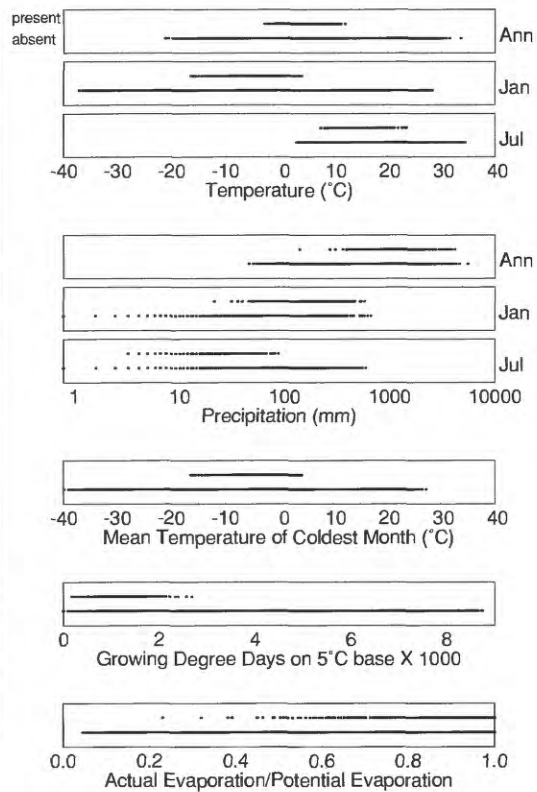


Pinus montezumae

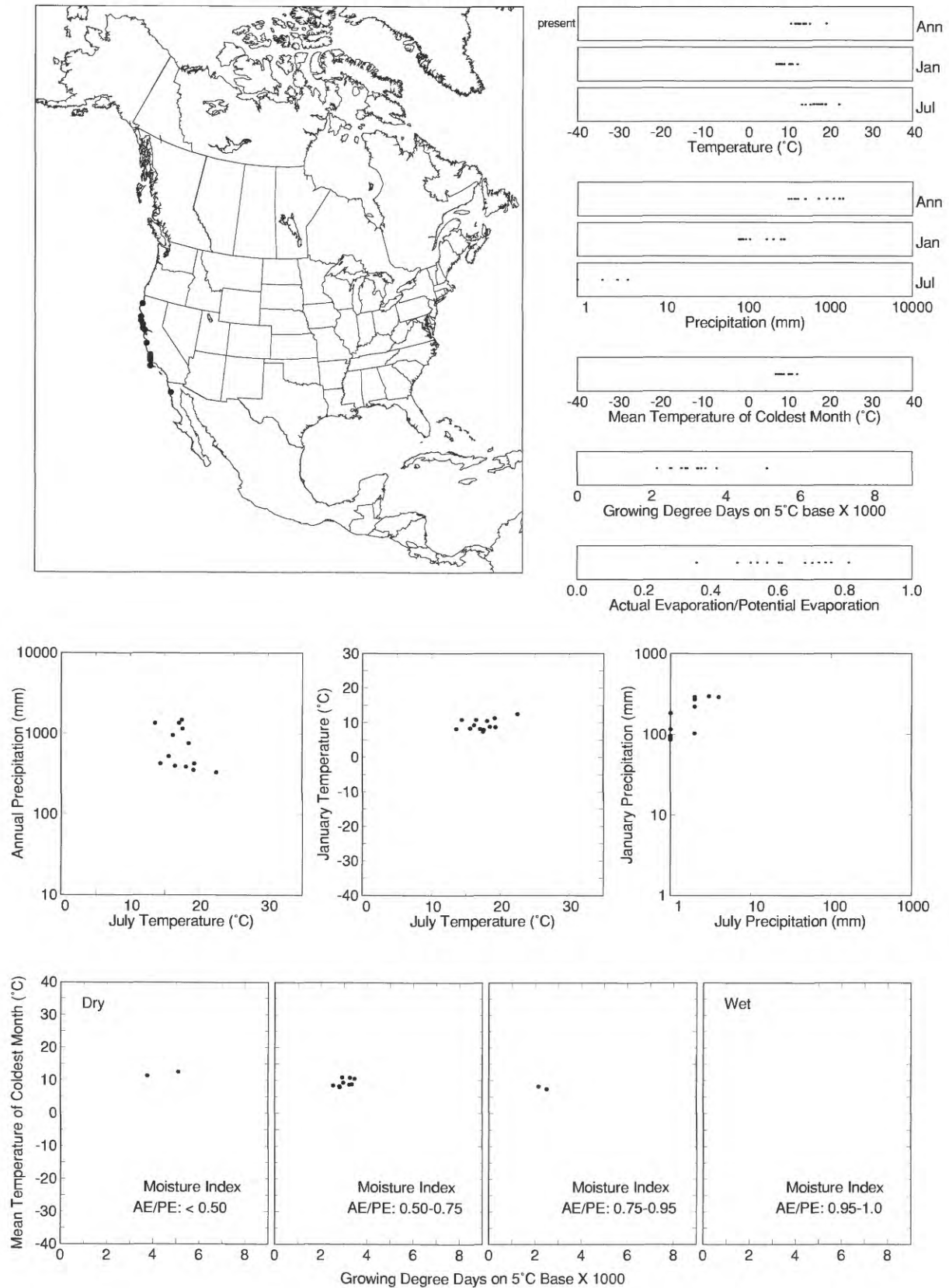


Growing Degree Days on 5°C Base X 1000

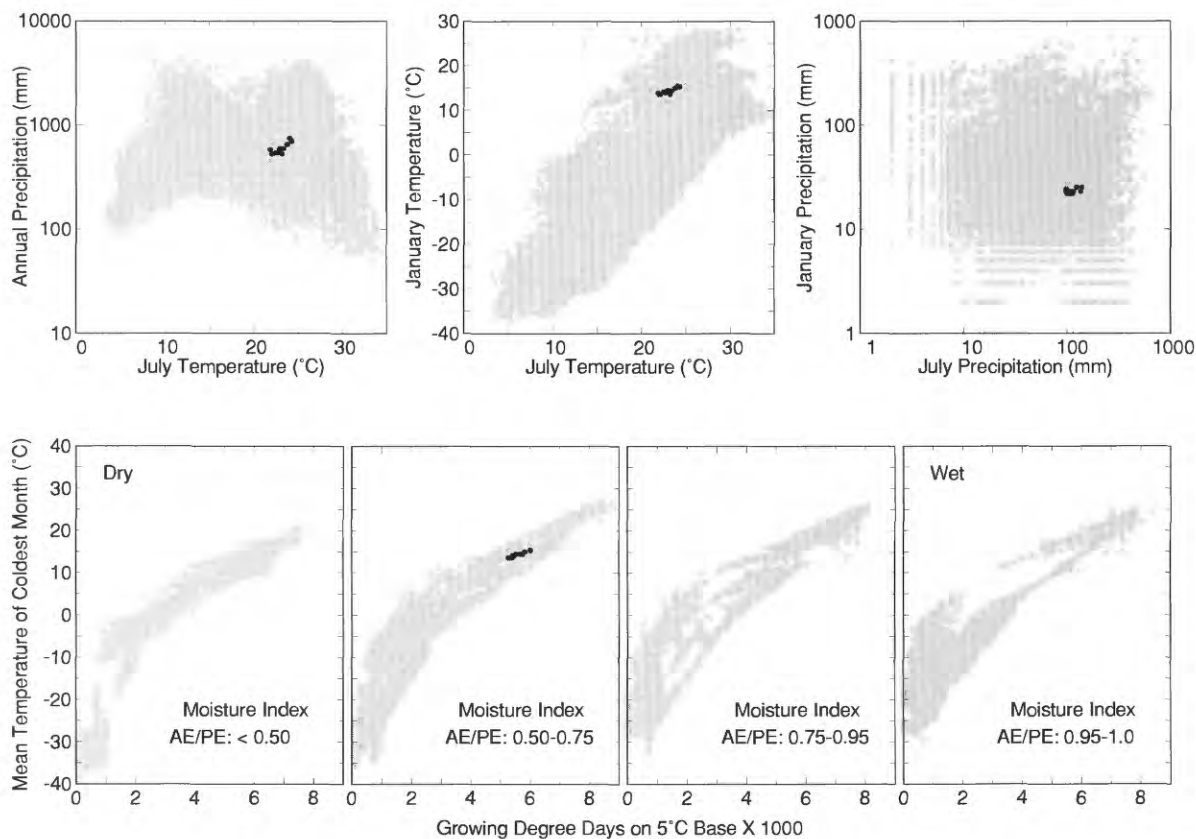
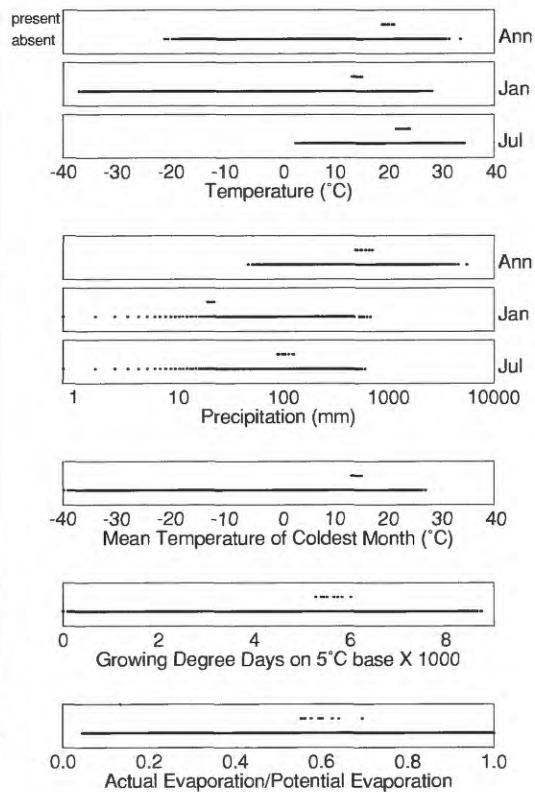
Pinus monticola



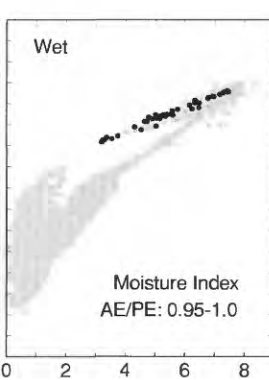
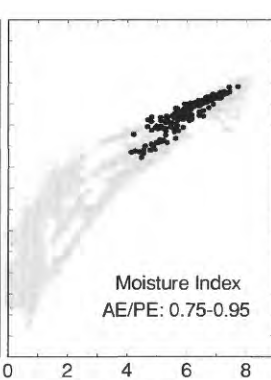
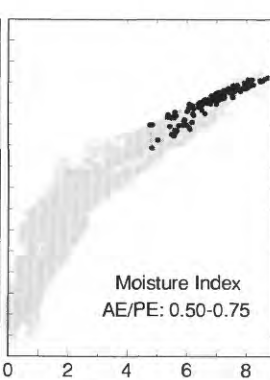
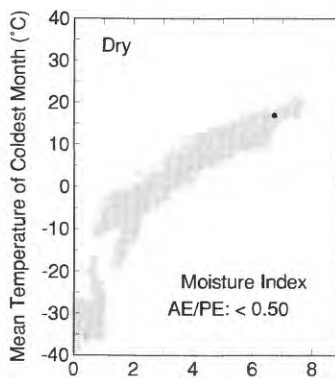
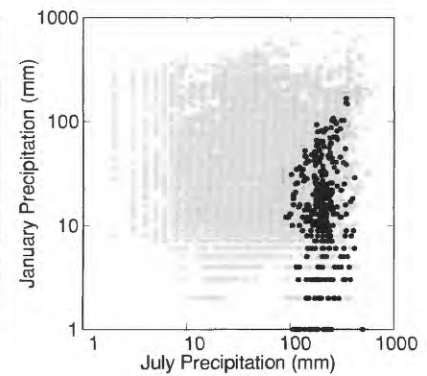
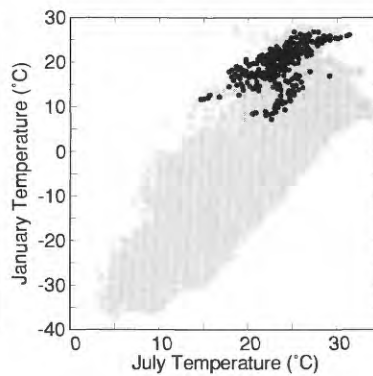
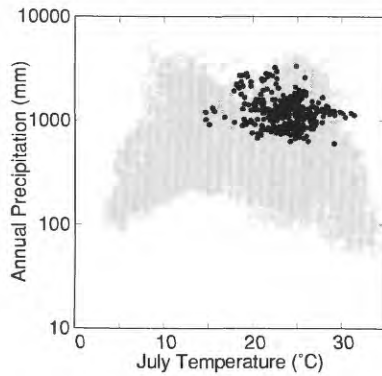
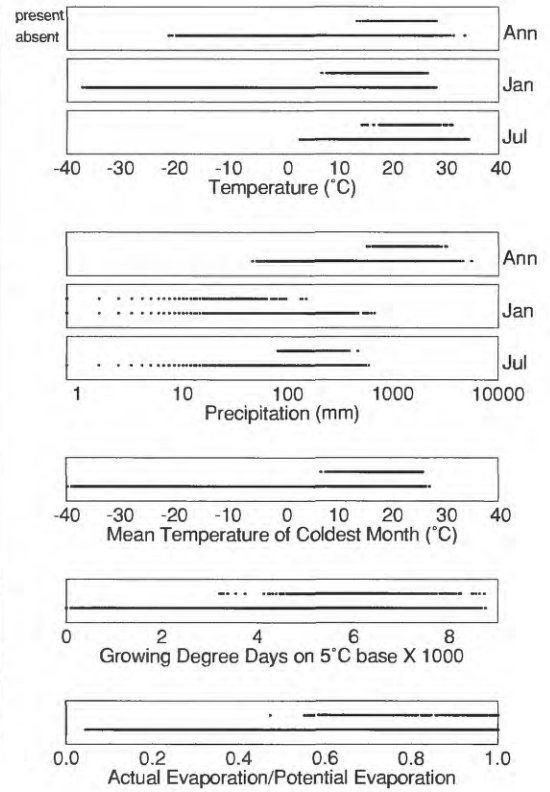
Pinus muricata (minimal data - nearest grid points used with environmental parameters)



Pinus nelsonii

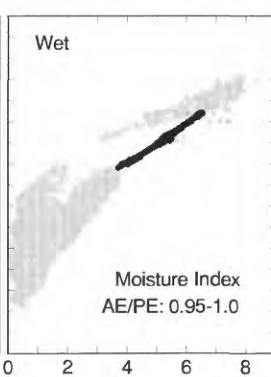
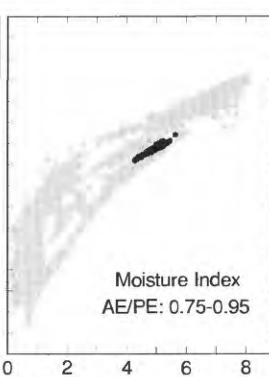
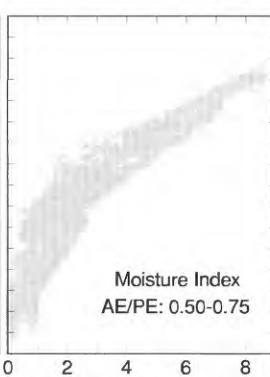
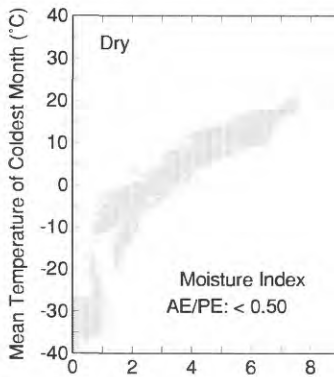
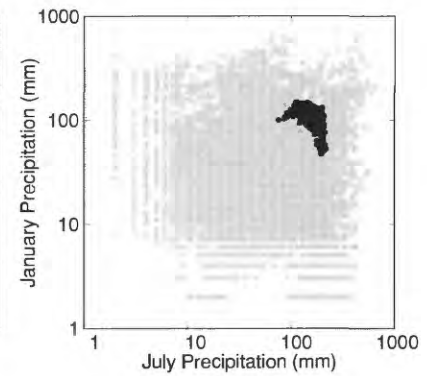
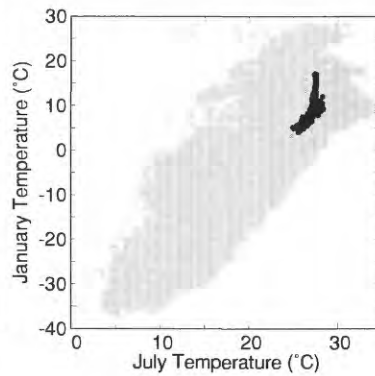
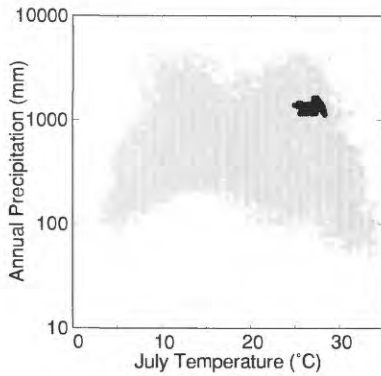
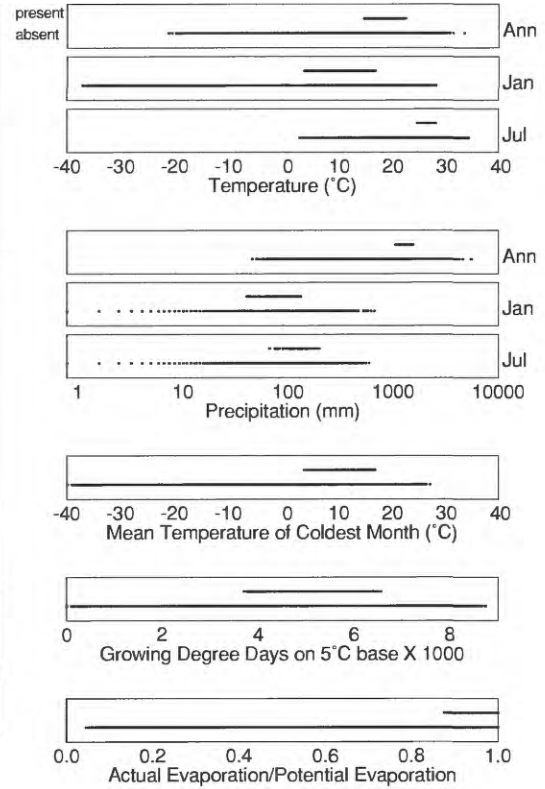


Pinus oocarpa



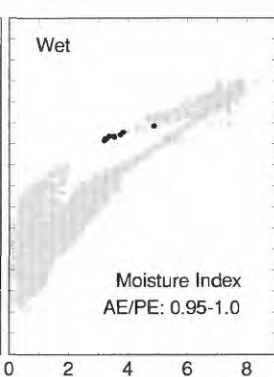
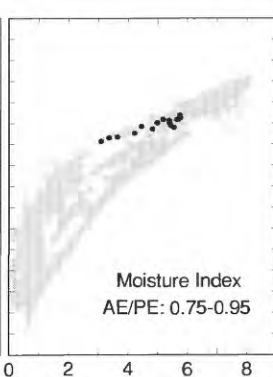
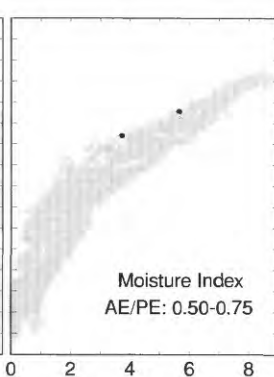
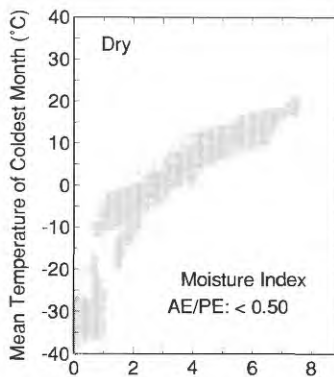
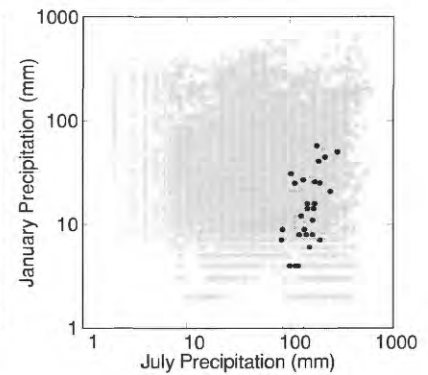
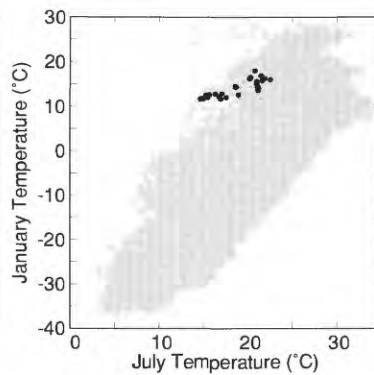
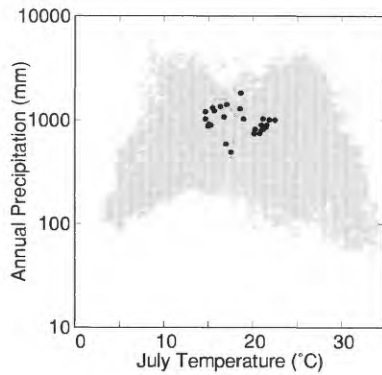
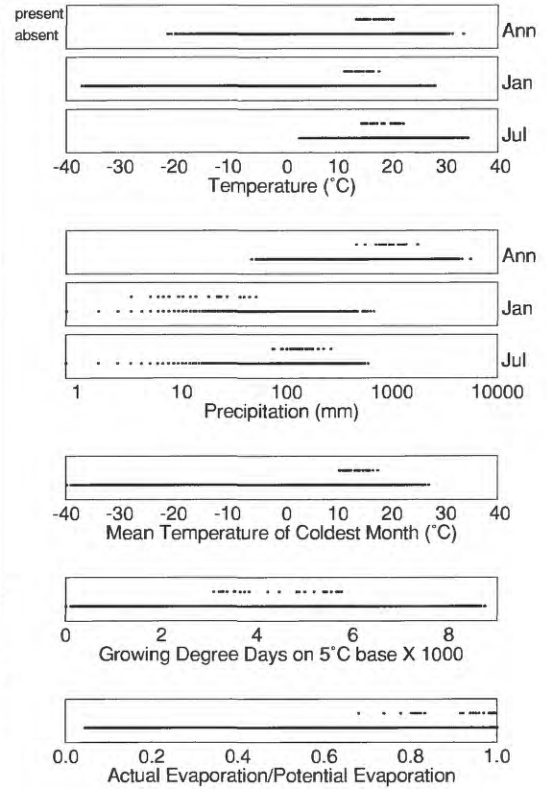
Growing Degree Days on 5°C Base X 1000

Pinus palustris



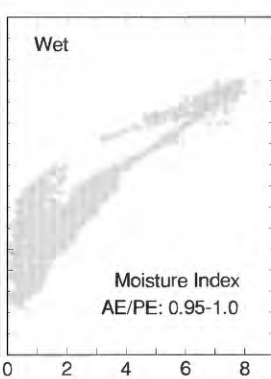
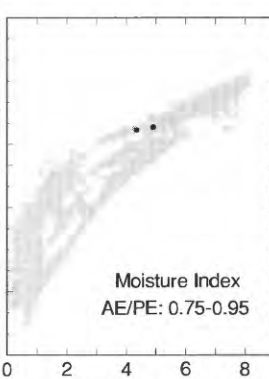
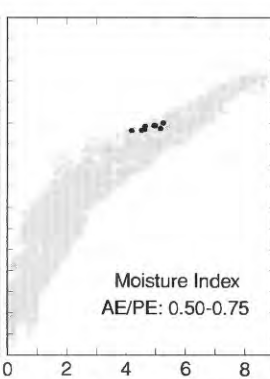
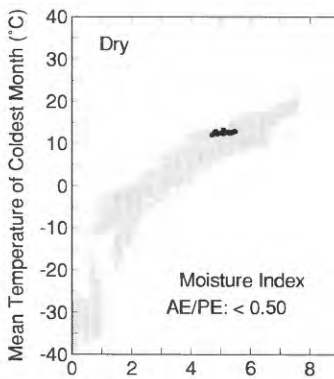
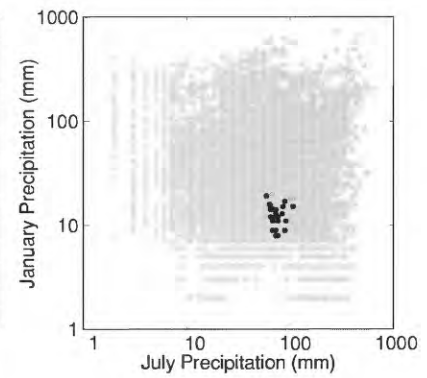
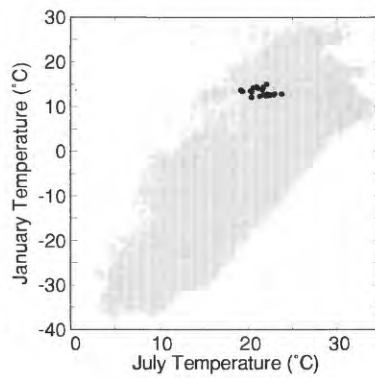
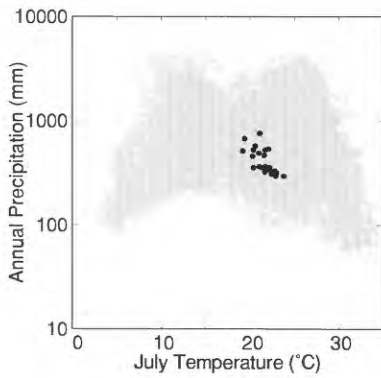
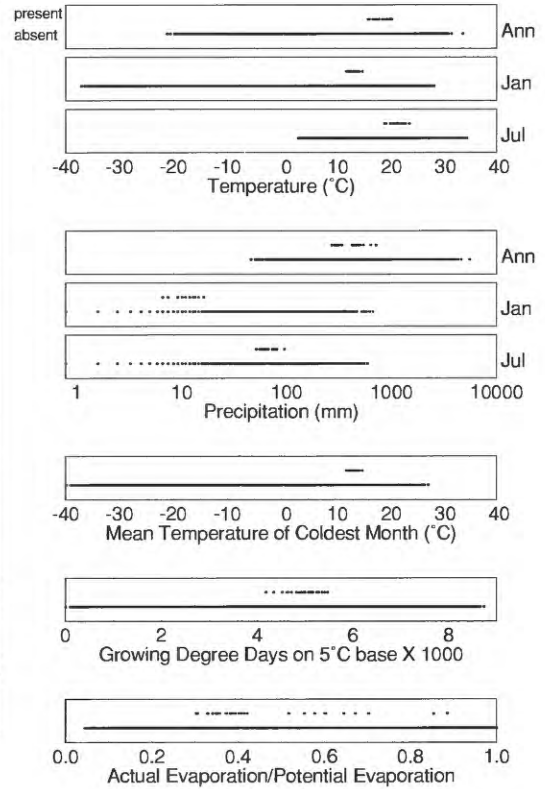
Growing Degree Days on 5°C Base X 1000

Pinus patula



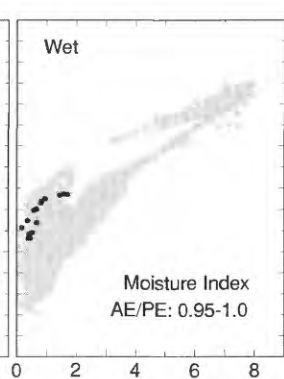
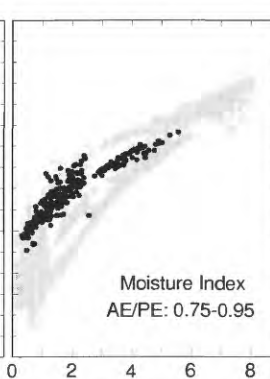
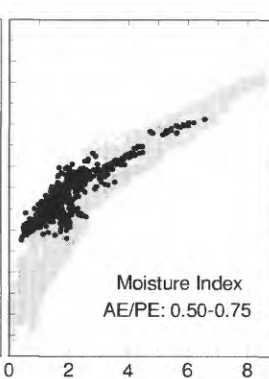
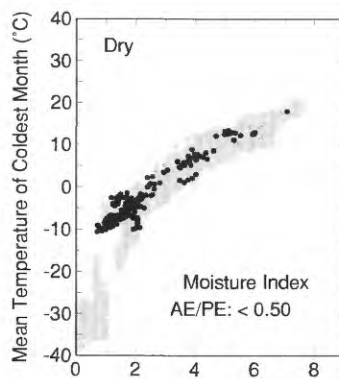
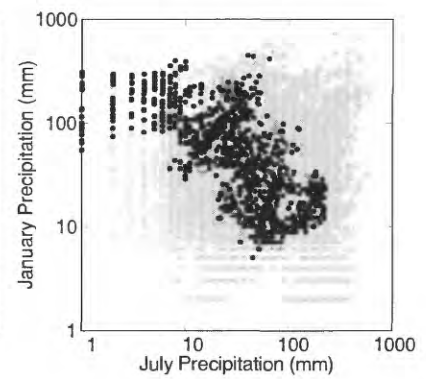
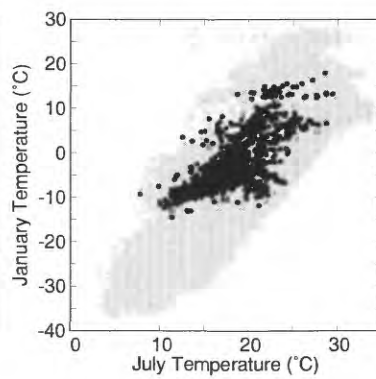
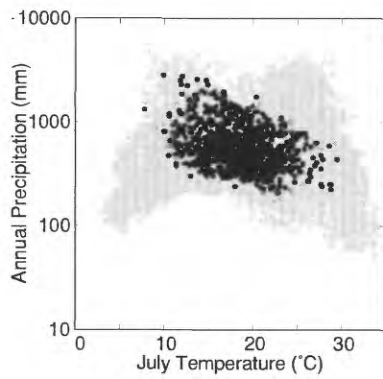
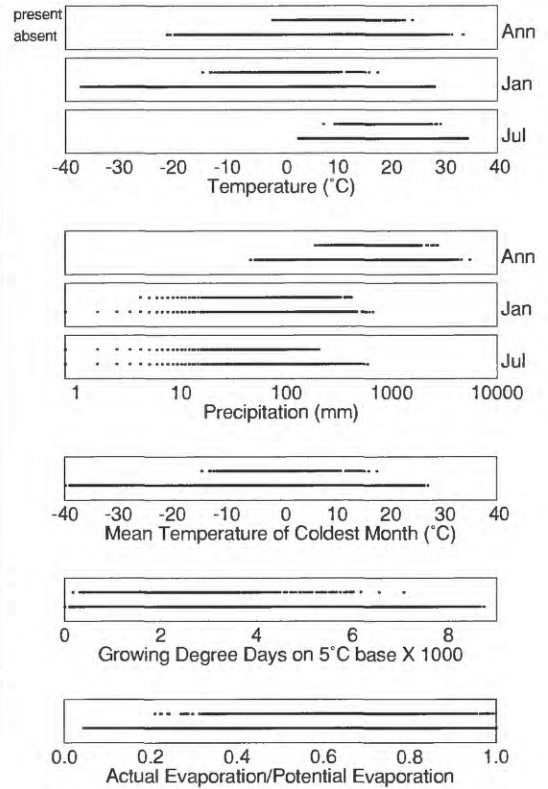
Growing Degree Days on 5°C Base X 1000

Pinus pinceana



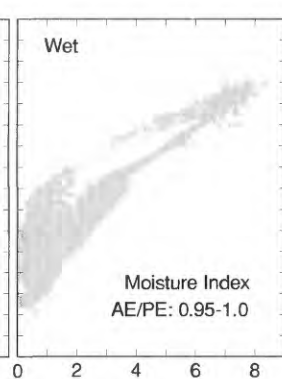
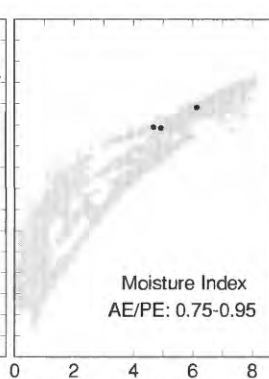
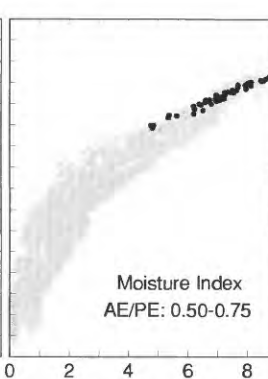
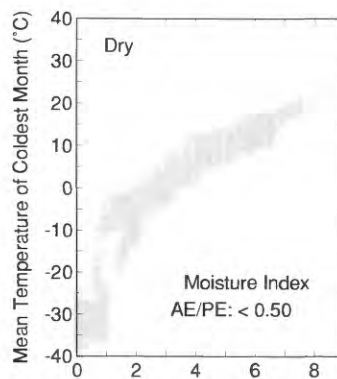
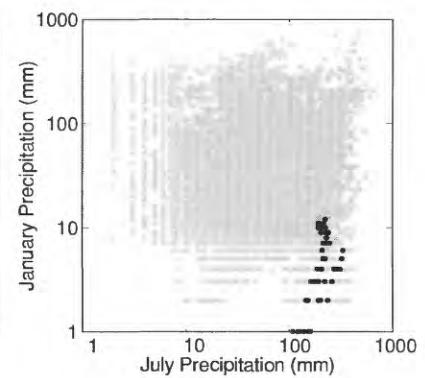
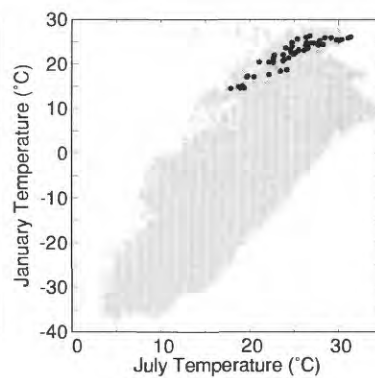
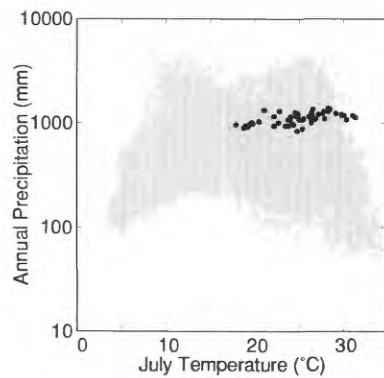
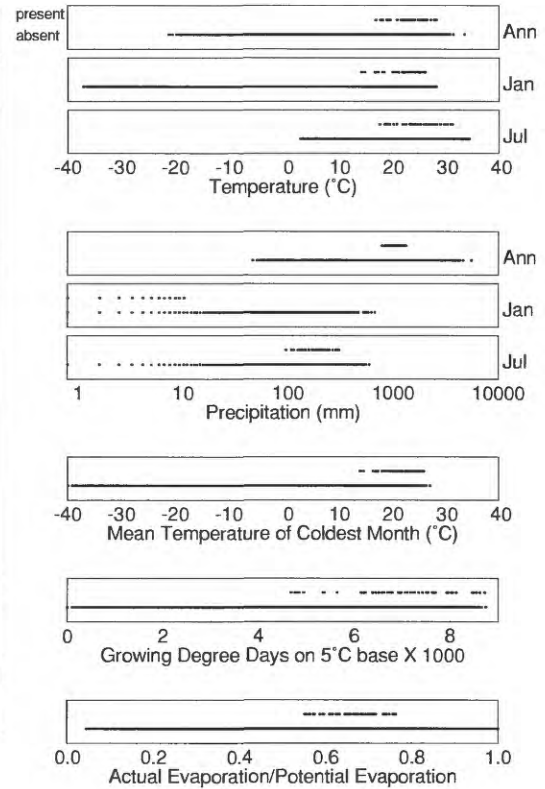
Growing Degree Days on 5°C Base X 1000

Pinus ponderosa

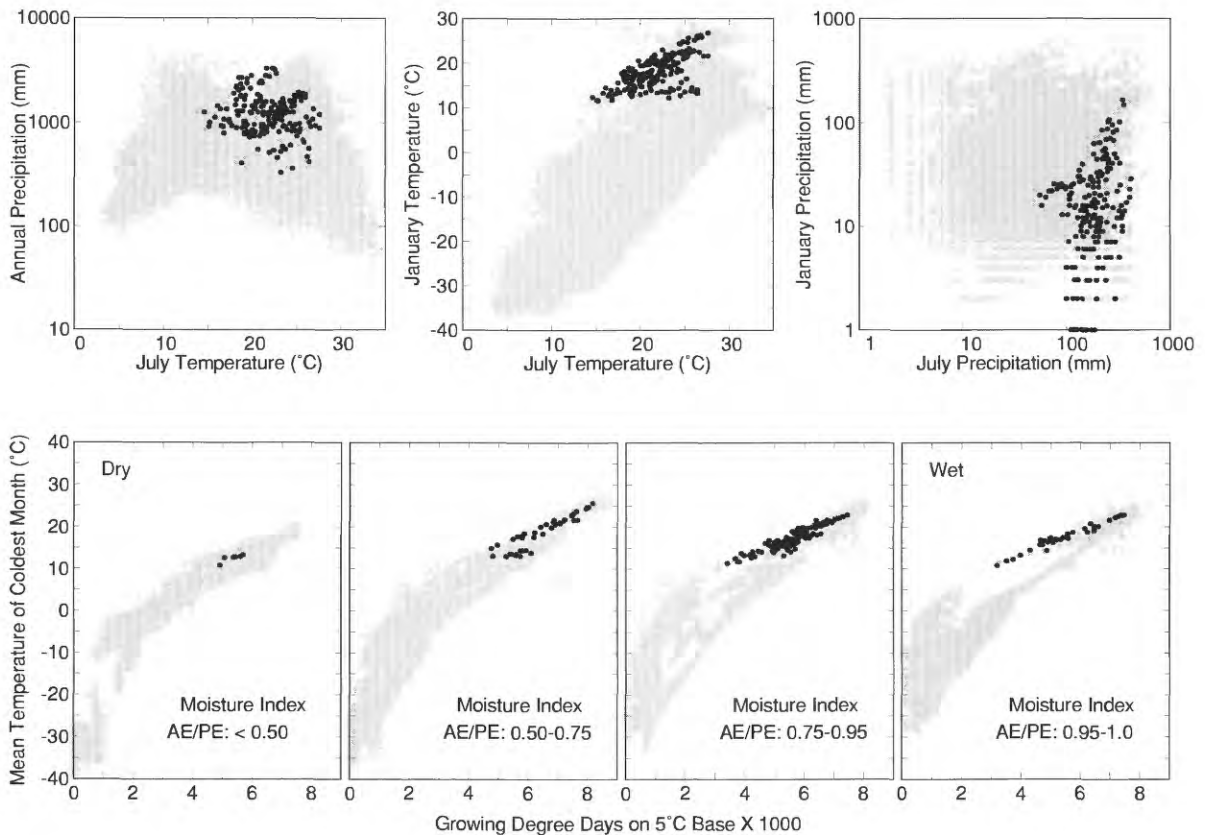
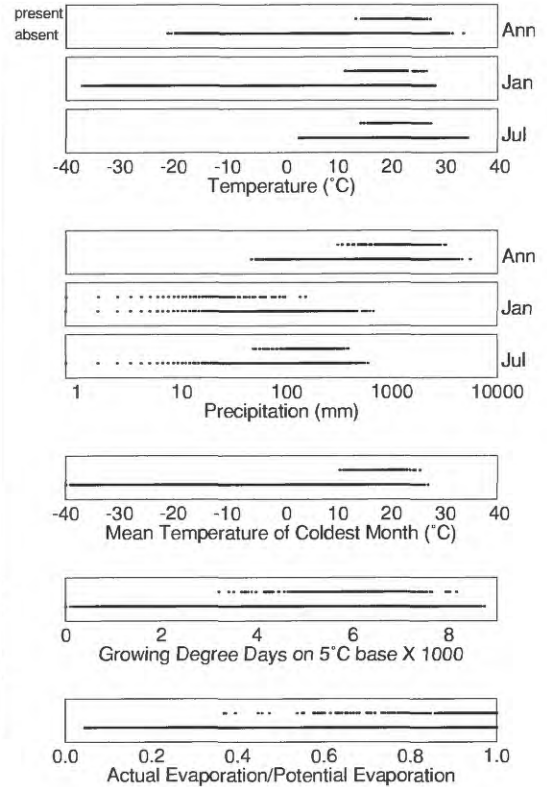


Growing Degree Days on 5°C Base X 1000

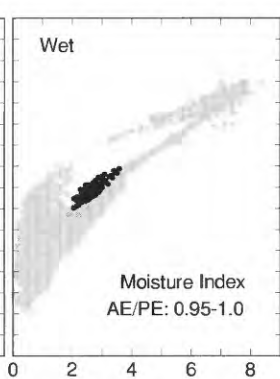
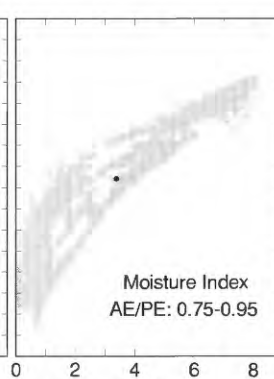
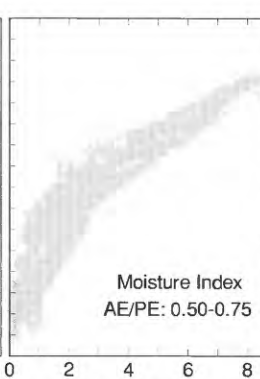
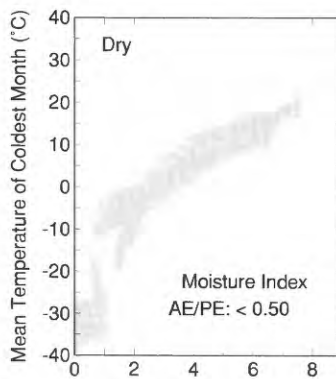
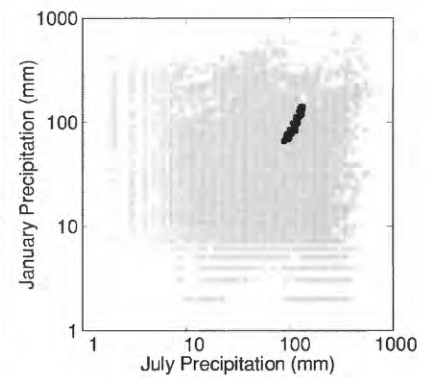
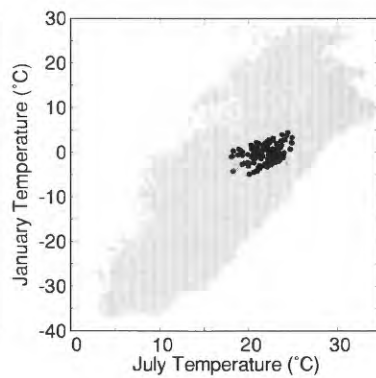
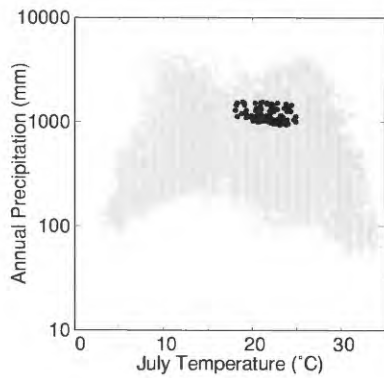
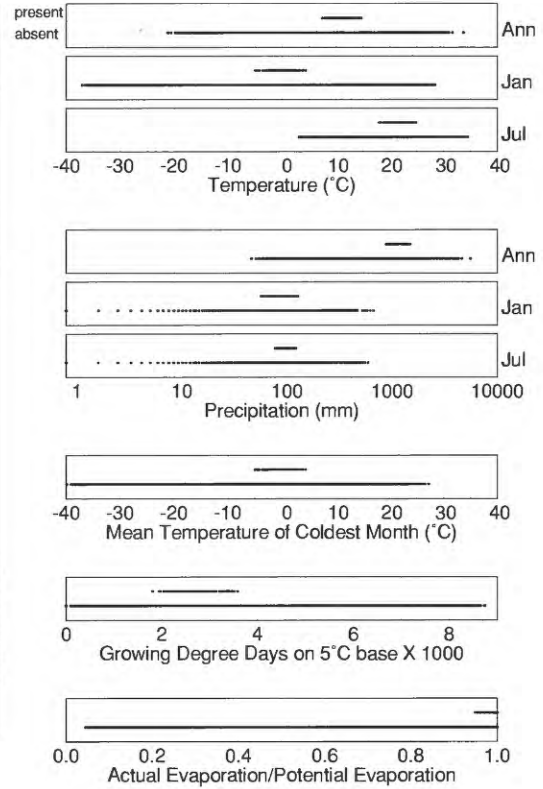
Pinus pringlei



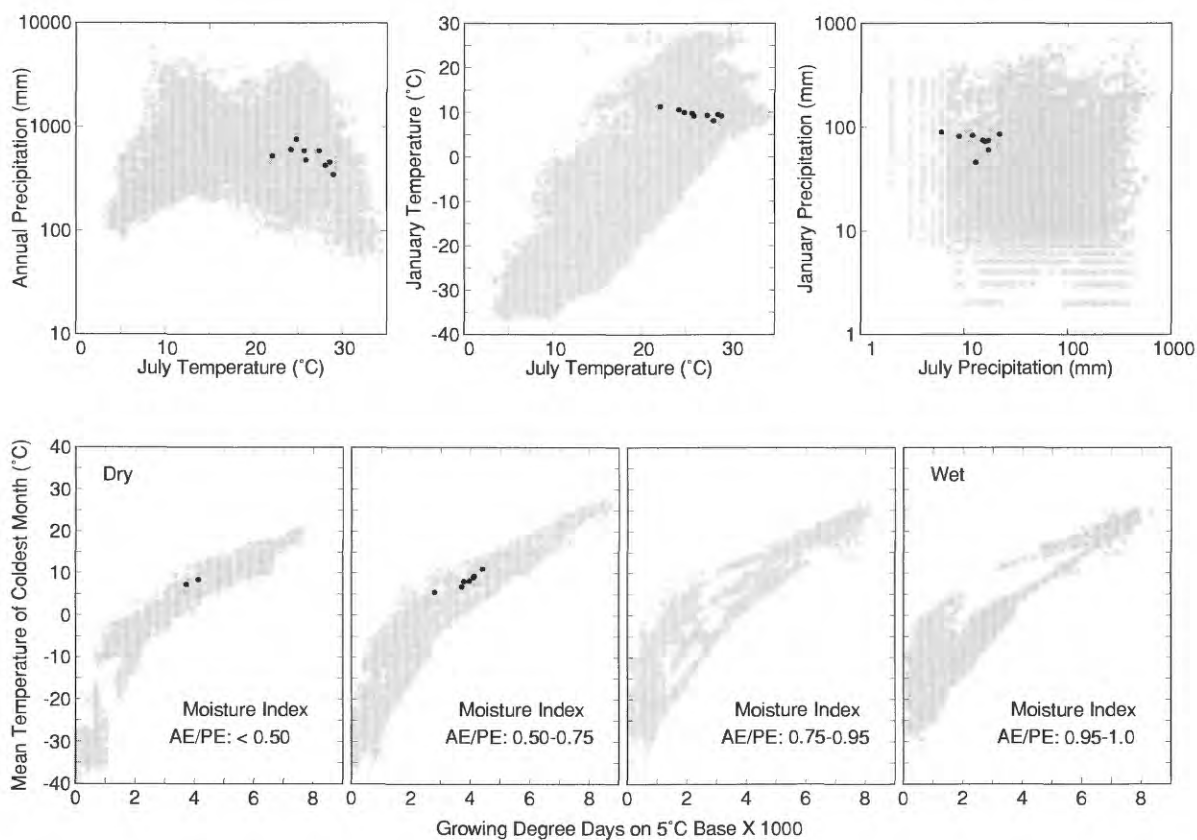
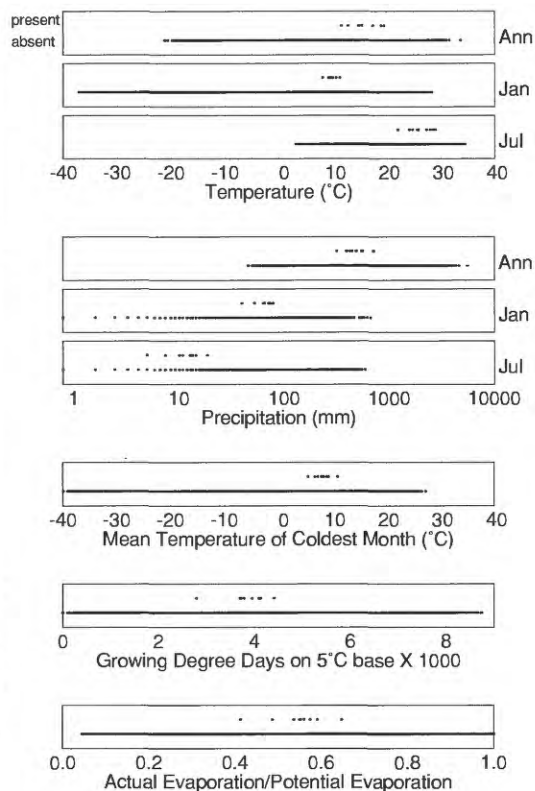
Pinus pseudostrobus



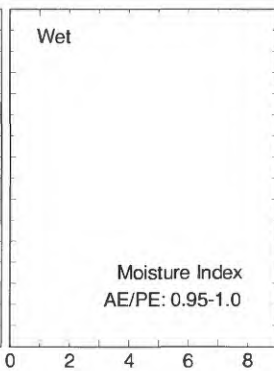
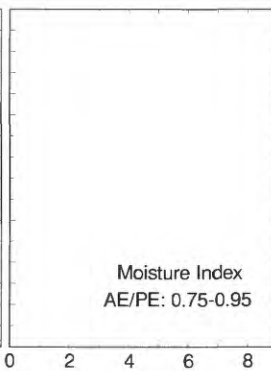
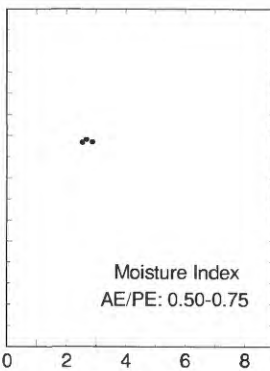
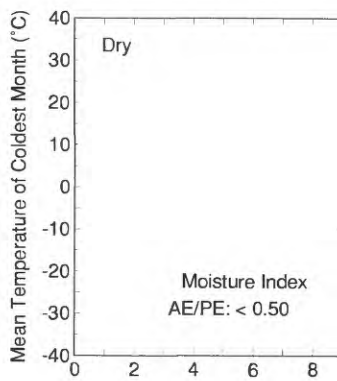
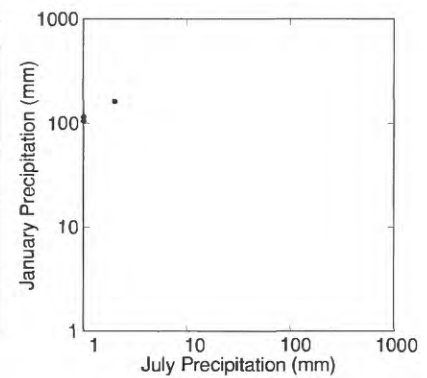
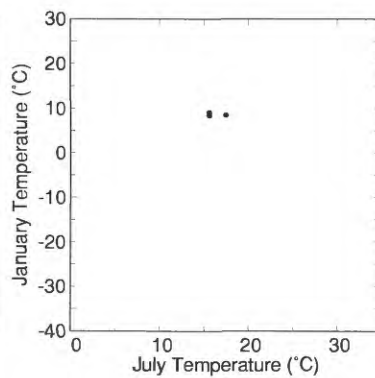
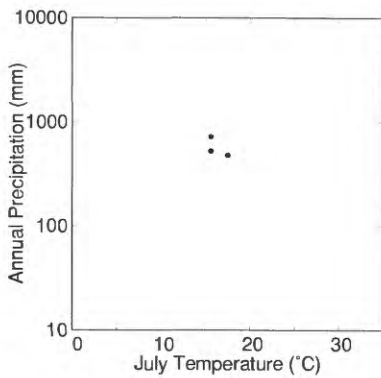
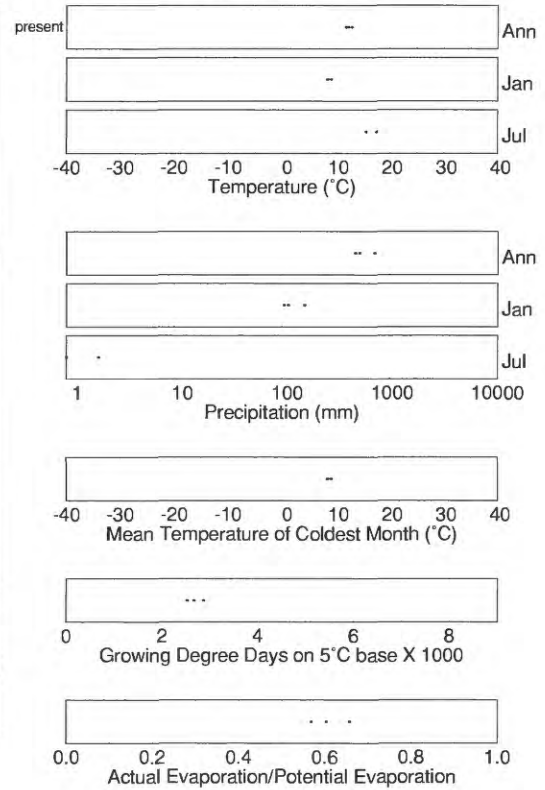
Pinus pungens



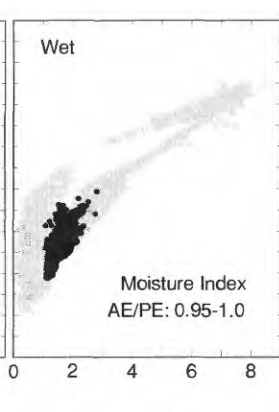
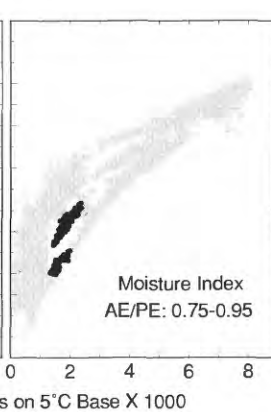
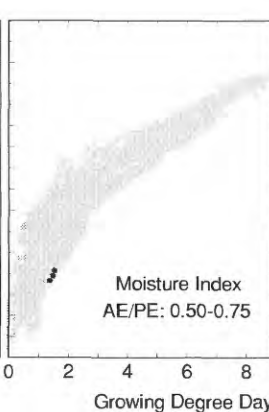
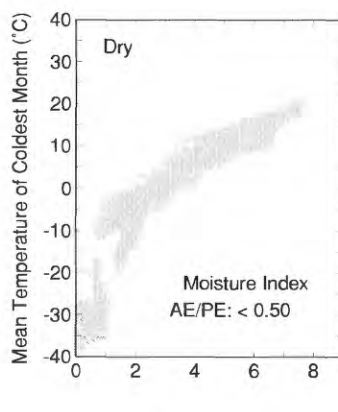
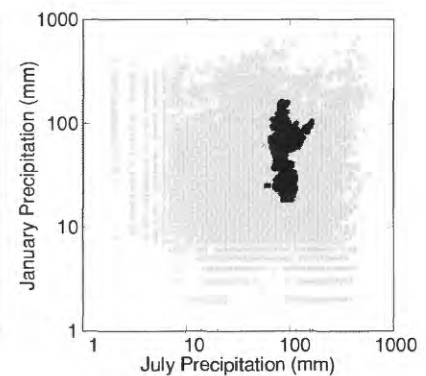
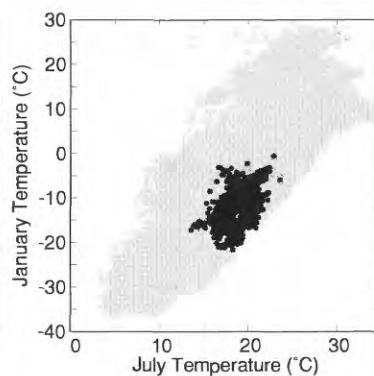
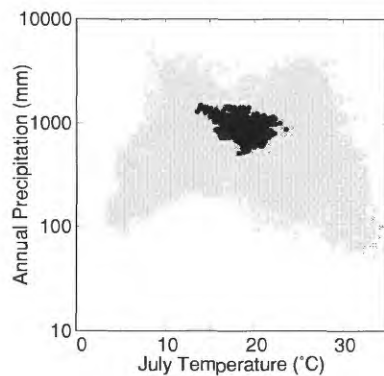
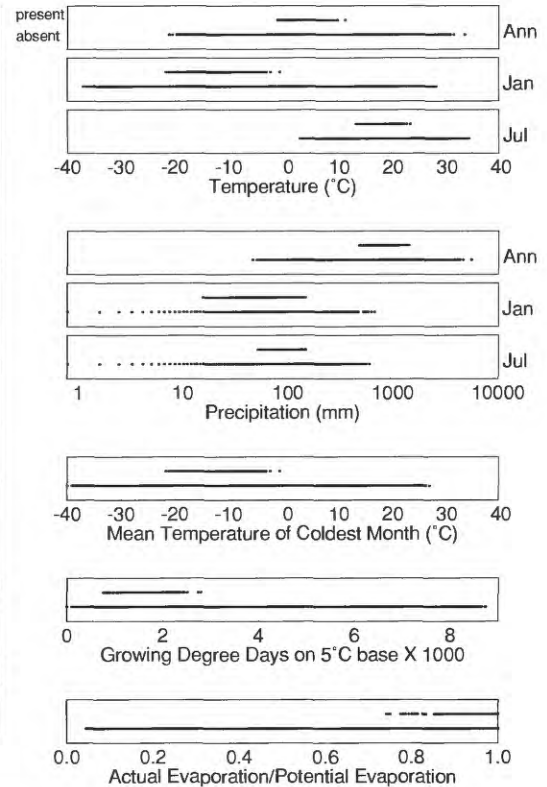
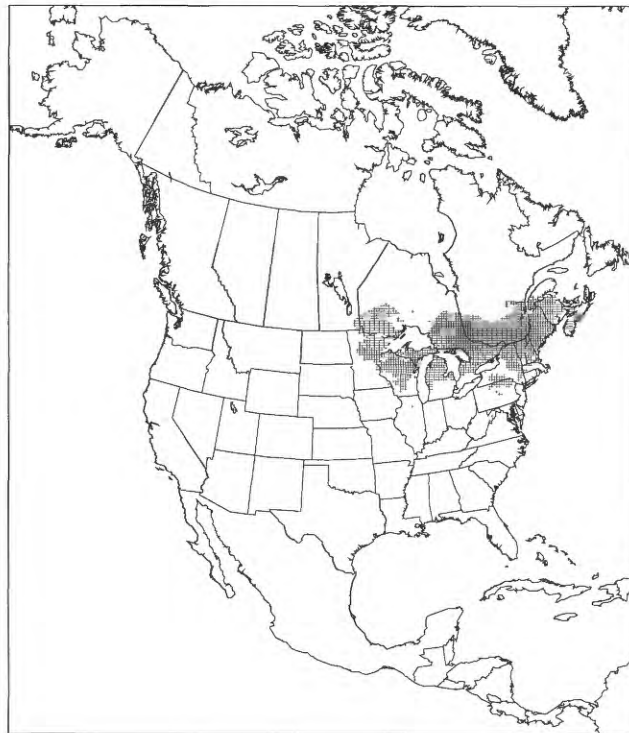
Pinus quadrifolia



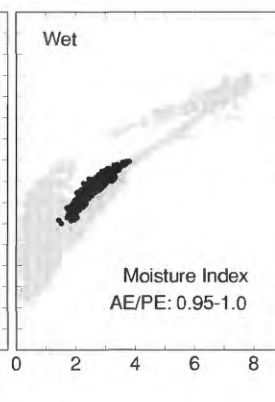
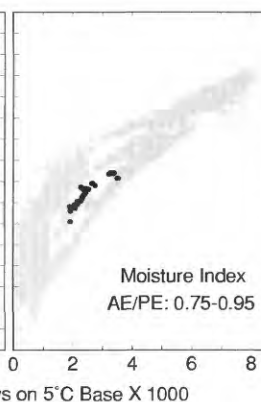
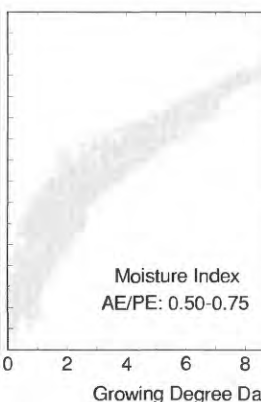
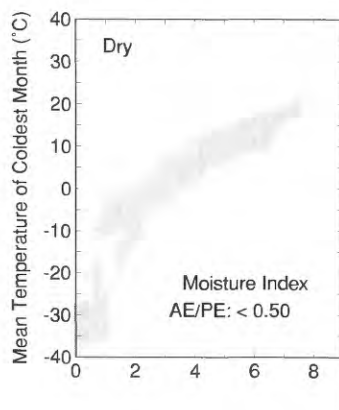
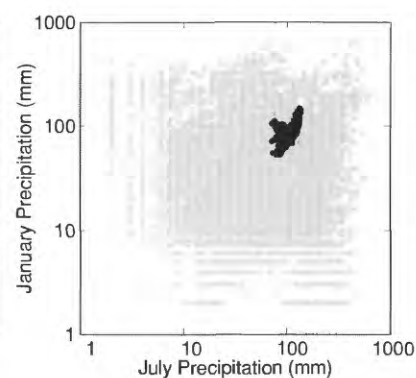
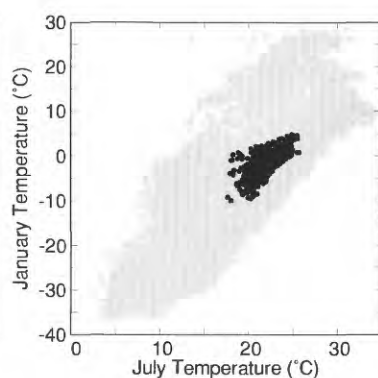
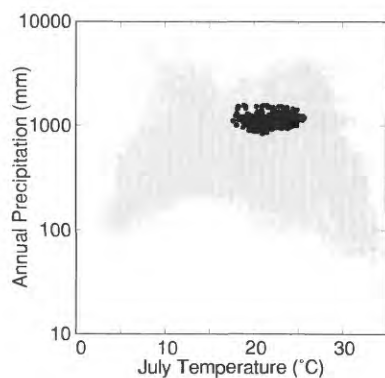
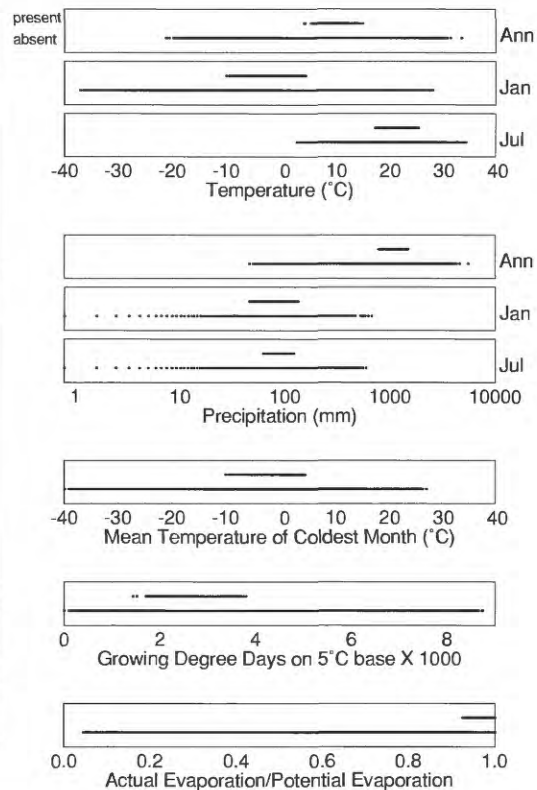
Pinus radiata (minimal data - nearest grid points used with environmental parameters)



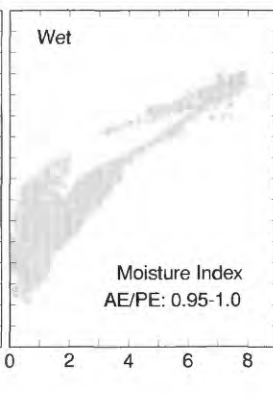
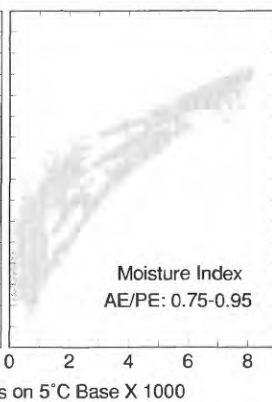
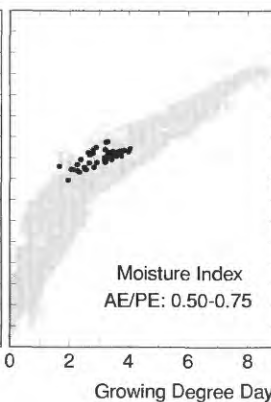
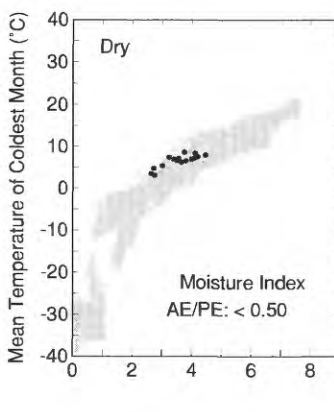
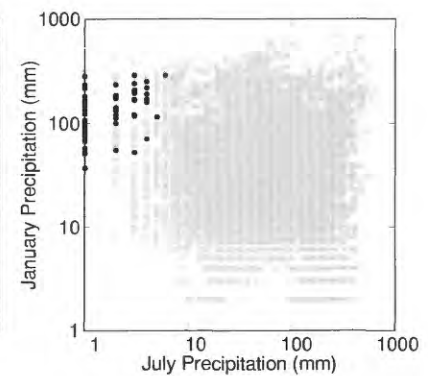
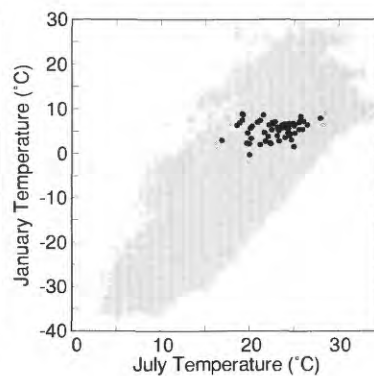
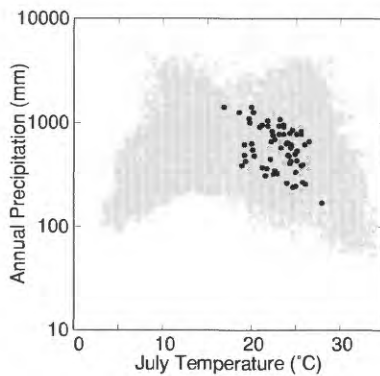
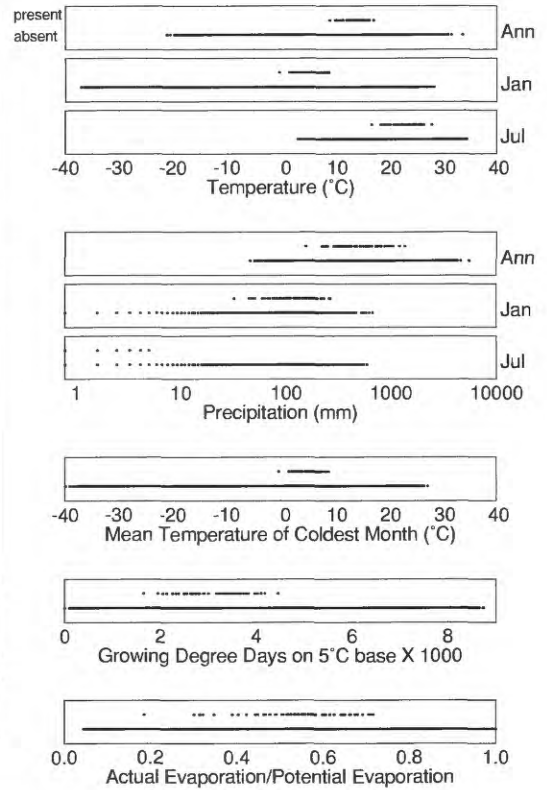
Pinus resinosa



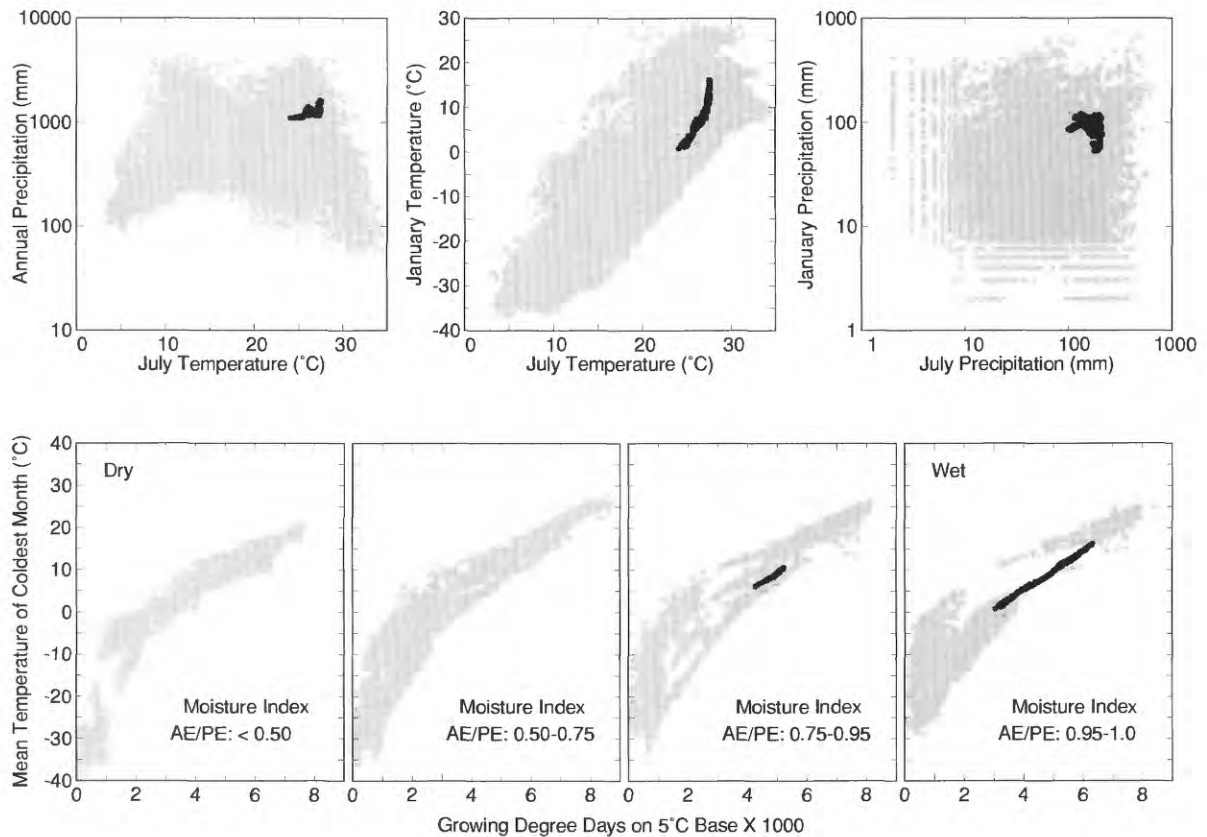
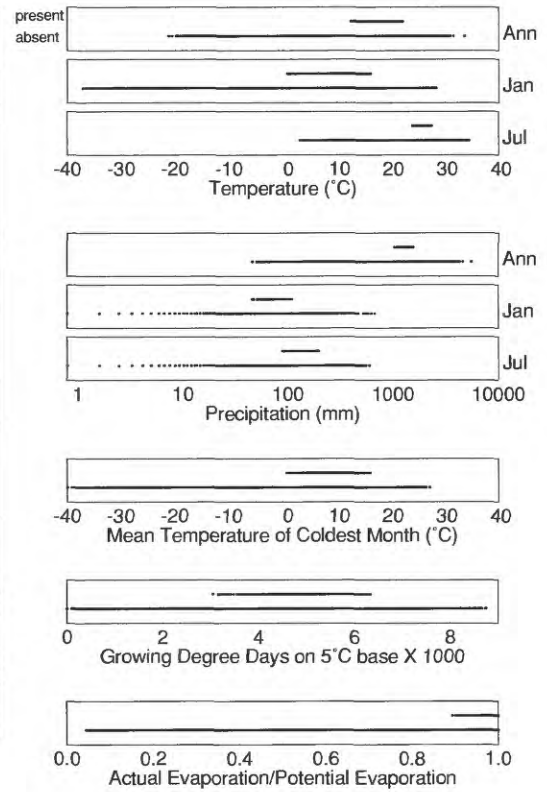
Pinus rigida



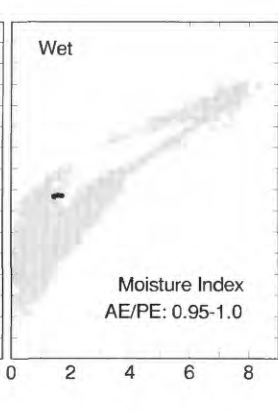
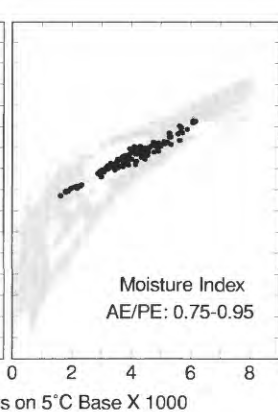
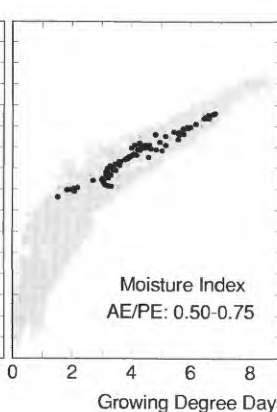
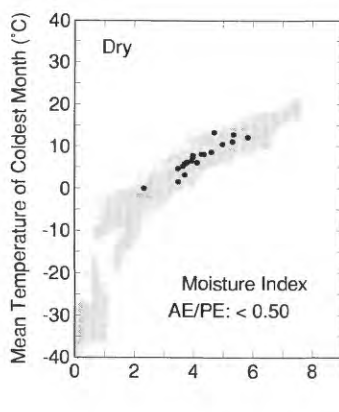
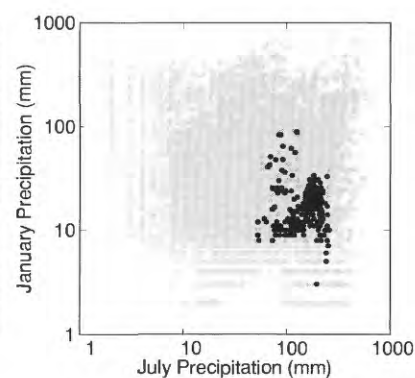
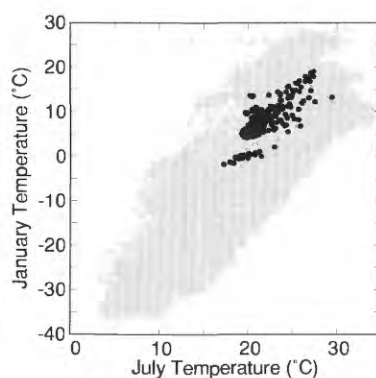
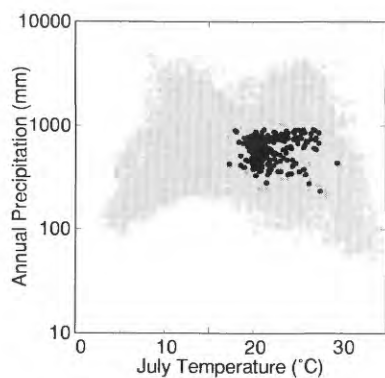
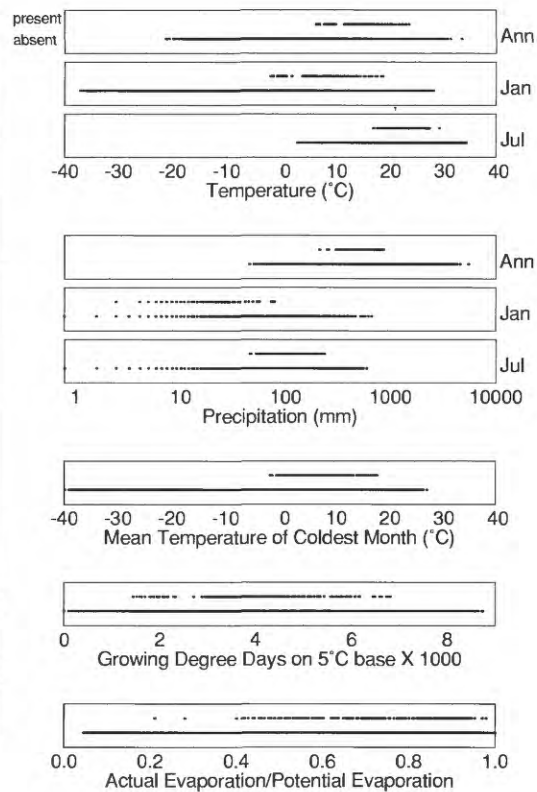
Pinus sabiniana



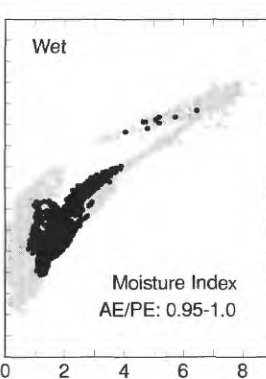
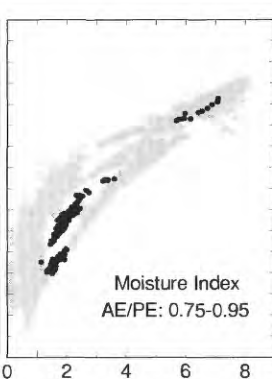
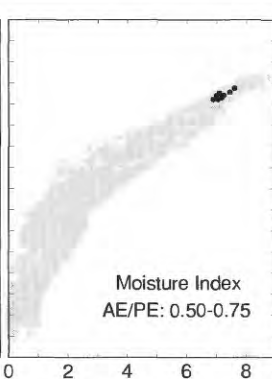
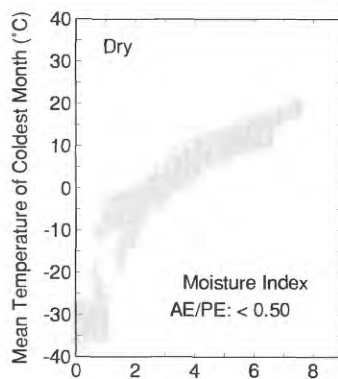
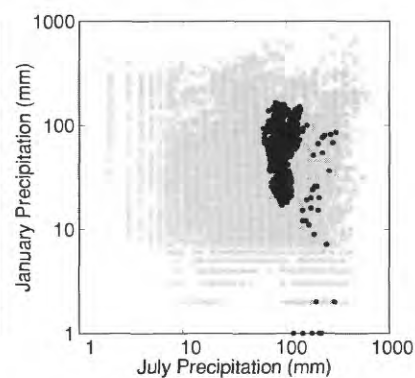
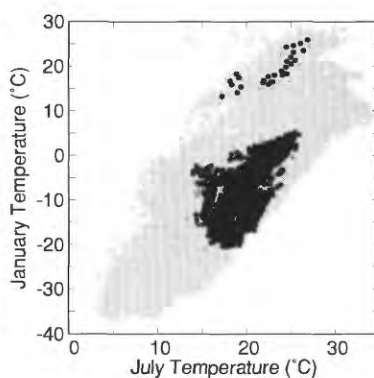
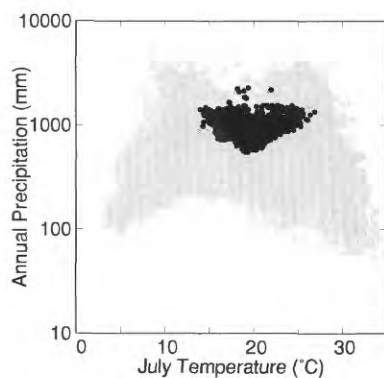
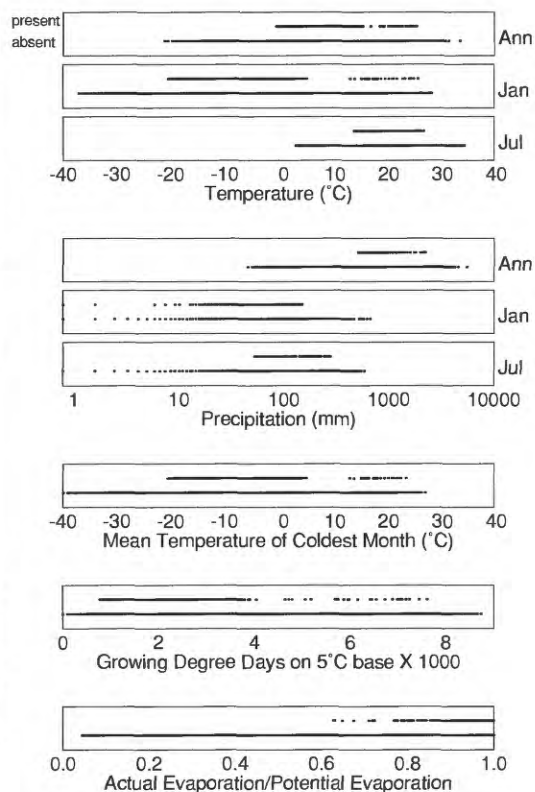
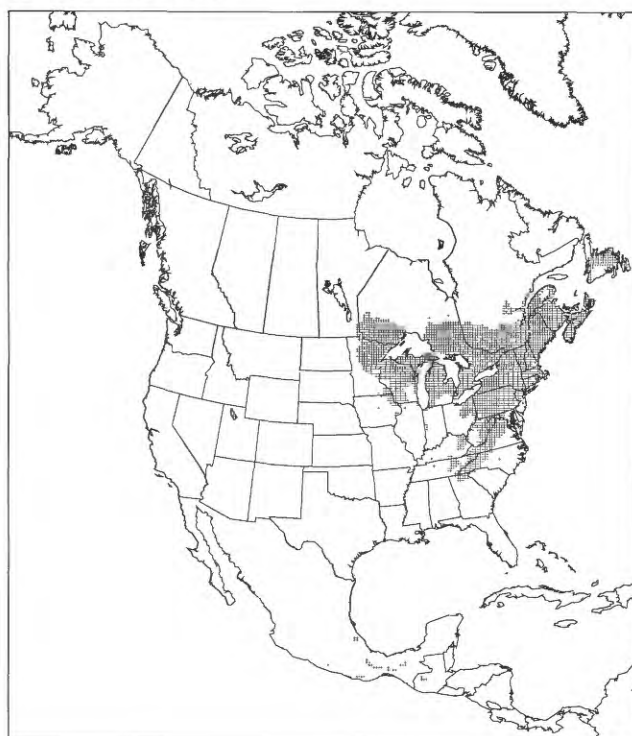
Pinus serotina



Pinus strobiformis

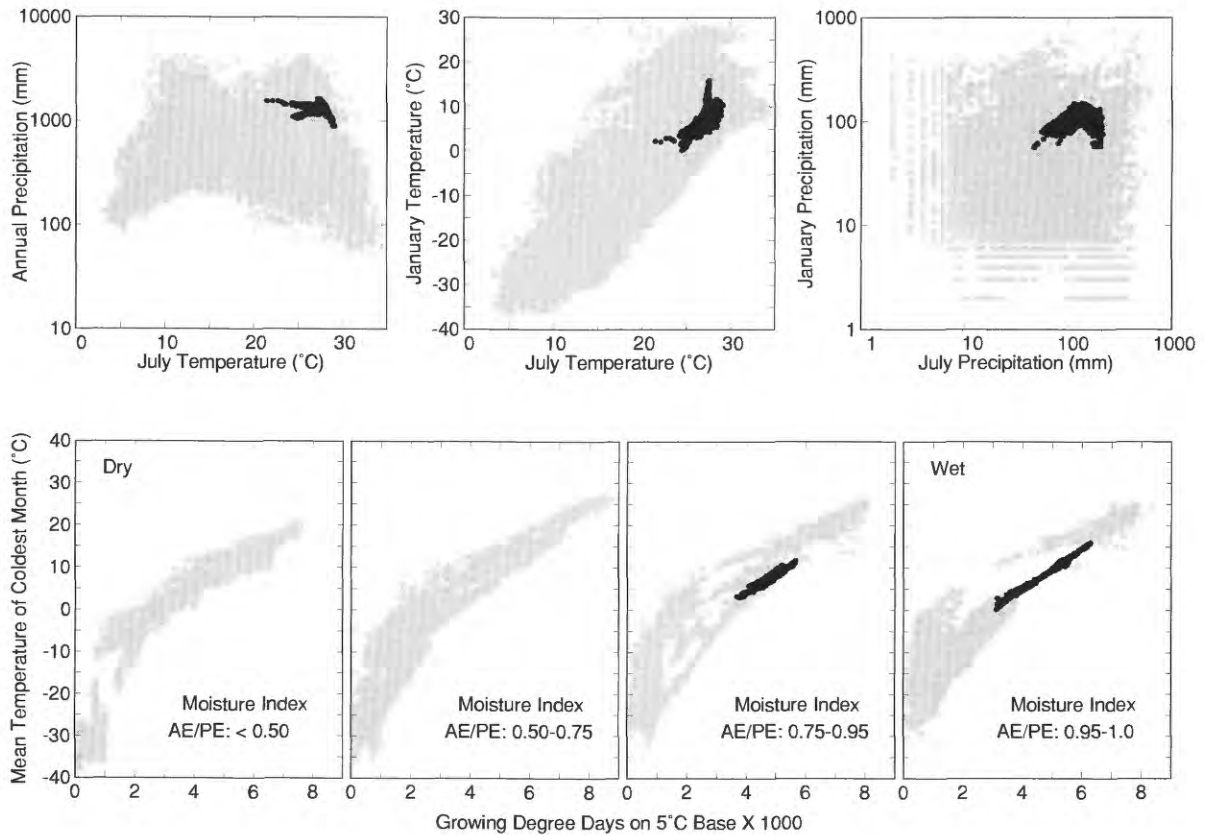
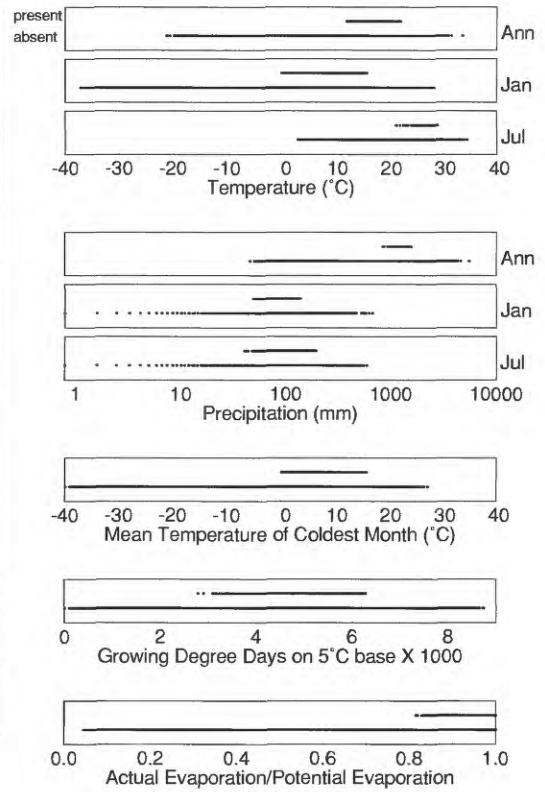
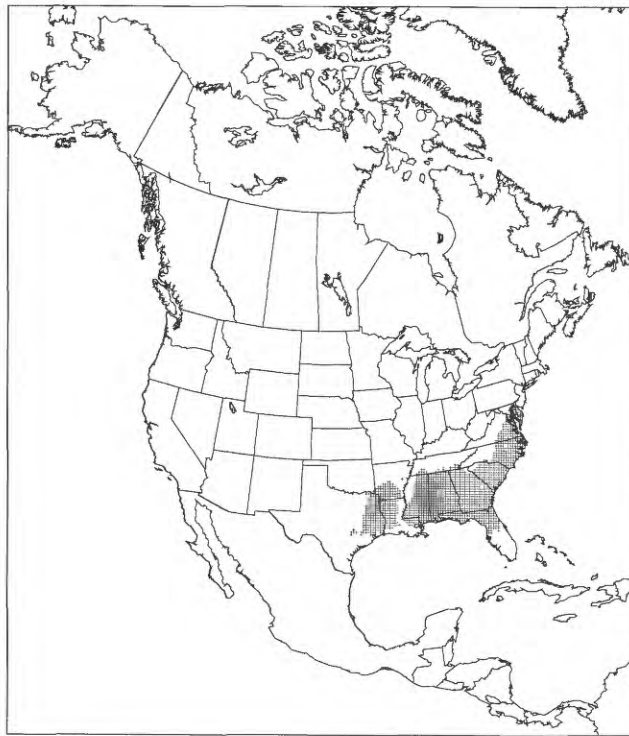


Pinus strobus

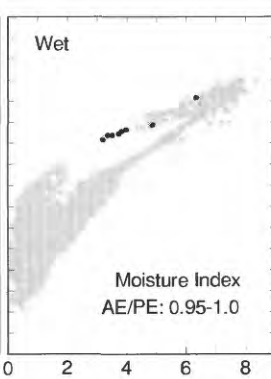
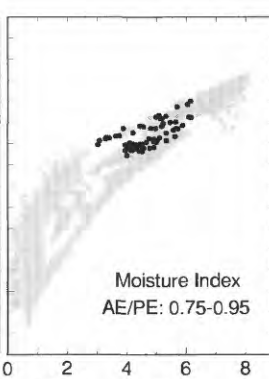
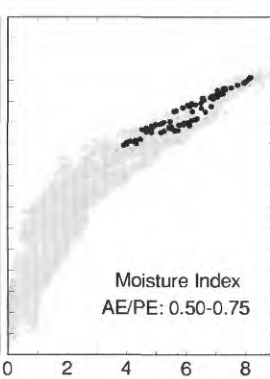
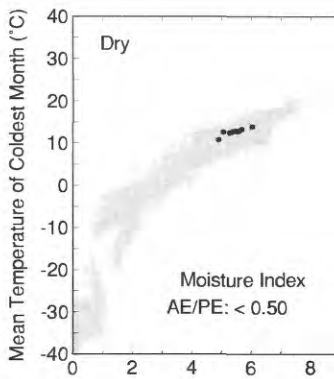
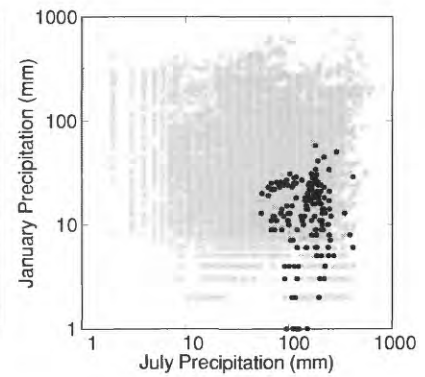
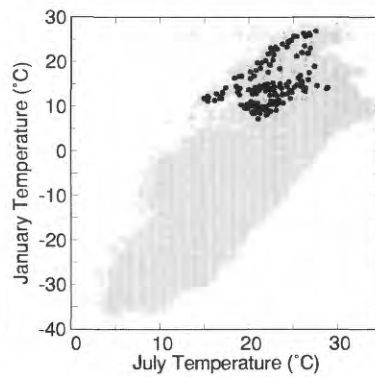
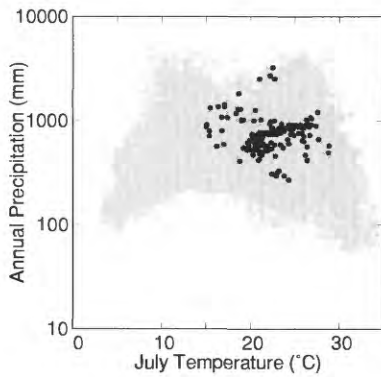
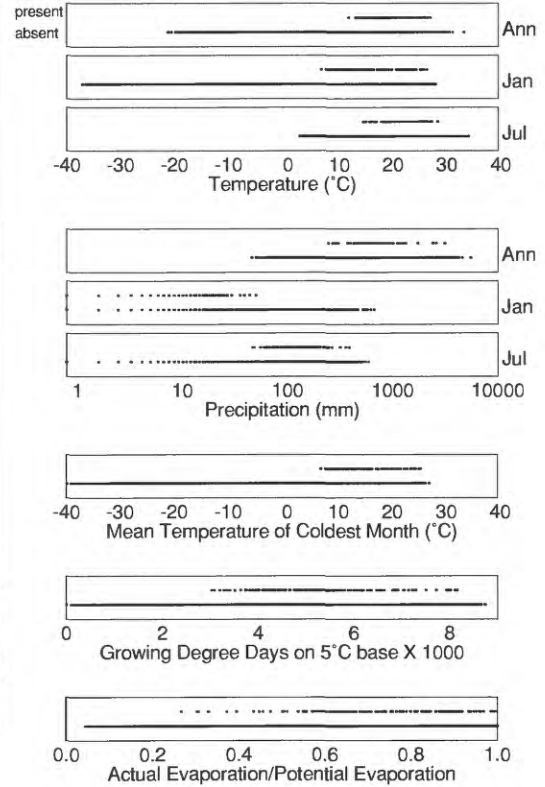


Growing Degree Days on 5°C Base X 1000

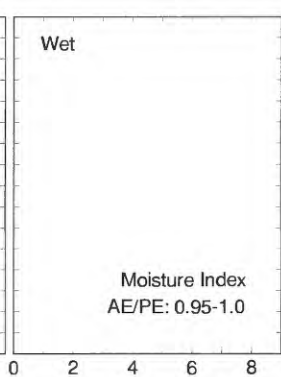
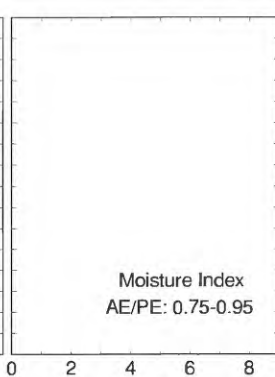
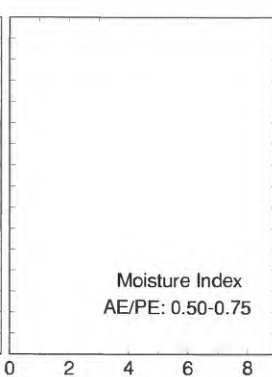
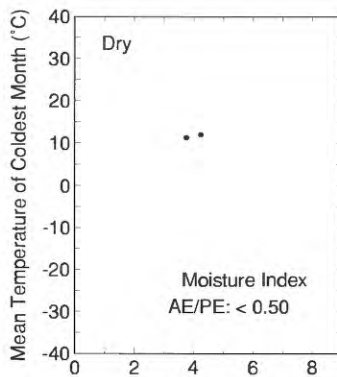
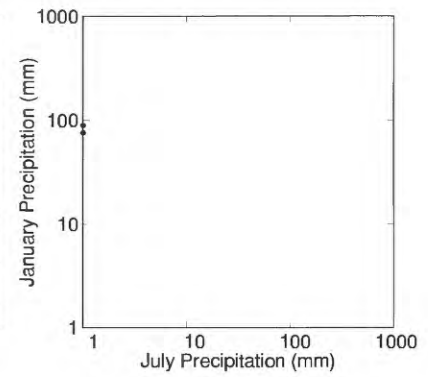
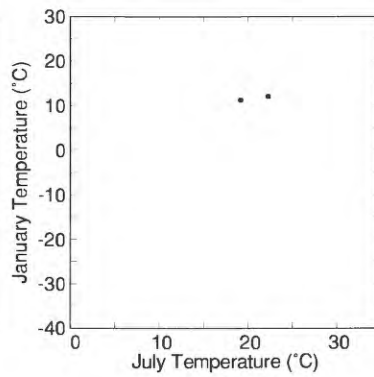
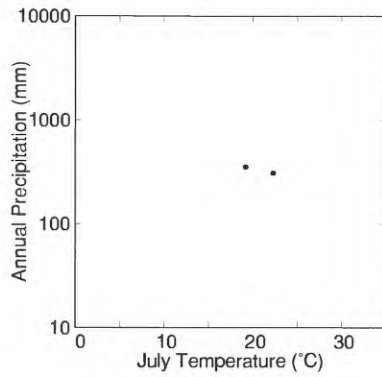
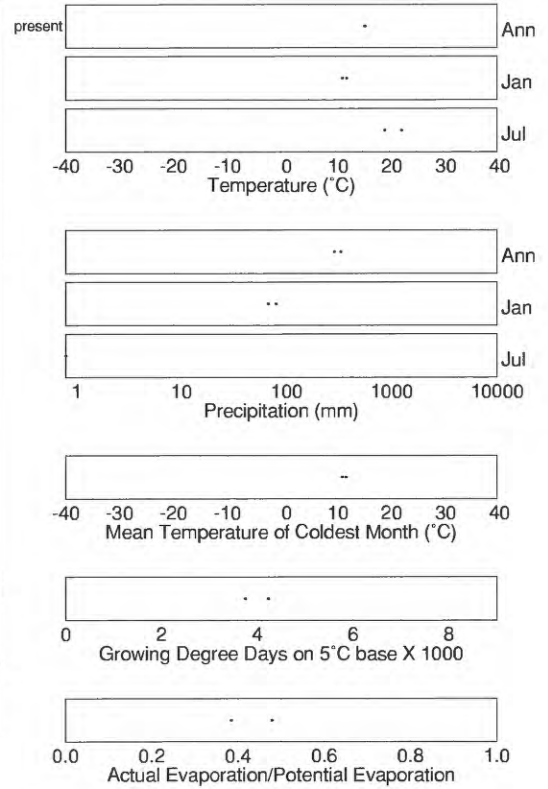
Pinus taeda



Pinus teocote

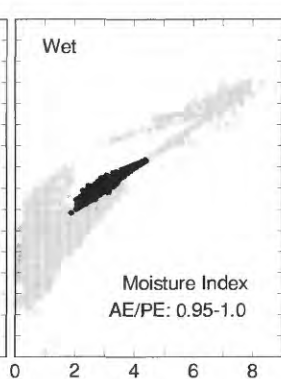
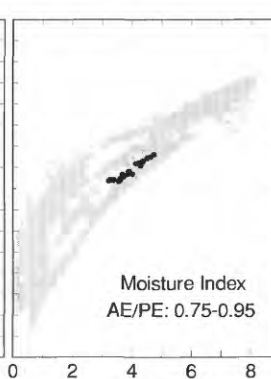
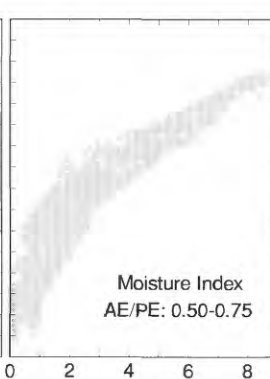
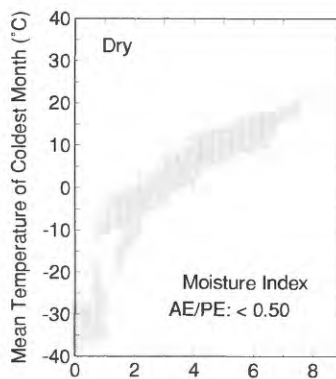
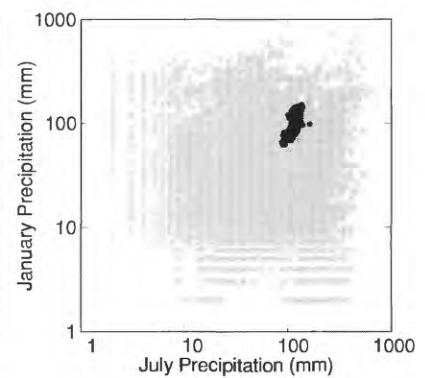
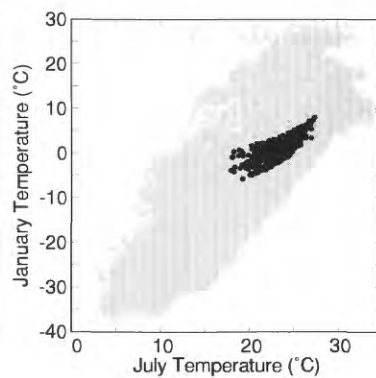
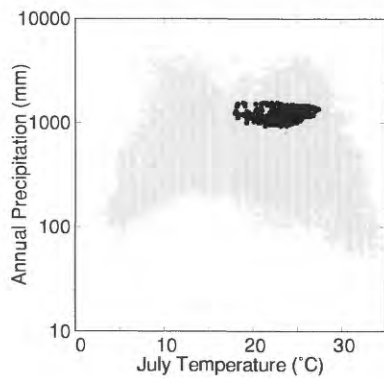
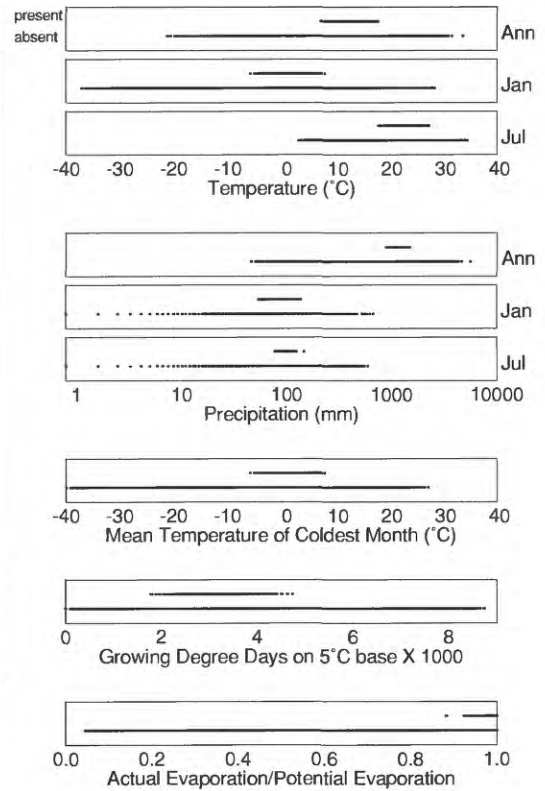
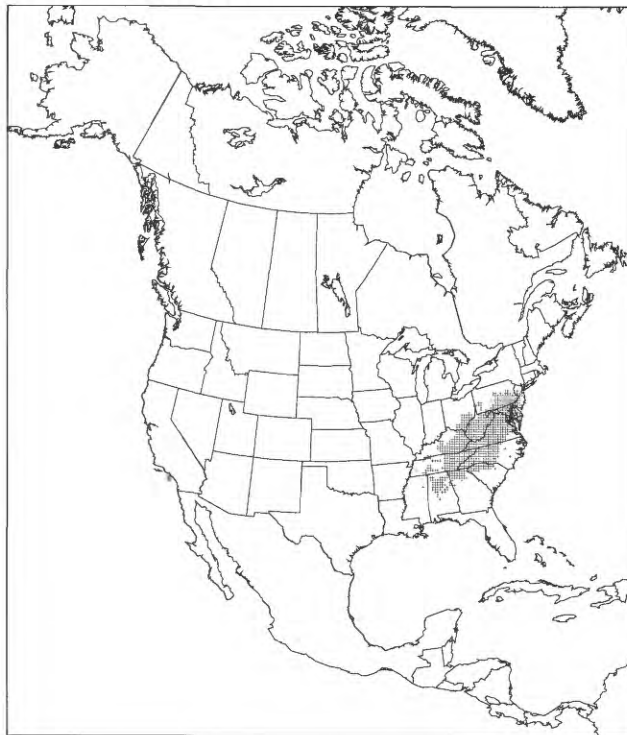


Pinus torreyana (minimal data - nearest grid points used with environmental parameters)

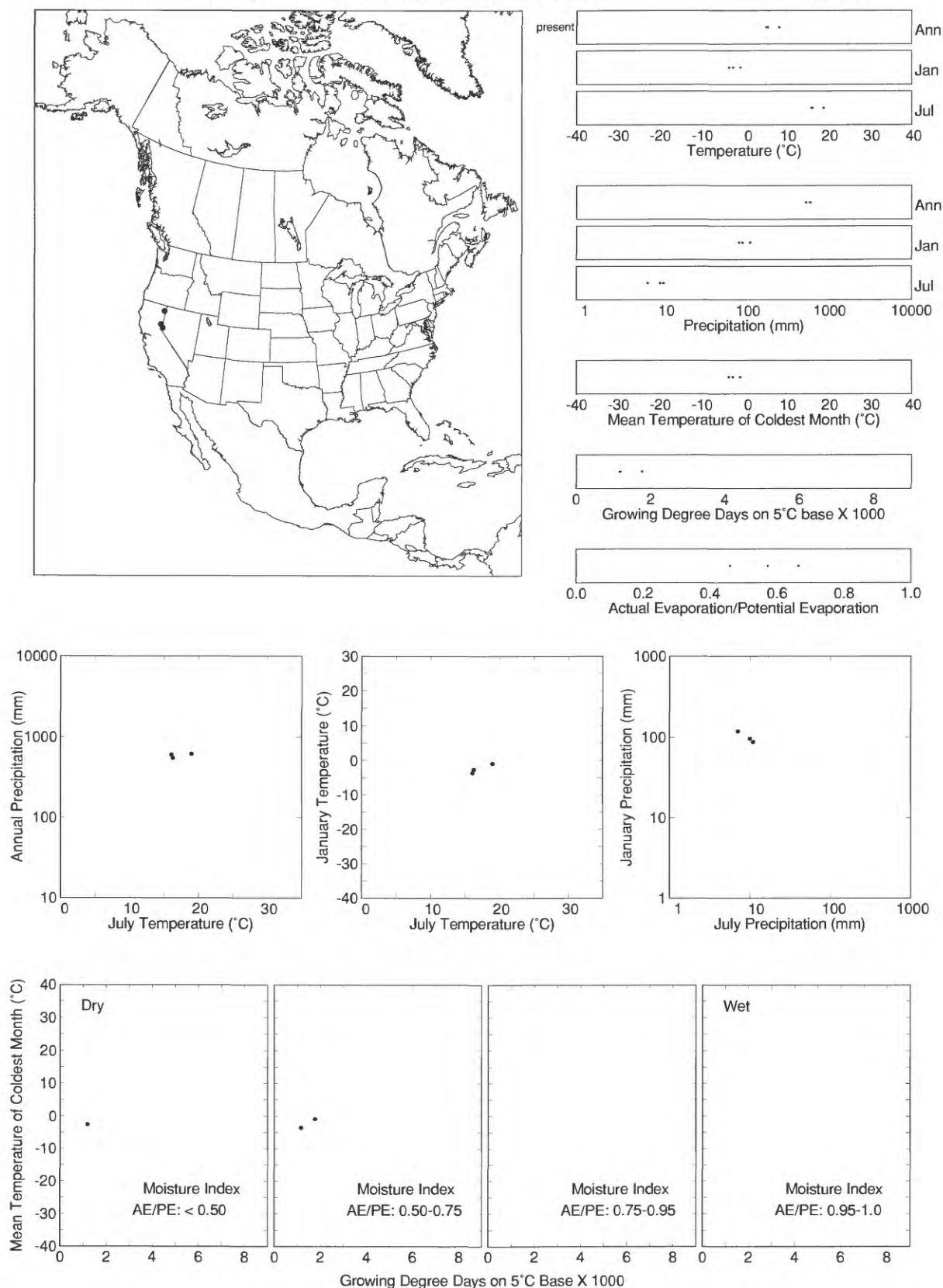


Growing Degree Days on 5°C Base X 1000

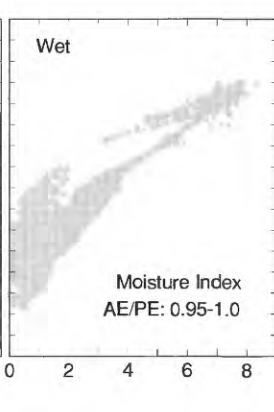
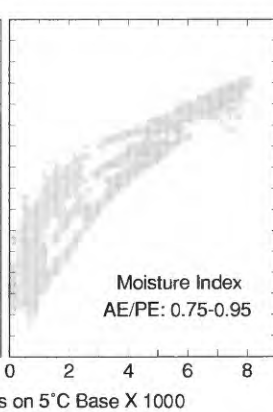
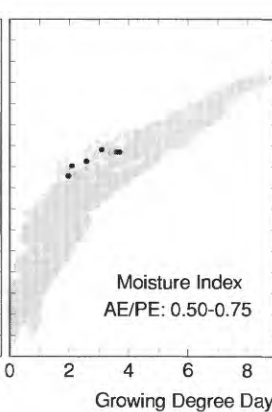
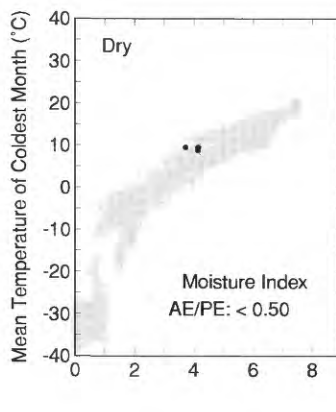
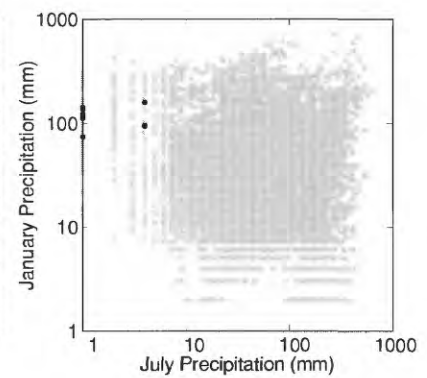
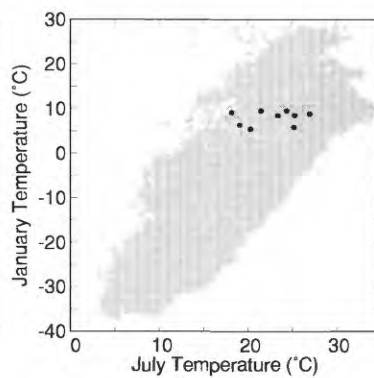
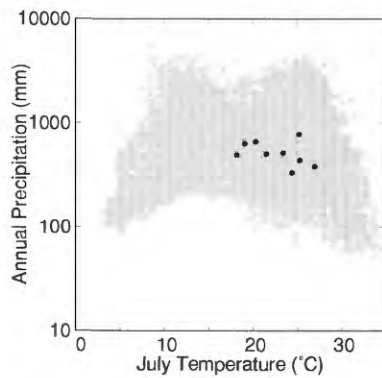
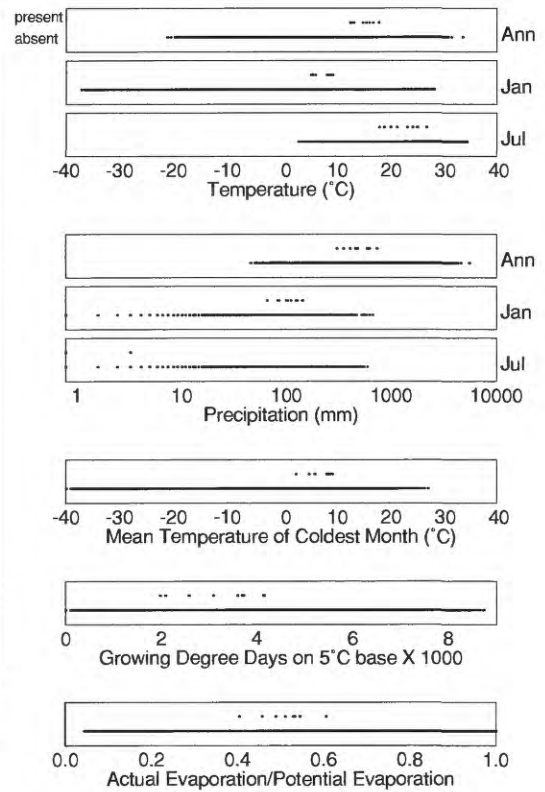
Pinus virginiana



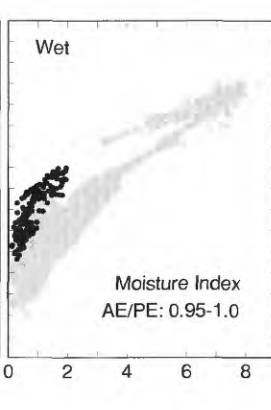
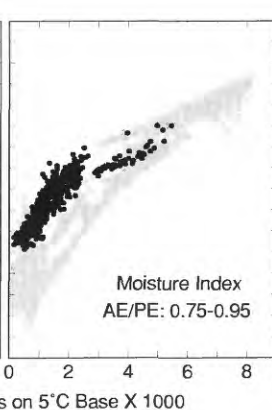
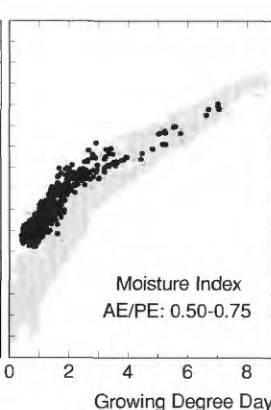
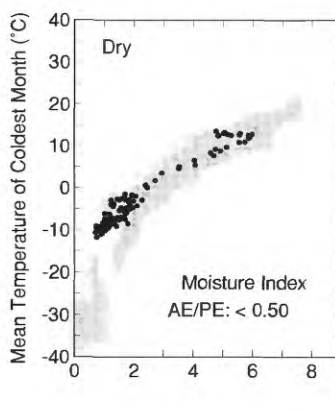
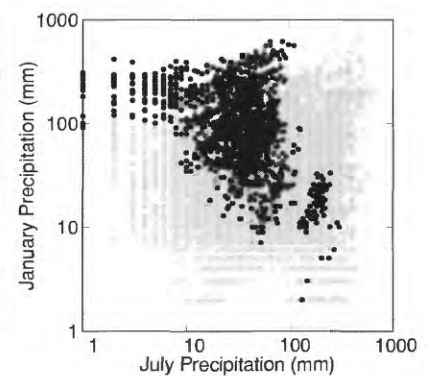
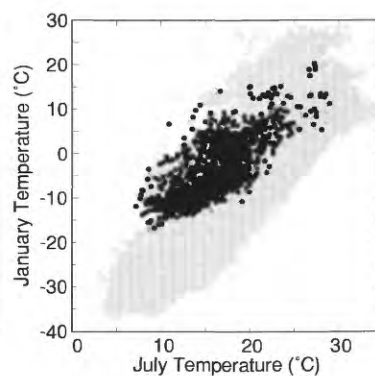
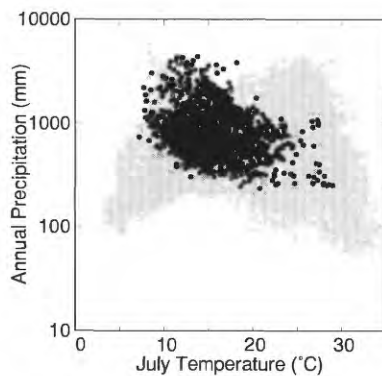
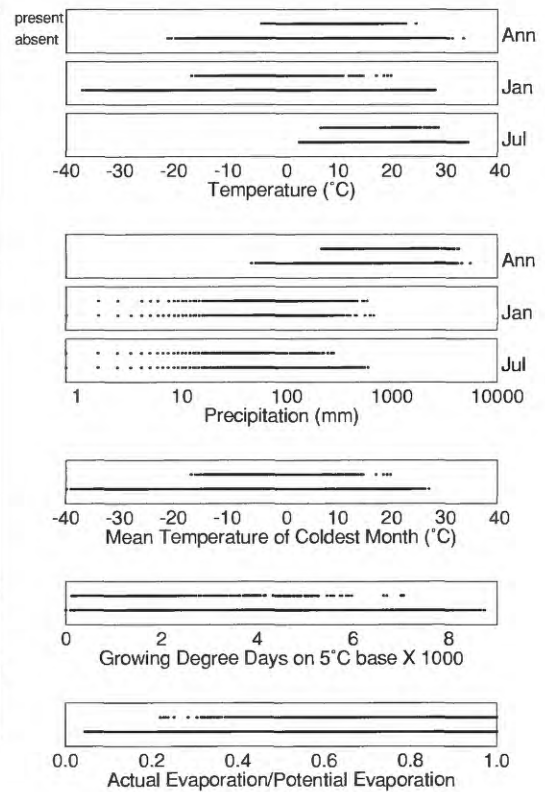
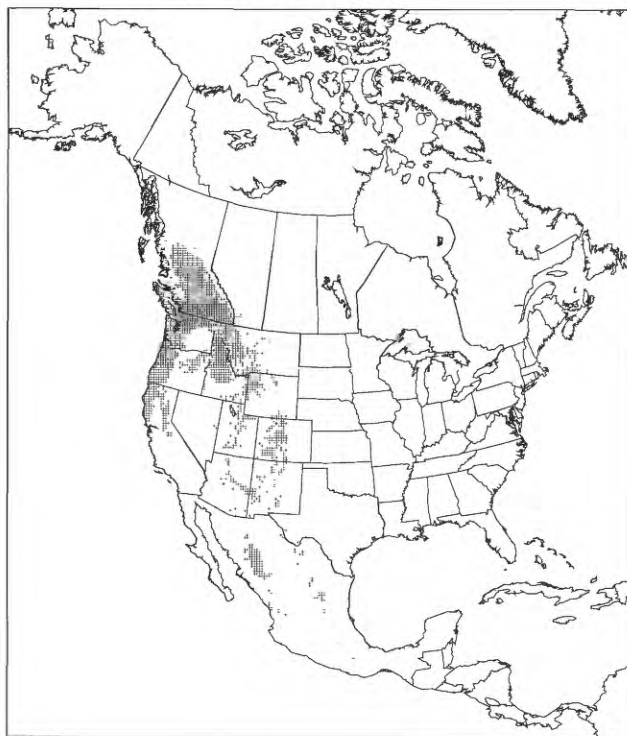
Pinus washoensis (minimal data - nearest grid points used with environmental parameters)



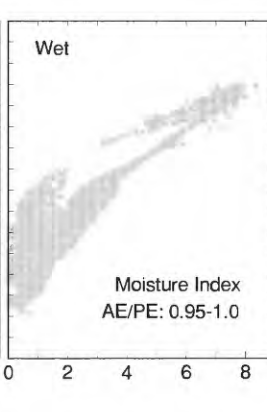
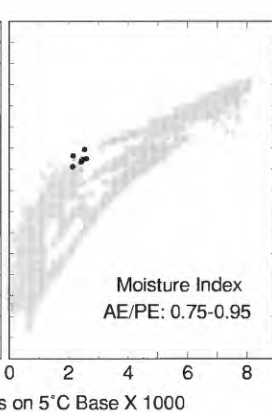
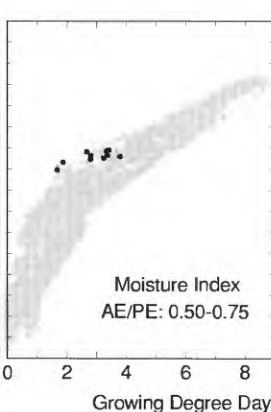
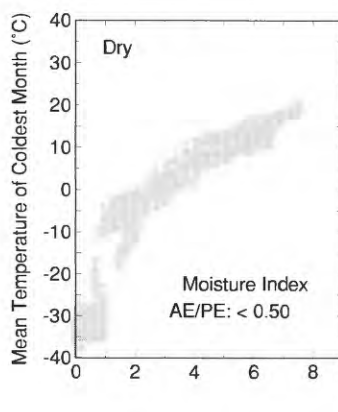
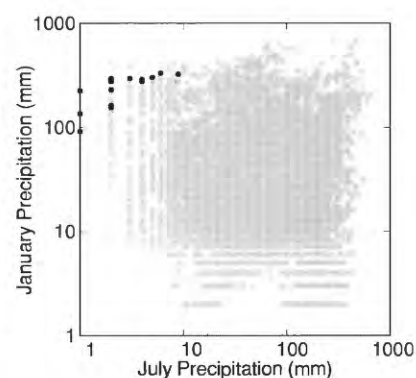
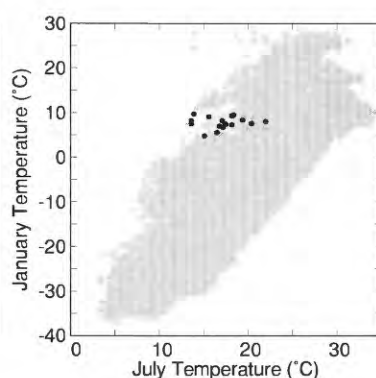
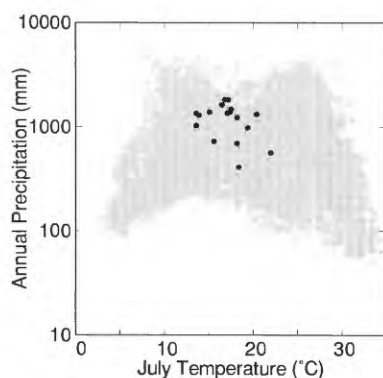
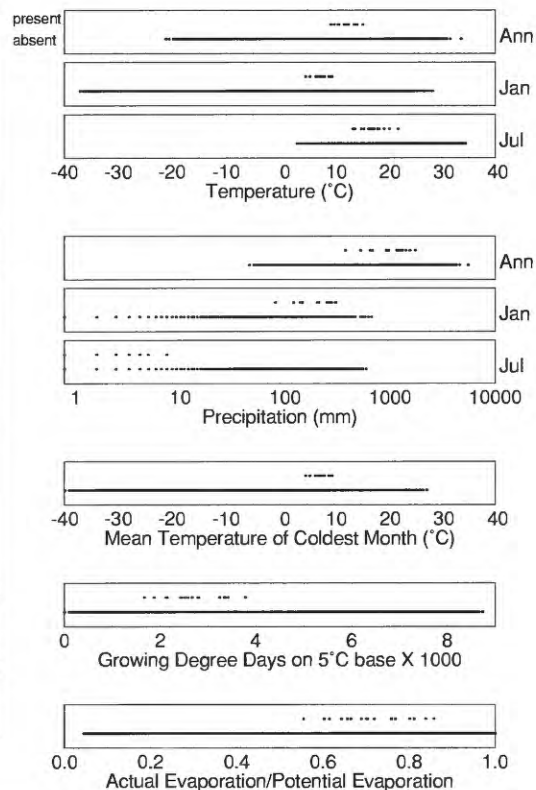
Pseudotsuga macrocarpa



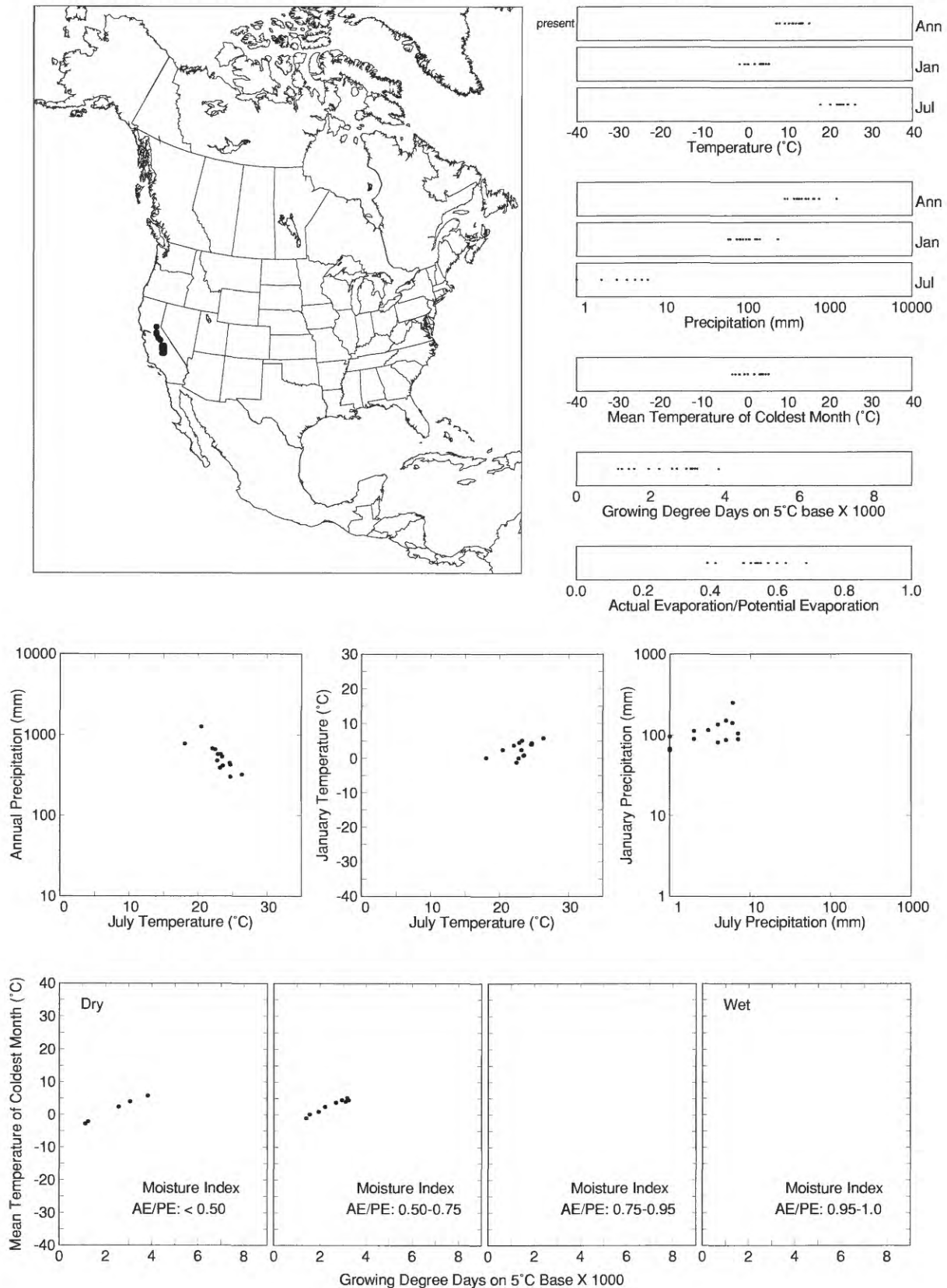
Pseudotsuga menziesii



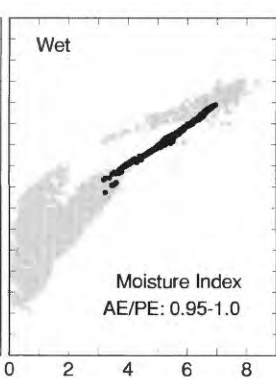
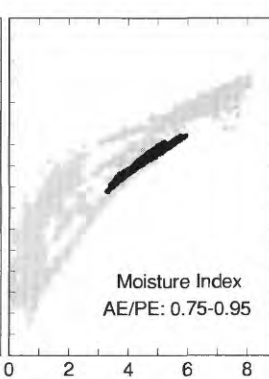
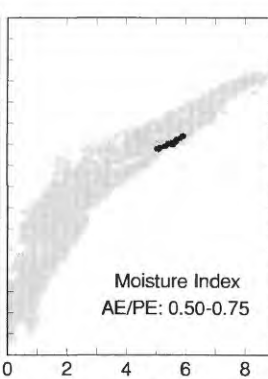
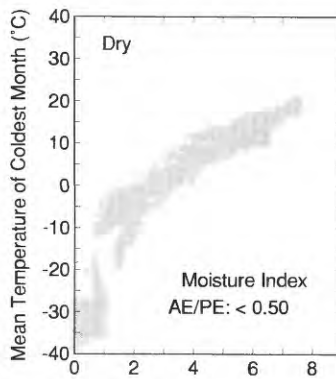
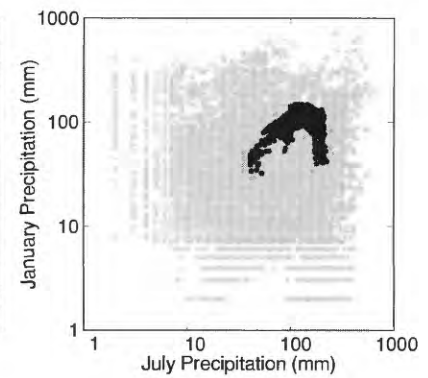
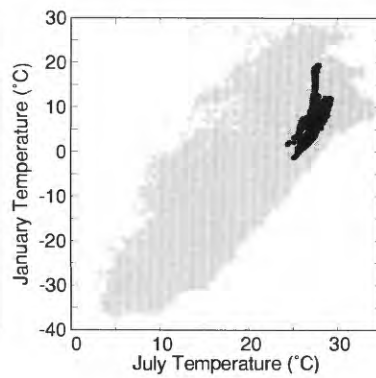
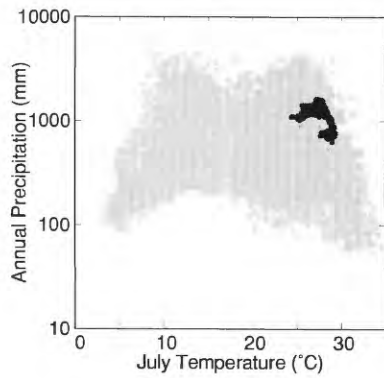
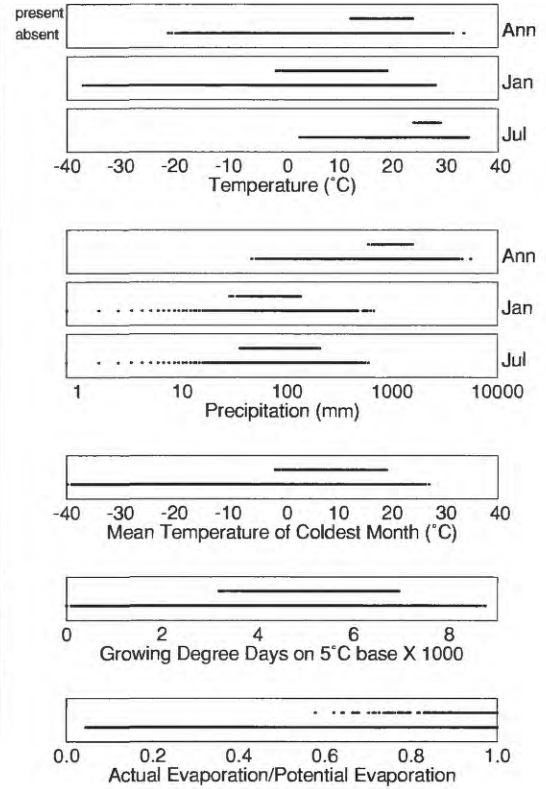
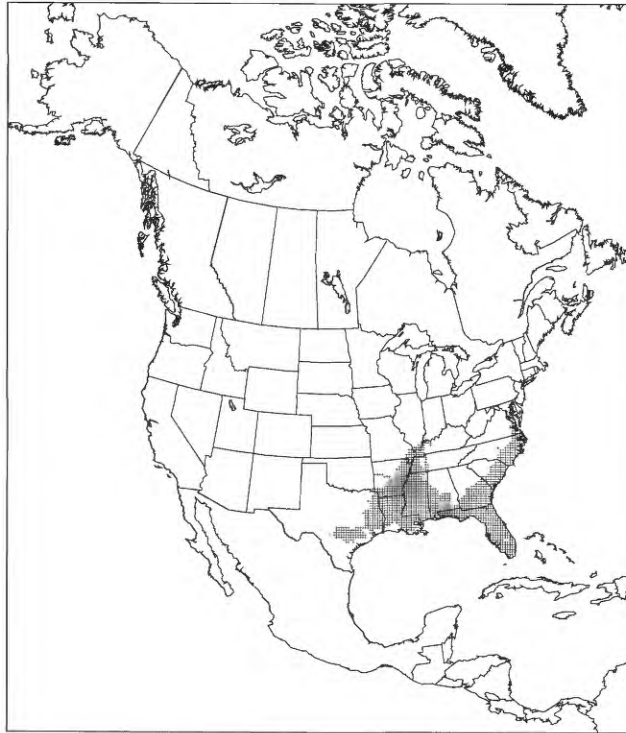
Sequoia sempervirens



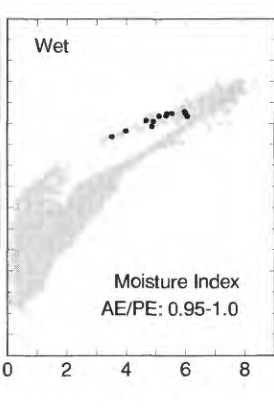
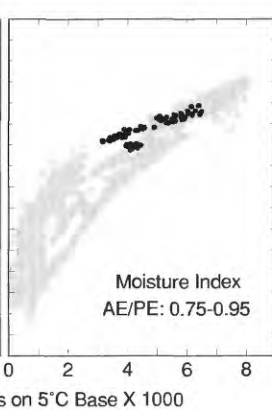
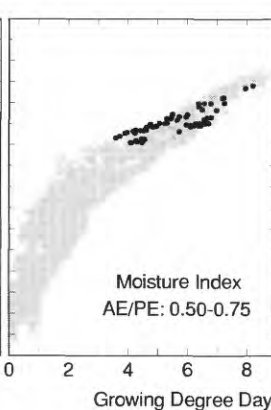
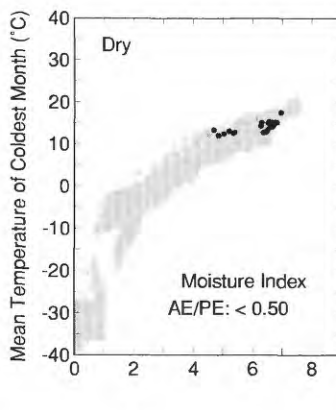
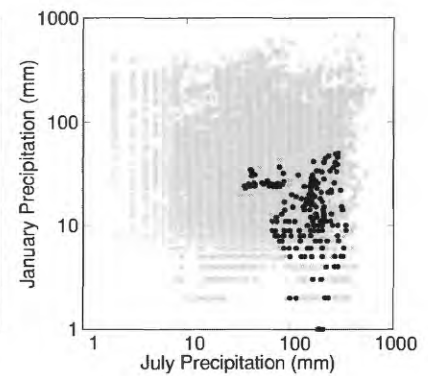
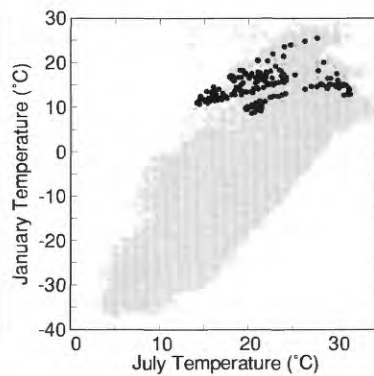
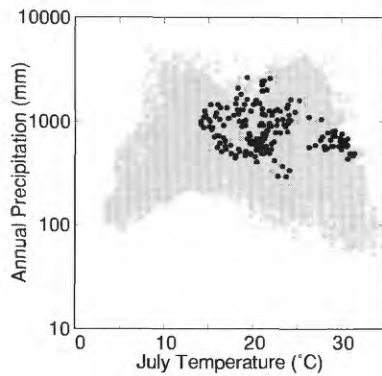
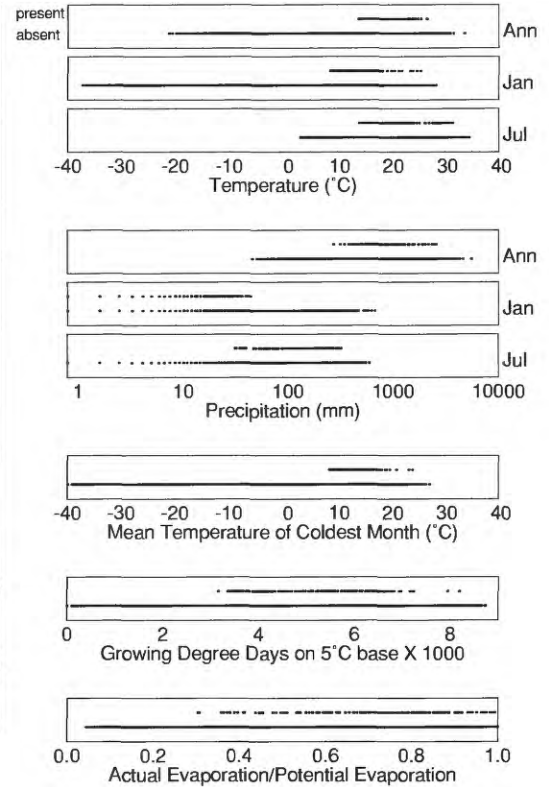
Sequoiadendron giganteum (minimal data - nearest grid points used with environmental parameters)



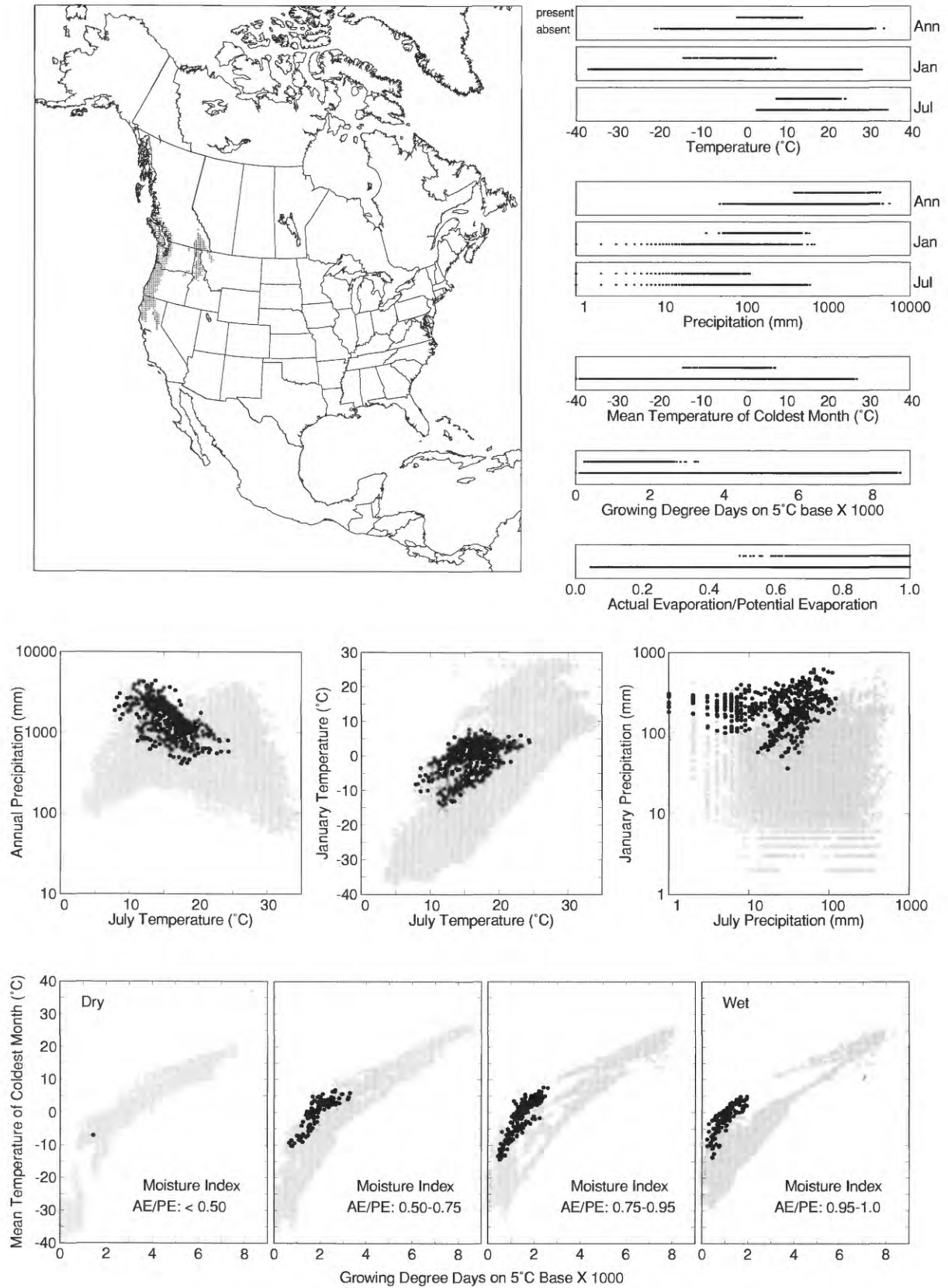
Taxodium distichum

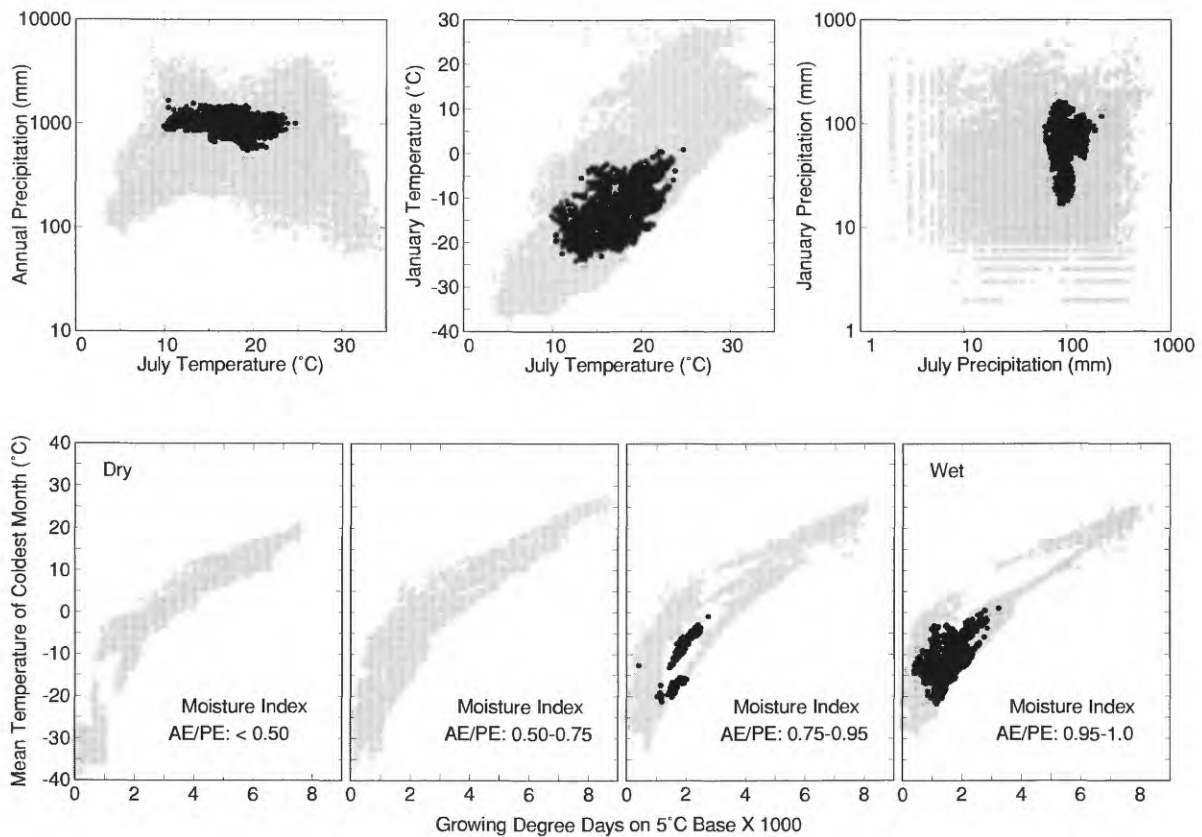


Taxodium mucronatum

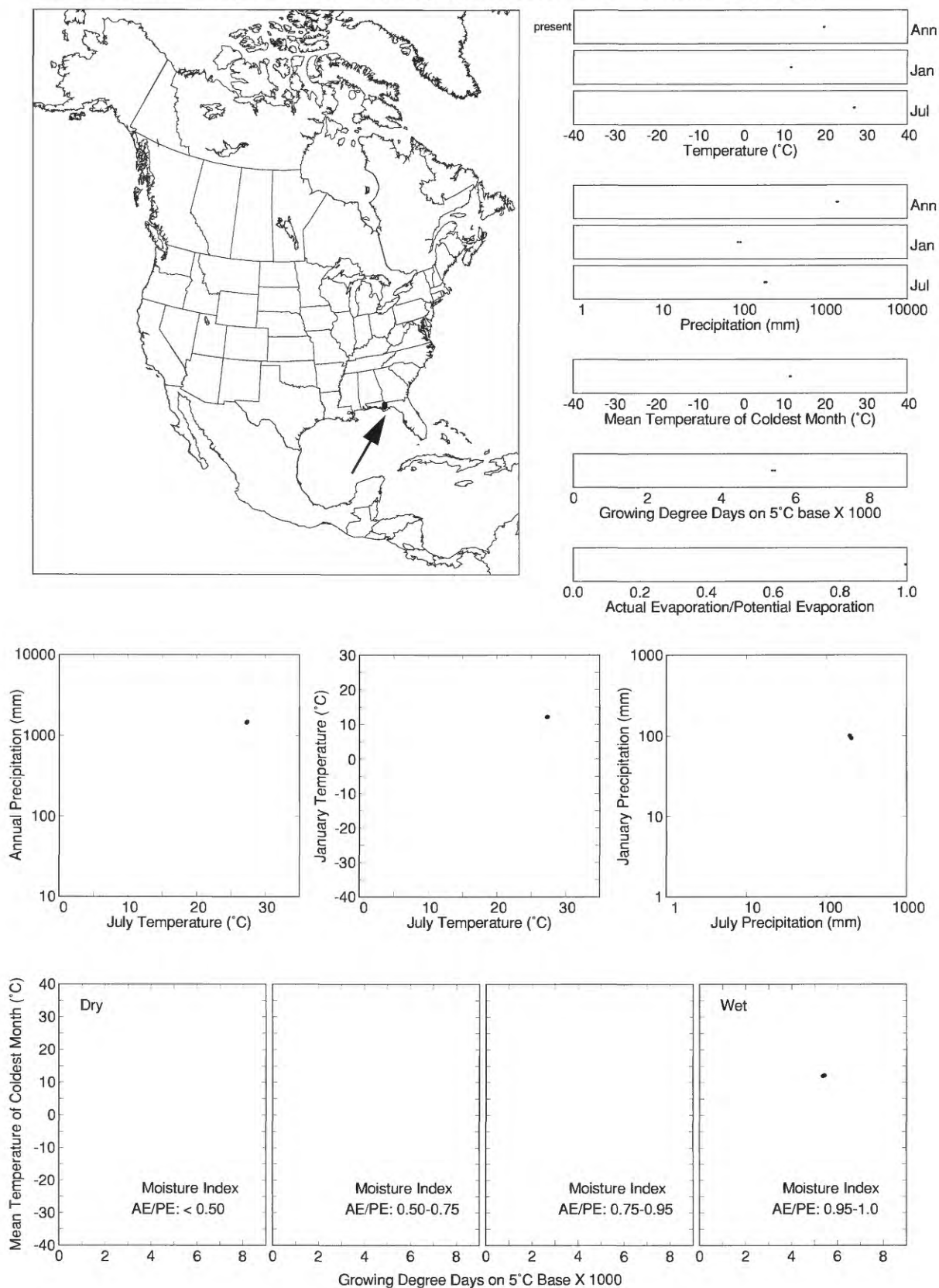


Taxus brevifolia

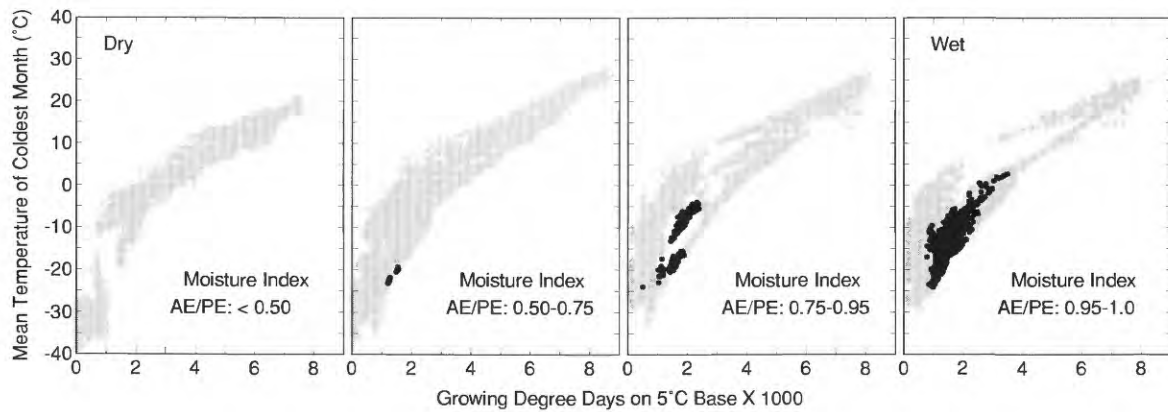
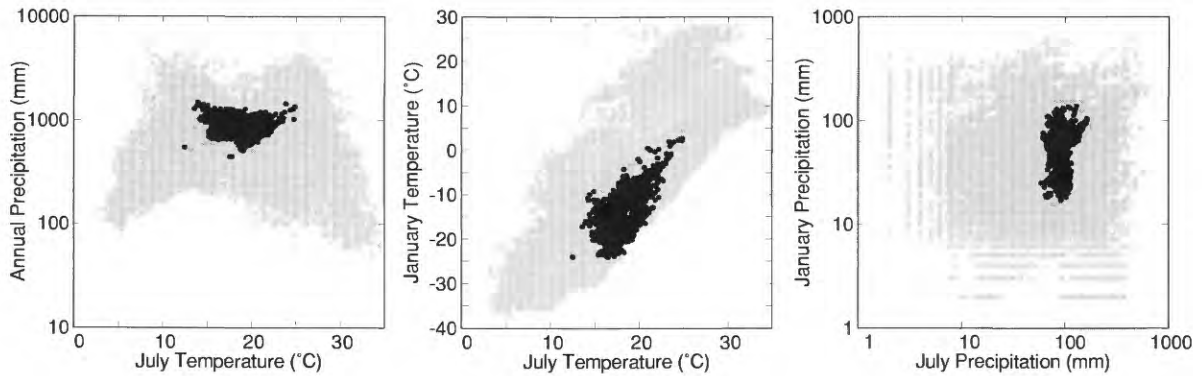
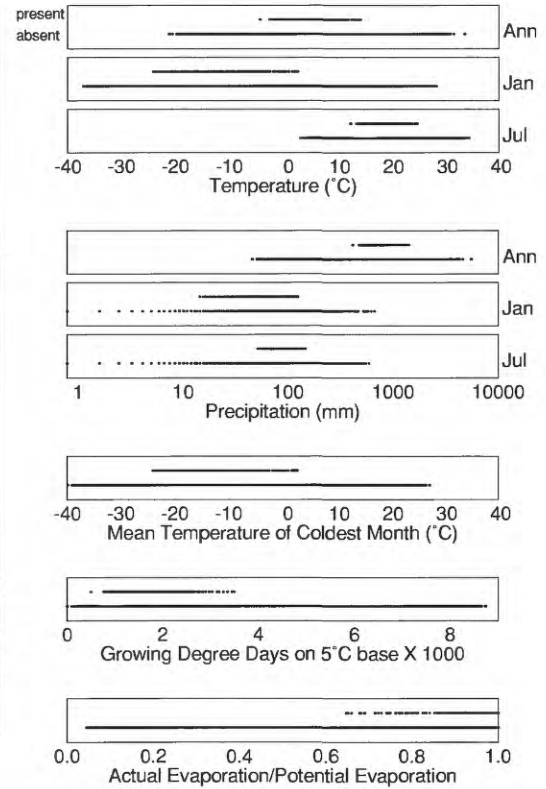
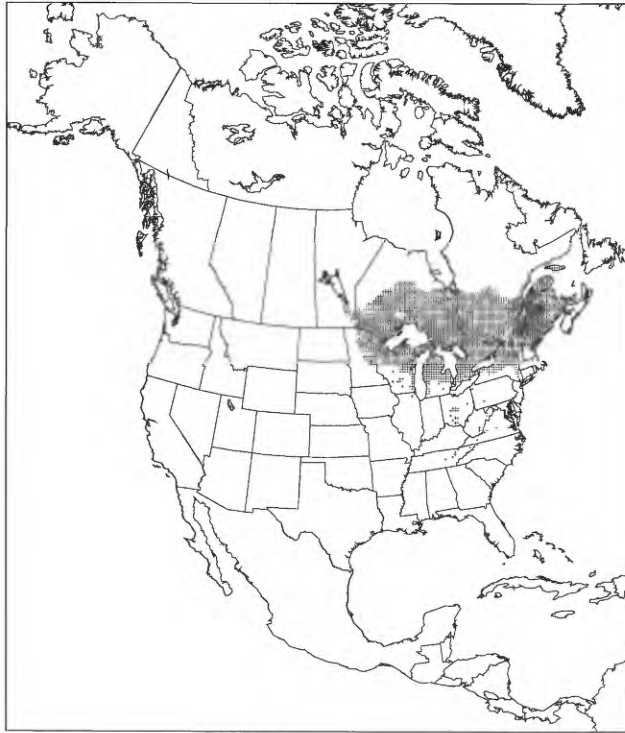




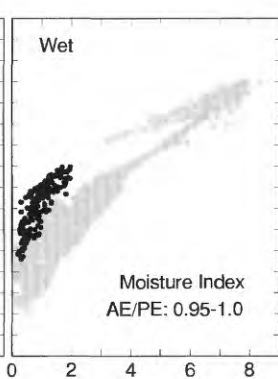
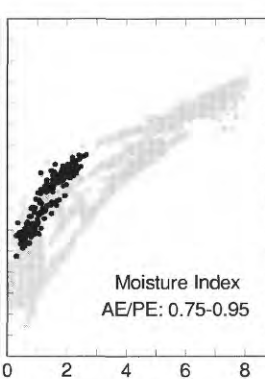
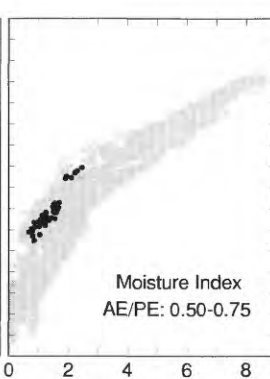
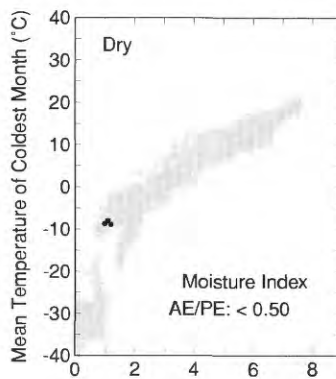
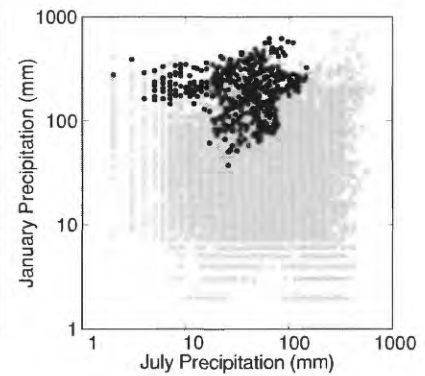
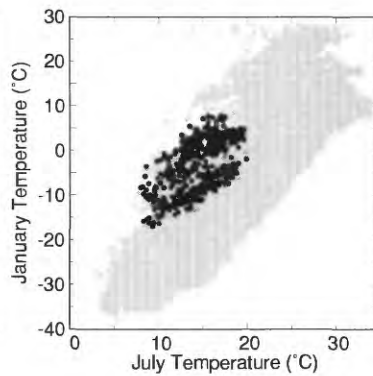
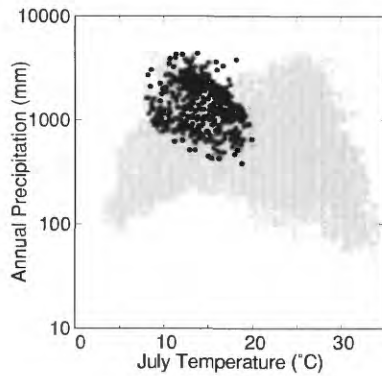
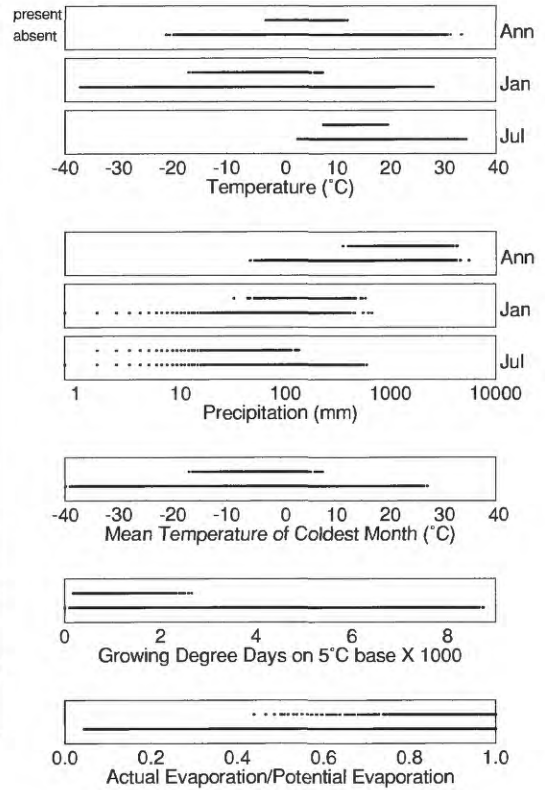
Taxus floridana (minimal data - nearest grid points used with environmental parameters)



Thuja occidentalis

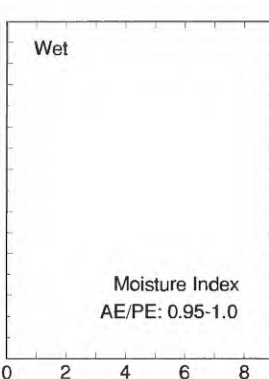
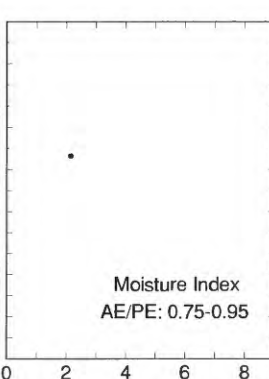
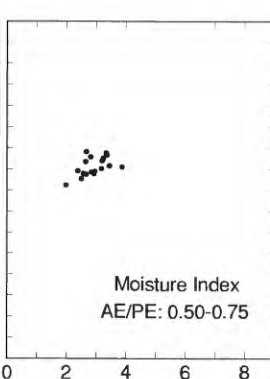
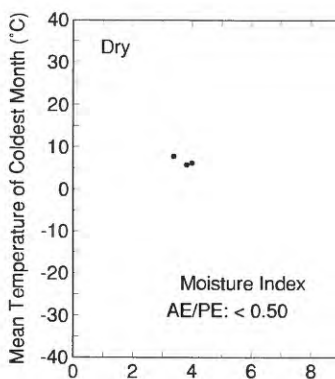
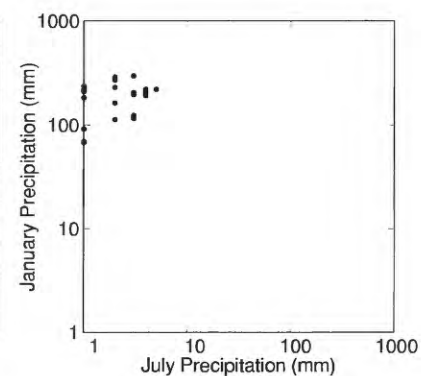
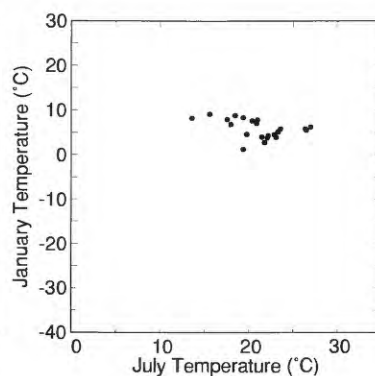
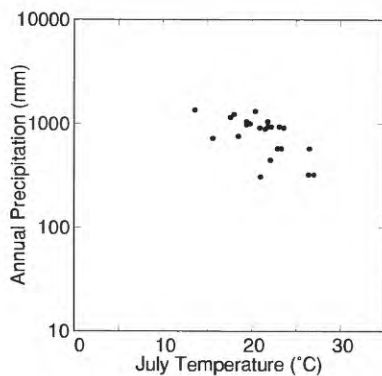
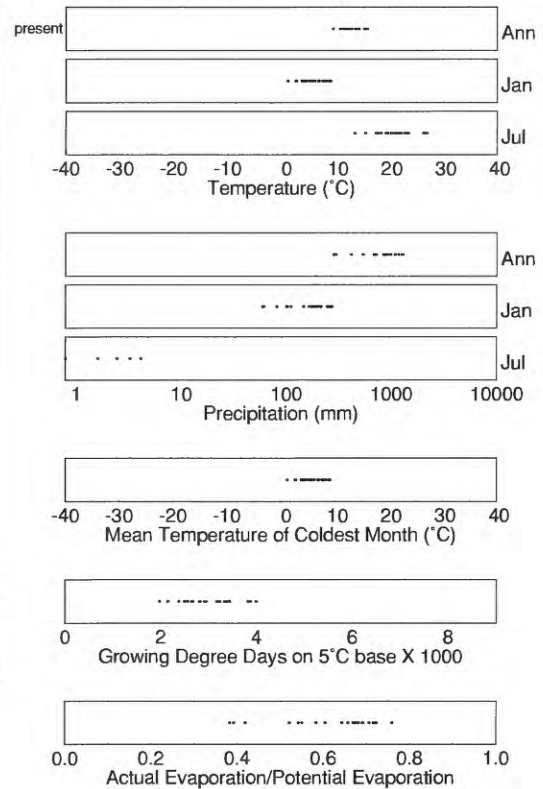


Thuja plicata



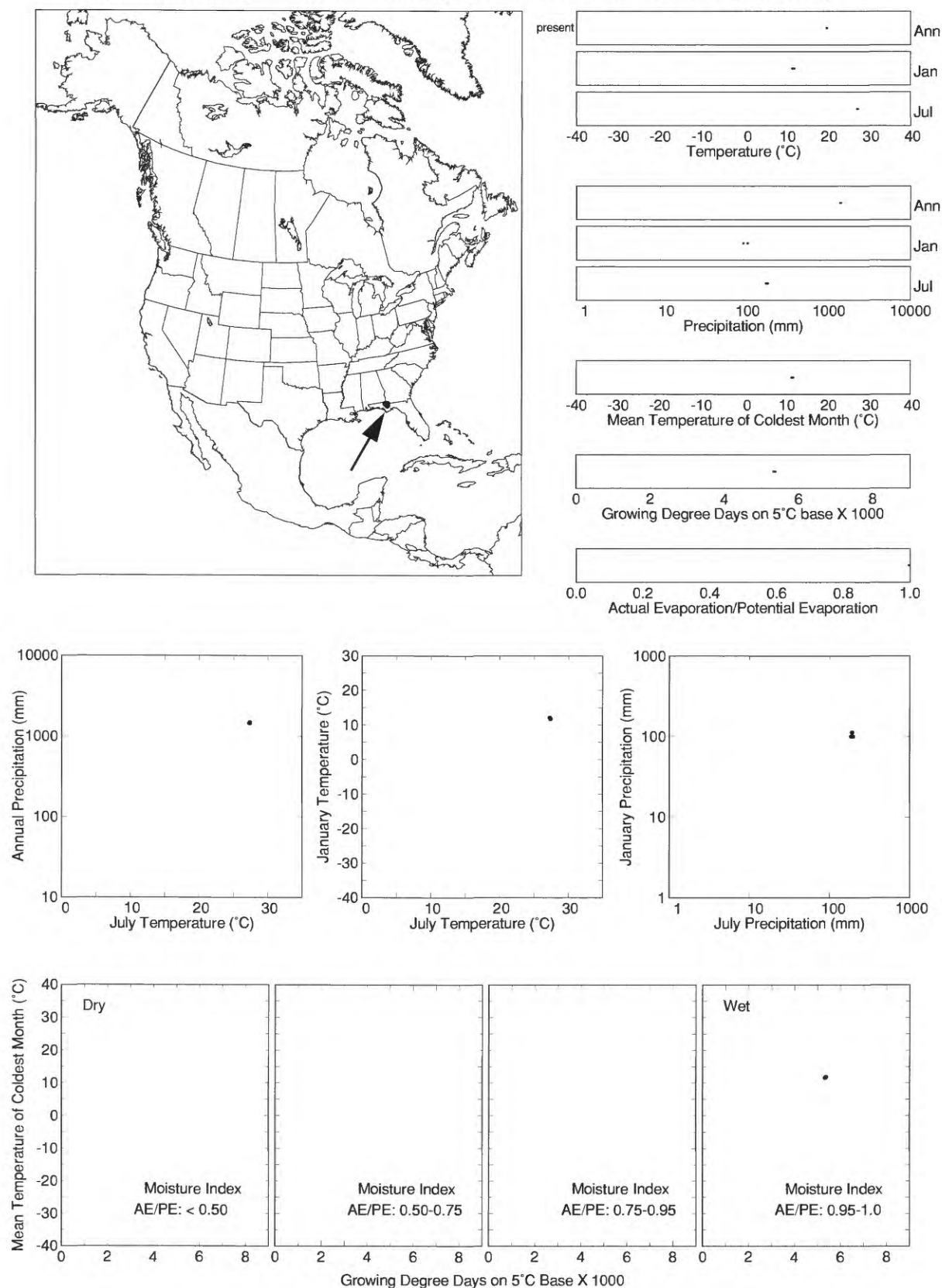
Growing Degree Days on 5°C Base X 1000

Torreyya californica (minimal data - nearest grid points used with environmental parameters)

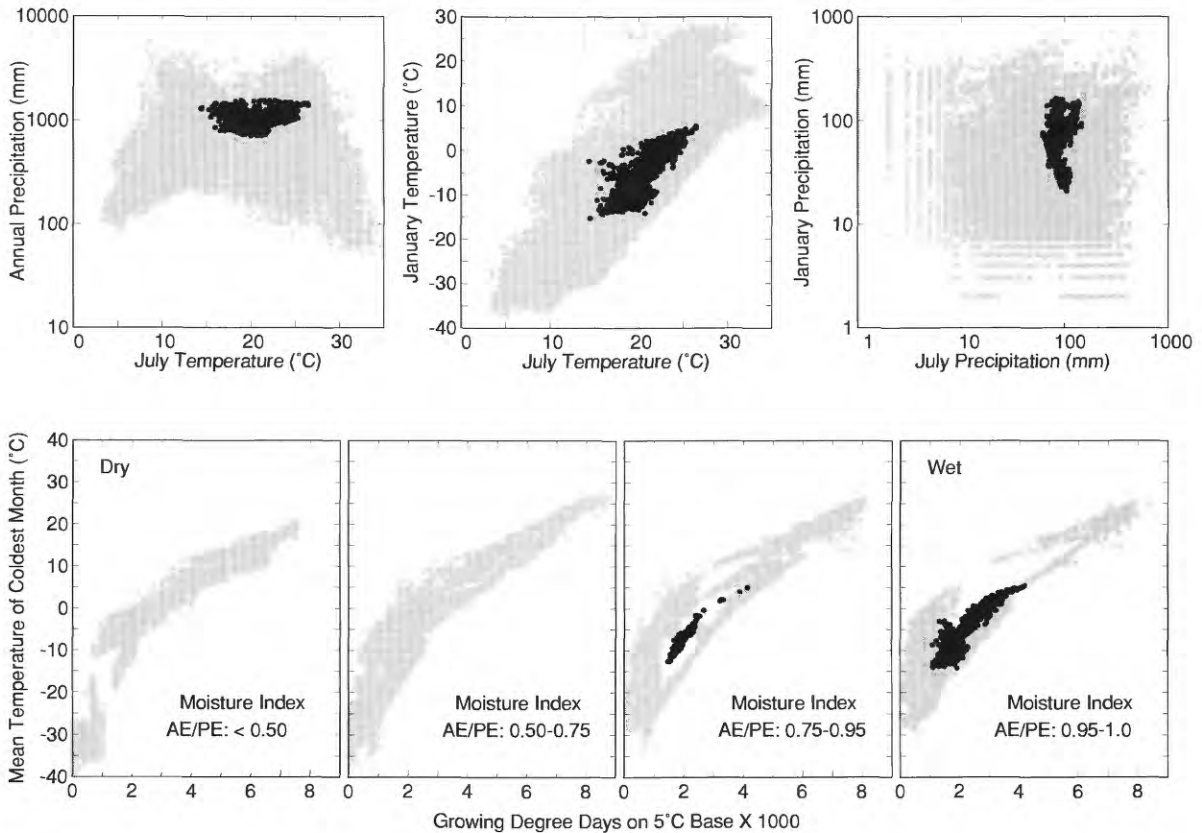
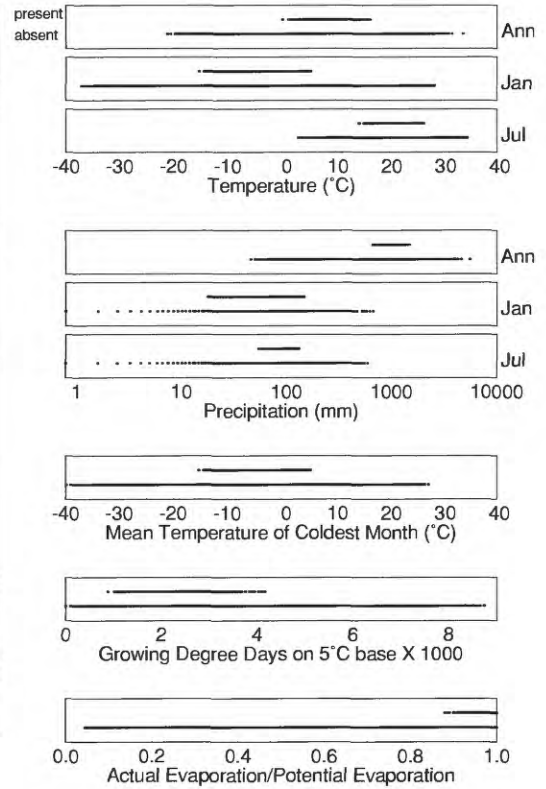
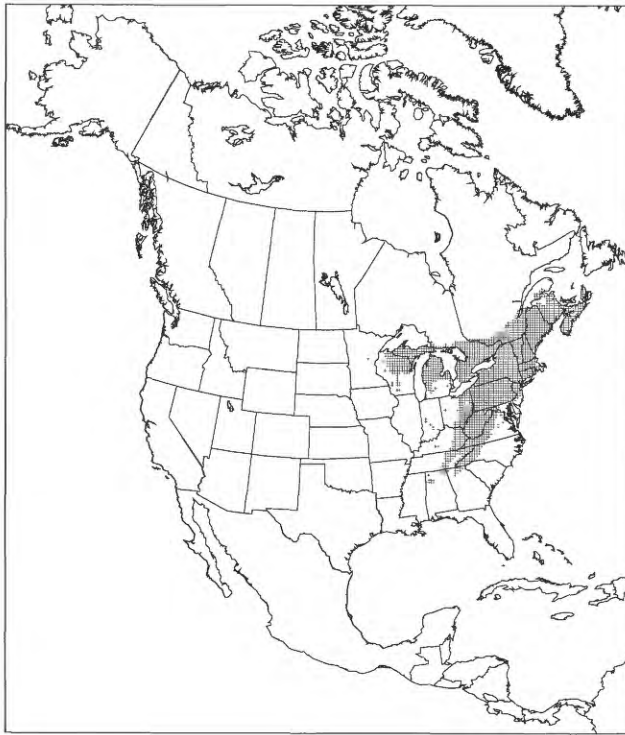


Growing Degree Days on 5°C Base X 1000

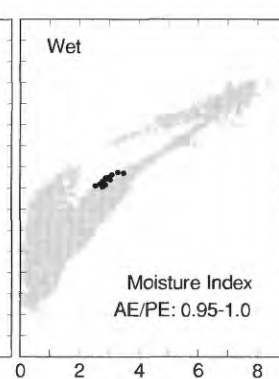
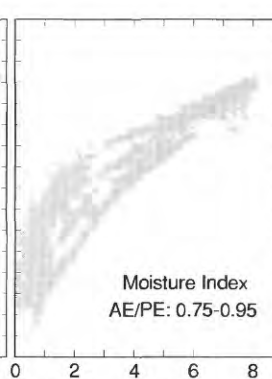
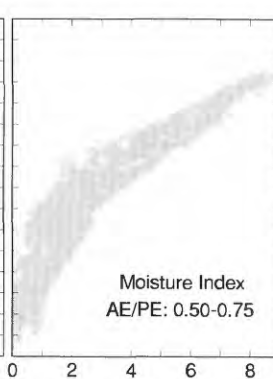
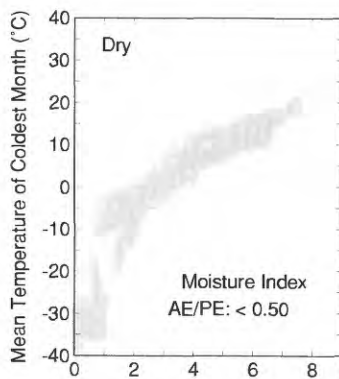
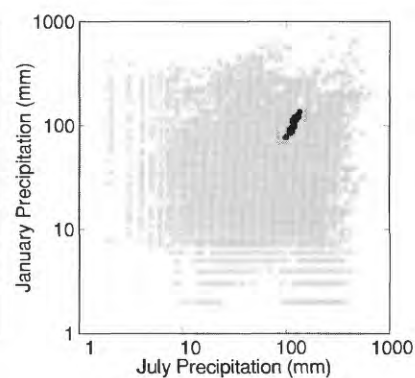
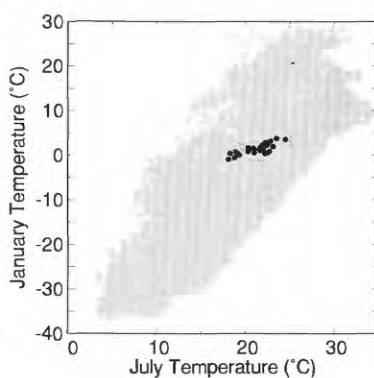
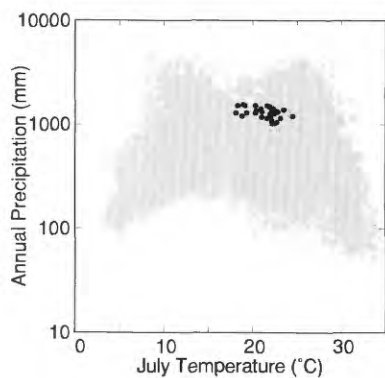
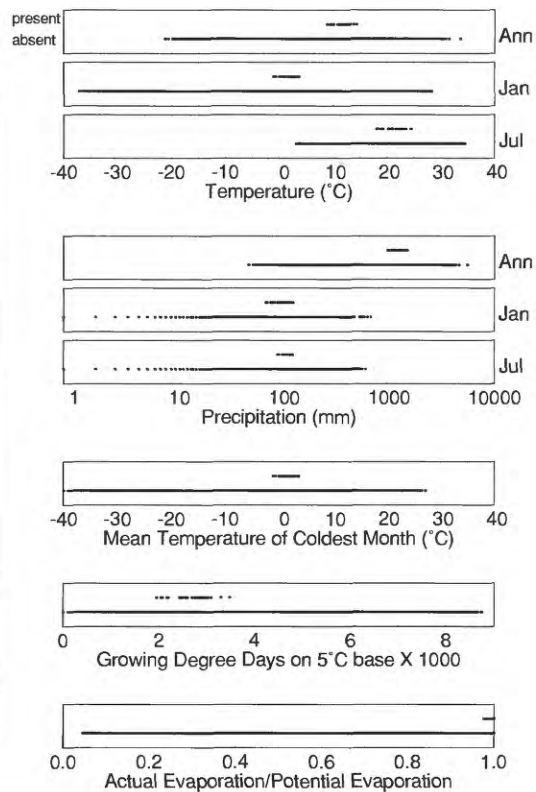
Torreyya taxifolia (minimal data - nearest grid points used with environmental parameters)



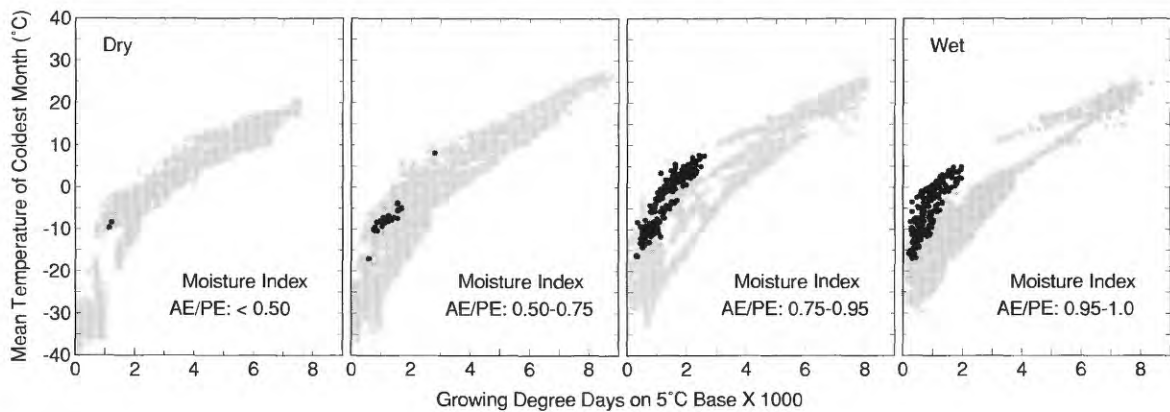
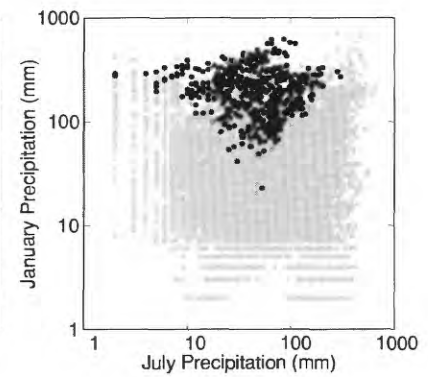
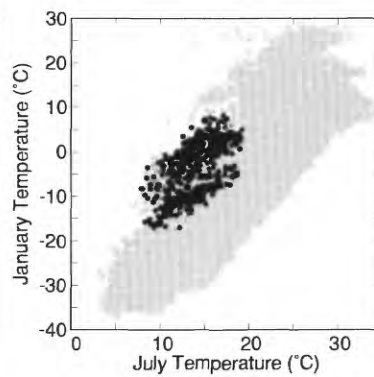
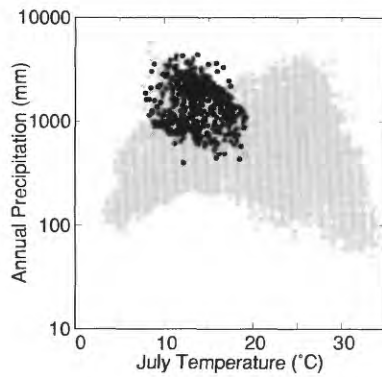
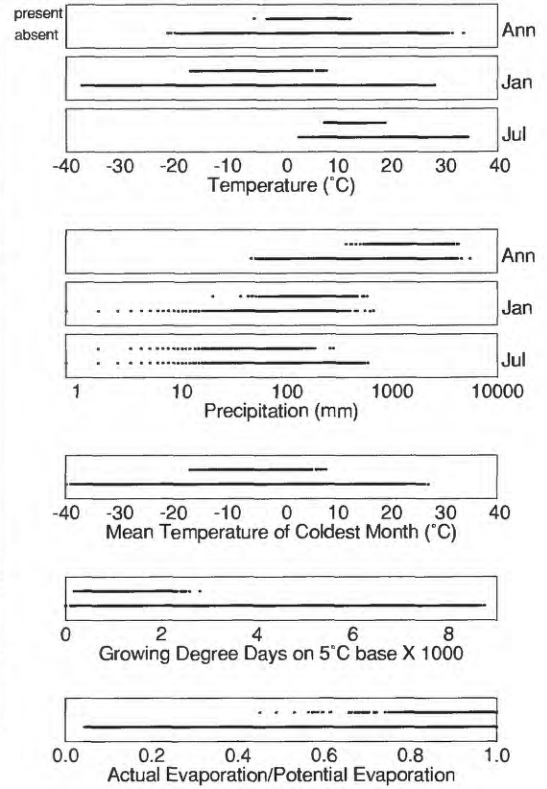
Tsuga canadensis



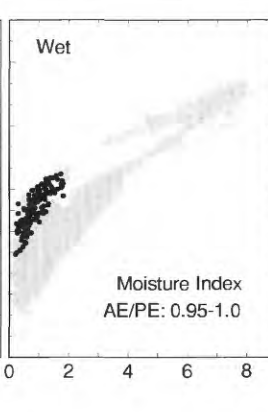
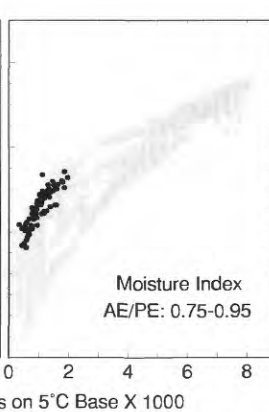
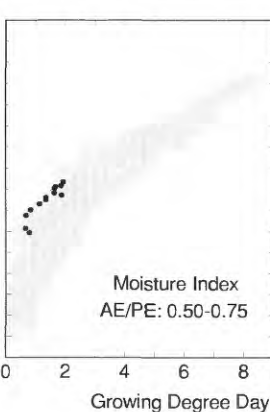
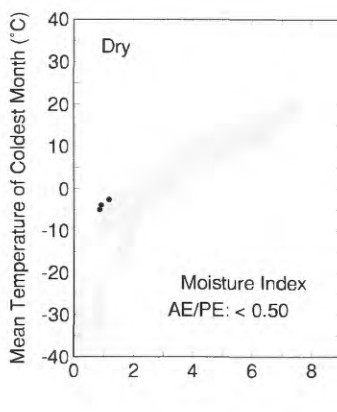
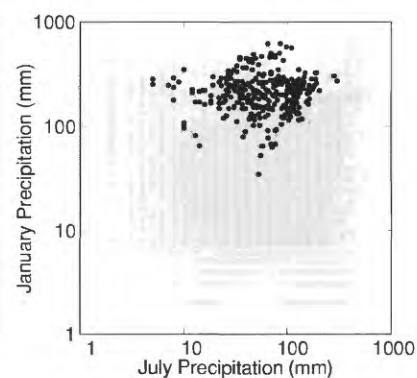
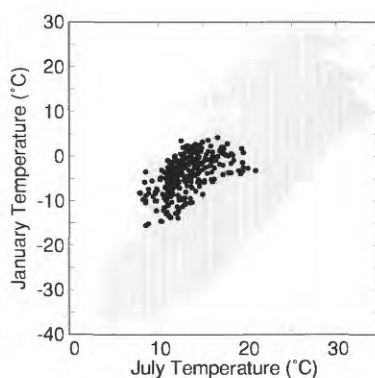
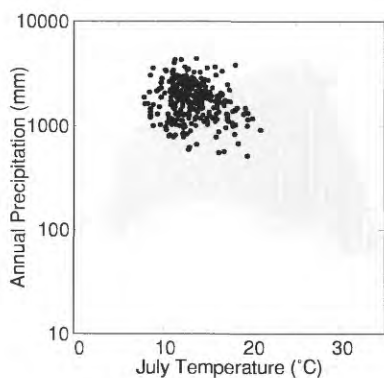
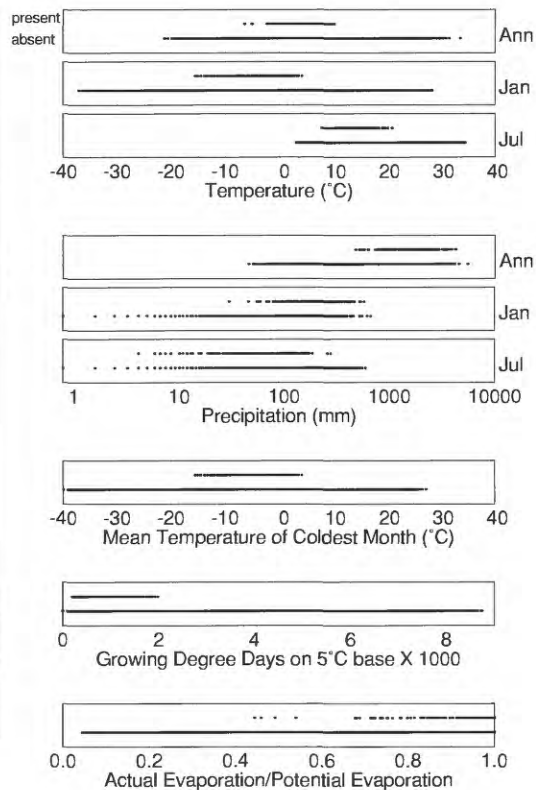
Tsuga caroliniana



Tsuga heterophylla



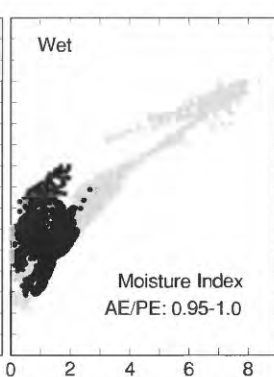
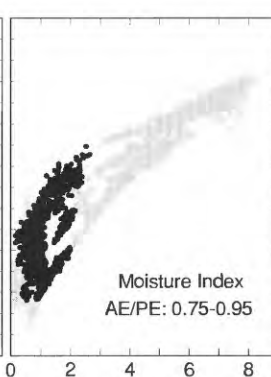
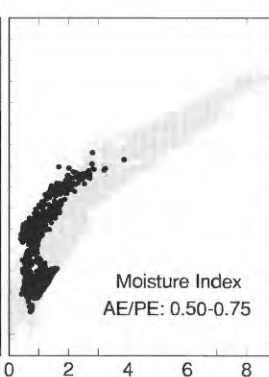
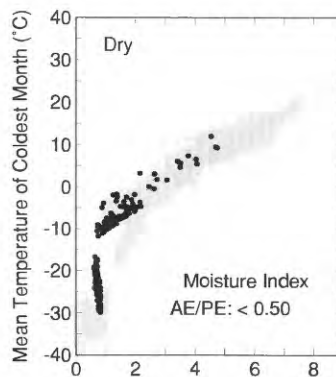
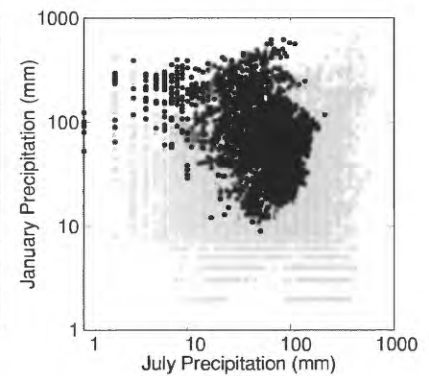
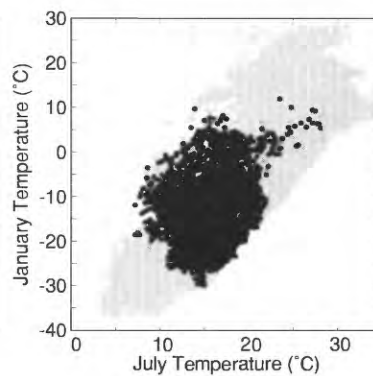
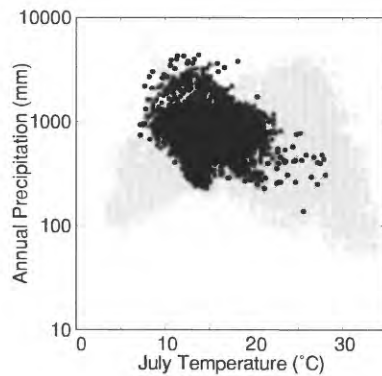
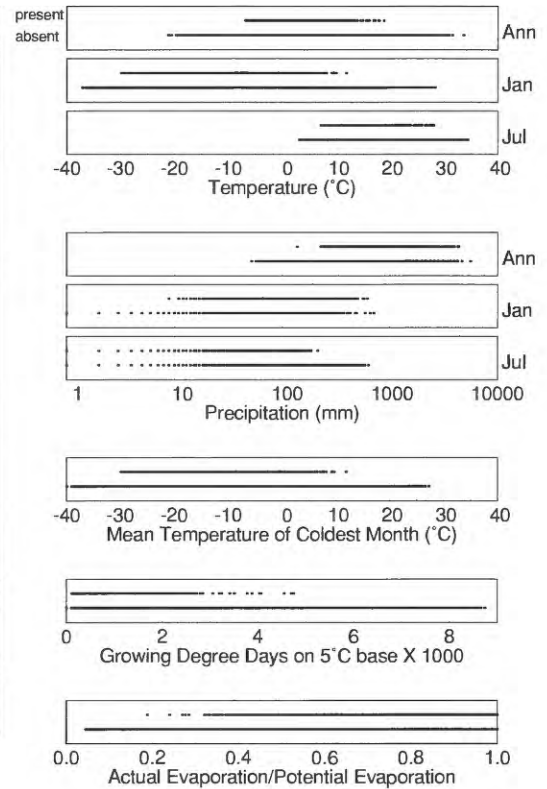
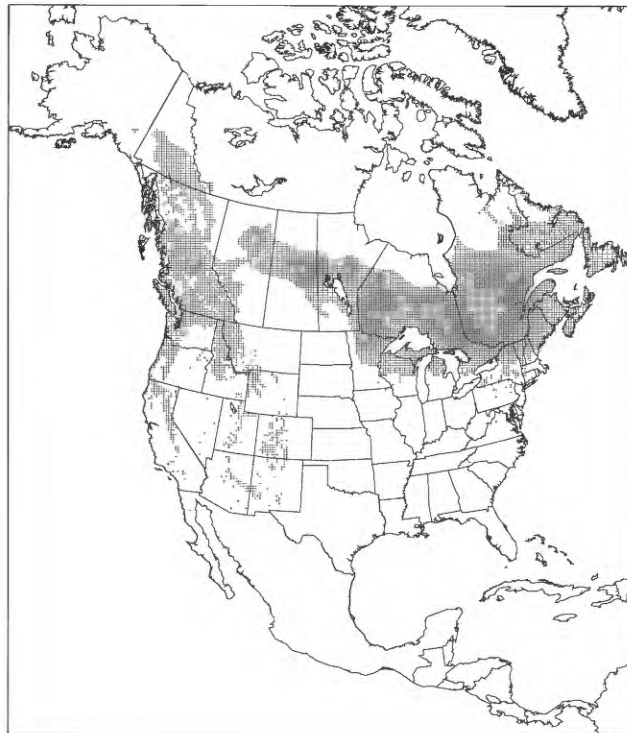
Tsuga mertensiana



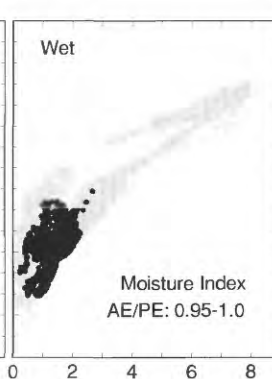
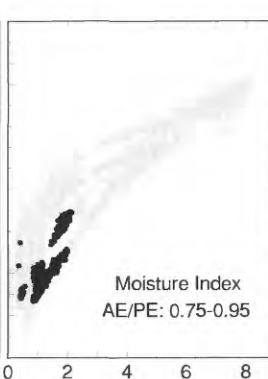
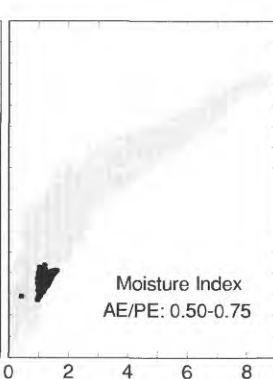
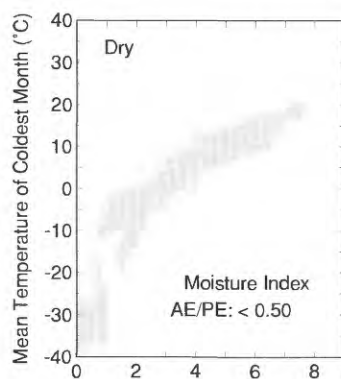
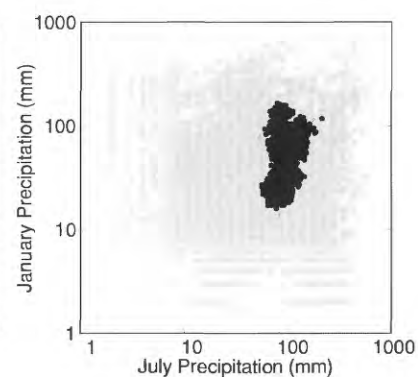
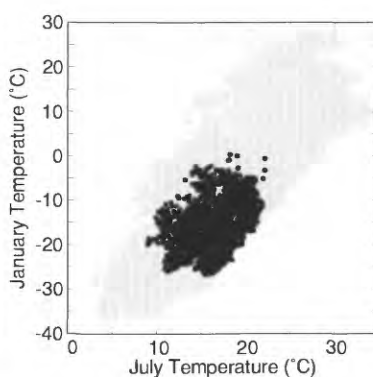
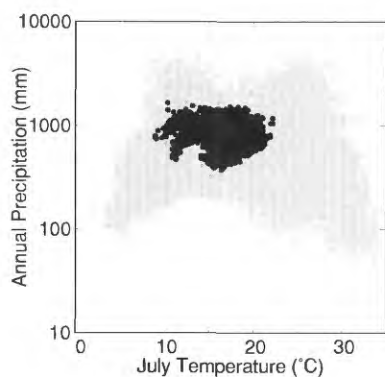
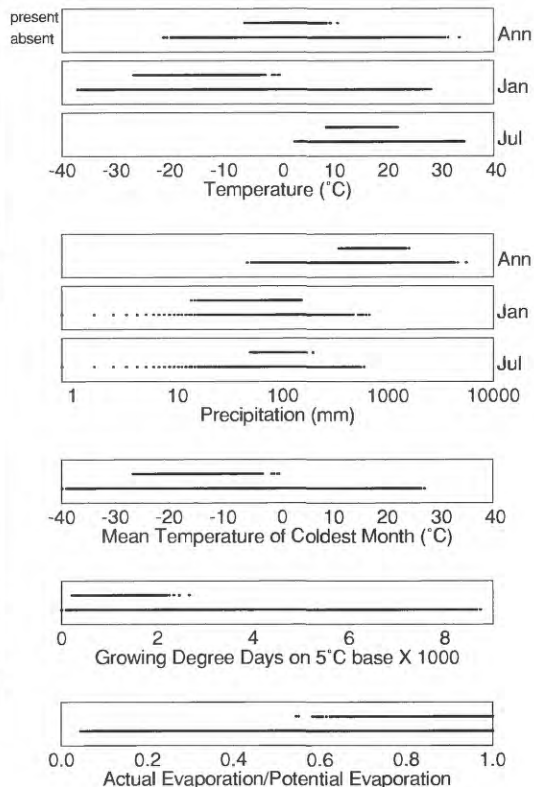
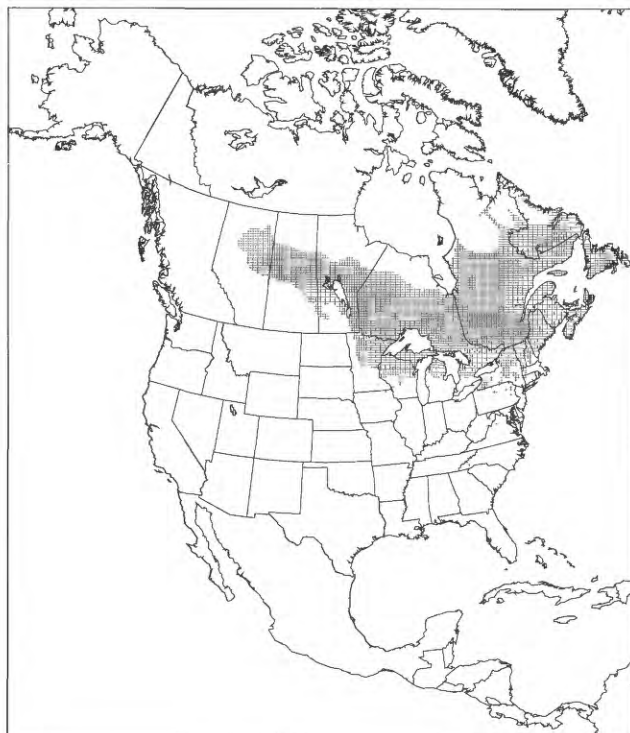
Conifer Genera and Groups— Graphical Displays



ABIES

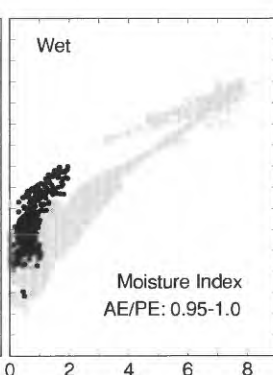
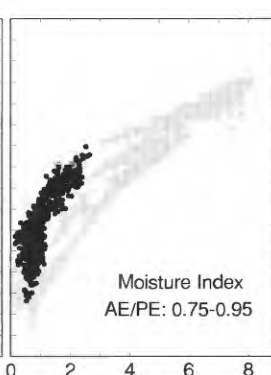
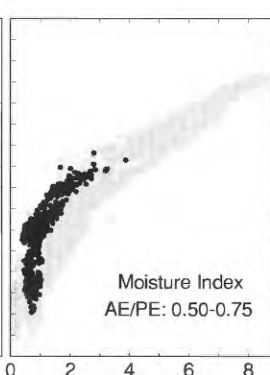
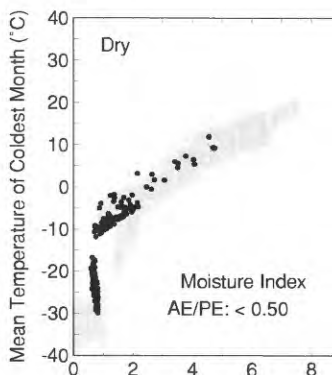
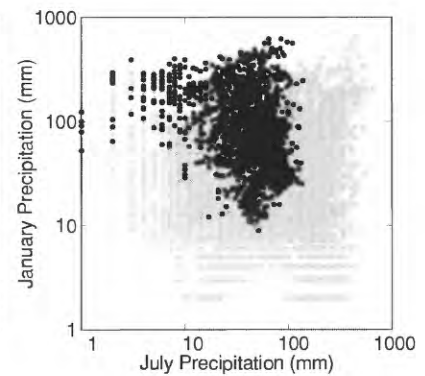
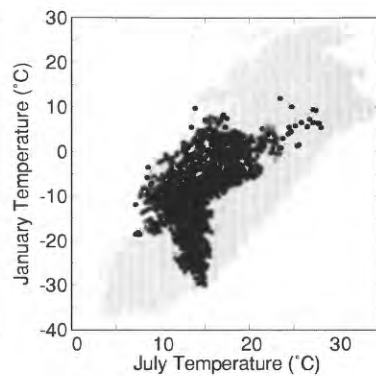
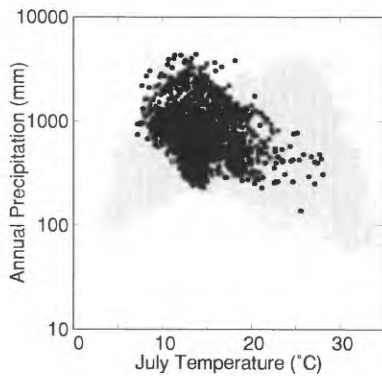
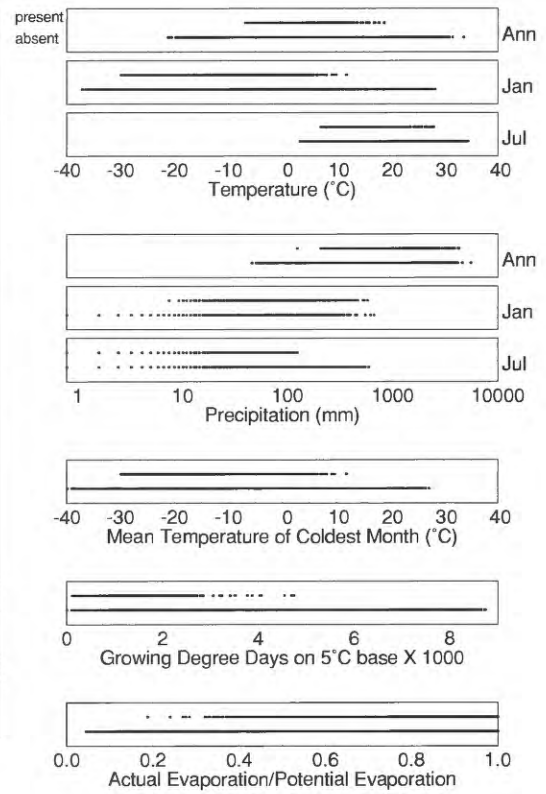
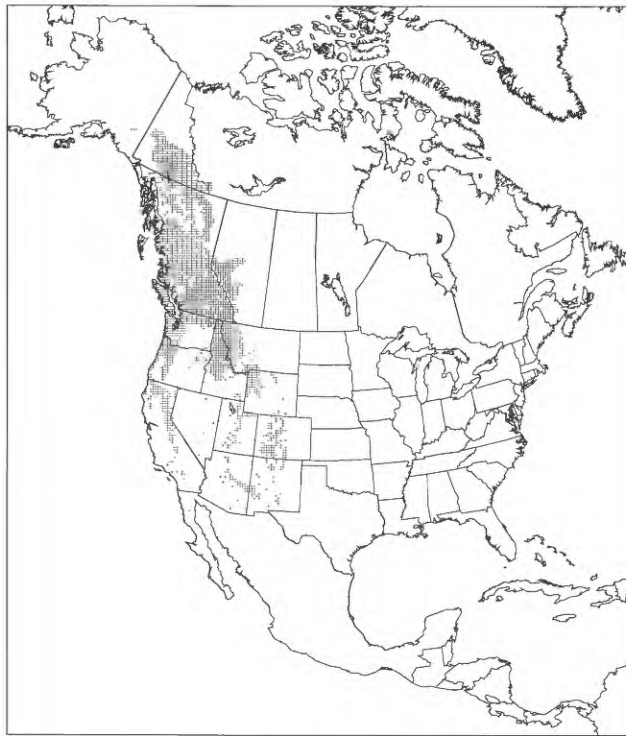


ABIES EAST



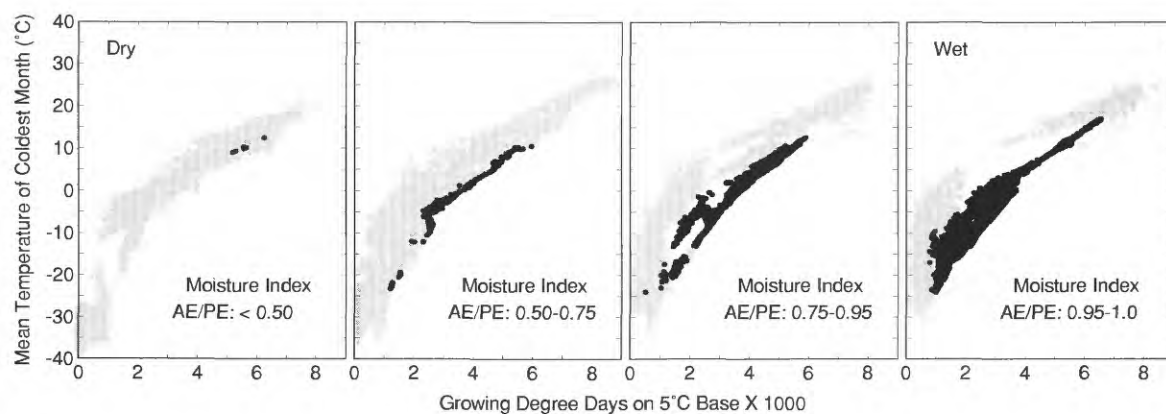
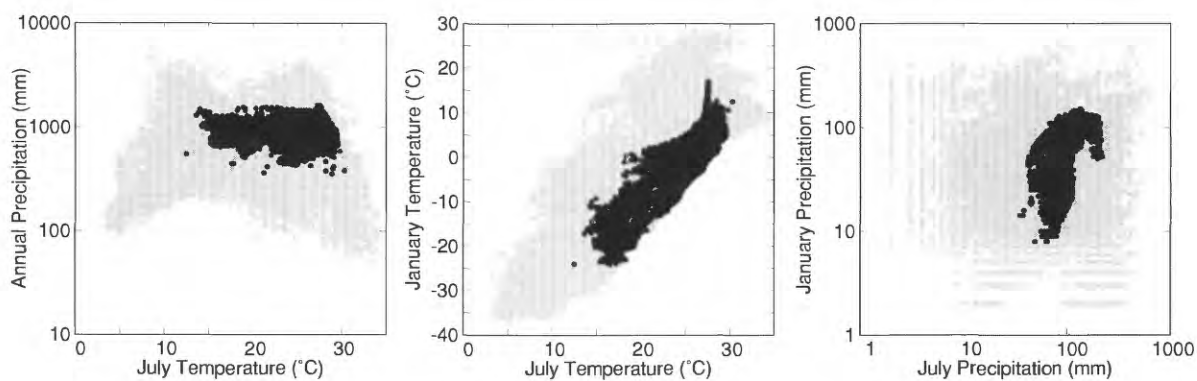
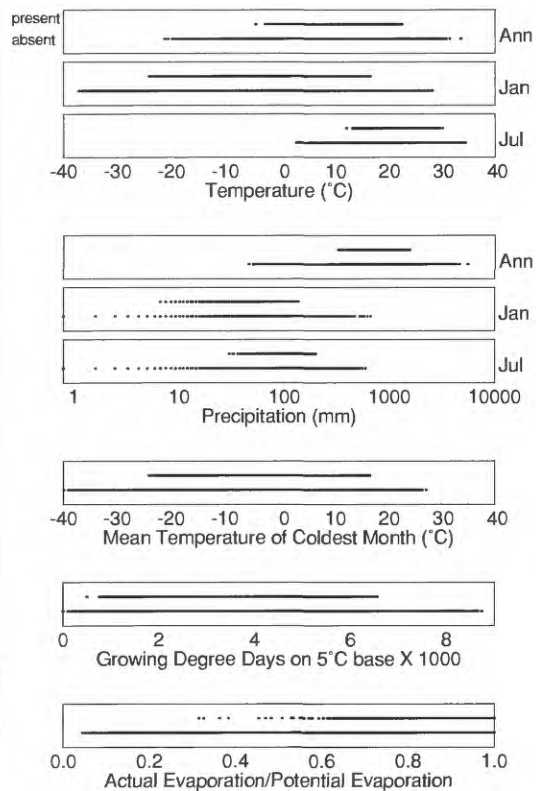
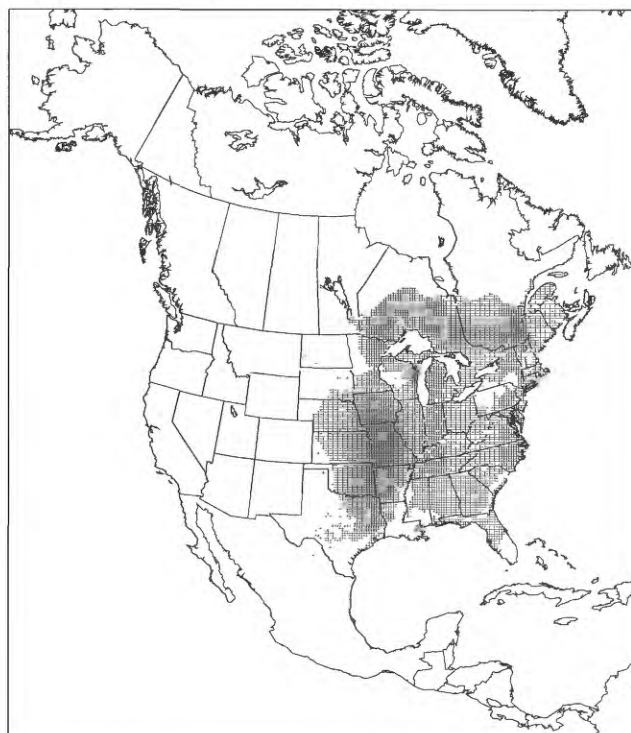
Growing Degree Days on 5°C Base X 1000

ABIES WEST

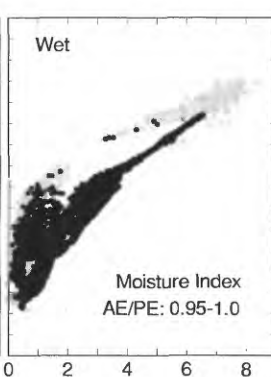
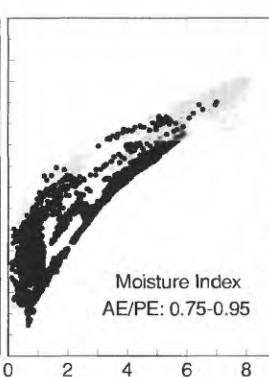
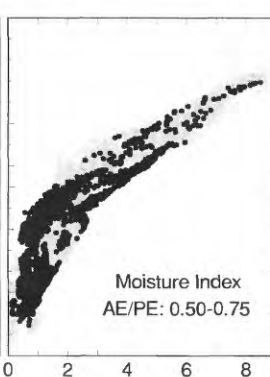
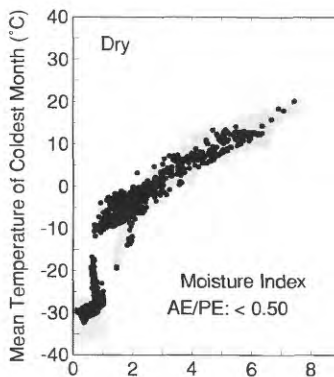
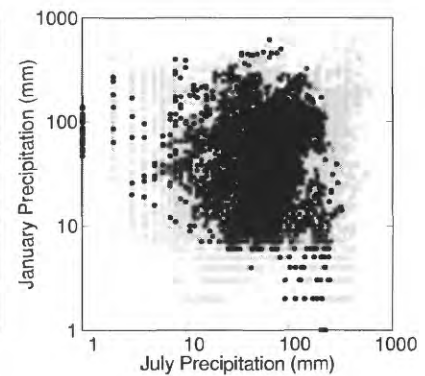
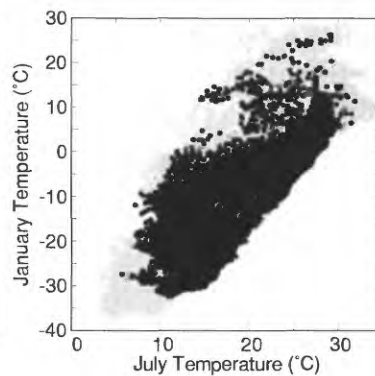
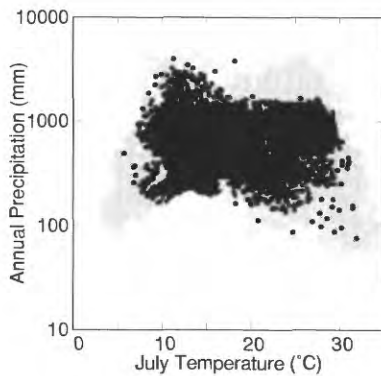
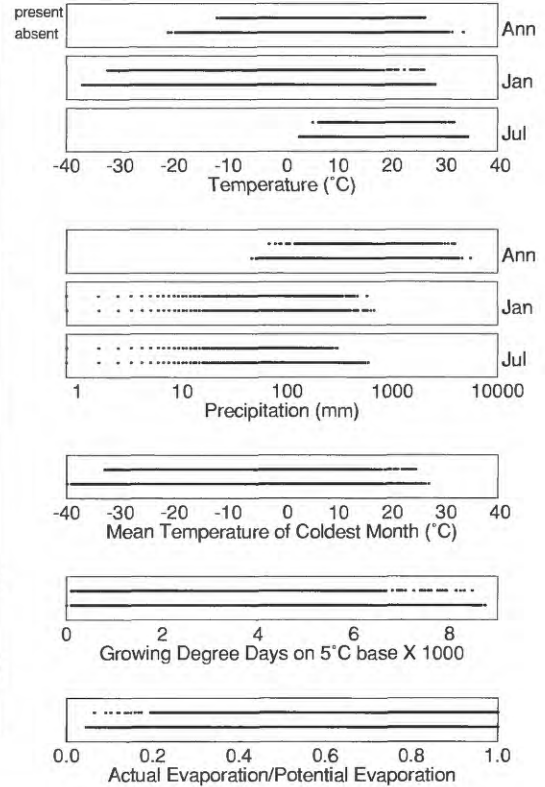
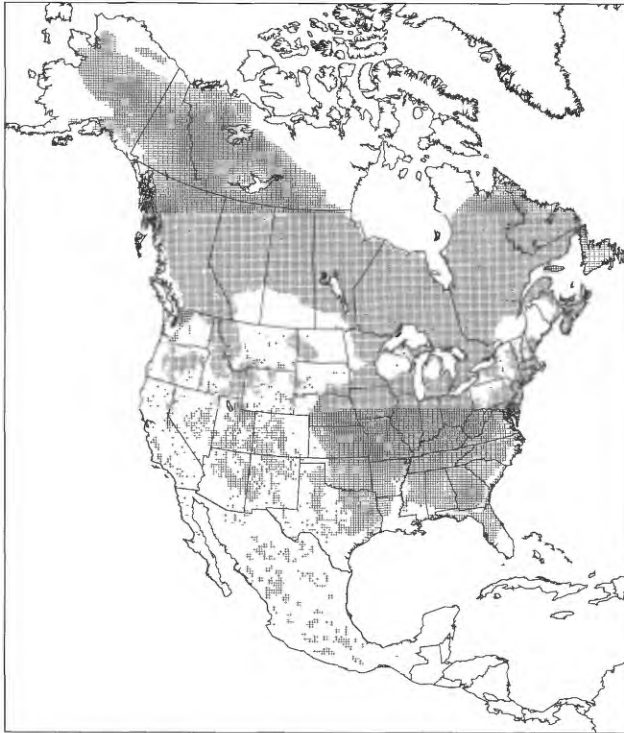


Growing Degree Days on 5°C Base X 1000

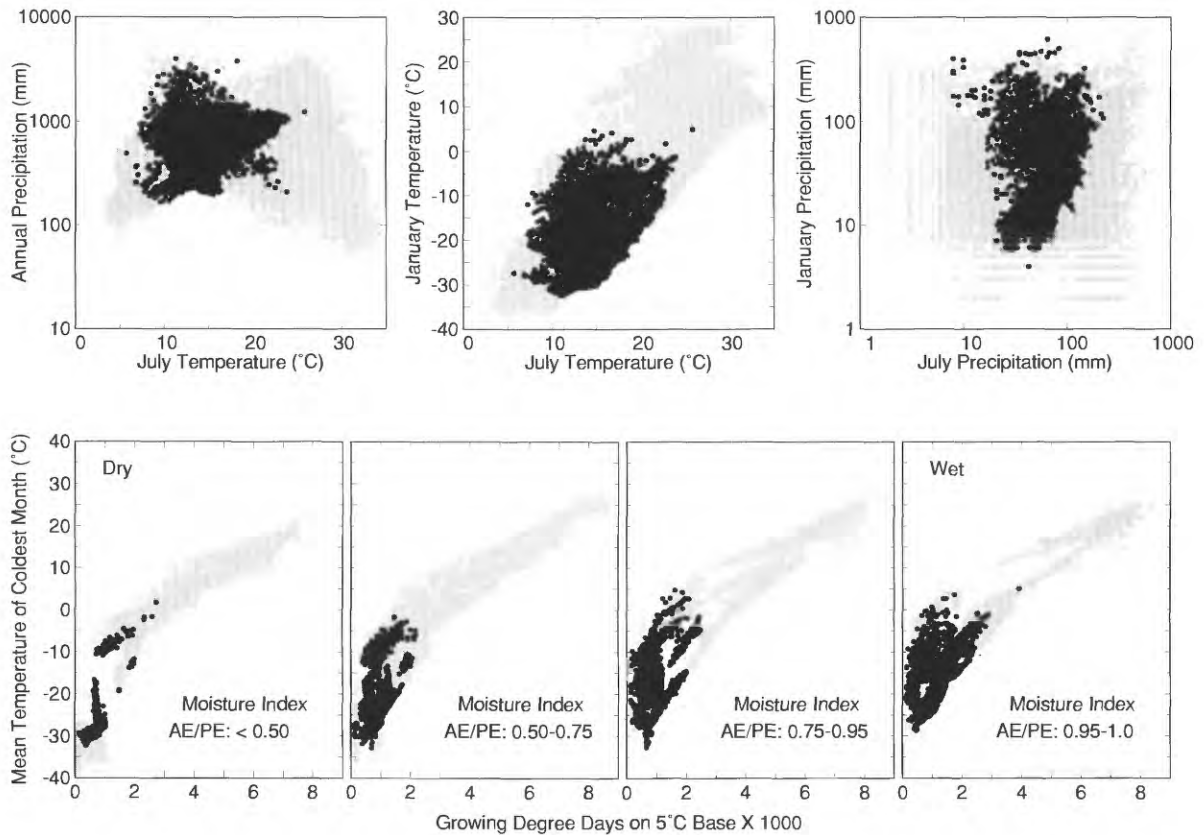
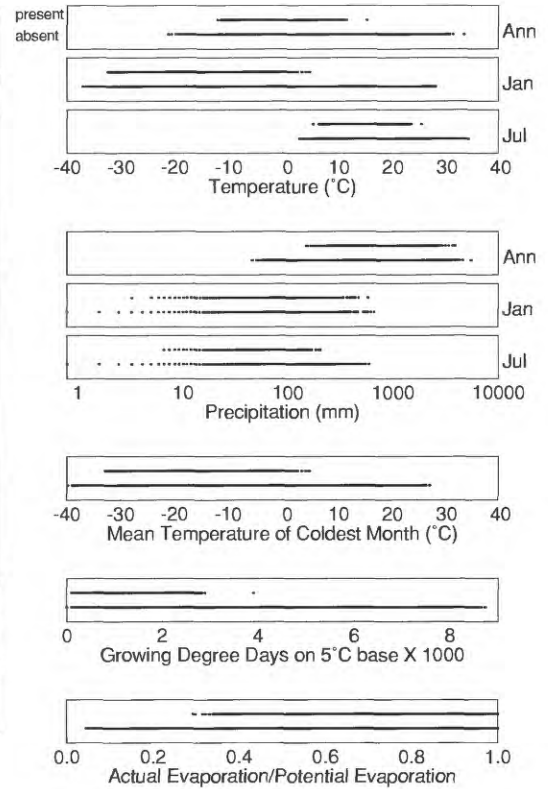
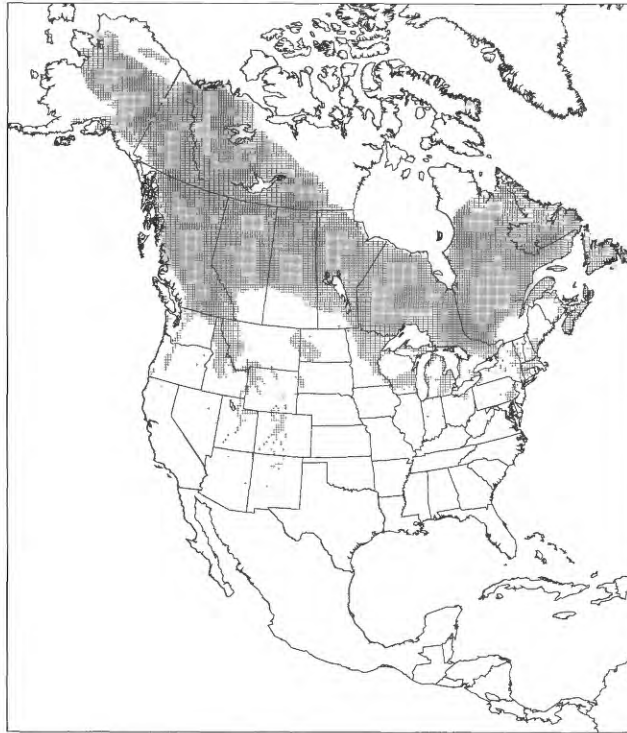
CUPRESSACEAE EAST



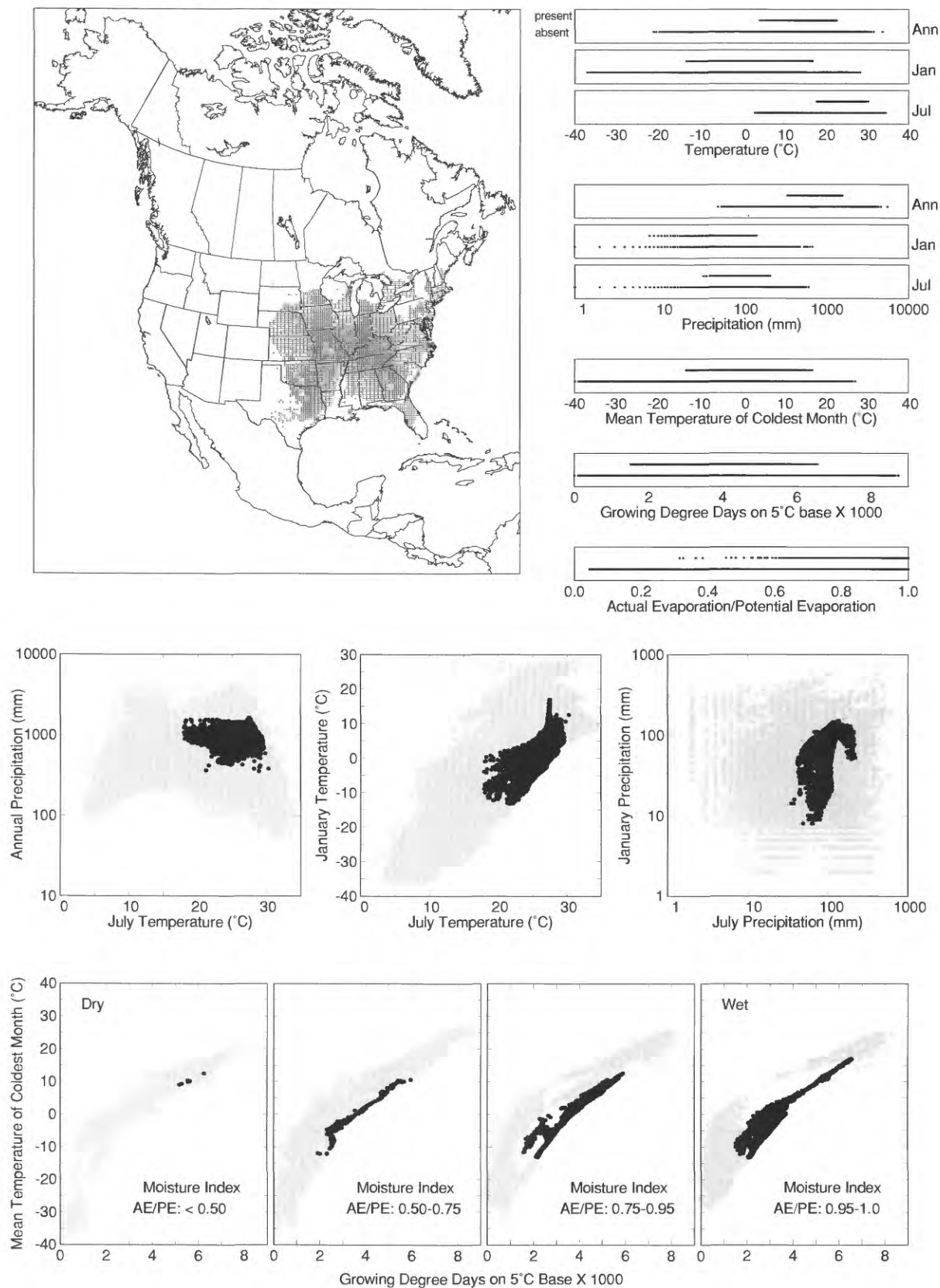
JUNIPERUS



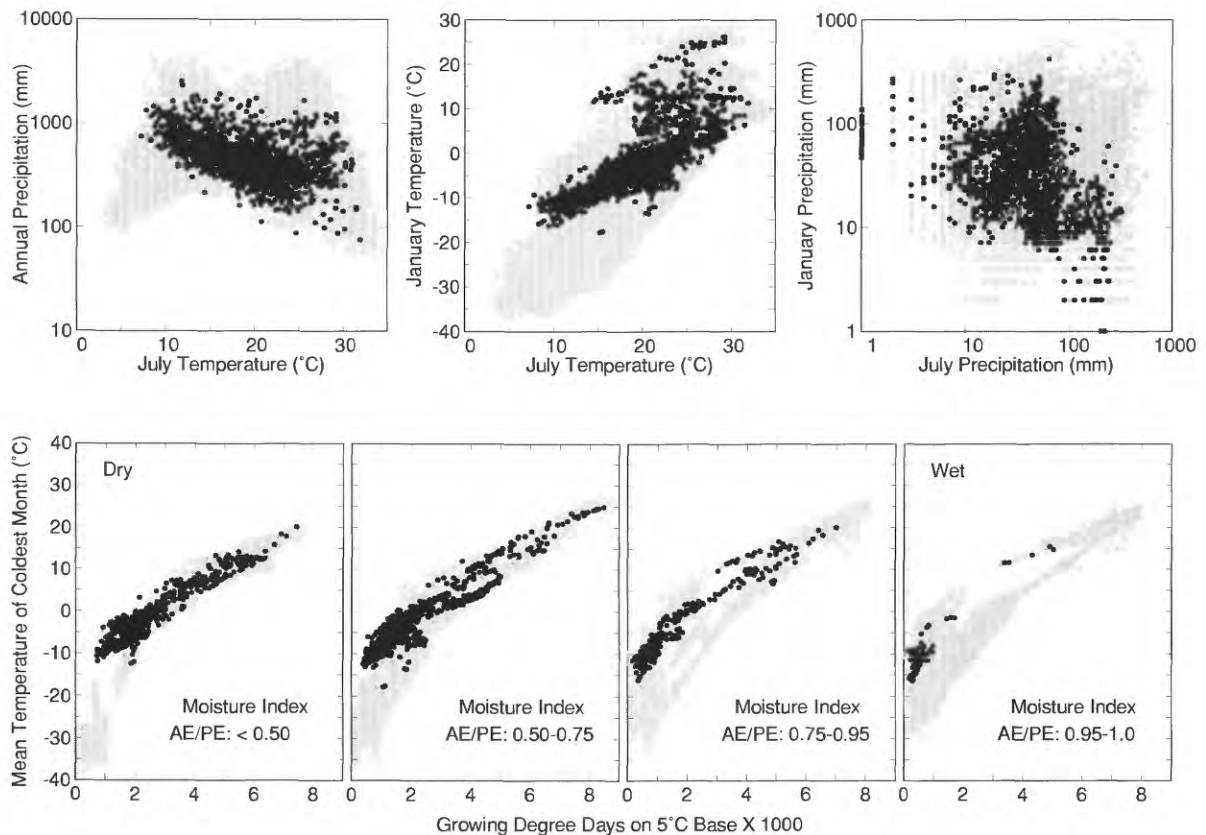
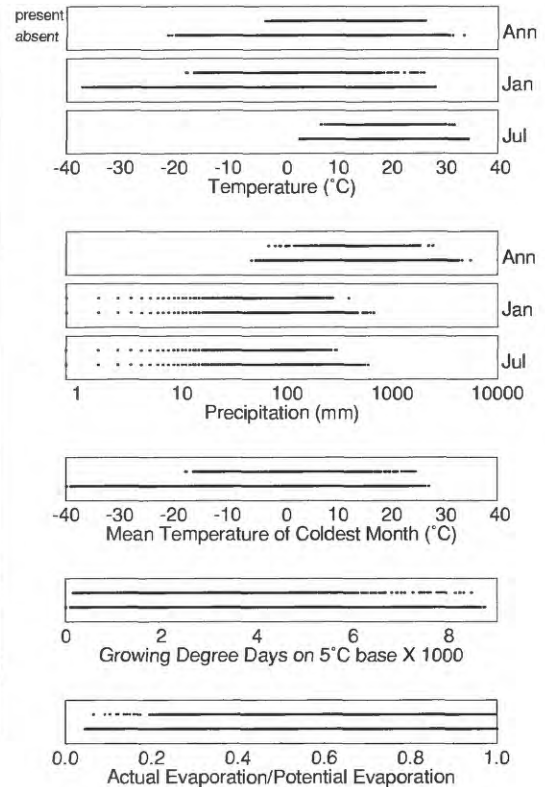
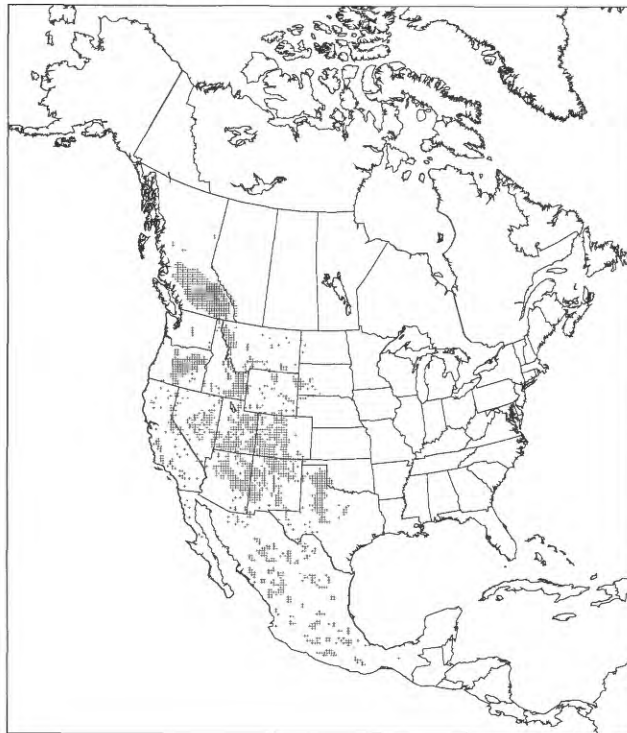
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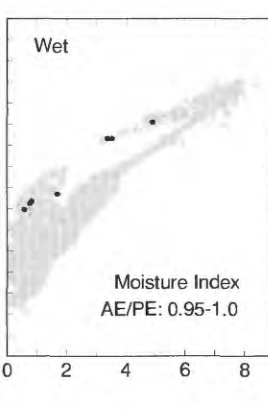
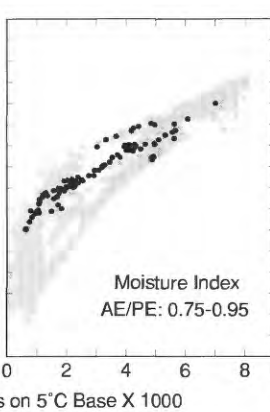
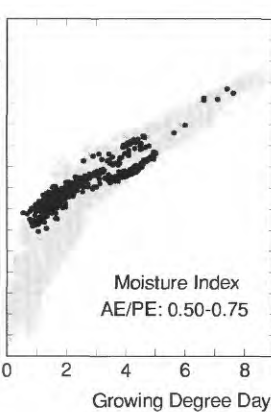
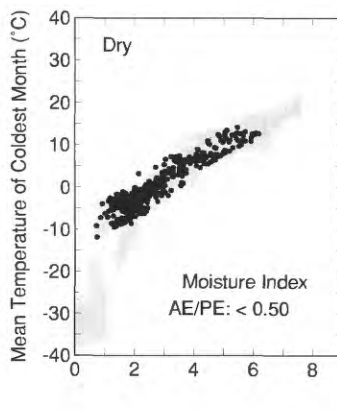
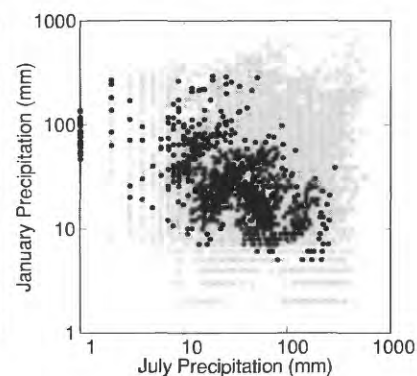
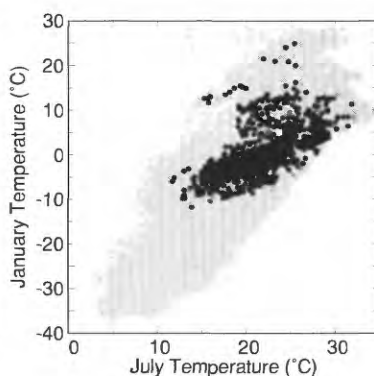
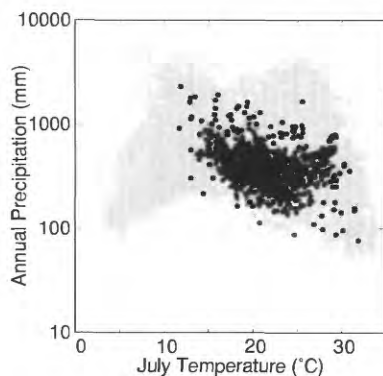
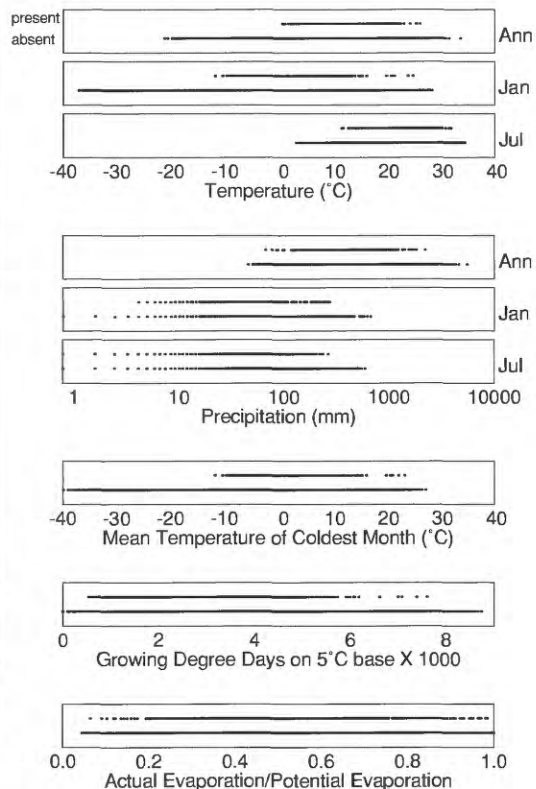
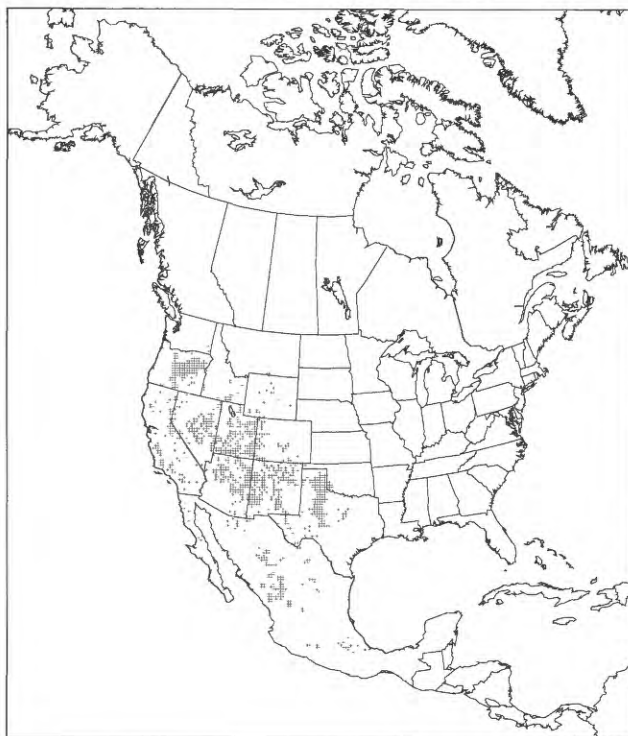
JUNIPERUS EAST



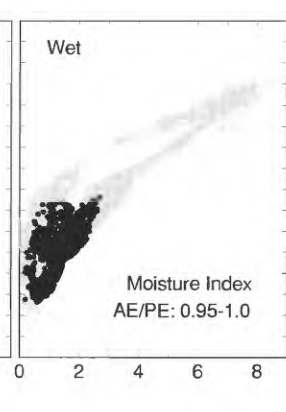
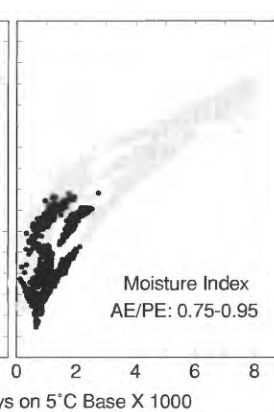
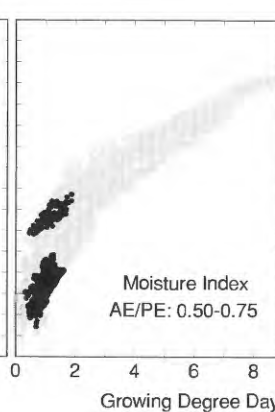
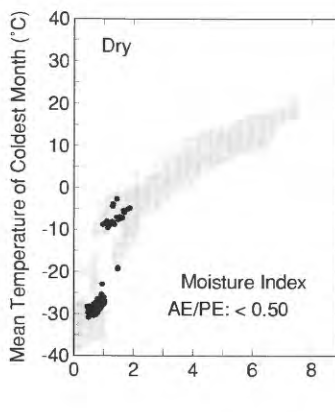
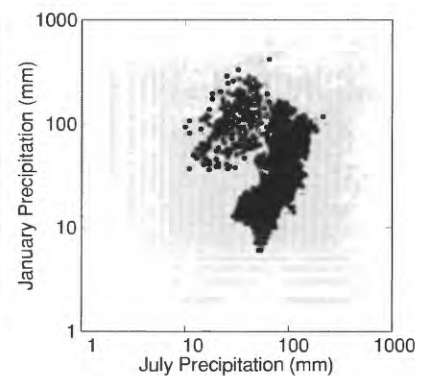
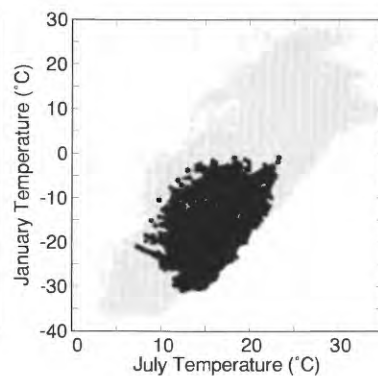
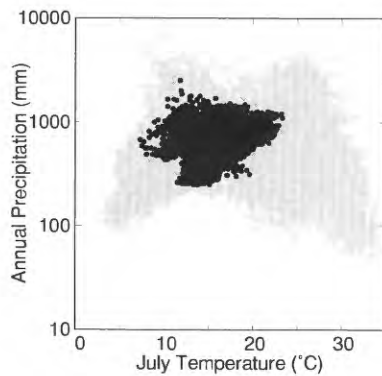
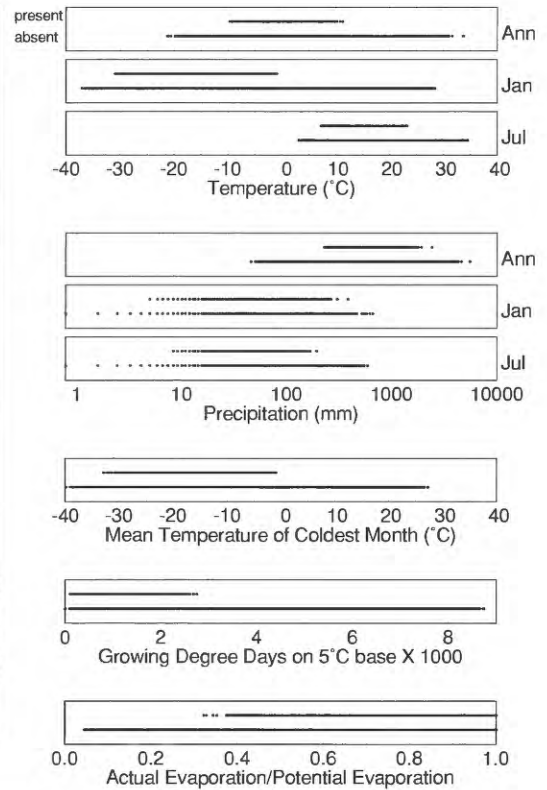
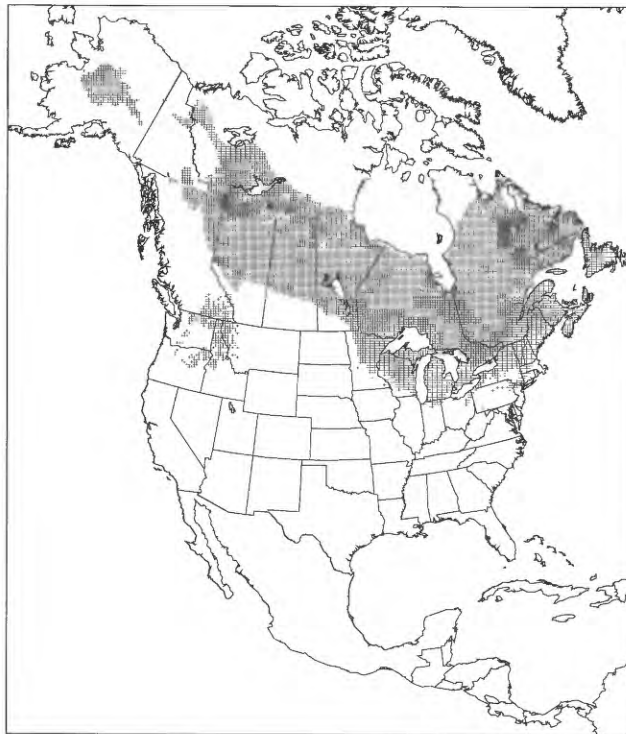
JUNIPERUS WEST



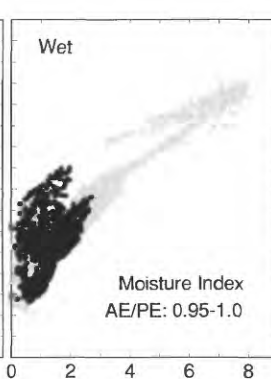
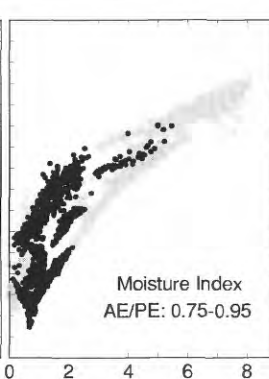
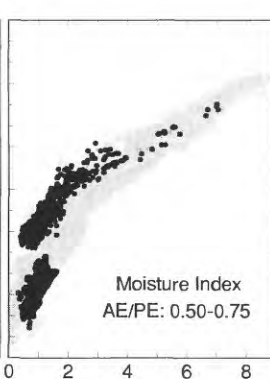
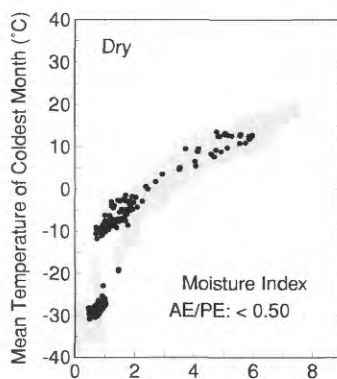
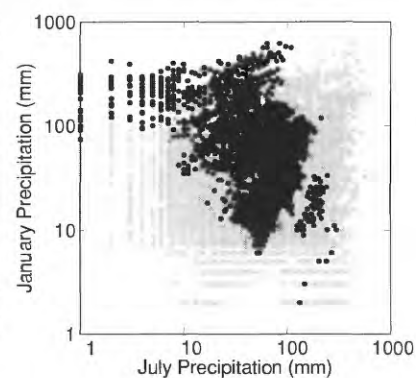
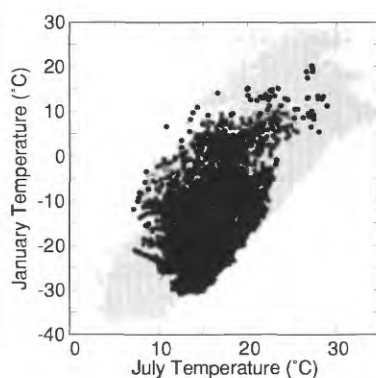
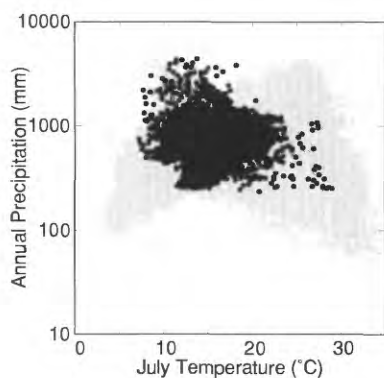
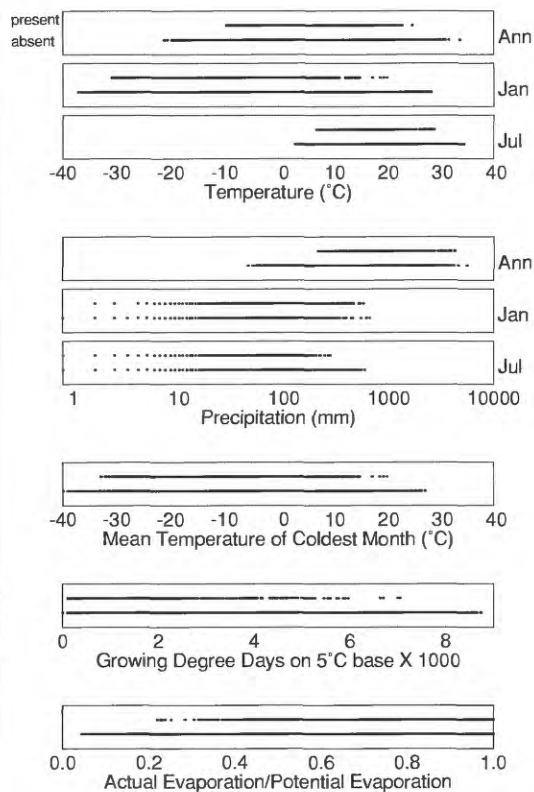
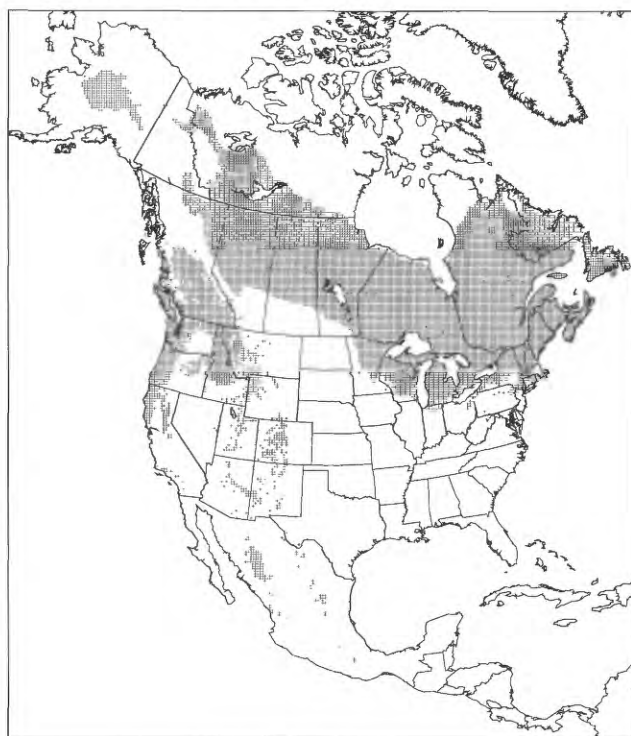
JUNIPERUS WEST WOODLAND



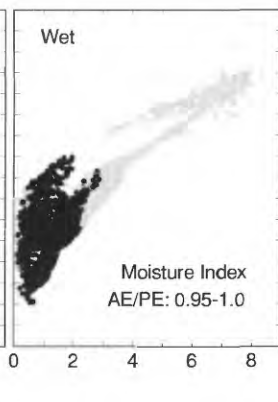
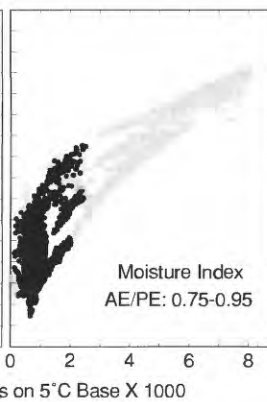
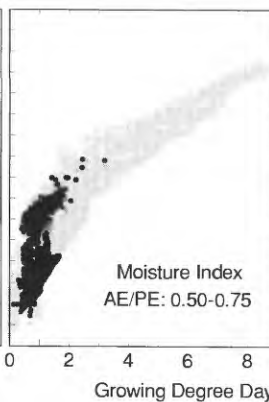
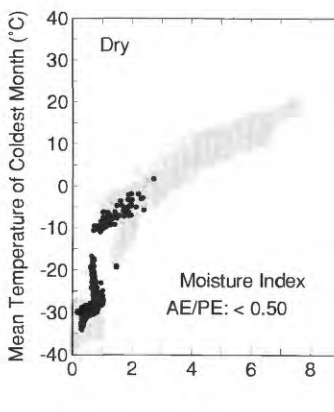
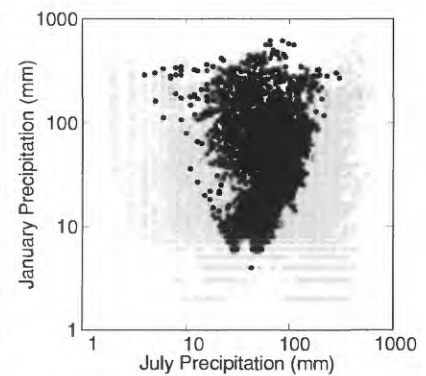
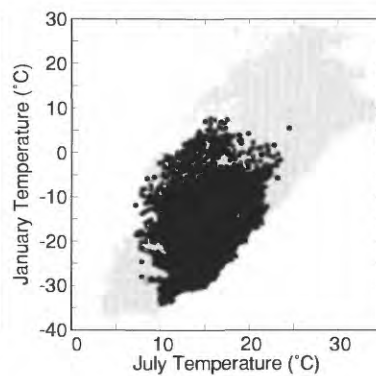
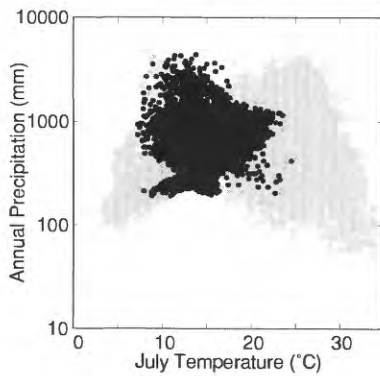
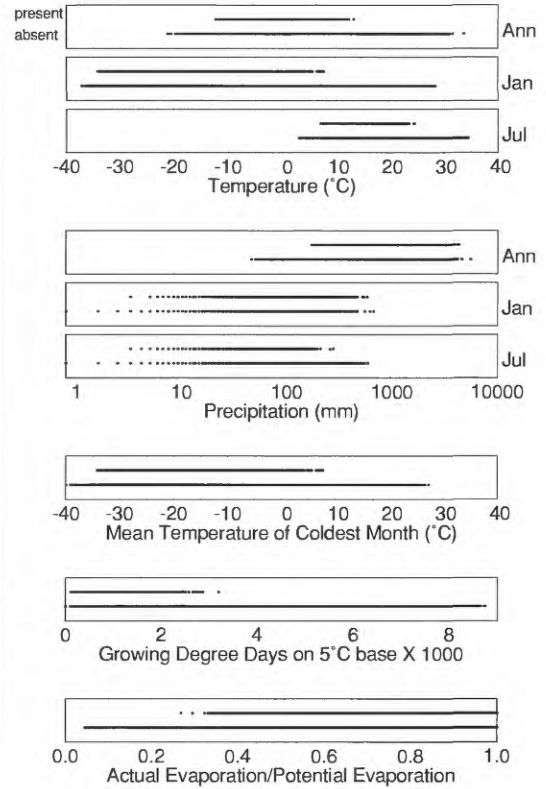
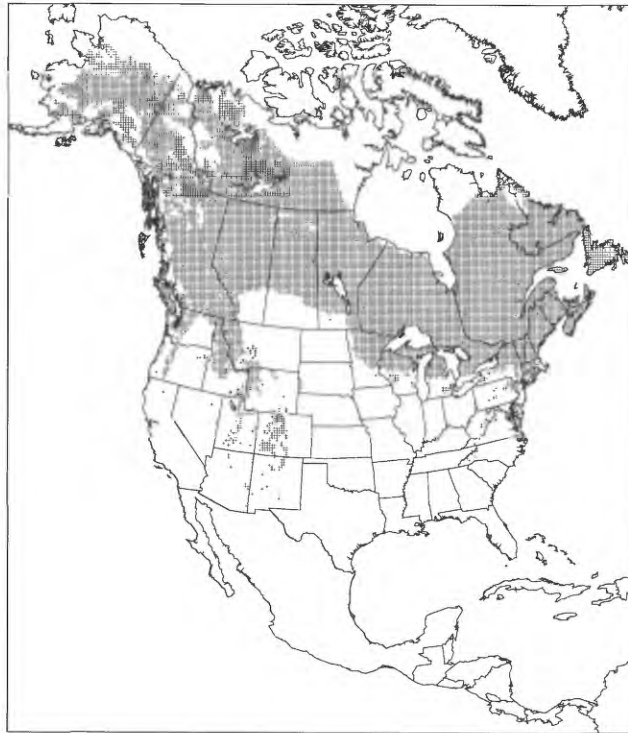
LARIX



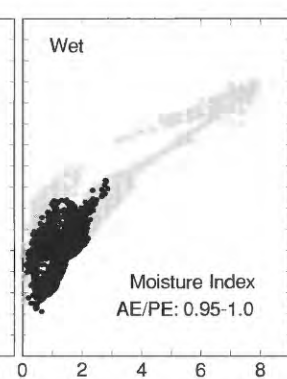
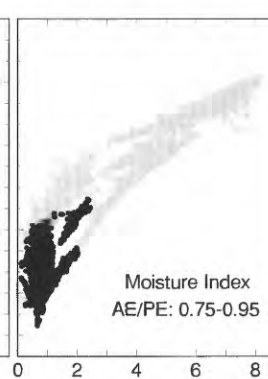
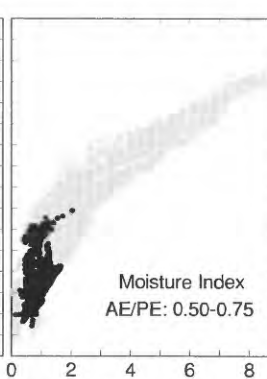
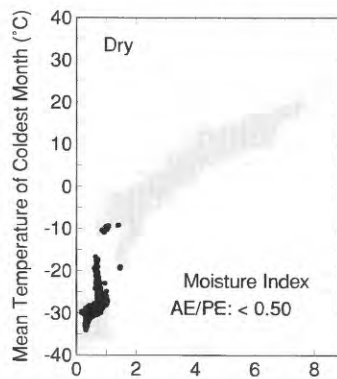
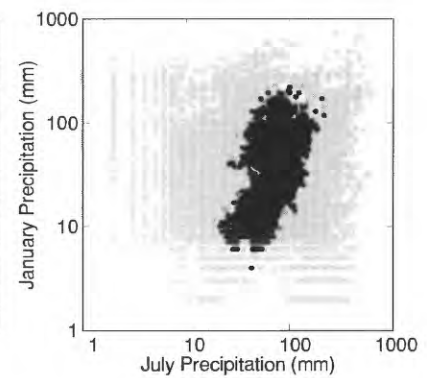
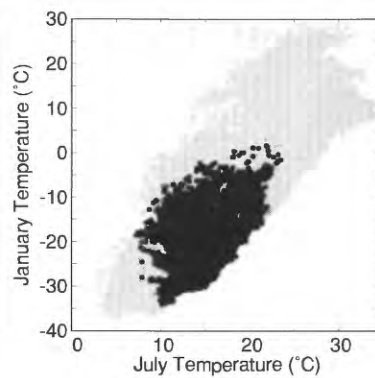
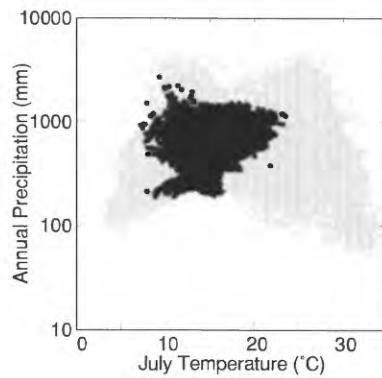
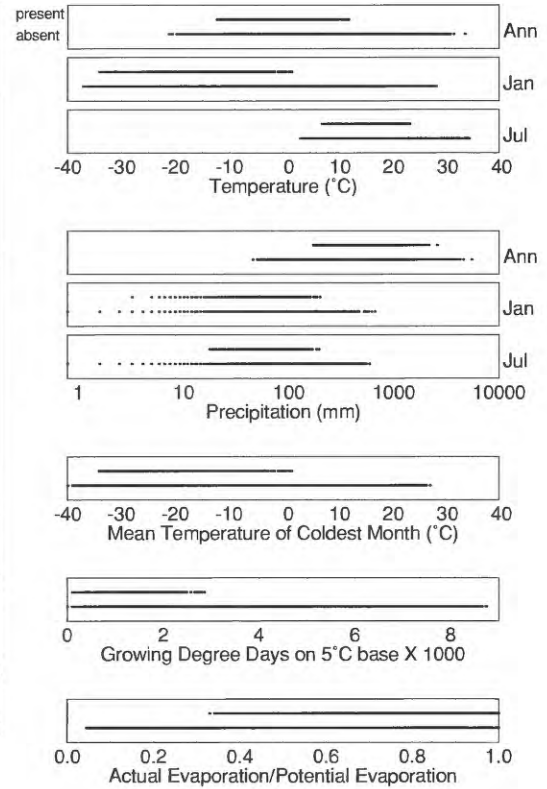
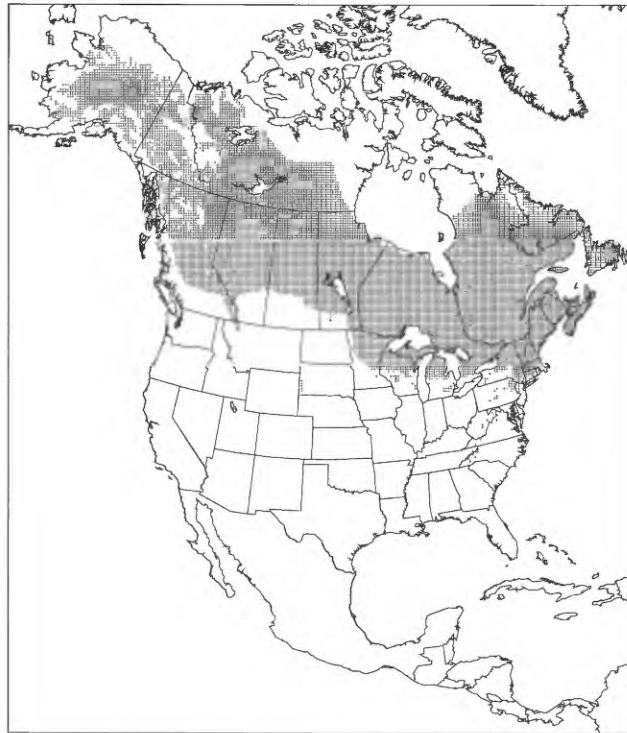
LARIX/PSEUDOTSUGA



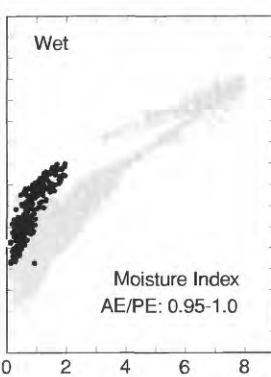
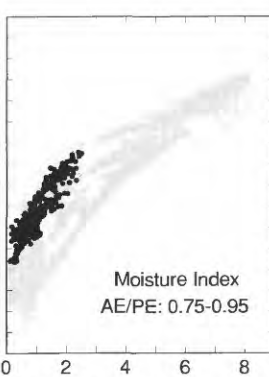
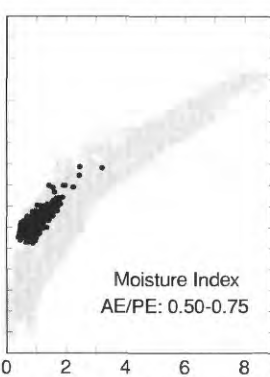
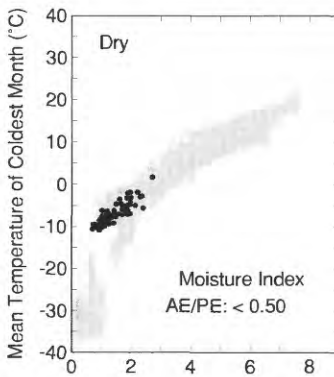
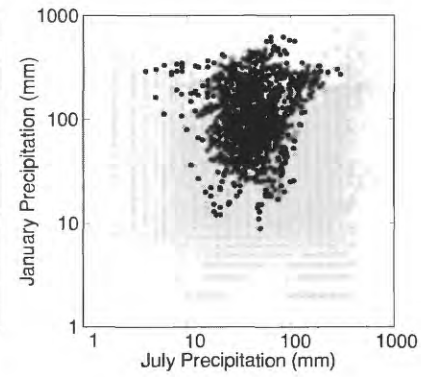
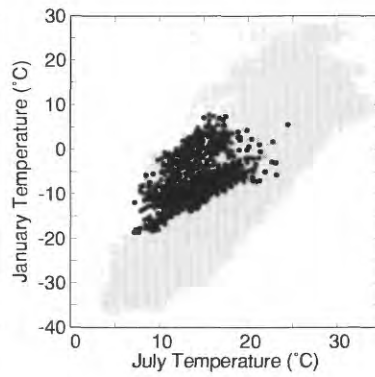
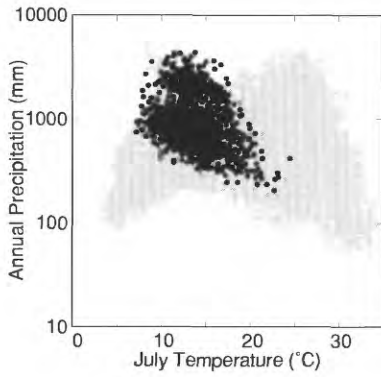
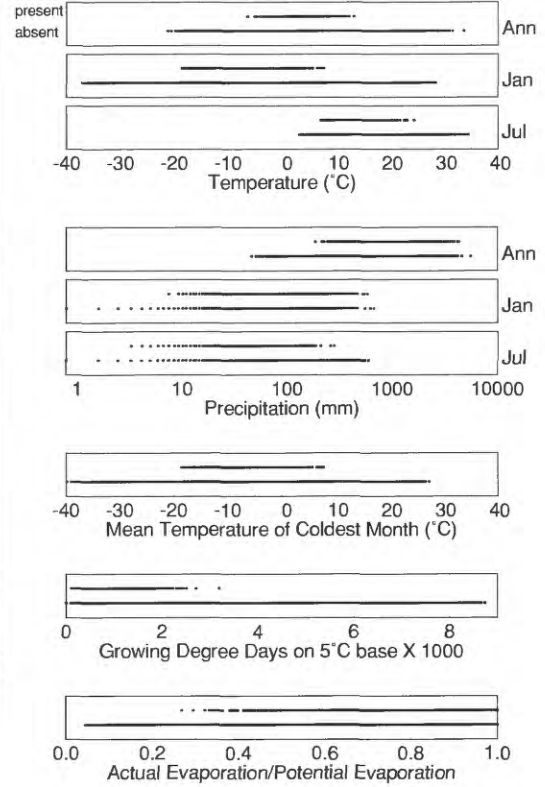
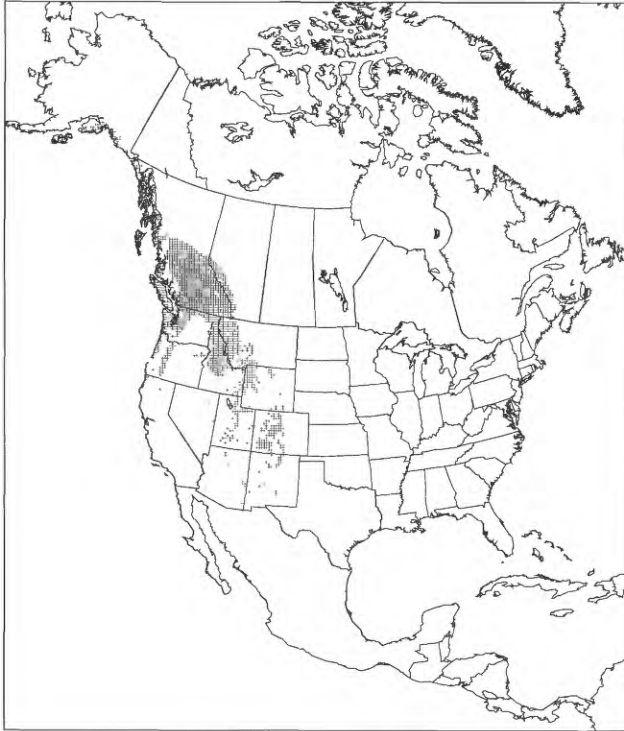
PICEA



PICEA NORTH/EAST

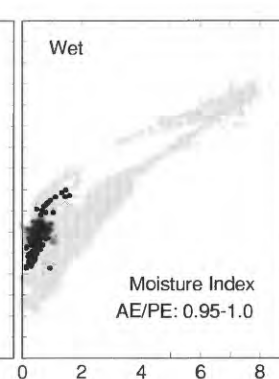
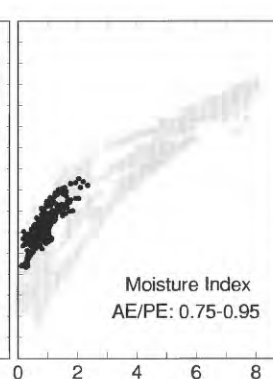
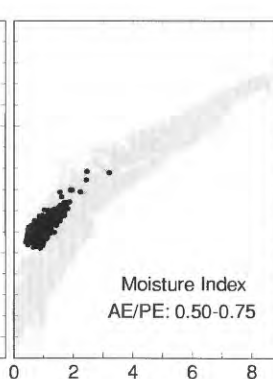
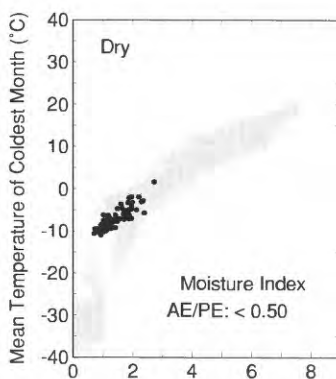
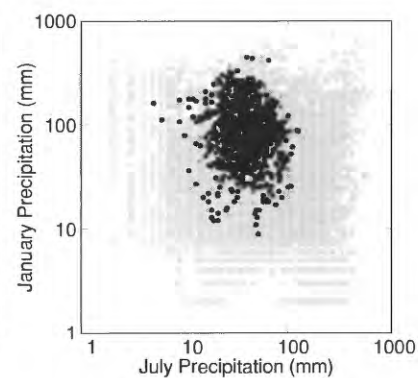
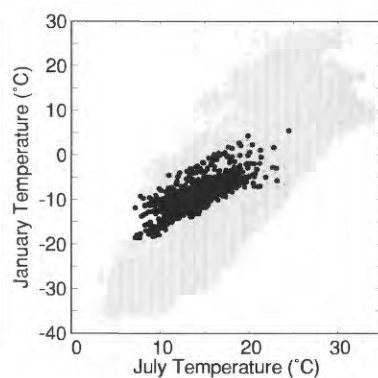
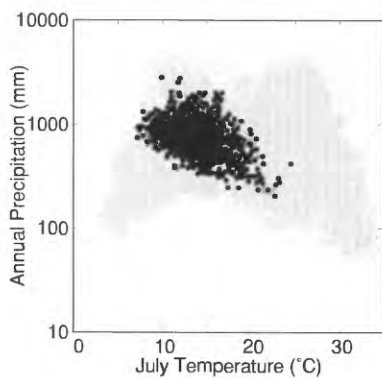
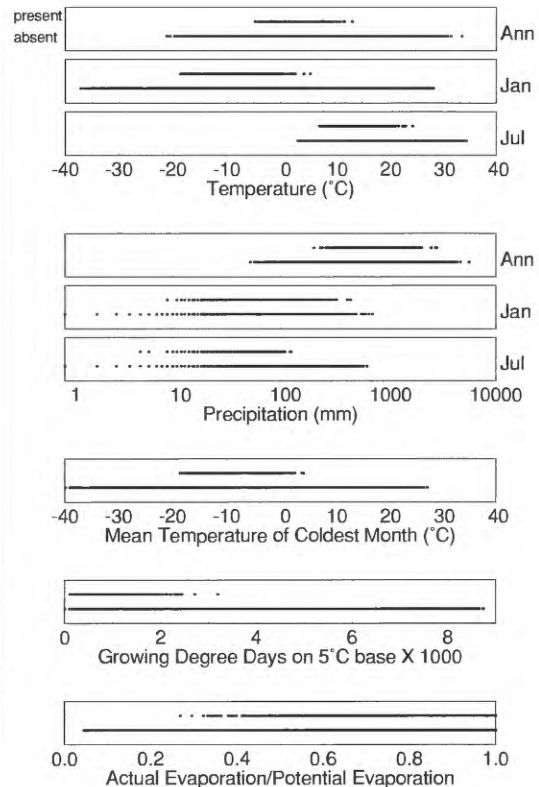
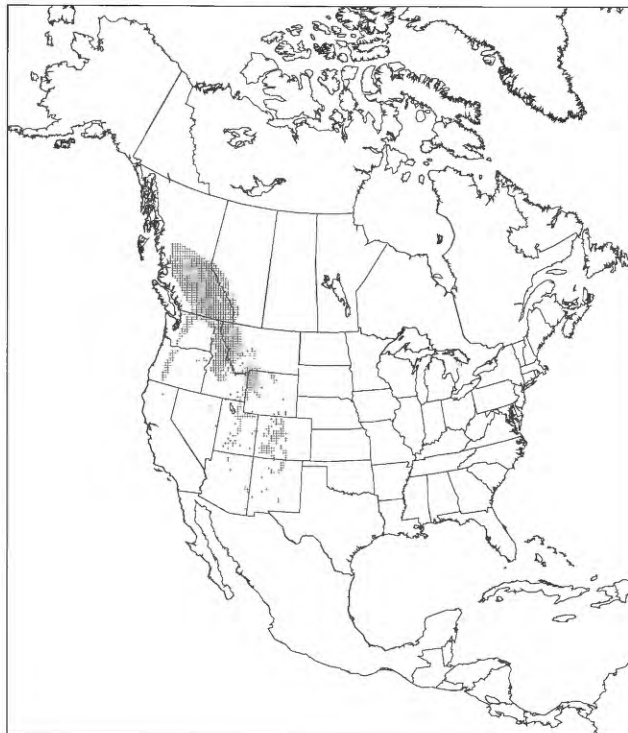


PICEA WEST

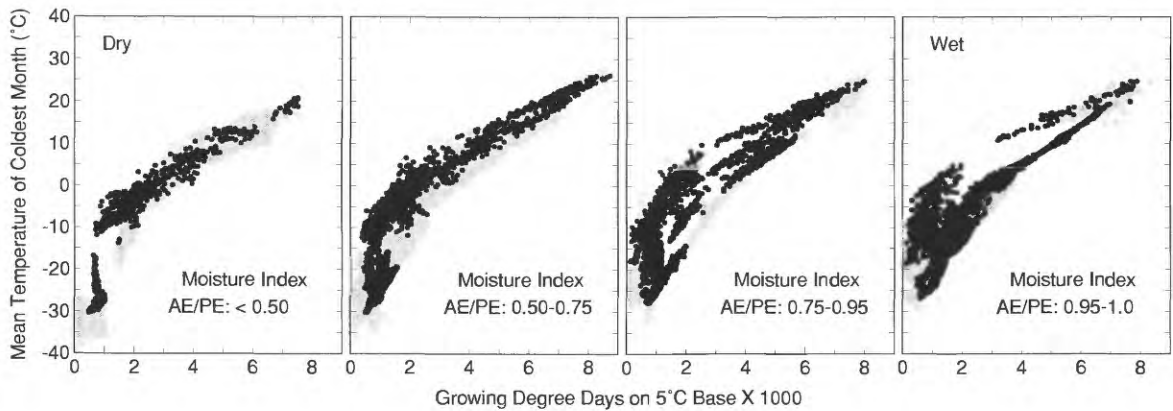
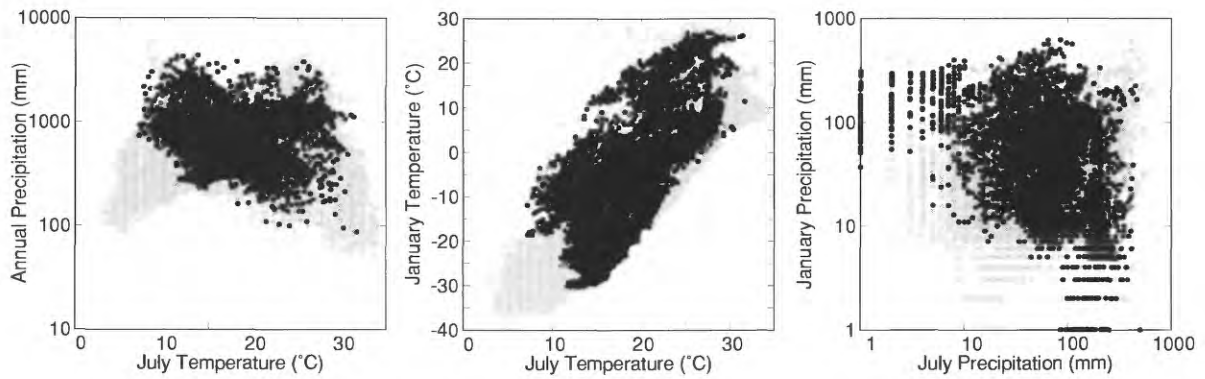
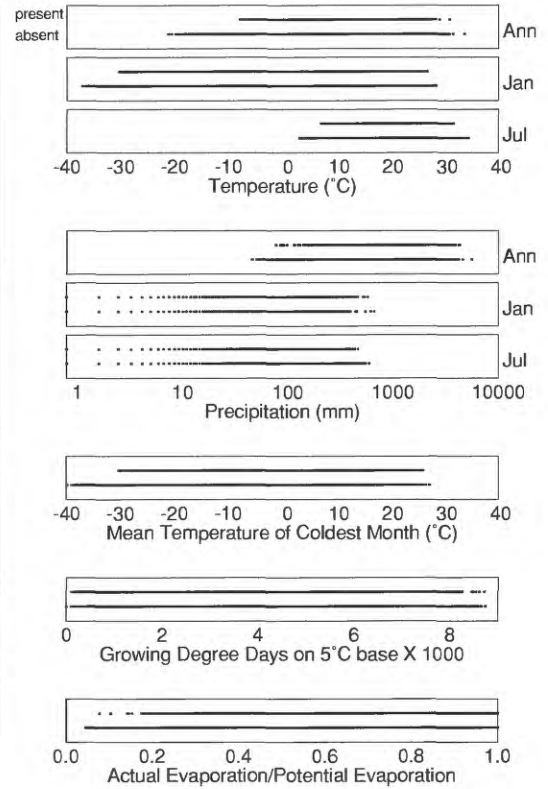
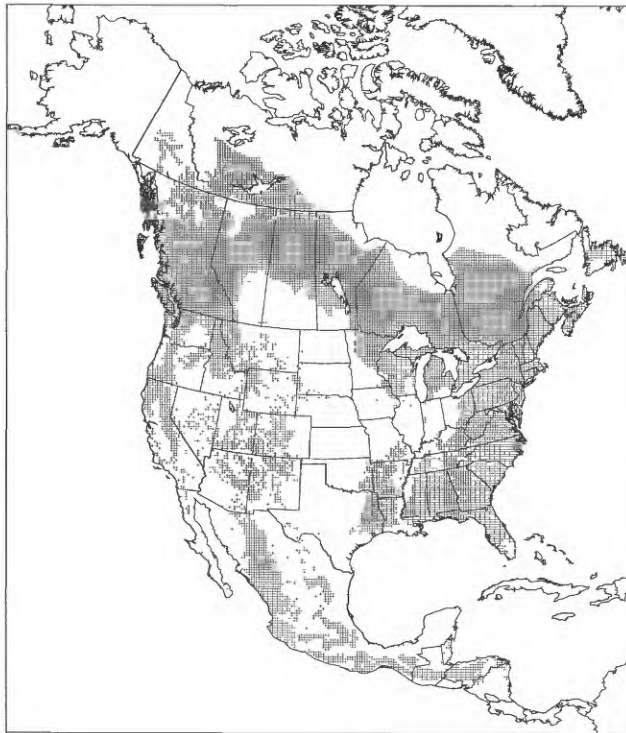


Growing Degree Days on 5°C Base X 1000

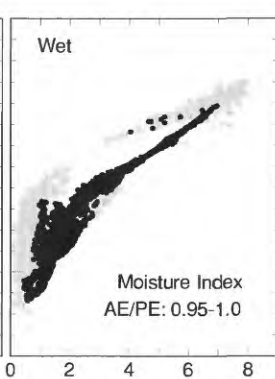
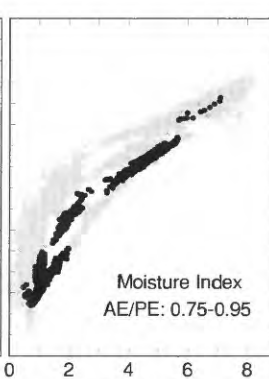
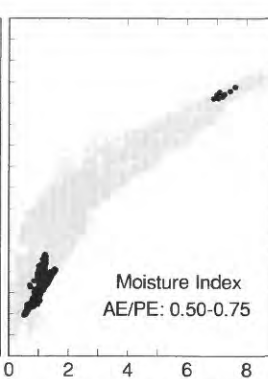
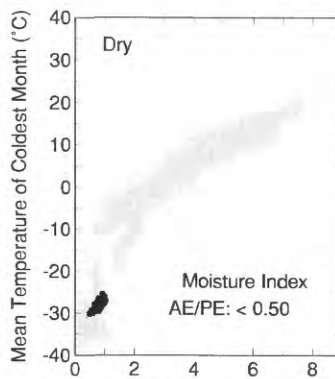
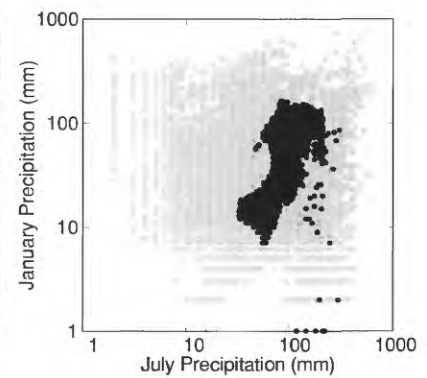
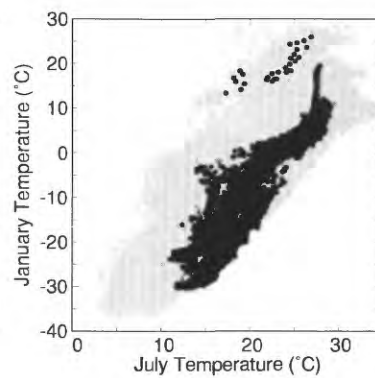
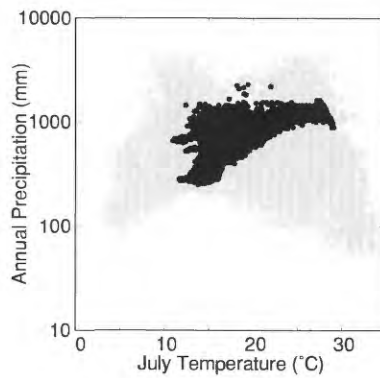
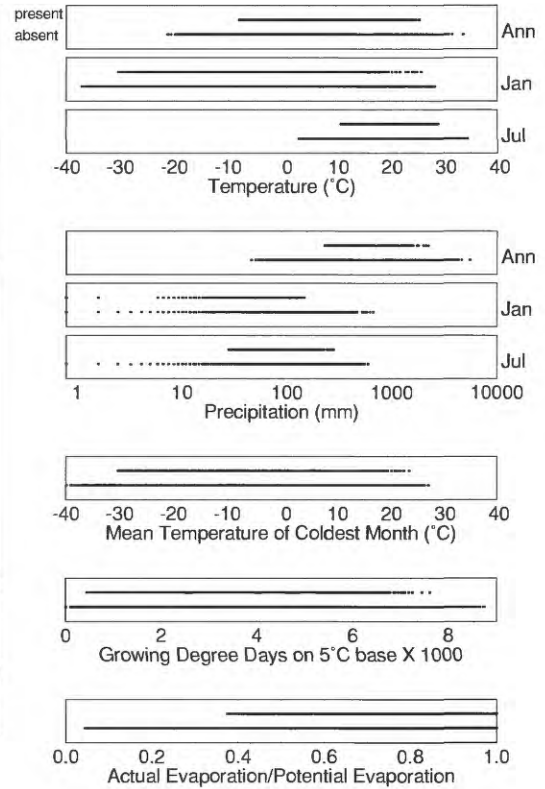
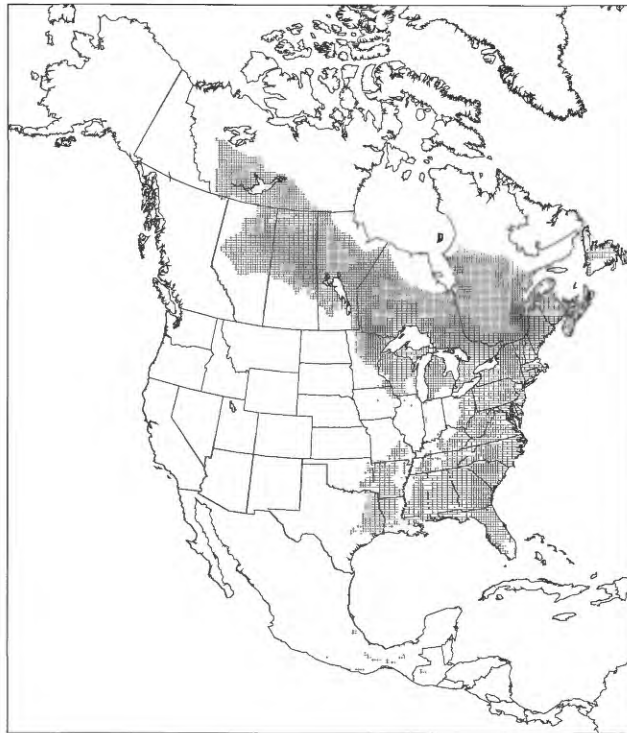
PICEA WEST INTERIOR



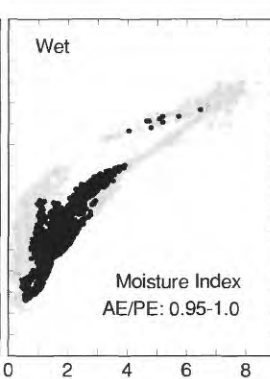
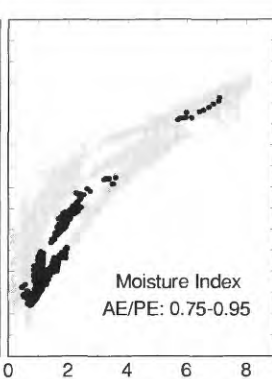
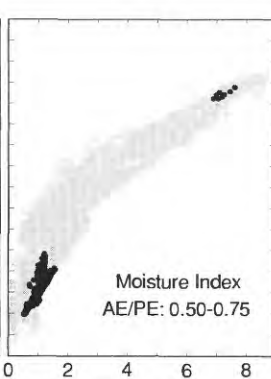
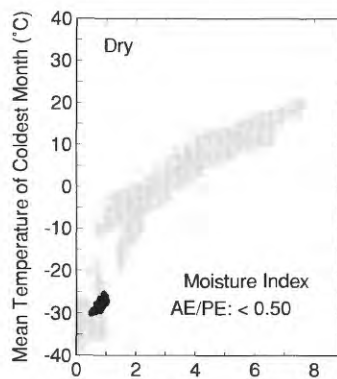
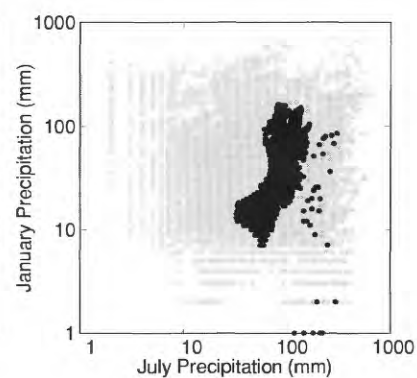
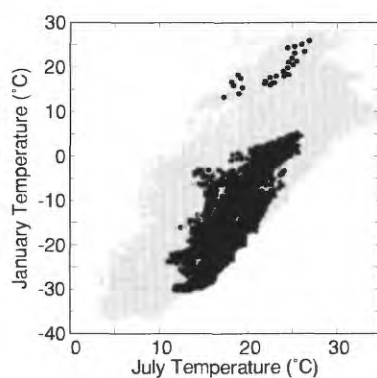
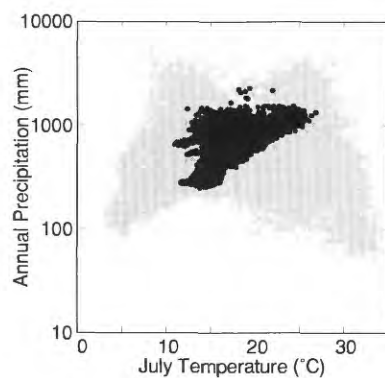
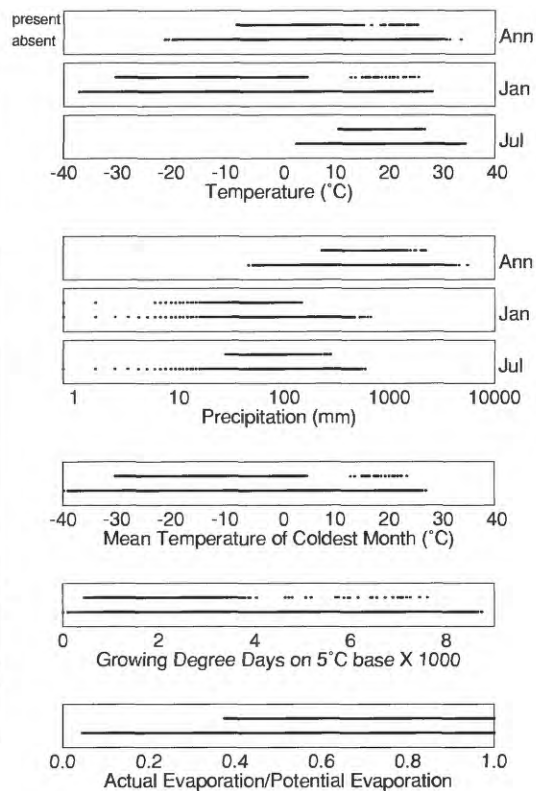
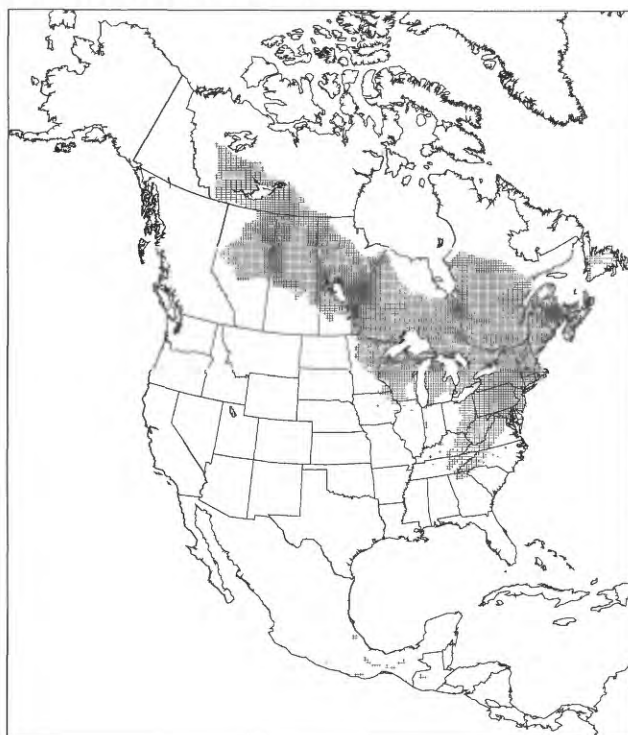
PINUS



PINUS EAST

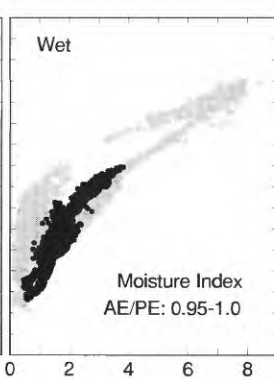
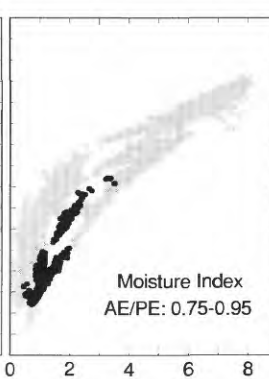
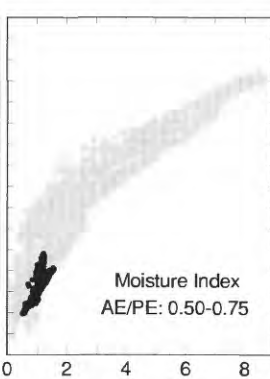
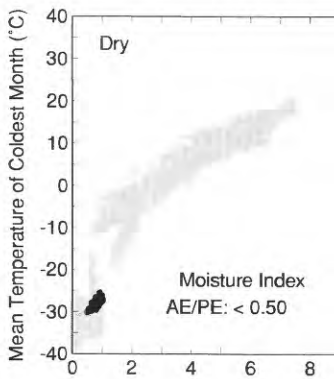
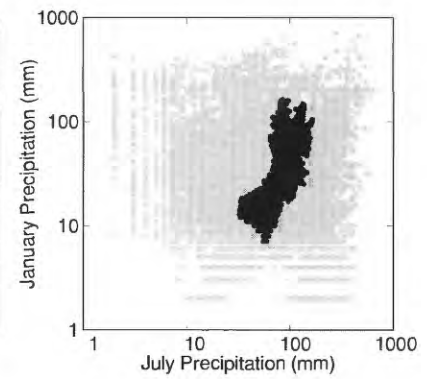
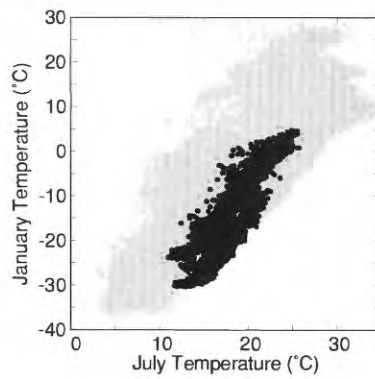
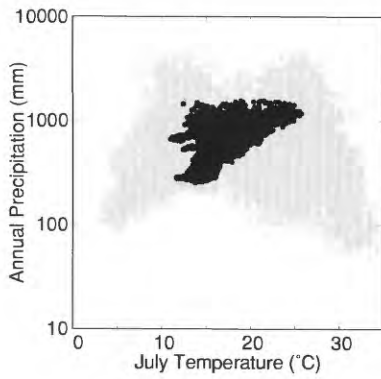
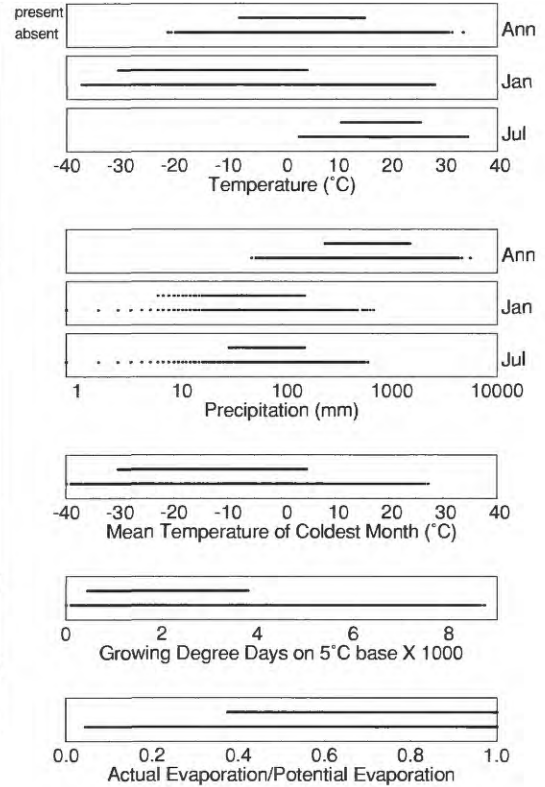
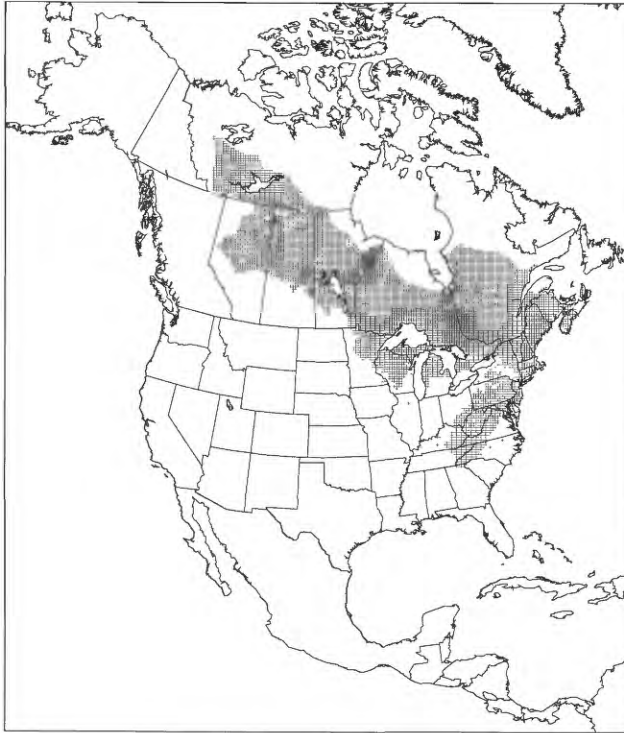


PINUS NORTHEAST

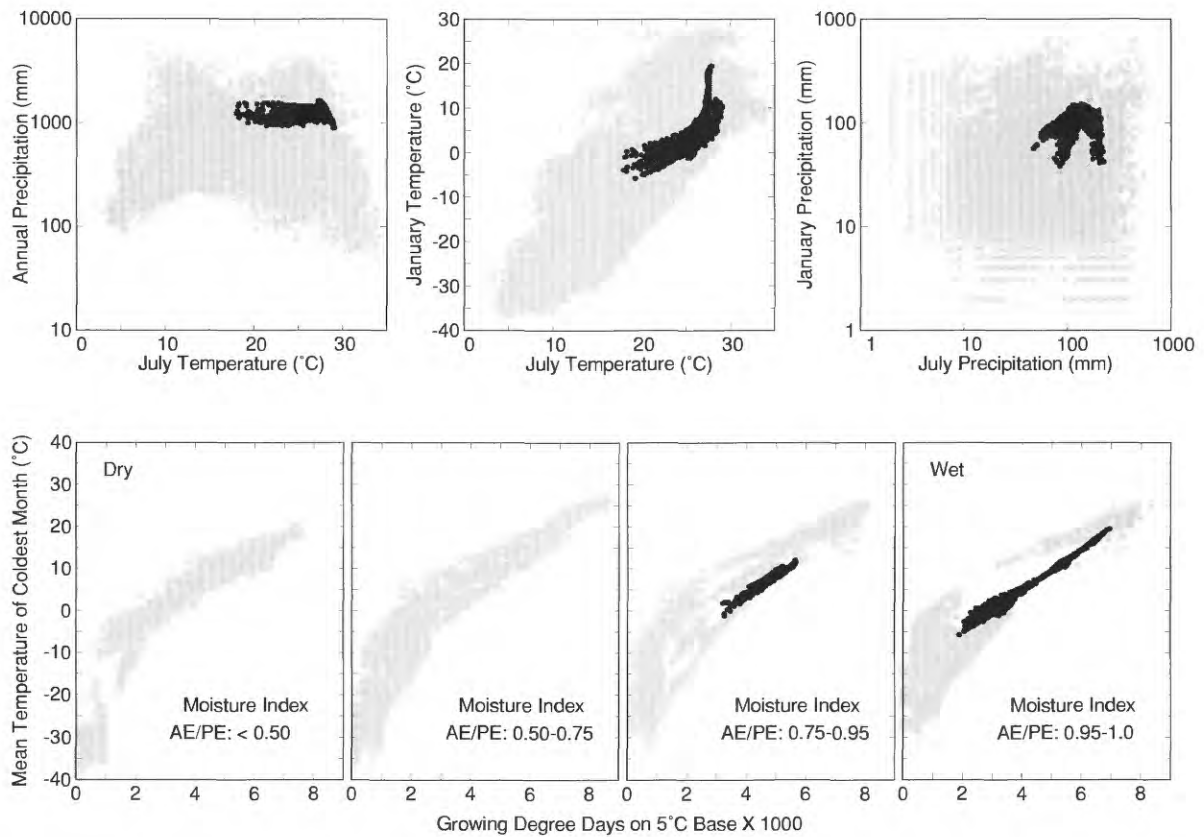
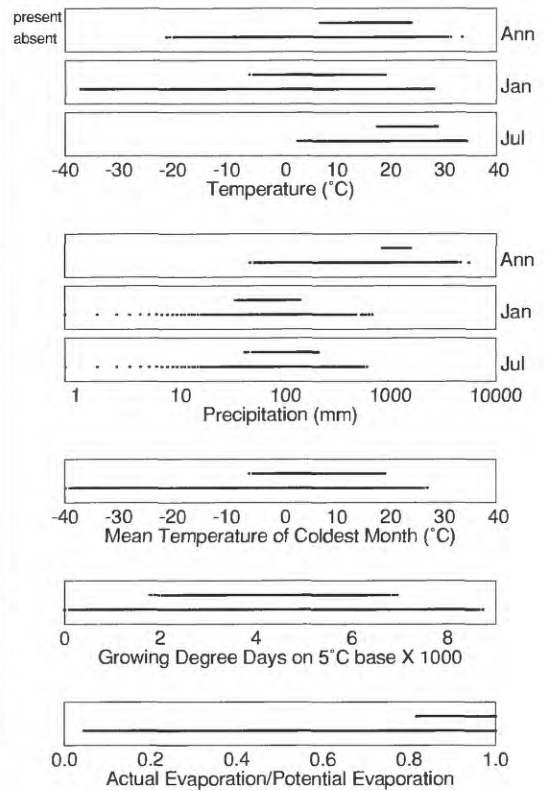


Growing Degree Days on 5°C Base X 1000

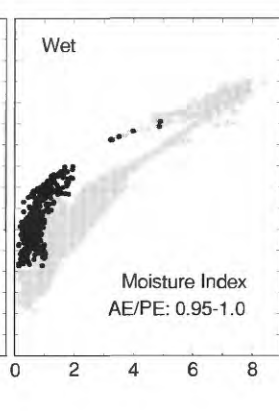
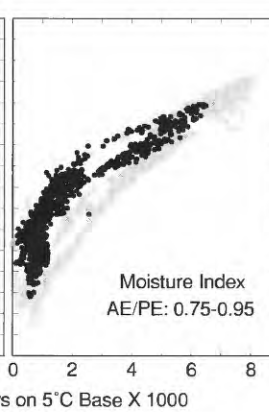
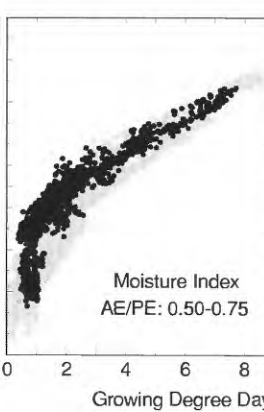
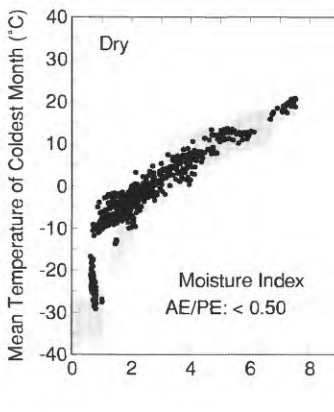
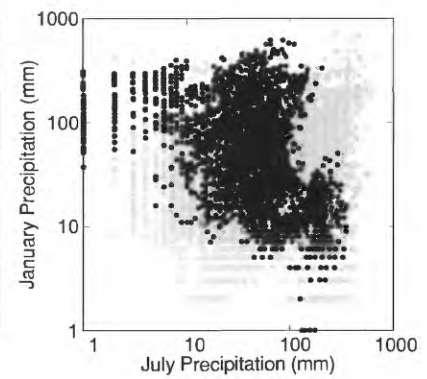
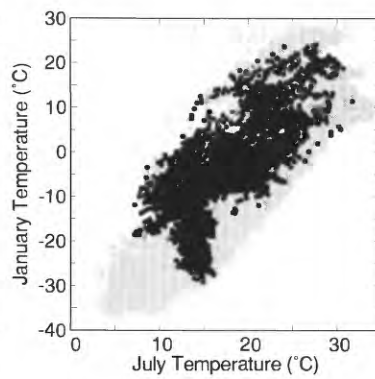
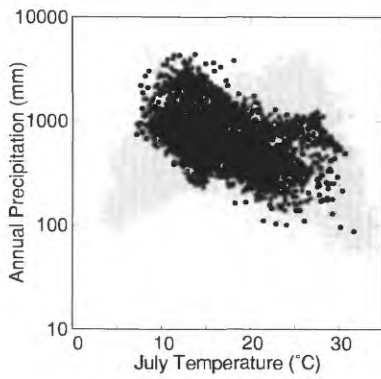
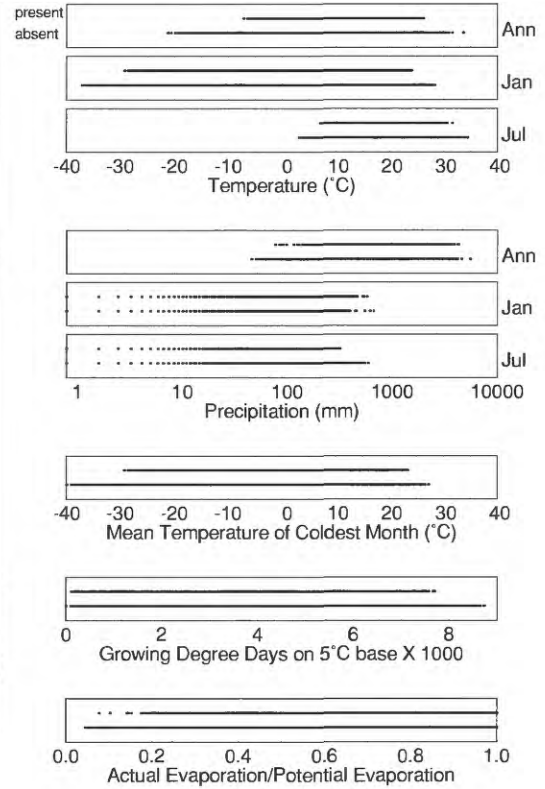
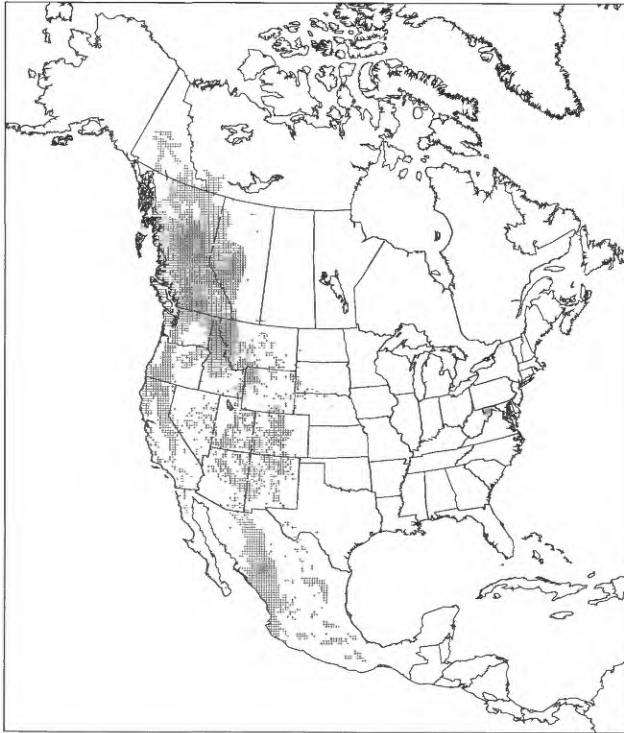
PINUS NORTHEAST YELLOW



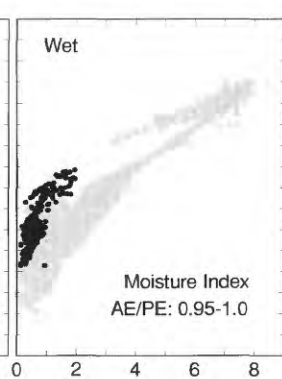
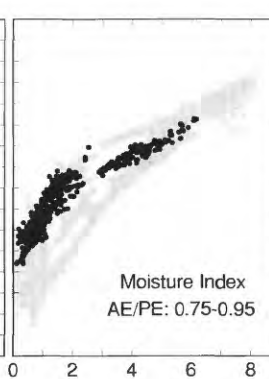
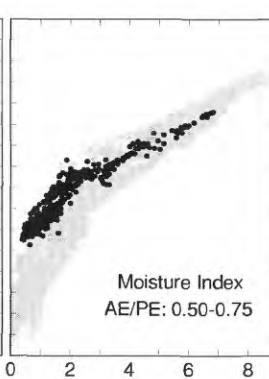
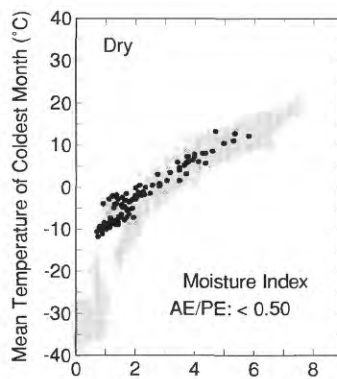
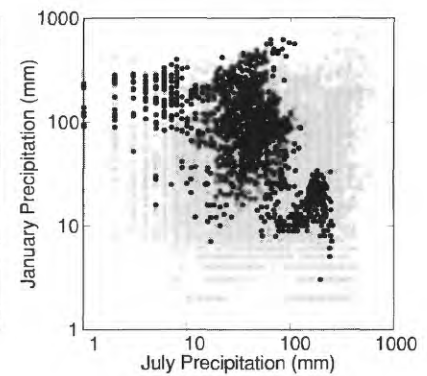
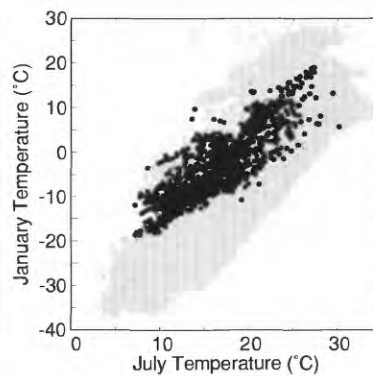
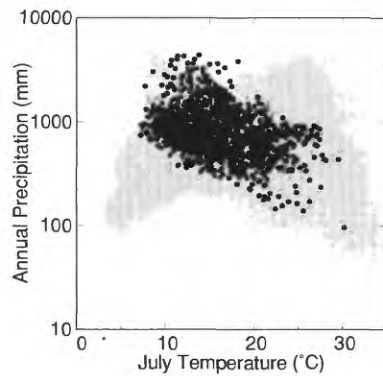
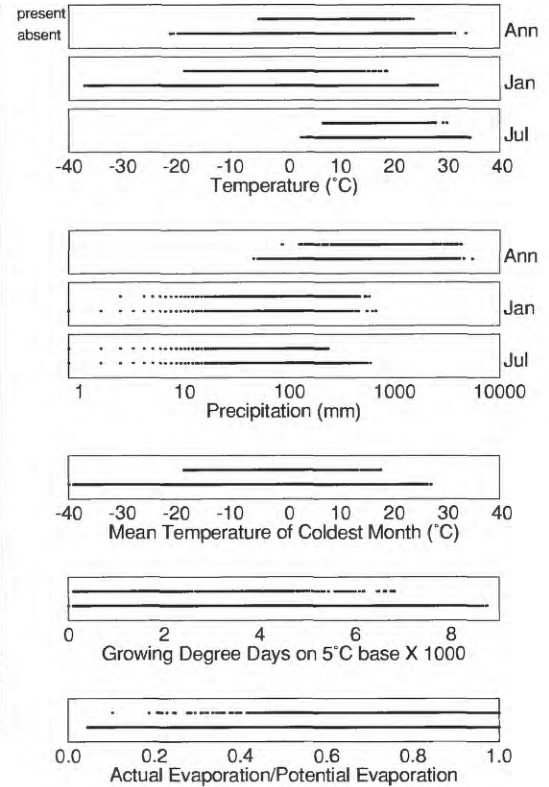
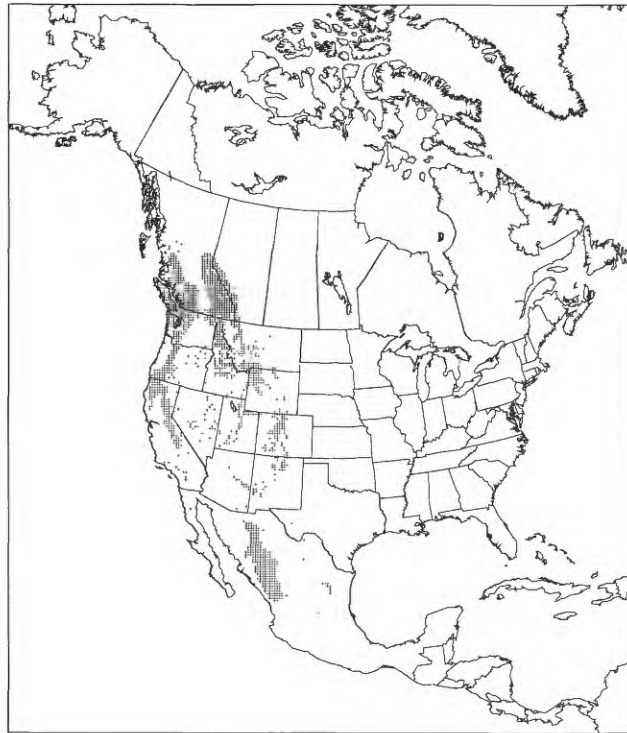
PINUS SOUTHEAST



PINUS WEST

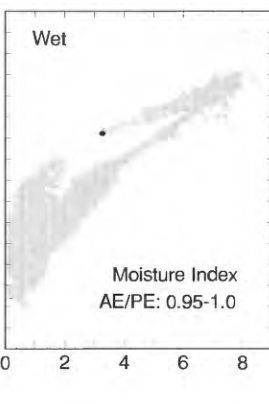
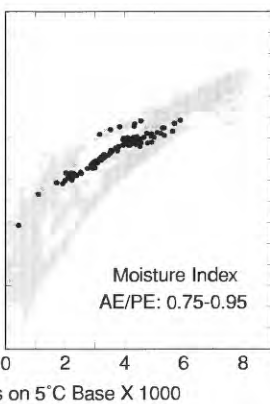
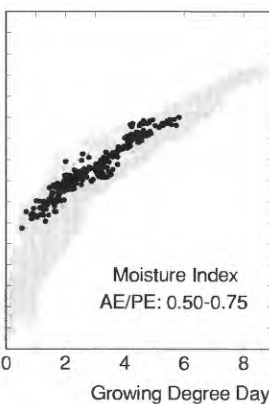
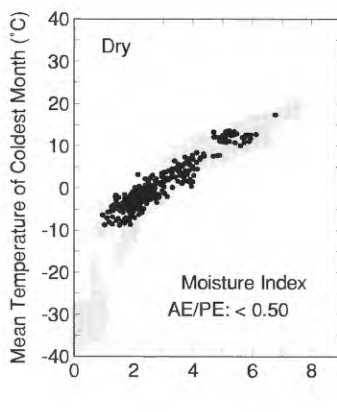
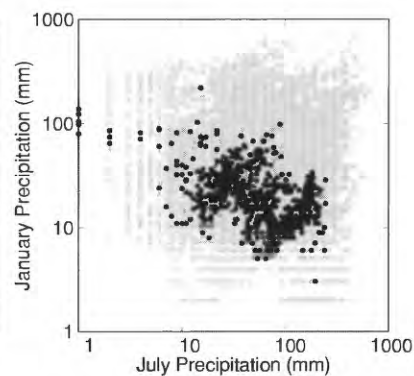
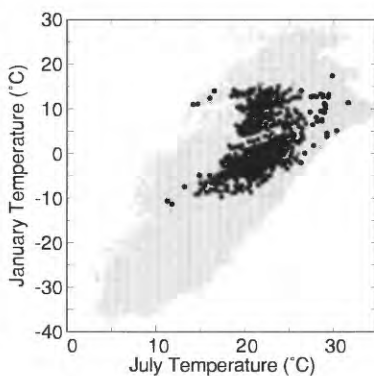
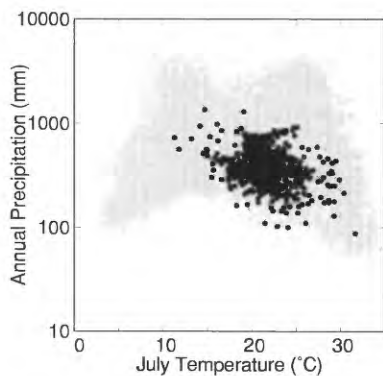
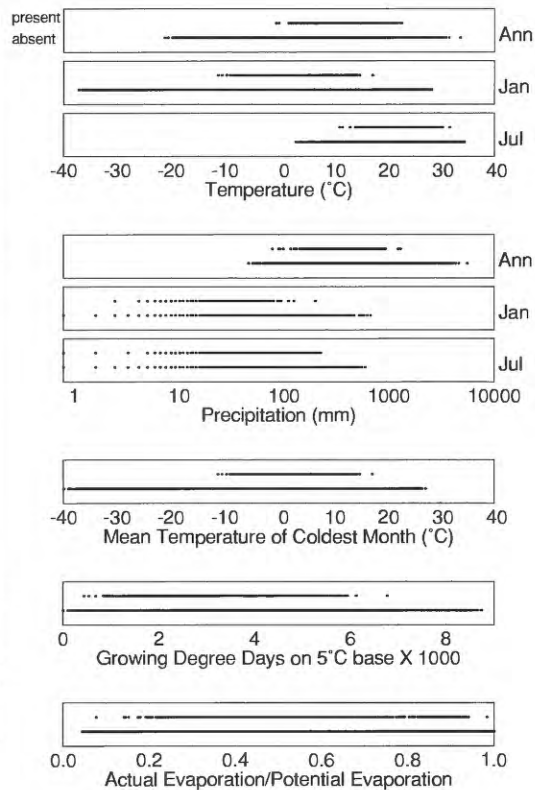


PINUS WEST WHITE

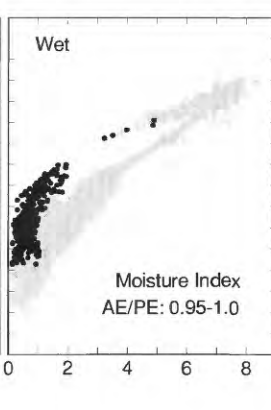
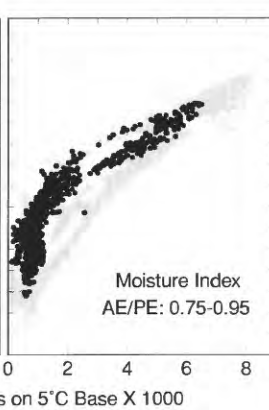
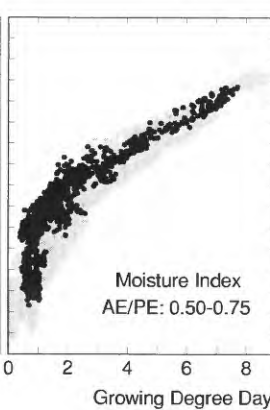
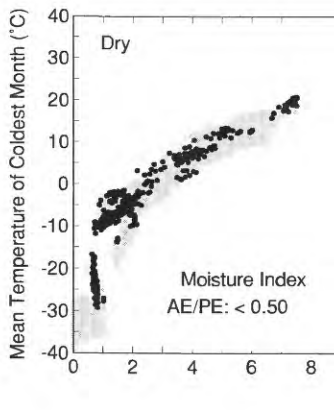
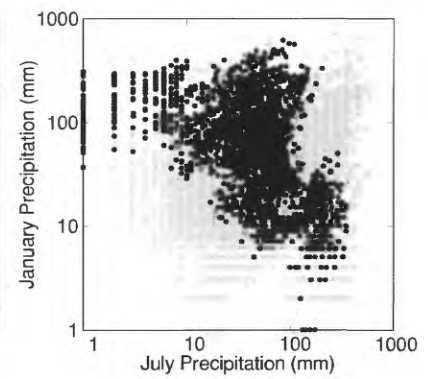
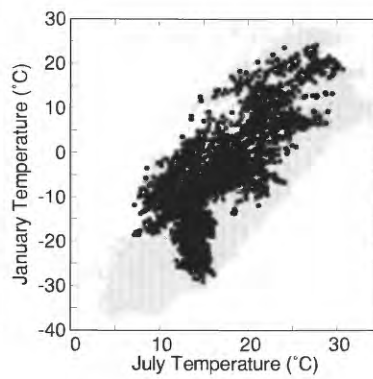
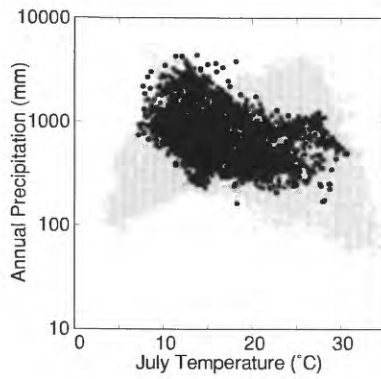
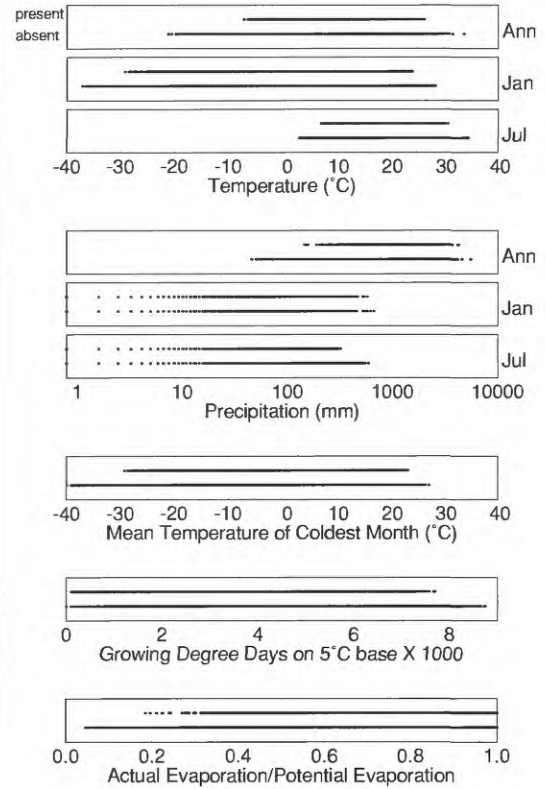
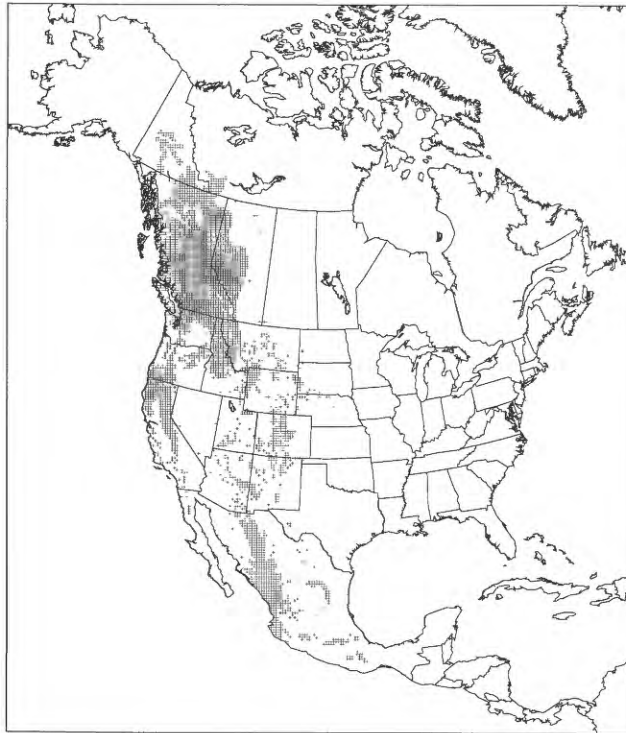


Growing Degree Days on 5°C Base X 1000

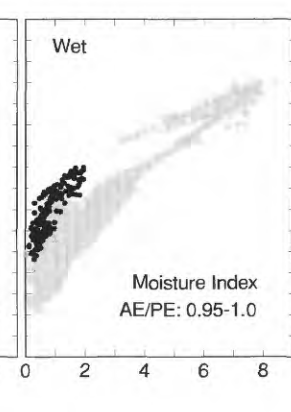
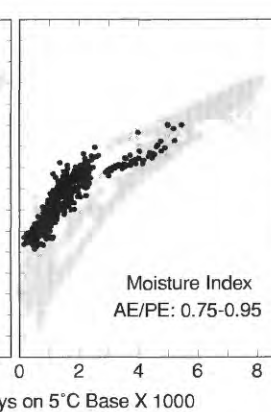
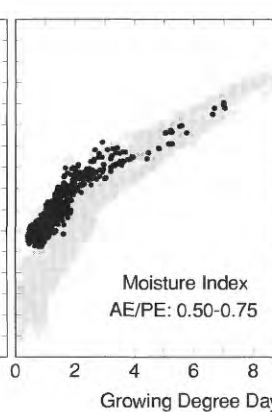
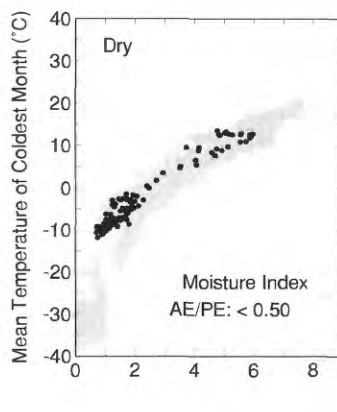
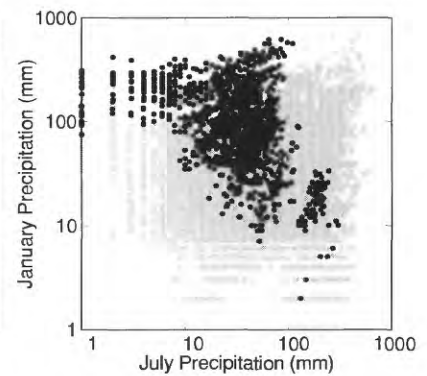
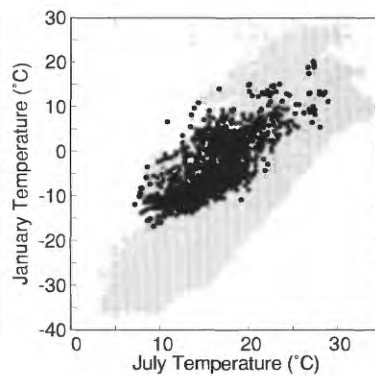
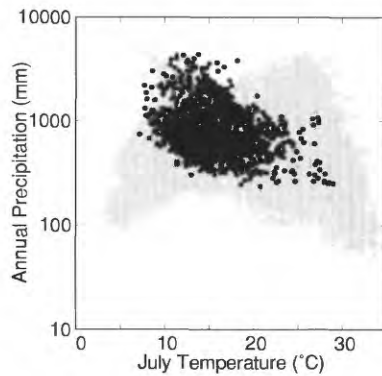
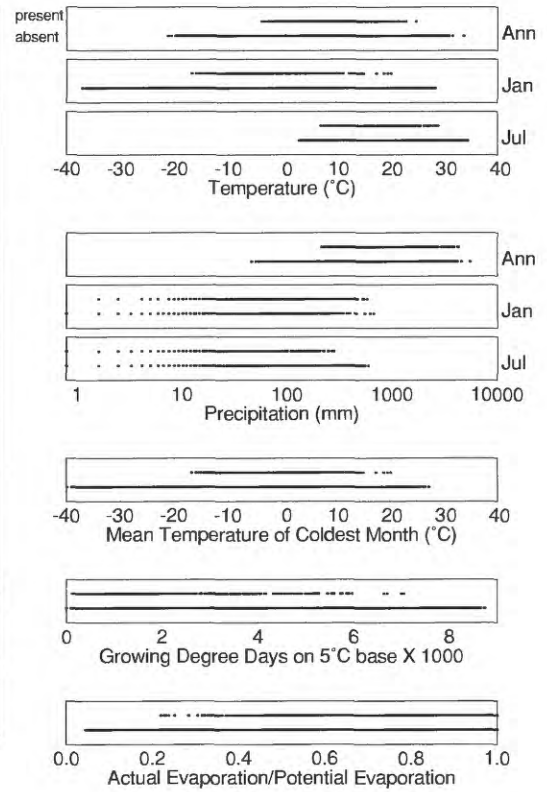
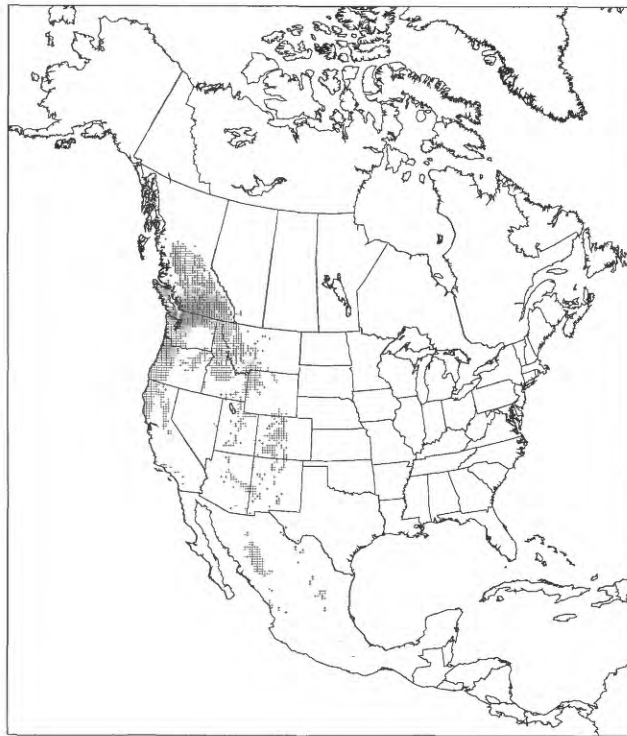
PINUS WEST PINYONS



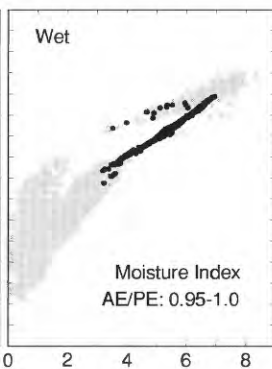
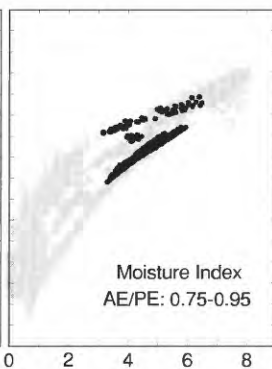
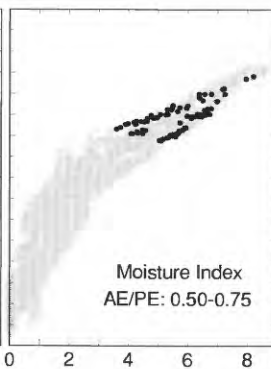
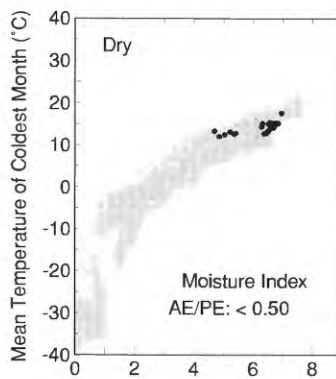
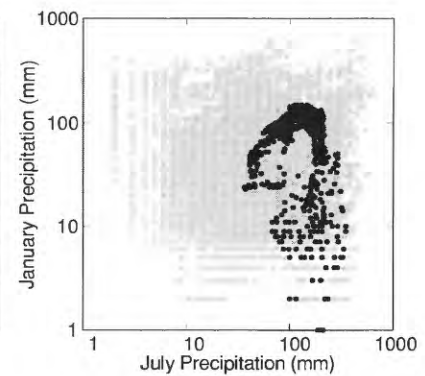
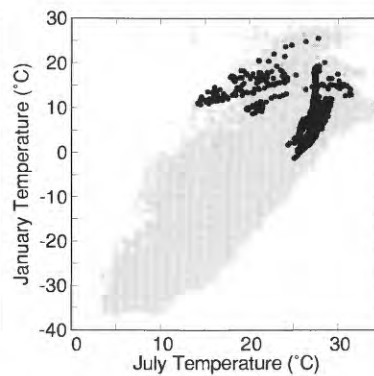
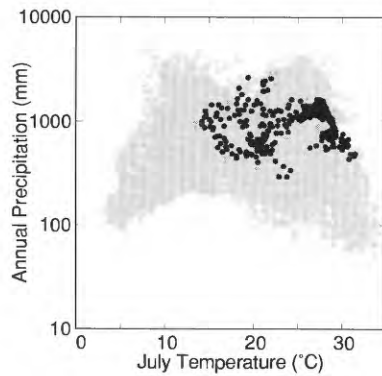
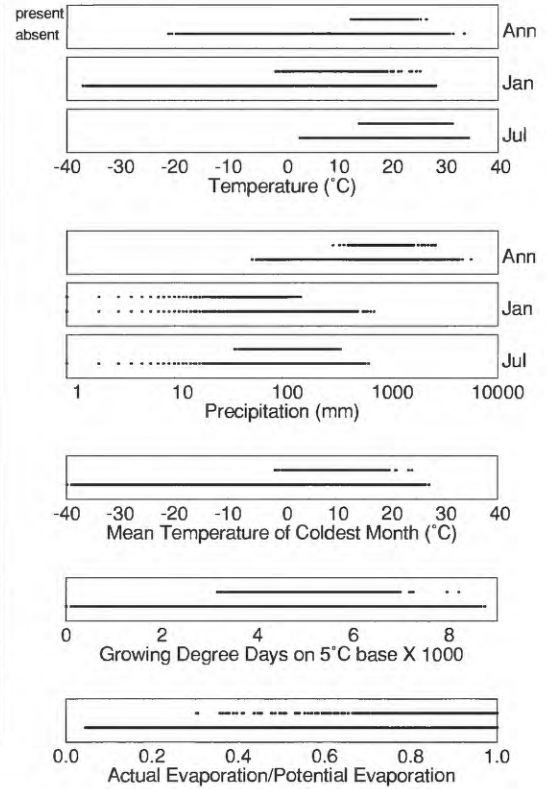
PINUS WEST YELLOW



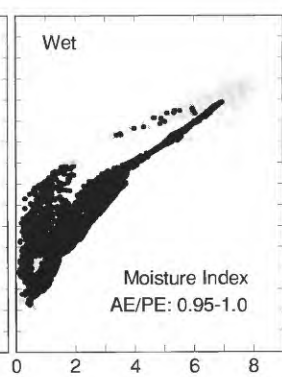
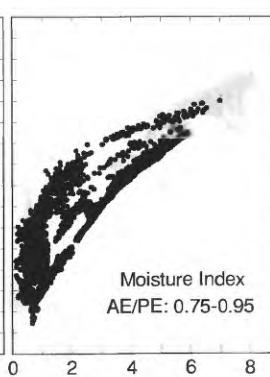
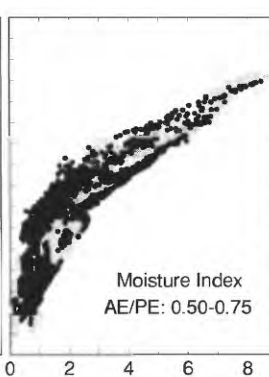
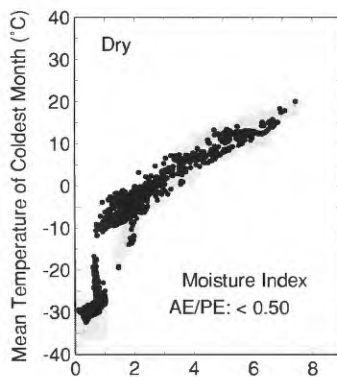
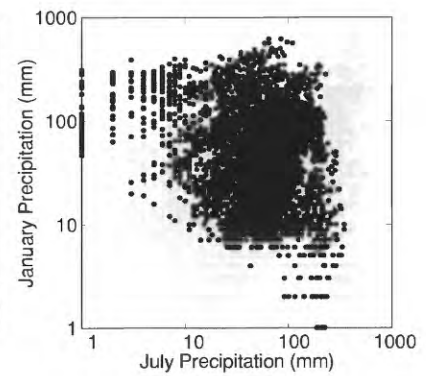
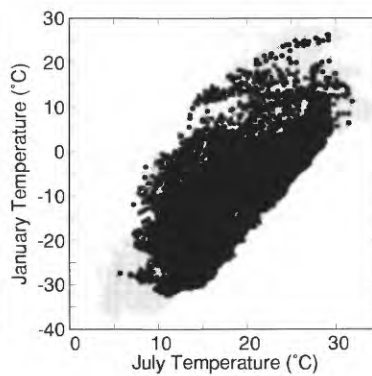
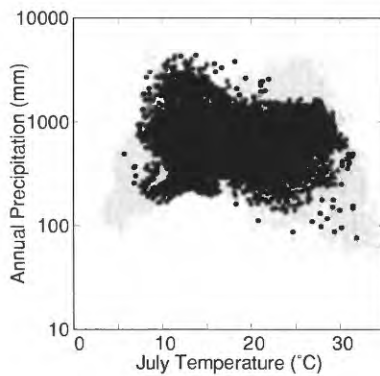
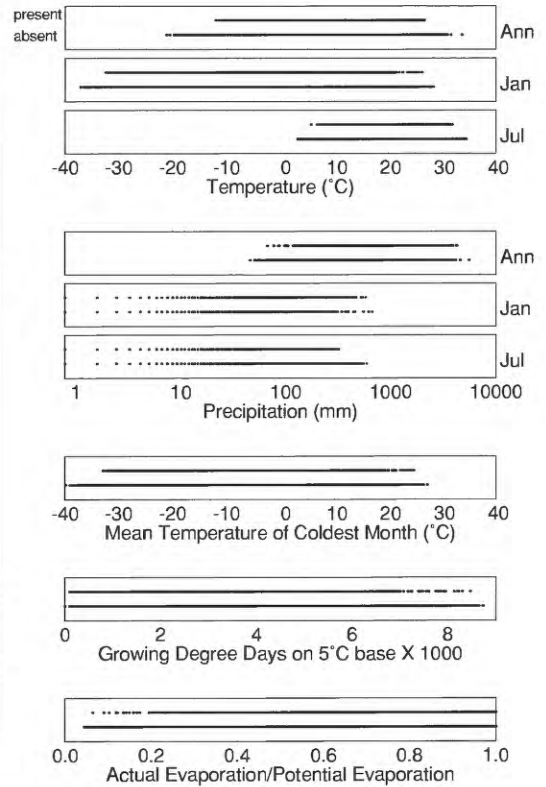
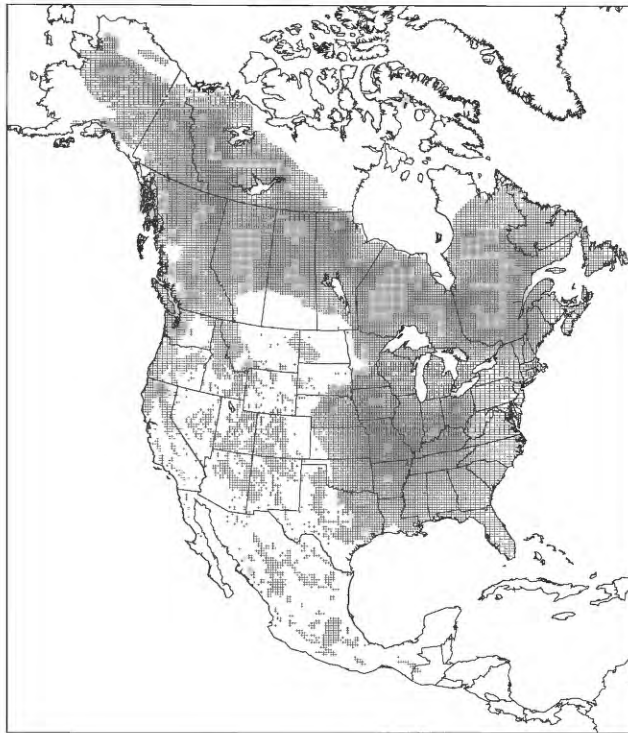
PSEUDOTSUGA



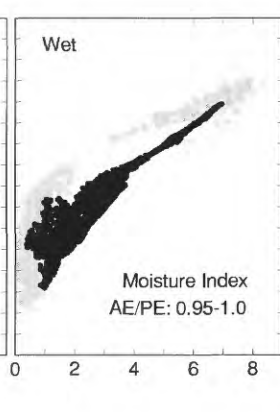
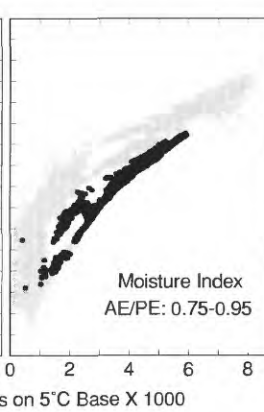
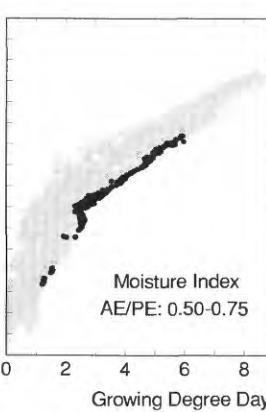
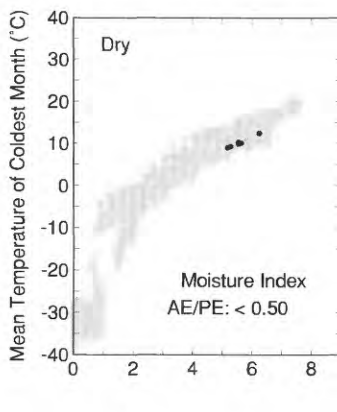
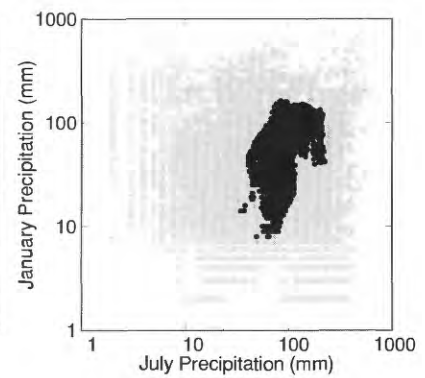
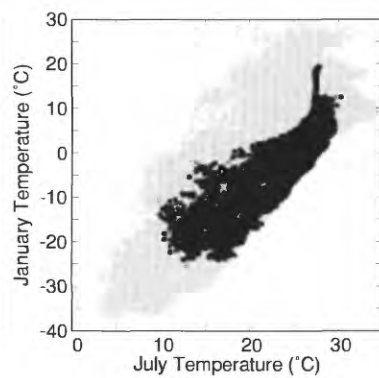
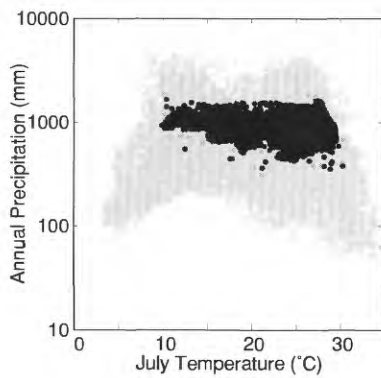
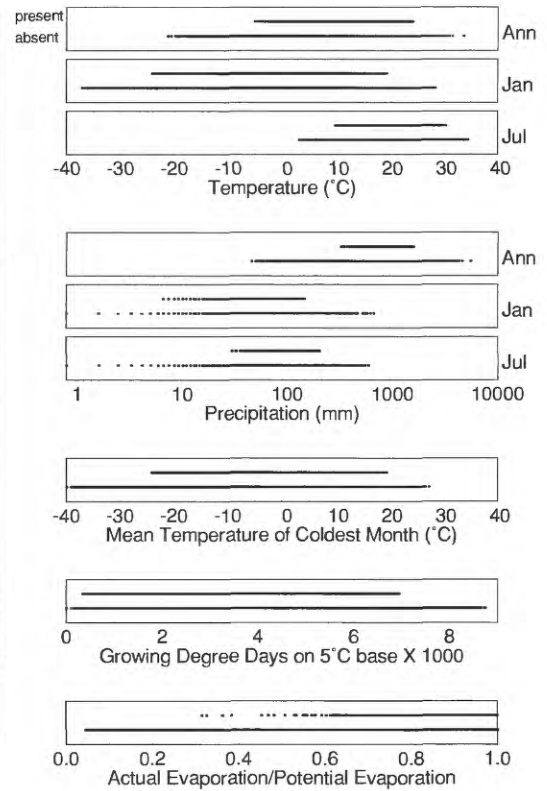
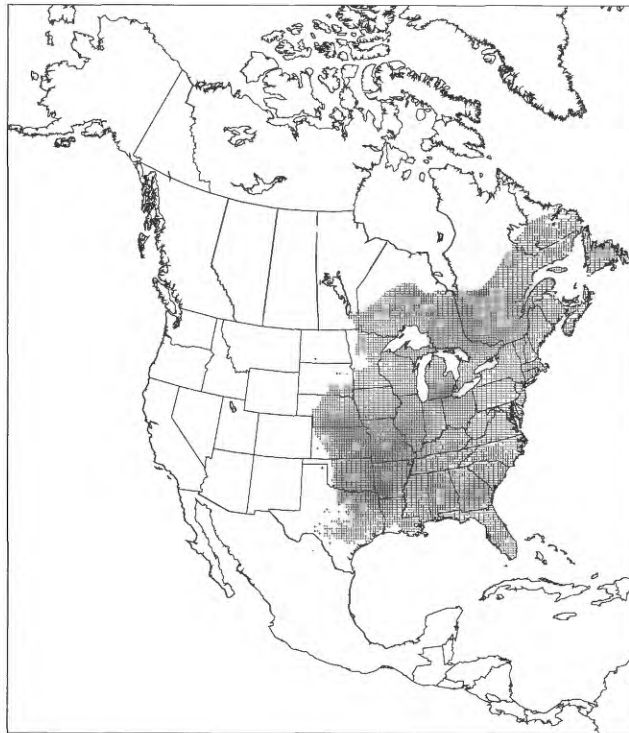
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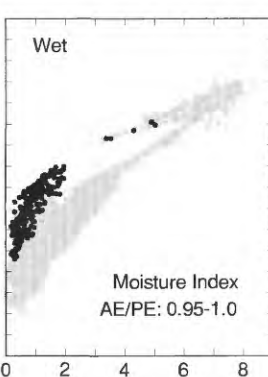
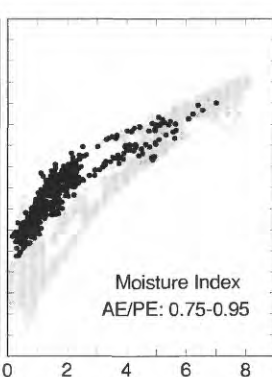
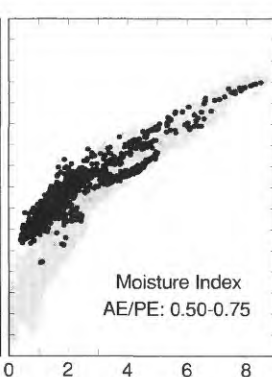
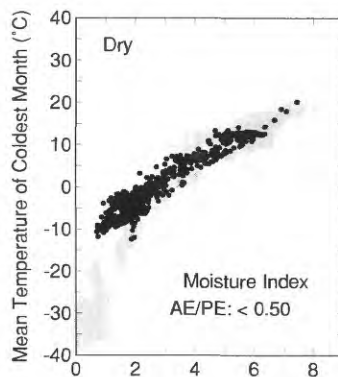
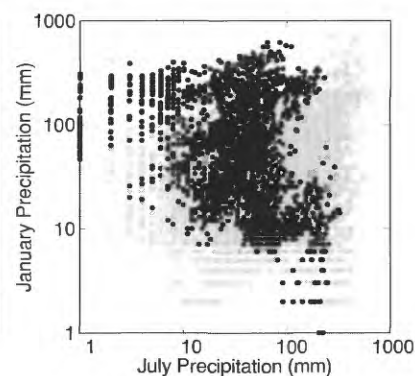
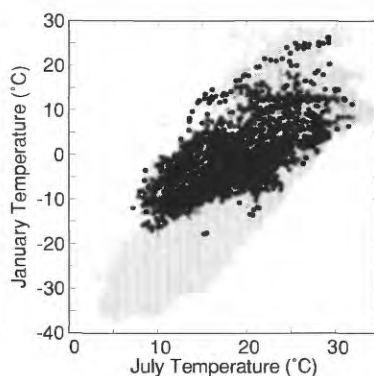
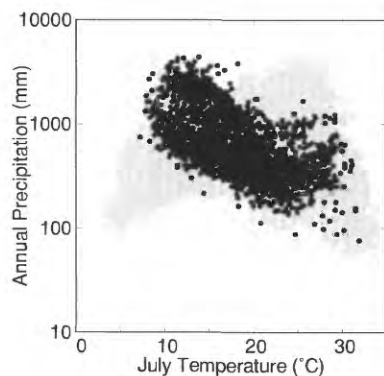
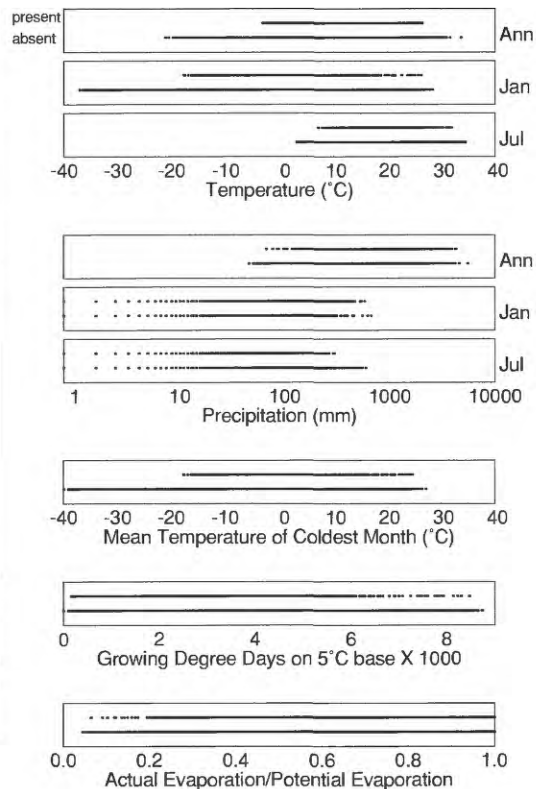
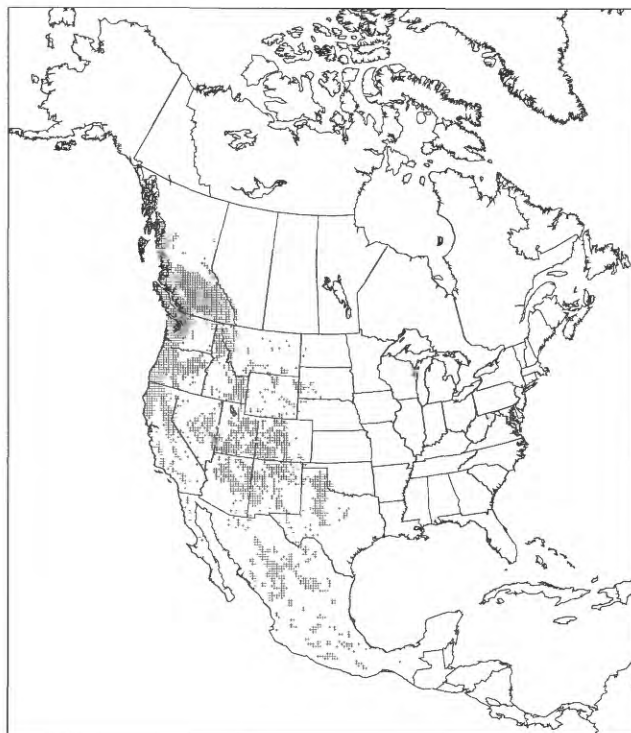
TCT (*Taxaceae-Cupressaceae-Taxodiaceae*)



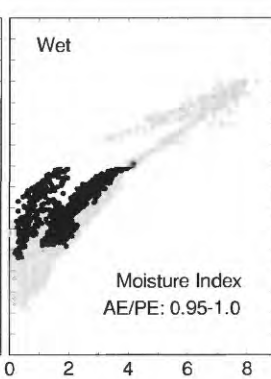
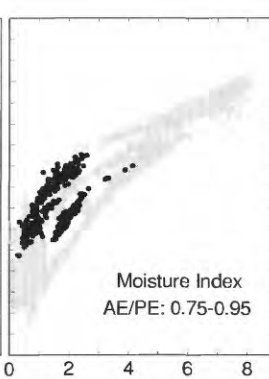
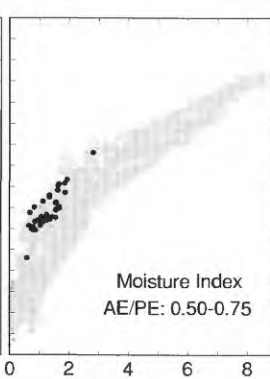
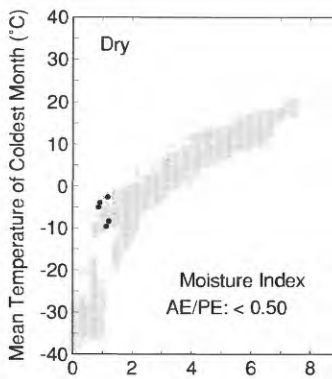
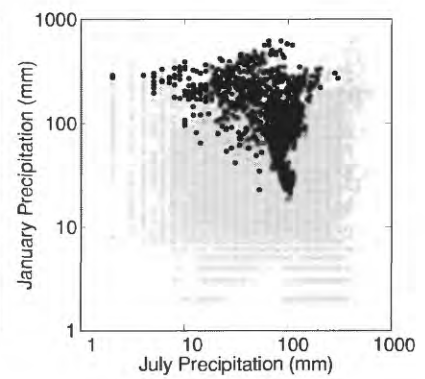
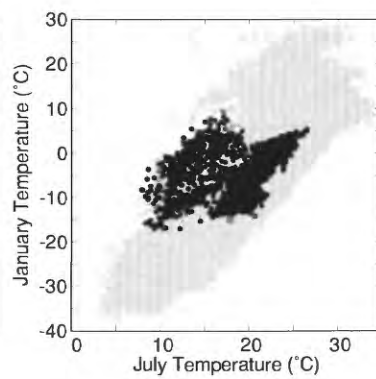
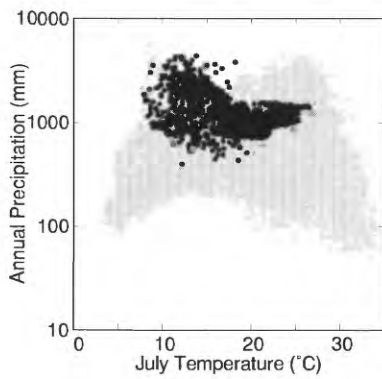
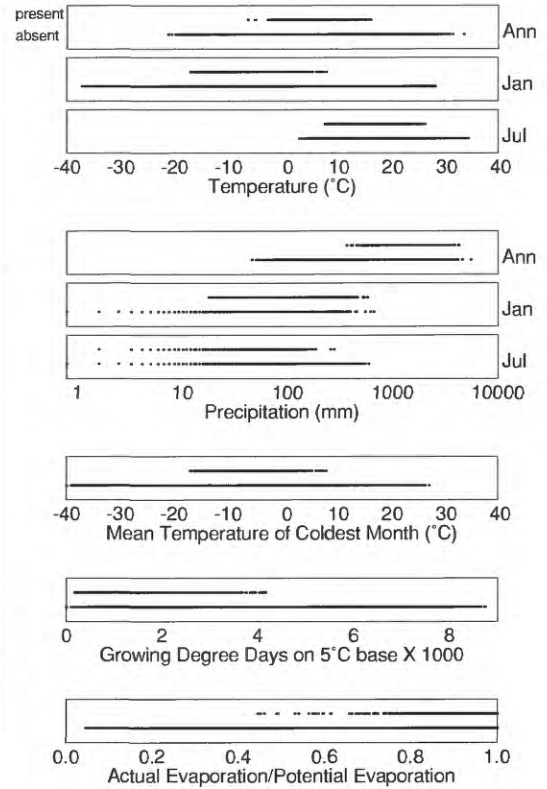
TCT EAST



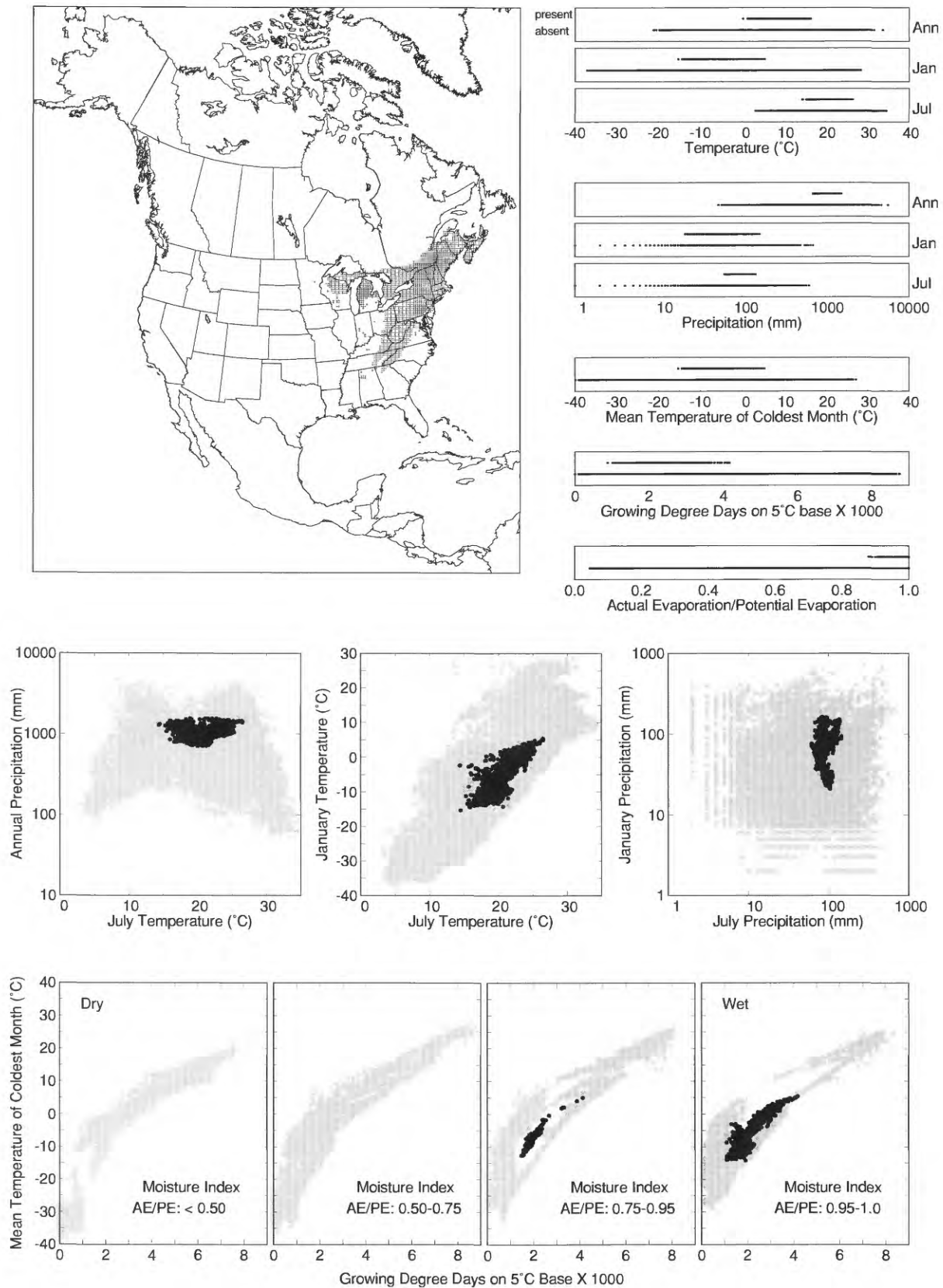
TCT WEST



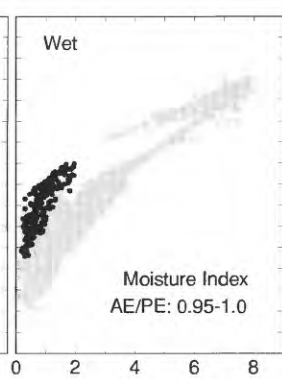
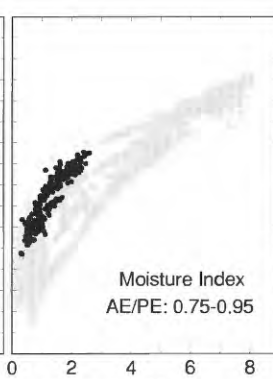
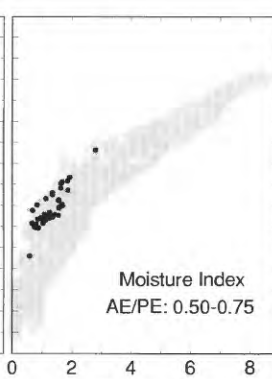
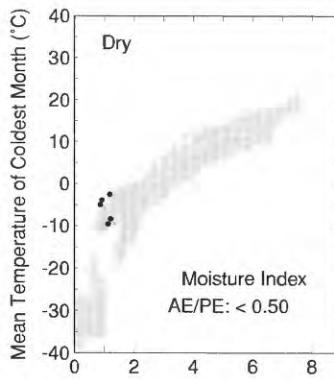
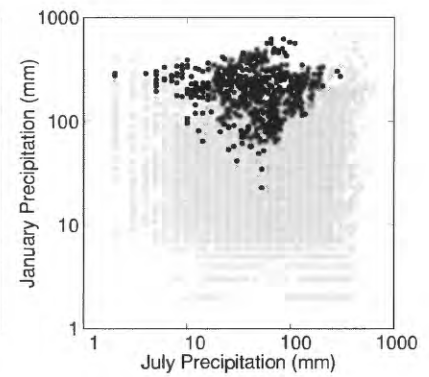
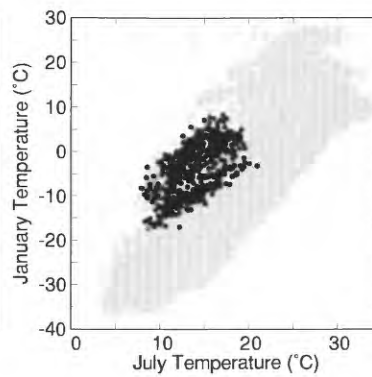
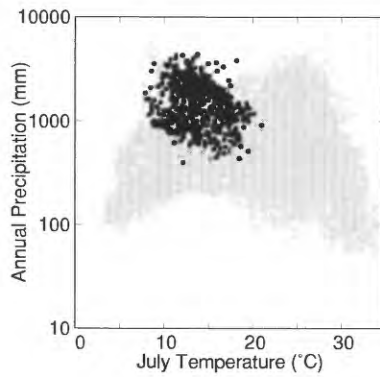
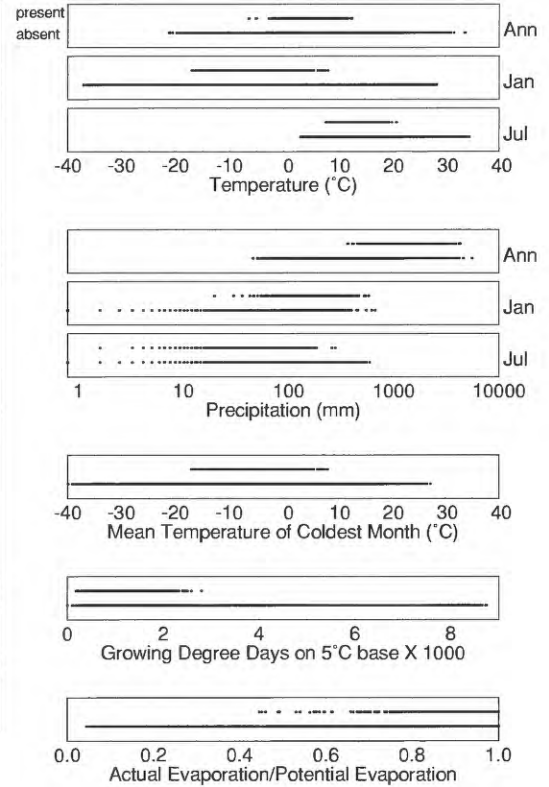
TSUGA



TSUGA EAST



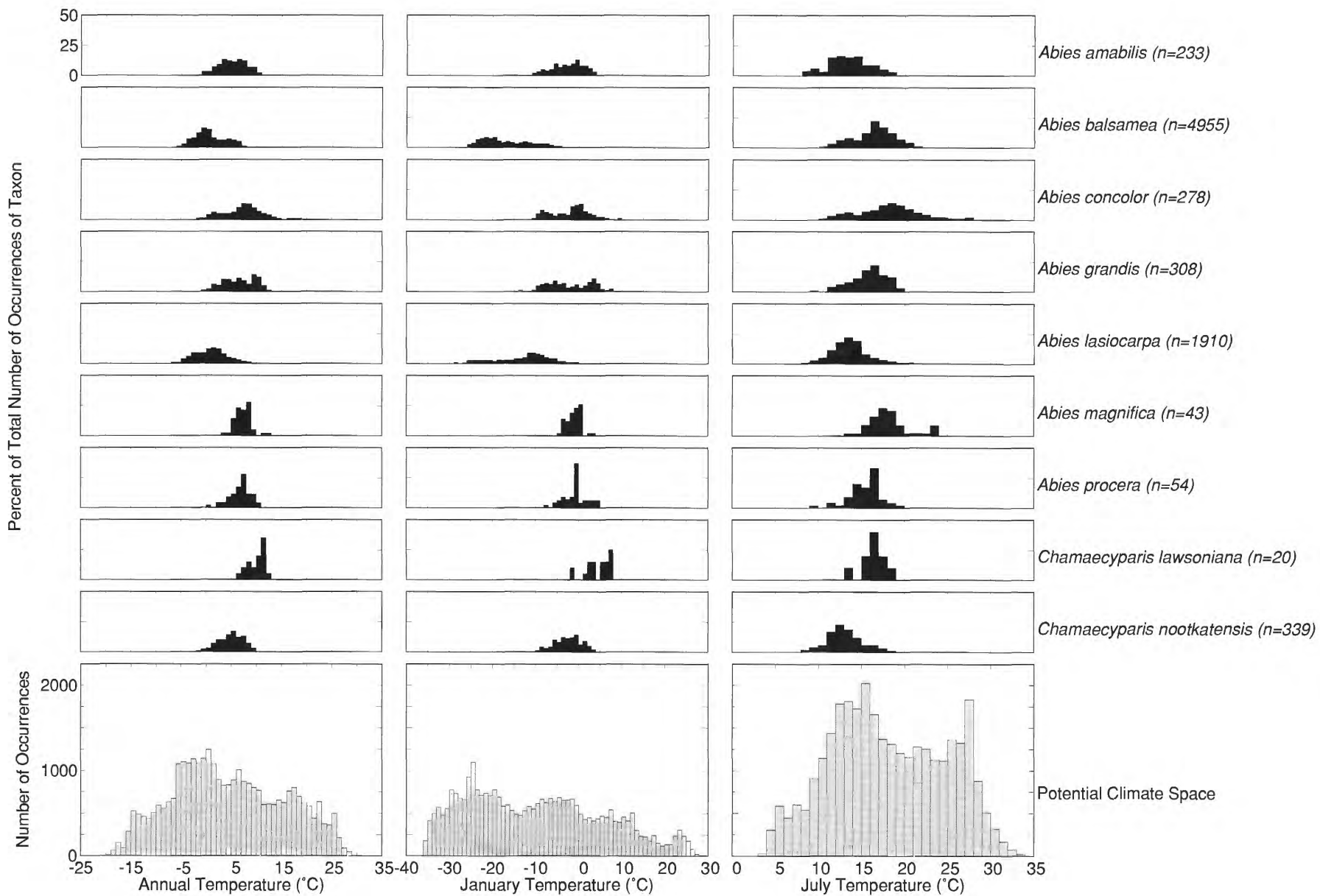
TSUGA WEST

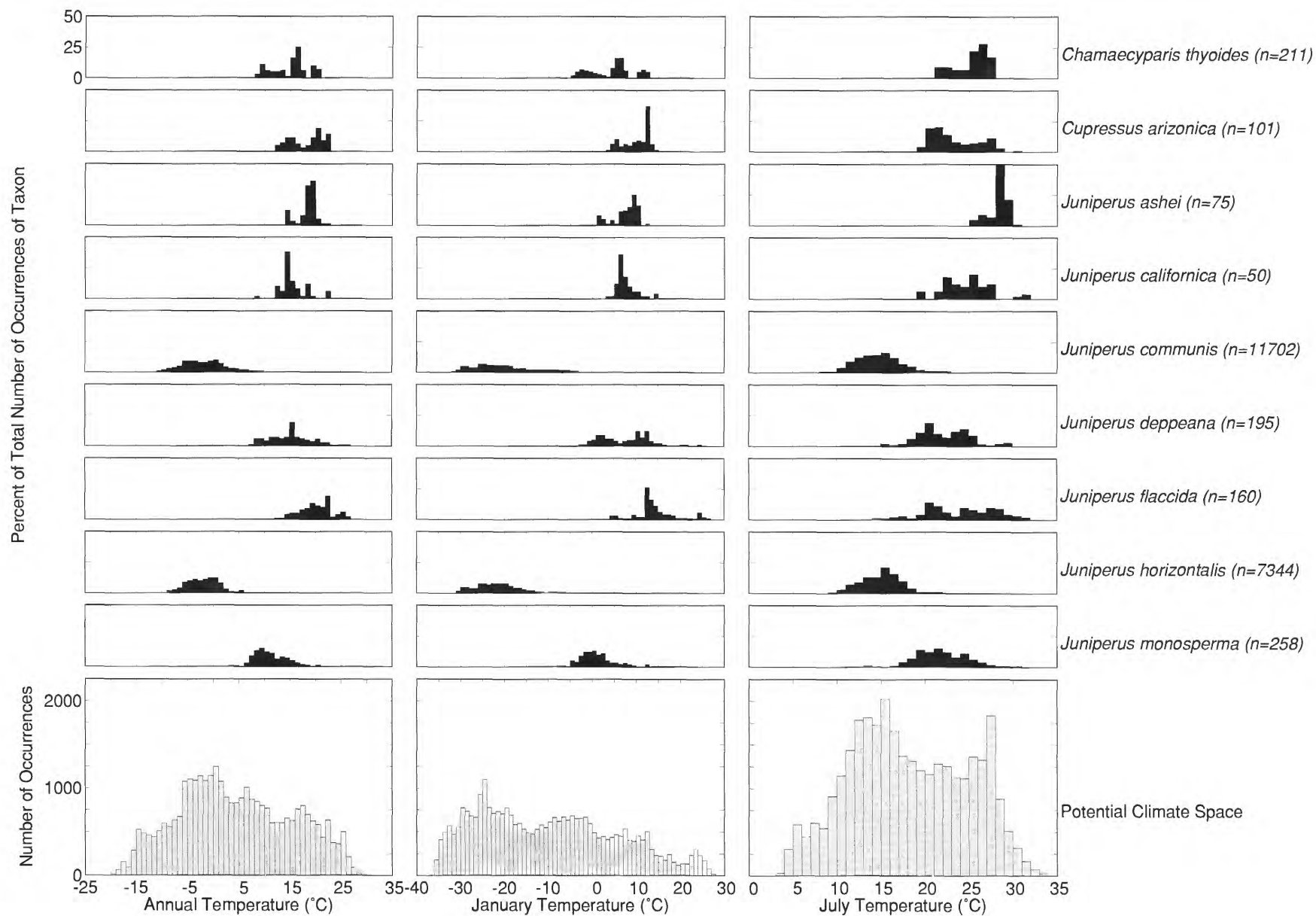


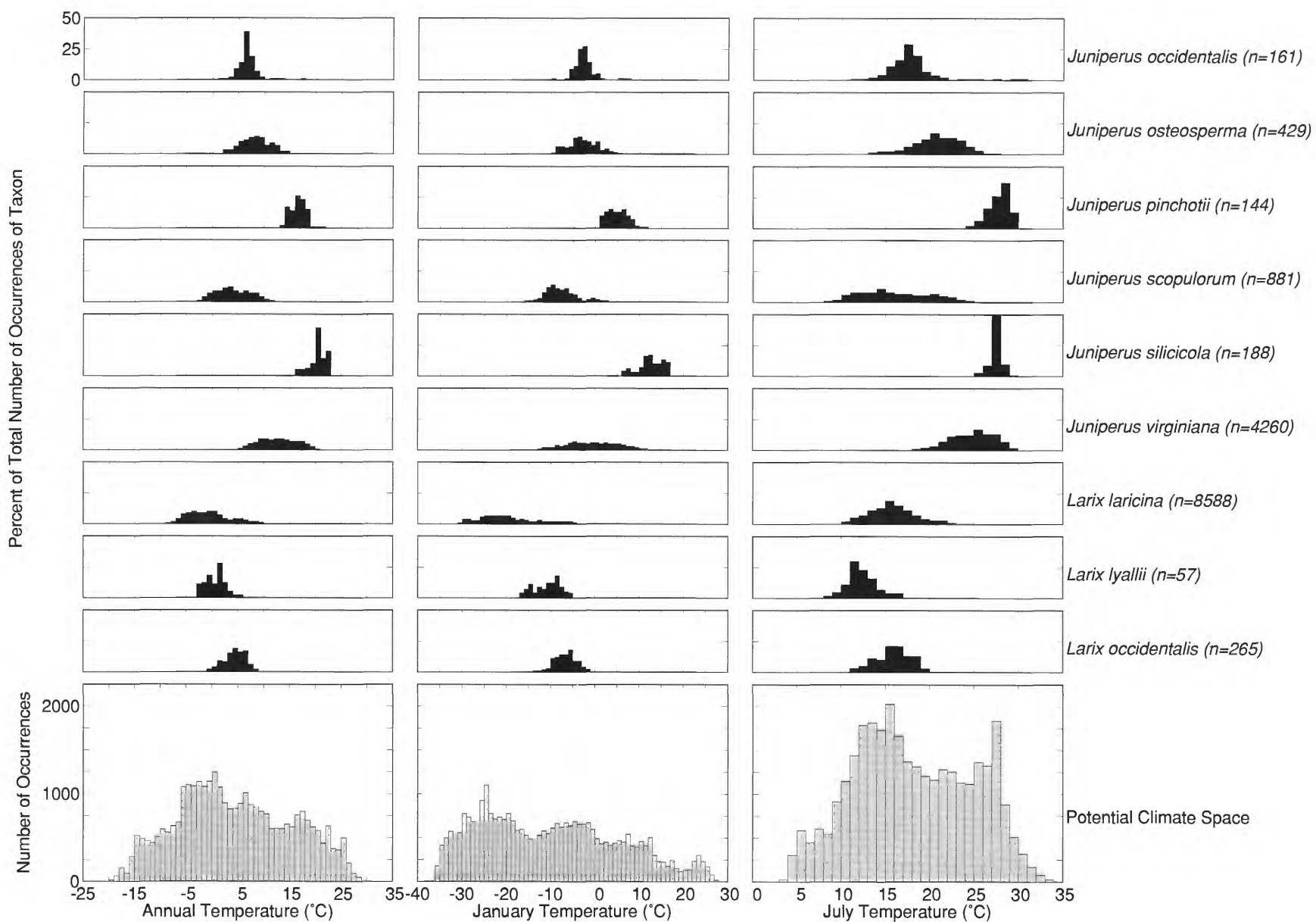
Growing Degree Days on 5°C Base X 1000

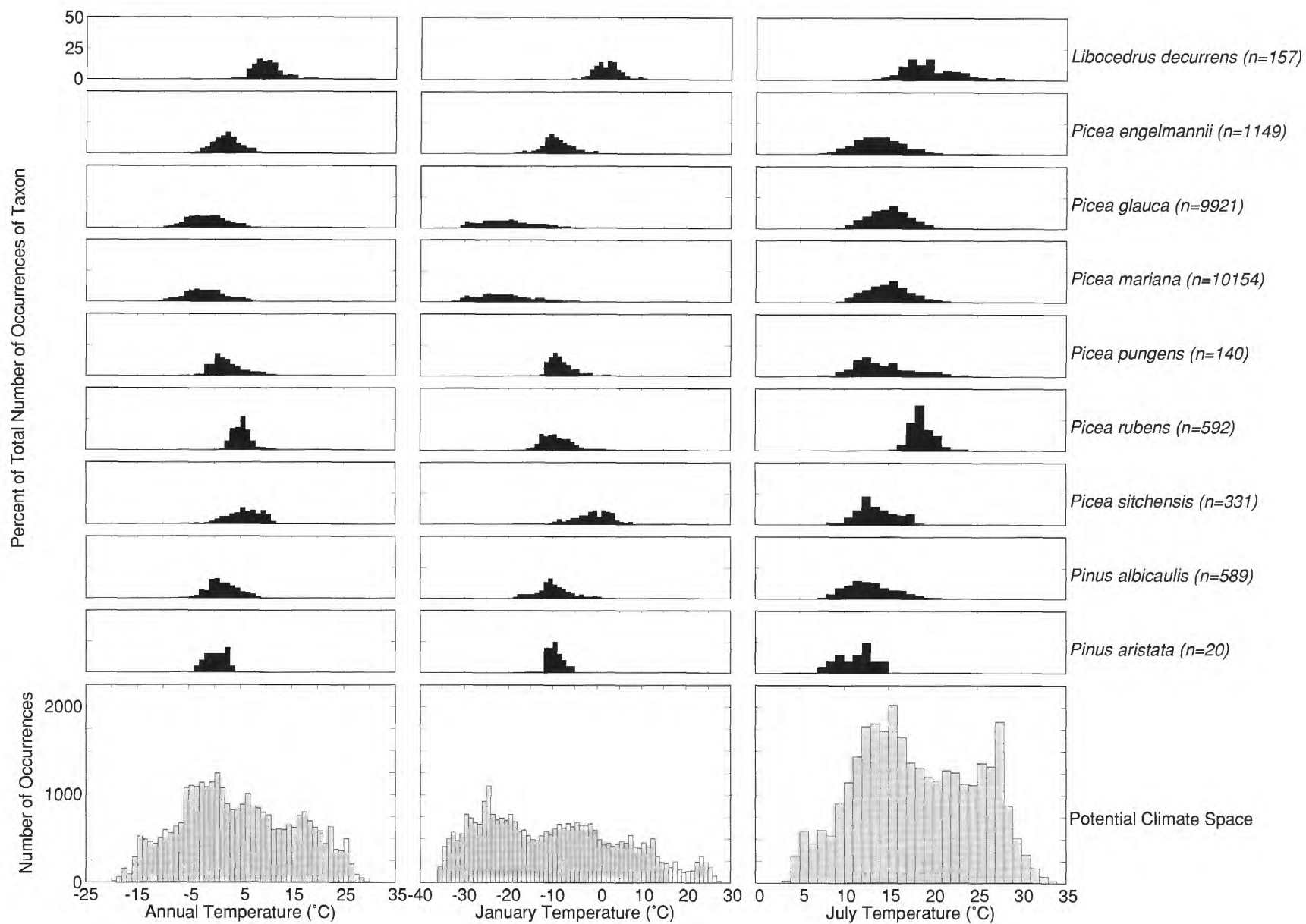
Conifer Species— Histograms

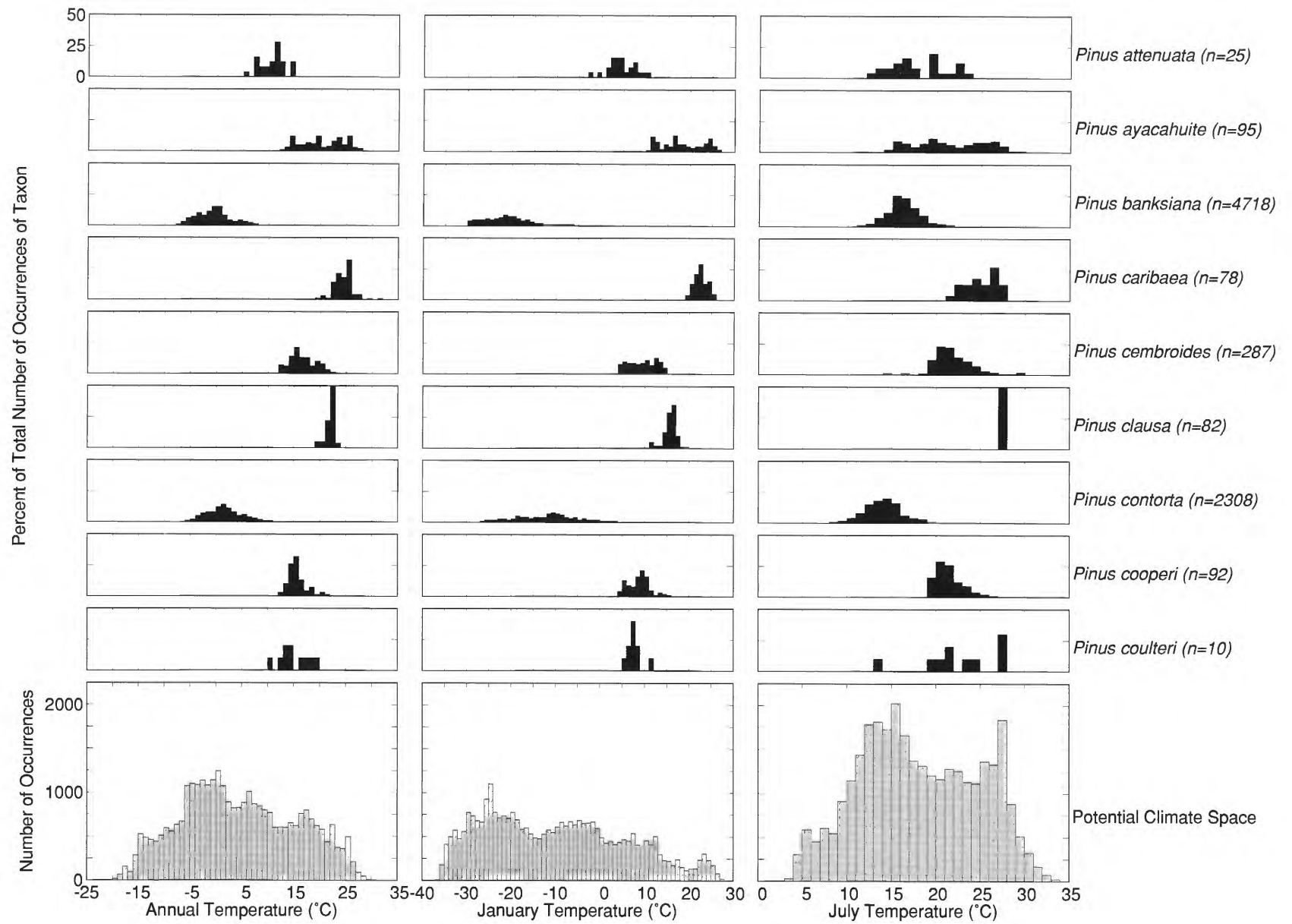


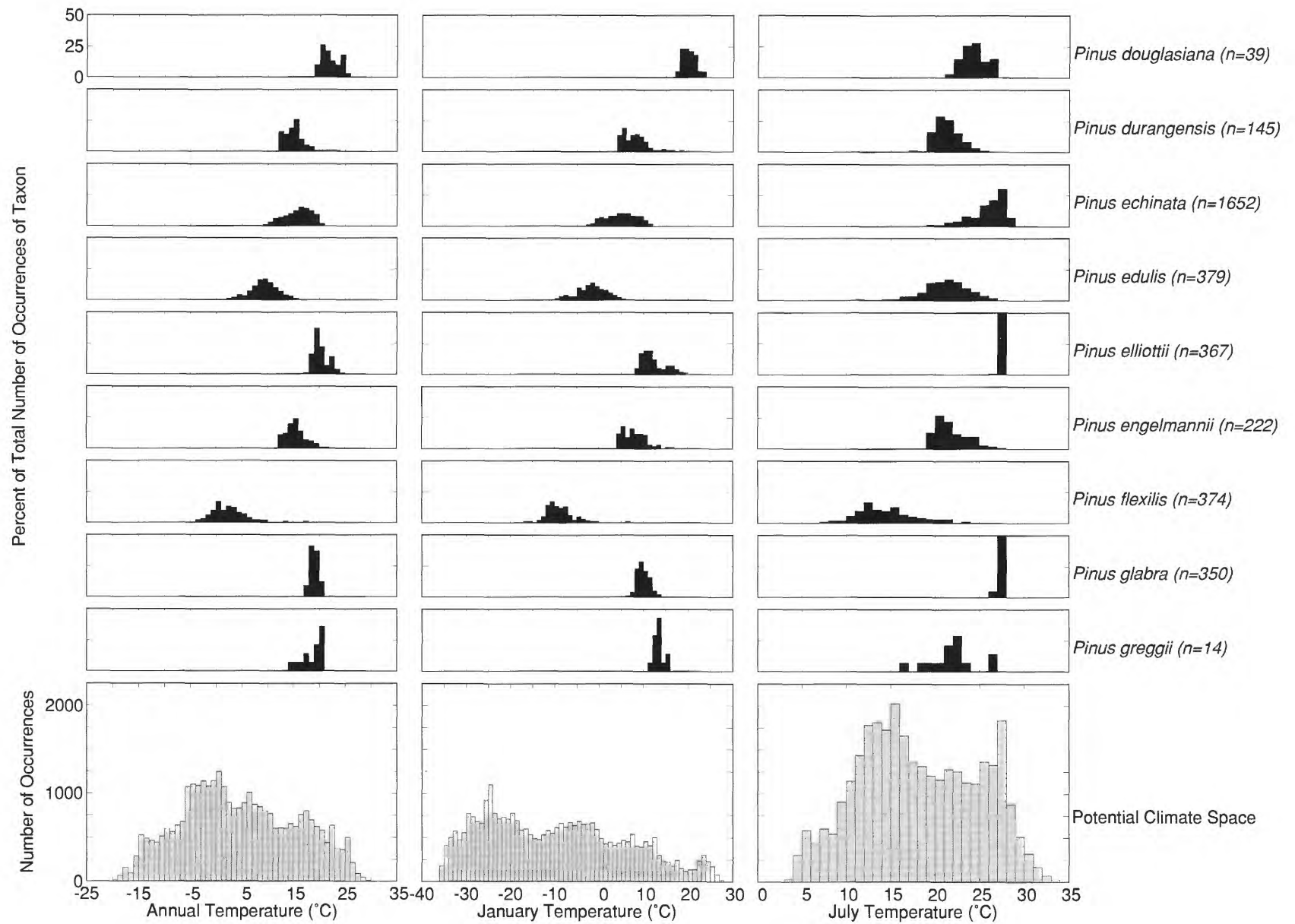


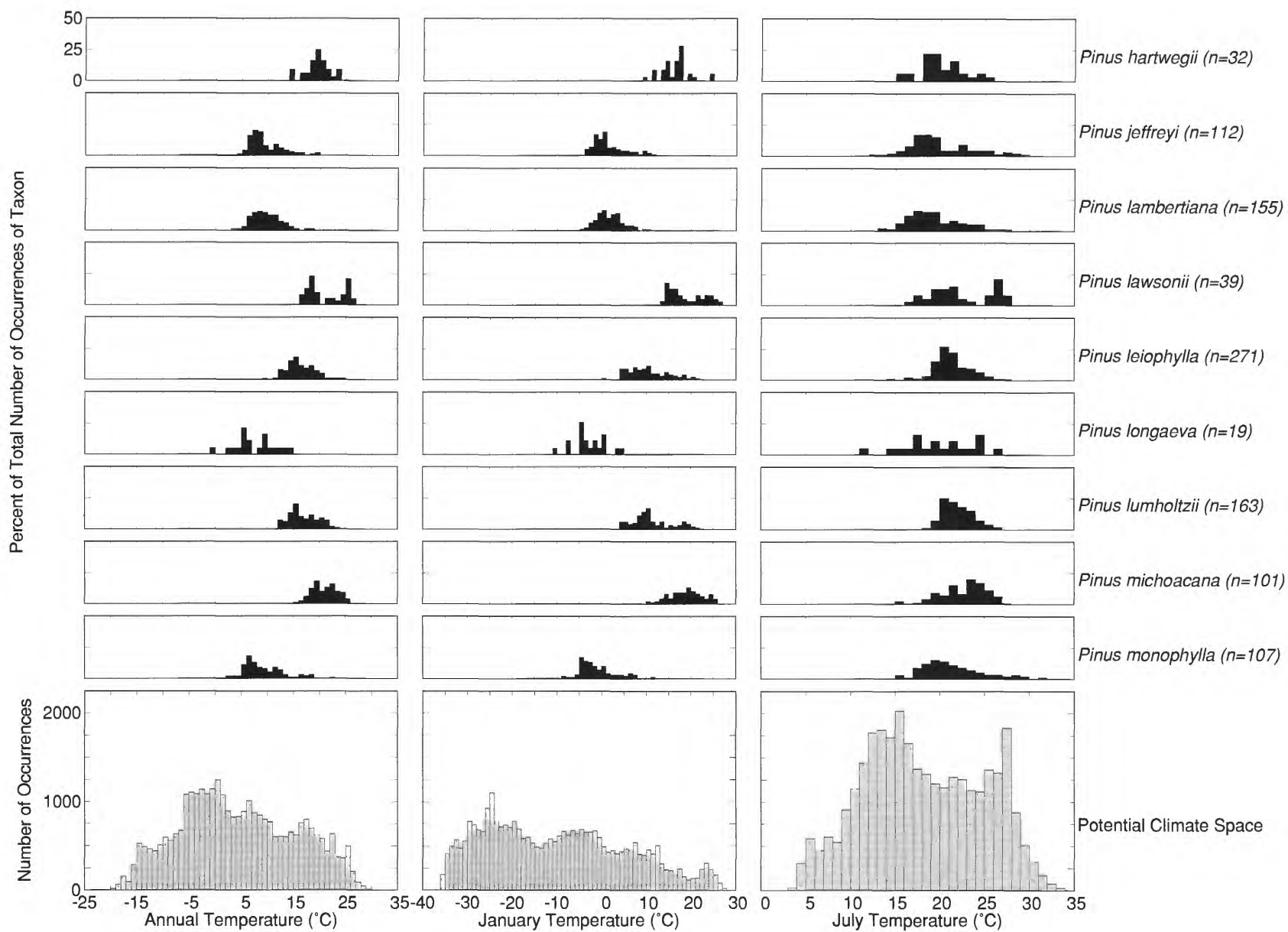


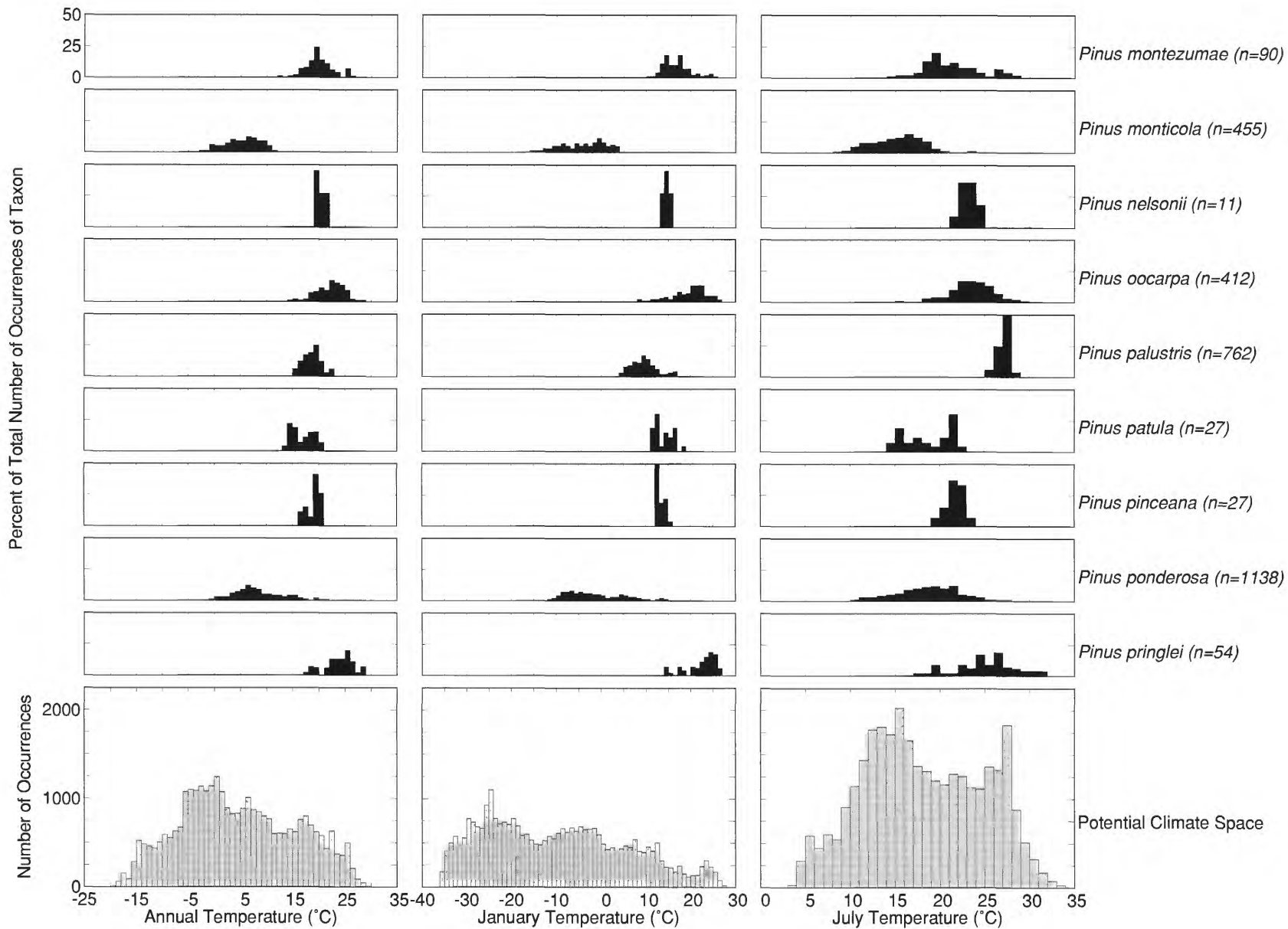


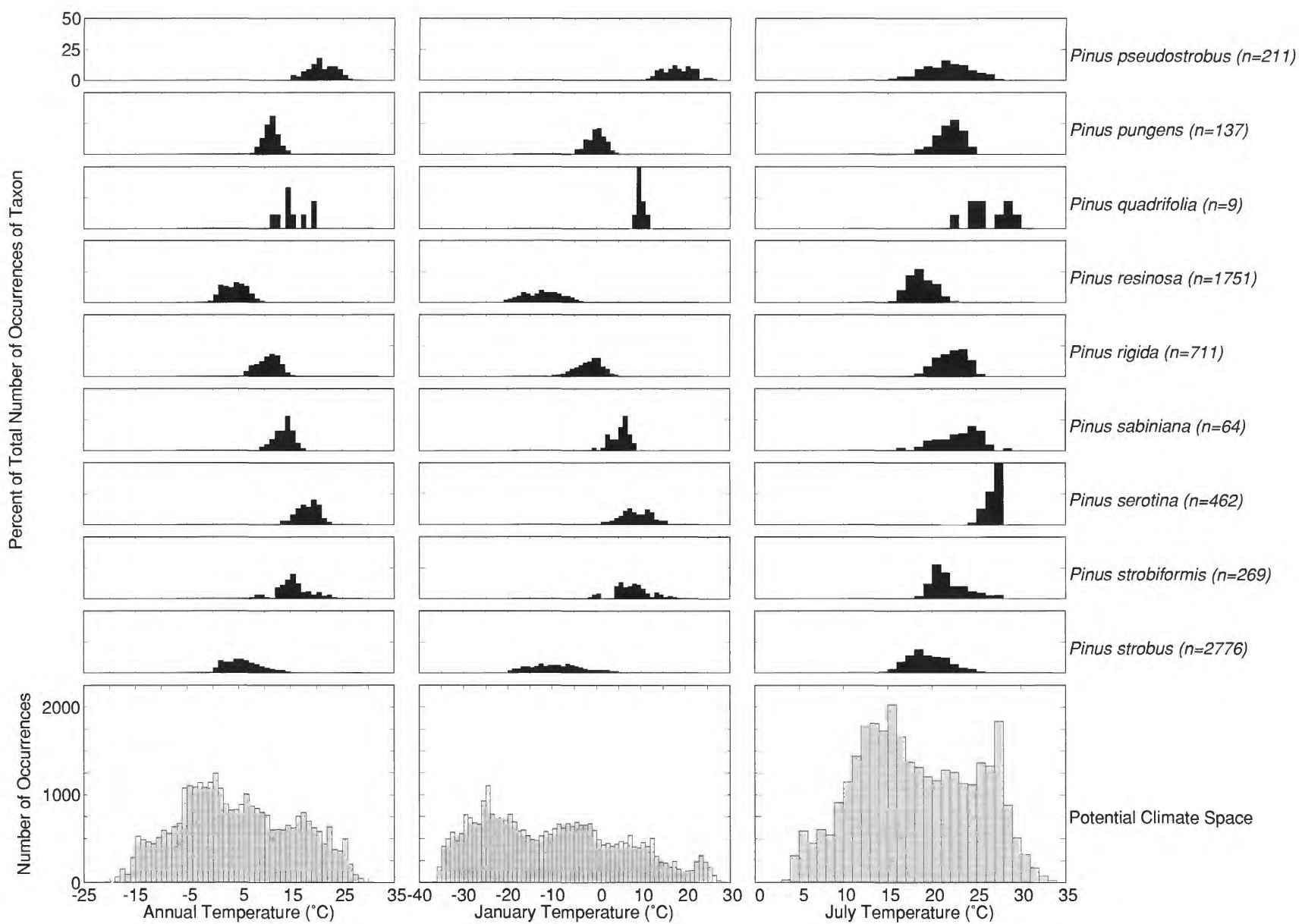


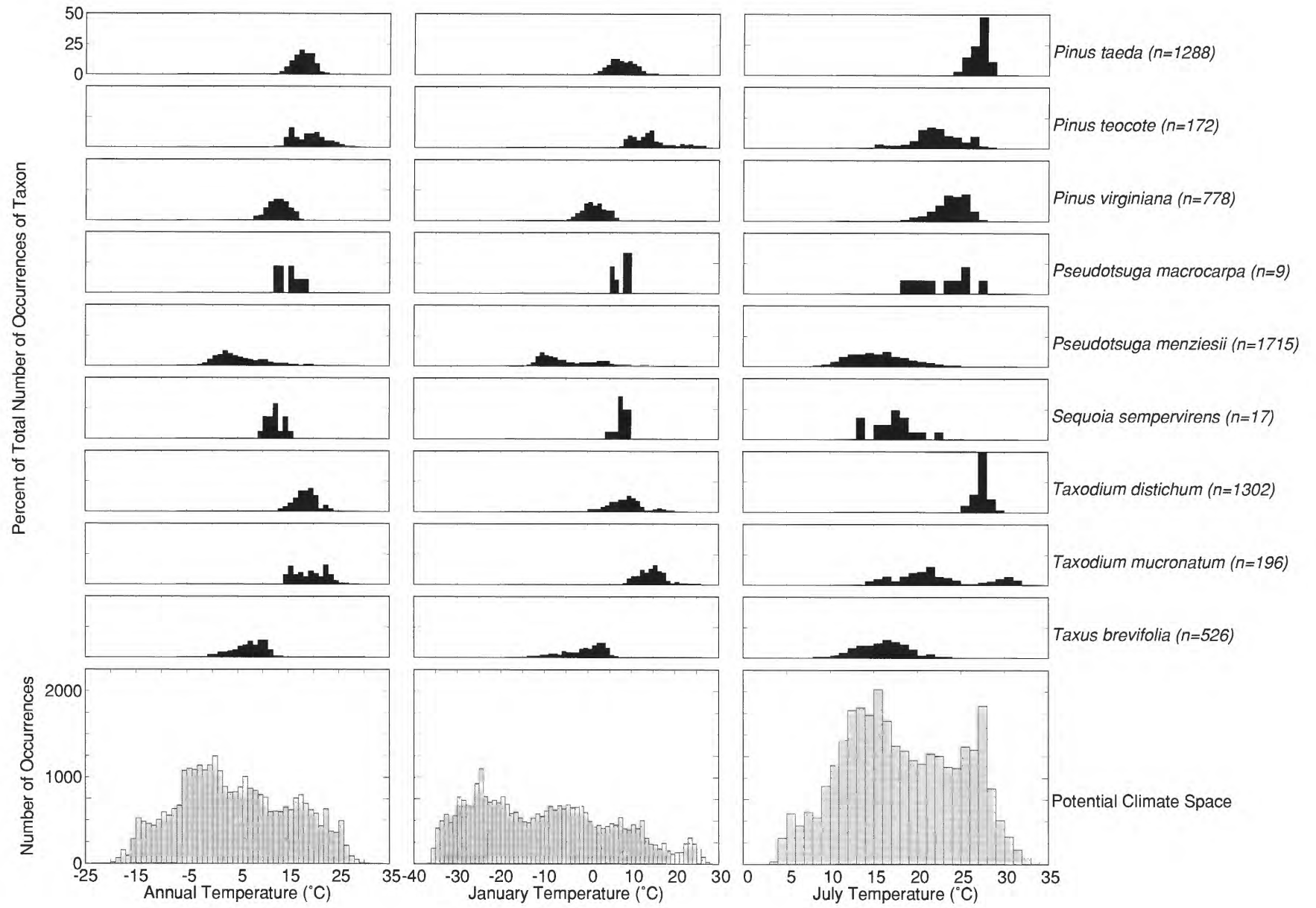


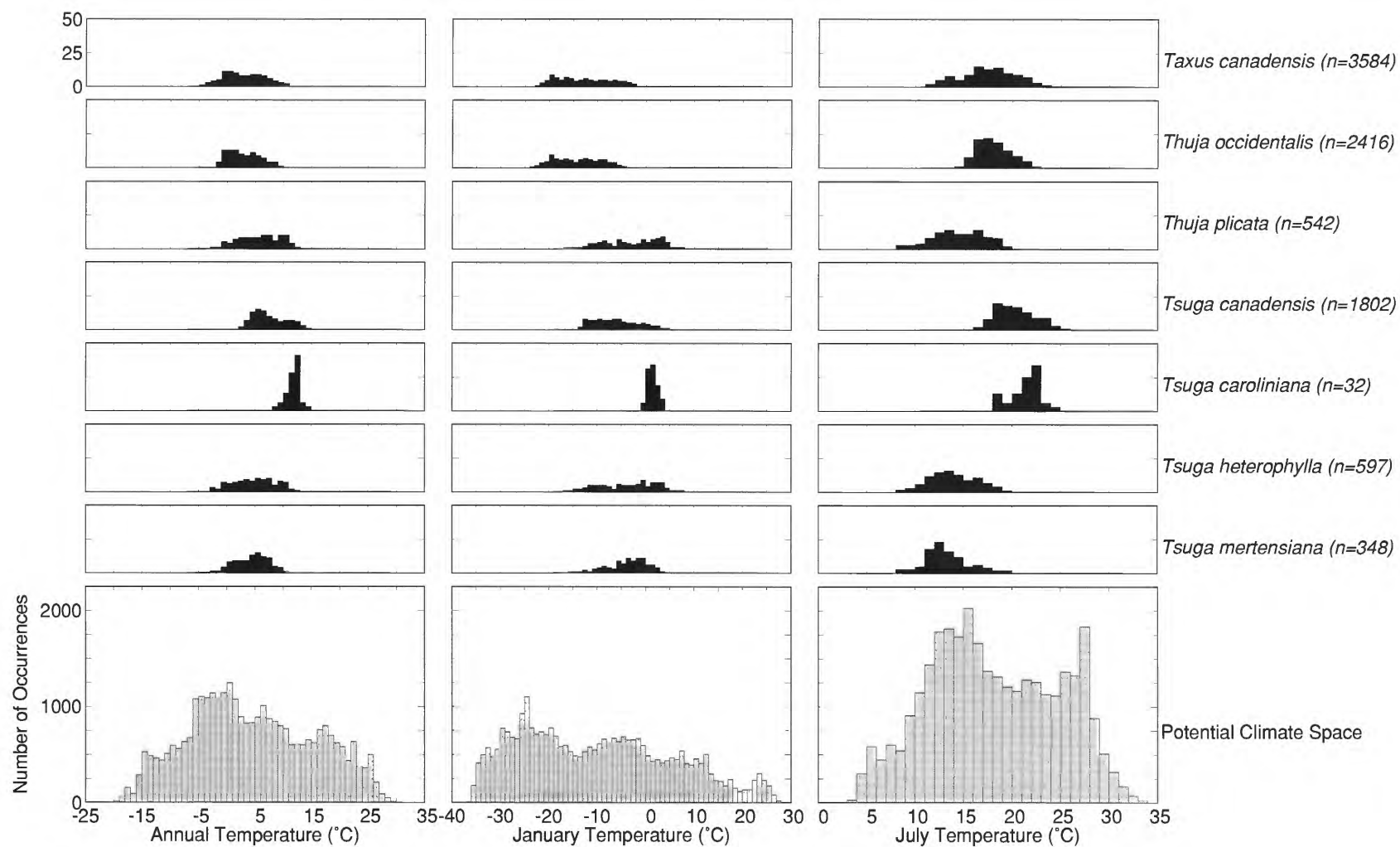


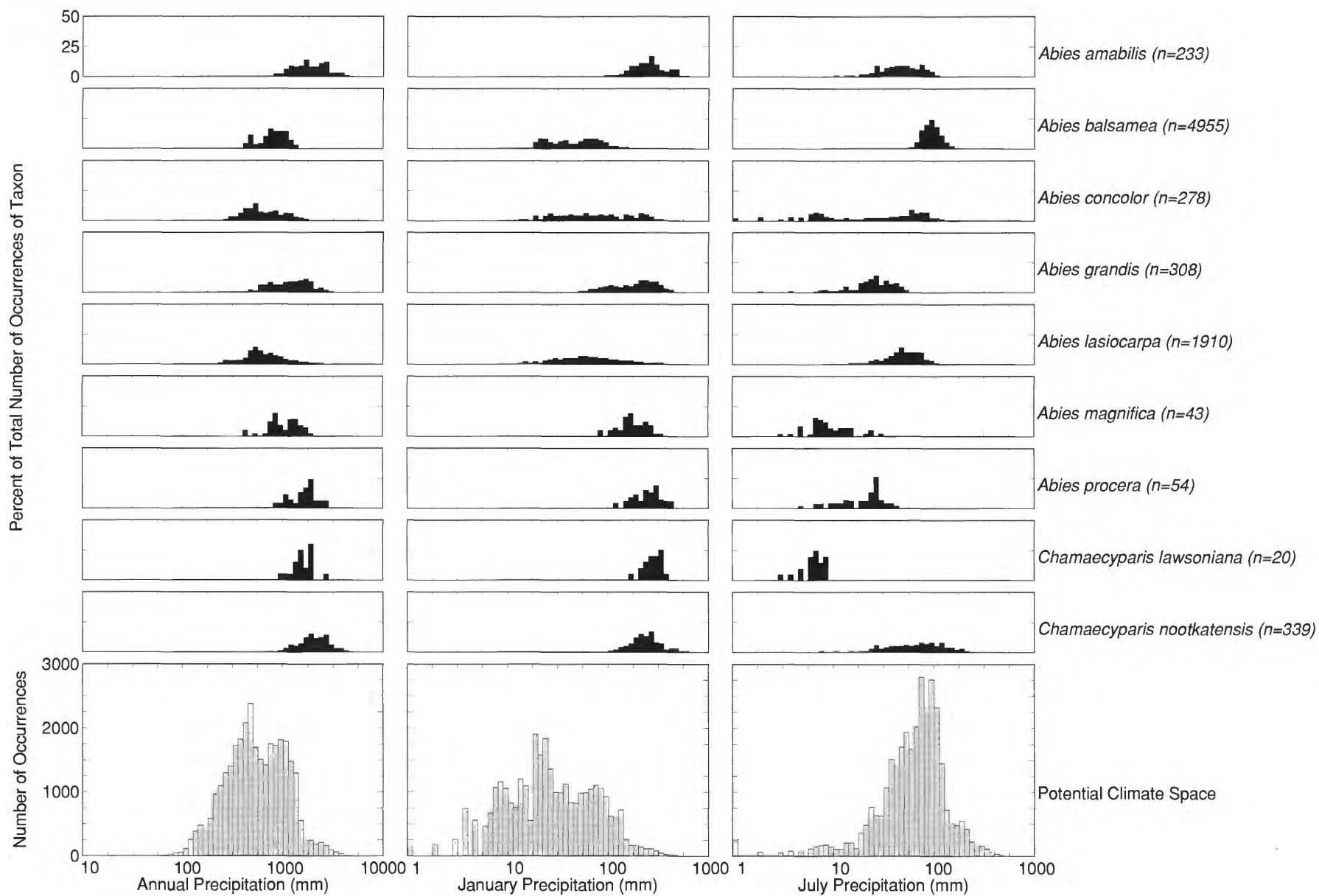


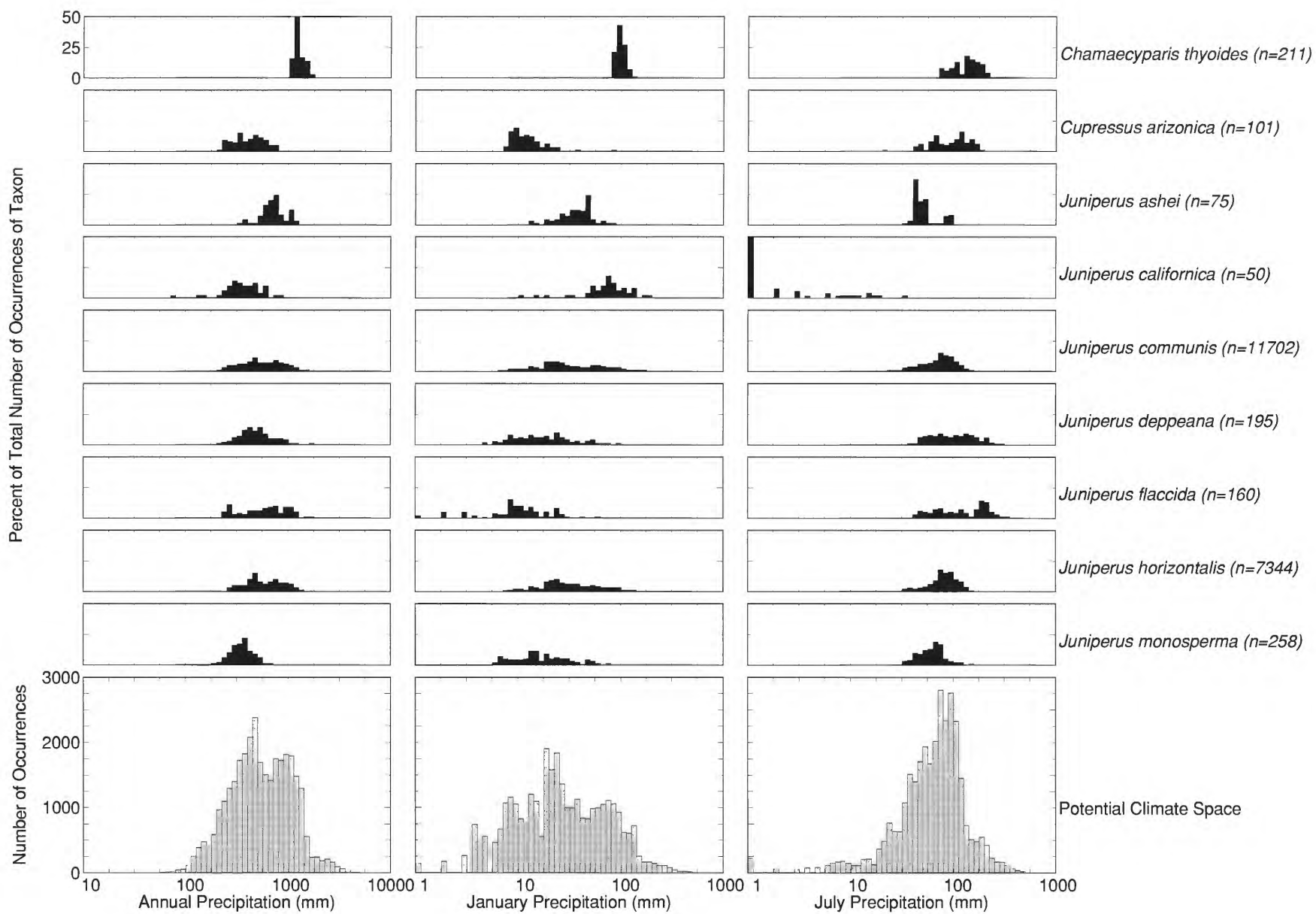


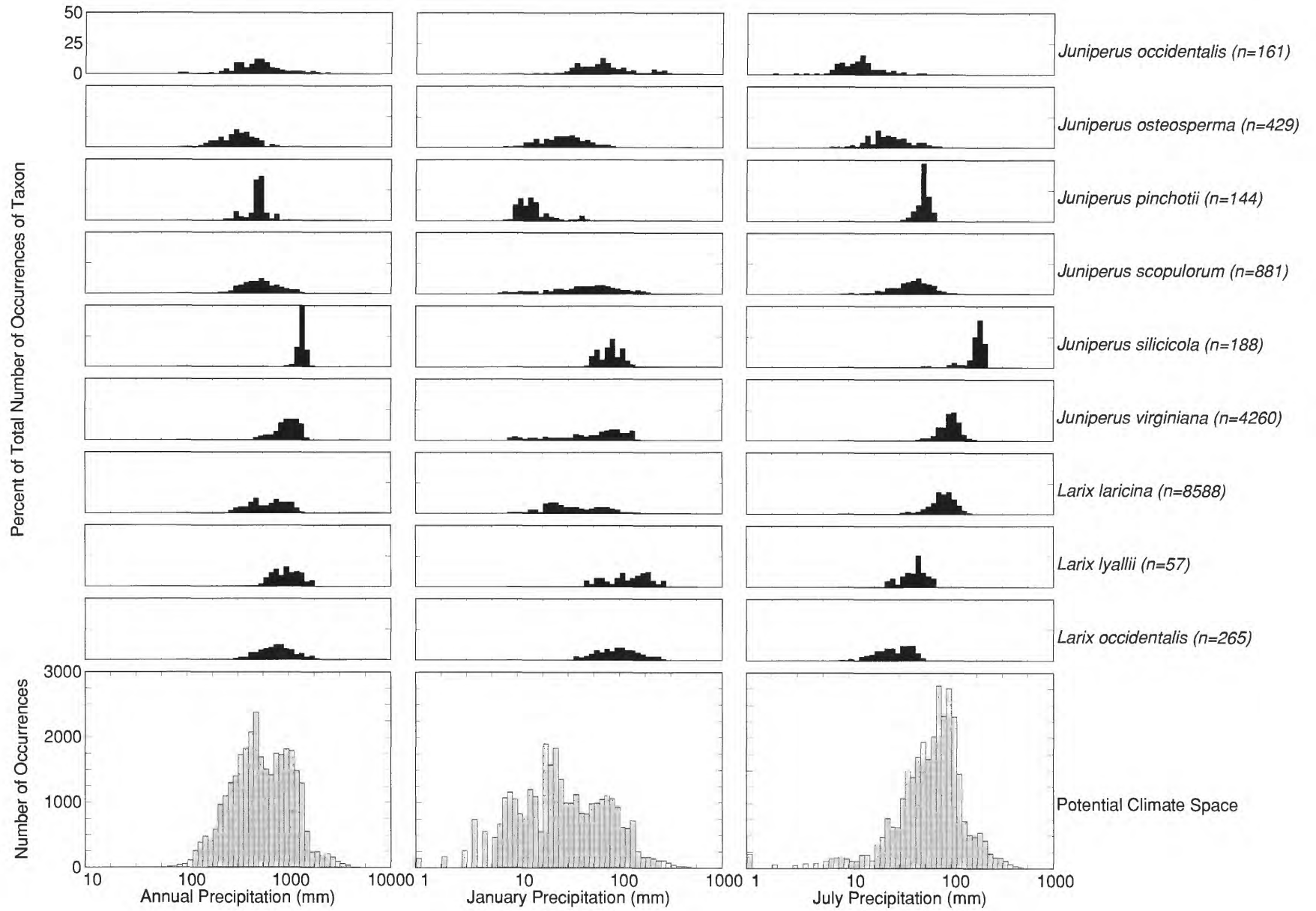


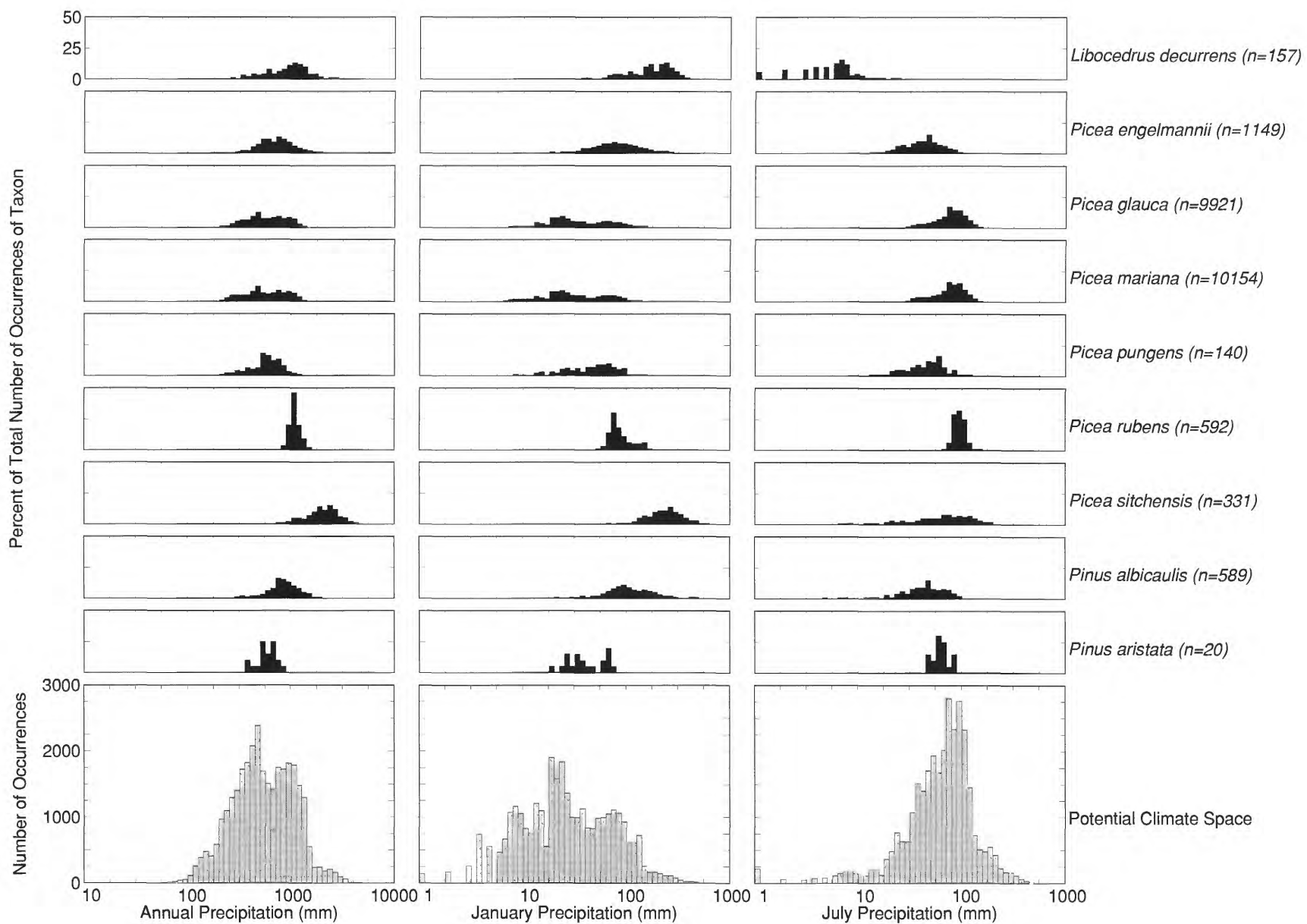


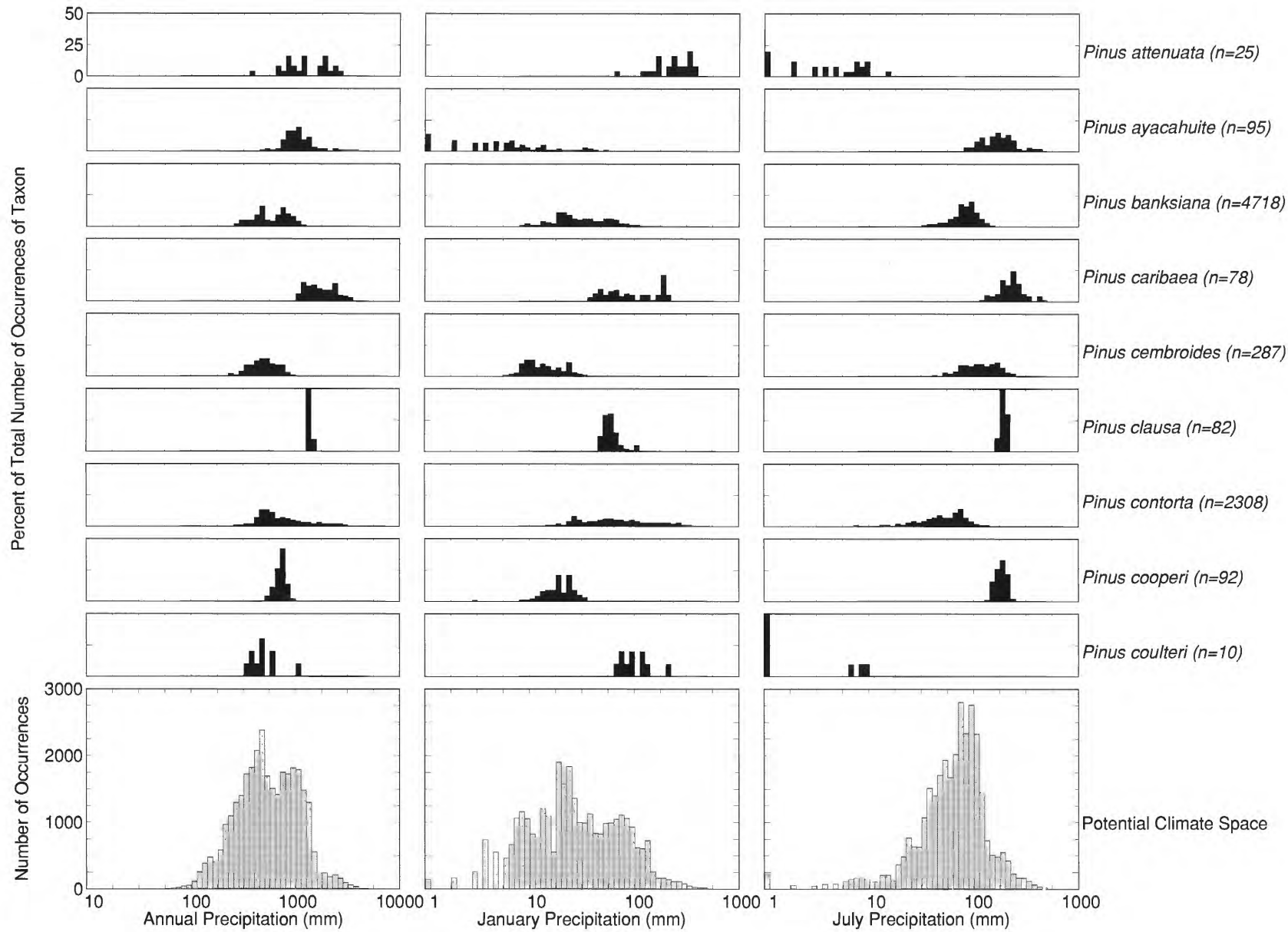


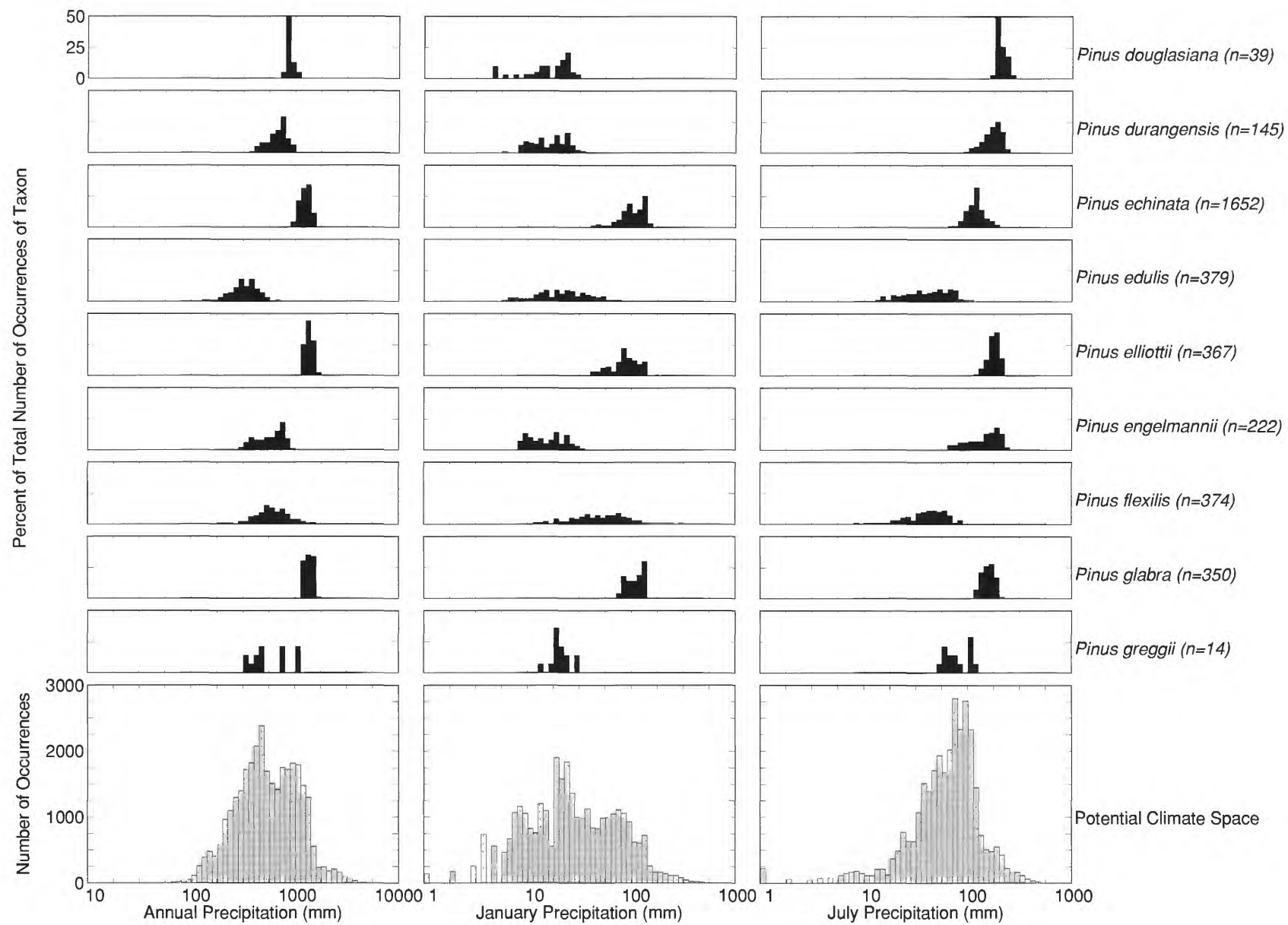


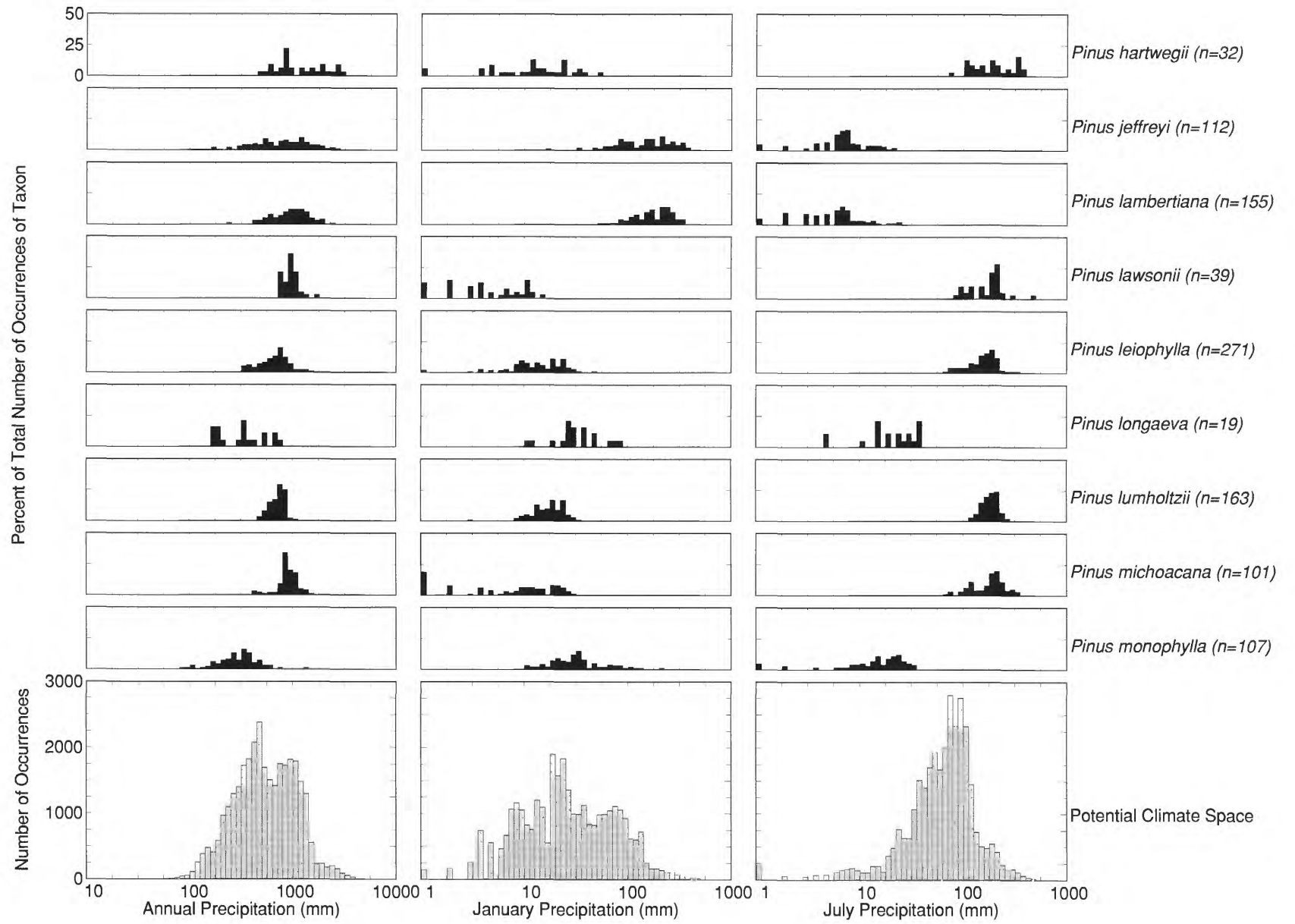


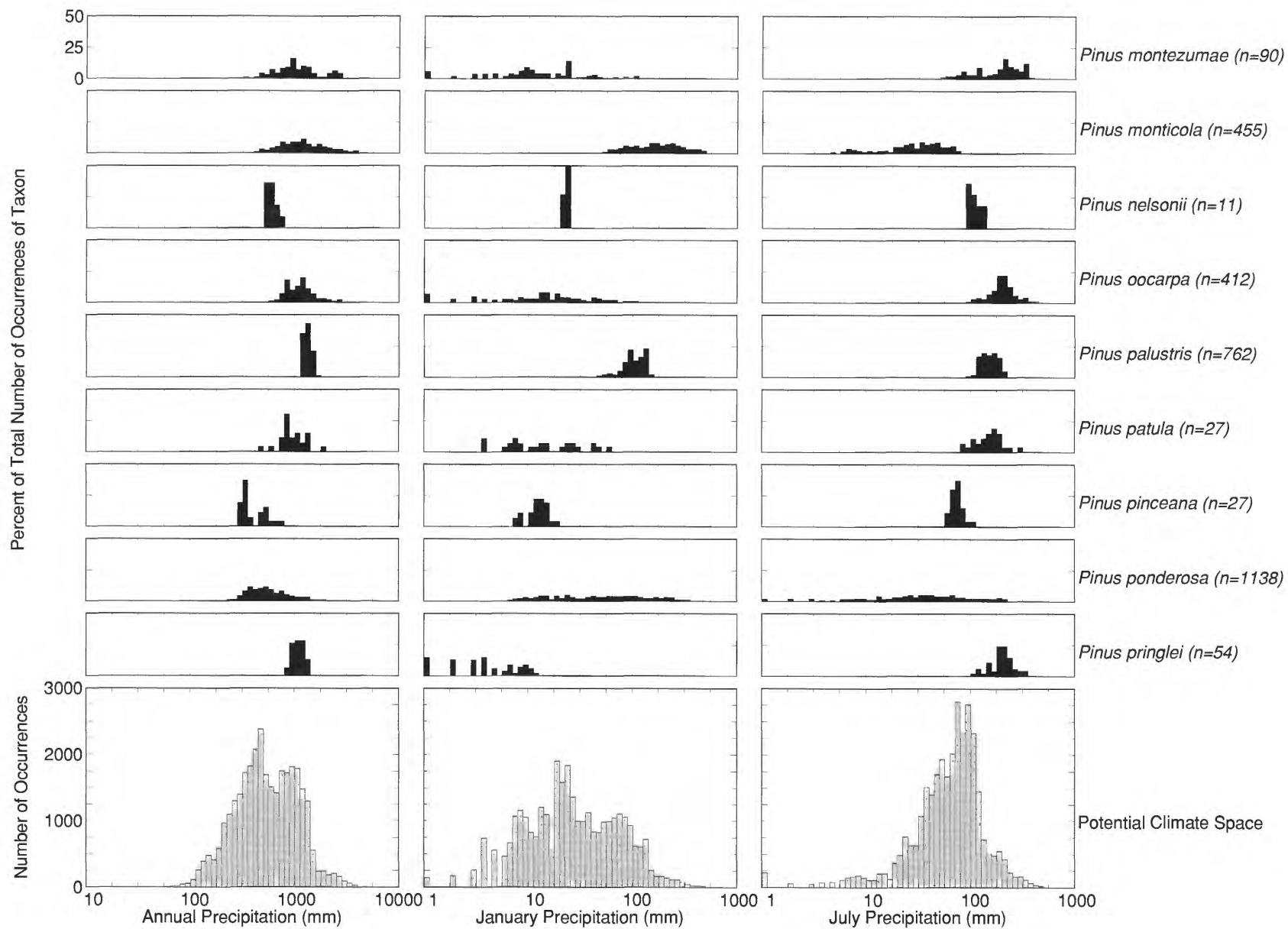


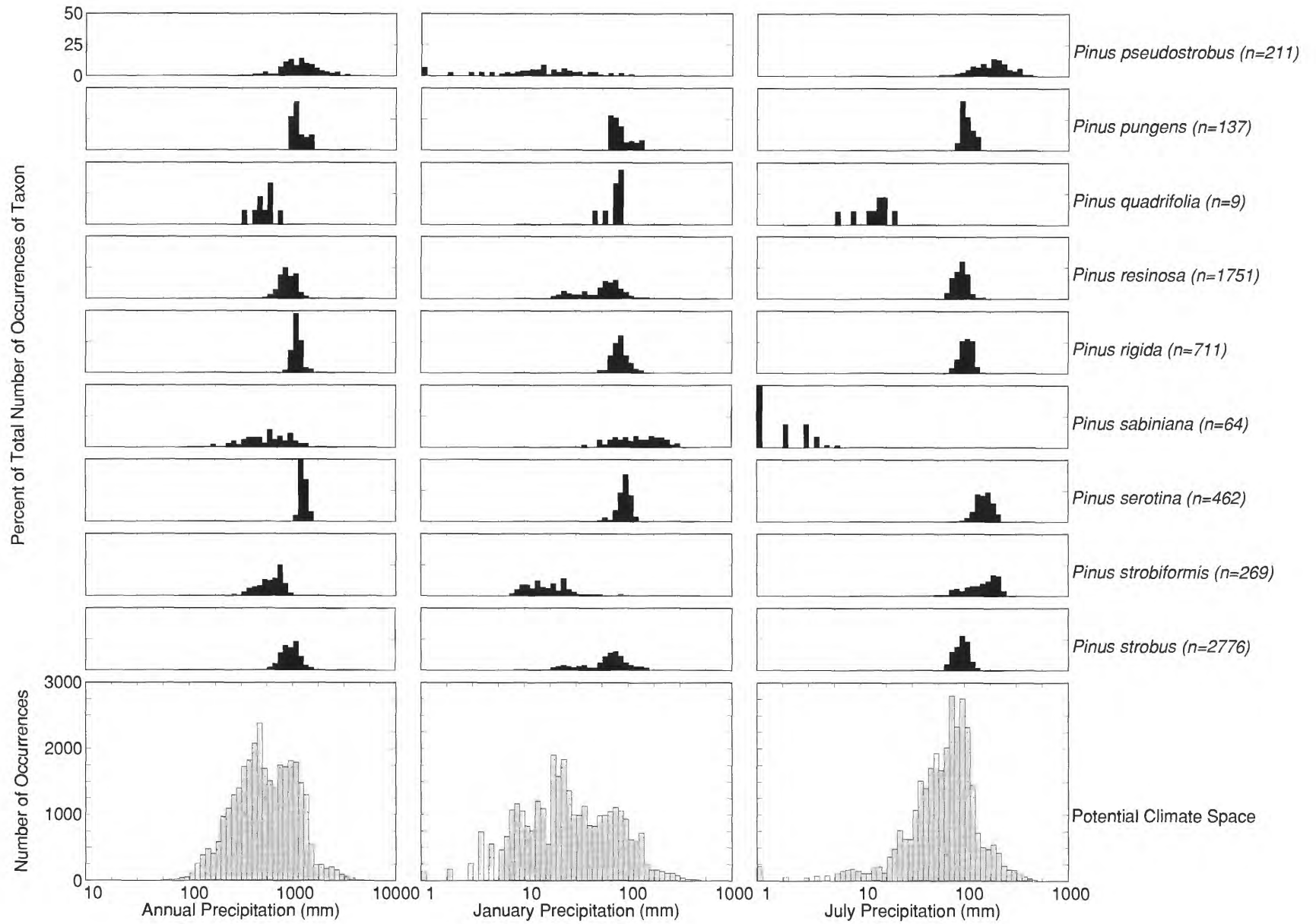


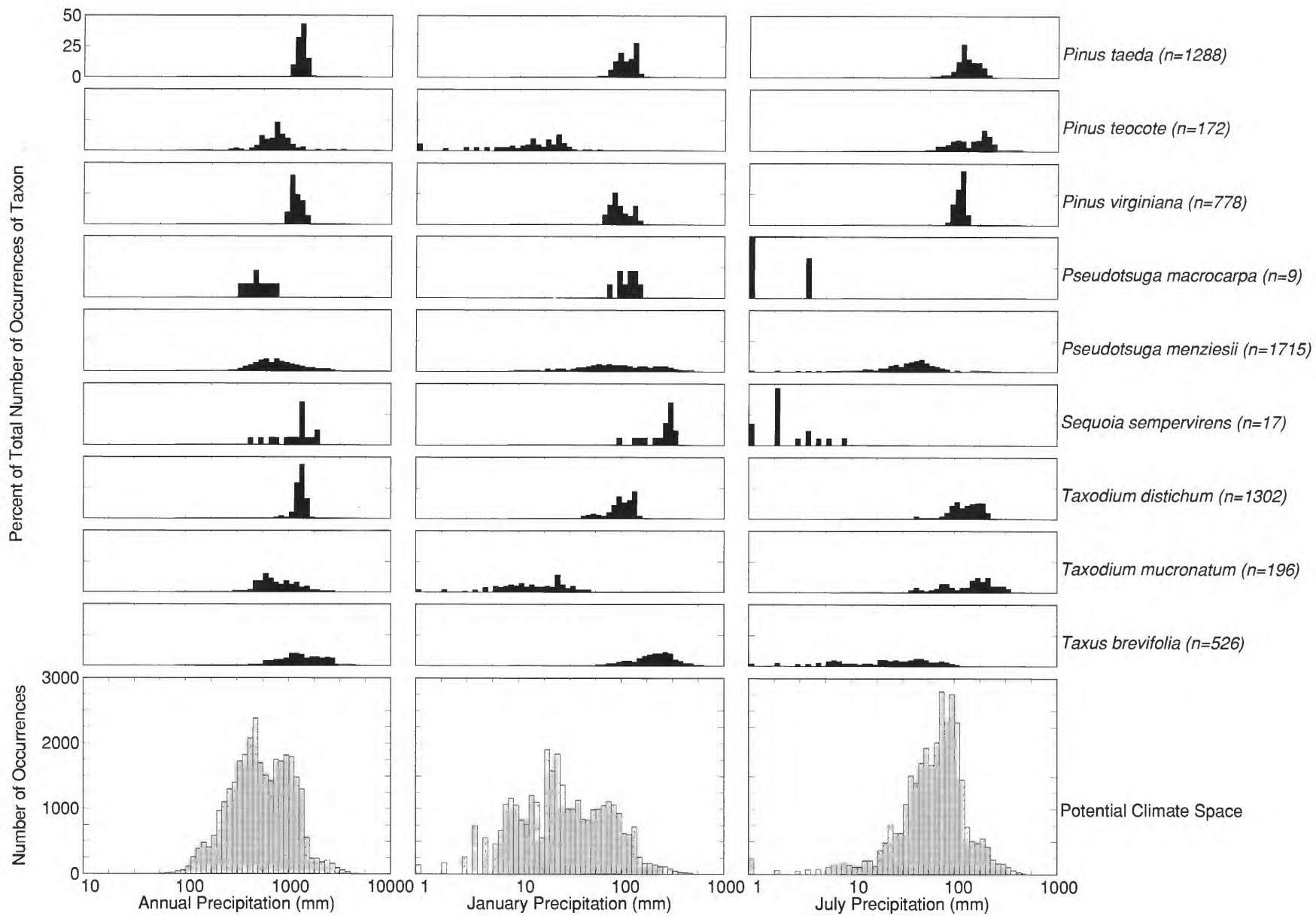


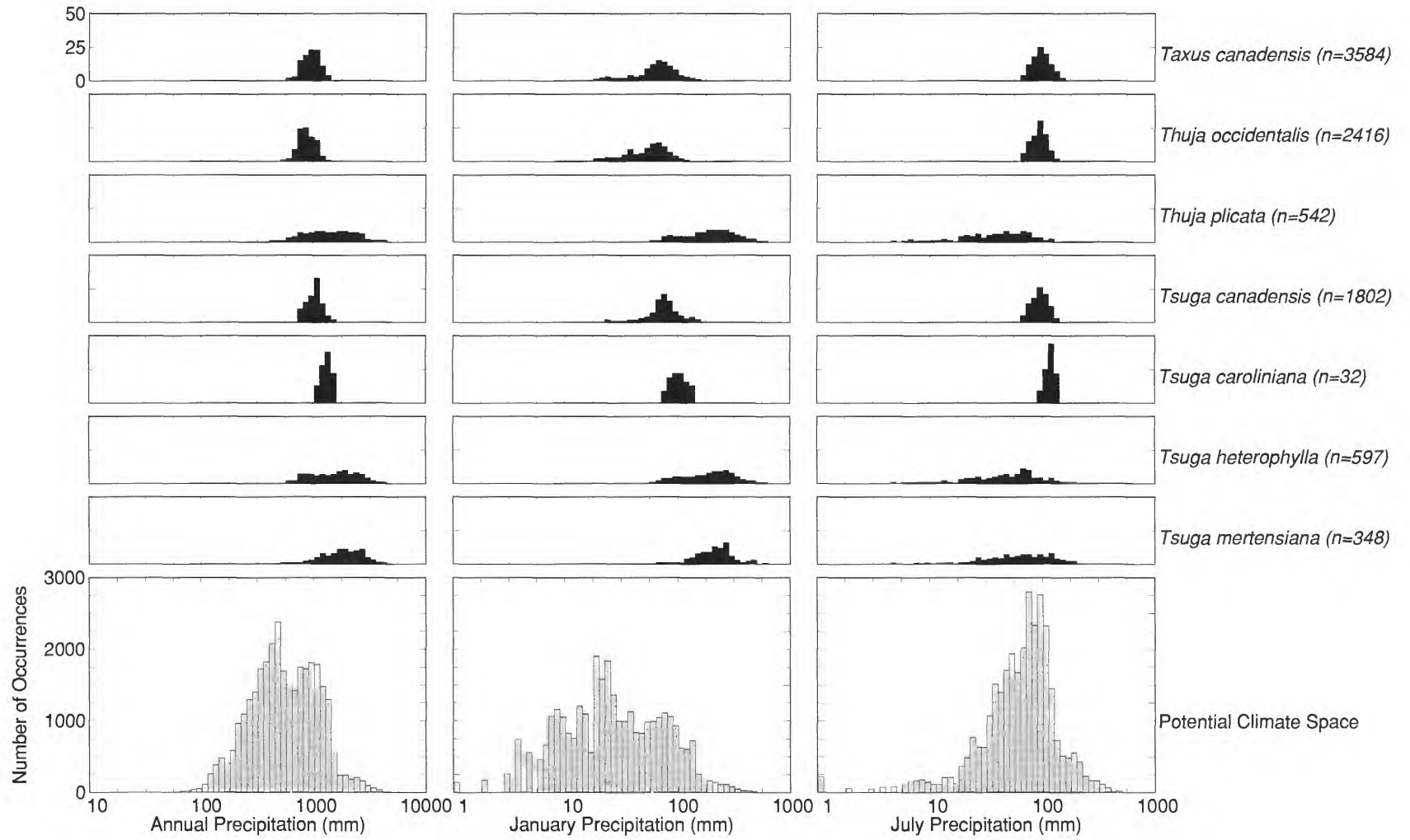


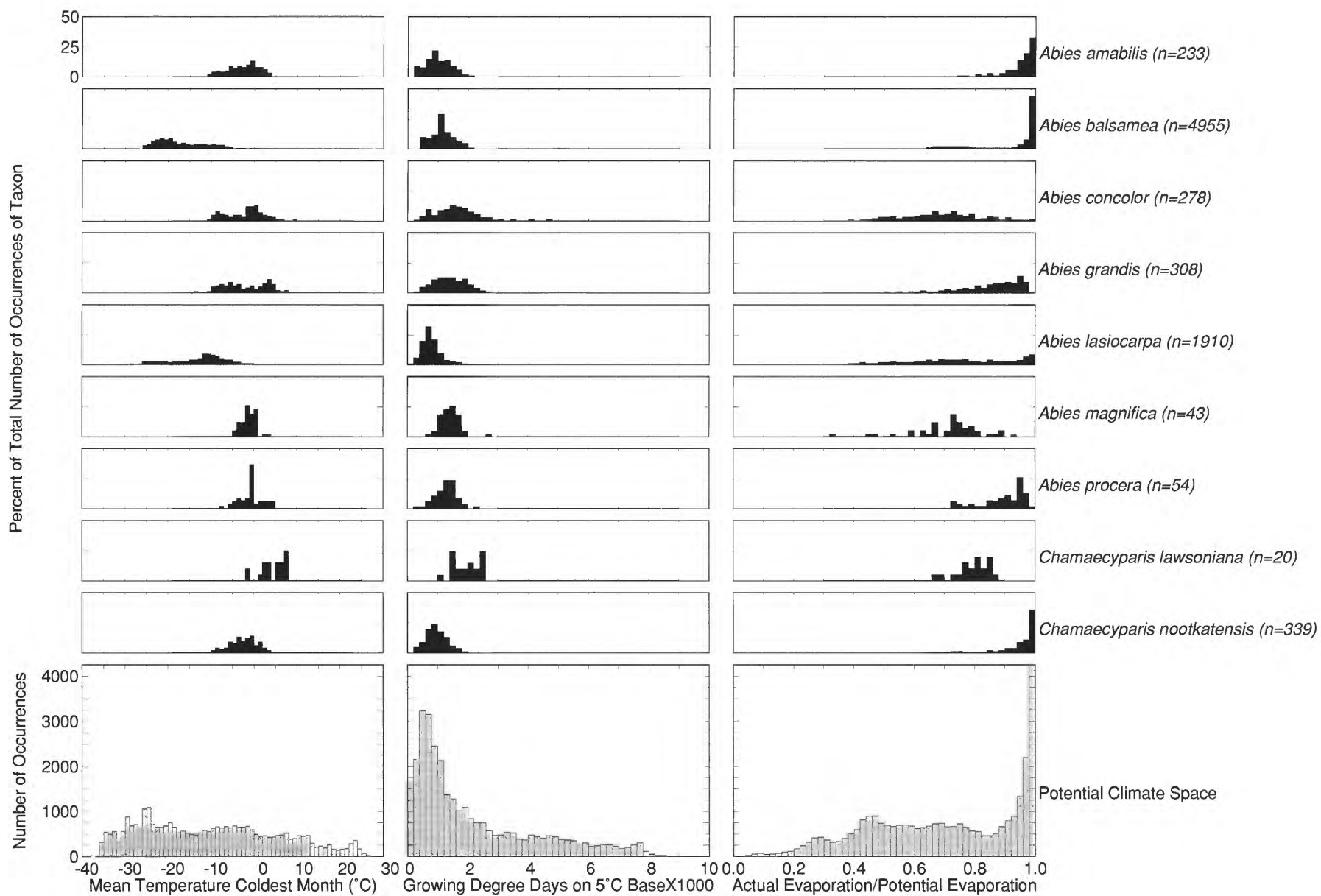


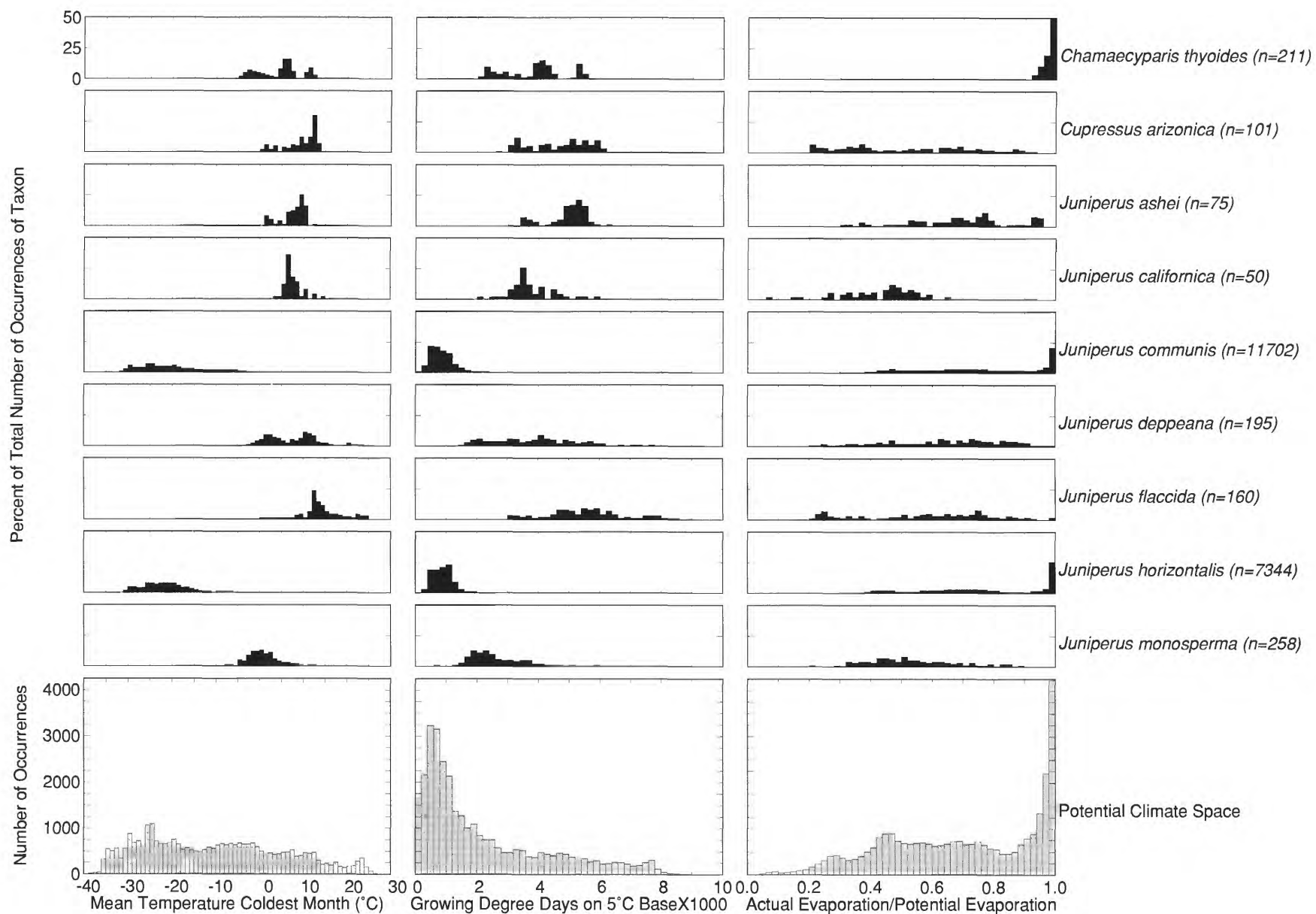


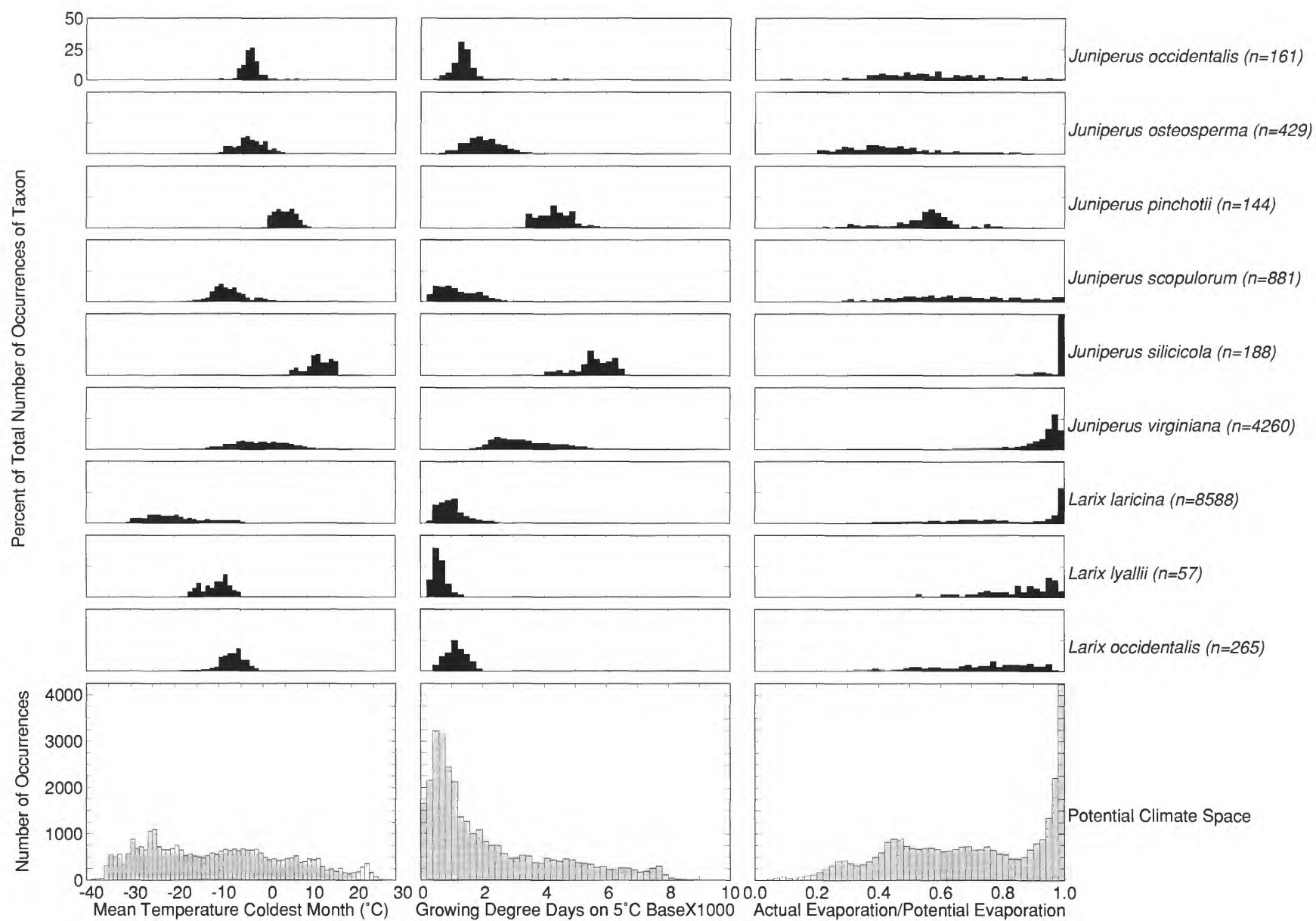


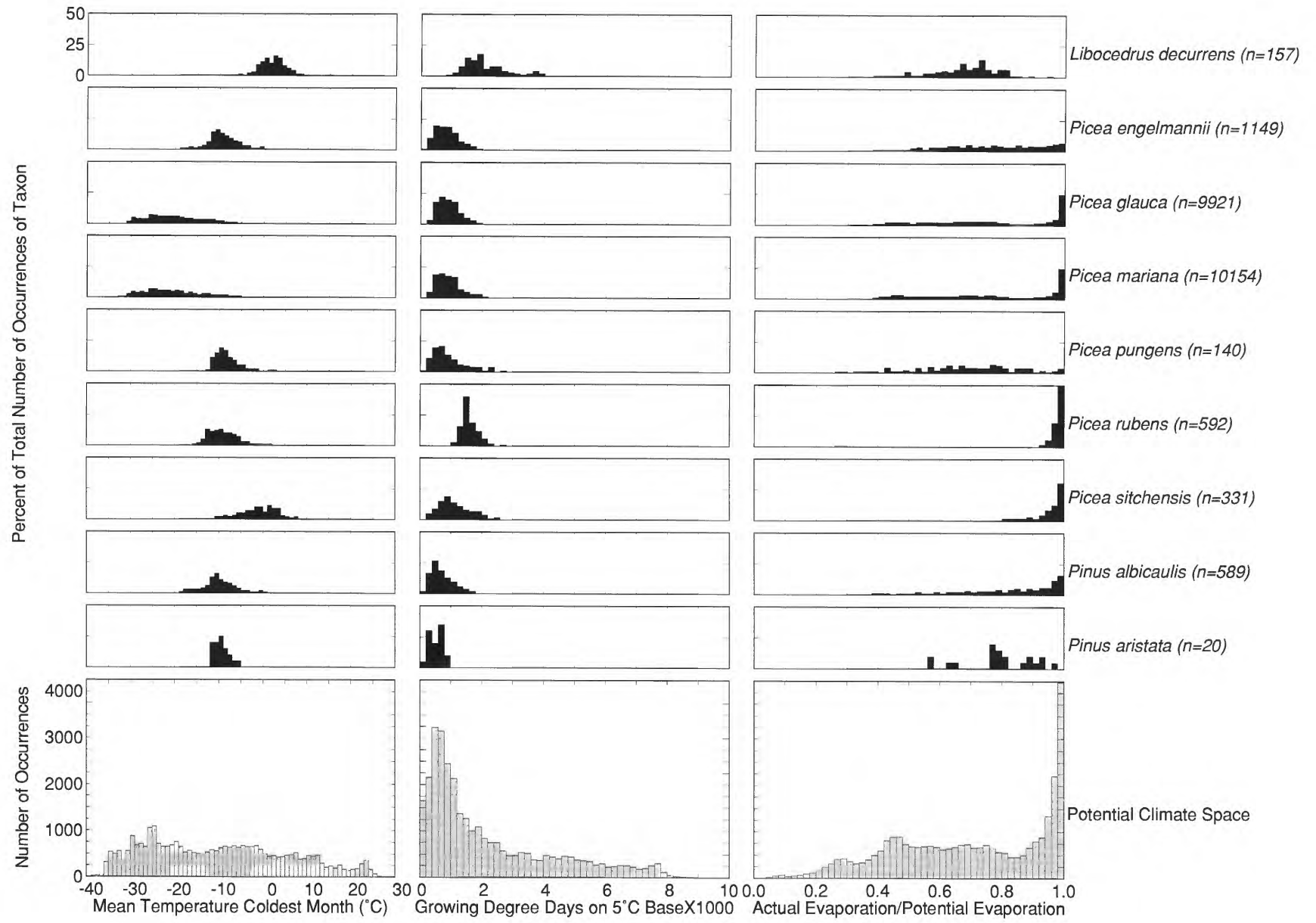


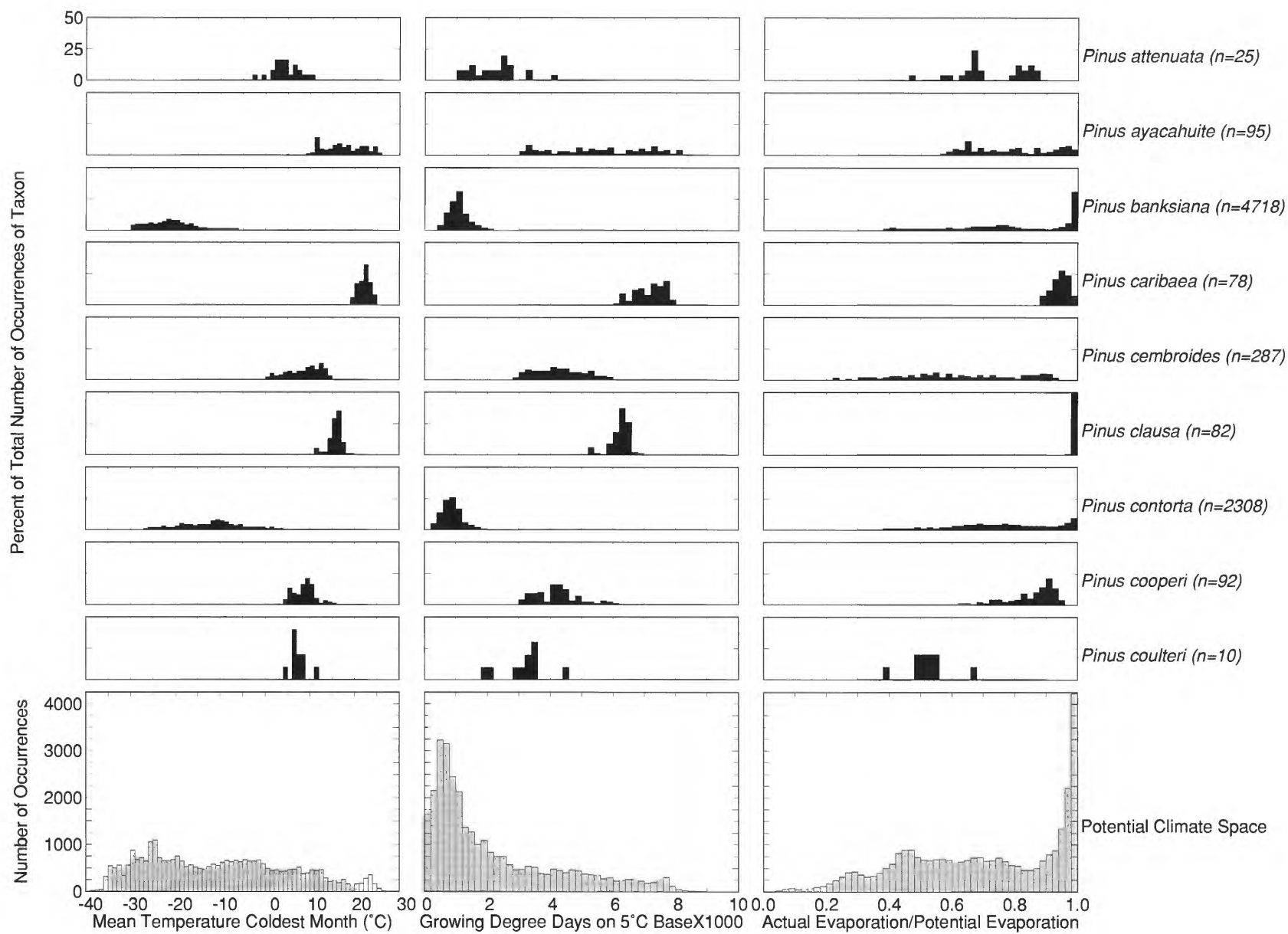


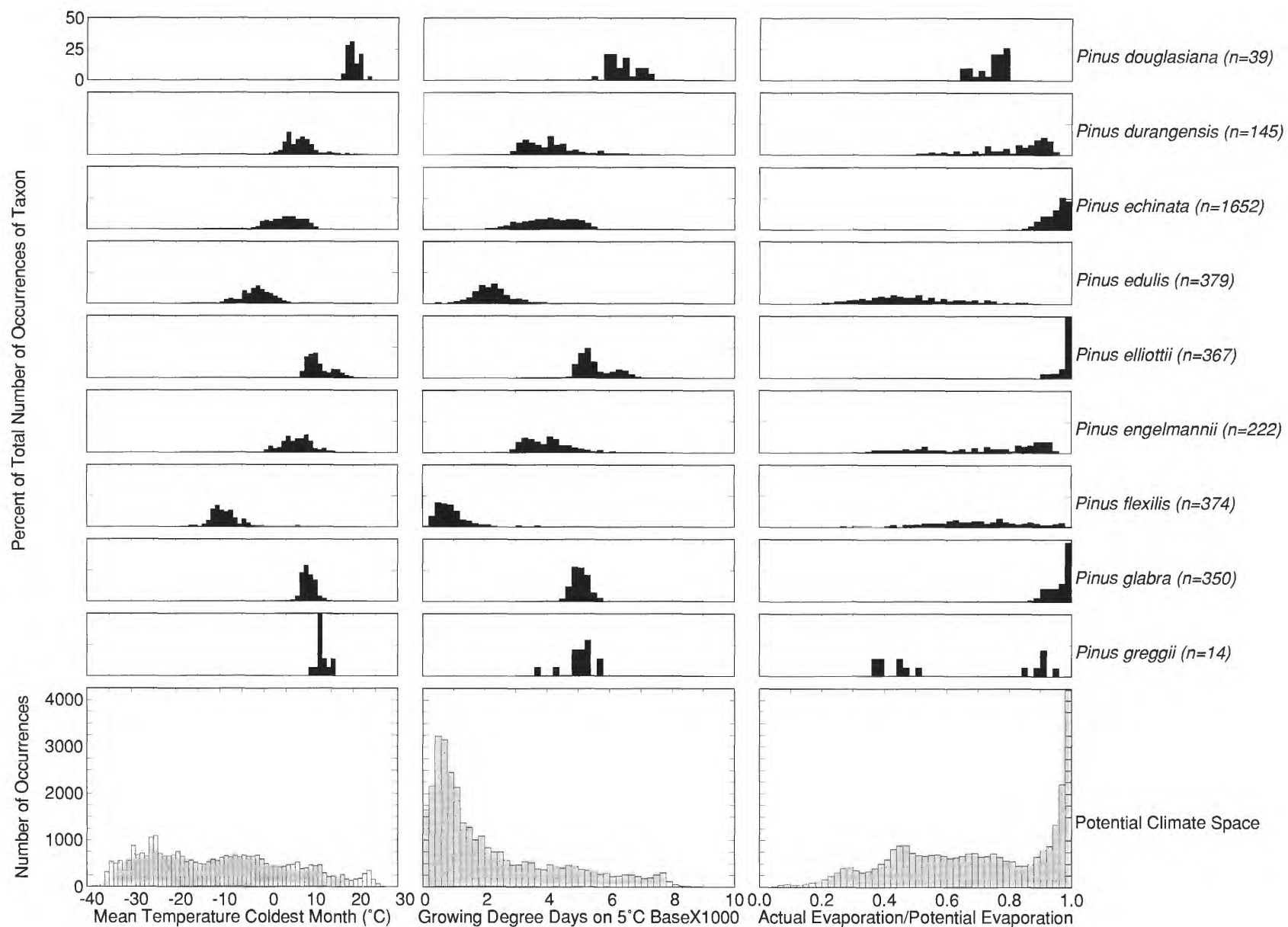


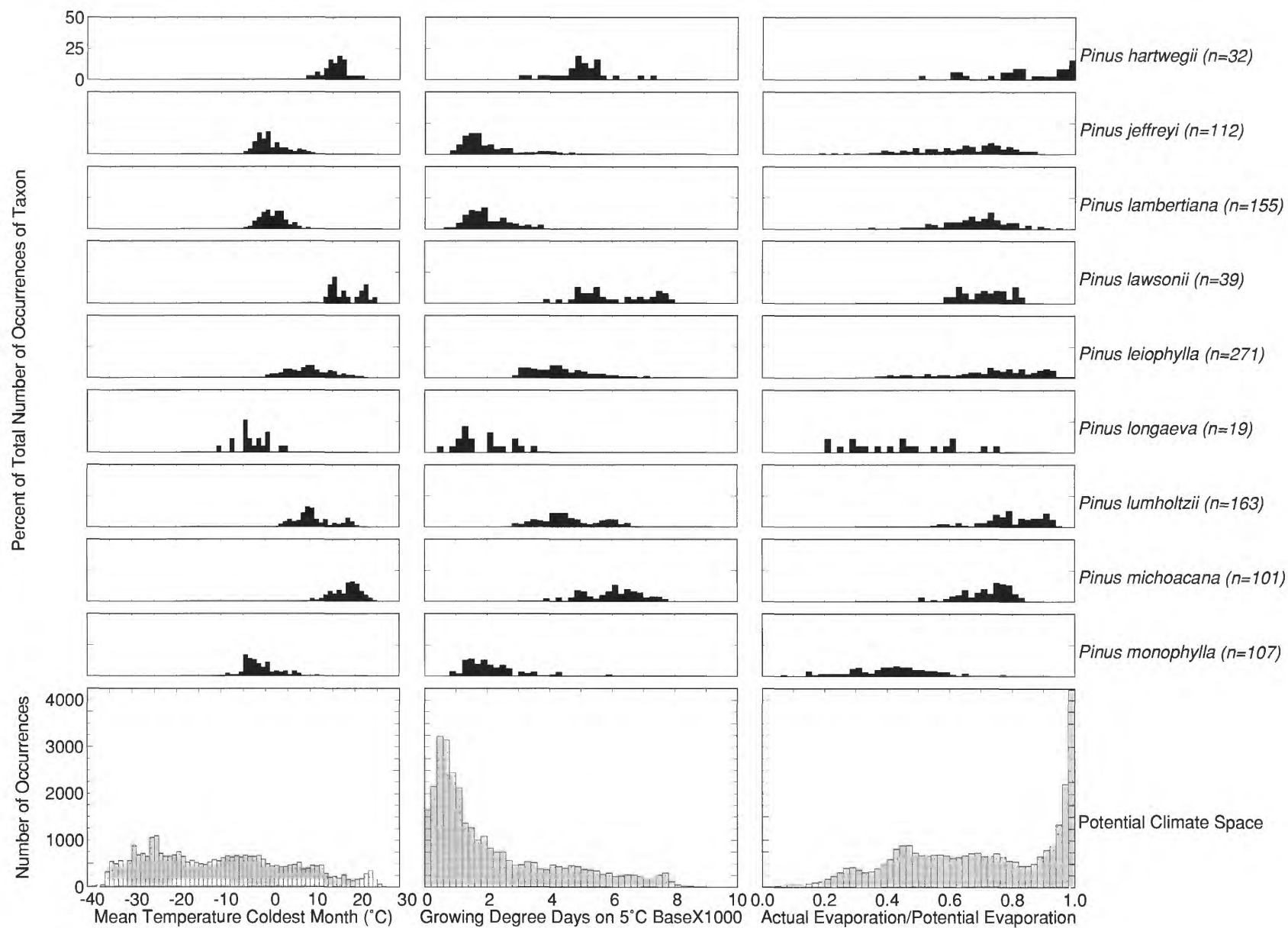


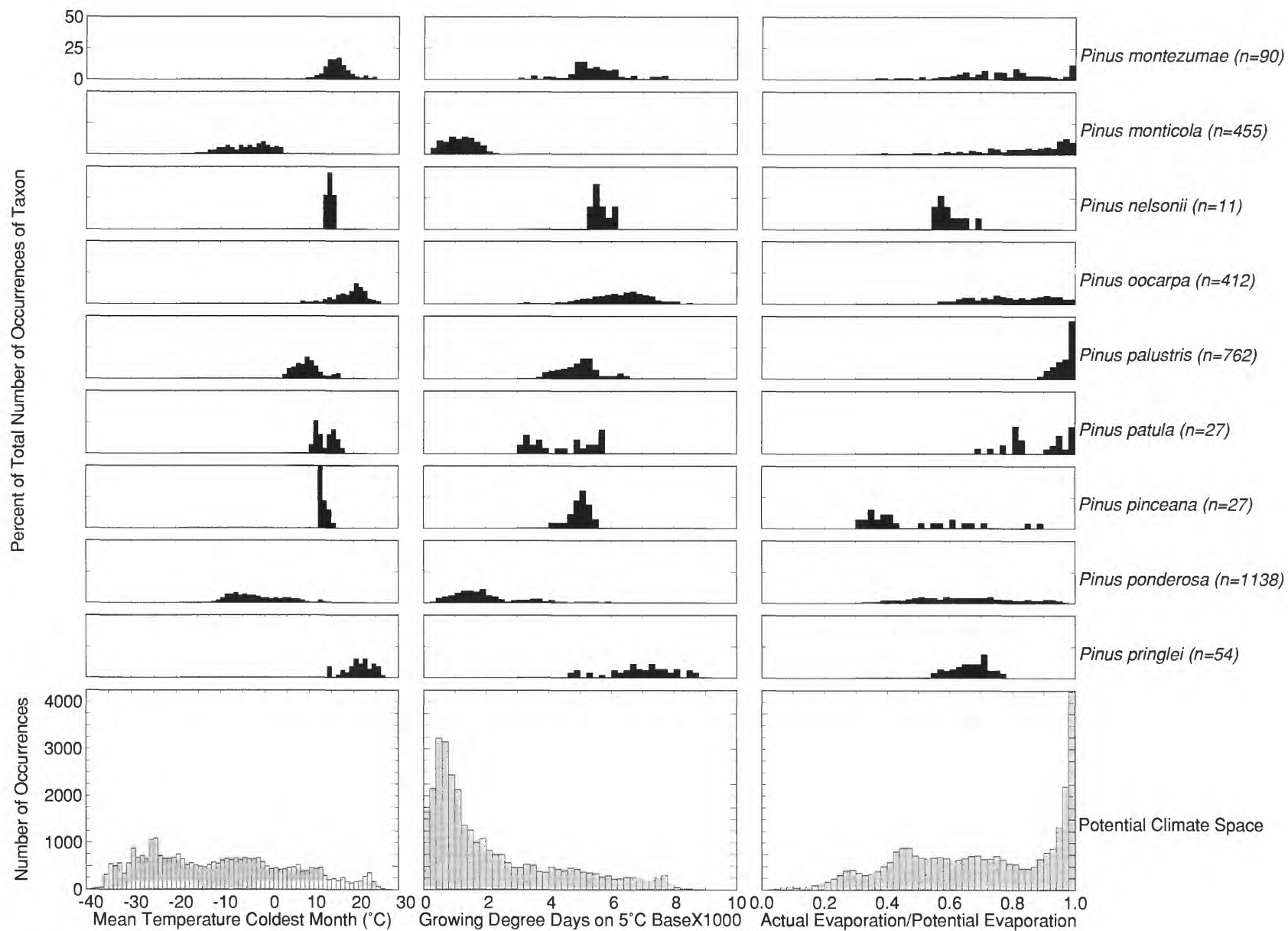


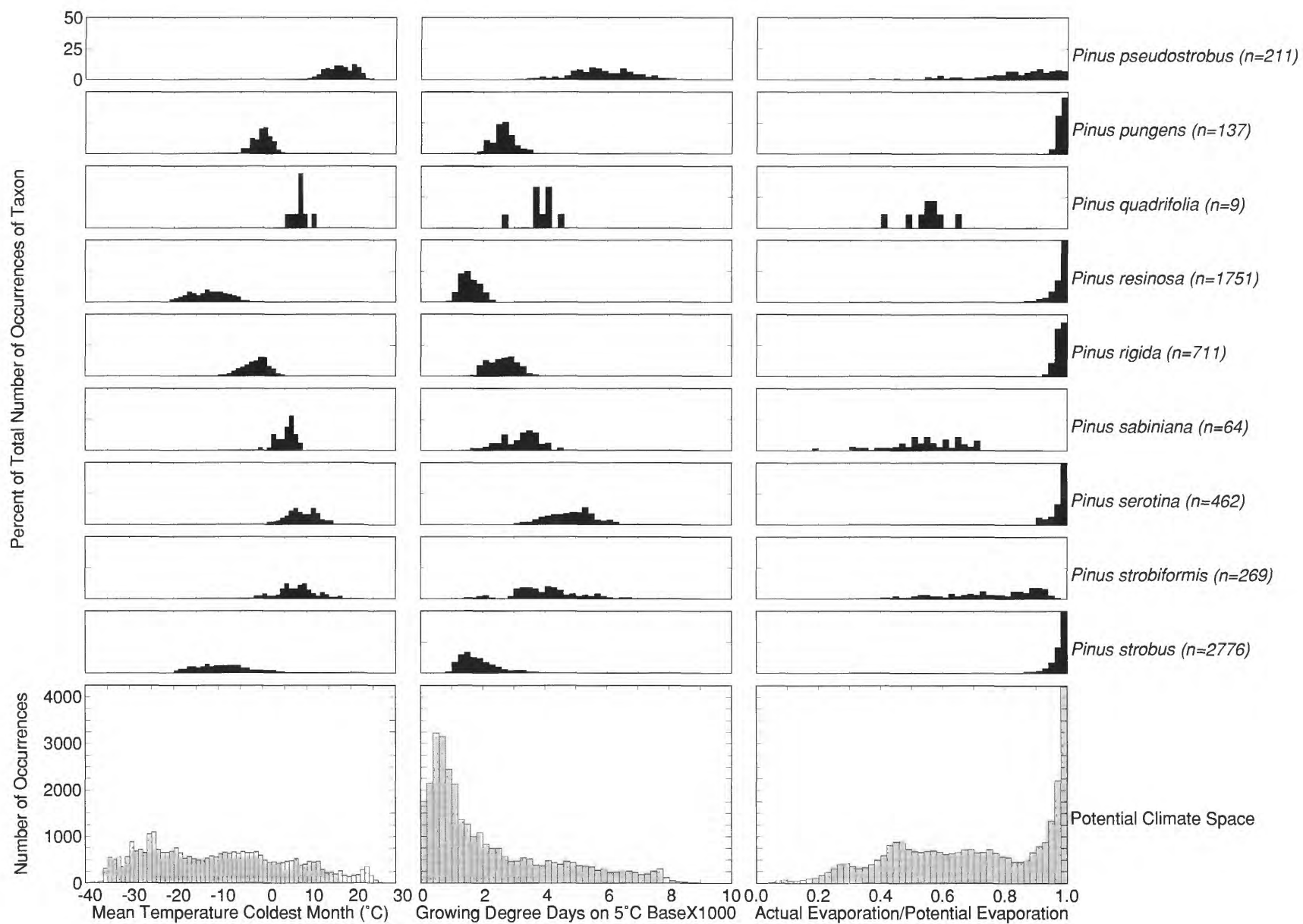


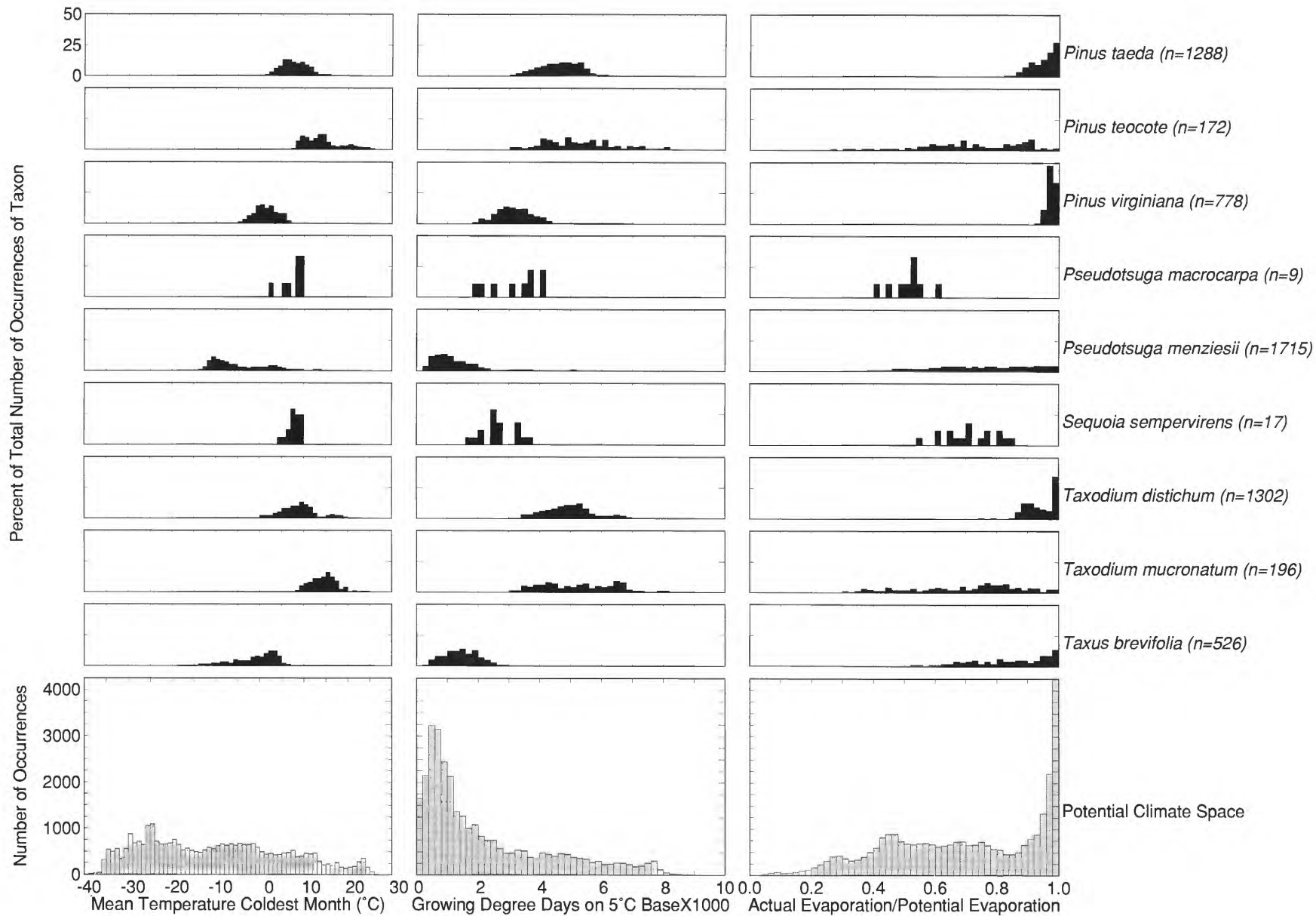


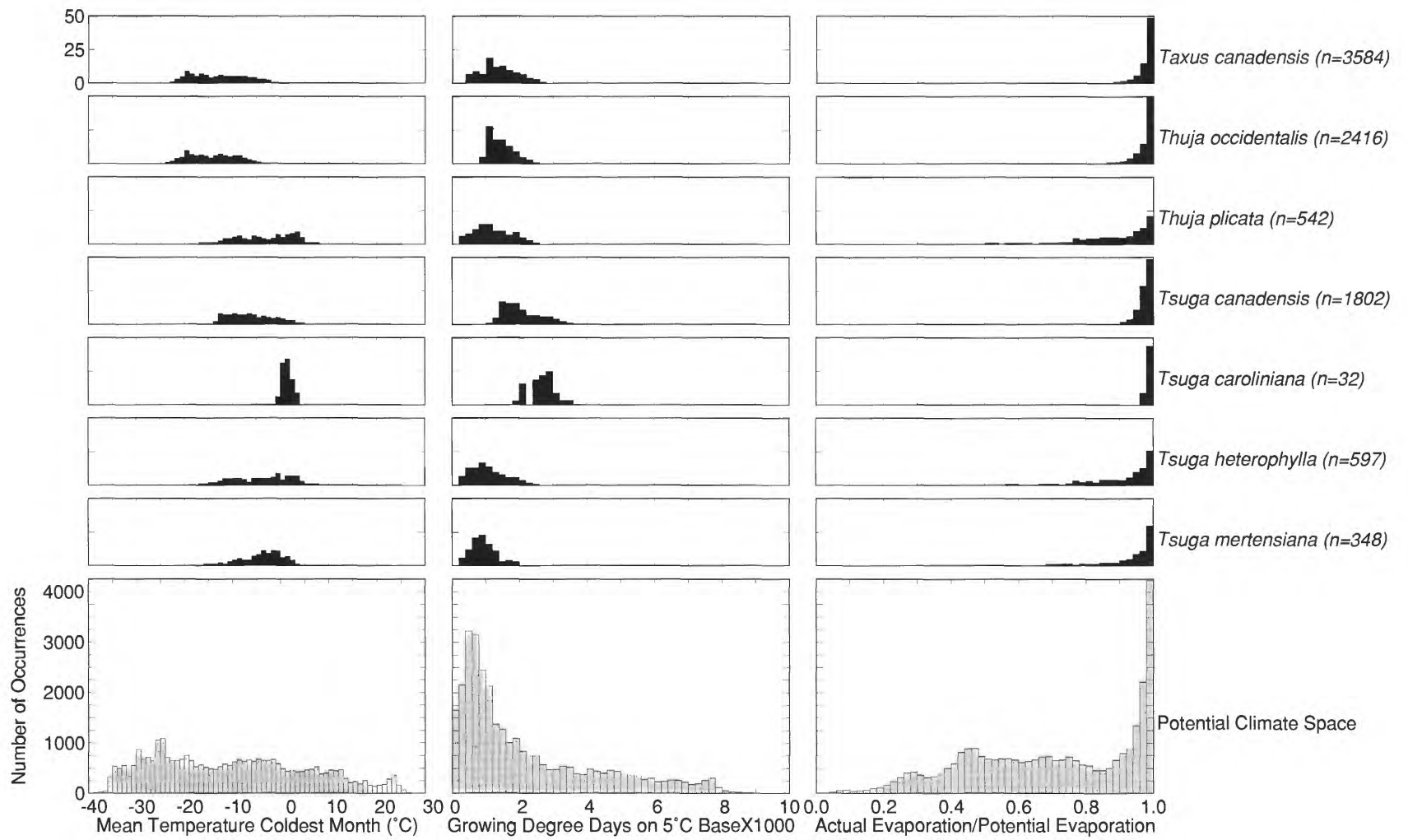






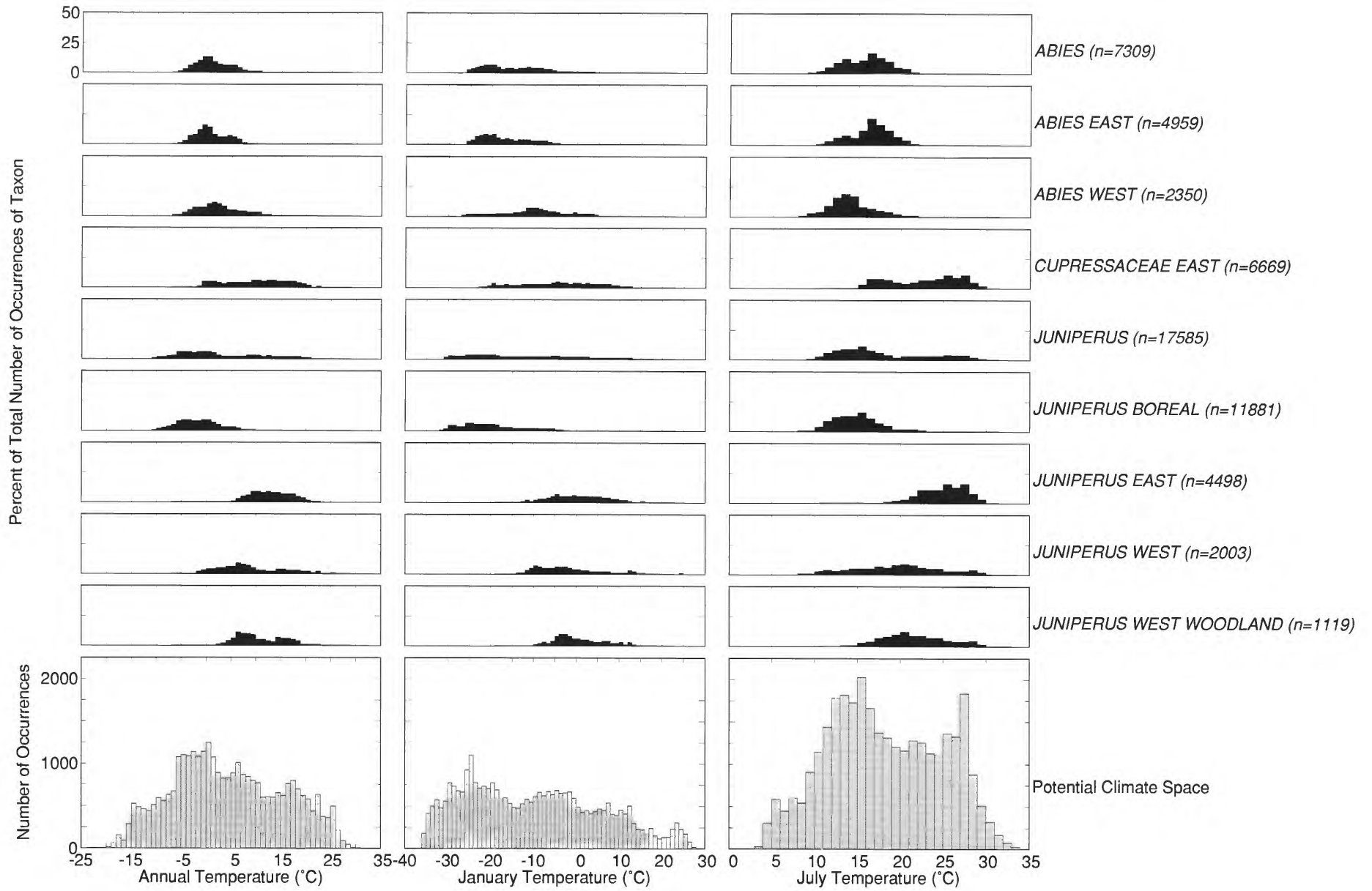


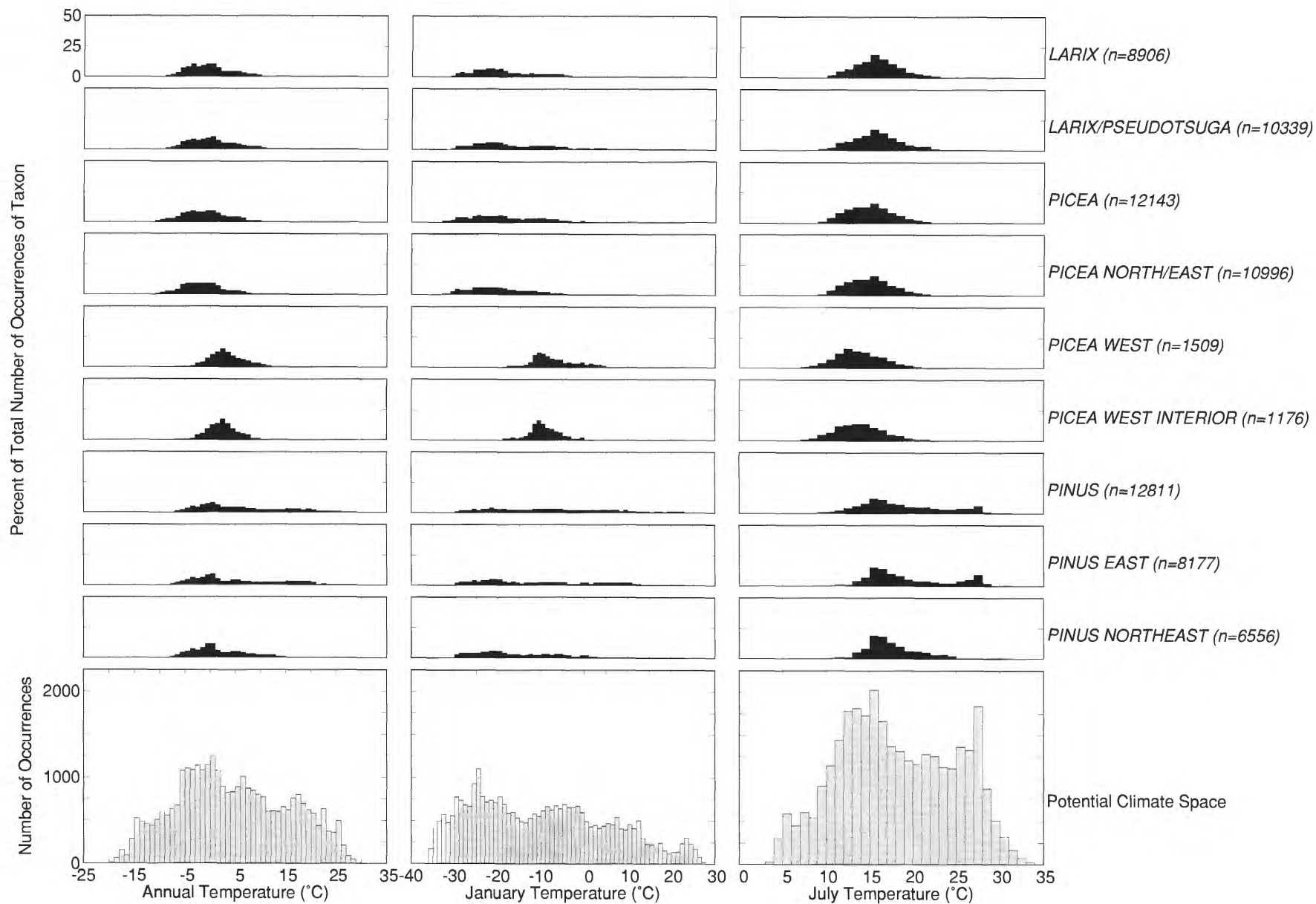


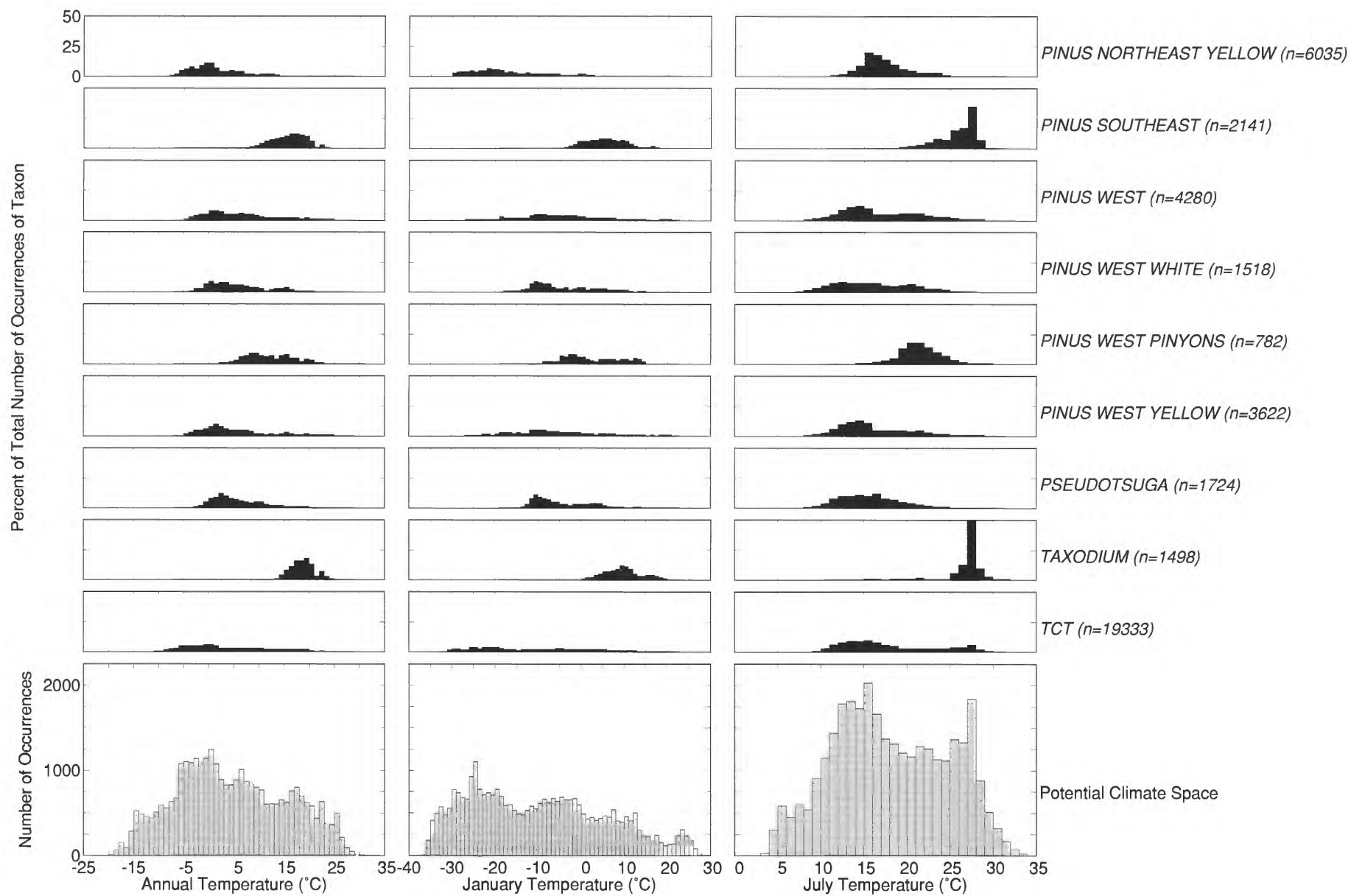


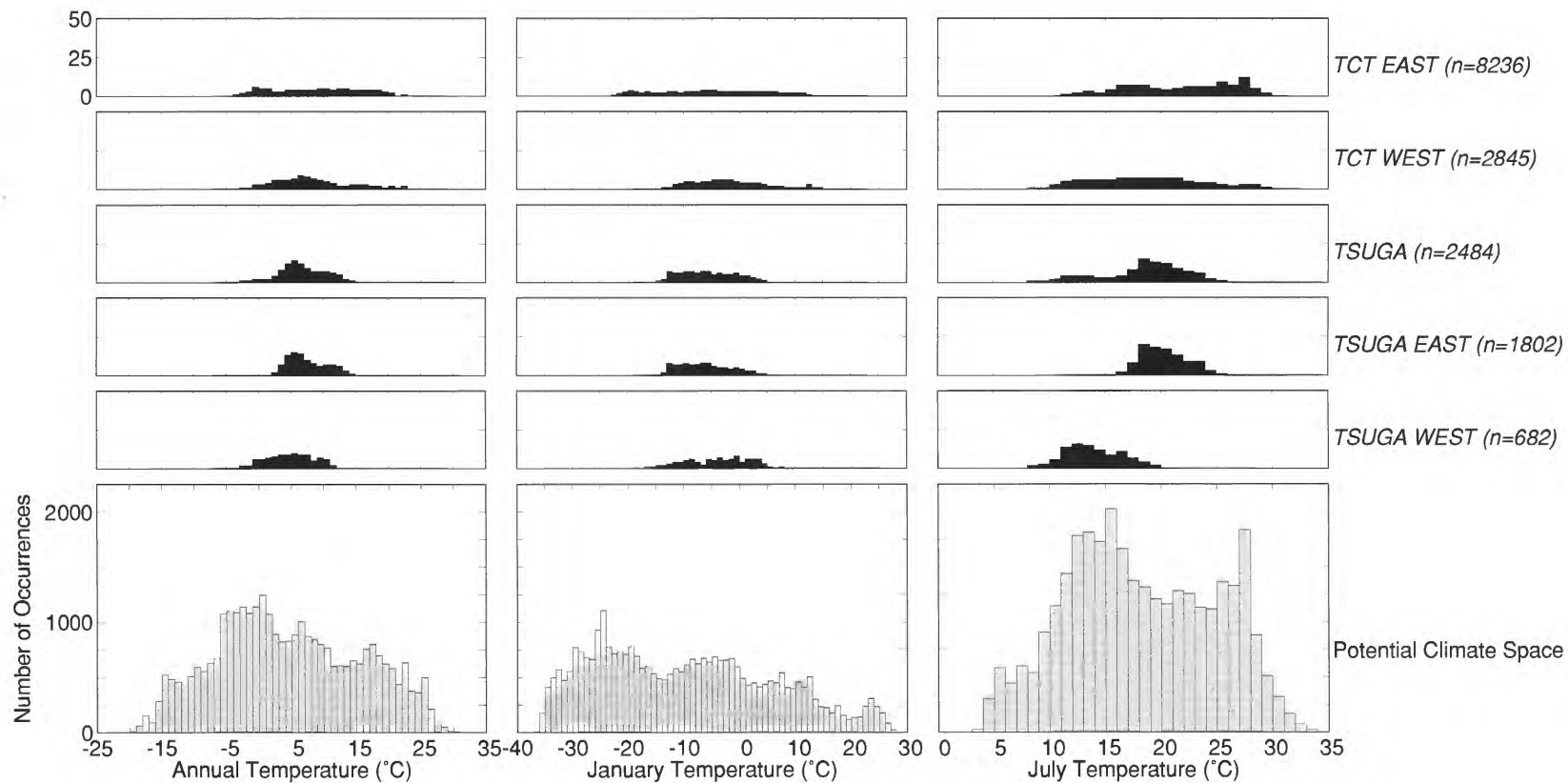
Conifer Genera and Groups— Histograms

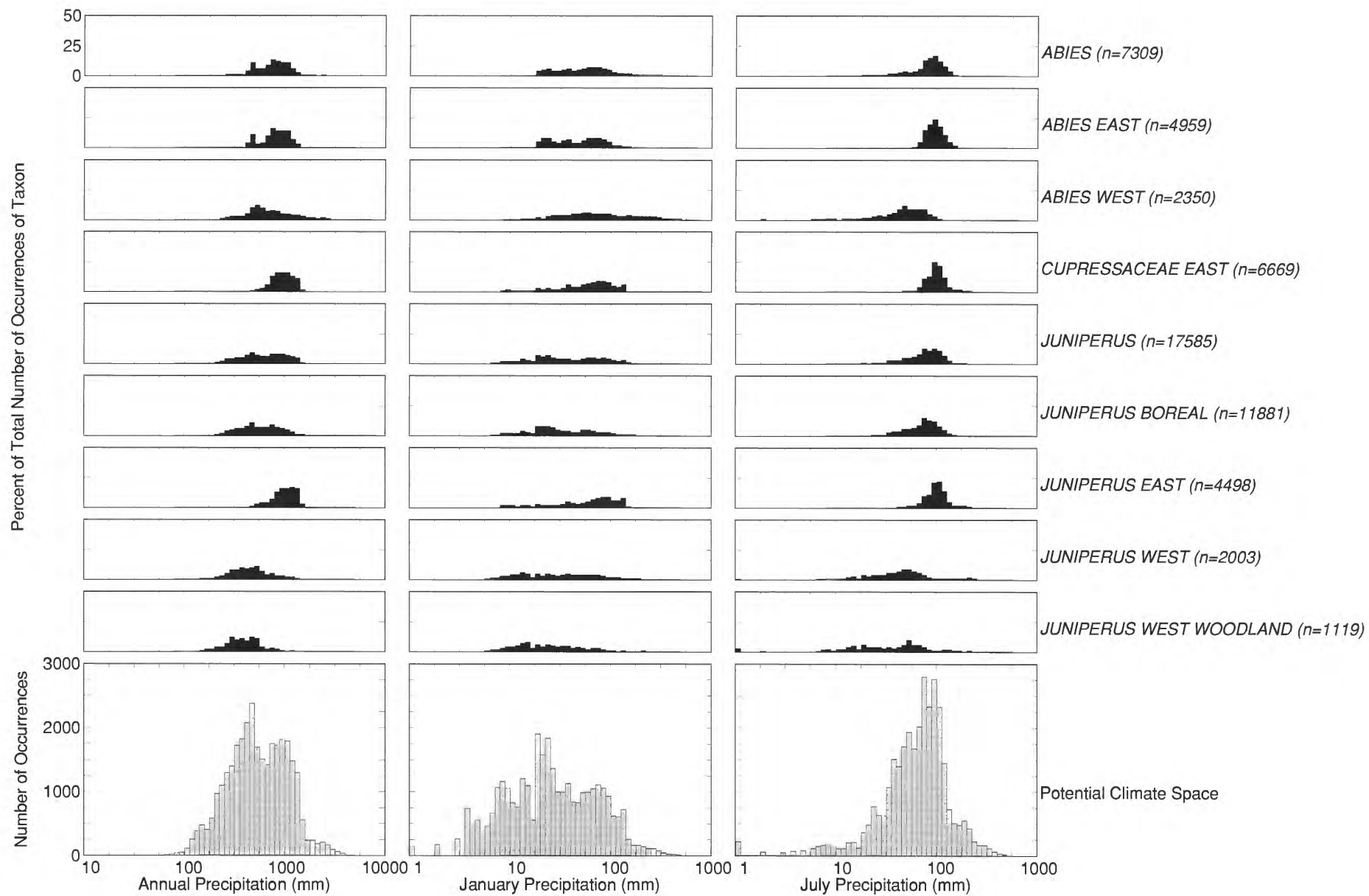


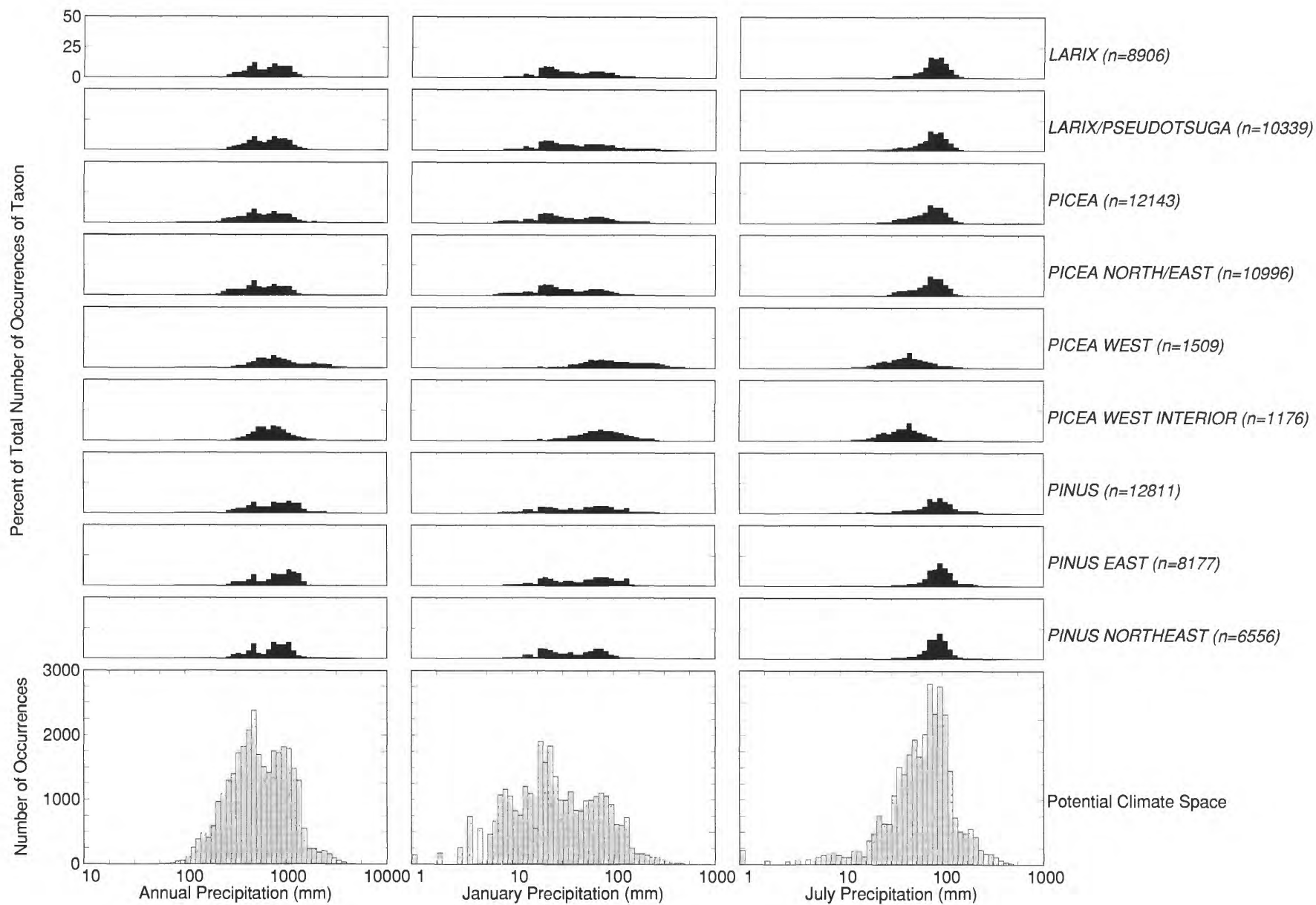


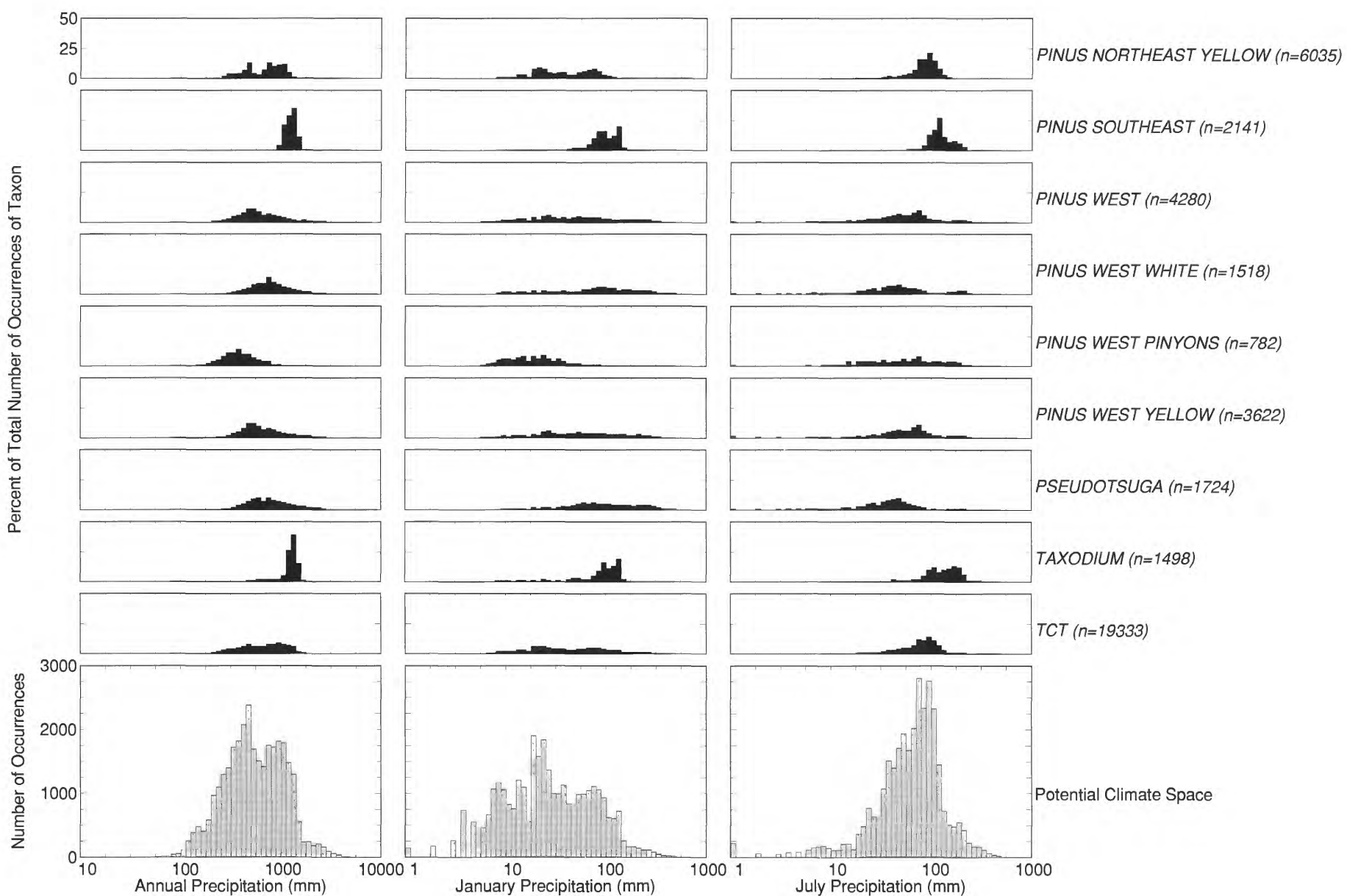


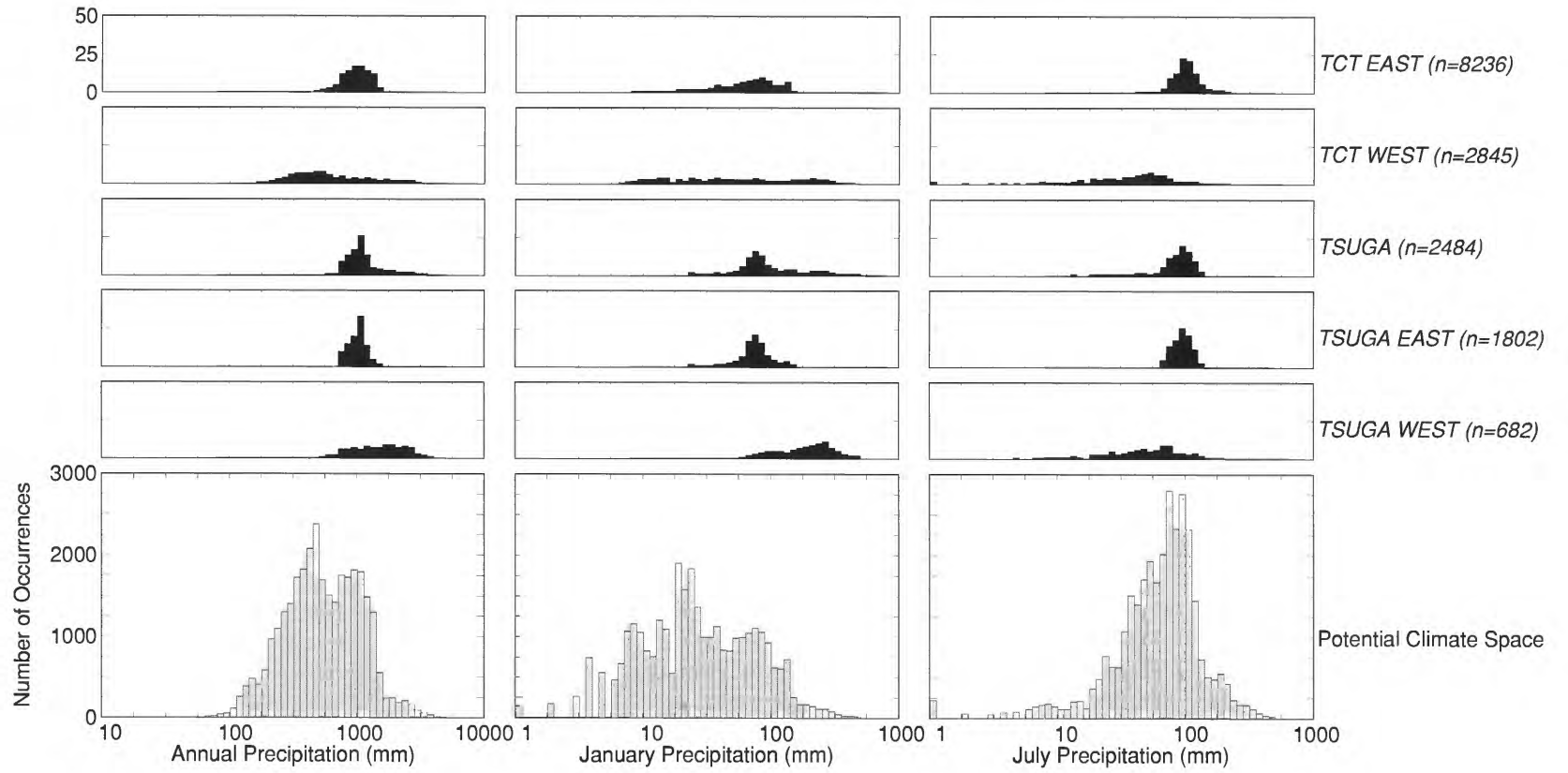


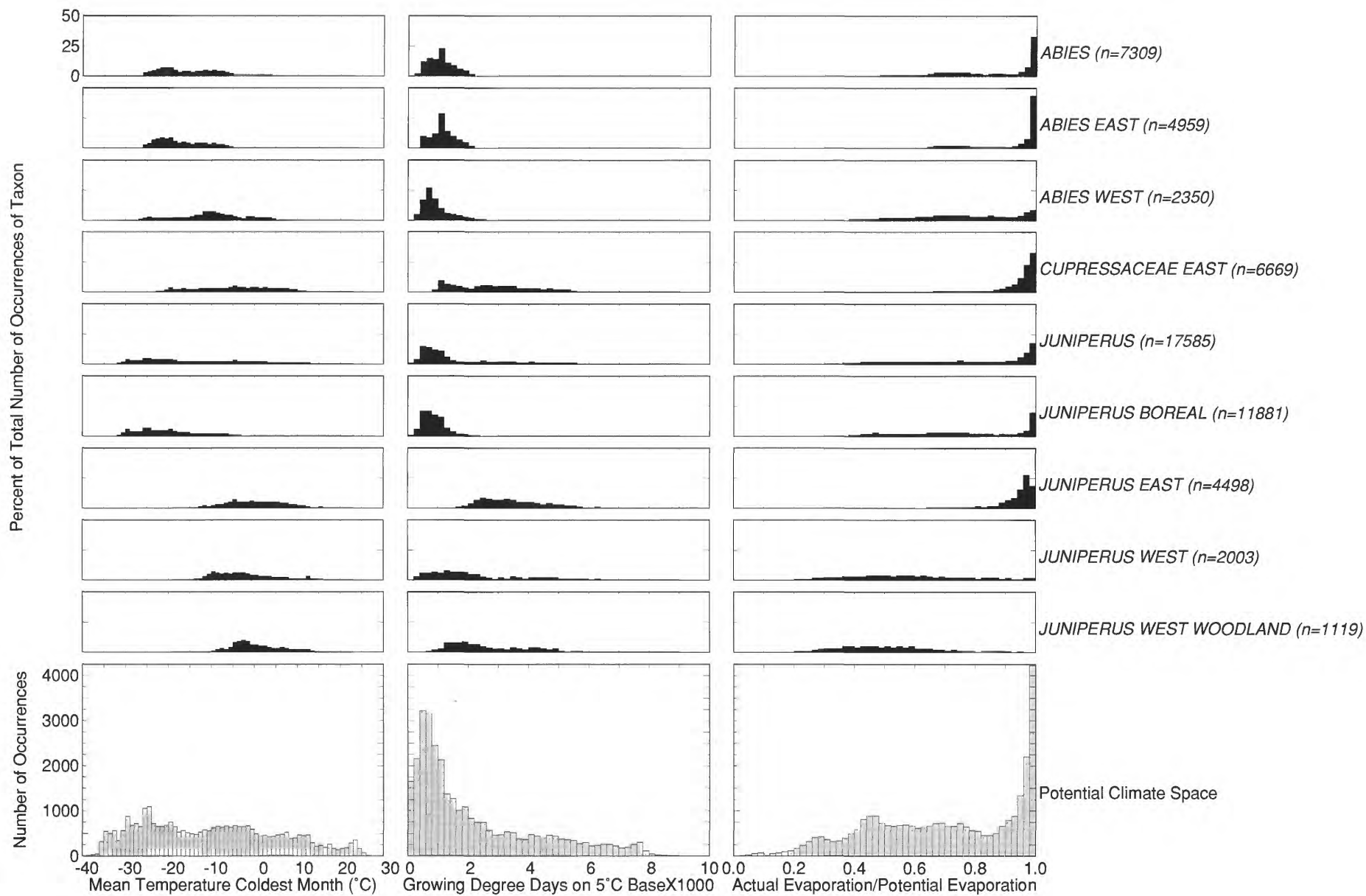


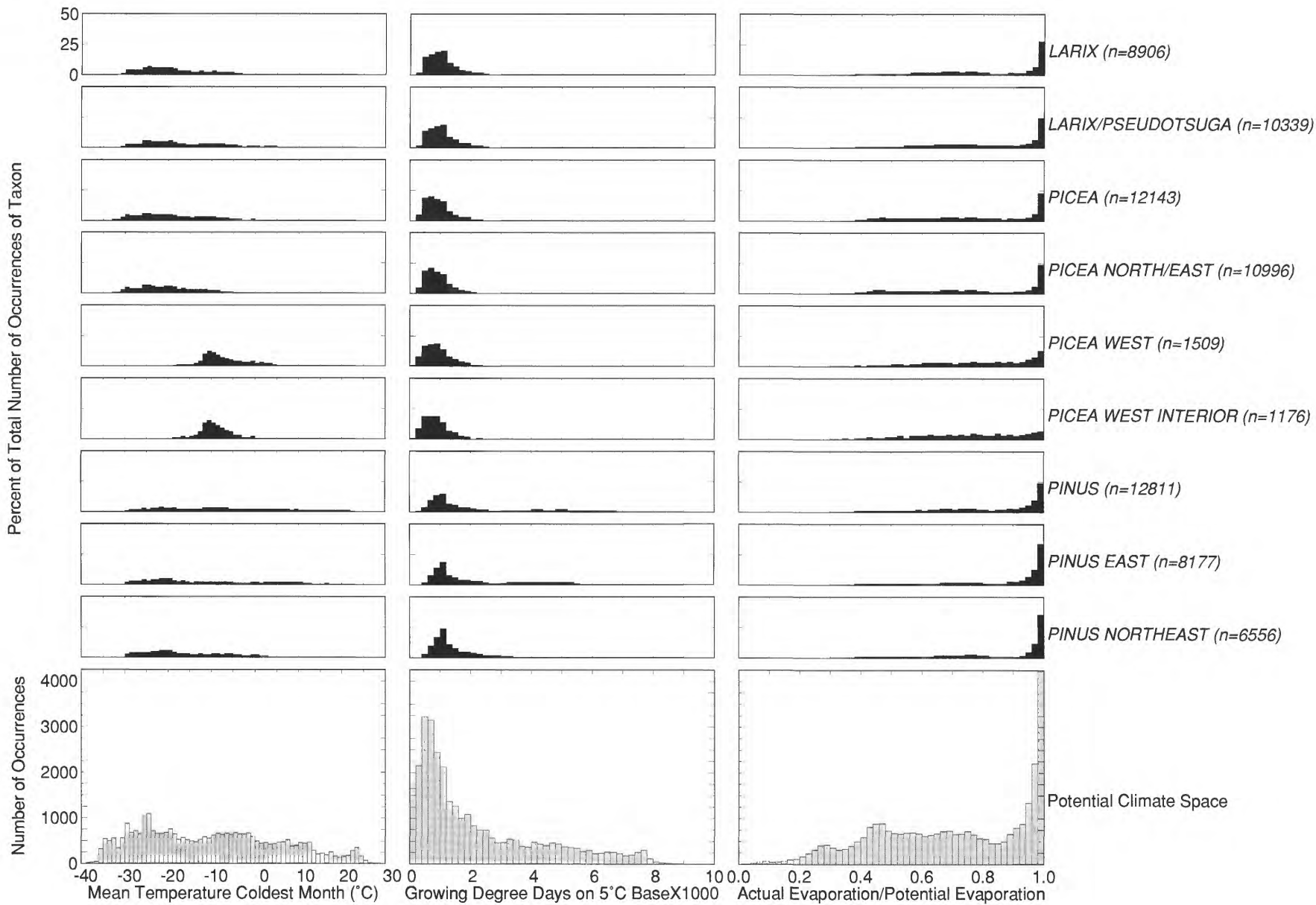


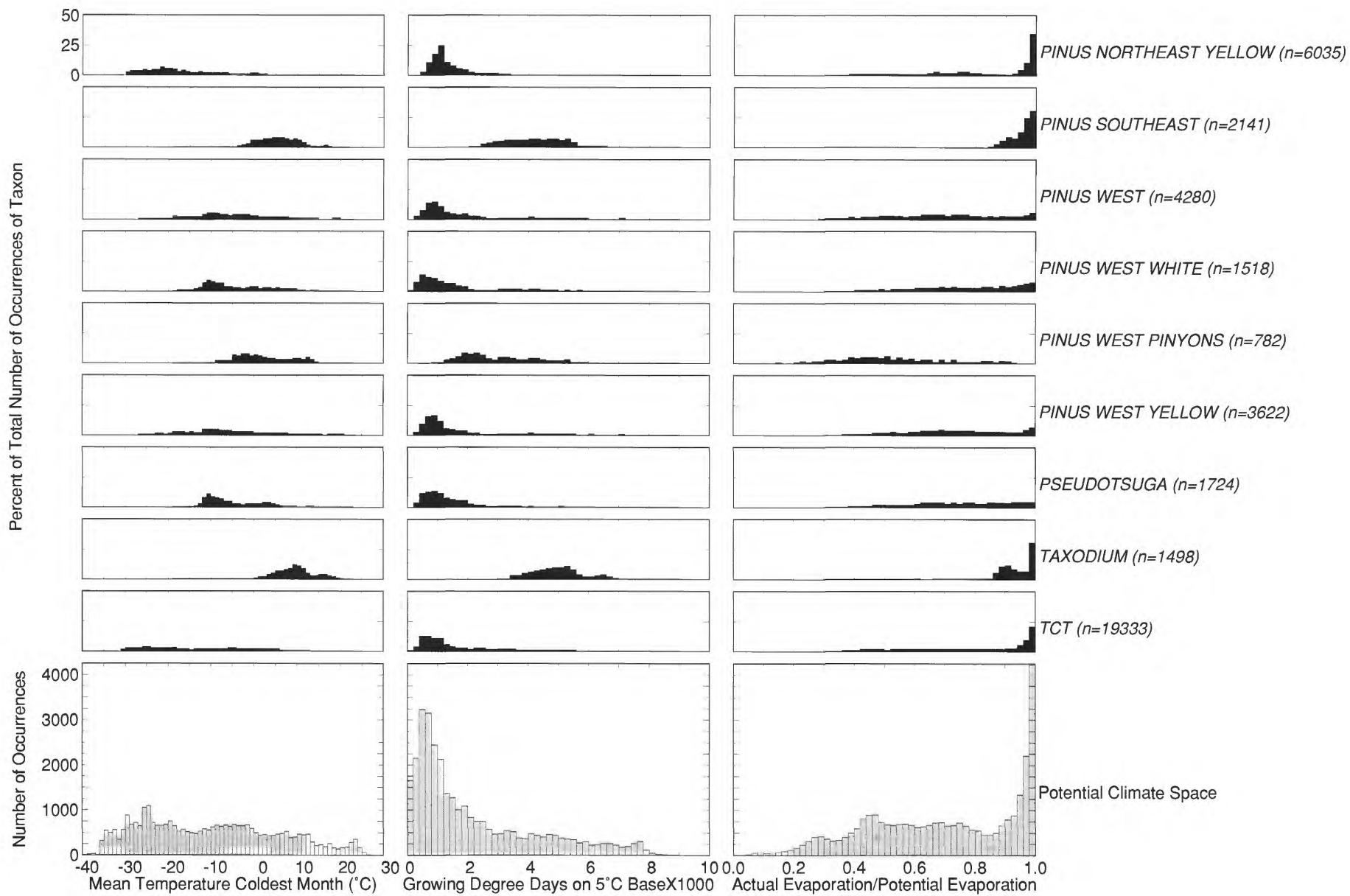


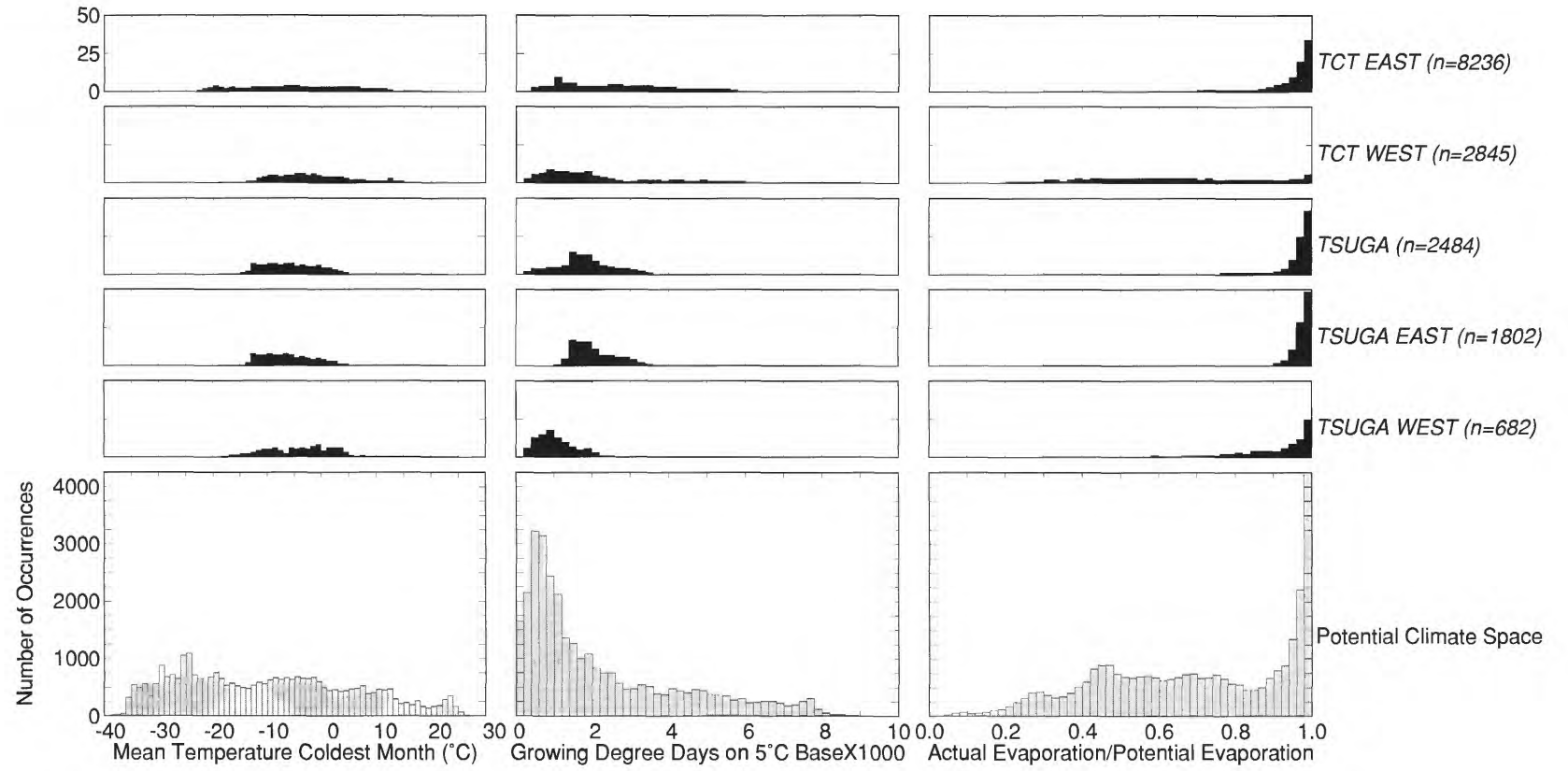












Conifer Species— Tables



CONIFERS		Annual Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	-1.4	1.2	3.1	5.2	7.0	8.7	10.3
<i>Abies balsamea</i>	4955	-6.2	-3.3	-1.6	0.0	2.9	5.2	11.0
<i>Abies concolor</i>	278	-1.4	1.6	4.4	7.4	9.5	11.8	18.8
<i>Abies grandis</i>	308	-1.3	2.1	4.0	6.6	9.4	10.4	12.6
<i>Abies lasiocarpa</i>	1910	-6.9	-3.4	-1.7	0.8	2.7	4.8	11.7
<i>Abies magnifica</i>	43	3.5	5.2	6.0	7.5	8.1	8.6	12.1
<i>Abies procera</i>	54	0.4	3.5	5.7	6.9	7.9	9.1	10.8
<i>Chamaecyparis lawsoniana</i>	20	6.8	7.3	8.3	10.3	11.2	11.8	12.3
<i>Chamaecyparis nootkatensis</i>	339	-2.0	1.5	3.1	5.0	6.7	7.9	10.0
<i>Chamaecyparis thyoides</i>	211	6.5	9.5	11.9	15.7	16.7	19.7	20.0
<i>Cupressus arizonica</i>	101	12.0	13.3	14.9	19.5	20.5	22.0	22.7
<i>Juniperus ashei</i>	75	14.1	14.7	18.0	18.8	19.4	19.8	22.2
<i>Juniperus californica</i>	50	8.3	12.8	14.1	14.7	16.6	18.8	22.5
<i>Juniperus communis</i>	11702	-12.2	-7.3	-5.0	-2.1	0.7	3.6	15.5
<i>Juniperus deppeana</i>	195	6.9	9.5	12.0	15.1	17.4	20.6	26.1
<i>Juniperus flaccida</i>	160	12.5	15.2	17.9	20.1	22.2	24.6	26.4
<i>Juniperus horizontalis</i>	7344	-12.2	-6.0	-4.5	-2.1	0.0	1.5	8.5
<i>Juniperus monosperma</i>	258	1.6	7.4	8.7	10.5	13.3	15.3	22.0
<i>Juniperus occidentalis</i>	161	0.9	4.4	5.5	6.4	7.3	8.3	17.6
<i>Juniperus osteosperma</i>	429	0.6	4.4	6.2	8.2	10.2	12.0	18.6
<i>Juniperus pinchotii</i>	144	13.8	14.3	15.4	16.6	17.5	18.3	21.4
<i>Juniperus scopulorum</i>	881	-3.2	-0.4	1.3	3.6	6.5	8.6	16.1
<i>Juniperus silicicola</i>	188	16.0	17.5	19.8	20.3	21.6	22.2	22.7
<i>Juniperus virginiana</i>	4260	4.3	7.9	9.8	12.6	15.7	17.7	20.5
<i>Larix laricina</i>	8588	-9.7	-5.6	-3.9	-1.2	1.4	5.1	11.2
<i>Larix lyallii</i>	57	-2.6	-2.3	-1.0	0.8	1.5	2.8	5.3
<i>Larix occidentalis</i>	265	-1.3	1.1	3.0	4.5	5.9	6.8	8.6
<i>Libocedrus decurrens</i>	157	3.7	6.8	7.9	9.6	11.4	13.5	19.4
<i>Picea engelmannii</i>	1149	-4.8	-1.1	0.4	2.1	3.8	5.9	13.2
<i>Picea glauca</i>	9921	-12.2	-6.1	-4.4	-1.9	0.7	3.1	8.6
<i>Picea mariana</i>	10154	-12.4	-7.1	-4.9	-2.2	0.6	4.0	10.7
<i>Picea pungens</i>	140	-3.2	-1.2	0.1	1.7	4.1	7.0	11.7
<i>Picea rubens</i>	592	0.1	2.9	3.8	5.1	6.1	7.1	12.0
<i>Picea sitchensis</i>	331	-6.5	1.1	3.6	5.9	8.6	9.9	12.3
<i>Pinus albicaulis</i>	589	-4.8	-2.0	-0.5	1.1	3.3	5.4	10.2
<i>Pinus aristata</i>	20	-3.2	-2.6	-1.6	0.4	1.5	2.1	3.8
<i>Pinus attenuata</i>	25	5.7	7.6	8.3	10.9	11.8	12.2	14.5
<i>Pinus ayacahuite</i>	95	12.2	14.2	16.5	19.6	23.5	25.3	27.5
<i>Pinus banksiana</i>	4718	-8.0	-5.1	-3.4	-0.9	0.8	3.4	9.8
<i>Pinus caribaea</i>	78	18.9	22.2	23.2	24.4	25.1	25.8	30.9
<i>Pinus cembroides</i>	287	11.9	13.3	14.8	16.1	18.2	20.0	22.7
<i>Pinus clausa</i>	82	19.6	20.8	21.6	22.1	22.4	22.6	23.6
<i>Pinus contorta</i>	2308	-7.2	-2.8	-1.0	1.2	3.5	6.3	15.3
<i>Pinus cooperi</i>	92	12.6	13.4	14.2	15.2	16.2	18.1	21.4
<i>Pinus coulteri</i>	10	10.0	10.0	12.9	14.3	17.4	18.8	18.9
<i>Pinus douglasiana</i>	39	19.4	19.8	20.5	21.4	23.0	24.1	25.0
<i>Pinus durangensis</i>	145	11.9	12.6	13.6	14.9	15.8	17.4	23.3
<i>Pinus echinata</i>	1652	7.4	11.9	13.8	16.0	17.7	19.0	20.1
<i>Pinus edulis</i>	379	-0.6	5.9	7.7	9.3	10.8	12.5	17.8
<i>Pinus elliotii</i>	367	17.7	18.5	19.2	19.8	20.7	22.4	24.1

CONIFERS		Annual Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	11.9	12.8	13.9	15.1	16.4	18.2	23.3
<i>Pinus flexilis</i>	374	-3.9	-1.3	0.1	1.9	3.9	6.1	19.4
<i>Pinus glabra</i>	350	16.8	17.9	18.2	18.8	19.6	19.9	20.8
<i>Pinus greggii</i>	14	14.6	14.6	17.0	19.6	20.0	20.6	20.8
<i>Pinus hartwegii</i>	32	14.0	14.6	18.0	19.3	20.1	22.0	23.6
<i>Pinus jeffreyi</i>	112	4.6	6.3	7.2	8.3	11.5	13.7	19.4
<i>Pinus lambertiana</i>	155	3.5	6.5	7.7	9.4	11.4	12.9	18.8
<i>Pinus lawsonii</i>	39	16.2	17.1	18.0	19.4	24.8	25.5	26.0
<i>Pinus leiophylla</i>	271	8.4	12.8	14.3	15.8	18.1	19.9	25.7
<i>Pinus longaeva</i>	19	-0.6	2.5	5.4	6.3	9.7	11.9	14.3
<i>Pinus lumholtzii</i>	163	11.9	13.3	14.8	16.3	19.1	20.9	23.1
<i>Pinus michoacana</i>	101	14.9	18.2	19.0	21.0	22.8	24.1	25.7
<i>Pinus monophylla</i>	107	2.1	5.2	6.4	7.9	11.1	13.8	21.9
<i>Pinus montezumae</i>	90	12.2	16.5	18.3	19.5	21.1	22.9	26.1
<i>Pinus monticola</i>	455	-2.8	0.1	2.9	5.4	7.7	9.3	12.1
<i>Pinus nelsonii</i>	11	19.1	19.1	19.4	20.1	20.3	21.2	21.3
<i>Pinus oocarpa</i>	412	13.6	18.4	20.2	22.3	24.0	25.1	28.3
<i>Pinus palustris</i>	762	15.0	16.2	17.3	18.7	19.7	20.5	22.7
<i>Pinus patula</i>	27	13.6	14.1	14.7	16.8	18.4	19.5	20.4
<i>Pinus pinceana</i>	27	16.0	16.8	17.8	19.5	19.8	20.0	20.4
<i>Pinus ponderosa</i>	1138	-1.7	2.7	5.1	7.5	11.4	15.2	24.2
<i>Pinus pringlei</i>	54	17.1	18.4	22.3	24.0	25.7	26.6	28.3
<i>Pinus pseudostrobus</i>	211	13.6	17.3	19.0	20.6	22.9	24.4	27.4
<i>Pinus pungens</i>	137	7.4	9.1	9.9	11.1	11.9	12.7	14.6
<i>Pinus quadrifolia</i>	9	11.5	11.5	12.7	14.8	17.3	18.9	19.4
<i>Pinus resinosa</i>	1751	-1.1	1.1	2.1	4.1	5.7	6.9	11.4
<i>Pinus rigida</i>	711	4.4	7.5	9.0	10.8	12.1	13.1	15.2
<i>Pinus sabiniana</i>	64	9.0	10.9	12.3	13.9	14.7	15.8	17.1
<i>Pinus serotina</i>	462	12.5	15.5	16.7	18.3	19.8	20.4	22.1
<i>Pinus strobiformis</i>	269	6.6	12.1	13.6	15.1	16.8	20.1	23.8
<i>Pinus strobus</i>	2776	-0.5	1.5	3.0	5.4	8.1	11.0	25.5
<i>Pinus taeda</i>	1288	12.1	15.1	16.3	17.6	19.1	19.9	22.1
<i>Pinus teocote</i>	172	12.2	14.8	15.8	18.7	20.9	23.4	27.4
<i>Pinus virginiana</i>	778	7.2	10.1	11.4	12.8	14.3	15.5	17.8
<i>Pseudotsuga macrocarpa</i>	9	12.7	12.7	12.7	15.0	16.2	16.9	18.0
<i>Pseudotsuga menziesii</i>	1715	-3.9	0.0	1.8	4.1	8.2	11.5	24.8
<i>Sequoia sempervirens</i>	17	9.4	10.0	10.8	12.3	13.7	14.1	15.3
<i>Taxodium distichum</i>	1302	12.6	15.6	16.9	18.3	19.8	20.9	24.1
<i>Taxodium mucronatum</i>	196	13.9	14.9	16.0	19.0	22.1	23.0	26.6
<i>Taxus brevifolia</i>	526	-1.6	2.4	5.2	7.6	9.7	10.7	13.9
<i>Taxus canadensis</i>	3584	-5.1	-1.8	0.0	2.6	5.6	7.8	13.0
<i>Thuja occidentalis</i>	2416	-4.4	-0.7	0.5	2.5	4.9	6.7	14.2
<i>Thuja plicata</i>	542	-2.8	0.3	2.8	5.9	8.7	10.2	12.3
<i>Tsuga canadensis</i>	1802	0.1	3.9	5.0	6.8	9.9	12.0	16.3
<i>Tsuga caroliniana</i>	32	8.8	9.5	10.9	11.7	12.4	12.8	14.2
<i>Tsuga heterophylla</i>	597	-5.2	-0.4	1.9	5.0	7.7	9.8	12.6
<i>Tsuga mertensiana</i>	348	-6.5	0.3	2.1	4.5	6.4	7.8	10.1

CONIFERS		January Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	-13.8	-8.2	-5.6	-2.6	-0.2	1.6	3.6
<i>Abies balsamea</i>	4955	-26.8	-23.7	-21.7	-19.0	-13.2	-9.0	-0.7
<i>Abies concolor</i>	278	-10.7	-8.7	-6.2	-1.5	0.7	2.9	11.8
<i>Abies grandis</i>	308	-14.4	-8.6	-6.5	-2.6	2.7	3.9	9.6
<i>Abies lasiocarpa</i>	1910	-30.0	-23.2	-17.6	-11.6	-8.7	-5.9	3.5
<i>Abies magnifica</i>	43	-4.4	-3.6	-2.6	-0.9	0.0	0.7	2.9
<i>Abies procera</i>	54	-7.7	-4.7	-2.6	-0.9	0.3	3.3	4.7
<i>Chamaecyparis lawsoniana</i>	20	-1.7	-1.4	2.6	5.2	6.6	7.3	7.6
<i>Chamaecyparis nootkatensis</i>	339	-10.3	-6.5	-4.7	-2.3	-0.4	1.4	3.9
<i>Chamaecyparis thyoides</i>	211	-6.8	-2.9	-0.4	5.3	6.6	11.2	12.4
<i>Cupressus arizonica</i>	101	3.3	5.0	7.5	11.1	12.6	12.8	14.1
<i>Juniperus ashei</i>	75	1.3	2.2	6.5	8.2	9.6	9.9	12.4
<i>Juniperus californica</i>	50	3.6	5.3	6.2	6.6	8.4	10.4	14.0
<i>Juniperus communis</i>	11702	-32.5	-28.8	-25.5	-21.4	-16.1	-9.3	4.9
<i>Juniperus deppeana</i>	195	-2.2	0.6	2.7	8.0	11.5	12.9	24.8
<i>Juniperus flaccida</i>	160	4.3	9.2	12.5	13.5	15.7	23.7	26.2
<i>Juniperus horizontalis</i>	7344	-30.9	-28.5	-25.4	-22.1	-18.9	-15.4	-3.1
<i>Juniperus monosperma</i>	258	-9.2	-3.4	-1.9	0.2	2.7	5.9	12.7
<i>Juniperus occidentalis</i>	161	-9.9	-5.3	-4.1	-3.0	-2.1	-0.8	7.1
<i>Juniperus osteosperma</i>	429	-11.9	-7.8	-5.3	-3.3	-0.9	1.2	6.3
<i>Juniperus pinchotii</i>	144	1.3	1.8	3.1	4.7	6.5	7.9	11.1
<i>Juniperus scopulorum</i>	881	-17.9	-11.6	-10.2	-8.3	-5.7	-1.9	5.8
<i>Juniperus silicicola</i>	188	5.9	7.7	10.9	12.3	14.7	15.9	16.8
<i>Juniperus virginiana</i>	4260	-13.4	-8.2	-4.9	-0.7	3.9	7.1	11.7
<i>Larix laricina</i>	8588	-31.0	-27.7	-24.6	-20.9	-15.9	-9.4	-1.0
<i>Larix lyallii</i>	57	-16.4	-15.2	-13.2	-10.5	-8.6	-7.6	-5.4
<i>Larix occidentalis</i>	265	-14.4	-9.7	-8.6	-6.8	-5.0	-3.7	-1.1
<i>Libocedrus decurrens</i>	157	-5.4	-1.6	-0.2	2.0	3.7	5.5	9.9
<i>Picea engelmannii</i>	1149	-18.7	-13.0	-11.4	-9.8	-7.5	-5.1	5.4
<i>Picea glauca</i>	9921	-33.1	-28.4	-25.2	-21.2	-16.7	-11.9	-2.4
<i>Picea mariana</i>	10154	-34.2	-29.1	-25.7	-21.7	-16.9	-11.6	-2.0
<i>Picea pungens</i>	140	-12.2	-11.3	-10.3	-8.9	-7.0	-4.9	2.0
<i>Picea rubens</i>	592	-15.6	-12.9	-11.8	-9.6	-7.0	-5.0	1.5
<i>Picea sitchensis</i>	331	-12.3	-6.9	-3.6	-0.9	1.9	3.6	7.6
<i>Pinus albicaulis</i>	589	-18.7	-14.7	-11.9	-10.3	-7.8	-5.1	2.2
<i>Pinus aristata</i>	20	-12.0	-11.6	-10.9	-10.1	-8.4	-7.9	-5.6
<i>Pinus attenuata</i>	25	-3.0	1.5	2.6	3.9	6.6	7.6	10.4
<i>Pinus ayacahuite</i>	95	10.1	11.7	13.9	17.4	22.8	24.6	26.2
<i>Pinus banksiana</i>	4718	-30.4	-28.1	-25.3	-21.5	-18.2	-13.8	-4.5
<i>Pinus caribaea</i>	78	19.5	20.0	21.3	22.3	23.4	24.6	25.3
<i>Pinus cembroides</i>	287	4.0	5.2	6.7	9.4	12.3	13.4	17.3
<i>Pinus clausa</i>	82	11.6	13.6	15.0	15.8	16.3	17.0	19.0
<i>Pinus contorta</i>	2308	-29.3	-22.3	-17.5	-11.4	-7.4	-2.2	9.7
<i>Pinus cooperi</i>	92	4.5	5.2	6.6	8.8	10.1	11.1	15.4
<i>Pinus coulteri</i>	10	5.1	5.1	6.6	7.4	7.9	7.9	11.2
<i>Pinus douglasiana</i>	39	17.6	18.0	18.7	19.7	20.9	21.8	23.4
<i>Pinus durangensis</i>	145	4.0	4.7	5.4	7.5	9.3	11.0	18.6
<i>Pinus echinata</i>	1652	-4.3	-0.1	2.1	5.0	7.6	9.5	12.1
<i>Pinus edulis</i>	379	-11.4	-6.6	-4.2	-2.0	0.5	2.4	5.8
<i>Pinus elliottii</i>	367	7.8	9.2	10.0	11.4	13.6	16.2	19.3

CONIFERS				January Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	4.0	4.8	5.6	7.5	9.6	11.1	16.8
<i>Pinus flexilis</i>	374	-17.7	-11.9	-11.0	-9.3	-7.3	-4.4	8.0
<i>Pinus glabra</i>	350	6.3	8.1	8.7	9.7	10.7	11.6	13.6
<i>Pinus greggii</i>	14	11.7	11.7	12.5	13.2	13.5	15.0	15.2
<i>Pinus hartwegii</i>	32	9.8	11.7	13.9	16.2	17.2	19.3	24.7
<i>Pinus jeffreyi</i>	112	-3.8	-2.6	-1.6	0.2	3.0	6.6	11.3
<i>Pinus lambertiana</i>	155	-4.4	-2.0	-0.4	1.4	3.3	5.1	9.9
<i>Pinus lawsonii</i>	39	13.2	14.3	15.0	17.5	22.1	24.0	26.6
<i>Pinus leiophylla</i>	271	-0.7	4.8	6.6	9.6	13.1	17.0	23.5
<i>Pinus longaeva</i>	19	-10.7	-7.9	-4.5	-4.1	-0.2	0.8	4.0
<i>Pinus lumholtzii</i>	163	4.0	5.3	8.3	10.1	13.4	18.2	21.1
<i>Pinus michoacana</i>	101	10.0	13.9	16.2	19.1	21.1	24.0	25.8
<i>Pinus monophylla</i>	107	-8.4	-5.0	-4.1	-2.3	0.3	4.5	11.3
<i>Pinus montezumae</i>	90	10.1	13.4	14.3	16.4	18.2	20.9	24.9
<i>Pinus monticola</i>	455	-16.5	-11.0	-8.3	-3.6	-0.2	2.1	4.1
<i>Pinus nelsonii</i>	11	13.5	13.5	13.8	14.3	14.4	15.2	15.3
<i>Pinus oocarpa</i>	412	7.1	13.5	17.0	20.3	22.1	24.2	26.7
<i>Pinus palustris</i>	762	3.9	5.7	7.3	9.3	11.0	13.2	17.0
<i>Pinus patula</i>	27	11.5	11.6	11.9	13.5	15.5	16.2	17.9
<i>Pinus pinceana</i>	27	12.0	12.3	12.5	12.7	13.6	14.2	14.9
<i>Pinus ponderosa</i>	1138	-14.7	-8.8	-6.8	-3.0	3.6	7.2	17.8
<i>Pinus pringlei</i>	54	14.4	15.0	20.3	23.1	24.7	25.7	26.2
<i>Pinus pseudostrobus</i>	211	11.6	13.5	15.5	17.9	20.8	22.4	26.7
<i>Pinus pungens</i>	137	-5.0	-3.1	-1.6	-0.5	1.0	2.1	4.3
<i>Pinus quadrifolia</i>	9	8.0	8.0	9.1	9.4	9.9	10.5	11.2
<i>Pinus resinosa</i>	1751	-21.8	-18.1	-15.7	-12.4	-9.3	-6.8	-0.7
<i>Pinus rigida</i>	711	-10.1	-5.9	-3.8	-1.4	0.2	1.7	4.6
<i>Pinus sabiniana</i>	64	-0.4	2.2	3.8	5.6	6.6	7.4	8.8
<i>Pinus serotina</i>	462	0.7	4.7	6.6	8.7	11.6	13.0	16.1
<i>Pinus strobiformis</i>	269	-1.9	4.2	5.4	7.7	10.2	13.4	18.9
<i>Pinus strobus</i>	2776	-20.6	-16.9	-13.5	-9.4	-5.3	-1.0	25.8
<i>Pinus taeda</i>	1288	0.1	3.8	5.4	7.4	9.7	11.4	15.8
<i>Pinus teocote</i>	172	7.1	9.2	10.6	13.5	16.6	22.9	26.7
<i>Pinus virginiana</i>	778	-5.9	-2.2	-0.7	1.1	3.1	4.8	7.9
<i>Pseudotsuga macrocarpa</i>	9	5.4	5.4	5.7	8.4	9.0	9.4	9.4
<i>Pseudotsuga menziesii</i>	1715	-16.9	-11.5	-10.0	-7.0	-0.1	4.5	20.1
<i>Sequoia sempervirens</i>	17	4.7	5.5	6.9	7.5	8.2	9.2	9.6
<i>Taxodium distichum</i>	1302	-1.4	3.7	6.0	8.7	10.8	13.6	19.3
<i>Taxodium mucronatum</i>	196	8.6	10.4	12.4	14.5	16.2	17.5	25.4
<i>Taxus brevifolia</i>	526	-14.4	-8.1	-3.8	0.2	2.7	3.9	7.6
<i>Taxus canadensis</i>	3584	-24.2	-20.0	-18.1	-13.4	-8.8	-5.4	0.8
<i>Thuja occidentalis</i>	2416	-24.2	-20.5	-18.7	-14.6	-10.4	-7.5	2.6
<i>Thuja plicata</i>	542	-17.1	-11.1	-8.1	-2.3	1.9	3.6	7.7
<i>Tsuga canadensis</i>	1802	-15.4	-12.2	-10.1	-6.7	-2.9	0.1	5.3
<i>Tsuga caroliniana</i>	32	-1.1	-0.1	0.4	1.3	2.0	2.7	3.6
<i>Tsuga heterophylla</i>	597	-17.1	-11.8	-8.7	-3.1	1.1	3.4	8.1
<i>Tsuga mertensiana</i>	348	-15.6	-9.5	-5.9	-3.2	-0.8	1.1	4.1

CONIFERS		July Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	7.9	9.8	11.7	13.2	14.9	16.6	18.8
<i>Abies balsamea</i>	4955	8.9	12.8	15.0	16.4	17.8	19.1	22.1
<i>Abies concolor</i>	278	9.8	13.0	15.6	18.0	19.9	22.3	28.0
<i>Abies grandis</i>	308	8.5	12.7	14.3	15.9	17.2	18.2	20.5
<i>Abies lasiocarpa</i>	1910	7.1	10.9	12.2	13.4	14.5	16.1	22.7
<i>Abies magnifica</i>	43	13.4	15.6	16.2	17.7	18.6	22.3	23.5
<i>Abies procera</i>	54	9.8	12.9	14.1	15.7	16.4	17.2	19.4
<i>Chamaecyparis lawsoniana</i>	20	13.4	13.6	15.5	16.4	17.1	17.8	18.6
<i>Chamaecyparis nootkatensis</i>	339	7.8	10.3	11.6	12.8	14.1	15.9	19.2
<i>Chamaecyparis thyoides</i>	211	19.2	21.8	23.8	25.8	26.2	27.3	27.5
<i>Cupressus arizonica</i>	101	19.3	20.1	20.9	22.3	25.3	27.2	30.1
<i>Juniperus ashei</i>	75	25.7	26.2	27.9	28.4	28.8	29.2	30.2
<i>Juniperus californica</i>	50	19.0	21.5	22.5	24.6	26.2	27.2	31.8
<i>Juniperus communis</i>	11702	5.6	11.2	12.6	14.4	16.1	17.8	25.7
<i>Juniperus deppeana</i>	195	15.2	18.8	19.9	21.7	24.4	25.4	29.7
<i>Juniperus flaccida</i>	160	14.4	19.1	20.5	24.1	27.2	28.5	31.0
<i>Juniperus horizontalis</i>	7344	7.3	11.7	13.2	15.0	16.2	17.5	22.3
<i>Juniperus monosperma</i>	258	12.9	18.5	19.7	21.7	23.9	25.5	30.8
<i>Juniperus occidentalis</i>	161	11.6	15.2	16.3	17.3	18.3	19.8	30.1
<i>Juniperus osteosperma</i>	429	13.0	17.3	19.1	20.8	22.5	24.2	31.4
<i>Juniperus pinchotii</i>	144	23.9	25.9	26.9	27.8	28.4	28.9	29.3
<i>Juniperus scopulorum</i>	881	7.1	10.8	12.8	15.3	18.9	21.1	28.5
<i>Juniperus silicicola</i>	188	25.7	26.6	27.3	27.4	27.5	28.0	28.9
<i>Juniperus virginiana</i>	4260	17.9	21.5	22.9	25.0	26.7	27.8	29.5
<i>Larix laricina</i>	8588	7.2	12.2	13.9	15.5	17.3	19.0	23.2
<i>Larix lyallii</i>	57	8.8	10.0	11.1	12.2	13.3	14.0	15.9
<i>Larix occidentalis</i>	265	10.6	13.0	14.4	15.8	17.2	18.2	19.8
<i>Libocedrus decurrens</i>	157	13.5	16.1	17.2	18.9	21.4	23.5	28.5
<i>Picea engelmannii</i>	1149	7.1	10.3	11.8	13.5	15.3	17.3	24.4
<i>Picea glauca</i>	9921	7.1	11.8	13.2	14.9	16.4	17.9	21.7
<i>Picea mariana</i>	10154	7.6	11.5	13.0	14.9	16.5	18.3	23.1
<i>Picea pungens</i>	140	7.1	10.2	11.7	13.6	16.2	19.6	23.1
<i>Picea rubens</i>	592	14.3	17.1	17.7	18.4	19.3	20.3	23.4
<i>Picea sitchensis</i>	331	7.8	10.8	12.0	13.2	15.0	16.8	19.0
<i>Pinus albicaulis</i>	589	7.1	9.4	10.8	12.4	14.7	16.6	22.4
<i>Pinus aristata</i>	20	7.1	8.2	9.1	11.4	12.4	13.1	14.2
<i>Pinus attenuata</i>	25	12.5	13.6	15.2	17.1	19.8	22.0	22.9
<i>Pinus ayacahuite</i>	95	14.6	15.4	18.1	20.9	24.8	26.4	29.1
<i>Pinus banksiana</i>	4718	10.9	13.9	15.1	16.0	17.3	18.4	22.8
<i>Pinus caribaea</i>	78	21.2	22.6	23.6	25.0	26.2	27.0	27.6
<i>Pinus cembroides</i>	287	14.1	19.6	20.3	21.5	22.9	24.8	29.8
<i>Pinus clausa</i>	82	27.3	27.3	27.4	27.4	27.5	27.5	27.6
<i>Pinus contorta</i>	2308	7.1	11.2	12.5	13.9	15.1	16.5	27.6
<i>Pinus cooperi</i>	92	19.2	19.4	20.3	20.9	21.9	23.3	25.9
<i>Pinus coulteri</i>	10	13.5	13.5	20.3	21.5	27.4	27.5	27.8
<i>Pinus douglasiana</i>	39	21.7	22.5	22.9	24.0	24.9	26.5	26.8
<i>Pinus durangensis</i>	145	17.8	19.7	20.1	20.9	21.9	23.1	25.7
<i>Pinus echinata</i>	1652	17.9	22.9	24.9	26.3	27.2	27.7	28.9
<i>Pinus edulis</i>	379	11.2	17.9	19.6	21.2	22.6	24.2	30.3
<i>Pinus elliottii</i>	367	26.8	27.1	27.2	27.3	27.4	27.5	27.8

CONIFERS				July Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	19.0	19.7	20.3	21.3	23.0	24.5	29.1
<i>Pinus flexilis</i>	374	7.1	10.8	12.1	13.9	16.2	19.5	30.1
<i>Pinus glabra</i>	350	26.2	26.9	27.1	27.2	27.3	27.4	27.6
<i>Pinus greggii</i>	14	16.7	16.7	20.2	21.3	22.7	26.1	26.3
<i>Pinus hartwegii</i>	32	14.9	16.6	18.4	19.3	21.1	22.9	25.1
<i>Pinus jeffreyi</i>	112	12.5	15.9	17.2	18.6	21.9	24.7	28.9
<i>Pinus lambertiana</i>	155	13.4	16.0	17.1	18.6	21.1	23.2	27.8
<i>Pinus lawsonii</i>	39	16.5	17.8	19.6	21.1	26.0	26.8	27.8
<i>Pinus leiophylla</i>	271	14.5	19.3	20.0	20.9	22.2	24.0	27.9
<i>Pinus longaeva</i>	19	11.2	14.6	17.1	19.2	22.7	24.7	26.2
<i>Pinus lumholtzii</i>	163	18.5	19.9	20.5	21.6	23.0	24.4	26.5
<i>Pinus michoacana</i>	101	15.1	19.1	20.9	23.1	24.4	25.3	27.0
<i>Pinus monophylla</i>	107	14.9	17.5	18.7	20.5	22.8	25.3	31.6
<i>Pinus montezumae</i>	90	14.5	17.8	19.0	20.5	23.2	26.3	28.8
<i>Pinus monticola</i>	455	7.6	11.0	12.8	15.2	17.1	18.2	23.5
<i>Pinus nelsonii</i>	11	21.8	21.8	22.4	22.9	23.3	24.0	24.2
<i>Pinus oocarpa</i>	412	14.6	20.2	22.1	23.4	24.9	26.3	31.3
<i>Pinus palustris</i>	762	24.9	26.0	26.7	27.2	27.4	27.5	28.3
<i>Pinus patula</i>	27	14.6	14.9	15.6	18.6	20.9	21.4	22.4
<i>Pinus pinceana</i>	27	19.1	20.2	20.9	21.6	22.1	22.7	23.7
<i>Pinus ponderosa</i>	1138	7.7	13.9	16.3	18.7	21.0	22.9	29.4
<i>Pinus pringlei</i>	54	17.8	19.3	22.7	24.9	26.8	29.1	31.3
<i>Pinus pseudostrobus</i>	211	14.5	18.1	19.6	21.7	23.4	25.2	27.5
<i>Pinus pungens</i>	137	18.0	19.8	20.8	21.9	22.8	23.6	24.8
<i>Pinus quadrifolia</i>	9	22.0	22.0	24.1	25.8	28.0	28.5	28.9
<i>Pinus resinosa</i>	1751	13.5	16.7	17.5	18.5	19.6	20.5	23.5
<i>Pinus rigida</i>	711	17.6	19.9	20.9	22.1	23.4	24.1	25.6
<i>Pinus sabiniana</i>	64	16.8	19.2	21.1	23.2	24.5	25.5	27.9
<i>Pinus serotina</i>	462	24.0	25.7	26.3	27.0	27.3	27.4	27.5
<i>Pinus strobiformis</i>	269	17.2	19.6	20.2	21.2	23.0	24.9	29.4
<i>Pinus strobus</i>	2776	13.9	16.6	17.7	19.1	21.0	22.4	26.8
<i>Pinus taeda</i>	1288	21.4	25.4	26.2	27.1	27.4	27.9	29.0
<i>Pinus teocote</i>	172	14.9	18.7	20.5	22.0	24.2	26.1	28.8
<i>Pinus virginiana</i>	778	17.9	21.1	22.6	23.8	25.0	25.7	27.3
<i>Pseudotsuga macrocarpa</i>	9	18.1	18.1	19.0	23.3	25.1	25.2	26.9
<i>Pseudotsuga menziesii</i>	1715	7.1	11.3	12.8	15.2	17.6	20.0	28.9
<i>Sequoia sempervirens</i>	17	13.5	13.5	15.0	17.1	18.1	19.3	21.9
<i>Taxodium distichum</i>	1302	24.3	26.1	26.9	27.3	27.6	28.0	29.2
<i>Taxodium mucronatum</i>	196	14.1	16.1	18.9	21.0	23.9	30.0	31.4
<i>Taxus brevifolia</i>	526	7.8	12.2	13.7	16.0	17.8	19.2	24.3
<i>Taxus canadensis</i>	3584	9.8	13.3	15.6	17.4	19.3	21.0	24.6
<i>Thuja occidentalis</i>	2416	12.4	15.9	16.6	17.7	19.0	20.4	24.8
<i>Thuja plicata</i>	542	7.9	10.9	12.6	14.3	16.5	17.9	19.8
<i>Tsuga canadensis</i>	1802	14.3	17.8	18.6	20.0	21.7	23.3	26.4
<i>Tsuga caroliniana</i>	32	18.0	18.7	20.2	21.8	22.2	22.7	24.4
<i>Tsuga heterophylla</i>	597	7.8	10.6	12.0	13.6	15.7	17.1	19.1
<i>Tsuga mertensiana</i>	348	7.8	10.7	11.6	12.8	14.3	16.4	20.9

CONIFERS			Annual Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Abies amabilis</i>	233	700	1125	1345	1805	2500	2985	4370	
<i>Abies balsamea</i>	4955	370	465	660	815	1000	1130	1650	
<i>Abies concolor</i>	278	135	375	455	585	875	1185	2505	
<i>Abies grandis</i>	308	335	645	835	1260	1675	1990	3025	
<i>Abies lasiocarpa</i>	1910	225	365	495	615	875	1250	4370	
<i>Abies magnifica</i>	43	415	635	830	1015	1330	1495	1900	
<i>Abies procera</i>	54	850	1015	1255	1690	1915	2390	2825	
<i>Chamaecyparis lawsoniana</i>	20	935	1085	1385	1490	1810	1870	2555	
<i>Chamaecyparis nootkatensis</i>	339	325	1270	1660	2045	2595	2990	4370	
<i>Chamaecyparis thyoides</i>	211	1035	1115	1165	1205	1310	1545	1630	
<i>Cupressus arizonica</i>	101	220	250	315	415	535	625	755	
<i>Juniperus ashei</i>	75	350	515	605	705	795	1075	1205	
<i>Juniperus californica</i>	50	75	245	285	355	475	600	825	
<i>Juniperus communis</i>	11702	165	295	405	555	810	1045	3965	
<i>Juniperus deppeana</i>	195	200	305	385	470	590	825	1660	
<i>Juniperus flaccida</i>	160	225	265	380	620	925	1075	1755	
<i>Juniperus horizontalis</i>	7344	235	335	435	560	795	1020	2670	
<i>Juniperus monosperma</i>	258	200	260	300	355	410	490	830	
<i>Juniperus occidentalis</i>	161	85	285	340	485	645	1120	2290	
<i>Juniperus osteosperma</i>	429	85	180	235	310	395	500	1175	
<i>Juniperus pinchotii</i>	144	250	330	465	500	535	580	795	
<i>Juniperus scopulorum</i>	881	115	315	390	515	705	925	2520	
<i>Juniperus silicicola</i>	188	925	1245	1290	1320	1360	1530	1610	
<i>Juniperus virginiana</i>	4260	360	675	845	1005	1185	1345	1560	
<i>Larix laricina</i>	8588	250	355	455	655	880	1065	1650	
<i>Larix lyallii</i>	57	555	650	755	965	1205	1370	1755	
<i>Larix occidentalis</i>	265	300	445	565	755	985	1290	2520	
<i>Libocedrus decurrens</i>	157	285	455	640	995	1225	1490	2555	
<i>Picea engelmannii</i>	1149	235	440	550	725	920	1200	2825	
<i>Picea glauca</i>	9921	185	315	425	570	825	1040	2670	
<i>Picea mariana</i>	10154	190	290	410	565	830	1045	1845	
<i>Picea pungens</i>	140	200	340	475	590	725	820	1175	
<i>Picea rubens</i>	592	800	970	1015	1075	1160	1295	1515	
<i>Picea sitchensis</i>	331	740	1215	1610	2060	2555	2995	4370	
<i>Pinus albicaulis</i>	589	285	565	720	865	1095	1350	4370	
<i>Pinus aristata</i>	20	395	395	515	605	665	745	820	
<i>Pinus attenuata</i>	25	360	675	830	1160	1855	2245	2555	
<i>Pinus ayacahuite</i>	95	490	750	870	1015	1250	1595	3810	
<i>Pinus banksiana</i>	4718	250	340	445	615	795	955	1435	
<i>Pinus caribaea</i>	78	1070	1150	1315	1705	2265	2550	3380	
<i>Pinus cembroides</i>	287	240	330	400	490	620	750	1350	
<i>Pinus clausa</i>	82	1285	1295	1310	1320	1340	1405	1575	
<i>Pinus contorta</i>	2308	230	425	495	620	975	1675	4370	
<i>Pinus cooperi</i>	92	520	605	670	740	770	815	900	
<i>Pinus coulteri</i>	10	330	330	395	455	585	610	1015	
<i>Pinus douglasiana</i>	39	775	810	815	860	880	920	1020	
<i>Pinus durangensis</i>	145	395	480	590	690	765	840	975	
<i>Pinus echinata</i>	1652	935	1060	1140	1235	1370	1435	1620	
<i>Pinus edulis</i>	379	135	220	275	320	395	460	830	
<i>Pinus elliottii</i>	367	1145	1205	1270	1335	1475	1560	1630	

CONIFERS			Annual Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	285	365	440	605	740	790	900
<i>Pinus flexilis</i>	374	95	365	480	595	750	910	1505
<i>Pinus glabra</i>	350	1145	1195	1250	1370	1480	1540	1620
<i>Pinus greggii</i>	14	330	330	400	465	800	1030	1030
<i>Pinus hartwegii</i>	32	470	570	800	910	1825	2680	2950
<i>Pinus jeffreyi</i>	112	160	345	515	815	1185	1605	2555
<i>Pinus lambertiana</i>	155	240	550	720	1000	1220	1450	2280
<i>Pinus lawsonii</i>	39	720	745	805	945	1030	1110	1655
<i>Pinus leiophylla</i>	271	305	395	520	690	810	950	1810
<i>Pinus longaeva</i>	19	160	165	190	340	430	680	725
<i>Pinus lumholtzii</i>	163	470	555	620	740	805	860	1010
<i>Pinus michoacana</i>	101	415	710	815	890	1020	1120	1465
<i>Pinus monophylla</i>	107	85	170	230	300	385	480	1280
<i>Pinus montezumae</i>	90	330	550	775	975	1325	2230	2835
<i>Pinus monticola</i>	455	155	610	800	1125	1605	2190	4250
<i>Pinus nelsonii</i>	11	520	520	530	575	590	685	740
<i>Pinus oocarpa</i>	412	595	810	885	1135	1335	1760	3345
<i>Pinus palustris</i>	762	1130	1180	1230	1320	1410	1520	1630
<i>Pinus patula</i>	27	490	735	805	915	1070	1315	1810
<i>Pinus pinceana</i>	27	290	305	325	350	490	540	760
<i>Pinus ponderosa</i>	1138	210	335	395	530	750	1085	2825
<i>Pinus pringlei</i>	54	835	930	990	1085	1210	1290	1385
<i>Pinus pseudostrobus</i>	211	330	750	900	1180	1475	1955	3330
<i>Pinus pungens</i>	137	935	970	1005	1060	1245	1440	1560
<i>Pinus quadrifolia</i>	9	345	345	425	515	590	600	755
<i>Pinus resinosa</i>	1751	510	710	785	880	1020	1110	1475
<i>Pinus rigida</i>	711	835	980	1025	1085	1160	1230	1560
<i>Pinus sabiniana</i>	64	165	265	395	595	825	1050	1425
<i>Pinus serotina</i>	462	1090	1155	1190	1250	1320	1395	1610
<i>Pinus strobiformis</i>	269	230	405	515	645	750	815	920
<i>Pinus strobus</i>	2776	550	740	815	965	1085	1200	2295
<i>Pinus taeda</i>	1288	885	1135	1195	1305	1390	1470	1630
<i>Pinus teocote</i>	172	265	500	585	750	870	1040	3260
<i>Pinus virginiana</i>	778	935	1010	1065	1135	1275	1400	1560
<i>Pseudotsuga macrocarpa</i>	9	330	330	380	495	630	660	770
<i>Pseudotsuga menziesii</i>	1715	235	415	540	745	1090	1620	4370
<i>Sequoia sempervirens</i>	17	410	560	720	1325	1395	1605	1810
<i>Taxodium distichum</i>	1302	625	1135	1210	1305	1385	1490	1630
<i>Taxodium mucronatum</i>	196	290	485	570	720	1070	1440	2615
<i>Taxus brevifolia</i>	526	405	710	1000	1315	1935	2540	4370
<i>Taxus canadensis</i>	3584	550	750	825	960	1070	1170	1650
<i>Thuja occidentalis</i>	2416	445	700	755	850	990	1080	1475
<i>Thuja plicata</i>	542	380	720	955	1380	2025	2595	4370
<i>Tsuga canadensis</i>	1802	710	800	900	1025	1120	1220	1560
<i>Tsuga caroliniana</i>	32	1015	1040	1180	1290	1395	1505	1560
<i>Tsuga heterophylla</i>	597	395	780	995	1535	2135	2710	4370
<i>Tsuga mertensiana</i>	348	505	1025	1305	1850	2475	2855	4370

CONIFERS								
Taxon name	N	January Precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	91	160	198	254	310	434	616
<i>Abies balsamea</i>	4955	16	22	28	50	73	94	166
<i>Abies concolor</i>	278	12	24	36	68	152	229	387
<i>Abies grandis</i>	308	41	83	118	200	272	325	492
<i>Abies lasiocarpa</i>	1910	9	26	38	61	103	165	616
<i>Abies magnifica</i>	43	84	108	149	173	225	266	329
<i>Abies procera</i>	54	119	160	189	254	312	382	451
<i>Chamaecyparis lawsoniana</i>	20	170	205	235	284	323	336	400
<i>Chamaecyparis nootkatensis</i>	339	35	150	193	238	285	349	616
<i>Chamaecyparis thyoides</i>	211	82	86	94	98	104	110	130
<i>Cupressus arizonica</i>	101	8	9	10	11	14	19	85
<i>Juniperus ashei</i>	75	14	22	29	38	47	50	82
<i>Juniperus californica</i>	50	11	35	60	75	100	136	182
<i>Juniperus communis</i>	11702	4	13	20	29	58	91	616
<i>Juniperus deppeana</i>	195	5	9	11	17	25	39	98
<i>Juniperus flaccida</i>	160	1	3	9	11	15	24	60
<i>Juniperus horizontalis</i>	7344	6	14	21	28	50	78	196
<i>Juniperus monosperma</i>	258	6	8	11	16	25	36	98
<i>Juniperus occidentalis</i>	161	16	35	44	65	99	199	295
<i>Juniperus osteosperma</i>	429	7	13	19	28	38	51	143
<i>Juniperus pinchotii</i>	144	8	10	11	13	16	22	46
<i>Juniperus scopulorum</i>	881	6	14	28	50	78	118	415
<i>Juniperus silicicola</i>	188	50	57	66	82	98	109	133
<i>Juniperus virginiana</i>	4260	8	15	31	68	96	126	150
<i>Larix laricina</i>	8588	6	16	22	31	59	84	166
<i>Larix lyallii</i>	57	47	59	80	129	173	202	272
<i>Larix occidentalis</i>	265	36	54	71	100	136	187	415
<i>Libocedrus decurrens</i>	157	40	82	119	179	244	284	400
<i>Picea engelmannii</i>	1149	11	40	55	79	116	170	451
<i>Picea glauca</i>	9921	4	14	21	29	57	85	217
<i>Picea mariana</i>	10154	4	12	20	28	56	82	178
<i>Picea pungens</i>	140	9	21	30	52	70	93	151
<i>Picea rubens</i>	592	48	68	73	81	97	131	166
<i>Picea sitchensis</i>	331	63	138	185	244	305	386	616
<i>Pinus albicaulis</i>	589	12	54	76	101	149	198	612
<i>Pinus aristata</i>	20	19	25	27	36	63	67	72
<i>Pinus attenuata</i>	25	70	134	162	244	331	343	400
<i>Pinus ayacahuite</i>	95	0	1	3	6	10	21	54
<i>Pinus banksiana</i>	4718	7	15	20	27	49	65	159
<i>Pinus caribaea</i>	78	36	46	57	86	180	197	222
<i>Pinus cembroides</i>	287	3	9	10	12	18	24	34
<i>Pinus clausa</i>	82	47	50	52	58	66	78	109
<i>Pinus contorta</i>	2308	11	26	35	64	123	216	612
<i>Pinus cooperi</i>	92	3	12	16	20	24	27	34
<i>Pinus coulteri</i>	10	66	66	79	92	122	136	225
<i>Pinus douglasiana</i>	39	5	5	12	20	23	25	31
<i>Pinus durangensis</i>	145	6	10	12	17	23	25	34
<i>Pinus echinata</i>	1652	38	72	87	104	129	138	150
<i>Pinus edulis</i>	379	5	10	14	21	32	44	98
<i>Pinus elliotii</i>	367	41	54	78	88	109	128	136

CONIFERS		January Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	3	10	11	16	22	26	47
<i>Pinus flexilis</i>	374	7	21	34	52	78	108	318
<i>Pinus glabra</i>	350	77	84	93	113	129	134	144
<i>Pinus greggii</i>	14	13	13	19	20	24	31	31
<i>Pinus hartwegii</i>	32	1	4	6	12	23	33	54
<i>Pinus jeffreyi</i>	112	17	69	92	154	218	299	400
<i>Pinus lambertiana</i>	155	53	101	127	179	239	276	358
<i>Pinus lawsonii</i>	39	0	1	2	4	9	11	16
<i>Pinus leiophylla</i>	271	1	6	10	14	21	26	83
<i>Pinus longaeva</i>	19	11	12	26	29	40	70	83
<i>Pinus lumholtzii</i>	163	3	11	14	18	22	25	34
<i>Pinus michoacana</i>	101	0	1	2	10	18	22	31
<i>Pinus monophylla</i>	107	11	16	21	30	40	74	218
<i>Pinus montezumae</i>	90	0	3	7	11	23	36	103
<i>Pinus monticola</i>	455	25	79	107	169	249	339	616
<i>Pinus nelsonii</i>	11	22	22	22	23	23	25	25
<i>Pinus oocarpa</i>	412	0	2	7	15	26	53	167
<i>Pinus palustris</i>	762	47	79	91	105	127	136	147
<i>Pinus patula</i>	27	4	4	8	14	25	41	57
<i>Pinus pinceana</i>	27	8	9	11	12	14	16	19
<i>Pinus ponderosa</i>	1138	5	11	19	46	103	192	451
<i>Pinus pringlei</i>	54	0	1	2	4	8	10	12
<i>Pinus pseudostrobus</i>	211	0	2	7	15	27	47	167
<i>Pinus pungens</i>	137	64	67	71	78	96	123	142
<i>Pinus quadrifolia</i>	9	46	46	60	74	83	85	90
<i>Pinus resinosa</i>	1751	18	25	39	61	76	89	161
<i>Pinus rigida</i>	711	52	69	74	83	92	105	147
<i>Pinus sabiniana</i>	64	37	57	85	121	182	236	287
<i>Pinus serotina</i>	462	52	79	86	95	101	110	120
<i>Pinus strobiformis</i>	269	3	10	11	16	23	27	90
<i>Pinus strobus</i>	2776	0	26	49	68	84	104	166
<i>Pinus taeda</i>	1288	56	82	93	110	131	139	150
<i>Pinus teocote</i>	172	0	3	8	14	23	26	57
<i>Pinus virginiana</i>	778	61	73	81	90	114	137	150
<i>Pseudotsuga macrocarpa</i>	9	74	74	93	115	137	142	159
<i>Pseudotsuga menziesii</i>	1715	2	26	51	87	166	267	616
<i>Sequoia sempervirens</i>	17	91	135	161	285	294	299	331
<i>Taxodium distichum</i>	1302	32	57	86	103	127	137	149
<i>Taxodium mucronatum</i>	196	1	5	9	14	24	31	50
<i>Taxus brevifolia</i>	526	36	105	157	216	284	350	616
<i>Taxus canadensis</i>	3584	17	31	53	68	84	100	163
<i>Thuja occidentalis</i>	2416	17	29	39	57	71	85	138
<i>Thuja plicata</i>	542	37	85	131	200	274	345	616
<i>Tsuga canadensis</i>	1802	21	45	64	75	88	109	161
<i>Tsuga caroliniana</i>	32	76	77	88	100	115	129	136
<i>Tsuga heterophylla</i>	597	23	88	122	200	274	338	616
<i>Tsuga mertensiana</i>	348	35	125	162	218	267	321	616

CONIFERS		July Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	9	23	32	46	65	82	138
<i>Abies balsamea</i>	4955	56	75	83	96	107	123	212
<i>Abies concolor</i>	278	0	5	7	31	62	81	126
<i>Abies grandis</i>	308	2	12	20	26	34	44	64
<i>Abies lasiocarpa</i>	1910	9	27	39	50	66	78	136
<i>Abies magnifica</i>	43	3	5	7	9	12	16	31
<i>Abies procera</i>	54	5	8	14	23	27	31	45
<i>Chamaecyparis lawsoniana</i>	20	3	4	6	7	8	9	9
<i>Chamaecyparis nootkatensis</i>	339	8	26	40	68	101	136	230
<i>Chamaecyparis thyoides</i>	211	71	81	104	138	166	196	211
<i>Cupressus arizonica</i>	101	22	49	65	100	127	152	183
<i>Juniperus ashei</i>	75	35	43	44	48	53	88	97
<i>Juniperus californica</i>	50	0	0	0	1	4	12	33
<i>Juniperus communis</i>	11702	8	39	54	75	94	109	212
<i>Juniperus deppeana</i>	195	38	53	66	99	144	189	290
<i>Juniperus flaccida</i>	160	42	52	72	123	196	224	322
<i>Juniperus horizontalis</i>	7344	23	50	68	82	99	118	223
<i>Juniperus monosperma</i>	258	33	42	50	63	73	84	149
<i>Juniperus occidentalis</i>	161	2	8	9	12	15	21	51
<i>Juniperus osteosperma</i>	429	4	14	18	24	33	49	92
<i>Juniperus pinchotii</i>	144	33	45	50	54	57	61	68
<i>Juniperus scopulorum</i>	881	4	22	31	43	55	69	126
<i>Juniperus silicicola</i>	188	52	137	169	190	200	204	218
<i>Juniperus virginiana</i>	4260	42	73	86	100	112	125	189
<i>Larix laricina</i>	8588	29	57	72	85	100	115	212
<i>Larix lyallii</i>	57	23	28	37	46	51	58	71
<i>Larix occidentalis</i>	265	10	17	21	29	38	44	64
<i>Libocedrus decurrens</i>	157	0	2	4	6	8	10	23
<i>Picea engelmannii</i>	1149	5	23	31	43	53	69	126
<i>Picea glauca</i>	9921	21	46	62	79	97	113	212
<i>Picea mariana</i>	10154	21	45	62	80	97	112	212
<i>Picea pungens</i>	140	13	24	34	49	59	70	124
<i>Picea rubens</i>	592	67	82	87	95	104	112	157
<i>Picea sitchensis</i>	331	4	21	41	69	103	138	300
<i>Pinus albicaulis</i>	589	5	23	33	46	60	74	109
<i>Pinus aristata</i>	20	46	46	54	59	69	81	84
<i>Pinus attenuata</i>	25	1	1	2	5	8	10	16
<i>Pinus ayacahuite</i>	95	84	106	125	170	207	247	425
<i>Pinus banksiana</i>	4718	32	54	72	84	99	113	157
<i>Pinus caribaea</i>	78	124	158	191	229	262	297	472
<i>Pinus cembroides</i>	287	6	67	84	118	159	182	246
<i>Pinus clausa</i>	82	168	178	195	199	203	205	218
<i>Pinus contorta</i>	2308	1	25	38	55	74	88	202
<i>Pinus cooperi</i>	92	140	153	164	181	200	216	246
<i>Pinus coulteri</i>	10	0	0	0	1	7	9	10
<i>Pinus douglasiana</i>	39	178	186	191	199	218	238	271
<i>Pinus durangensis</i>	145	97	128	150	174	196	210	247
<i>Pinus echinata</i>	1652	55	93	105	119	130	153	204
<i>Pinus edulis</i>	379	13	20	28	43	60	73	109
<i>Pinus elliotii</i>	367	125	146	164	178	198	203	222

CONIFERS			July Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	64	85	112	157	186	208	246
<i>Pinus flexilis</i>	374	1	21	29	41	54	64	106
<i>Pinus glabra</i>	350	111	130	141	157	174	188	209
<i>Pinus greggii</i>	14	55	55	63	73	103	112	120
<i>Pinus hartwegii</i>	32	80	107	121	188	268	343	381
<i>Pinus jeffreyi</i>	112	0	2	5	7	9	14	22
<i>Pinus lambertiana</i>	155	0	2	4	6	8	11	25
<i>Pinus lawsonii</i>	39	88	100	124	195	208	225	497
<i>Pinus leiophylla</i>	271	53	89	126	164	193	219	350
<i>Pinus longaeva</i>	19	5	5	16	24	31	37	39
<i>Pinus lumholtzii</i>	163	114	143	161	184	208	225	279
<i>Pinus michoacana</i>	101	70	110	129	193	222	268	348
<i>Pinus monophylla</i>	107	0	6	11	17	23	27	35
<i>Pinus montezumae</i>	90	55	81	121	205	259	320	360
<i>Pinus monticola</i>	455	4	8	20	32	46	61	97
<i>Pinus nelsonii</i>	11	97	97	97	108	114	134	139
<i>Pinus oocarpa</i>	412	92	140	176	202	234	280	497
<i>Pinus palustris</i>	762	76	119	131	151	175	199	218
<i>Pinus patula</i>	27	84	100	121	148	173	195	287
<i>Pinus pinceana</i>	27	59	63	65	72	76	90	107
<i>Pinus ponderosa</i>	1138	0	6	15	34	65	127	225
<i>Pinus pringlei</i>	54	106	139	185	203	228	270	331
<i>Pinus pseudostrobus</i>	211	55	108	138	185	237	301	415
<i>Pinus pungens</i>	137	88	92	95	103	115	128	136
<i>Pinus quadrifolia</i>	9	6	6	9	15	17	17	22
<i>Pinus resinosa</i>	1751	59	74	82	93	102	109	164
<i>Pinus rigida</i>	711	70	85	94	106	117	124	136
<i>Pinus sabiniana</i>	64	0	0	1	1	3	4	6
<i>Pinus serotina</i>	462	99	125	137	156	175	199	214
<i>Pinus strobiformis</i>	269	52	84	114	160	196	216	259
<i>Pinus strobus</i>	2776	60	74	83	95	105	114	302
<i>Pinus taeda</i>	1288	47	100	114	126	155	179	214
<i>Pinus teocote</i>	172	54	80	103	158	196	238	415
<i>Pinus virginiana</i>	778	88	96	105	114	121	126	164
<i>Pseudotsuga macrocarpa</i>	9	0	0	0	0	4	4	4
<i>Pseudotsuga menziesii</i>	1715	0	10	23	38	52	73	302
<i>Sequoia sempervirens</i>	17	1	1	2	2	4	5	9
<i>Taxodium distichum</i>	1302	41	87	103	133	169	196	222
<i>Taxodium mucronatum</i>	196	36	63	88	160	210	268	350
<i>Taxus brevifolia</i>	526	1	5	9	26	47	71	121
<i>Taxus canadensis</i>	3584	60	77	86	98	111	126	212
<i>Thuja occidentalis</i>	2416	59	74	83	95	103	113	164
<i>Thuja plicata</i>	542	2	11	23	42	64	82	149
<i>Tsuga canadensis</i>	1802	61	75	84	96	108	119	145
<i>Tsuga caroliniana</i>	32	97	101	111	117	122	133	136
<i>Tsuga heterophylla</i>	597	2	18	28	52	74	105	300
<i>Tsuga mertensiana</i>	348	5	24	37	65	101	128	300

CONIFERS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	-13.8	-8.4	-5.8	-2.6	-0.2	1.6	3.6
<i>Abies balsamea</i>	4955	-26.8	-23.7	-21.8	-19.0	-13.2	-9.1	-0.7
<i>Abies concolor</i>	278	-10.8	-8.7	-6.2	-1.6	0.7	2.7	11.8
<i>Abies grandis</i>	308	-14.4	-8.6	-6.5	-2.6	2.7	3.9	9.6
<i>Abies lasiocarpa</i>	1910	-30.0	-23.2	-17.6	-11.6	-8.7	-5.9	3.5
<i>Abies magnifica</i>	43	-5.1	-3.6	-2.6	-1.3	-0.1	0.7	2.9
<i>Abies procera</i>	54	-7.7	-4.7	-2.6	-0.9	0.3	3.3	4.7
<i>Chamaecyparis lawsoniana</i>	20	-1.7	-1.4	2.6	5.2	6.6	7.3	7.6
<i>Chamaecyparis nootkatensis</i>	339	-10.3	-6.9	-4.7	-2.3	-0.4	1.3	3.9
<i>Chamaecyparis thyoides</i>	211	-6.8	-2.9	-0.4	5.3	6.6	11.2	12.3
<i>Cupressus arizonica</i>	101	0.6	2.6	7.1	10.5	12.5	12.8	13.1
<i>Juniperus ashei</i>	75	1.3	2.2	6.5	8.2	9.6	9.9	12.4
<i>Juniperus californica</i>	50	3.1	5.3	6.1	6.6	7.9	10.4	14.0
<i>Juniperus communis</i>	11702	-33.0	-29.0	-25.8	-21.6	-16.1	-9.4	4.9
<i>Juniperus deppeana</i>	195	-2.2	0.6	2.6	7.6	11.0	12.8	23.3
<i>Juniperus flaccida</i>	160	0.7	8.5	12.0	13.4	15.7	21.4	24.7
<i>Juniperus horizontalis</i>	7344	-30.9	-28.5	-25.4	-22.2	-19.0	-15.4	-3.3
<i>Juniperus monosperma</i>	258	-9.2	-3.4	-1.9	0.2	2.7	5.6	12.7
<i>Juniperus occidentalis</i>	161	-9.9	-5.4	-4.1	-3.1	-2.1	-0.9	7.1
<i>Juniperus osteosperma</i>	429	-11.9	-7.8	-5.3	-3.3	-0.9	1.2	6.3
<i>Juniperus pinchotii</i>	144	1.3	1.8	3.1	4.7	6.5	7.7	10.8
<i>Juniperus scopulorum</i>	881	-17.9	-11.6	-10.2	-8.3	-5.7	-1.9	5.7
<i>Juniperus silicicola</i>	188	5.9	7.7	10.9	12.3	14.7	15.9	16.8
<i>Juniperus virginiana</i>	4260	-13.4	-8.2	-4.9	-0.7	3.9	7.1	11.7
<i>Larix laricina</i>	8588	-33.0	-27.9	-24.9	-21.1	-15.9	-9.5	-1.0
<i>Larix lyallii</i>	57	-16.4	-15.2	-13.2	-10.5	-8.6	-7.6	-5.4
<i>Larix occidentalis</i>	265	-14.4	-9.7	-8.6	-6.8	-5.0	-3.7	-1.1
<i>Libocedrus decurrens</i>	157	-5.4	-1.7	-0.2	2.0	3.7	5.5	8.0
<i>Picea engelmannii</i>	1149	-18.7	-13.0	-11.4	-9.8	-7.5	-5.1	4.2
<i>Picea glauca</i>	9921	-33.1	-28.5	-25.5	-21.5	-16.7	-11.9	-3.1
<i>Picea mariana</i>	10154	-34.2	-29.3	-26.0	-22.1	-17.0	-11.6	-2.0
<i>Picea pungens</i>	140	-12.2	-11.3	-10.3	-8.9	-7.0	-4.9	1.9
<i>Picea rubens</i>	592	-15.6	-12.9	-11.8	-9.6	-7.2	-5.5	1.5
<i>Picea sitchensis</i>	331	-14.7	-7.1	-3.7	-0.9	1.9	3.6	7.6
<i>Pinus albicaulis</i>	589	-18.7	-14.7	-11.9	-10.3	-7.8	-5.4	2.2
<i>Pinus aristata</i>	20	-12.0	-11.6	-10.9	-10.1	-8.4	-7.9	-5.6
<i>Pinus attenuata</i>	25	-3.0	1.5	2.6	3.9	6.5	7.6	10.4
<i>Pinus ayacahuite</i>	95	9.6	11.4	13.6	17.0	20.9	23.1	25.2
<i>Pinus banksiana</i>	4718	-30.4	-28.1	-25.3	-21.5	-18.2	-13.8	-4.5
<i>Pinus caribaea</i>	78	18.9	19.9	21.0	22.1	22.9	23.6	24.6
<i>Pinus cembroides</i>	287	0.3	2.9	5.7	9.4	12.0	13.2	17.3
<i>Pinus clausa</i>	82	11.6	13.6	15.0	15.8	16.3	17.0	19.0
<i>Pinus contorta</i>	2308	-29.3	-22.3	-17.5	-11.4	-7.4	-2.2	8.1
<i>Pinus cooperi</i>	92	4.5	5.2	6.6	8.8	10.1	11.1	15.4
<i>Pinus coulteri</i>	10	4.4	4.4	6.2	6.6	7.9	7.9	11.2
<i>Pinus douglasiana</i>	39	17.5	18.0	18.5	19.5	20.5	21.3	22.9
<i>Pinus durangensis</i>	145	1.2	4.5	5.3	7.4	9.3	11.0	18.6
<i>Pinus echinata</i>	1652	-4.3	-0.1	2.1	5.0	7.6	9.5	12.0
<i>Pinus edulis</i>	379	-11.4	-6.6	-4.2	-2.0	0.5	2.3	5.7
<i>Pinus elliottii</i>	367	7.8	9.2	10.0	11.4	13.6	16.2	19.3

CONIFERS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	0.6	2.9	5.0	7.4	9.5	11.1	16.8
<i>Pinus flexilis</i>	374	-17.7	-11.9	-11.0	-9.3	-7.3	-4.7	7.2
<i>Pinus glabra</i>	350	6.3	8.1	8.7	9.7	10.7	11.6	13.6
<i>Pinus greggii</i>	14	10.7	10.7	12.5	12.6	13.5	15.0	15.2
<i>Pinus hartwegii</i>	32	9.8	11.0	13.8	15.6	16.9	18.8	21.7
<i>Pinus jeffreyi</i>	112	-5.1	-2.7	-1.7	0.1	2.6	6.1	10.8
<i>Pinus lambertiana</i>	155	-4.4	-2.0	-0.6	1.4	3.1	4.5	9.6
<i>Pinus lawsonii</i>	39	13.2	14.2	15.0	17.5	21.6	22.7	24.4
<i>Pinus leiophylla</i>	271	-0.7	3.2	5.8	9.6	13.1	16.6	21.6
<i>Pinus longaeva</i>	19	-10.7	-7.9	-4.5	-4.1	-0.2	0.8	4.0
<i>Pinus lumholtzii</i>	163	2.9	5.3	8.3	10.0	13.4	18.1	20.5
<i>Pinus michoacana</i>	101	10.0	13.6	15.9	18.6	20.5	21.7	23.9
<i>Pinus monophylla</i>	107	-8.4	-5.0	-4.1	-2.3	0.3	4.4	11.0
<i>Pinus montezumae</i>	90	9.6	12.8	14.2	15.6	17.2	19.8	23.9
<i>Pinus monticola</i>	455	-16.5	-11.0	-8.3	-3.6	-0.2	2.1	4.1
<i>Pinus nelsonii</i>	11	13.5	13.5	13.8	14.3	14.4	15.2	15.3
<i>Pinus oocarpa</i>	412	7.1	13.5	16.7	19.7	21.4	22.8	26.0
<i>Pinus palustris</i>	762	3.9	5.7	7.3	9.3	11.0	13.2	17.0
<i>Pinus patula</i>	27	10.6	11.2	11.6	13.5	15.0	15.9	17.7
<i>Pinus pinceana</i>	27	12.0	12.3	12.5	12.7	13.3	14.1	14.9
<i>Pinus ponderosa</i>	1138	-14.7	-8.8	-6.8	-3.0	2.9	7.0	17.8
<i>Pinus pringlei</i>	54	14.2	14.8	19.6	21.1	23.4	25.0	26.0
<i>Pinus pseudostrobus</i>	211	10.7	13.2	15.3	17.4	20.4	21.6	25.6
<i>Pinus pungens</i>	137	-5.0	-3.1	-1.6	-0.5	1.0	2.1	4.3
<i>Pinus quadrifolia</i>	9	5.4	5.4	6.7	8.0	8.8	9.2	10.9
<i>Pinus resinosa</i>	1751	-21.8	-18.1	-15.7	-12.4	-9.3	-6.9	-0.7
<i>Pinus rigida</i>	711	-10.1	-5.9	-3.8	-1.4	0.2	1.7	4.6
<i>Pinus sabiniana</i>	64	-0.4	2.2	3.8	5.6	6.6	7.4	8.8
<i>Pinus serotina</i>	462	0.7	4.7	6.6	8.7	11.5	13.0	16.1
<i>Pinus strobiformis</i>	269	-1.9	1.5	5.0	7.6	10.0	13.2	17.9
<i>Pinus strobus</i>	2776	-20.6	-16.9	-13.5	-9.4	-5.4	-1.0	23.7
<i>Pinus taeda</i>	1288	0.1	3.8	5.4	7.4	9.7	11.4	15.8
<i>Pinus teocote</i>	172	7.1	9.2	10.6	13.2	16.2	21.0	25.6
<i>Pinus virginiana</i>	778	-5.9	-2.2	-0.7	1.1	3.1	4.8	7.9
<i>Pseudotsuga macrocarpa</i>	9	2.7	2.7	5.1	8.4	9.0	9.4	9.4
<i>Pseudotsuga menziesii</i>	1715	-16.9	-11.5	-10.0	-7.0	-0.1	4.5	20.1
<i>Sequoia sempervirens</i>	17	4.7	5.5	6.6	7.5	8.2	9.2	9.6
<i>Taxodium distichum</i>	1302	-1.4	3.7	6.0	8.7	10.8	13.6	19.3
<i>Taxodium mucronatum</i>	196	8.6	10.4	12.1	14.3	16.1	17.3	24.0
<i>Taxus brevifolia</i>	526	-14.4	-8.3	-3.8	0.2	2.7	3.9	7.6
<i>Taxus canadensis</i>	3584	-24.2	-20.0	-18.1	-13.4	-8.9	-5.5	0.8
<i>Thuja occidentalis</i>	2416	-24.2	-20.5	-18.7	-14.6	-10.4	-7.5	2.6
<i>Thuja plicata</i>	542	-17.1	-11.1	-8.2	-2.3	1.9	3.6	7.7
<i>Tsuga canadensis</i>	1802	-15.4	-12.2	-10.1	-6.8	-2.9	0.1	5.3
<i>Tsuga caroliniana</i>	32	-1.1	-0.1	0.4	1.3	2.0	2.7	3.6
<i>Tsuga heterophylla</i>	597	-17.1	-11.8	-8.8	-3.2	1.1	3.4	8.1
<i>Tsuga mertensiana</i>	348	-15.6	-9.7	-6.4	-3.2	-0.8	1.1	4.1

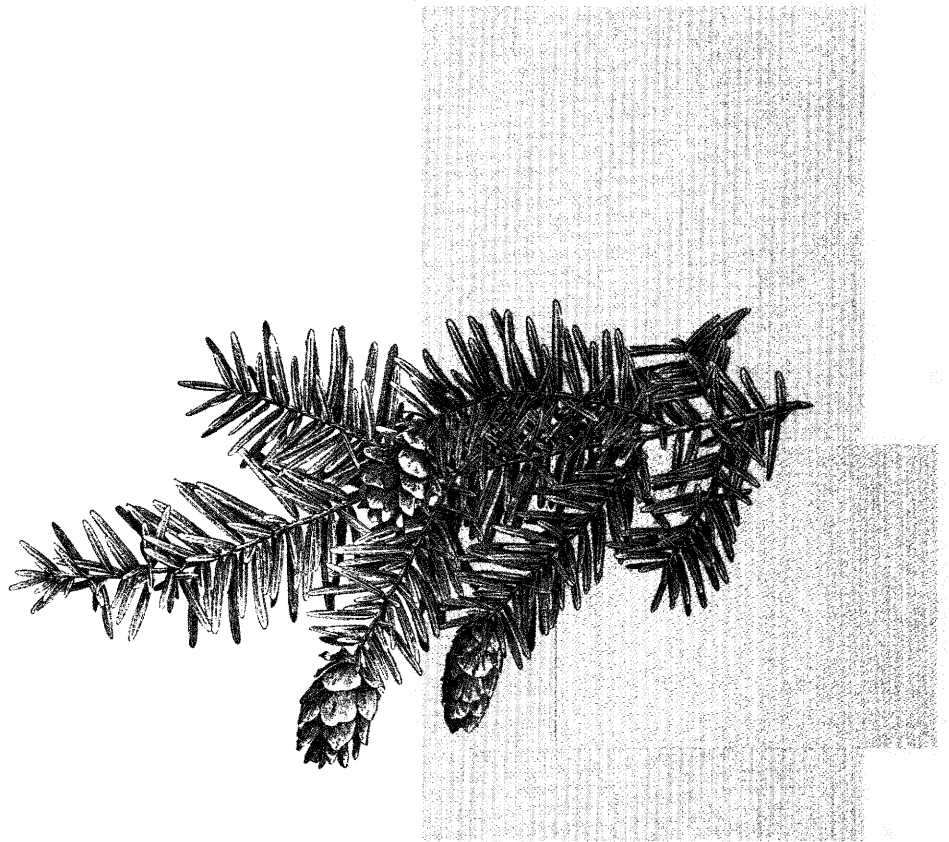
CONIFERS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	0.2	0.5	0.7	0.9	1.3	1.6	2.1
<i>Abies balsamea</i>	4955	0.2	0.6	0.9	1.1	1.4	1.7	2.7
<i>Abies concolor</i>	278	0.3	0.7	1.1	1.6	2.0	2.5	4.7
<i>Abies grandis</i>	308	0.3	0.7	1.0	1.4	1.8	2.1	2.8
<i>Abies lasiocarpa</i>	1910	0.1	0.5	0.6	0.7	0.9	1.2	2.7
<i>Abies magnifica</i>	43	0.8	1.1	1.2	1.4	1.6	1.7	2.7
<i>Abies procera</i>	54	0.3	0.8	1.0	1.3	1.5	1.6	2.2
<i>Chamaecyparis lawsoniana</i>	20	1.2	1.4	1.5	2.0	2.3	2.4	2.5
<i>Chamaecyparis nootkatensis</i>	339	0.2	0.5	0.7	0.9	1.2	1.5	1.9
<i>Chamaecyparis thyoides</i>	211	1.8	2.4	2.9	4.0	4.3	5.3	5.6
<i>Cupressus arizonica</i>	101	2.8	3.2	3.7	4.9	5.5	5.9	6.0
<i>Juniperus ashei</i>	75	3.5	3.7	4.8	5.1	5.3	5.5	6.2
<i>Juniperus californica</i>	50	2.1	3.0	3.4	3.5	4.1	4.7	5.9
<i>Juniperus communis</i>	11702	0.1	0.4	0.6	0.8	1.1	1.4	3.9
<i>Juniperus deppeana</i>	195	1.5	2.1	2.8	3.8	4.7	5.6	7.6
<i>Juniperus flaccida</i>	160	3.1	3.7	4.8	5.5	6.2	7.4	8.5
<i>Juniperus horizontalis</i>	7344	0.1	0.5	0.6	0.9	1.1	1.3	2.4
<i>Juniperus monosperma</i>	258	0.7	1.7	2.0	2.4	3.2	3.8	5.9
<i>Juniperus occidentalis</i>	161	0.5	1.0	1.2	1.4	1.5	1.7	4.6
<i>Juniperus osteosperma</i>	429	0.6	1.3	1.6	2.0	2.4	2.8	4.7
<i>Juniperus pinchotii</i>	144	3.4	3.6	3.9	4.3	4.7	4.9	5.7
<i>Juniperus scopulorum</i>	881	0.1	0.5	0.7	1.1	1.7	2.1	3.9
<i>Juniperus silicicola</i>	188	4.1	4.6	5.4	5.7	6.1	6.3	6.5
<i>Juniperus virginiana</i>	4260	1.5	2.3	2.6	3.2	4.0	4.7	5.7
<i>Larix laricina</i>	8588	0.1	0.5	0.7	1.0	1.2	1.7	2.7
<i>Larix lyallii</i>	57	0.2	0.3	0.5	0.6	0.7	0.8	1.2
<i>Larix occidentalis</i>	265	0.4	0.7	0.9	1.1	1.4	1.6	1.9
<i>Libocedrus decurrens</i>	157	0.9	1.4	1.6	1.9	2.4	3.1	4.0
<i>Picea engelmannii</i>	1149	0.1	0.4	0.6	0.8	1.1	1.4	3.2
<i>Picea glauca</i>	9921	0.1	0.5	0.6	0.9	1.1	1.4	2.3
<i>Picea mariana</i>	10154	0.1	0.5	0.6	0.9	1.1	1.5	2.7
<i>Picea pungens</i>	140	0.1	0.4	0.5	0.8	1.1	1.7	2.7
<i>Picea rubens</i>	592	0.9	1.3	1.4	1.6	1.8	2.0	2.9
<i>Picea sitchensis</i>	331	0.2	0.5	0.7	1.0	1.5	1.9	2.5
<i>Pinus albicaulis</i>	589	0.1	0.3	0.5	0.6	0.9	1.2	2.1
<i>Pinus aristata</i>	20	0.1	0.2	0.3	0.6	0.7	0.8	0.9
<i>Pinus attenuata</i>	25	1.1	1.2	1.5	2.3	2.5	2.7	4.1
<i>Pinus ayacahuite</i>	95	3.0	3.4	4.2	5.6	6.9	7.5	8.1
<i>Pinus banksiana</i>	4718	0.4	0.7	0.9	1.1	1.2	1.5	2.6
<i>Pinus caribaea</i>	78	6.0	6.4	6.8	7.3	7.6	7.7	8.0
<i>Pinus cembroides</i>	287	2.9	3.2	3.6	4.2	4.9	5.4	6.8
<i>Pinus clausa</i>	82	5.3	5.9	6.1	6.3	6.4	6.5	6.8
<i>Pinus contorta</i>	2308	0.1	0.5	0.7	0.9	1.1	1.3	4.0
<i>Pinus cooperi</i>	92	3.1	3.3	3.7	4.2	4.5	5.1	6.2
<i>Pinus coulteri</i>	10	1.9	1.9	2.9	3.2	3.4	3.5	4.5
<i>Pinus douglasiana</i>	39	5.6	5.8	6.0	6.3	6.6	7.1	7.2
<i>Pinus durangensis</i>	145	2.9	3.1	3.3	4.0	4.4	5.0	6.5
<i>Pinus echinata</i>	1652	1.8	2.9	3.4	4.1	4.7	5.1	5.6
<i>Pinus edulis</i>	379	0.4	1.5	1.9	2.2	2.5	2.9	4.0
<i>Pinus elliotii</i>	367	4.7	5.0	5.1	5.3	5.9	6.4	6.9

CONIFERS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	2.9	3.2	3.4	4.0	4.4	5.0	6.7
<i>Pinus flexilis</i>	374	0.1	0.4	0.6	0.8	1.1	1.5	4.3
<i>Pinus glabra</i>	350	4.4	4.8	4.9	5.0	5.3	5.4	5.9
<i>Pinus greggii</i>	14	3.8	3.8	4.9	5.1	5.4	5.6	5.7
<i>Pinus hartwegii</i>	32	3.1	3.8	4.7	5.0	5.4	5.7	7.2
<i>Pinus jeffreyi</i>	112	0.8	1.2	1.4	1.6	2.2	2.8	4.6
<i>Pinus lambertiana</i>	155	0.8	1.3	1.5	1.9	2.4	2.8	3.8
<i>Pinus lawsonii</i>	39	3.9	4.8	5.1	5.6	7.0	7.5	7.9
<i>Pinus leiophylla</i>	271	1.8	3.1	3.5	4.2	4.9	5.6	7.5
<i>Pinus longaeva</i>	19	0.4	0.9	1.3	1.5	2.3	2.8	3.5
<i>Pinus lumholtzii</i>	163	2.9	3.5	4.0	4.5	5.4	6.1	6.6
<i>Pinus michoacana</i>	101	3.8	4.8	5.2	6.1	6.6	7.2	7.7
<i>Pinus monophylla</i>	107	0.8	1.3	1.5	1.9	2.5	3.1	5.9
<i>Pinus montezumae</i>	90	3.0	4.3	5.0	5.3	5.9	6.6	7.7
<i>Pinus monticola</i>	455	0.2	0.5	0.8	1.2	1.5	1.8	2.7
<i>Pinus nelsonii</i>	11	5.3	5.3	5.4	5.5	5.7	6.0	6.0
<i>Pinus oocarpa</i>	412	3.2	5.0	5.6	6.4	7.0	7.4	8.7
<i>Pinus palustris</i>	762	3.7	4.1	4.5	5.0	5.3	5.8	6.5
<i>Pinus patula</i>	27	3.1	3.2	3.5	4.5	5.4	5.6	5.8
<i>Pinus pinceana</i>	27	4.2	4.5	4.8	5.1	5.2	5.3	5.5
<i>Pinus ponderosa</i>	1138	0.2	0.8	1.2	1.7	2.5	3.9	7.1
<i>Pinus pringlei</i>	54	4.7	4.9	6.4	7.1	7.7	8.1	8.7
<i>Pinus pseudostrobus</i>	211	3.2	4.6	5.1	5.7	6.5	7.1	8.2
<i>Pinus pungens</i>	137	1.8	2.2	2.4	2.6	2.8	3.0	3.6
<i>Pinus quadrifolia</i>	9	2.8	2.8	3.7	4.0	4.1	4.1	4.4
<i>Pinus resinosa</i>	1751	0.8	1.2	1.3	1.6	1.8	2.0	2.8
<i>Pinus rigida</i>	711	1.4	2.0	2.3	2.6	3.0	3.2	3.8
<i>Pinus sabiniana</i>	64	1.6	2.3	2.7	3.3	3.6	4.0	4.5
<i>Pinus serotina</i>	462	3.0	3.9	4.3	4.9	5.3	5.7	6.3
<i>Pinus strobiformis</i>	269	1.4	3.0	3.3	4.0	4.6	5.6	6.8
<i>Pinus strobus</i>	2776	0.8	1.2	1.4	1.7	2.2	2.7	7.6
<i>Pinus taeda</i>	1288	2.8	3.8	4.2	4.7	5.1	5.4	6.3
<i>Pinus teocote</i>	172	3.0	4.0	4.3	5.2	6.0	6.9	8.2
<i>Pinus virginiana</i>	778	1.8	2.5	2.8	3.1	3.5	3.9	4.7
<i>Pseudotsuga macrocarpa</i>	9	2.0	2.0	2.1	3.6	3.7	4.1	4.2
<i>Pseudotsuga menziesii</i>	1715	0.1	0.5	0.7	1.1	1.7	2.5	7.0
<i>Sequoia sempervirens</i>	17	1.7	1.9	2.1	2.6	3.2	3.4	3.8
<i>Taxodium distichum</i>	1302	3.2	3.9	4.4	4.9	5.4	5.9	6.9
<i>Taxodium mucronatum</i>	196	3.1	3.8	4.3	5.2	6.3	6.7	8.2
<i>Taxus brevifolia</i>	526	0.2	0.7	1.0	1.5	1.9	2.2	3.3
<i>Taxus canadensis</i>	3584	0.3	0.6	1.0	1.3	1.8	2.1	3.2
<i>Thuja occidentalis</i>	2416	0.5	1.1	1.1	1.4	1.7	2.0	3.5
<i>Thuja plicata</i>	542	0.2	0.5	0.8	1.1	1.6	2.0	2.6
<i>Tsuga canadensis</i>	1802	0.9	1.5	1.6	1.9	2.4	2.9	4.2
<i>Tsuga caroliniana</i>	32	2.0	2.1	2.4	2.8	2.9	3.0	3.5
<i>Tsuga heterophylla</i>	597	0.2	0.5	0.7	1.0	1.4	1.9	2.8
<i>Tsuga mertensiana</i>	348	0.2	0.5	0.7	0.9	1.2	1.4	2.0

CONIFERS				Moisture Index				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Abies amabilis</i>	233	0.64	0.86	0.93	0.96	0.99	0.99	1.00
<i>Abies balsamea</i>	4955	0.54	0.73	0.94	0.99	0.99	1.00	1.00
<i>Abies concolor</i>	278	0.18	0.49	0.59	0.69	0.78	0.87	0.99
<i>Abies grandis</i>	308	0.32	0.68	0.79	0.87	0.93	0.96	0.99
<i>Abies lasiocarpa</i>	1910	0.24	0.50	0.63	0.76	0.91	0.98	1.00
<i>Abies magnifica</i>	43	0.32	0.52	0.66	0.73	0.76	0.84	0.93
<i>Abies procera</i>	54	0.73	0.75	0.85	0.91	0.95	0.96	0.99
<i>Chamaecyparis lawsoniana</i>	20	0.67	0.69	0.76	0.80	0.83	0.85	0.86
<i>Chamaecyparis nootkatensis</i>	339	0.41	0.91	0.95	0.99	1.00	1.00	1.00
<i>Chamaecyparis thyoides</i>	211	0.91	0.94	0.96	0.98	0.99	1.00	1.00
<i>Cupressus arizonica</i>	101	0.20	0.23	0.32	0.49	0.68	0.78	0.92
<i>Juniperus ashei</i>	75	0.31	0.48	0.57	0.71	0.78	0.93	0.95
<i>Juniperus californica</i>	50	0.06	0.26	0.35	0.45	0.50	0.55	0.64
<i>Juniperus communis</i>	11702	0.29	0.47	0.62	0.80	0.98	0.99	1.00
<i>Juniperus deppeana</i>	195	0.21	0.35	0.47	0.65	0.78	0.86	0.98
<i>Juniperus flaccida</i>	160	0.21	0.25	0.37	0.60	0.74	0.82	0.99
<i>Juniperus horizontalis</i>	7344	0.37	0.51	0.67	0.86	0.99	1.00	1.00
<i>Juniperus monosperma</i>	258	0.21	0.35	0.42	0.51	0.61	0.73	0.92
<i>Juniperus occidentalis</i>	161	0.09	0.36	0.43	0.54	0.68	0.82	0.98
<i>Juniperus osteosperma</i>	429	0.10	0.26	0.32	0.41	0.51	0.65	0.94
<i>Juniperus pinchotii</i>	144	0.22	0.36	0.50	0.56	0.59	0.63	0.79
<i>Juniperus scopulorum</i>	881	0.13	0.42	0.51	0.64	0.80	0.93	0.99
<i>Juniperus silicicola</i>	188	0.85	0.95	0.99	0.99	0.99	0.99	1.00
<i>Juniperus virginiana</i>	4260	0.55	0.81	0.91	0.95	0.97	0.98	1.00
<i>Larix laricina</i>	8588	0.37	0.56	0.70	0.95	0.99	1.00	1.00
<i>Larix lyallii</i>	57	0.52	0.70	0.79	0.88	0.95	0.97	0.98
<i>Larix occidentalis</i>	265	0.32	0.50	0.60	0.76	0.86	0.92	0.99
<i>Libocedrus decurrens</i>	157	0.38	0.53	0.61	0.69	0.74	0.79	0.94
<i>Picea engelmannii</i>	1149	0.32	0.52	0.64	0.77	0.90	0.97	1.00
<i>Picea glauca</i>	9921	0.33	0.49	0.65	0.86	0.99	1.00	1.00
<i>Picea mariana</i>	10154	0.33	0.47	0.64	0.86	0.99	1.00	1.00
<i>Picea pungens</i>	140	0.26	0.45	0.57	0.70	0.80	0.90	0.99
<i>Picea rubens</i>	592	0.92	0.96	0.97	0.99	0.99	1.00	1.00
<i>Picea sitchensis</i>	331	0.77	0.88	0.95	0.99	1.00	1.00	1.00
<i>Pinus albicaulis</i>	589	0.34	0.59	0.73	0.87	0.96	0.98	1.00
<i>Pinus aristata</i>	20	0.56	0.57	0.76	0.79	0.88	0.92	0.96
<i>Pinus attenuata</i>	25	0.46	0.59	0.65	0.68	0.83	0.84	0.86
<i>Pinus ayacahuite</i>	95	0.57	0.62	0.66	0.78	0.92	0.96	0.99
<i>Pinus banksiana</i>	4718	0.37	0.52	0.69	0.92	0.99	0.99	1.00
<i>Pinus caribaea</i>	78	0.88	0.91	0.92	0.94	0.96	0.97	0.99
<i>Pinus cembroides</i>	287	0.21	0.37	0.48	0.60	0.81	0.89	0.98
<i>Pinus clausa</i>	82	0.97	0.98	0.99	0.99	0.99	0.99	1.00
<i>Pinus contorta</i>	2308	0.27	0.55	0.66	0.77	0.93	0.99	1.00
<i>Pinus cooperi</i>	92	0.63	0.73	0.82	0.88	0.91	0.93	0.94
<i>Pinus coulteri</i>	10	0.39	0.39	0.49	0.50	0.54	0.55	0.66
<i>Pinus douglasiana</i>	39	0.64	0.65	0.70	0.75	0.77	0.78	0.79
<i>Pinus durangensis</i>	145	0.51	0.63	0.73	0.85	0.90	0.93	0.94
<i>Pinus echinata</i>	1652	0.82	0.89	0.92	0.96	0.98	0.99	1.00
<i>Pinus edulis</i>	379	0.17	0.29	0.37	0.46	0.57	0.68	0.92
<i>Pinus elliotii</i>	367	0.90	0.95	0.98	0.99	0.99	0.99	1.00

CONIFERS		Moisture Index						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Pinus engelmannii</i>	222	0.34	0.45	0.56	0.77	0.88	0.92	0.94
<i>Pinus flexilis</i>	374	0.10	0.48	0.59	0.70	0.81	0.92	0.99
<i>Pinus glabra</i>	350	0.87	0.91	0.94	0.97	0.99	0.99	1.00
<i>Pinus greggii</i>	14	0.37	0.37	0.39	0.47	0.90	0.91	0.94
<i>Pinus hartwegii</i>	32	0.51	0.61	0.76	0.83	0.95	0.98	0.99
<i>Pinus jeffreyi</i>	112	0.19	0.42	0.53	0.66	0.74	0.79	0.86
<i>Pinus lambertiana</i>	155	0.34	0.55	0.62	0.69	0.75	0.80	0.94
<i>Pinus lawsonii</i>	39	0.59	0.61	0.64	0.70	0.77	0.80	0.83
<i>Pinus leiophylla</i>	271	0.36	0.52	0.66	0.77	0.86	0.91	0.98
<i>Pinus longaeva</i>	19	0.21	0.21	0.29	0.45	0.55	0.61	0.75
<i>Pinus lumholtzii</i>	163	0.55	0.68	0.75	0.79	0.88	0.91	0.94
<i>Pinus michoacana</i>	101	0.50	0.61	0.66	0.74	0.77	0.79	0.83
<i>Pinus monophylla</i>	107	0.07	0.22	0.30	0.41	0.48	0.54	0.76
<i>Pinus montezumae</i>	90	0.37	0.57	0.64	0.77	0.88	0.98	0.99
<i>Pinus monticola</i>	455	0.23	0.62	0.75	0.88	0.95	0.98	1.00
<i>Pinus nelsonii</i>	11	0.55	0.55	0.56	0.59	0.60	0.64	0.69
<i>Pinus oocarpa</i>	412	0.47	0.63	0.70	0.80	0.90	0.95	1.00
<i>Pinus palustris</i>	762	0.87	0.92	0.95	0.98	0.99	0.99	1.00
<i>Pinus patula</i>	27	0.68	0.77	0.80	0.91	0.95	0.98	0.99
<i>Pinus pinceana</i>	27	0.30	0.32	0.35	0.40	0.57	0.67	0.88
<i>Pinus ponderosa</i>	1138	0.21	0.44	0.52	0.64	0.76	0.88	0.99
<i>Pinus pringlei</i>	54	0.55	0.57	0.62	0.66	0.70	0.73	0.76
<i>Pinus pseudostrobus</i>	211	0.36	0.60	0.76	0.85	0.93	0.97	1.00
<i>Pinus pungens</i>	137	0.94	0.96	0.97	0.98	0.99	1.00	1.00
<i>Pinus quadrifolia</i>	9	0.41	0.41	0.48	0.55	0.57	0.59	0.64
<i>Pinus resinosa</i>	1751	0.74	0.94	0.96	0.98	0.99	0.99	1.00
<i>Pinus rigida</i>	711	0.92	0.95	0.96	0.97	0.98	0.99	1.00
<i>Pinus sabiniana</i>	64	0.18	0.39	0.49	0.55	0.64	0.68	0.71
<i>Pinus serotina</i>	462	0.89	0.93	0.96	0.99	0.99	0.99	1.00
<i>Pinus strobiformis</i>	269	0.21	0.52	0.64	0.78	0.88	0.92	0.97
<i>Pinus strobus</i>	2776	0.62	0.94	0.96	0.98	0.99	0.99	1.00
<i>Pinus taeda</i>	1288	0.81	0.89	0.91	0.96	0.98	0.99	1.00
<i>Pinus teocote</i>	172	0.26	0.55	0.62	0.73	0.86	0.91	0.99
<i>Pinus virginiana</i>	778	0.88	0.95	0.96	0.97	0.98	0.99	1.00
<i>Pseudotsuga macrocarpa</i>	9	0.40	0.40	0.45	0.53	0.53	0.54	0.60
<i>Pseudotsuga menziesii</i>	1715	0.22	0.51	0.63	0.76	0.89	0.96	1.00
<i>Sequoia sempervirens</i>	17	0.55	0.60	0.64	0.70	0.76	0.81	0.85
<i>Taxodium distichum</i>	1302	0.57	0.87	0.90	0.94	0.99	0.99	1.00
<i>Taxodium mucronatum</i>	196	0.30	0.45	0.60	0.75	0.83	0.93	0.99
<i>Taxus brevifolia</i>	526	0.49	0.66	0.75	0.87	0.96	0.99	1.00
<i>Taxus canadensis</i>	3584	0.78	0.95	0.97	0.99	0.99	1.00	1.00
<i>Thuja occidentalis</i>	2416	0.64	0.94	0.97	0.98	0.99	1.00	1.00
<i>Thuja plicata</i>	542	0.43	0.75	0.84	0.94	0.98	0.99	1.00
<i>Tsuga canadensis</i>	1802	0.87	0.94	0.96	0.98	0.99	0.99	1.00
<i>Tsuga caroliniana</i>	32	0.97	0.97	0.99	0.99	1.00	1.00	1.00
<i>Tsuga heterophylla</i>	597	0.45	0.79	0.88	0.96	0.99	1.00	1.00
<i>Tsuga mertensiana</i>	348	0.44	0.84	0.94	0.99	1.00	1.00	1.00

Conifer Genera and Groups— Tables



CONIFER GROUPS				Annual Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	-6.9	-3.2	-1.6	0.4	3.5	6.0	18.8
<i>ABIES</i> EAST	4959	-6.2	-3.3	-1.6	0.0	2.9	5.3	11.0
<i>ABIES</i> WEST	2350	-6.9	-3.1	-1.0	1.6	4.7	8.4	18.8
<i>CUPRESSACEAE</i> EAST	6669	-4.4	0.7	4.4	10.1	14.6	17.7	22.7
<i>JUNIPERUS</i>	17585	-12.2	-6.2	-3.6	0.7	9.3	15.4	26.4
<i>JUNIPERUS</i> BOREAL	11881	-12.2	-7.3	-5.0	-2.0	0.8	3.8	15.5
<i>JUNIPERUS</i> EAST	4498	4.3	8.0	9.9	12.9	16.2	18.4	22.7
<i>JUNIPERUS</i> WEST	2003	-3.2	1.0	4.0	7.5	13.8	17.9	26.4
<i>JUNIPERUS</i> WEST WOODLAND	1119	0.6	5.4	7.0	9.7	14.7	17.4	26.1
<i>LARIX</i>	8906	-9.7	-5.6	-3.8	-1.0	1.6	5.3	11.2
<i>LARIX/PSEUDOTSUGA</i>	10339	-9.7	-5.4	-3.4	-0.3	3.0	6.5	24.8
<i>PICEA</i>	12143	-12.4	-6.7	-4.5	-1.4	1.5	4.7	13.2
<i>PICEA</i> NORTH/EAST	10996	-12.4	-7.0	-4.8	-2.0	0.8	3.9	12.0
<i>PICEA</i> WEST	1509	-6.5	-0.8	0.8	2.7	5.1	7.6	13.2
<i>PICEA</i> WEST INTERIOR	1176	-4.8	-1.1	0.4	2.2	3.9	6.1	13.2
<i>PINUS</i>	12811	-8.0	-3.4	-0.6	3.9	12.0	18.3	30.9
<i>PINUS</i> EAST	8177	-8.0	-4.1	-1.4	2.1	10.8	17.4	25.5
<i>PINUS</i> NORTHEAST	6556	-8.0	-4.6	-2.2	0.3	5.0	9.1	25.5
<i>PINUS</i> NORTHEAST YELLOW	6035	-8.0	-4.7	-2.5	0.0	4.2	8.2	15.2
<i>PINUS</i> SOUTHEAST	2141	7.2	11.5	13.6	16.3	18.3	19.9	24.1
<i>PINUS</i> WEST	4280	-7.2	-1.9	0.8	4.7	9.7	16.3	26.2
<i>PINUS</i> WEST WHITE	1518	-4.8	-0.7	1.1	4.4	9.3	14.9	23.8
<i>PINUS</i> WEST PINYONS	782	-0.6	6.4	8.4	11.4	15.4	18.2	22.7
<i>PINUS</i> WEST YELLOW	3622	-7.2	-2.2	0.4	3.4	8.5	16.1	26.2
<i>PSEUDOTSUGA</i>	1724	-3.9	0.0	1.8	4.1	8.2	11.8	24.8
<i>TAXODIUM</i>	1498	12.6	15.4	16.9	18.4	19.9	21.9	26.6
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	-12.2	-6.0	-3.2	1.6	10.0	16.3	26.6
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	-5.1	-0.6	2.8	9.1	14.6	18.1	24.1
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	-3.2	1.4	4.1	7.4	11.7	17.4	26.4
<i>TSUGA</i>	2484	-6.5	2.7	4.4	6.4	9.1	11.5	16.3
<i>TSUGA</i> EAST	1802	0.1	3.9	5.0	6.8	9.9	12.0	16.3
<i>TSUGA</i> WEST	682	-6.5	-0.3	1.9	4.7	7.4	9.6	12.6

CONIFER GROUPS				January Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	-30.0	-23.6	-21.2	-16.4	-10.1	-6.0	11.8
<i>ABIES</i> EAST	4959	-26.8	-23.7	-21.7	-19.0	-13.2	-8.9	0.2
<i>ABIES</i> WEST	2350	-30.0	-22.3	-15.7	-10.4	-5.7	0.2	11.8
<i>CUPRESSACEAE</i> EAST	6669	-24.2	-18.3	-11.9	-4.4	2.4	7.1	16.8
<i>JUNIPERUS</i>	17585	-32.5	-27.7	-23.6	-16.2	-4.0	3.9	26.2
<i>JUNIPERUS</i> BOREAL	11881	-32.5	-28.8	-25.5	-21.3	-15.8	-9.4	4.9
<i>JUNIPERUS</i> EAST	4498	-13.4	-8.1	-4.7	-0.2	4.8	8.4	16.8
<i>JUNIPERUS</i> WEST	2003	-17.9	-10.4	-7.9	-3.3	2.8	10.6	26.2
<i>JUNIPERUS</i> WEST WOODLAND	1119	-11.9	-5.7	-3.6	-0.8	4.2	8.8	24.8
<i>LARIX</i>	8906	-31.0	-27.6	-24.5	-20.6	-14.9	-8.5	-1.0
<i>LARIX/PSEUDOTSUGA</i>	10339	-31.0	-27.1	-23.8	-19.5	-11.0	-5.8	20.1
<i>PICEA</i>	12143	-34.2	-28.8	-25.1	-20.4	-13.6	-8.2	7.6
<i>PICEA</i> NORTH/EAST	10996	-34.2	-29.0	-25.5	-21.3	-16.3	-11.0	1.5
<i>PICEA</i> WEST	1509	-18.7	-12.4	-10.9	-8.6	-4.8	0.1	7.6
<i>PICEA</i> WEST INTERIOR	1176	-18.7	-12.9	-11.4	-9.7	-7.3	-5.0	5.4
<i>PINUS</i>	12811	-30.4	-25.2	-20.1	-9.6	1.3	9.9	26.7
<i>PINUS</i> EAST	8177	-30.4	-26.7	-22.3	-15.5	-1.3	7.0	25.8
<i>PINUS</i> NORTHEAST	6556	-30.4	-27.4	-23.6	-19.1	-10.1	-4.0	25.8
<i>PINUS</i> NORTHEAST YELLOW	6035	-30.4	-27.6	-24.0	-19.8	-12.4	-4.9	4.6
<i>PINUS</i> SOUTHEAST	2141	-5.9	-0.6	1.9	5.4	8.8	11.2	19.3
<i>PINUS</i> WEST	4280	-29.3	-18.9	-12.0	-6.4	0.7	9.1	24.0
<i>PINUS</i> WEST WHITE	1518	-18.7	-12.0	-10.2	-6.2	1.5	7.2	18.9
<i>PINUS</i> WEST PINYONS	782	-11.4	-5.0	-2.7	1.1	7.7	12.0	17.3
<i>PINUS</i> WEST YELLOW	3622	-29.3	-19.9	-13.9	-7.9	0.0	8.8	24.0
<i>PSEUDOTSUGA</i>	1724	-16.9	-11.5	-10.0	-6.9	0.1	4.6	20.1
<i>TAXODIUM</i>	1498	-1.4	4.1	6.5	9.3	11.7	15.7	25.4
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	-32.5	-27.3	-23.0	-13.3	-2.6	5.6	26.2
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	-24.2	-19.3	-13.3	-5.4	2.3	8.0	19.3
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	-17.9	-10.0	-6.9	-2.3	3.1	9.5	26.2
<i>TSUGA</i>	2484	-17.1	-12.2	-9.8	-6.0	-1.6	1.3	8.1
<i>TSUGA</i> EAST	1802	-15.4	-12.2	-10.1	-6.7	-2.9	0.1	5.3
<i>TSUGA</i> WEST	682	-17.1	-11.7	-8.6	-3.5	0.5	3.1	8.1

CONIFER GROUPS				July Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	7.1	12.1	13.5	15.9	17.5	18.9	28.0
<i>ABIES</i> EAST	4959	8.9	12.8	15.0	16.4	17.8	19.1	22.1
<i>ABIES</i> WEST	2350	7.1	11.1	12.4	13.7	15.4	17.9	28.0
<i>CUPRESSACEAE</i> EAST	6669	12.4	16.7	18.7	23.2	26.0	27.4	30.2
<i>JUNIPERUS</i>	17585	5.6	11.7	13.5	16.0	22.1	26.2	31.8
<i>JUNIPERUS</i> BOREAL	11881	5.6	11.2	12.6	14.5	16.1	17.9	25.7
<i>JUNIPERUS</i> EAST	4498	17.9	21.6	23.0	25.2	26.9	27.9	30.2
<i>JUNIPERUS</i> WEST	2003	7.1	12.4	15.7	19.7	22.9	26.6	31.8
<i>JUNIPERUS</i> WEST WOODLAND	1119	11.6	17.0	18.9	21.2	24.4	27.6	31.8
<i>LARIX</i>	8906	7.2	12.2	13.8	15.5	17.2	19.0	23.2
<i>LARIX/PSEUDOTSUGA</i>	10339	7.1	12.0	13.7	15.5	17.3	19.3	28.9
<i>PICEA</i>	12143	7.1	11.4	12.8	14.7	16.4	18.2	24.4
<i>PICEA</i> NORTH/EAST	10996	7.1	11.5	12.9	14.8	16.4	18.3	23.4
<i>PICEA</i> WEST	1509	7.1	10.5	11.8	13.5	15.4	17.3	24.4
<i>PICEA</i> WEST INTERIOR	1176	7.1	10.4	11.8	13.6	15.4	17.5	24.4
<i>PINUS</i>	12811	7.1	13.3	15.1	17.5	21.8	26.4	31.6
<i>PINUS</i> EAST	8177	10.9	14.6	15.7	17.6	22.3	27.0	29.0
<i>PINUS</i> NORTHEAST	6556	10.9	14.3	15.4	16.7	18.9	21.6	26.8
<i>PINUS</i> NORTHEAST YELLOW	6035	10.9	14.2	15.4	16.5	18.5	20.9	25.6
<i>PINUS</i> SOUTHEAST	2141	17.9	22.7	24.8	26.4	27.3	27.7	29.0
<i>PINUS</i> WEST	4280	7.1	11.8	13.4	15.6	20.3	23.4	31.6
<i>PINUS</i> WEST WHITE	1518	7.1	10.6	12.4	15.3	19.3	21.7	30.1
<i>PINUS</i> WEST PINYONS	782	11.2	18.5	19.9	21.3	22.9	24.7	31.6
<i>PINUS</i> WEST YELLOW	3622	7.1	11.6	13.1	15.0	19.2	22.6	30.6
<i>PSEUDOTSUGA</i>	1724	7.1	11.3	12.8	15.2	17.6	20.1	28.9
<i>TAXODIUM</i>	1498	14.1	24.2	26.7	27.3	27.6	28.1	31.4
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	5.6	11.8	13.7	16.4	22.3	26.6	31.8
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	9.8	15.4	17.6	22.4	26.0	27.5	30.2
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	7.1	11.9	14.4	18.1	21.8	25.6	31.8
<i>TSUGA</i>	2484	7.8	12.6	16.7	18.9	20.9	22.8	26.4
<i>TSUGA</i> EAST	1802	14.3	17.8	18.6	20.0	21.7	23.3	26.4
<i>TSUGA</i> WEST	682	7.8	10.7	11.8	13.5	15.7	17.2	20.9

CONIFER GROUPS		Annual Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	135	455	565	780	1000	1185	4370
<i>ABIES</i> EAST	4959	370	465	660	815	1000	1135	1650
<i>ABIES</i> WEST	2350	135	380	500	650	1000	1540	4370
<i>CUPRESSACEAE</i> EAST	6669	350	690	795	955	1145	1310	1630
<i>JUNIPERUS</i>	17585	75	310	430	650	950	1190	3965
<i>JUNIPERUS</i> BOREAL	11881	165	295	405	555	810	1050	3965
<i>JUNIPERUS</i> EAST	4498	350	675	850	1020	1200	1350	1610
<i>JUNIPERUS</i> WEST	2003	75	260	325	450	605	840	2520
<i>JUNIPERUS</i> WEST WOODLAND	1119	75	225	295	380	505	620	2290
<i>LARIX</i>	8906	250	360	455	660	885	1075	2520
<i>LARIX/PSEUDOTSUGA</i>	10339	235	365	460	670	905	1105	4370
<i>PICEA</i>	12143	185	300	425	590	865	1100	4370
<i>PICEA</i> NORTH/EAST	10996	185	295	410	560	825	1045	2670
<i>PICEA</i> WEST	1509	200	460	585	810	1280	2175	4370
<i>PICEA</i> WEST INTERIOR	1176	200	430	545	720	920	1190	2825
<i>PINUS</i>	12811	85	365	480	775	1090	1340	4370
<i>PINUS</i> EAST	8177	250	405	520	845	1115	1315	2295
<i>PINUS</i> NORTHEAST	6556	250	370	470	750	975	1110	2295
<i>PINUS</i> NORTHEAST YELLOW	6035	250	360	460	730	950	1085	1560
<i>PINUS</i> SOUTHEAST	2141	885	1050	1130	1245	1360	1435	1630
<i>PINUS</i> WEST	4280	85	325	430	565	845	1345	4370
<i>PINUS</i> WEST WHITE	1518	95	435	575	765	1045	1465	4370
<i>PINUS</i> WEST PINYONS	782	85	235	295	375	480	630	1350
<i>PINUS</i> WEST YELLOW	3622	160	375	475	605	890	1380	4370
<i>PSEUDOTSUGA</i>	1724	235	415	540	745	1090	1620	4370
<i>TAXODIUM</i>	1498	290	845	1175	1290	1375	1485	2615
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	75	315	445	700	1010	1265	4370
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	350	710	820	990	1170	1335	1650
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	75	275	370	535	990	1780	4370
<i>TSUGA</i>	2484	395	800	920	1055	1215	1820	4370
<i>TSUGA</i> EAST	1802	710	800	900	1025	1120	1220	1560
<i>TSUGA</i> WEST	682	395	785	1015	1530	2135	2720	4370

CONIFER GROUPS			January Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>ABIES</i>	7309	9	22	31	55	84	127	616	
<i>ABIES</i> EAST	4959	16	22	28	50	73	94	166	
<i>ABIES</i> WEST	2350	9	26	41	69	133	237	616	
<i>CUPRESSACEAE</i> EAST	6669	8	20	36	62	87	114	150	
<i>JUNIPERUS</i>	17585	1	12	20	33	68	102	616	
<i>JUNIPERUS</i> BOREAL	11881	4	13	20	29	58	91	616	
<i>JUNIPERUS</i> EAST	4498	8	15	33	68	96	125	150	
<i>JUNIPERUS</i> WEST	2003	1	10	15	29	58	95	415	
<i>JUNIPERUS</i> WEST WOODLAND	1119	5	10	14	23	41	70	295	
<i>LARIX</i>	8906	6	17	22	32	62	88	415	
<i>LARIX/PSEUDOTSUGA</i>	10339	2	17	22	36	69	103	616	
<i>PICEA</i>	12143	4	13	21	31	65	97	616	
<i>PICEA</i> NORTH/EAST	10996	4	13	20	28	57	84	217	
<i>PICEA</i> WEST	1509	9	41	59	93	171	266	616	
<i>PICEA</i> WEST INTERIOR	1176	9	38	54	77	114	167	451	
<i>PINUS</i>	12811	0	14	23	50	85	129	616	
<i>PINUS</i> EAST	8177	0	18	24	53	84	116	161	
<i>PINUS</i> NORTHEAST	6556	0	17	22	38	68	87	161	
<i>PINUS</i> NORTHEAST YELLOW	6035	7	16	22	35	66	84	161	
<i>PINUS</i> SOUTHEAST	2141	38	67	82	97	125	137	150	
<i>PINUS</i> WEST	4280	1	12	23	46	95	195	616	
<i>PINUS</i> WEST WHITE	1518	3	16	36	84	152	245	616	
<i>PINUS</i> WEST PINYONS	782	3	9	12	19	28	42	218	
<i>PINUS</i> WEST YELLOW	3622	1	13	26	52	105	201	612	
<i>PSEUDOTSUGA</i>	1724	2	26	51	87	166	267	616	
<i>TAXODIUM</i>	1498	1	25	69	98	124	136	149	
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	1	12	21	36	75	116	616	
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	8	21	40	67	92	122	163	
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	1	11	18	48	134	246	616	
<i>TSUGA</i>	2484	21	53	69	83	128	238	616	
<i>TSUGA</i> EAST	1802	21	45	64	75	88	109	161	
<i>TSUGA</i> WEST	682	23	88	128	200	270	332	616	

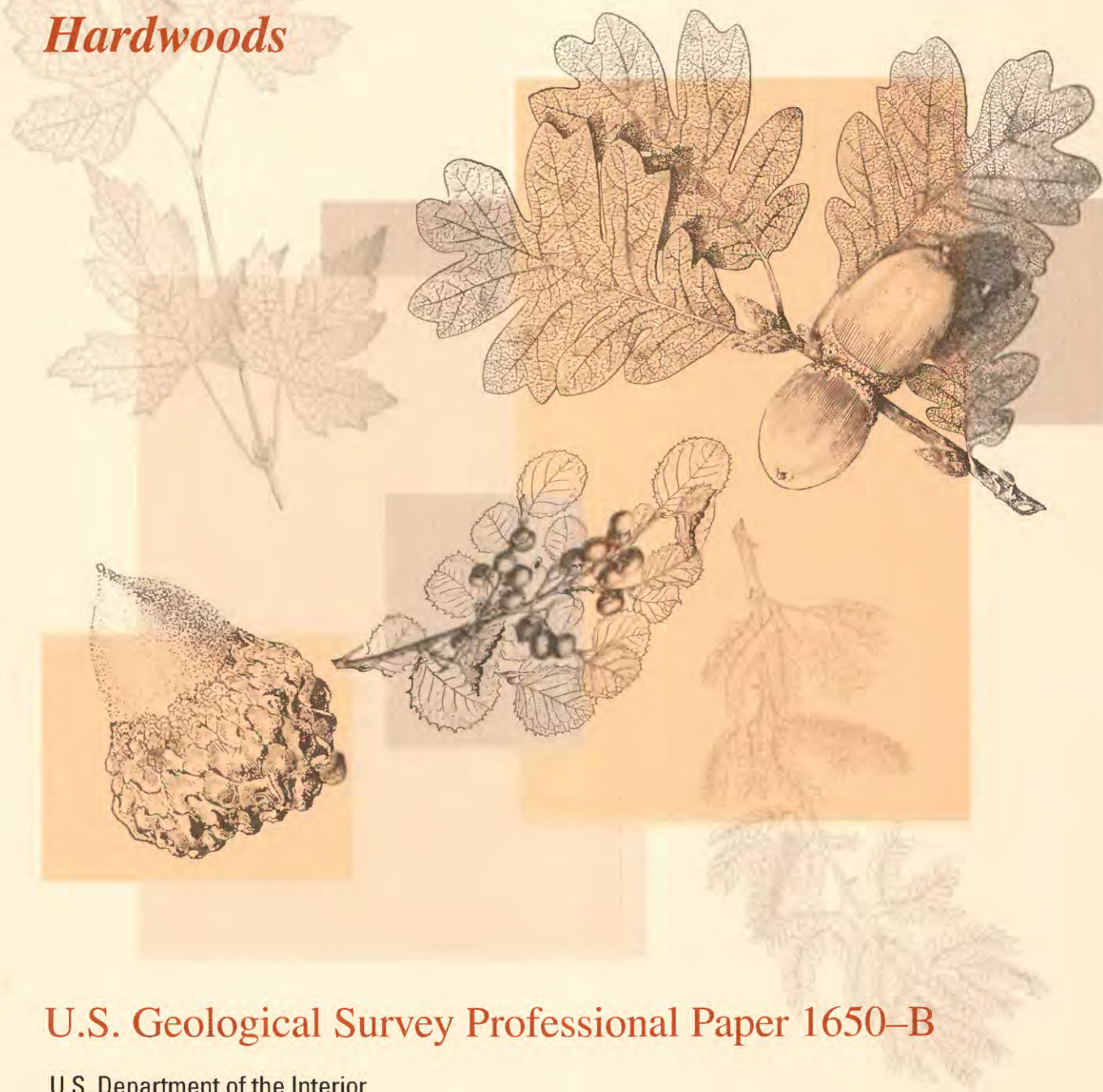
CONIFER GROUPS		July Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	0	38	65	85	101	118	212
<i>ABIES</i> EAST	4959	56	75	83	96	107	123	212
<i>ABIES</i> WEST	2350	0	19	33	48	65	78	138
<i>CUPRESSACEAE</i> EAST	6669	35	74	86	99	111	126	218
<i>JUNIPERUS</i>	17585	0	38	56	79	101	119	322
<i>JUNIPERUS</i> BOREAL	11881	8	39	54	75	94	109	223
<i>JUNIPERUS</i> EAST	4498	35	72	86	101	114	131	218
<i>JUNIPERUS</i> WEST	2003	0	13	24	44	61	98	322
<i>JUNIPERUS</i> WEST WOODLAND	1119	0	10	17	37	59	94	290
<i>LARIX</i>	8906	10	52	70	84	100	114	212
<i>LARIX/PSEUDOTSUGA</i>	10339	0	37	61	80	98	113	302
<i>PICEA</i>	12143	4	39	55	76	95	111	300
<i>PICEA</i> NORTH/EAST	10996	21	44	60	78	96	111	212
<i>PICEA</i> WEST	1509	4	23	31	46	61	85	300
<i>PICEA</i> WEST INTERIOR	1176	5	23	31	43	53	69	126
<i>PINUS</i>	12811	0	35	61	86	109	144	497
<i>PINUS</i> EAST	8177	32	63	78	95	111	131	302
<i>PINUS</i> NORTHEAST	6556	32	60	75	90	103	117	302
<i>PINUS</i> NORTHEAST YELLOW	6035	32	59	75	89	102	116	164
<i>PINUS</i> SOUTHEAST	2141	47	93	106	120	140	176	222
<i>PINUS</i> WEST	4280	0	15	31	53	77	128	350
<i>PINUS</i> WEST WHITE	1518	0	10	26	44	69	149	259
<i>PINUS</i> WEST PINYONS	782	0	17	27	55	96	157	246
<i>PINUS</i> WEST YELLOW	3622	0	14	35	57	80	139	350
<i>PSEUDOTSUGA</i>	1724	0	9	23	38	52	73	302
<i>TAXODIUM</i>	1498	36	83	102	135	172	199	350
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	0	36	57	81	102	122	350
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	35	75	88	100	115	135	222
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	0	9	21	42	64	108	322
<i>TSUGA</i>	2484	2	40	73	91	105	118	300
<i>TSUGA</i> EAST	1802	61	75	84	96	108	119	145
<i>TSUGA</i> WEST	682	2	15	28	51	75	115	300

CONIFER GROUPS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	-30.0	-23.6	-21.2	-16.4	-10.2	-6.1	11.8
<i>ABIES</i> EAST	4959	-26.8	-23.7	-21.7	-19.0	-13.2	-9.1	0.2
<i>ABIES</i> WEST	2350	-30.0	-22.4	-15.7	-10.4	-5.7	0.2	11.8
<i>CUPRESSACEAE</i> EAST	6669	-24.2	-18.3	-11.9	-4.4	2.4	7.1	16.8
<i>JUNIPERUS</i>	17585	-33.0	-27.9	-24.0	-16.2	-4.0	3.9	24.7
<i>JUNIPERUS</i> BOREAL	11881	-33.0	-29.0	-25.7	-21.5	-15.8	-9.5	4.9
<i>JUNIPERUS</i> EAST	4498	-13.4	-8.1	-4.7	-0.2	4.8	8.4	16.8
<i>JUNIPERUS</i> WEST	2003	-17.9	-10.4	-7.9	-3.4	2.7	10.5	24.7
<i>JUNIPERUS</i> WEST WOODLAND	1119	-11.9	-5.7	-3.6	-0.8	4.1	8.7	23.3
<i>LARIX</i>	8906	-33.0	-27.8	-24.8	-20.8	-15.0	-8.6	-1.0
<i>LARIX/PSEUDOTSUGA</i>	10339	-33.0	-27.4	-24.2	-19.5	-11.0	-5.9	20.1
<i>PICEA</i>	12143	-34.2	-29.0	-25.4	-20.7	-13.7	-8.3	7.6
<i>PICEA</i> NORTH/EAST	10996	-34.2	-29.2	-25.8	-21.6	-16.4	-11.0	1.5
<i>PICEA</i> WEST	1509	-18.7	-12.5	-10.9	-8.6	-4.8	0.1	7.6
<i>PICEA</i> WEST INTERIOR	1176	-18.7	-12.9	-11.4	-9.7	-7.3	-5.0	4.2
<i>PINUS</i>	12811	-30.4	-25.2	-20.1	-9.7	1.3	9.8	26.0
<i>PINUS</i> EAST	8177	-30.4	-26.7	-22.3	-15.5	-1.3	7.0	23.7
<i>PINUS</i> NORTHEAST	6556	-30.4	-27.4	-23.6	-19.1	-10.1	-4.0	23.7
<i>PINUS</i> NORTHEAST YELLOW	6035	-30.4	-27.6	-24.0	-19.8	-12.4	-5.0	4.6
<i>PINUS</i> SOUTHEAST	2141	-5.9	-0.6	1.9	5.4	8.8	11.2	19.3
<i>PINUS</i> WEST	4280	-29.3	-18.9	-12.0	-6.5	0.7	9.0	23.3
<i>PINUS</i> WEST WHITE	1518	-18.7	-12.0	-10.2	-6.2	1.3	7.0	17.9
<i>PINUS</i> WEST PINYONS	782	-11.4	-5.0	-2.7	0.8	7.5	11.6	17.3
<i>PINUS</i> WEST YELLOW	3622	-29.3	-19.9	-13.9	-7.9	0.0	8.8	23.3
<i>PSEUDOTSUGA</i>	1724	-16.9	-11.5	-10.0	-6.9	0.1	4.6	20.1
<i>TAXODIUM</i>	1498	-1.4	4.1	6.5	9.3	11.6	15.6	24.0
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	-33.0	-27.6	-23.4	-13.3	-2.6	5.6	24.7
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	-24.2	-19.3	-13.3	-5.5	2.3	8.0	19.3
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	-17.9	-10.0	-6.9	-2.3	2.9	9.3	24.7
<i>TSUGA</i>	2484	-17.1	-12.2	-9.8	-6.1	-1.7	1.3	8.1
<i>TSUGA</i> EAST	1802	-15.4	-12.2	-10.1	-6.8	-2.9	0.1	5.3
<i>TSUGA</i> WEST	682	-17.1	-11.8	-8.6	-3.6	0.5	3.1	8.1

CONIFER GROUPS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	0.1	0.6	0.7	1.1	1.3	1.7	4.7
<i>ABIES</i> EAST	4959	0.2	0.6	0.9	1.1	1.4	1.7	2.7
<i>ABIES</i> WEST	2350	0.1	0.5	0.6	0.8	1.1	1.7	4.7
<i>CUPRESSACEAE</i> EAST	6669	0.5	1.1	1.6	2.6	3.7	4.7	6.5
<i>JUNIPERUS</i>	17585	0.1	0.5	0.7	1.1	2.5	3.9	8.5
<i>JUNIPERUS</i> BOREAL	11881	0.1	0.5	0.6	0.8	1.1	1.4	3.9
<i>JUNIPERUS</i> EAST	4498	1.5	2.3	2.6	3.3	4.2	4.9	6.5
<i>JUNIPERUS</i> WEST	2003	0.1	0.6	1.1	1.8	3.3	4.8	8.5
<i>JUNIPERUS</i> WEST WOODLAND	1119	0.5	1.3	1.7	2.3	3.6	4.6	7.6
<i>LARIX</i>	8906	0.1	0.5	0.7	1.0	1.2	1.7	2.7
<i>LARIX/PSEUDOTSUGA</i>	10339	0.1	0.5	0.7	1.0	1.3	1.8	7.0
<i>PICEA</i>	12143	0.1	0.5	0.6	0.9	1.1	1.5	3.2
<i>PICEA</i> NORTH/EAST	10996	0.1	0.5	0.6	0.8	1.1	1.5	2.9
<i>PICEA</i> WEST	1509	0.1	0.4	0.6	0.9	1.2	1.6	3.2
<i>PICEA</i> WEST INTERIOR	1176	0.1	0.4	0.6	0.8	1.1	1.5	3.2
<i>PINUS</i>	12811	0.1	0.7	0.9	1.3	2.9	4.9	8.7
<i>PINUS</i> EAST	8177	0.4	0.8	1.0	1.3	2.6	4.6	7.6
<i>PINUS</i> NORTHEAST	6556	0.4	0.7	0.9	1.1	1.7	2.3	7.6
<i>PINUS</i> NORTHEAST YELLOW	6035	0.4	0.7	0.9	1.1	1.6	2.2	3.8
<i>PINUS</i> SOUTHEAST	2141	1.8	2.8	3.4	4.2	4.9	5.4	6.9
<i>PINUS</i> WEST	4280	0.1	0.6	0.8	1.1	2.2	4.2	7.7
<i>PINUS</i> WEST WHITE	1518	0.1	0.4	0.6	1.1	1.9	3.8	6.8
<i>PINUS</i> WEST PINYONS	782	0.4	1.6	2.0	2.6	3.9	4.8	6.8
<i>PINUS</i> WEST YELLOW	3622	0.1	0.6	0.7	1.0	1.9	4.2	7.7
<i>PSEUDOTSUGA</i>	1724	0.1	0.5	0.7	1.1	1.7	2.5	7.0
<i>TAXODIUM</i>	1498	3.1	3.9	4.4	4.9	5.4	6.2	8.2
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	0.1	0.5	0.7	1.1	2.5	4.2	8.5
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	0.3	1.0	1.4	2.5	3.6	4.9	6.9
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	0.1	0.6	1.0	1.7	2.7	4.6	8.5
<i>TSUGA</i>	2484	0.2	0.8	1.4	1.8	2.2	2.8	4.2
<i>TSUGA</i> EAST	1802	0.9	1.5	1.6	1.9	2.4	2.9	4.2
<i>TSUGA</i> WEST	682	0.2	0.5	0.7	0.9	1.4	1.9	2.8

CONIFER GROUPS		Moisture Index						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ABIES</i>	7309	0.18	0.65	0.76	0.97	0.99	1.00	1.00
<i>ABIES</i> EAST	4959	0.54	0.73	0.94	0.99	0.99	1.00	1.00
<i>ABIES</i> WEST	2350	0.18	0.51	0.64	0.76	0.92	0.98	1.00
<i>CUPRESSACEAE</i> EAST	6669	0.31	0.86	0.93	0.97	0.99	0.99	1.00
<i>JUNIPERUS</i>	17585	0.06	0.47	0.64	0.87	0.97	0.99	1.00
<i>JUNIPERUS</i> BOREAL	11881	0.29	0.47	0.62	0.80	0.98	0.99	1.00
<i>JUNIPERUS</i> EAST	4498	0.31	0.81	0.91	0.95	0.97	0.98	1.00
<i>JUNIPERUS</i> WEST	2003	0.06	0.32	0.43	0.55	0.70	0.85	0.99
<i>JUNIPERUS</i> WEST WOODLAND	1119	0.06	0.29	0.38	0.49	0.61	0.74	0.98
<i>LARIX</i>	8906	0.32	0.56	0.70	0.94	0.99	1.00	1.00
<i>LARIX/PSEUDOTSUGA</i>	10339	0.22	0.55	0.68	0.91	0.99	1.00	1.00
<i>PICEA</i>	12143	0.26	0.47	0.64	0.84	0.99	0.99	1.00
<i>PICEA</i> NORTH/EAST	10996	0.33	0.47	0.63	0.84	0.99	0.99	1.00
<i>PICEA</i> WEST	1509	0.26	0.54	0.67	0.84	0.96	0.99	1.00
<i>PICEA</i> WEST INTERIOR	1176	0.26	0.52	0.63	0.77	0.90	0.97	1.00
<i>PINUS</i>	12811	0.07	0.51	0.68	0.91	0.98	0.99	1.00
<i>PINUS</i> EAST	8177	0.37	0.63	0.81	0.96	0.99	0.99	1.00
<i>PINUS</i> NORTHEAST	6556	0.37	0.58	0.75	0.97	0.99	0.99	1.00
<i>PINUS</i> NORTHEAST YELLOW	6035	0.37	0.56	0.73	0.96	0.99	0.99	1.00
<i>PINUS</i> SOUTHEAST	2141	0.81	0.90	0.93	0.96	0.98	0.99	1.00
<i>PINUS</i> WEST	4280	0.07	0.43	0.55	0.70	0.86	0.97	1.00
<i>PINUS</i> WEST WHITE	1518	0.10	0.53	0.65	0.79	0.92	0.97	1.00
<i>PINUS</i> WEST PINYONS	782	0.07	0.30	0.39	0.50	0.64	0.82	0.98
<i>PINUS</i> WEST YELLOW	3622	0.18	0.49	0.61	0.73	0.88	0.97	1.00
<i>PSEUDOTSUGA</i>	1724	0.22	0.51	0.63	0.76	0.89	0.96	1.00
<i>TAXODIUM</i>	1498	0.30	0.78	0.88	0.93	0.99	0.99	1.00
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE)	19333	0.06	0.47	0.65	0.89	0.98	0.99	1.00
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) EAST	8236	0.31	0.87	0.94	0.97	0.99	1.00	1.00
TCT (TAXODIACEAE/CUPRESSACEAE/ TAXACEAE) WEST	2845	0.06	0.35	0.47	0.63	0.85	0.97	1.00
<i>TSUGA</i>	2484	0.44	0.91	0.95	0.97	0.99	0.99	1.00
<i>TSUGA</i> EAST	1802	0.87	0.94	0.96	0.98	0.99	0.99	1.00
<i>TSUGA</i> WEST	682	0.44	0.77	0.88	0.96	0.99	1.00	1.00

Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America— *Hardwoods*



U.S. Geological Survey Professional Paper 1650-B

U.S. Department of the Interior
U.S. Geological Survey



Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America— *Hardwoods*

By Robert S. Thompson, Katherine H. Anderson, *and* Patrick J. Bartlein

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Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America—*Hardwoods*

By Robert S. Thompson,¹ Katherine H. Anderson,² and Patrick J. Bartlein³

Abstract

This atlas explores the continental-scale relations between the geographic ranges of woody plant species and climate in North America. A 25-km equal-area grid of modern climatic and bioclimatic parameters was constructed from instrumental weather records. The geographic distributions of selected tree and shrub species were digitized, and the presence or absence of each species was determined for each cell on the 25-km grid, thus providing a basis for comparing climatic data and species' distributions. The relations between climate and plant distributions are explored in graphical and tabular form. The results of this effort are primarily intended for use in biogeographic, paleoclimatic, and global-change research.

Introduction

This second volume of "Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America" provides information on the correspondence between climatic parameters and the geographic ranges of hardwood species (and of groups of hardwood species). The introduction at the beginning of the first volume of the atlas (U.S. Geological Survey Professional Paper 1650-A) describes and illustrates the 25-km equal-area grid of present-day climatic and bioclimatic estimates for North America used in this report. As discussed in greater detail in that introduction, the current geographic ranges of more than 400 plant taxa were digitized and placed on this grid to determine the presence or absence of each taxon for each grid point. These data then provided the basis for exploring the relations between climatic parameters and the distributions of plant taxa, which are presented in three ways in the atlas: (1) as graphical displays by species or group, (2) as histograms that permit visual comparisons among taxa, and (3) as tables that permit the user to extract quantitative data.

The graphical displays of the relations between climatic parameters and plant distributions include (1) maps of geographic distributions of taxa; (2) univariate plots that indicate the presence or absence of the taxon under consideration in relation to single climatic (mean January, July, and annual temperature; mean January, July, and annual precipitation) and bioclimatic (growing degree days, mean temperature of the coldest month, and moisture index) variables; (3) bivariate plots that illustrate the presence and absence of the taxon for various combinations of seasonal temperatures, seasonal precipitation, July temperature (a proxy for growing-season temperature), and total annual precipitation; and (4) complex displays that indicate the presence and absence of the taxon in relation to combinations of the three bioclimatic variables.

The histograms for each taxon display the percentage of the total number of grid points for the taxon that occur within a specified range of each climatic or bioclimatic variable. This information permits the user to see where the taxon is most abundant and also to examine the variability of a taxon along specific environmental gradients.

Finally, the histogram data are presented in tabular form so that users can obtain quantitative information without having to interpret the data from visual displays.

For further information, the reader should consult the Introduction in the first volume of this atlas. This information is also available over the internet at <http://www.greenwood.cr.usgs.gov/pub/ppapers/p1650-a>.

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Table 1. List of hardwood taxa, their common names, and original data source.

Scientific name	Common name	Original source	Map or page number in original reference
HARDWOOD SPECIES			
<i>Acacia greggii</i> A. Gray	catclaw acacia	Little (1976)	3
<i>Acer barbatum</i> Michx.	Florida maple	Little (1977)	1
<i>Acer circinatum</i> Pursh	vine maple	Little (1976)	8
<i>Acer glabrum</i> Torr.	Rocky Mountain maple	Little (1976)	9-N, 9-W
<i>Acer grandidentatum</i> Nutt.	bigtooth maple	Little (1976)	10
<i>Acer leucoderme</i> Small	chalk maple	Little (1977)	2
<i>Acer macrophyllum</i> Pursh	bigleaf maple	Little (1971)	95-W, 95-N
<i>Acer negundo</i> L.	boxelder	Little (1971)	96-W, 96-E, 96-N
<i>Acer nigrum</i> Michx. f.	black maple	Little (1971)	97-E
<i>Acer pensylvanicum</i> L.	striped maple	Little (1977)	3-N, 3-NE
<i>Acer rubrum</i> L.	red maple	Little (1971)	98-N, 98-E
<i>Acer saccharinum</i> L.	silver maple	Little (1971)	101-E
<i>Acer saccharum</i> Marsh.	sugar maple	Little (1971)	99-N, 99-E
<i>Acer spicatum</i> Lam.	mountain maple	Little (1977)	4-N, 4-NE
<i>Aesculus californica</i> (Spach) Nutt.	California buckeye	Little (1976)	11
<i>Aesculus glabra</i> Willd.	Ohio buckeye	Little (1971)	102-E
<i>Aesculus octandra</i> Marsh.	yellow buckeye	Little (1971)	103-E
<i>Agave utahensis</i> Engelm.	Utah agave	Benson & Darrow (1981)	Map 3.16
<i>Alnus maritima</i> (Marsh.) Mühl.	seaside alder	Little (1977)	8
<i>Alnus oblongifolia</i> Torr.	Arizona alder	Little (1976)	12
<i>Alnus rhombifolia</i> Nutt.	white alder	Little (1976)	13
<i>Alnus rubra</i> Bong.	red alder	Little (1971)	104-W, 104-N
<i>Alnus rugosa</i> (Du Roi) Spreng.	speckled alder	Little (1977)	9-N, 9-NE
<i>Alnus serrulata</i> (Ait.) Willd.	hazel alder	Little (1977)	10-NE, 10-SE, 10-N
<i>Alnus sinuata</i> (Reg.) Rydb.	Sitka alder	Little (1976)	14-N, 14-W
<i>Alnus tenuifolia</i> Nutt.	thinleaf alder	Little (1976)	15-N, 15-W
<i>Amelanchier alnifolia</i> (Nutt.) Nutt.	western serviceberry	Little (1976)	16-N, 16-NW
<i>Amelanchier arborea</i> (Michx. f.) Fern.	downy serviceberry	Little (1977)	11-N, 11-NE, 11-SE
<i>Amelanchier utahensis</i> Koehne	Utah serviceberry	Little (1976)	17
<i>Arbutus arizonica</i> (A. Gray) Sarg.	Arizona madrone	Little (1976)	18
<i>Arbutus menziesii</i> Pursh	Pacific madrone	Little (1971)	100-W
<i>Arbutus texana</i> Buckl.	Texas madrone	Little (1976)	19
<i>Arctostaphylos pringlei</i> Parry	Pringle manzanita	Little (1976)	20
<i>Artemisia tridentata</i> Nutt.	big sagebrush	Little (1976)	21-NW, 21-SW
<i>Betula alleghaniensis</i> Britton	yellow birch	Little (1971)	105-N, 105-E
<i>Betula lenta</i> L.	sweet birch	Little (1971)	106-E
<i>Betula nana</i> L.	dwarf birch	Abstracted from Hultén (1968); Viereck and Little (1975)	
<i>Betula nigra</i> L.	river birch	Little (1971)	110-E
<i>Betula occidentalis</i> Hook.	water birch	Little (1976)	22-N, 22-NW
<i>Betula papyrifera</i> Marsh.	paper birch	Little (1971)	107-N, 107-W, 107-E
<i>Betula populifolia</i> Marsh.	gray birch	Little (1971)	108-N, 108-E
<i>Bursera fagaroides</i> (H.B.K.) Engler	fragrant bursera	Little (1976)	26-N, 26-SW

Table 1. List of hardwood taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
HARDWOOD SPECIES—Continued			
<i>Bursera microphylla</i> A. Gray	elephanttree	Little (1976)	25
<i>Canotia holacantha</i> Torr.	canotia	Little (1976)	28
<i>Carpinus caroliniana</i> Walt.	American hornbeam	Little (1971)	109-N, 109-E
<i>Carya aquatica</i> (Michx. f.) Nutt.	water hickory	Little (1971)	111-E
<i>Carya cordiformis</i> (Wangenh.) K. Koch	bitternut hickory	Little (1971)	112-E
<i>Carya floridana</i> Sarg.	scrub hickory	Little (1977)	23
<i>Carya glabra</i> (Mill.) Sweet	pignut hickory	Little (1971)	113-E
<i>Carya illinoensis</i> (Wangenh.) K. Koch	pecan	Little (1971)	114-W, 114-E, 114-N
<i>Carya laciniata</i> (Michx. f.) Loud.	shellbark hickory	Little (1971)	115-E
<i>Carya myristicaeformis</i> (Michx. f.) Nutt.	nutmeg hickory	Little (1971)	116-E
<i>Carya ovata</i> (Mill.) K. Koch	shagbark hickory	Little (1971)	118-N, 118-E
<i>Carya pallida</i> (Ashe) Engl. & Graebn.	sand hickory	Little (1977)	24
<i>Carya texana</i> Buckl.	black hickory	Little (1977)	25
<i>Carya tomentosa</i> Nutt.	mockernut hickory	Little (1971)	117-E
<i>Castanea alnifolia</i> Nutt.	Florida chinkapin	Little (1977)	26
<i>Castanea dentata</i> (Marsh.) Borkh.	American chestnut	Little (1977)	27-NE, 27-SE
<i>Castanea ozarkensis</i> Ashe.	Ozark chinkapin	Little (1977)	28
<i>Castanea pumila</i> Mill.	Allegheny chinkapin	Little (1977)	29
<i>Castanopsis chrysophylla</i> (Dougl.) A. DC.	golden chinkapin	Little (1971)	119-W
<i>Celtis laevigata</i> Willd.	sugarberry	Little (1971)	122-W, 122-E, 122-N
<i>Celtis occidentalis</i> L.	hackberry	Little (1971)	121-W, 121-E
<i>Celtis reticulata</i> Torr.	netleaf hackberry	Little (1976)	33-N, 33-NW, 33-SW
<i>Cercidium floridum</i> Benth.	blue paloverde	Little (1976)	35
<i>Cercidium macrum</i> Johnst.	border paloverde	Little (1976)	36
<i>Cercidium microphyllum</i> (Torr.) Rose & Johnst.	yellow paloverde	Little (1976)	37
<i>Cercocarpus betuloides</i> Nutt.	birchleaf cercocarpus	Little (1976)	40
<i>Cercocarpus breviflorus</i> A. Gray	hairy cercocarpus	Little (1976)	41
<i>Cercocarpus ledifolius</i> Nutt.	curlleaf cercocarpus	Little (1976)	42
<i>Cereus giganteus</i> Engelm.	saguaro	Little (1976)	44
<i>Chilopsis linearis</i> (Cav.) Sweet	desert-willow	Little (1976)	49
<i>Cornus florida</i> L.	flowering dogwood	Little (1971)	124-N, 124-E
<i>Cornus stolonifera</i> Michx.	red-osier dogwood	Little (1977)	43-N, 43-NE
<i>Corylus cornuta</i> Marsh.	beaked hazel	Little (1976) Little (1977)	54-N, 54-NW 44-N, 44-NE
<i>Cowania mexicana</i> D. Don	cliffrose	Little (1976)	55-N, 55-SW
<i>Dalea spinosa</i> A. Gray	smokethorn	Little (1976)	64
<i>Diospyros virginiana</i> L.	common persimmon	Little (1971)	123-E
<i>Dodonaea viscosa</i> (L.) Jacq.	hopbush	Little (1976)	66-N, 66-SW
<i>Erythrina flabelliformis</i> Kearney	southwestern coralbean	Little (1976)	68-N, 68-SW
<i>Fagus grandifolia</i> Ehrh.	American beech	Little (1971)	125-N, 125-E
<i>Forestiera phillyreoides</i> (Benth.) Torr.	desert-oliver forestiera	Little (1976)	74

Table 1. List of hardwood taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
HARDWOOD SPECIES—Continued			
<i>Fraxinus americana</i> L.	white ash.....	Little (1971)	126-N, 126-E
<i>Fraxinus anomala</i> Torr.	singleleaf ash.....	Little (1976)	75
<i>Fraxinus berlandieriana</i> A. DC.	Berlandier ash.....	Little (1976)	76
<i>Fraxinus caroliniana</i> Mill.	Carolina ash.....	Little (1977)	53
<i>Fraxinus cuspidata</i> Torr.	fragrant ash.....	Little (1976)	77
<i>Fraxinus dipetala</i> Hook. & Arn.	two-petal ash	Little (1976)	78
<i>Fraxinus gooddingii</i> Little	Goodding ash	Little (1976)	79
<i>Fraxinus greggii</i> A. Gray	Gregg ash	Little (1976)	80-N, 80-SW
<i>Fraxinus latifolia</i> Benth.	Oregon ash	Little (1971)	127-W
<i>Fraxinus nigra</i> Marsh.	black ash.....	Little (1971)	129-N, 129-E
<i>Fraxinus papillosa</i> Lingelsh.	Chihuahua ash	Little (1976)	81
<i>Fraxinus pennsylvanica</i> Marsh.	green ash.....	Little (1971)	130-W, 130-E, 130-N
<i>Fraxinus profunda</i> (Bush) Bush	pumpkin ash	Little (1977)	54
<i>Fraxinus quadrangulata</i> Michx.	blue ash.....	Little (1971)	128-E
<i>Fraxinus texensis</i> (A. Gray) Sarg.	Texas ash	Little (1976)	82
<i>Fraxinus velutina</i> Torr.	velvet ash.....	Little (1976)	83
<i>Fremontodendron californicum</i> (Torr.) Cov.	California fremontia	Little (1976)	84
<i>Fremontodendron mexicanum</i> (Davidson) Macbr.	Mexican fremontia	Little (1976)	85
<i>Gleditsia triacanthos</i> L.	honeylocust	Little (1971)	132-W, 132-E
<i>Holacantha emoryi</i> A. Gray.....	holacantha	Little (1976)	88
<i>Ilex opaca</i> Ait.	American holly.....	Little (1971)	131-E
<i>Ilex verticillata</i> (L.) Gray	common winterberry.....	Little (1977)	70-N, 70-NE, 70-SE
<i>Juglans californica</i> S. Wats.	California walnut.....	Little (1976)	90
<i>Juglans cinerea</i> L.	butternut	Little (1971)	133-E
<i>Juglans hindsii</i> Jeps.	Hinds walnut	Little (1976)	91
<i>Juglans major</i> (Torr.) Heller	Arizona walnut	Little (1976)	92-N, 92-SW
<i>Juglans microcarpa</i> Berlandier	little walnut.....	Little (1976)	93
<i>Juglans nigra</i> L.	black walnut	Little (1971)	134-E
<i>Kalmia latifolia</i> L.	mountain-laurel	Little (1977)	75-NE, 75-SE
<i>Koeberlinia spinosa</i> Zucc.	allthorn	Little (1976)	95-N, 95-SW
<i>Larrea divaricata</i> Cav.	creosotebush.....	Yang (1970).....	p. 44
<i>Liquidambar styraciflua</i> L.	sweetgum.....	Little (1971)	135-N, 135-E
<i>Liriodendron tulipifera</i> L.	yellow-poplar	Little (1971)	137-E
<i>Lithocarpus densiflorus</i> (Hook. & Arn.) Rehd.	tanoak	Little (1971)	136-W
<i>Lyonia ferruginea</i> Nutt.	tree lyonia.....	Little (1977)	76
<i>Machura pomifera</i> (Raf.) Schneid.	Osage-orange.....	Little (1971)	138-W, 138-E
<i>Magnolia acuminata</i> L.	cucumbertree.....	Little (1971)	140-E
<i>Magnolia grandiflora</i> L.	southern magnolia	Little (1971)	141-E
<i>Magnolia virginiana</i> L.	sweetbay.....	Little (1971)	142-E

Table 1. List of hardwood taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
HARDWOOD SPECIES—Continued			
<i>Morus microphylla</i> Buckl.	Texas mulberry	Little (1976)	99
<i>Morus rubra</i> L.	red mulberry	Little (1971)	139-W, 139-E
<i>Myrica heterophylla</i> Raf.	evergreen bayberry	Little (1977)	86
<i>Myrica inodora</i> Bartr.	odorless bayberry	Little (1977)	87
<i>Myrica pensylvanica</i> Loisel.	northern bayberry	Little (1977)	88-N, 88-NE
<i>Nolina bigelovii</i> (Torr.) S. Wats.	Bigelow nolina	Little (1976)	102
<i>Nyssa aquatica</i> L.	water tupelo	Little (1971)	143-E
<i>Nyssa ogeche</i> Bartr.	Ogeechee tupelo	Little (1971)	145-E
<i>Nyssa sylvatica</i> Marsh.	black tupelo, blackgum	Little (1971)	144-N, 144-E
<i>Olneya tesota</i> A. Gray	tesota	Little (1976)	103
<i>Opuntia fulgida</i> Engelm.	jumping cholla	Little (1976)	104
<i>Ostrya knowltonii</i> Cov.	Knowlton hophornbeam	Little (1976)	106
<i>Ostrya virginiana</i> (Mill.) K. Koch	eastern hophornbeam	Little (1971)	146-N, 146-W, 146-E
<i>Platanus occidentalis</i> L.	American sycamore	Little (1971)	147-W, 147-E, 147-N
<i>Populus balsamifera</i> L.	balsam poplar	Little (1971)	148-N, 148-W, 148-E
<i>Populus fremontii</i> S. Wats.	Fremont cottonwood	Little (1971)	150-W
<i>Populus grandidentata</i> Michx.	bigtooth aspen	Little (1971)	152-N, 152-E
<i>Populus heterophylla</i> L.	swamp cottonwood	Little (1971)	151-E
<i>Populus tremuloides</i> Michx.	quaking aspen	Little (1971)	154-W, 154-E, 154-N
<i>Prosopis juliflora</i> (Sw.) DC.	mesquite	Little (1976)	118-N, 118-SW
<i>Prosopis pubescens</i> Benth.	screwbean mesquite	Little (1976)	117
<i>Prunus serotina</i> Ehrh.	black cherry	Little (1971)	155-N, 155-W, 155-E
<i>Ptelea trifoliata</i> L.	common hoptree	Little (1976)	128-N, 128-SW
		Little (1977)	106-N, 106-NE, 106-SE
<i>Quercus agrifolia</i> Née	California live oak	Little (1971)	156-W
<i>Quercus ajoensis</i> C. H. Muller	Ajo oak	Little (1976)	130
<i>Quercus alba</i> L.	white oak	Little (1971)	157-E
<i>Quercus arizonica</i> Sarg.	Arizona white oak	Little (1976)	131
<i>Quercus arkansana</i> Sarg.	Arkansas oak	Little (1977)	107
<i>Quercus bicolor</i> Willd.	swamp white oak	Little (1971)	159-E
<i>Quercus chapmanii</i> Sarg.	Chapman oak	Little (1977)	108
<i>Quercus chrysolepis</i> Liebm.	canyon live oak	Little (1971)	158-W
<i>Quercus coccinea</i> Muenchh.	scarlet oak	Little (1971)	161-E
<i>Quercus douglasii</i> Hook. & Arn.	blue oak	Little (1971)	160-W
<i>Quercus dunnii</i> Kellogg	Dunn oak	Little (1976)	132
<i>Quercus durandii</i> Buckl.	Durand oak	Little (1977)	109
<i>Quercus ellipsoidalis</i> E. J. Hill	northern pin oak	Little (1971)	163-E
<i>Quercus emoryi</i> Torr.	Emory oak	Little (1971)	162-W
<i>Quercus engelmannii</i> Greene	Engelmann oak	Little (1976)	Map 133
<i>Quercus falcata</i> Michx.	southern red oak	Little (1971)	165-E
<i>Quercus gambelii</i> Nutt.	Gambel oak	Little (1971)	164-W
<i>Quercus garryana</i> Dougl.	Oregon white oak	Little (1971)	166-W
<i>Quercus georgiana</i> M. A. Curtis	Georgia oak	Little (1977)	110

Table 1. List of hardwood taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
HARDWOOD SPECIES—Continued			
<i>Quercus glaucooides</i> Mart. & Gal.	Lacey oak	Little (1976)	134
<i>Quercus graciliformis</i> C. H. Muller	Chisos oak	Little (1976)	135
<i>Quercus gravesii</i> Sudw.	Graves oak, also <i>Q. tardifolia</i> C. H. Muller, lateleaf oak	Little (1976)	136
<i>Quercus grisea</i> Liebm.	gray oak	Little (1976)	137
<i>Quercus havardii</i> Rydb.	Havard oak	Little (1976)	138
<i>Quercus hypoleucoides</i> A. Camus	silverleaf oak	Little (1976)	139
<i>Quercus ilicifolia</i> Wangenh.	bear oak	Little (1977)	111
<i>Quercus imbricaria</i> Michx.	shingle oak	Little (1977)	112
<i>Quercus incana</i> Bartr.	bluejack oak	Little (1977)	113
<i>Quercus kelloggii</i> Newb.	California black oak	Little (1971)	167-W
<i>Quercus laevis</i> Walt.	turkey oak	Little (1977)	114
<i>Quercus laurifolia</i> Michx.	laurel oak	Little (1971)	168-E
<i>Quercus lobata</i> Née	California white oak	Little (1971)	170-W
<i>Quercus lyrata</i> Walt.	overcup oak	Little (1971)	169-E
<i>Quercus macdonaldii</i> Greene	McDonald oak	Little (1976)	140
<i>Quercus macrocarpa</i> Michx.	bur oak	Little (1971)	172-W, 172-E
<i>Quercus marilandica</i> Muenchh.	blackjack oak	Little (1971)	171-E
<i>Quercus michauxii</i> Nutt.	swamp chestnut oak	Little (1971)	174-E
<i>Quercus mohriana</i> Buckl.	Mohrs oak	Little (1976)	141
<i>Quercus muehlenbergii</i> Engelm.	chinkapin oak	Little (1971)	173-W, 173-E
<i>Quercus myrtifolia</i> Willd.	myrtle oak	Little (1977)	115
<i>Quercus nigra</i> L.	water oak	Little (1971)	175-E
<i>Quercus nuttallii</i> Palmer	Nuttall oak	Little (1971)	176-E
<i>Quercus oblongifolia</i> Torr.	Mexican blue oak	Little (1976)	142
<i>Quercus oglethorpensis</i> Duncan	Oglethorpe oak	Little (1977)	116
<i>Quercus palustris</i> Muenchh.	pin oak	Little (1971)	177-E
<i>Quercus phellos</i> L.	willow oak	Little (1971)	178-E
<i>Quercus prinus</i> L.	chestnut oak	Little (1971)	179-E
<i>Quercus pungens</i> Liebm.	sandpaper oak	Little (1976)	144
<i>Quercus rubra</i> L.	northern red oak	Little (1971)	180-N, 180-E
<i>Quercus rugosa</i> Née	netleaf oak	Little (1976)	143-N, 143-SW
<i>Quercus shumardii</i> Buckl.	Shumard oak	Little (1971)	181-W, 181-E
<i>Quercus stellata</i> Wangenh.	post oak	Little (1971)	182-W, 182-E
<i>Quercus toumeyi</i> Sarg.	Toumey oak	Little (1976)	146
<i>Quercus turbinella</i> Greene	shrub live oak	Little (1976)	147
<i>Quercus velutina</i> Lam.	black oak	Little (1971)	183-E
<i>Quercus virginiana</i> Mill.	live oak	Little (1971)	184-N, 184-W, 184-E
<i>Quercus wislizeni</i> A. DC.	interior live oak	Little (1976)	148

Table 1. List of hardwood taxa, their common names, and original data source—*Continued*.

Scientific name	Common name	Original source	Map or page number in original reference
HARDWOOD SPECIES—Continued			
<i>Rhamnus betulaeifolia</i> Greene	birchleaf buckthorn	Little (1976)	149
<i>Rhamnus californica</i> Eschsch.	California buckthorn	Little (1976)	151
<i>Rhamnus crocea</i> Nutt.	hollyleaf buckthorn	Little (1976)	150-NW, 150-SW
<i>Rhamnus purshiana</i> DC.	cascara buckthorn	Little (1971)	185-W, 185-N
<i>Rhododendron macrophyllum</i> D. Don	Pacific rhododendron	Little (1976)	152
<i>Rhus choriophylla</i> Woot. & Standl.	Mearns sumac	Little (1976)	153
<i>Rhus glabra</i> L.	smooth sumac	Little (1976) Little (1977)	155-NW, 155-SW 121-NE, 121-SE
<i>Rhus microphylla</i> Engelm.	littleleaf sumac	Little (1976)	159
<i>Rhus ovata</i> S. Wats.	sugar sumac	Little (1976)	160
<i>Robinia neomexicana</i> A. Gray	New Mexican locust	Little (1976)	162
<i>Robinia pseudoacacia</i> L.	black locust	Little (1971)	187-E
<i>Sabal palmetto</i> (Walt.) Lodd.	cabbage palmetto	Little (1971)	188-E
<i>Salix alaxensis</i> (Anderss.) Cov.	feltleaf willow	Little (1976)	163-N
<i>Salix arbusculoides</i> Anderss.	peachleaf willow	Little (1976)	164-N
<i>Sambucus mexicana</i> Presl	Mexican elder	Little (1976)	186-N, 186-W
<i>Sapium biloculare</i> (S. Wats.) Pax	jumping-bean sapium	Little (1976)	190
<i>Sassafras albidum</i> (Nutt.) Nees	sassafras	Little (1971)	191-E
<i>Shepherdia argentea</i> (Pursh) Nutt.	silver buffaloberry	Little (1976, 1977)	191-NW, 191-SW, 144
<i>Tilia americana</i> L.	American basswood	Little (1971)	193-E
<i>Tilia heterophylla</i> Vent.	white basswood	Little (1971)	194-E
<i>Ulmus alata</i> Michx.	winged elm	Little (1971)	195-E
<i>Ulmus americana</i> L.	American elm	Little (1971)	196-N, 196-W, 196-E
<i>Ulmus crassifolia</i> Nutt.	cedar elm	Little (1971)	197-E
<i>Ulmus rubra</i> Mühl.	slippery elm	Little (1971)	198-W, 198-E
<i>Ulmus serotina</i> Sarg.	September elm	Little (1971)	197.1-E
<i>Ulmus thomasii</i> Sarg.	rock elm	Little (1971)	200-E
<i>Umbellularia californica</i> (Hook. & Arn.) Nutt.	California-laurel	Little (1971)	199-W
<i>Vauquelinia californica</i> (Torr.) Sarg.	Torrey vauquelinia	Little (1976)	197
<i>Washingtonia filifera</i> (Linden) H. Wendl.	California washingtonia	Little (1976)	201
<i>Yucca brevifolia</i> Engelm.	Joshua-tree	Little (1976)	202
<i>Yucca carnerosana</i> (Trel.) McKelvey	Carneros yucca	Little (1976)	203
<i>Yucca elata</i> Engelm.	soaptree yucca	Little (1976)	204
<i>Yucca faxoniana</i> Sarg.	Faxon yucca	Little (1976)	205
<i>Yucca mohavensis</i> Sarg.	Mohave yucca	Little (1976)	206
<i>Yucca rostrata</i> Engelm.	beaked yucca	Little (1976)	207
<i>Yucca schottii</i> Engelm.	Schotts yucca	Little (1976)	208
<i>Yucca torreyi</i> Shafer	Torrey yucca	Little (1976)	209
<i>Yucca treculeana</i> Carr.	Trecul yucca	Little (1976)	210

Table 1. List of hardwood taxa, their common names, and original data source—*Continued*.

Scientific name	Common name
HARDWOOD GENERA & GROUPS (see table 2)	
<i>ACER</i>	maple
<i>ACER</i> EAST	maple in eastern North America
<i>ACER</i> WEST	maple in western North America
<i>ALNUS</i>	alder
<i>ALNUS</i> EAST	alder in eastern North America
<i>ALNUS</i> WEST	alder in western North America
<i>BETULA</i>	birch
<i>CARYA</i>	hickory
<i>CASTANEA</i>	chestnut
<i>FRAXINUS</i>	ash
<i>FRAXINUS</i> EAST	ash in eastern North America
<i>FRAXINUS</i> WEST	ash in western North America
<i>JUGLANS</i>	walnut
<i>JUGLANS</i> EAST	walnut in eastern North America
<i>JUGLANS</i> WEST	walnut in western North America
<i>OSTRYA/CARPINUS</i>	hornbeam/hophornbeam
<i>QUERCUS</i>	oak
<i>QUERCUS</i> EAST	oak in eastern North America
<i>QUERCUS</i> WEST	oak in western North America
<i>TILIA</i>	basswood
<i>ULMUS</i>	elm

Table 2. Hardwood species comprising groups listed in table 1.

ACER:	<i>Acer barbatum</i> , <i>Acer circinatum</i> , <i>Acer glabrum</i> , <i>Acer grandidentatum</i> , <i>Acer leucoderme</i> , <i>Acer macrophyllum</i> , <i>Acer negundo</i> , <i>Acer nigrum</i> , <i>Acer pensylvanicum</i> , <i>Acer rubrum</i> , <i>Acer saccharinum</i> , <i>Acer saccharum</i> , <i>Acer spicatum</i>
ACER EAST:	<i>Acer barbatum</i> , <i>Acer leucoderme</i> , <i>Acer nigrum</i> , <i>Acer pensylvanicum</i> , <i>Acer rubrum</i> , <i>Acer saccharinum</i> , <i>Acer saccharum</i> , <i>Acer spicatum</i>
ACER WEST:	<i>Acer circinatum</i> , <i>Acer glabrum</i> , <i>Acer grandidentatum</i> , <i>Acer macrophyllum</i>
ALNUS:	<i>Alnus maritima</i> , <i>Alnus oblongifolia</i> , <i>Alnus rhombifolia</i> , <i>Alnus rubra</i> , <i>Alnus rugosa</i> , <i>Alnus serrulata</i> , <i>Alnus sinuata</i> , <i>Alnus tenuifolia</i>
ALNUS EAST:	<i>Alnus maritima</i> , <i>Alnus rugosa</i> , <i>Alnus serrulata</i>
ALNUS WEST:	<i>Alnus oblongifolia</i> , <i>Alnus rhombifolia</i> , <i>Alnus rubra</i> , <i>Alnus sinuata</i> , <i>Alnus tenuifolia</i>
BETULA:	<i>Betula alleghaniensis</i> , <i>Betula lenta</i> , <i>Betula nana</i> , <i>Betula nigra</i> , <i>Betula occidentalis</i> , <i>Betula papyrifera</i> , <i>Betula populifolia</i>
CARYA:	<i>Carya aquatica</i> , <i>Carya cordiformis</i> , <i>Carya floridana</i> , <i>Carya glabra</i> , <i>Carya illinoensis</i> , <i>Carya laciniosa</i> , <i>Carya myristicaeformis</i> , <i>Carya ovata</i> , <i>Carya pallida</i> , <i>Carya texana</i> , <i>Carya tomentosa</i>
CASTANEA:	<i>Castanea alnifolia</i> , <i>Castanea dentata</i> , <i>Castanea ozarkensis</i> , <i>Castanea pumila</i>
FRAXINUS:	<i>Fraxinus americana</i> , <i>Fraxinus anomala</i> , <i>Fraxinus berlandieriana</i> , <i>Fraxinus caroliniana</i> , <i>Fraxinus cuspidata</i> , <i>Fraxinus dipetala</i> , <i>Fraxinus gooddingii</i> , <i>Fraxinus greggii</i> , <i>Fraxinus latifolia</i> , <i>Fraxinus nigra</i> , <i>Fraxinus papillosa</i> , <i>Fraxinus pennsylvanica</i> , <i>Fraxinus profunda</i> , <i>Fraxinus quadrangulata</i> , <i>Fraxinus texensis</i> , <i>Fraxinus velutina</i>
FRAXINUS EAST:	<i>Fraxinus americana</i> , <i>Fraxinus caroliniana</i> , <i>Fraxinus nigra</i> , <i>Fraxinus pennsylvanica</i> , <i>Fraxinus profunda</i> , <i>Fraxinus quadrangulata</i>
FRAXINUS WEST:	<i>Fraxinus anomala</i> , <i>Fraxinus berlandieriana</i> , <i>Fraxinus cuspidata</i> , <i>Fraxinus dipetala</i> , <i>Fraxinus gooddingii</i> , <i>Fraxinus greggii</i> , <i>Fraxinus latifolia</i> , <i>Fraxinus papillosa</i> , <i>Fraxinus texensis</i> , <i>Fraxinus velutina</i>
JUGLANS:	<i>Juglans californica</i> , <i>Juglans cinerea</i> , <i>Juglans hindsii</i> , <i>Juglans major</i> , <i>Juglans microcarpa</i> , <i>Juglans nigra</i>
JUGLANS EAST:	<i>Juglans cinerea</i> , <i>Juglans nigra</i>
JUGLANS WEST:	<i>Juglans californica</i> , <i>Juglans hindsii</i> , <i>Juglans major</i> , <i>Juglans microcarpa</i>
OSTRYA/CARPINUS:	<i>Ostrya knowltonii</i> , <i>Ostrya virginiana</i> , <i>Carpinus caroliniana</i>
QUERCUS:	<i>Quercus agrifolia</i> , <i>Quercus ajoensis</i> , <i>Quercus alba</i> , <i>Quercus arizonica</i> , <i>Quercus arkansana</i> , <i>Quercus bicolor</i> , <i>Quercus chapmannii</i> , <i>Quercus chrysolepis</i> , <i>Quercus coccinea</i> , <i>Quercus douglasii</i> , <i>Quercus dunni</i> , <i>Quercus durandii</i> , <i>Quercus ellipsoidalis</i> , <i>Quercus emoryi</i> , <i>Quercus engelmannii</i> , <i>Quercus falcata</i> , <i>Quercus gambelii</i> , <i>Quercus garryana</i> , <i>Quercus georgiana</i> , <i>Quercus glaucoides</i> , <i>Quercus graciliformis</i> , <i>Quercus gravesii</i> , <i>Quercus grisea</i> , <i>Quercus harvardii</i> , <i>Quercus hypoleucoides</i> , <i>Quercus ilicifolia</i> , <i>Quercus imbricaria</i> , <i>Quercus incana</i> , <i>Quercus kelloggii</i> , <i>Quercus laevis</i> , <i>Quercus laurifolia</i> , <i>Quercus lobata</i> , <i>Quercus lyrata</i> , <i>Quercus macdonaldii</i> , <i>Quercus macrocarpa</i> , <i>Quercus marilandica</i> , <i>Quercus michauxii</i> , <i>Quercus mohriana</i> , <i>Quercus muehlenbergii</i> , <i>Quercus myrtifolia</i> , <i>Quercus nigra</i> , <i>Quercus nuttallii</i> , <i>Quercus oblongifolia</i> , <i>Quercus oglethorpensis</i> , <i>Quercus palustris</i> , <i>Quercus phellos</i> , <i>Quercus prinus</i> , <i>Quercus pungens</i> , <i>Quercus rubra</i> , <i>Quercus rugosa</i> , <i>Quercus schumardii</i> , <i>Quercus stellata</i> , <i>Quercus toumeyii</i> , <i>Quercus turbinella</i> , <i>Quercus velutina</i> , <i>Quercus virginiana</i> , <i>Quercus wislizeni</i>

Table 2. Hardwood species comprising groups listed in table 1—*Continued*.

QUERCUS EAST: *Quercus alba*, *Quercus arkansana*, *Quercus bicolor*, *Quercus chapmannii*, *Quercus coccinea*, *Quercus durandii*, *Quercus ellipsoidal*, *Quercus falcata*, *Quercus georgiana*, *Quercus glaucoidea*, *Quercus graciliformis*, *Quercus gravesii*, *Quercus harvardii*, *Quercus ilicifolia*, *Quercus imbricaria*, *Quercus incana*, *Quercus laevis*, *Quercus laurifolia*, *Quercus lyrata*, *Quercus macrocarpa*, *Quercus marilandica*, *Quercus michauxii*, *Quercus muehlenbergii*, *Quercus myrtifolia*, *Quercus nigra*, *Quercus nuttallii*, *Quercus oglethorpensis*, *Quercus palustris*, *Quercus phellos*, *Quercus prinus*, *Quercus rubra*, *Quercus schumardii*, *Quercus stellata*, *Quercus velutina*, *Quercus virginiana*

QUERCUS WEST: *Quercus agrifolia*, *Quercus ajoensis*, *Quercus arizonica*, *Quercus chrysolepis*, *Quercus douglasii*, *Quercus dunnii*, *Quercus emoryi*, *Quercus engelmannii*, *Quercus gambelii*, *Quercus garryana*, *Quercus grisea*, *Quercus hypoleucoides*, *Quercus kelloggii*, *Quercus lobata*, *Quercus macdonaldii*, *Quercus mohriana*, *Quercus oblongifolia*, *Quercus pungens*, *Quercus rugosa*, *Quercus toumeyii*, *Quercus turbinella*, *Quercus wislizeni*

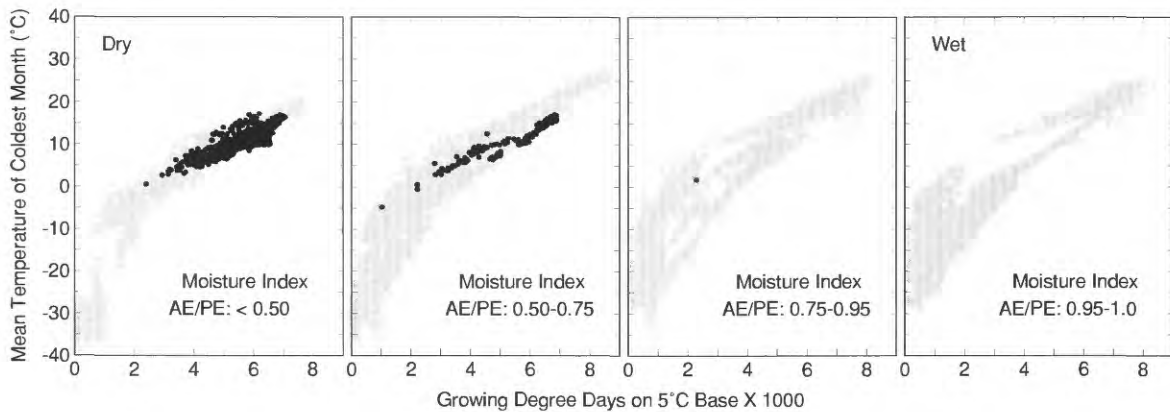
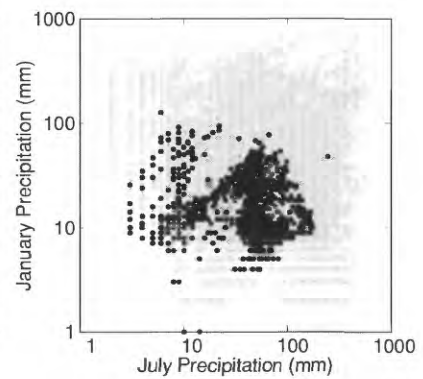
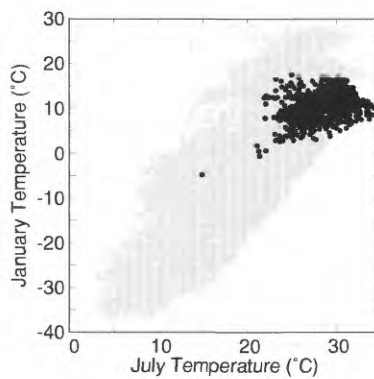
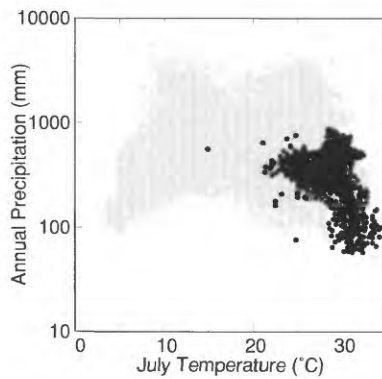
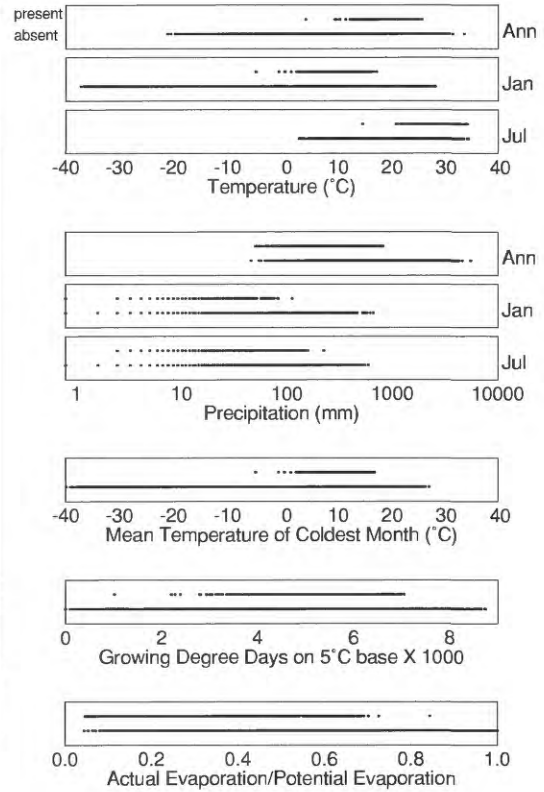
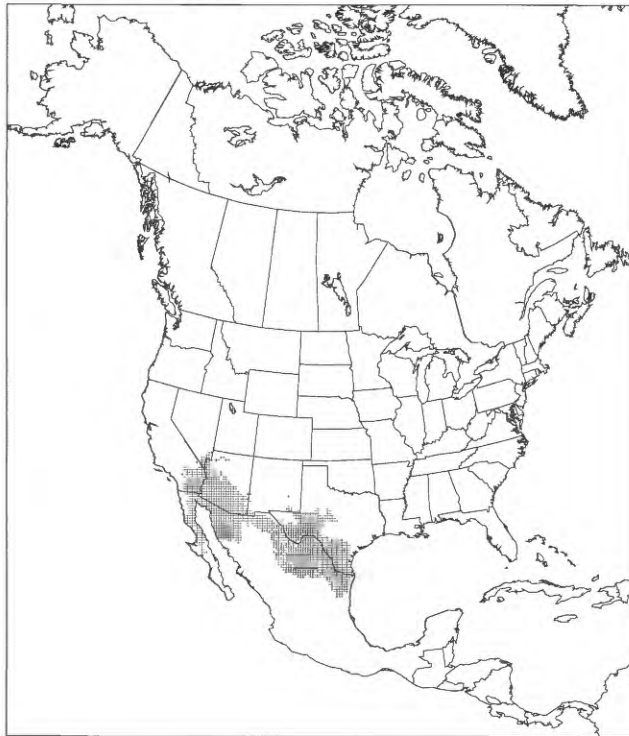
TILIA: *Tilia americana*, *Tilia heterophylla*

ULMUS: *Ulmus alata*, *Ulmus americana*, *Ulmus crassifolia*, *Ulmus rubra*, *Ulmus serotina*, *Ulmus thomasi*

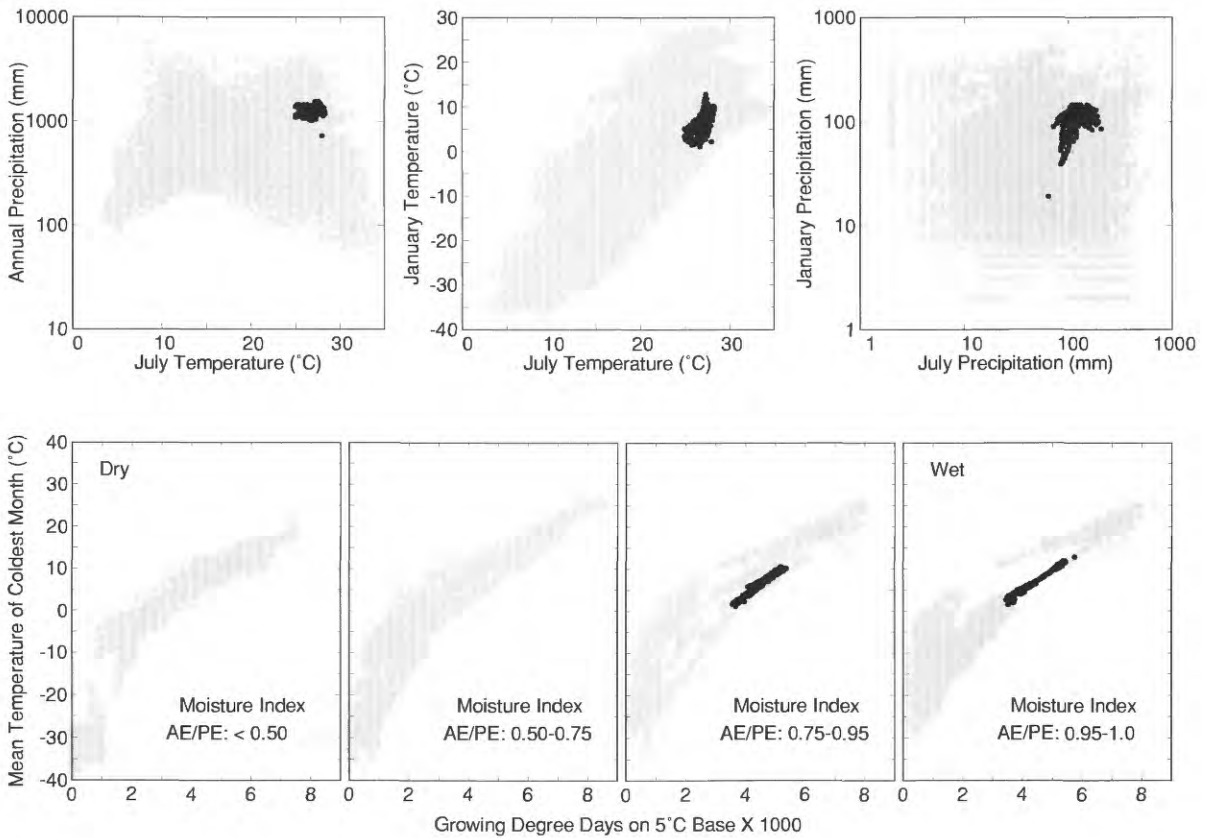
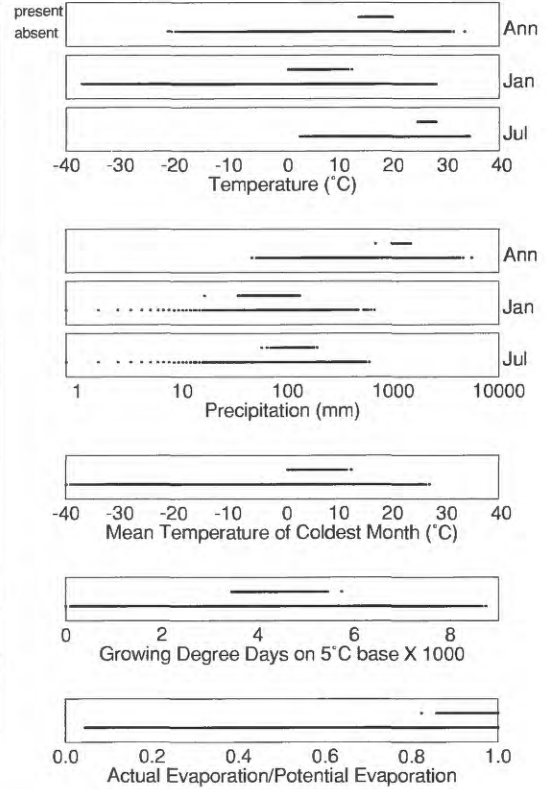
Hardwood Species— Graphical Displays



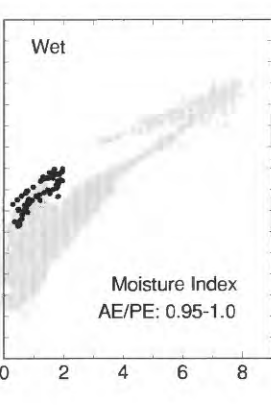
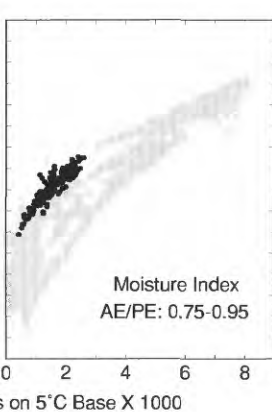
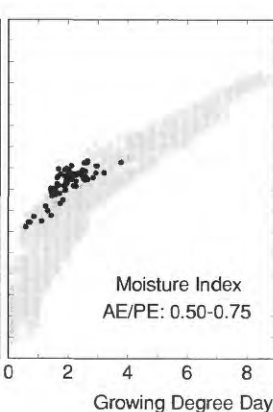
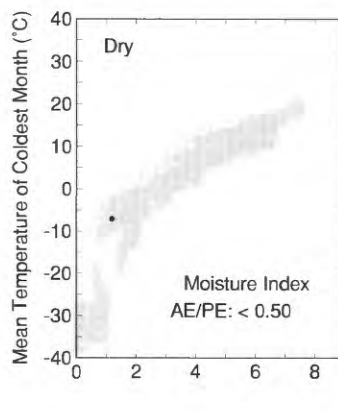
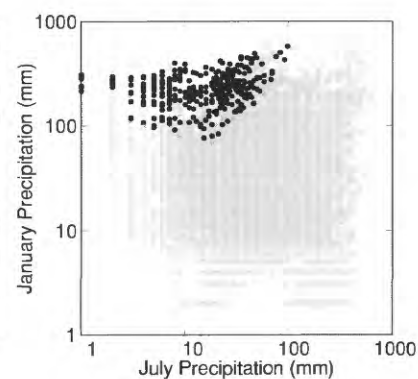
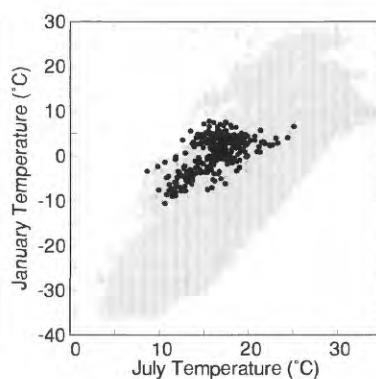
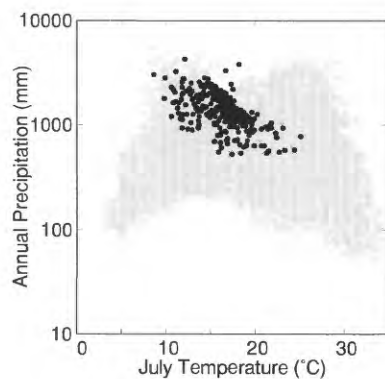
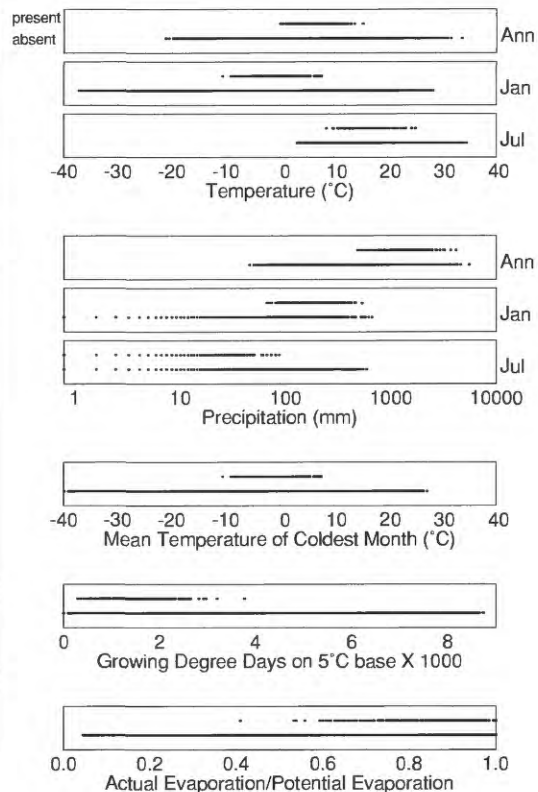
Acacia greggii



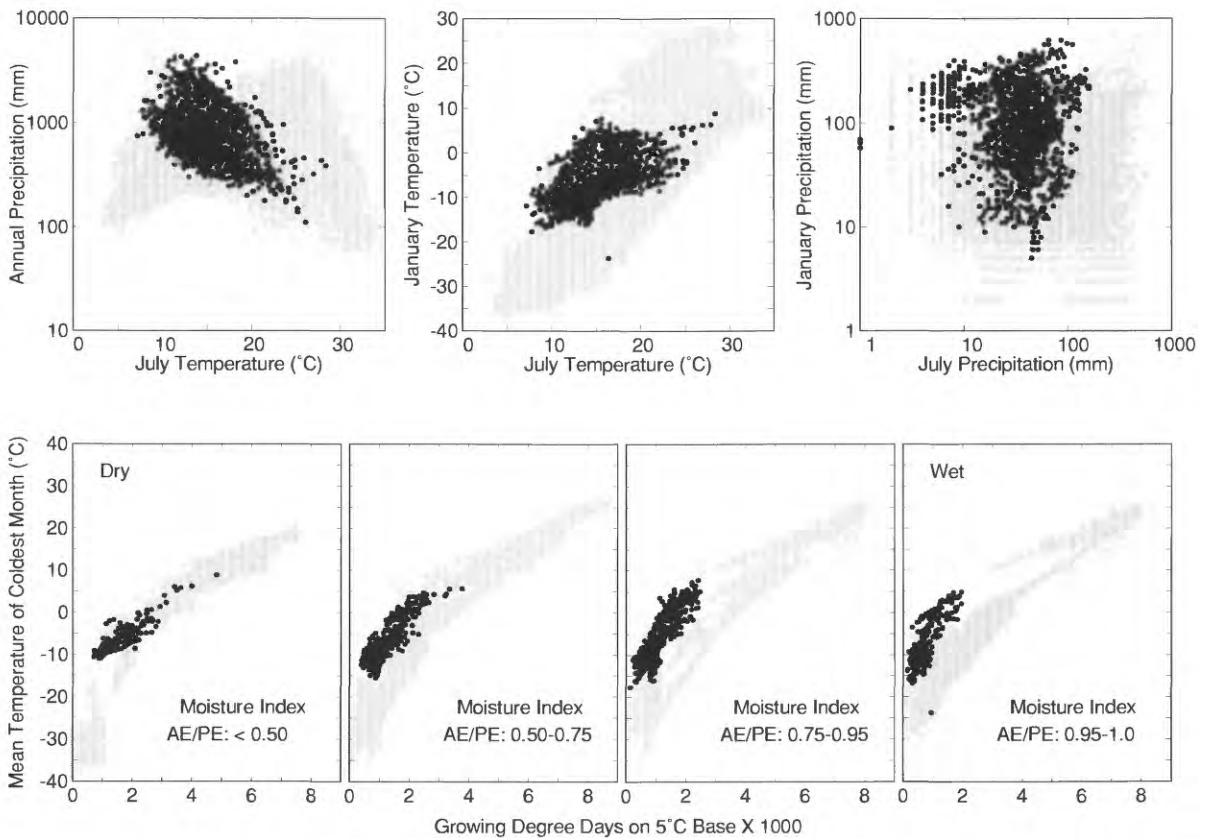
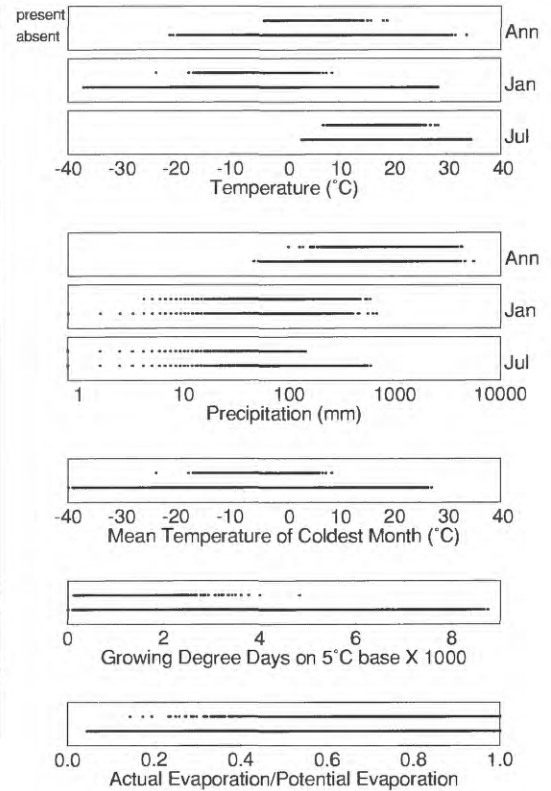
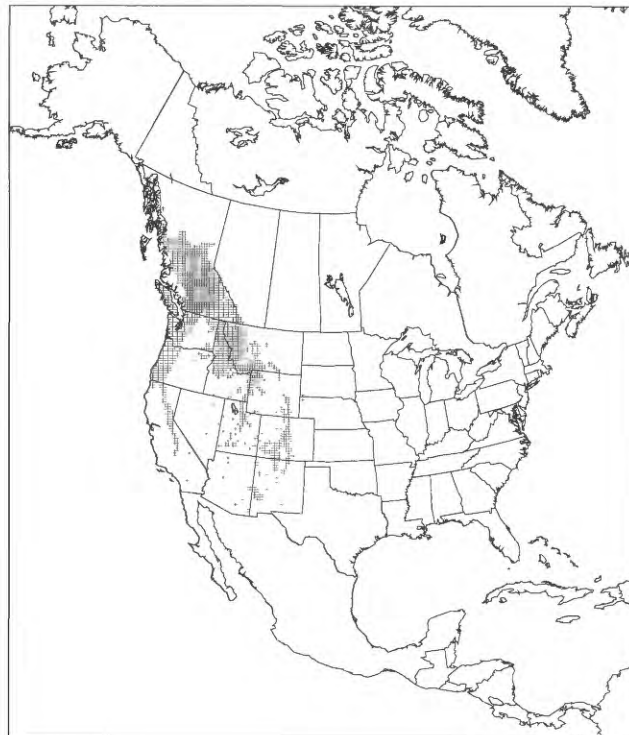
Acer barbatum



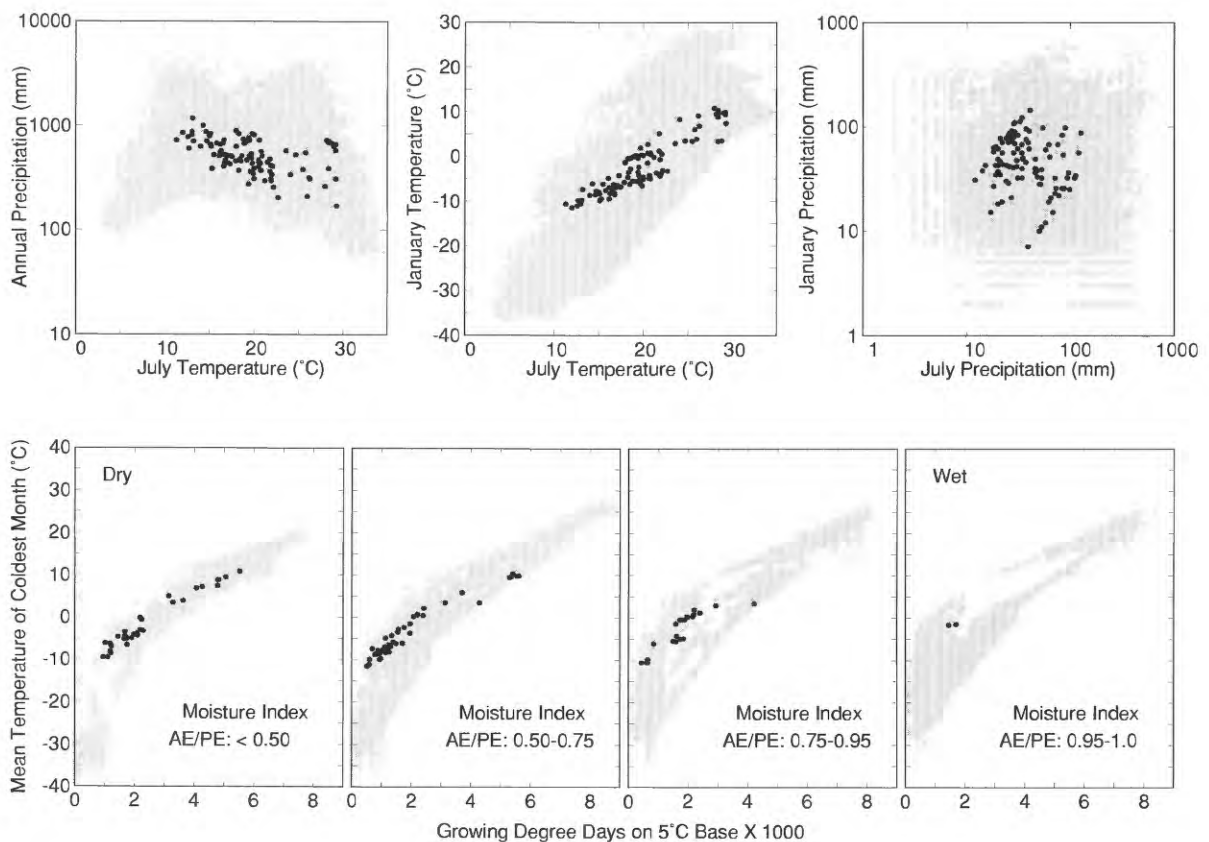
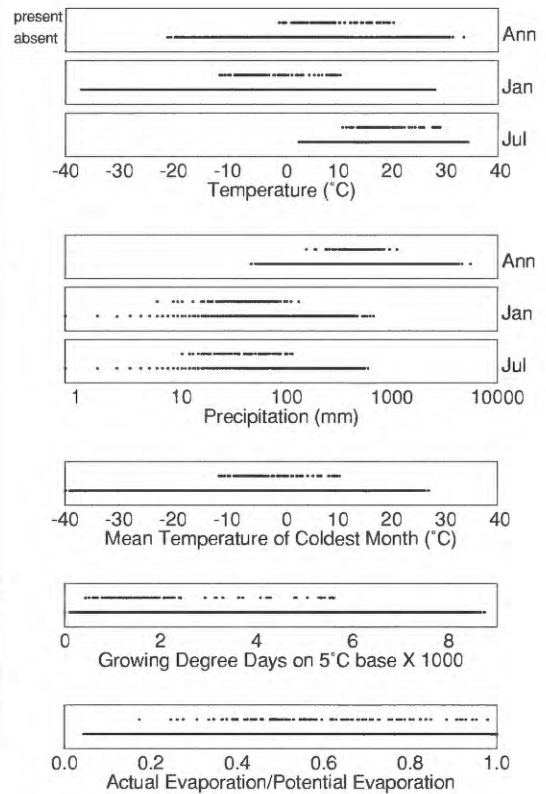
Acer circinatum



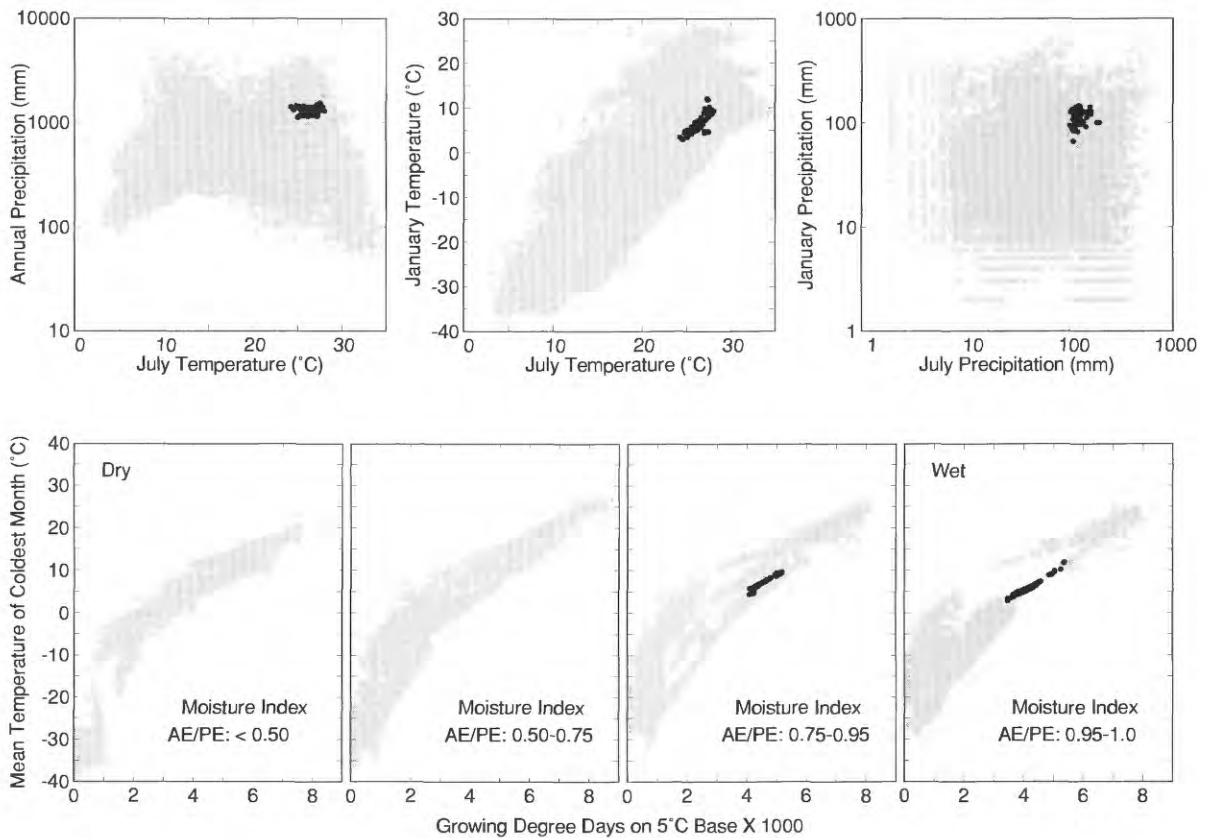
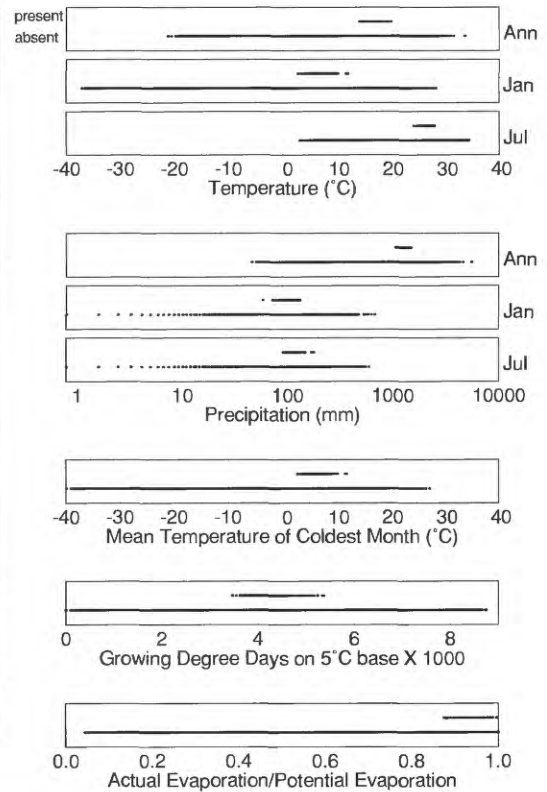
Acer glabrum



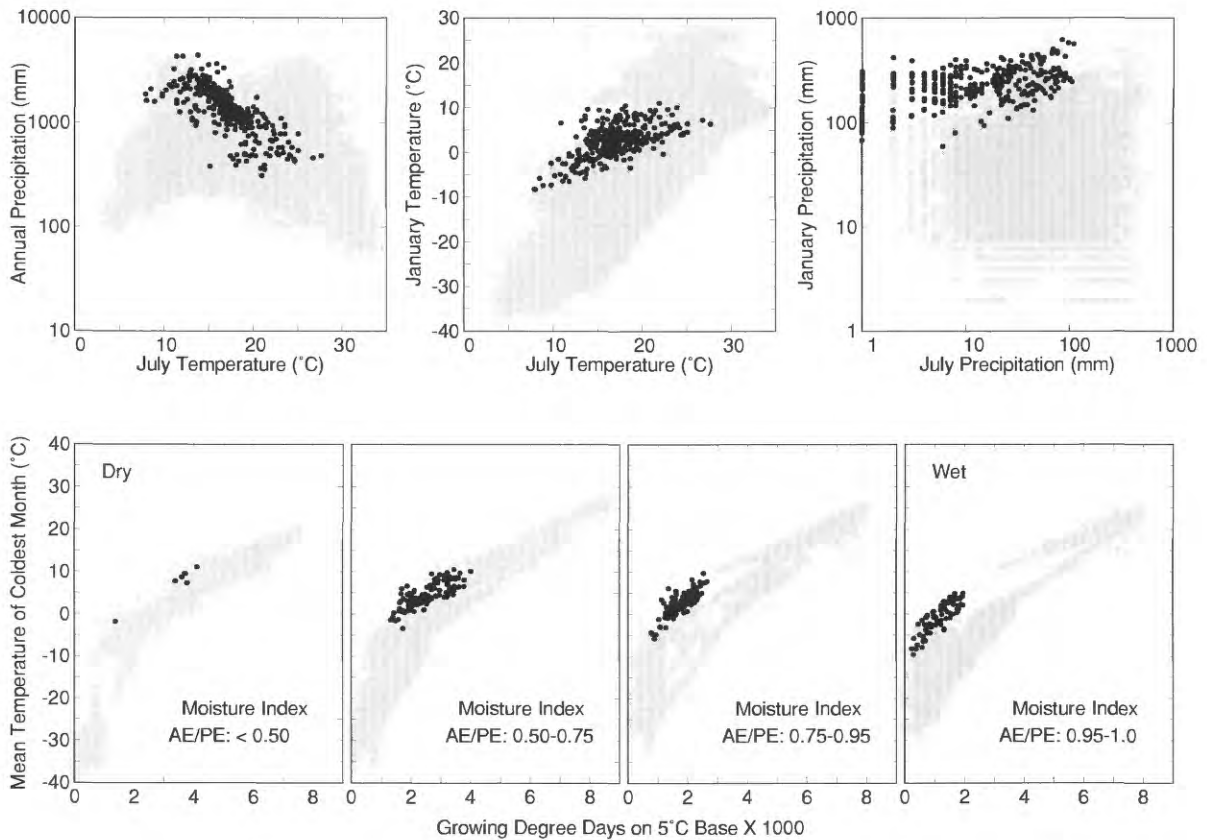
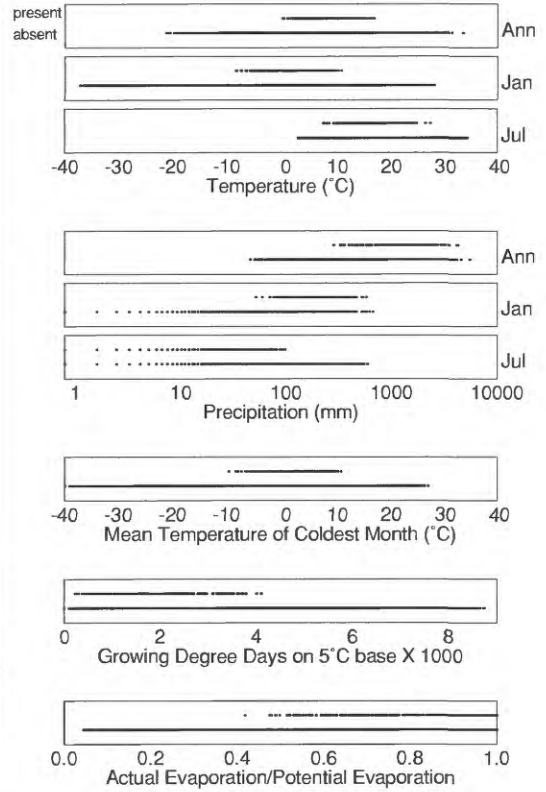
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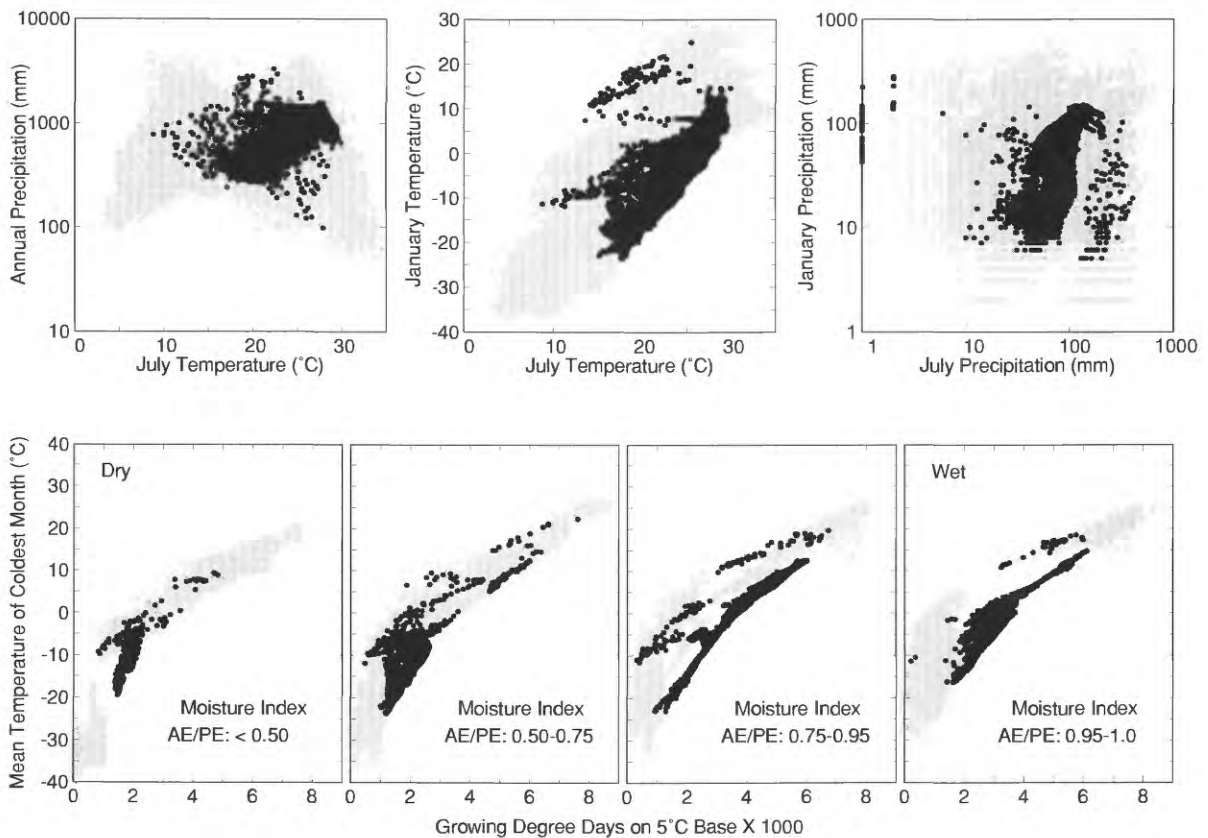
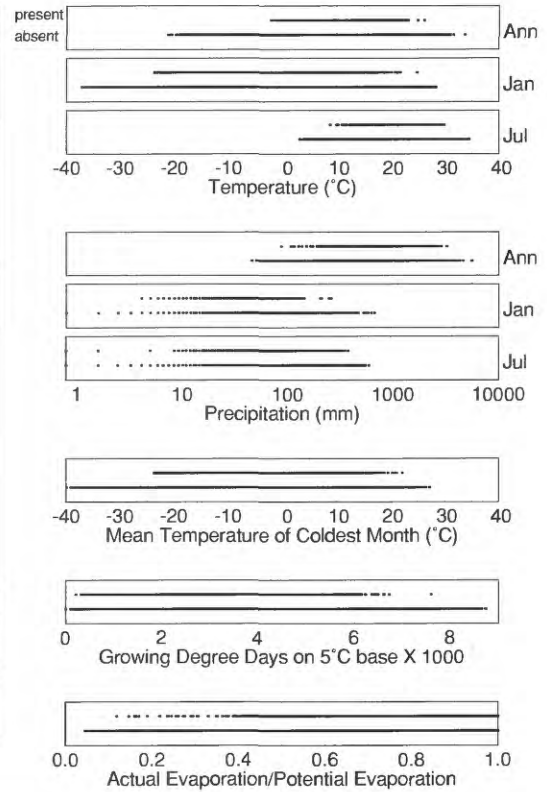
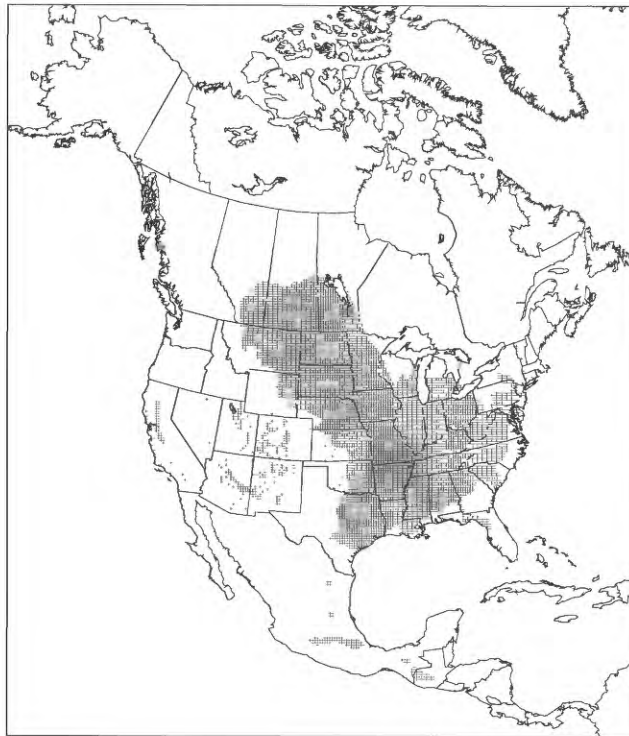
Acer leucoderme



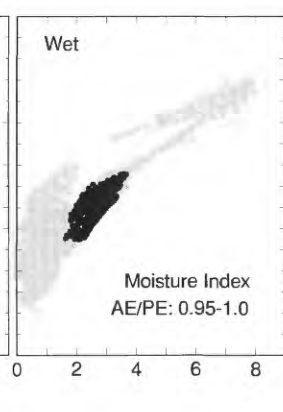
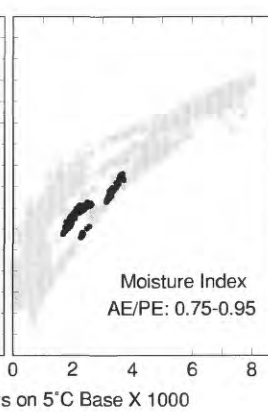
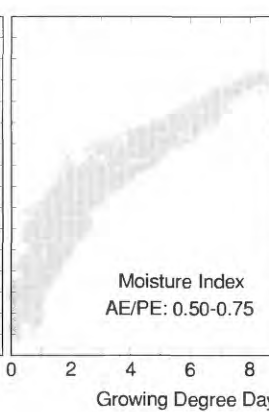
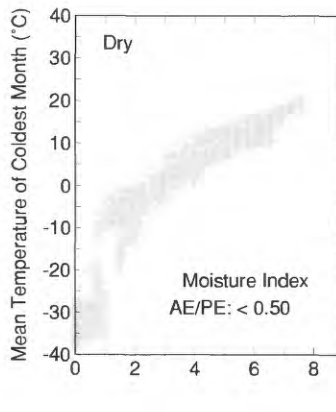
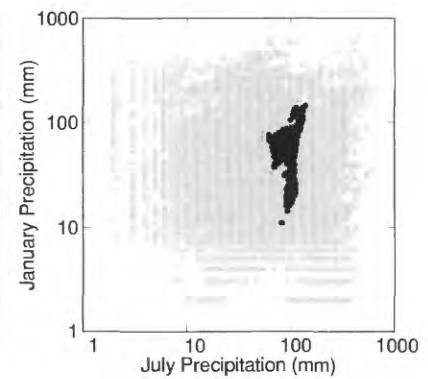
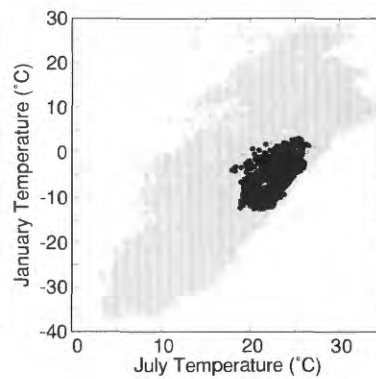
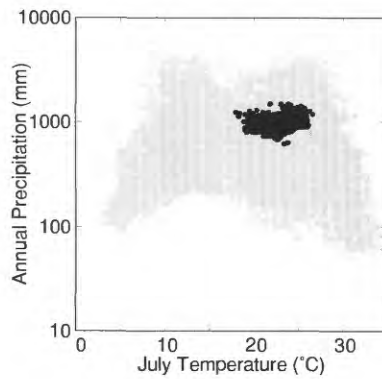
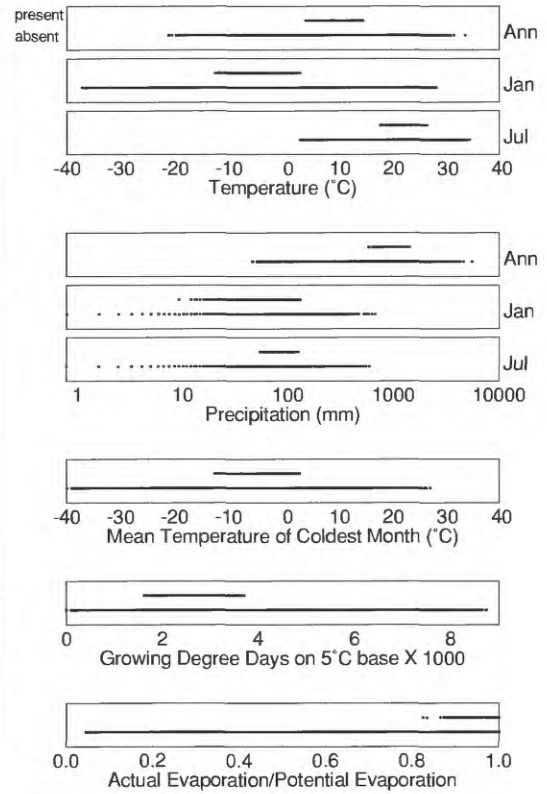
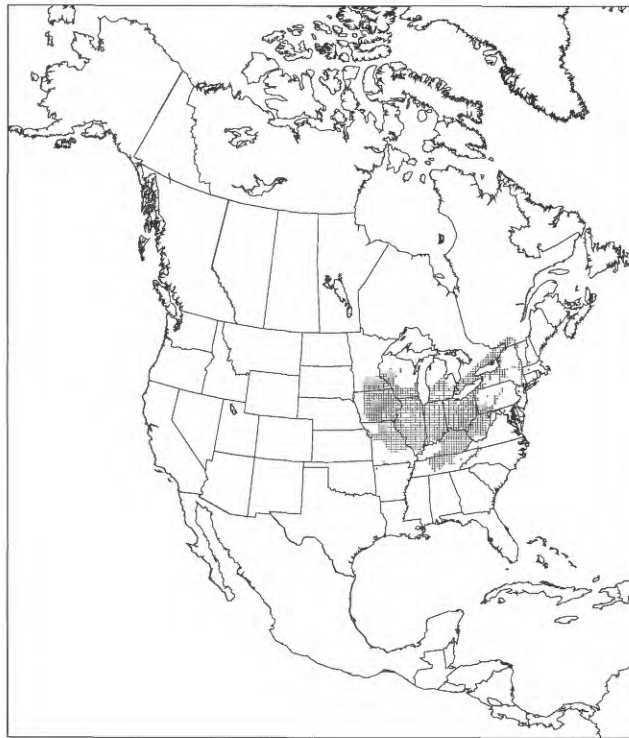
Acer macrophyllum



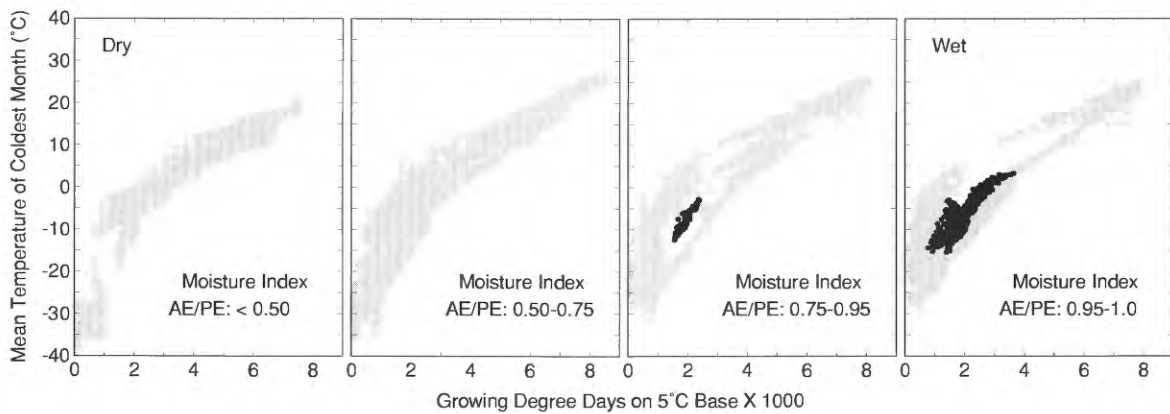
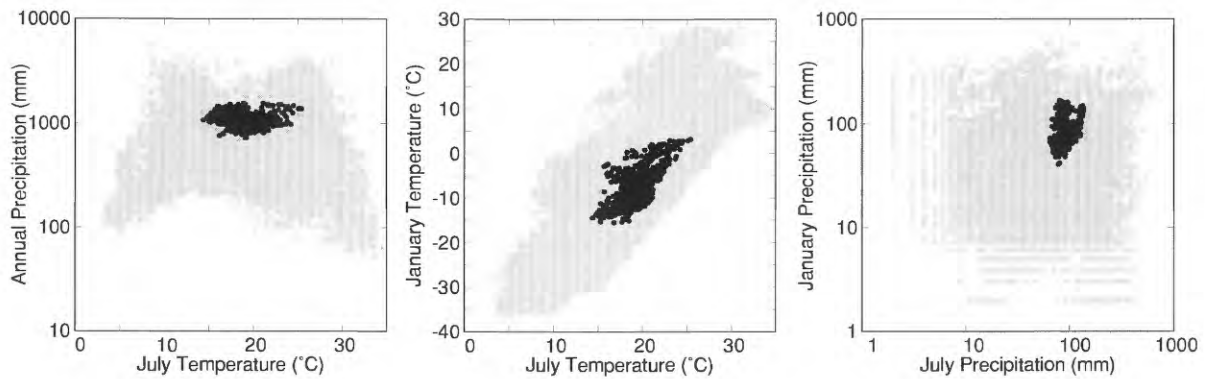
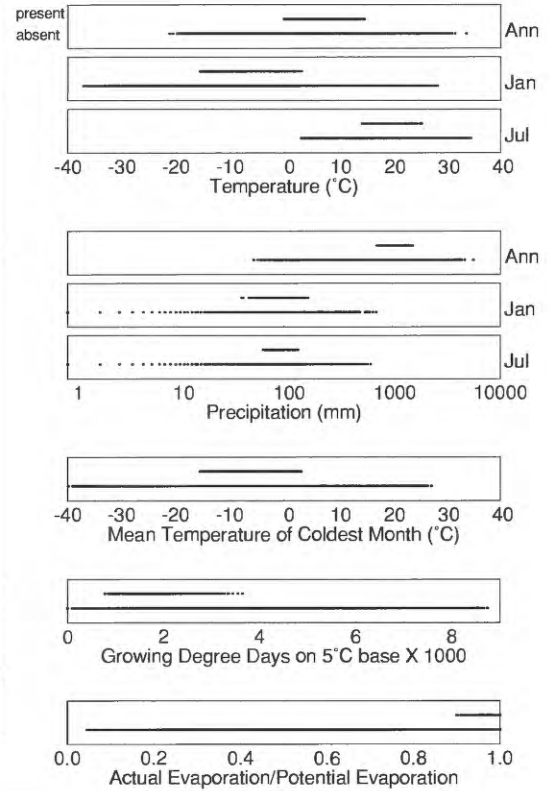
Acer negundo



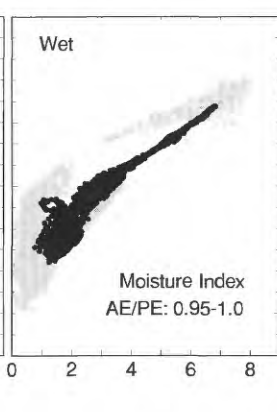
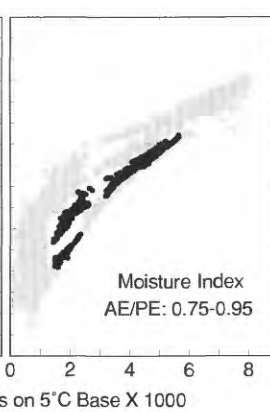
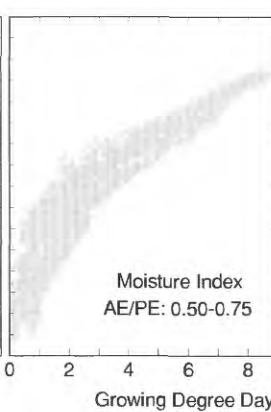
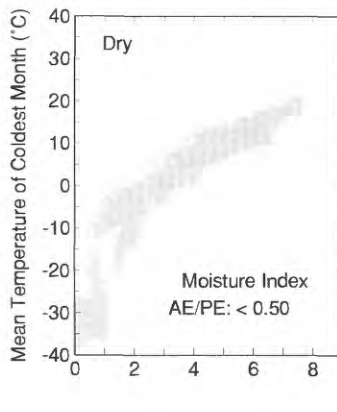
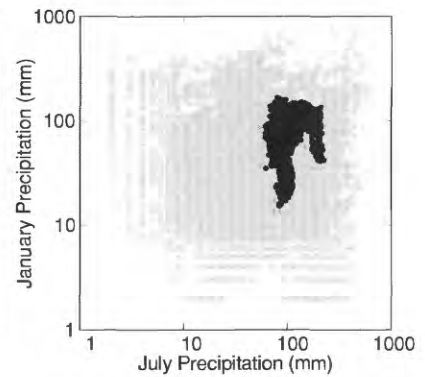
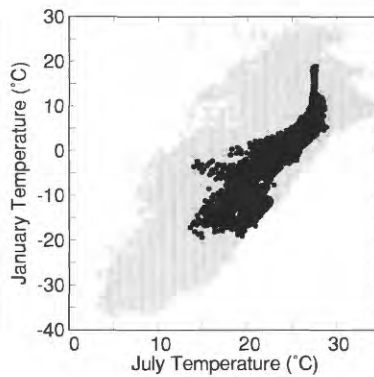
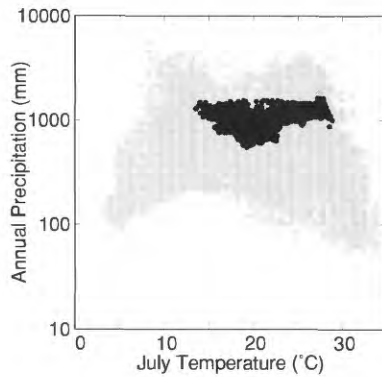
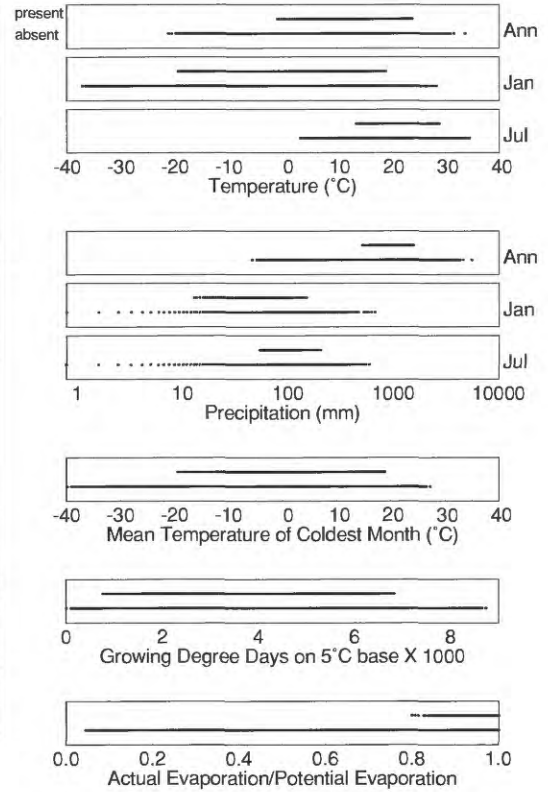
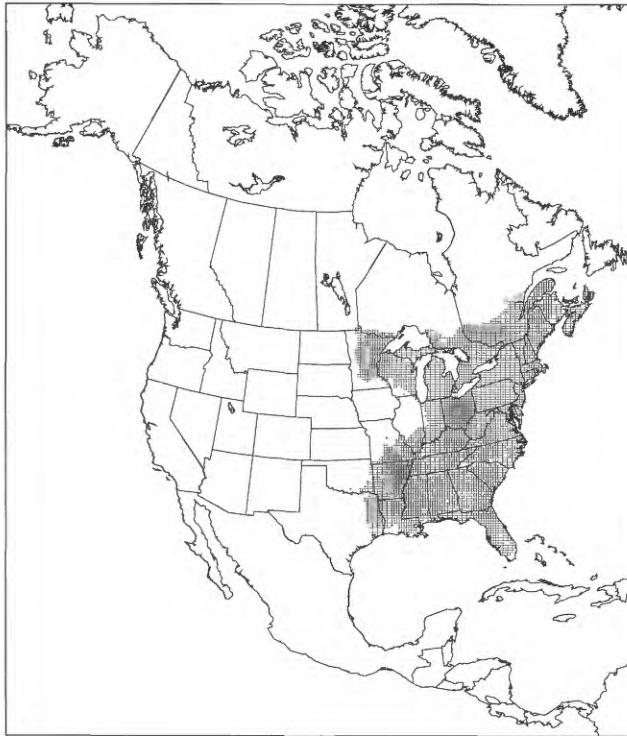
Acer nigrum



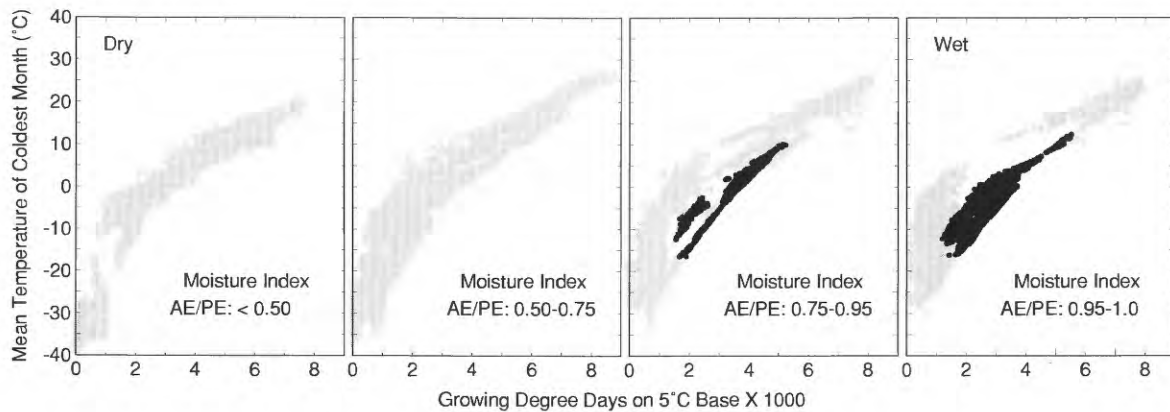
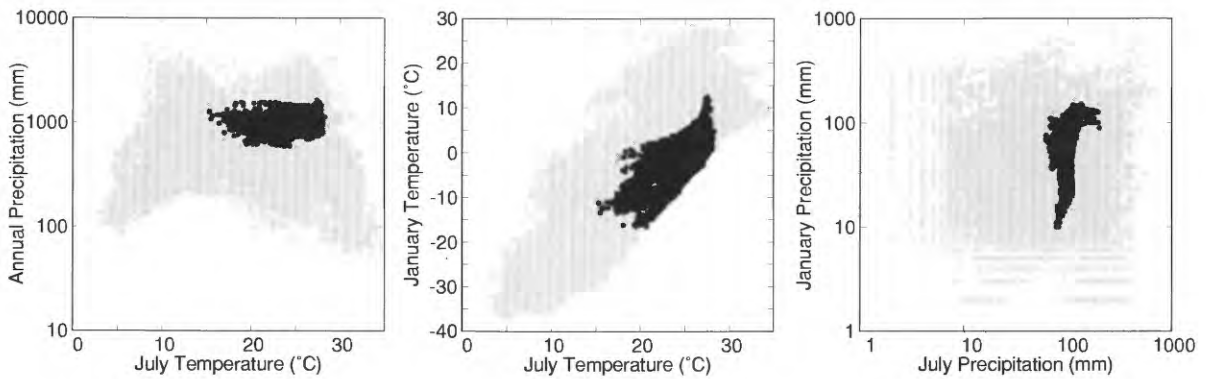
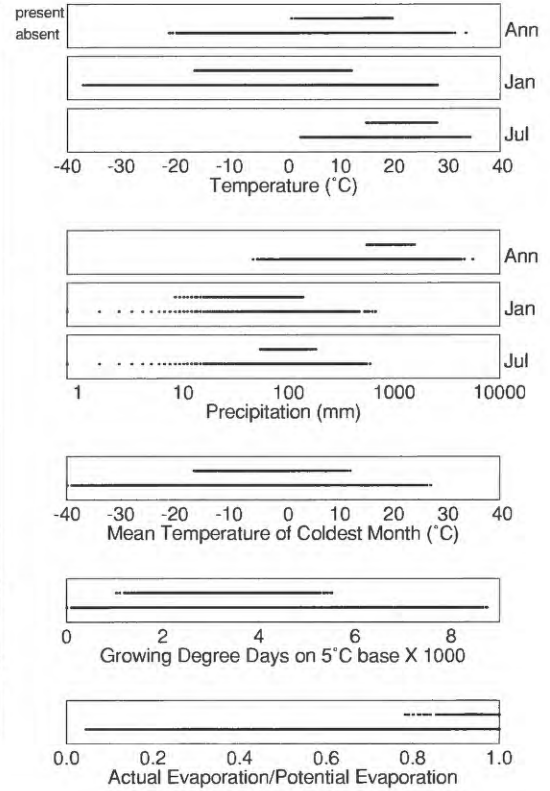
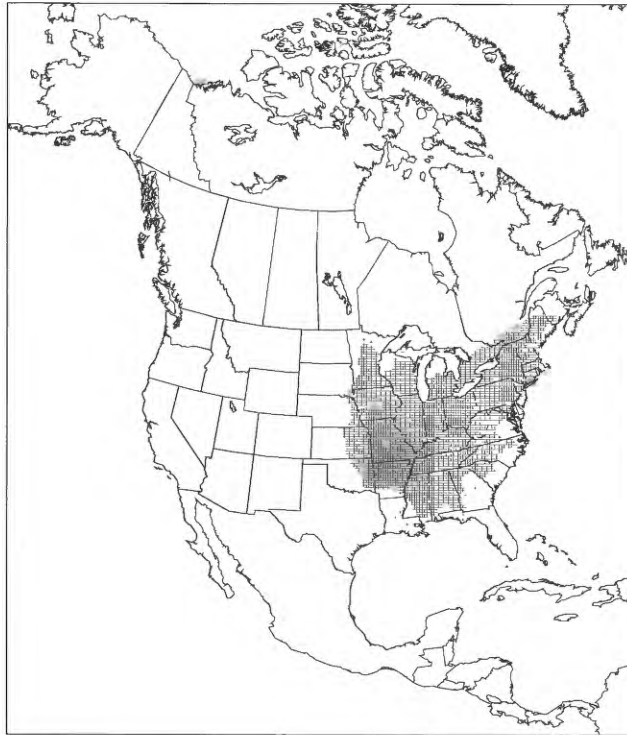
Acer pensylvanicum



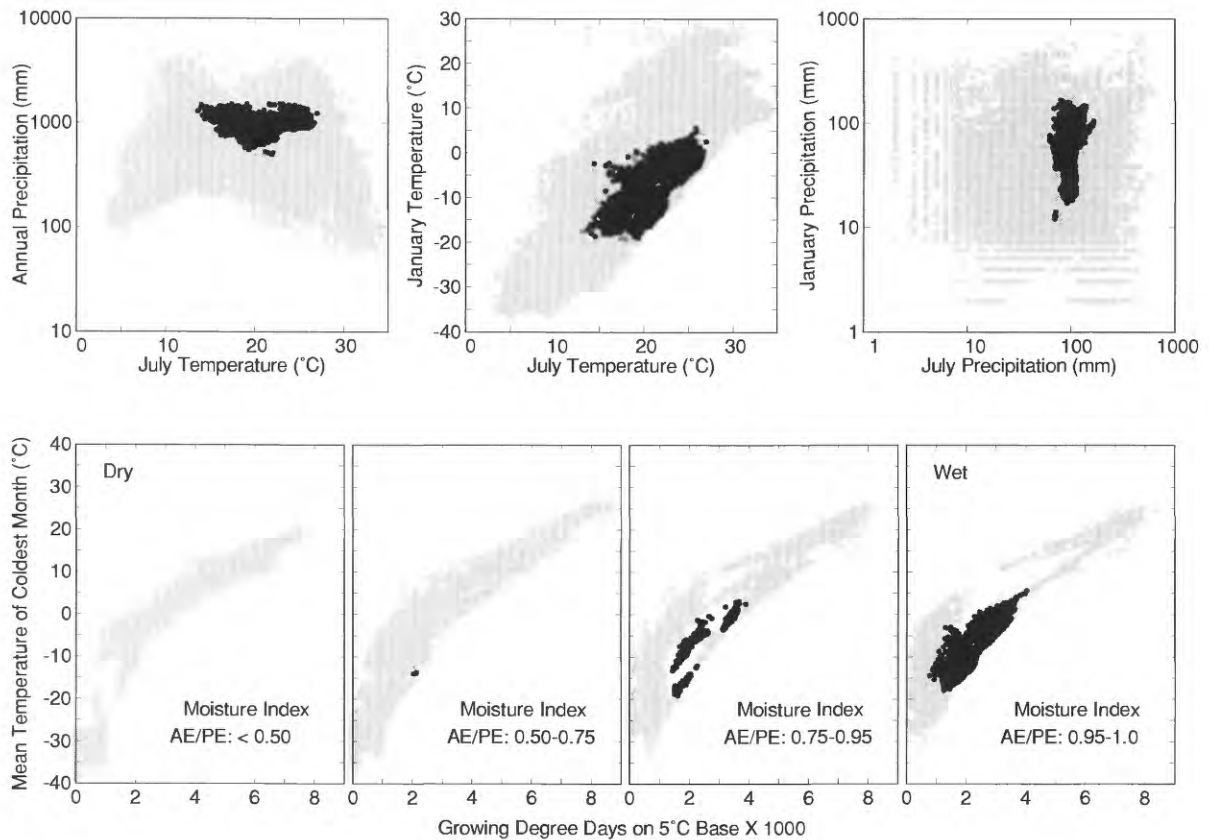
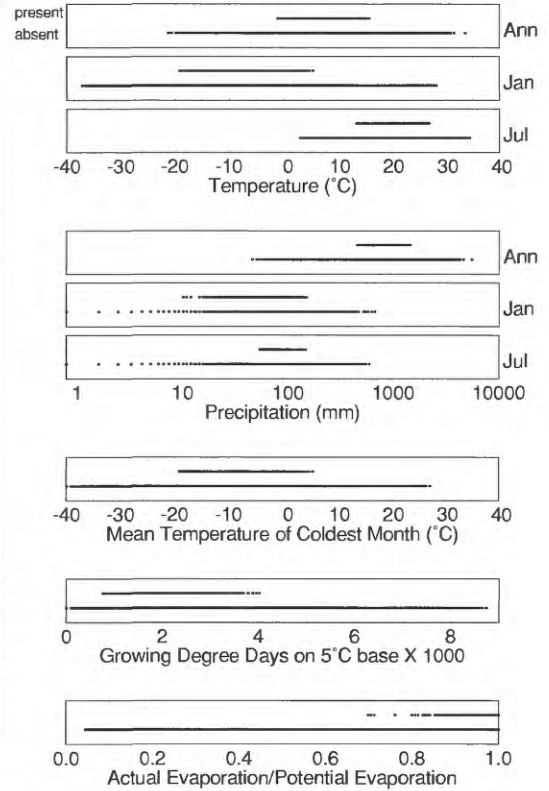
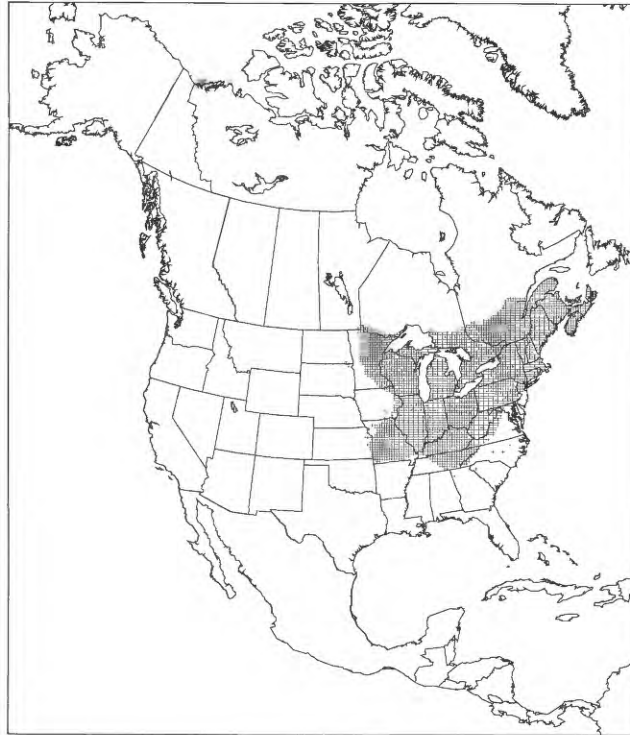
Acer rubrum



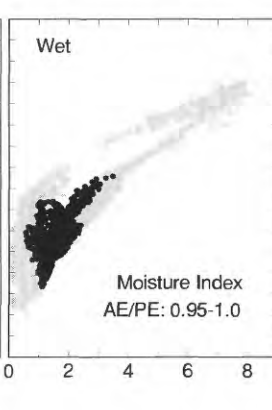
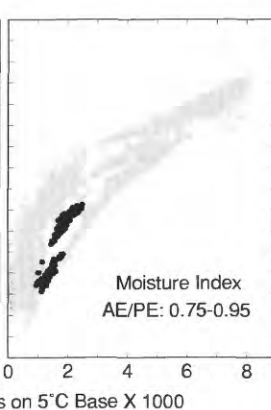
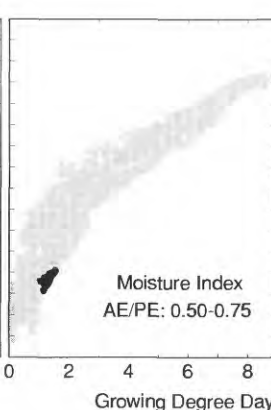
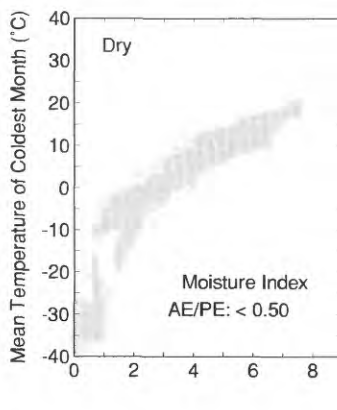
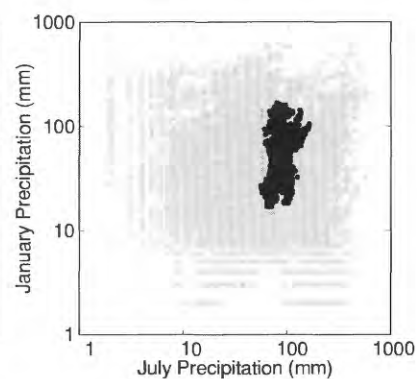
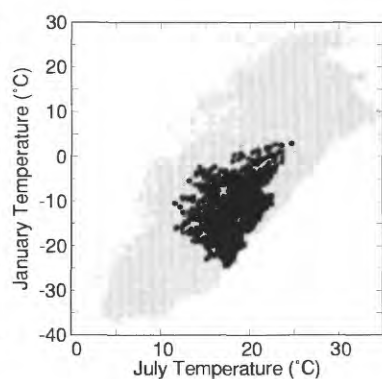
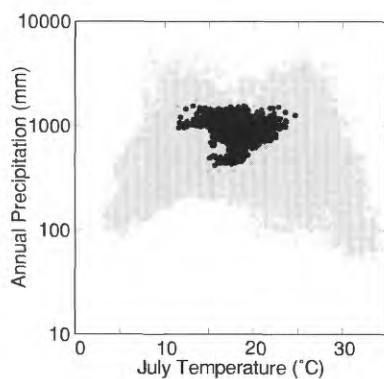
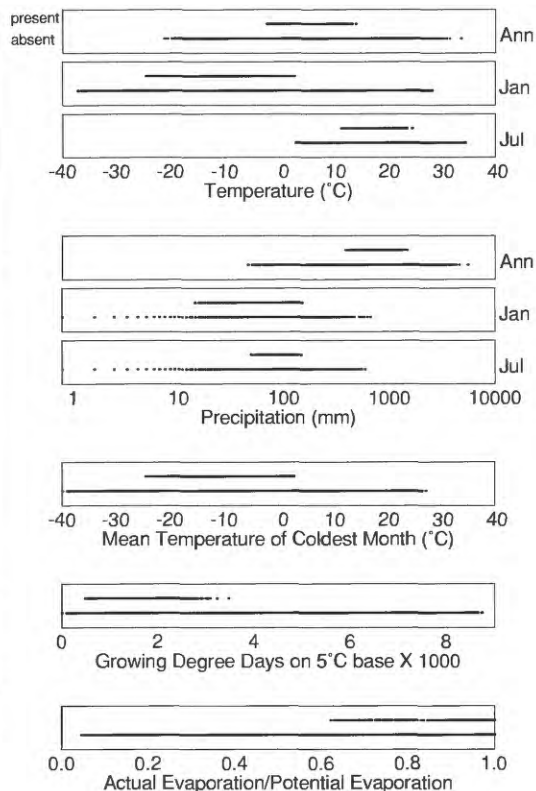
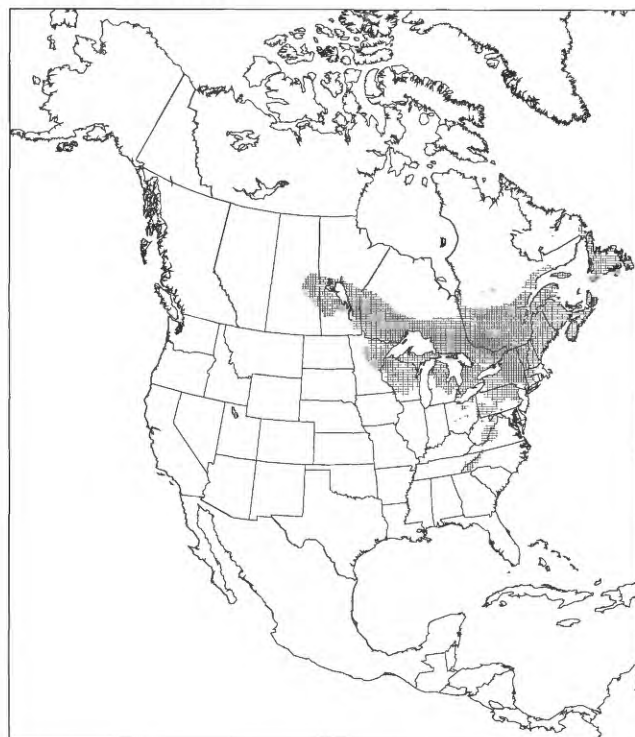
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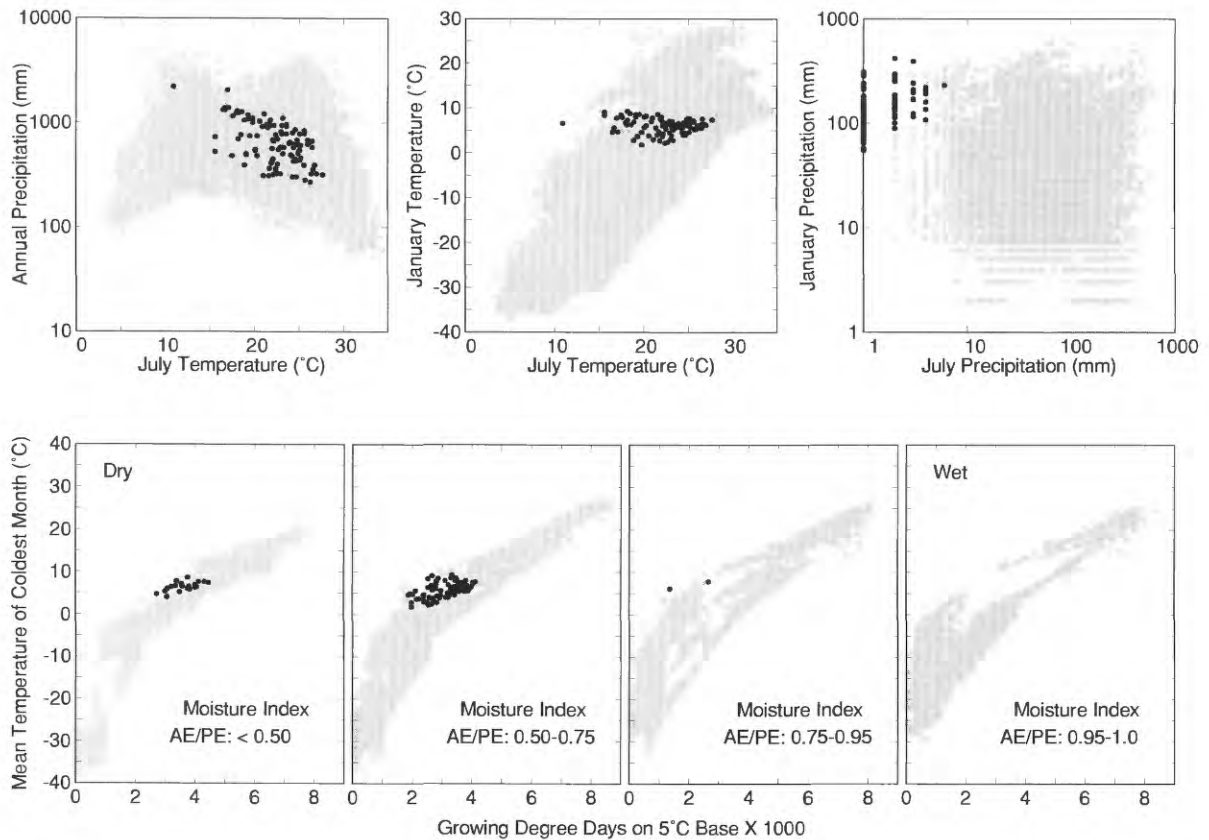
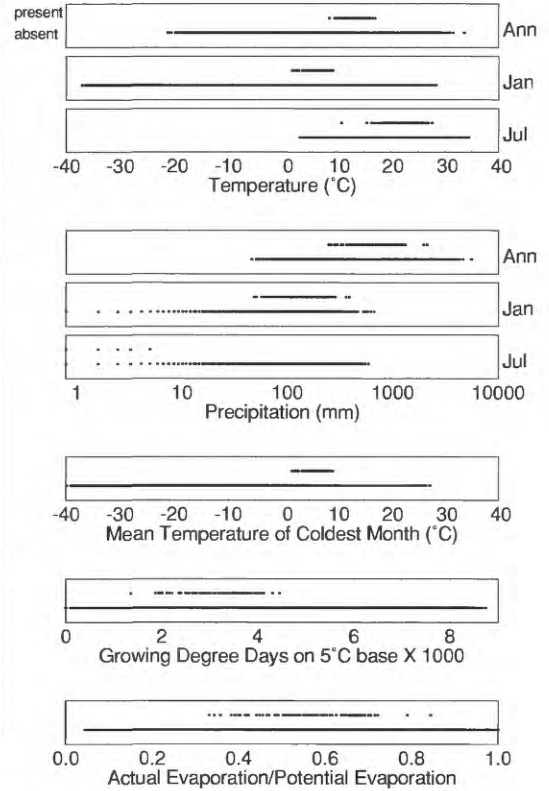
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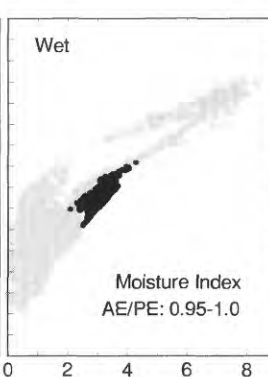
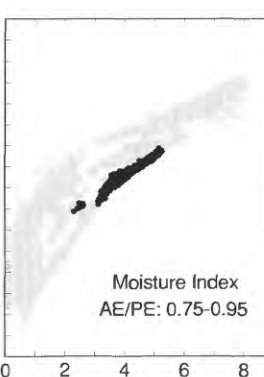
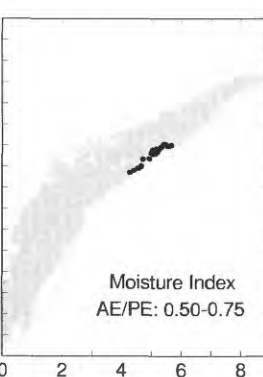
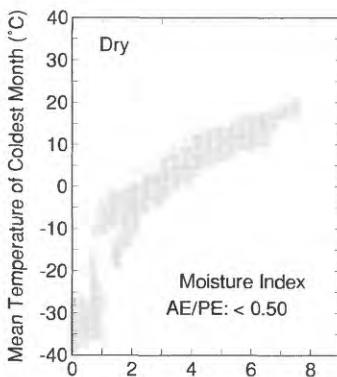
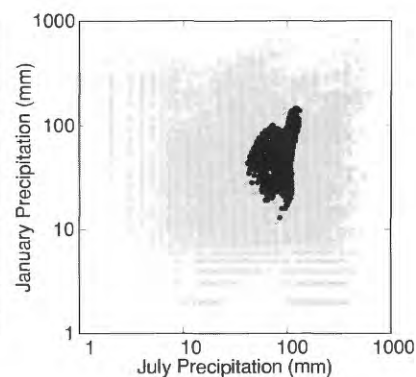
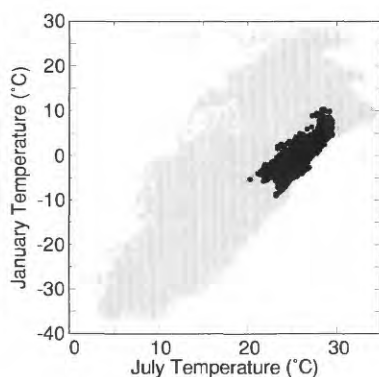
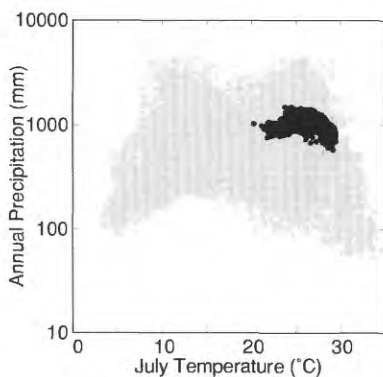
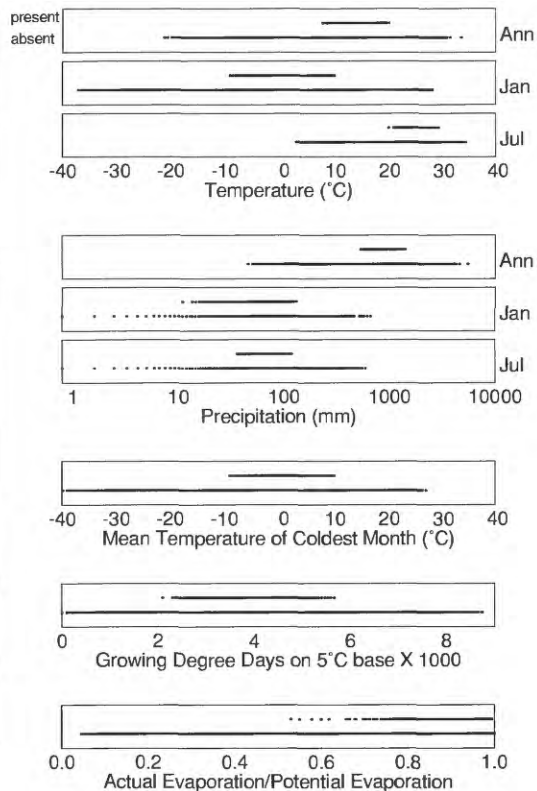
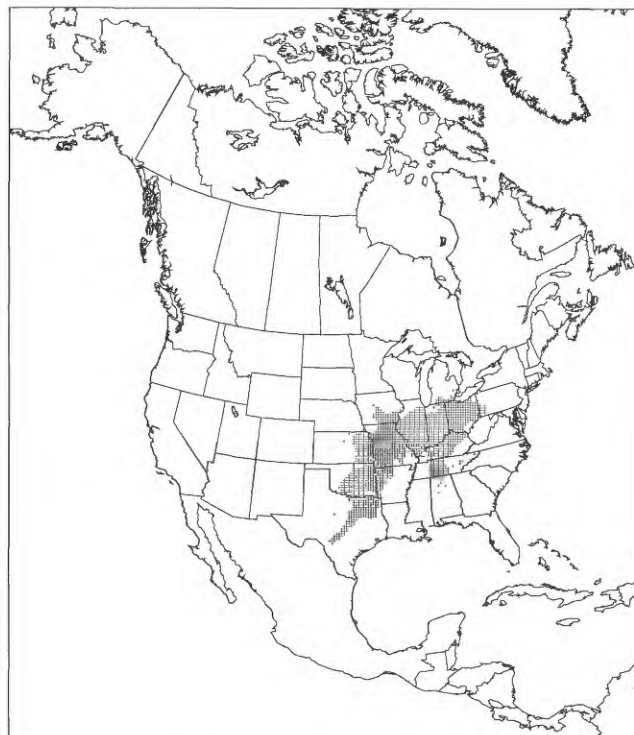
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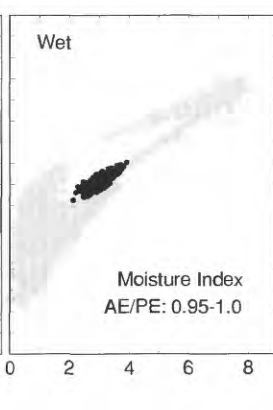
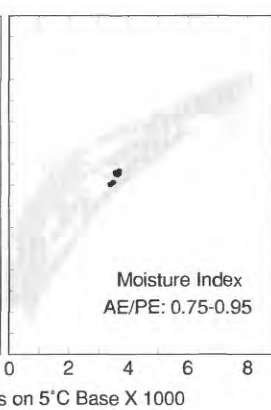
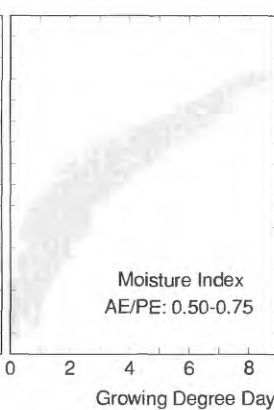
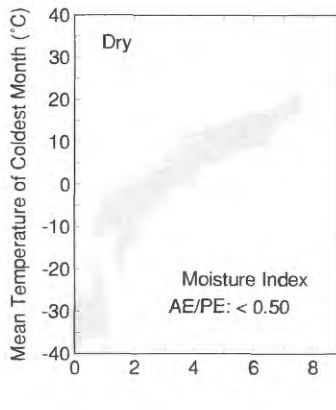
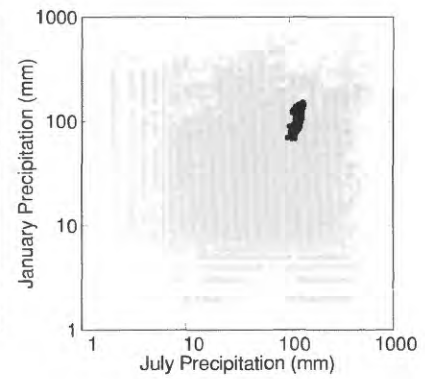
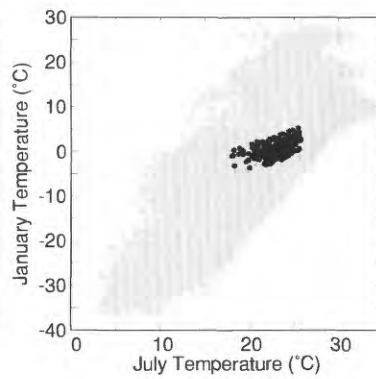
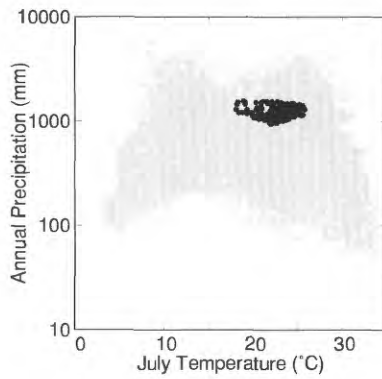
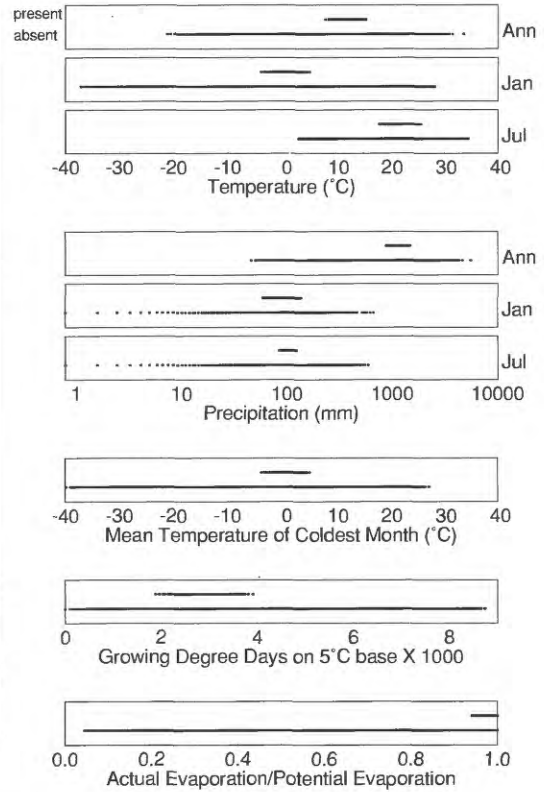
Aesculus californica



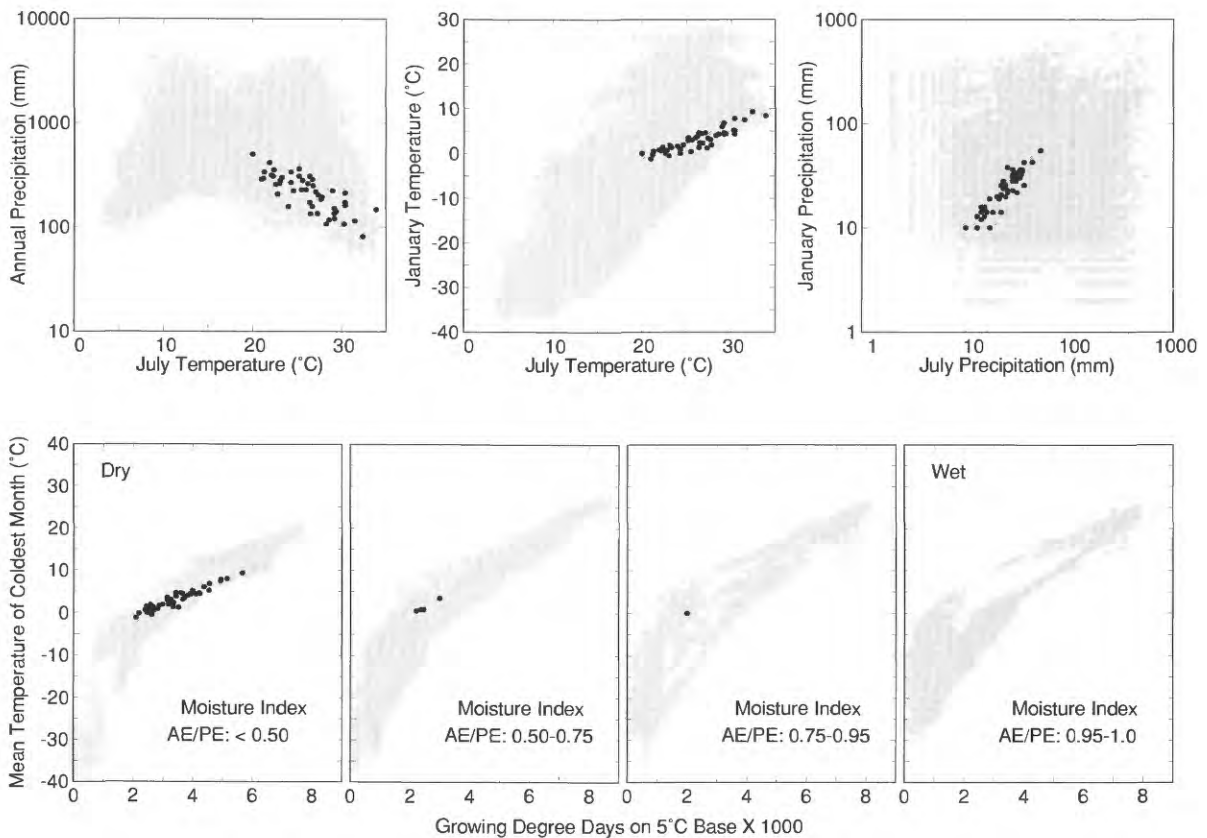
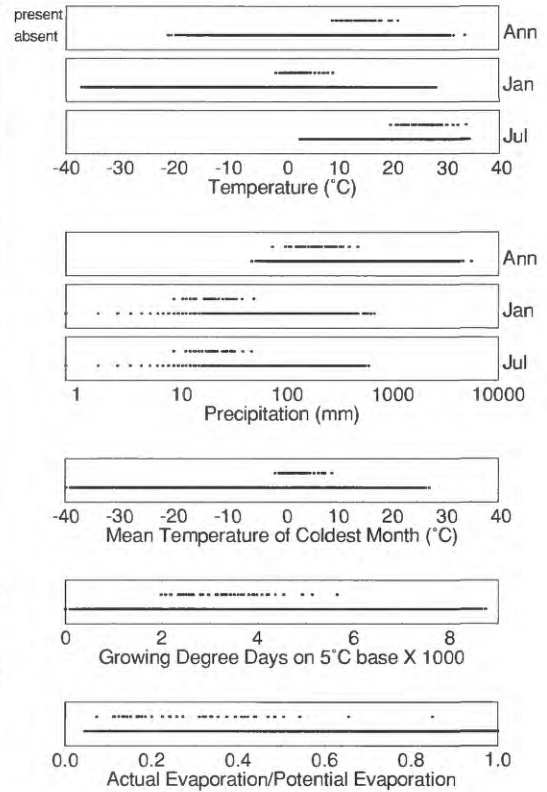
Aesculus glabra



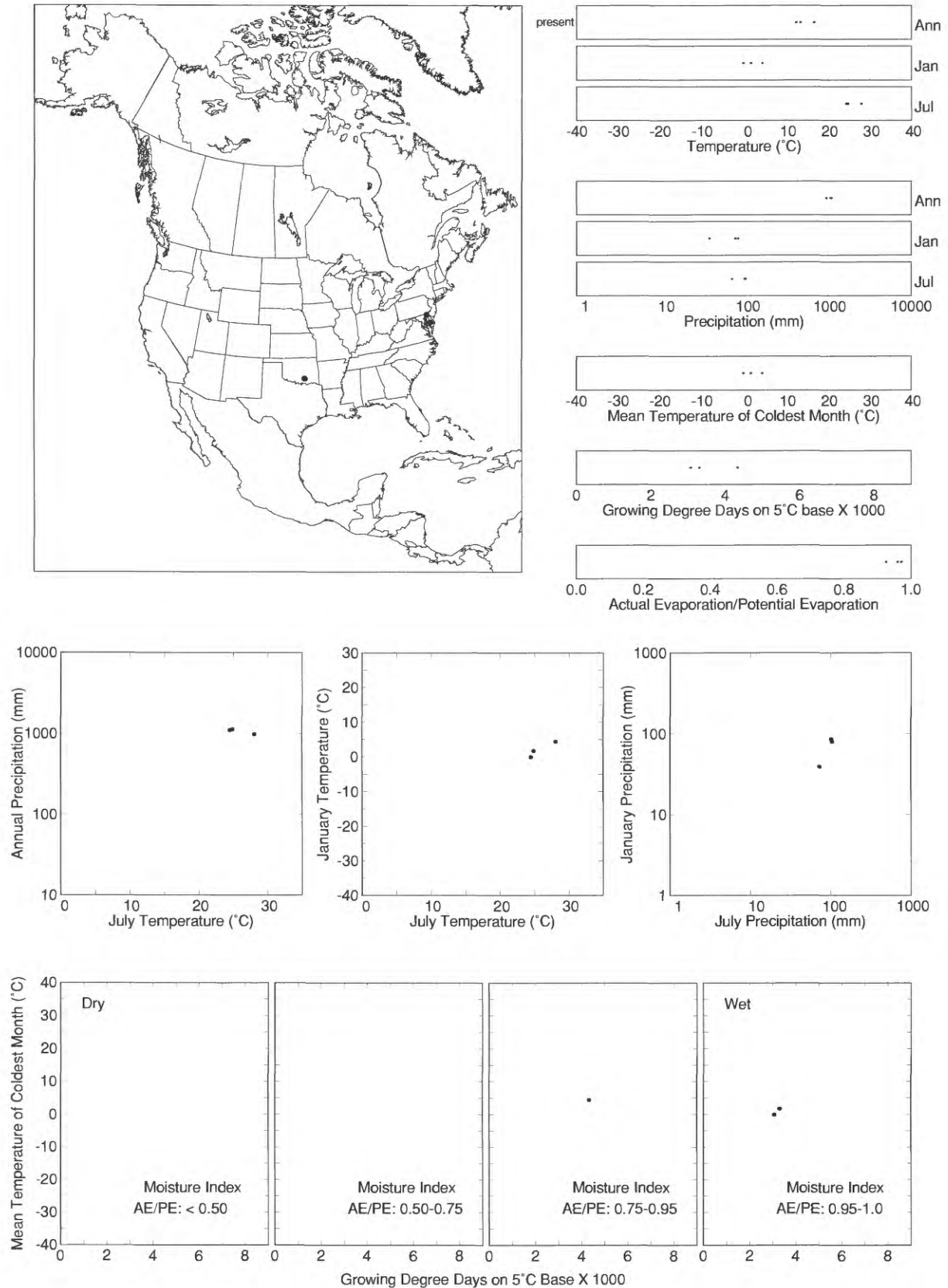
Aesculus octandra



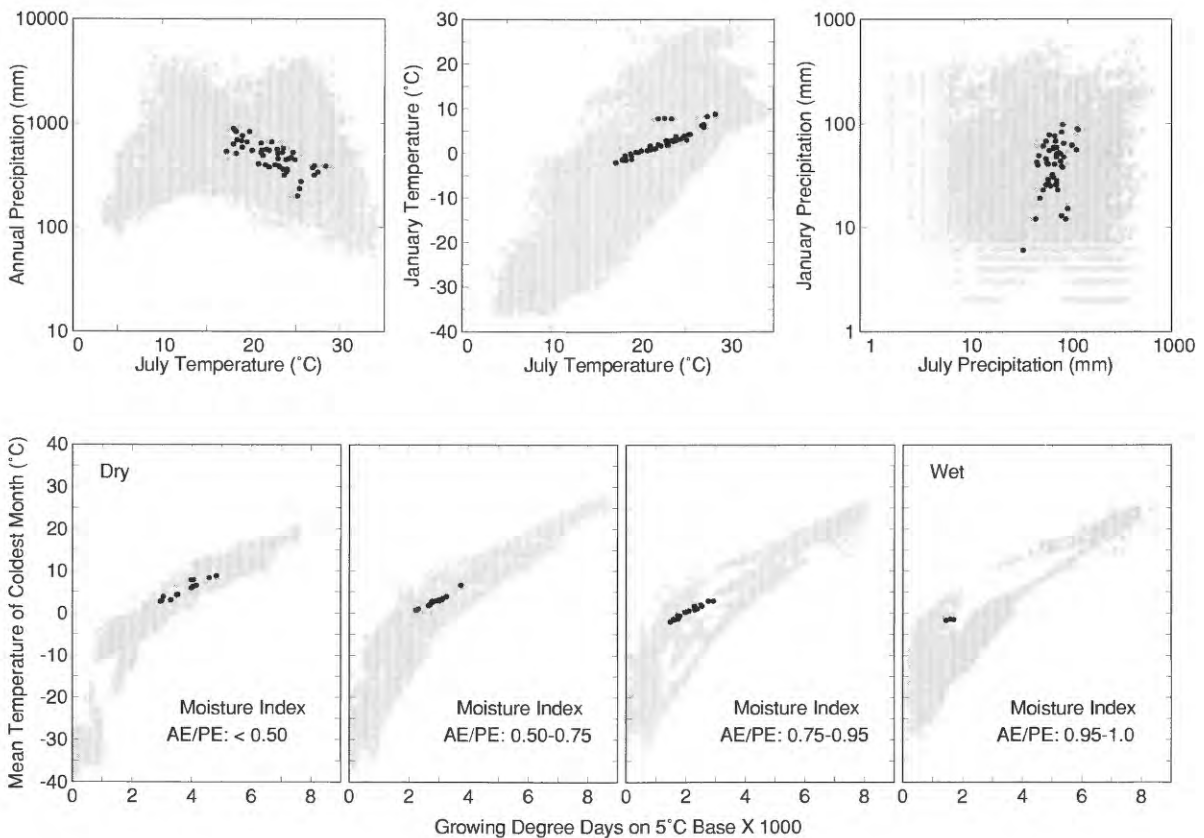
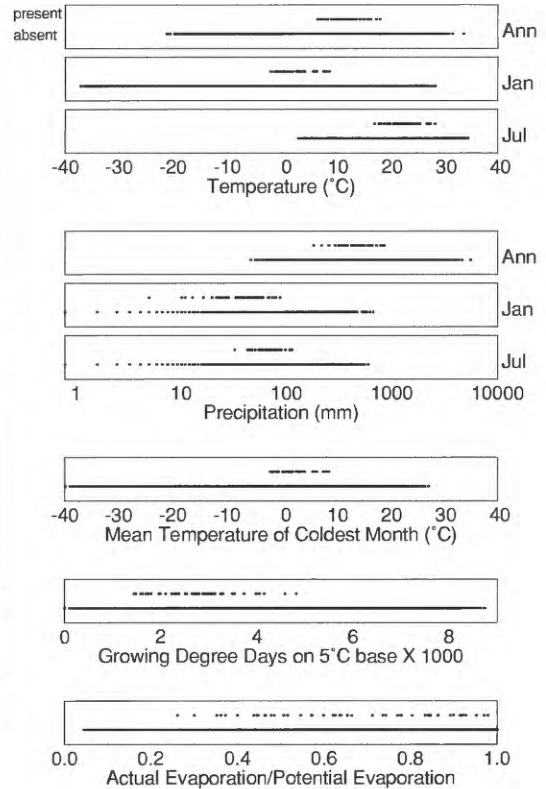
Agave utahensis



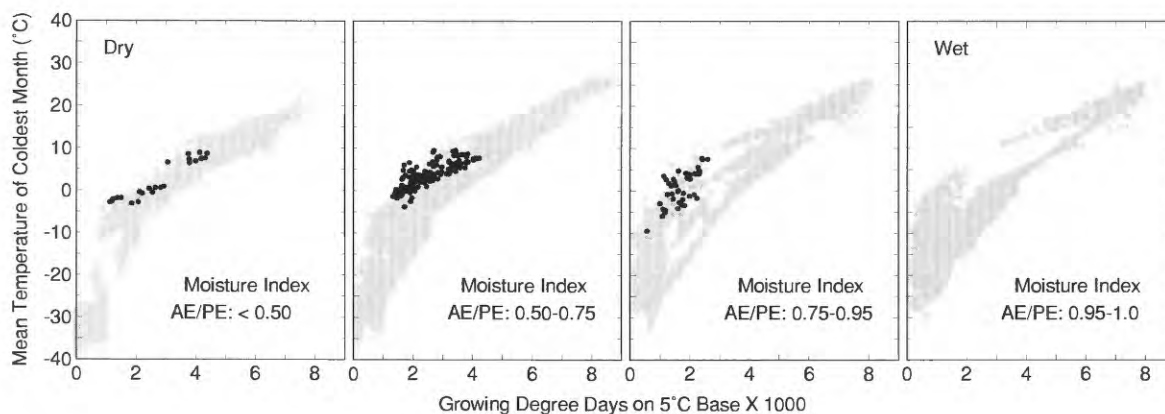
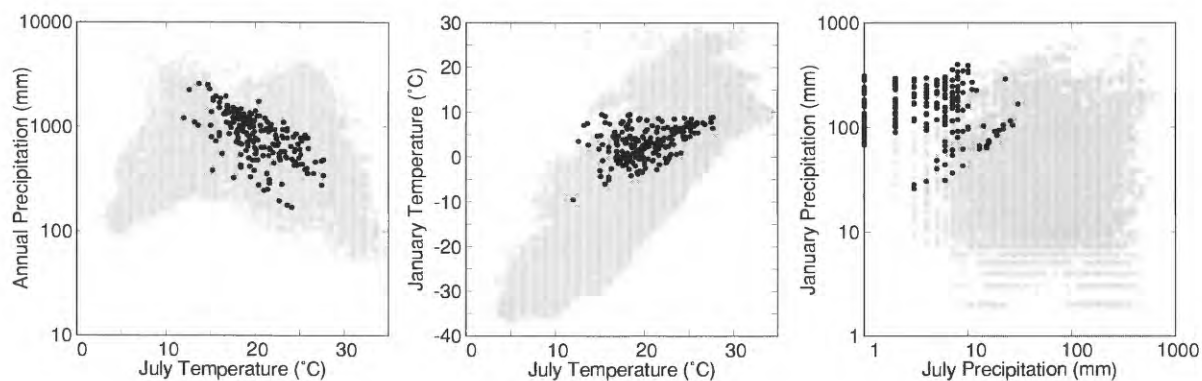
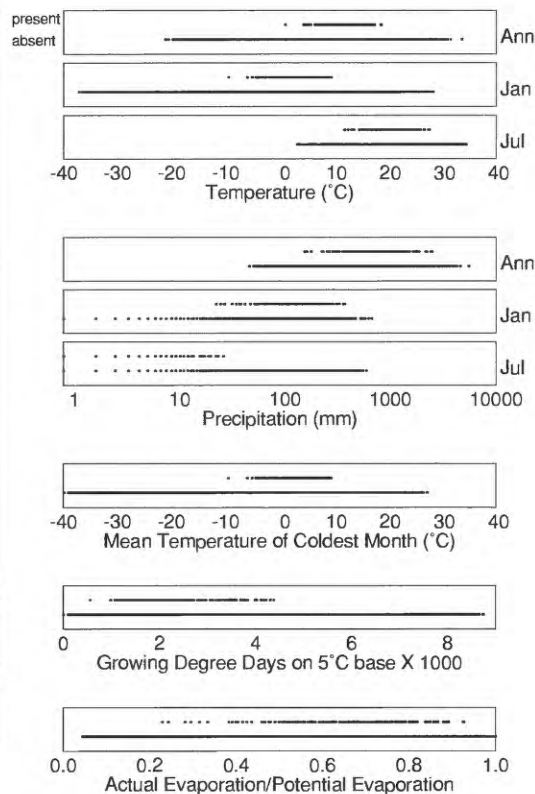
Alnus maritima (minimal data - nearest grid points used with environmental parameters)



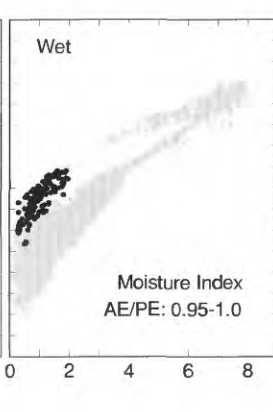
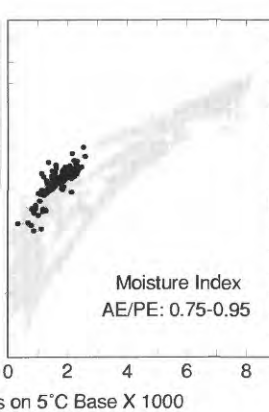
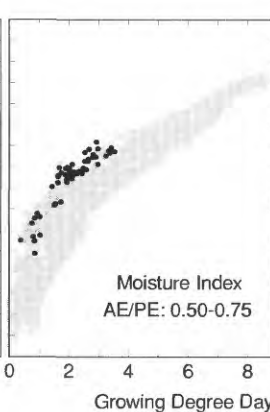
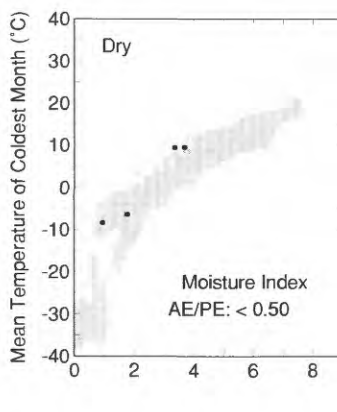
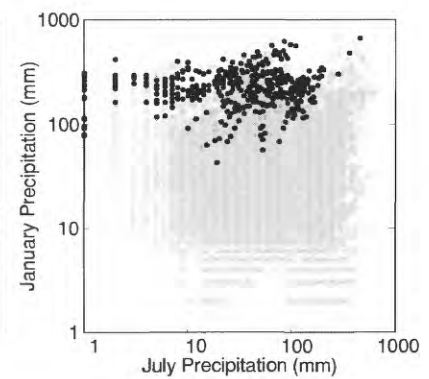
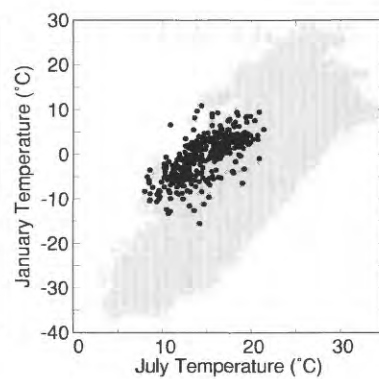
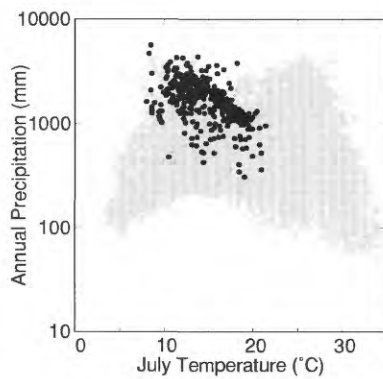
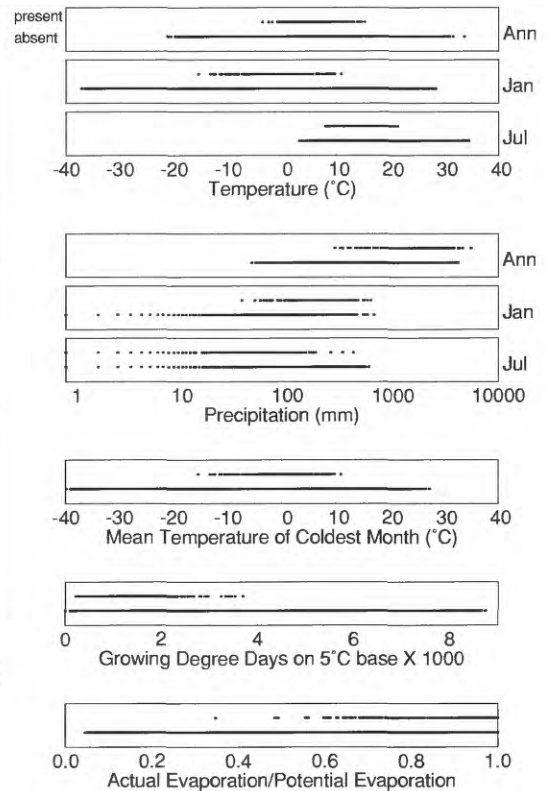
Alnus oblongifolia



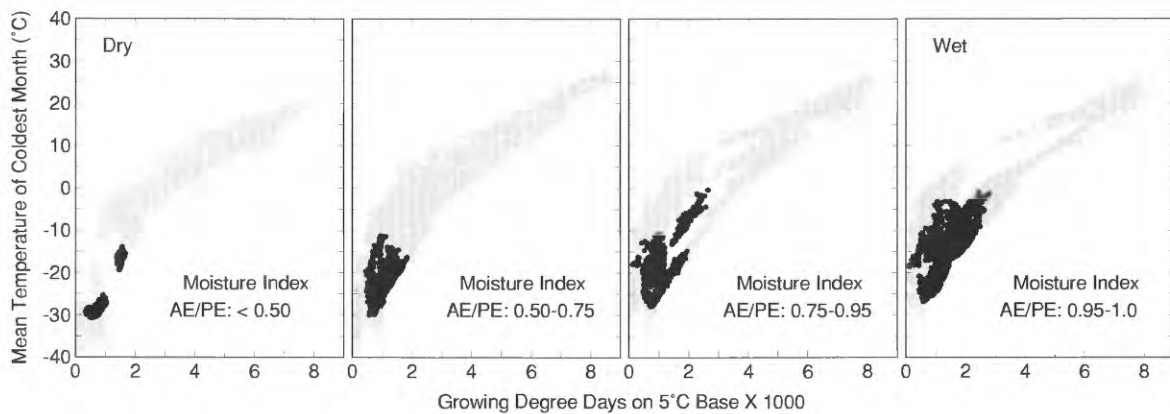
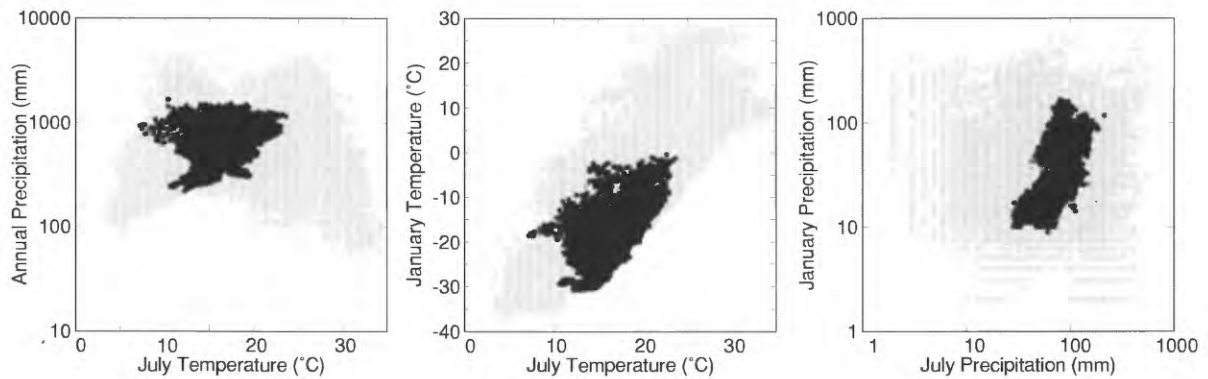
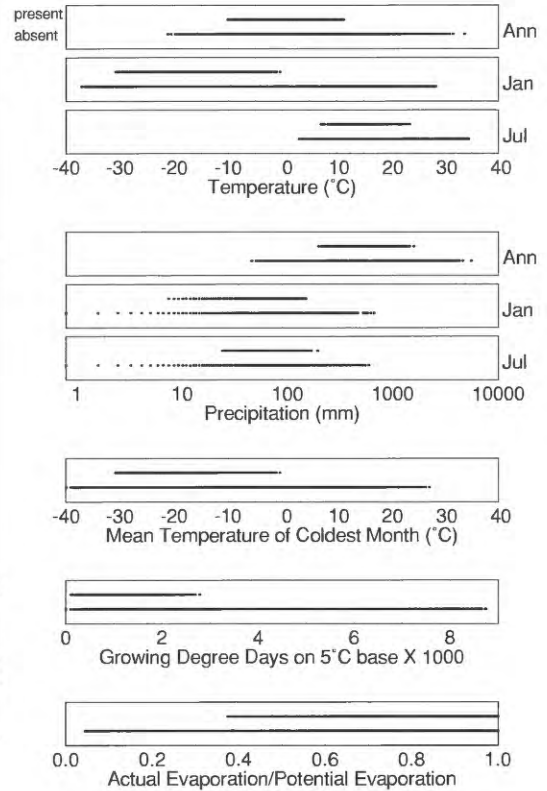
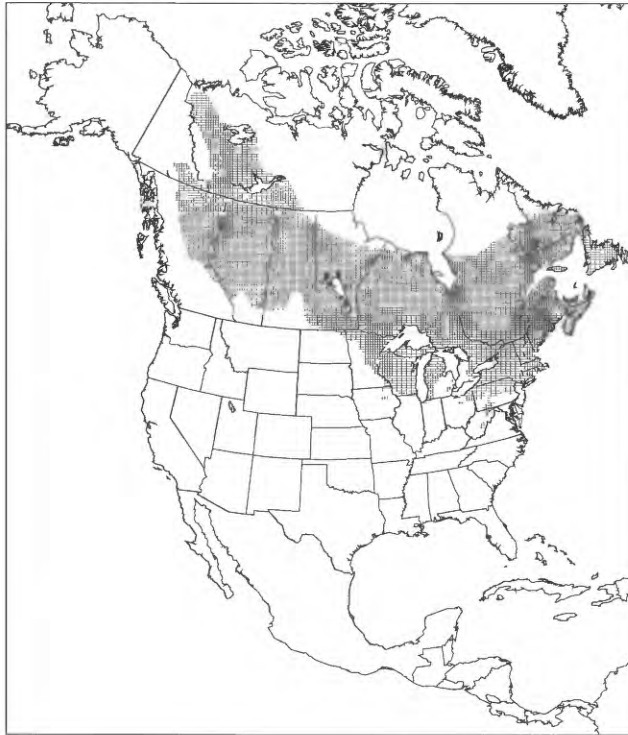
Alnus rhombifolia



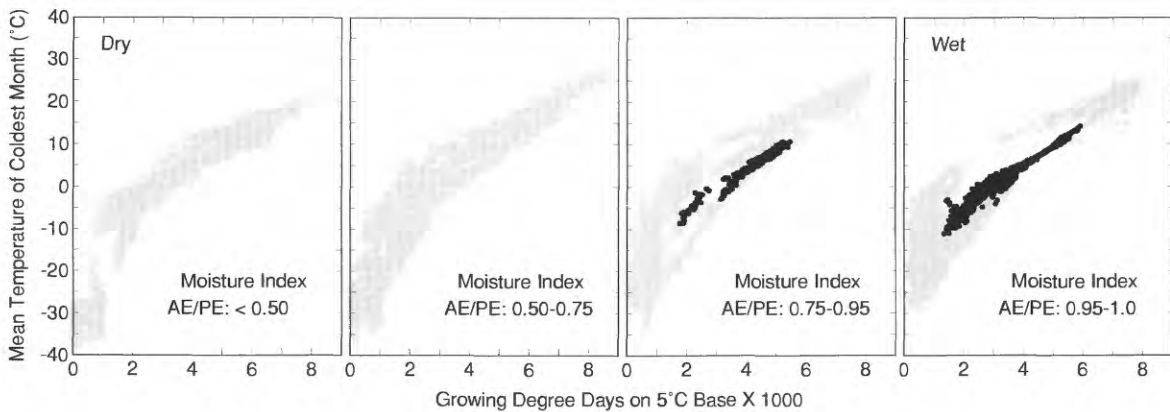
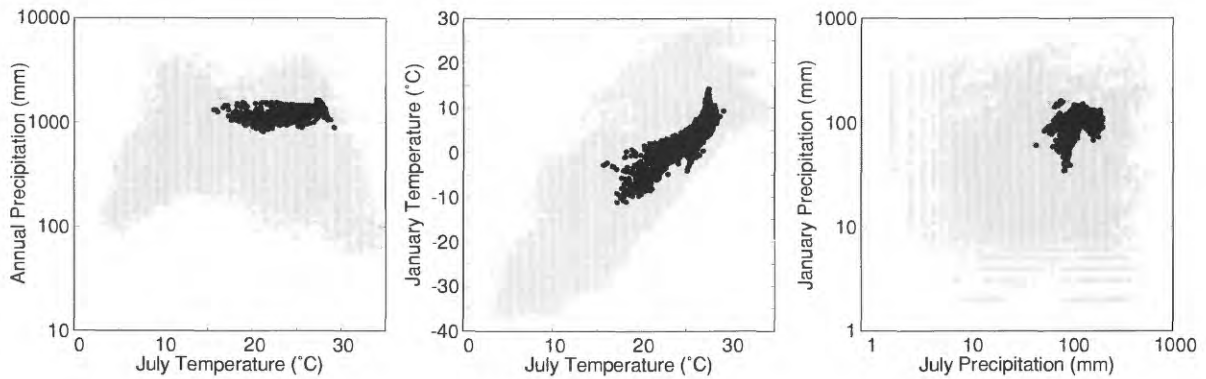
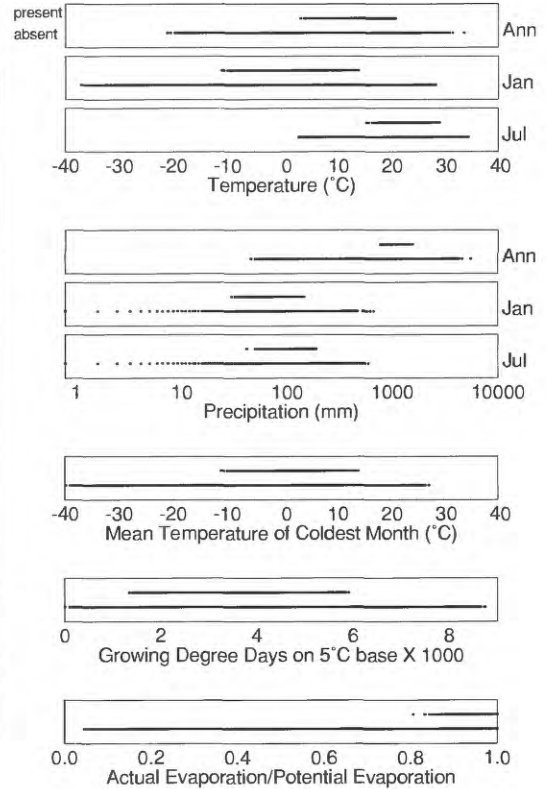
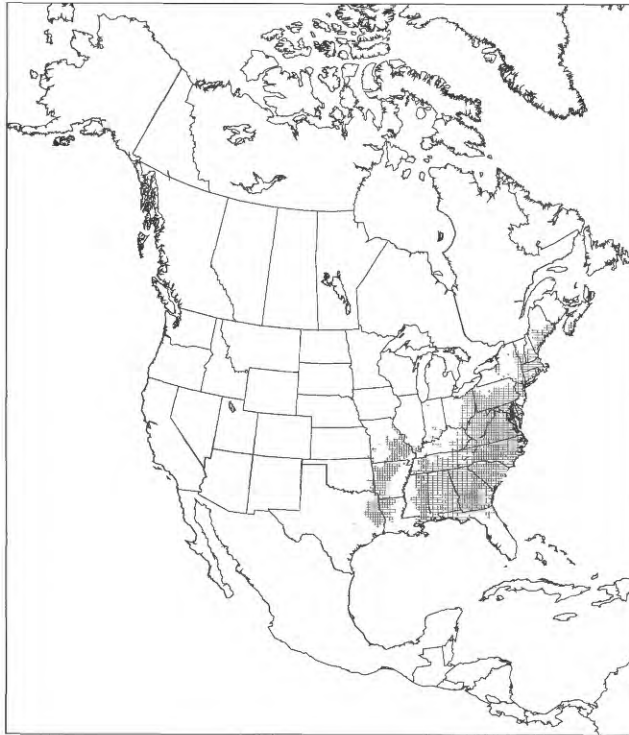
Alnus rubra



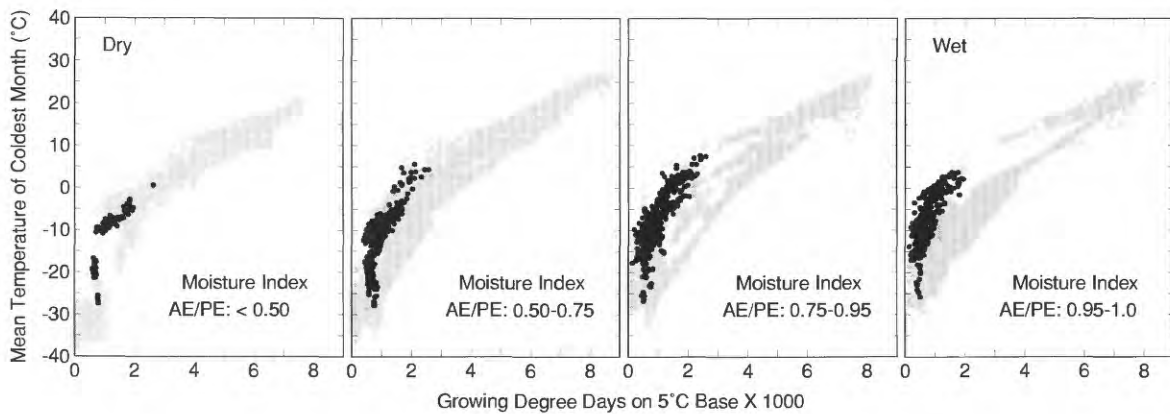
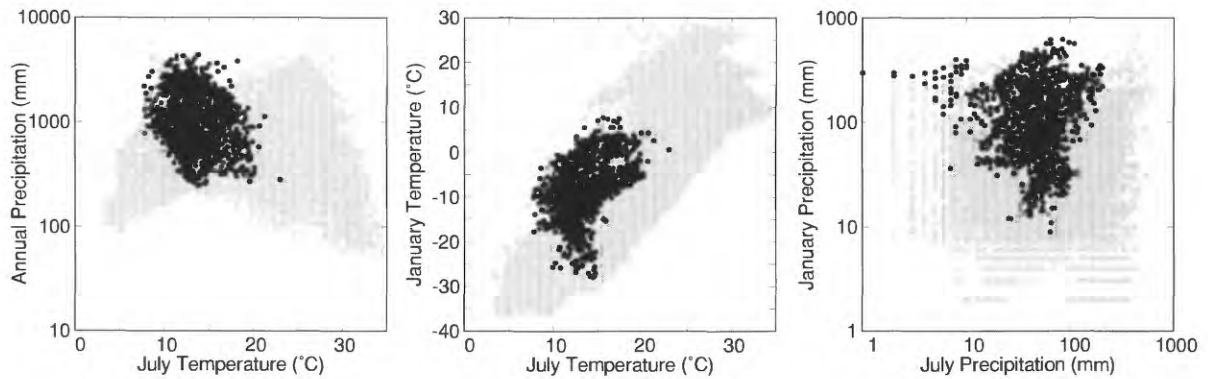
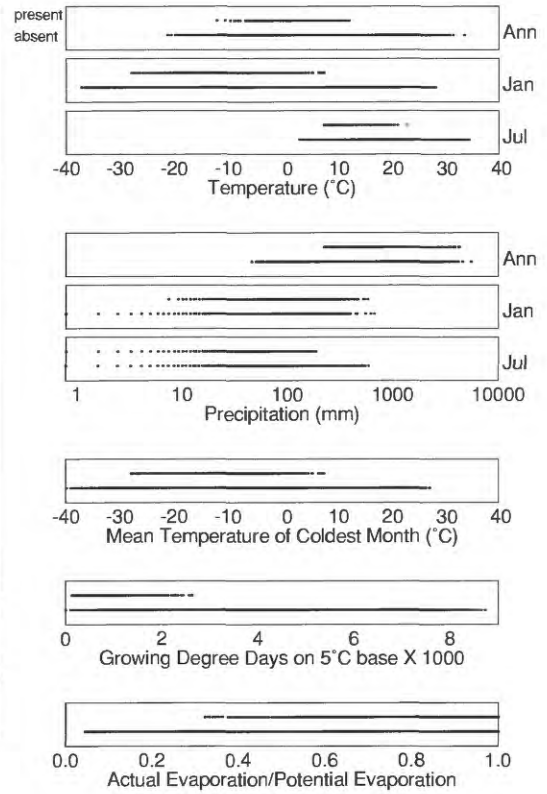
Alnus rugosa



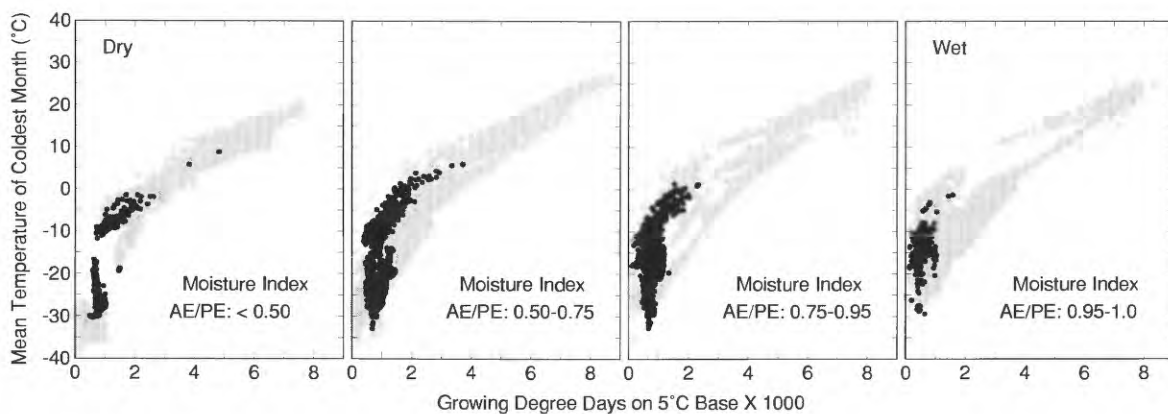
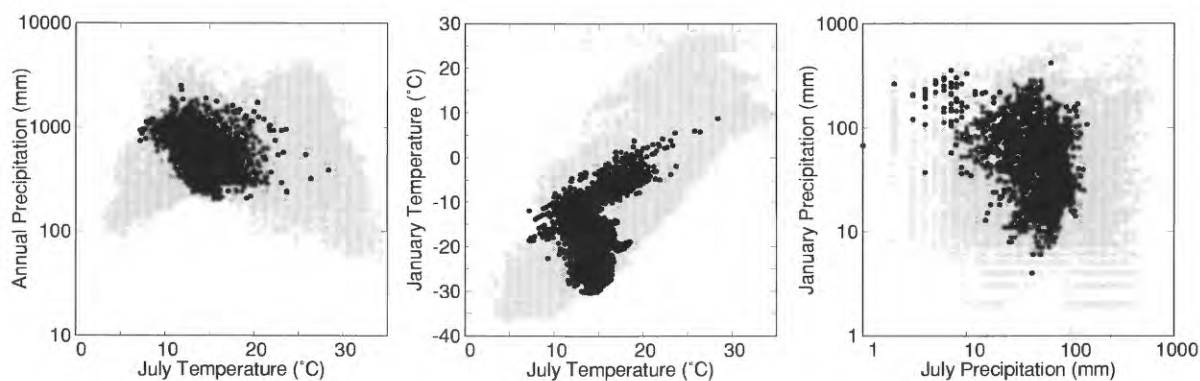
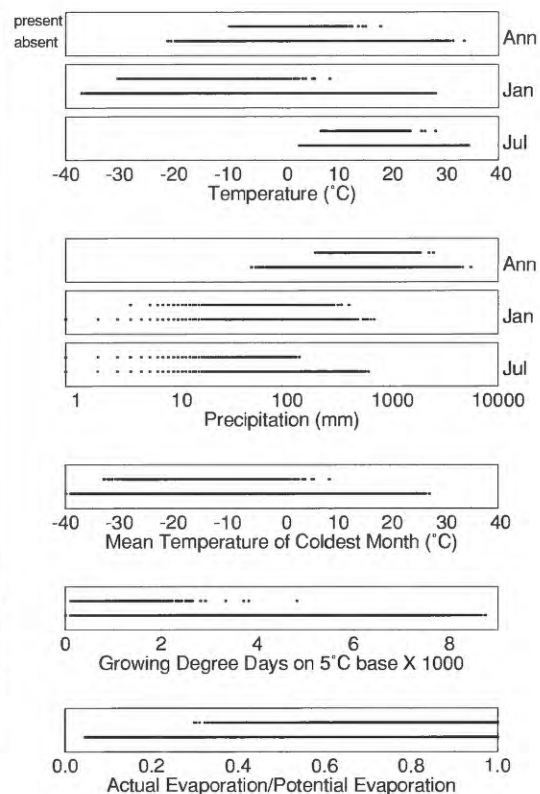
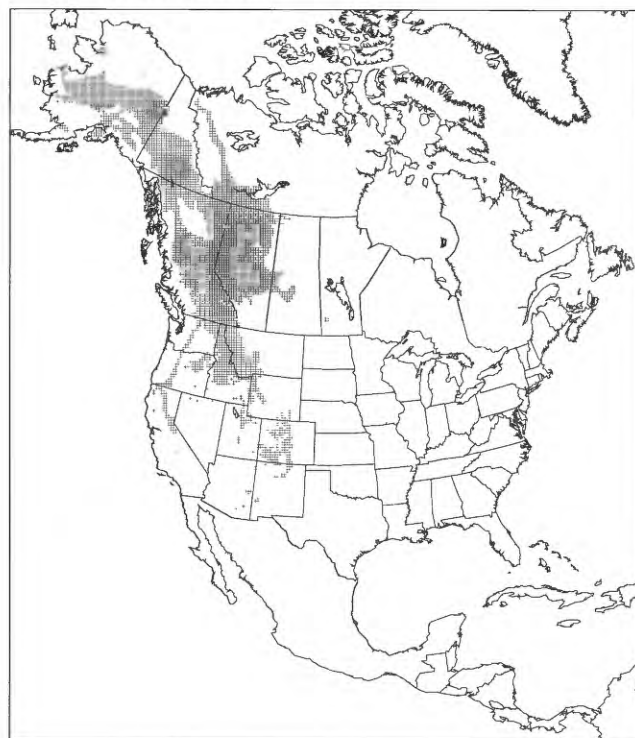
Alnus serrulata



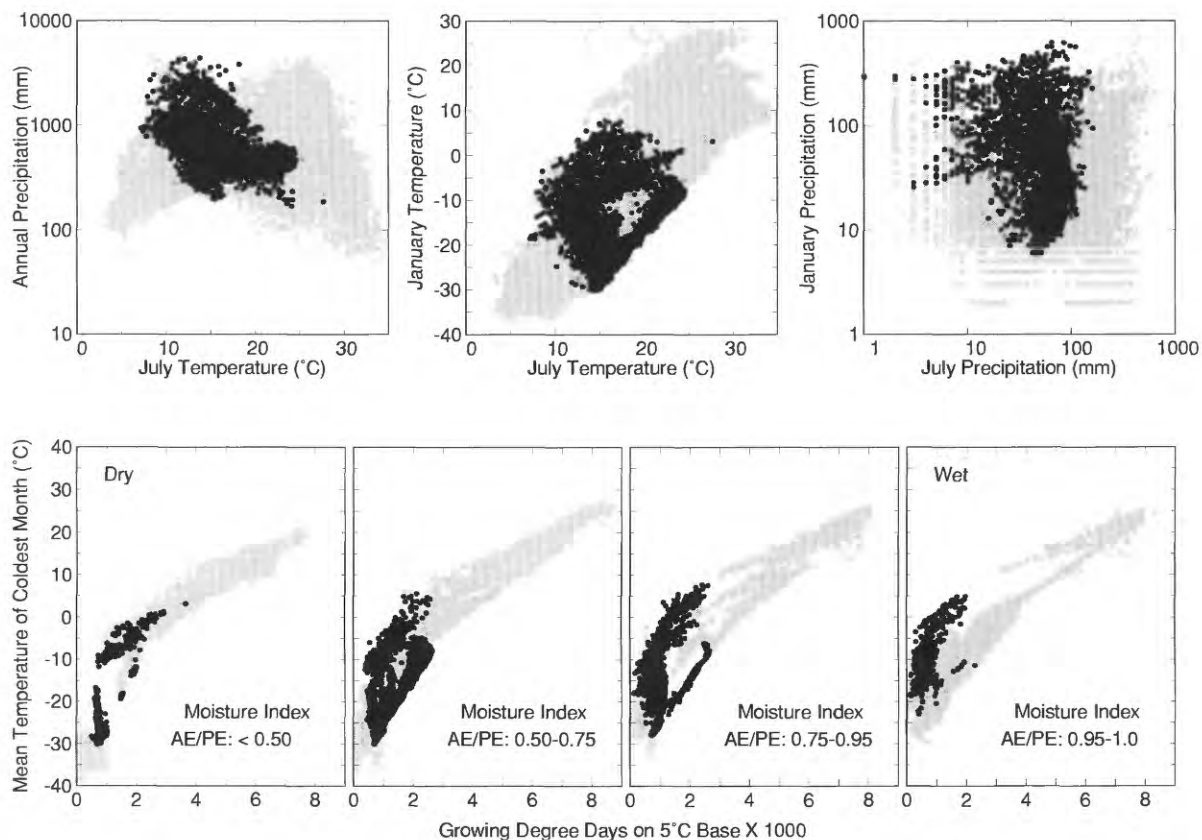
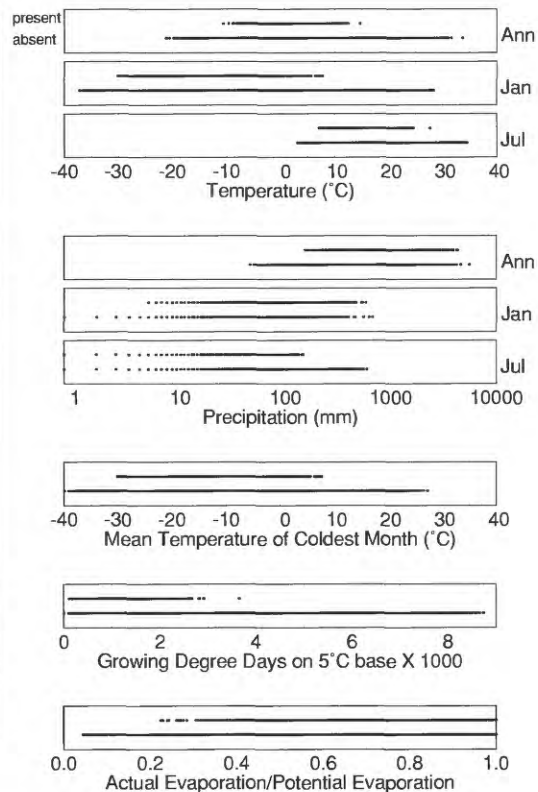
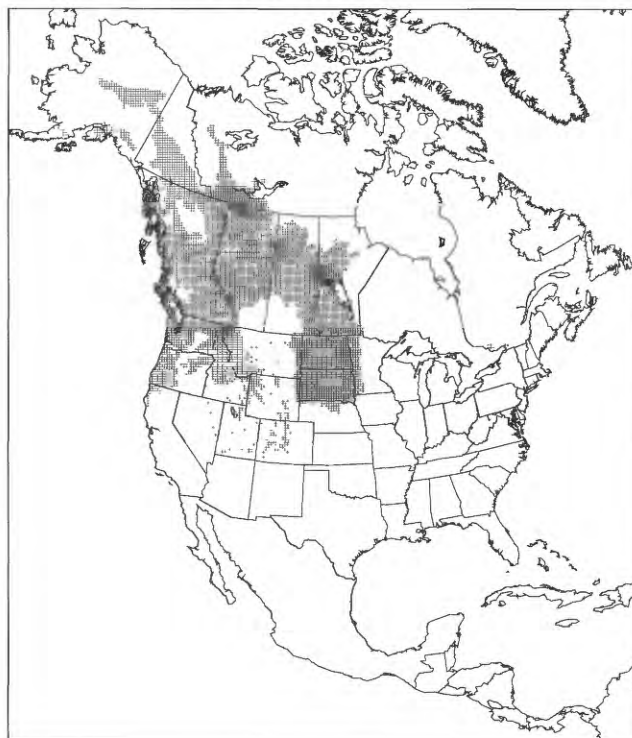
Alnus sinuata



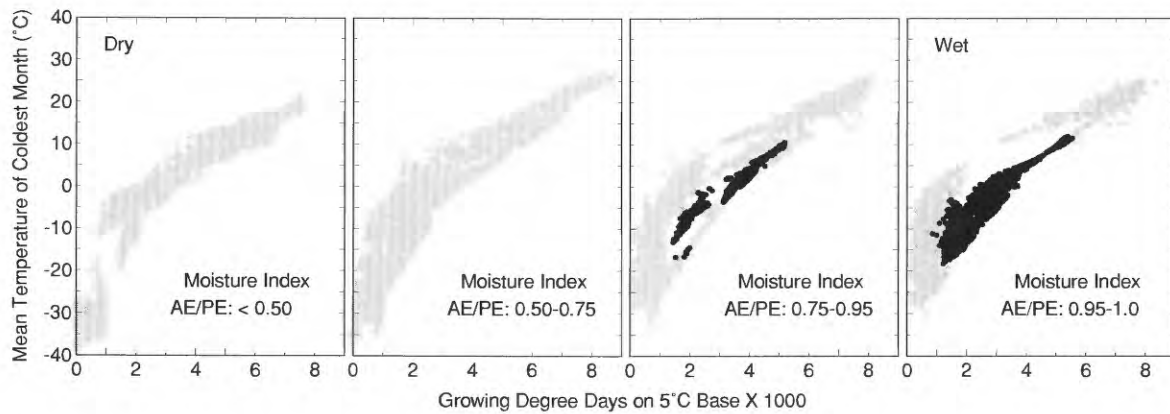
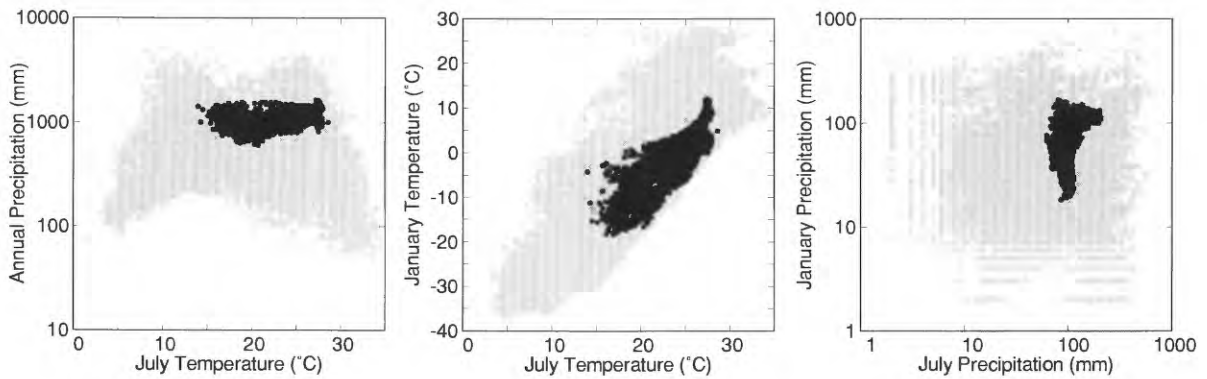
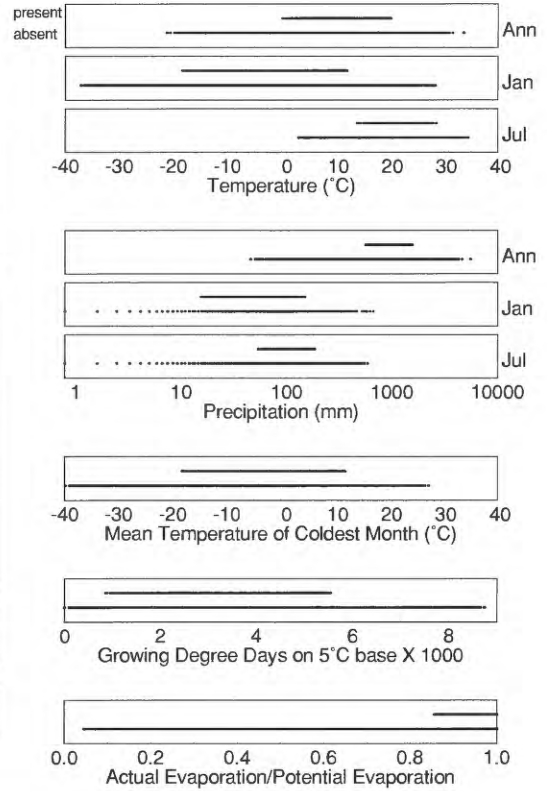
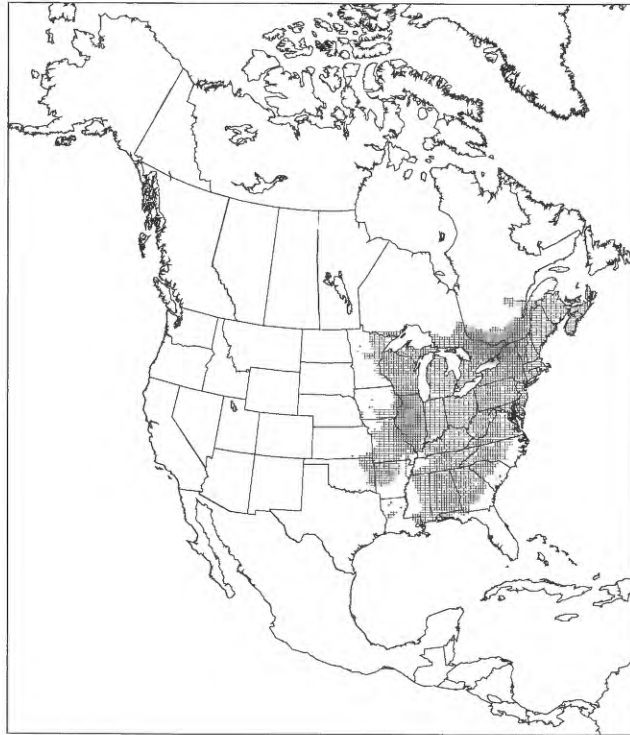
Alnus tenuifolia



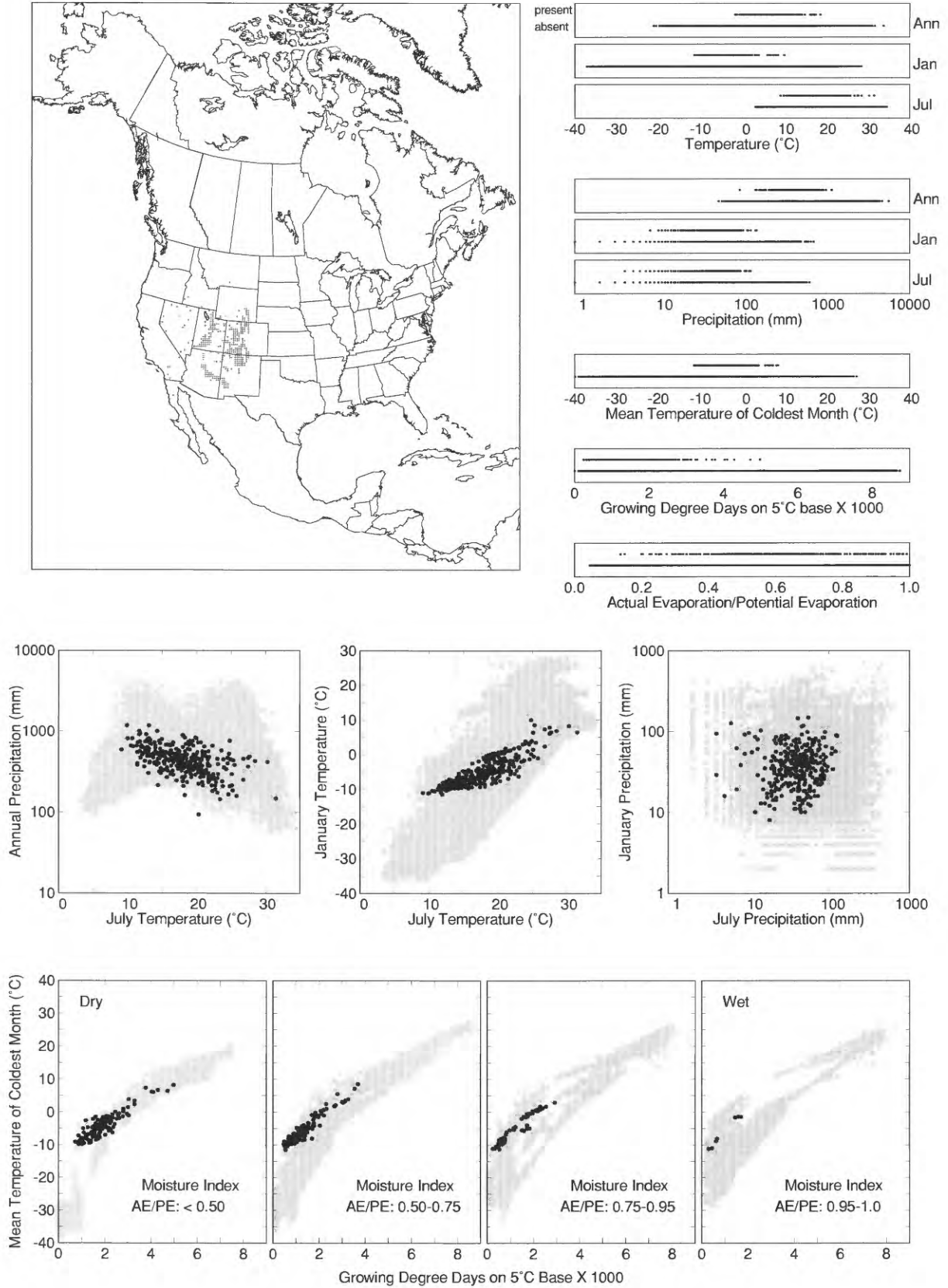
Amelanchier alnifolia



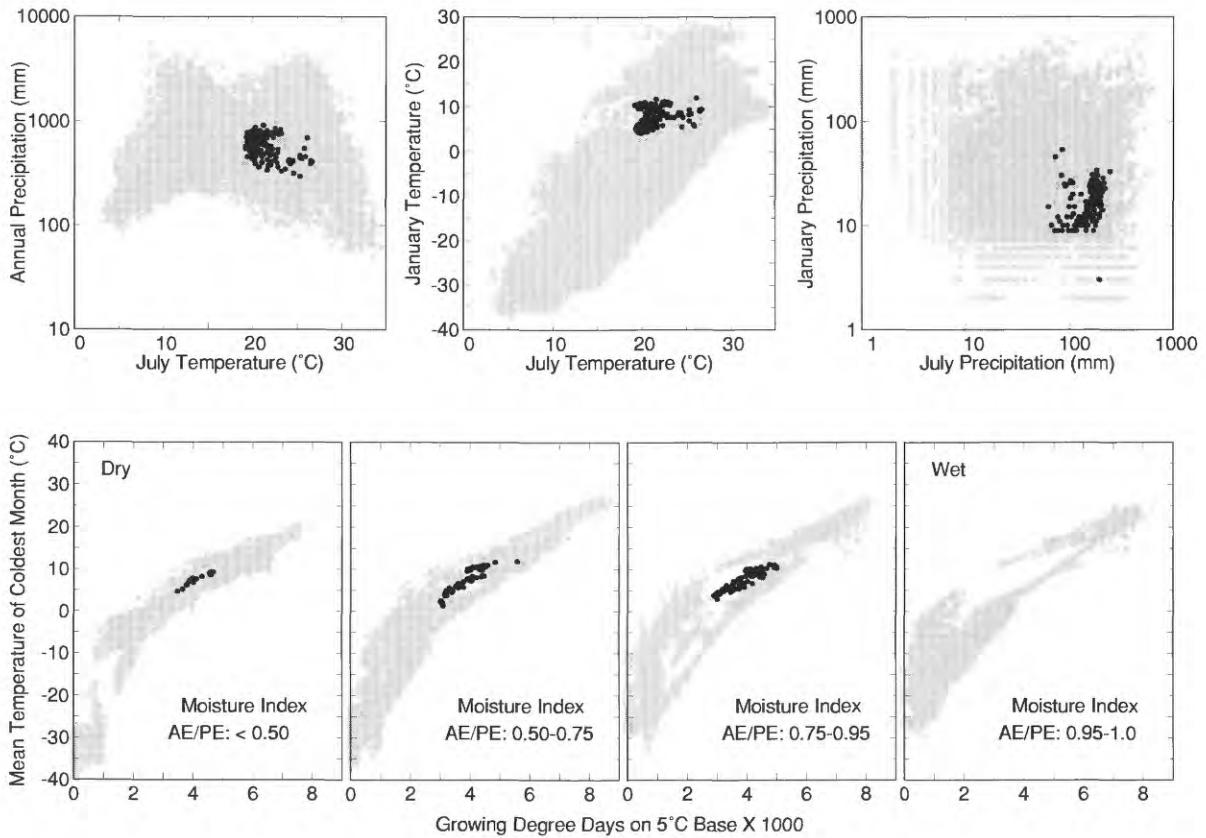
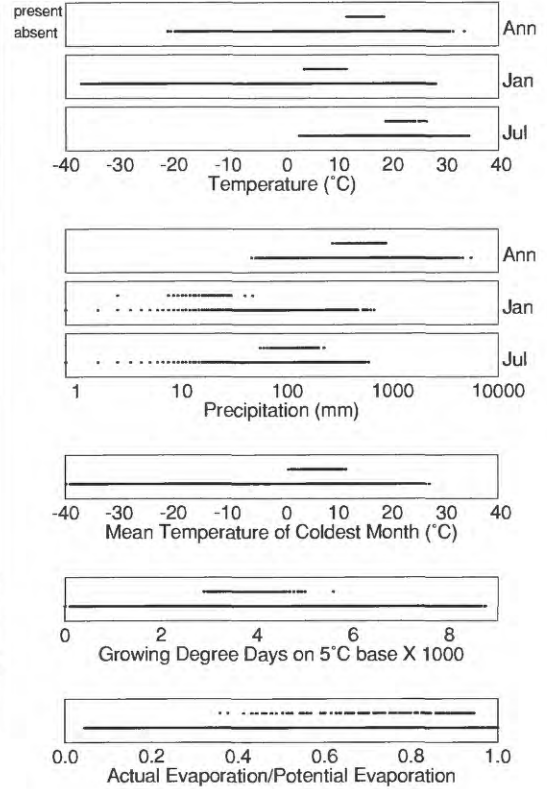
Amelanchier arborea



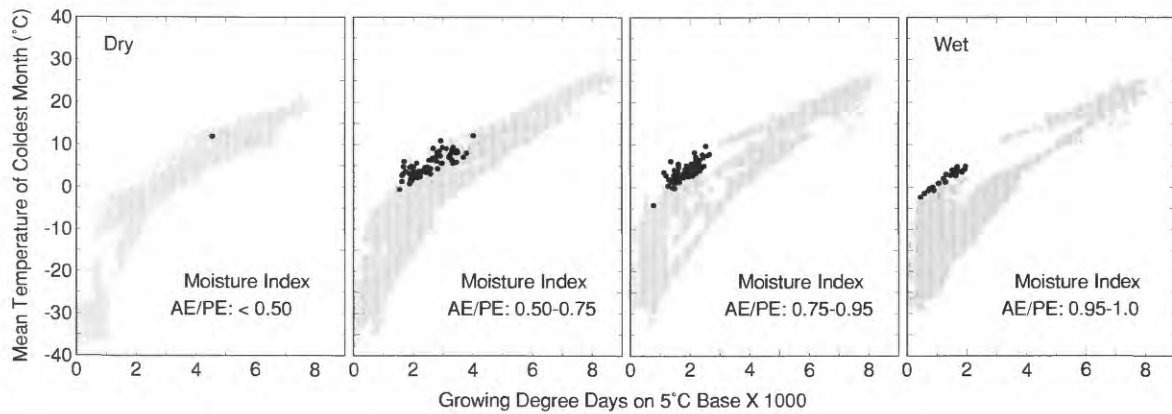
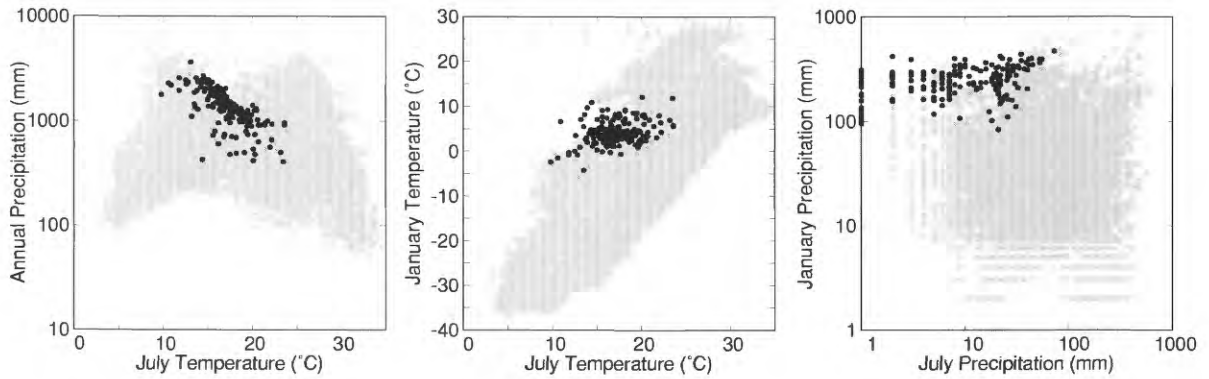
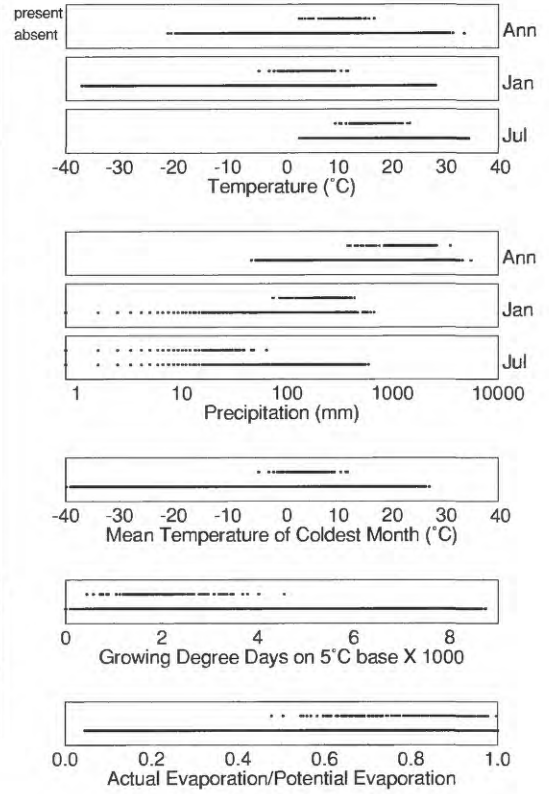
Amelanchier utahensis



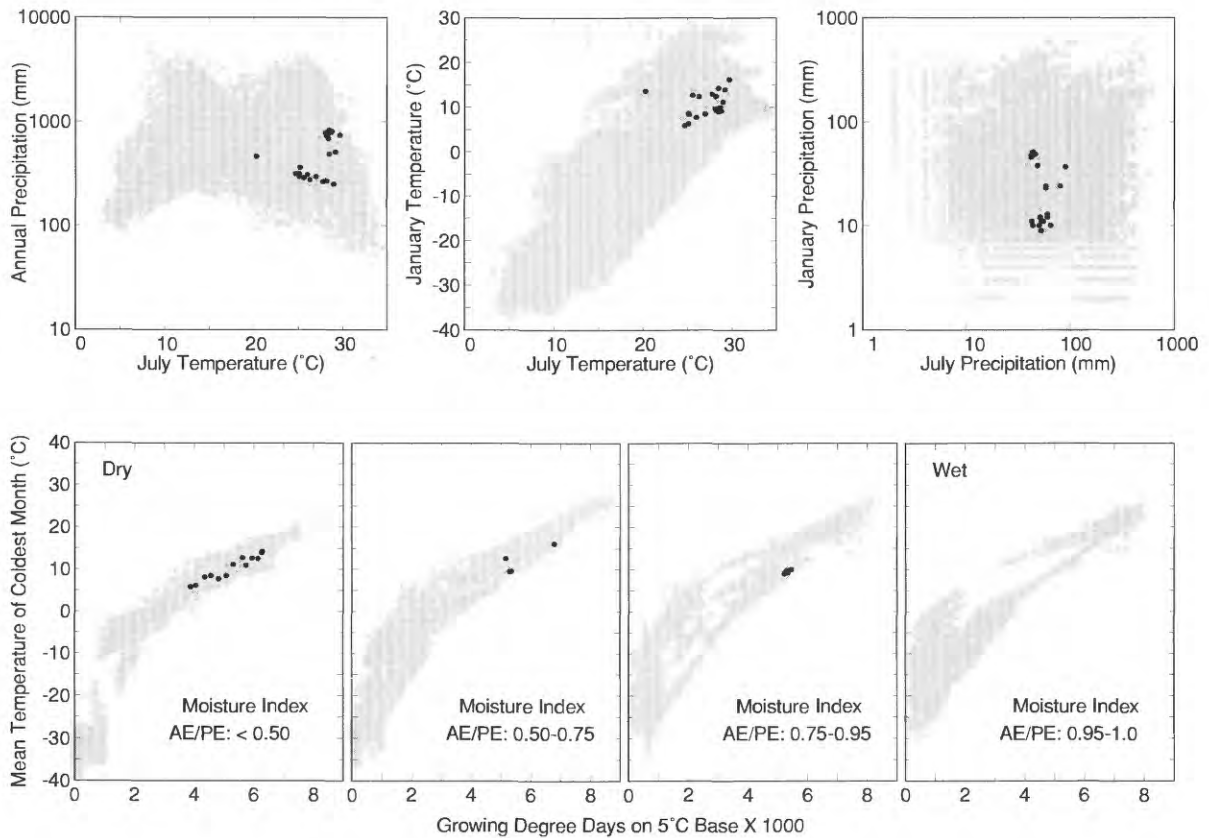
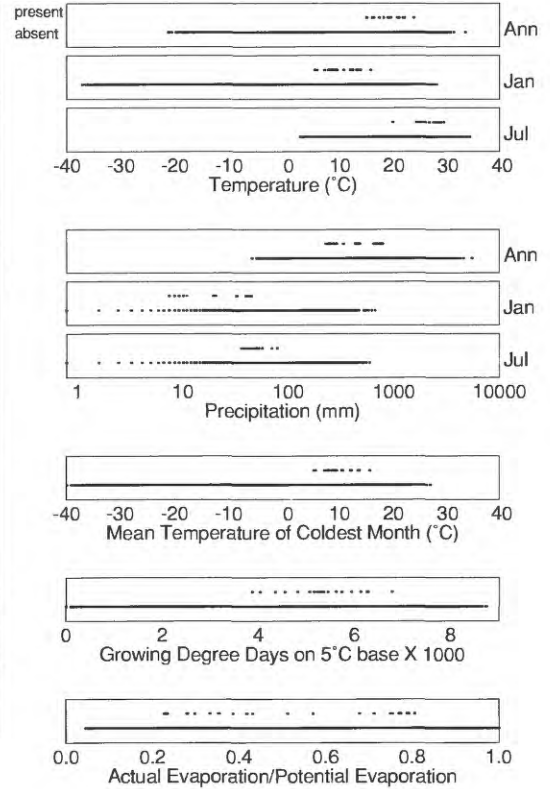
Arbutus arizonica



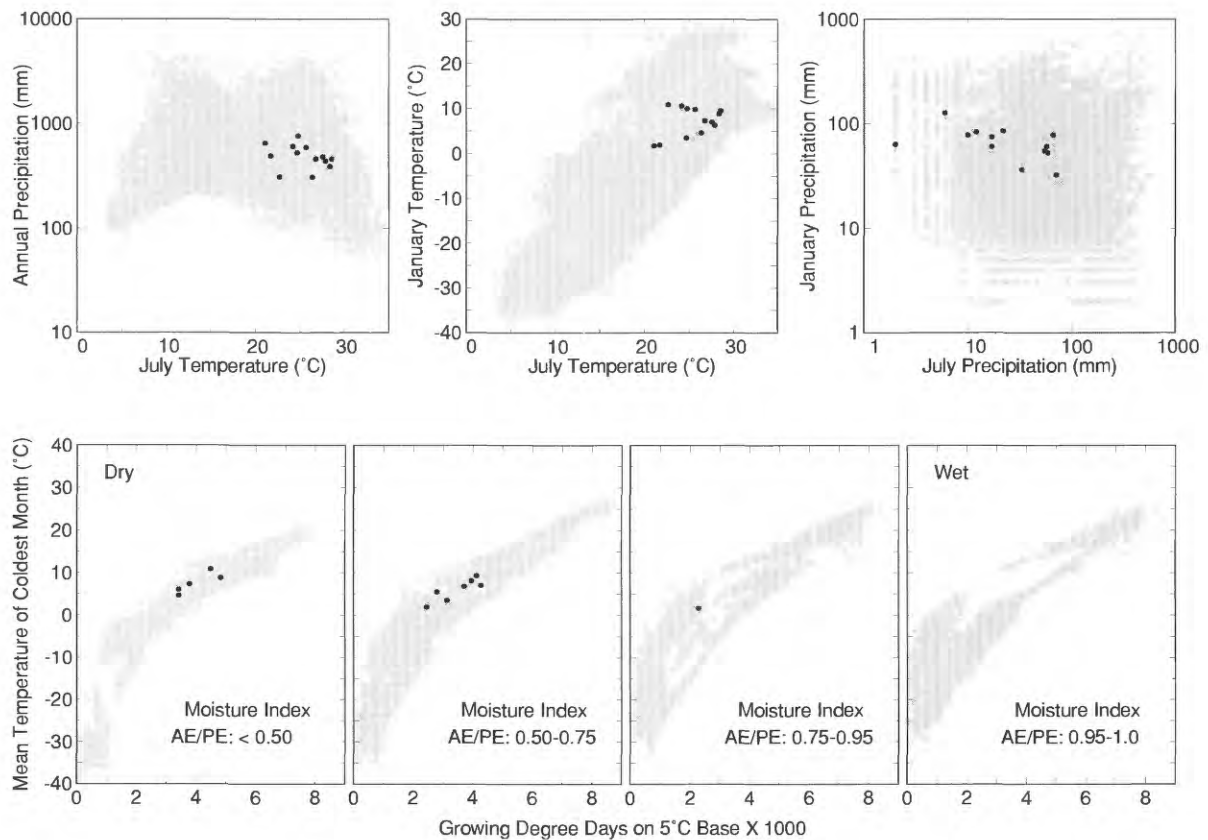
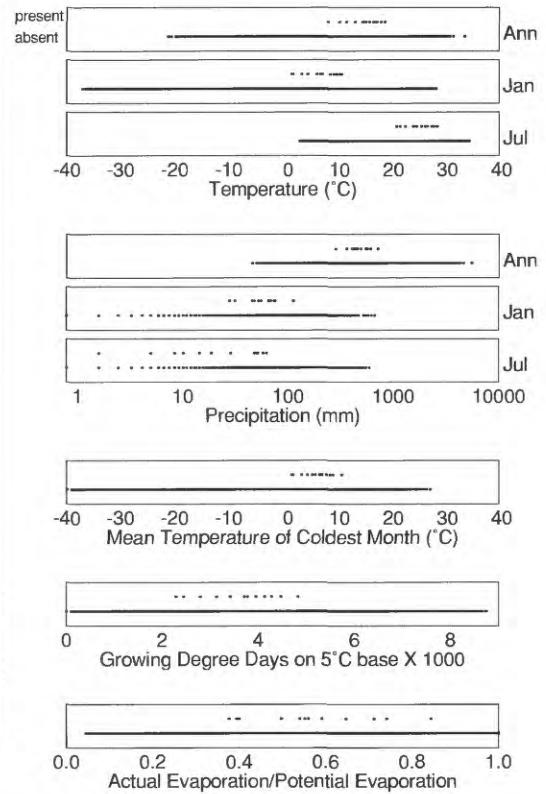
Arbutus menziesii



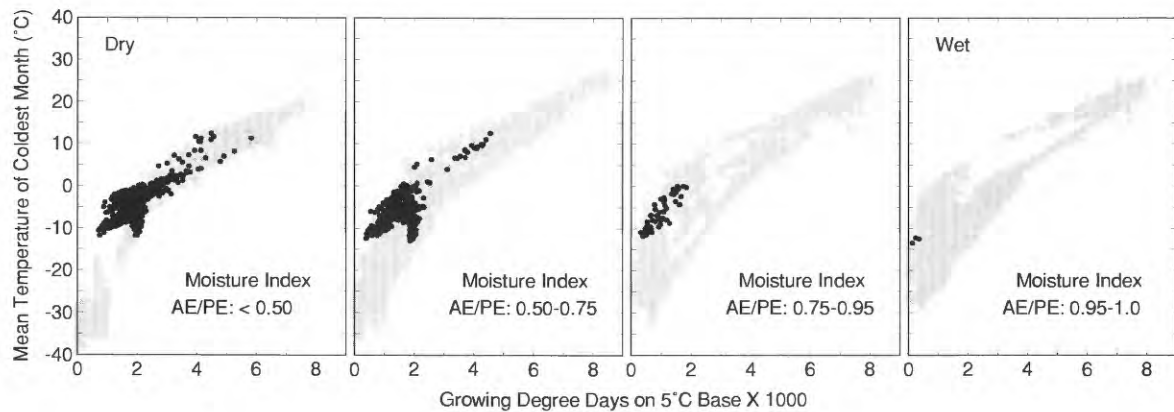
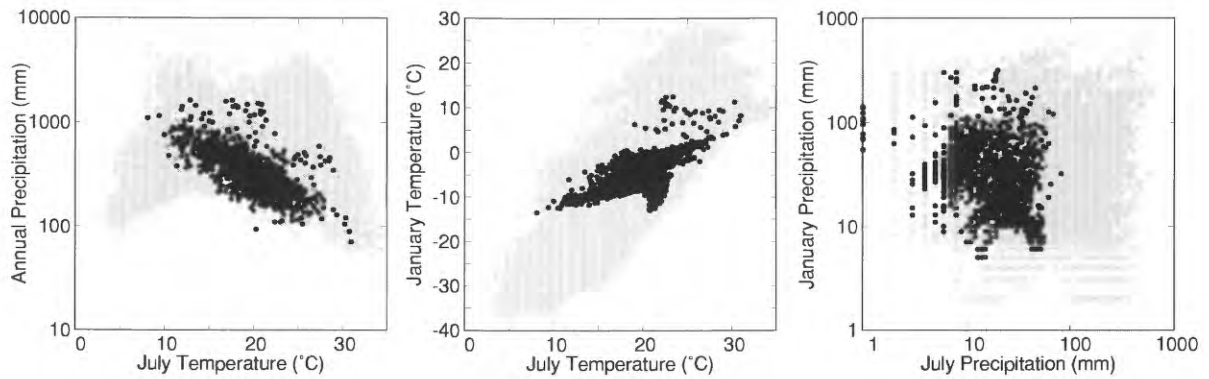
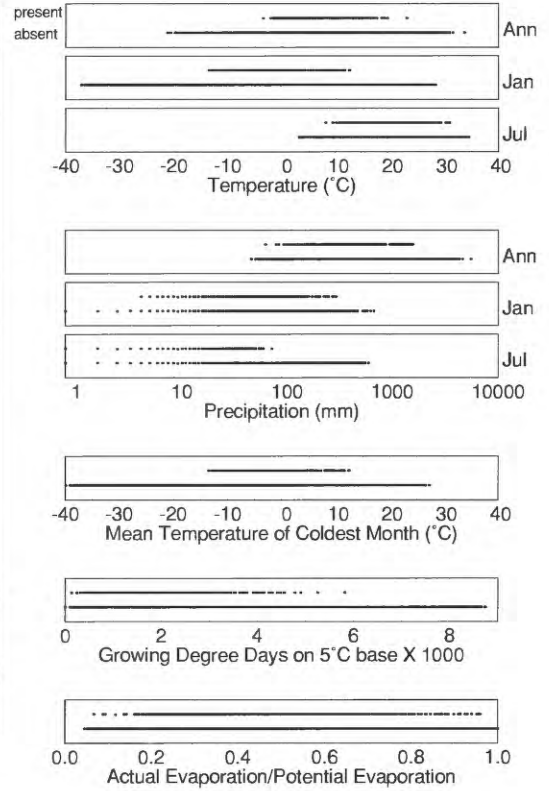
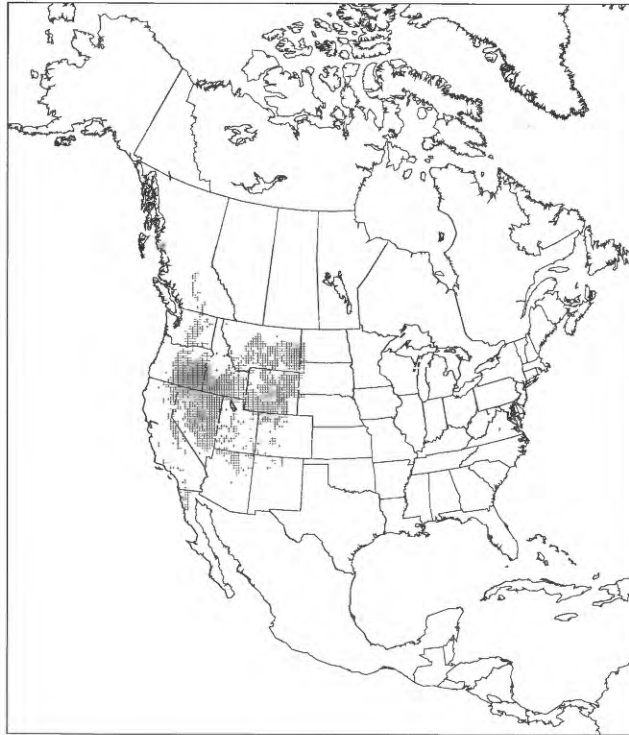
Arbutus texana



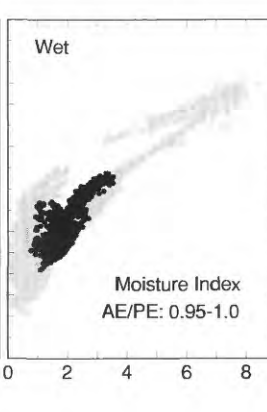
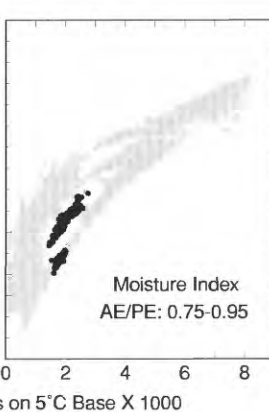
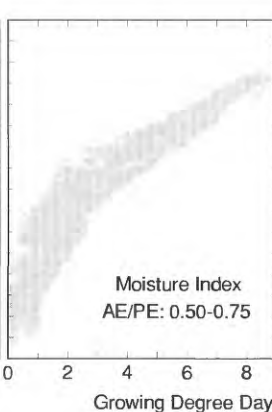
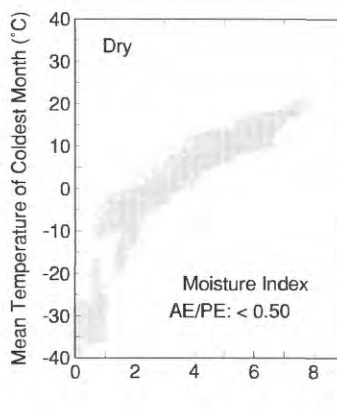
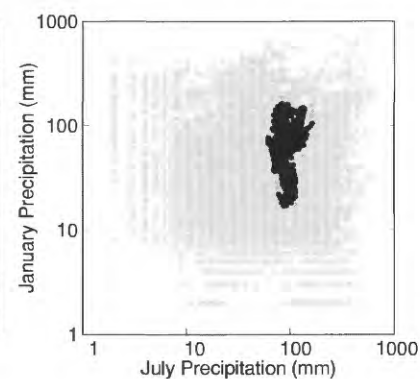
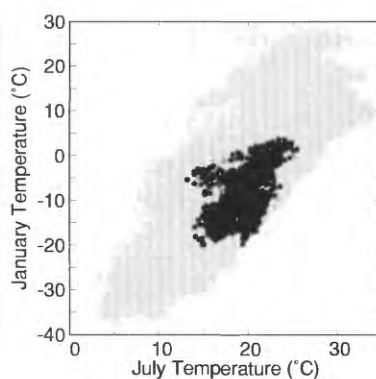
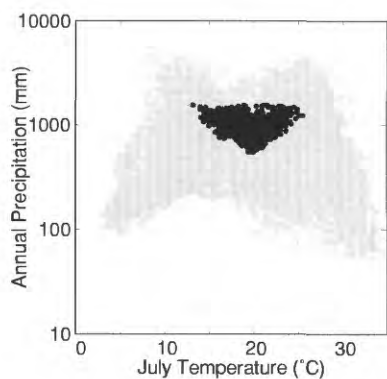
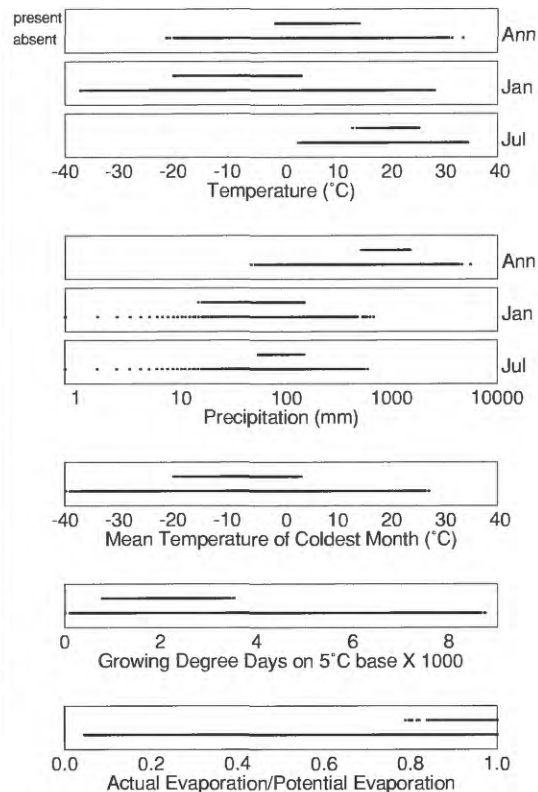
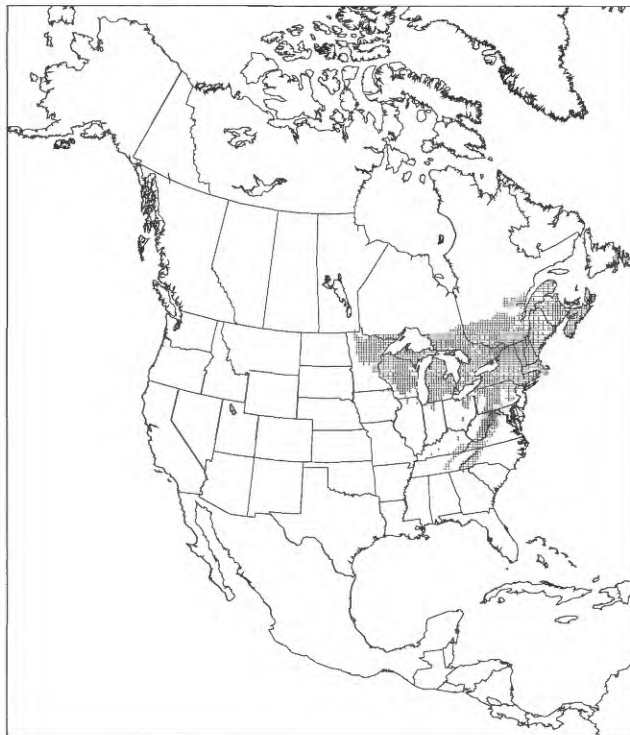
Arctostaphylos pringlei



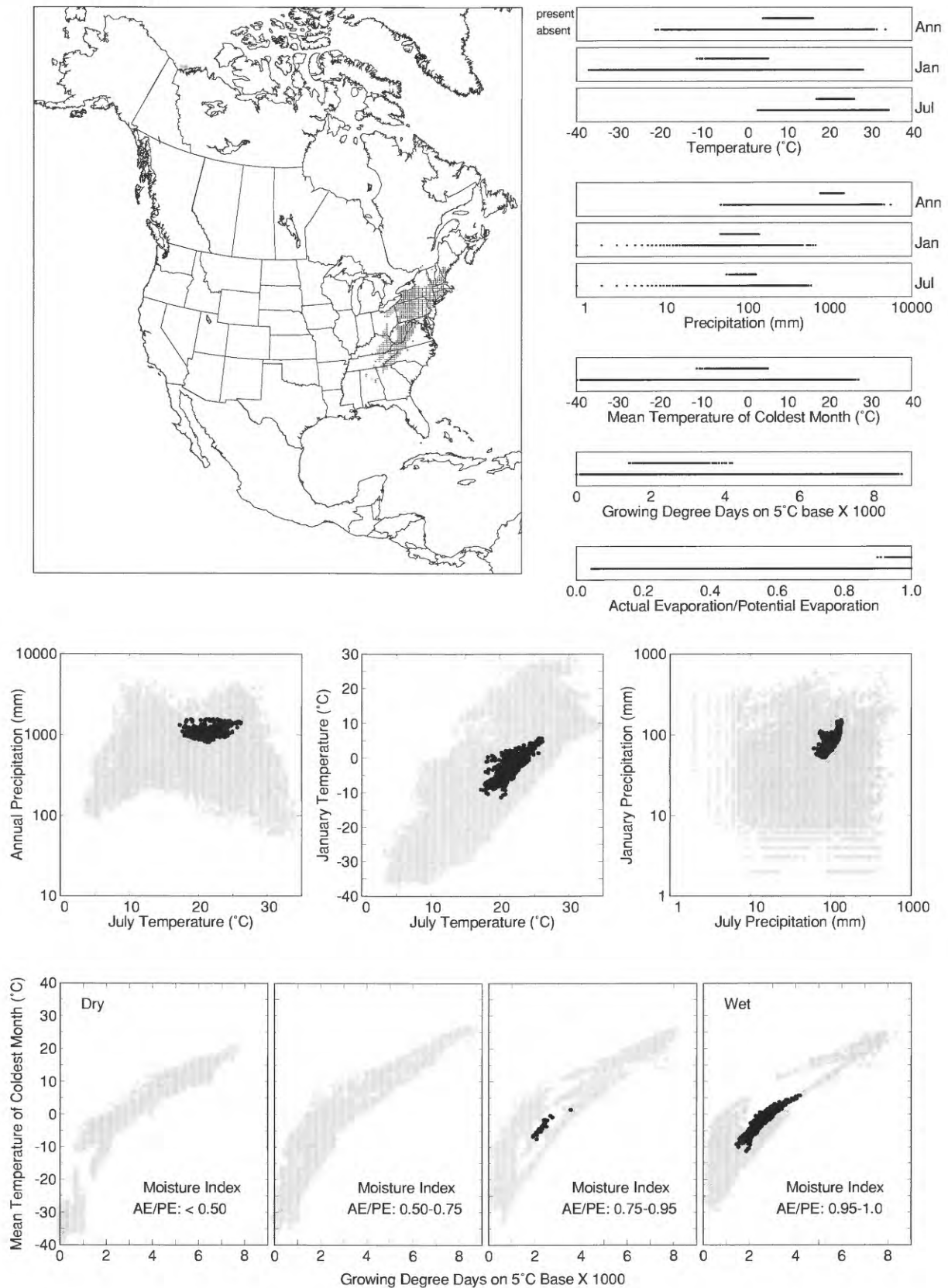
Artemisia tridentata



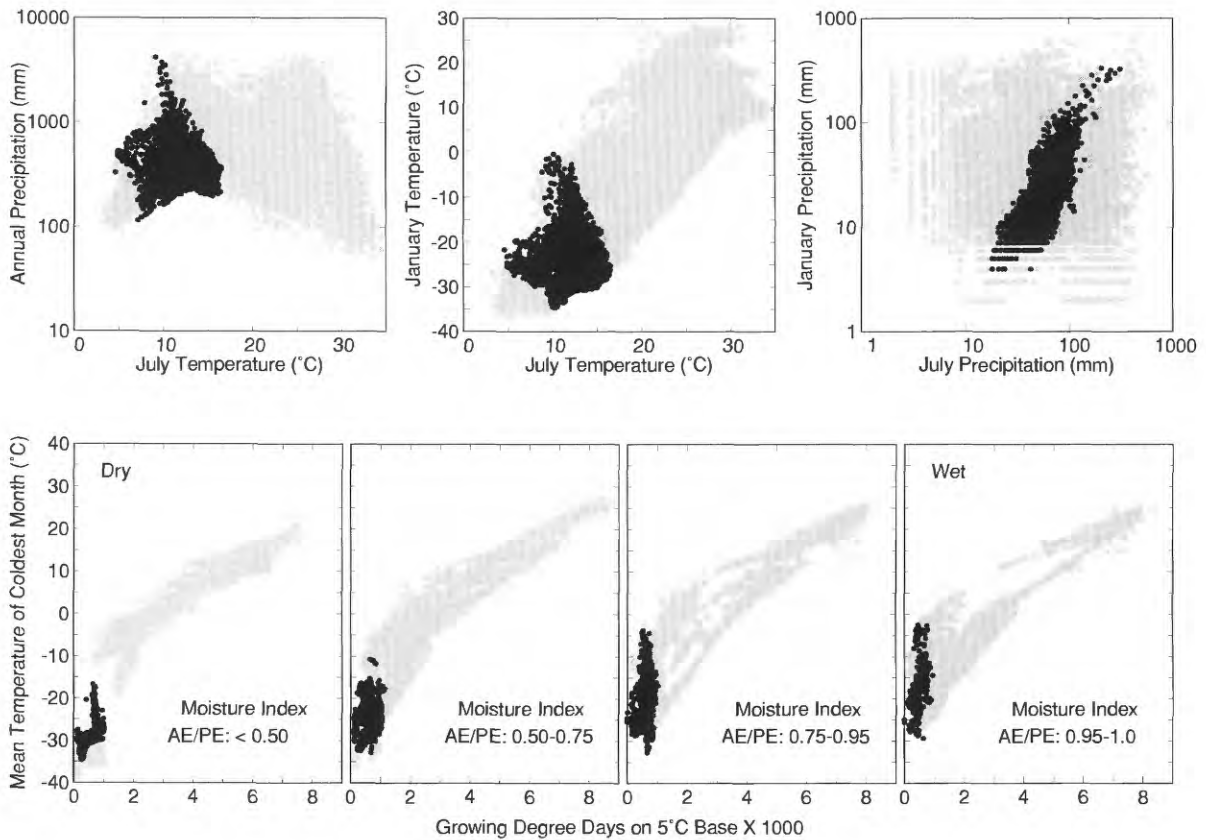
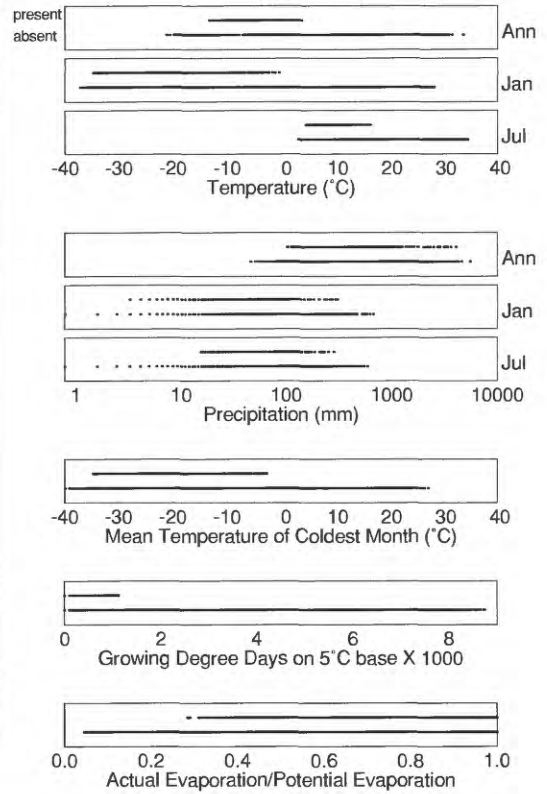
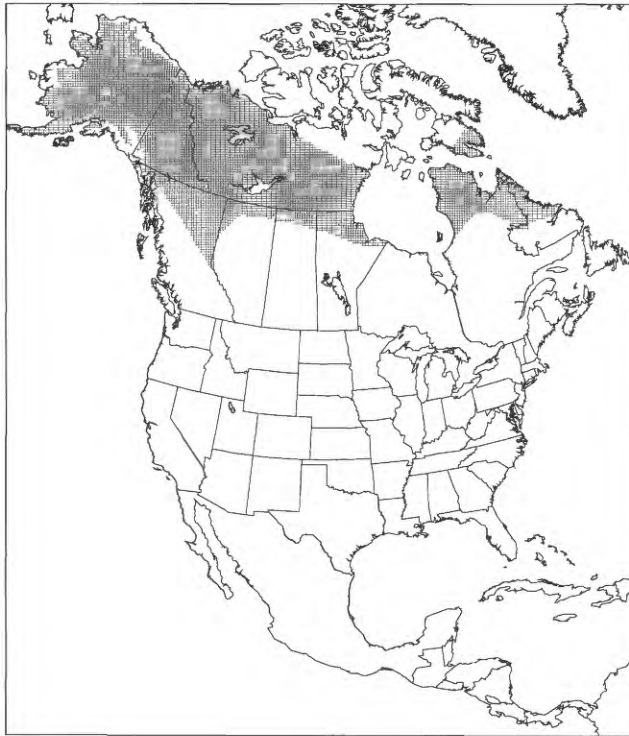
Betula alleghaniensis



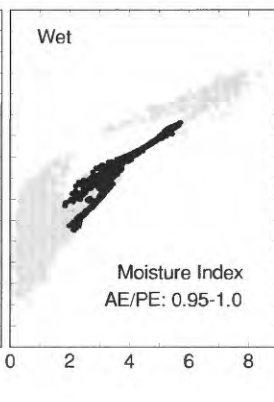
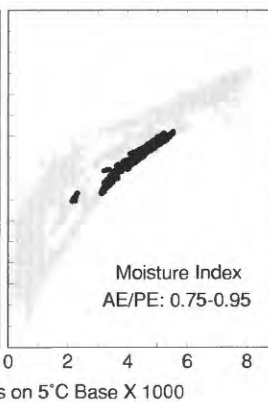
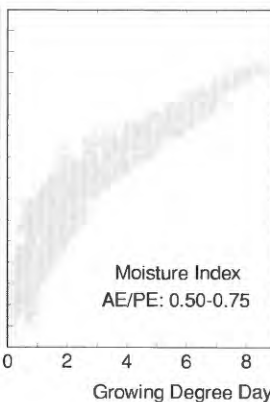
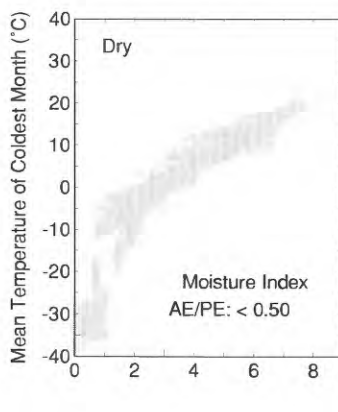
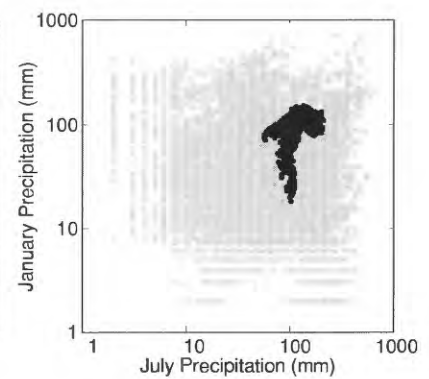
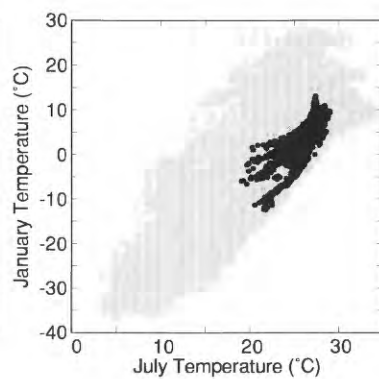
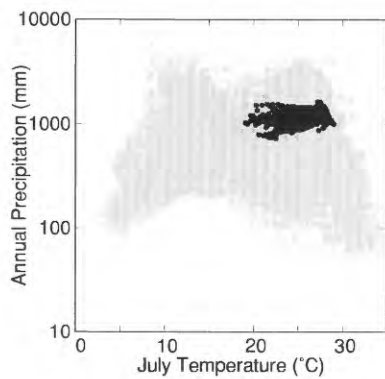
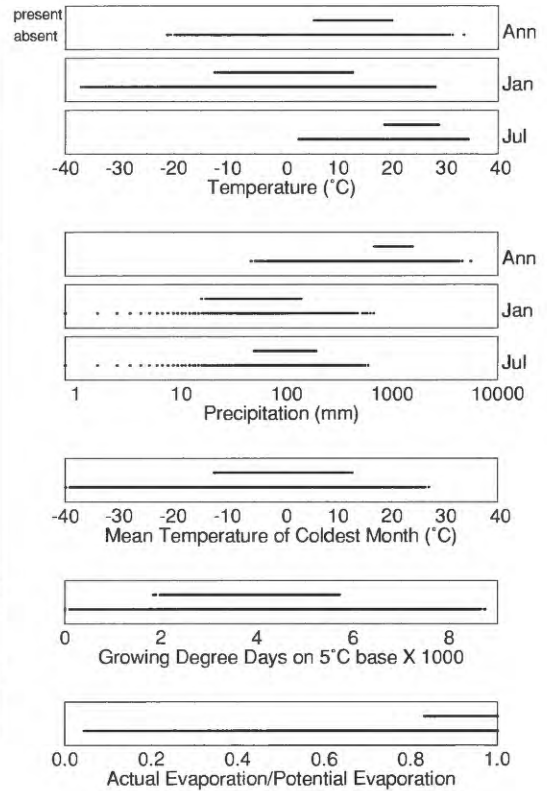
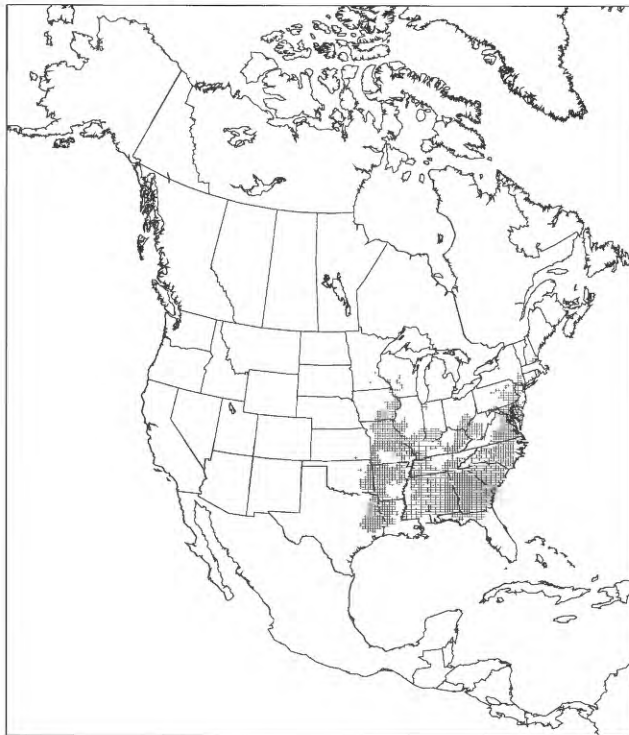
Betula lenta



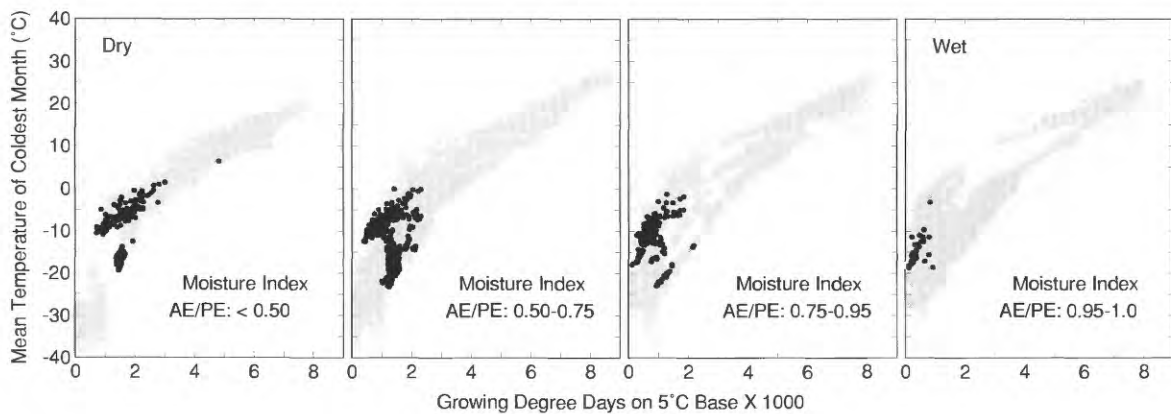
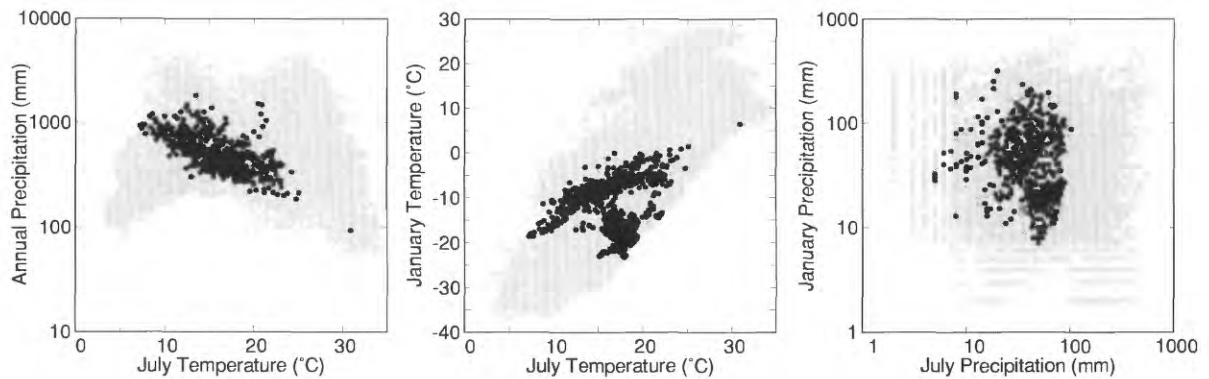
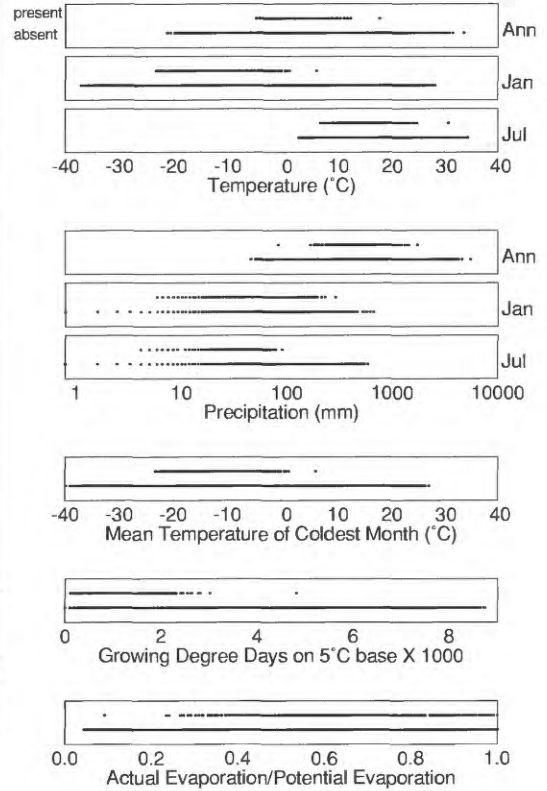
Betula nana



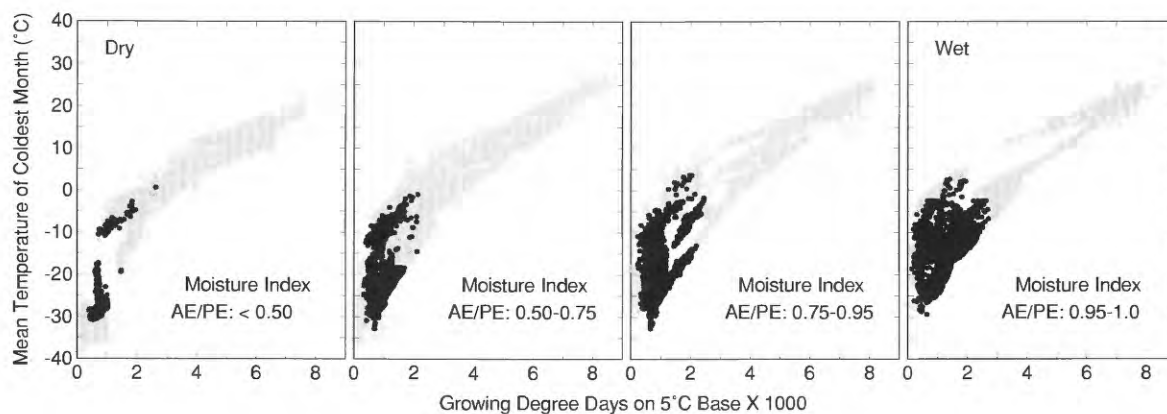
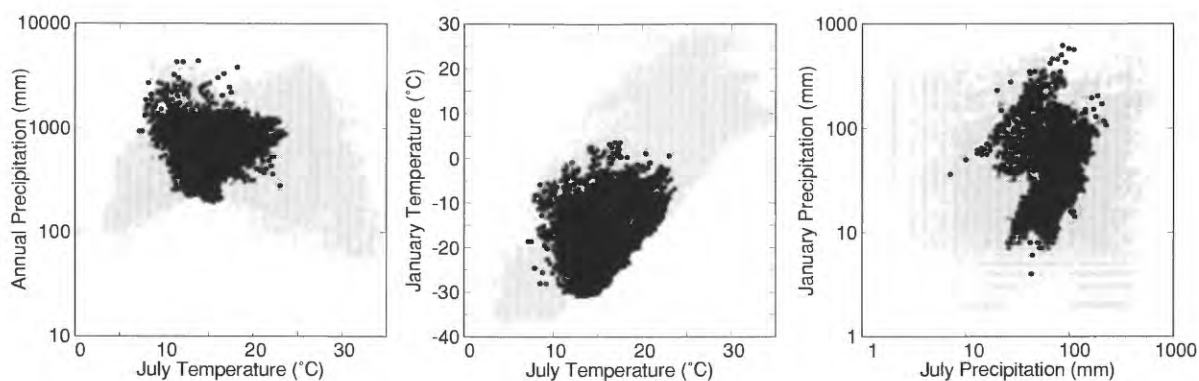
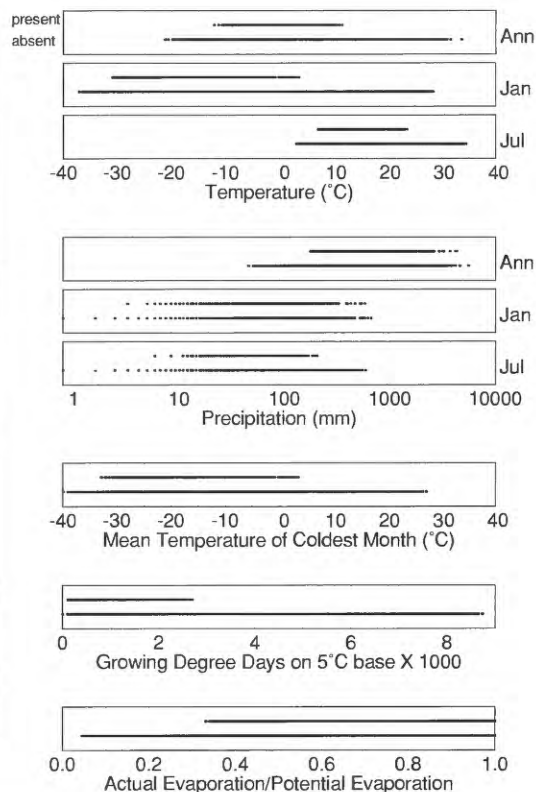
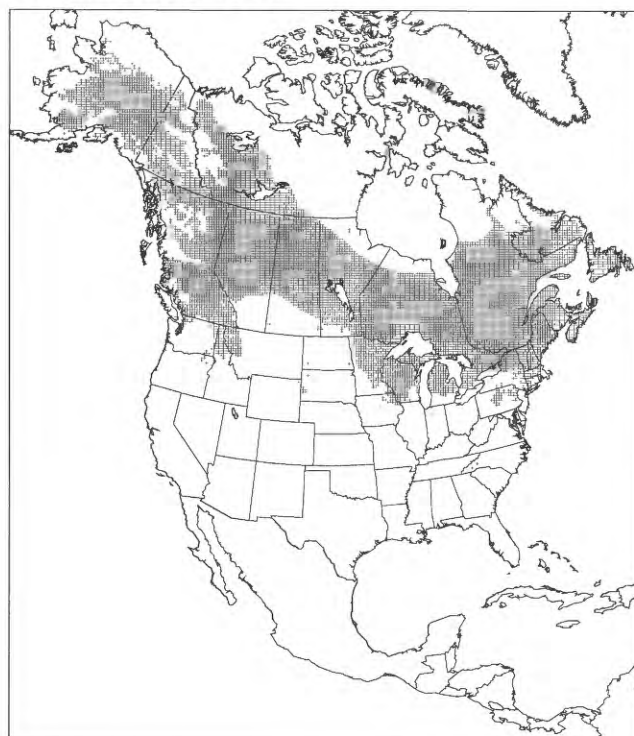
Betula nigra



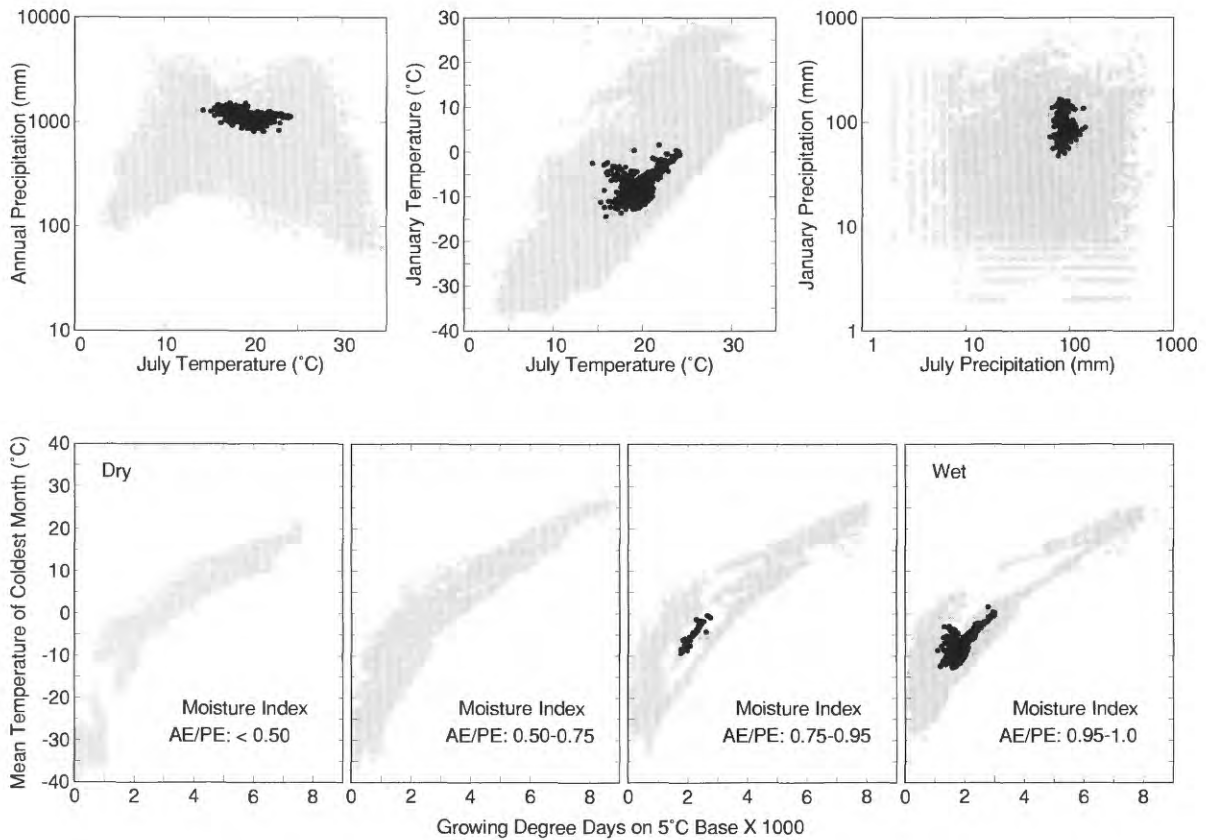
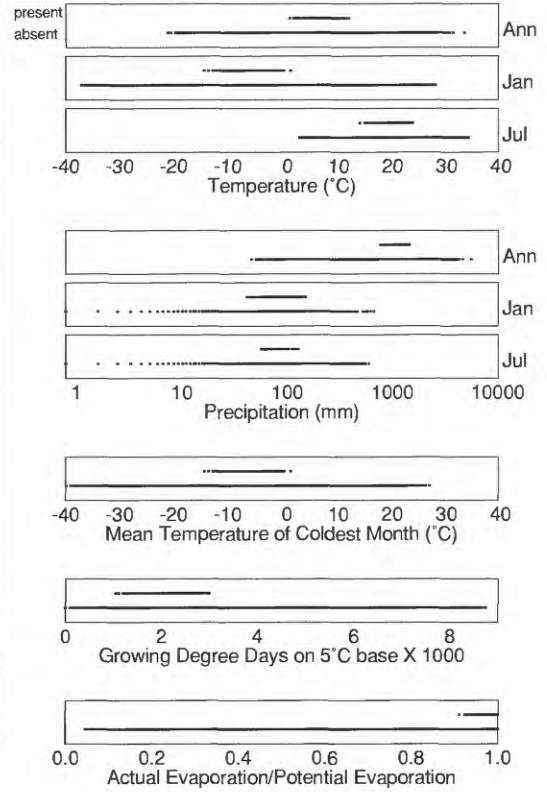
Betula occidentalis



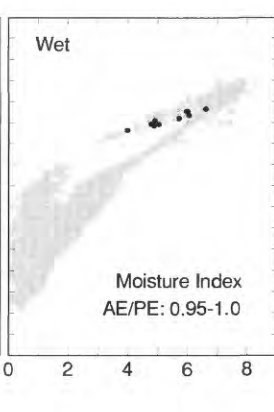
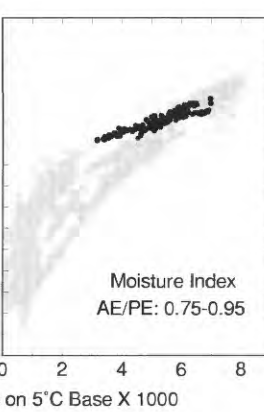
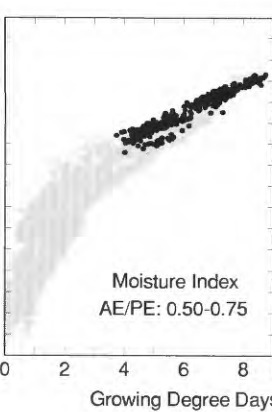
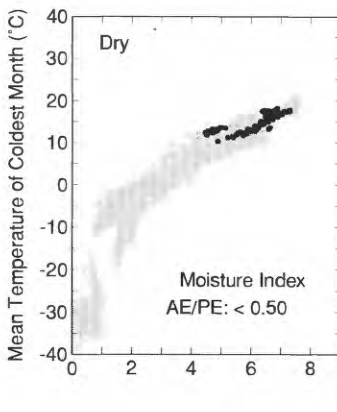
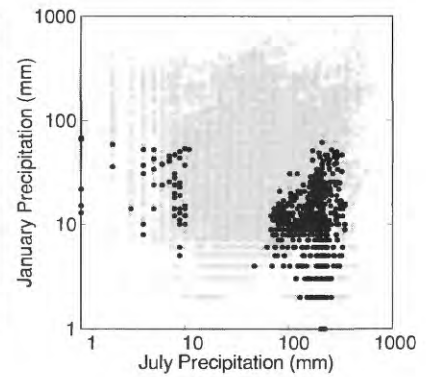
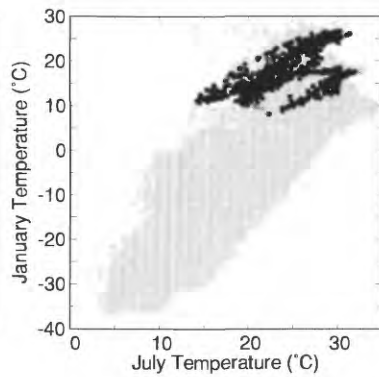
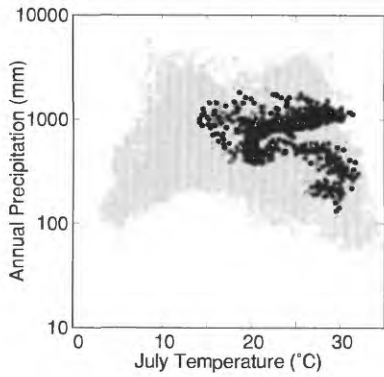
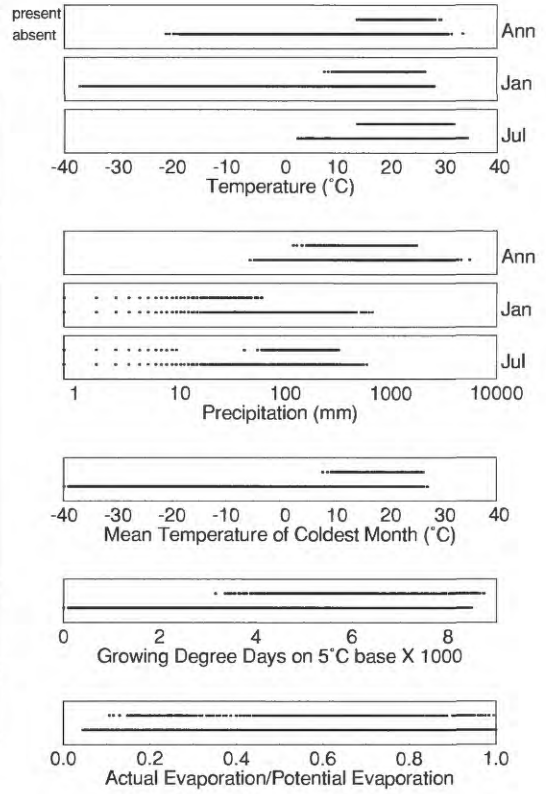
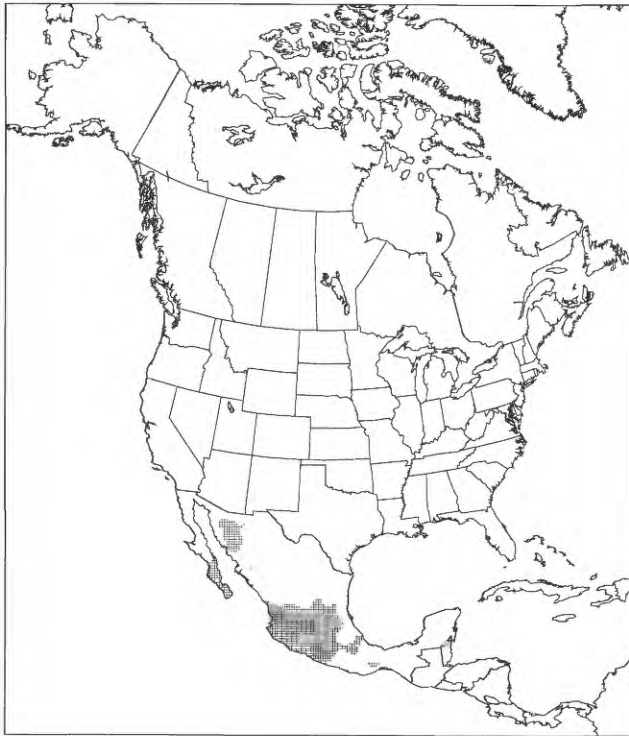
Betula papyrifera



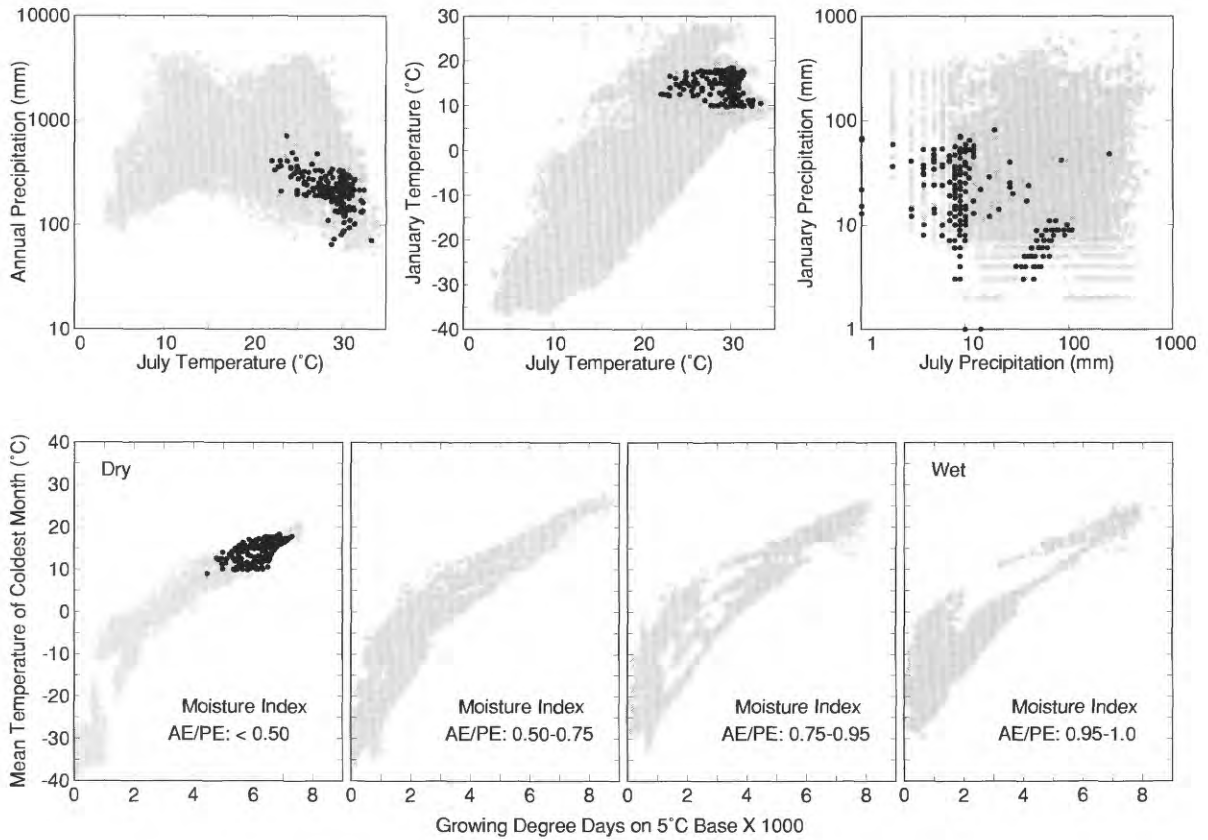
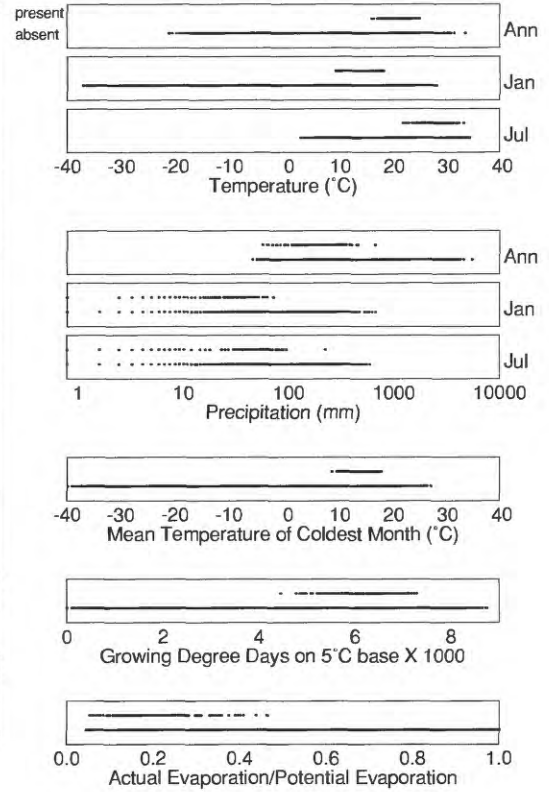
Betula populifolia



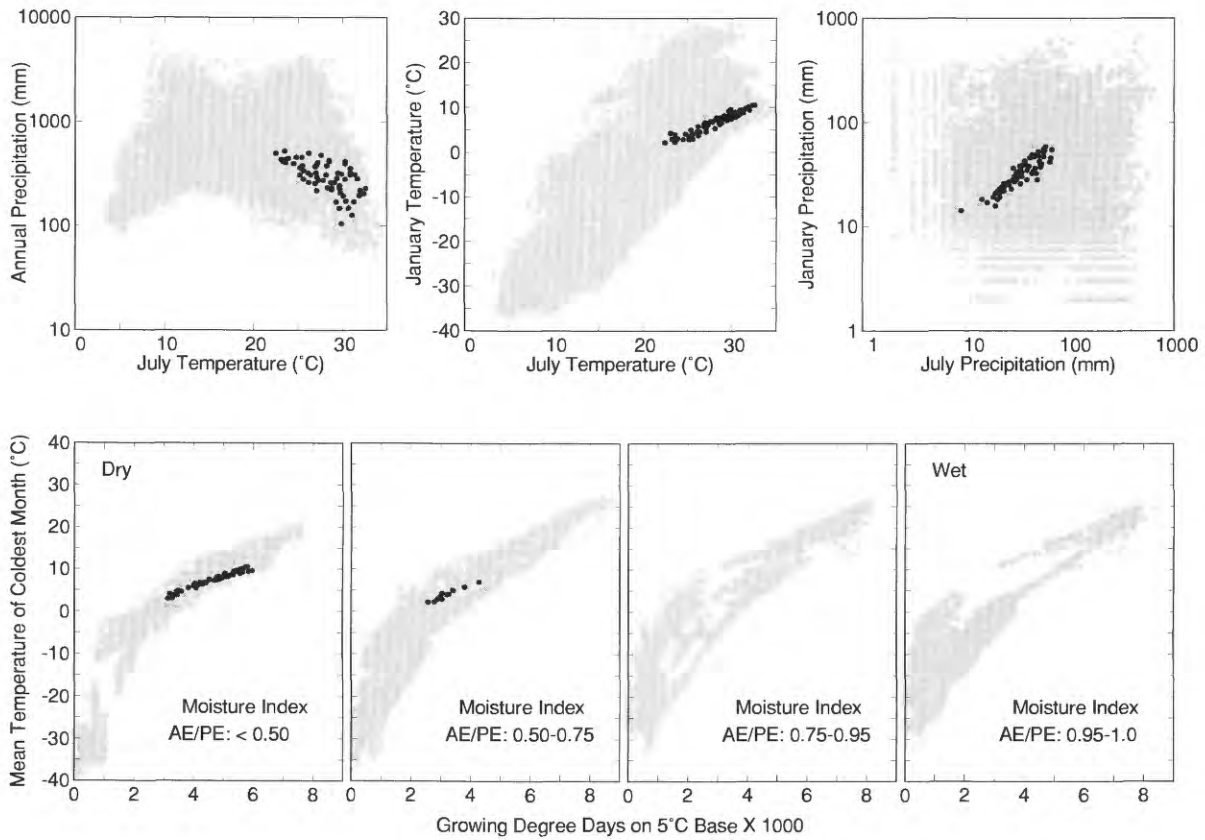
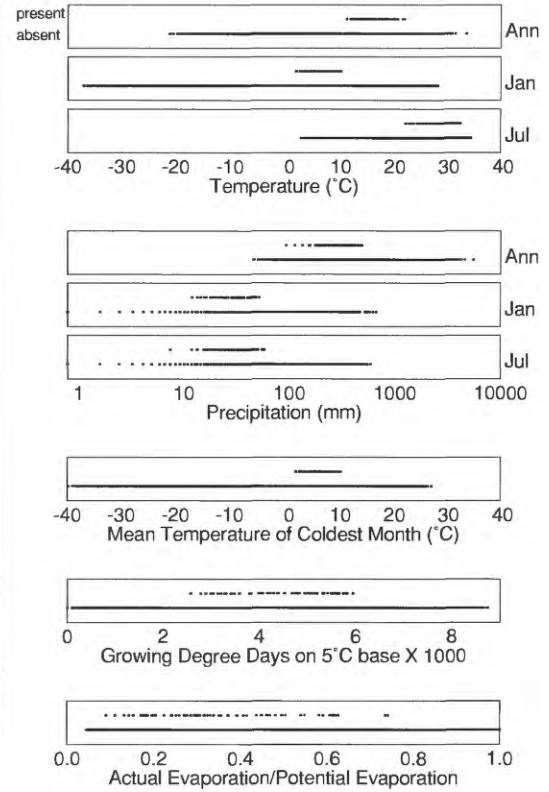
Bursera fagaroides



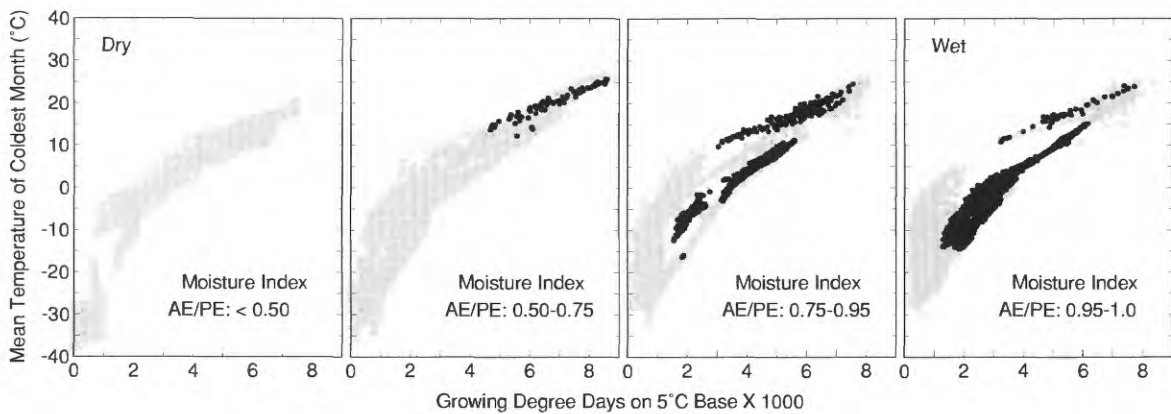
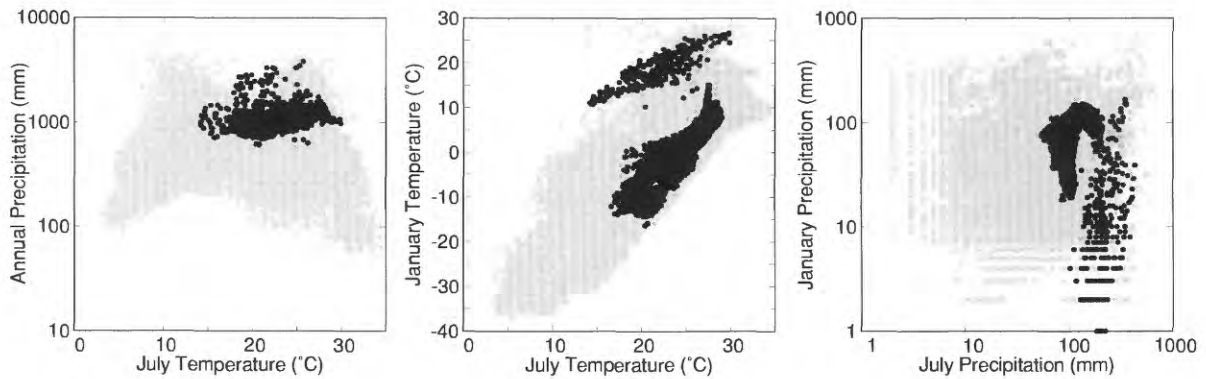
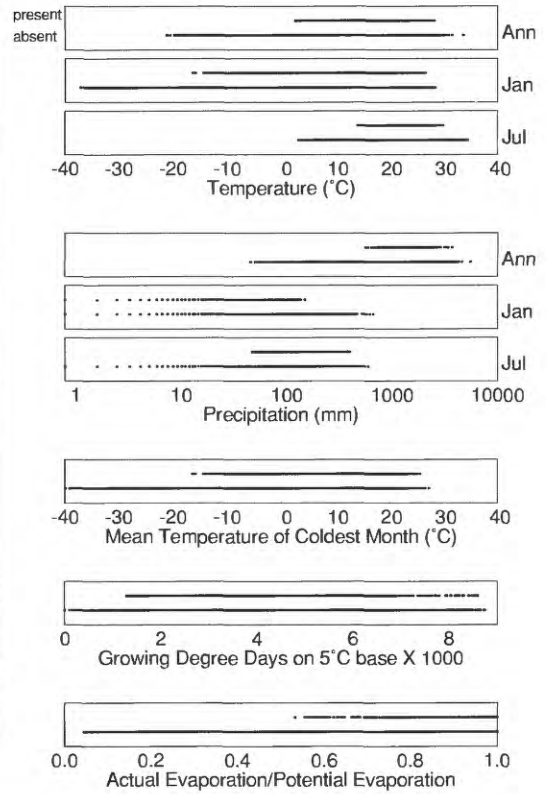
Bursera microphylla



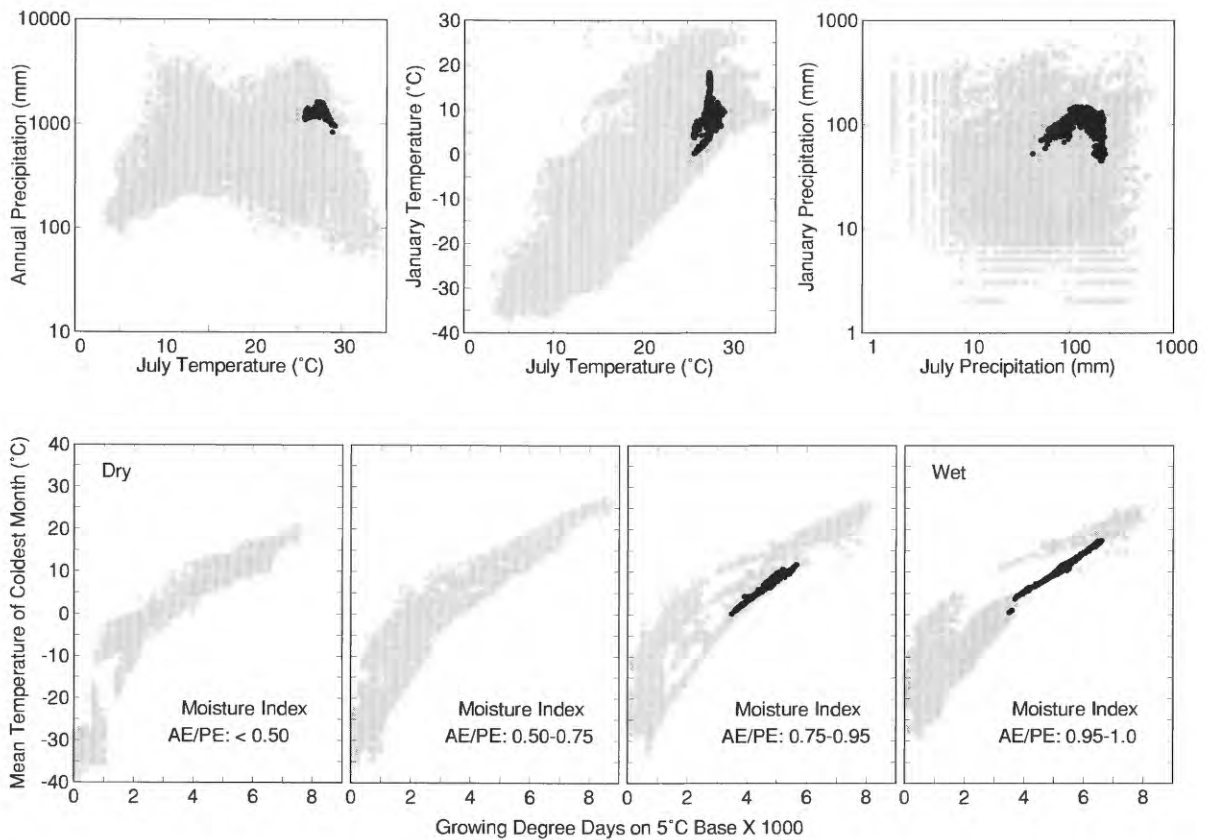
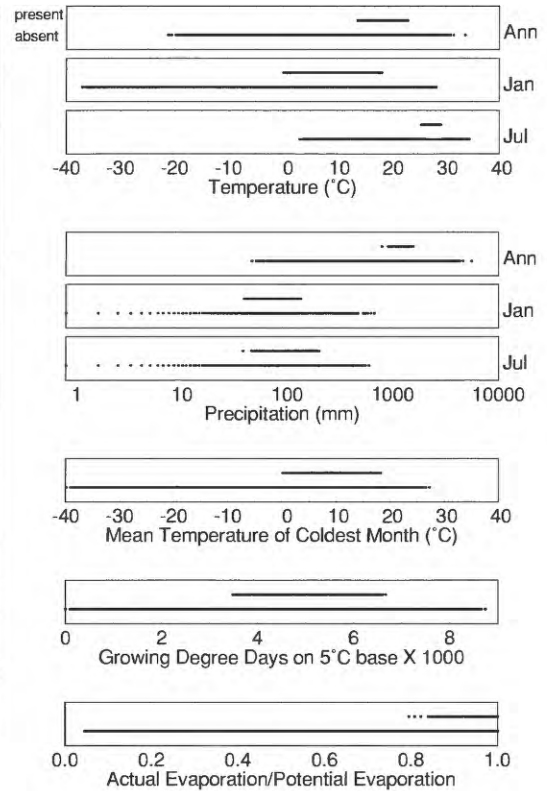
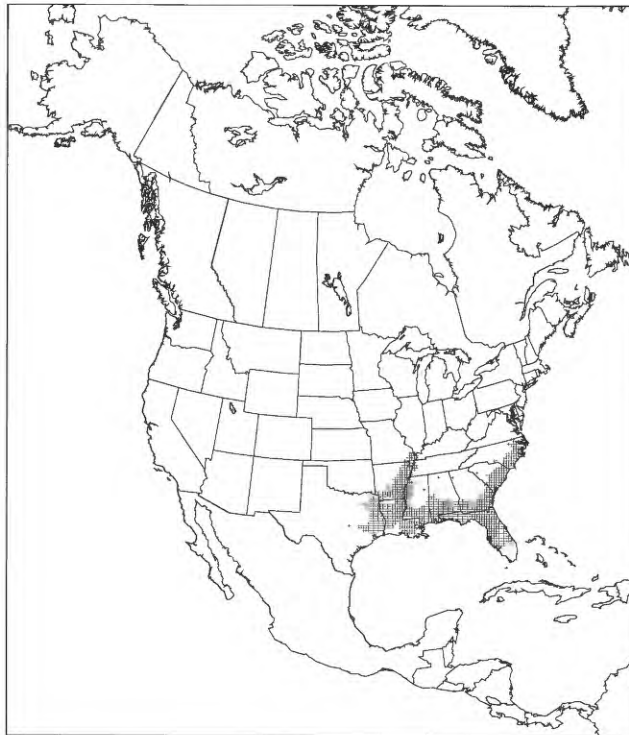
Canotia holacantha



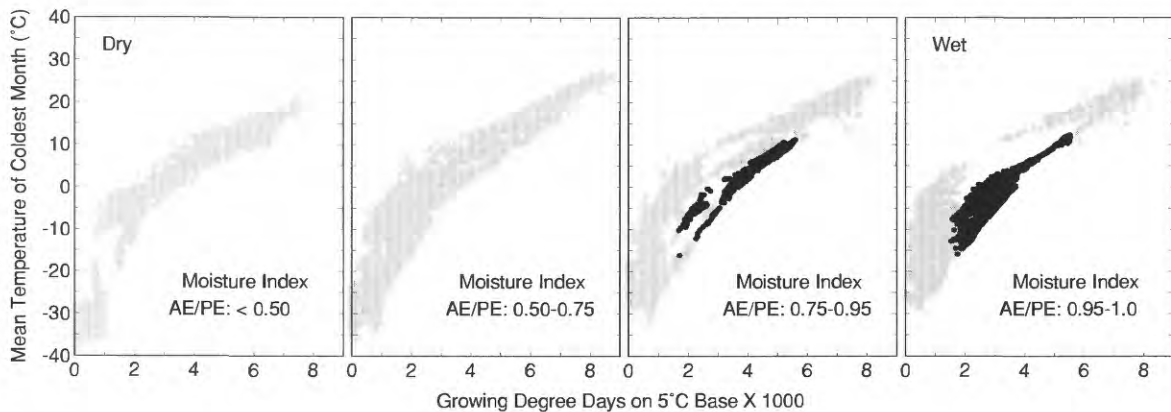
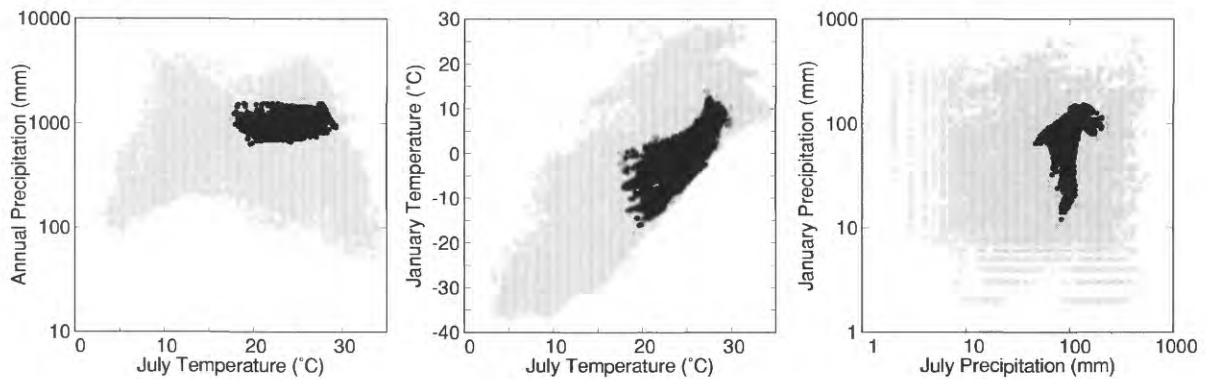
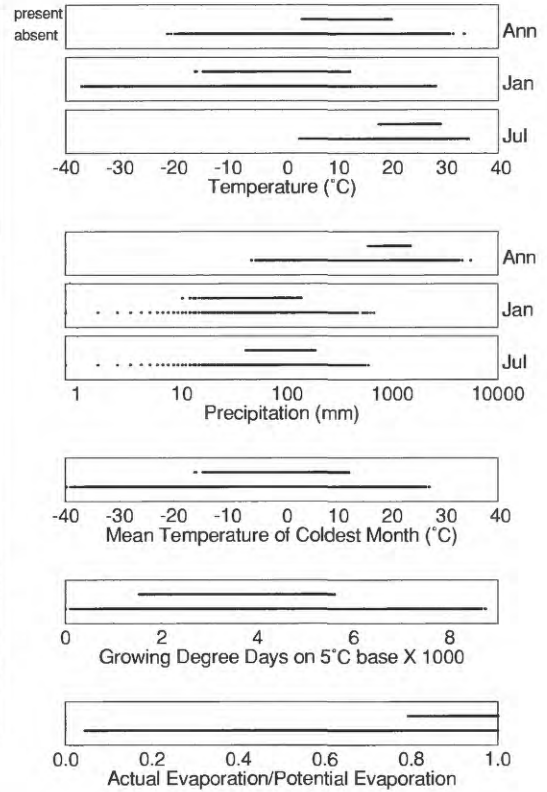
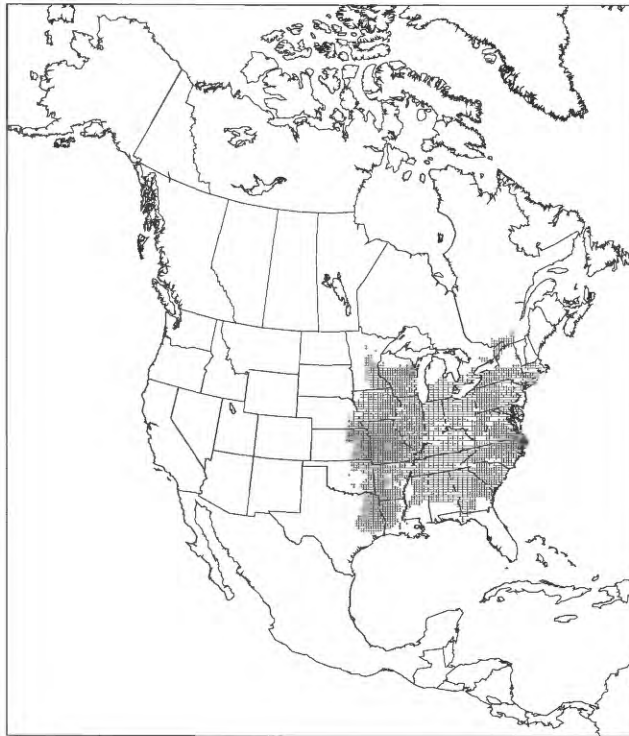
Carpinus caroliniana



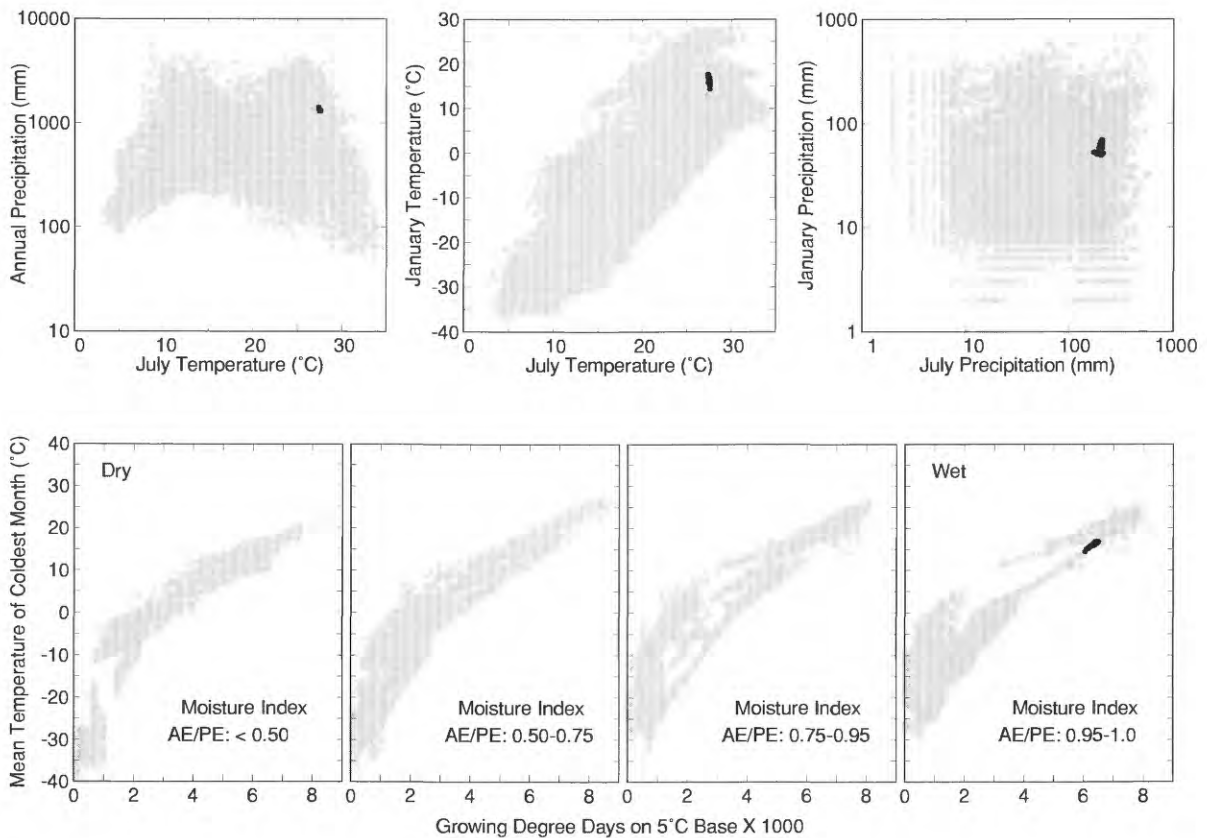
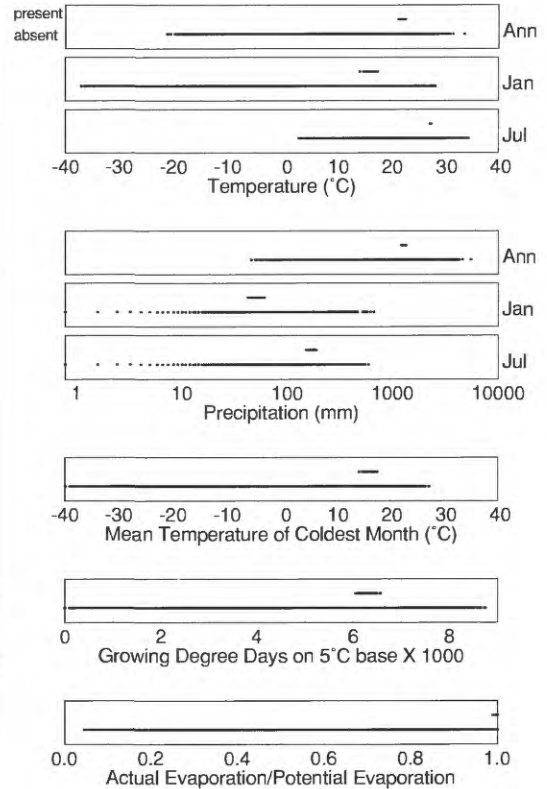
Carya aquatica



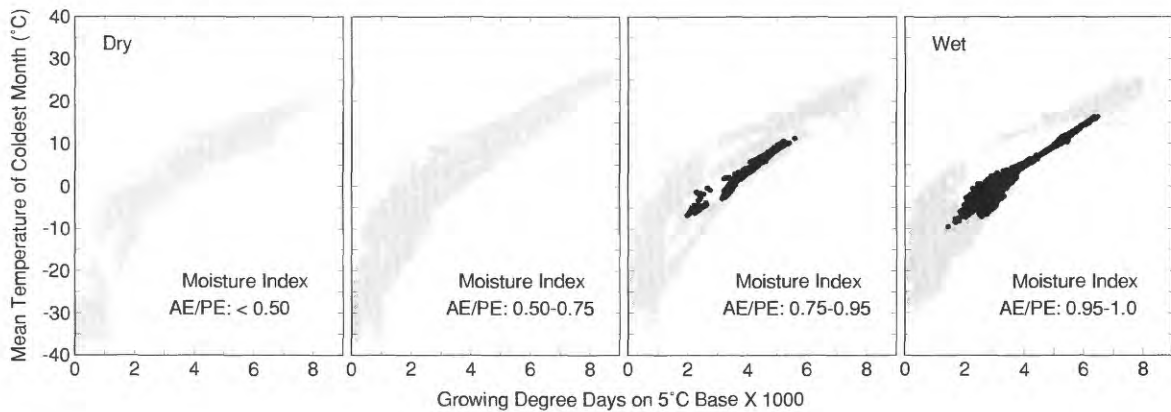
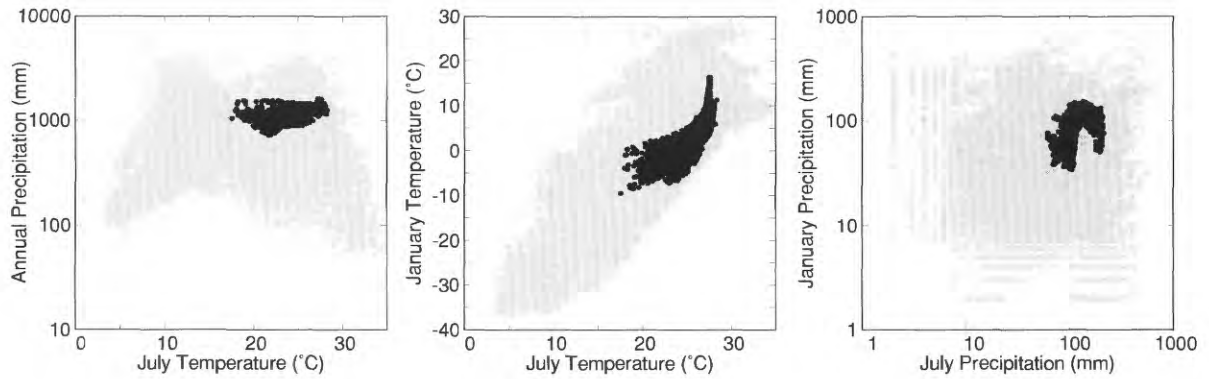
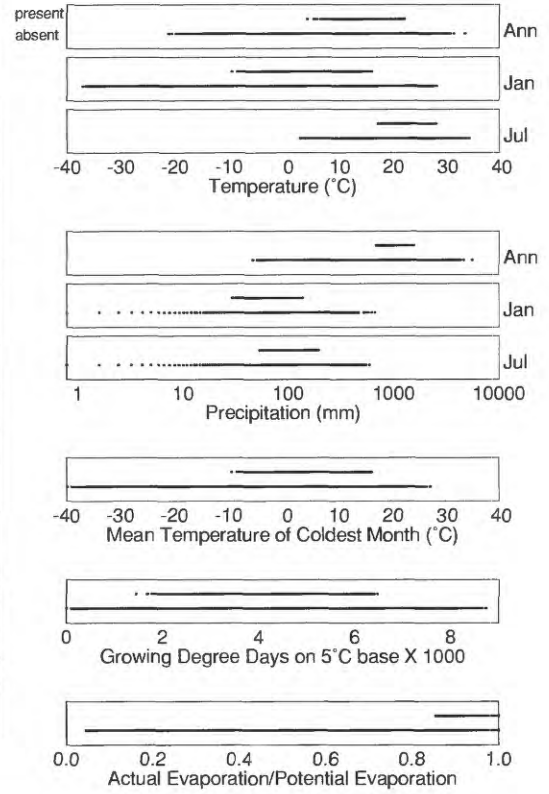
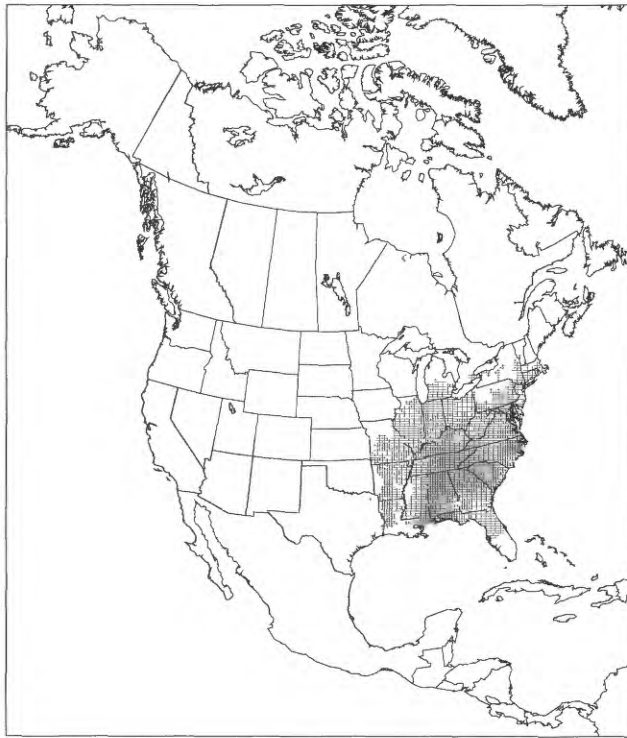
Carya cordiformis



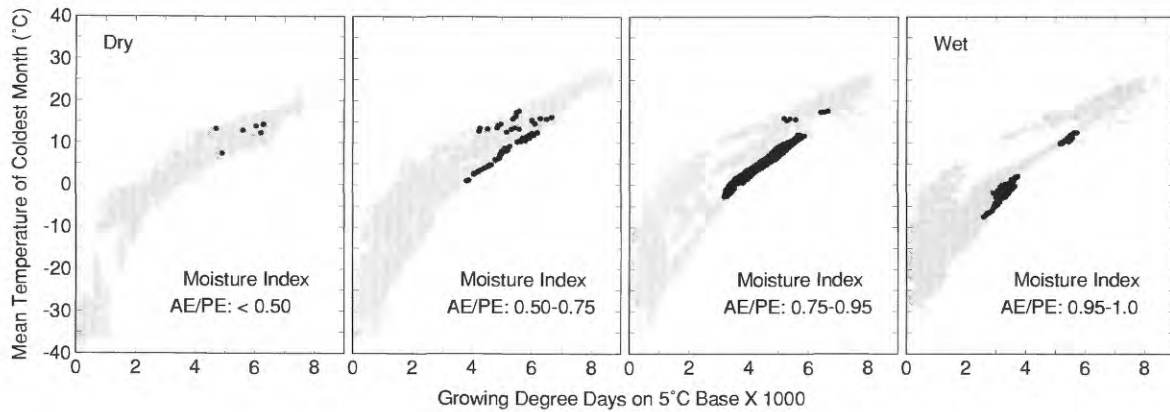
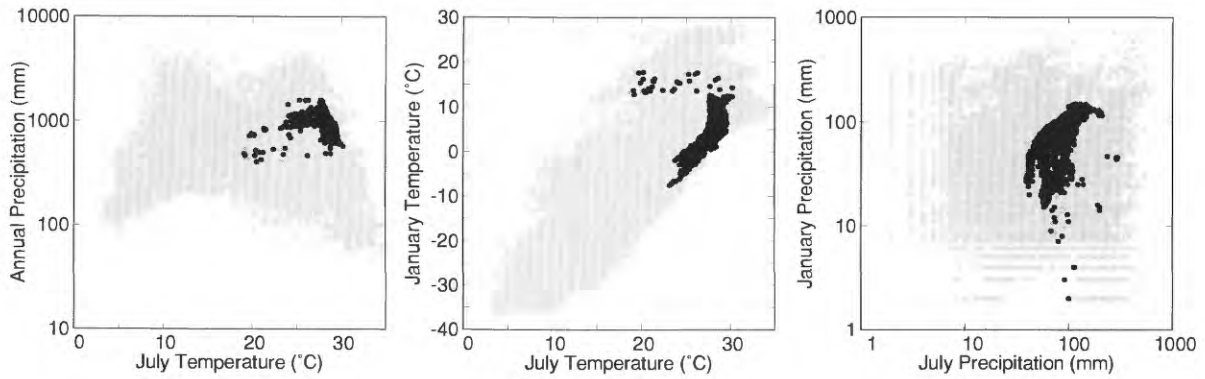
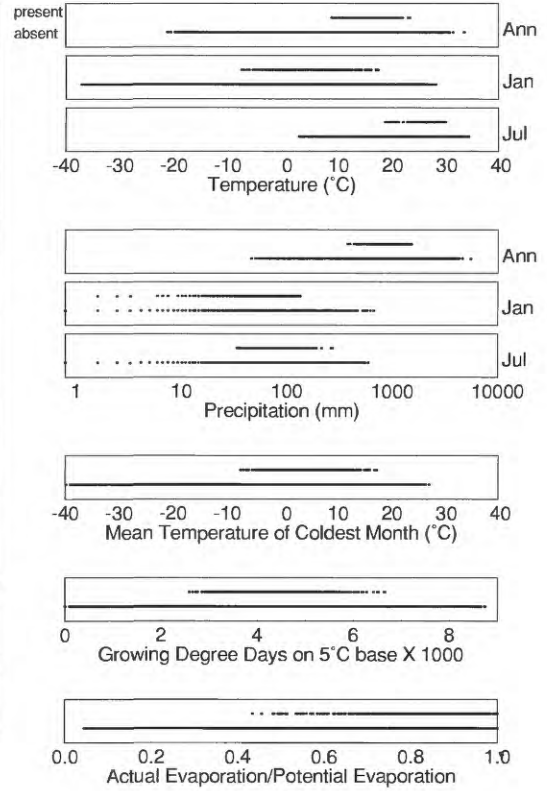
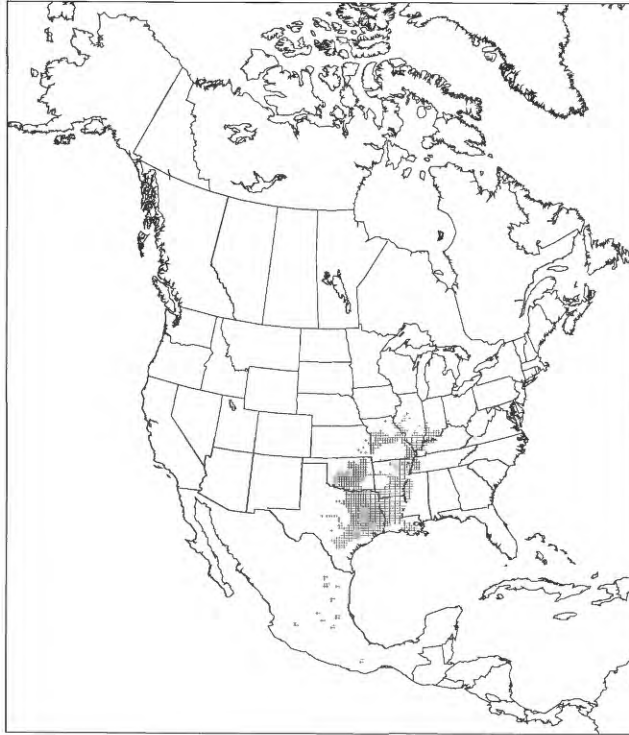
Carya floridana



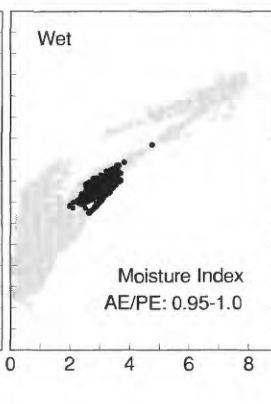
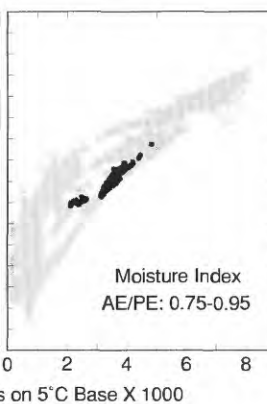
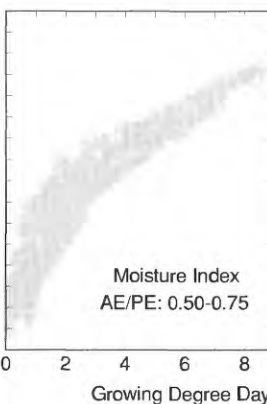
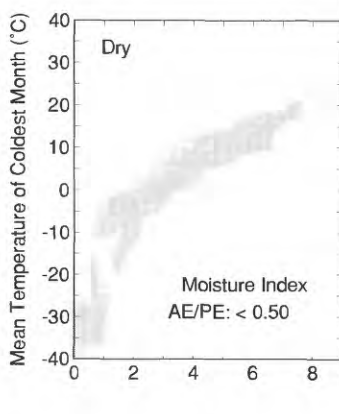
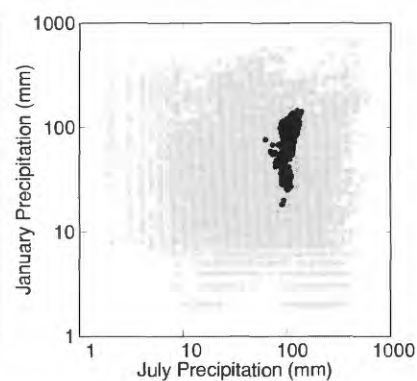
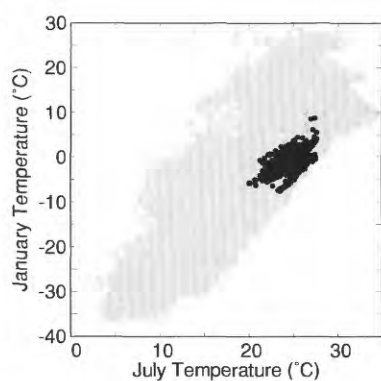
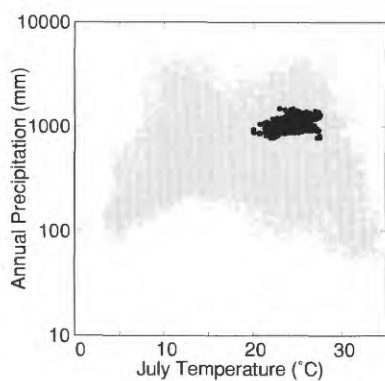
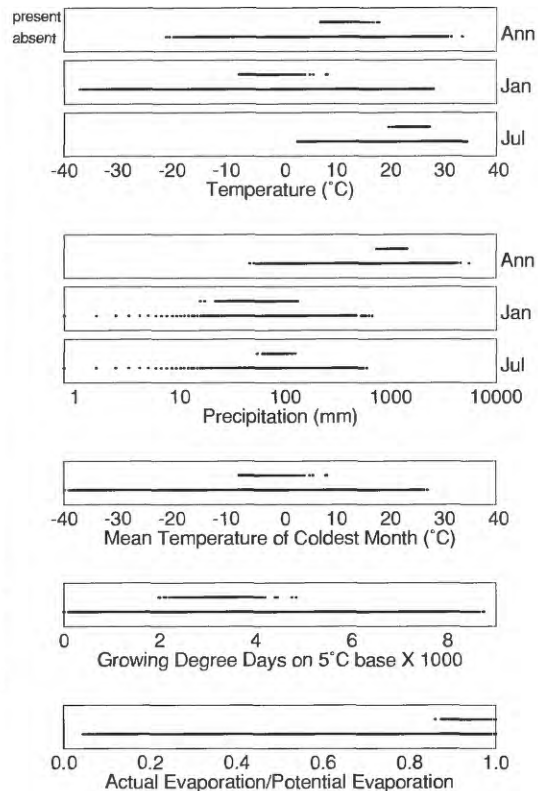
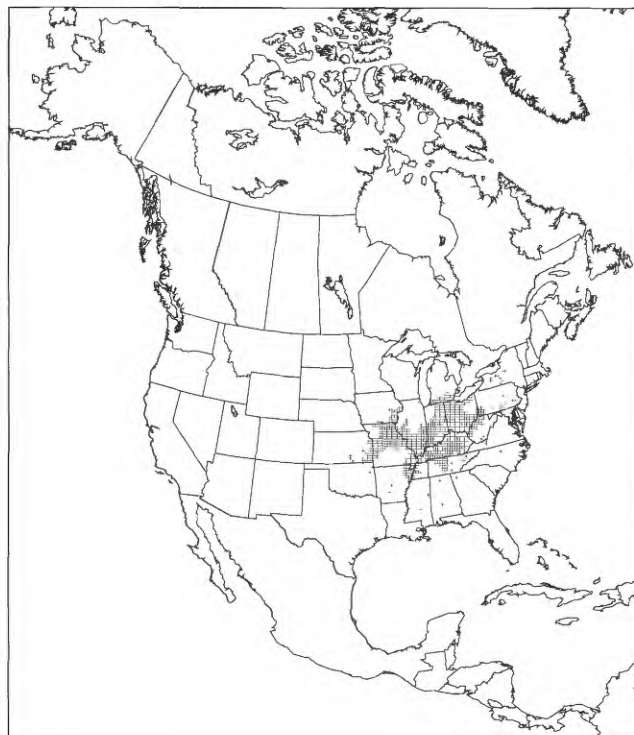
Carya glabra



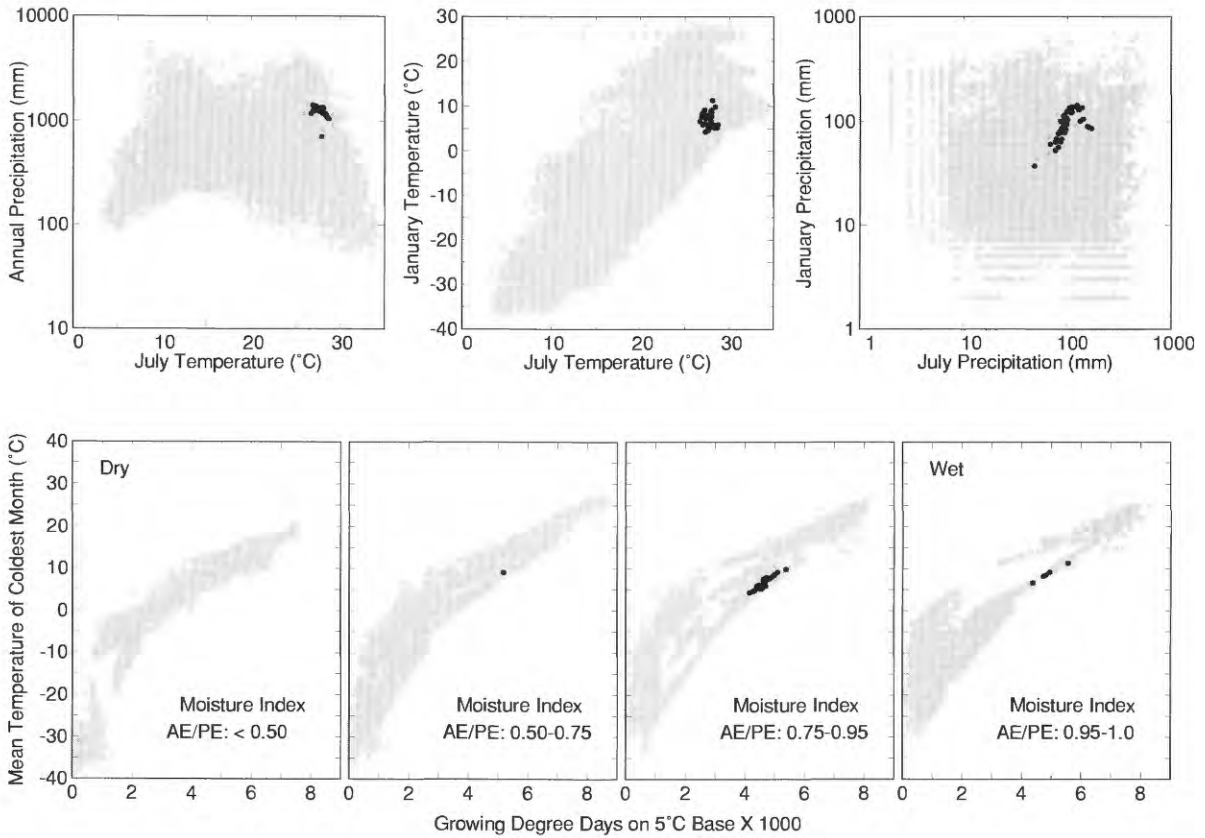
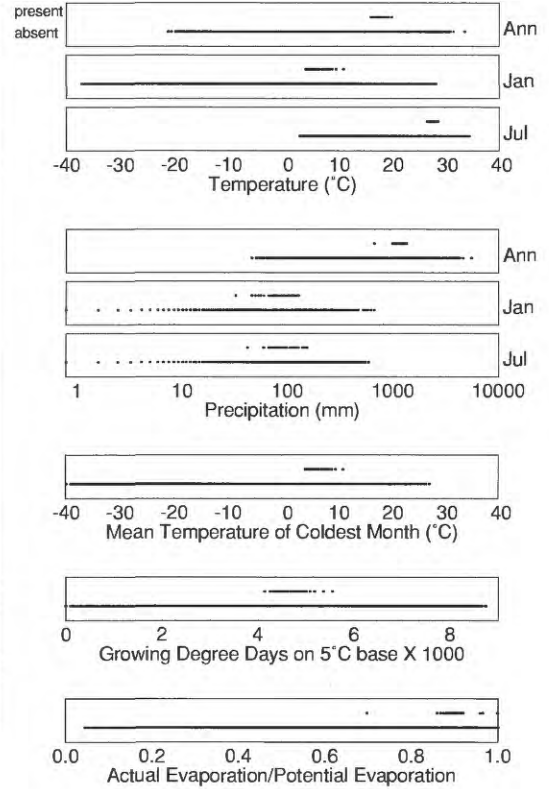
Carya illinoensis



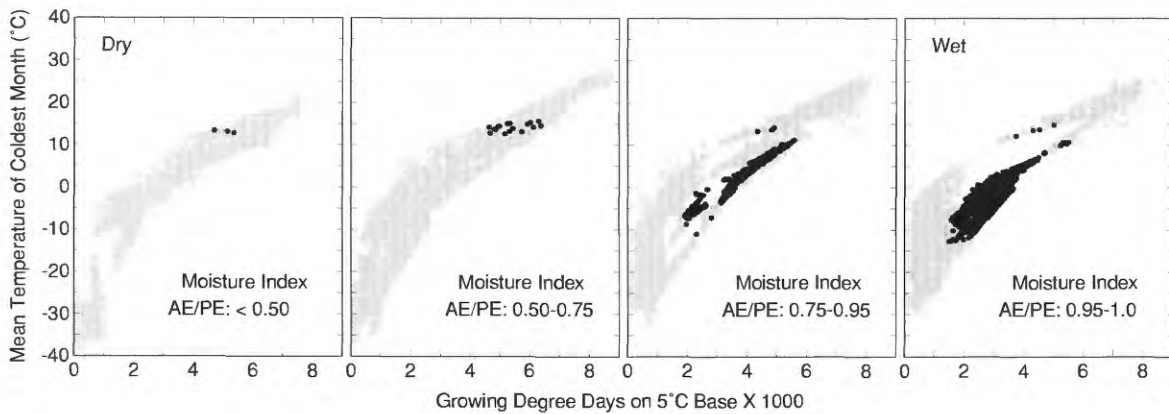
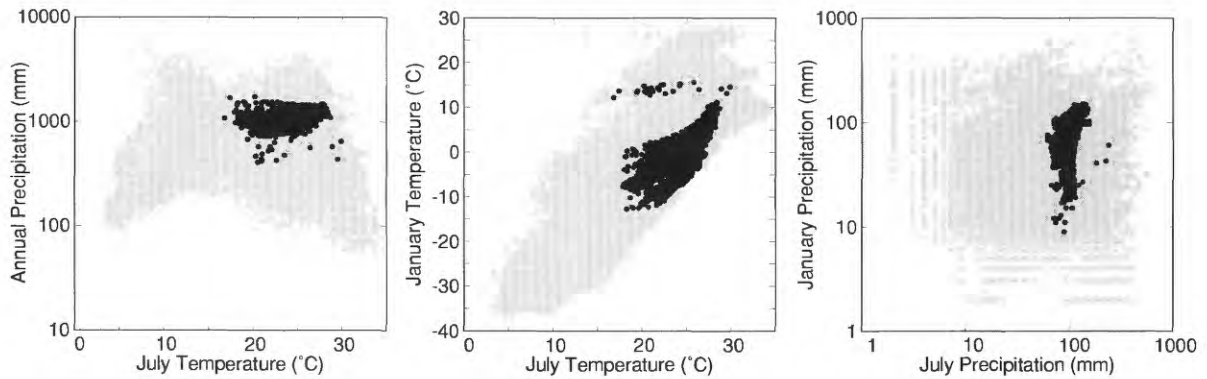
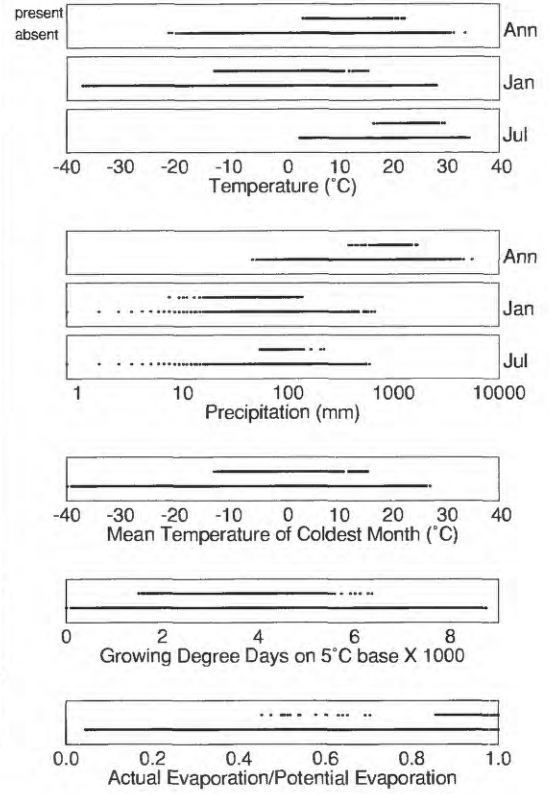
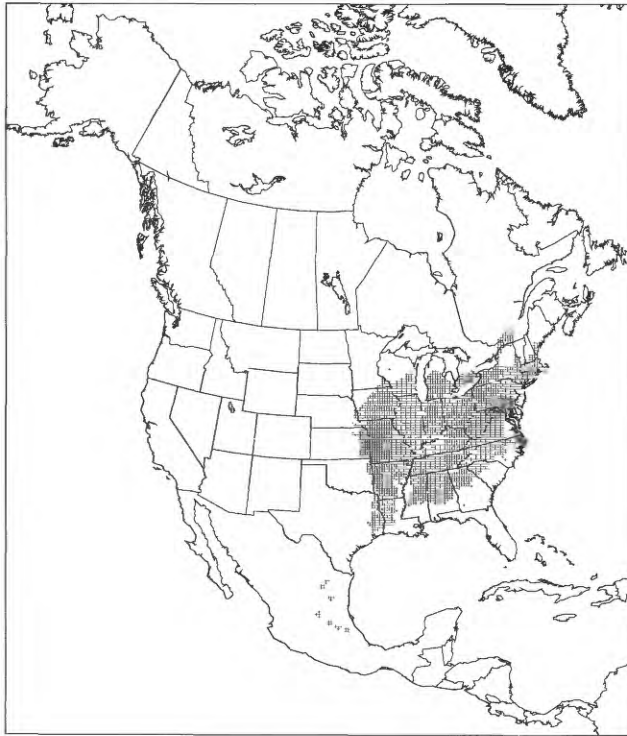
Carya laciniosa



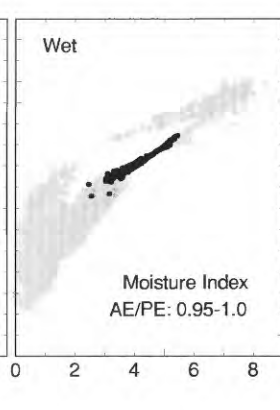
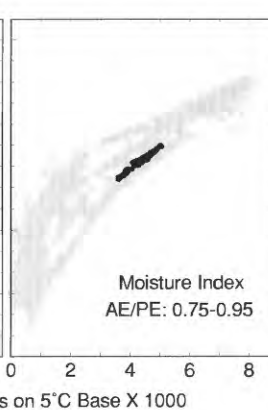
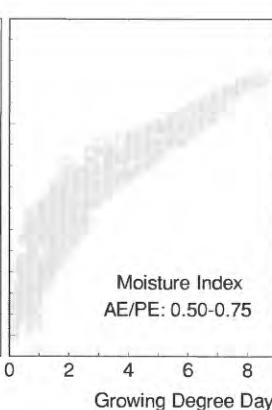
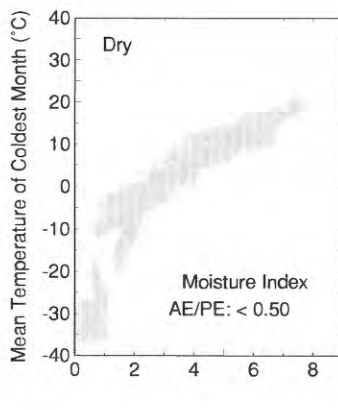
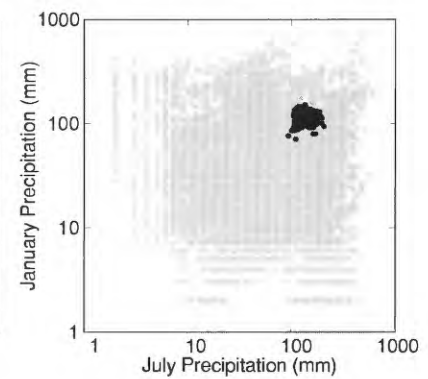
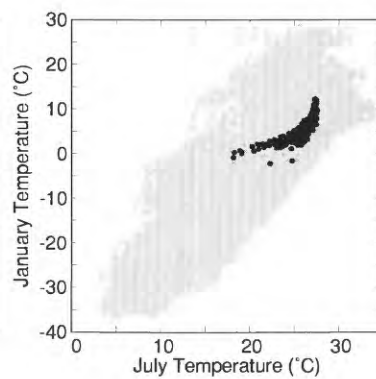
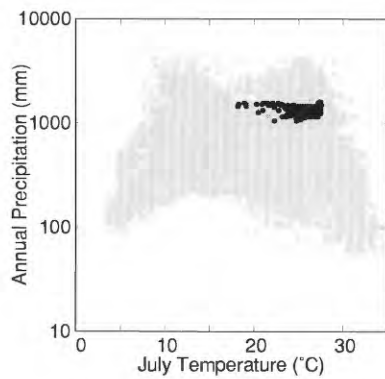
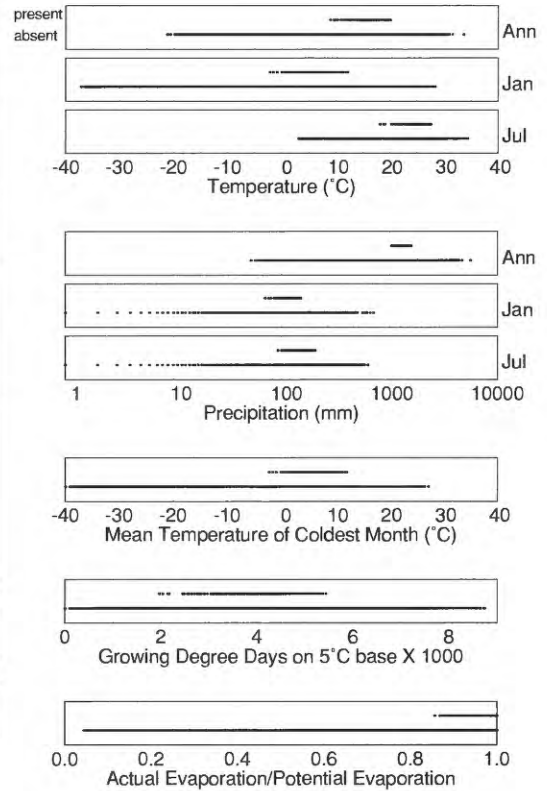
Carya myristicaeformis



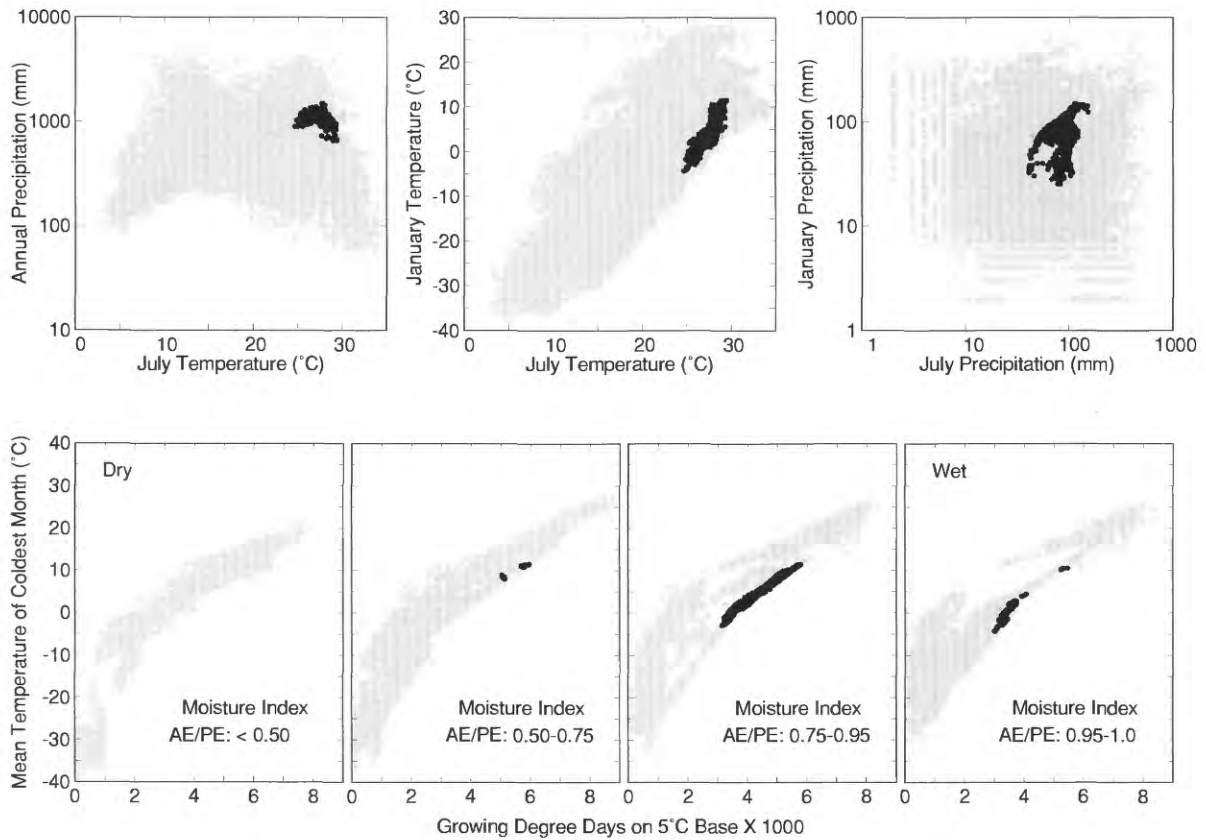
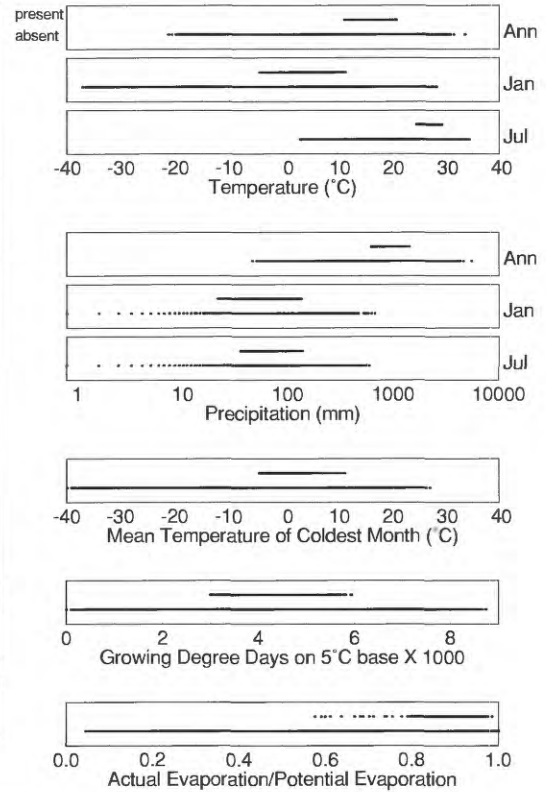
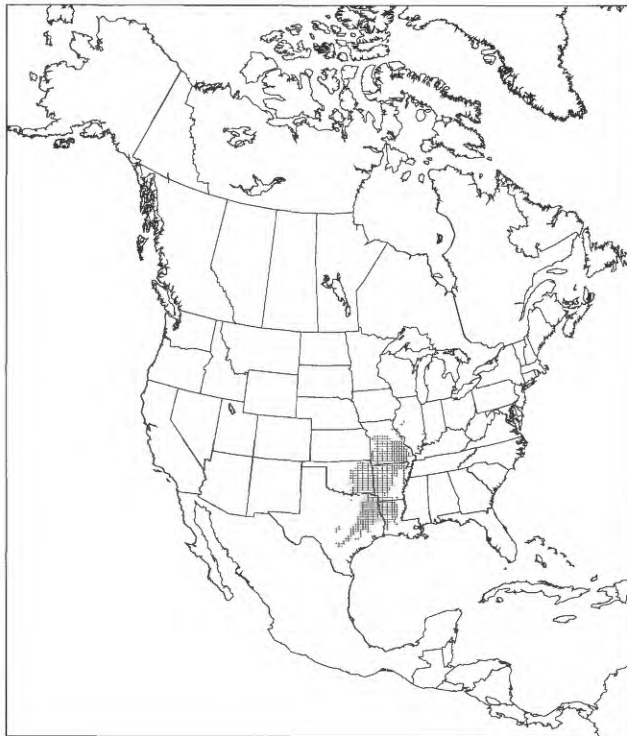
Carya ovata



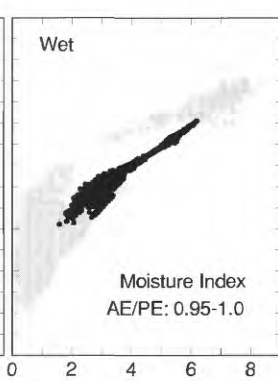
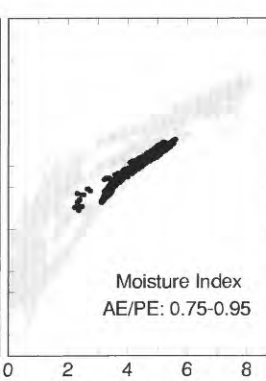
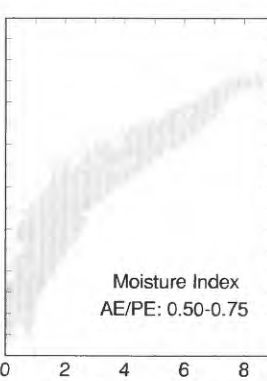
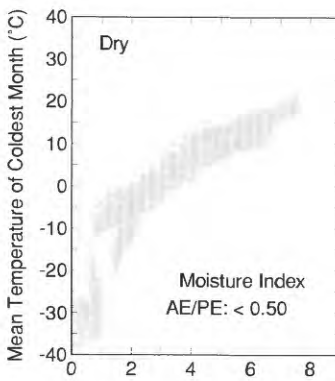
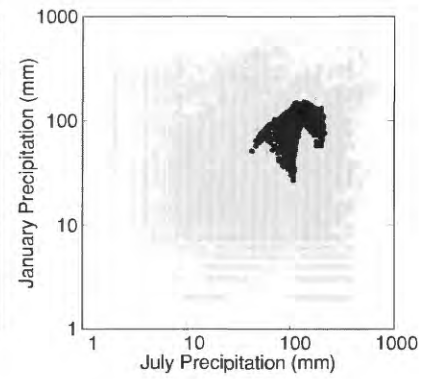
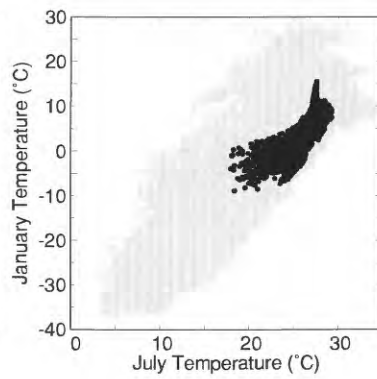
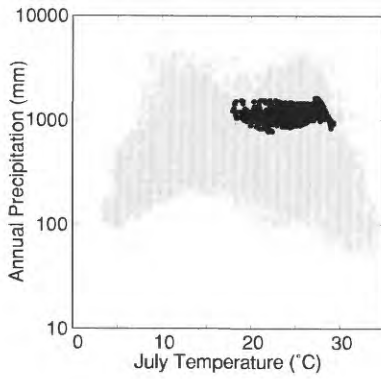
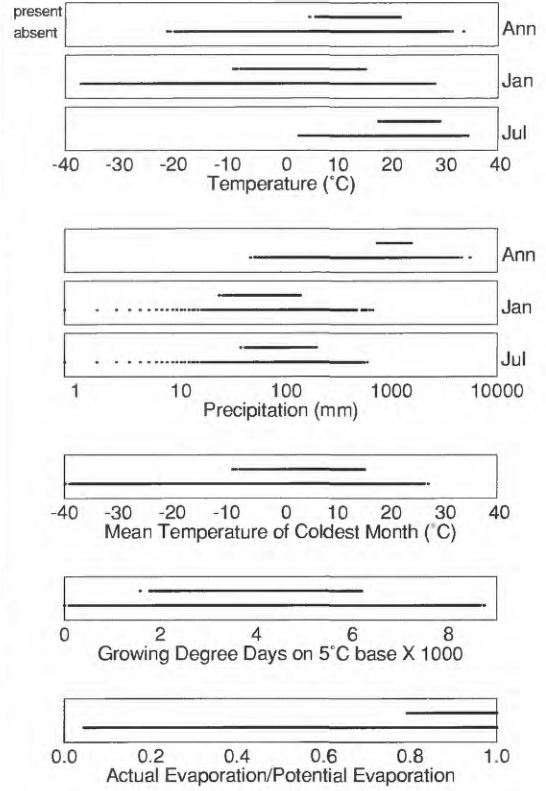
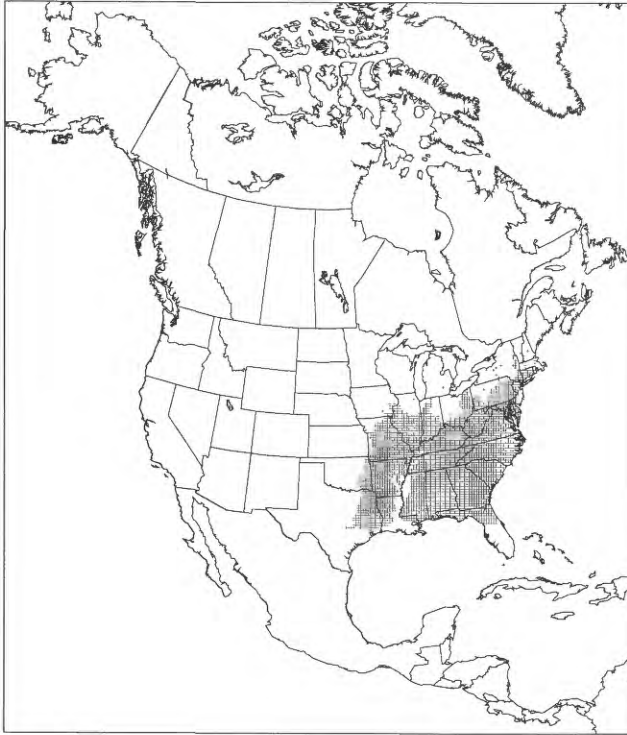
Carya pallida



Carya texana

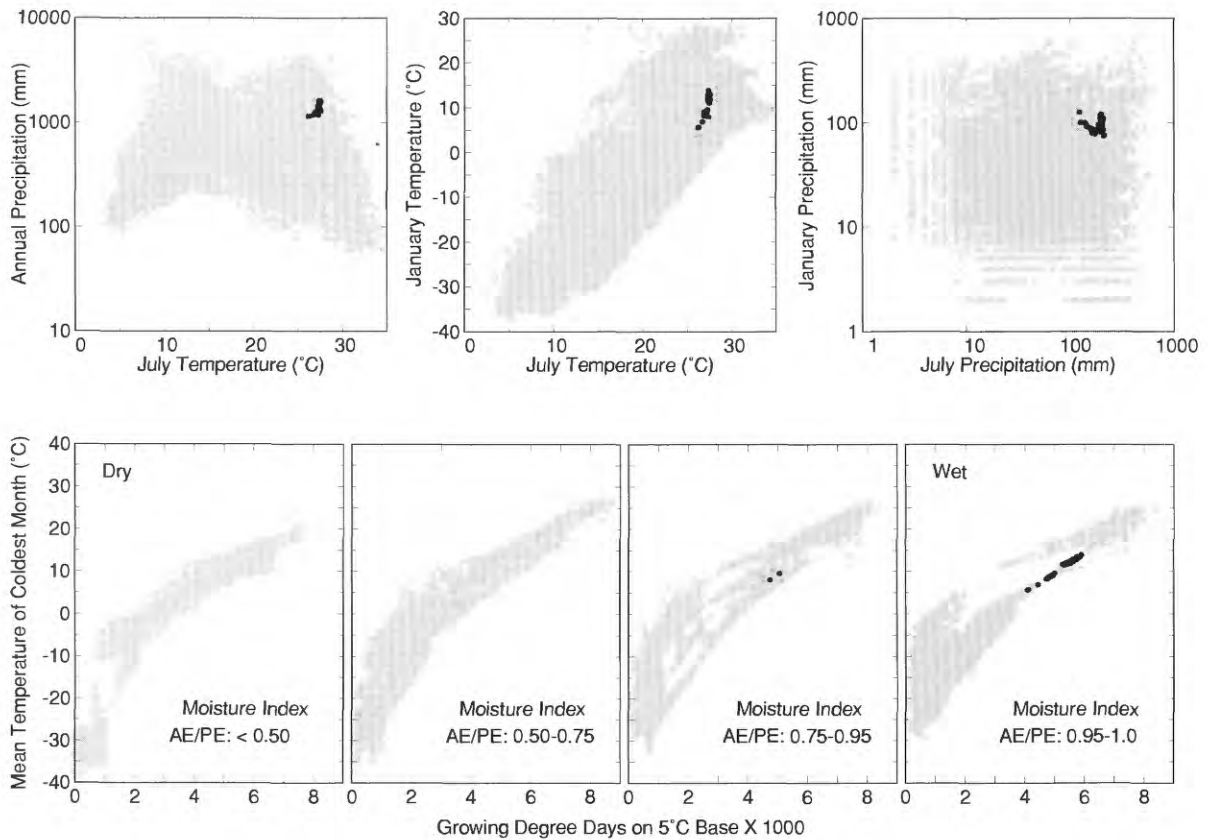
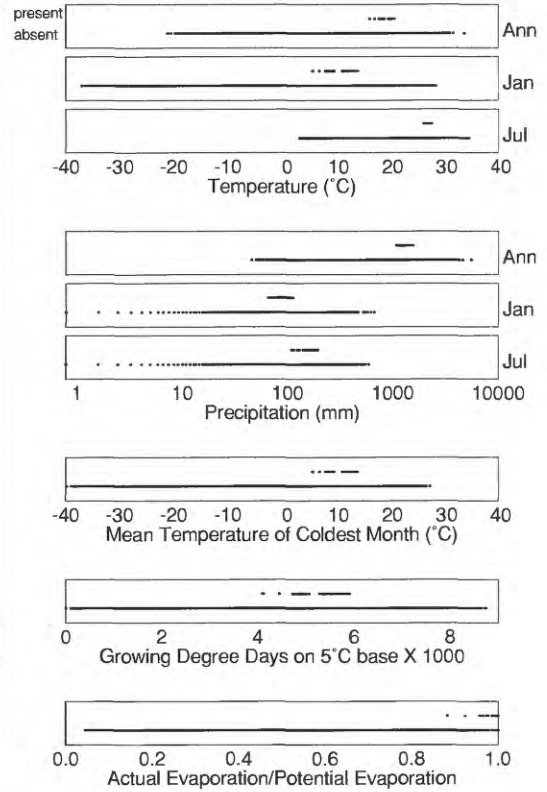


Carya tomentosa

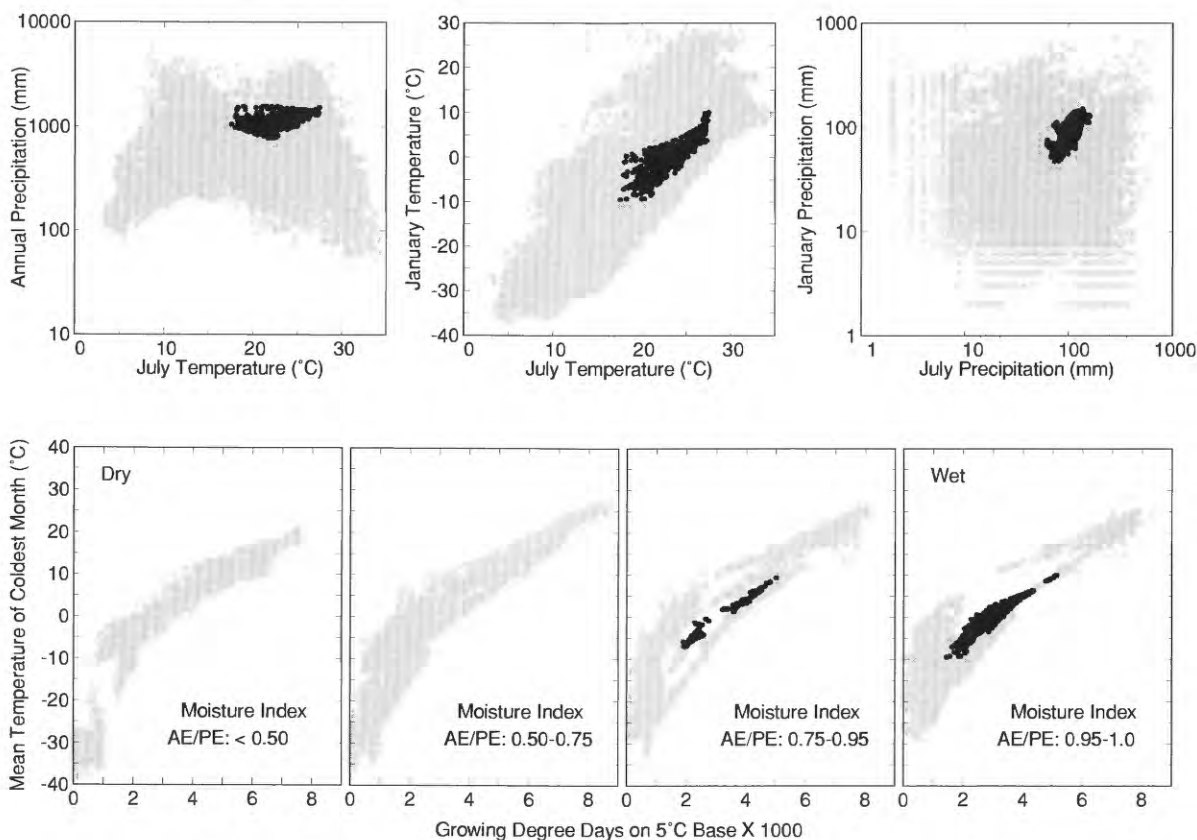
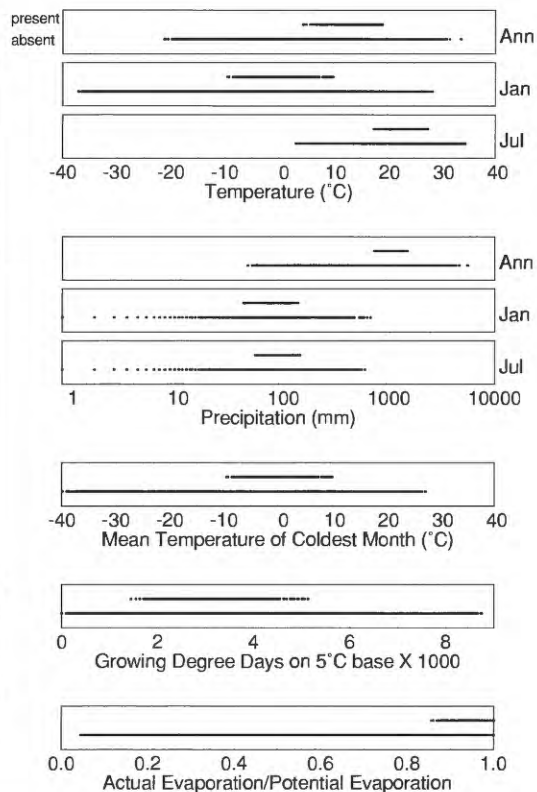
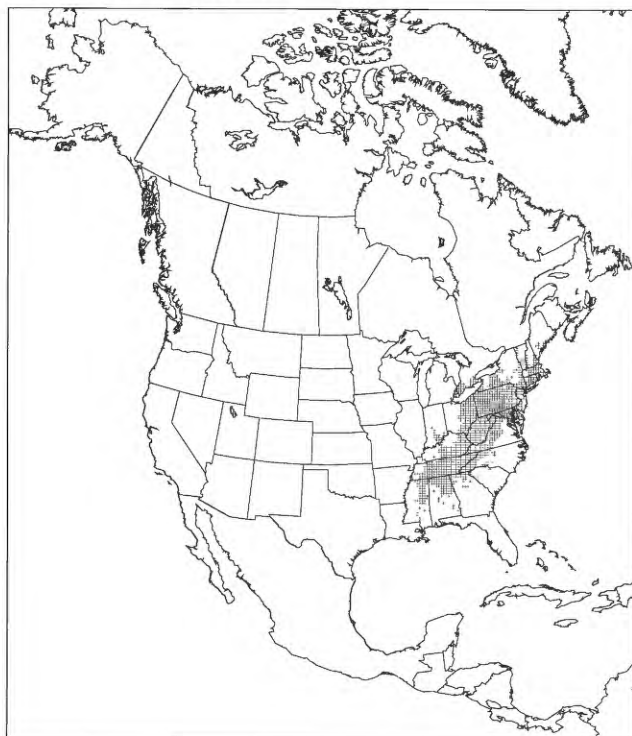


Growing Degree Days on 5°C Base X 1000

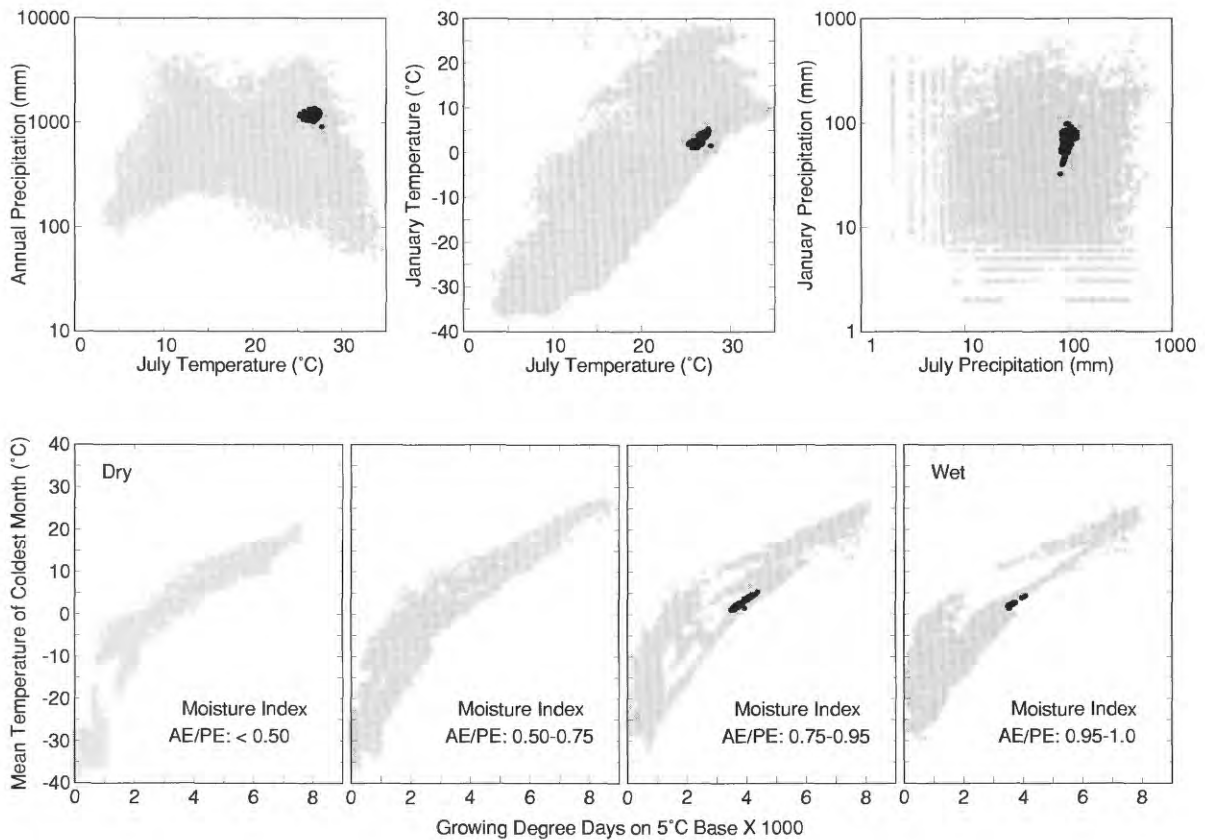
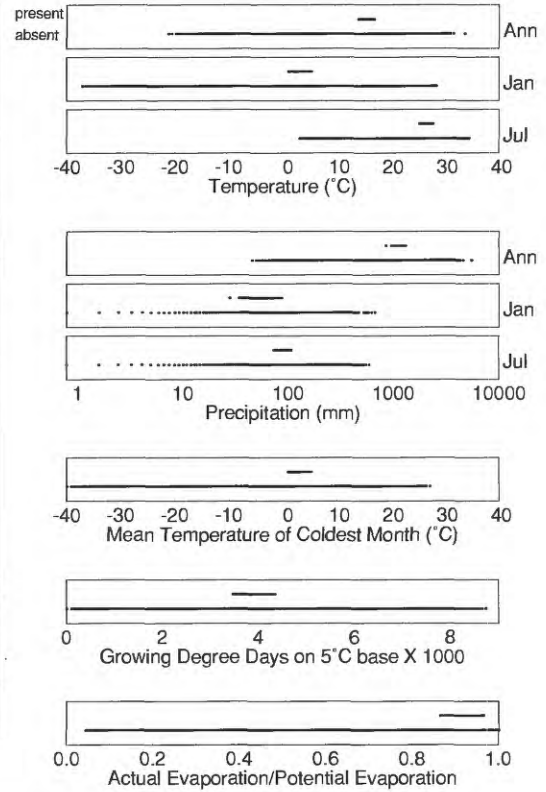
Castanea alnifolia



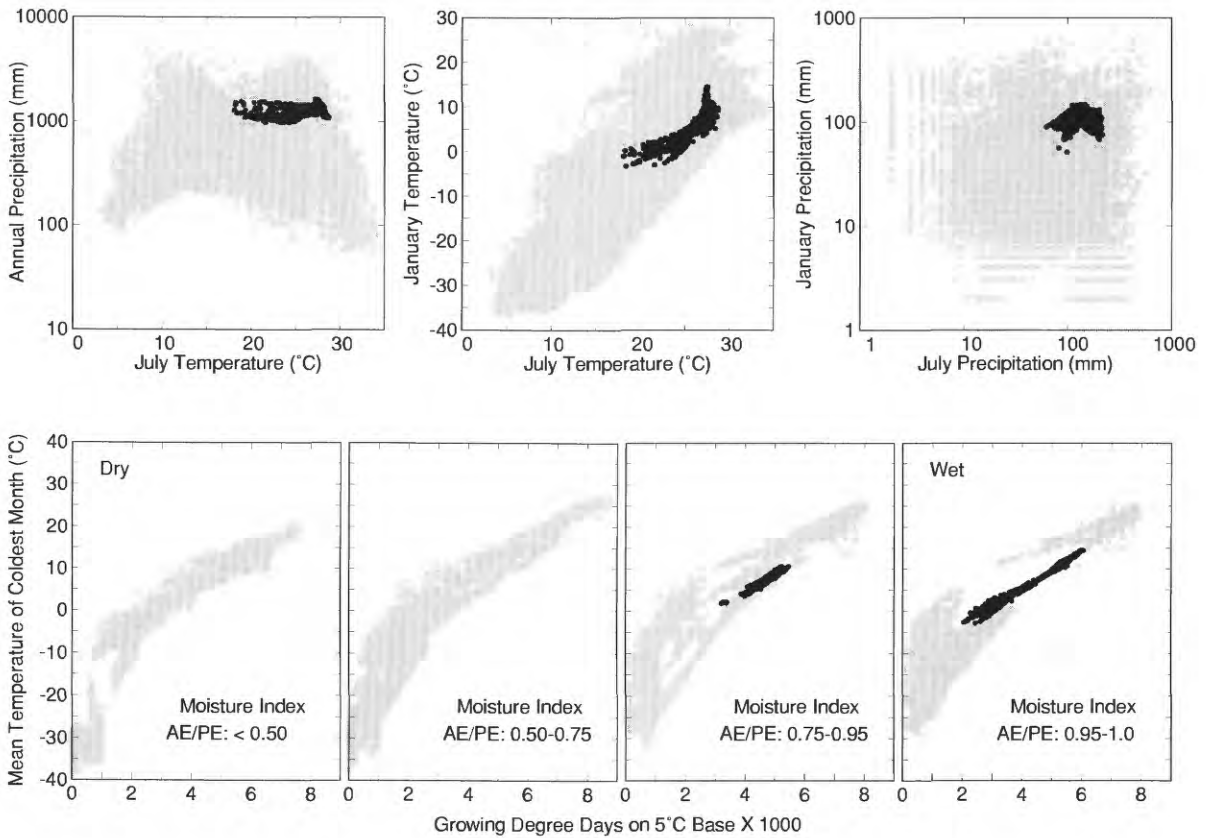
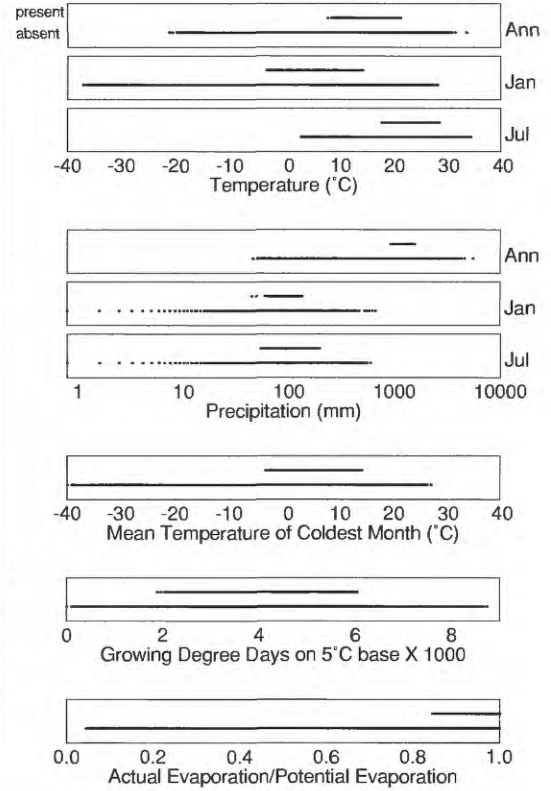
Castanea dentata



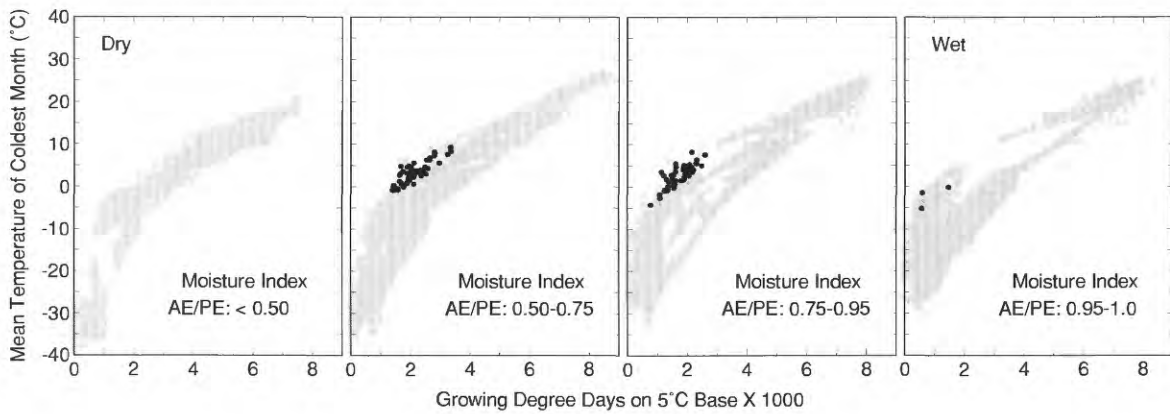
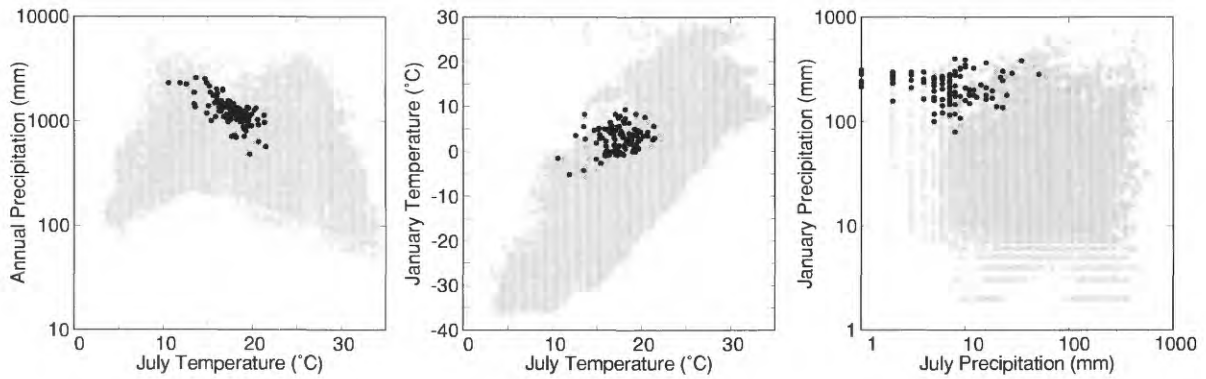
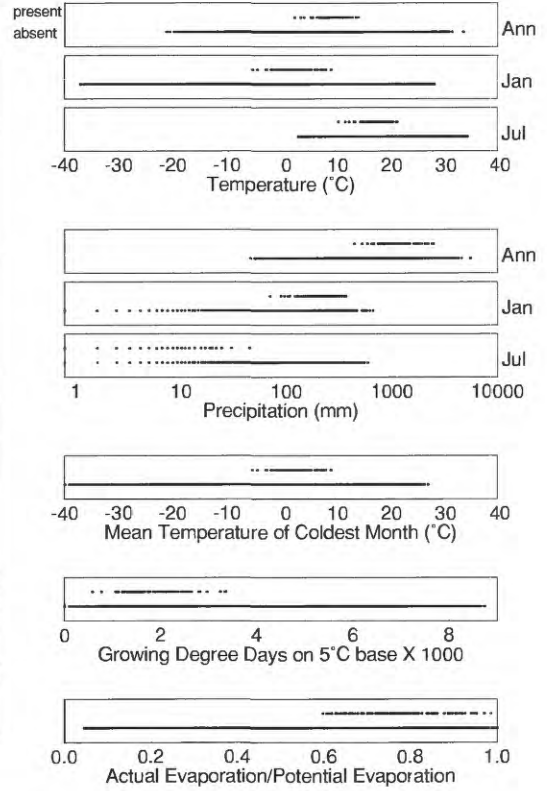
Castanea ozarkensis



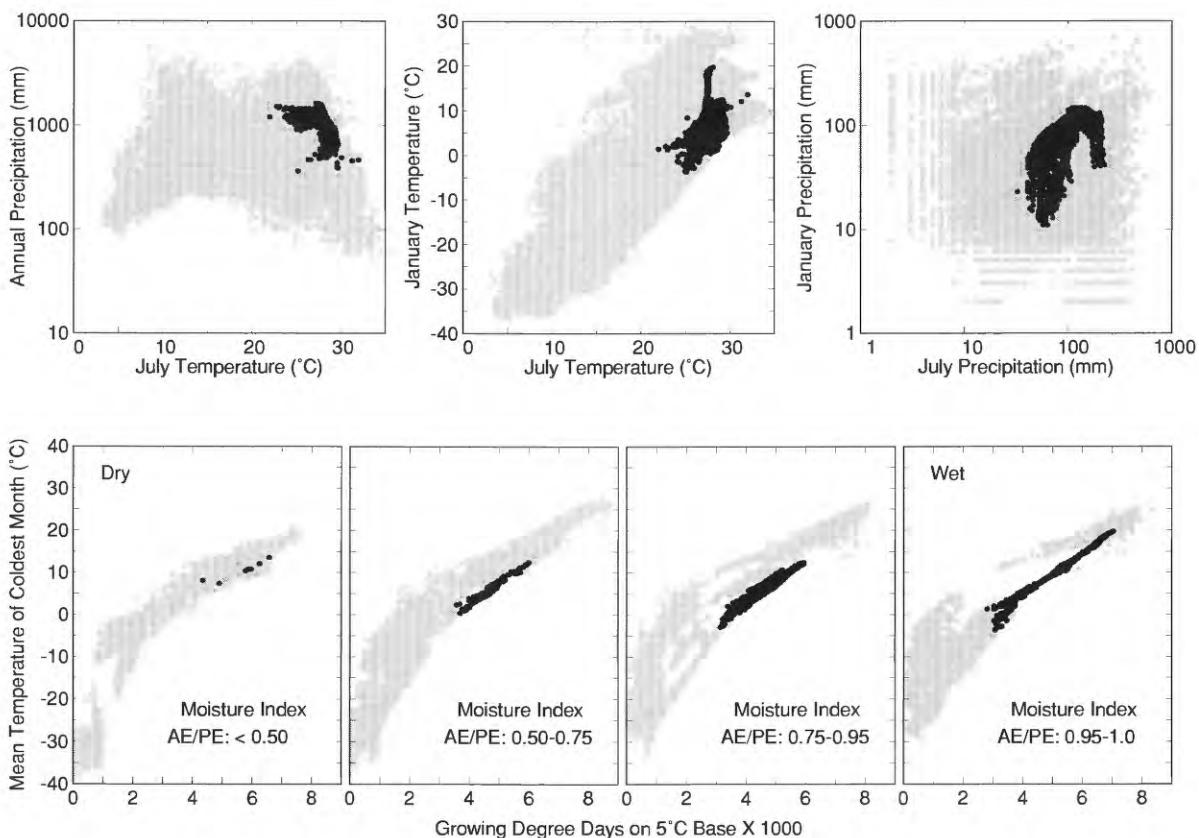
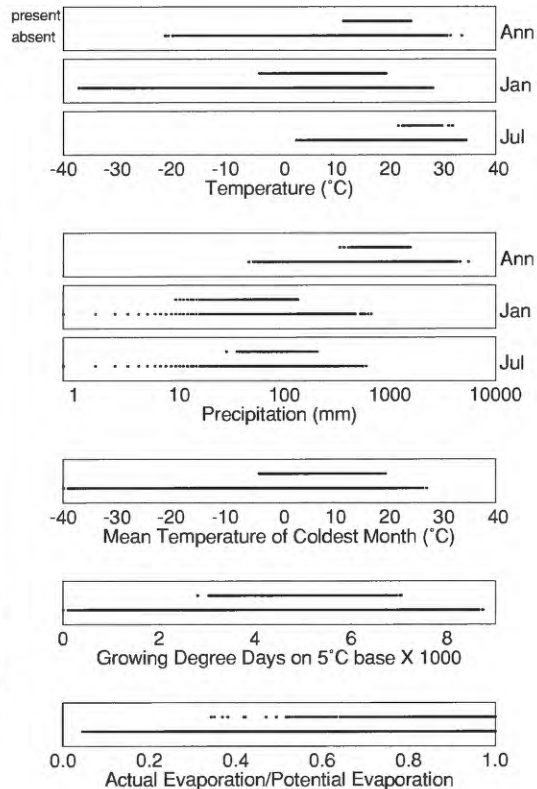
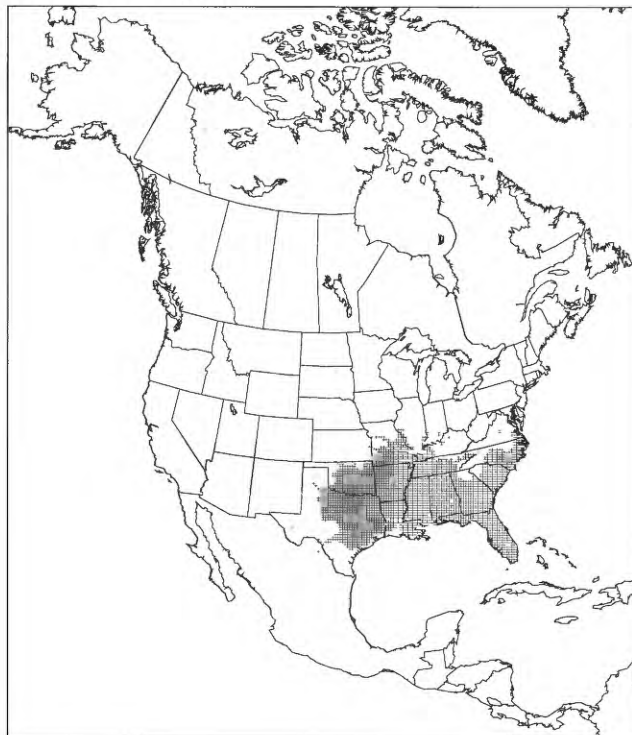
Castanea pumila



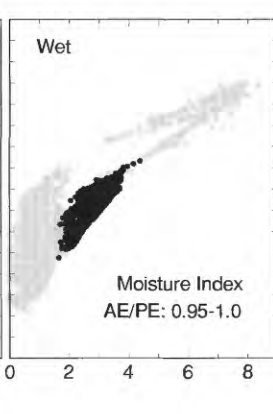
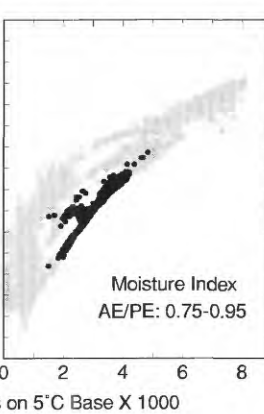
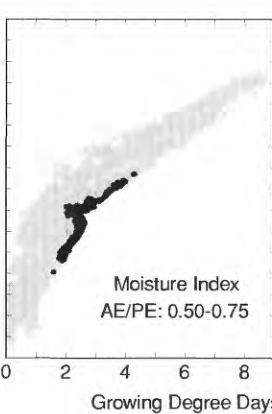
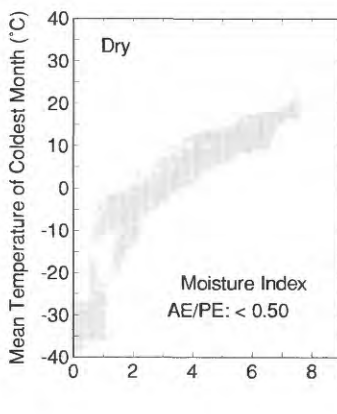
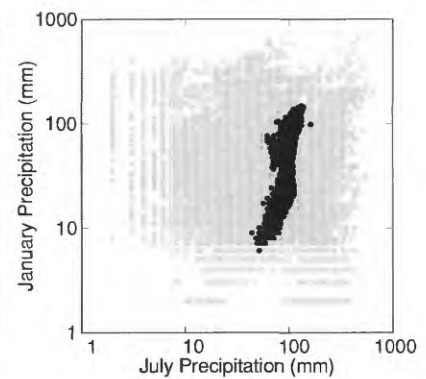
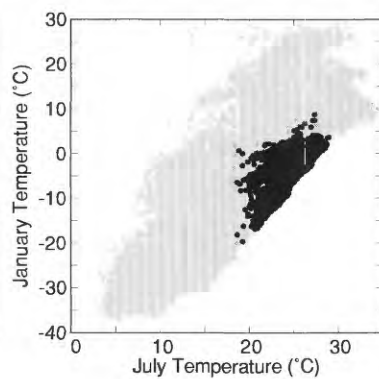
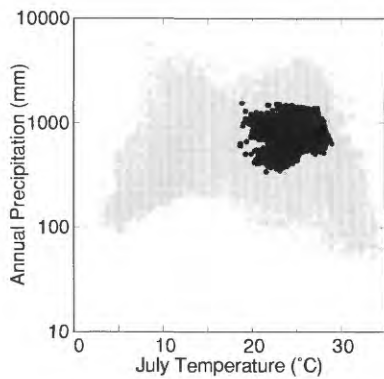
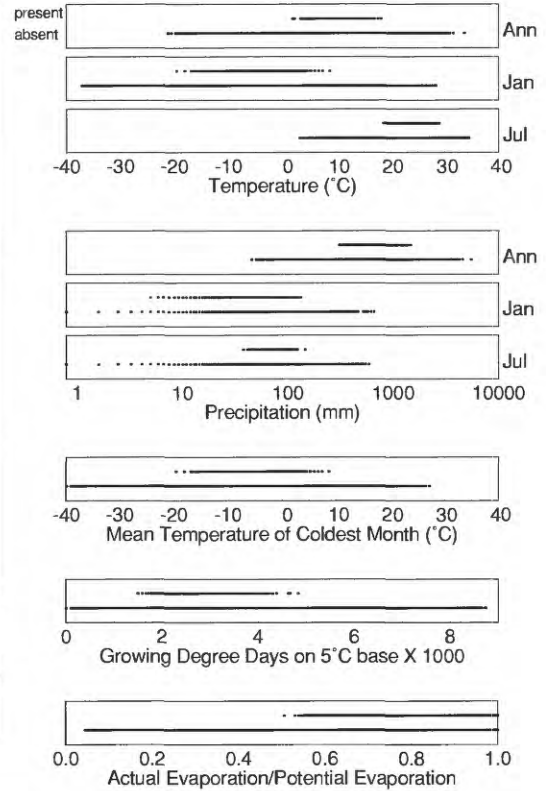
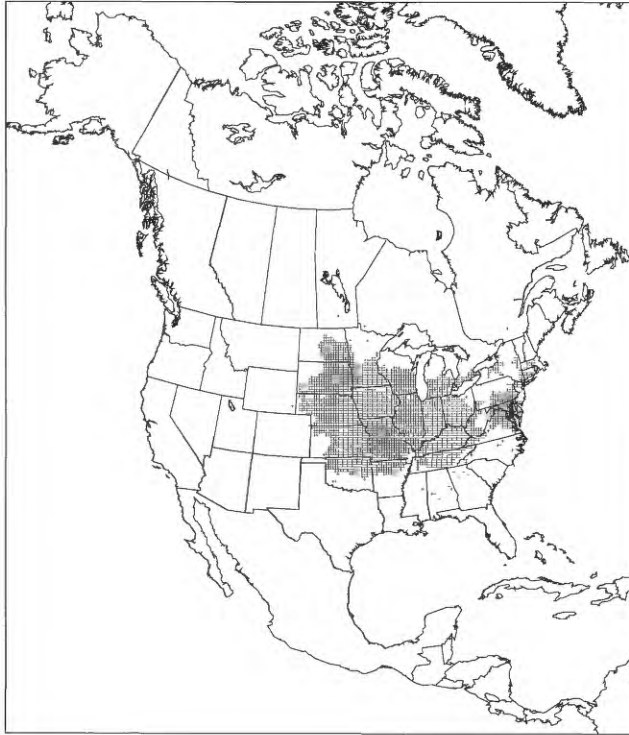
Castanopsis chrysophylla



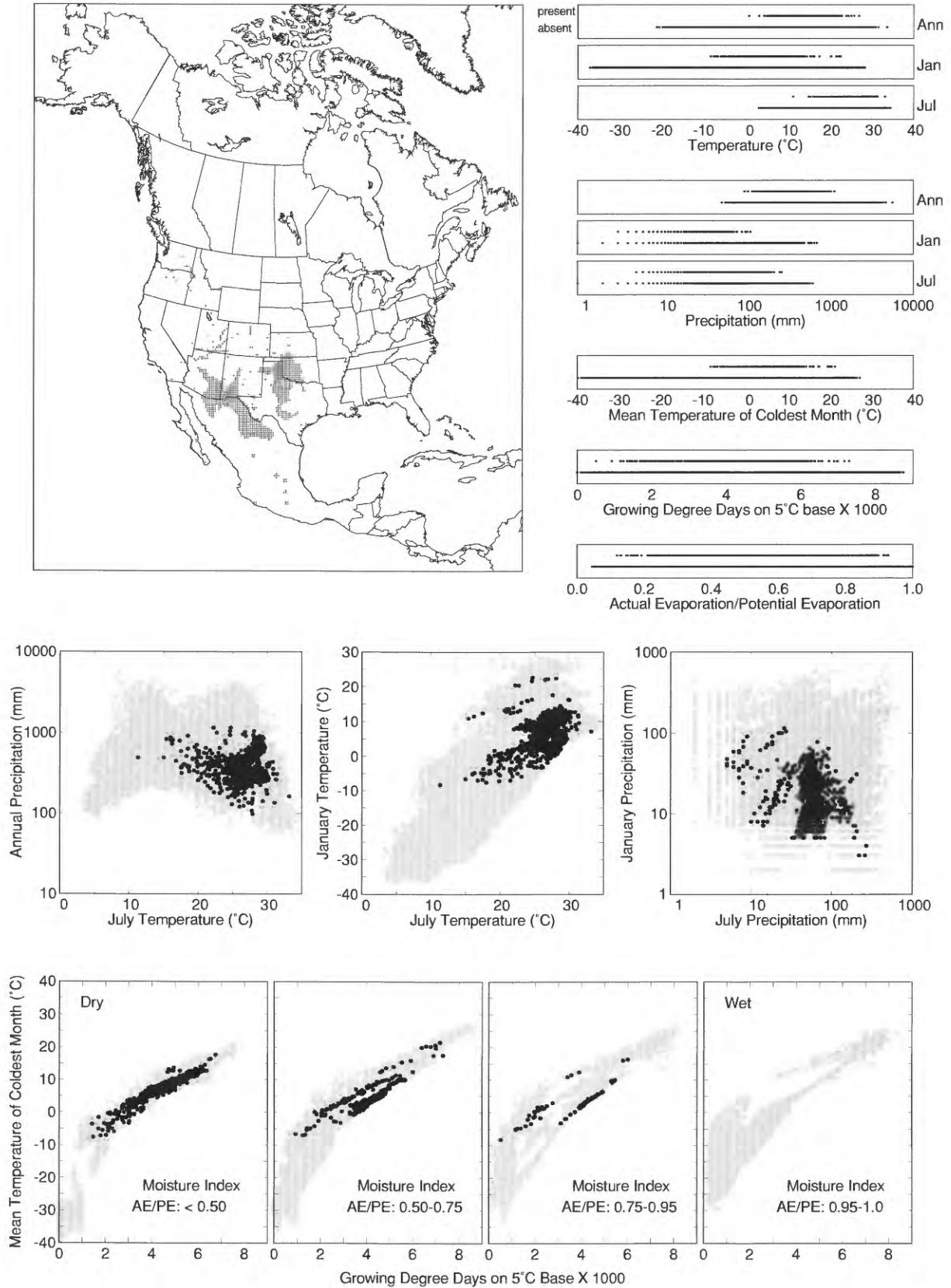
Celtis laevigata



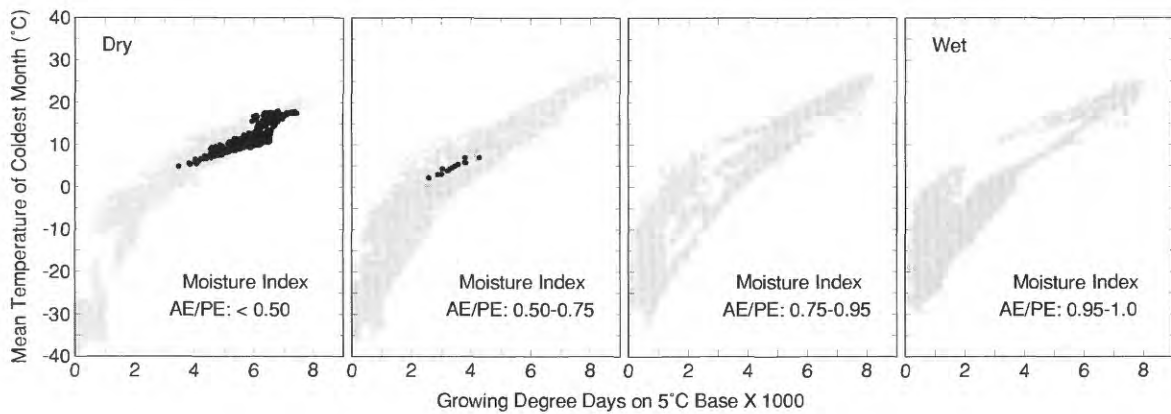
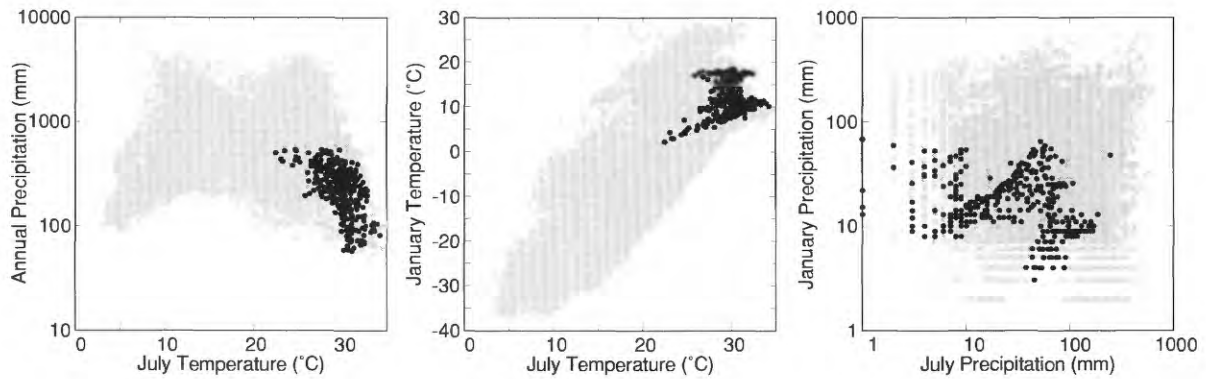
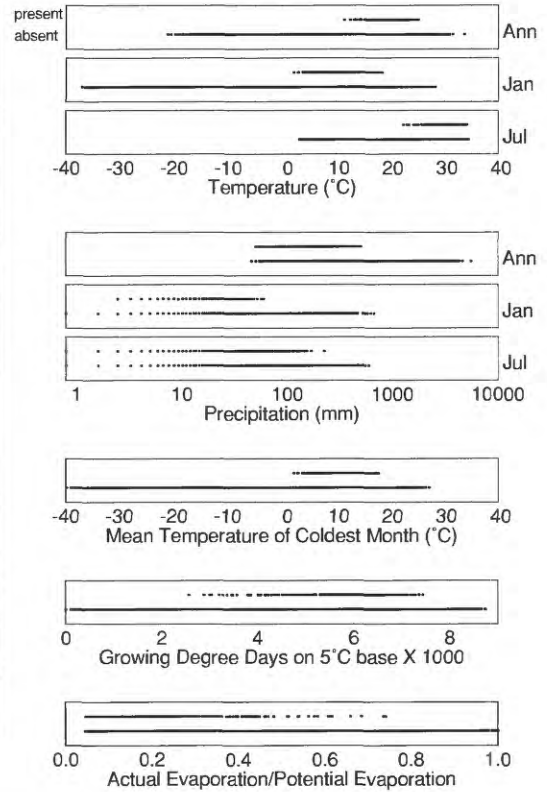
Celtis occidentalis



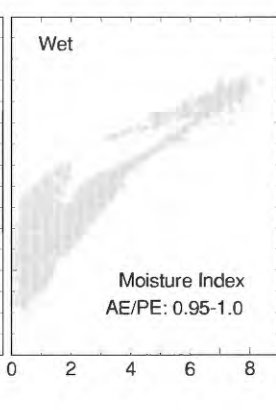
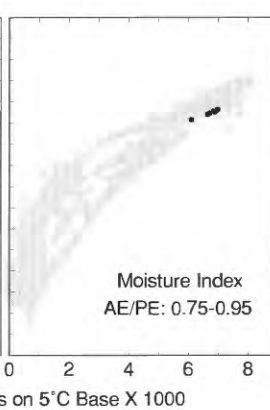
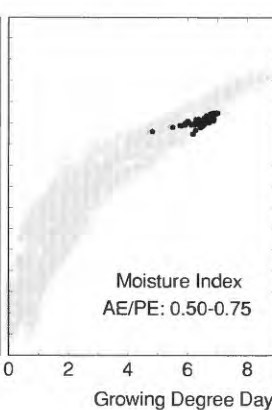
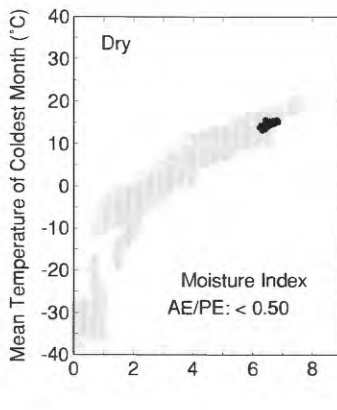
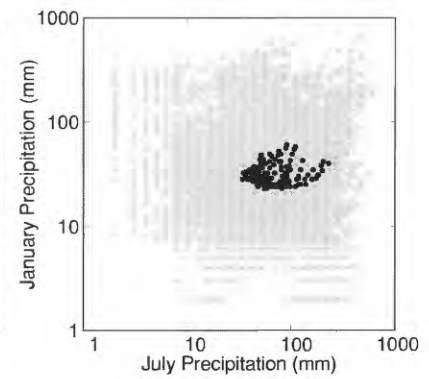
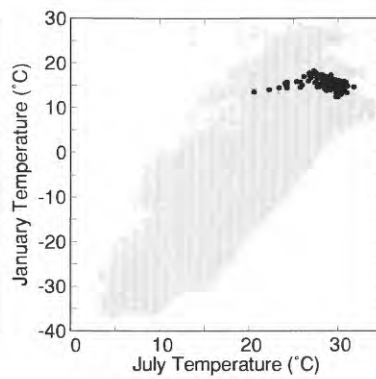
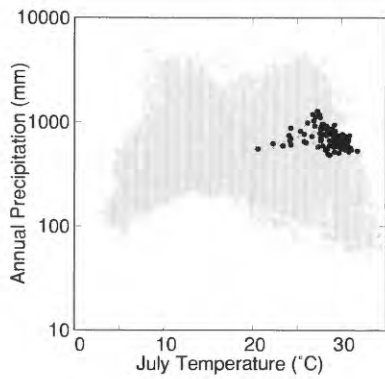
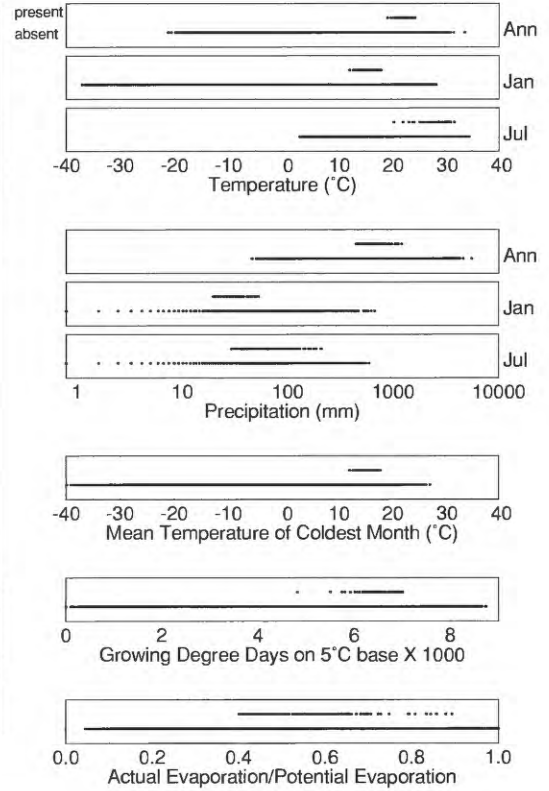
Celtis reticulata



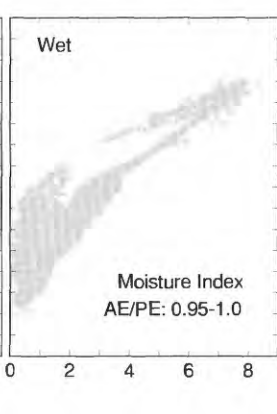
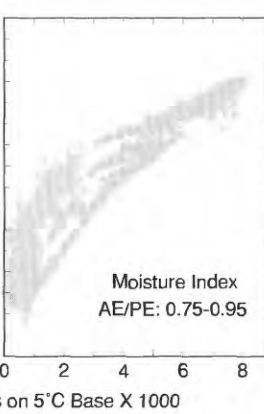
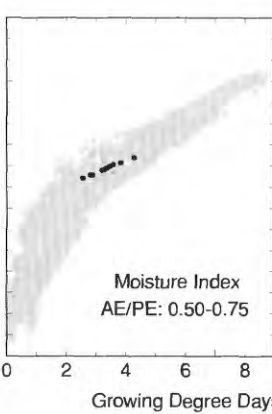
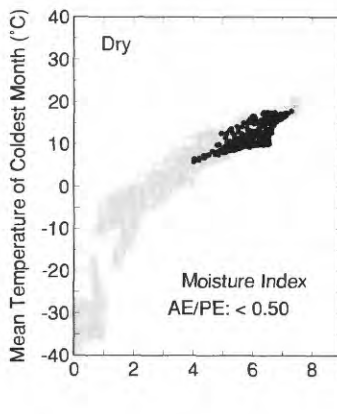
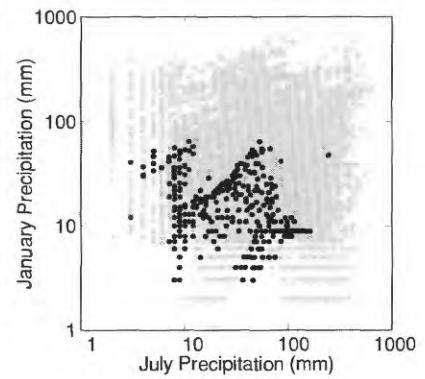
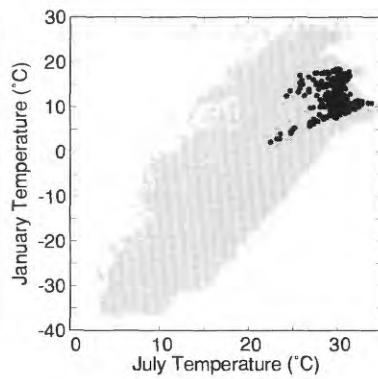
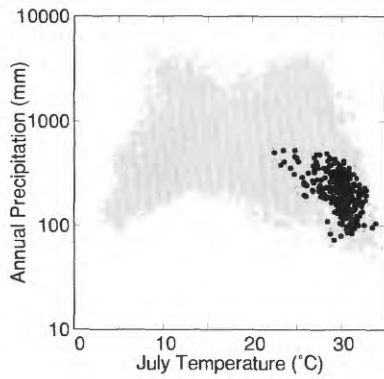
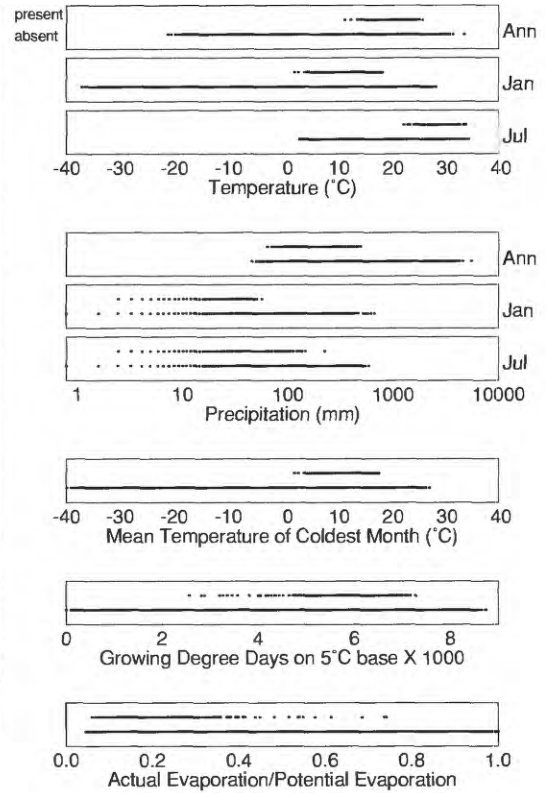
Cercidium floridum



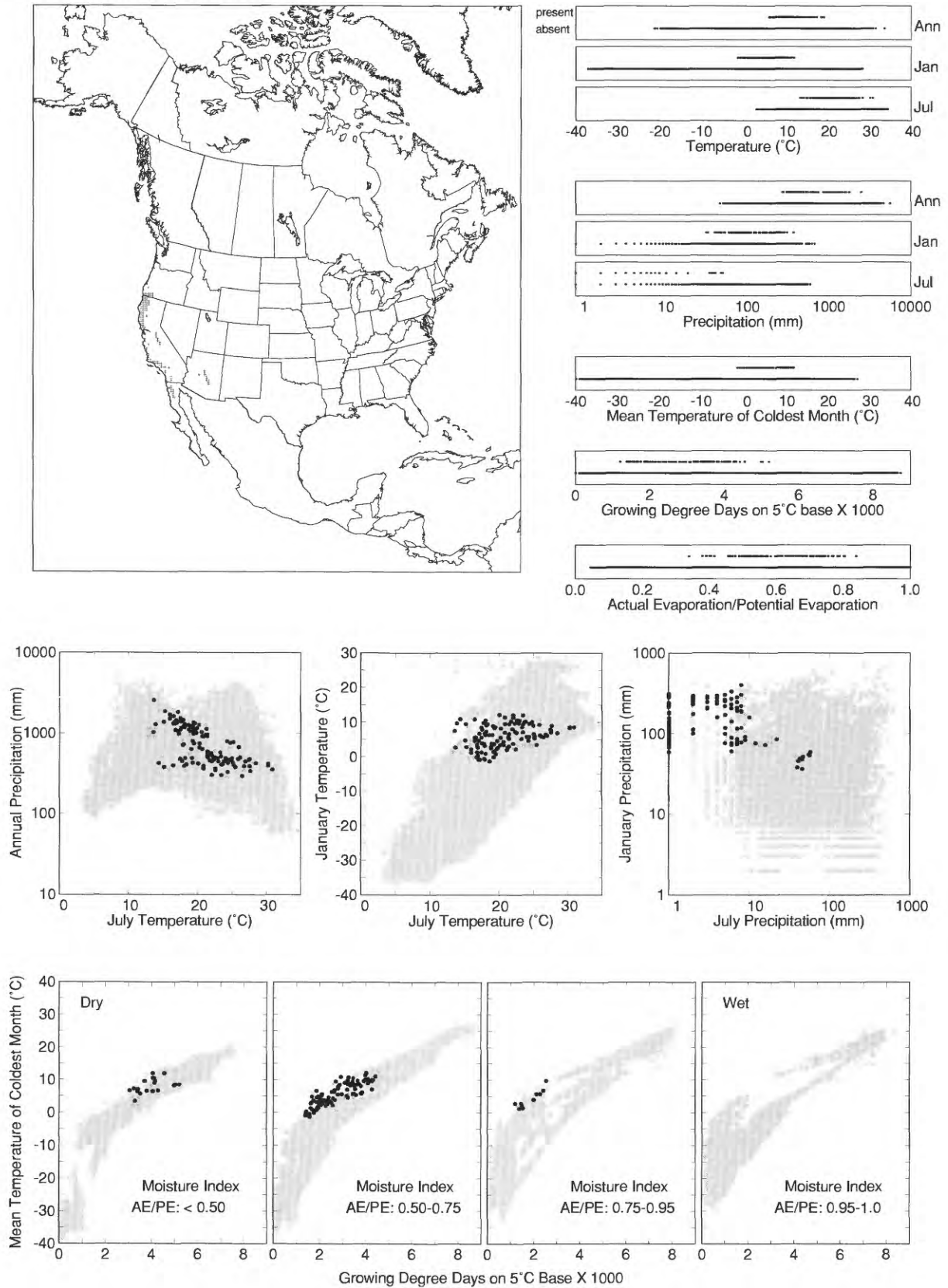
Cercidium macrum



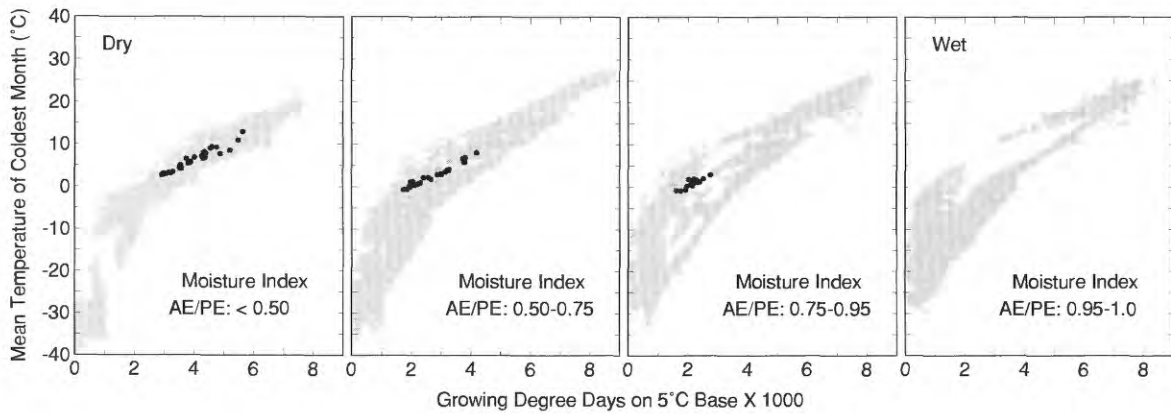
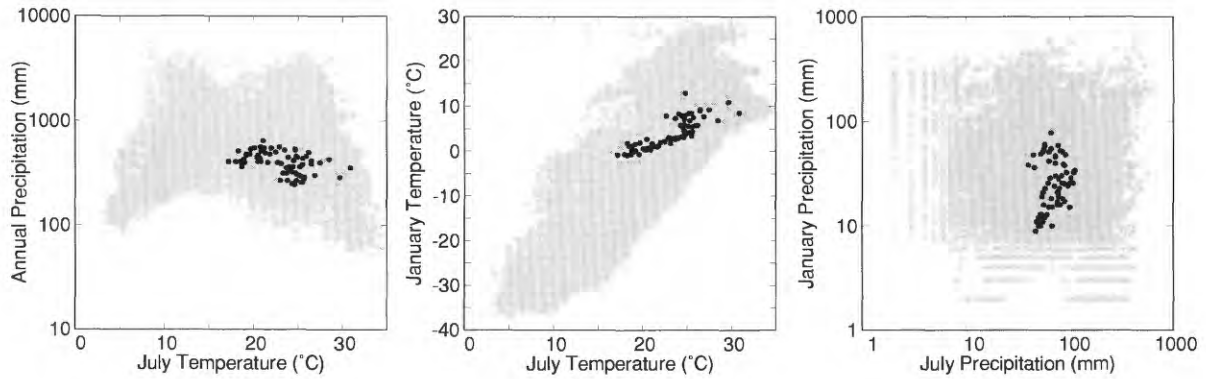
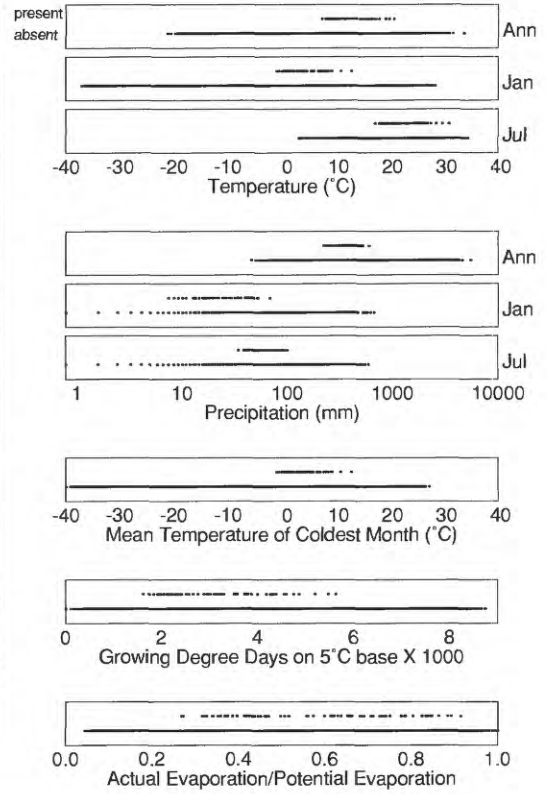
Cercidium microphyllum



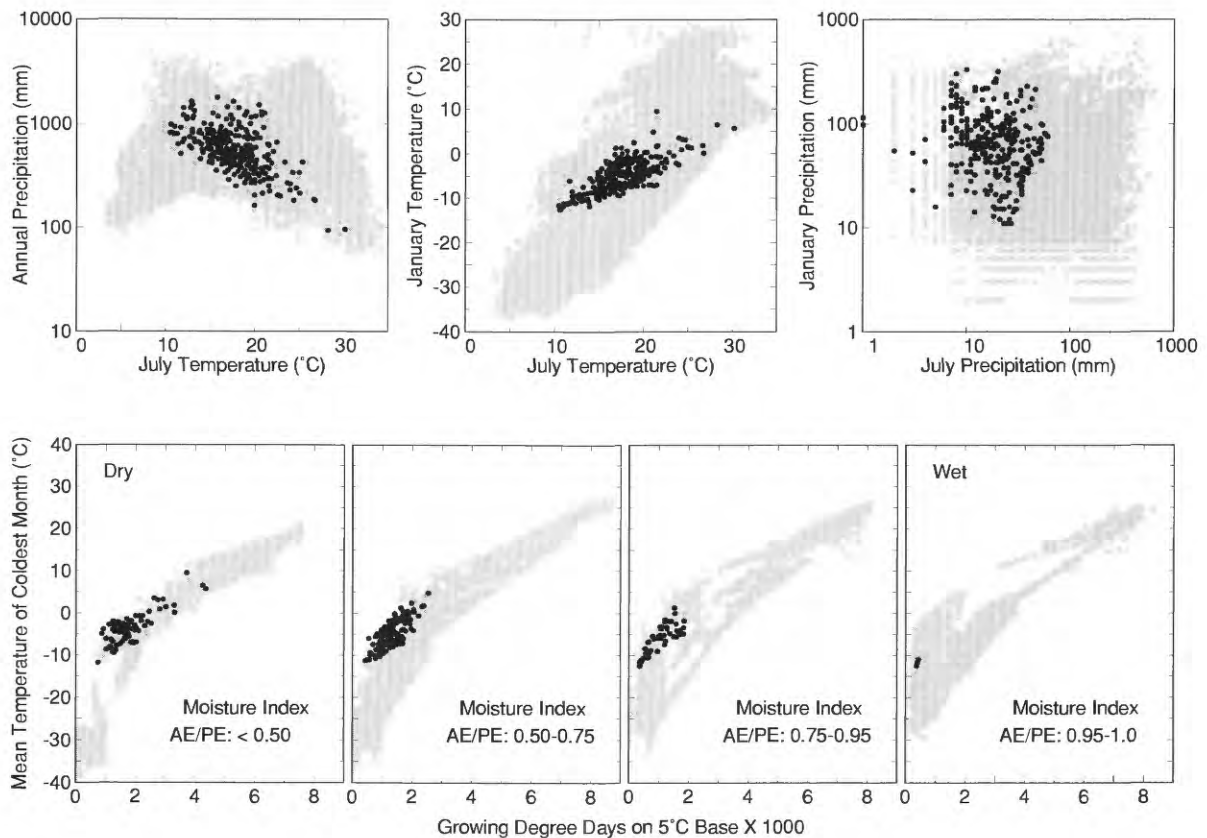
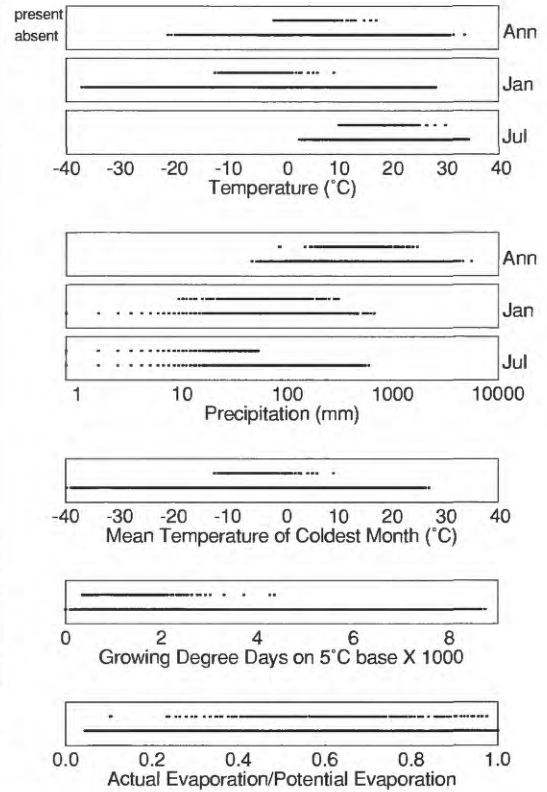
Cercocarpus betuloides



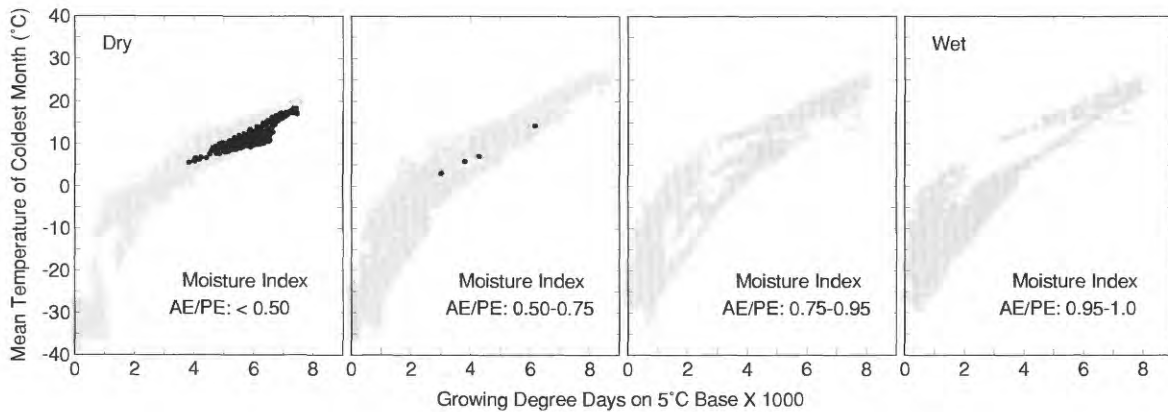
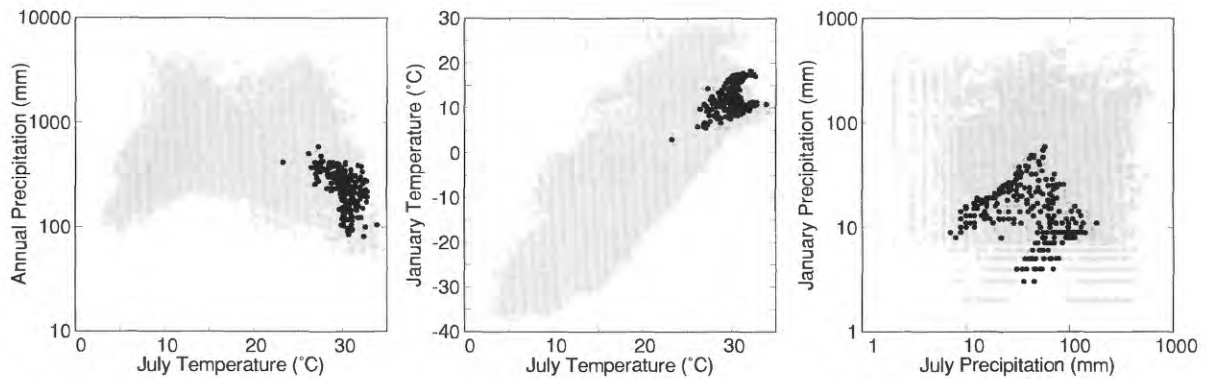
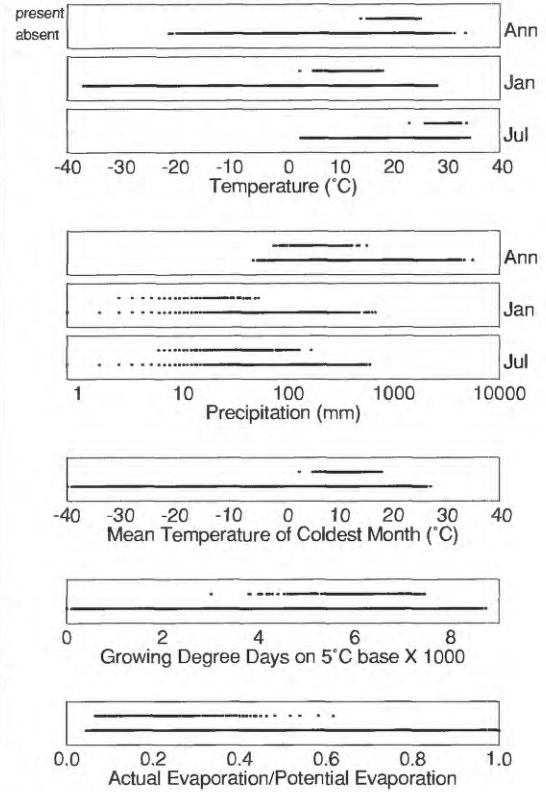
Cercocarpus breviflorus



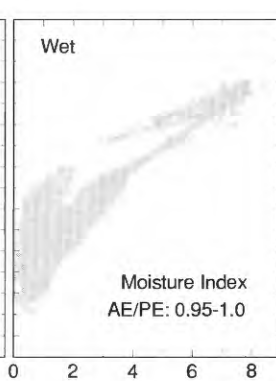
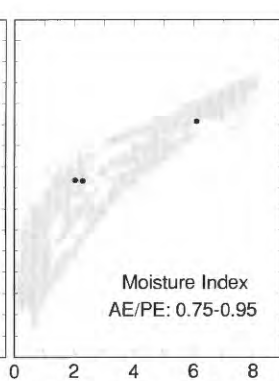
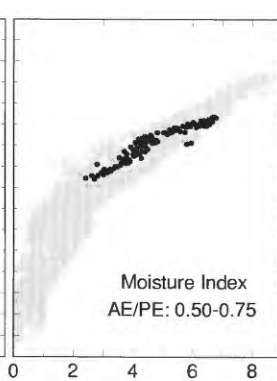
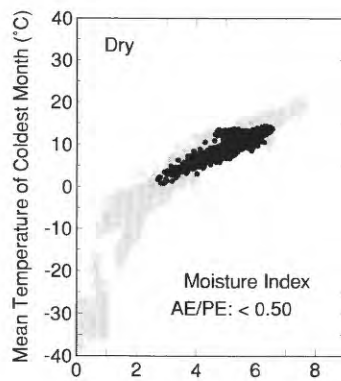
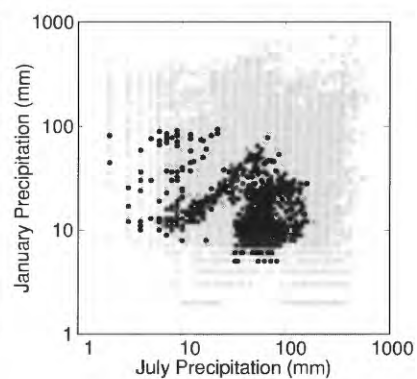
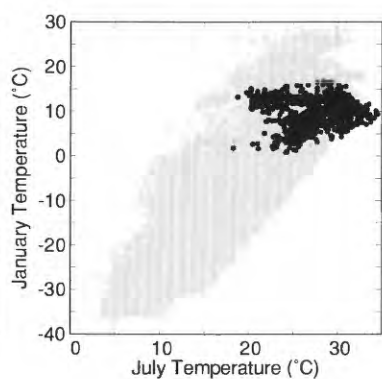
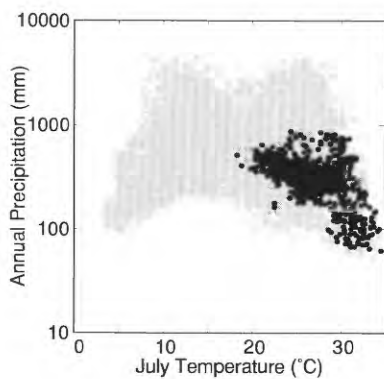
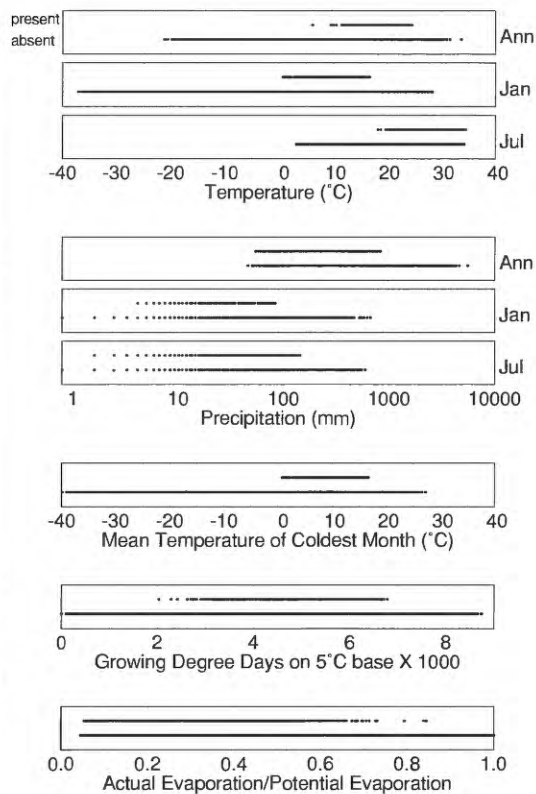
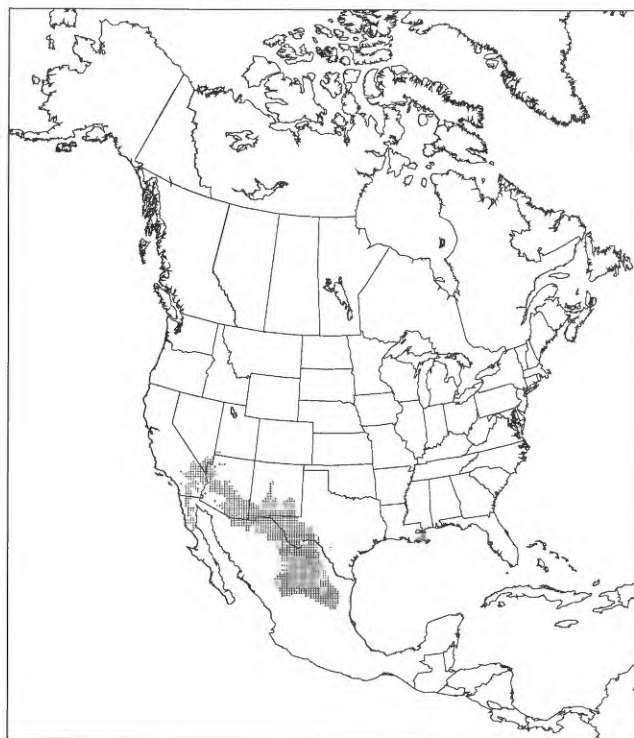
Cercocarpus ledifolius



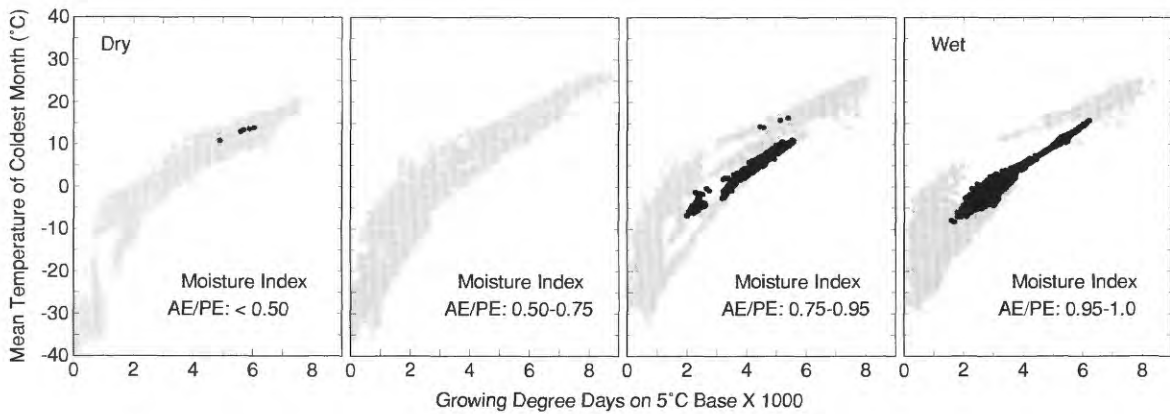
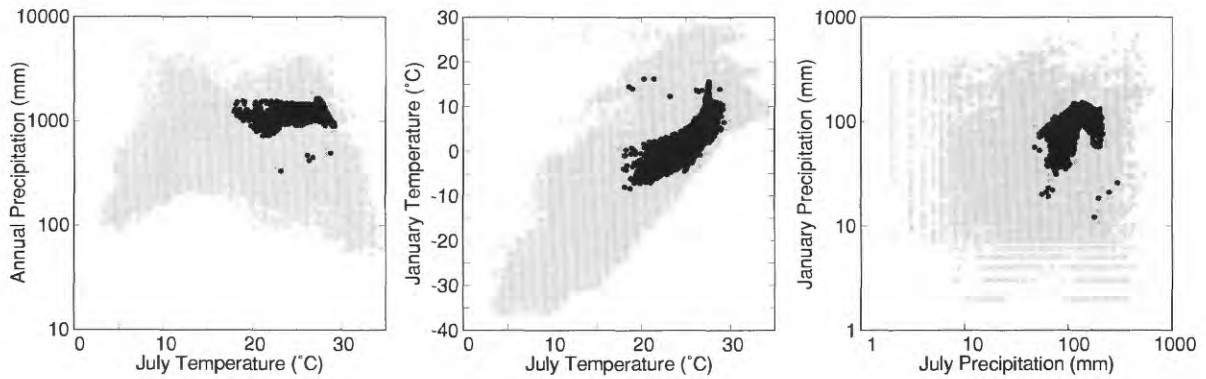
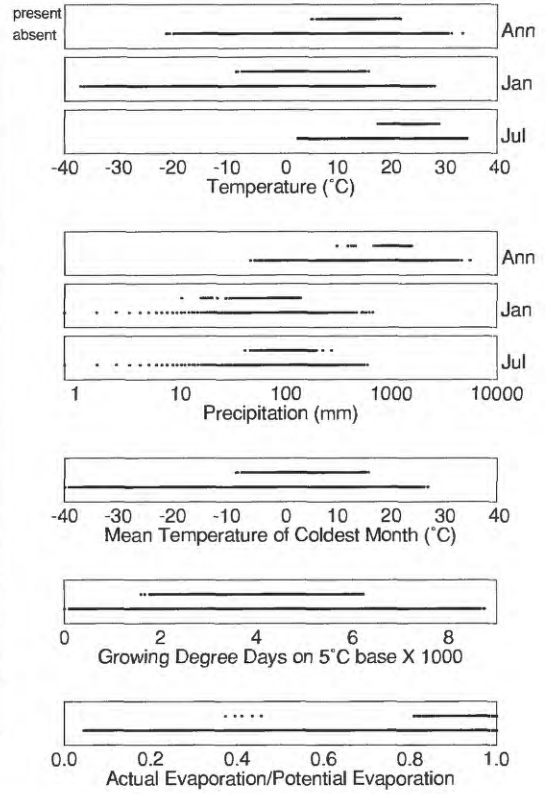
Cereus giganteus



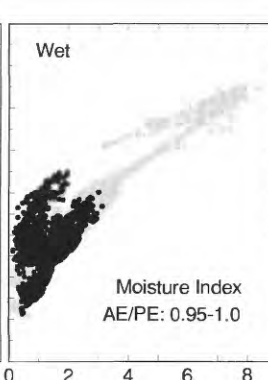
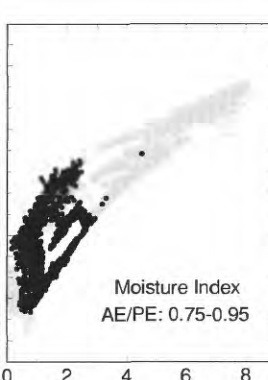
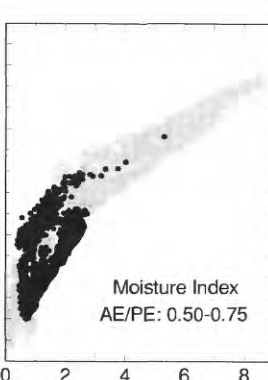
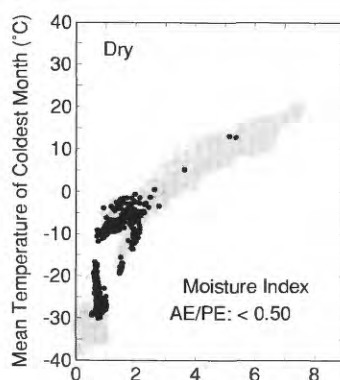
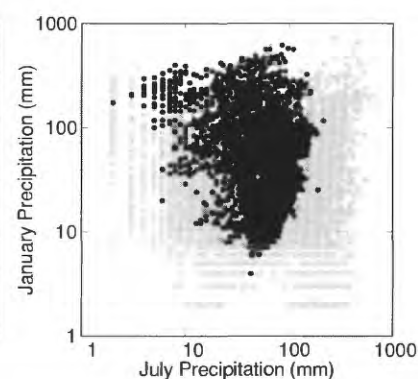
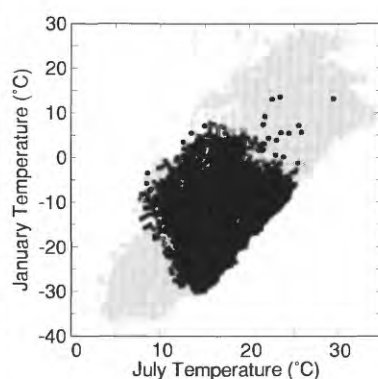
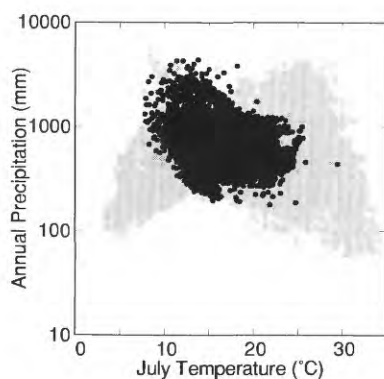
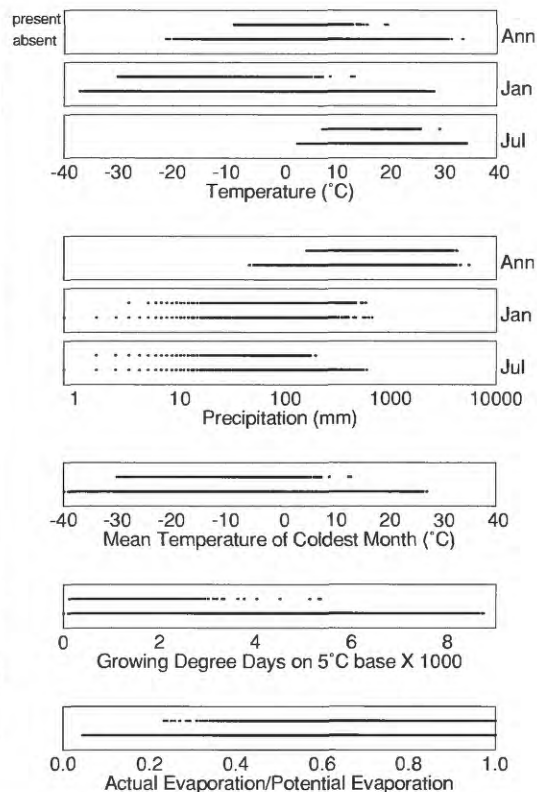
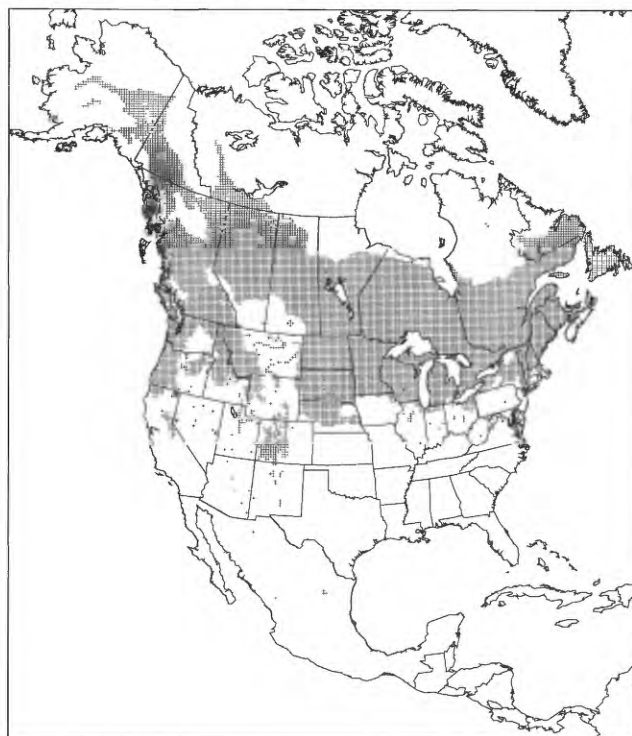
Chilopsis linearis



Cornus florida

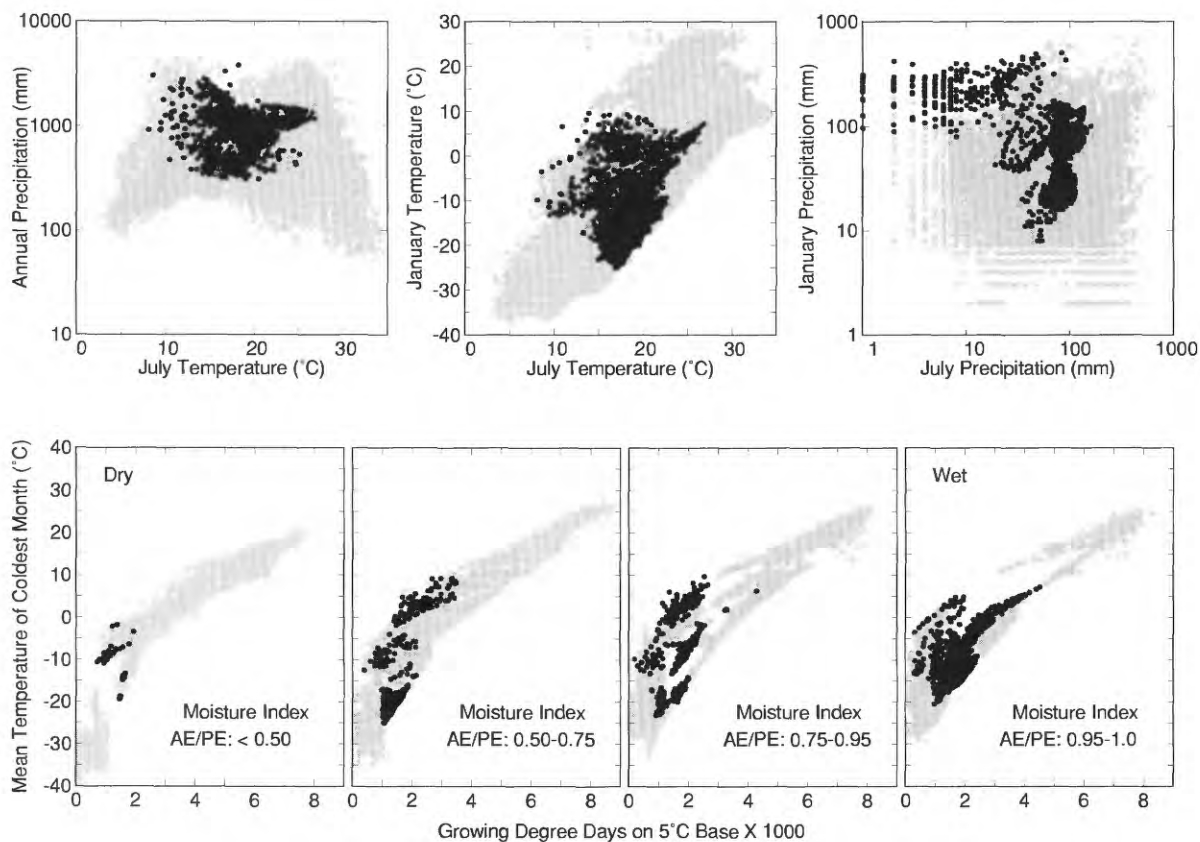
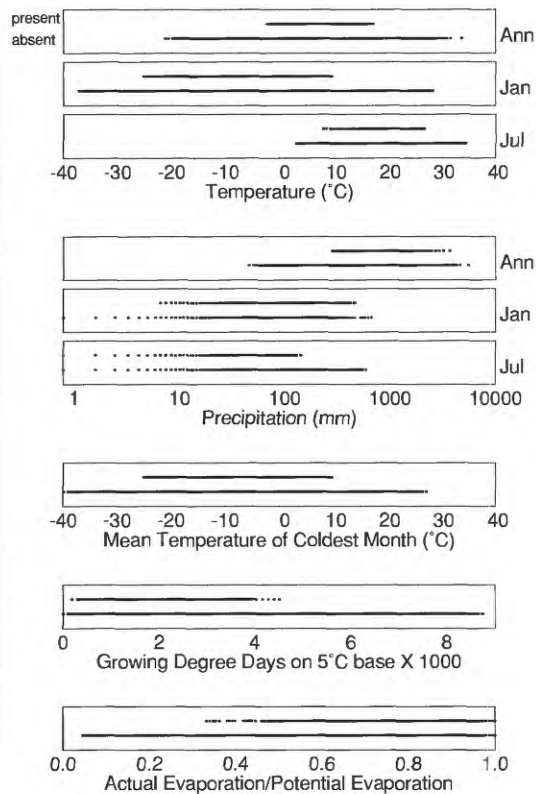
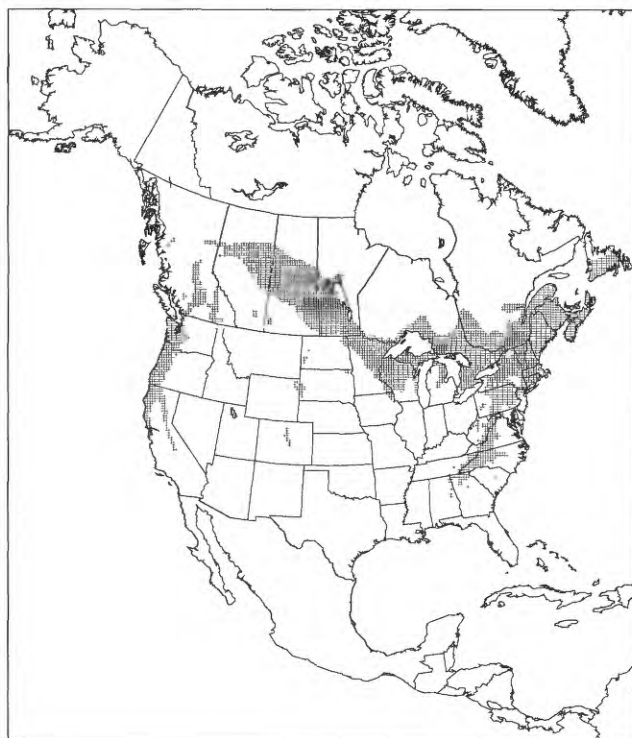


Cornus stolonifera

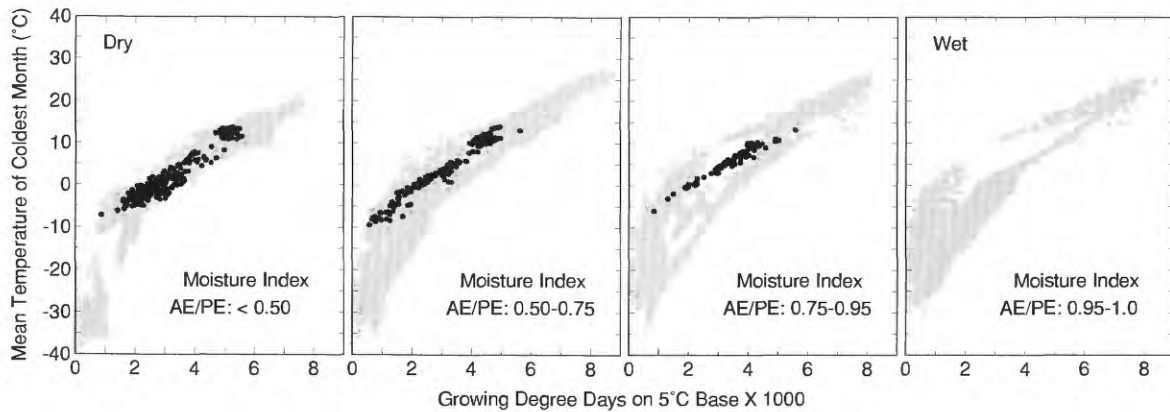
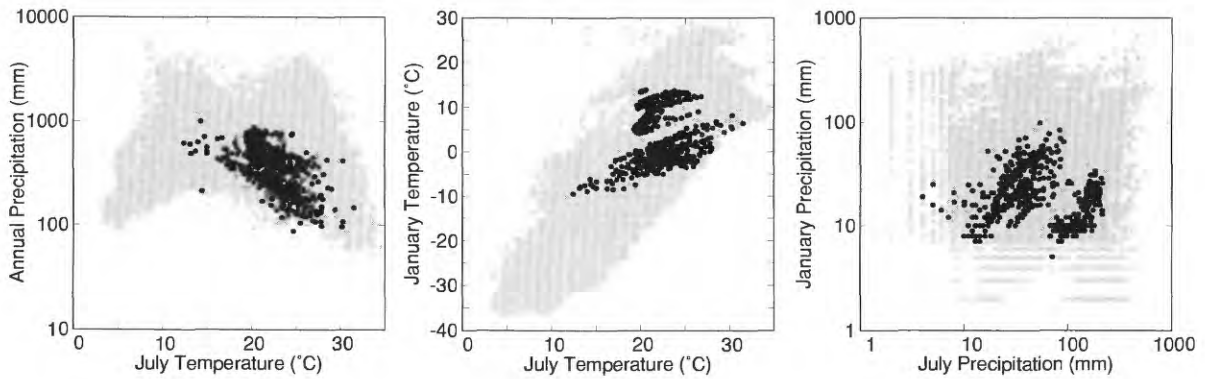
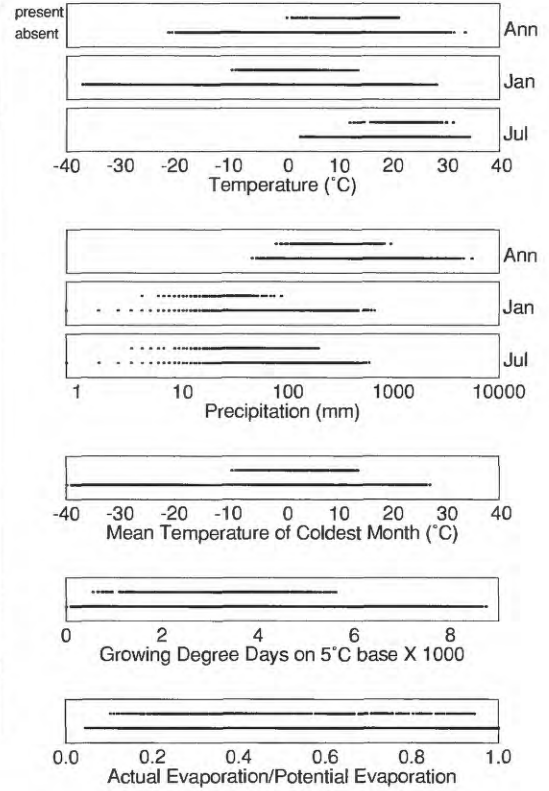
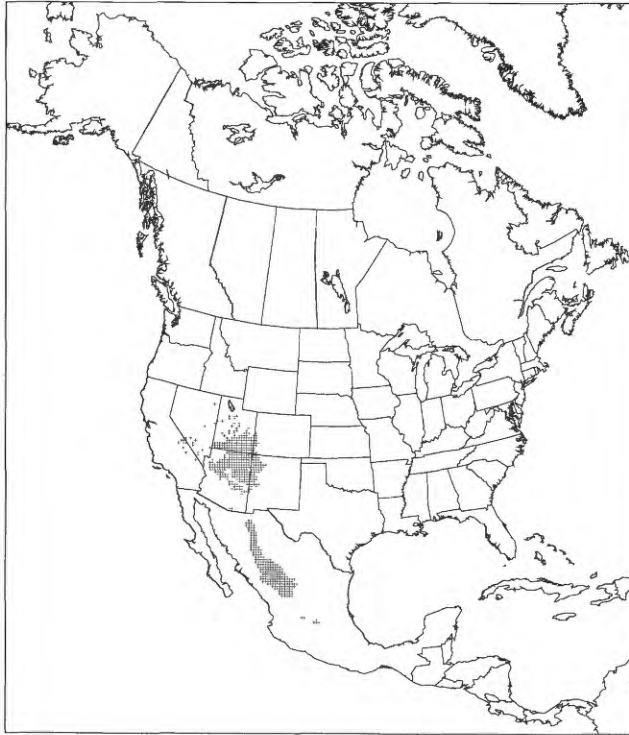


Growing Degree Days on 5°C Base X 1000

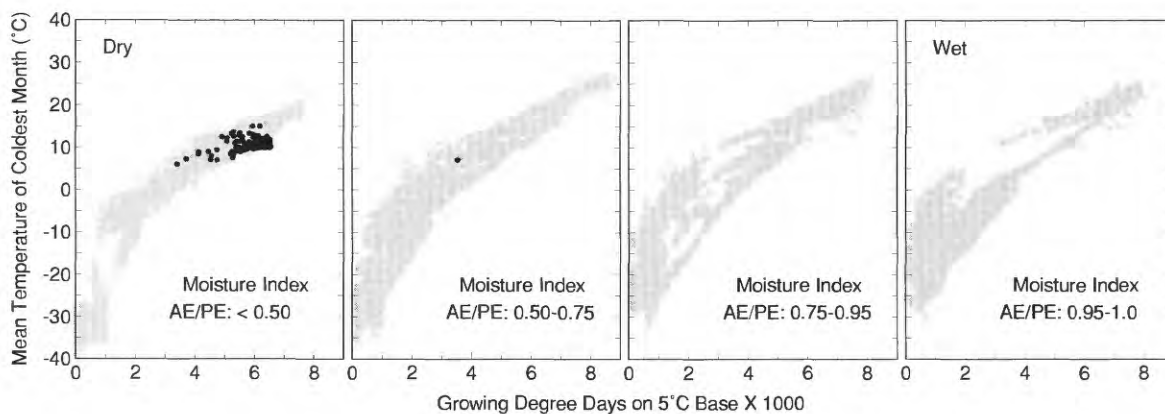
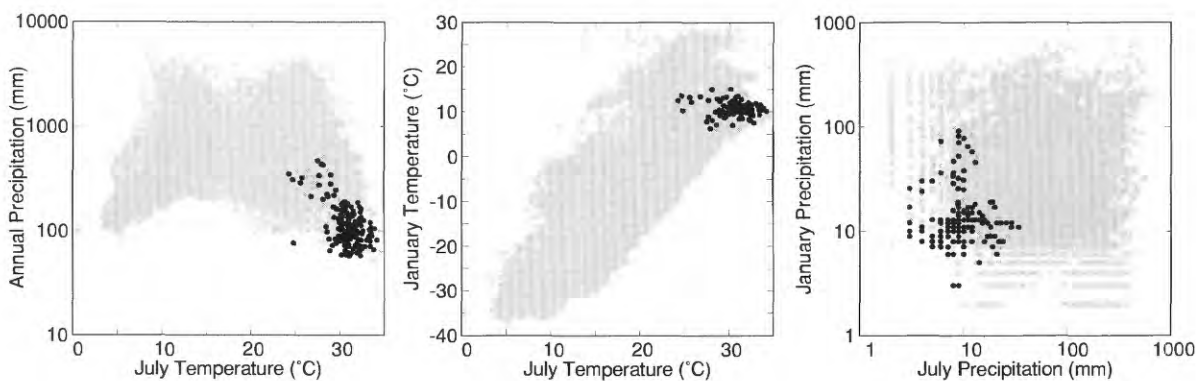
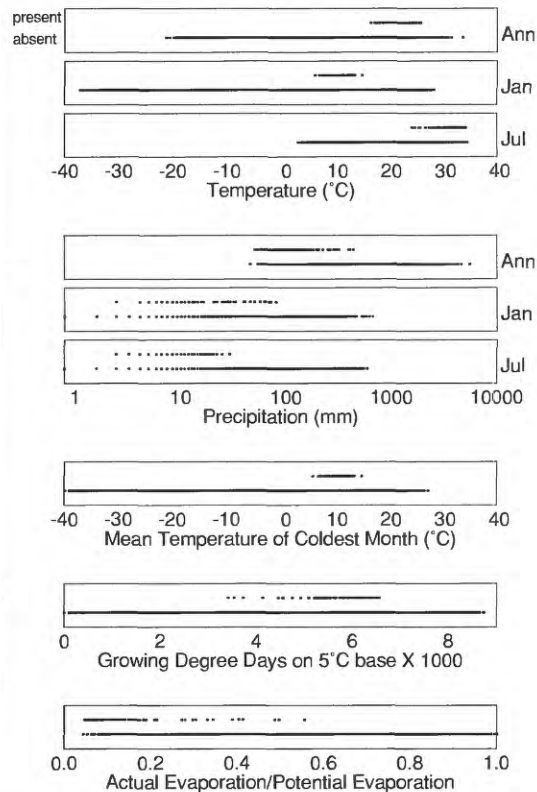
Corylus cornuta



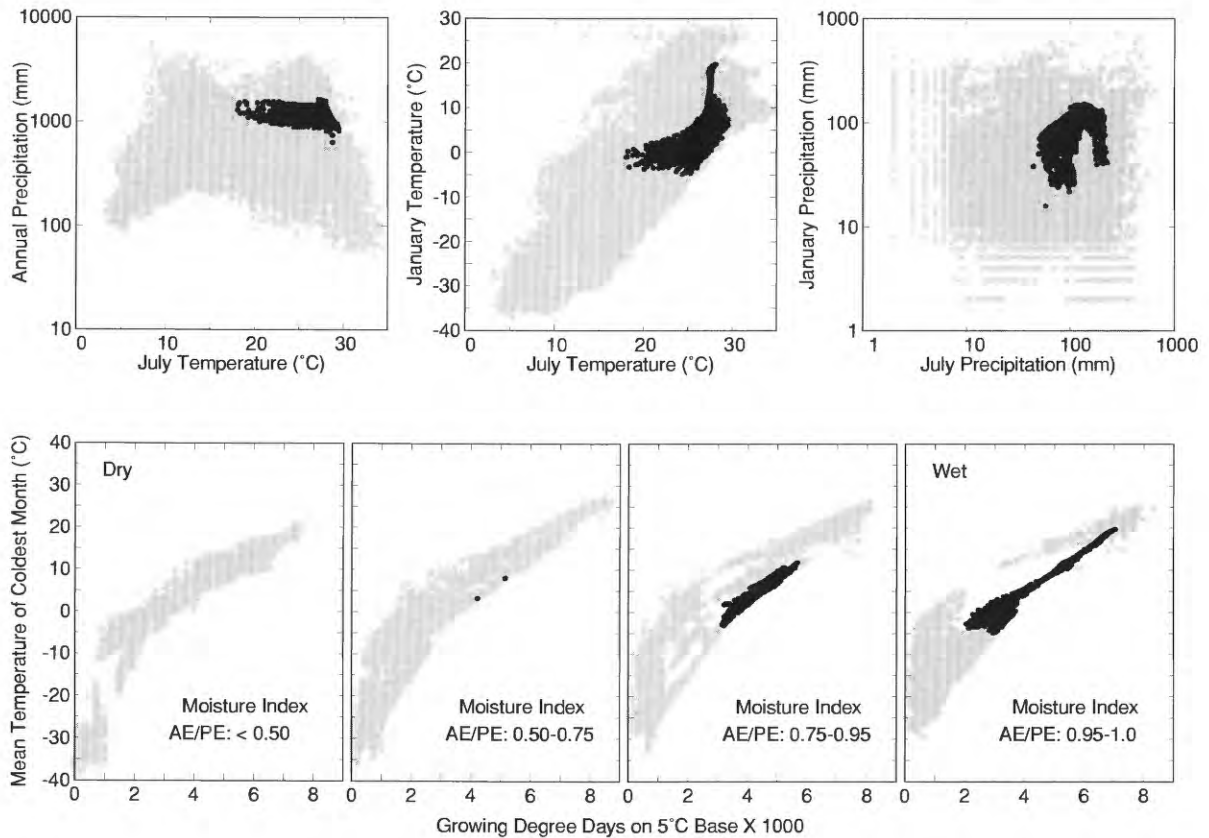
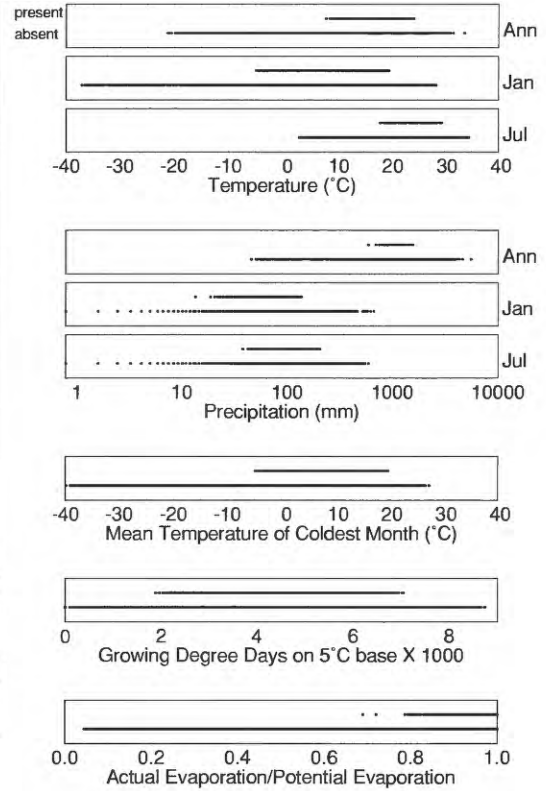
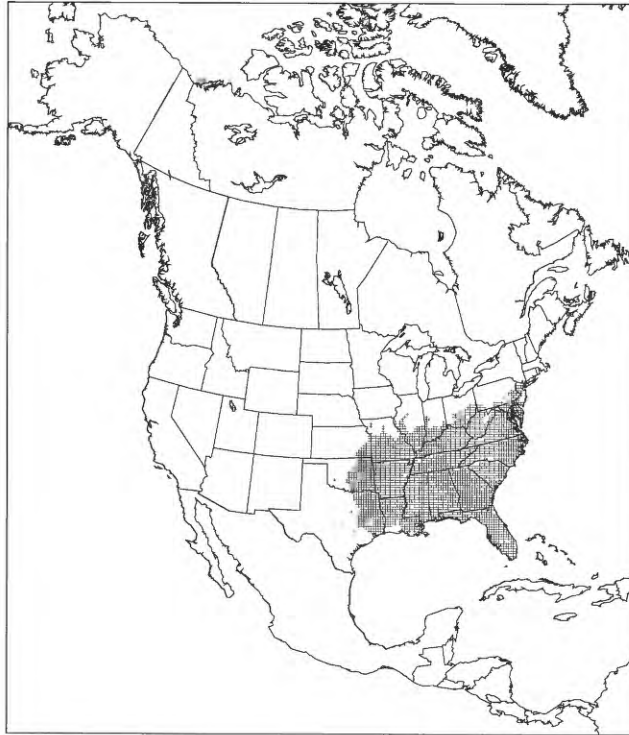
Cowania mexicana



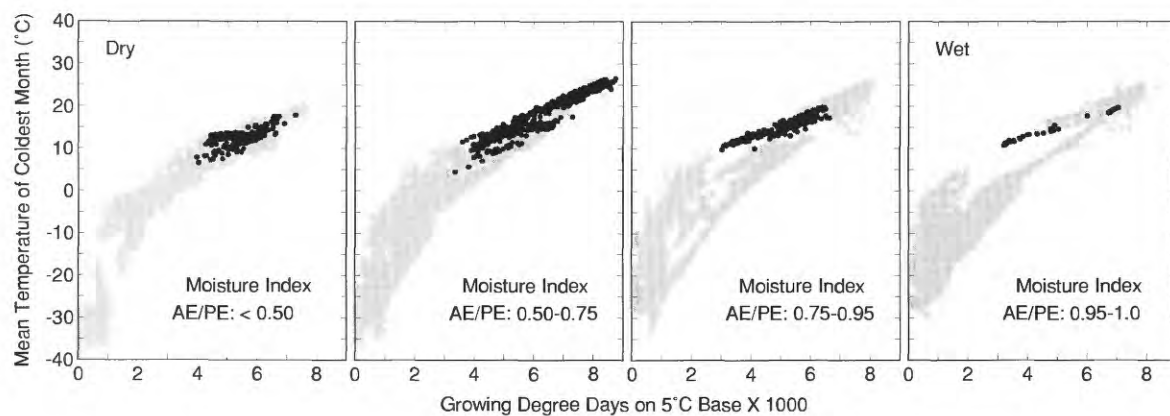
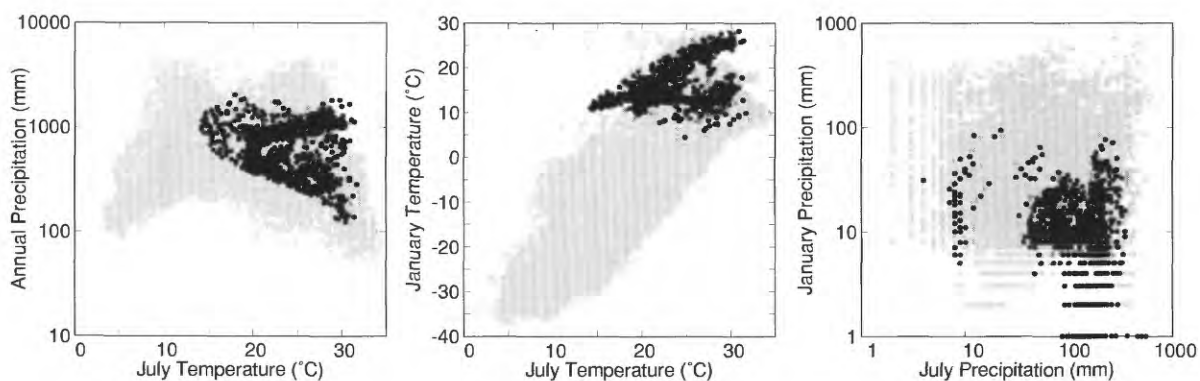
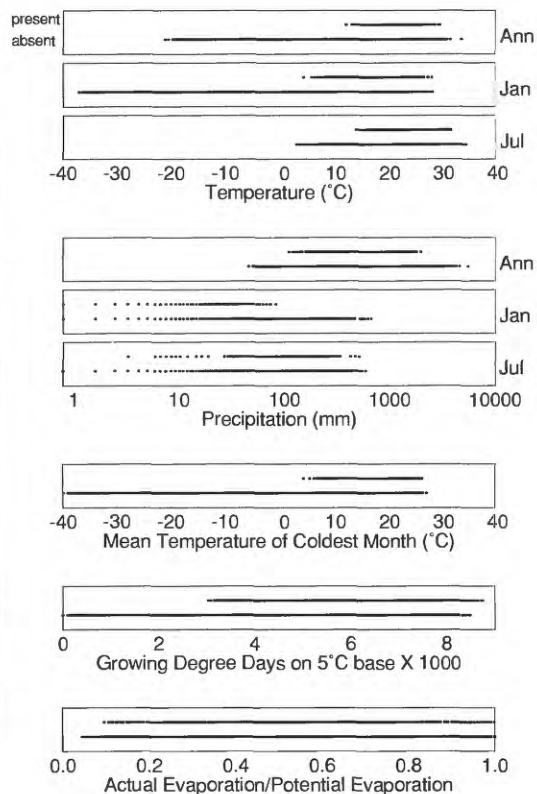
Dalea spinosa



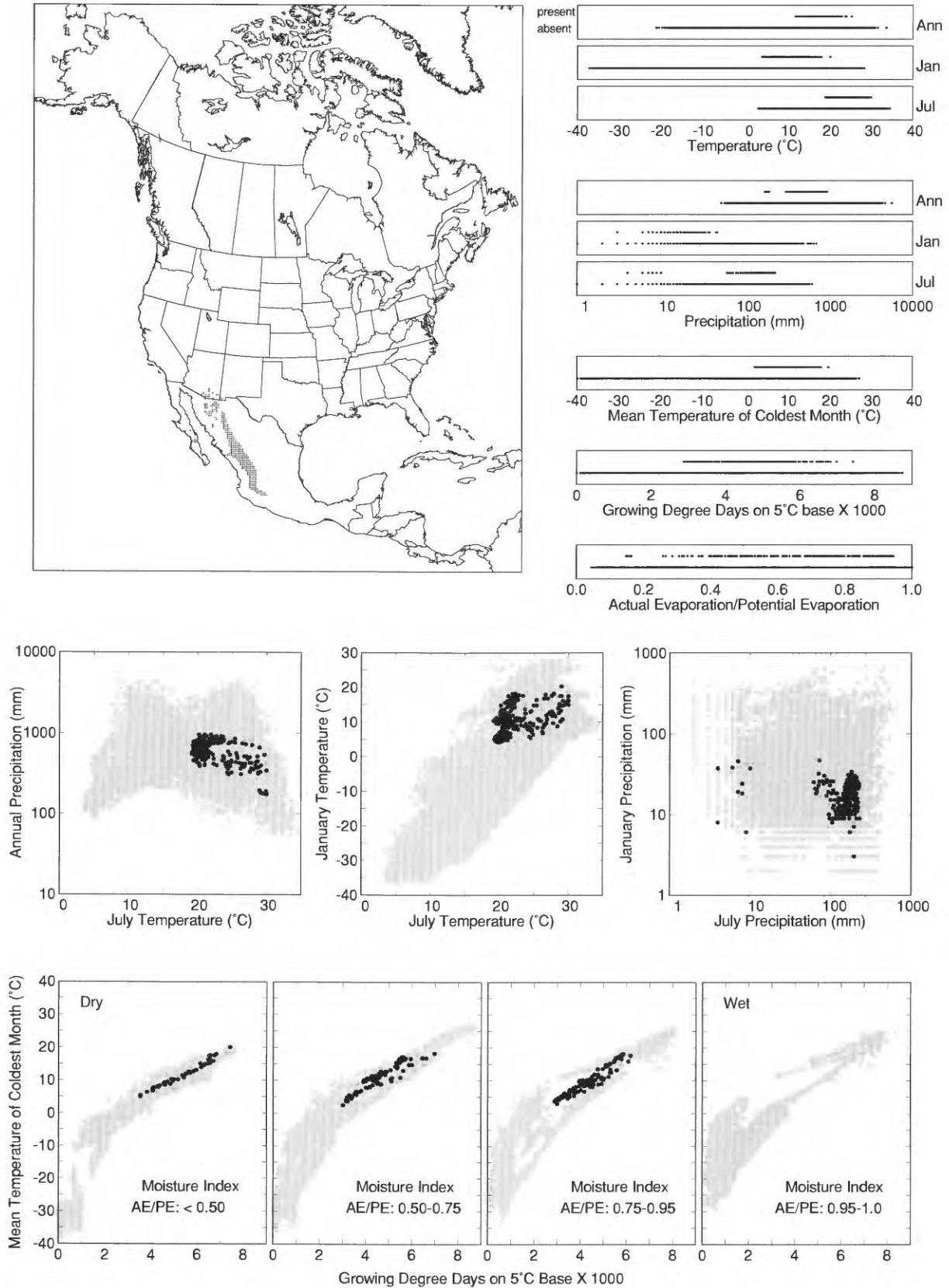
Diospyros virginiana



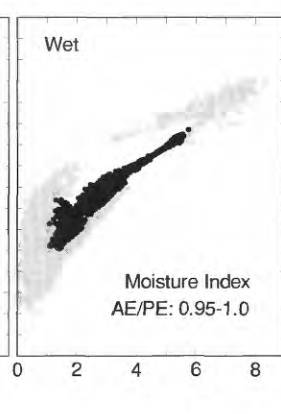
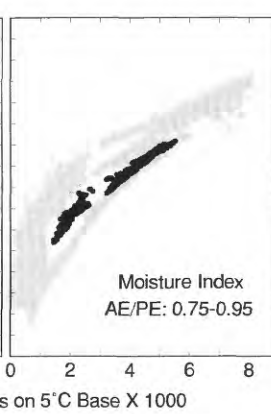
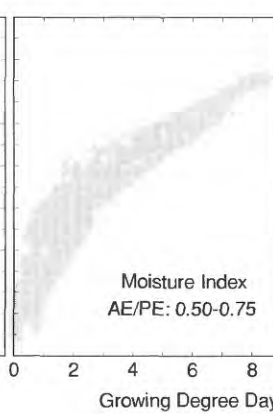
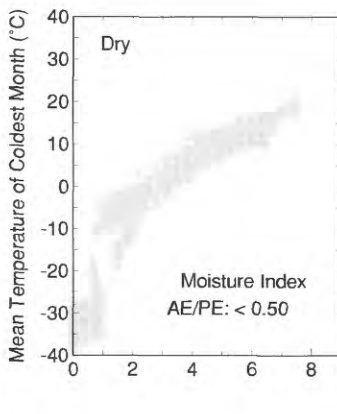
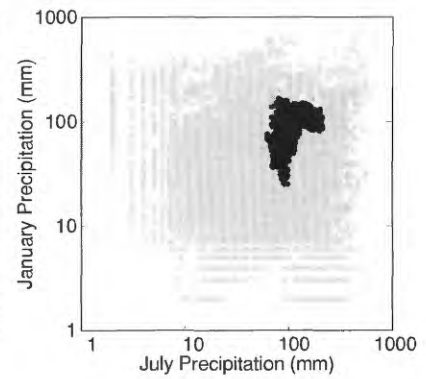
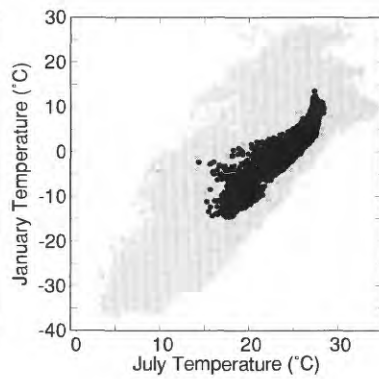
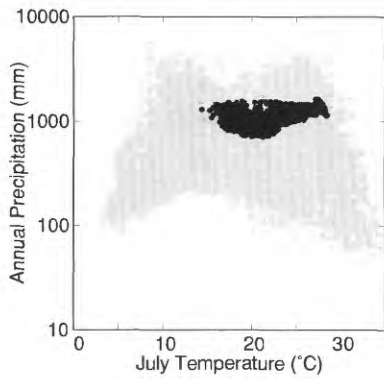
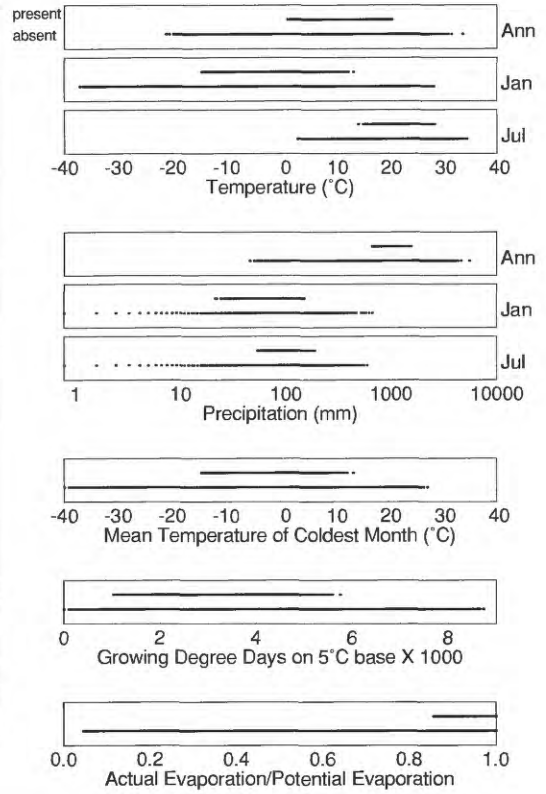
Dodonaea viscosa



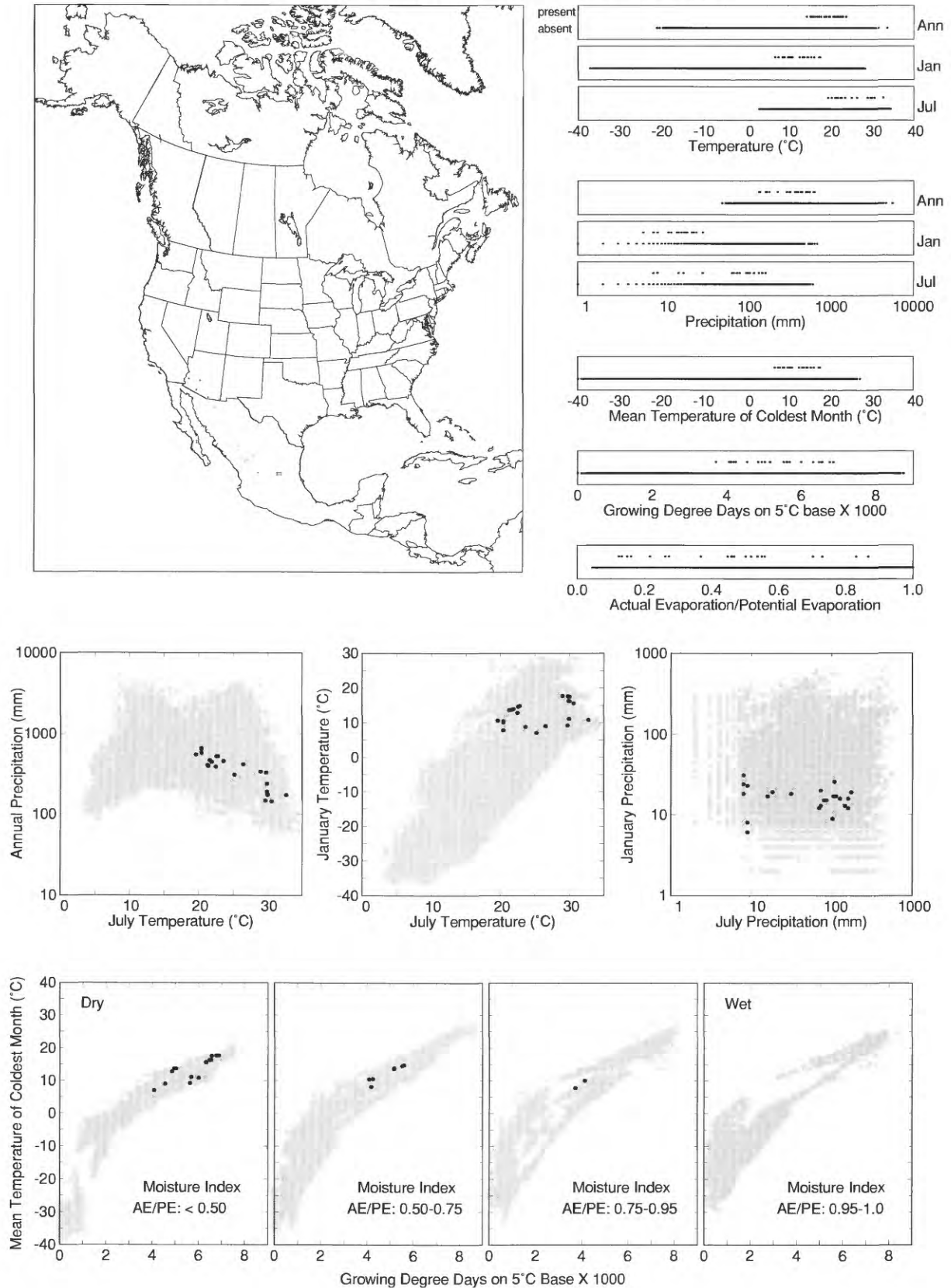
Erythrina flabelliformis



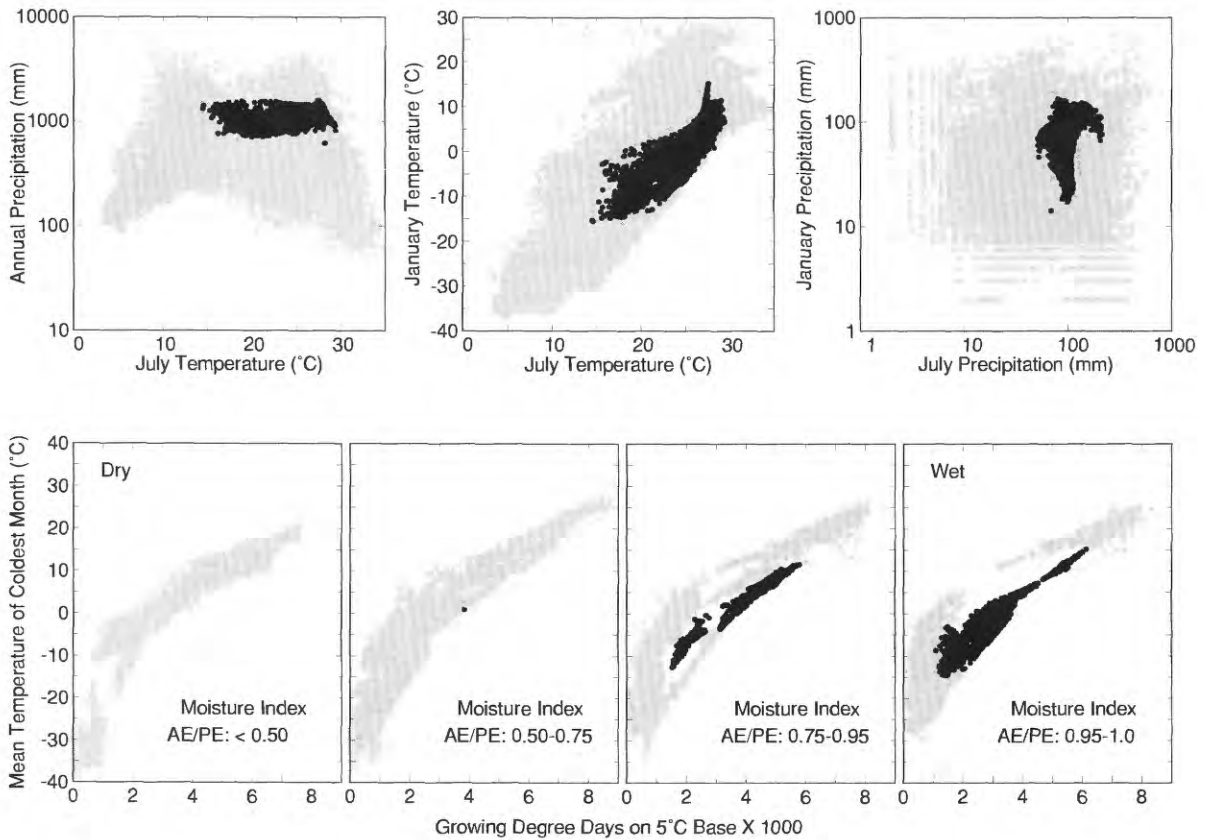
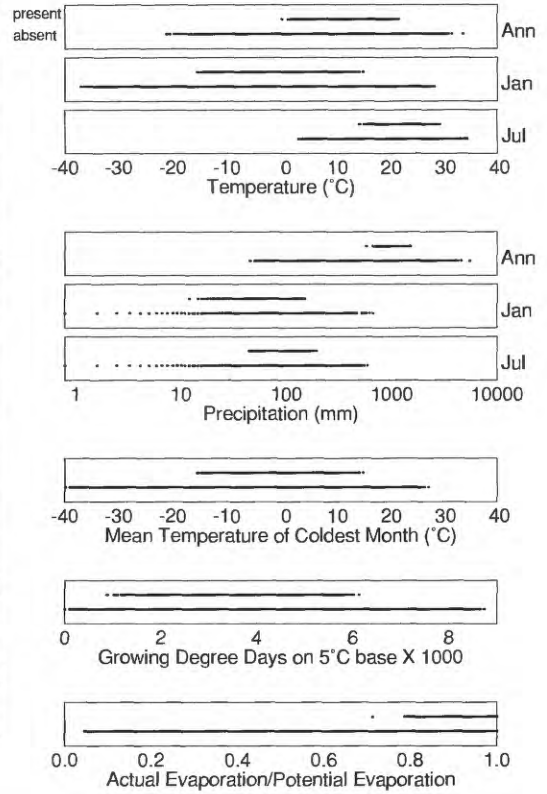
Fagus grandifolia



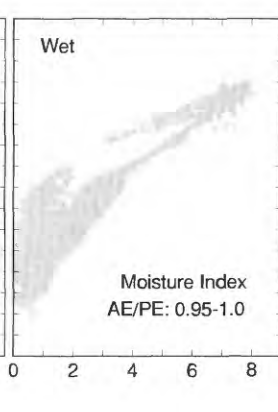
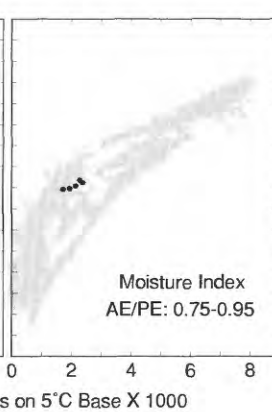
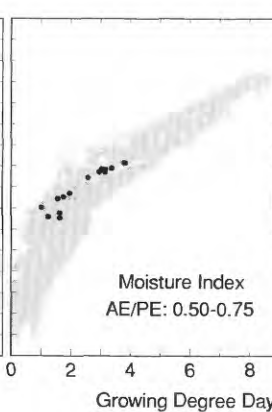
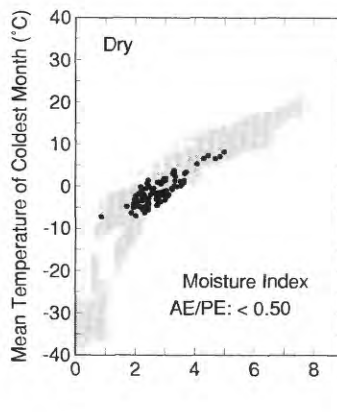
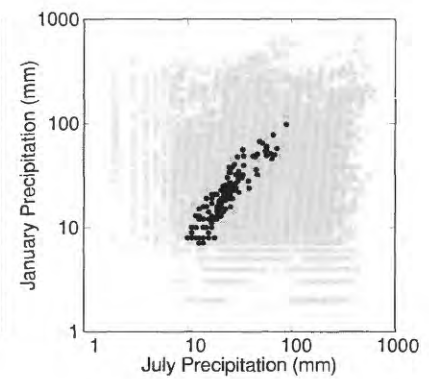
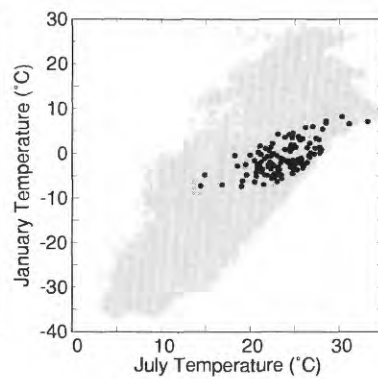
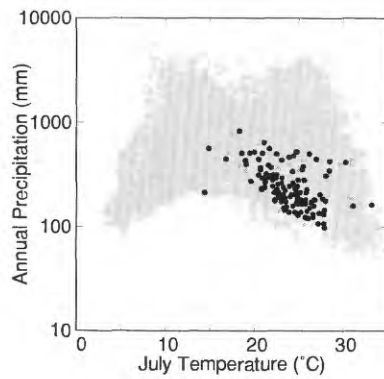
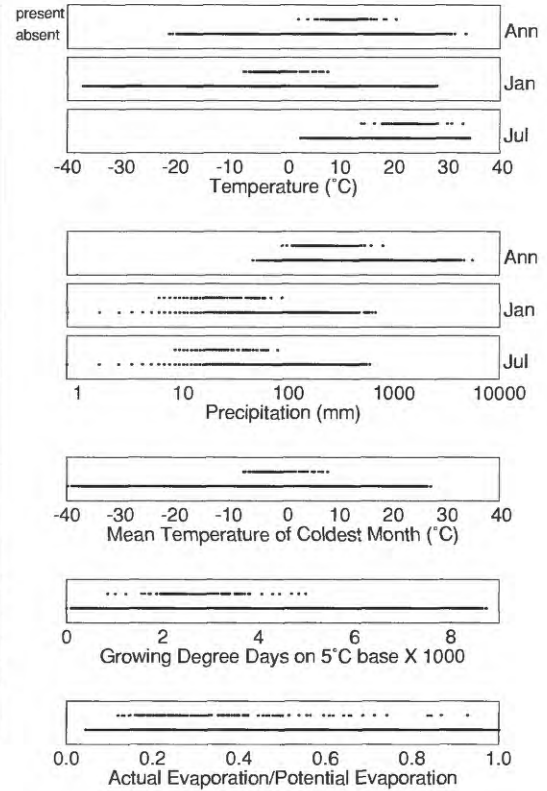
Forestiera phillyreoides (southern range not available)

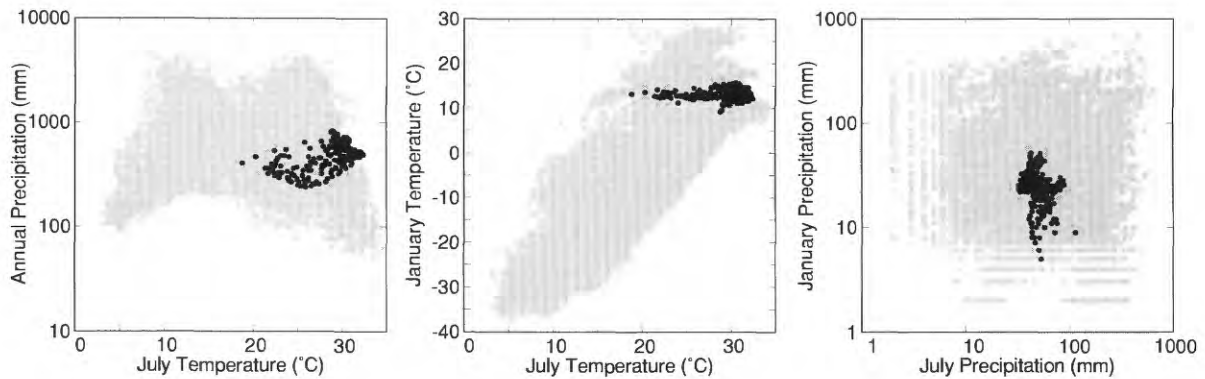


Fraxinus americana

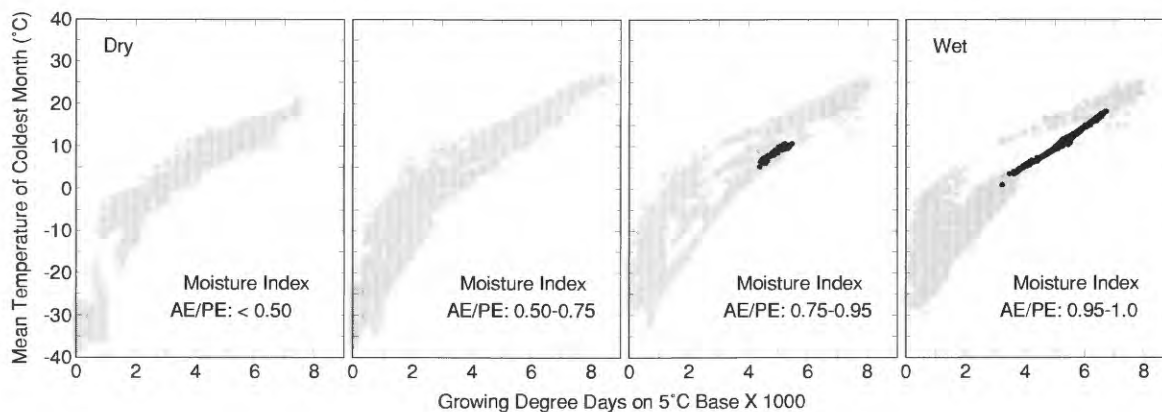
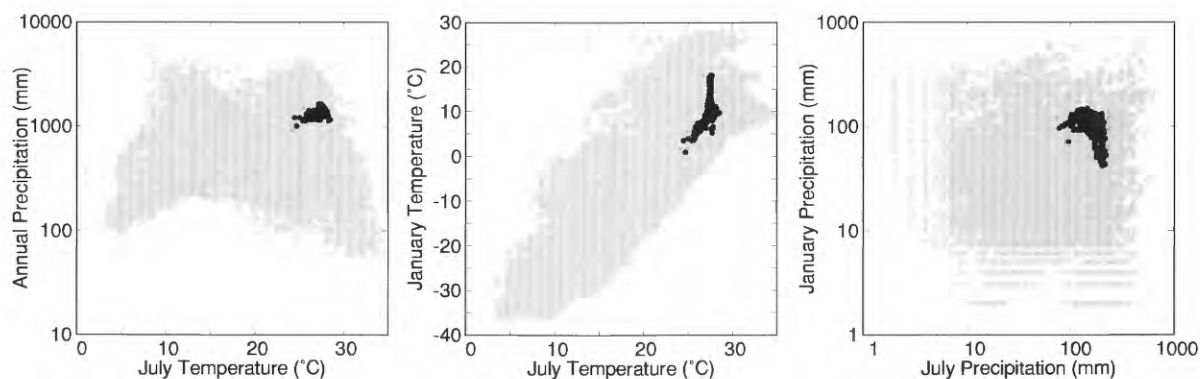
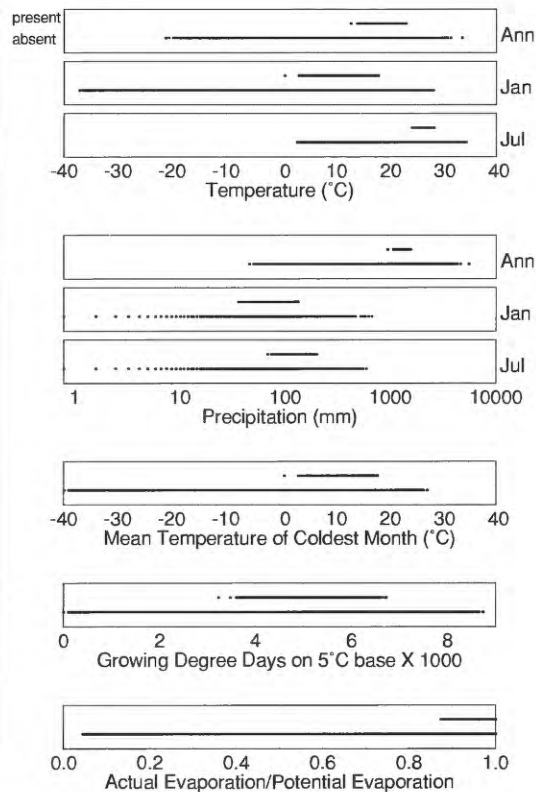


Fraxinus anomala

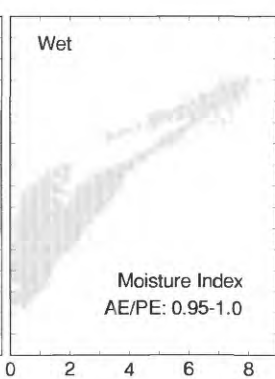
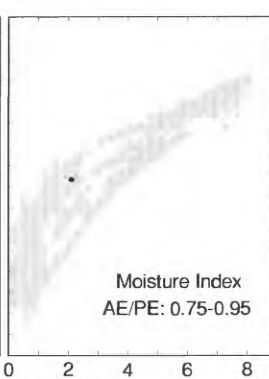
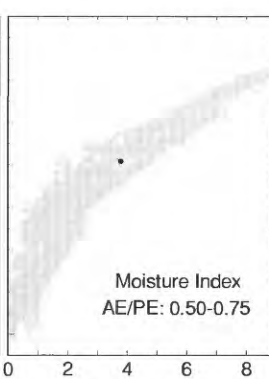
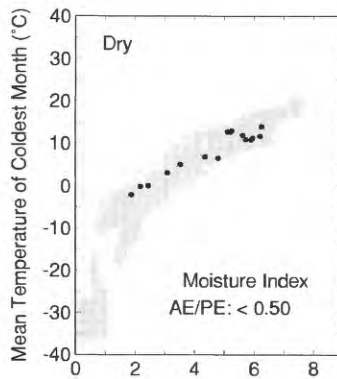
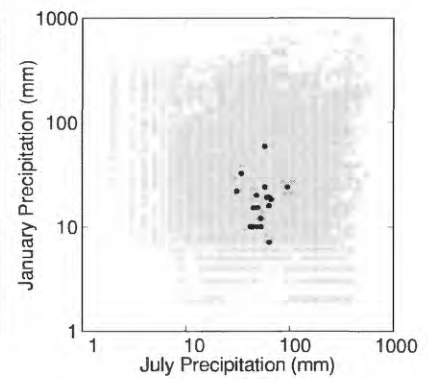
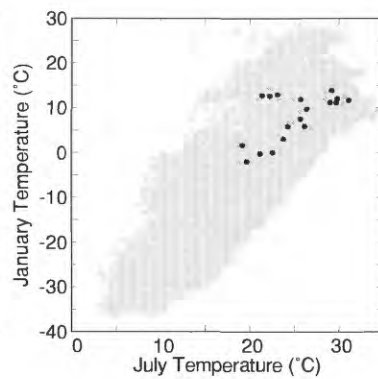
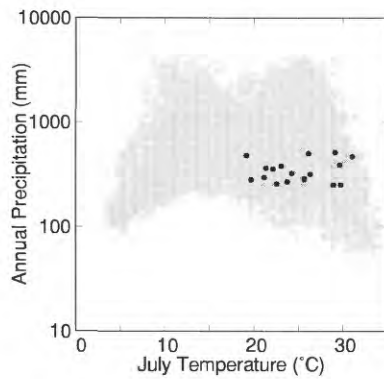
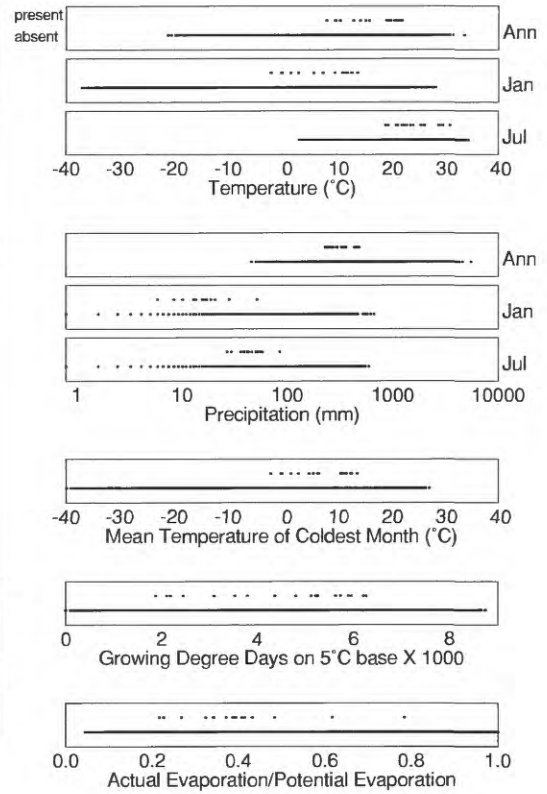




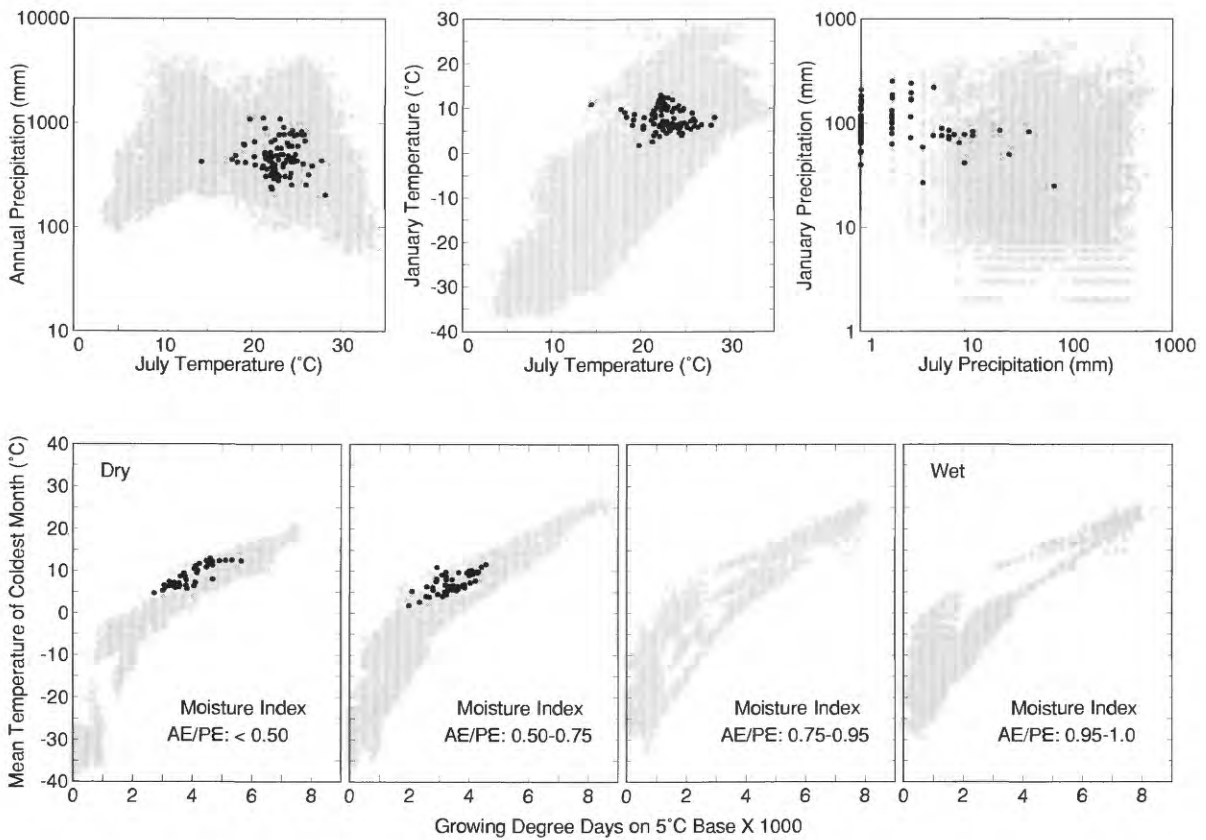
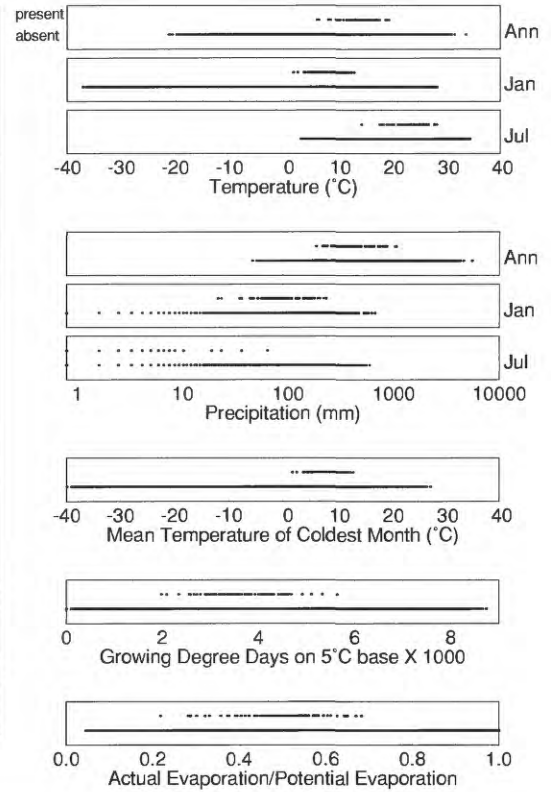
Fraxinus caroliniana



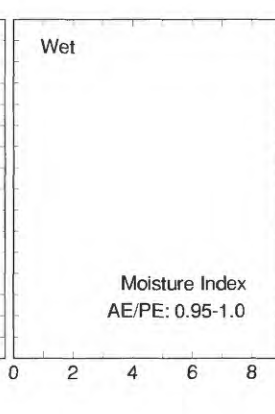
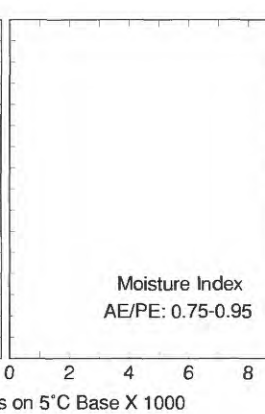
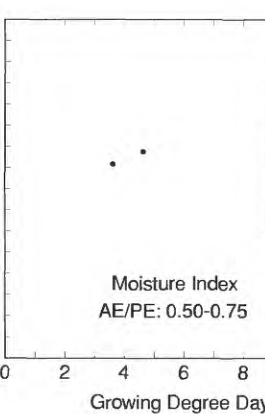
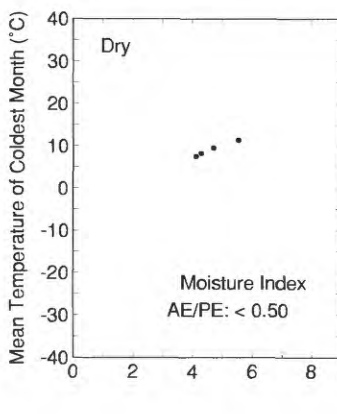
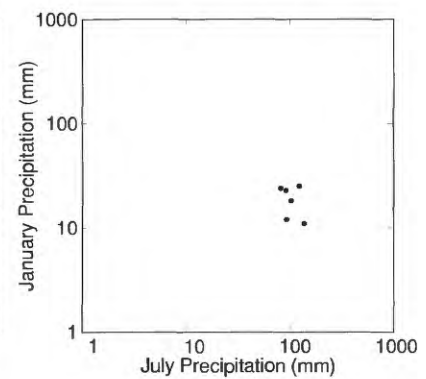
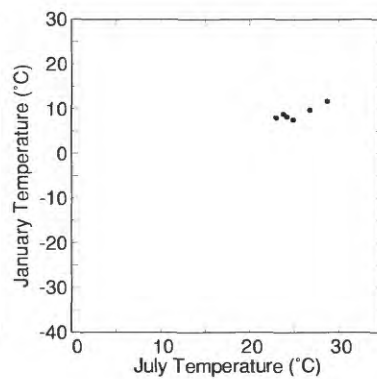
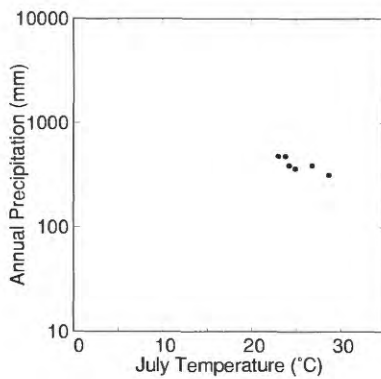
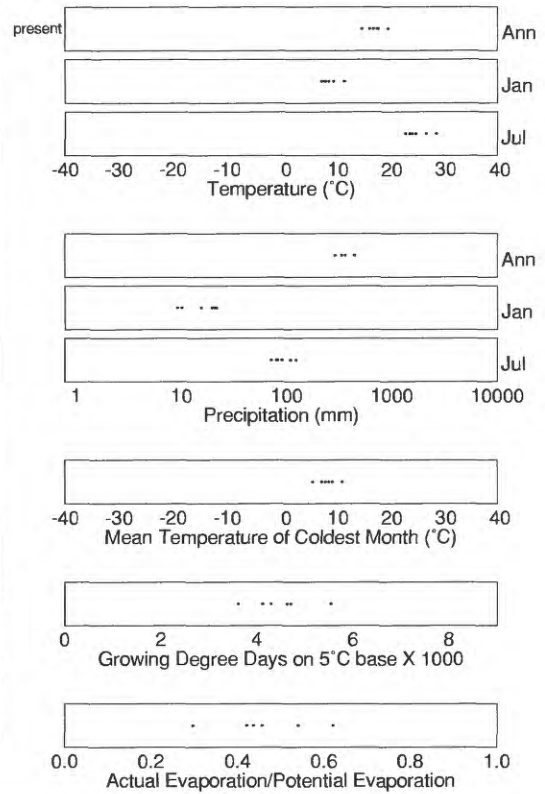
Fraxinus cuspidata



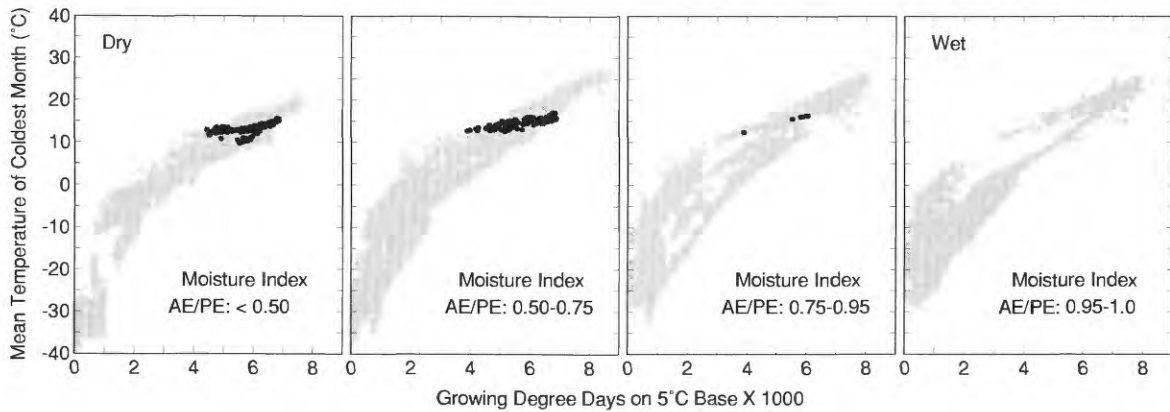
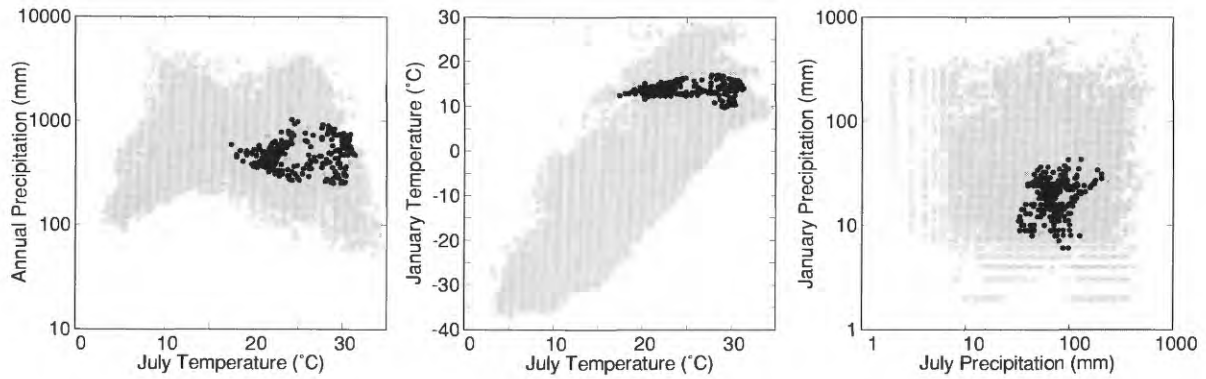
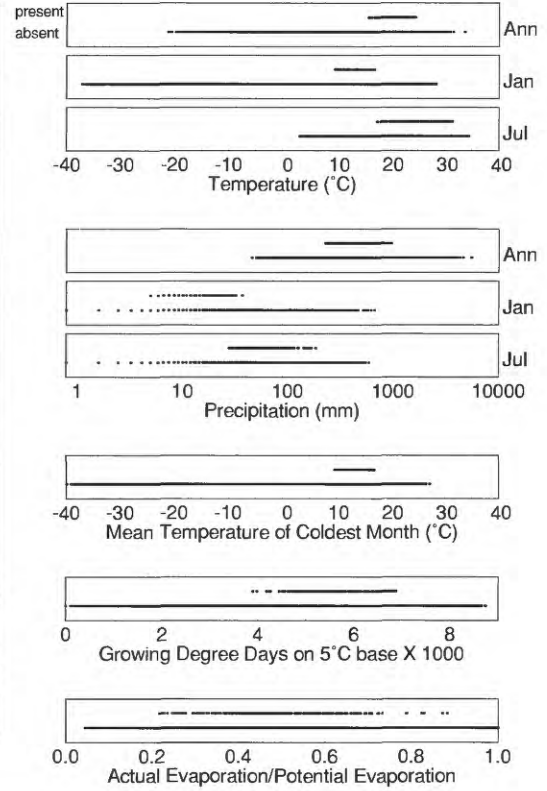
Fraxinus dipetala



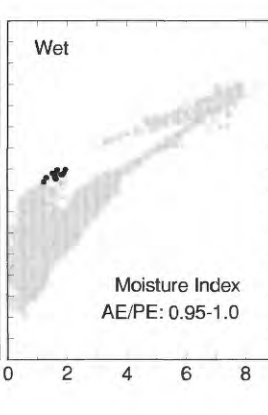
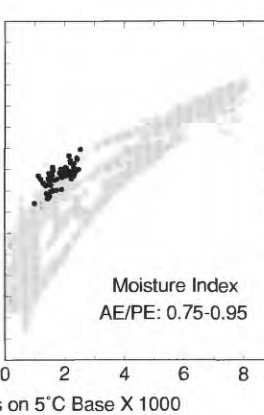
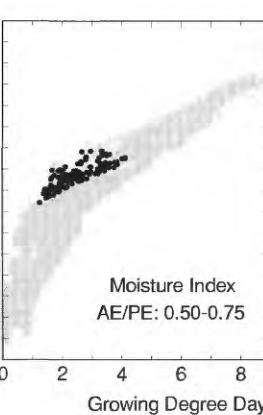
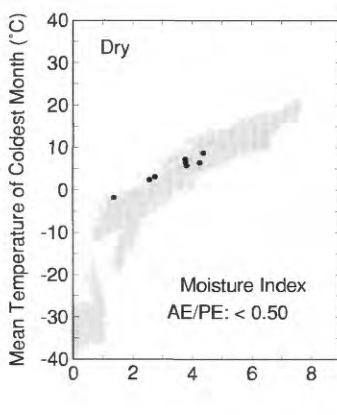
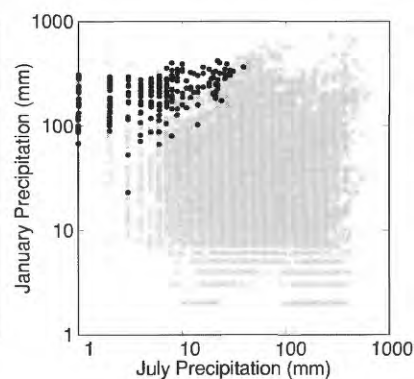
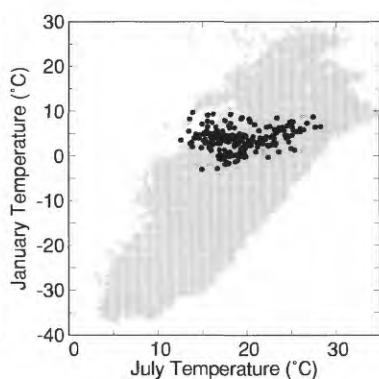
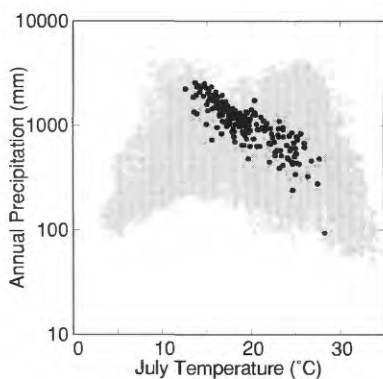
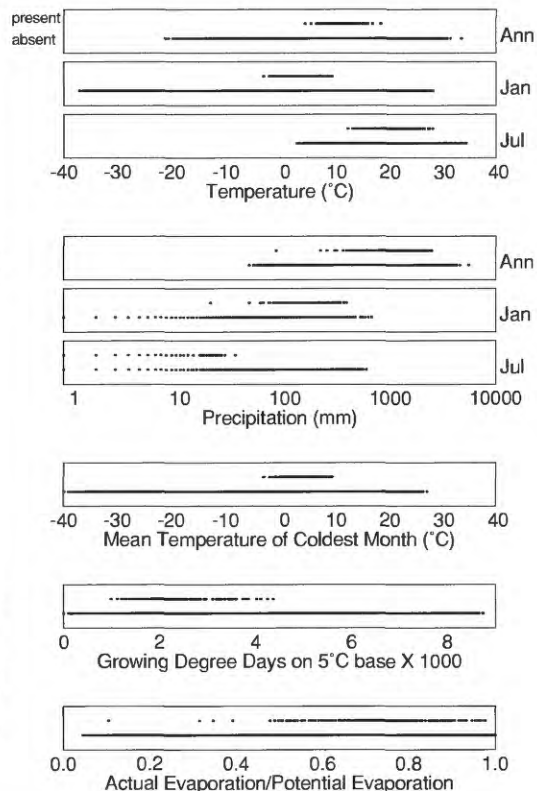
Fraxinus gooddingii (minimal data - nearest grid points used with environmental parameters)



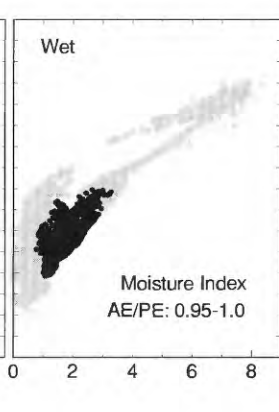
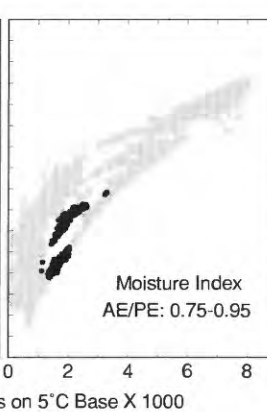
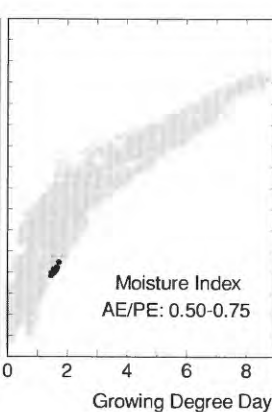
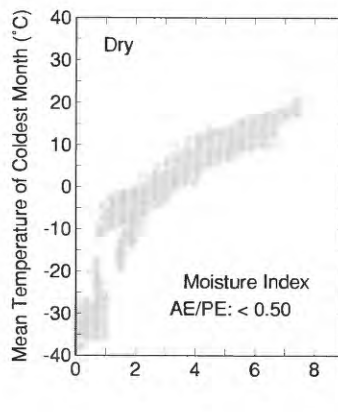
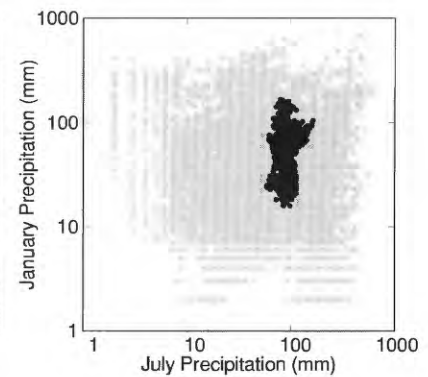
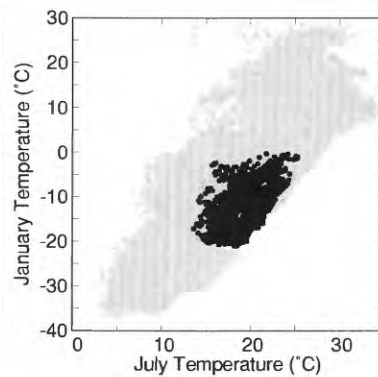
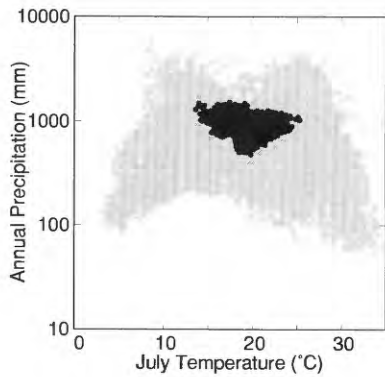
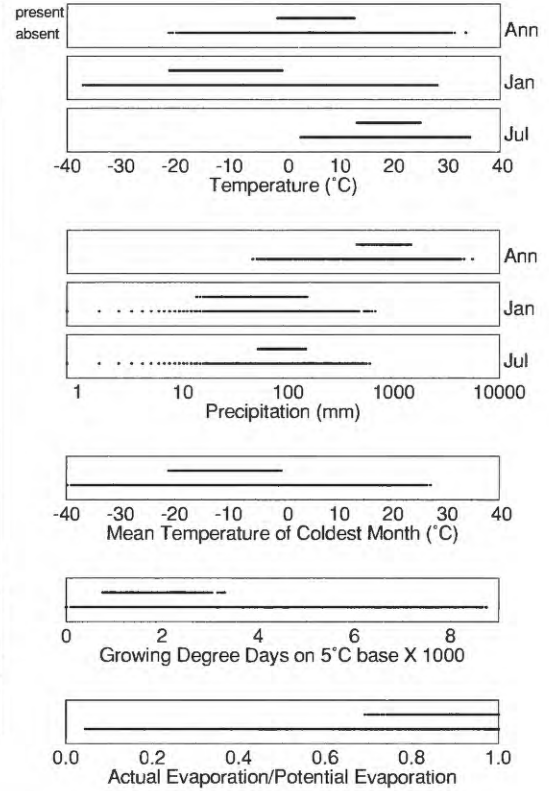
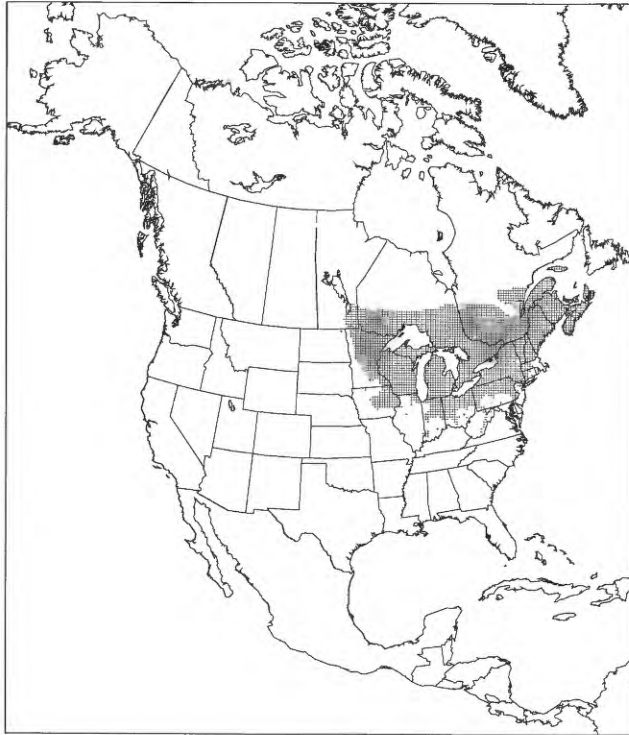
Fraxinus greggii



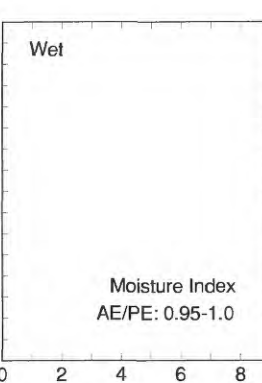
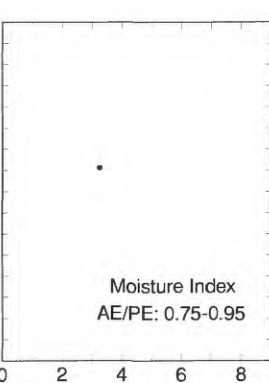
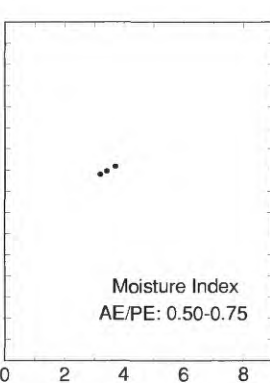
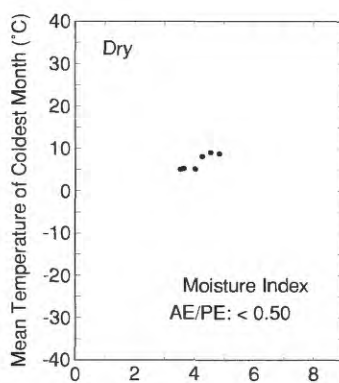
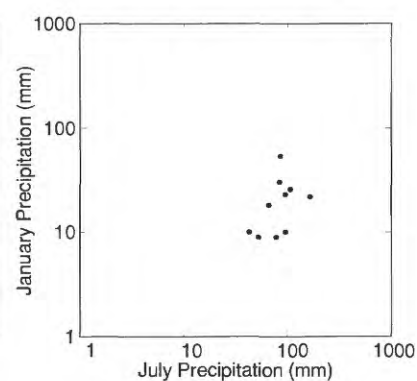
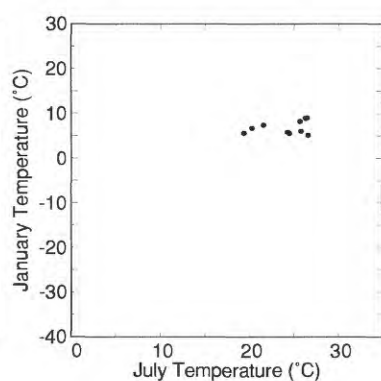
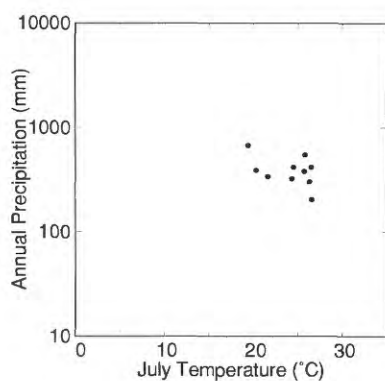
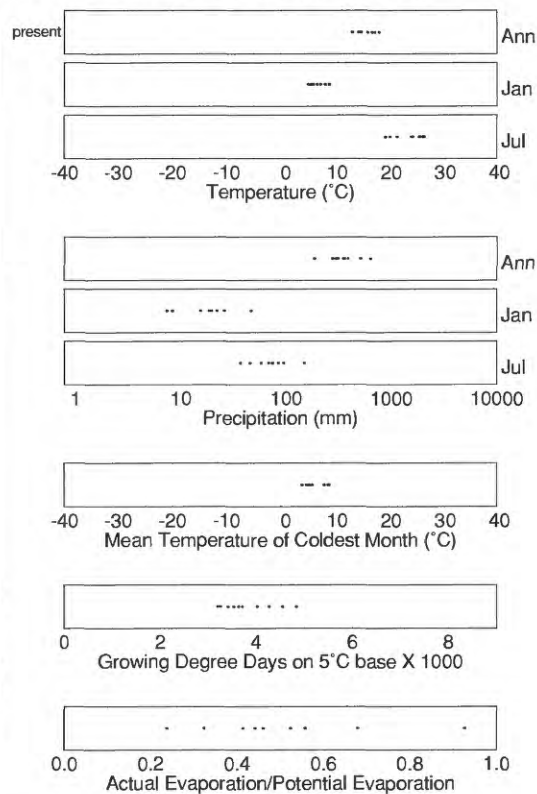
Fraxinus latifolia



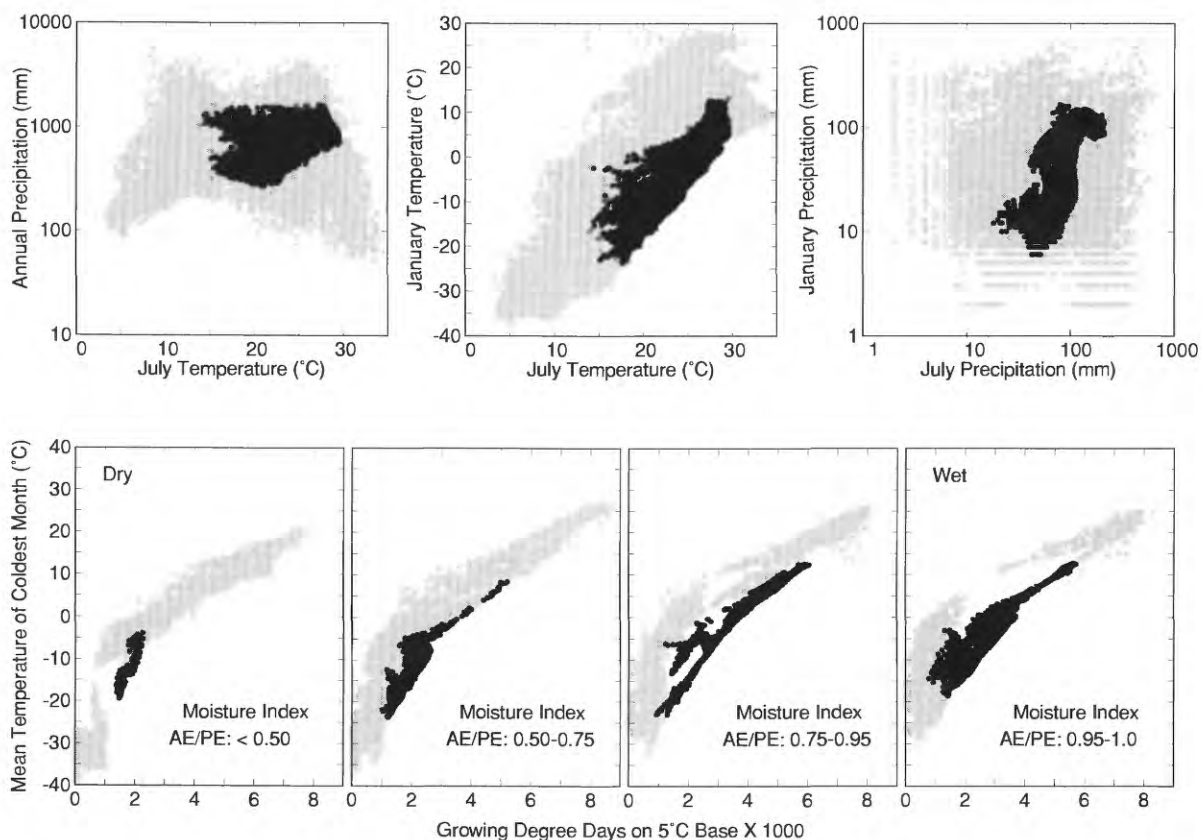
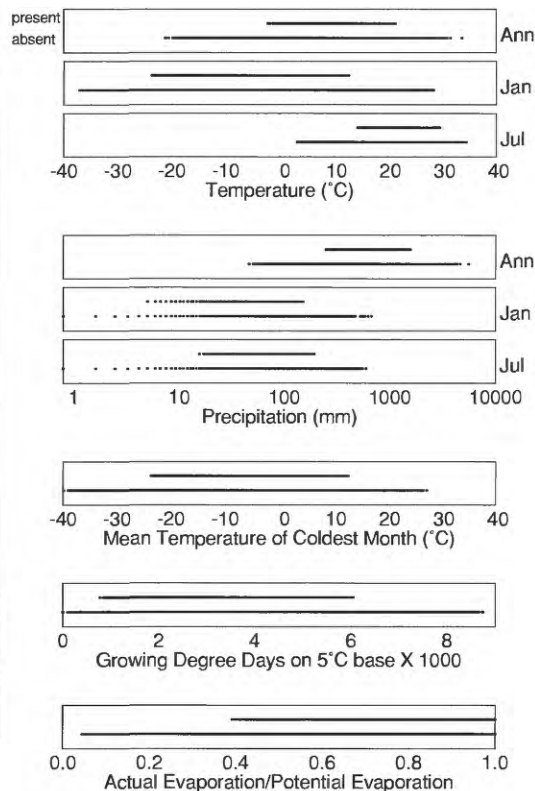
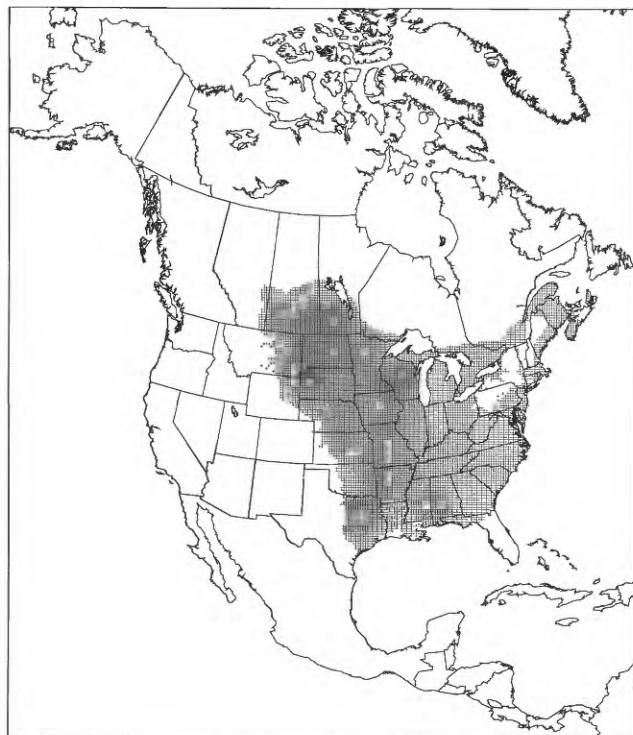
Fraxinus nigra



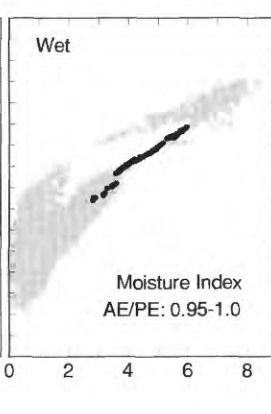
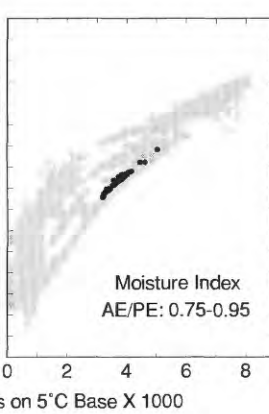
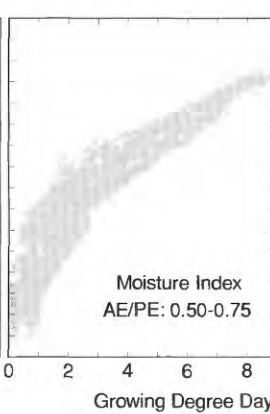
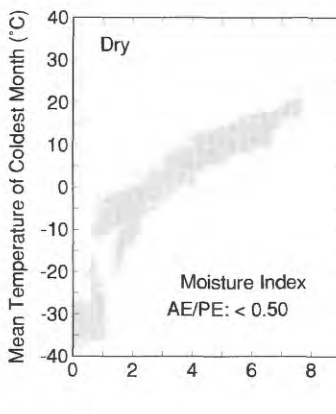
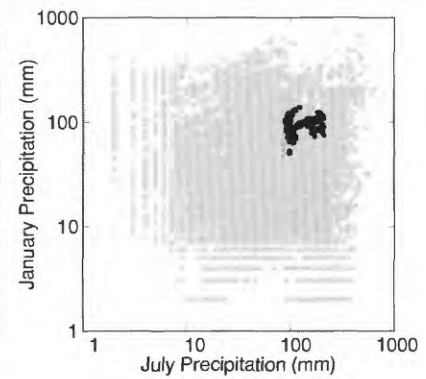
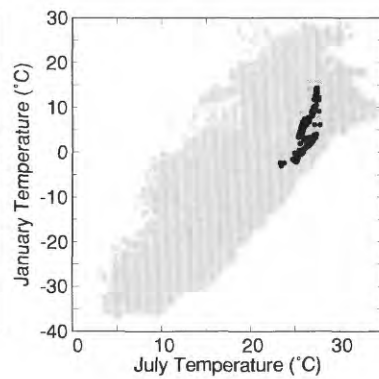
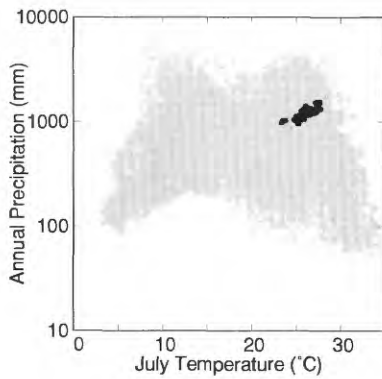
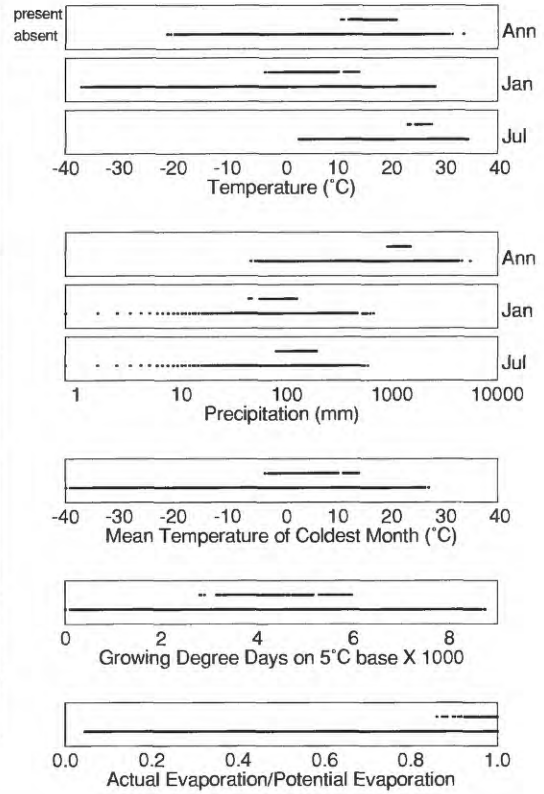
Fraxinus papillosa (minimal data - nearest grid points used with environmental parameters)



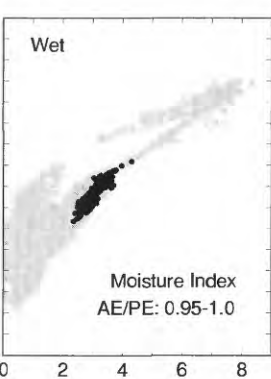
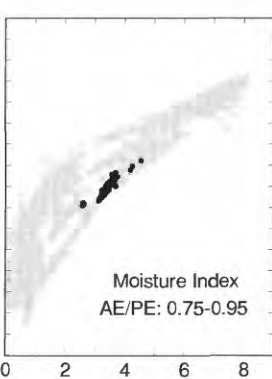
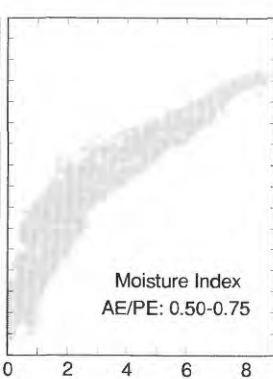
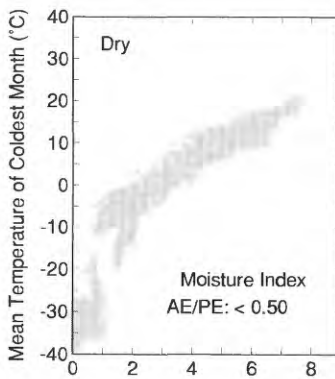
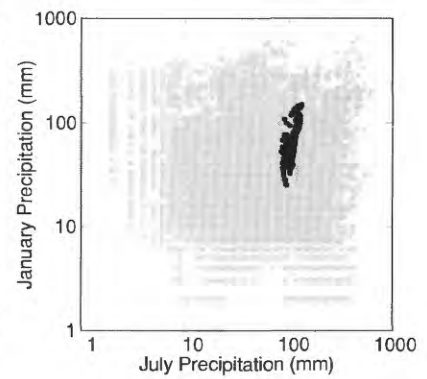
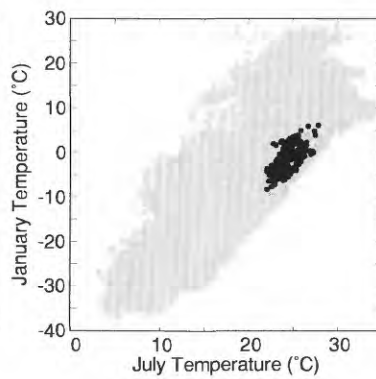
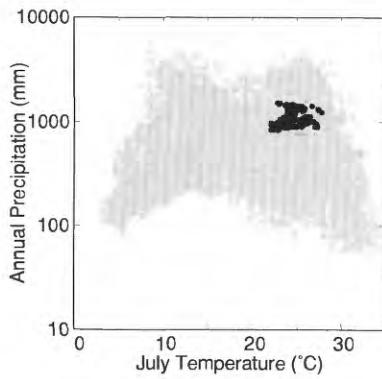
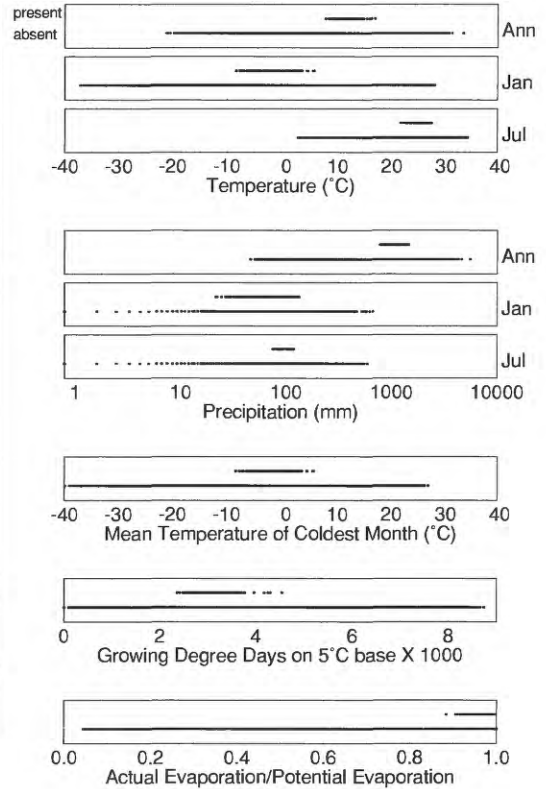
Fraxinus pennsylvanica



Fraxinus profunda

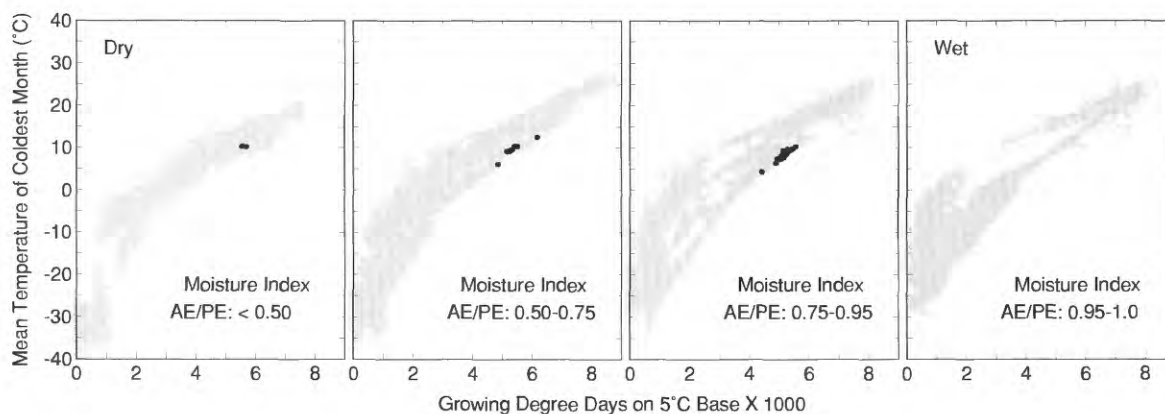
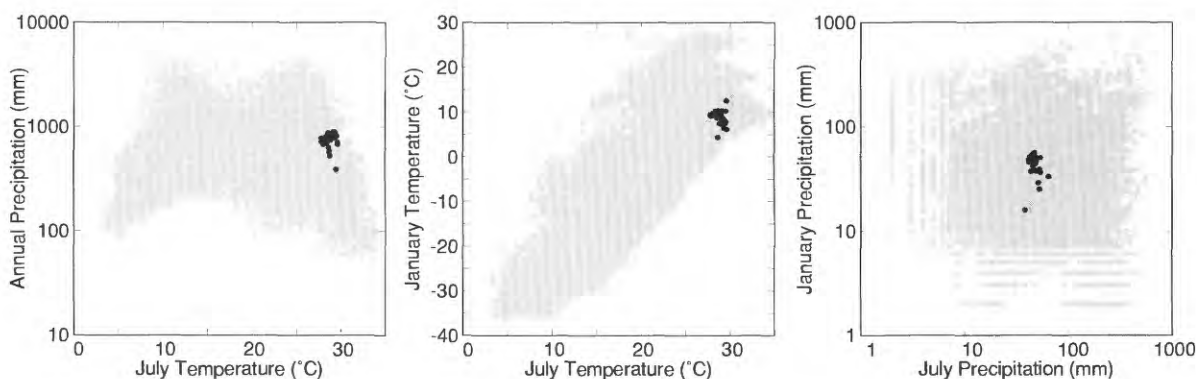
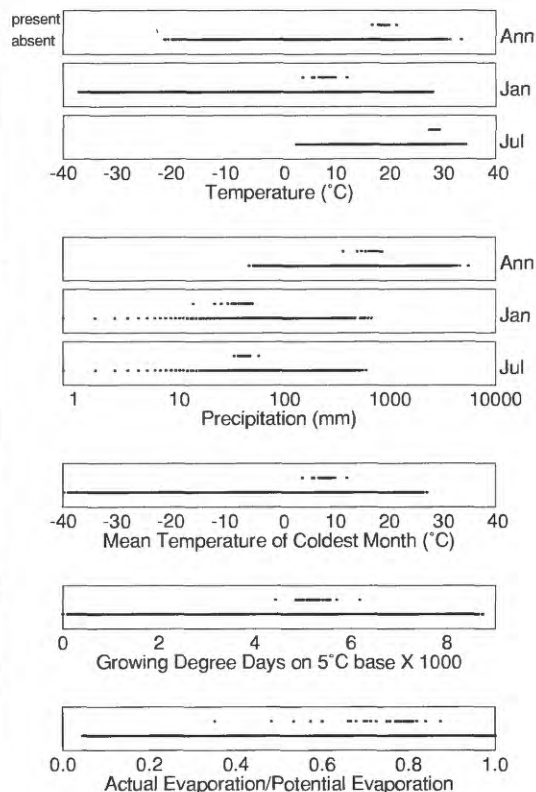


Fraxinus quadrangulata

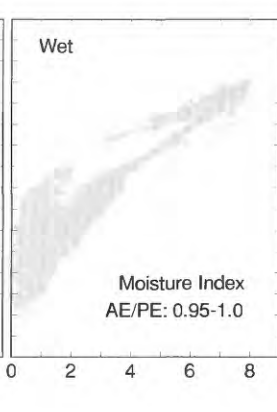
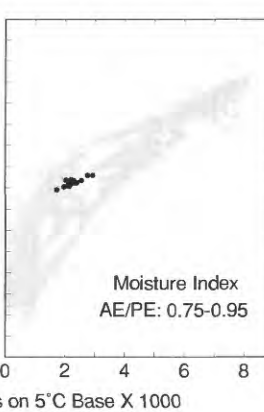
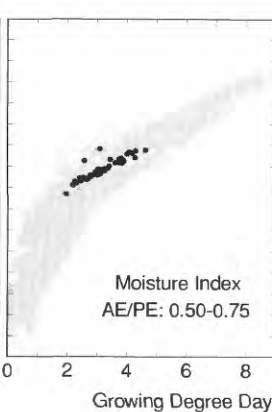
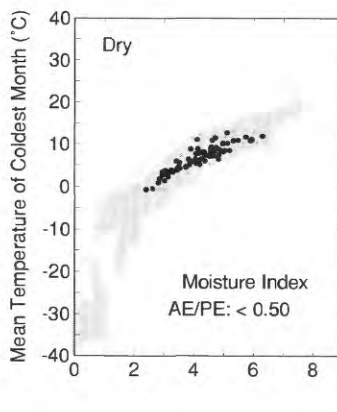
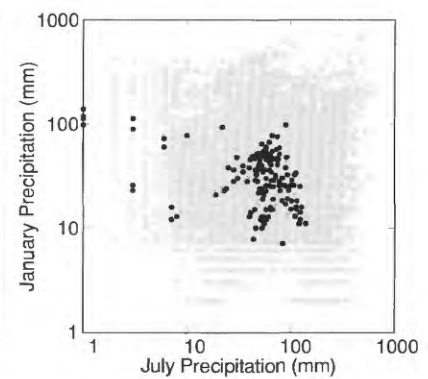
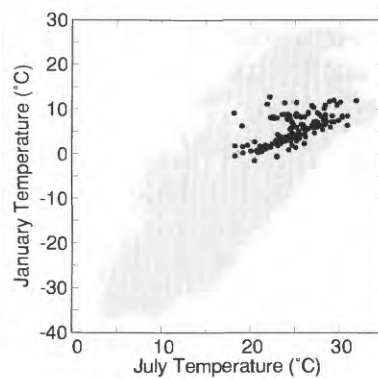
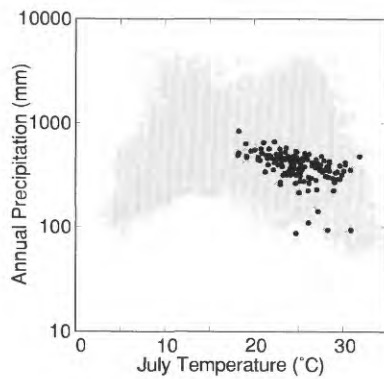
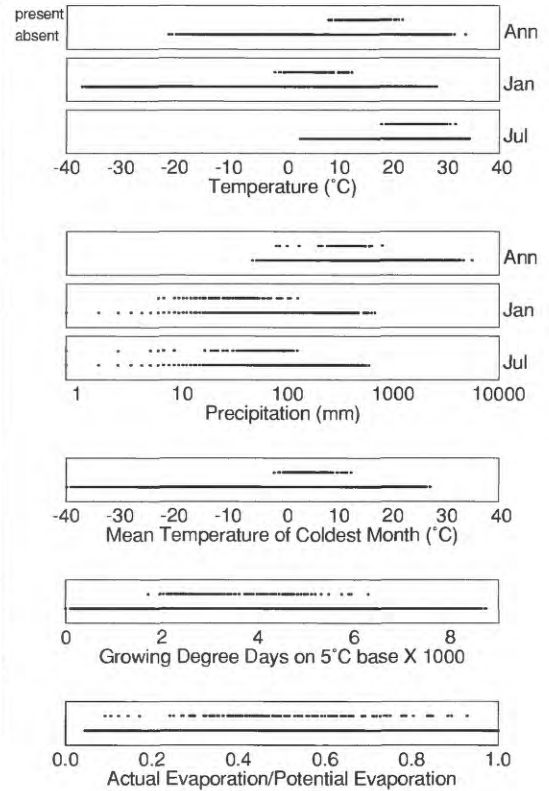


Growing Degree Days on 5°C Base X 1000

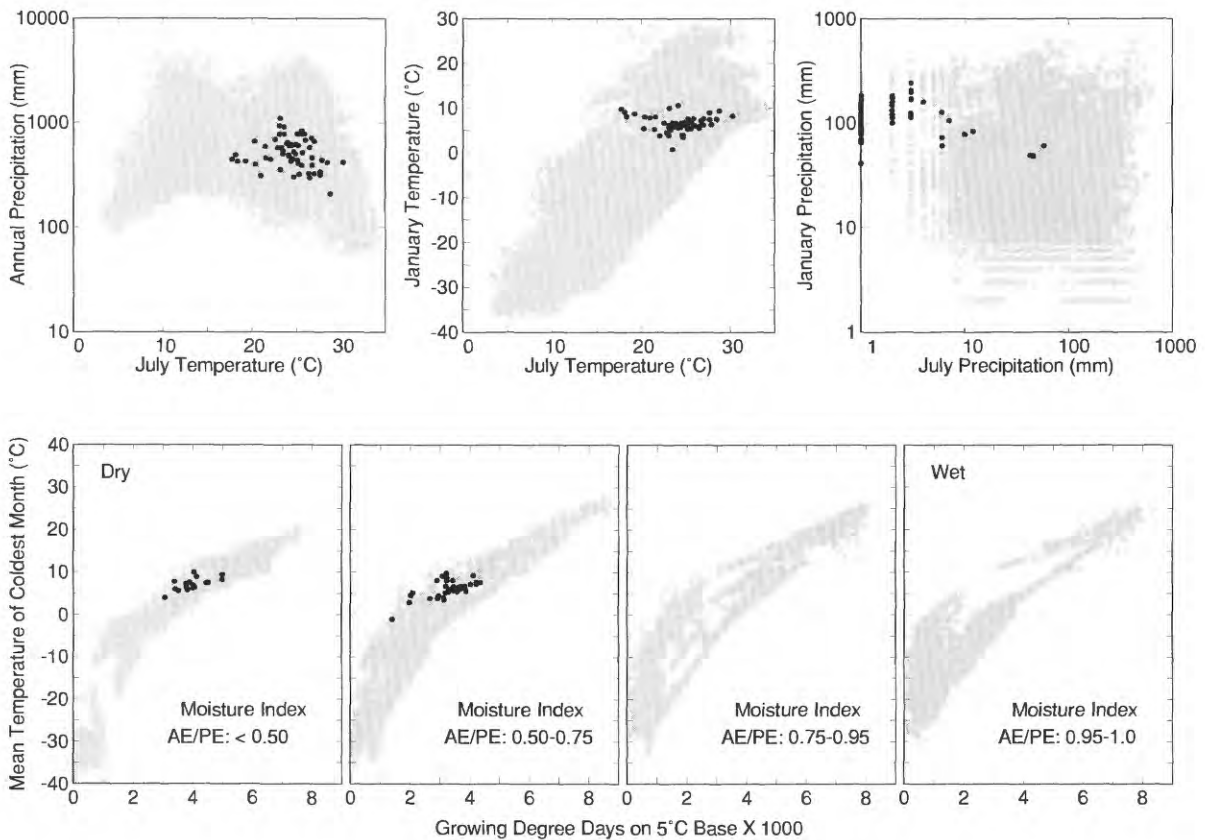
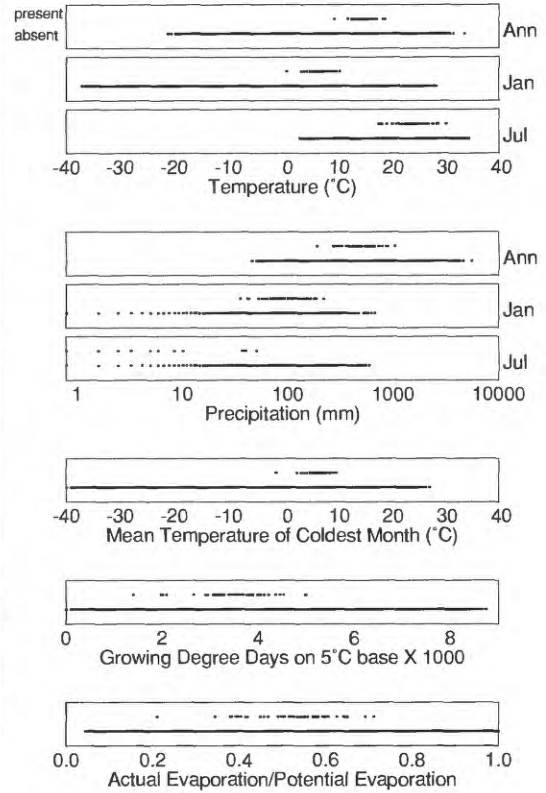
Fraxinus texensis



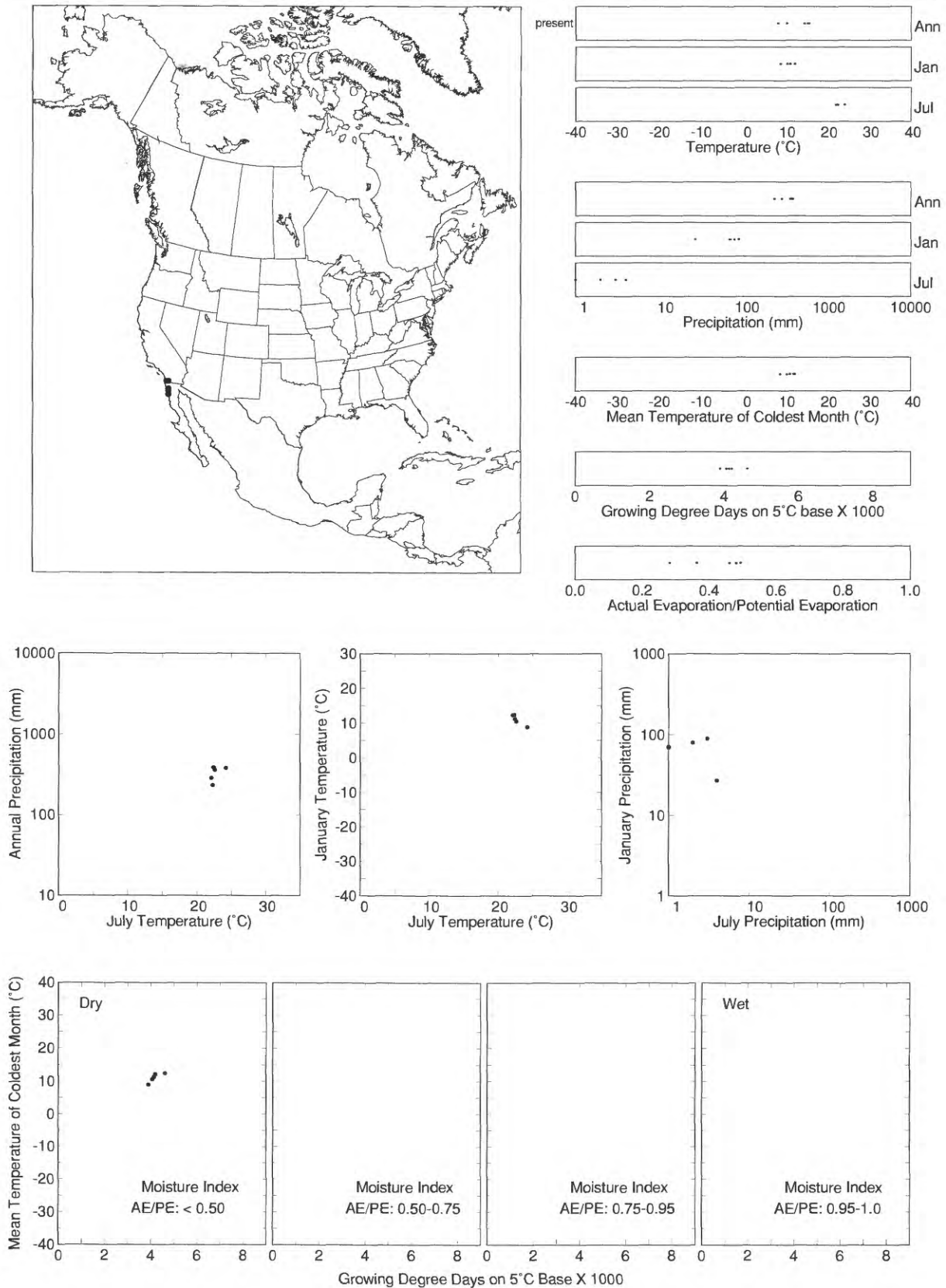
Fraxinus velutina



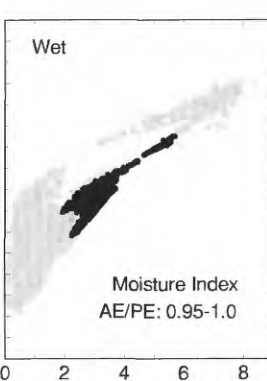
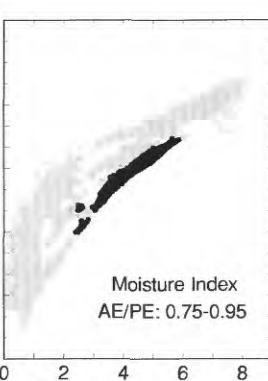
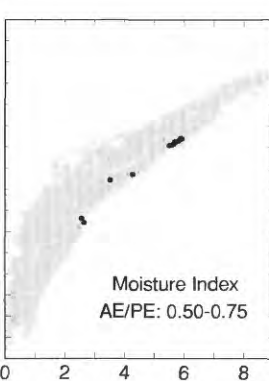
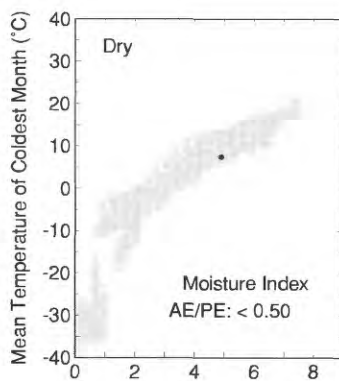
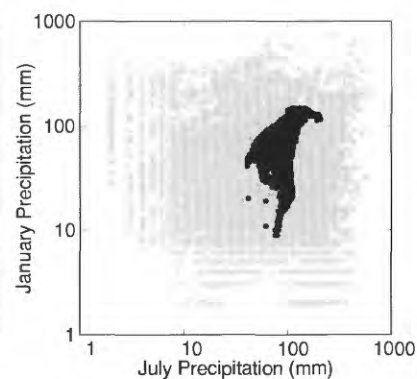
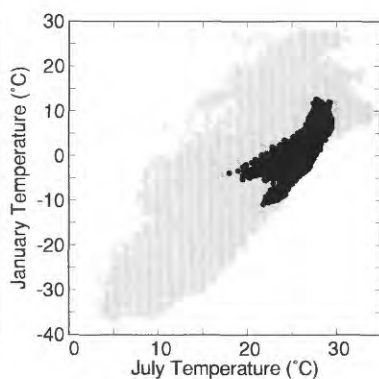
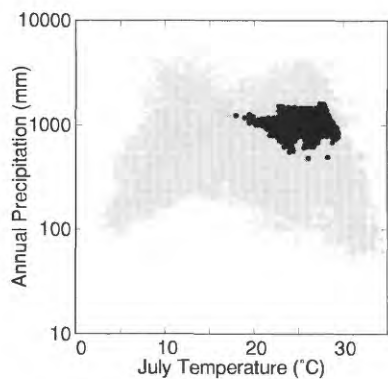
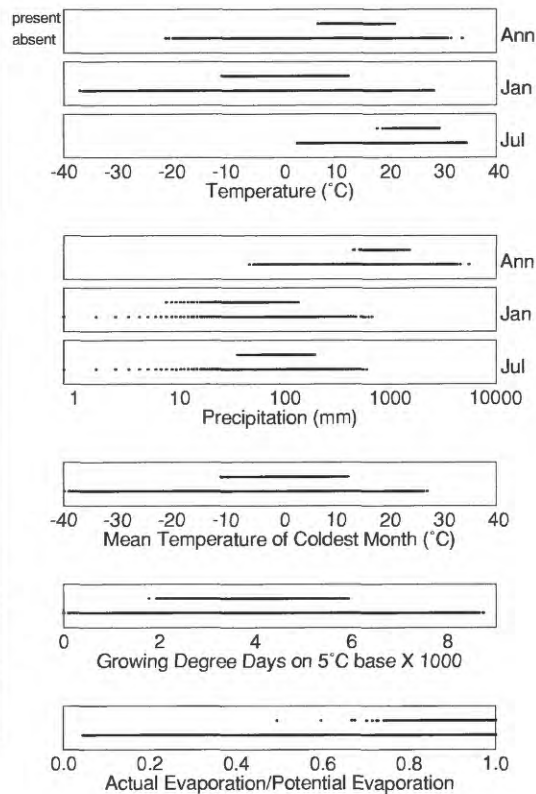
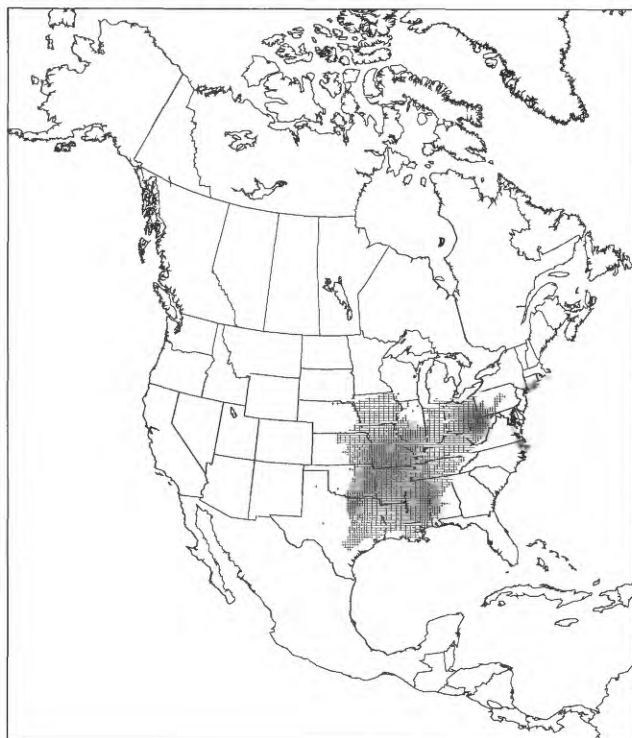
Fremontodendron californicum



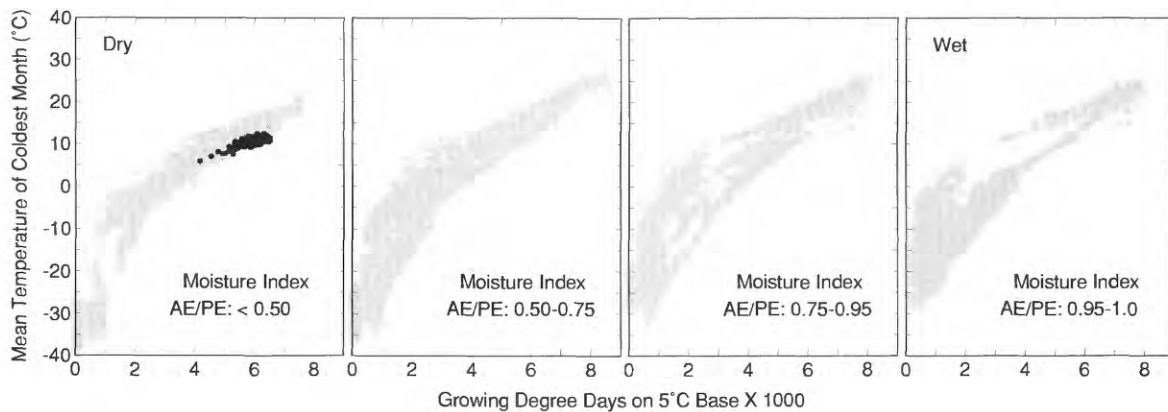
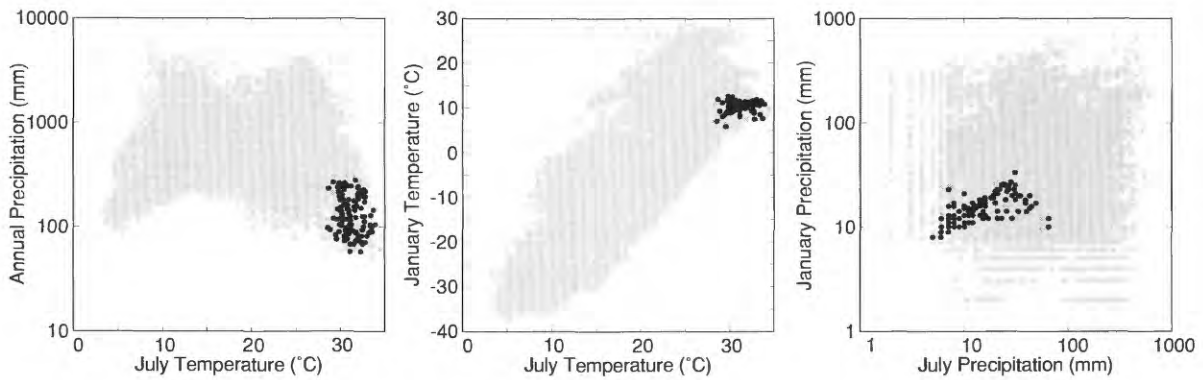
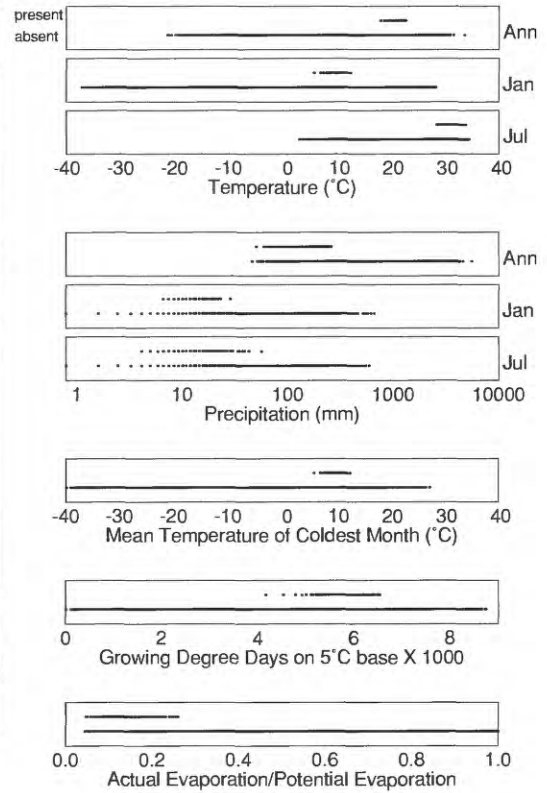
Fremontodendron mexicanum (minimal data - nearest grid points used with environmental parameters)



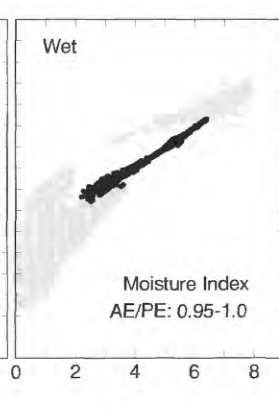
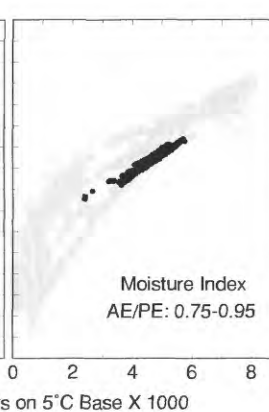
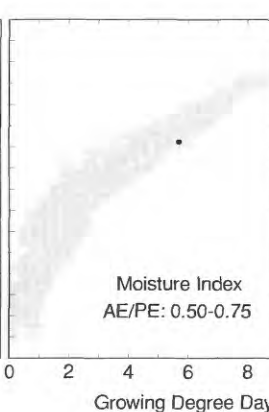
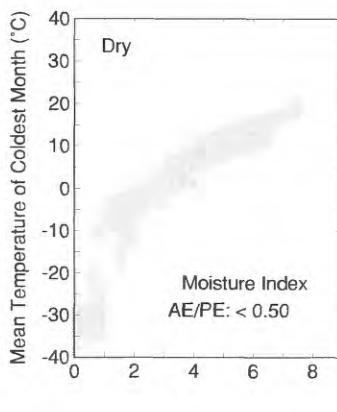
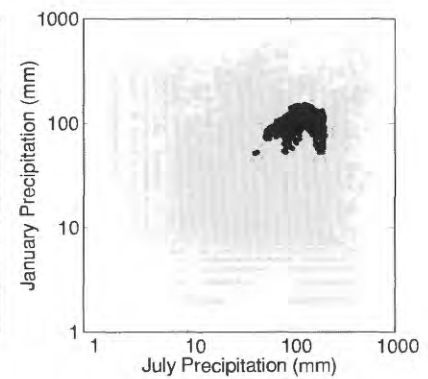
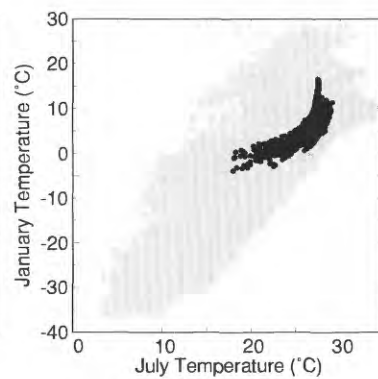
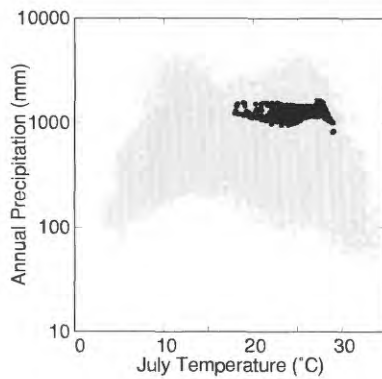
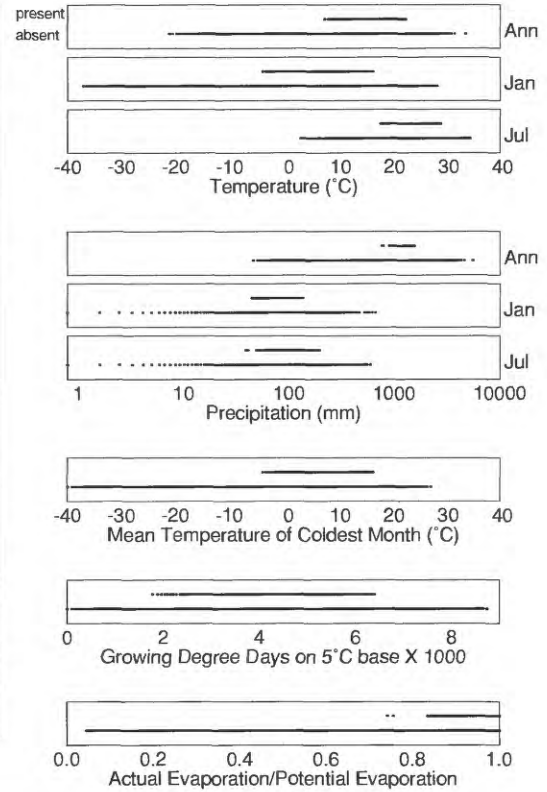
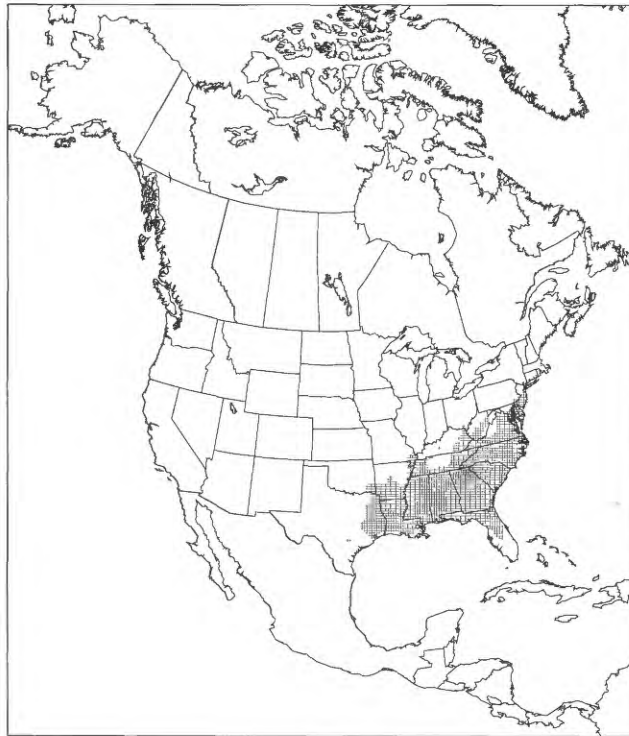
Gleditsia triacanthos



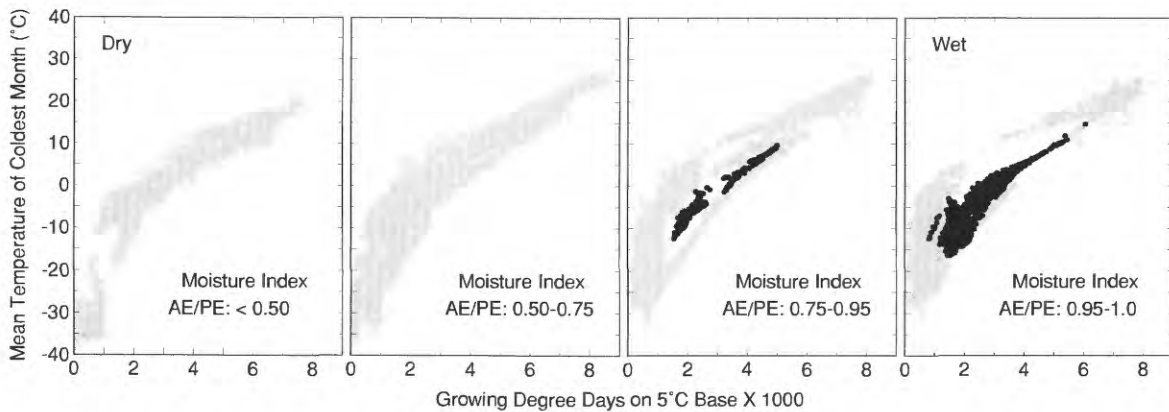
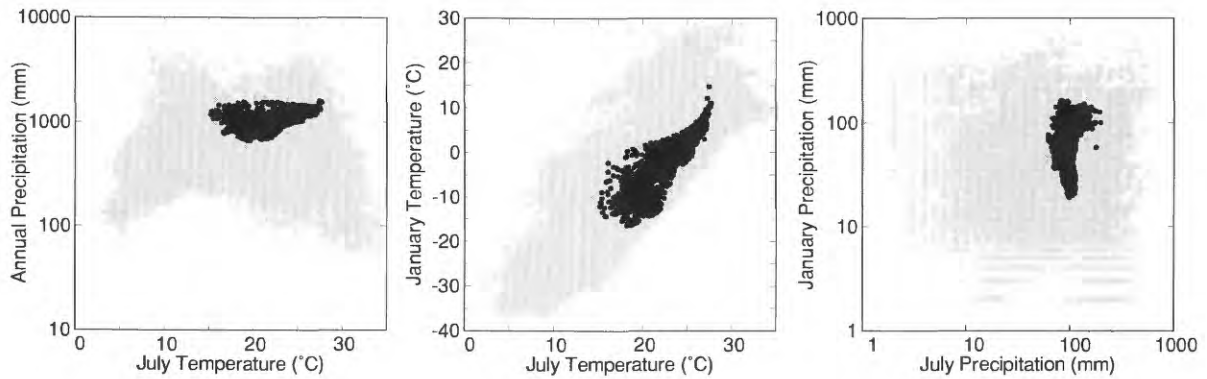
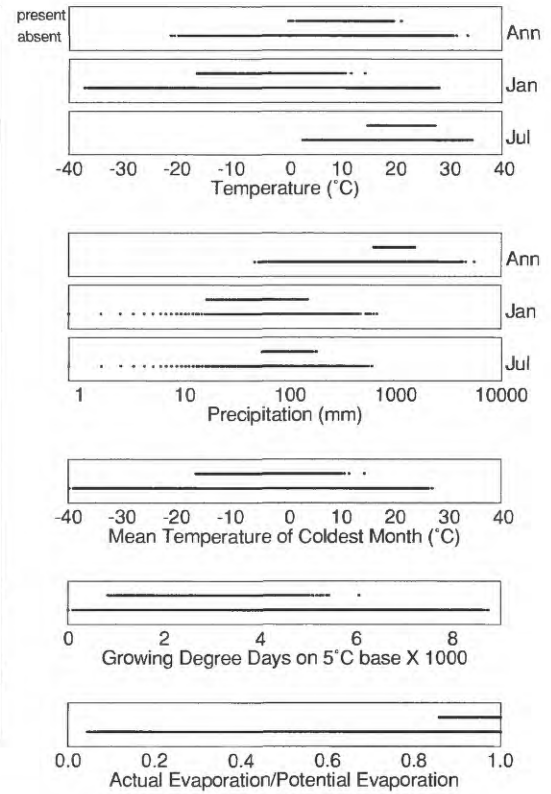
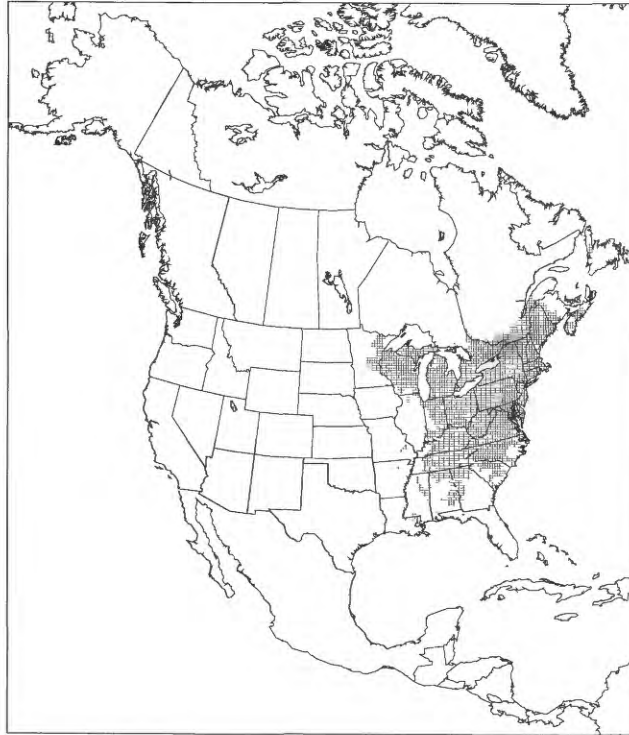
Holacantha emoryi



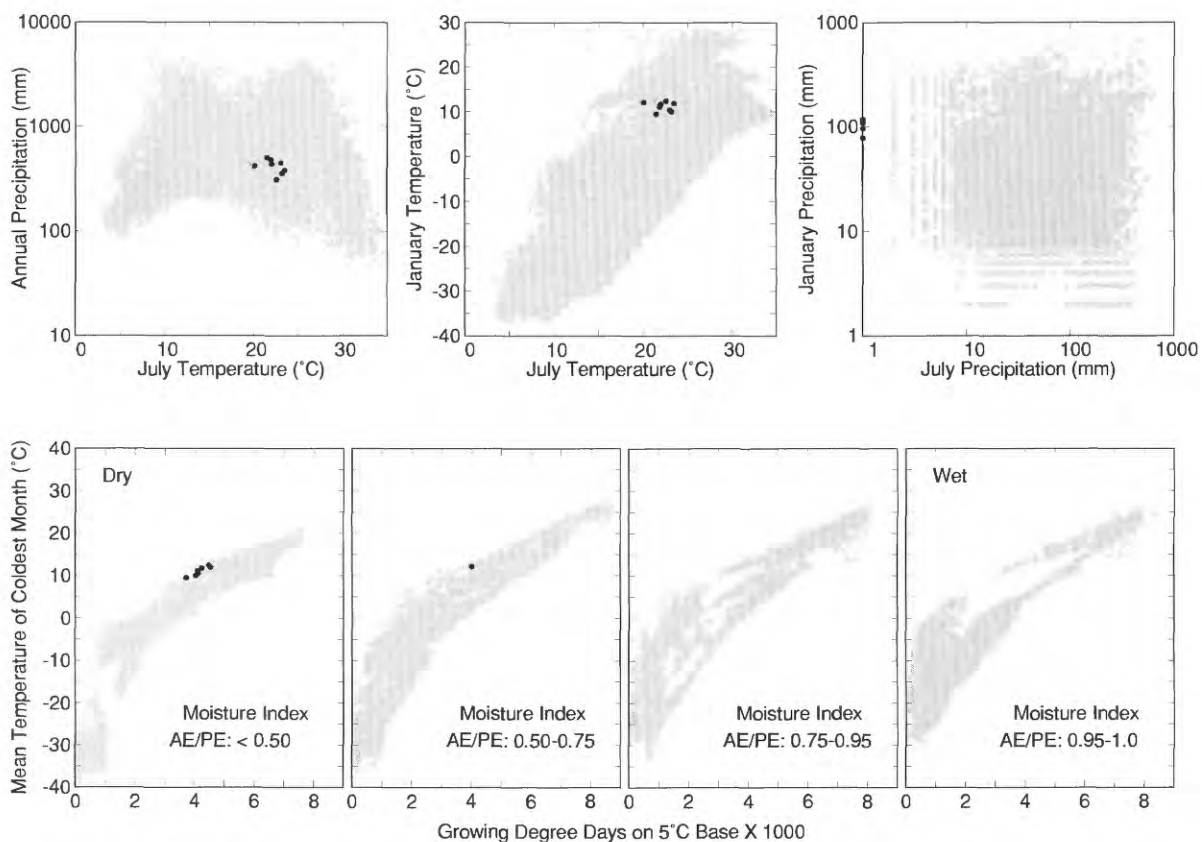
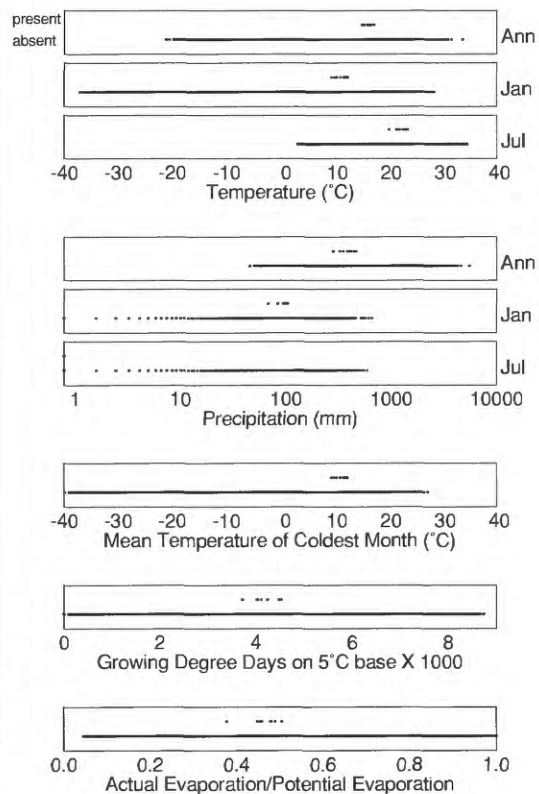
Ilex opaca



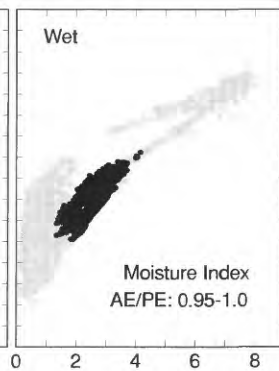
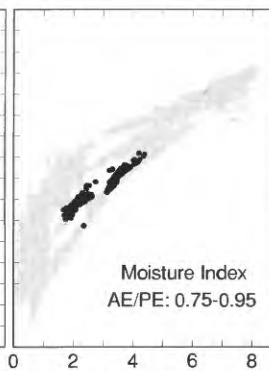
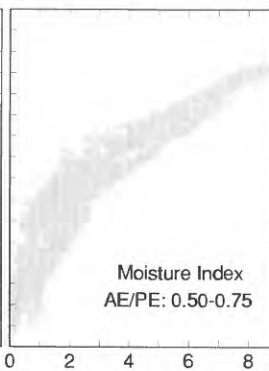
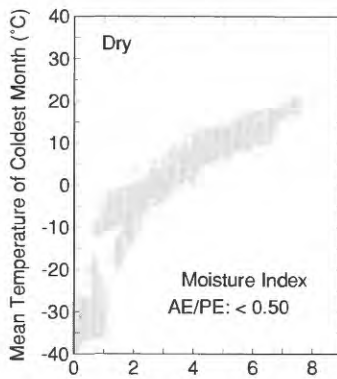
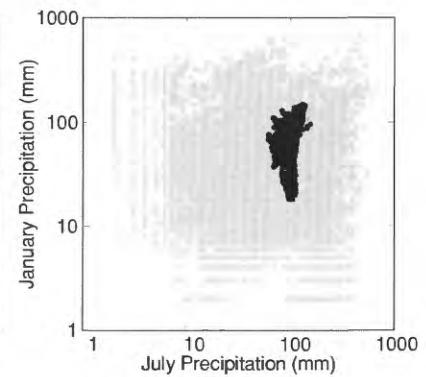
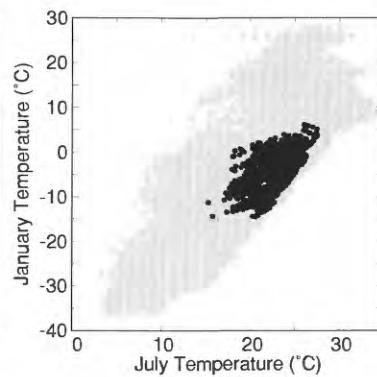
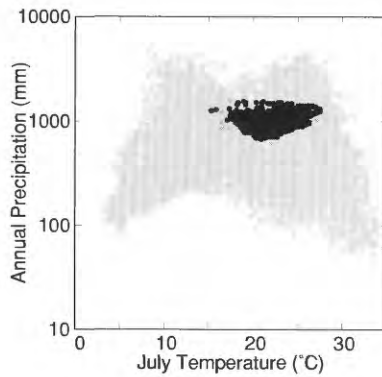
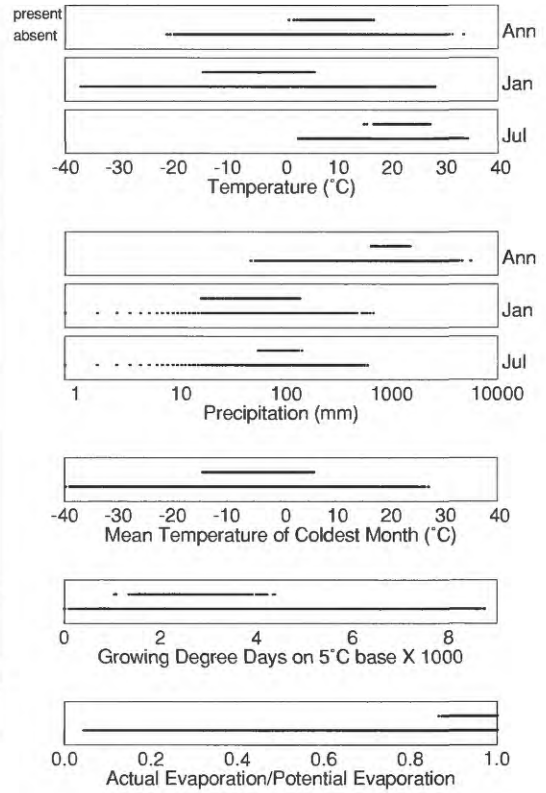
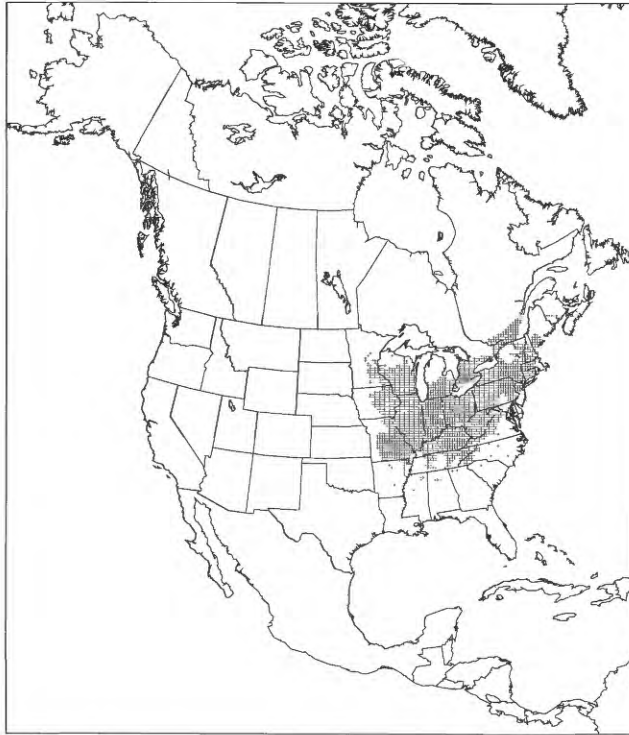
Ilex verticillata



Juglans californica

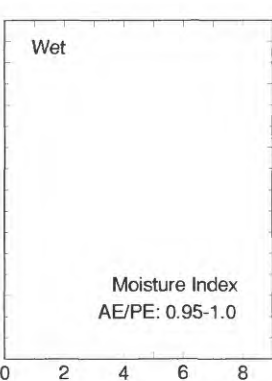
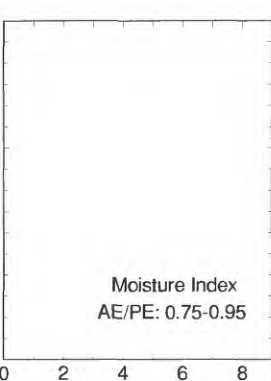
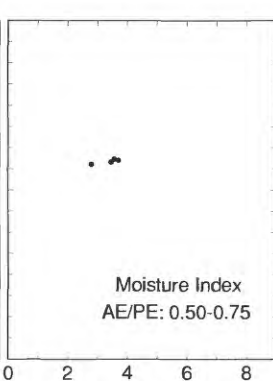
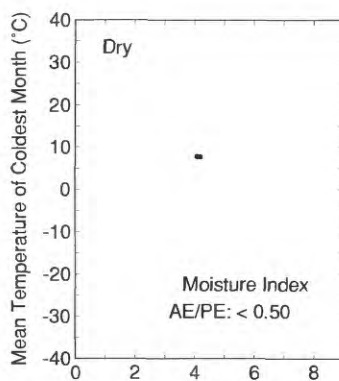
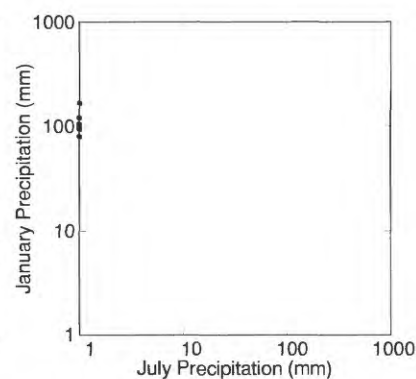
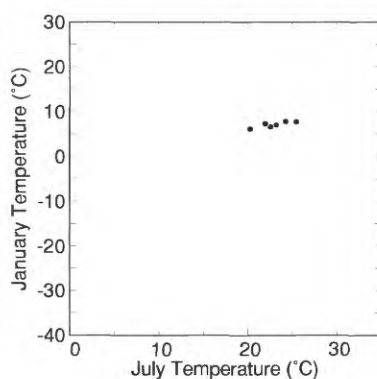
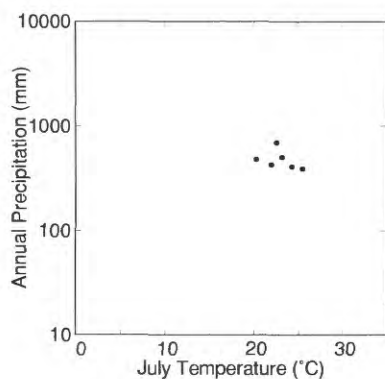
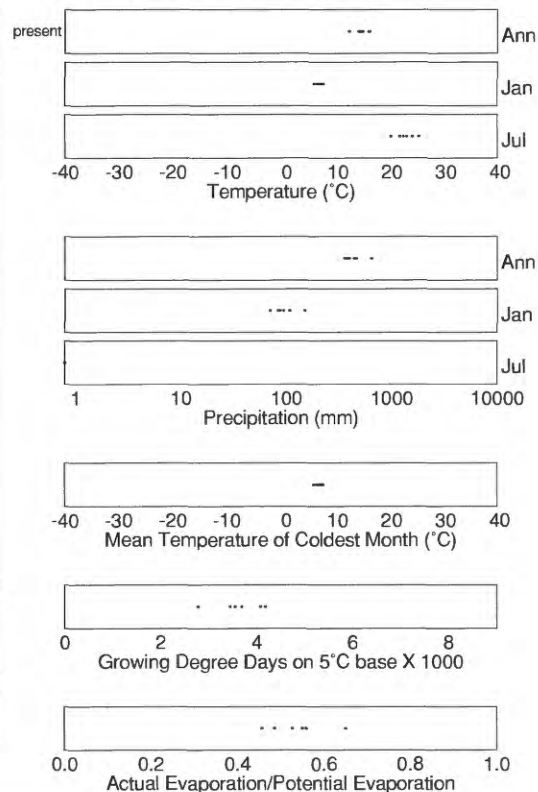


Juglans cinerea

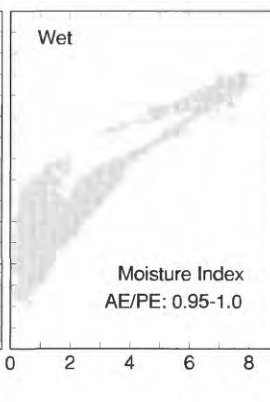
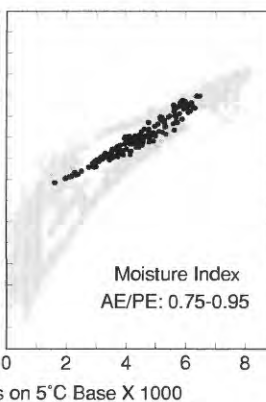
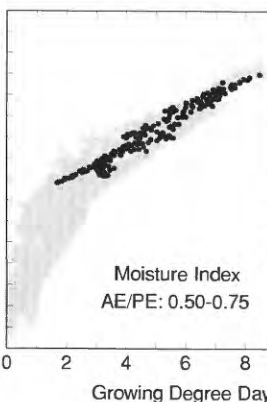
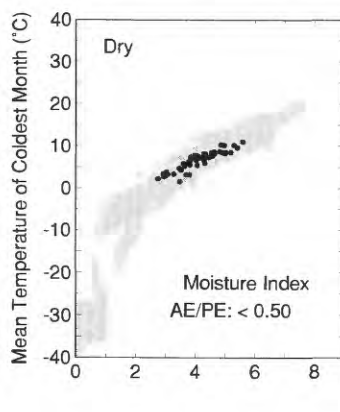
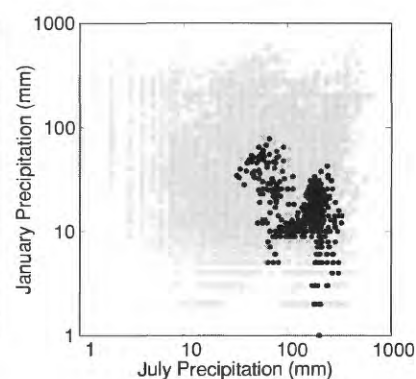
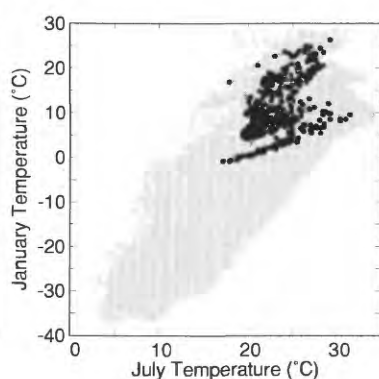
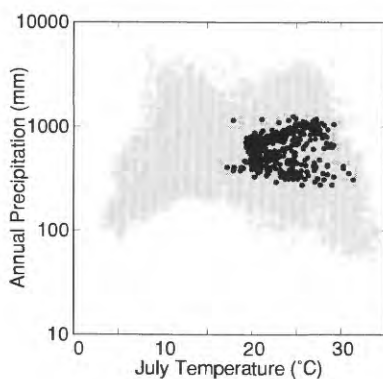
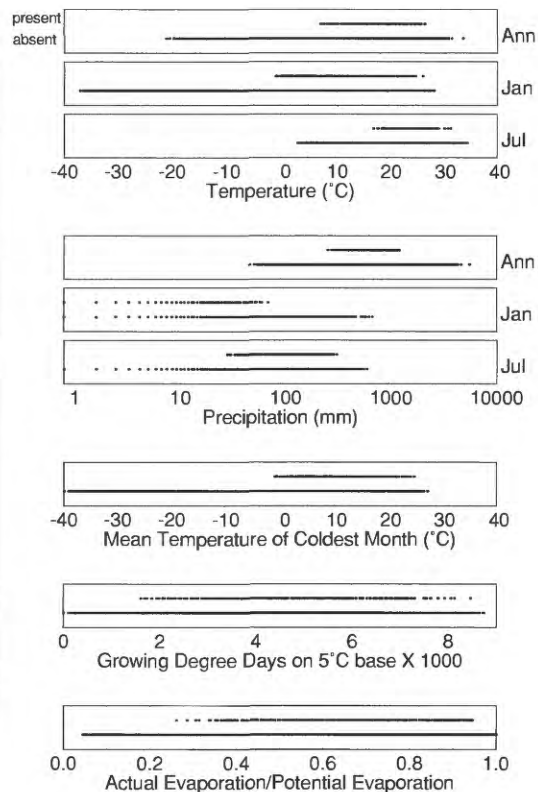


Growing Degree Days on 5°C Base X 1000

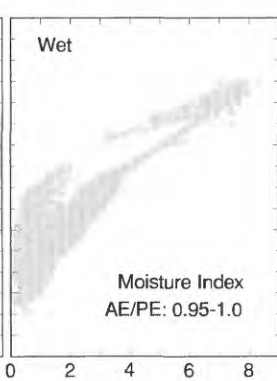
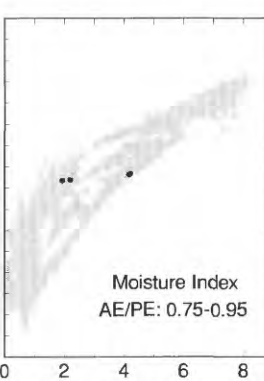
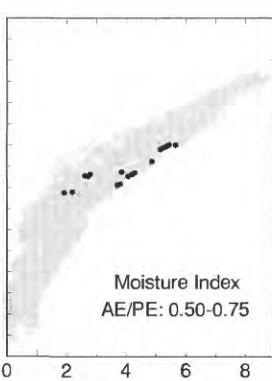
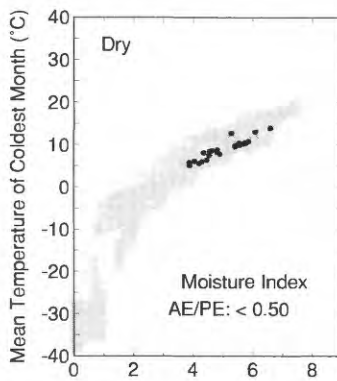
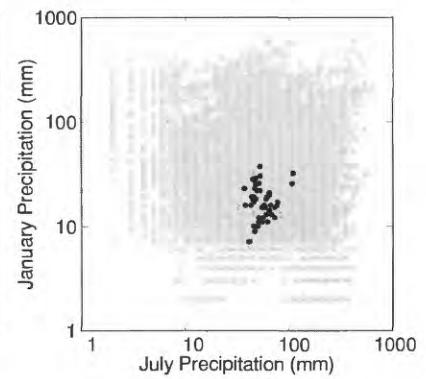
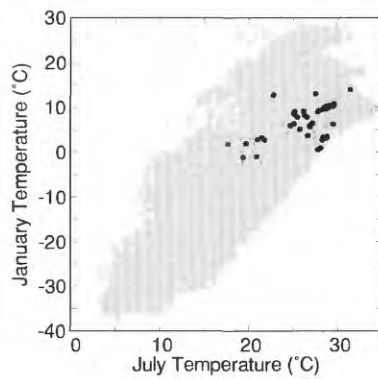
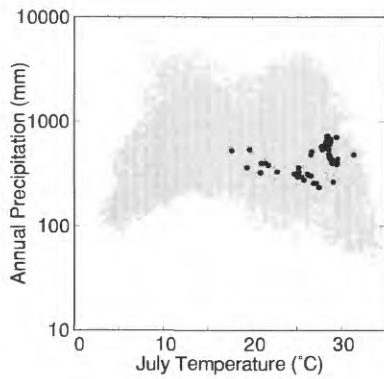
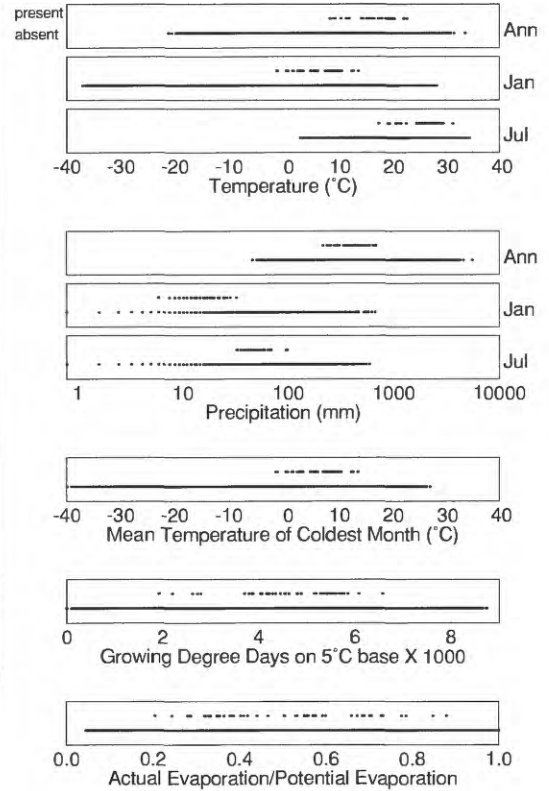
Juglans hindsii (minimal data - nearest grid points used with environmental parameters)



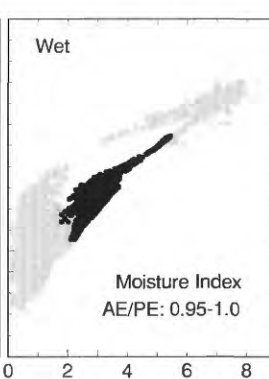
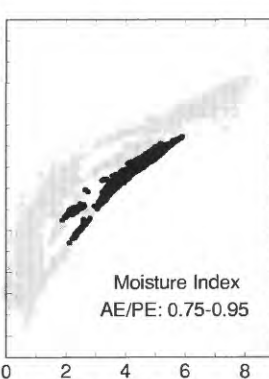
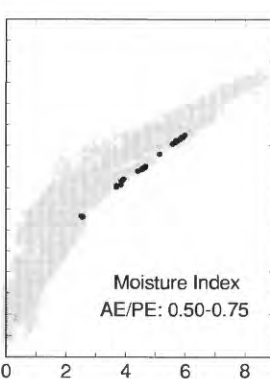
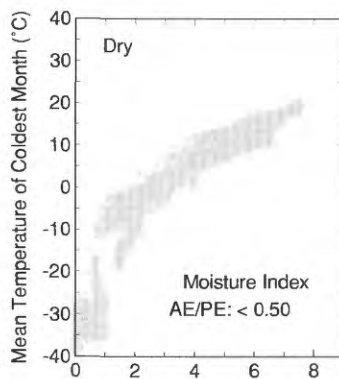
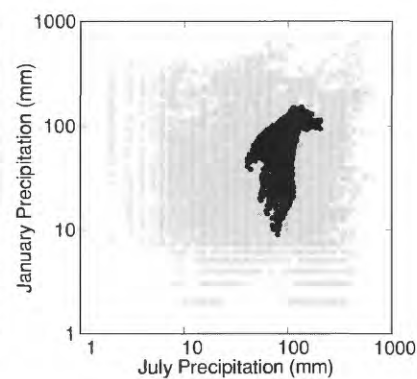
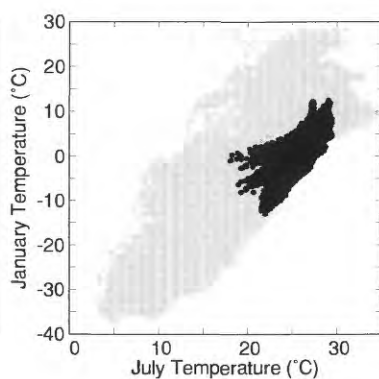
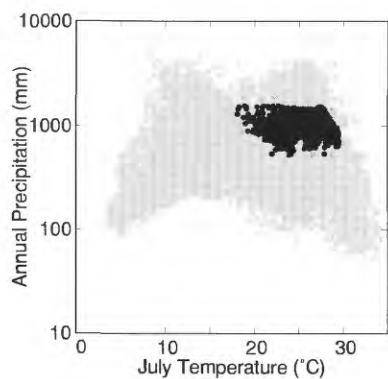
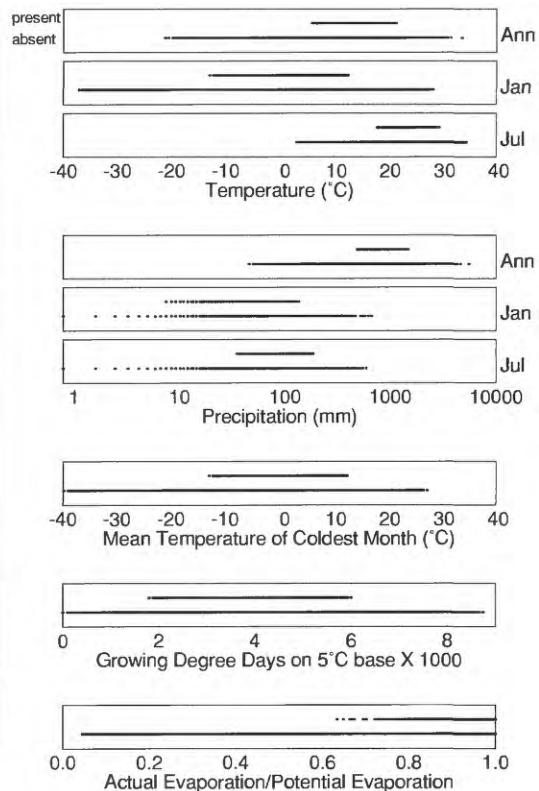
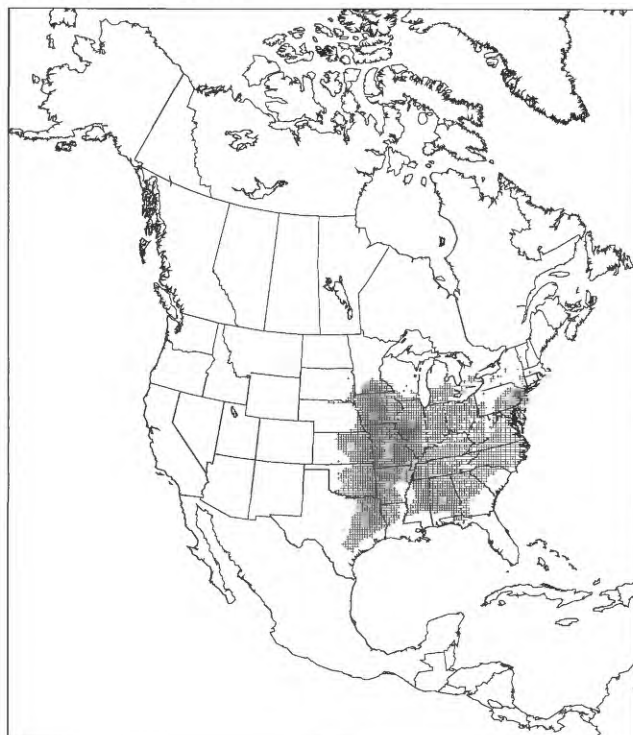
Juglans major



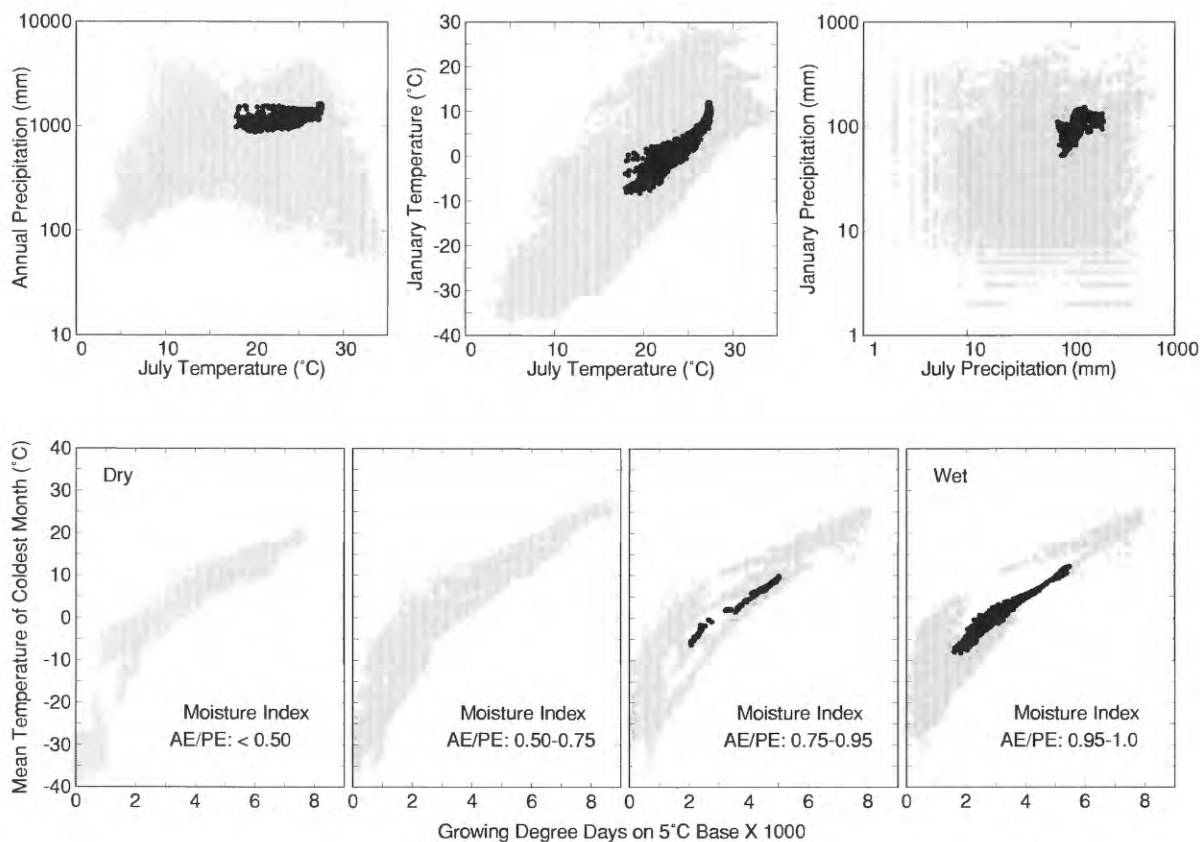
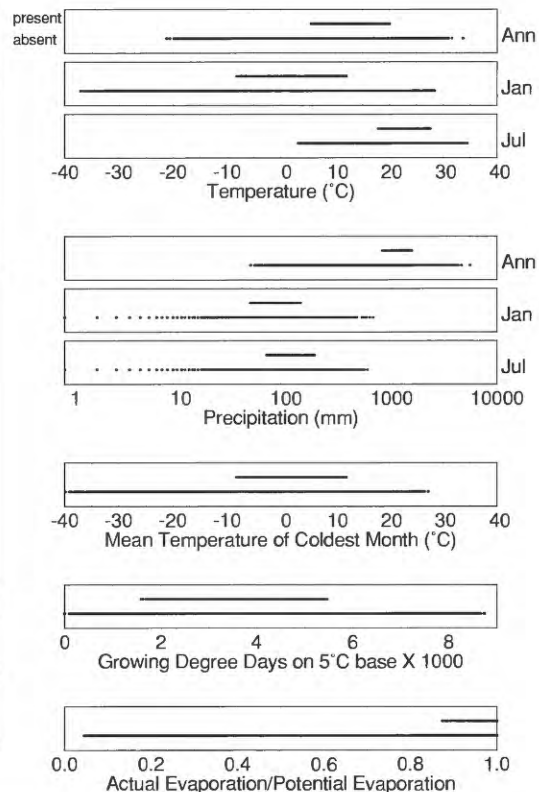
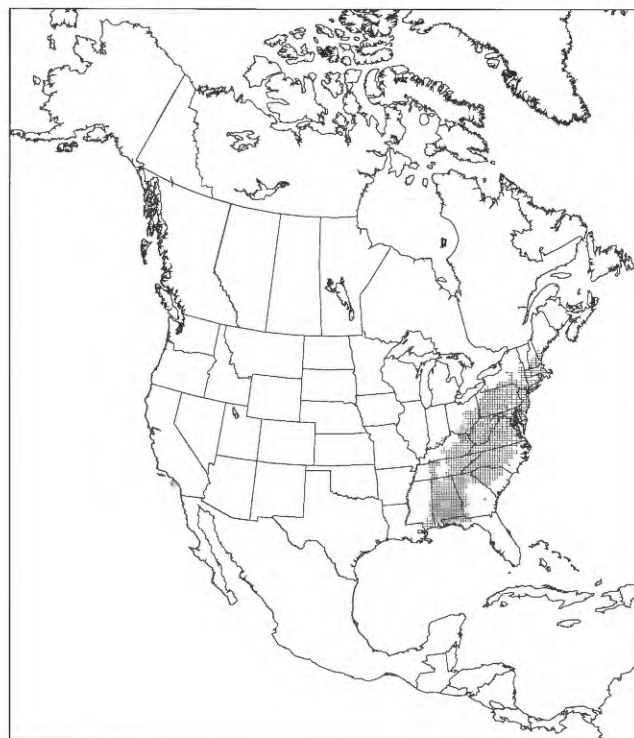
Juglans microcarpa



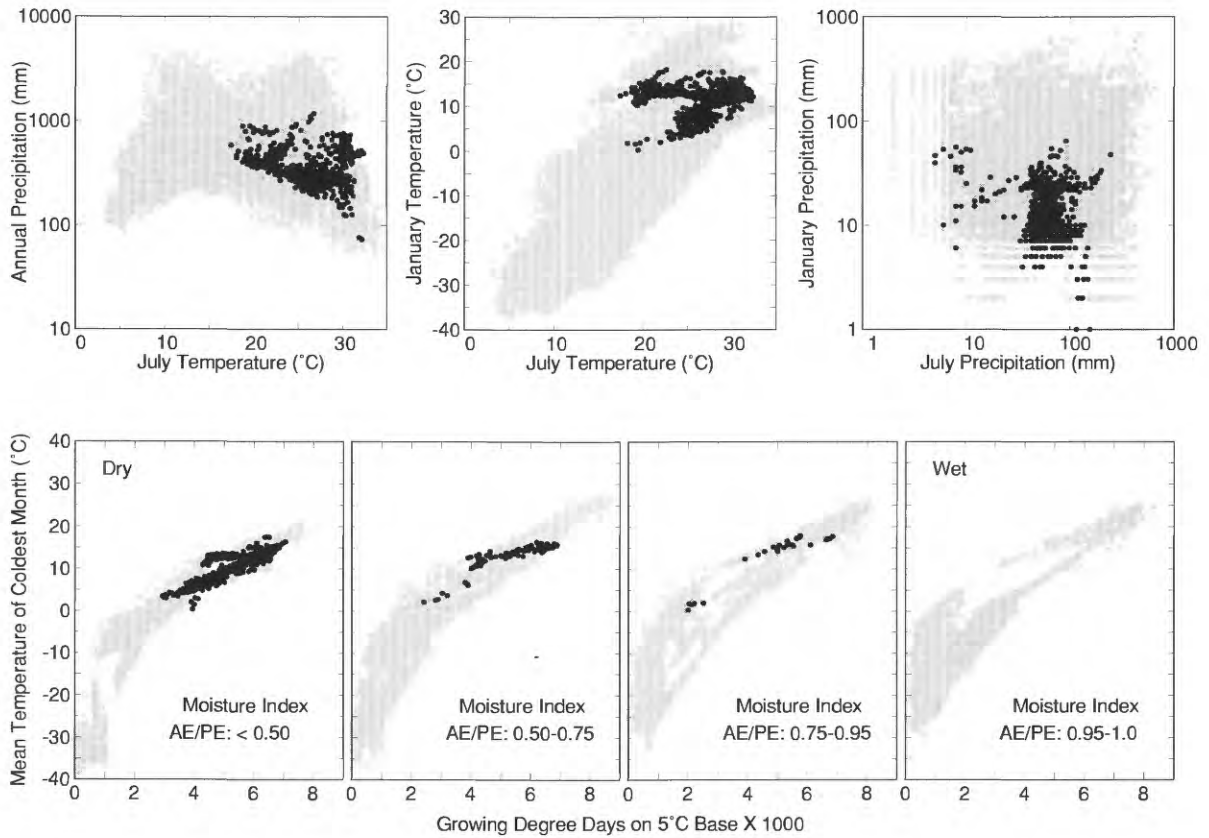
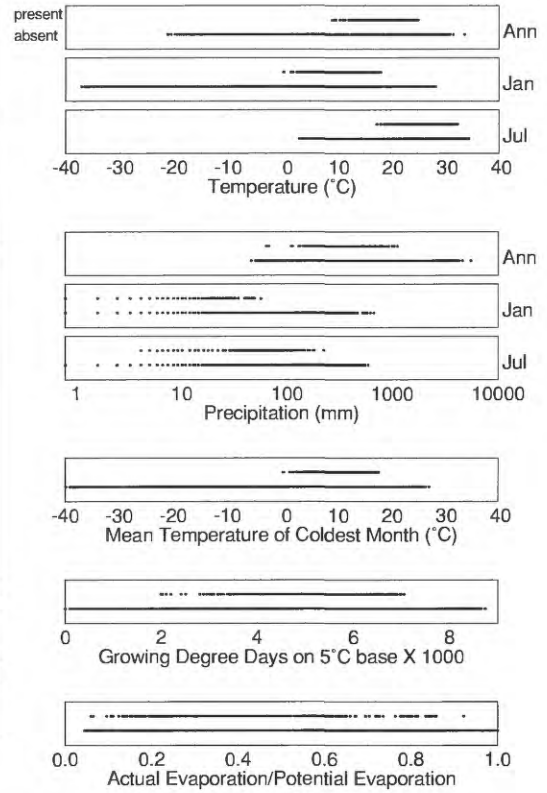
Juglans nigra



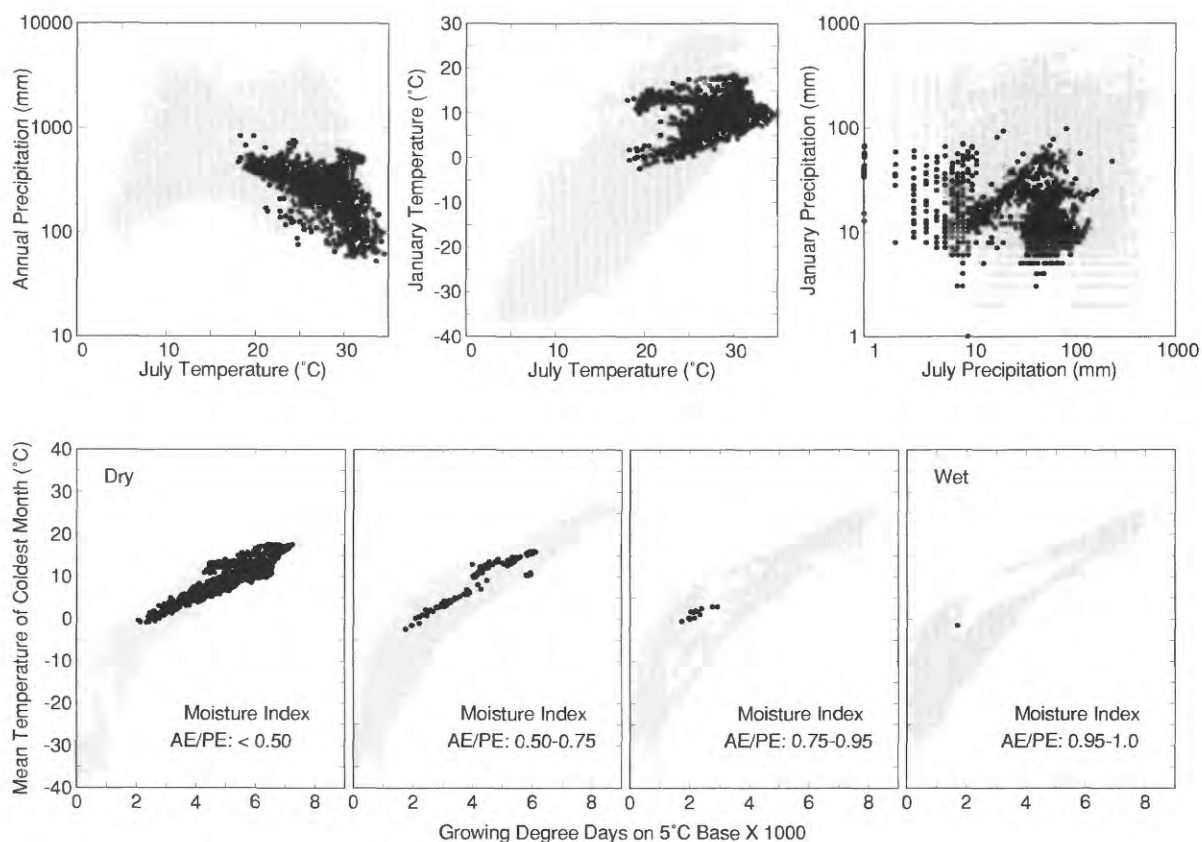
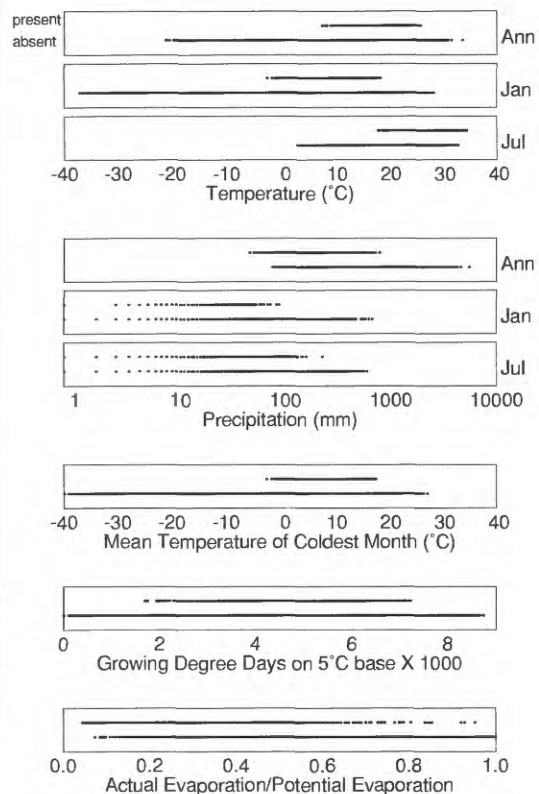
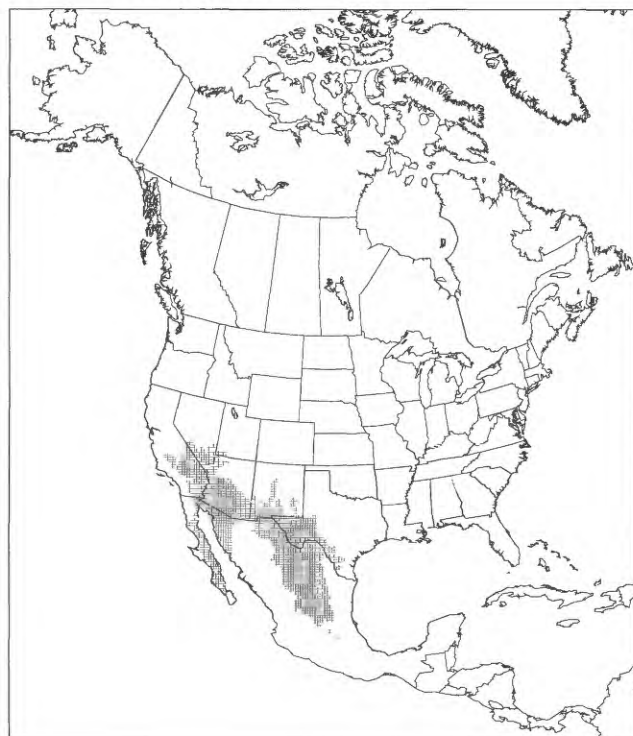
Kalmia latifolia



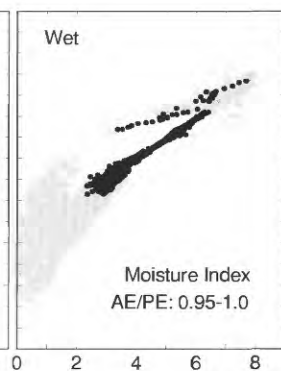
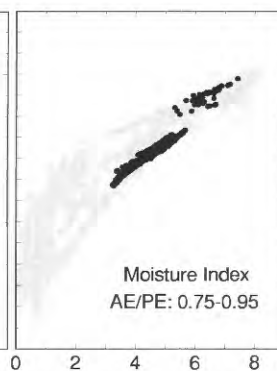
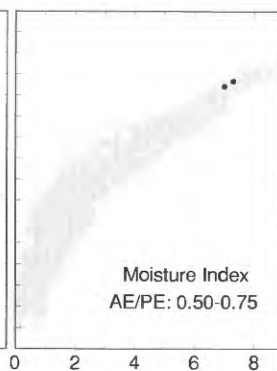
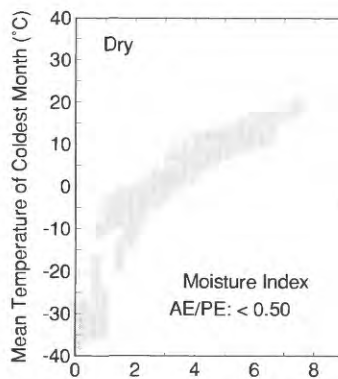
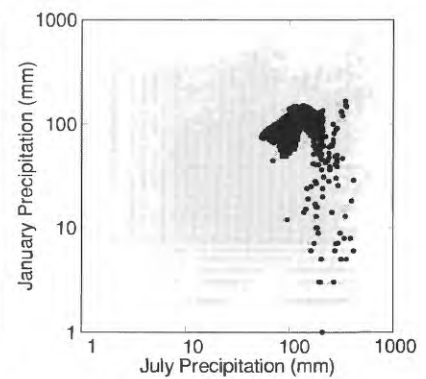
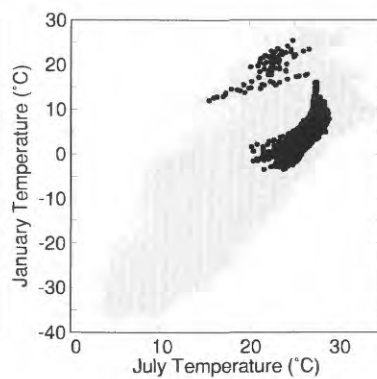
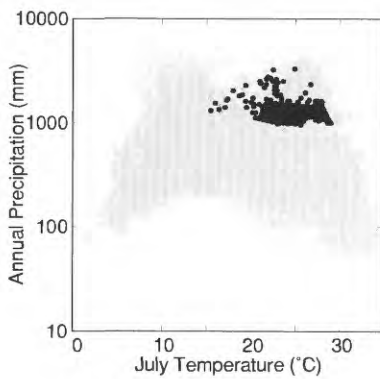
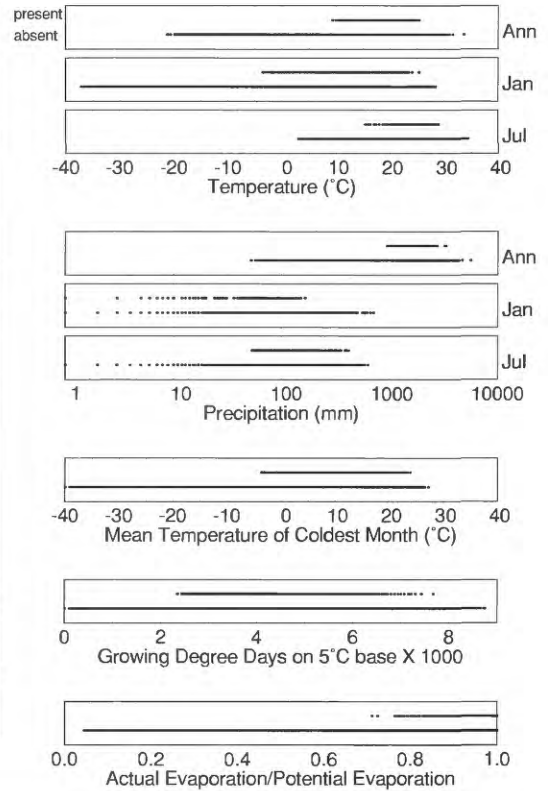
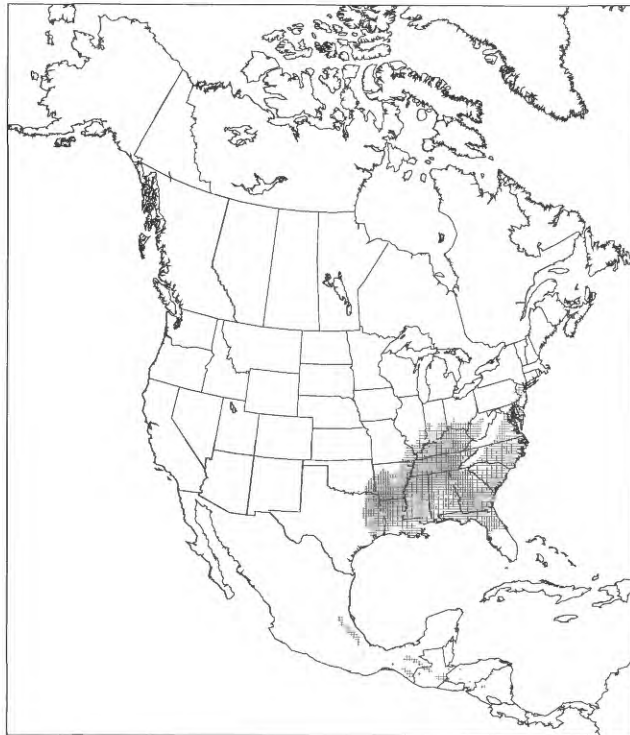
Koeberlinia spinosa



Larrea divaricata

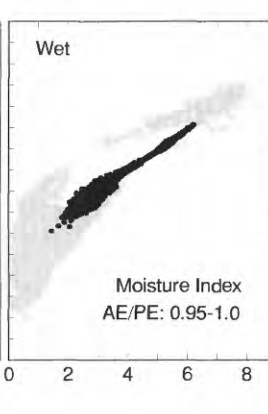
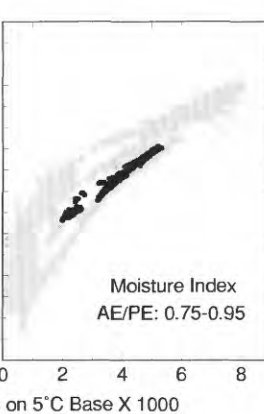
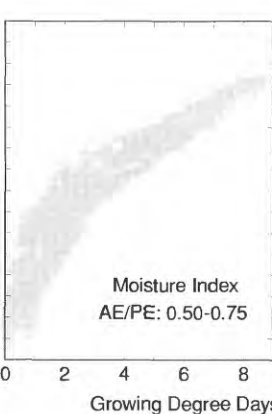
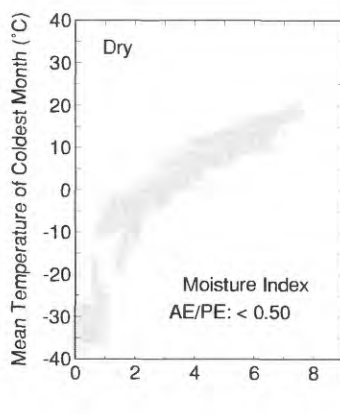
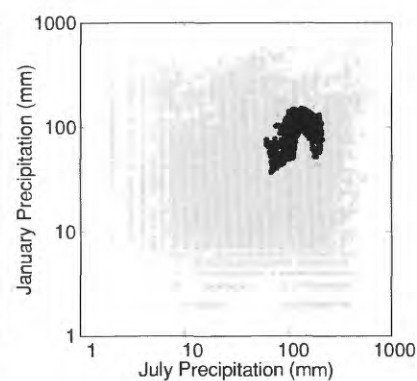
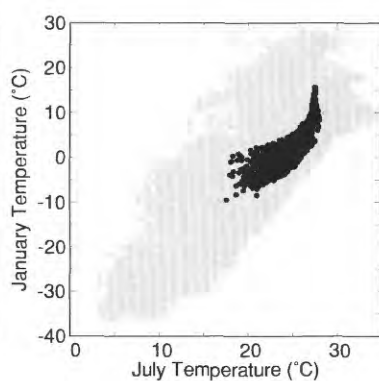
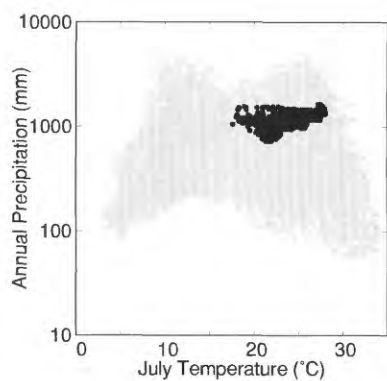
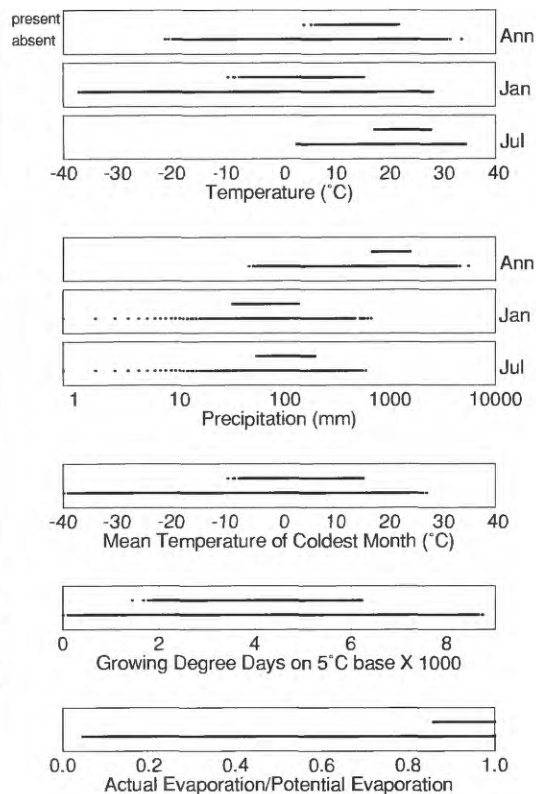
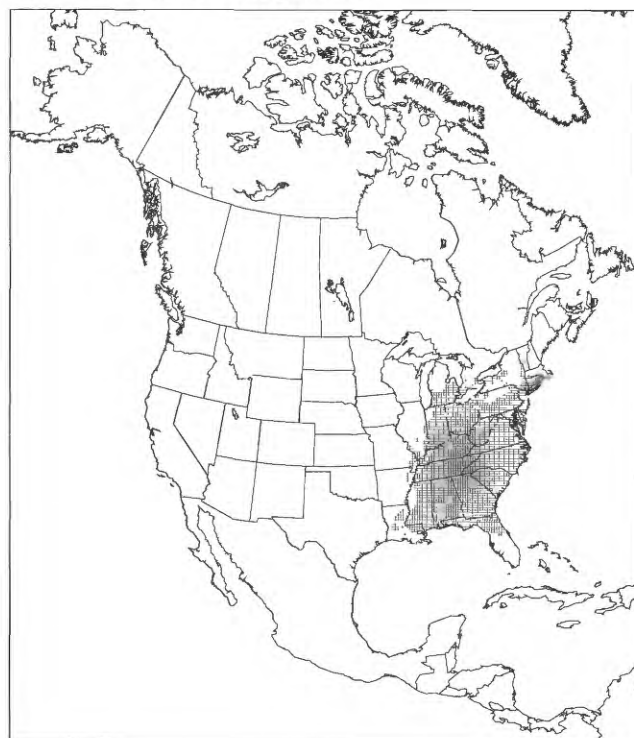


Liquidambar styraciflua

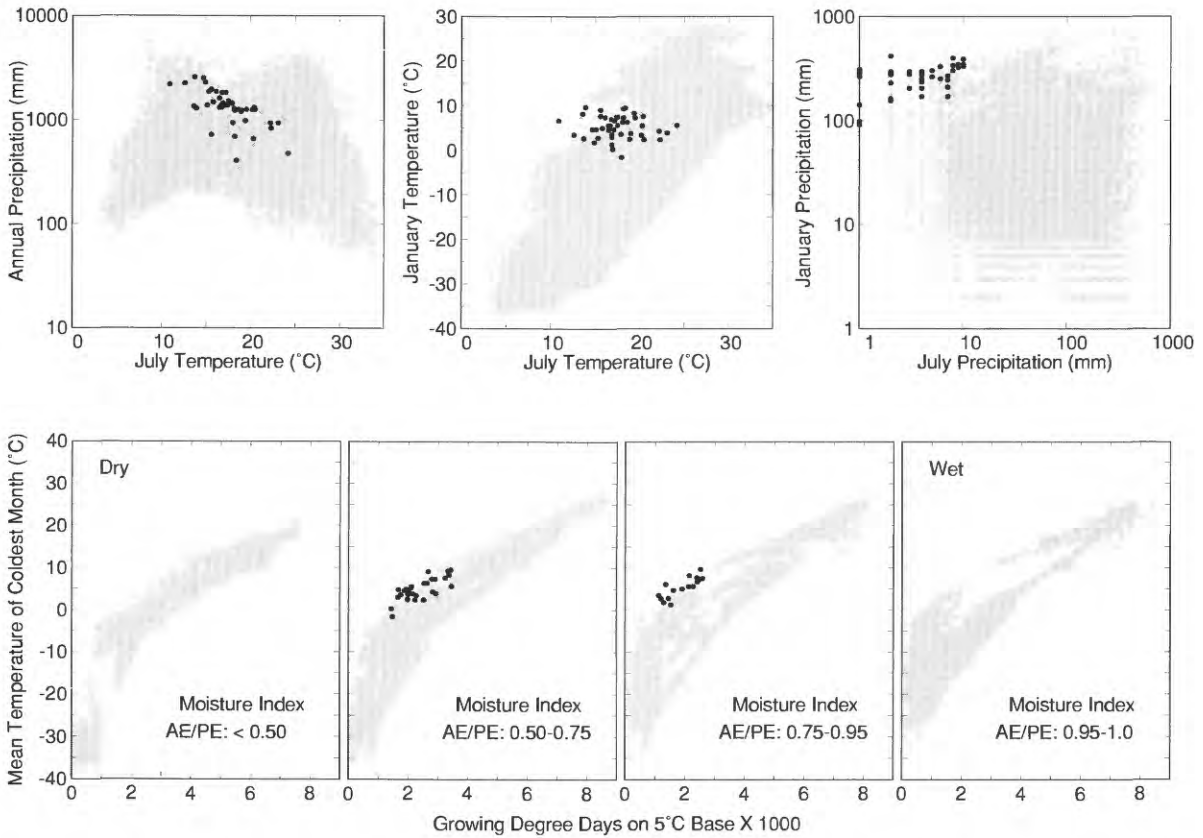
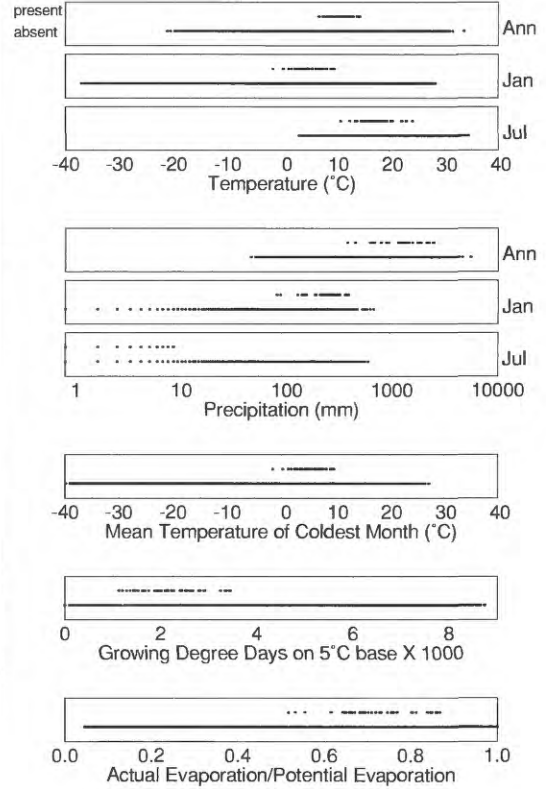


Growing Degree Days on 5°C Base X 1000

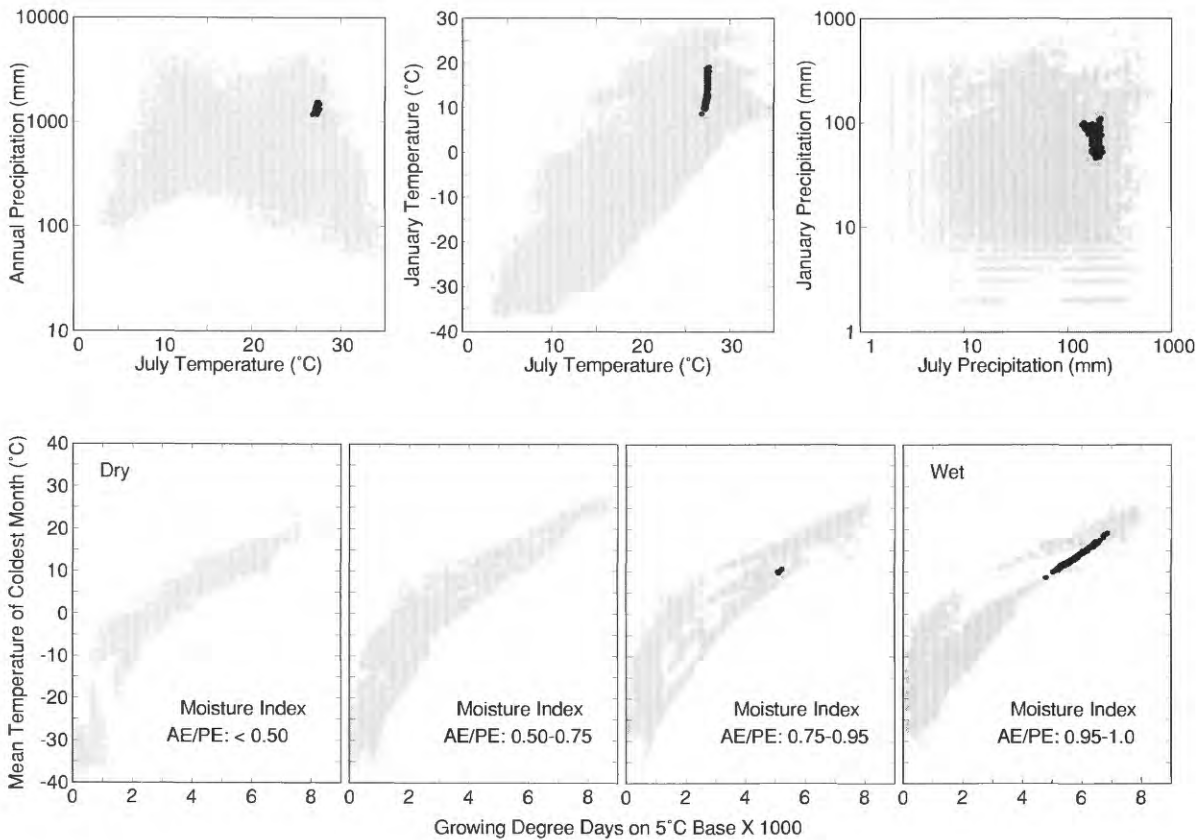
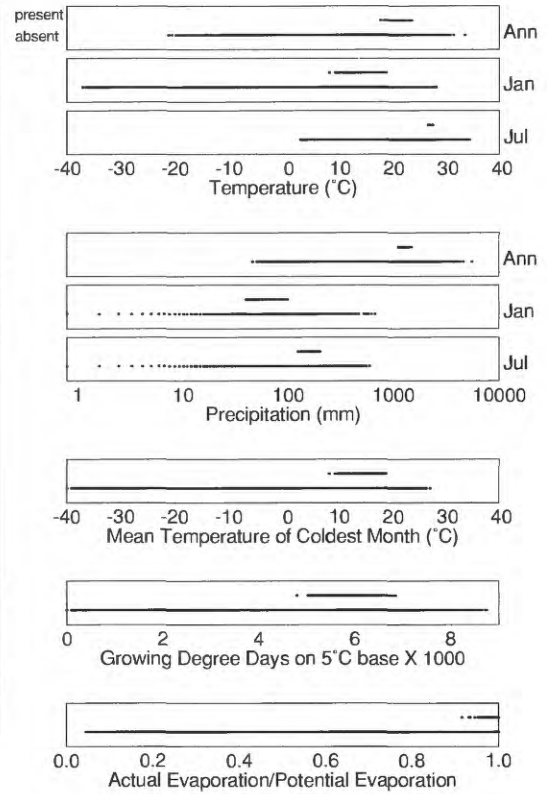
Liriodendron tulipifera



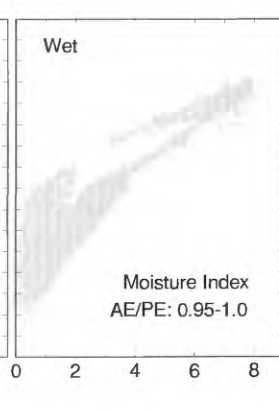
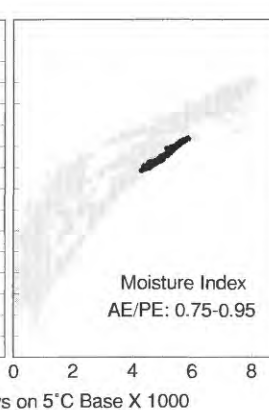
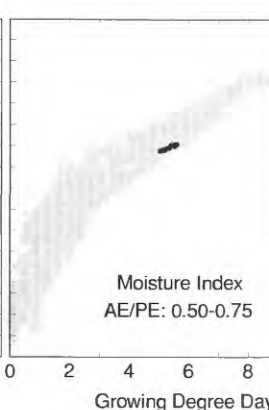
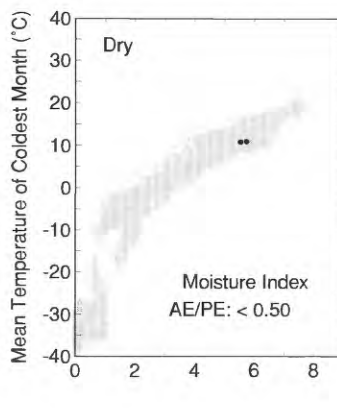
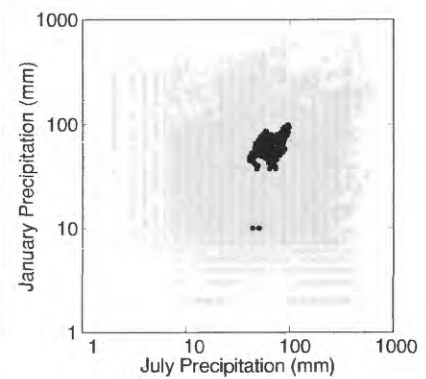
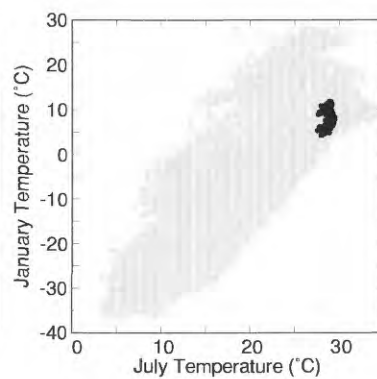
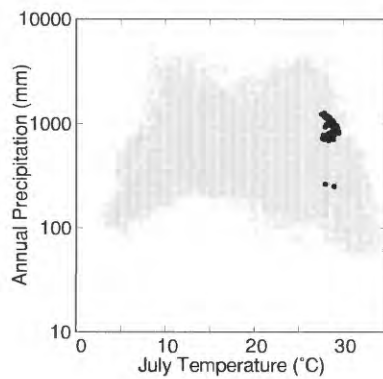
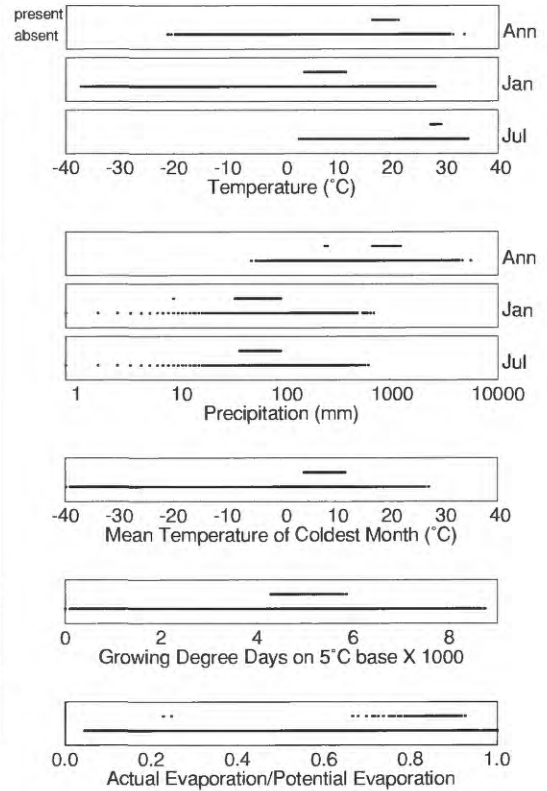
Lithocarpus densiflorus



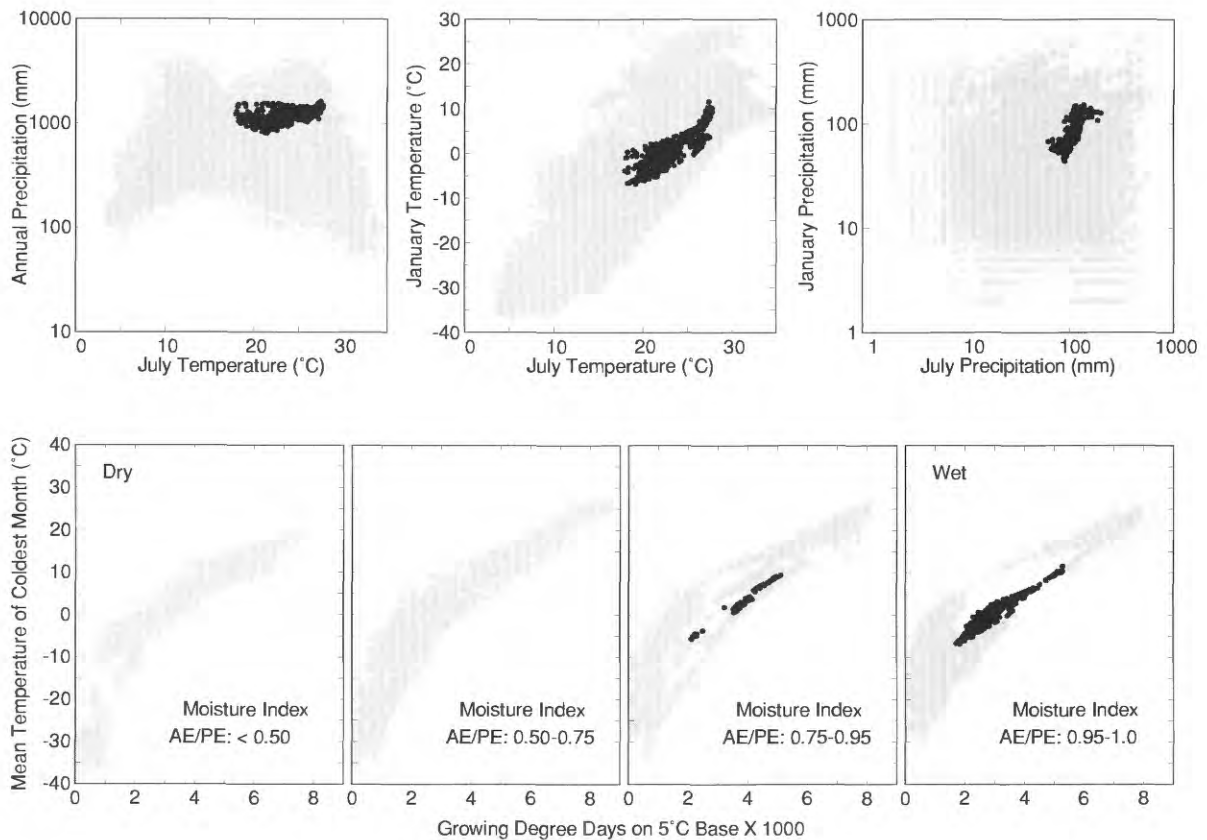
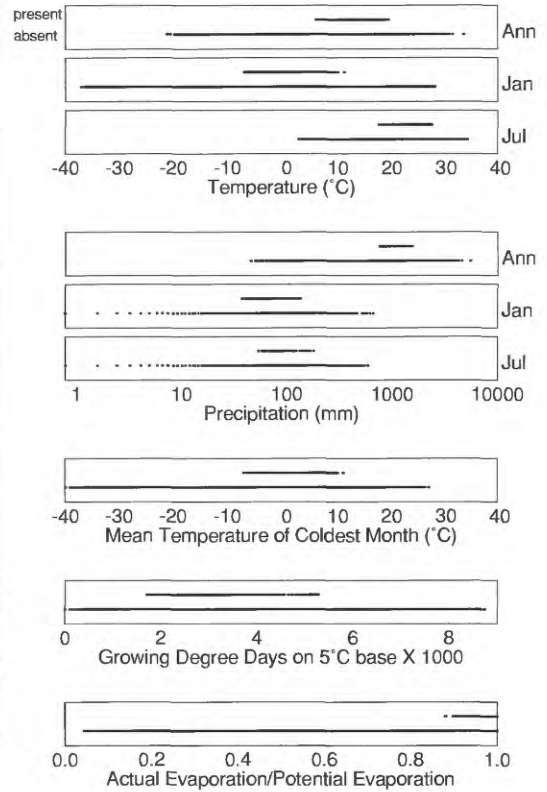
Lyonia ferruginea



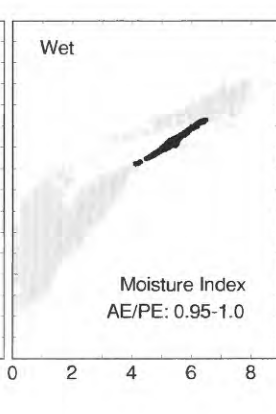
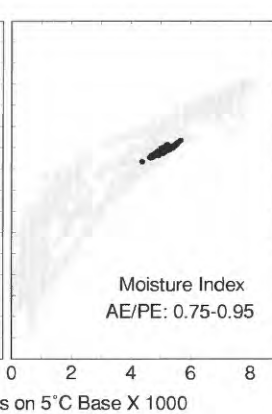
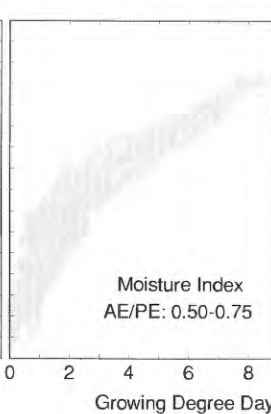
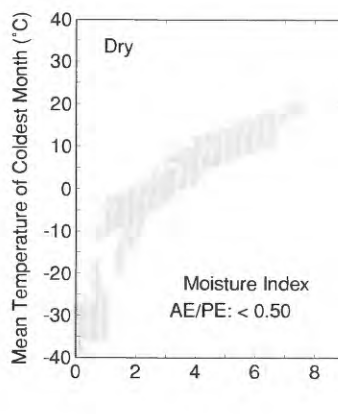
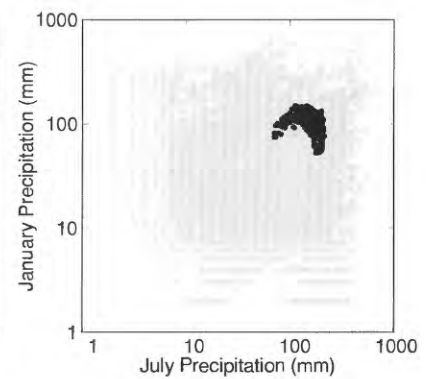
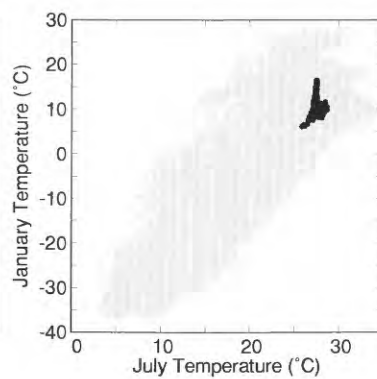
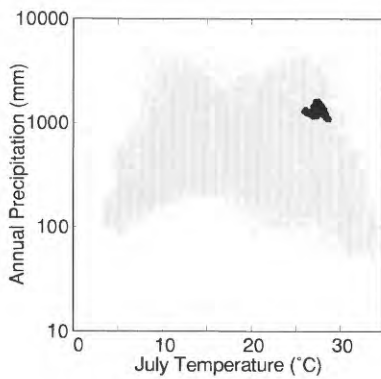
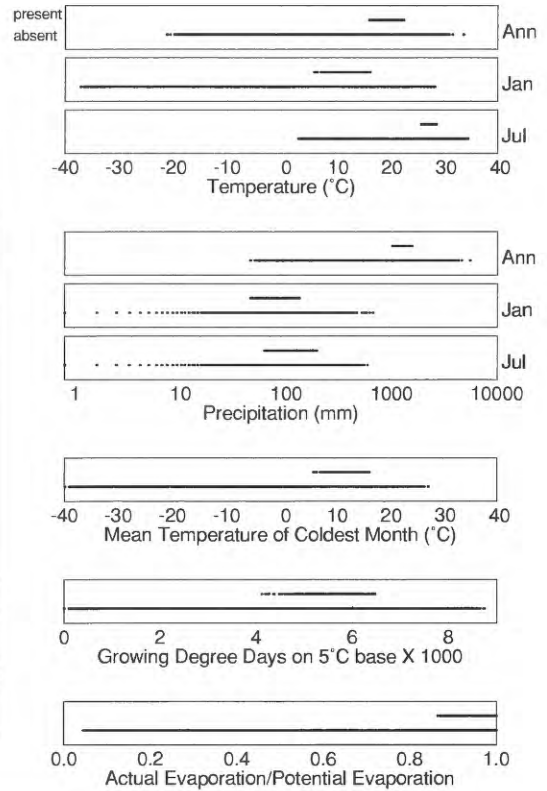
Maclura pomifera



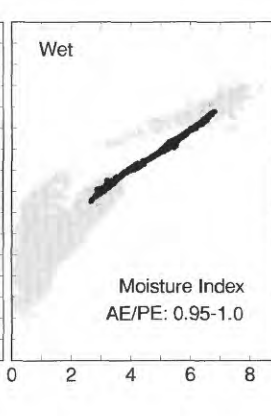
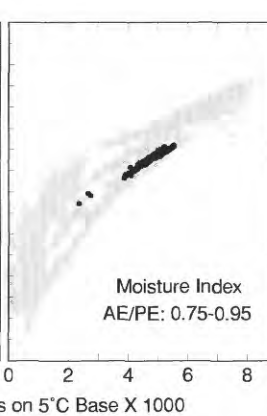
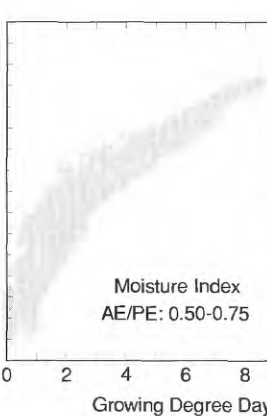
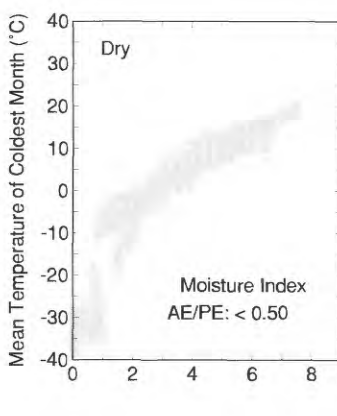
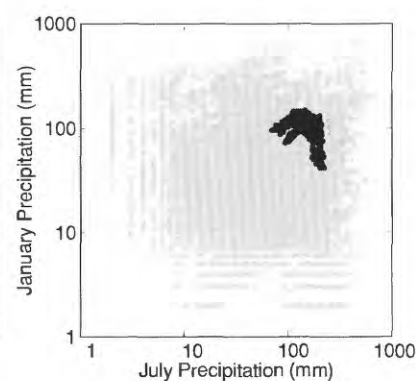
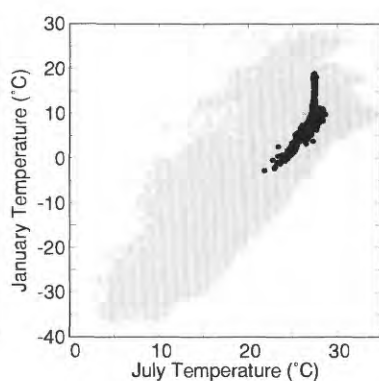
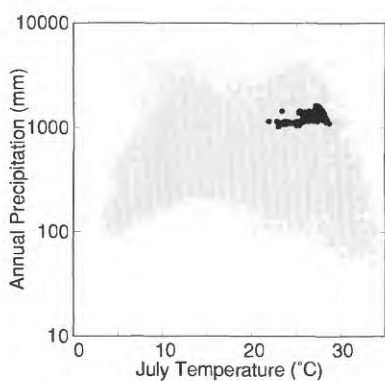
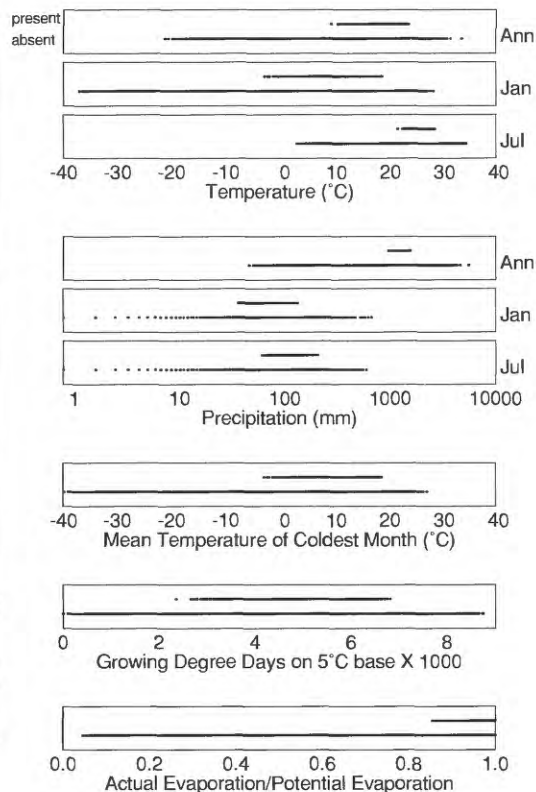
Magnolia acuminata



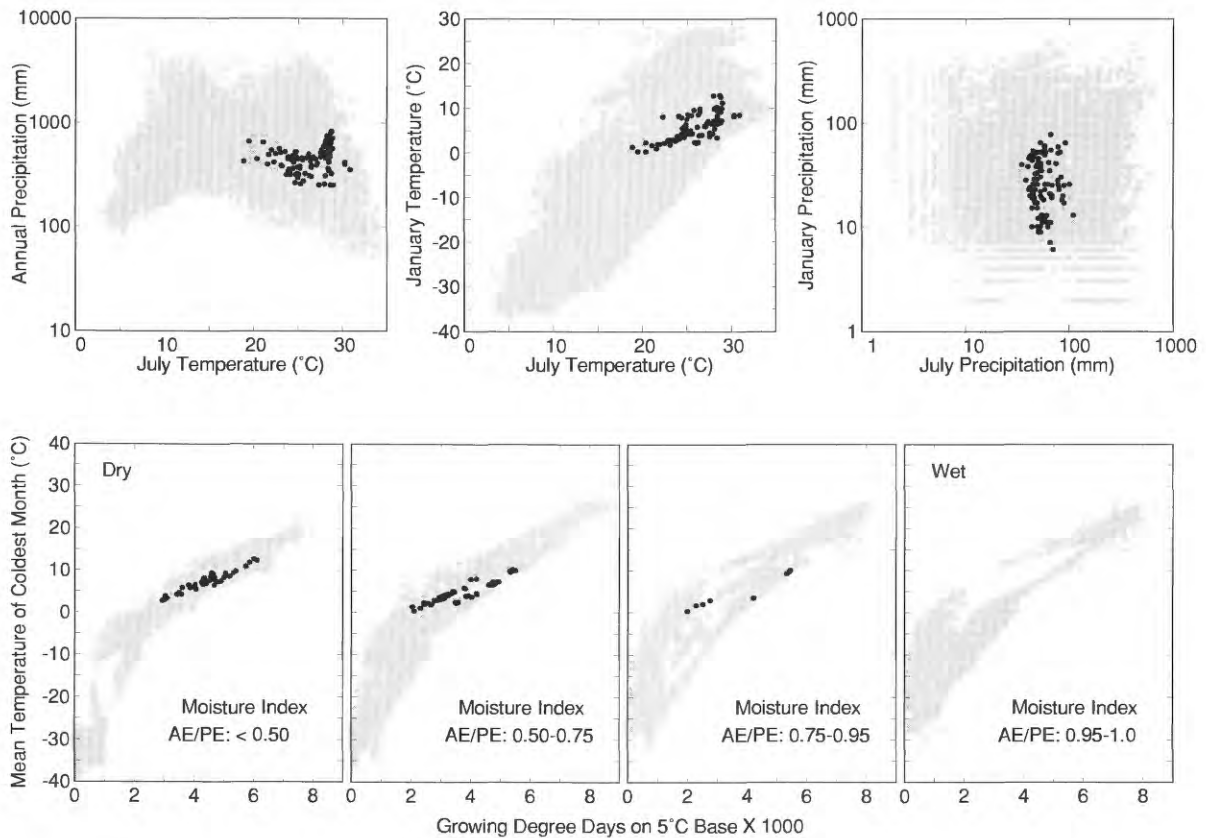
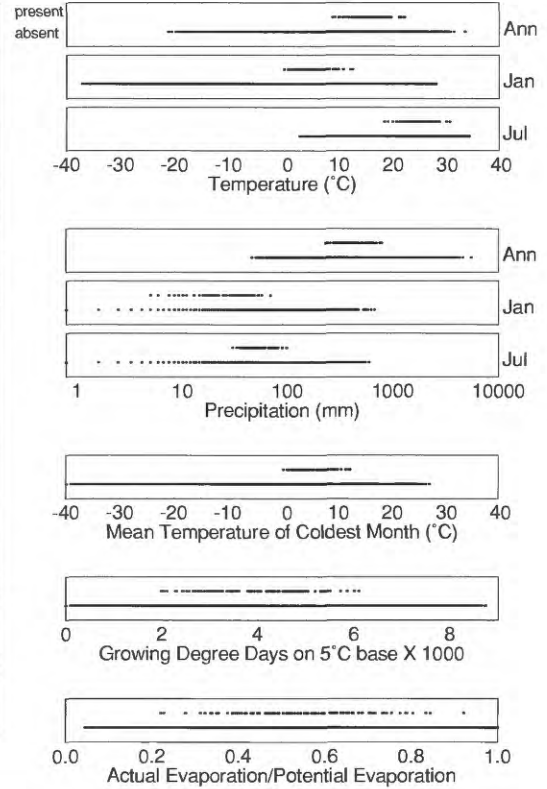
Magnolia grandiflora



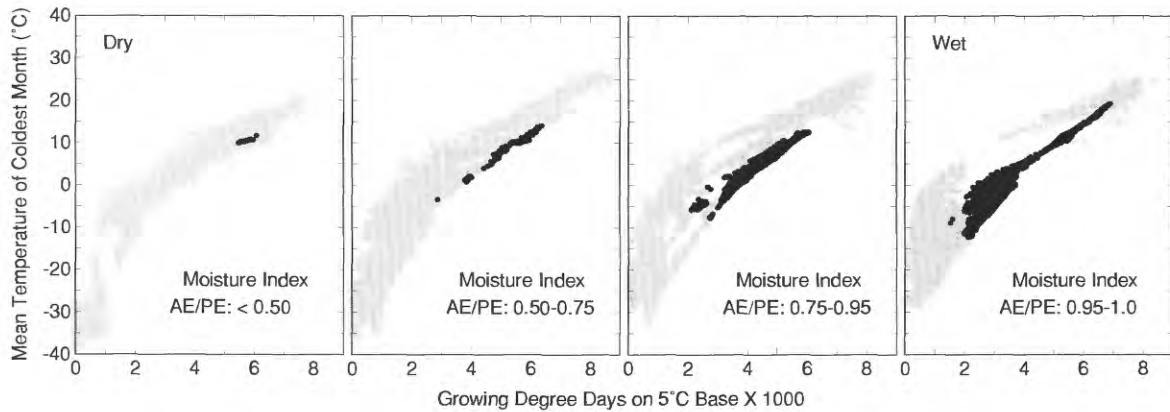
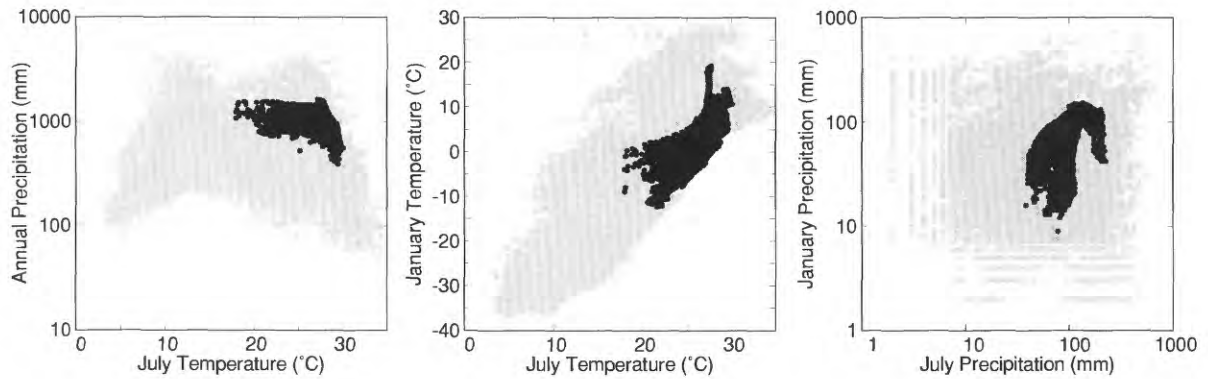
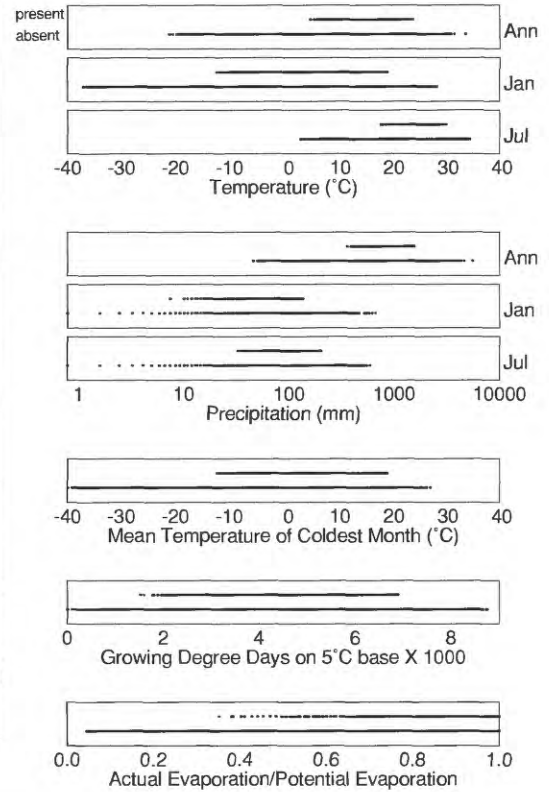
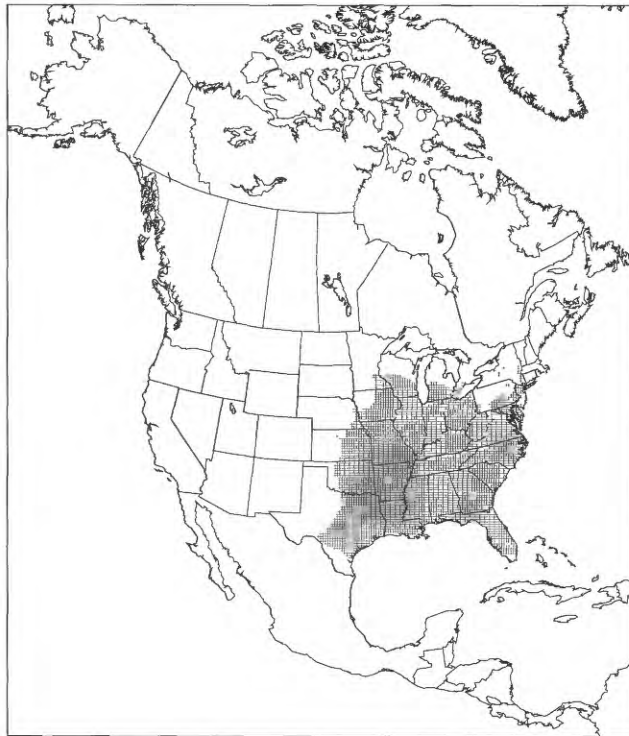
Magnolia virginiana



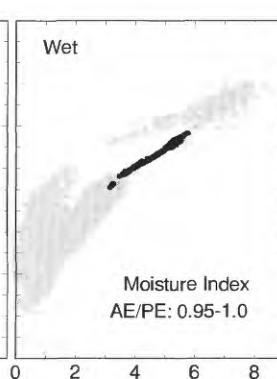
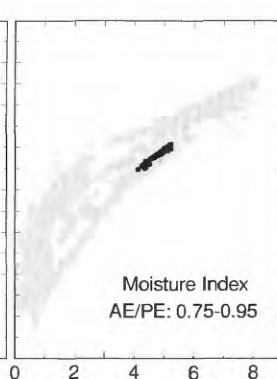
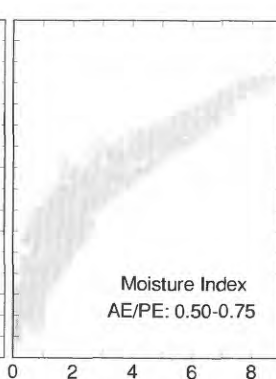
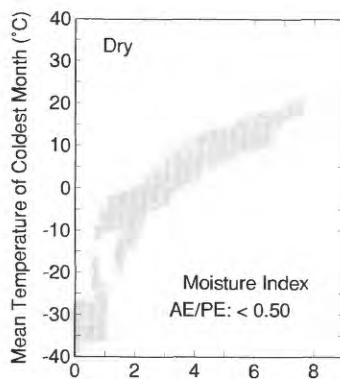
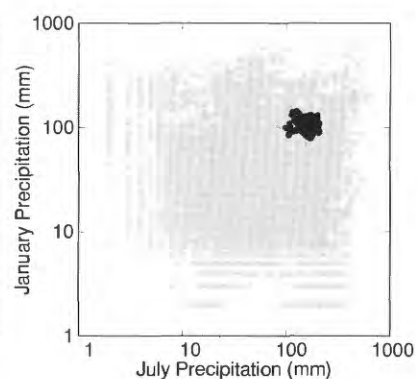
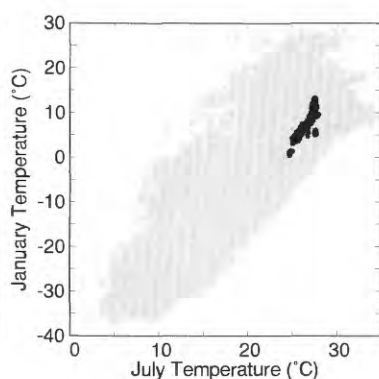
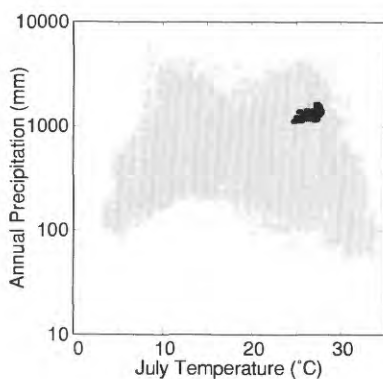
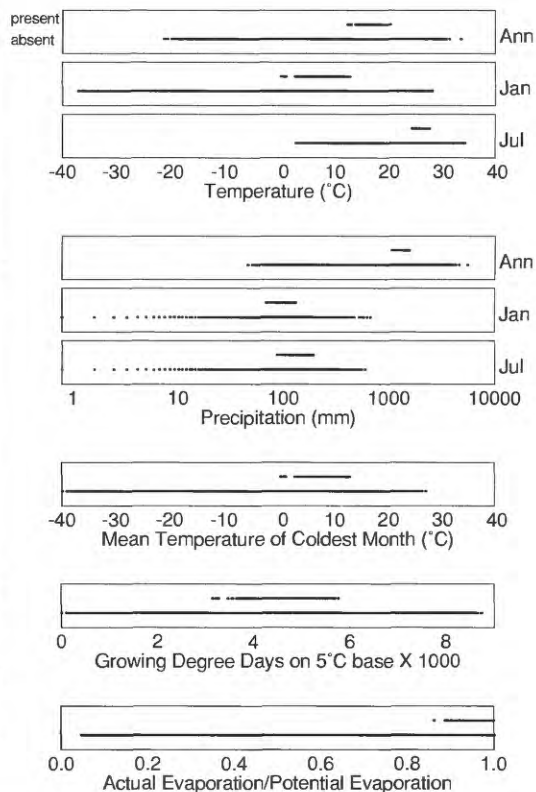
Morus microphylla



Morus rubra

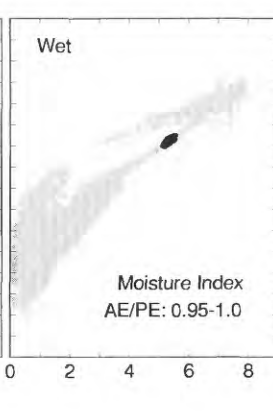
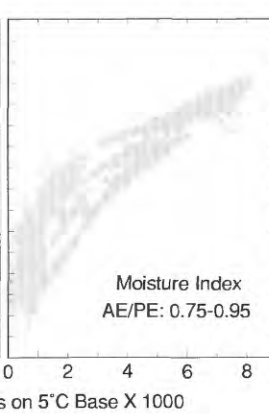
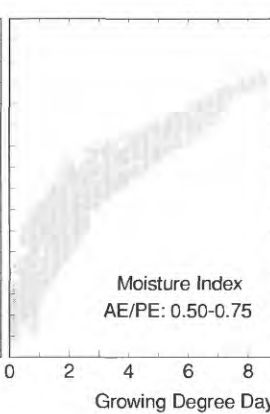
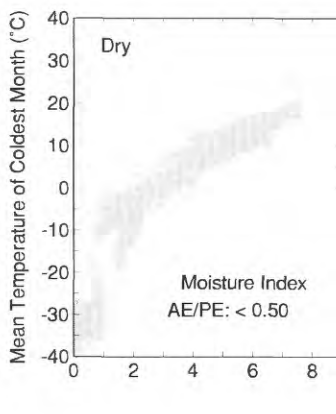
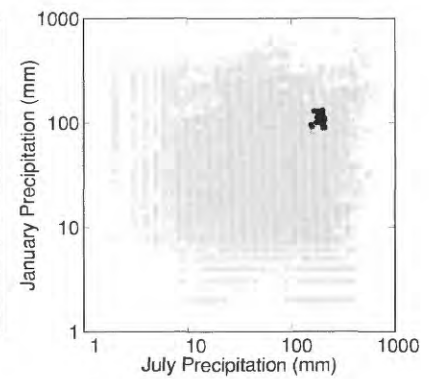
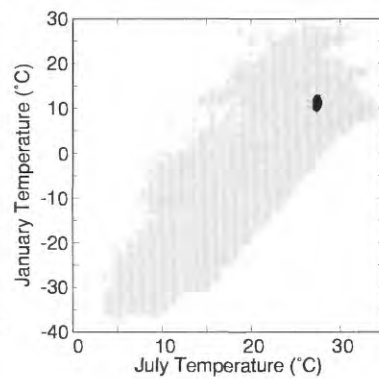
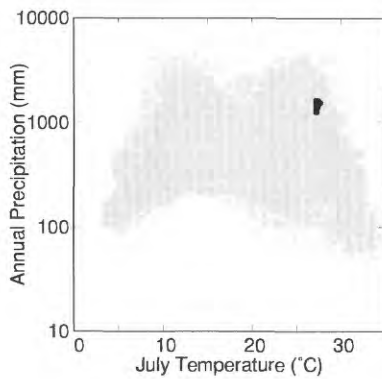
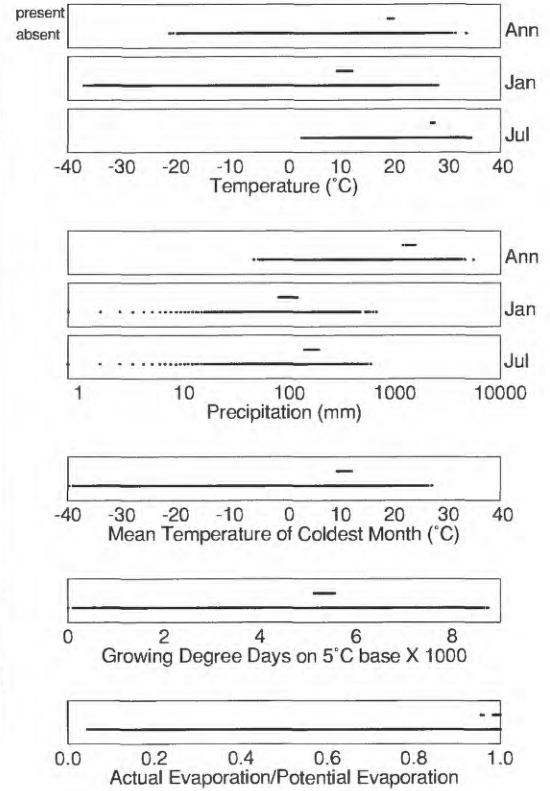


Myrica heterophylla

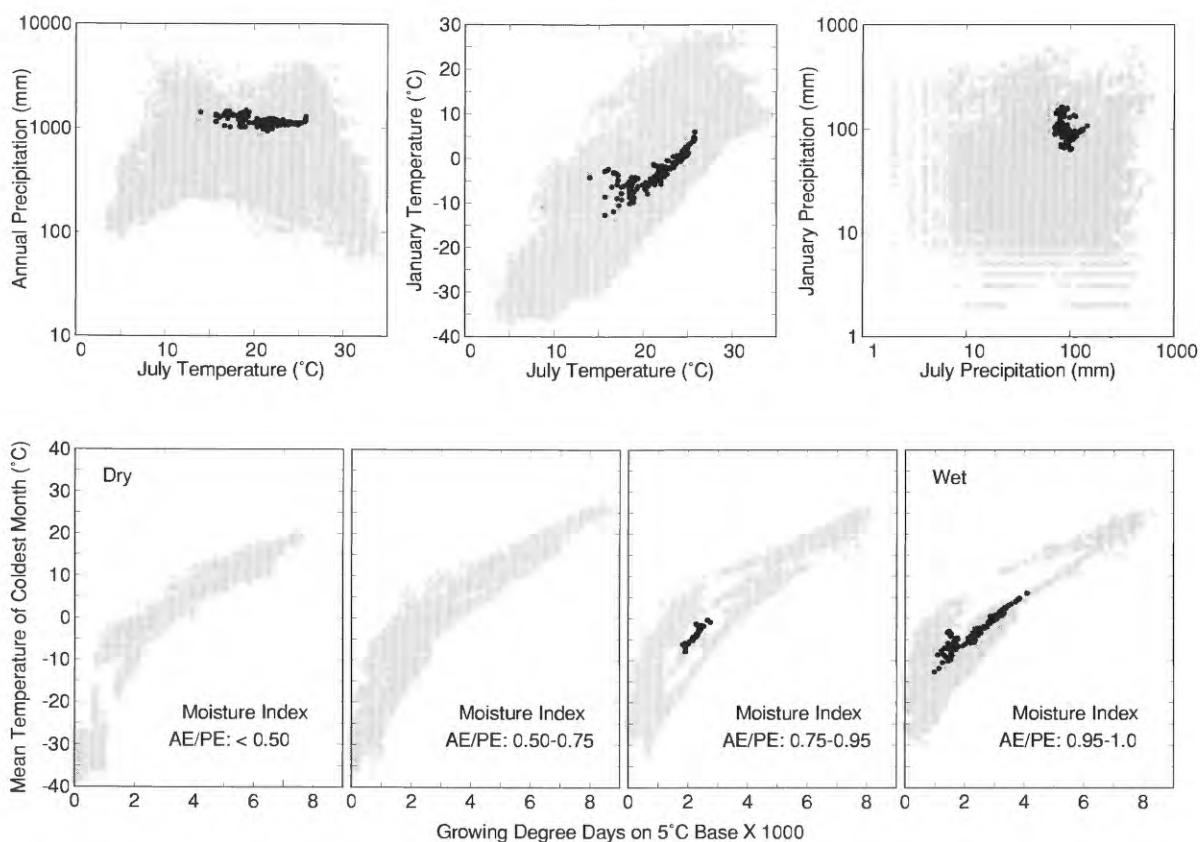
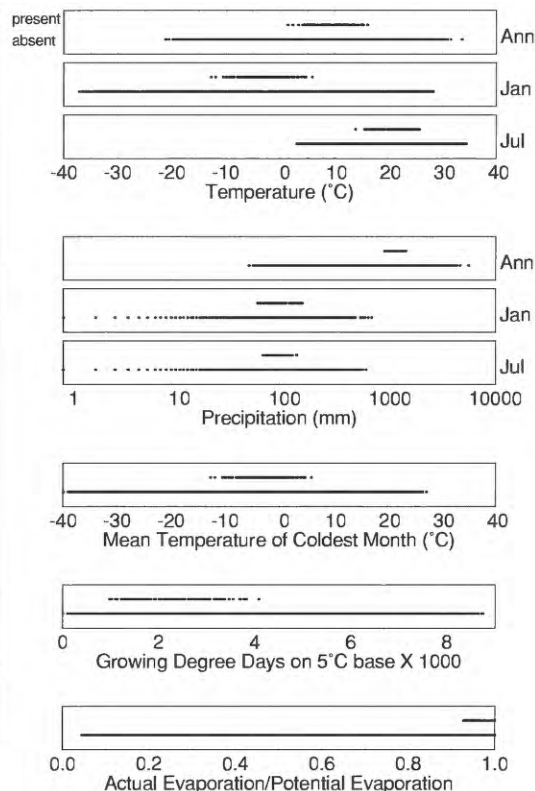


Growing Degree Days on 5°C Base X 1000

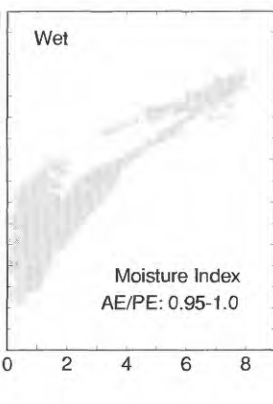
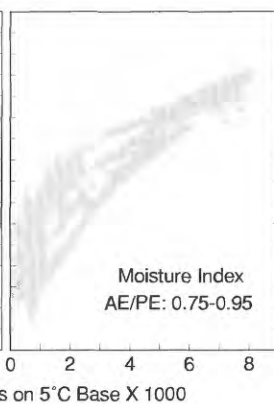
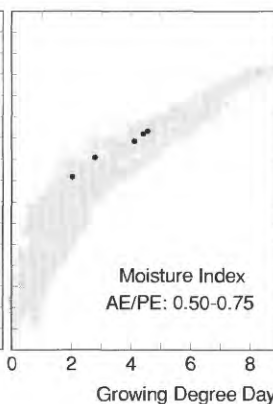
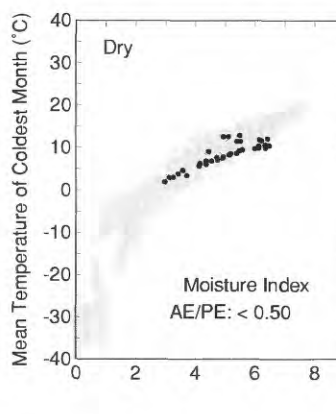
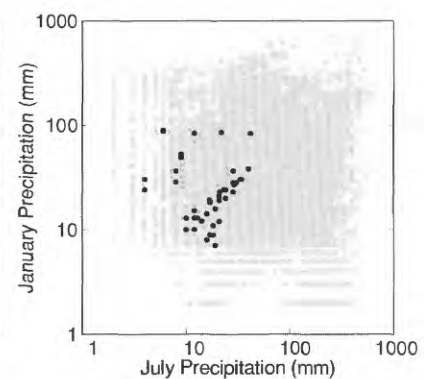
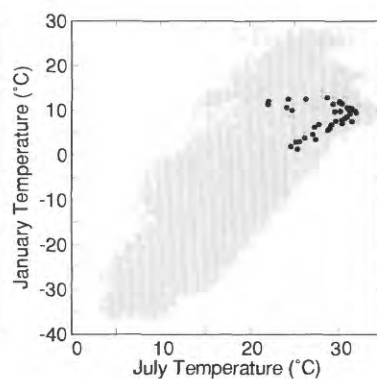
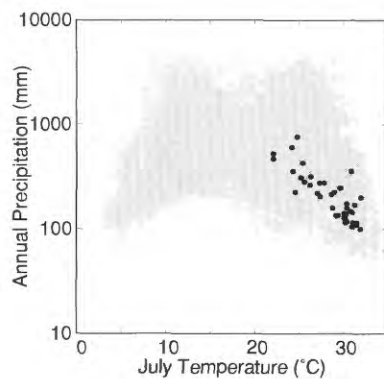
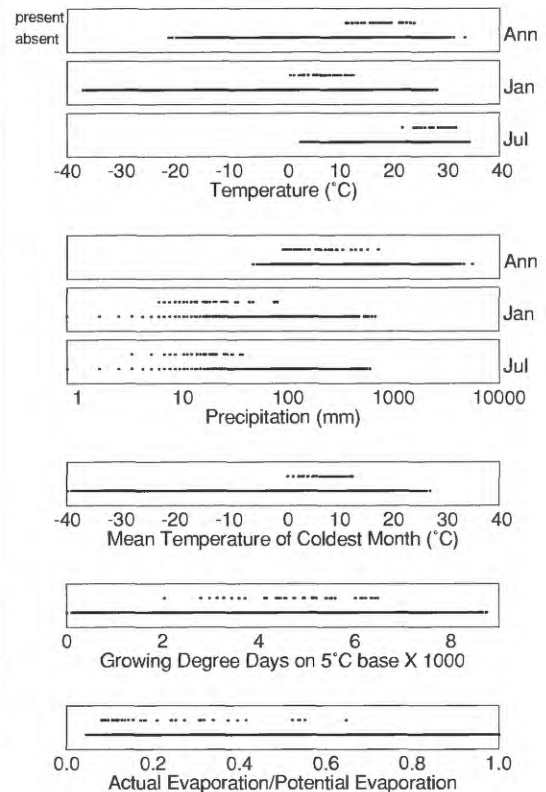
Myrica inodora



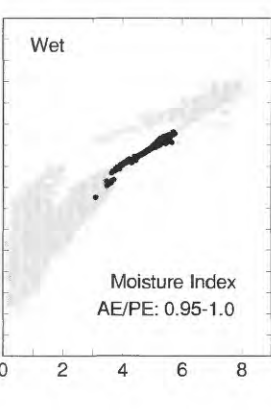
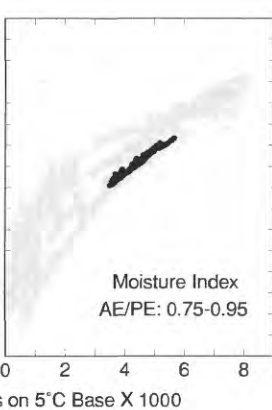
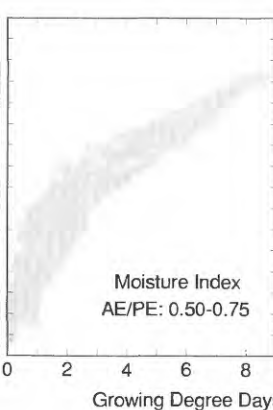
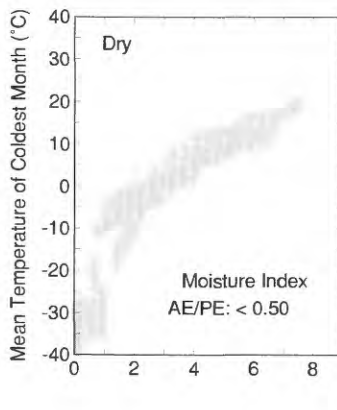
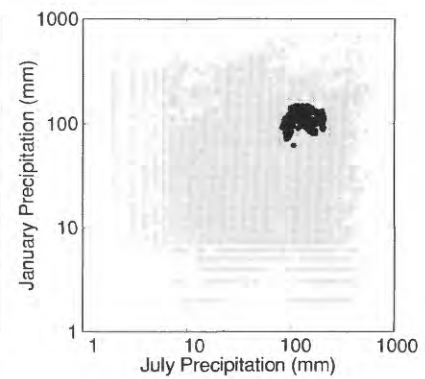
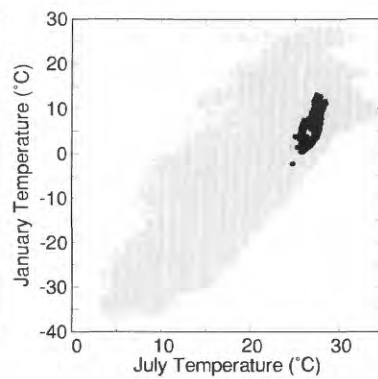
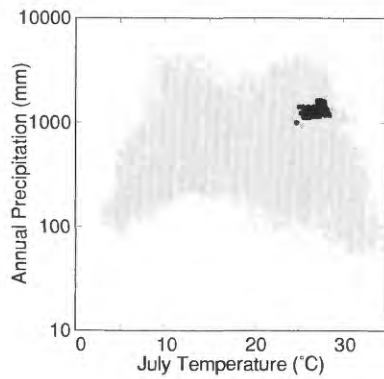
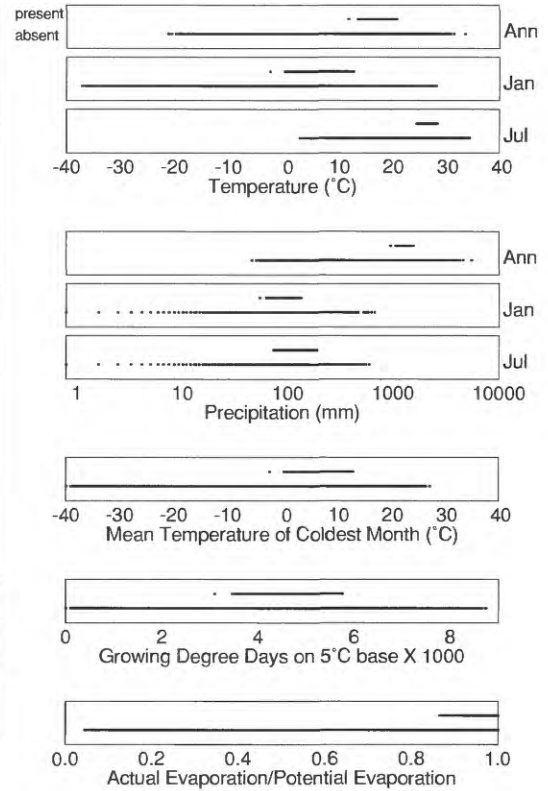
Myrica pensylvanica



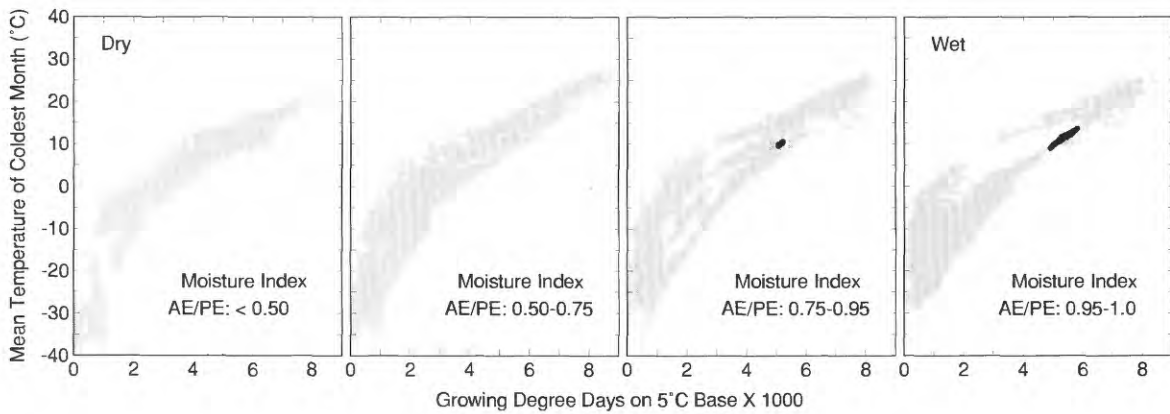
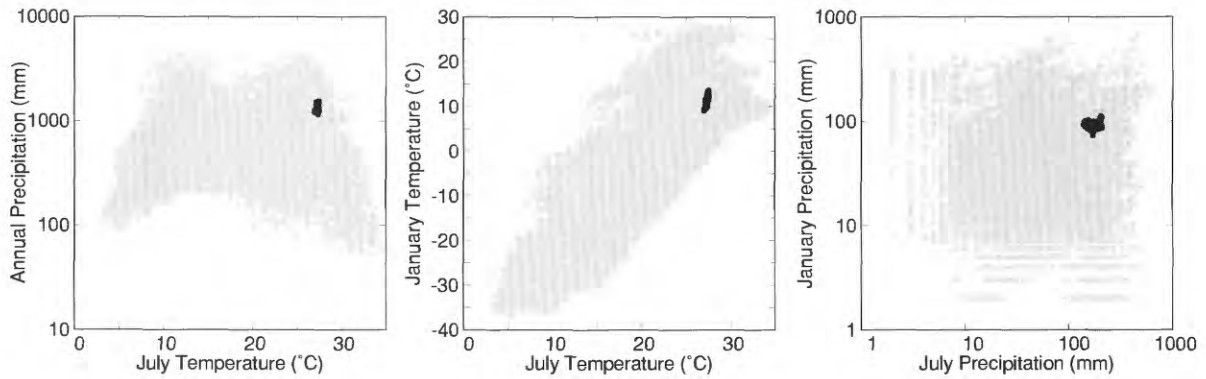
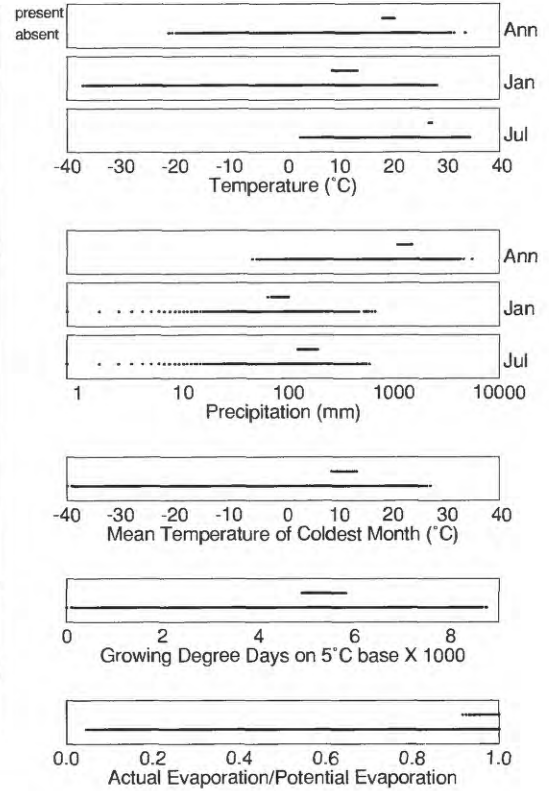
Nolina bigelovii



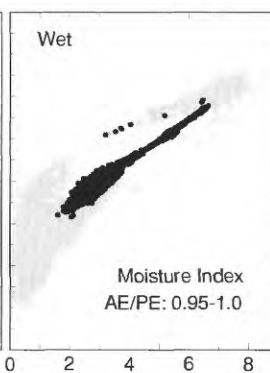
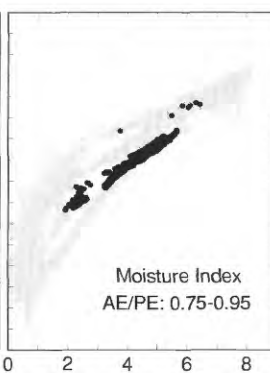
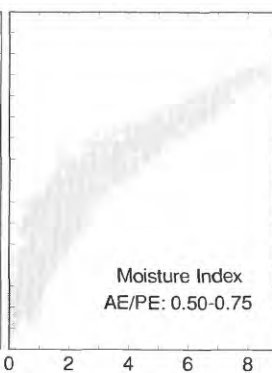
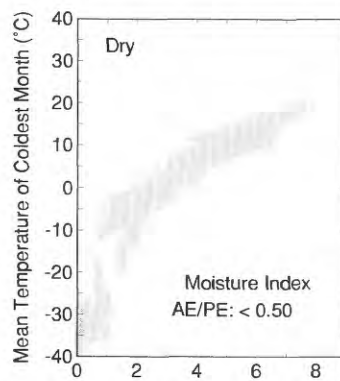
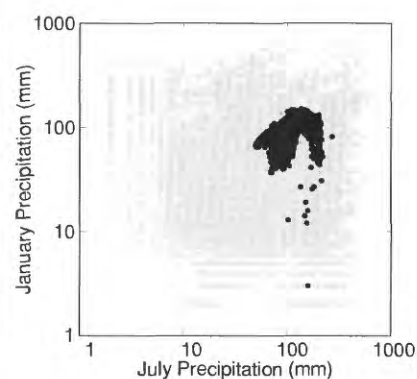
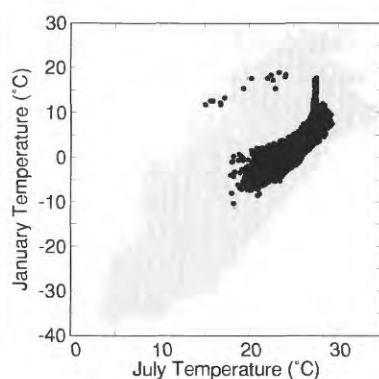
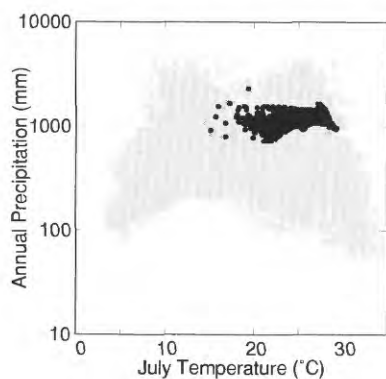
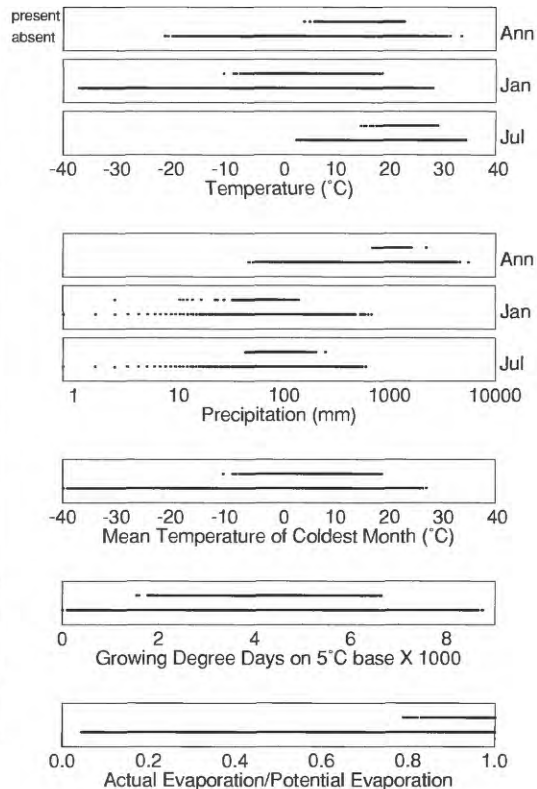
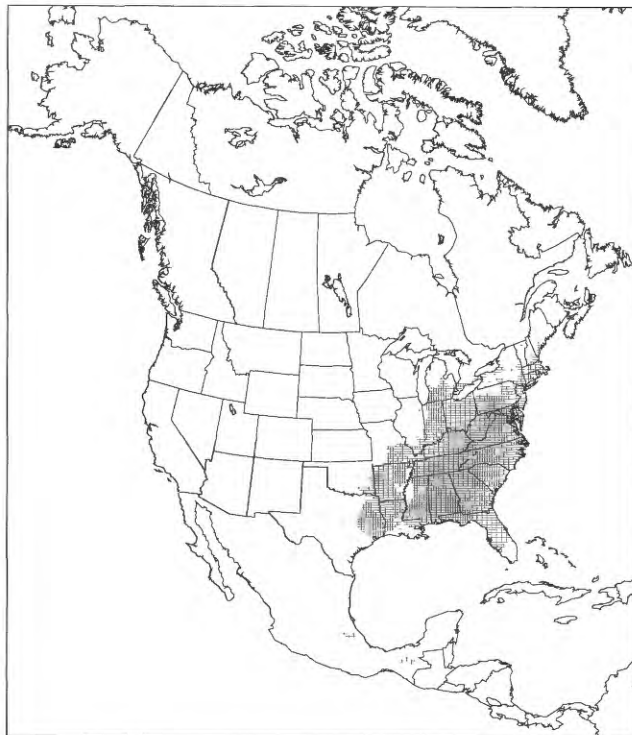
Nyssa aquatica



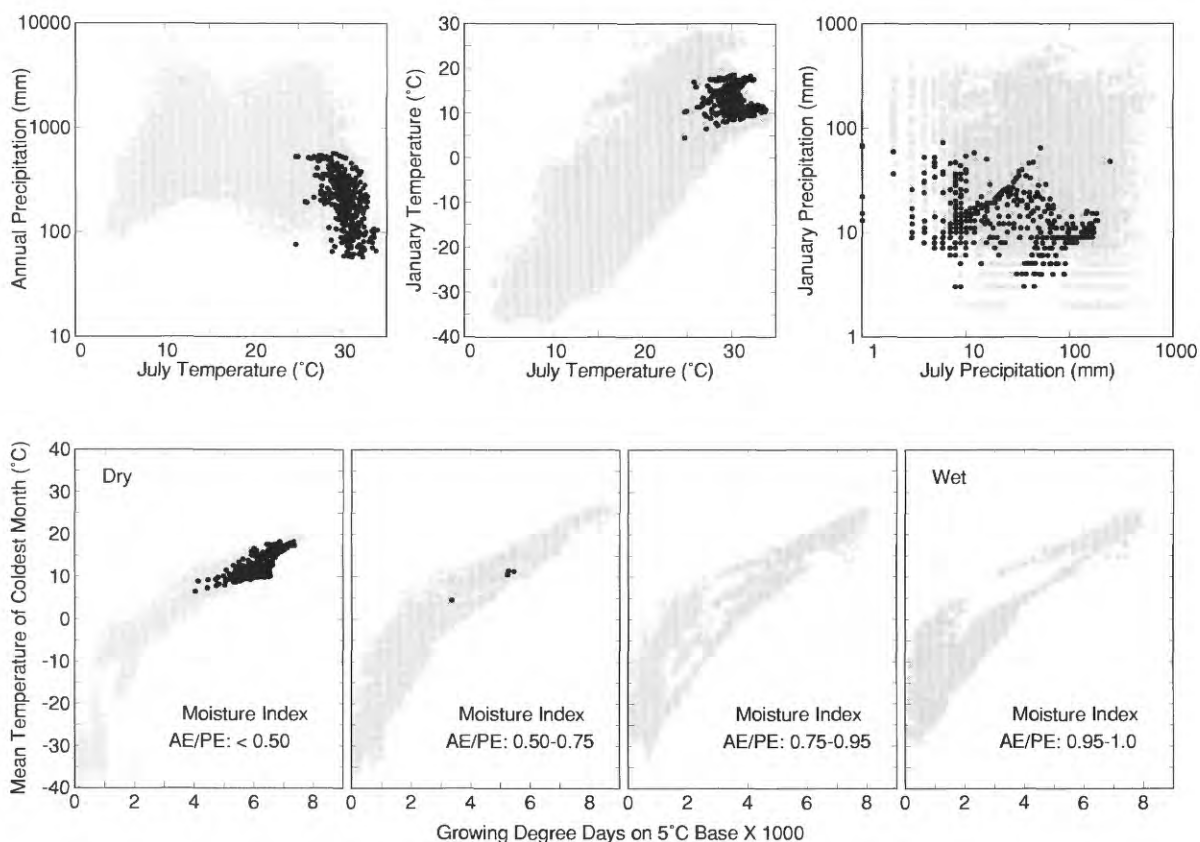
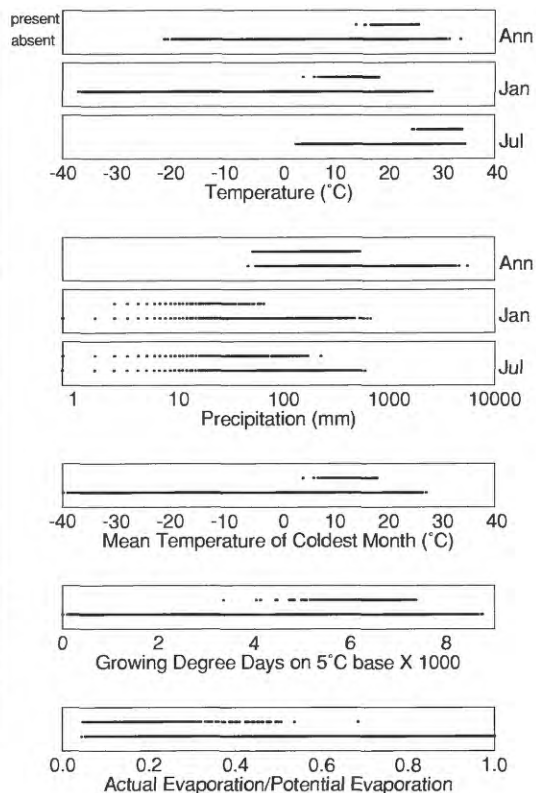
Nyssa ogeche



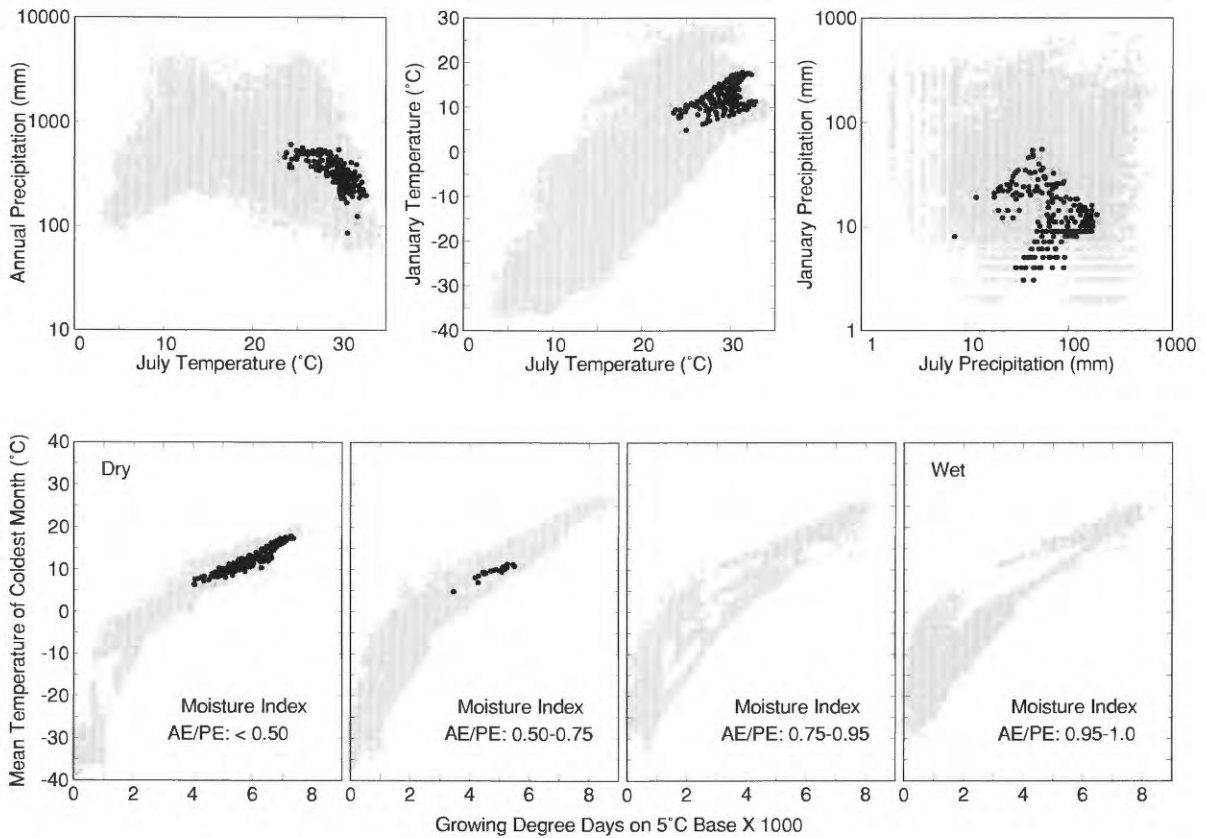
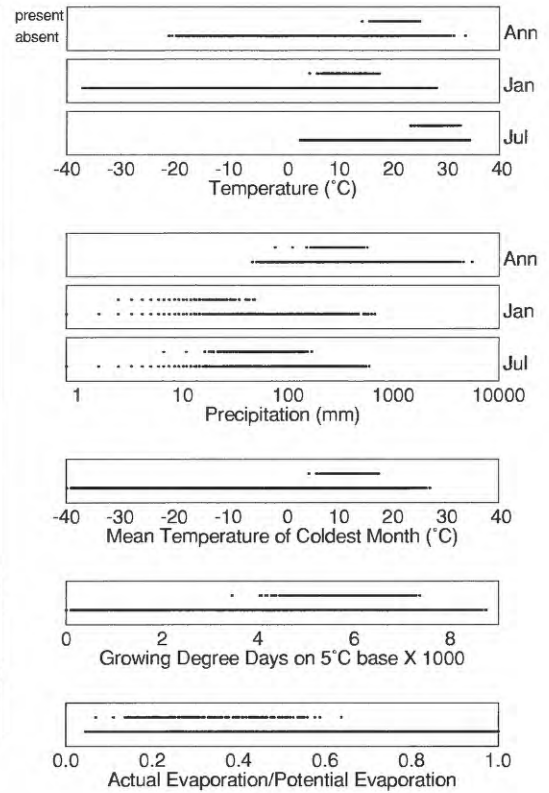
Nyssa sylvatica



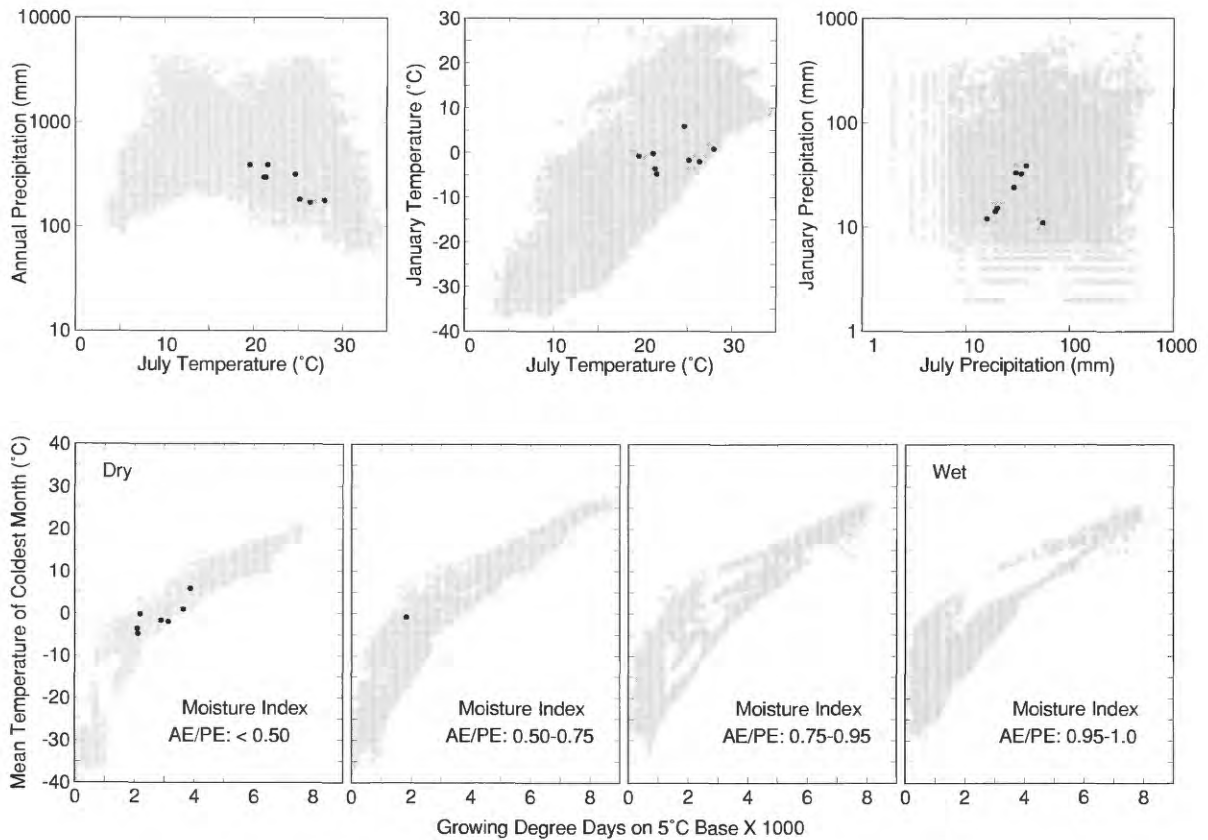
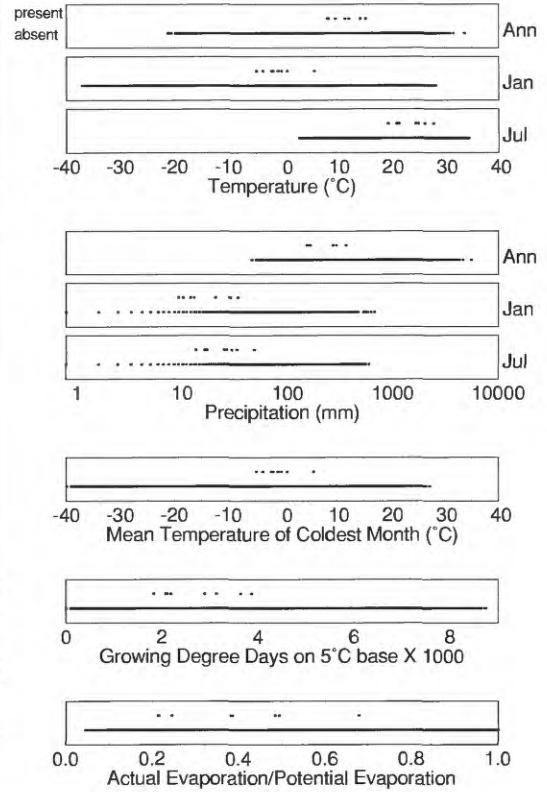
Olneya tesota



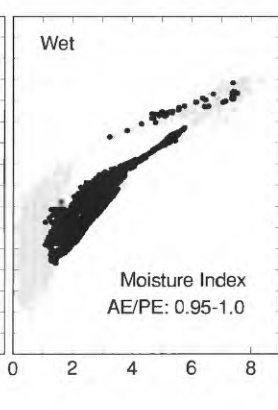
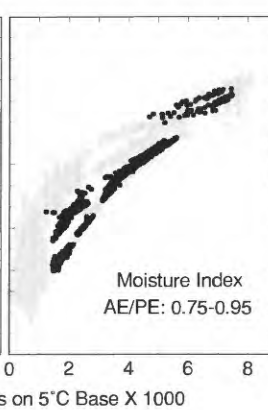
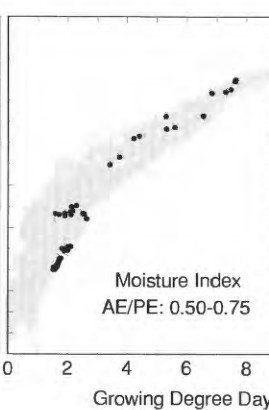
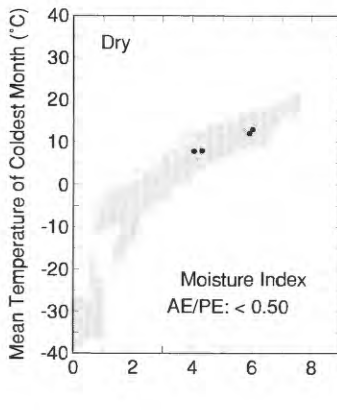
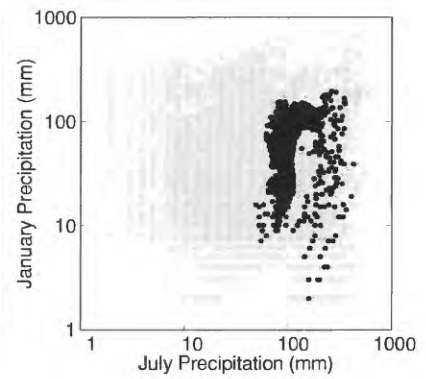
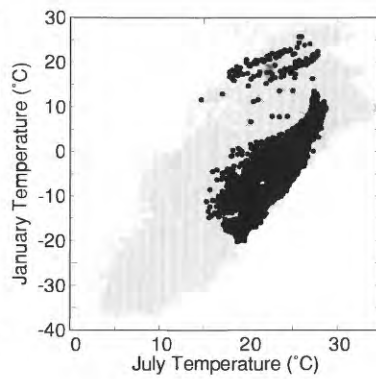
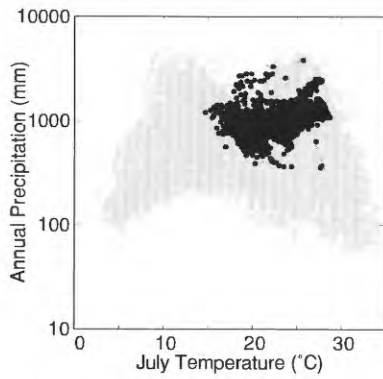
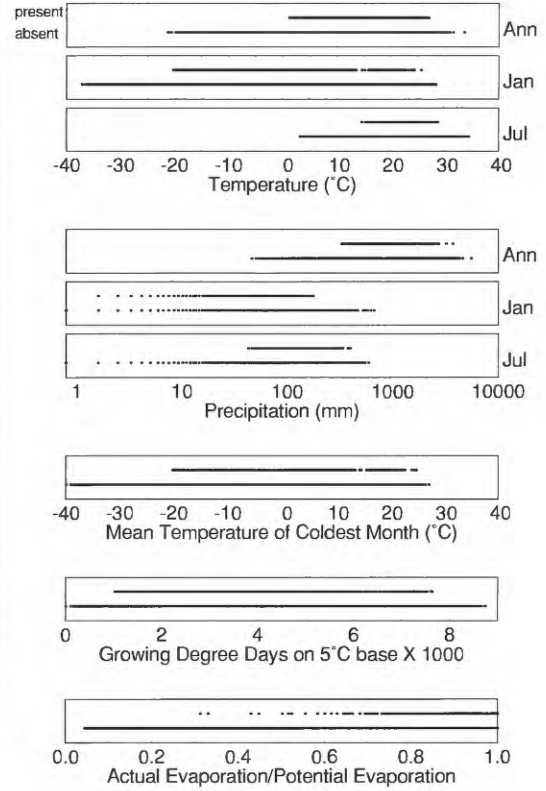
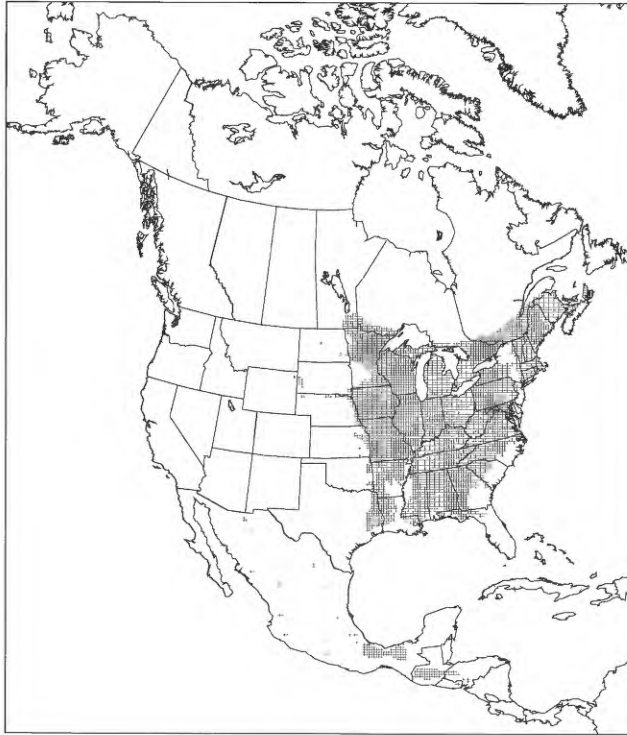
Opuntia fulgida



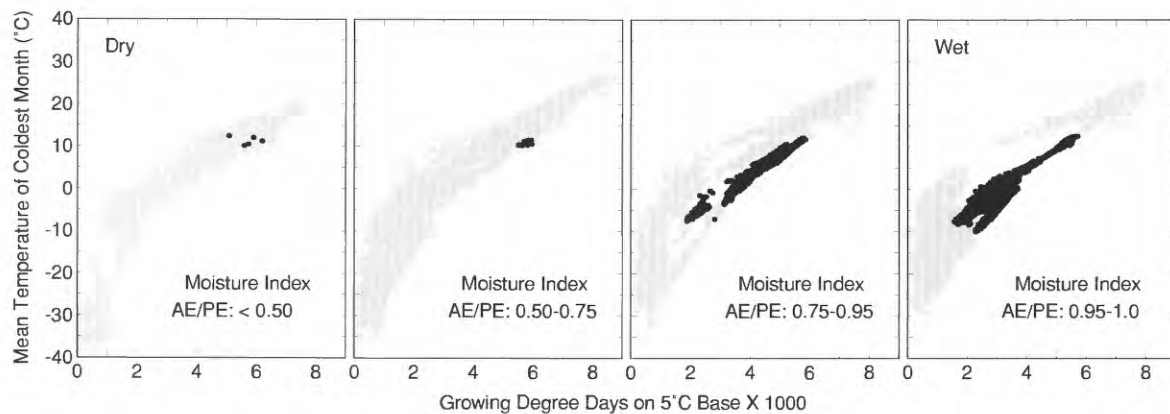
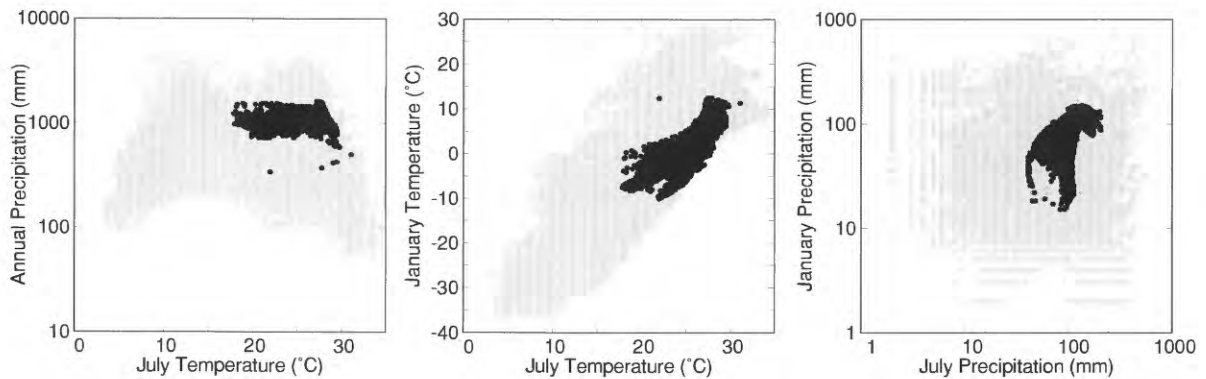
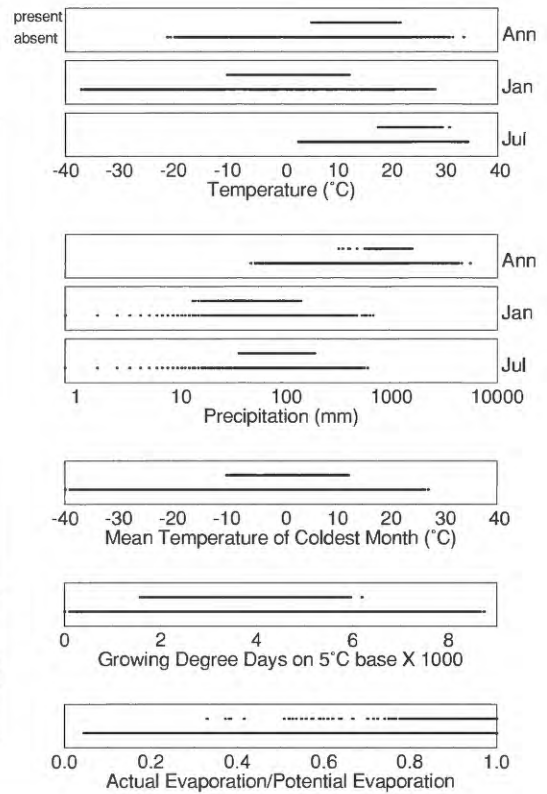
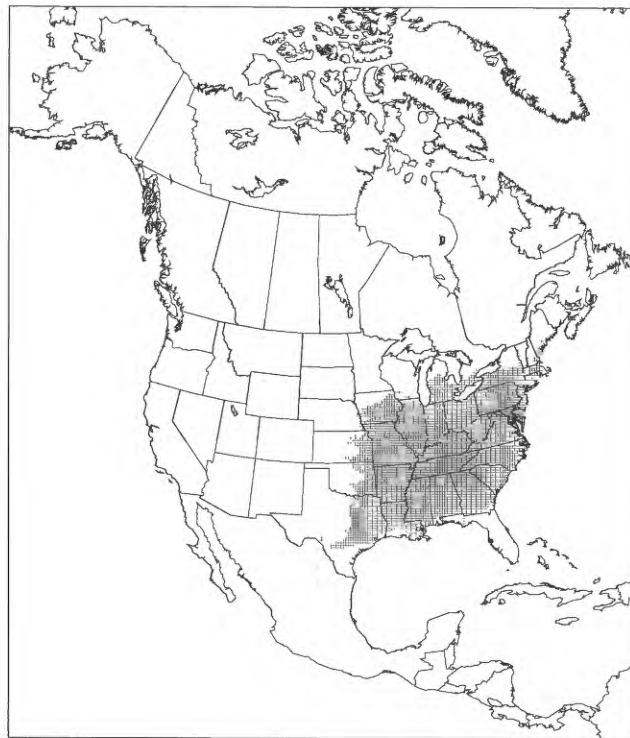
Ostrya knowltonii



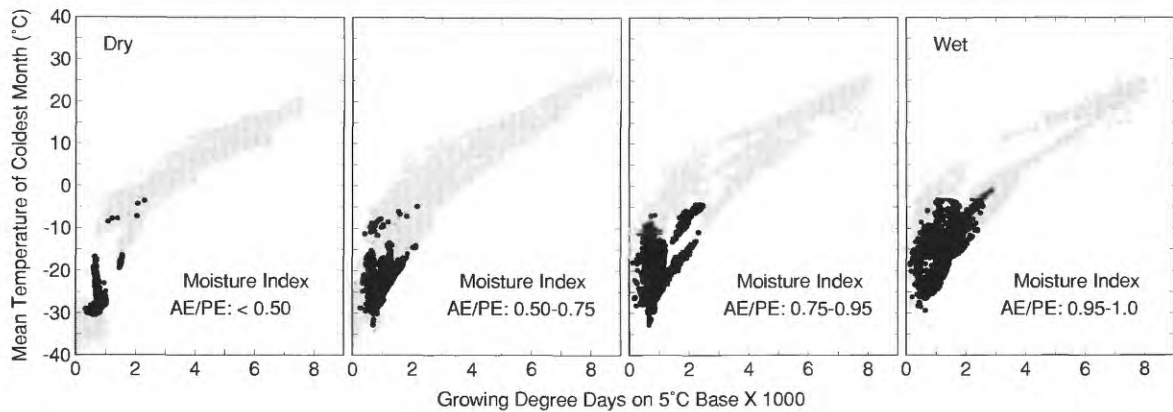
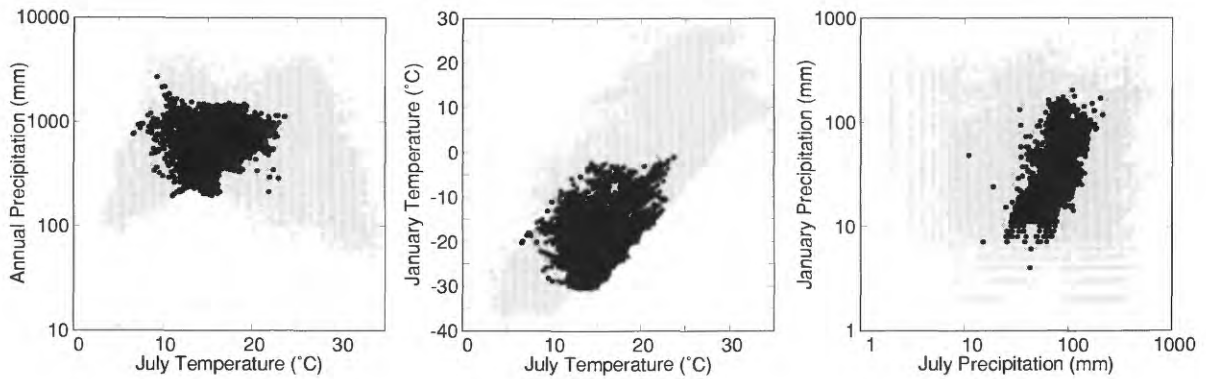
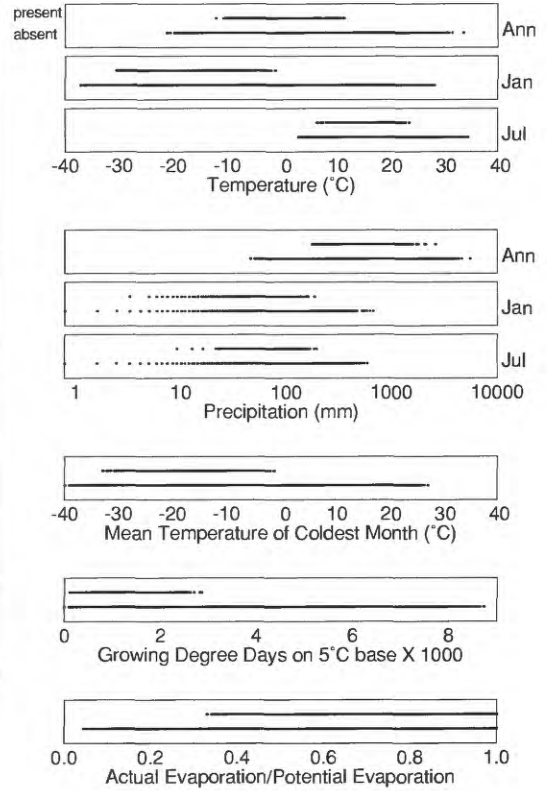
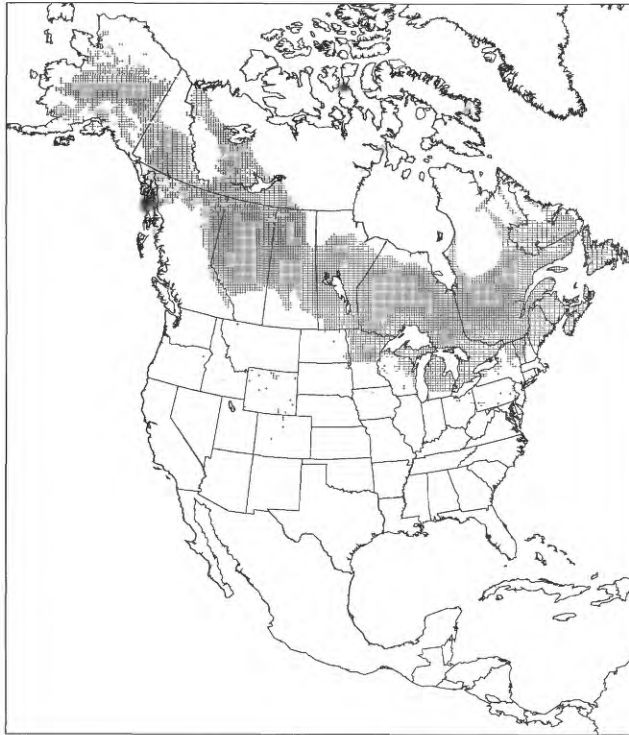
Ostrya virginiana



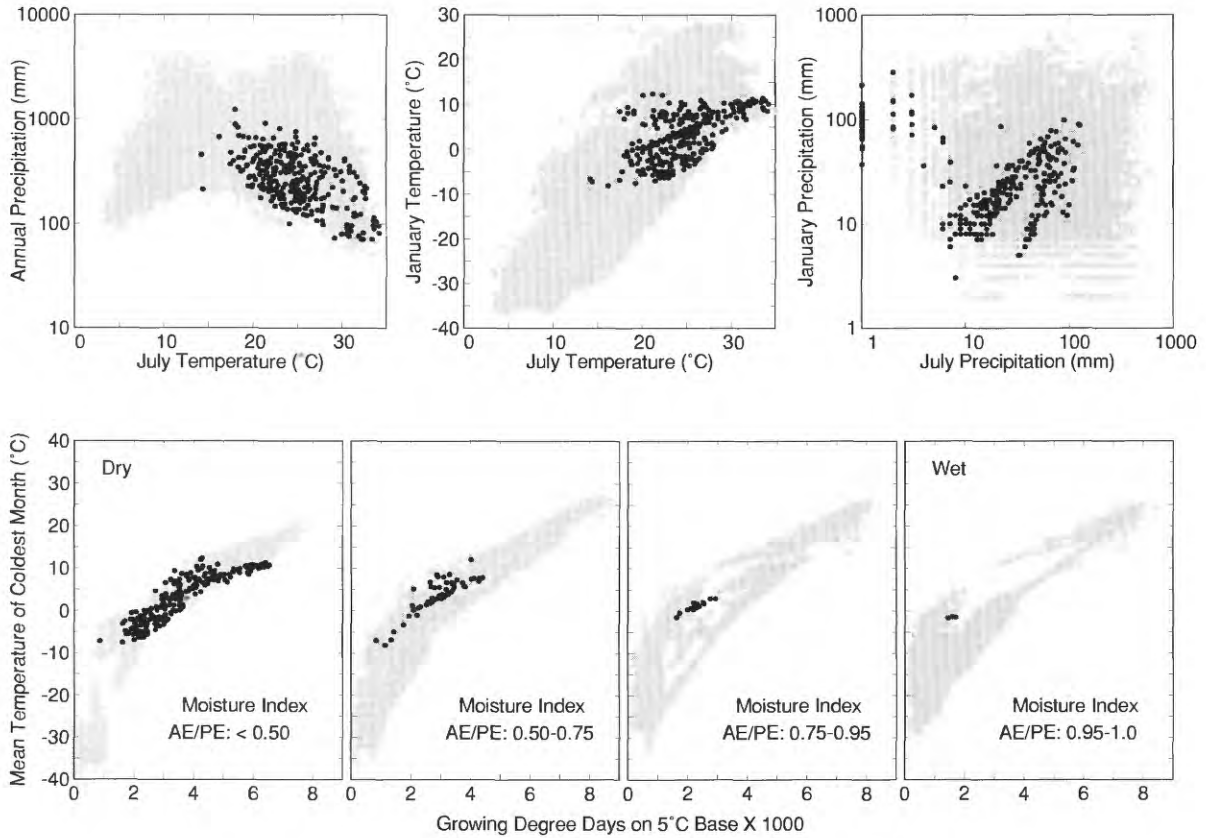
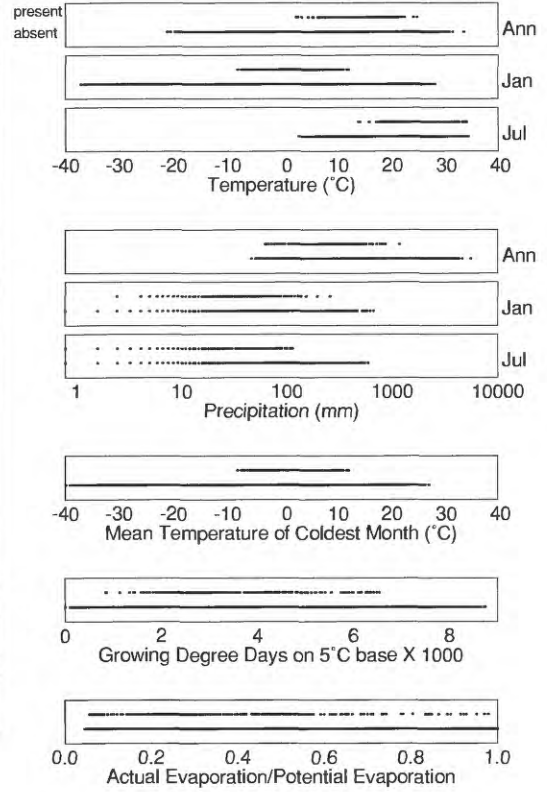
Platanus occidentalis



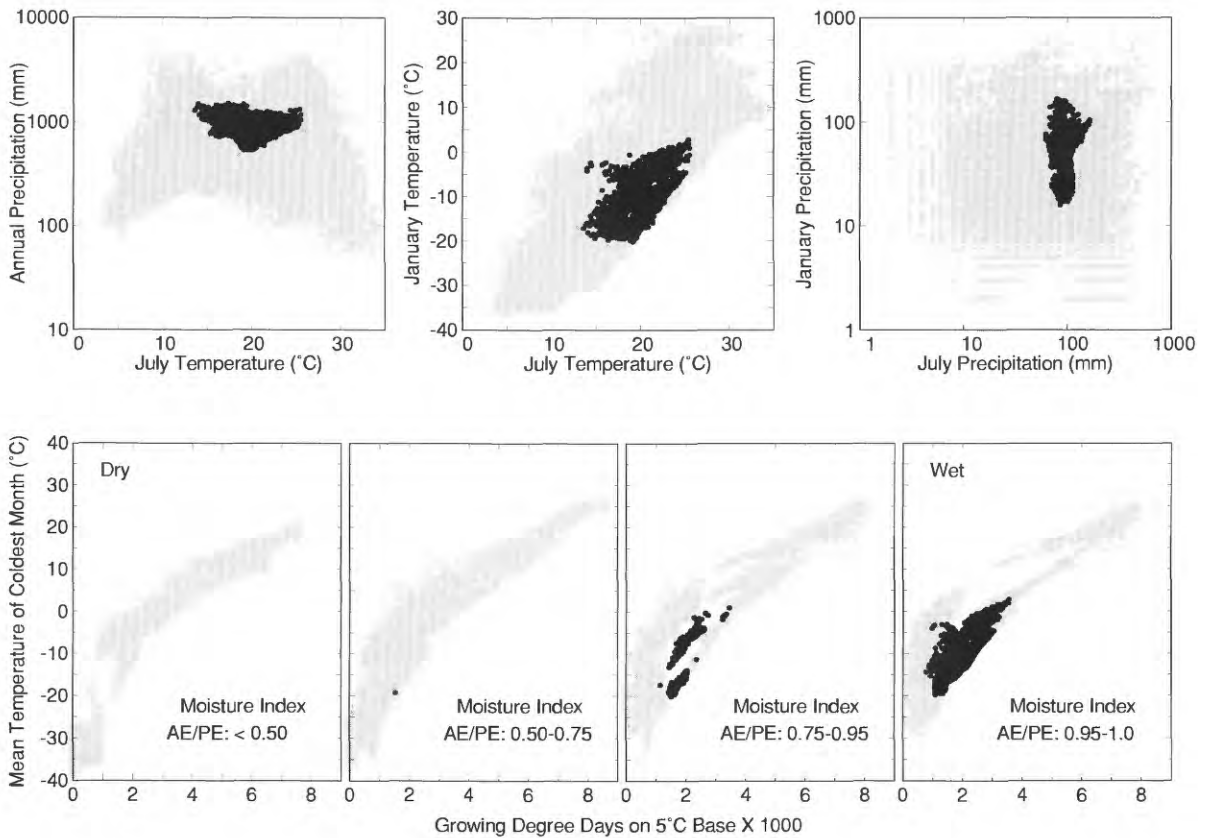
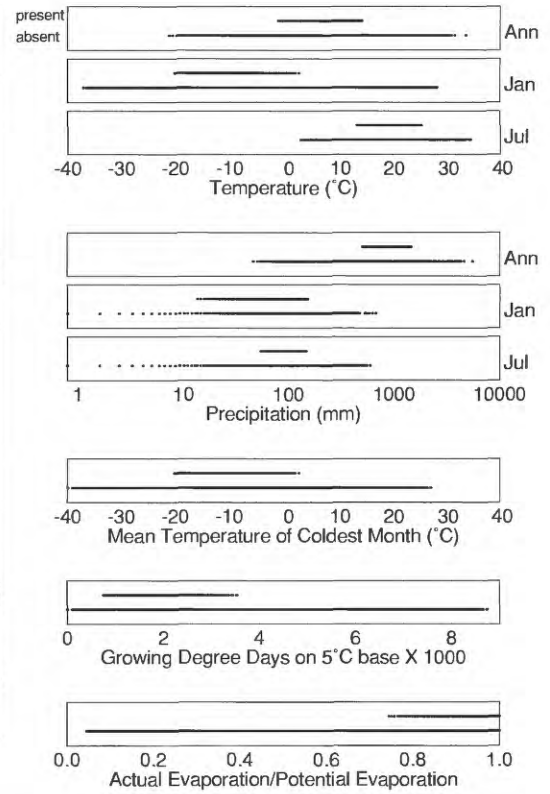
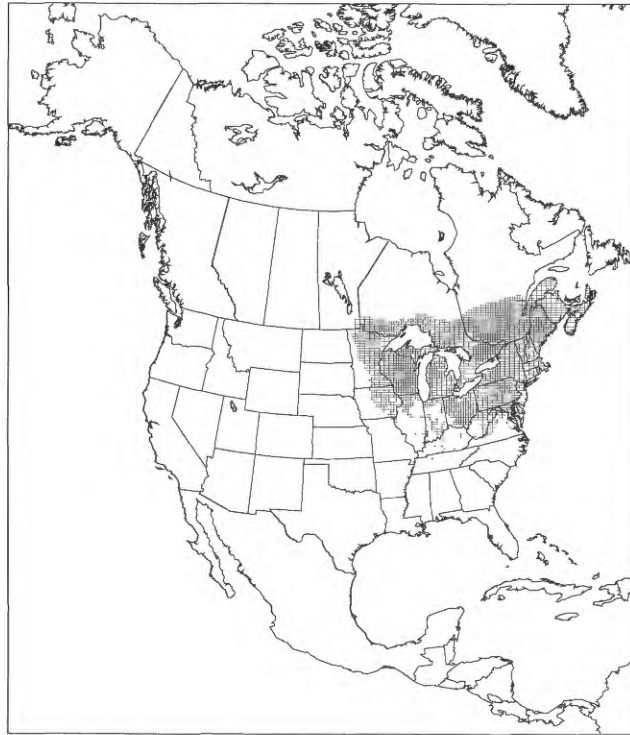
Populus balsamifera



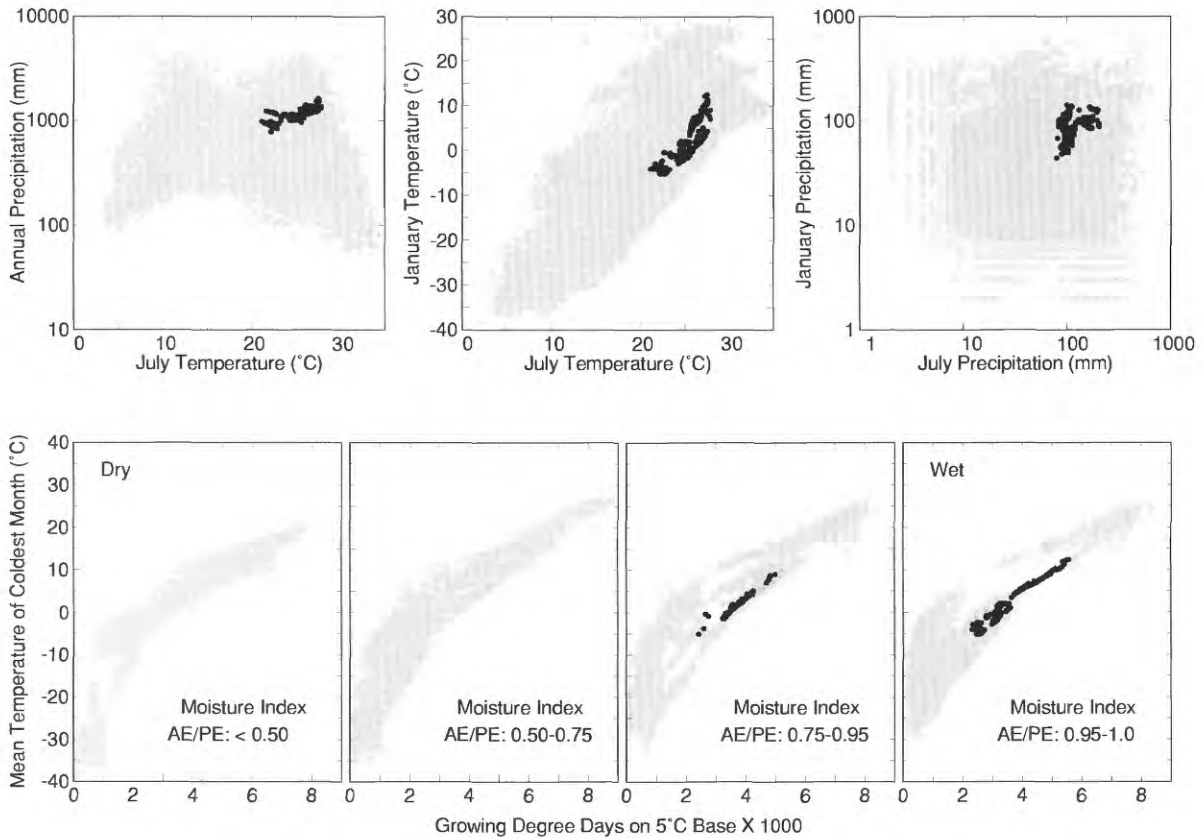
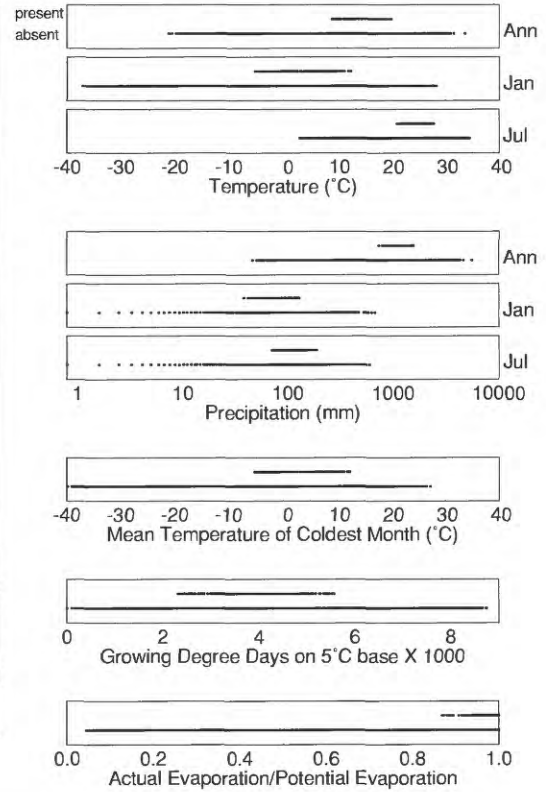
Populus fremontii



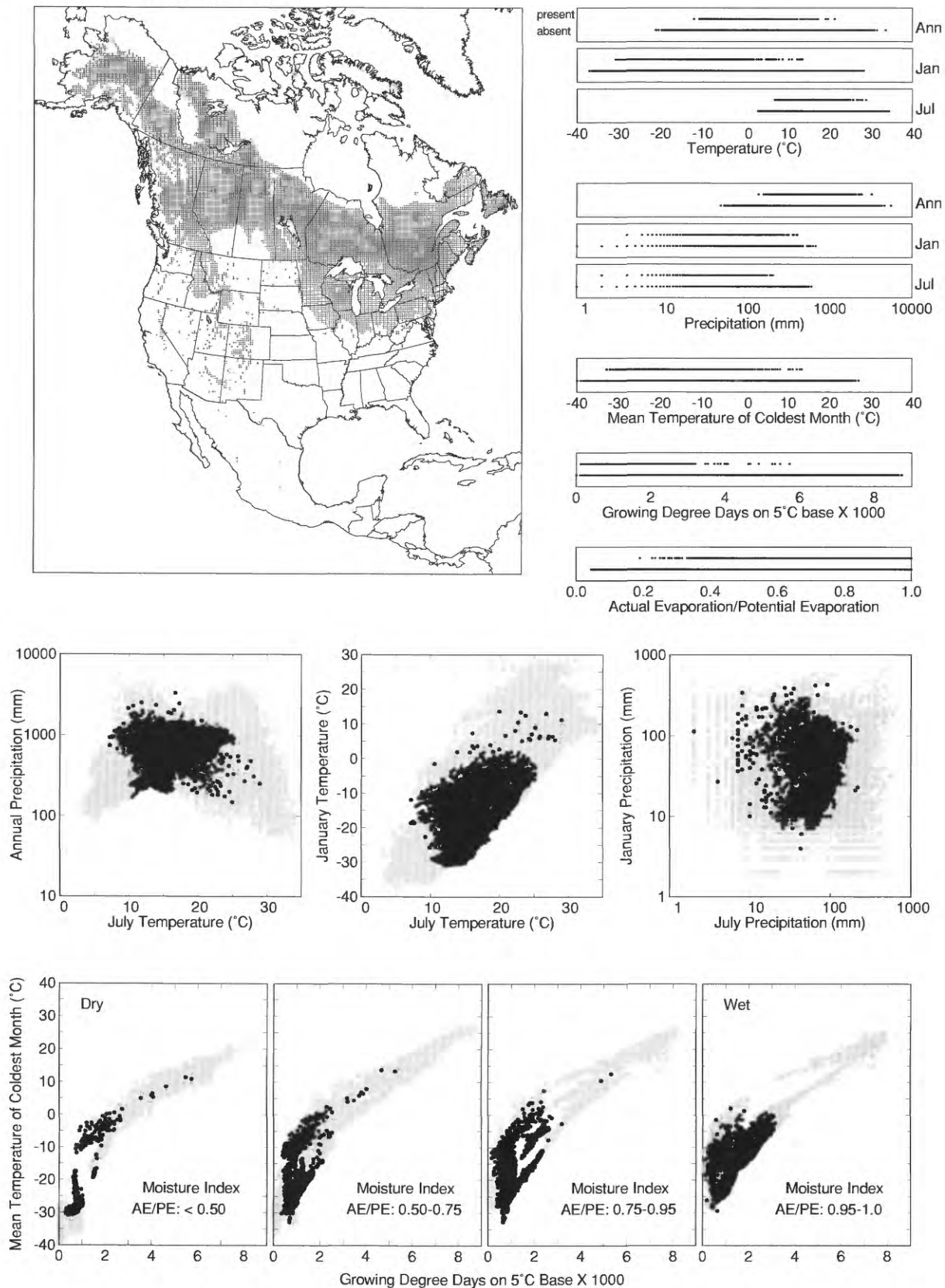
Populus grandidentata



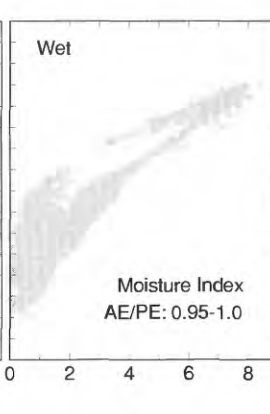
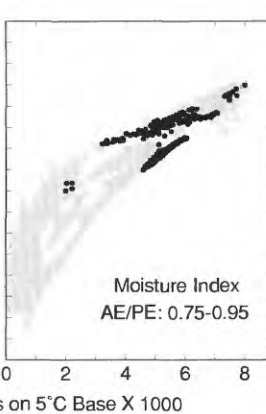
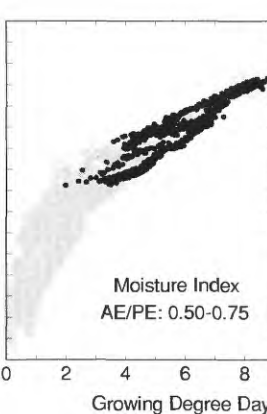
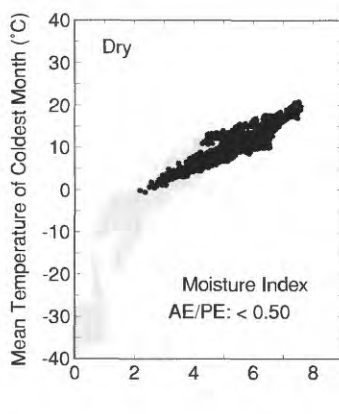
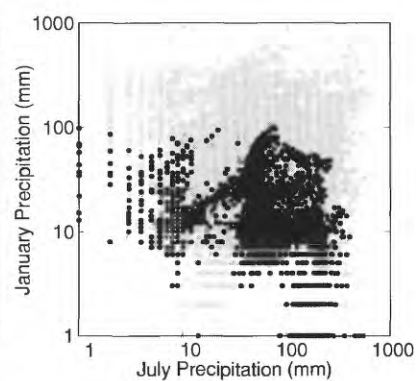
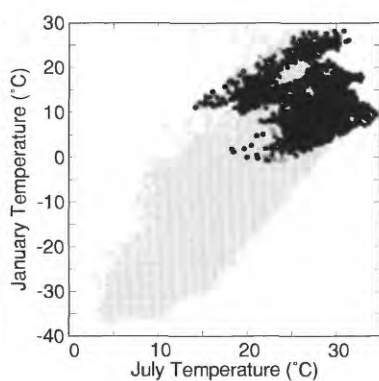
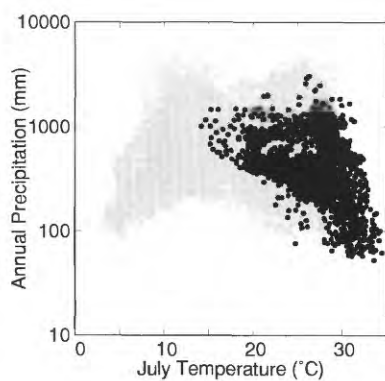
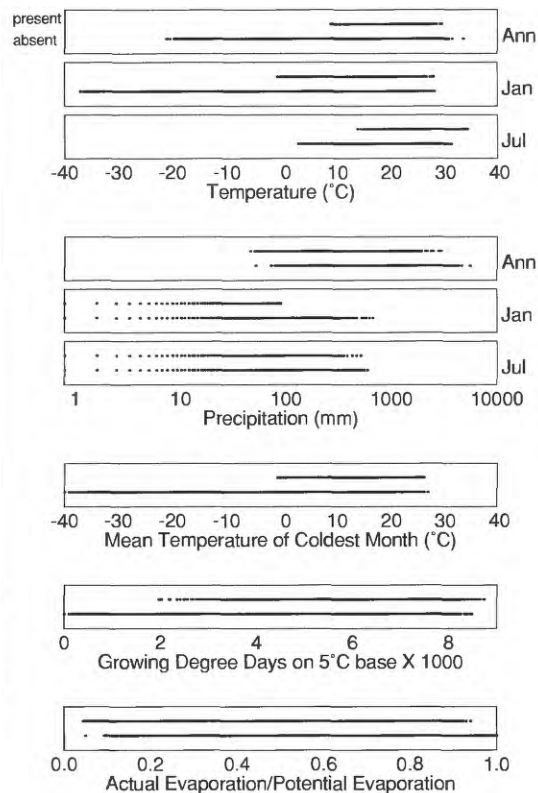
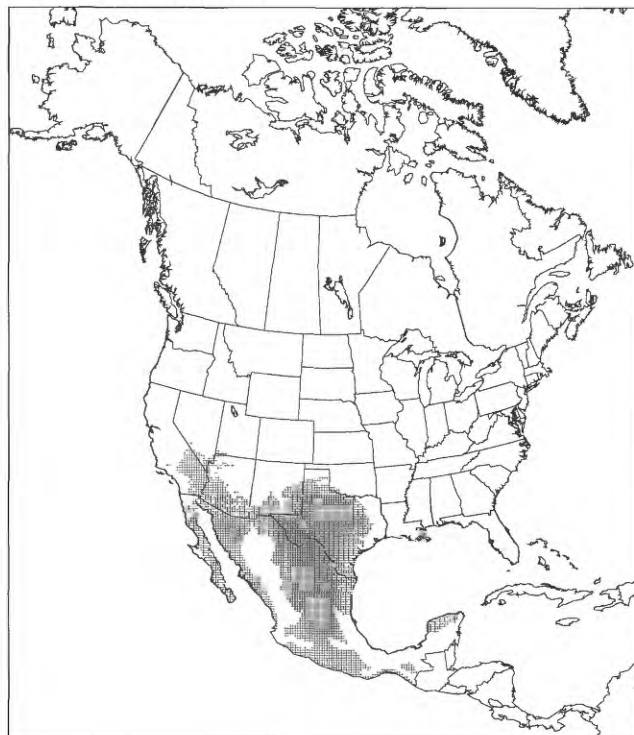
Populus heterophylla



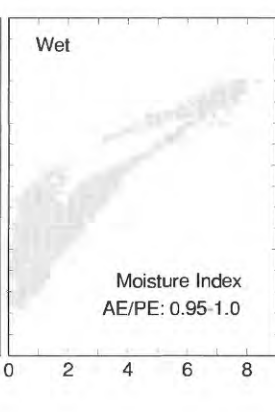
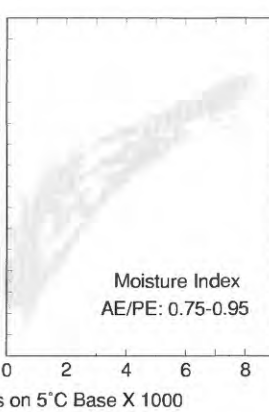
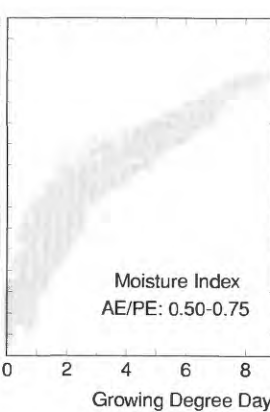
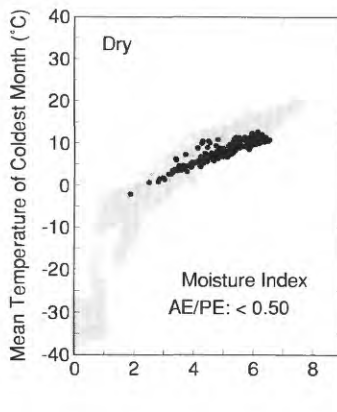
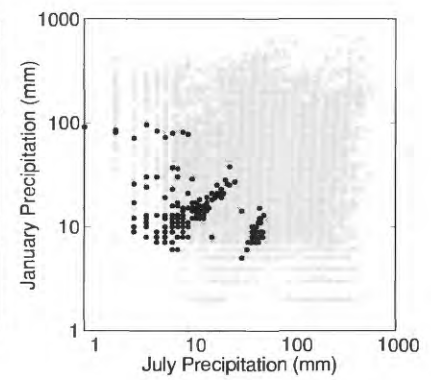
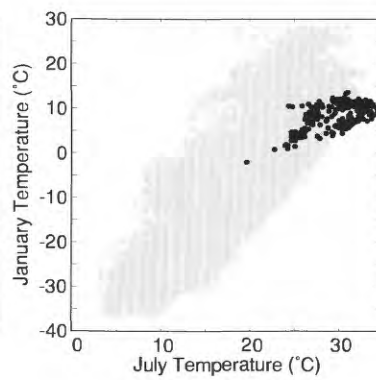
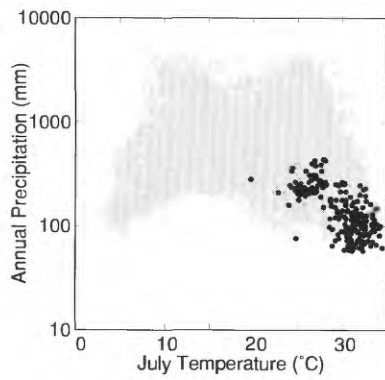
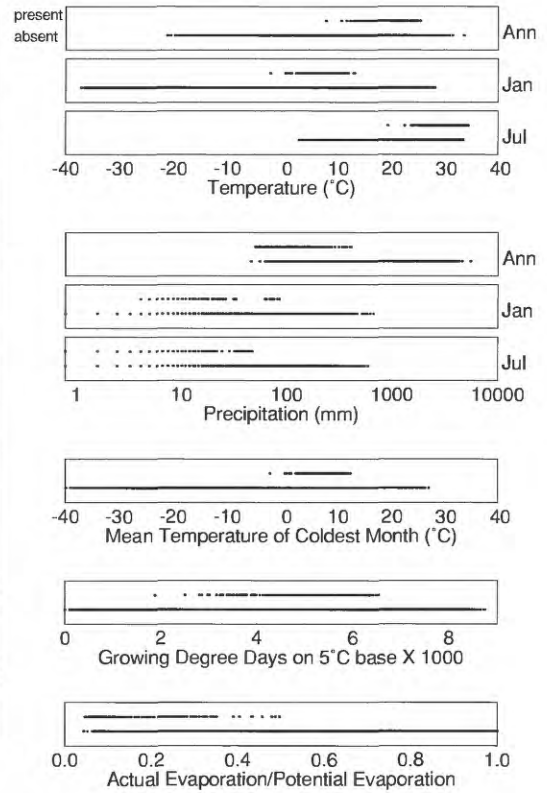
Populus tremuloides



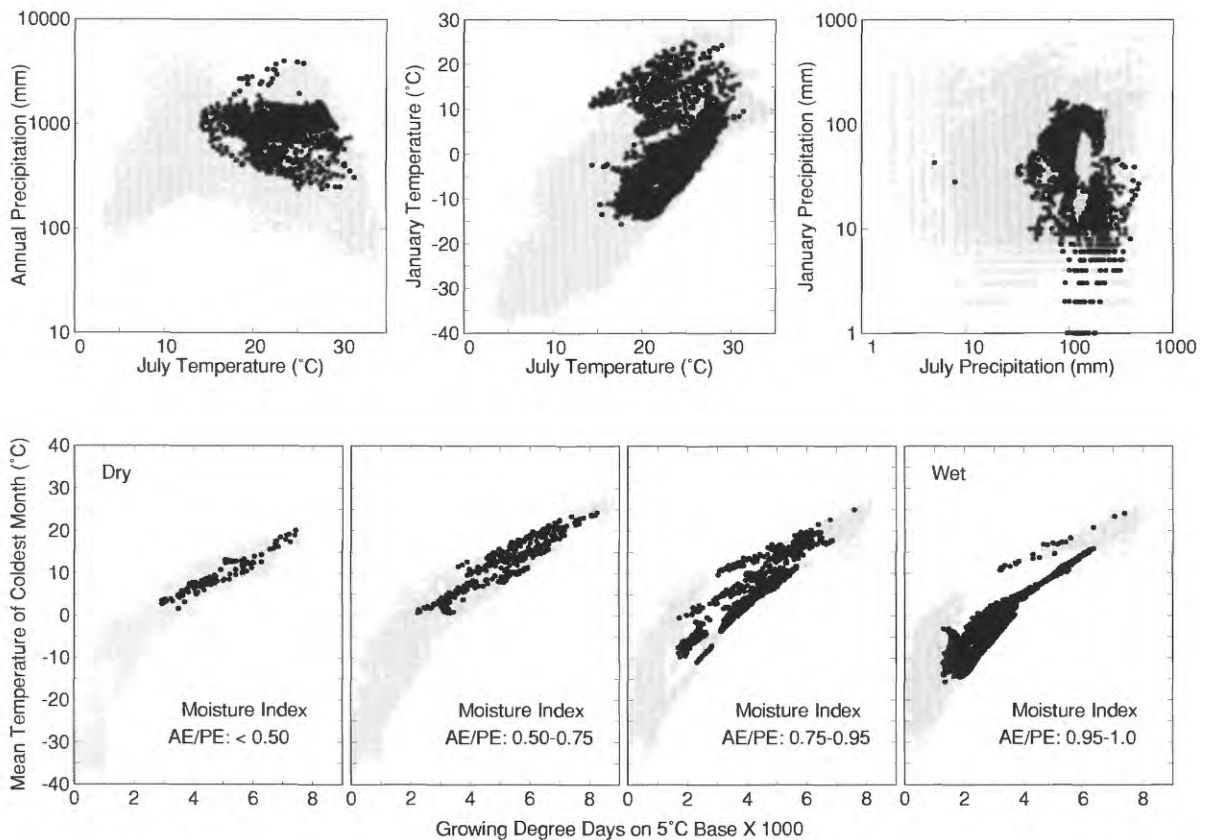
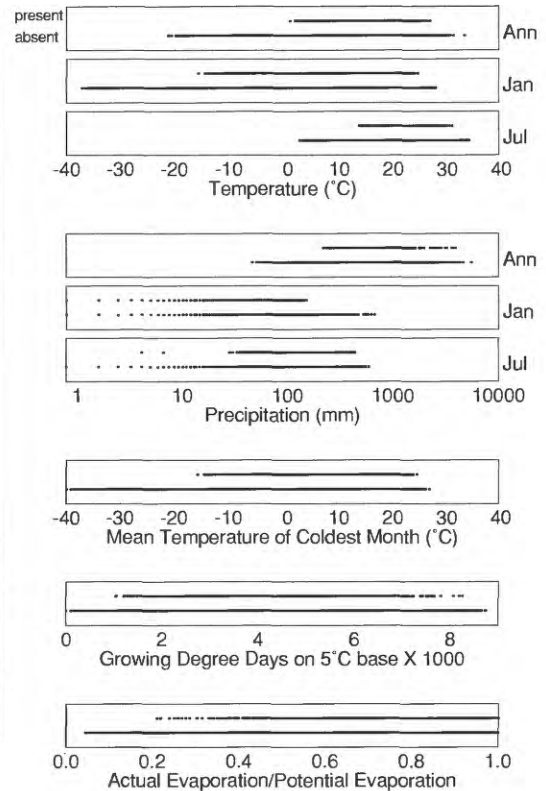
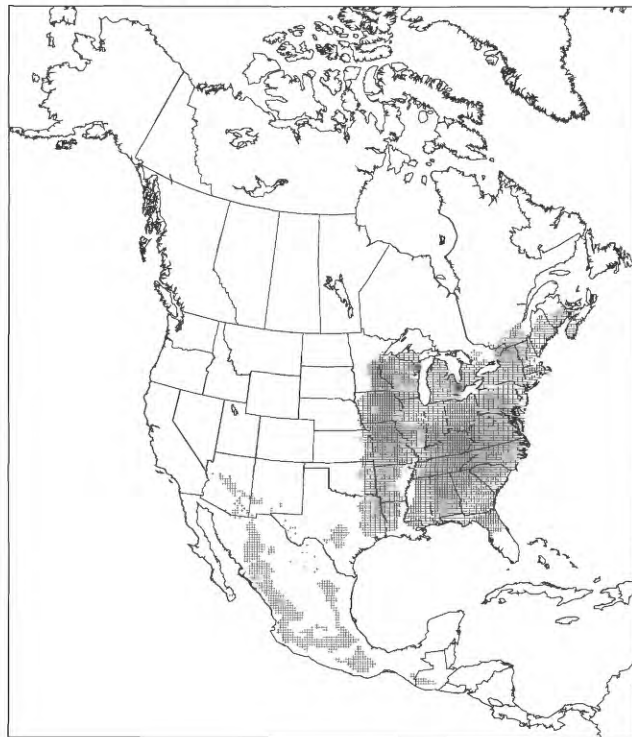
Prosopis juliflora



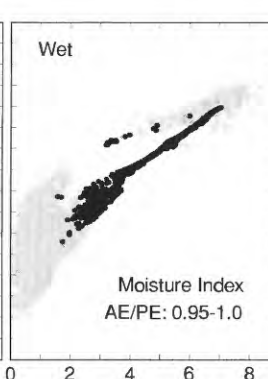
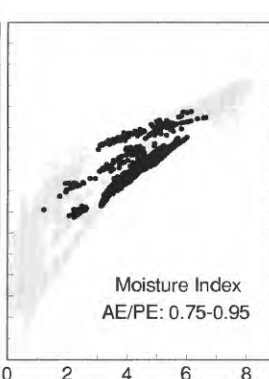
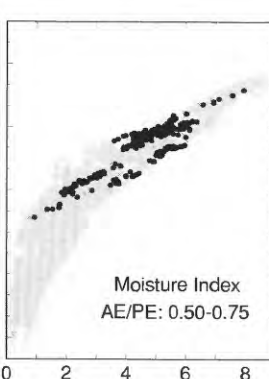
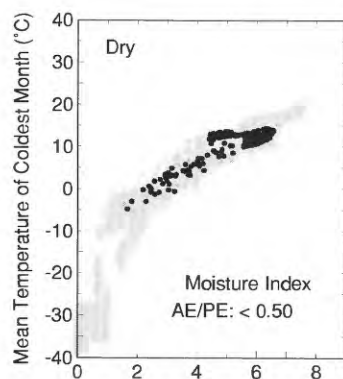
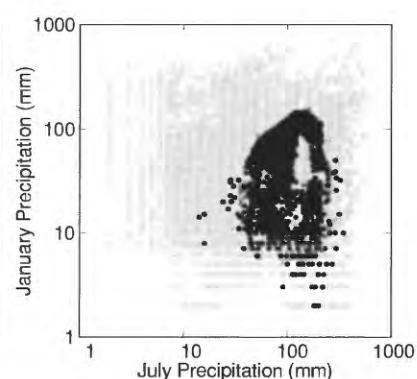
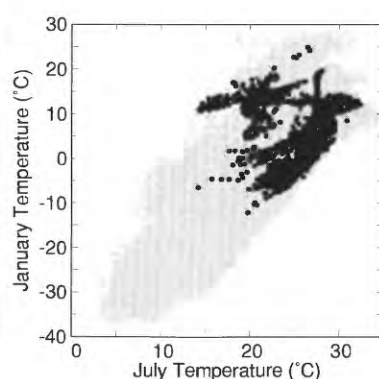
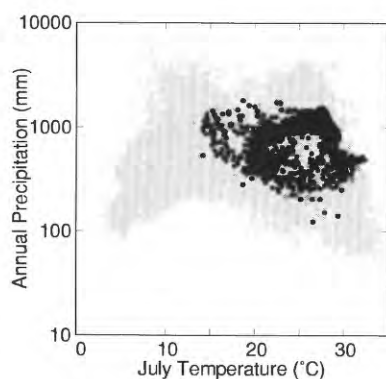
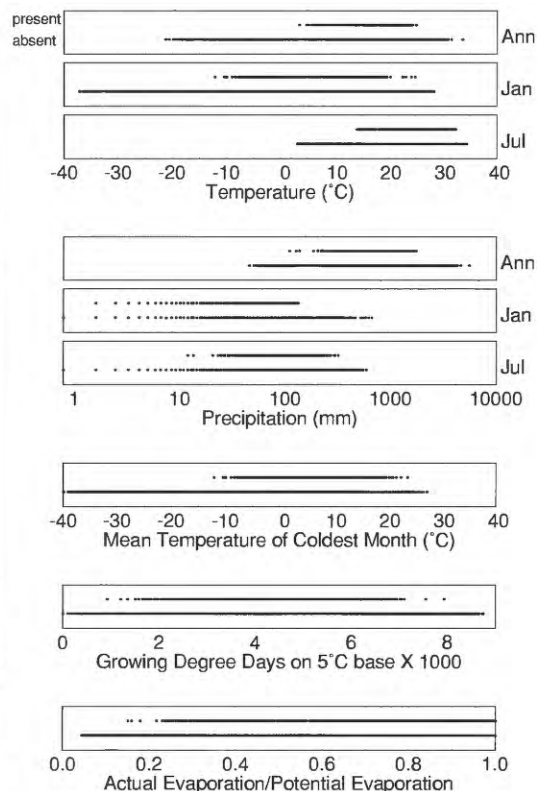
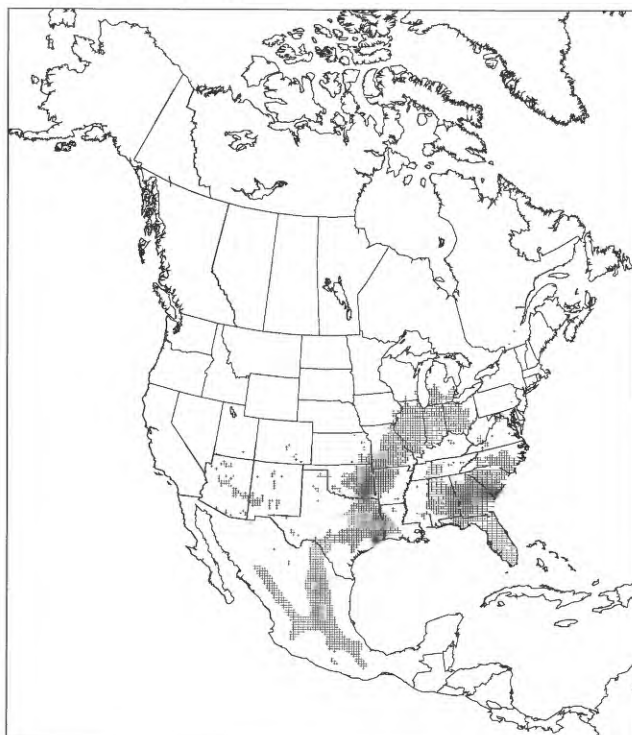
Prosopis pubescens



Prunus serotina

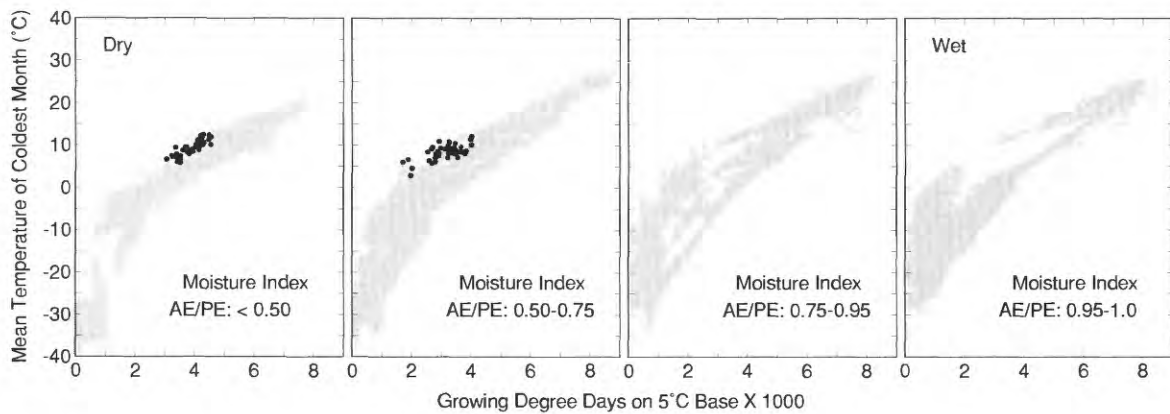
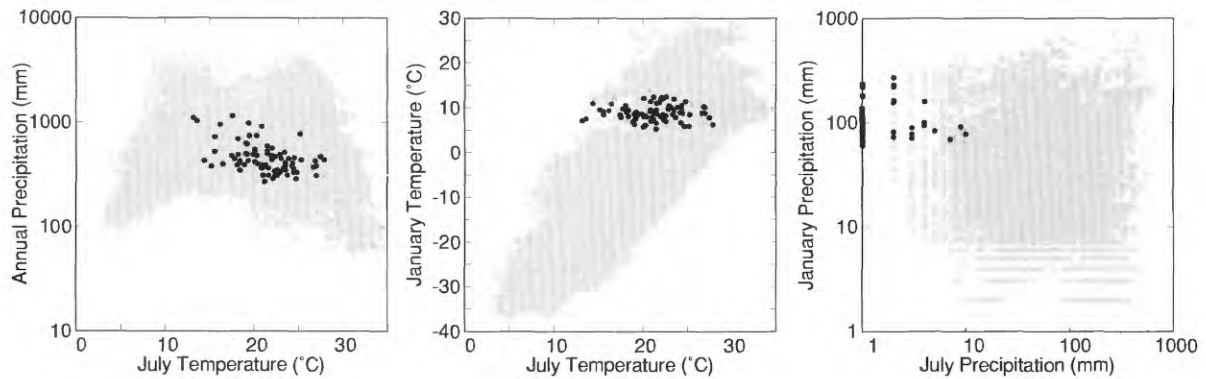
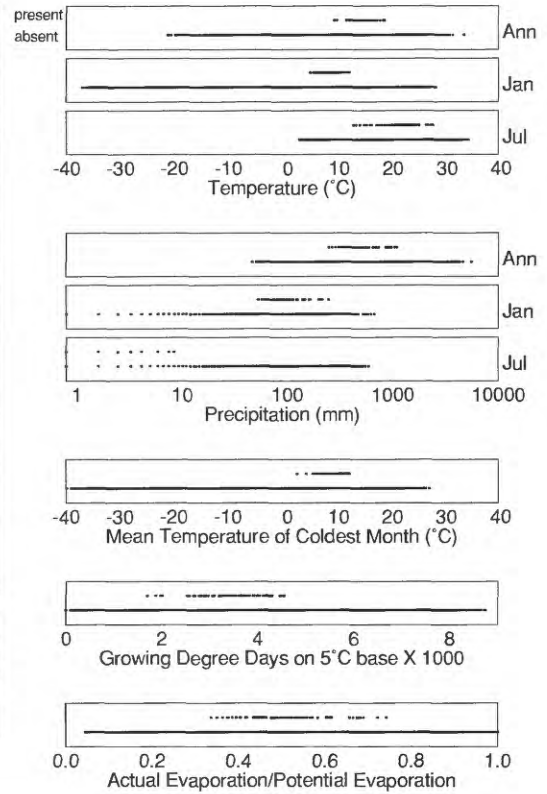


Ptelea trifoliata

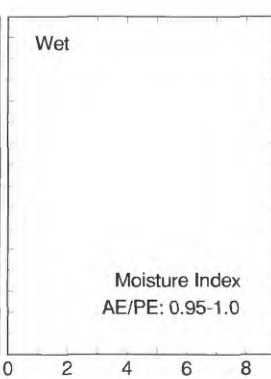
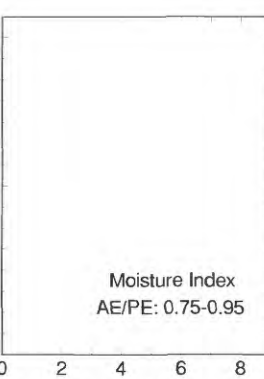
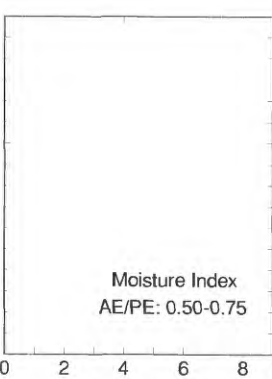
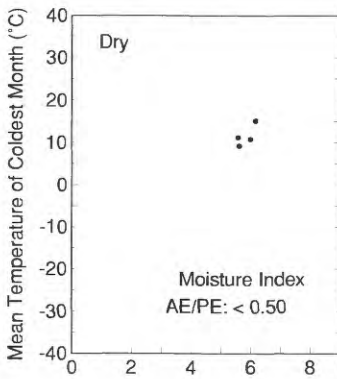
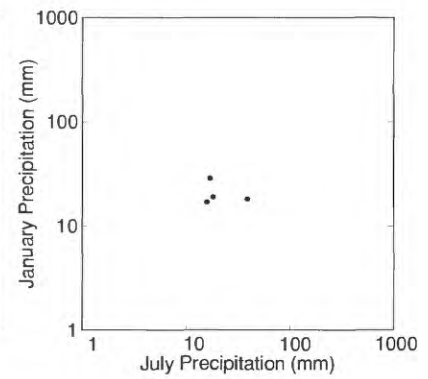
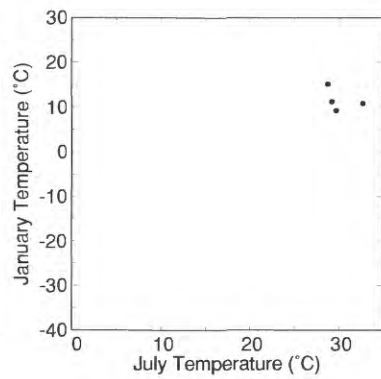
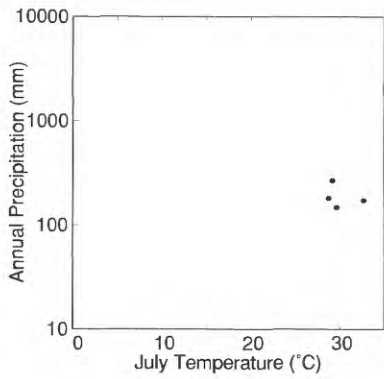
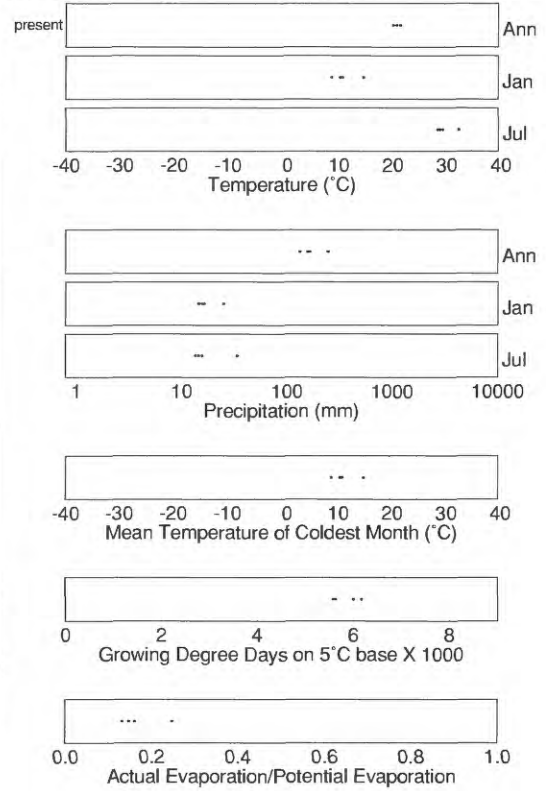


Growing Degree Days on 5°C Base X 1000

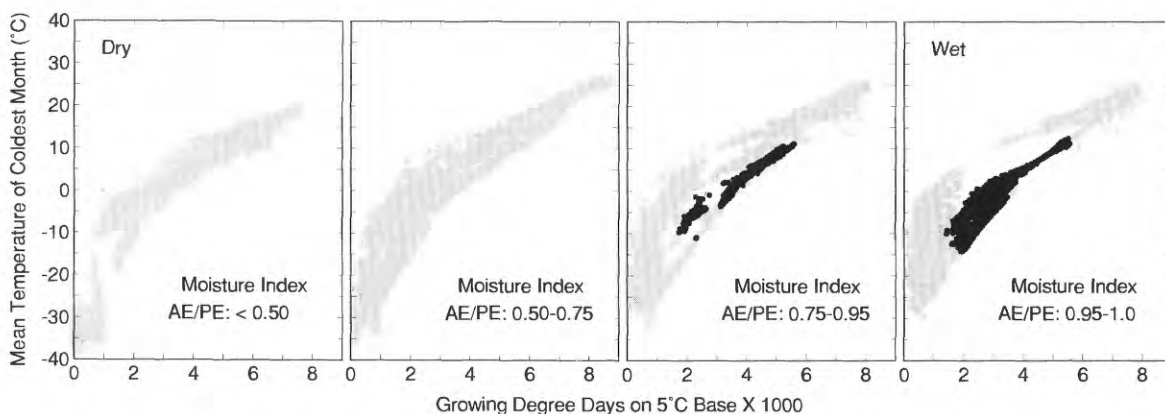
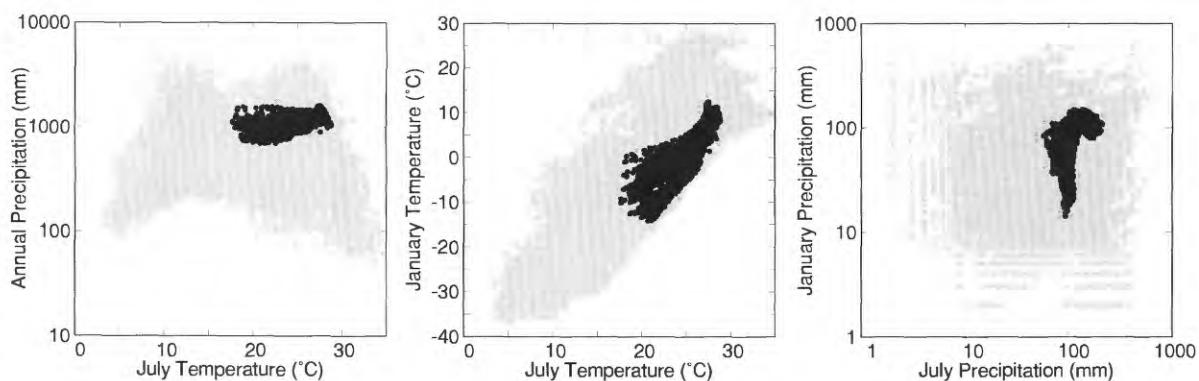
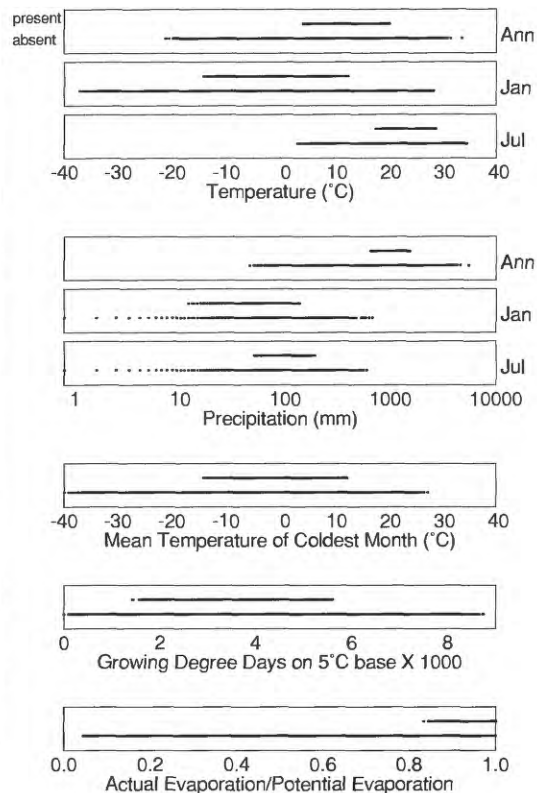
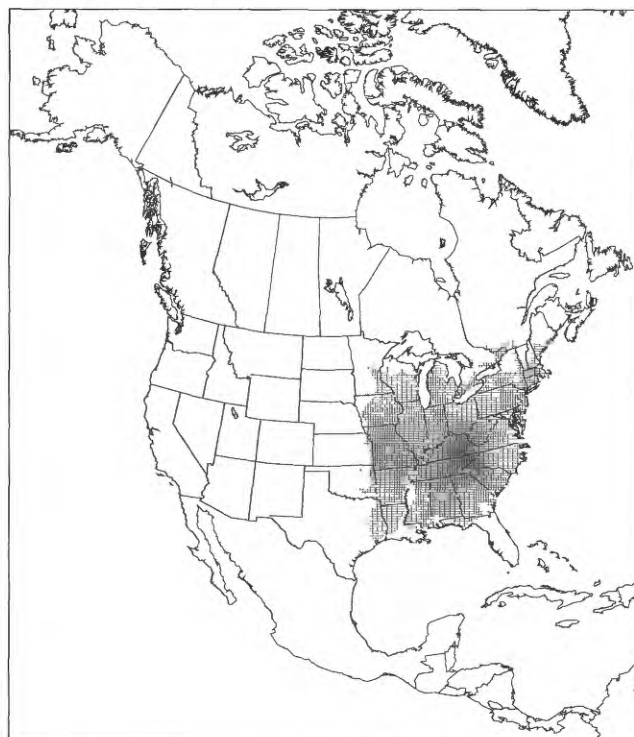
Quercus agrifolia



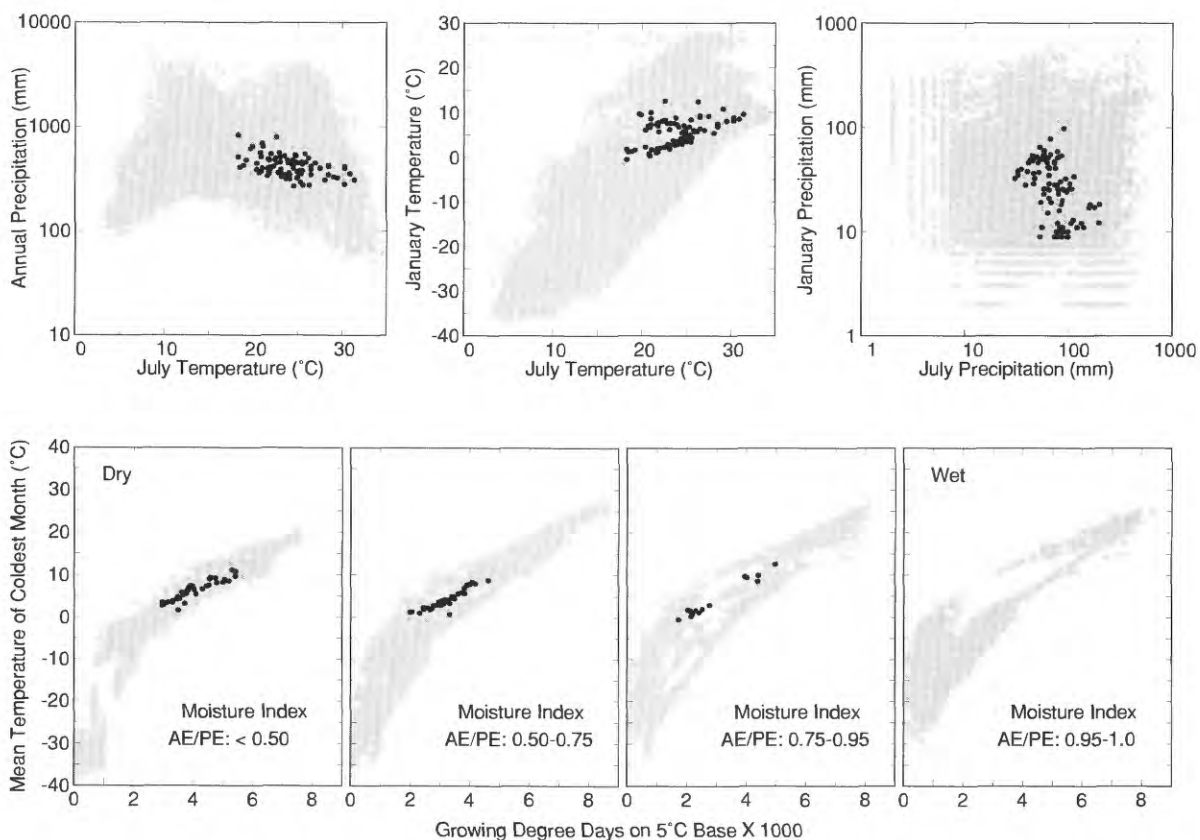
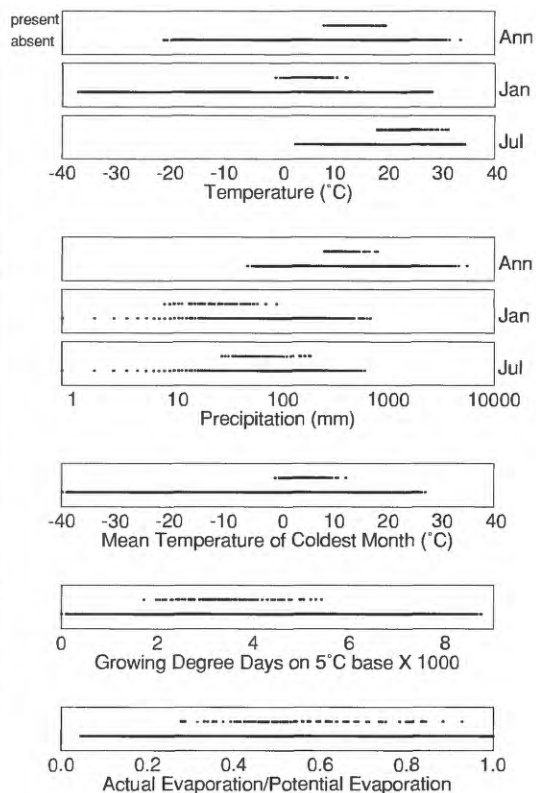
Quercus ajoensis (minimal data - nearest grid points used with environmental parameters)



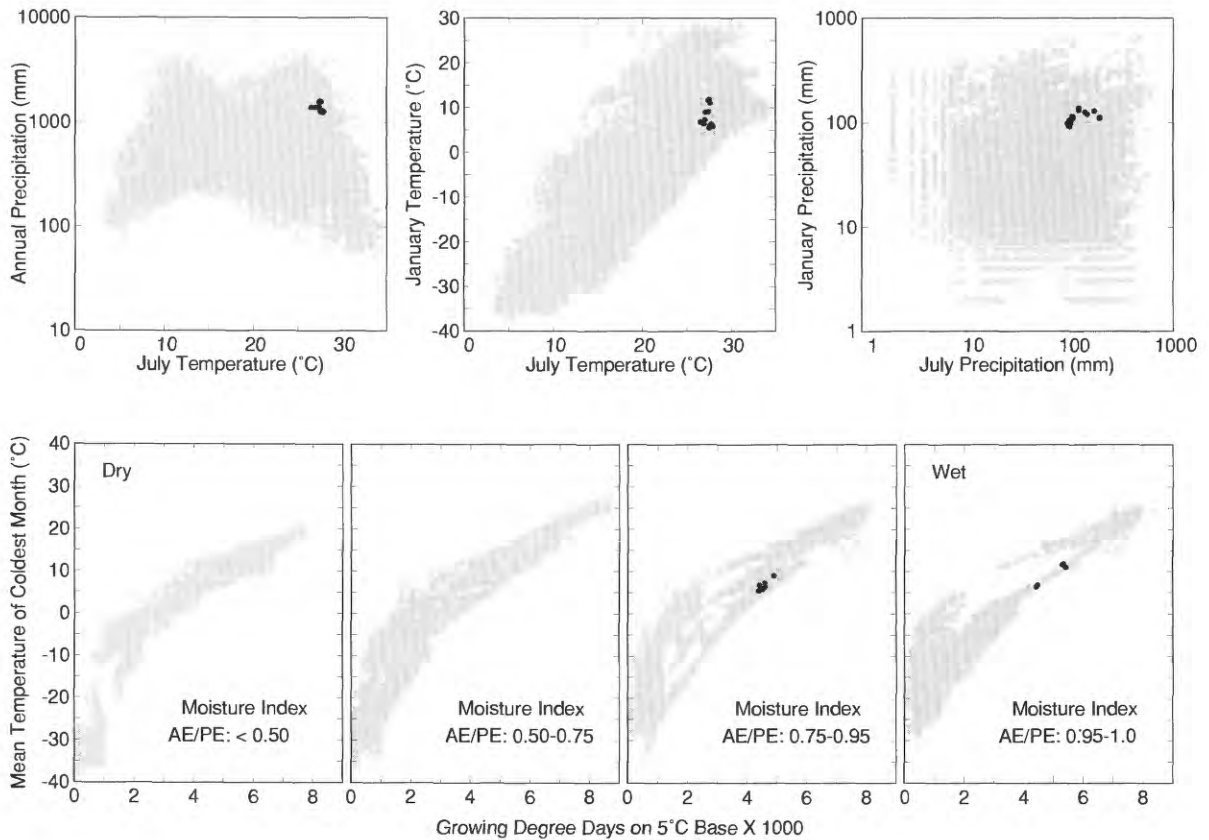
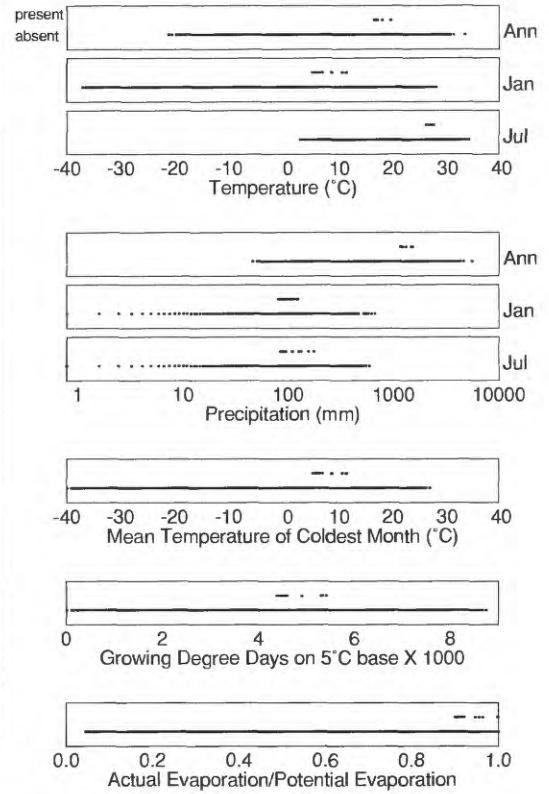
Quercus alba



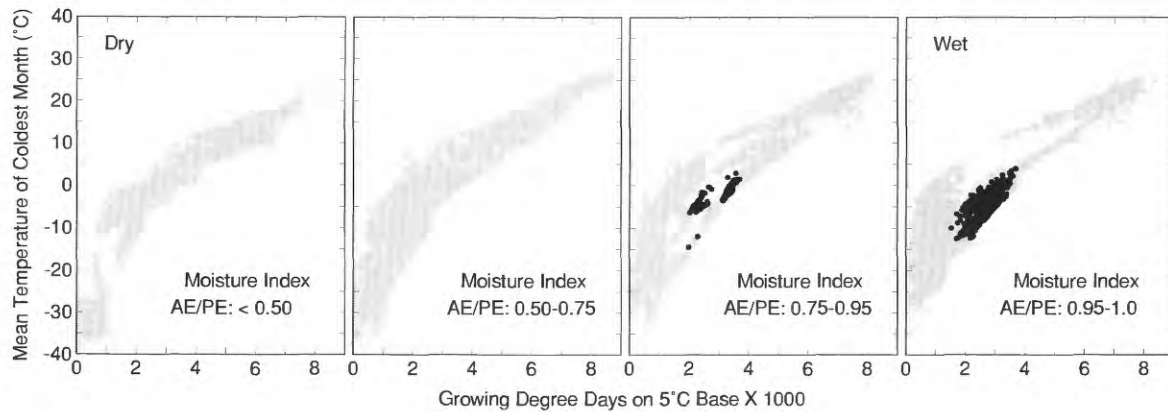
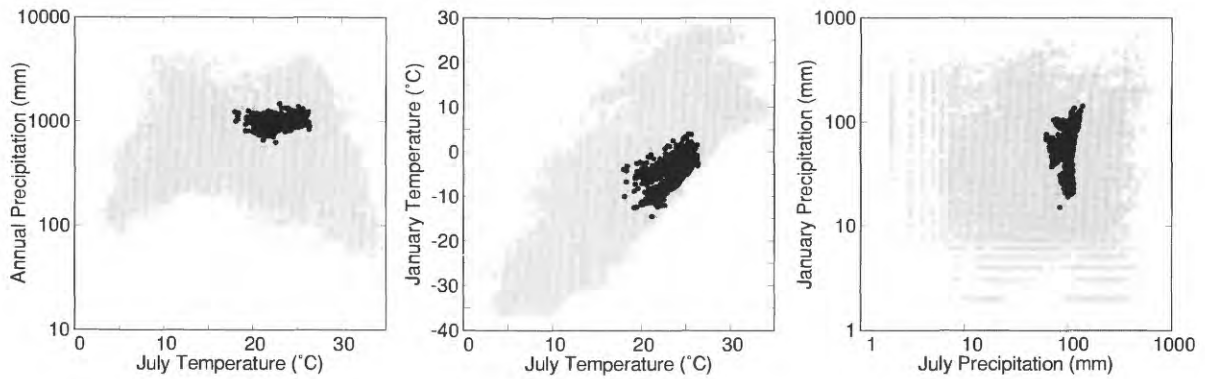
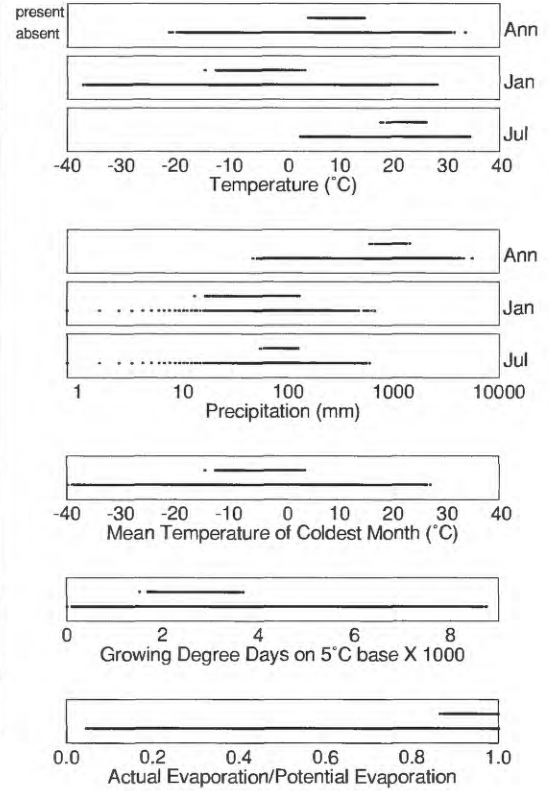
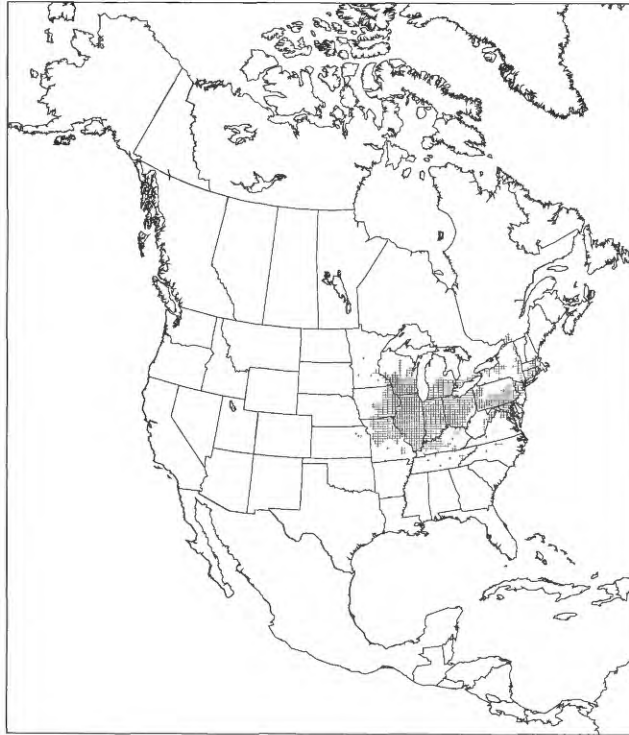
Quercus arizonica



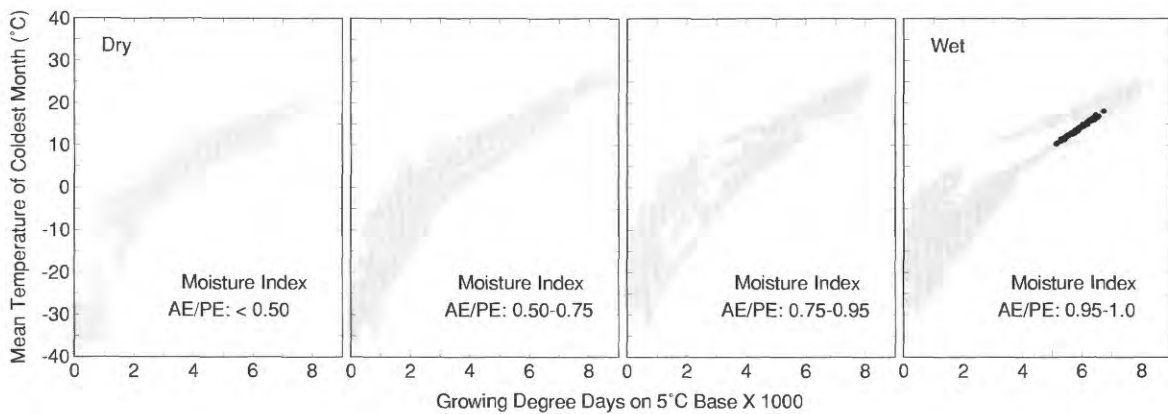
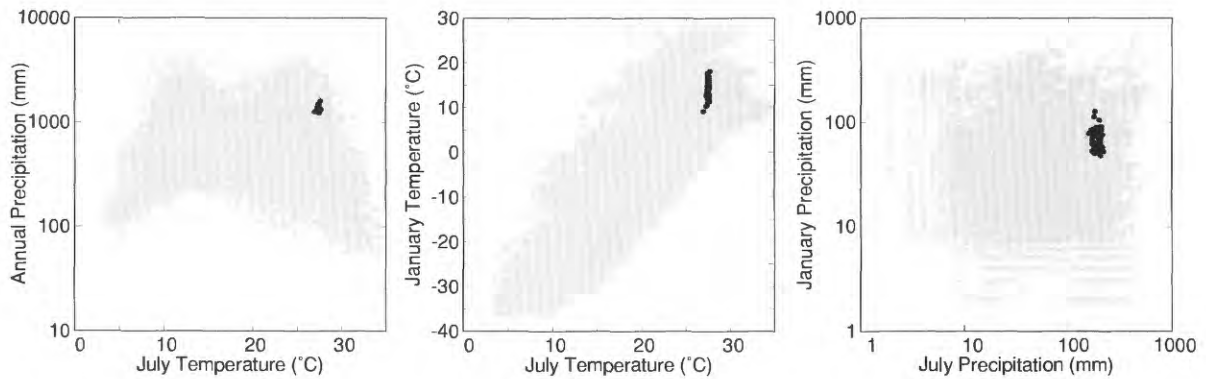
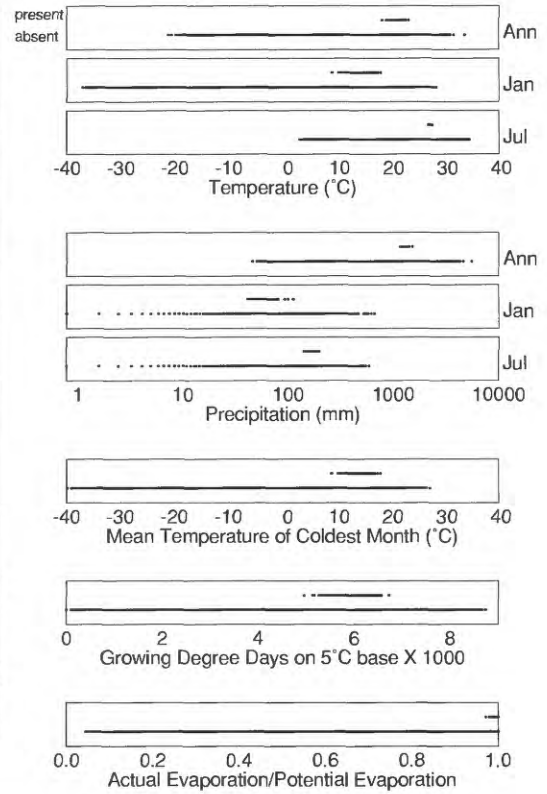
Quercus arkansana



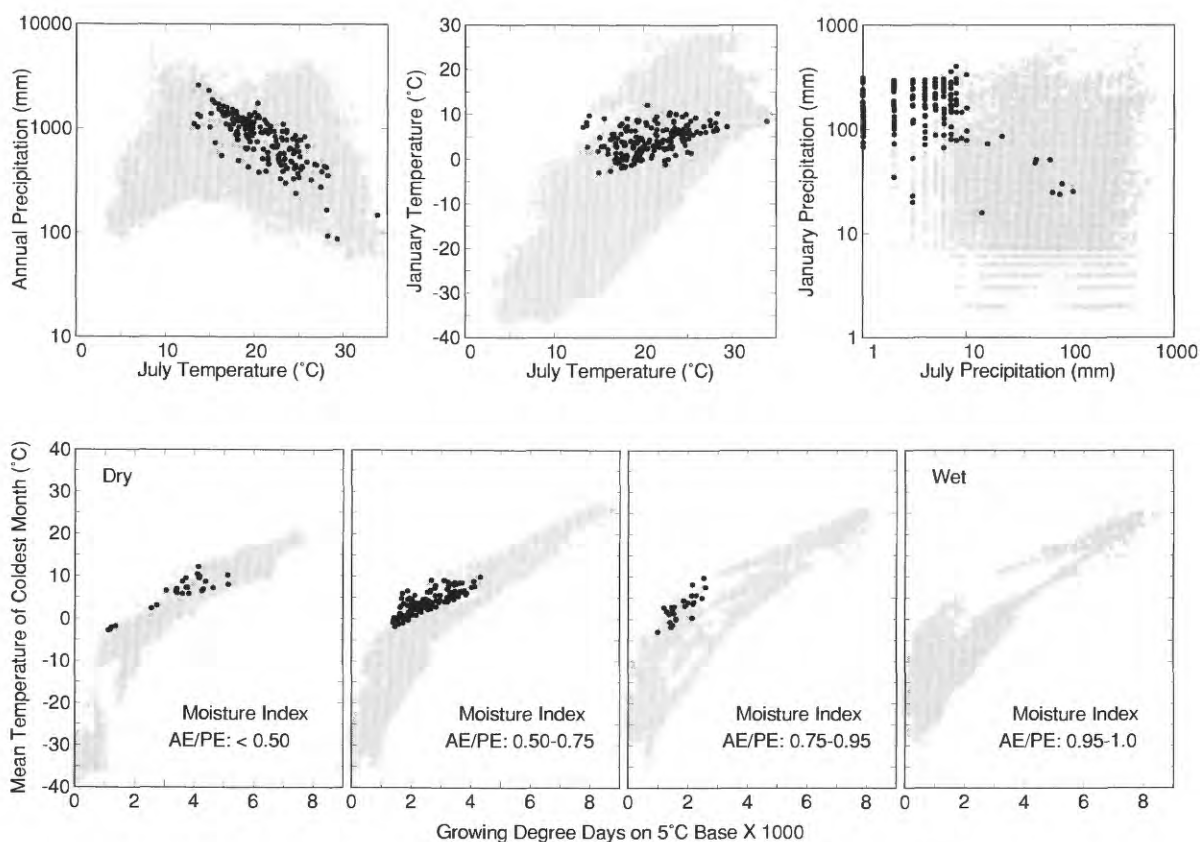
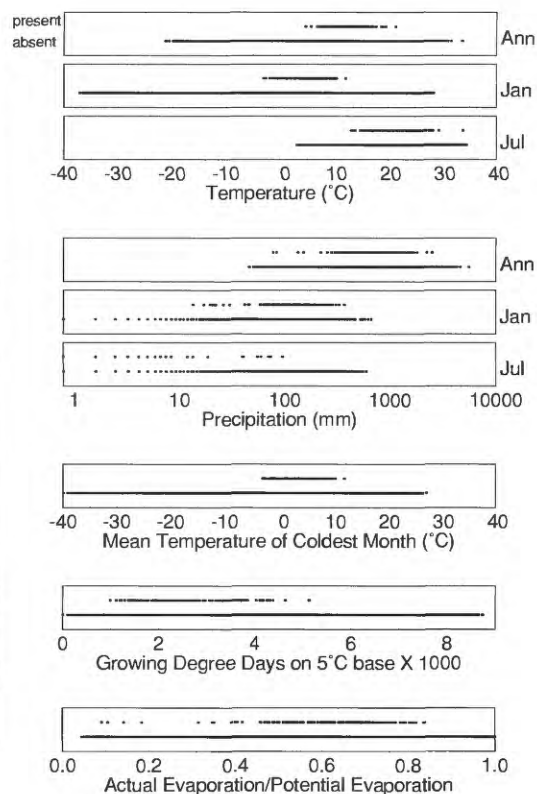
Quercus bicolor



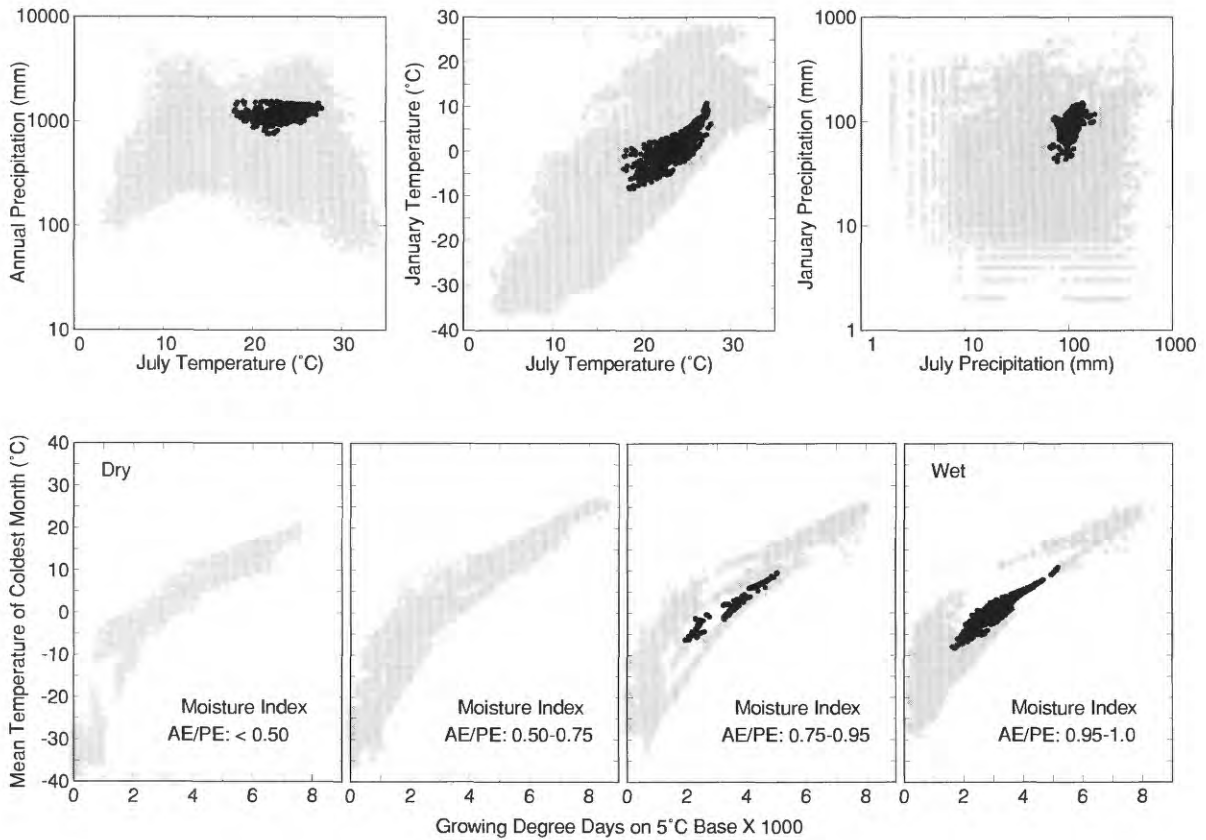
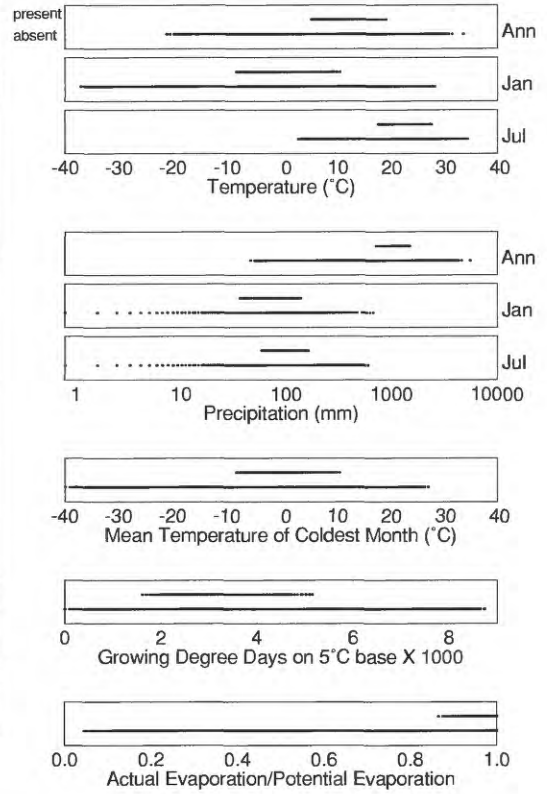
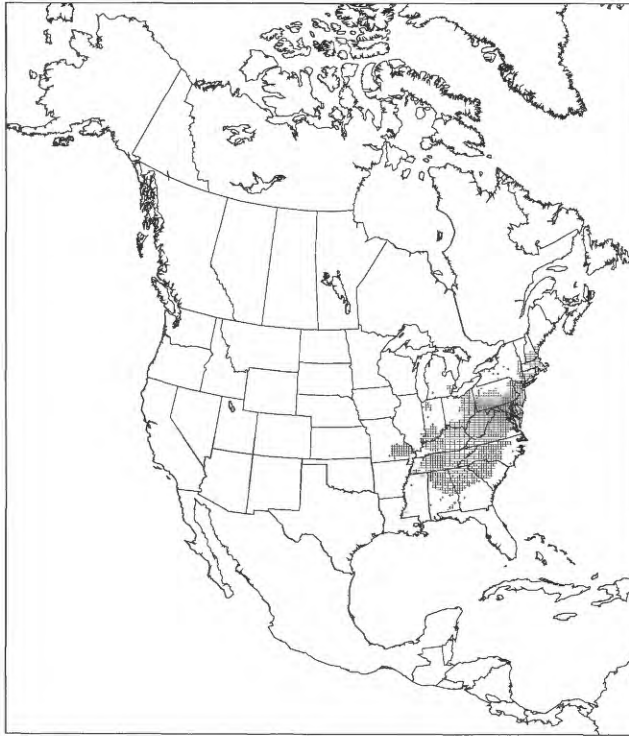
Quercus chapmanii



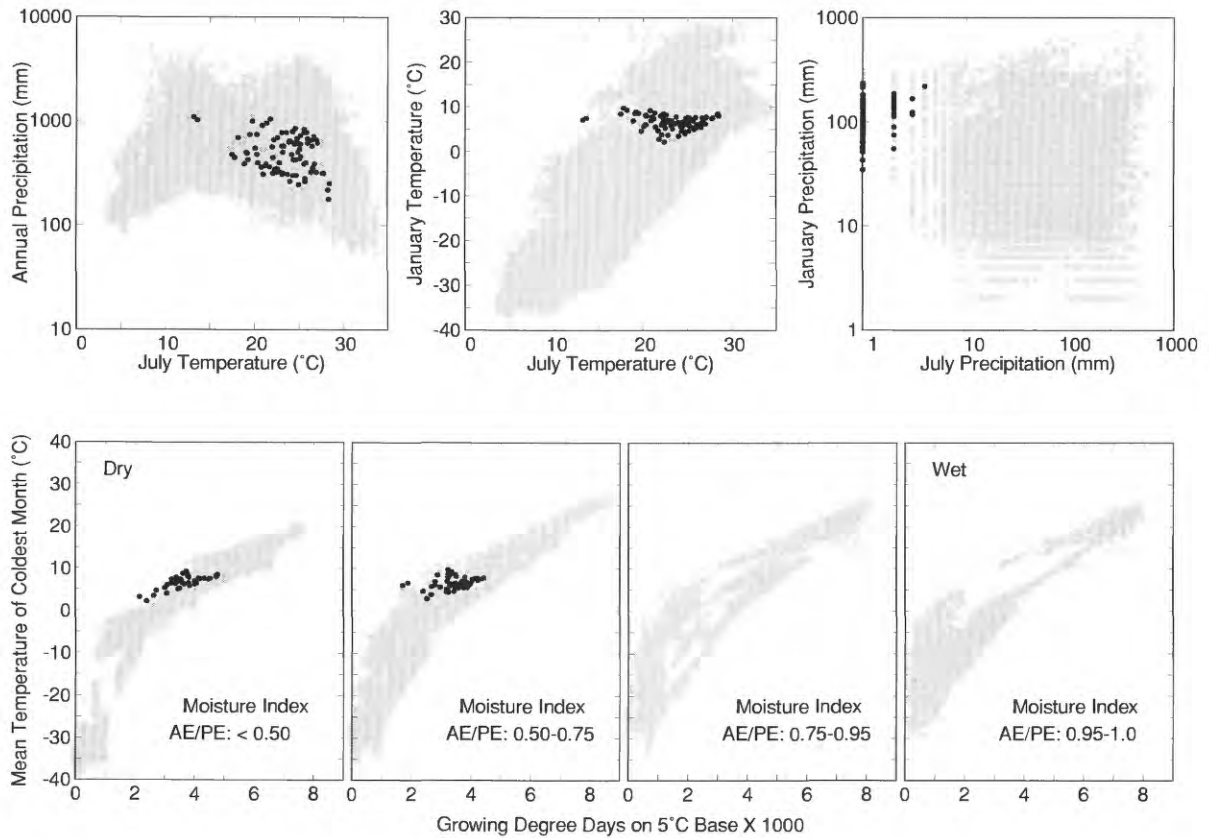
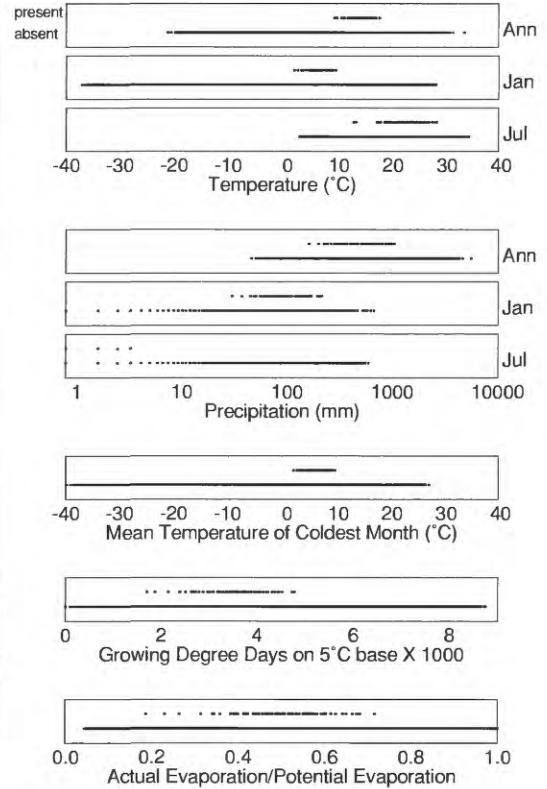
Quercus chrysolepis



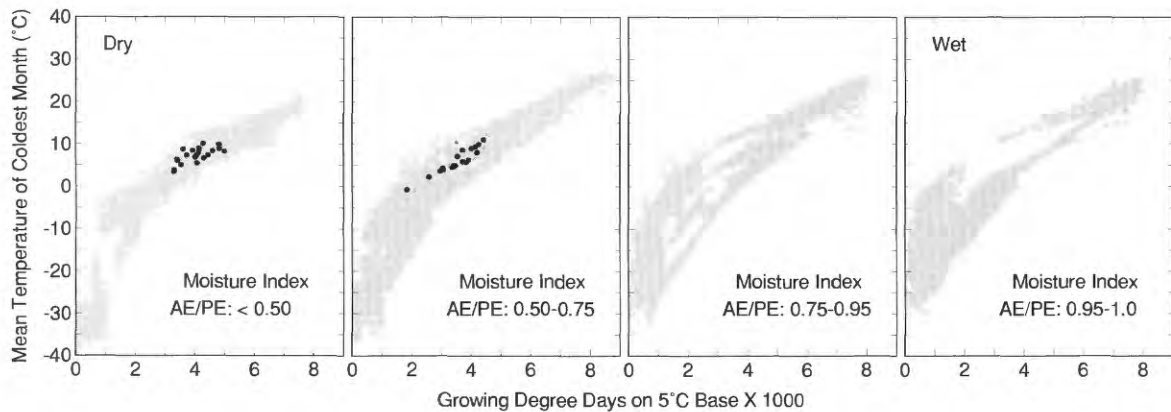
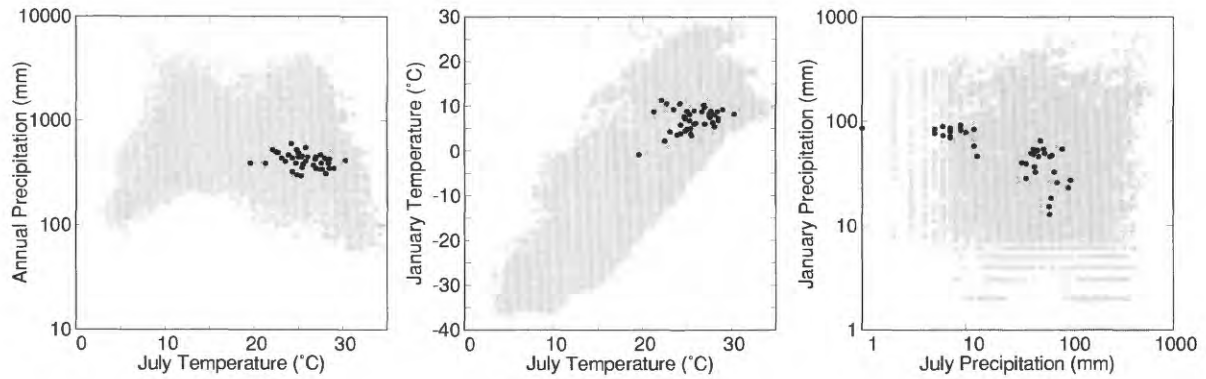
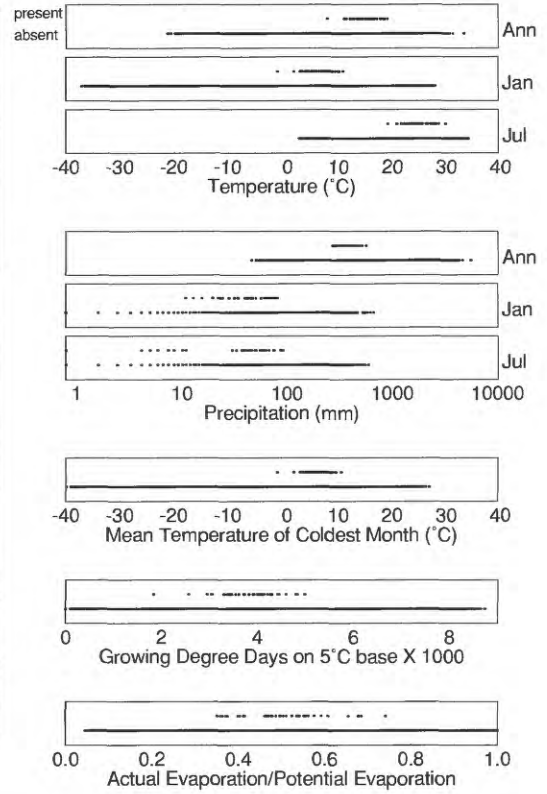
Quercus coccinea



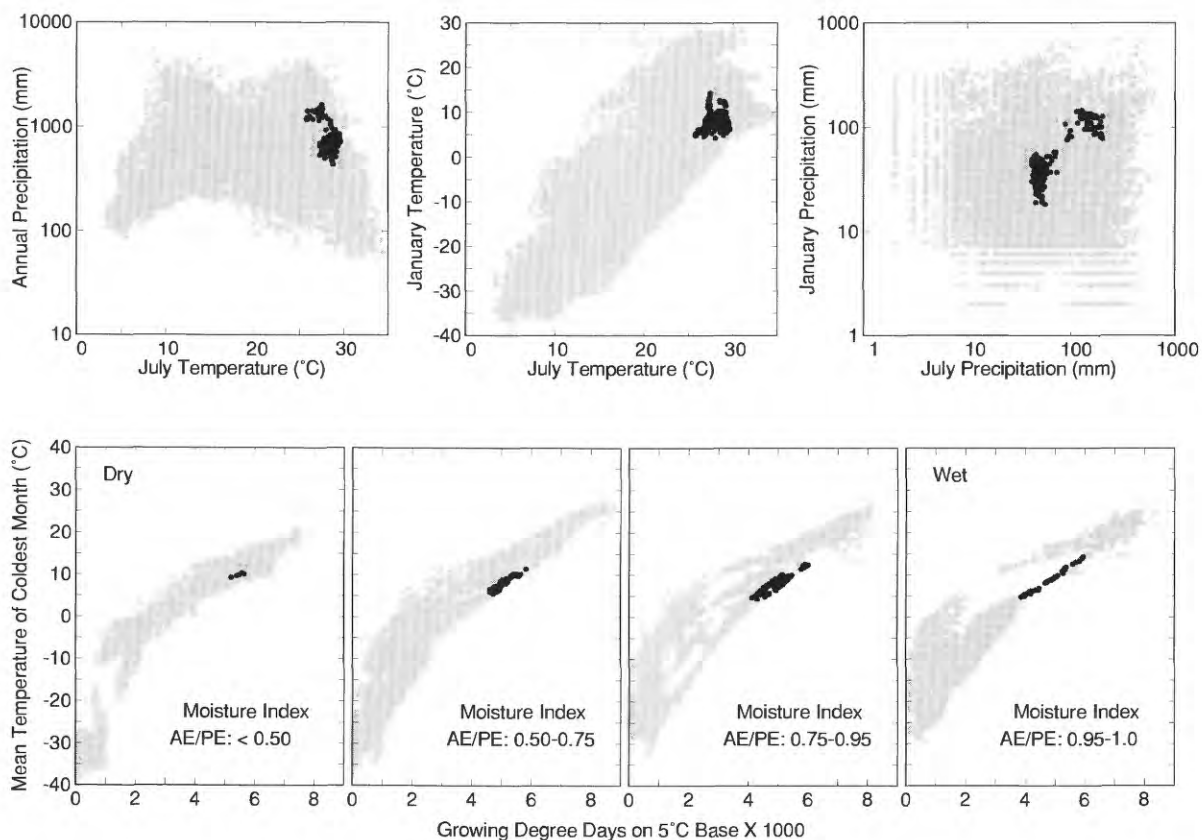
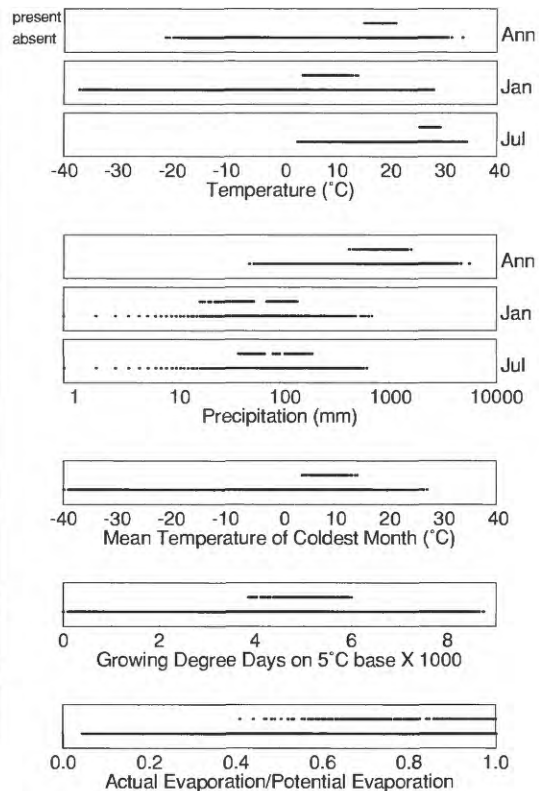
Quercus douglasii



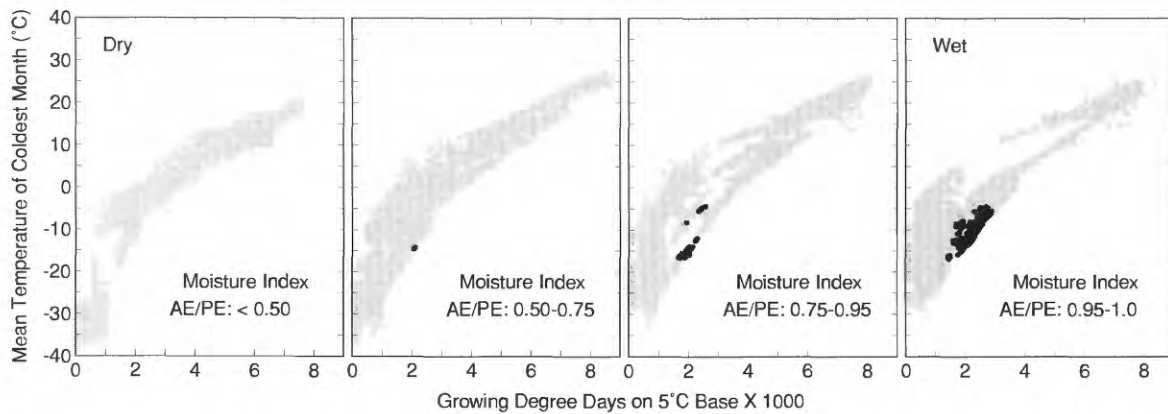
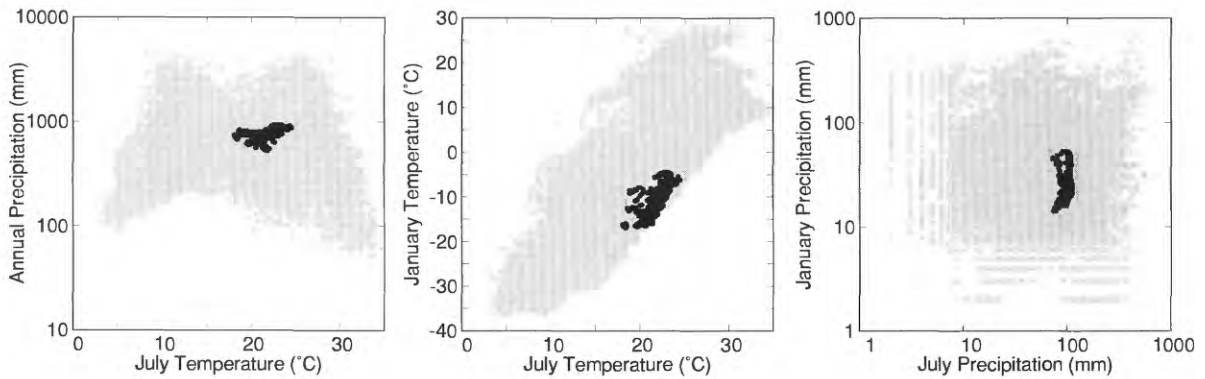
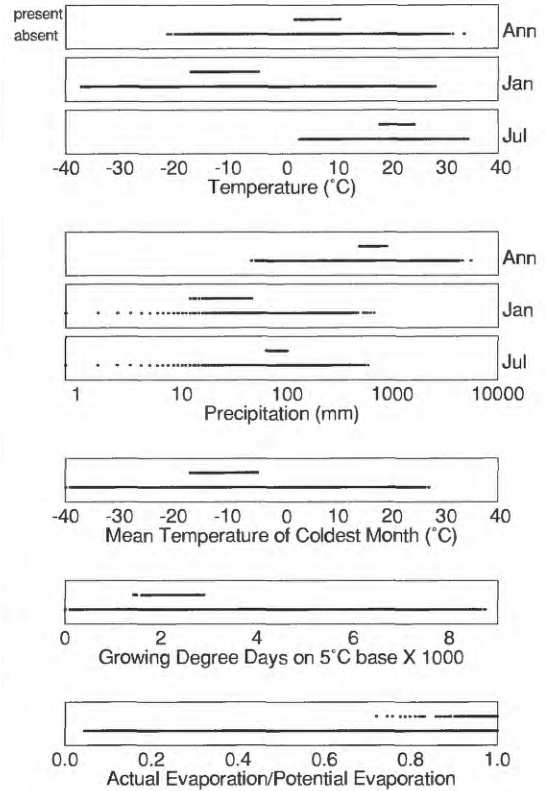
Quercus dunni



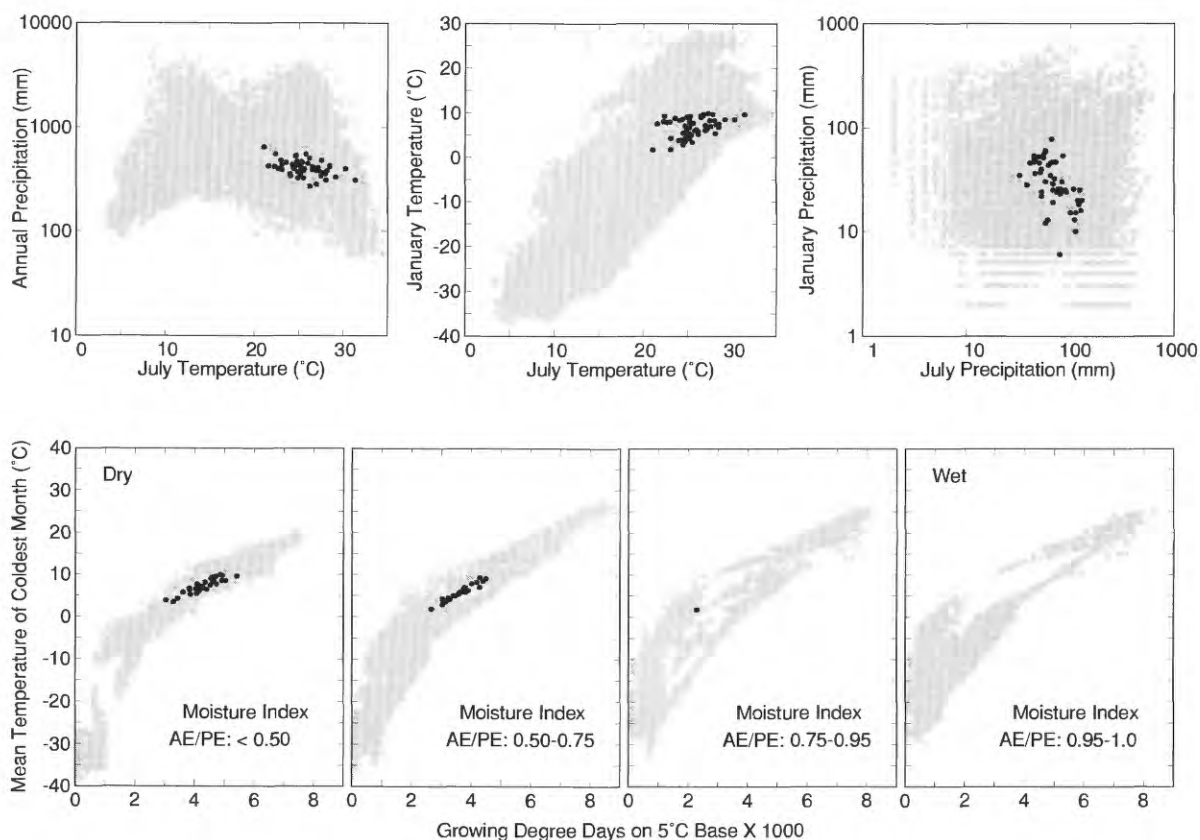
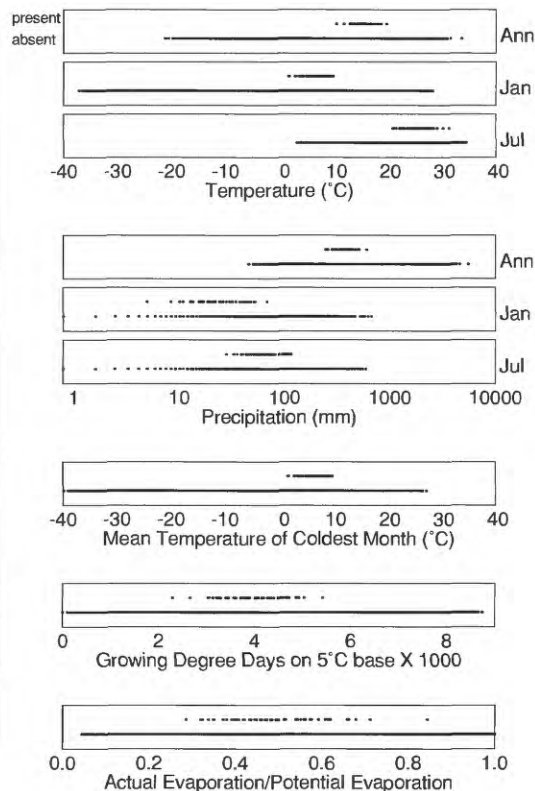
Quercus durandii



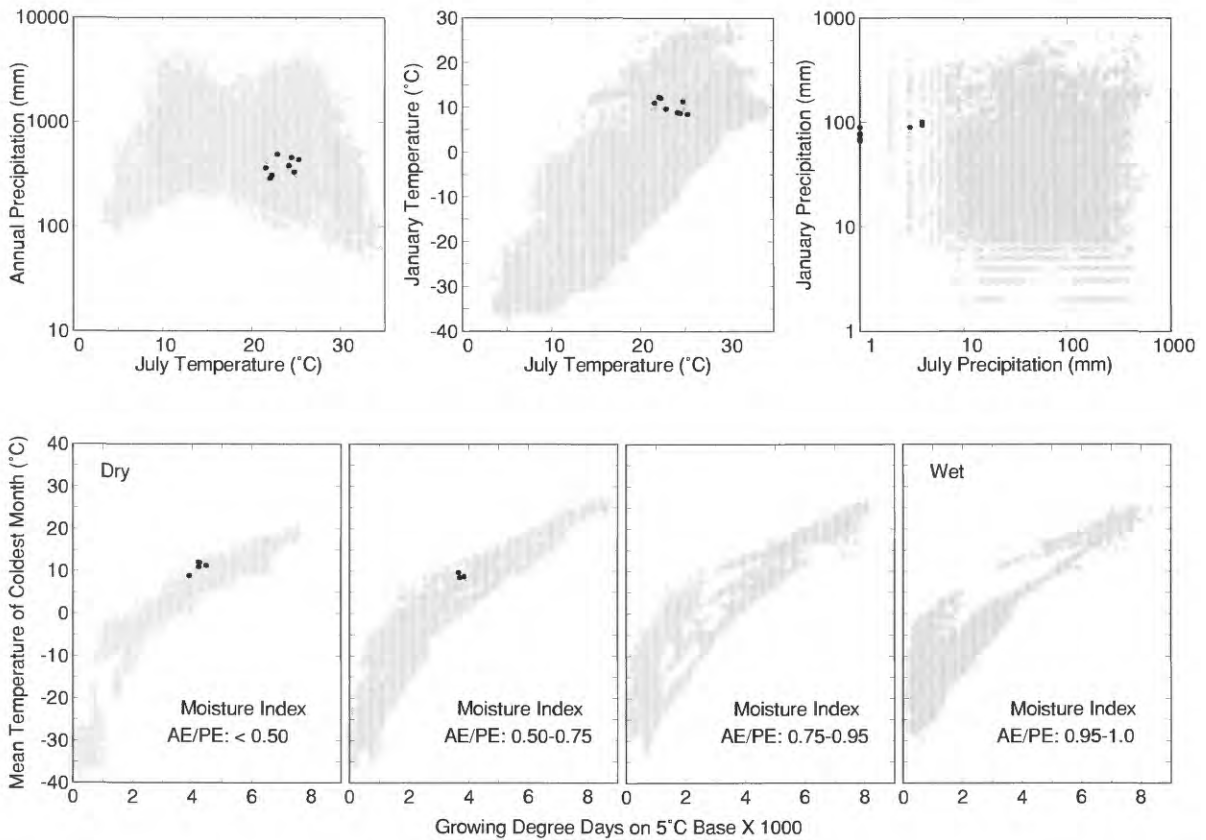
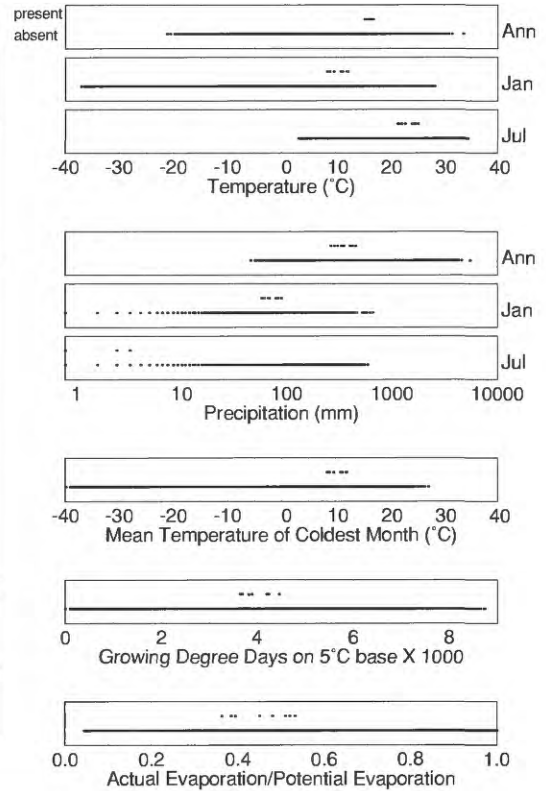
Quercus ellipsoidalis



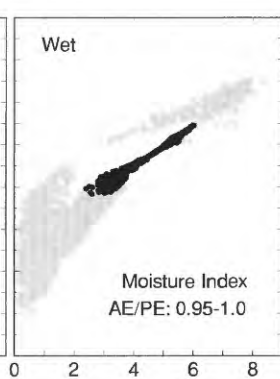
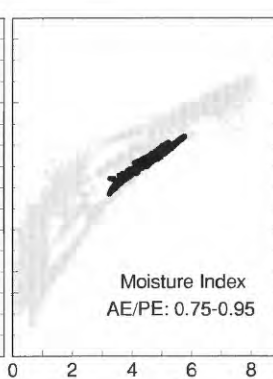
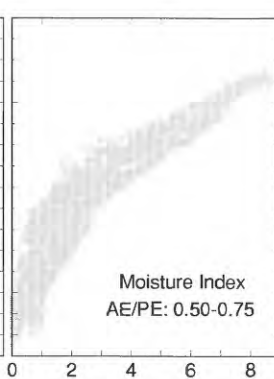
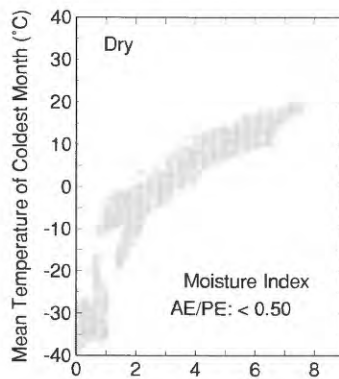
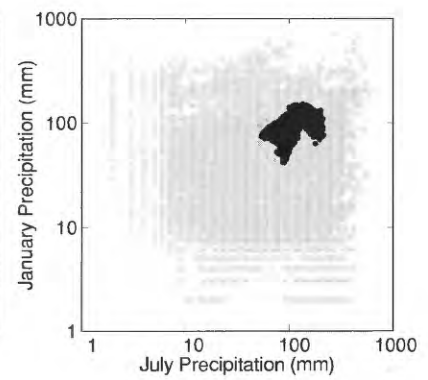
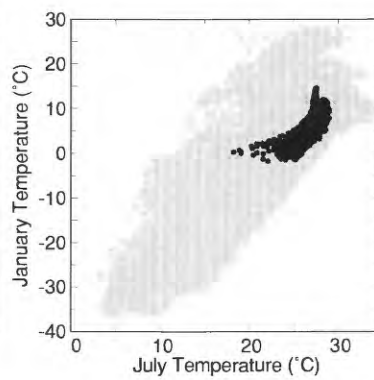
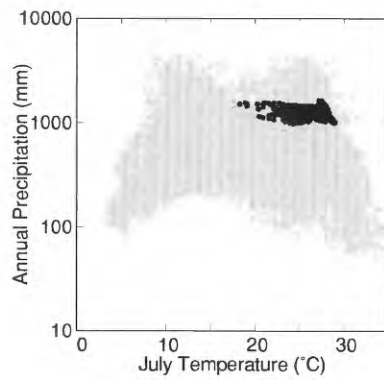
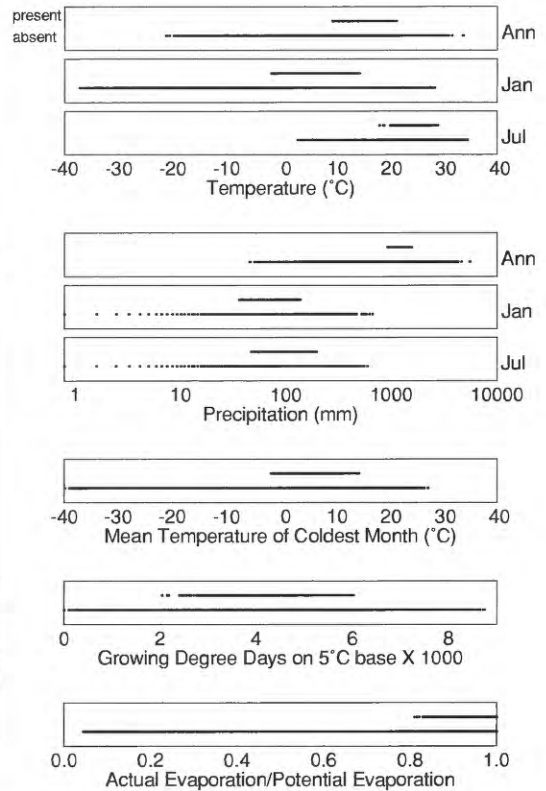
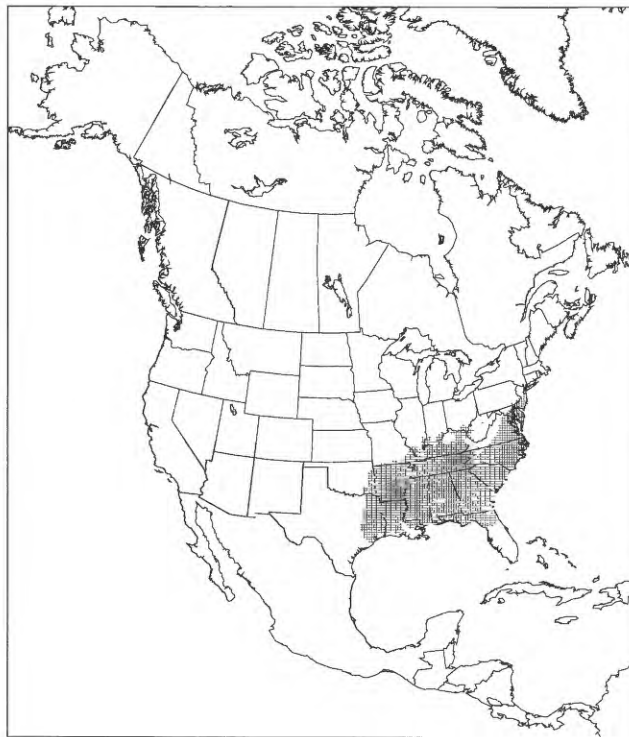
Quercus emoryi



Quercus engelmannii

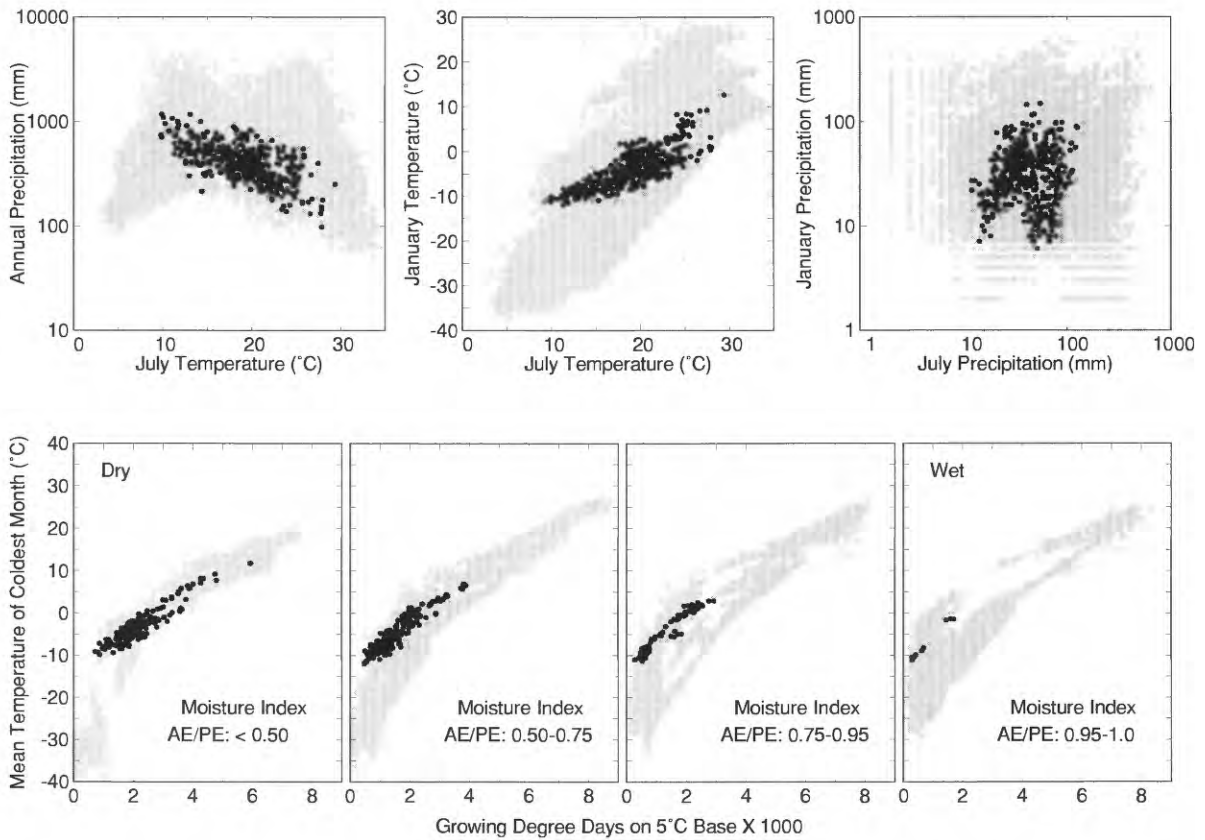
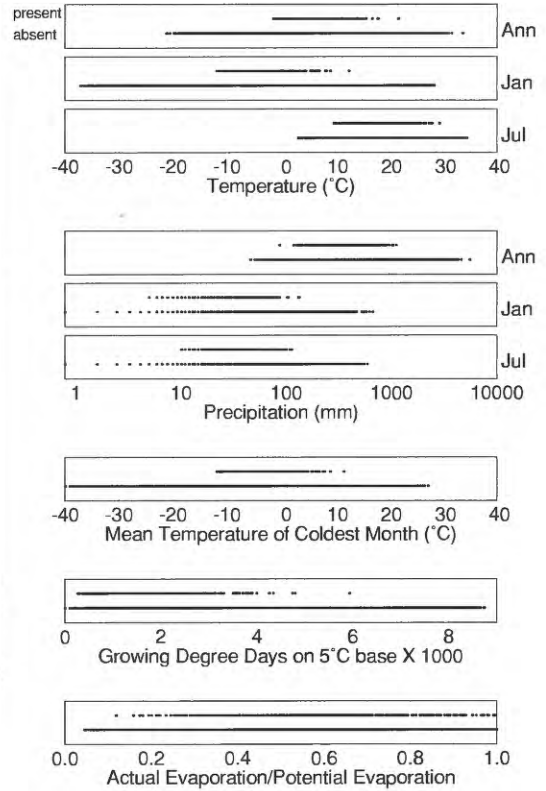


Quercus falcata

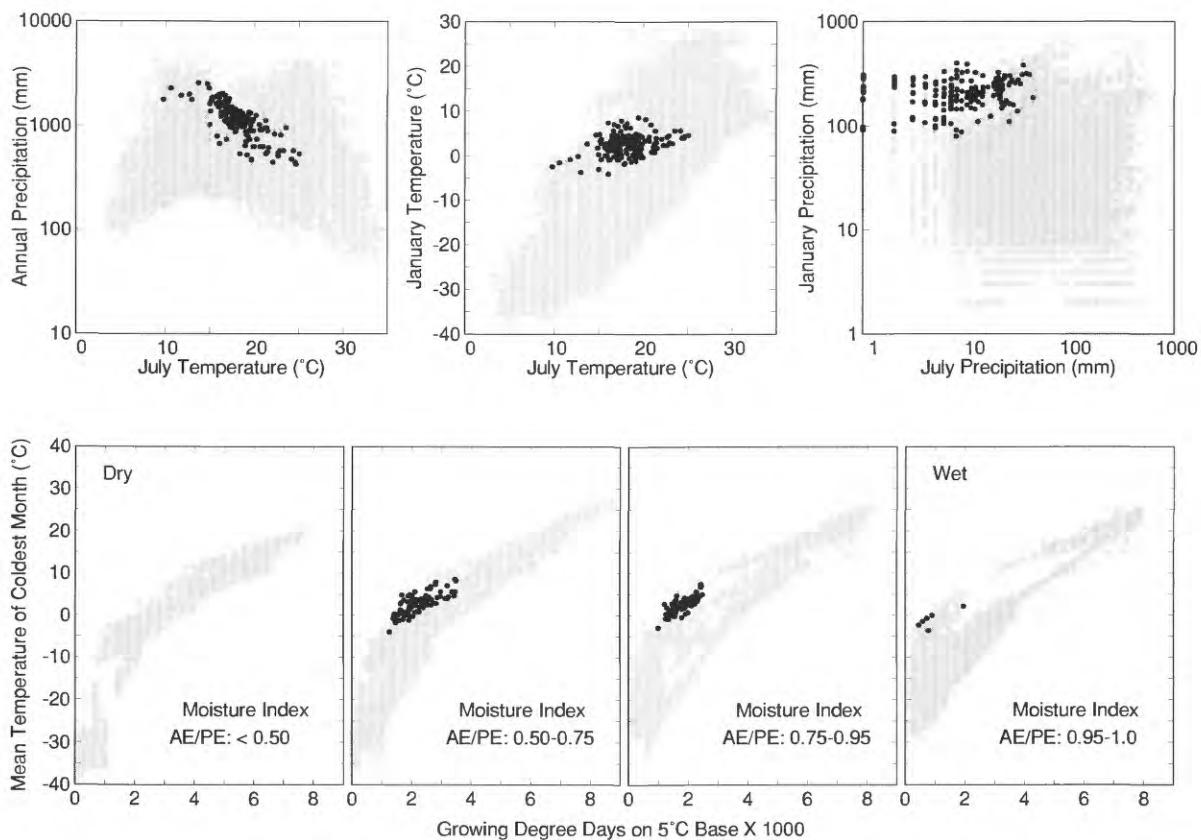
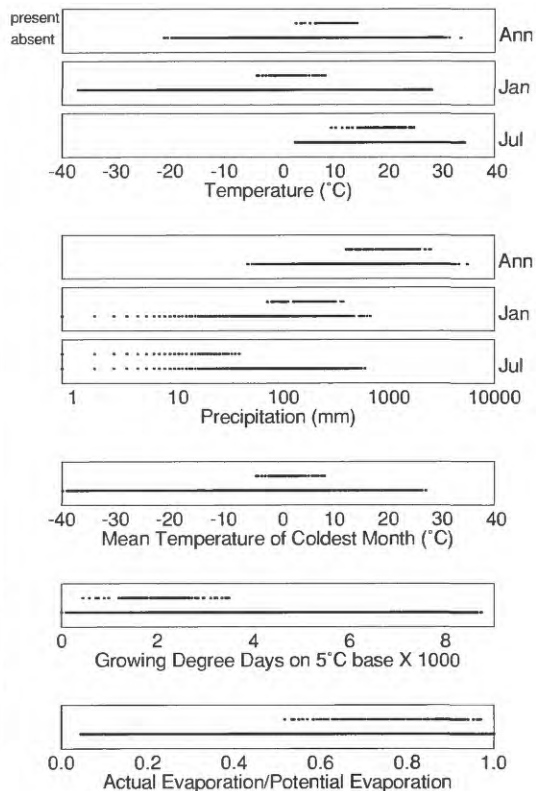


Growing Degree Days on 5°C Base X 1000

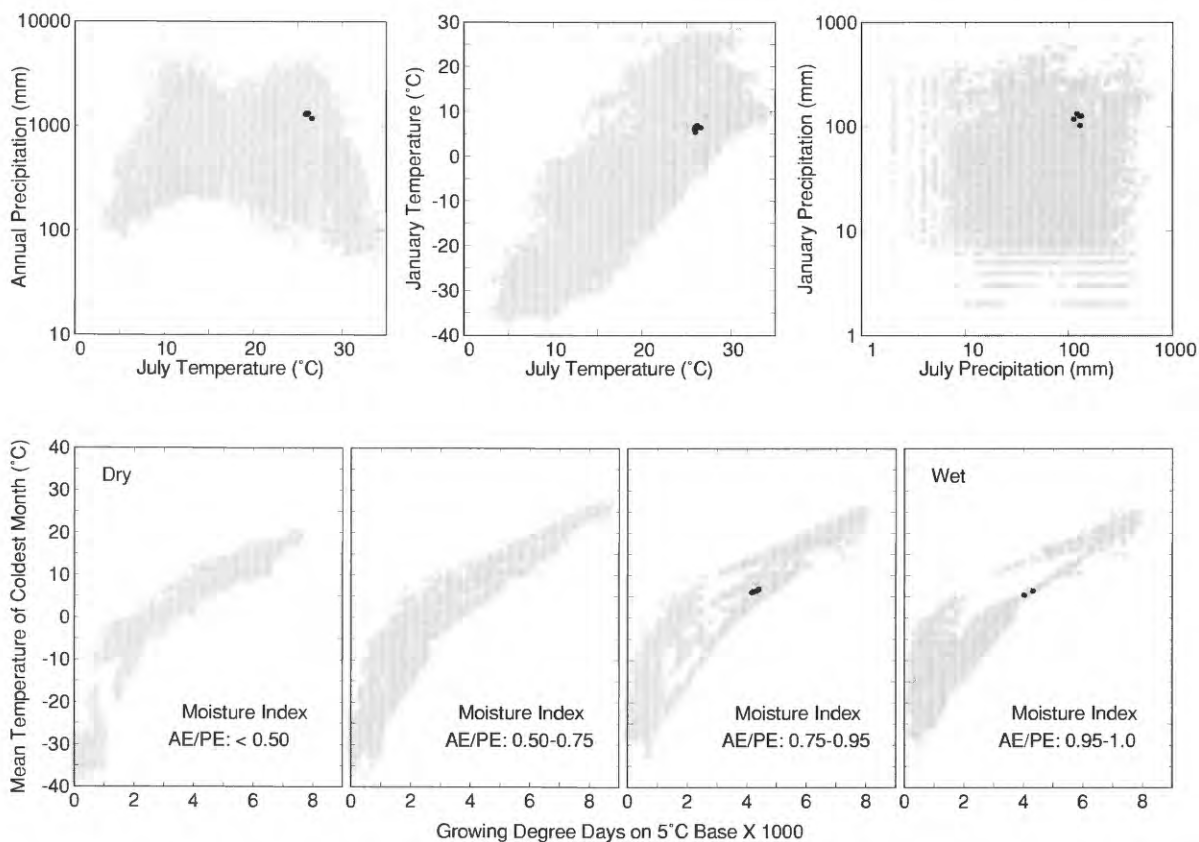
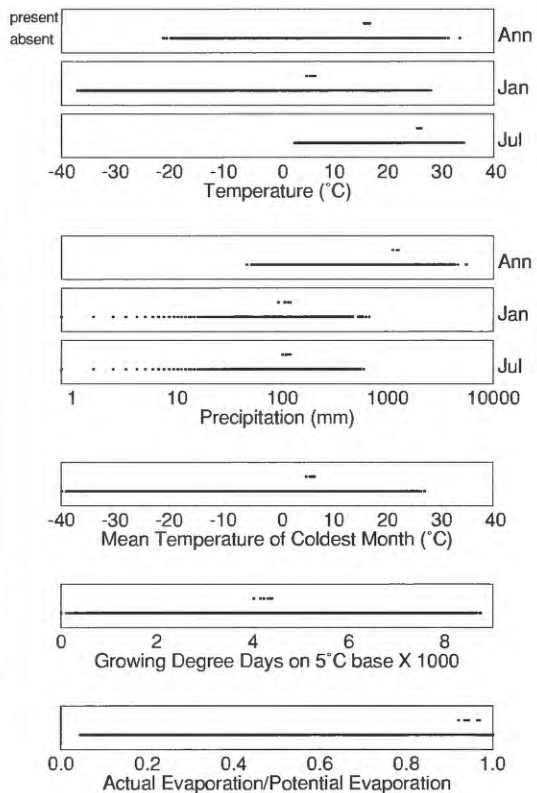
Quercus gambelii



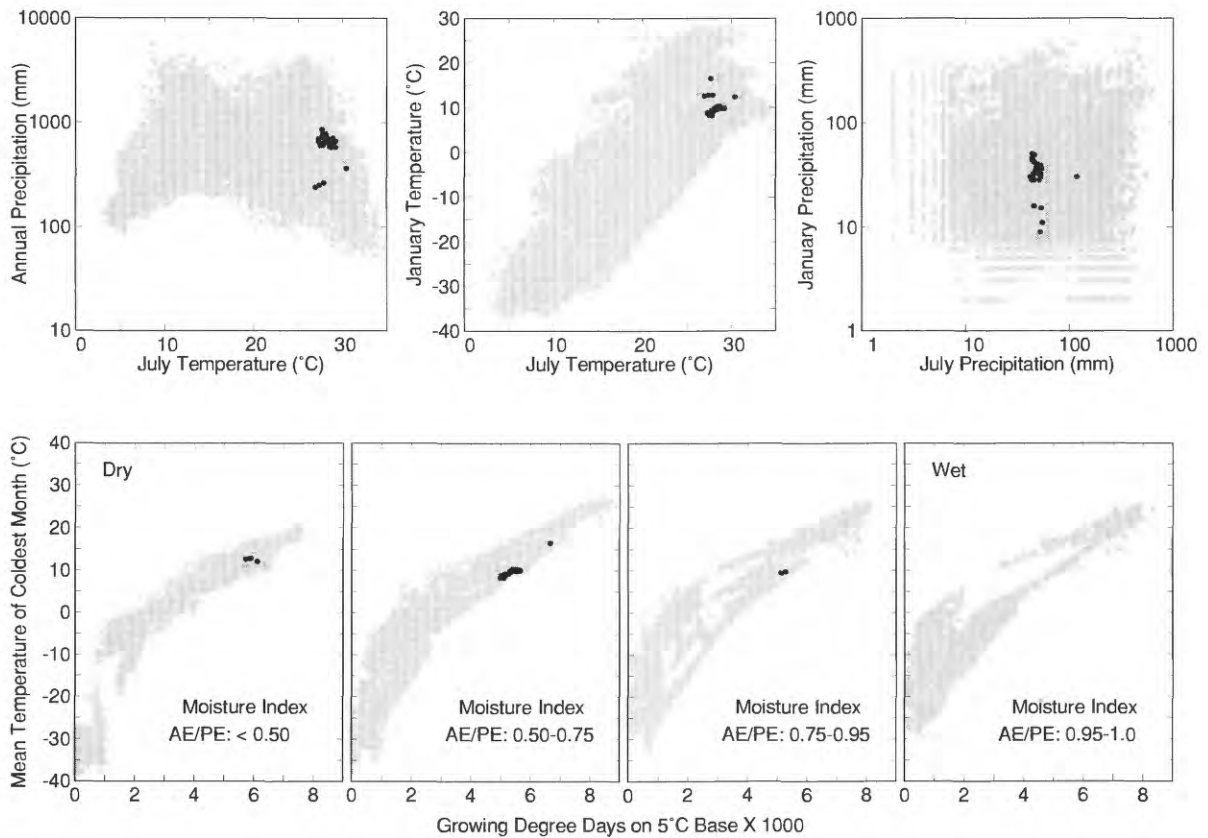
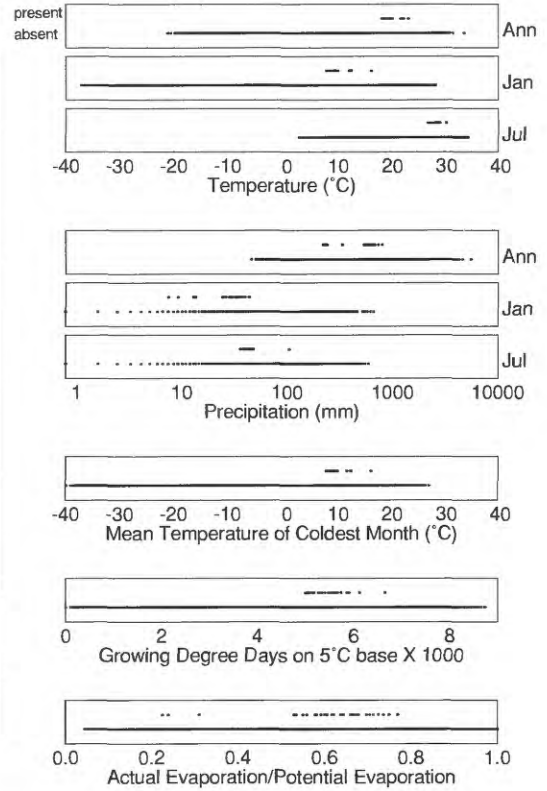
Quercus garryana



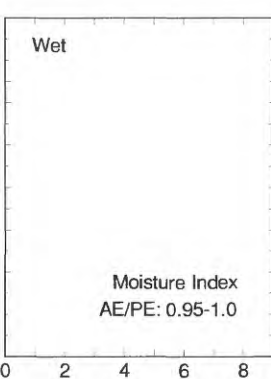
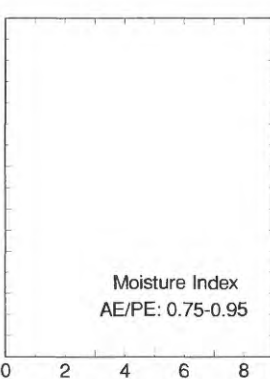
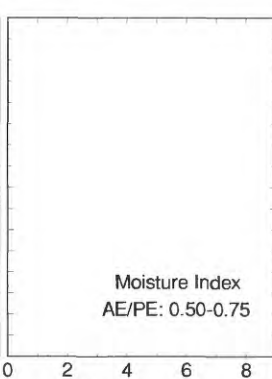
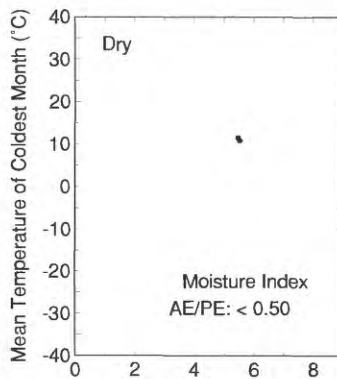
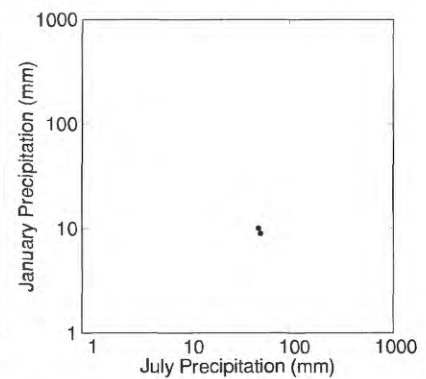
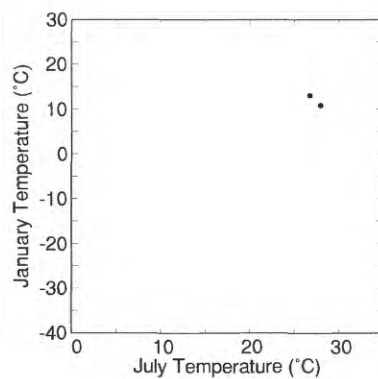
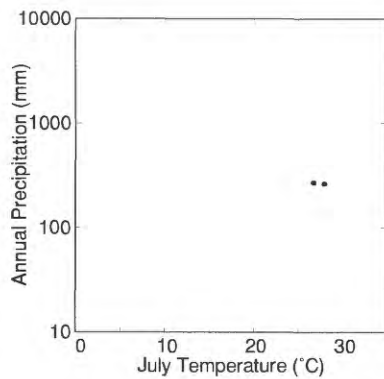
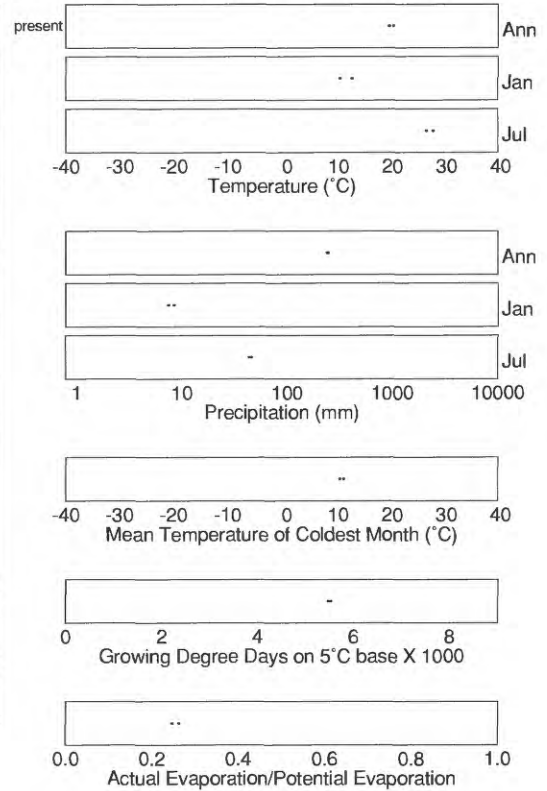
Quercus georgiana



Quercus glaucooides

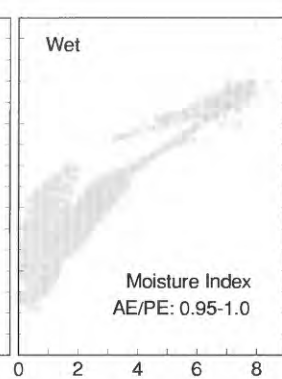
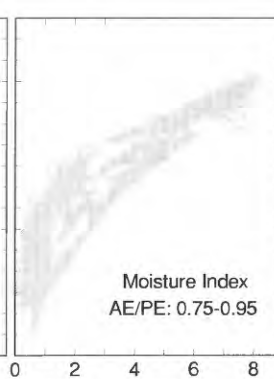
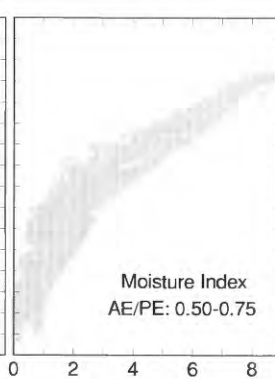
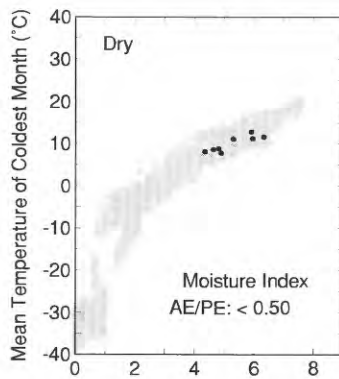
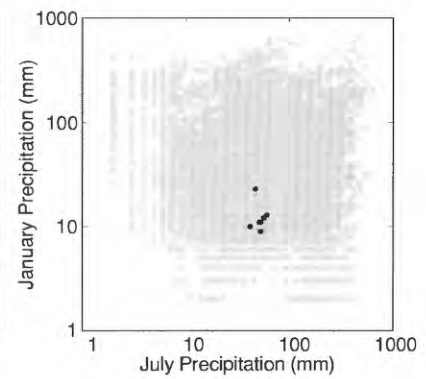
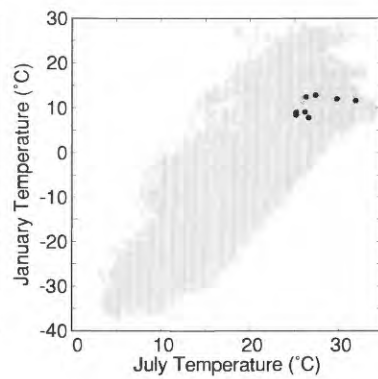
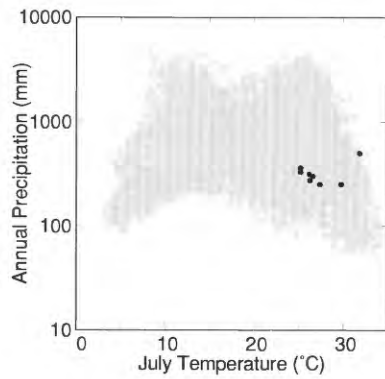
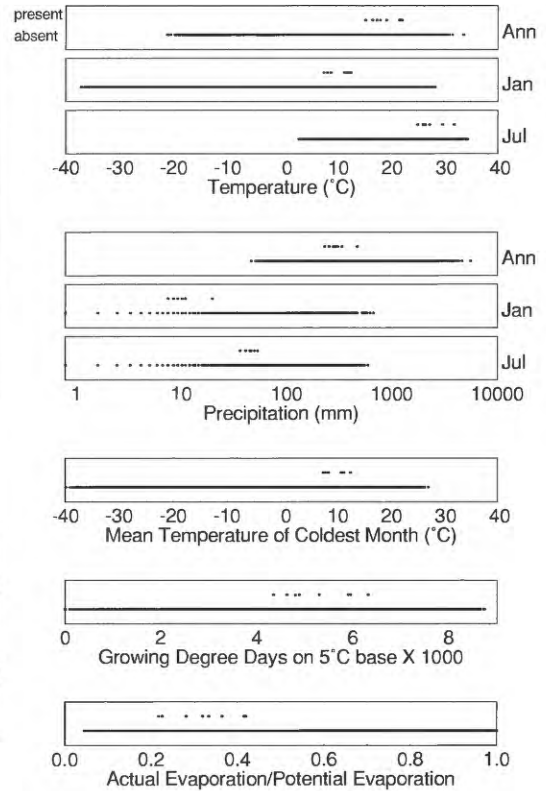


Quercus graciliformis (minimal data - nearest grid points used with environmental parameters)



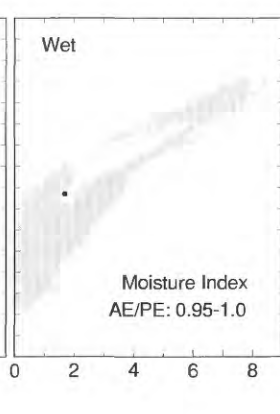
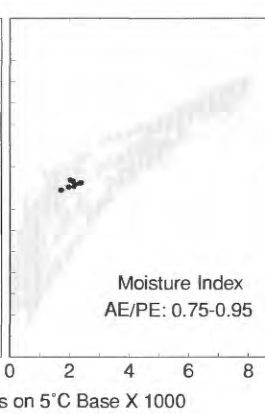
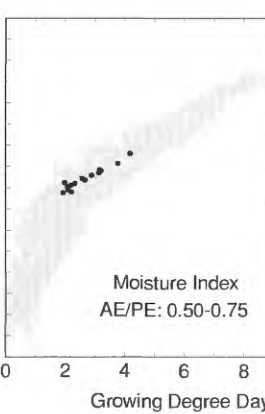
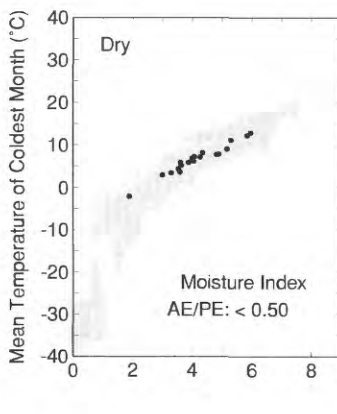
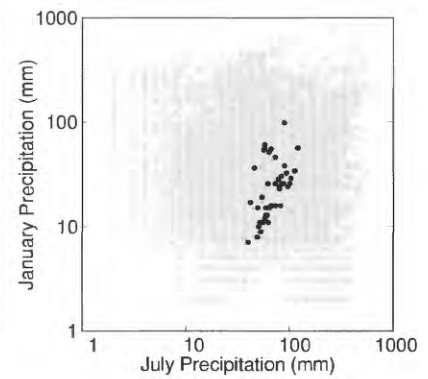
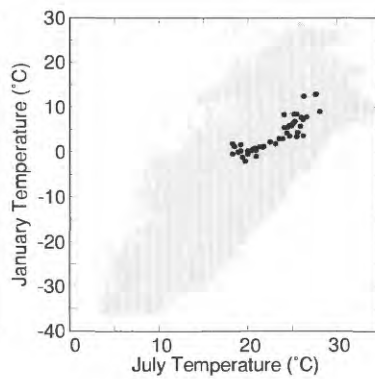
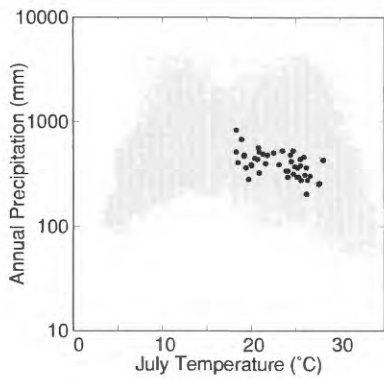
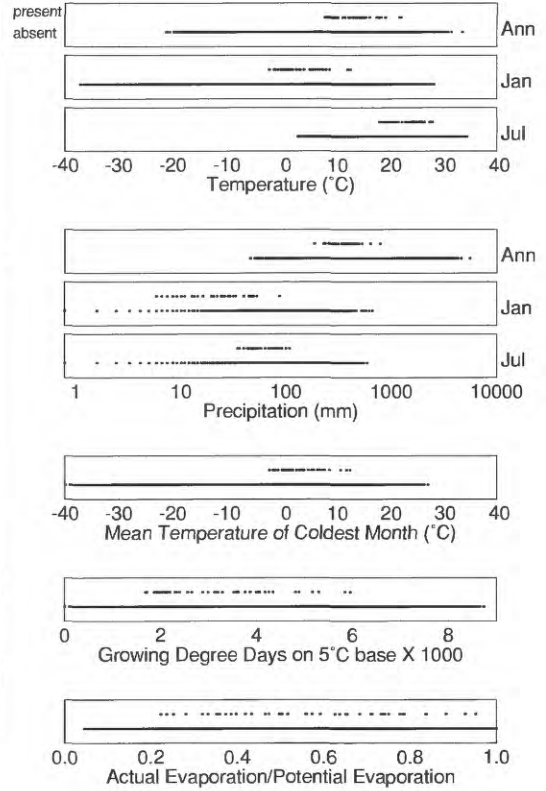
Growing Degree Days on 5°C Base X 1000

Quercus gravesii

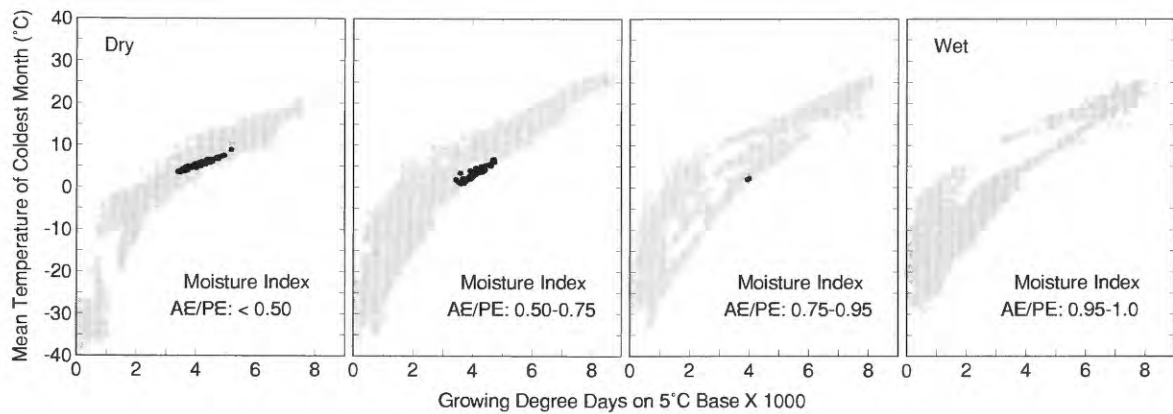
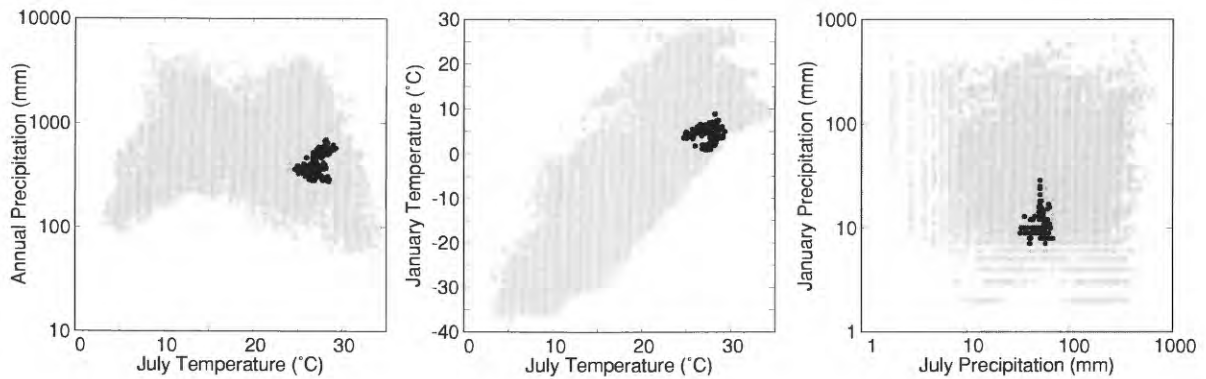
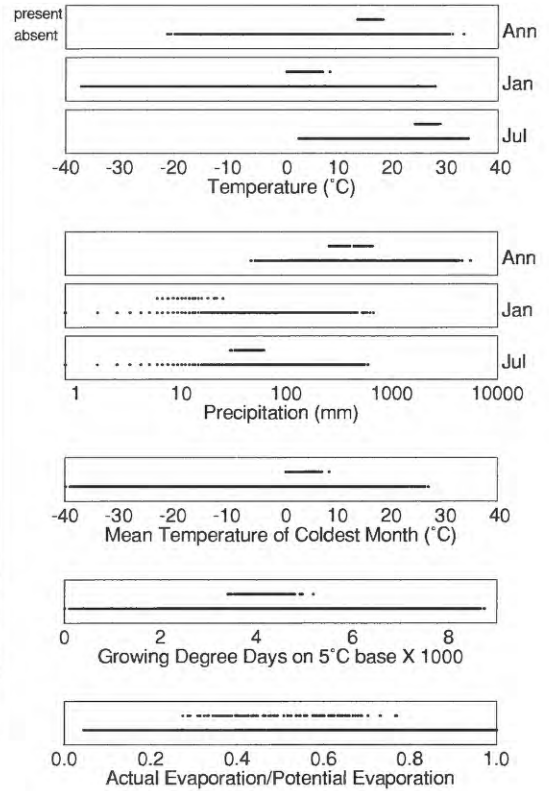


Growing Degree Days on 5°C Base X 1000

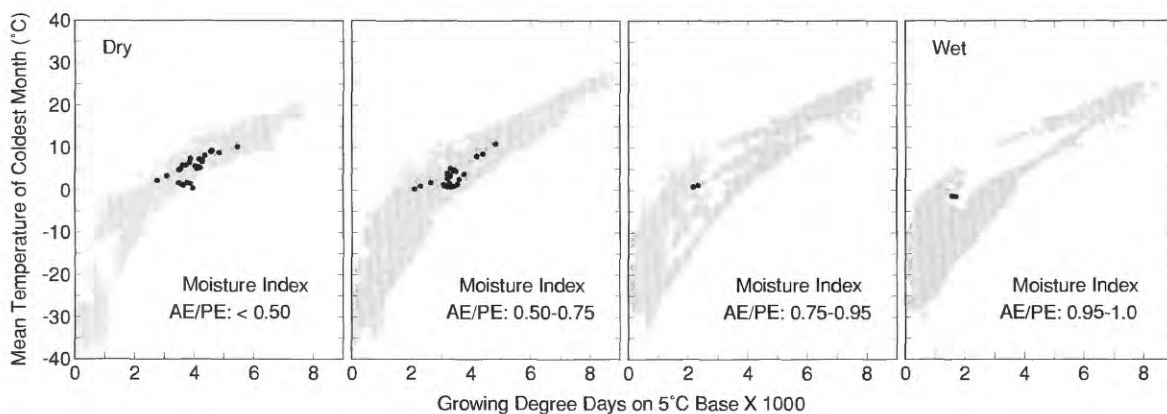
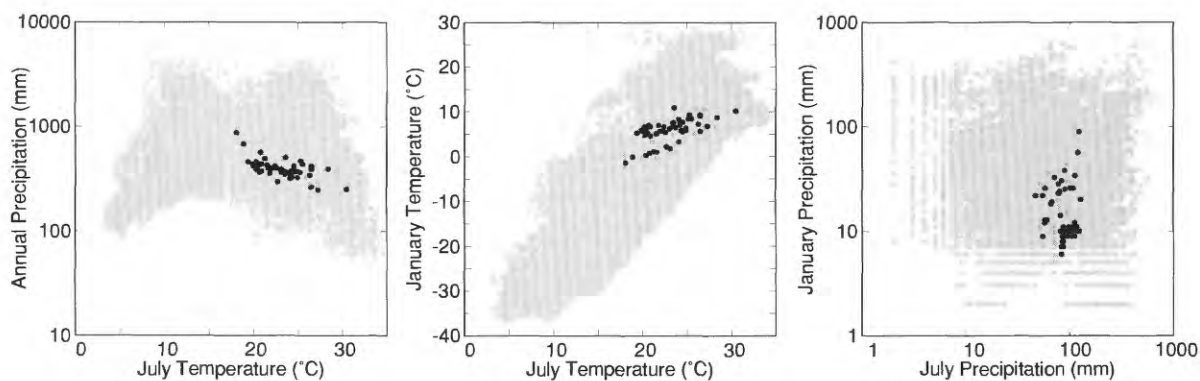
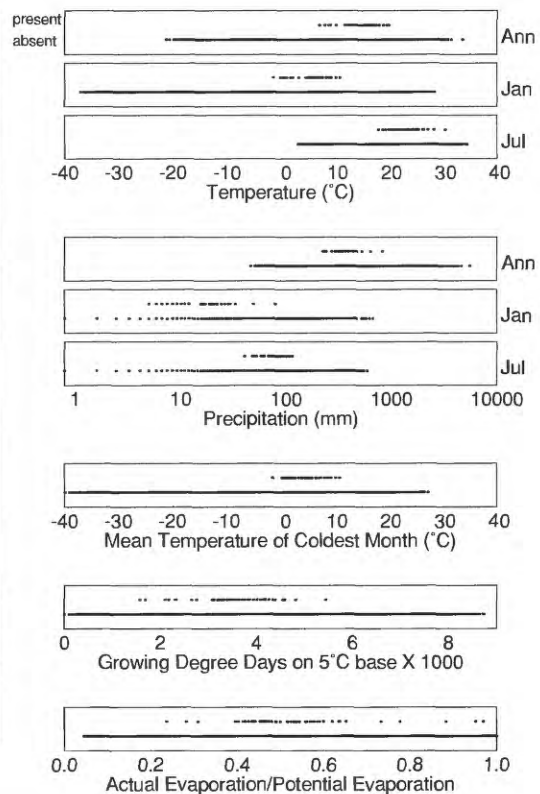
Quercus grisea



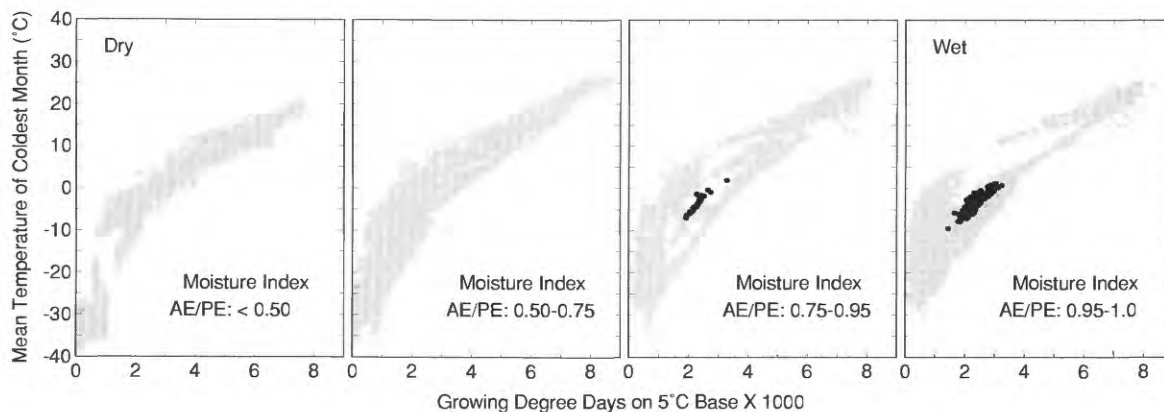
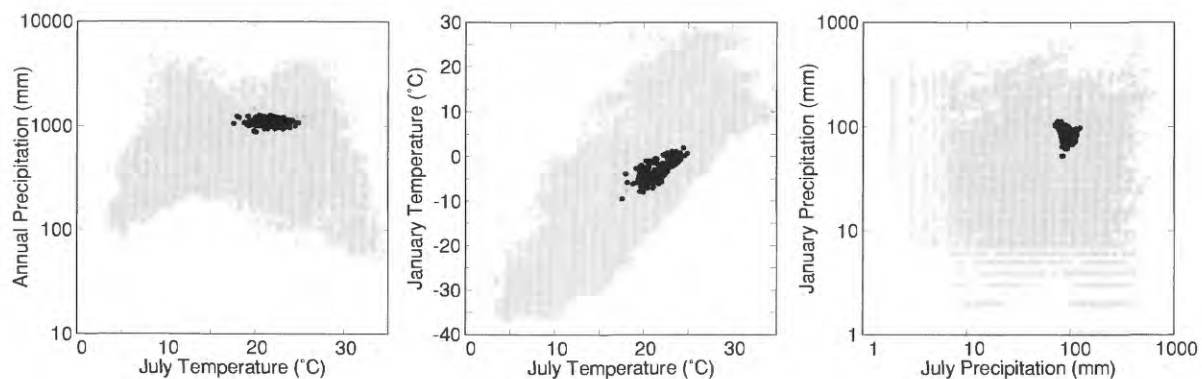
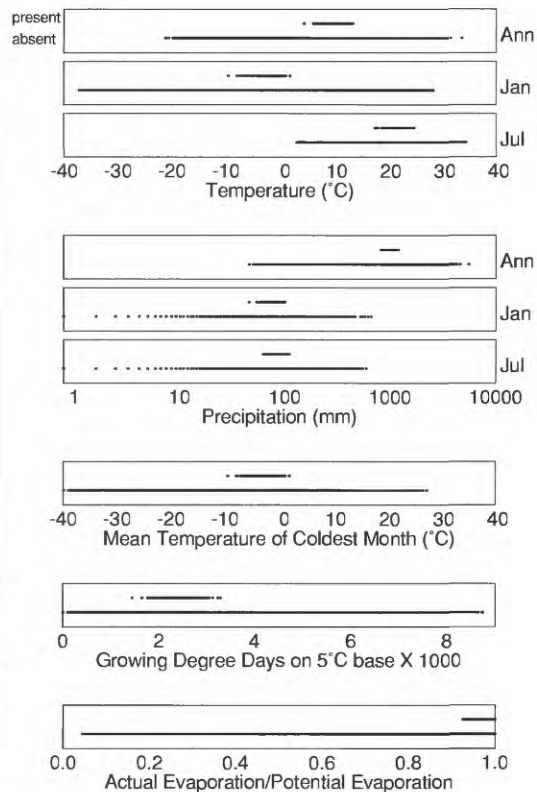
Quercus havardii



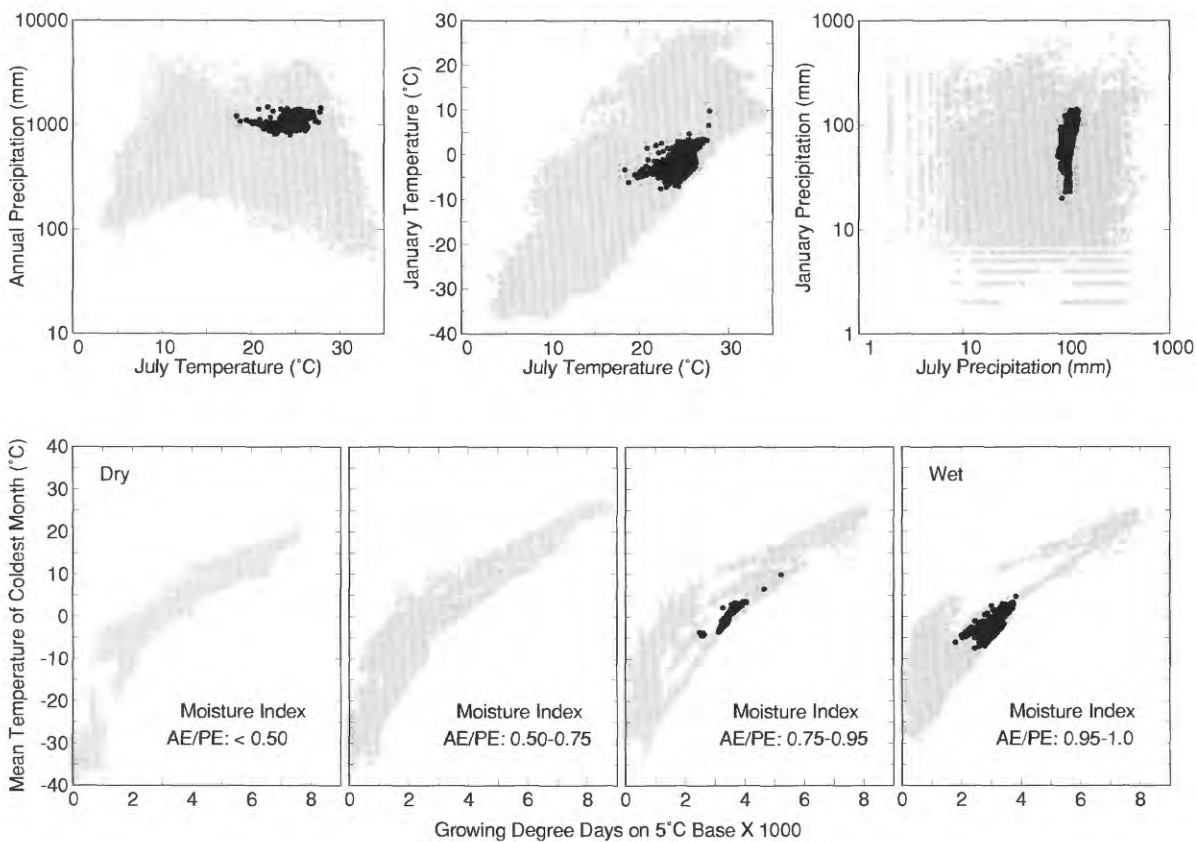
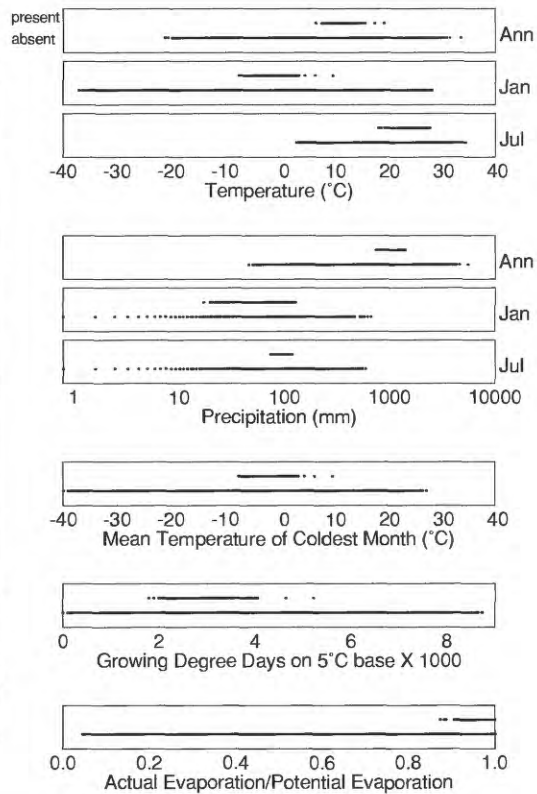
Quercus hypoleucoides



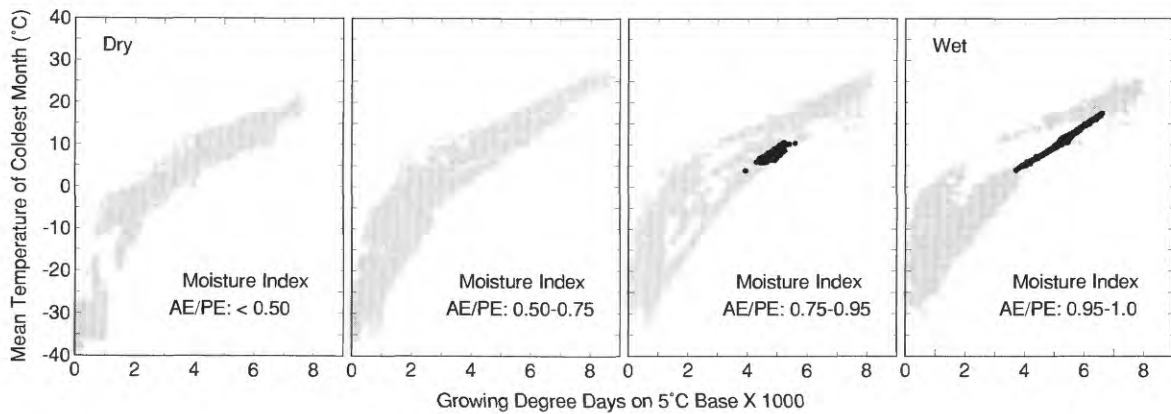
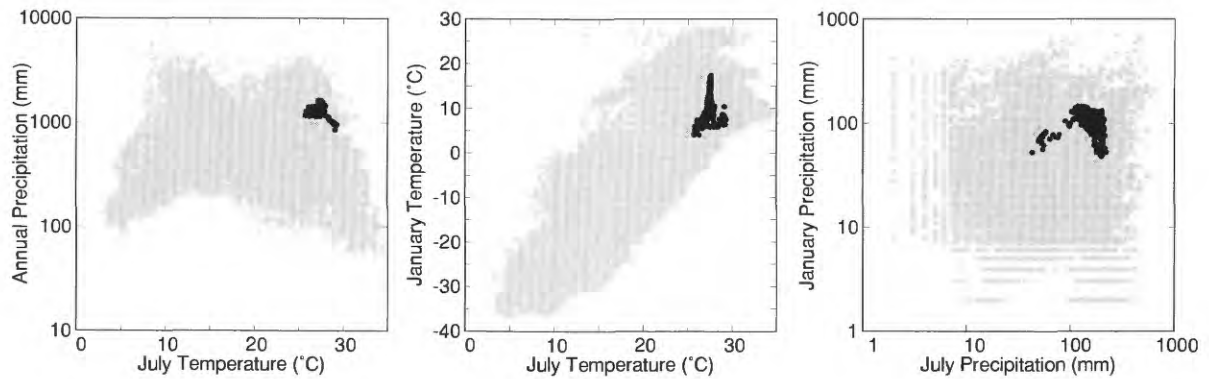
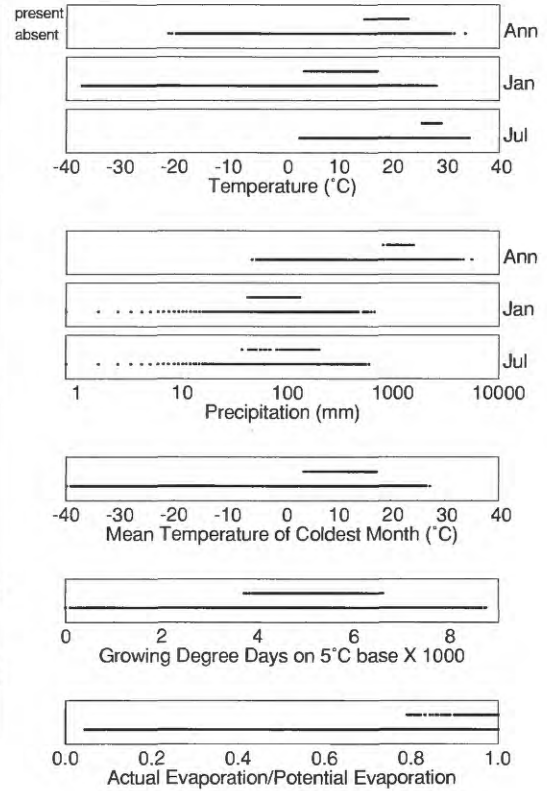
Quercus ilicifolia



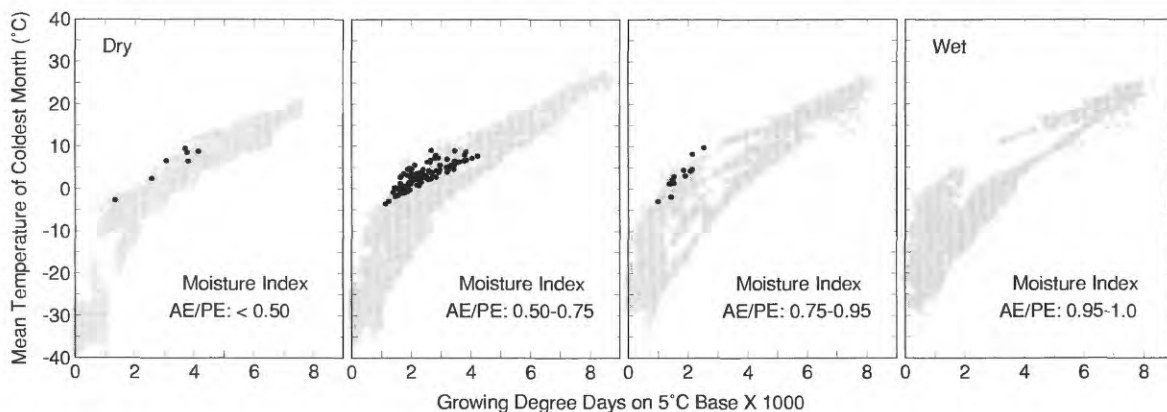
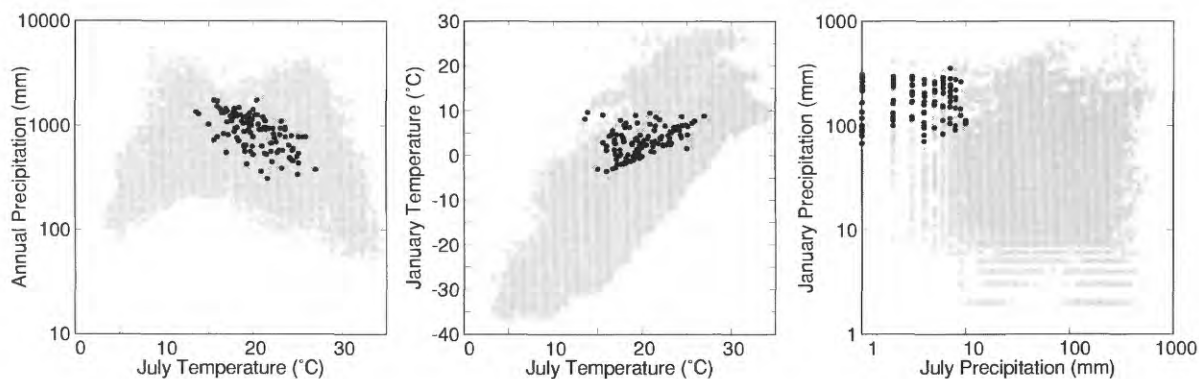
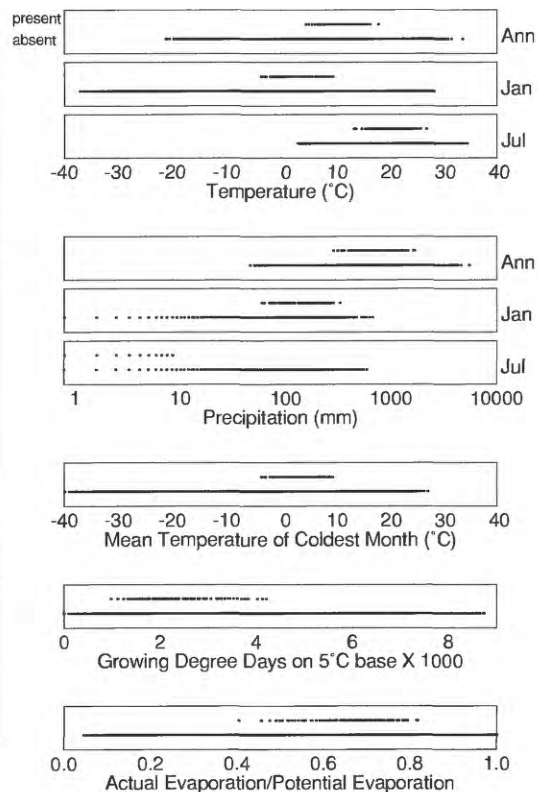
Quercus imbricaria



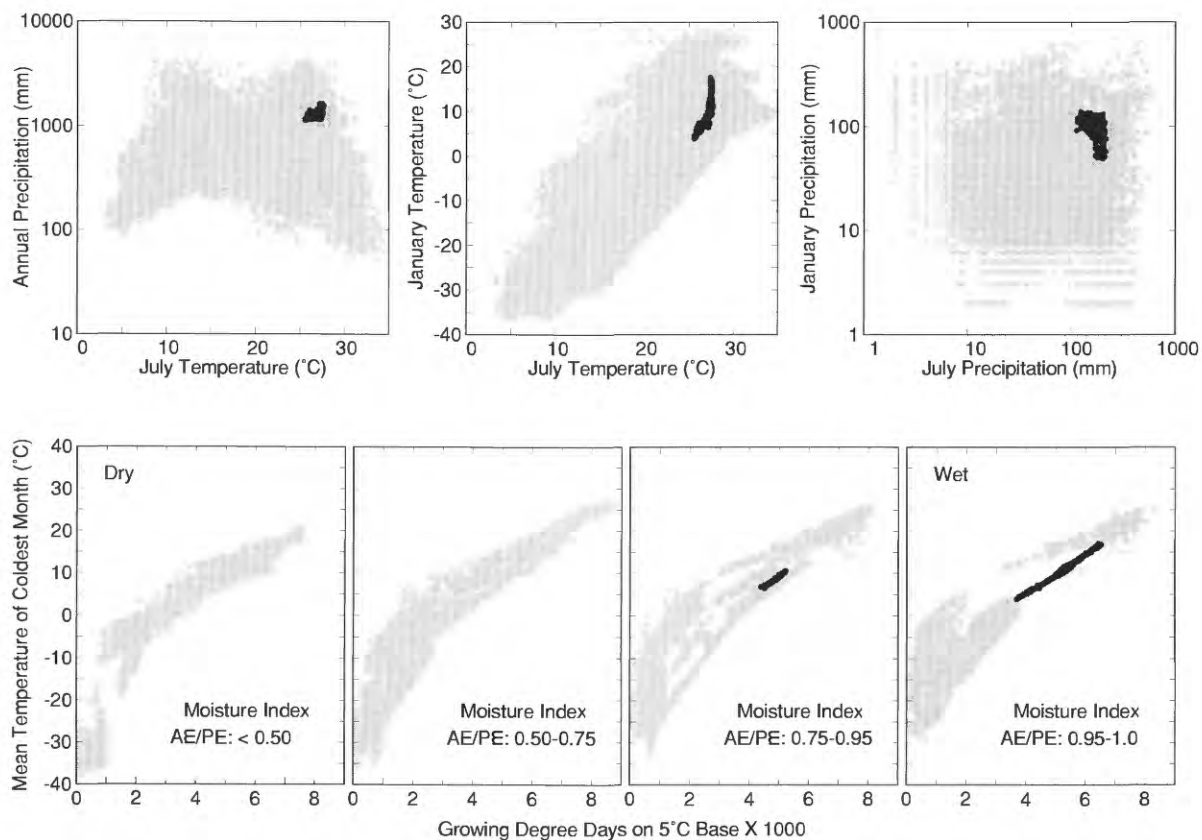
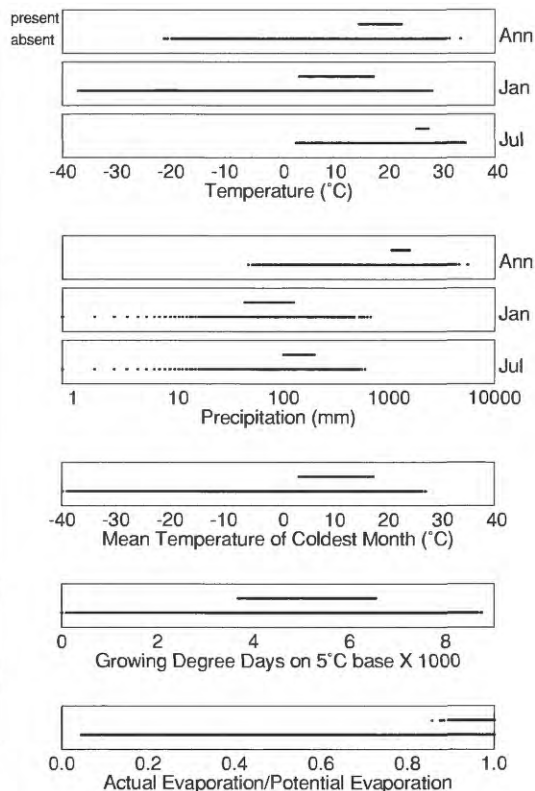
Quercus incana



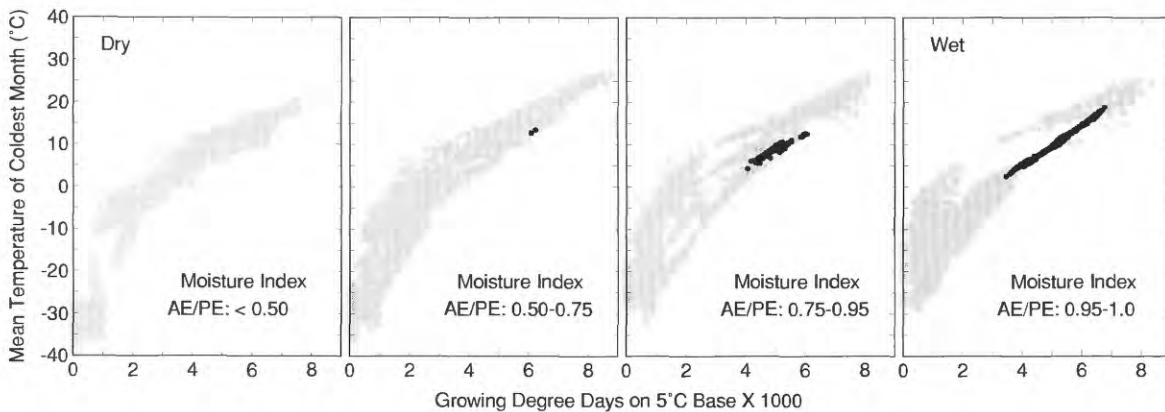
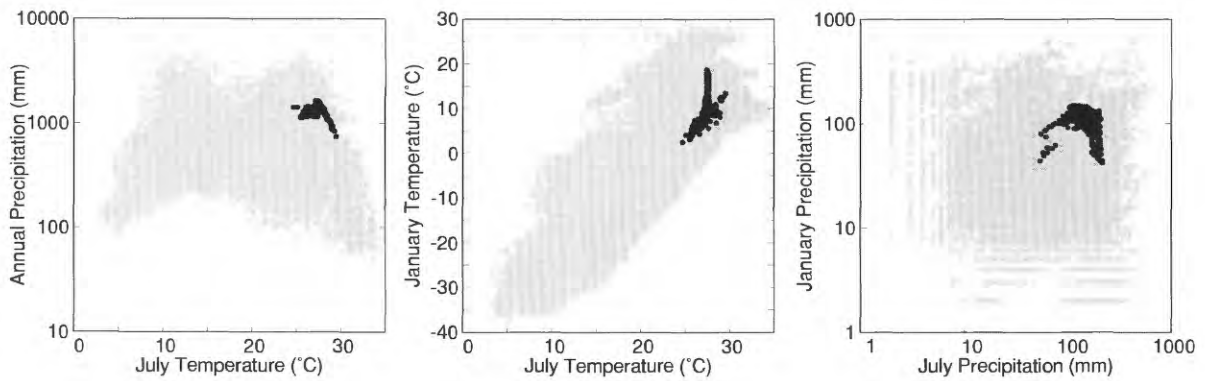
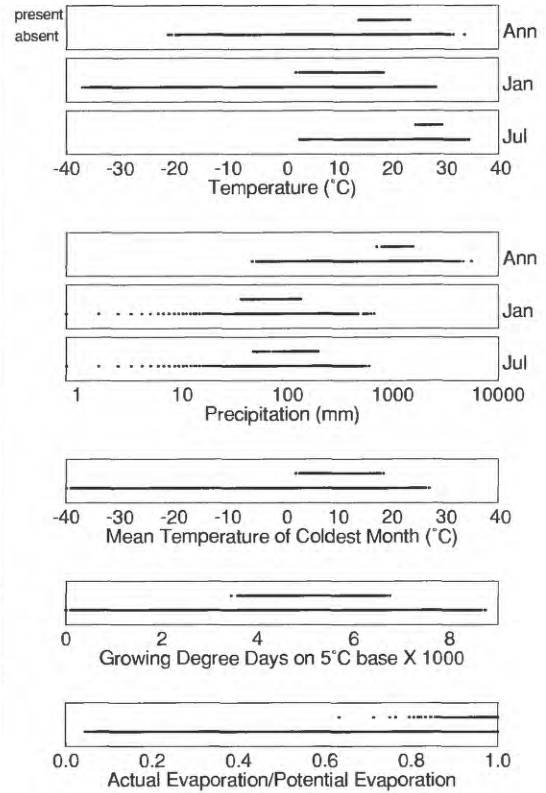
Quercus kelloggii



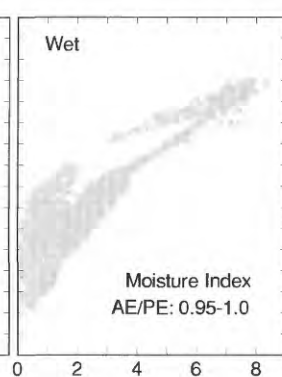
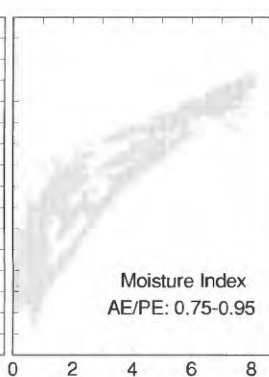
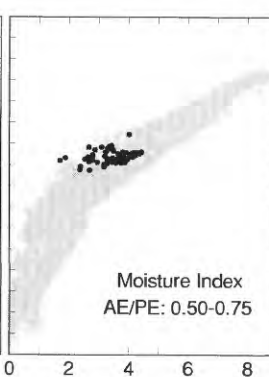
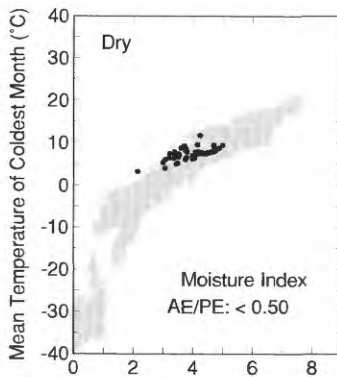
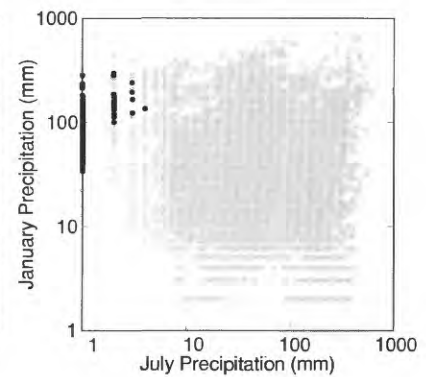
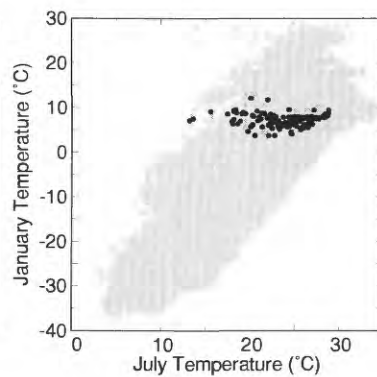
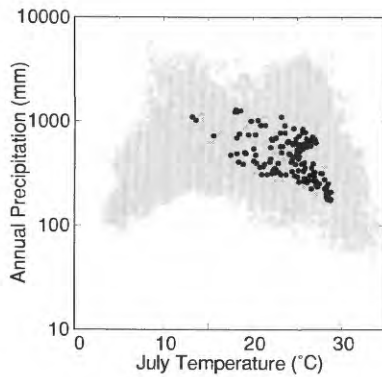
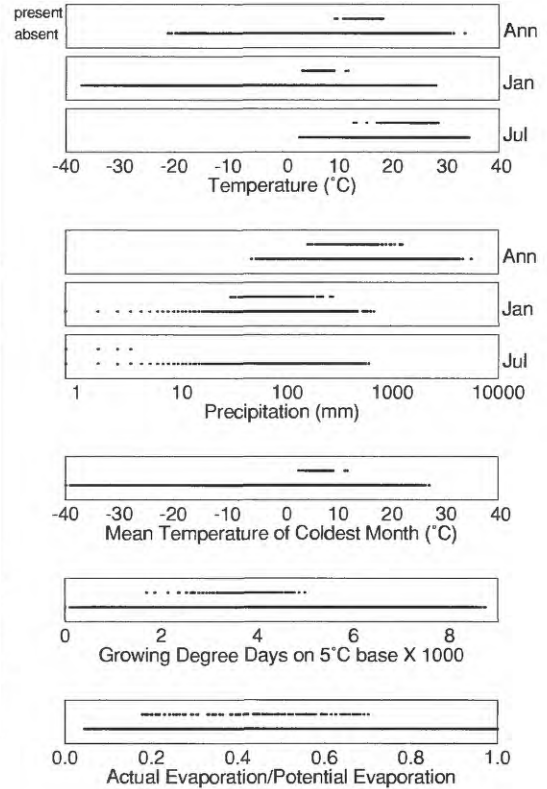
Quercus laevis



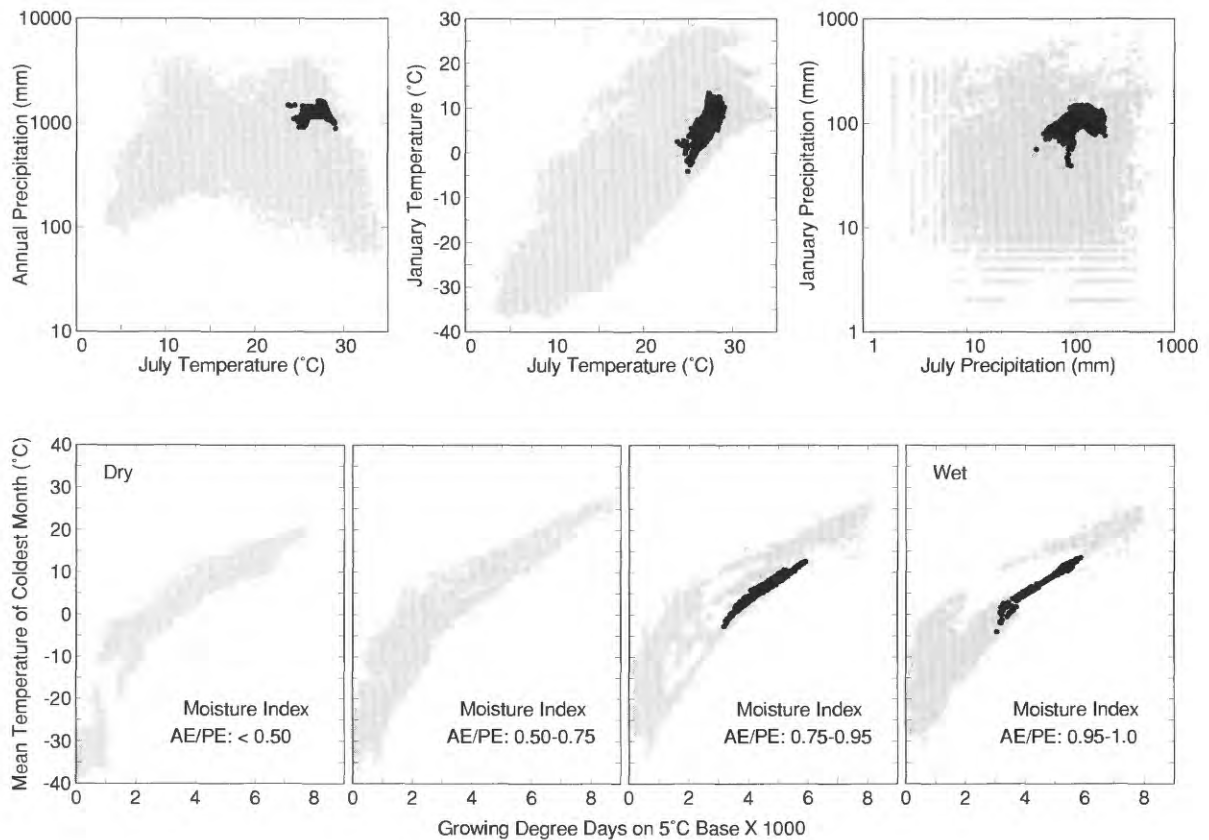
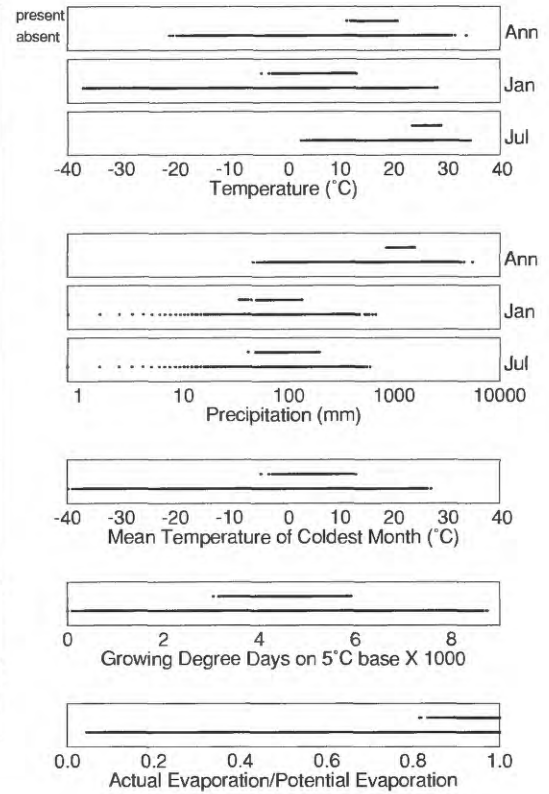
Quercus laurifolia



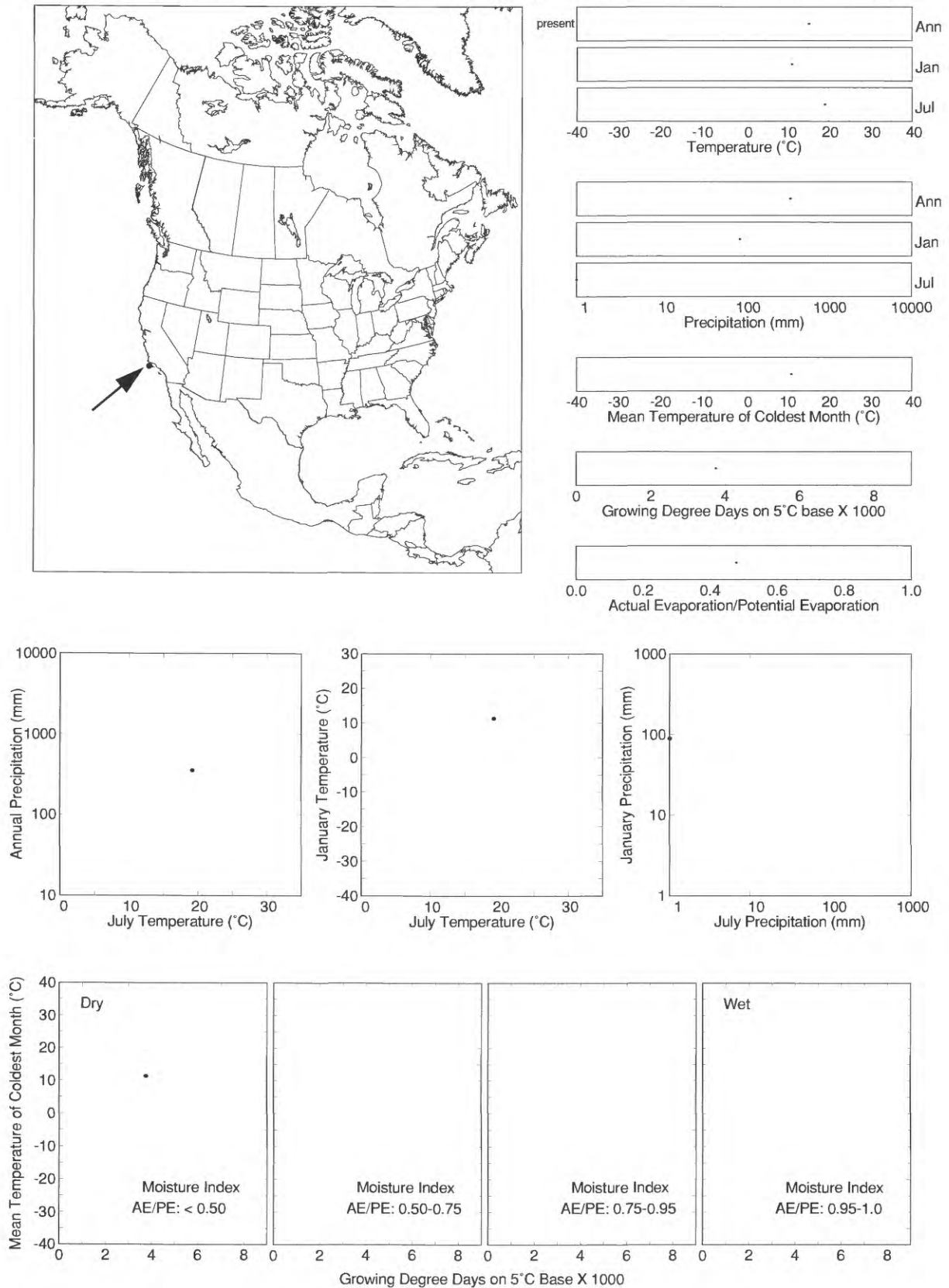
Quercus lobata



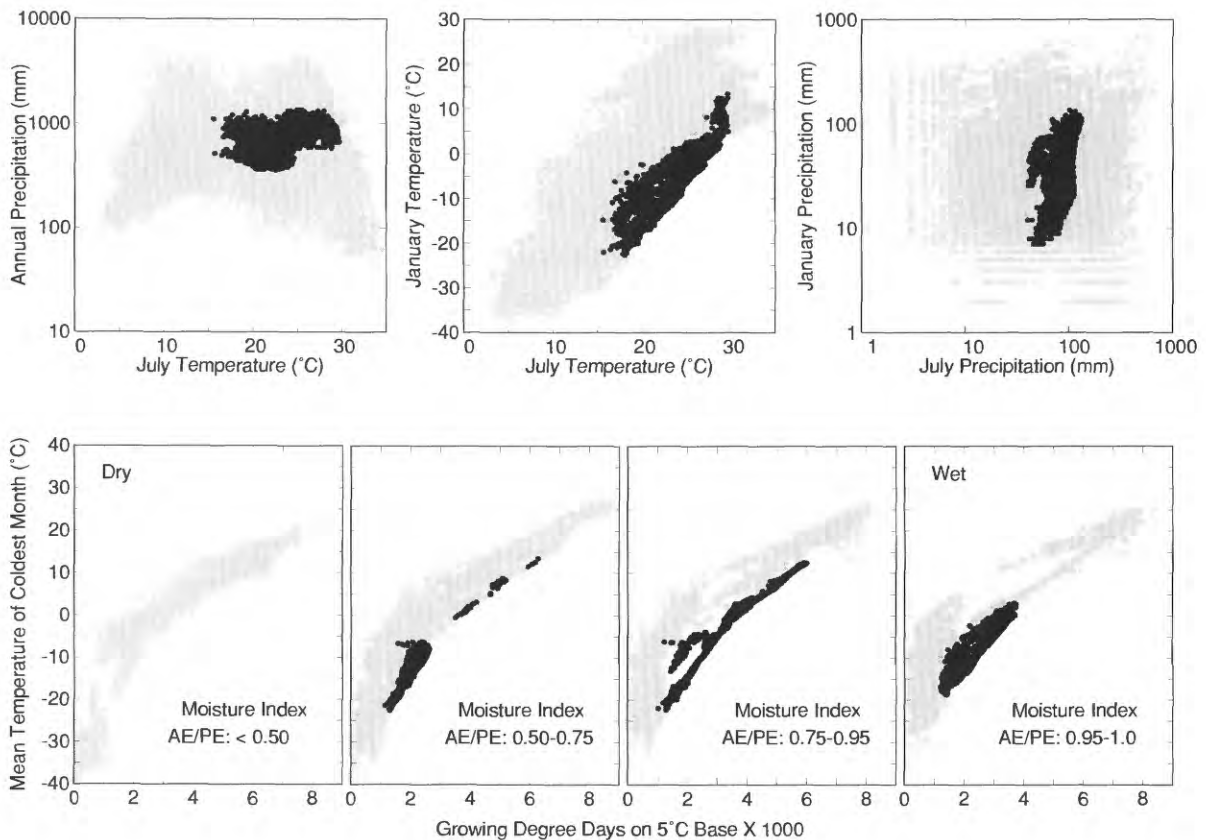
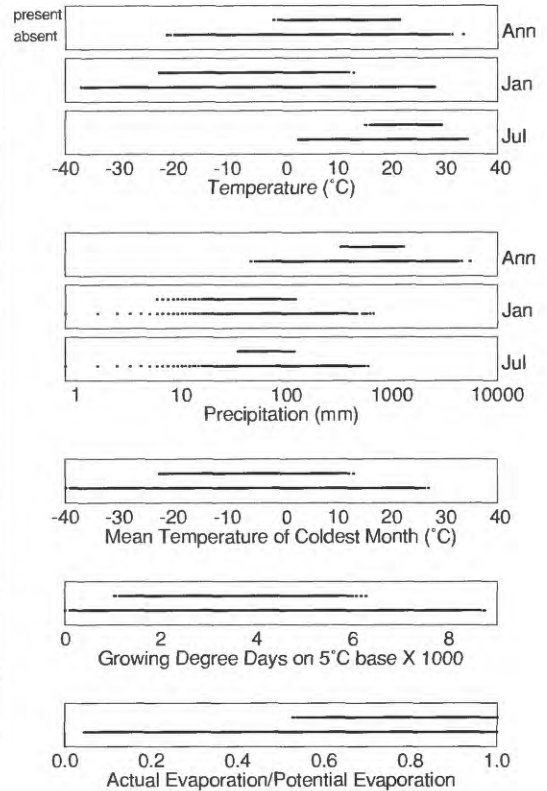
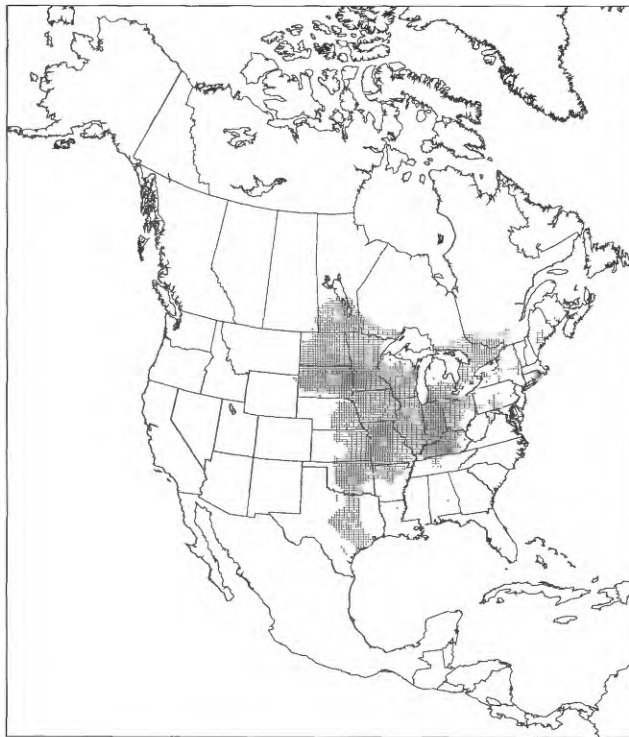
Quercus lyrata



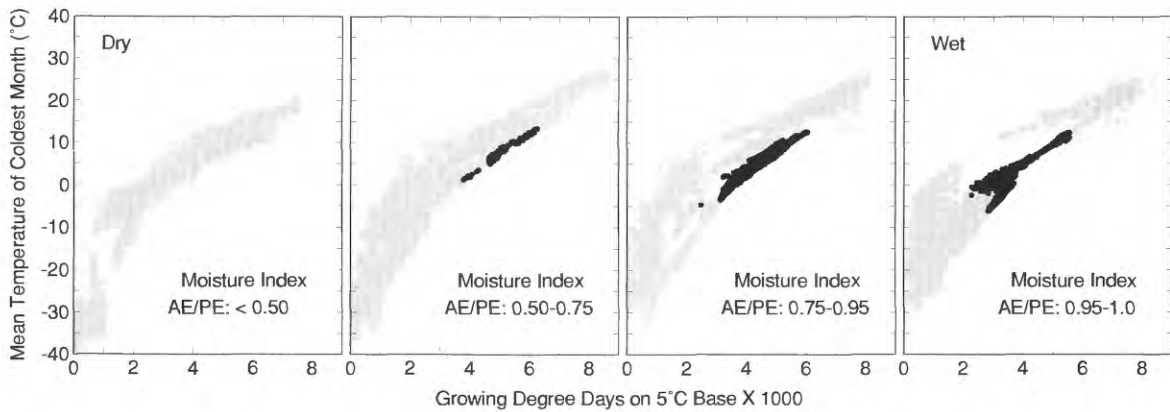
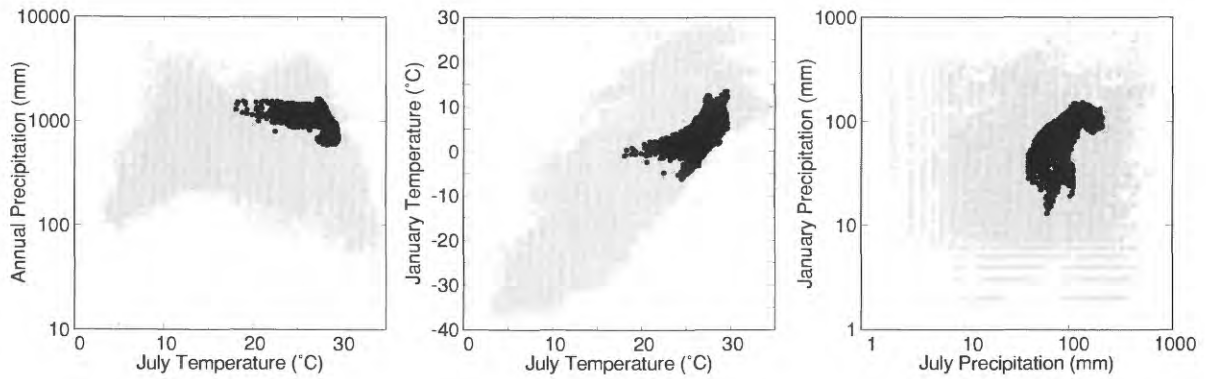
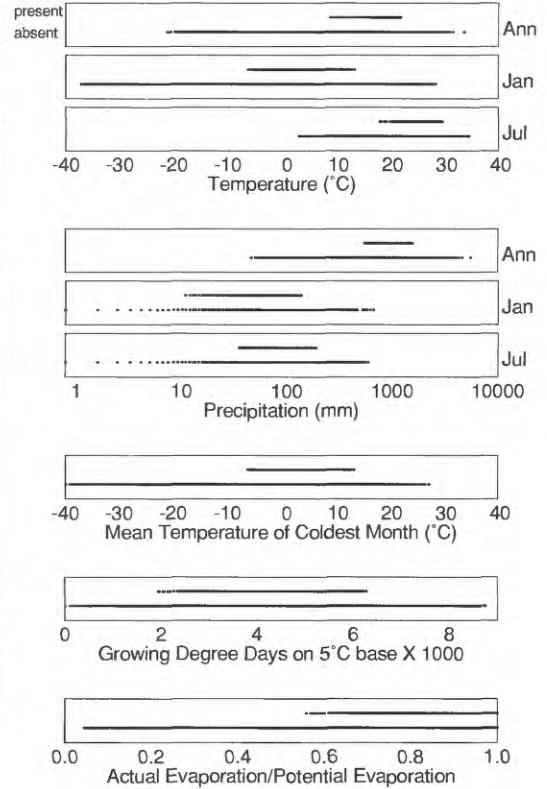
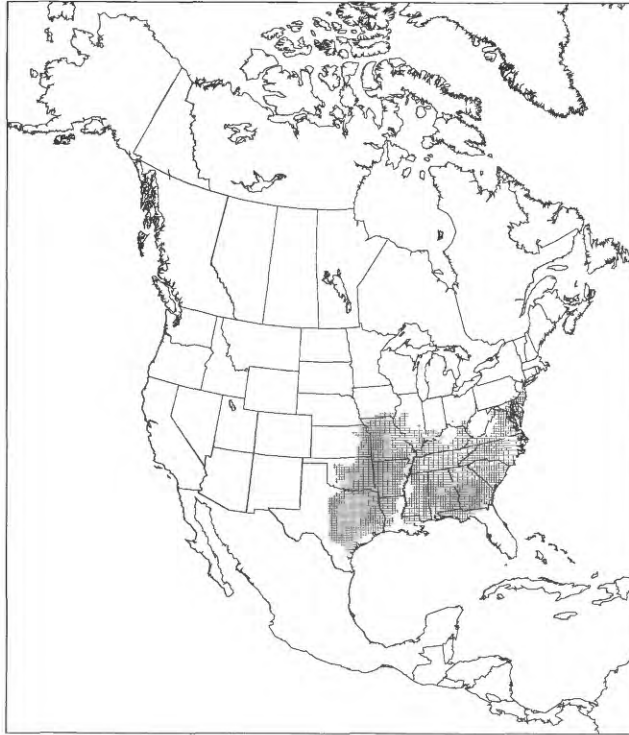
Quercus macdonaldii (minimal data - nearest grid points used with environmental parameters)



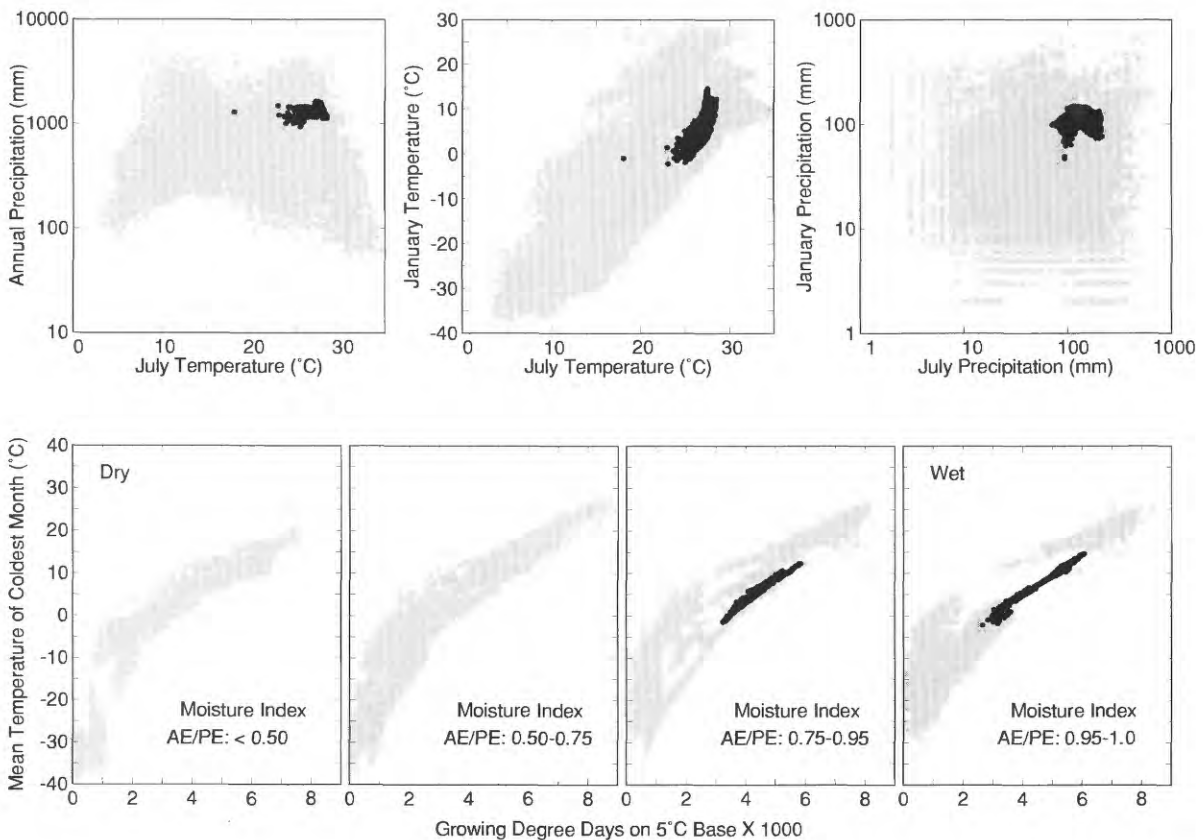
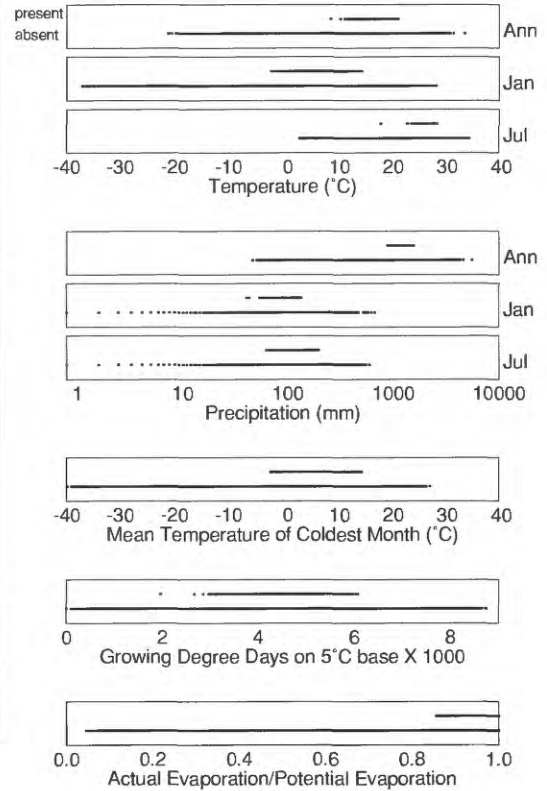
Quercus macrocarpa



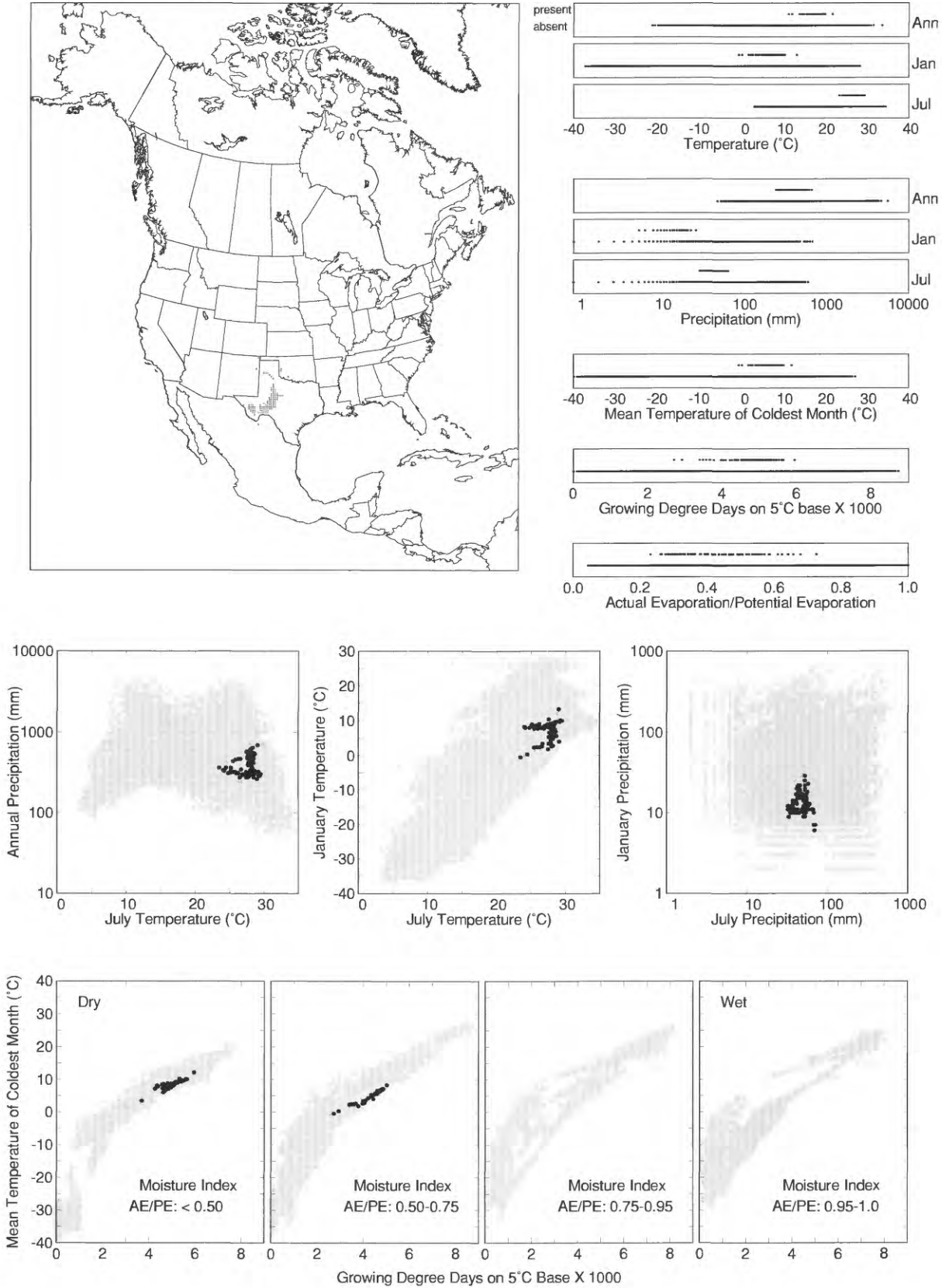
Quercus marilandica



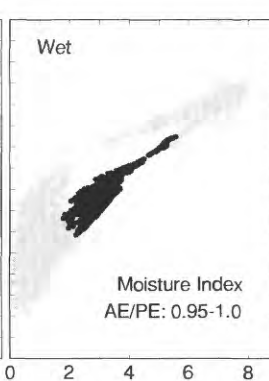
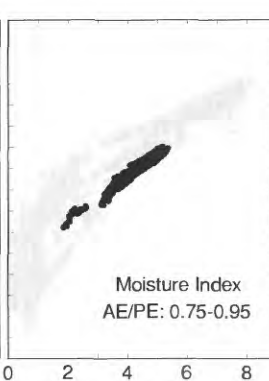
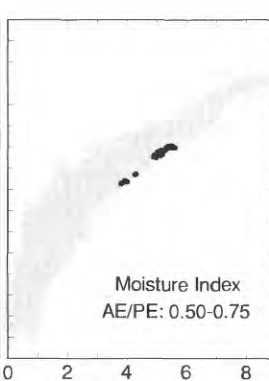
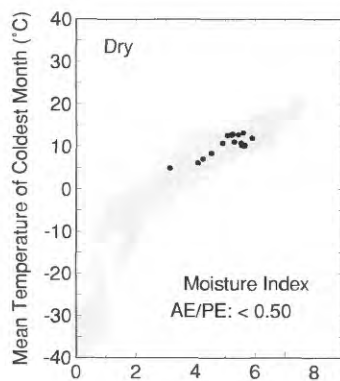
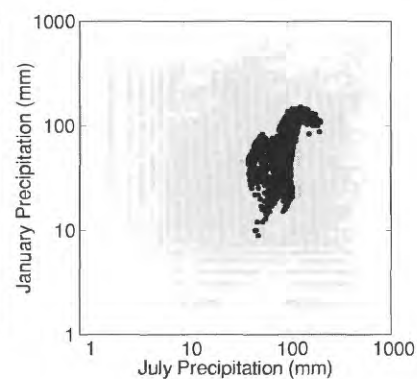
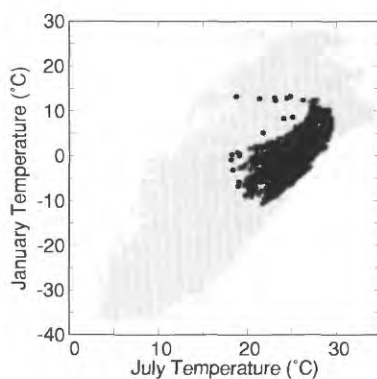
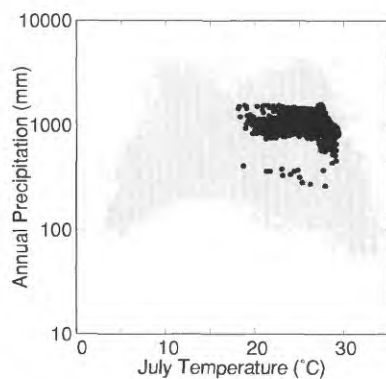
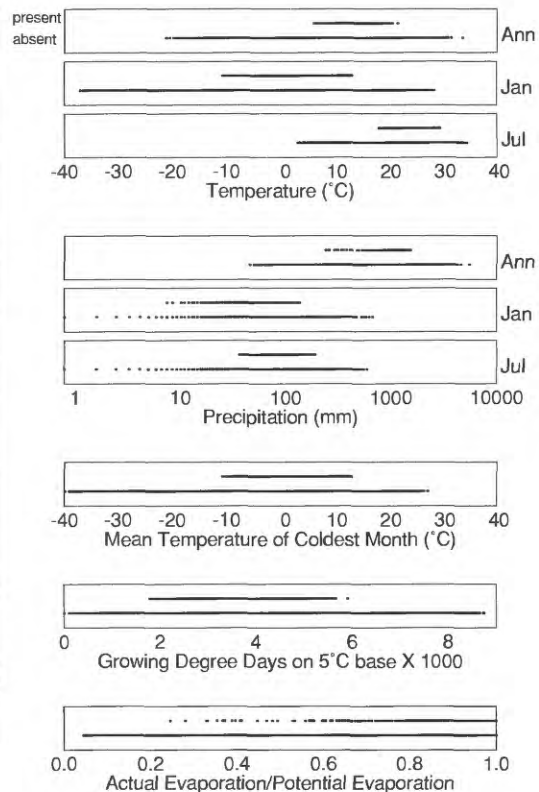
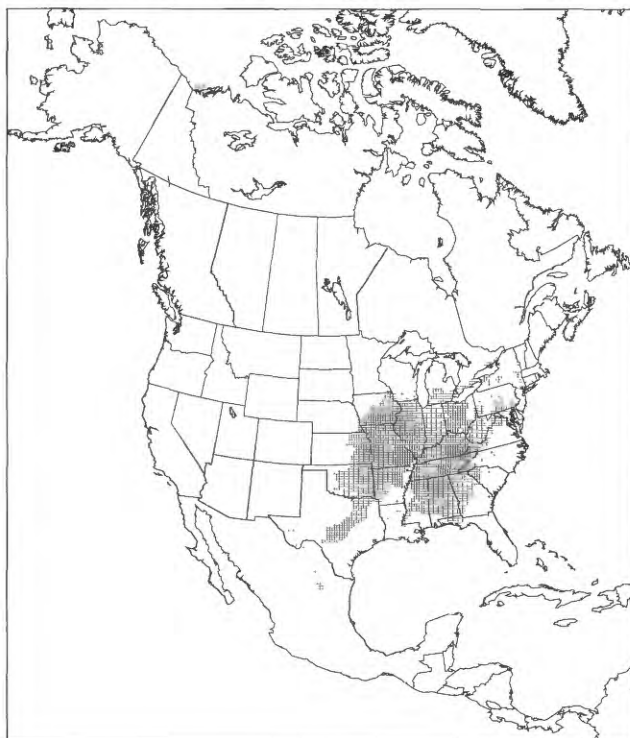
Quercus michauxii



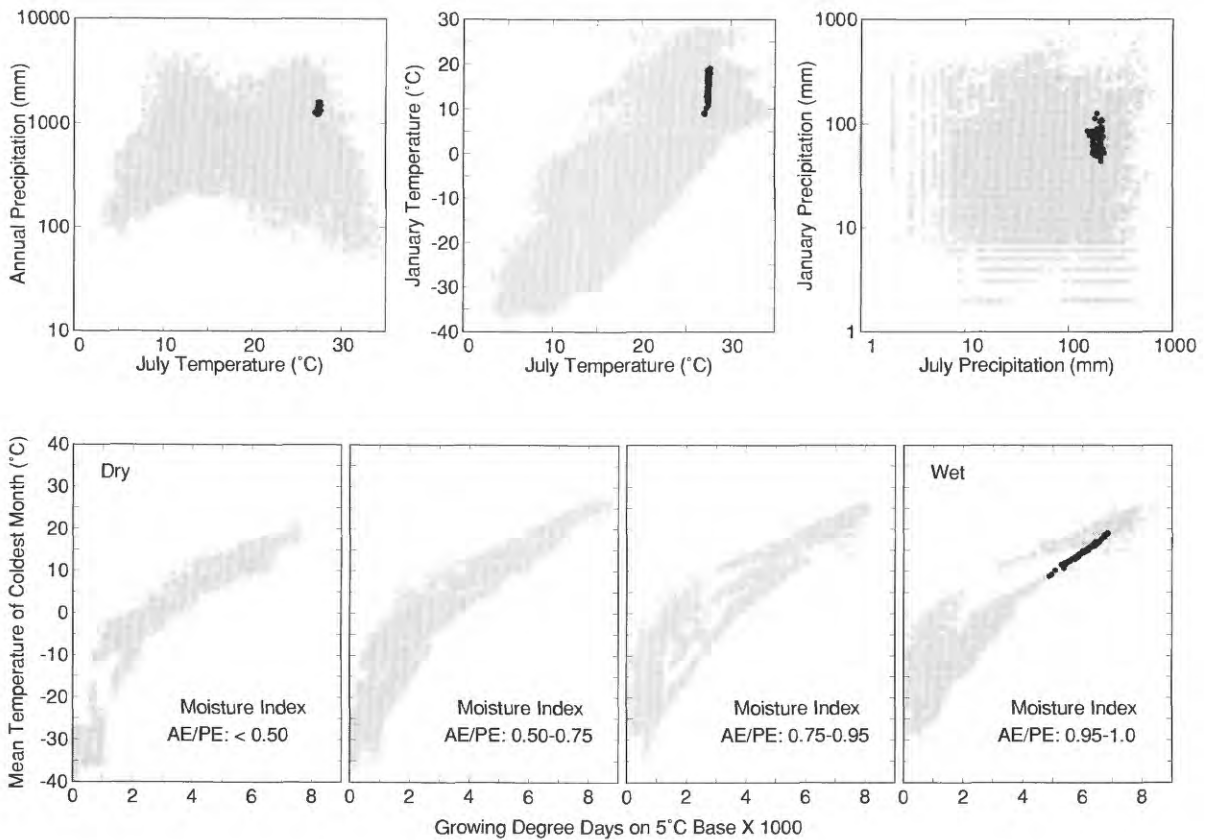
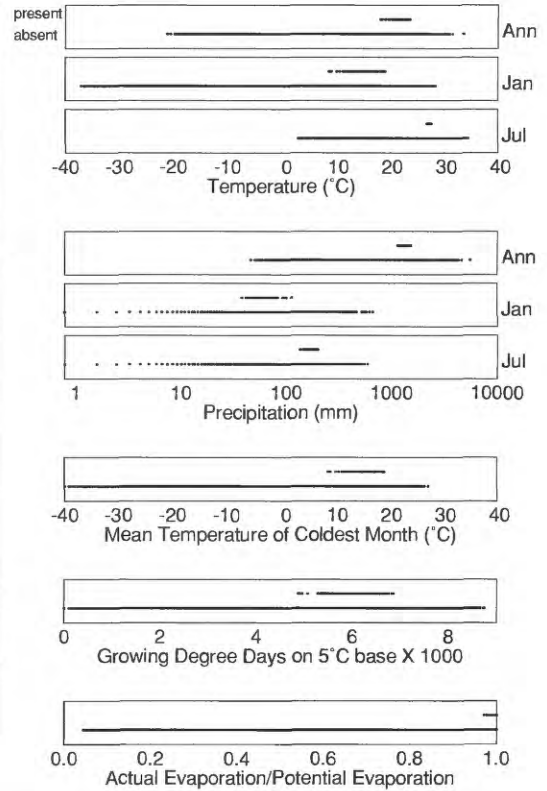
Quercus mohriana



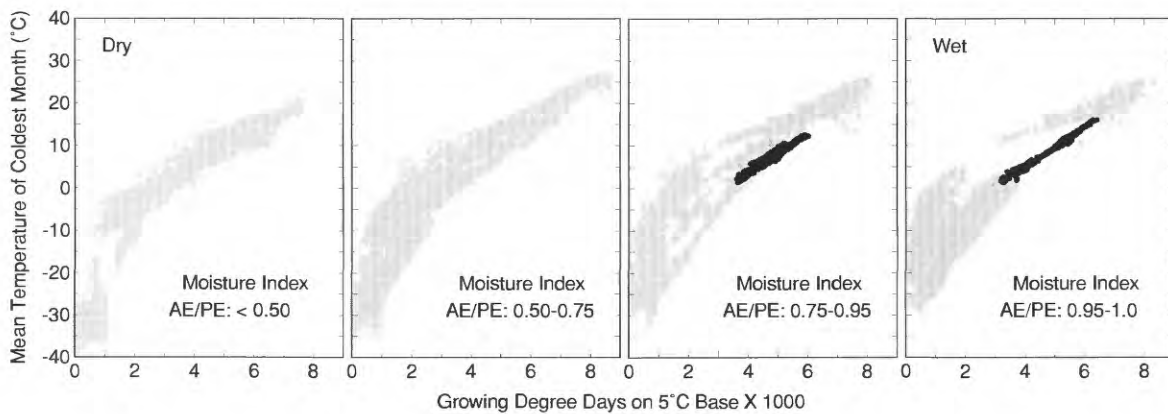
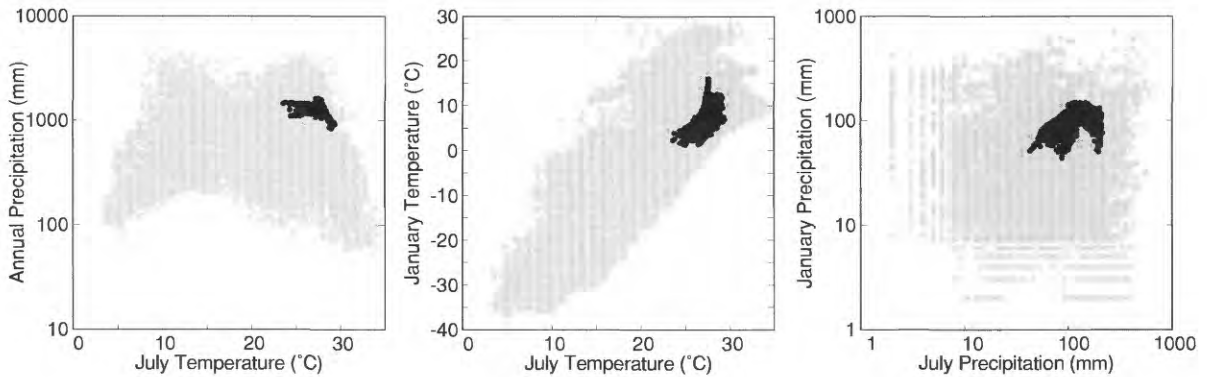
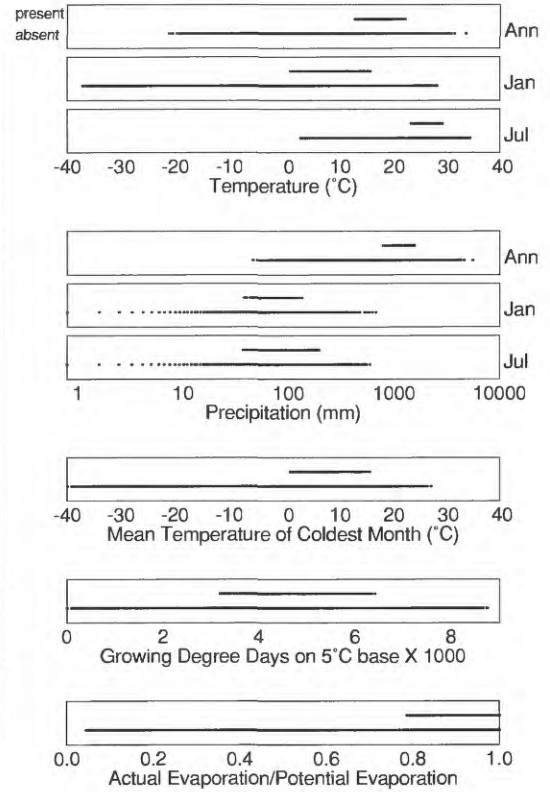
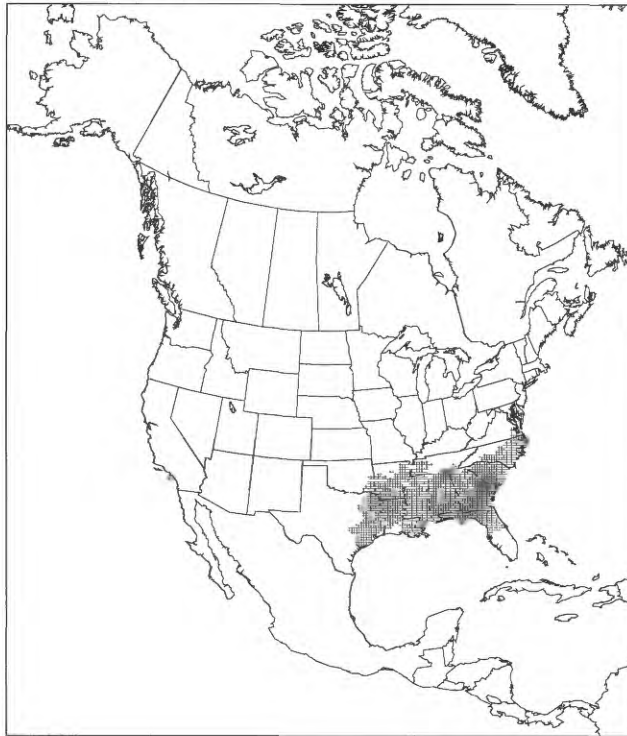
Quercus muehlenbergii



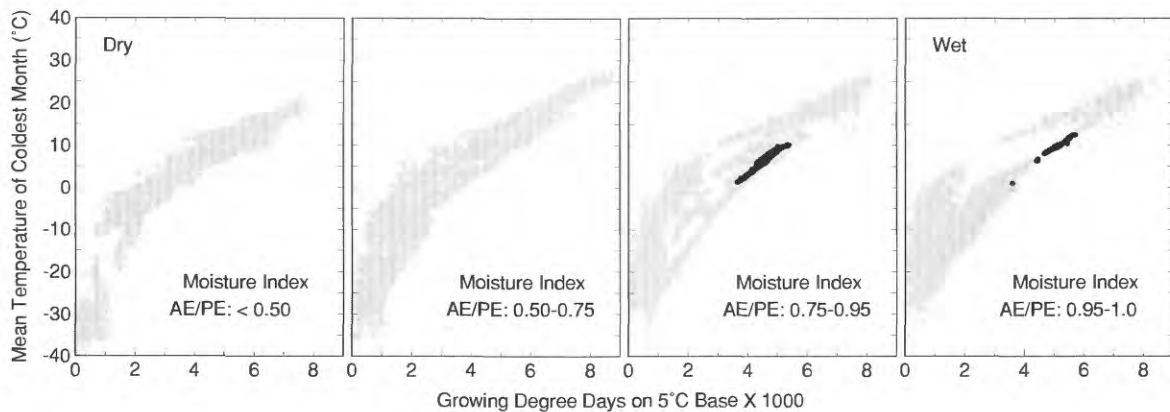
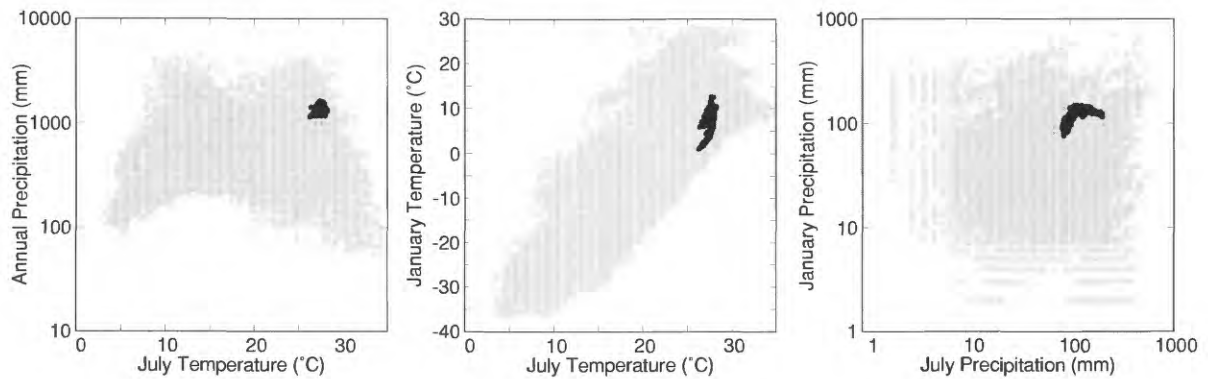
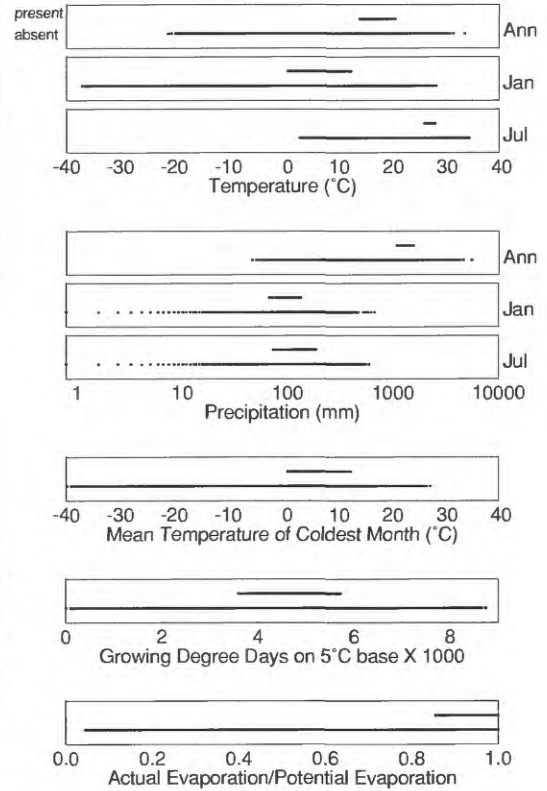
Quercus myrtifolia



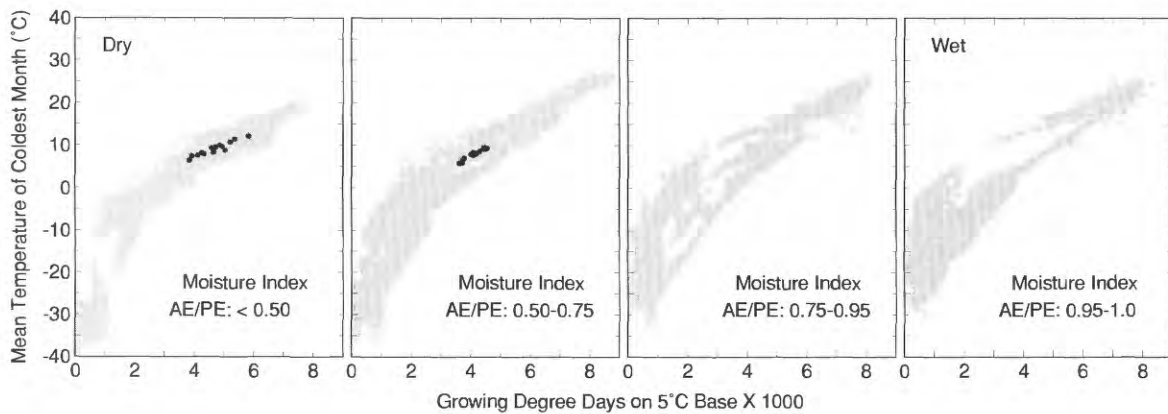
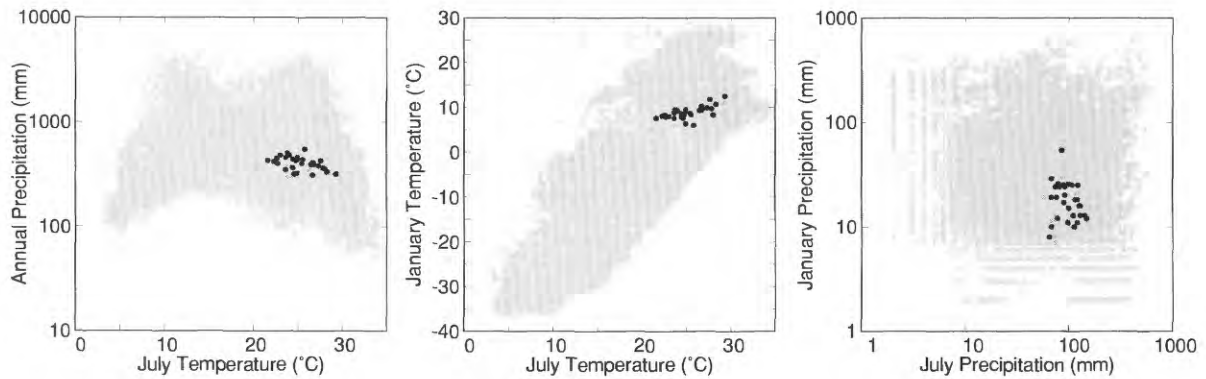
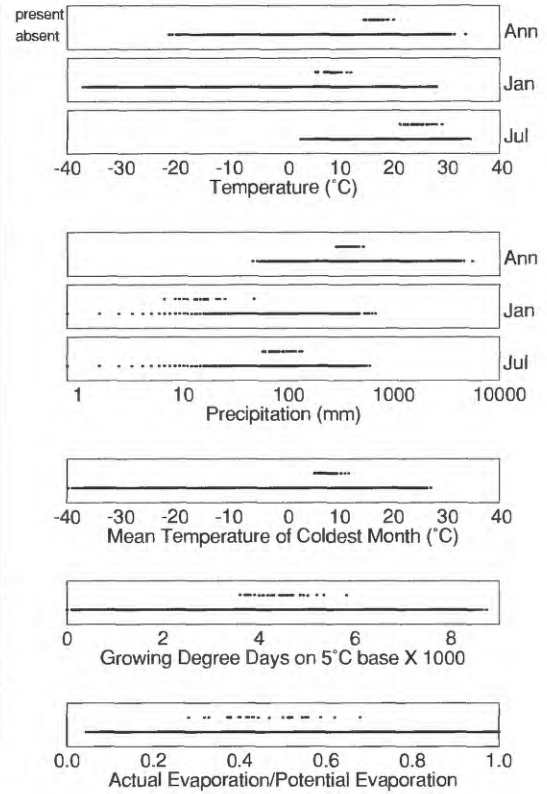
Quercus nigra



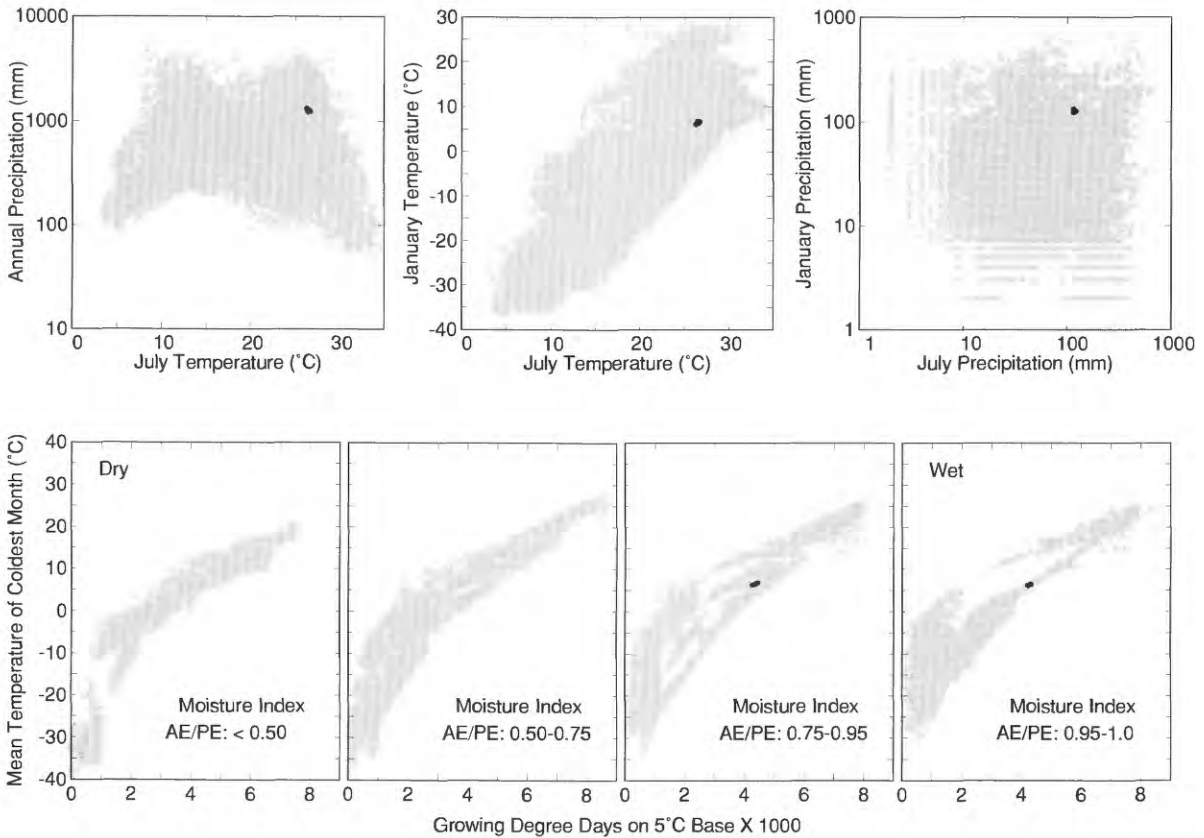
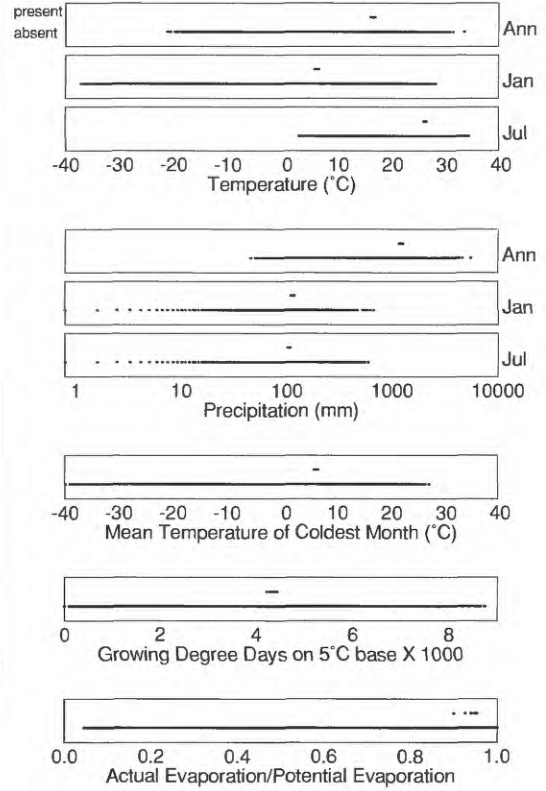
Quercus nuttallii



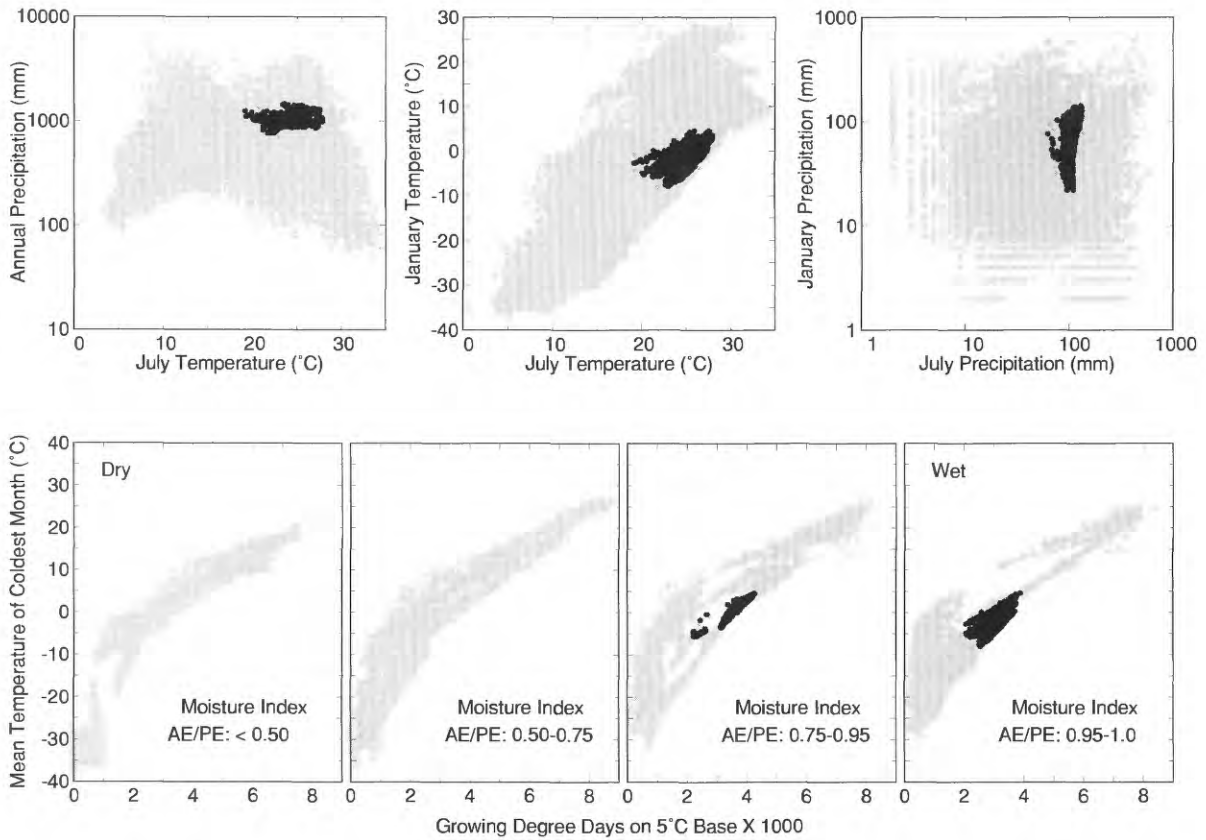
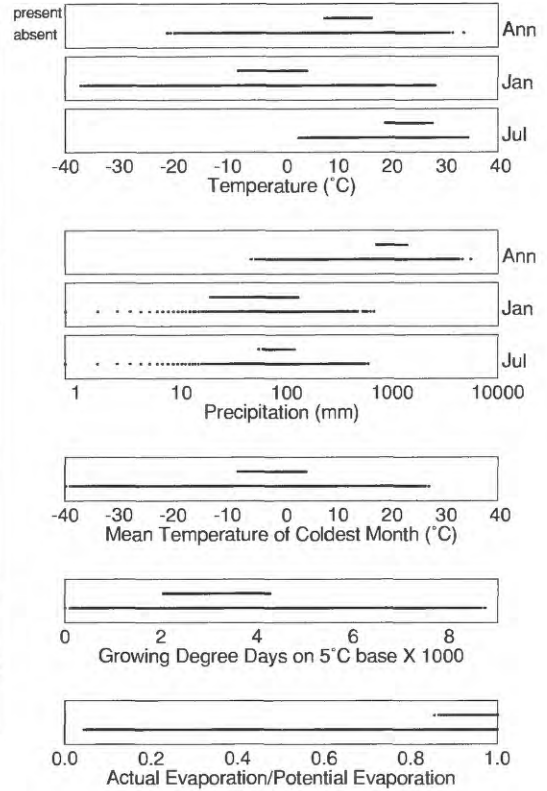
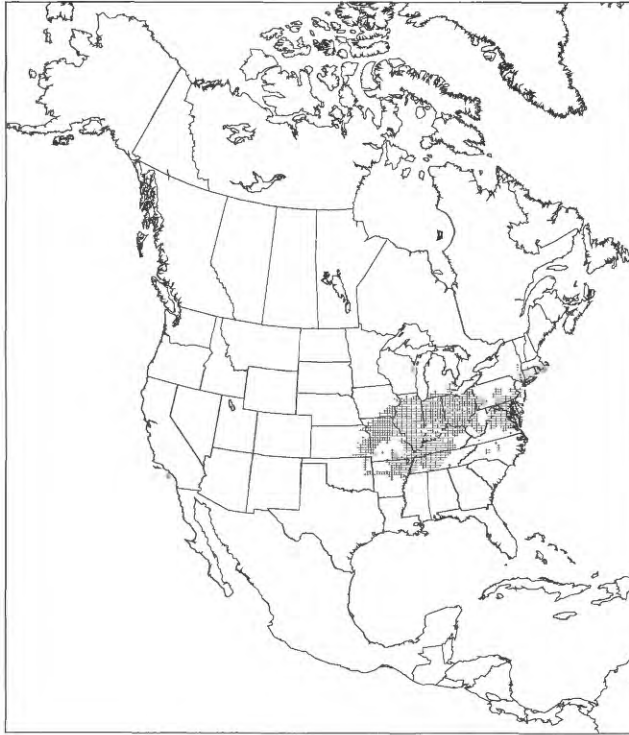
Quercus oblongifolia



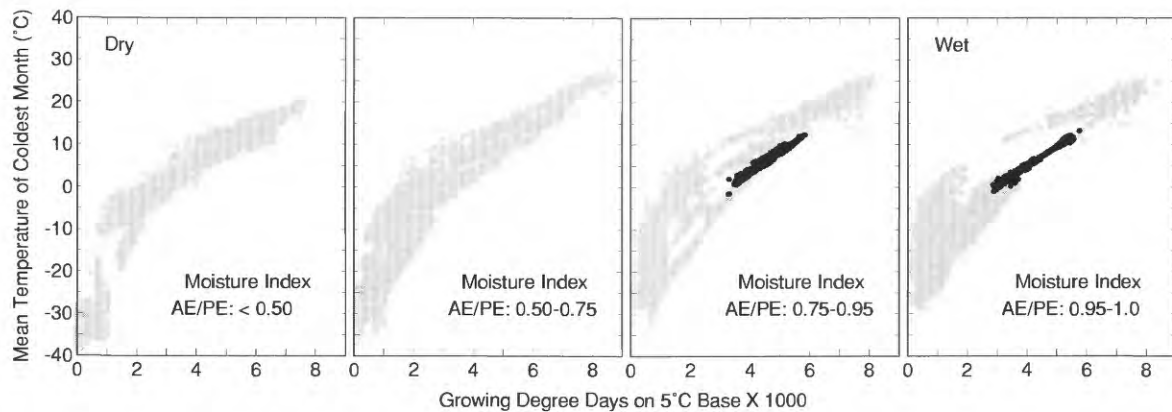
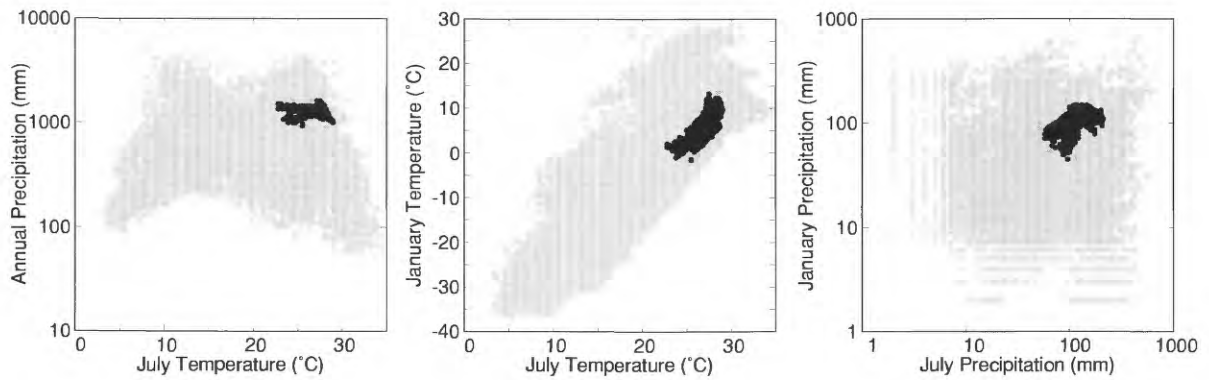
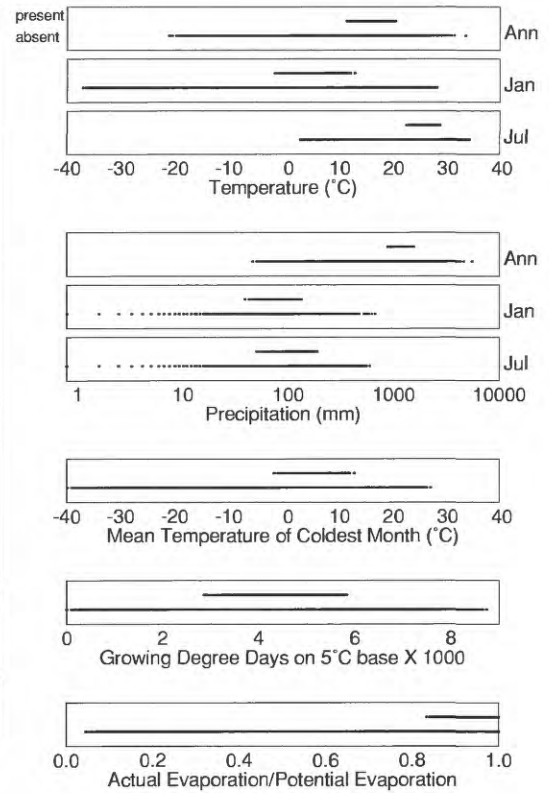
Quercus oglethorpensis



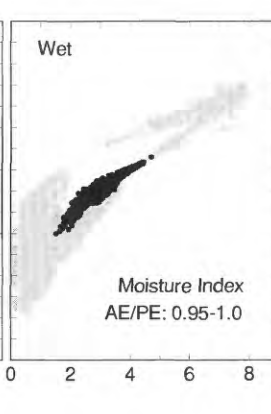
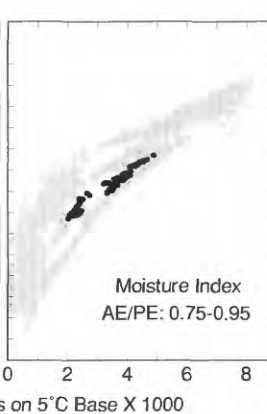
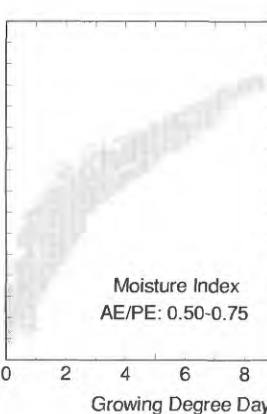
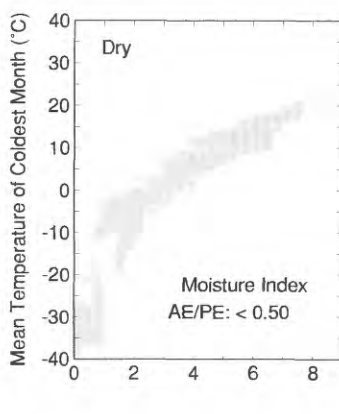
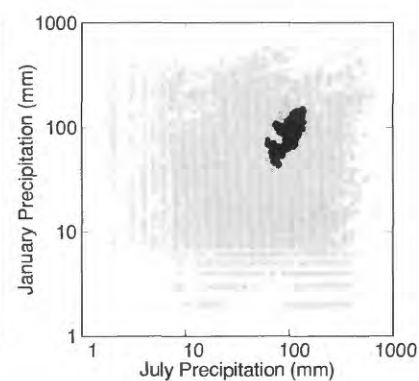
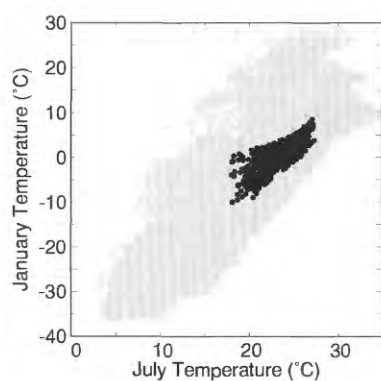
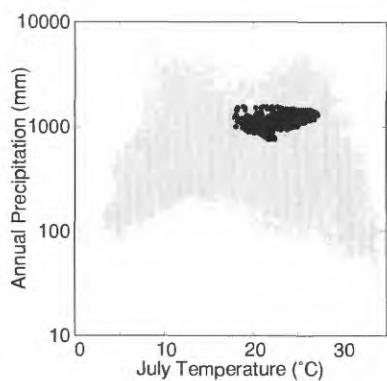
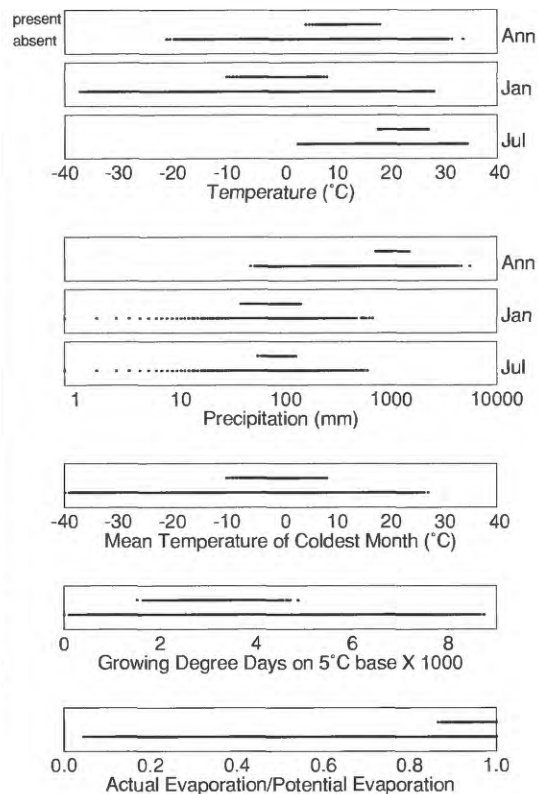
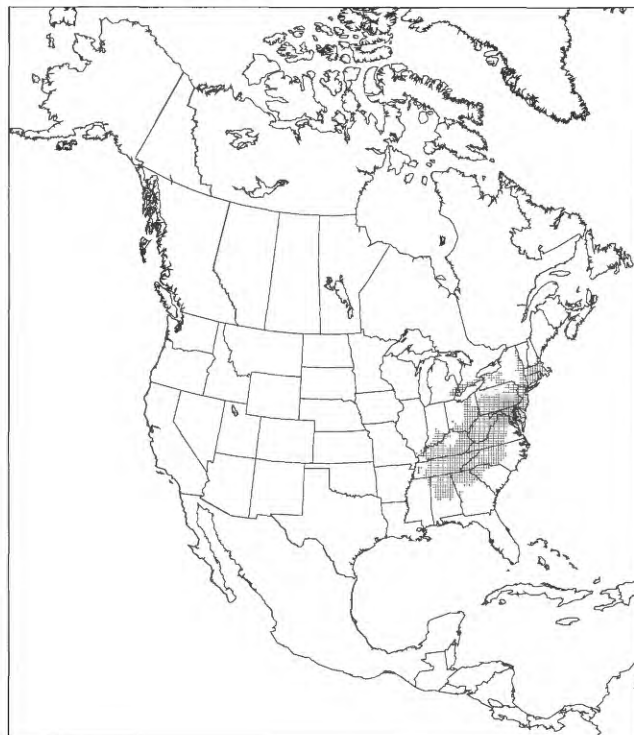
Quercus palustris



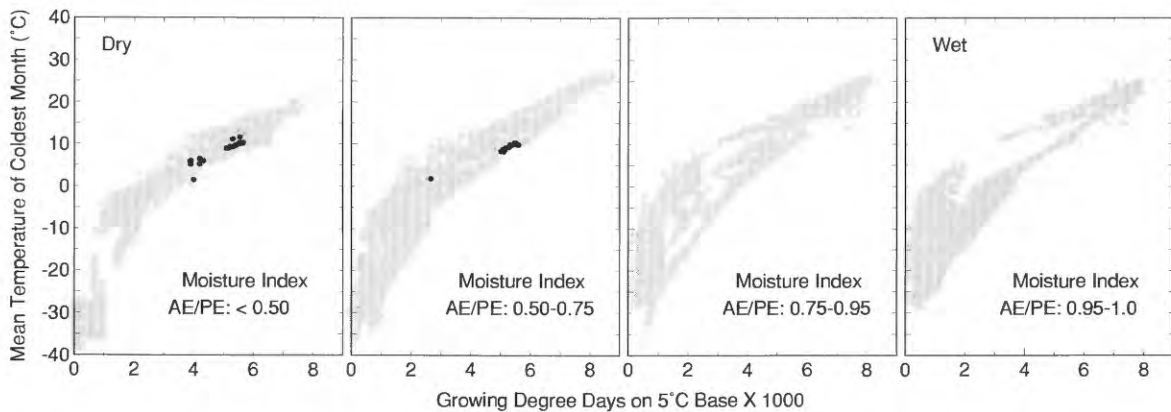
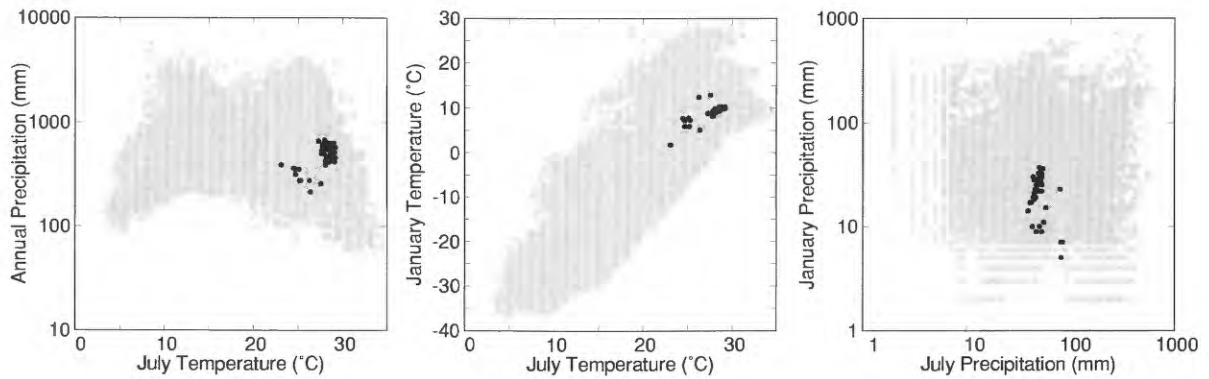
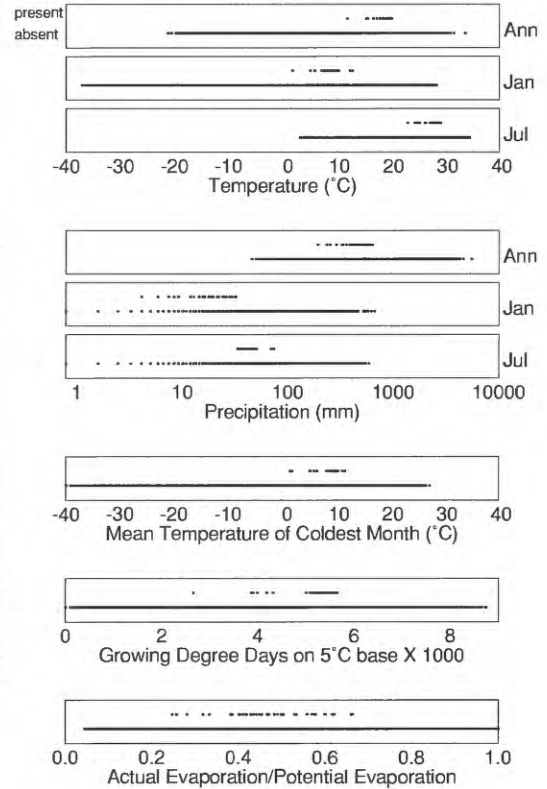
Quercus phellos



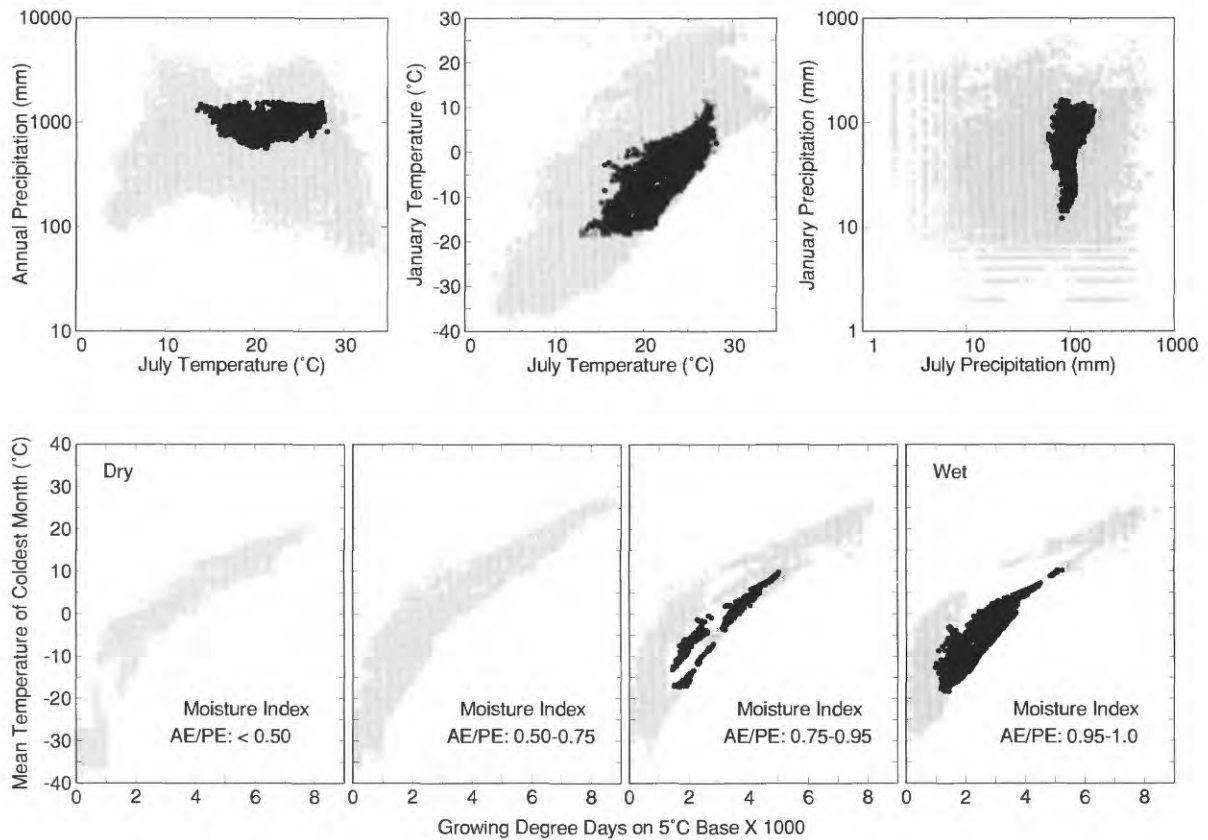
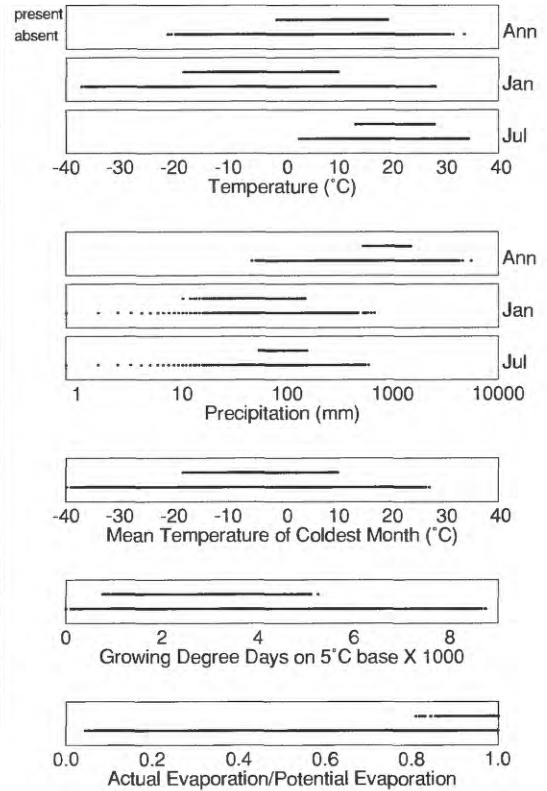
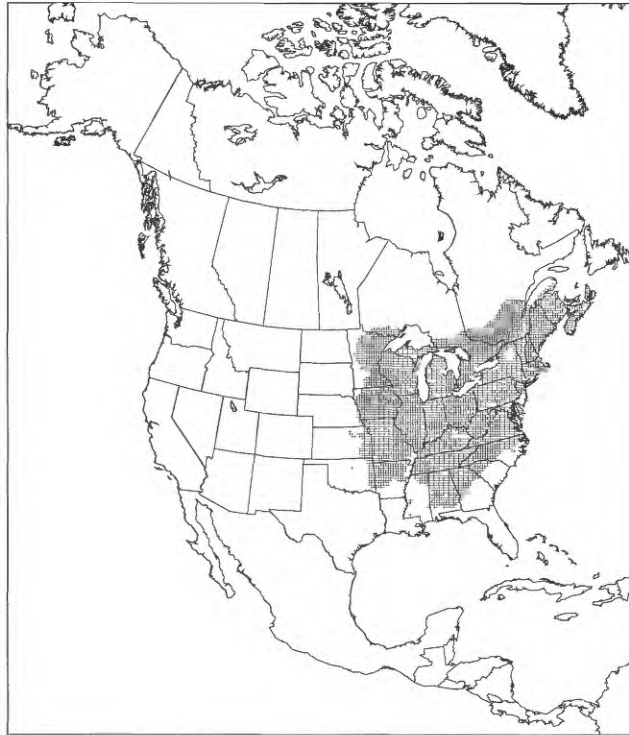
Quercus prinus



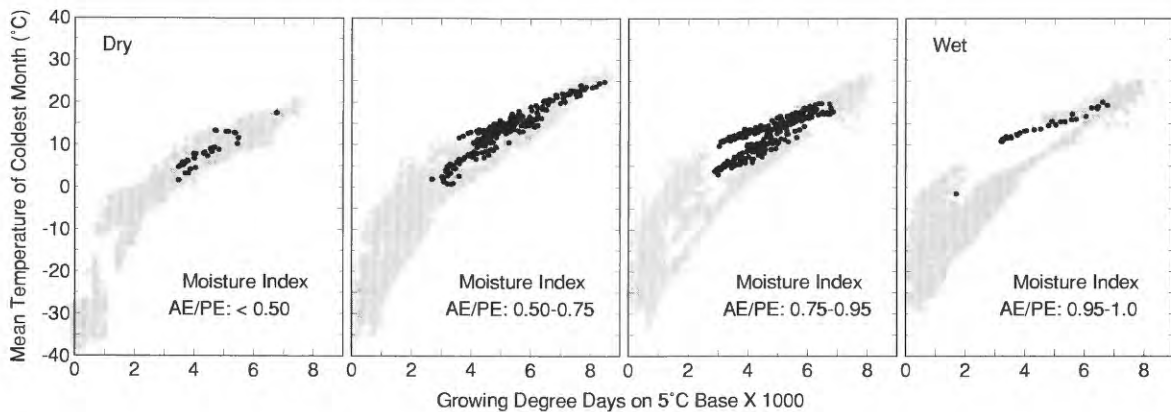
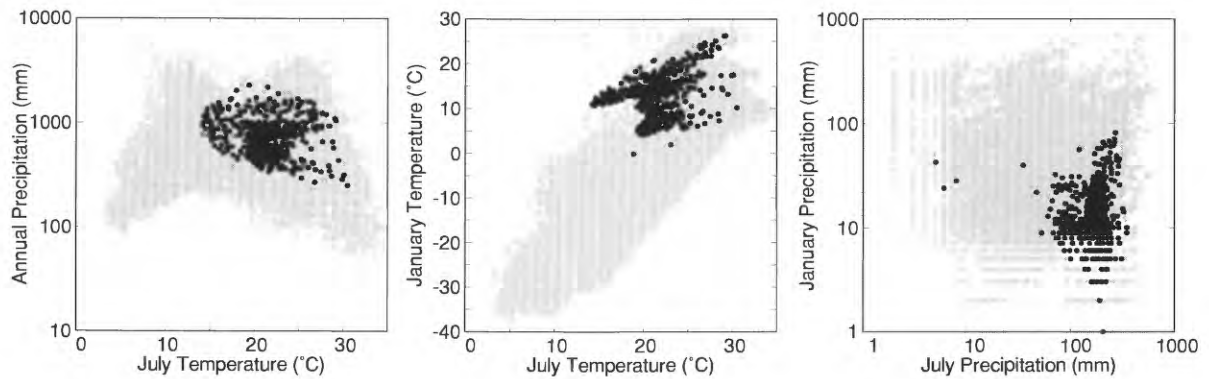
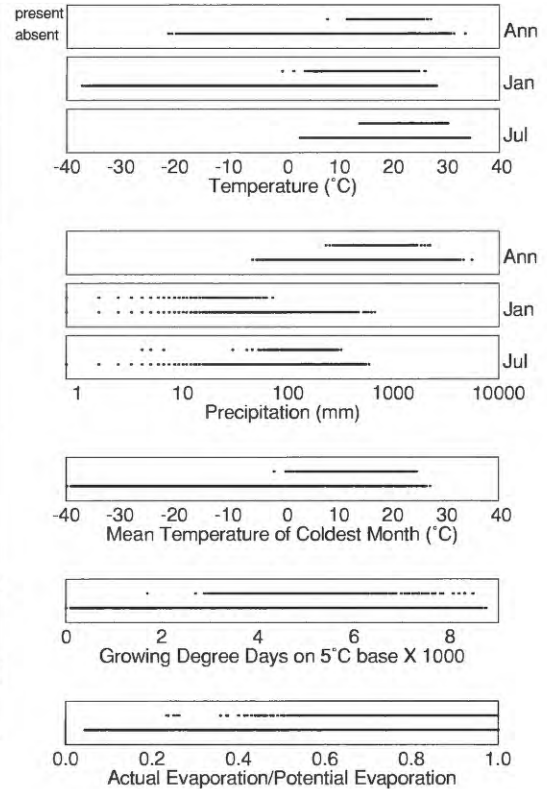
Quercus pungens



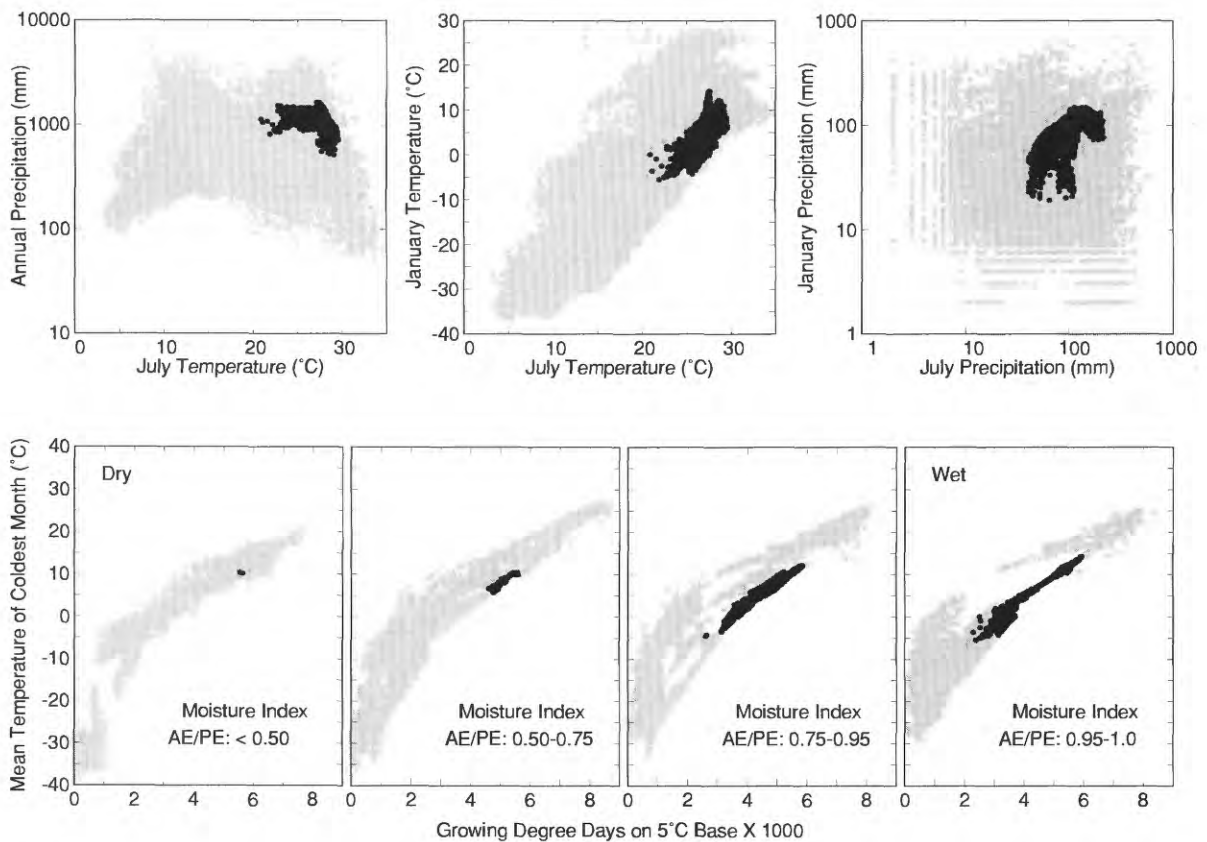
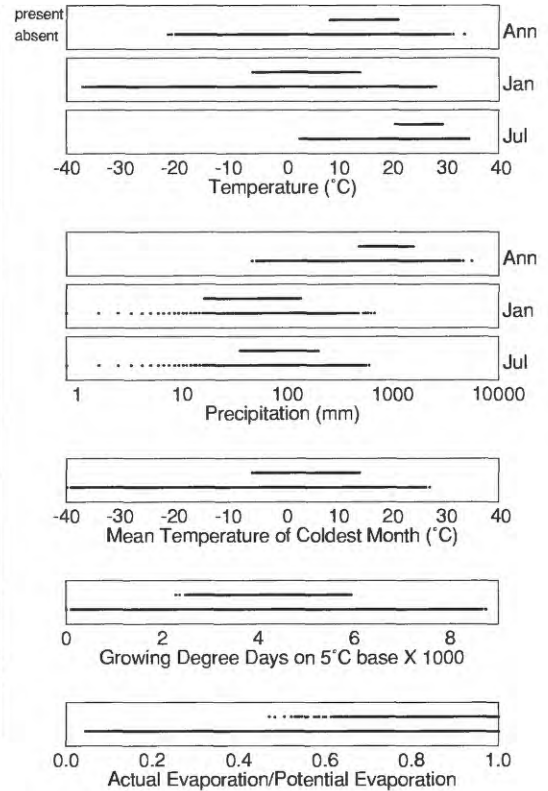
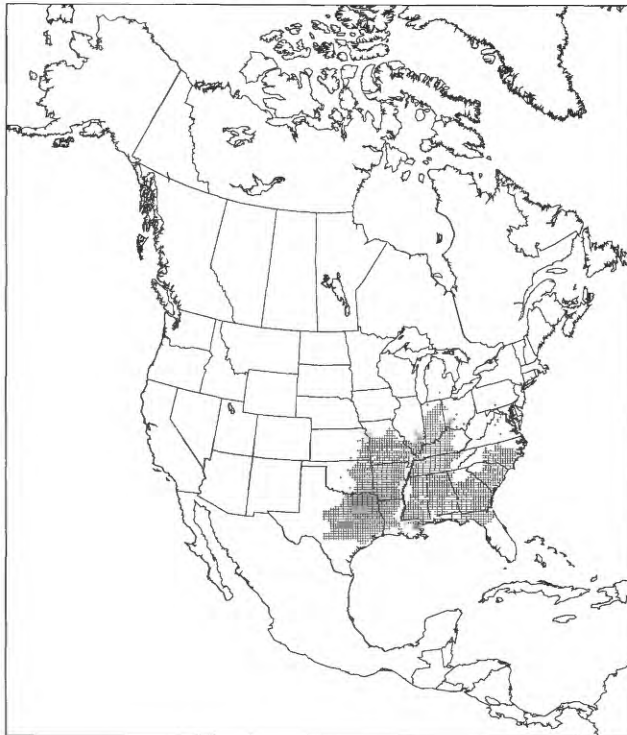
Quercus rubra



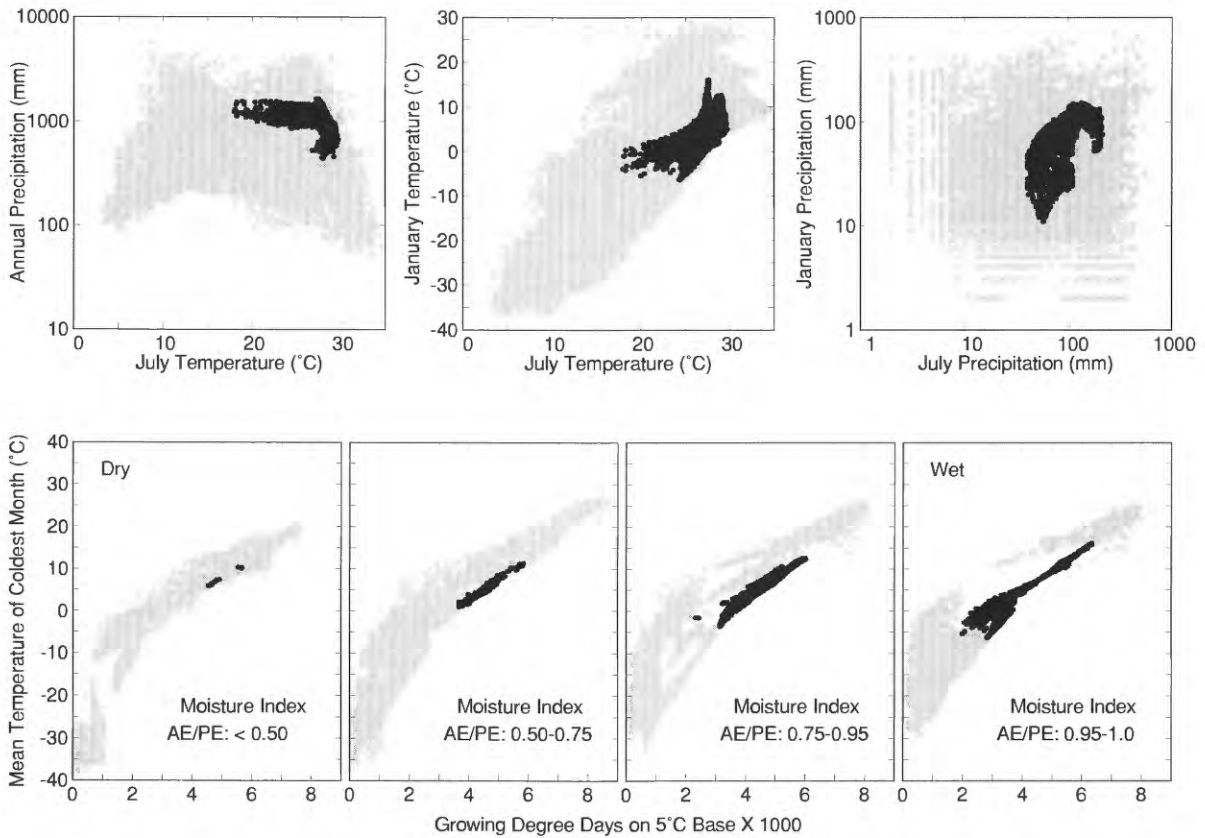
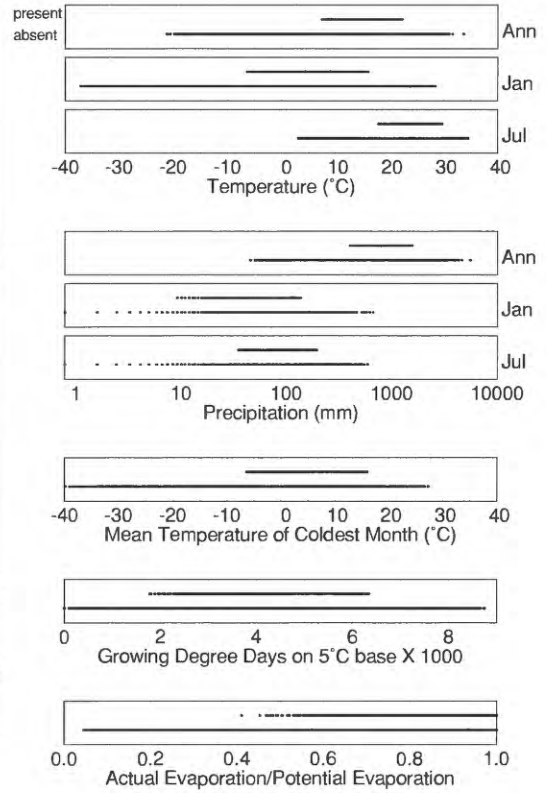
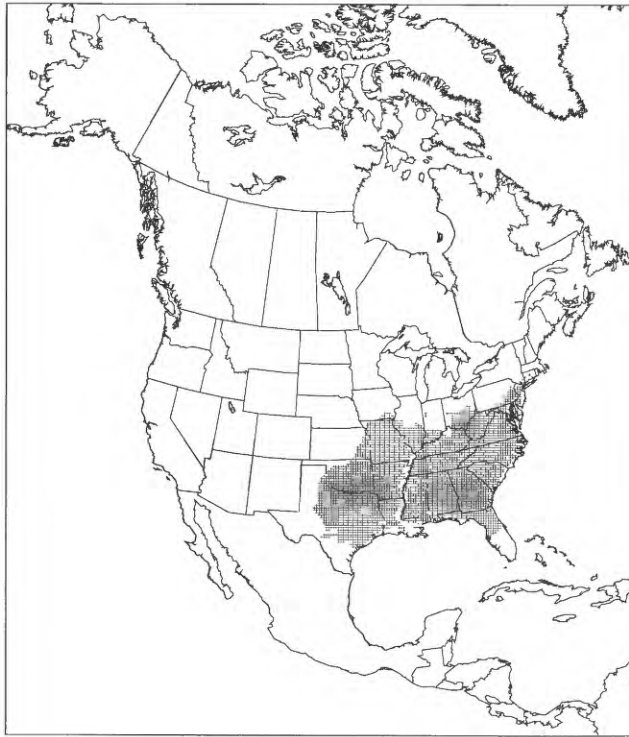
Quercus rugosa



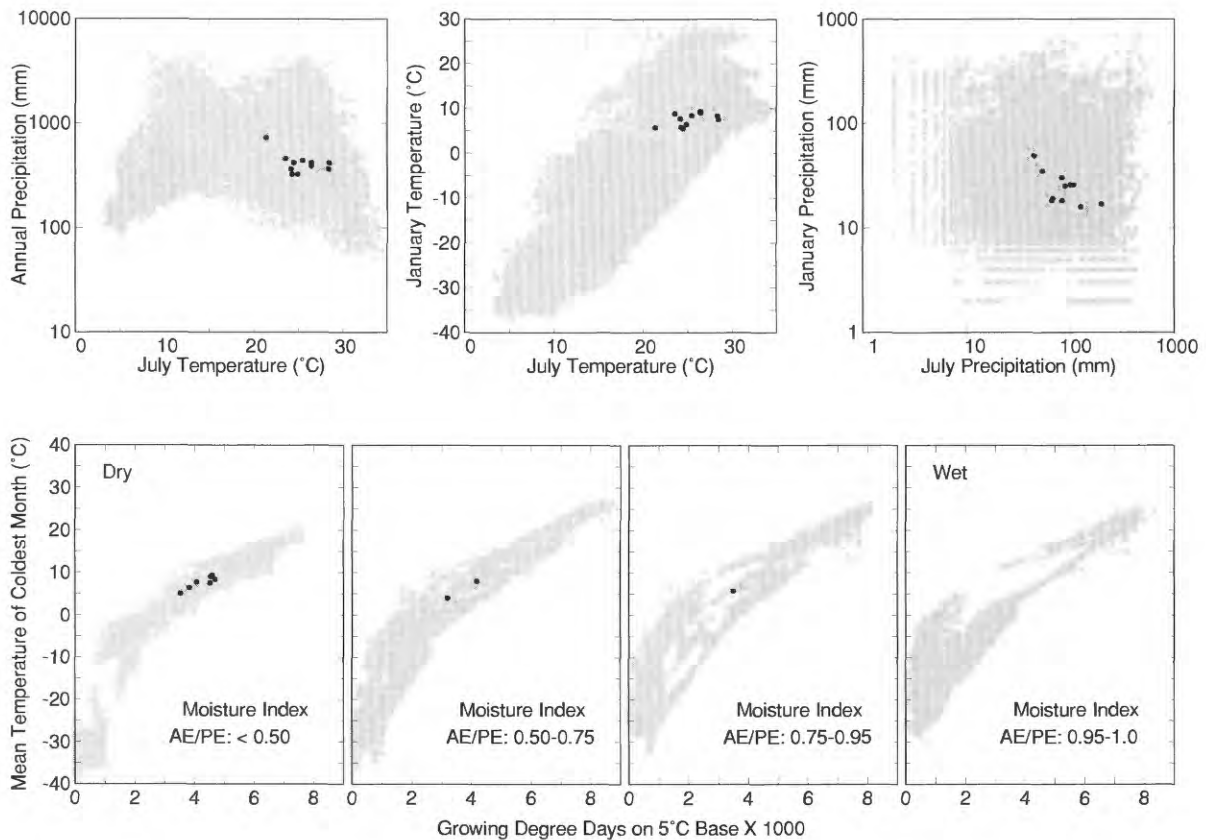
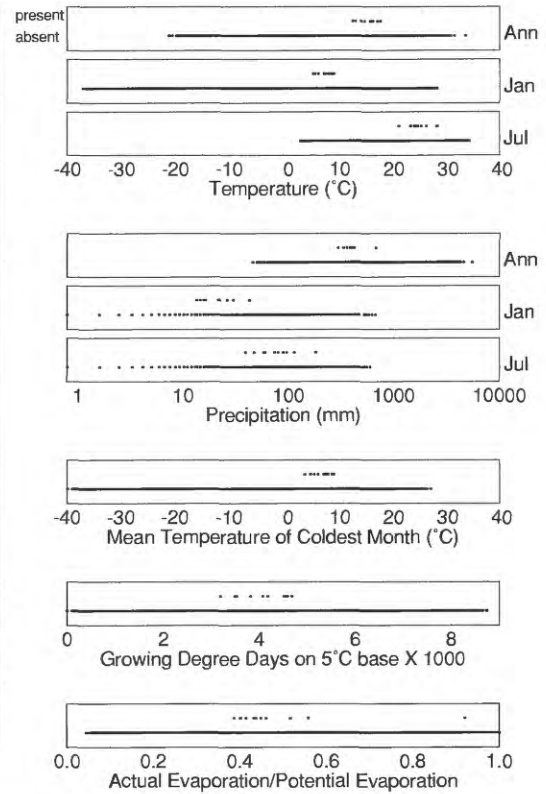
Quercus shumardii



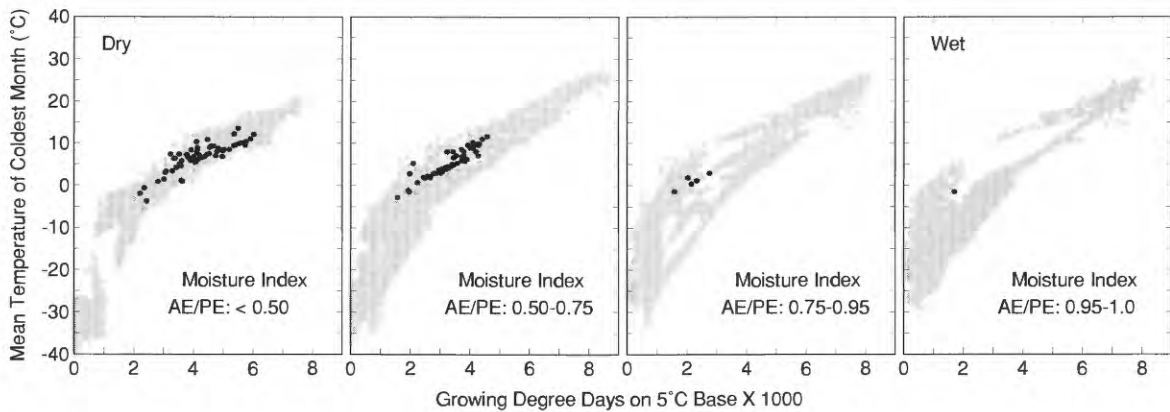
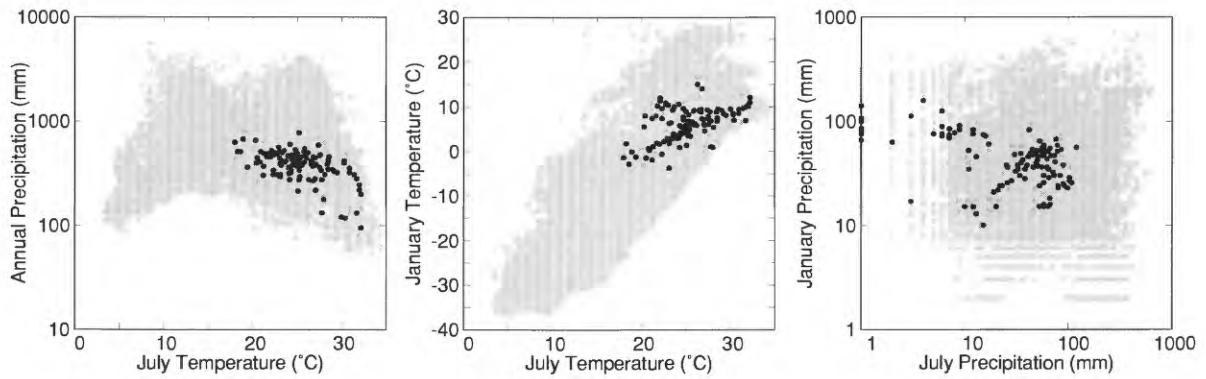
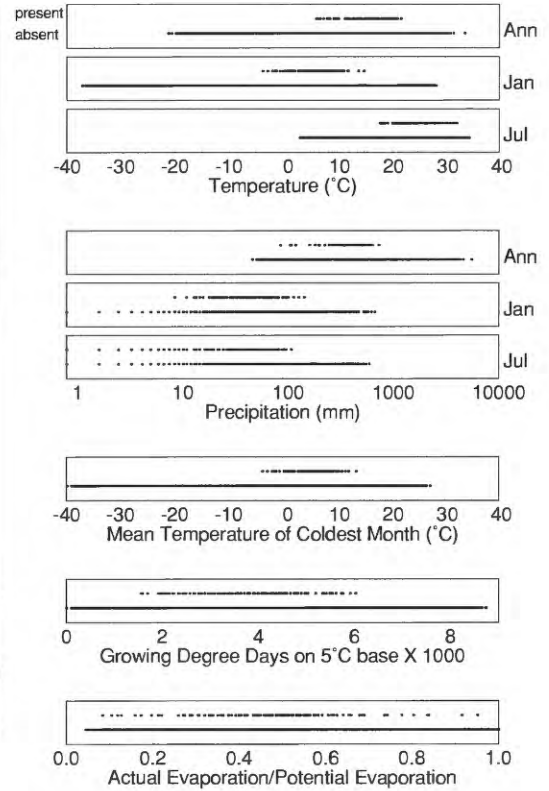
Quercus stellata



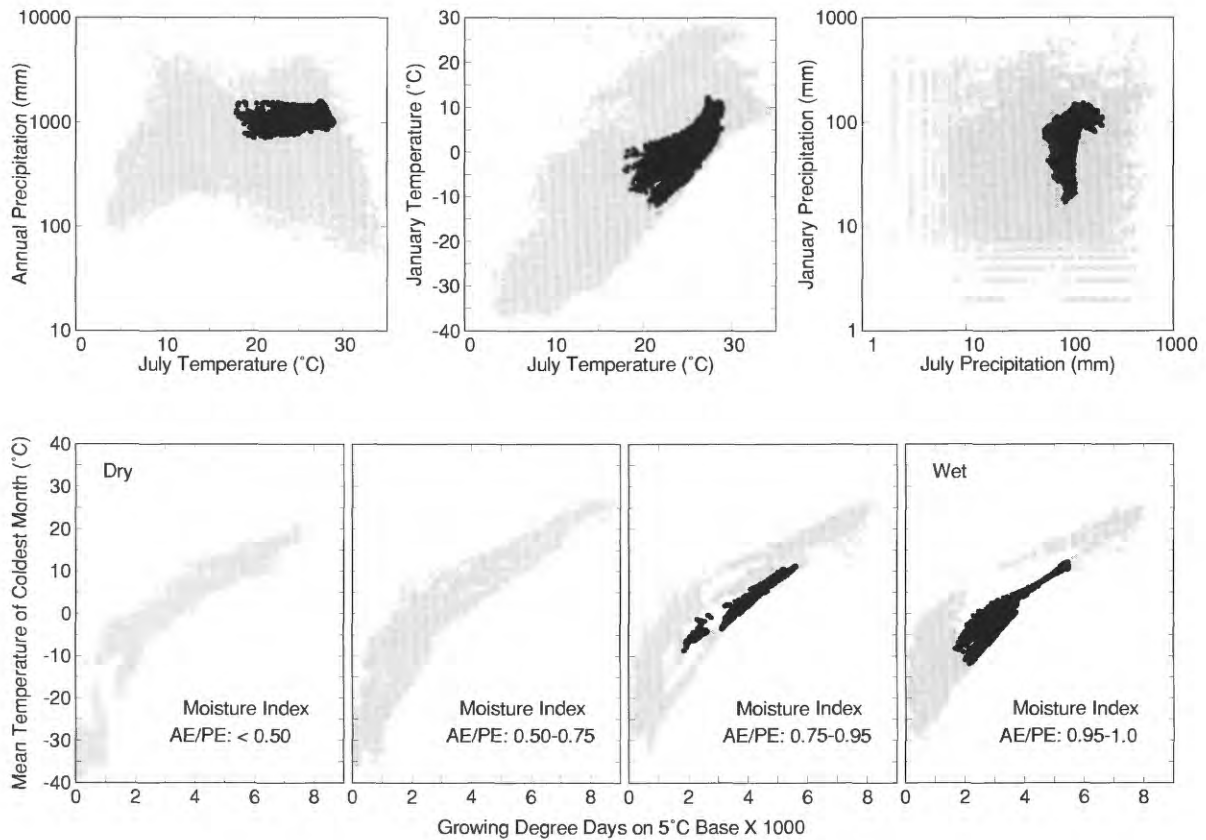
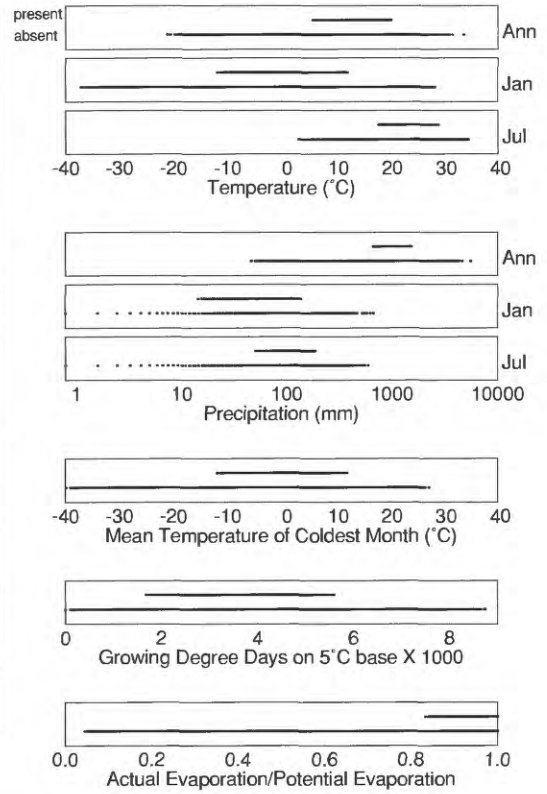
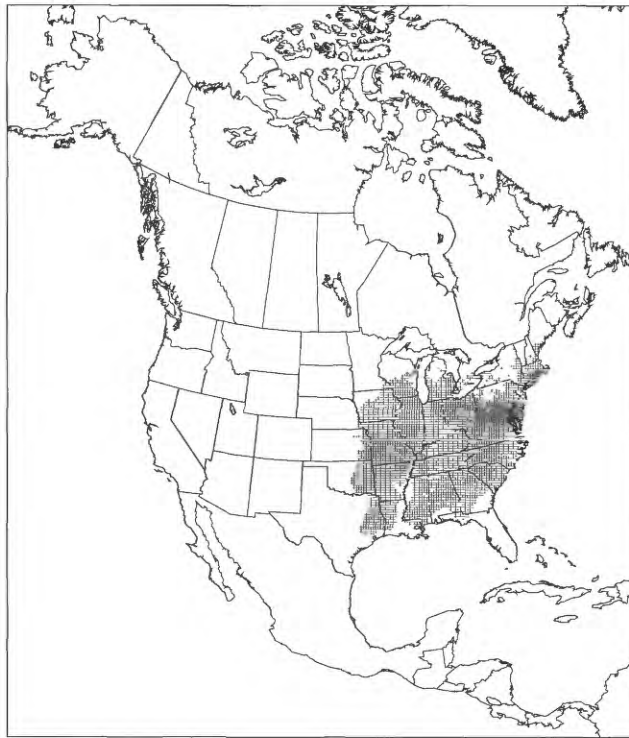
Quercus toumeyi



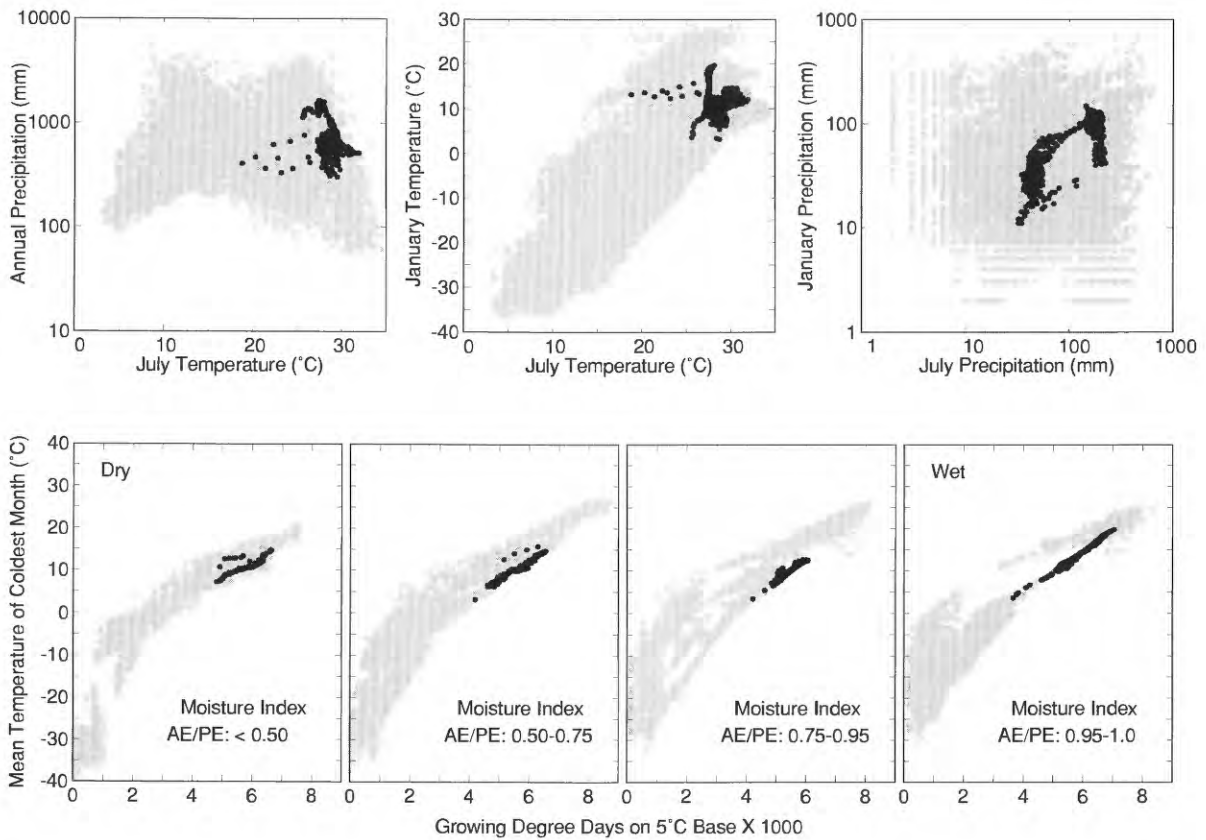
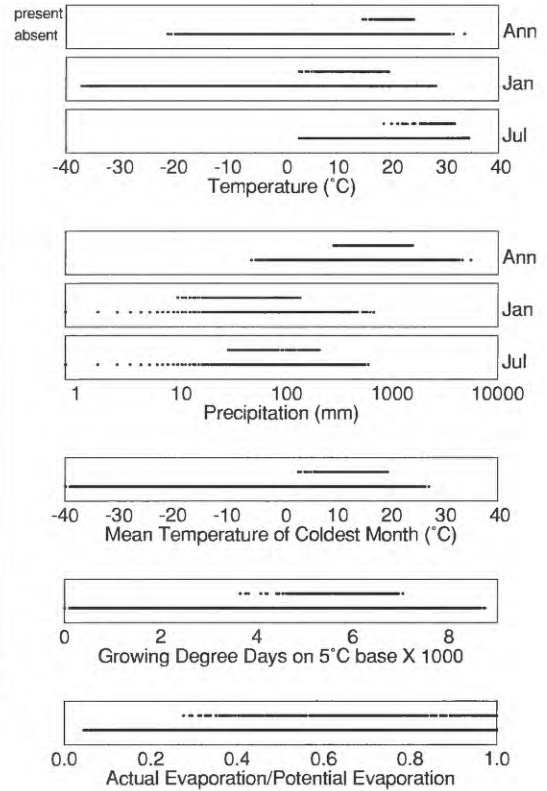
Quercus turbinella



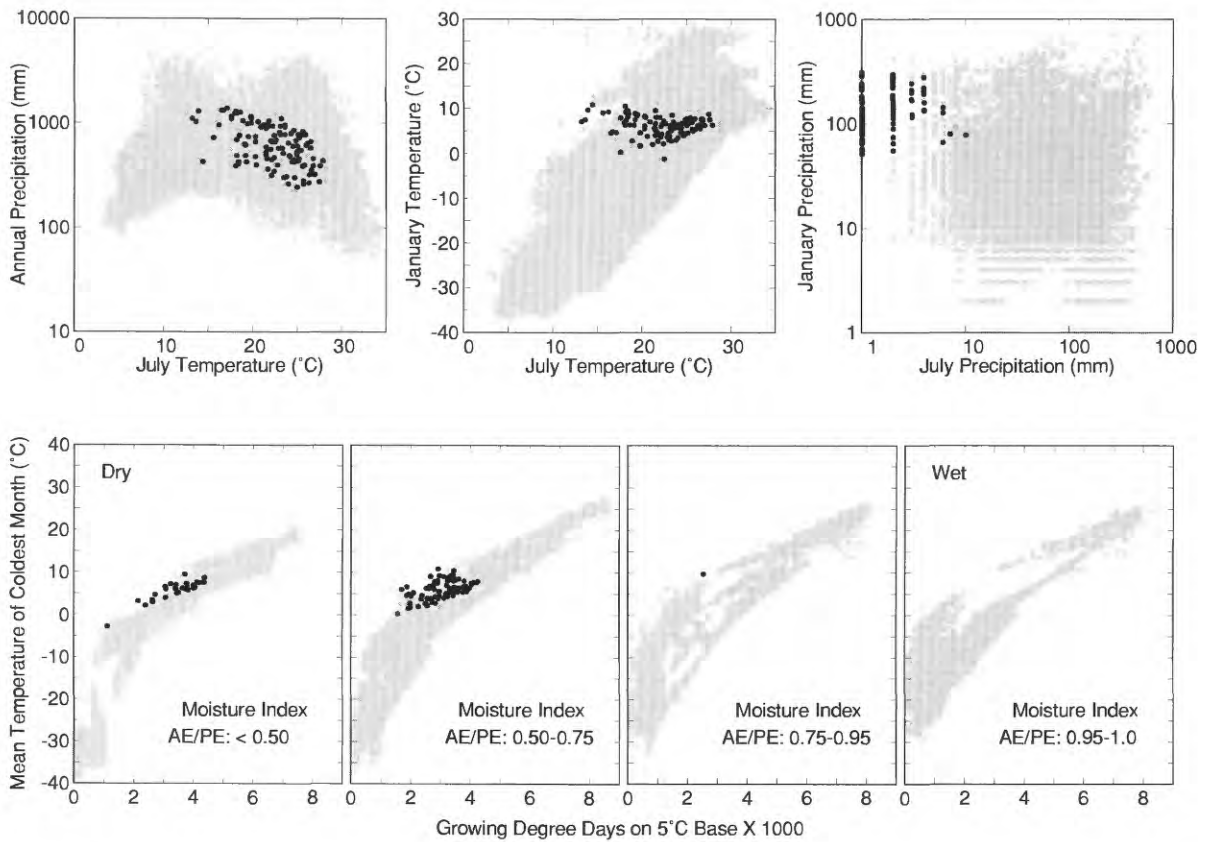
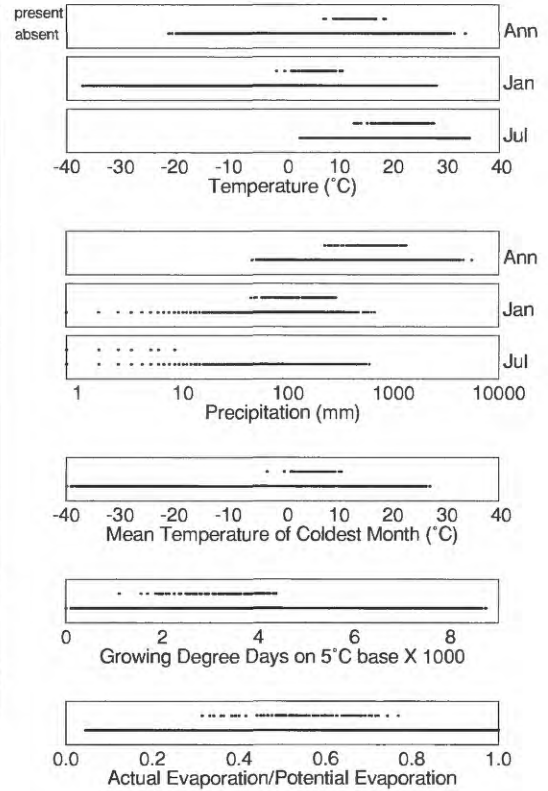
Quercus velutina



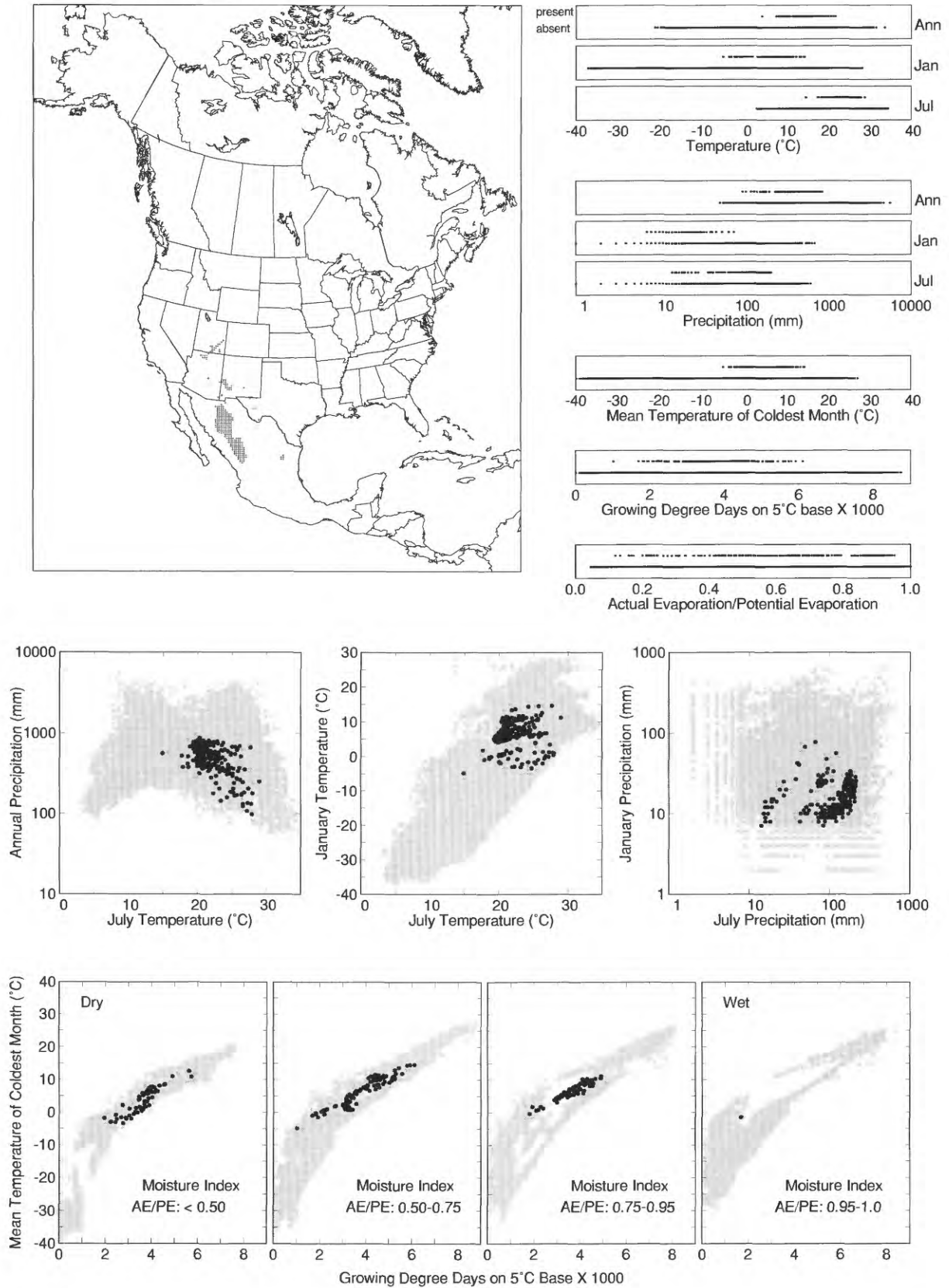
Quercus virginiana



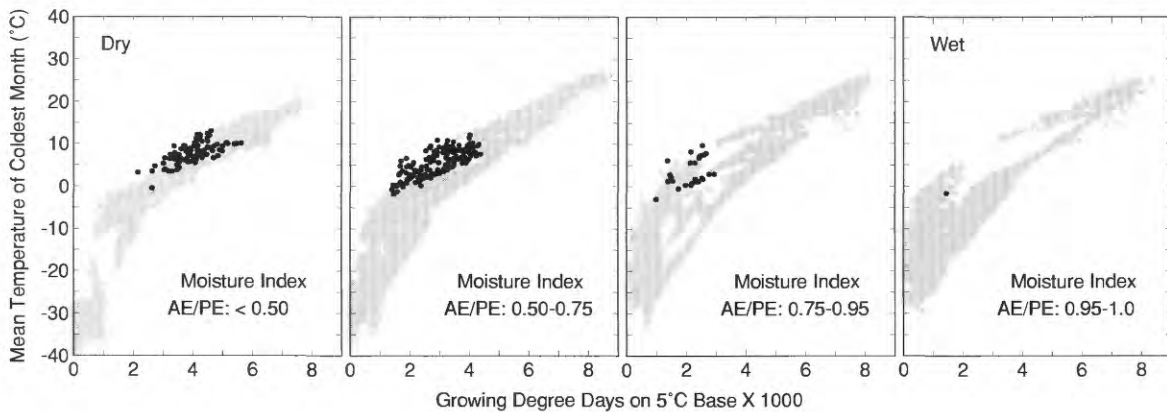
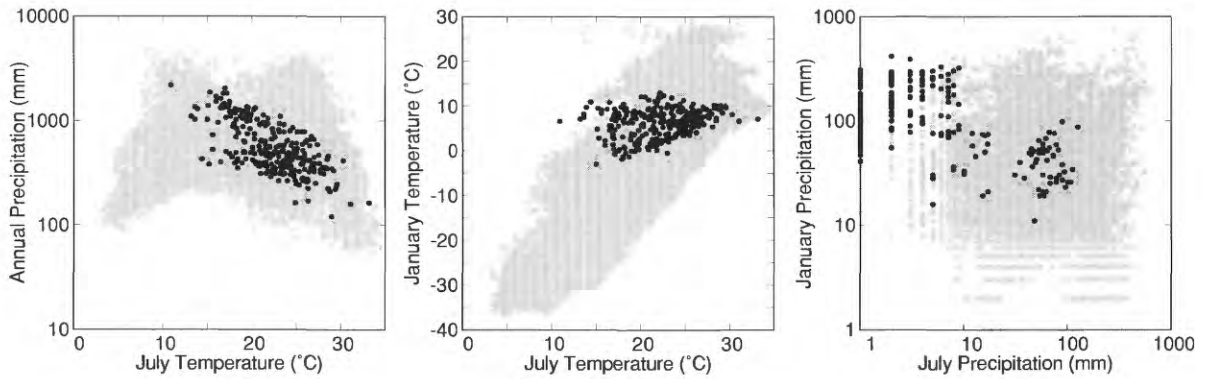
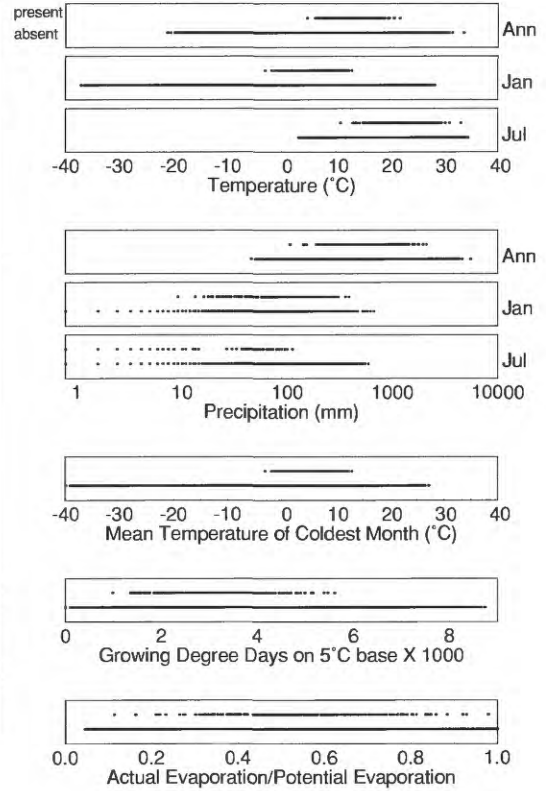
Quercus wislizeni



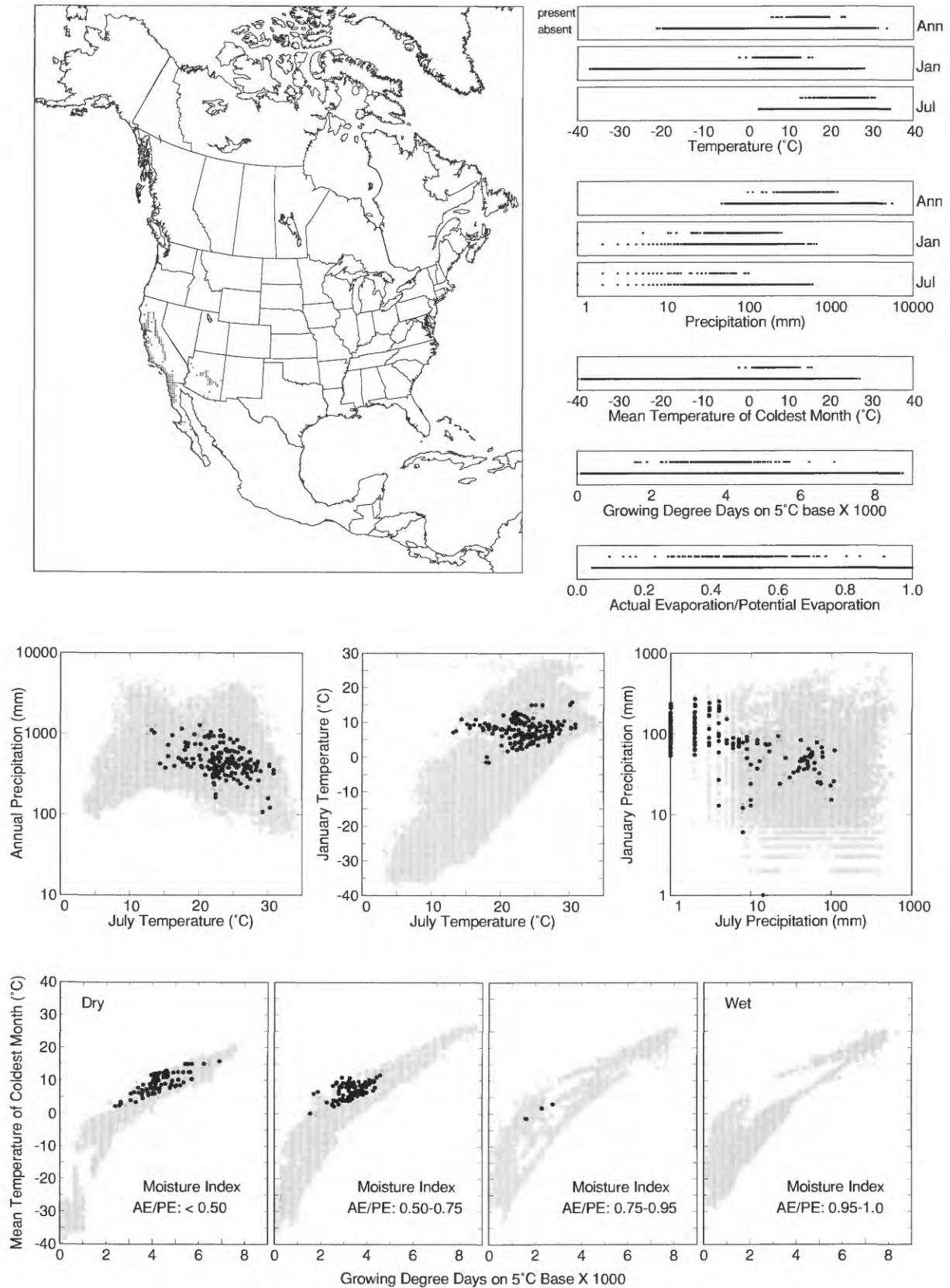
Rhamnus betulaefolia



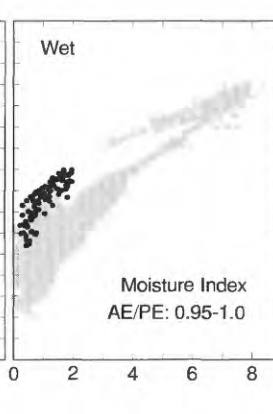
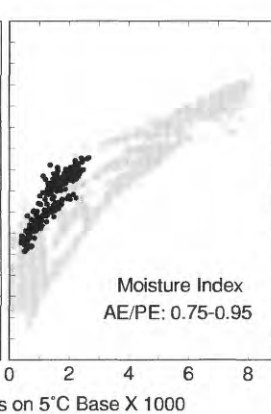
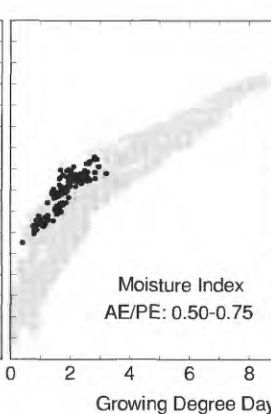
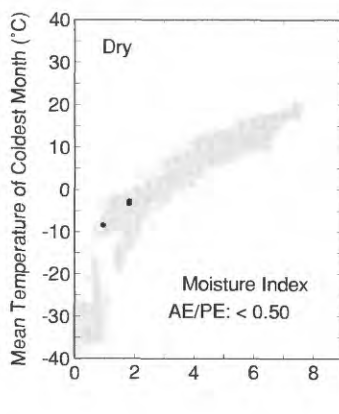
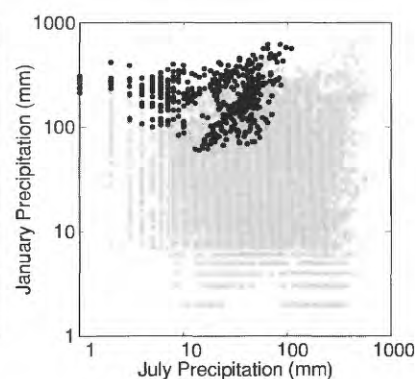
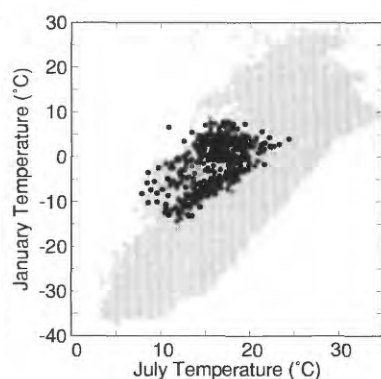
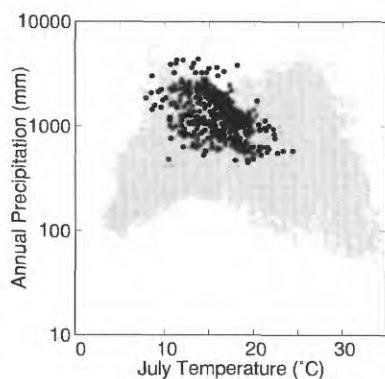
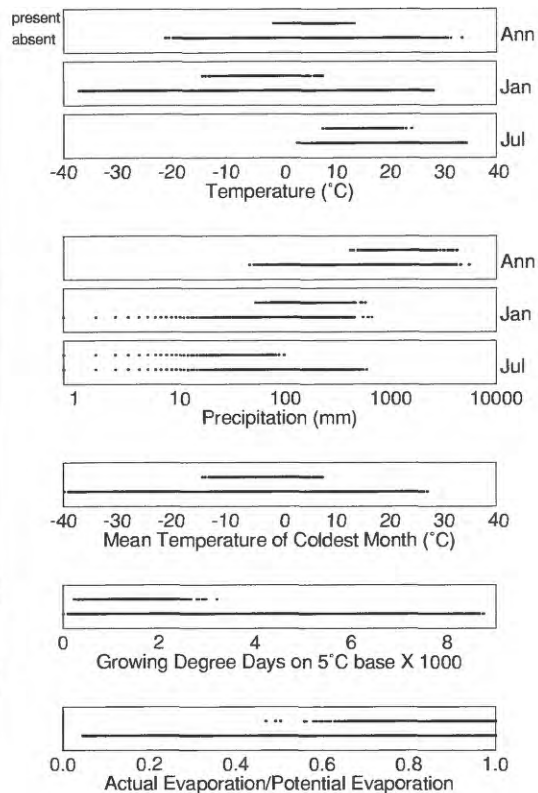
Rhamnus californica



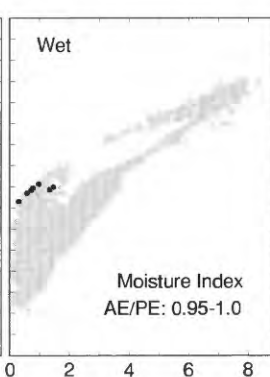
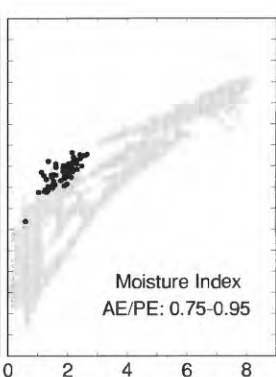
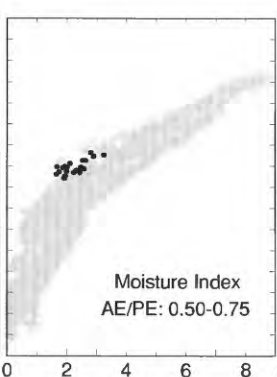
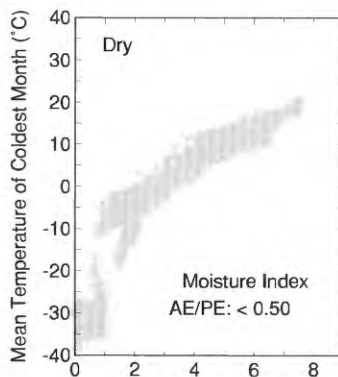
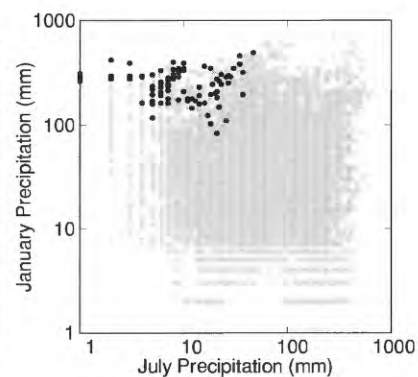
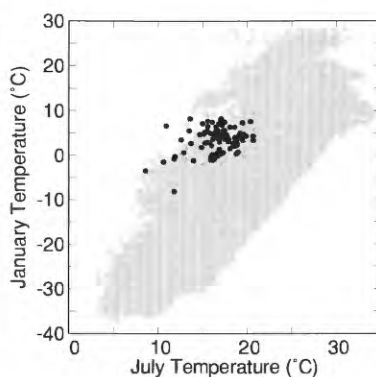
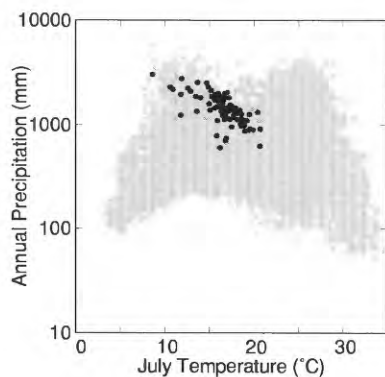
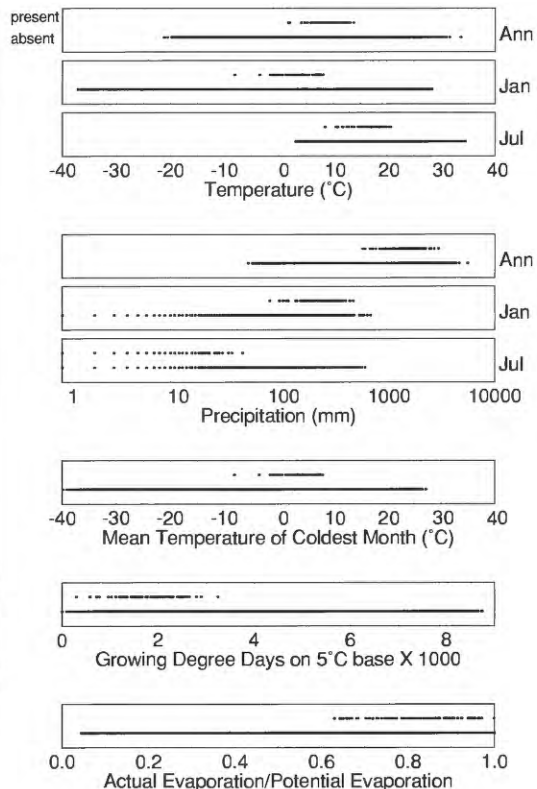
Rhamnus crocea



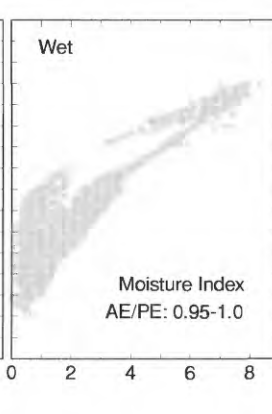
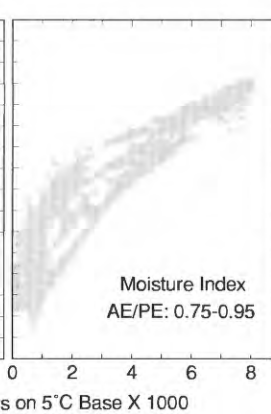
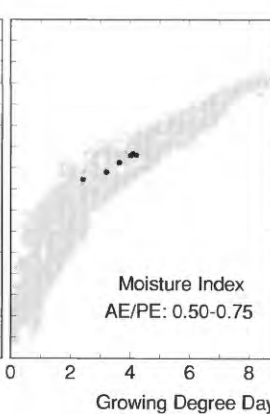
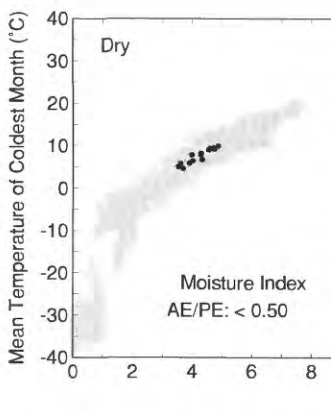
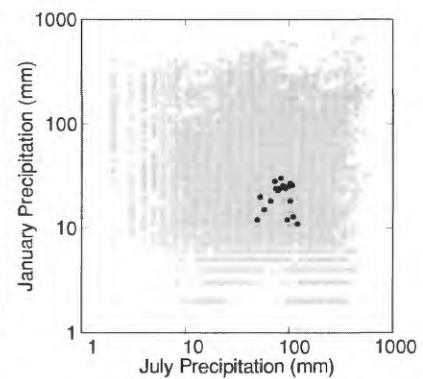
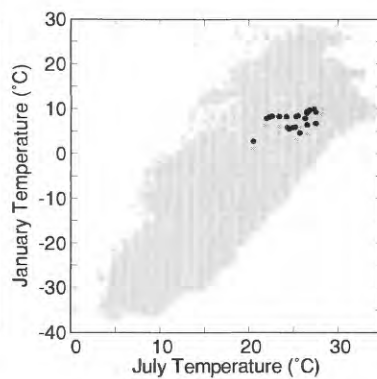
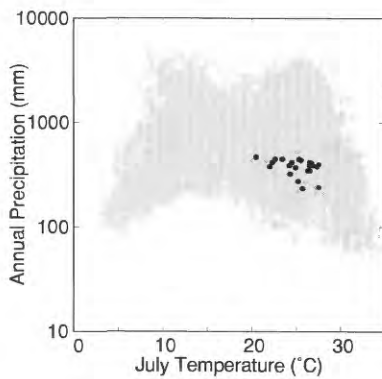
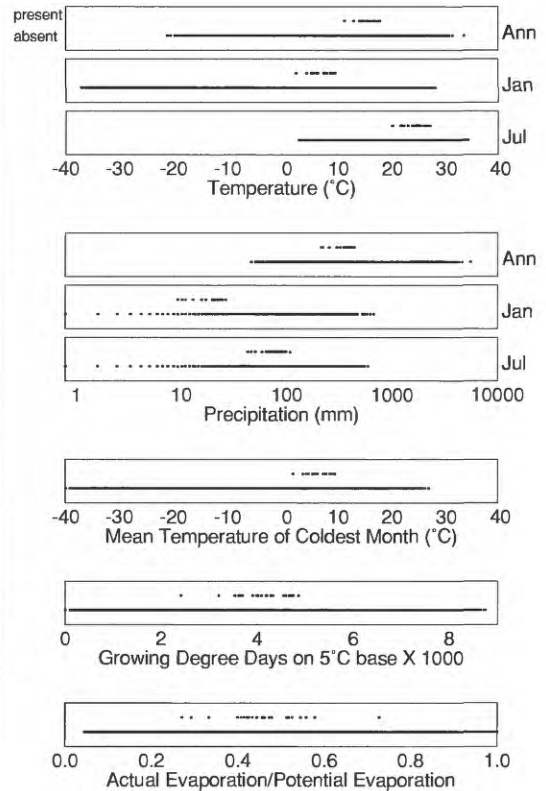
Rhamnus purshiana



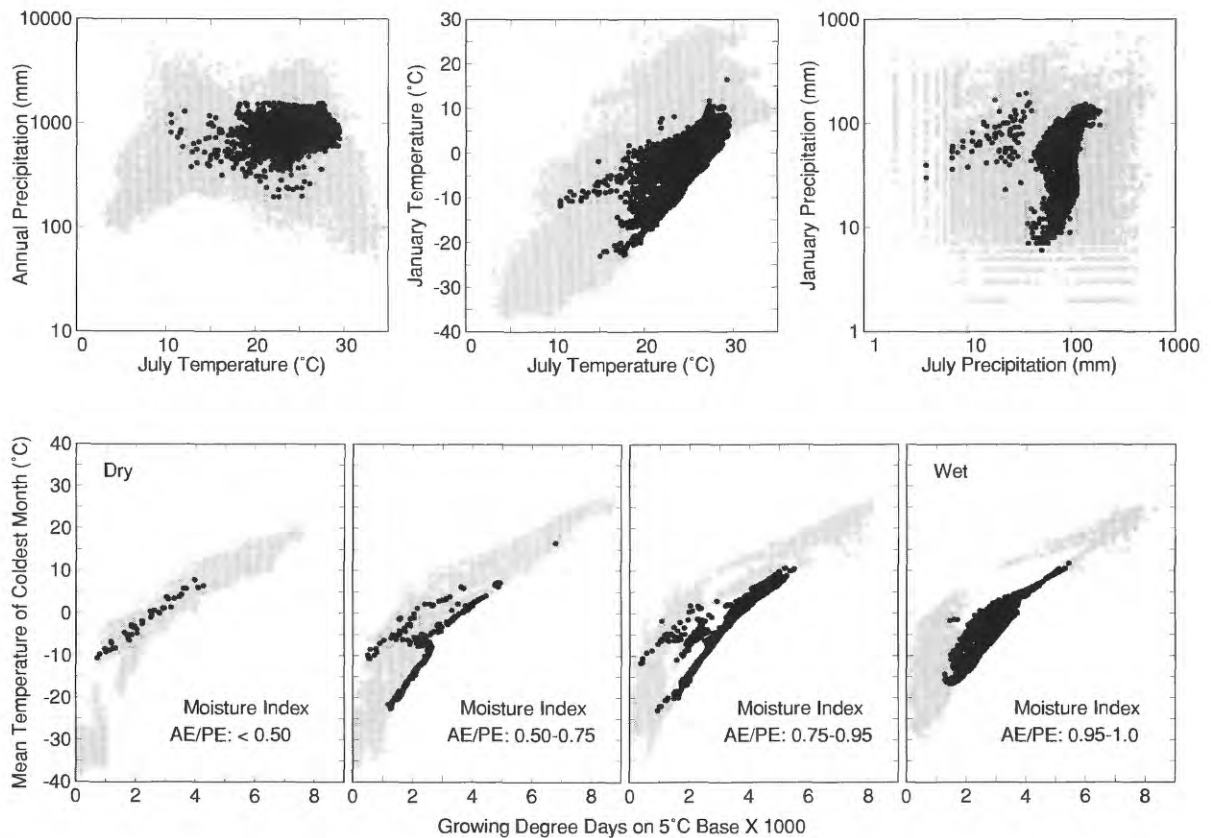
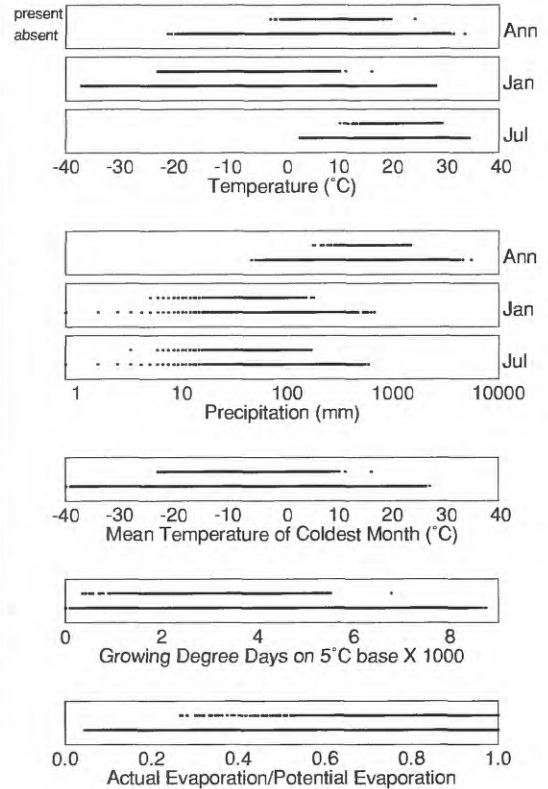
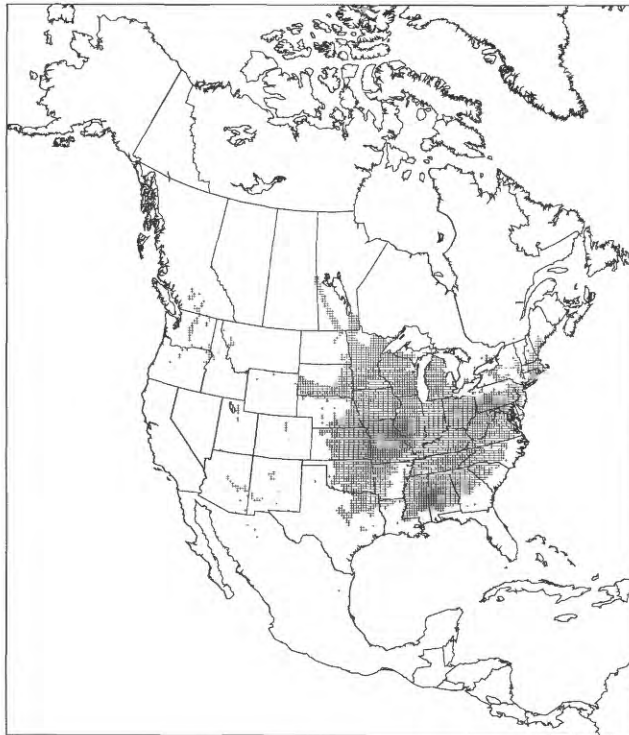
Rhododendron macrophyllum



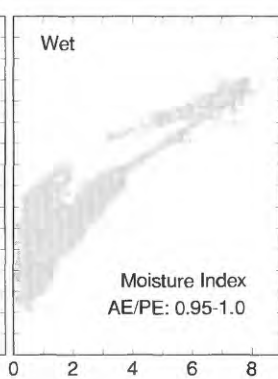
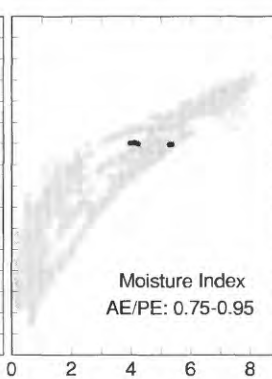
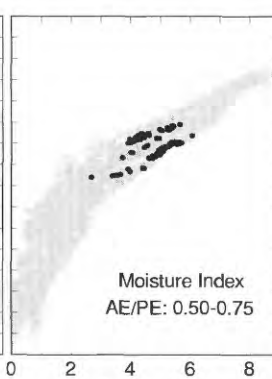
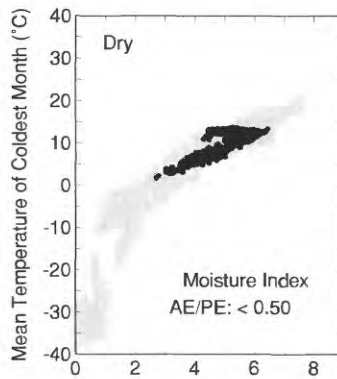
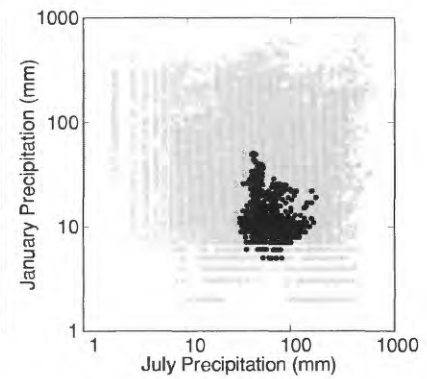
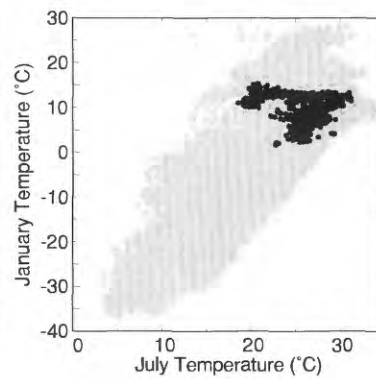
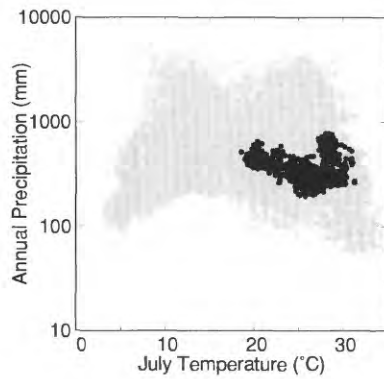
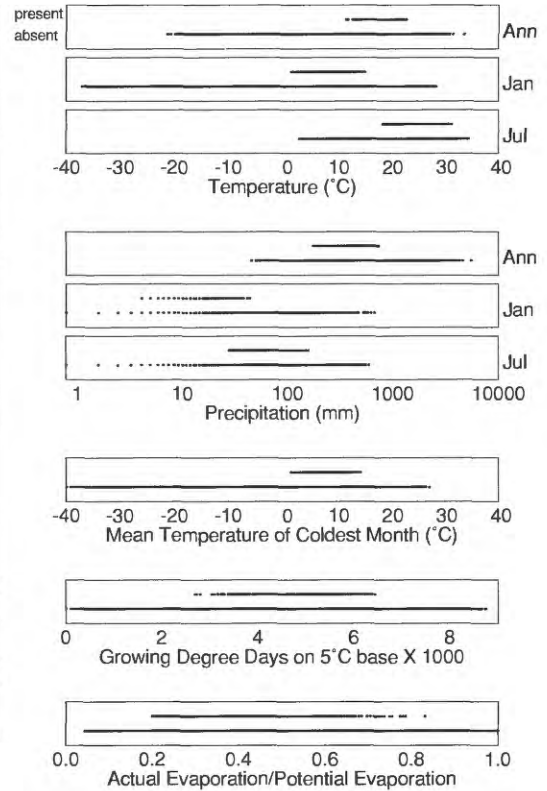
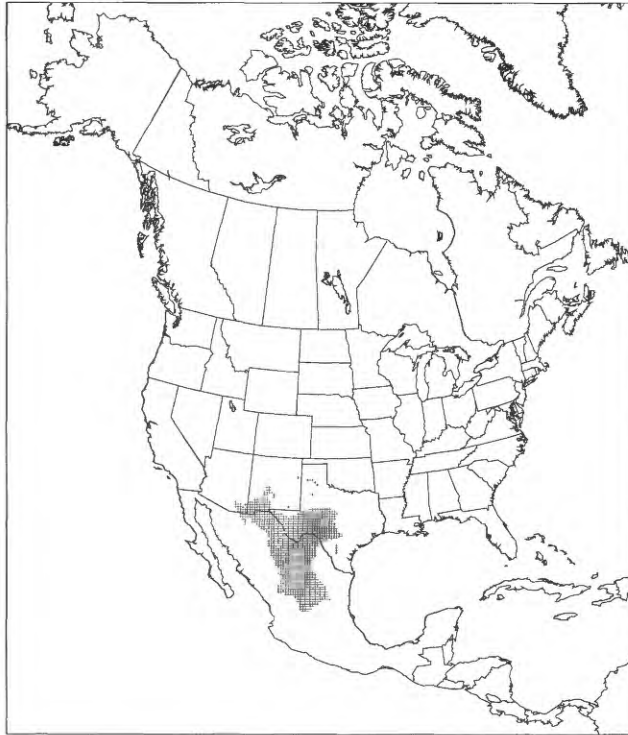
Rhus choriophylla



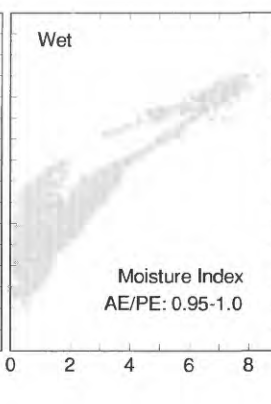
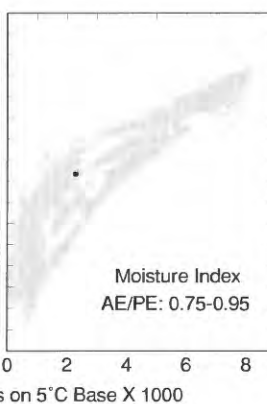
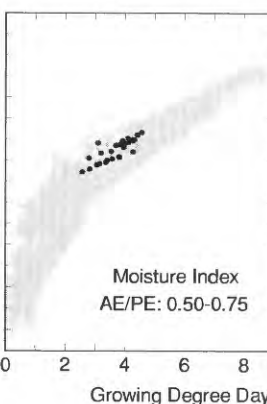
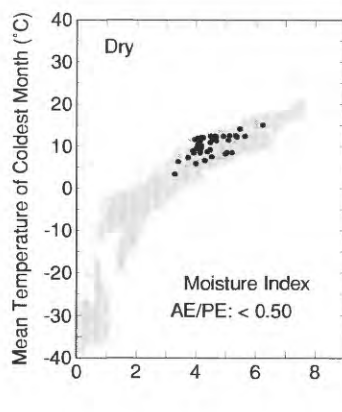
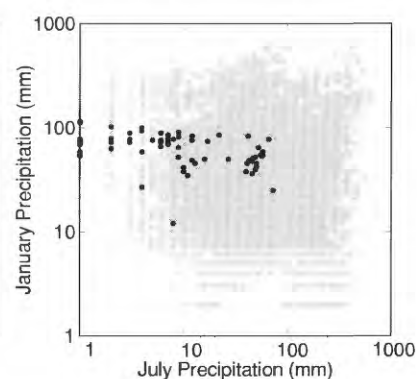
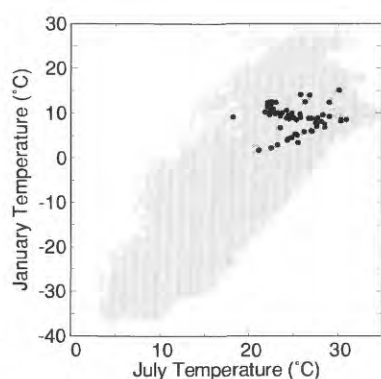
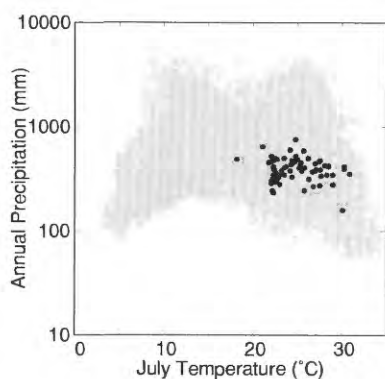
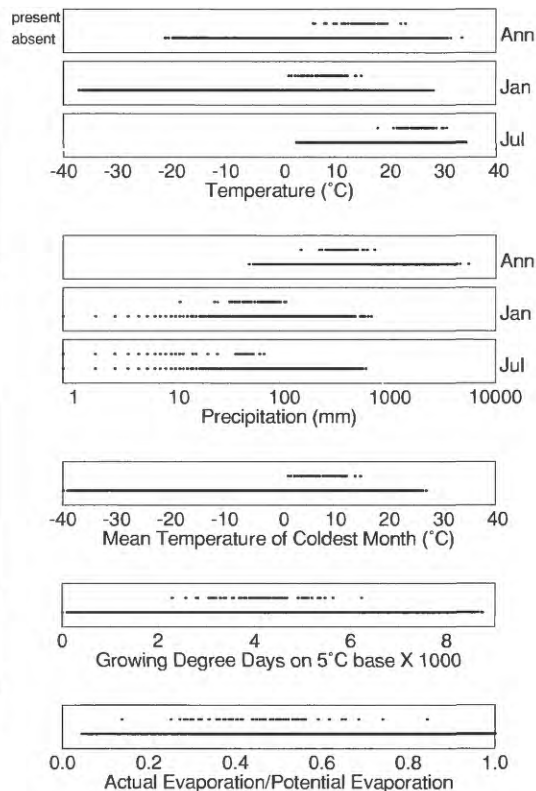
Rhus glabra



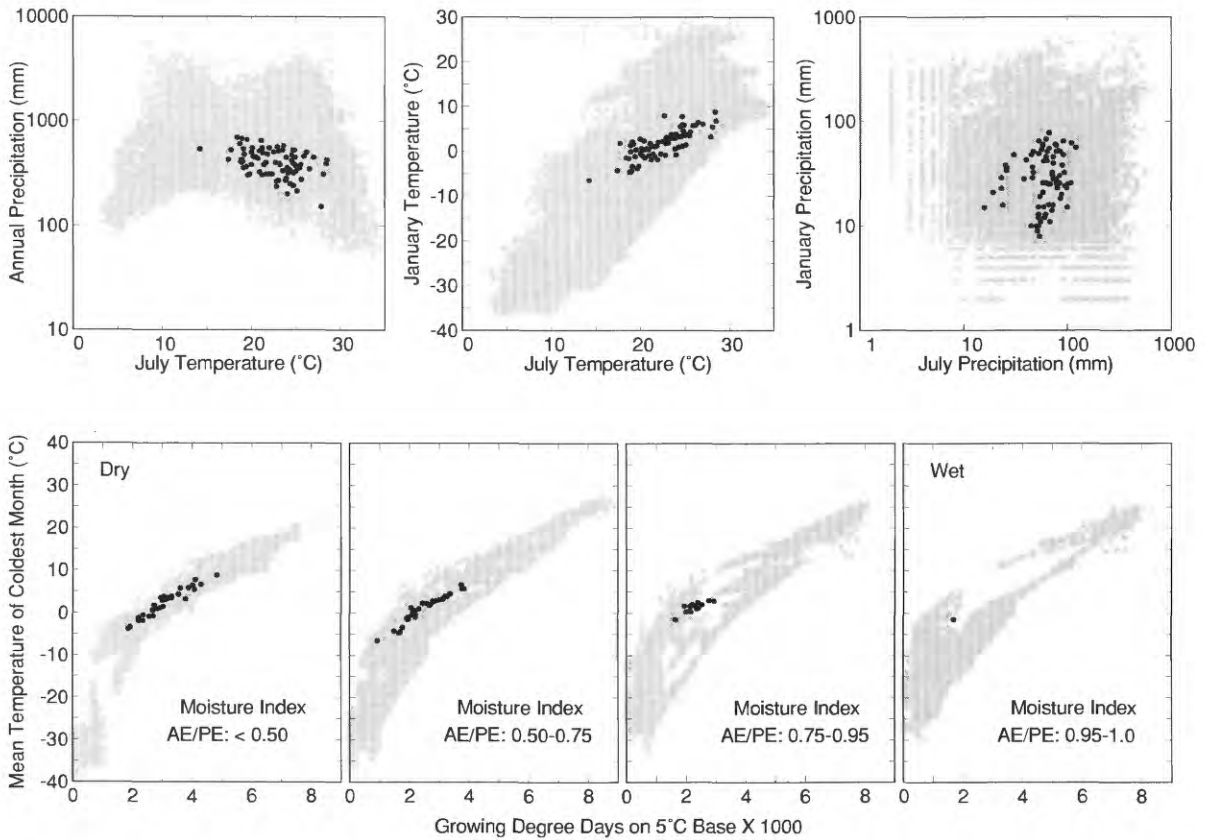
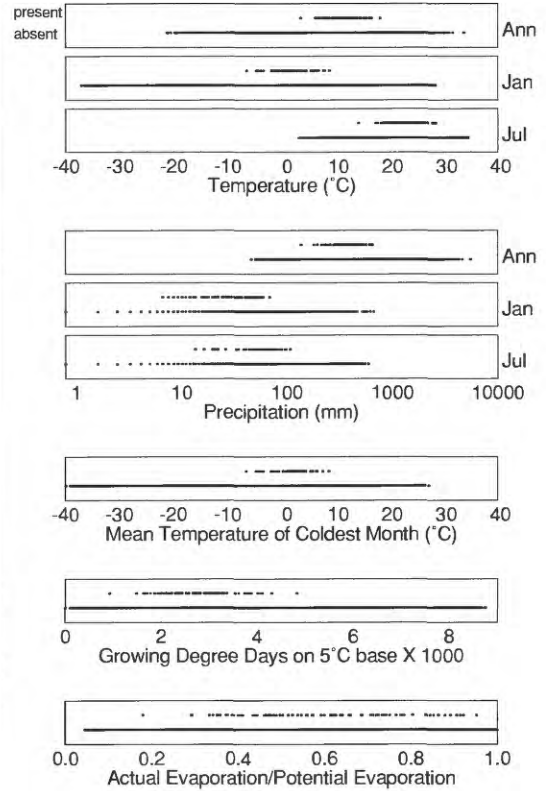
Rhus microphylla



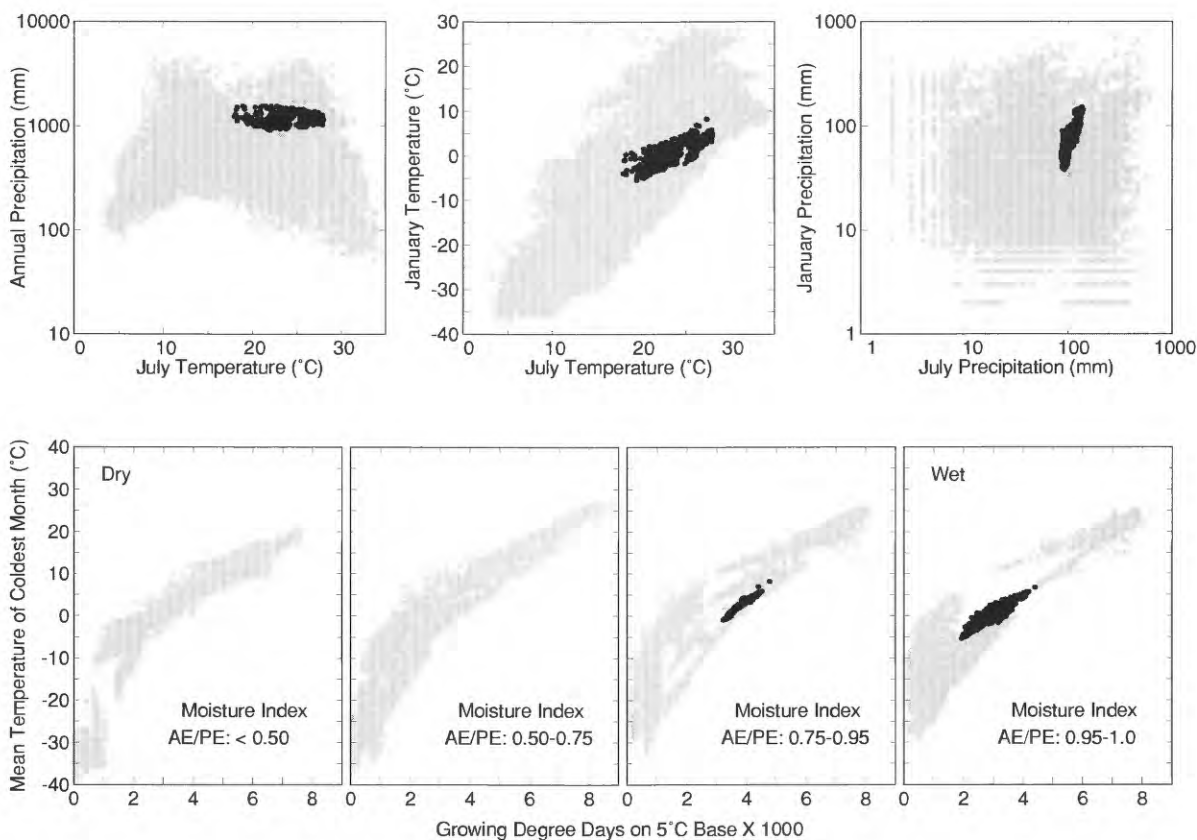
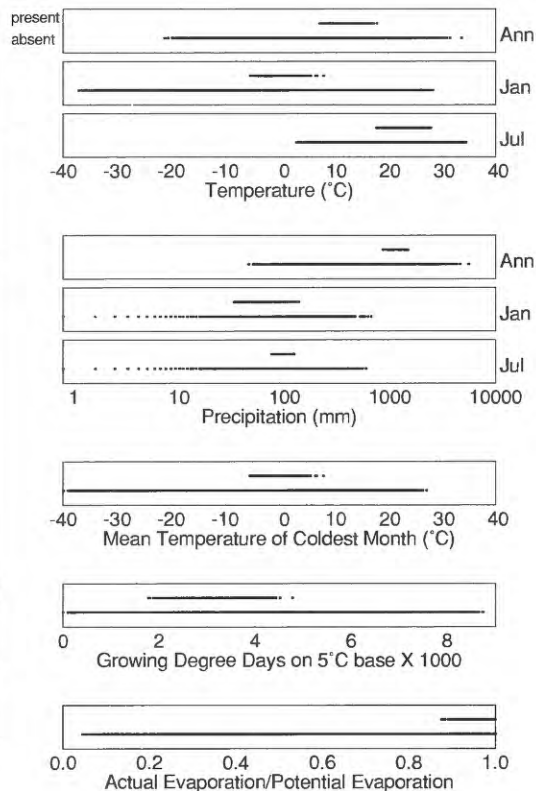
Rhus ovata



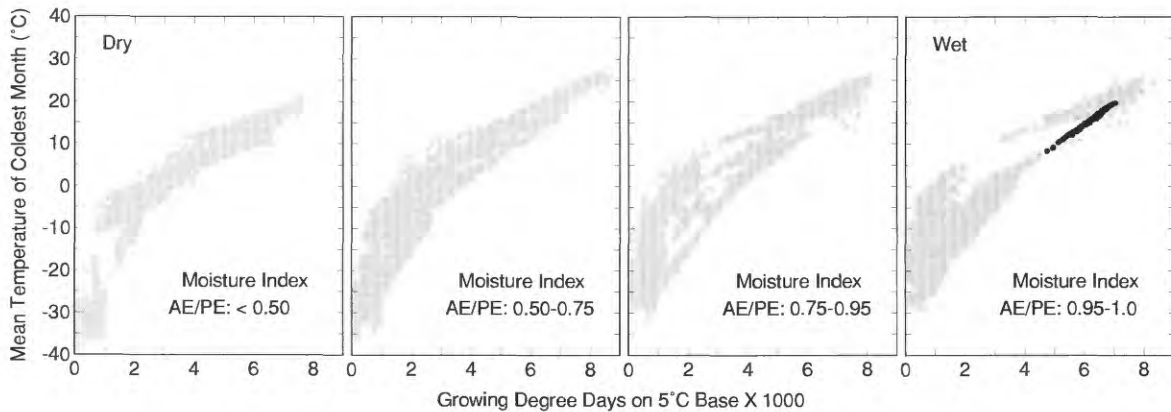
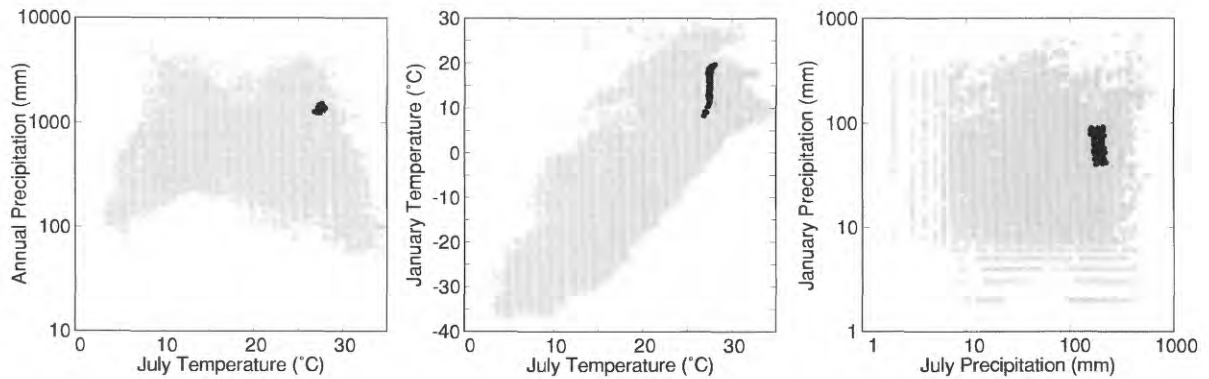
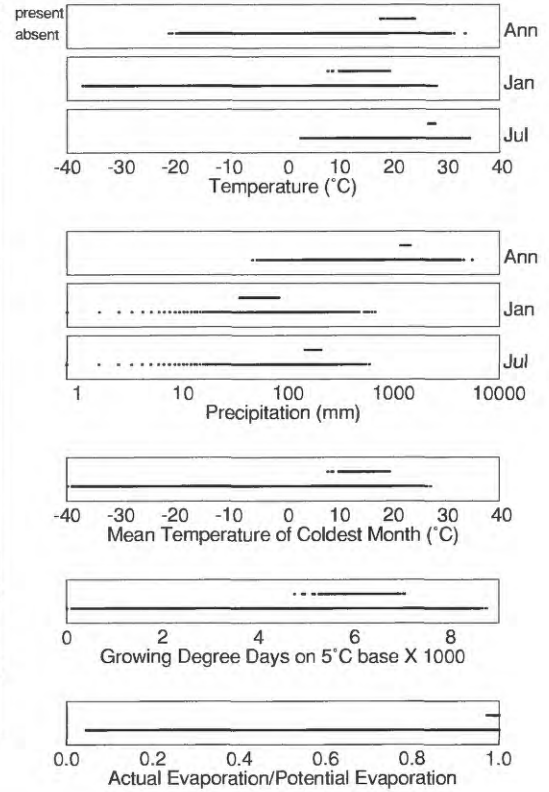
Robinia neomexicana



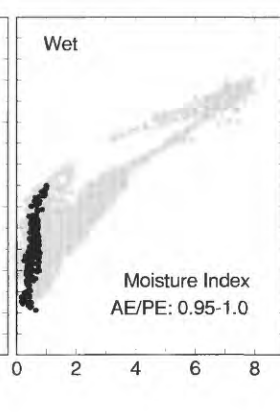
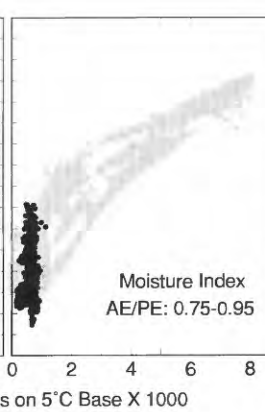
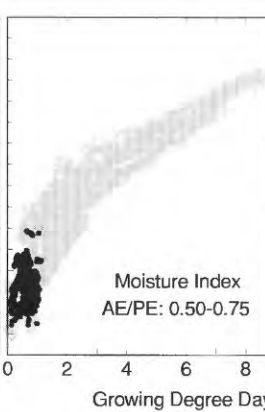
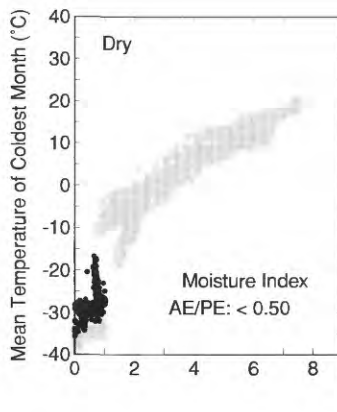
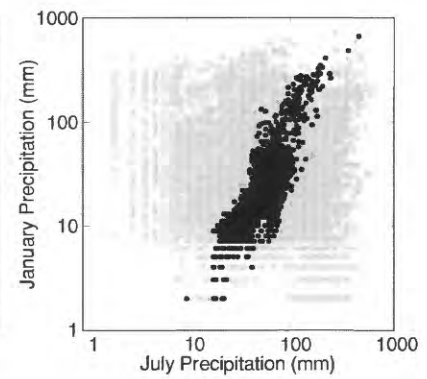
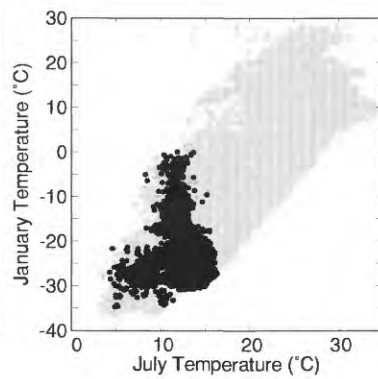
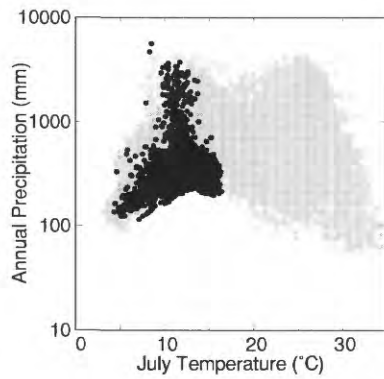
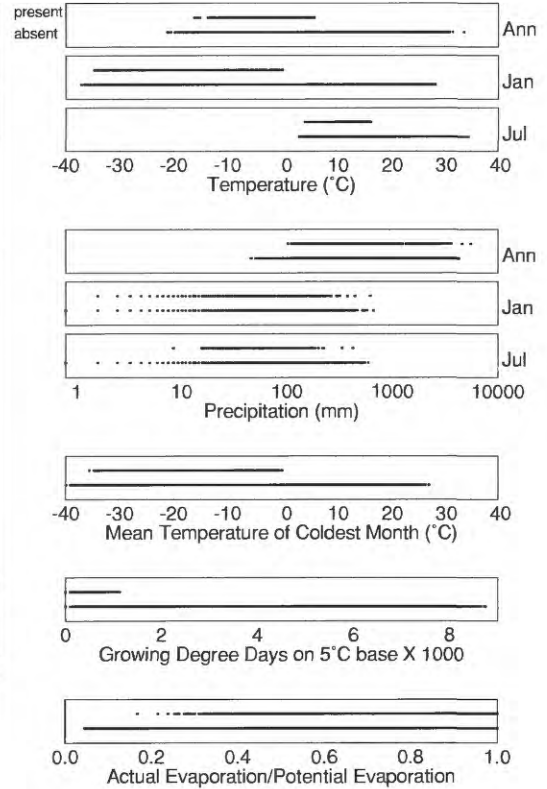
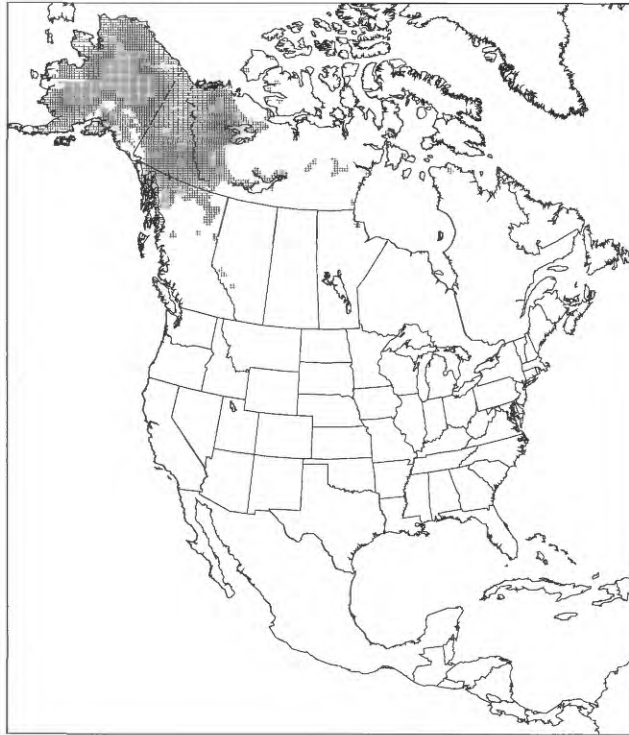
Robinia pseudoacacia



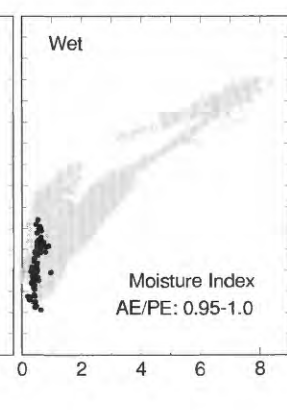
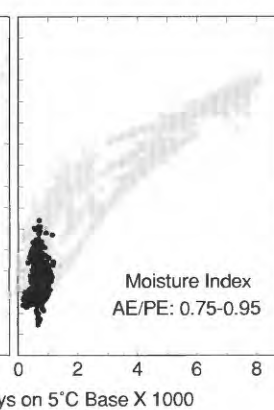
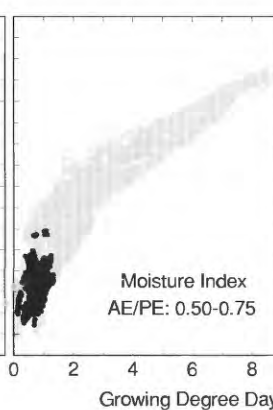
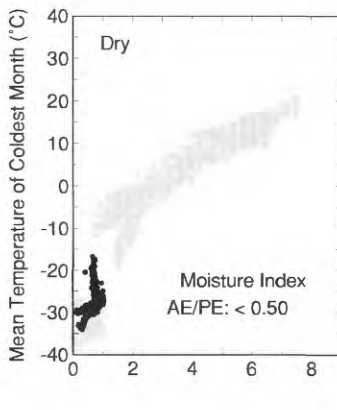
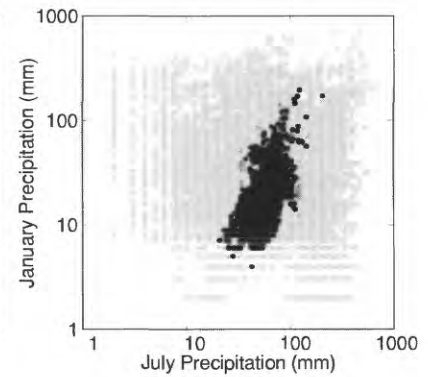
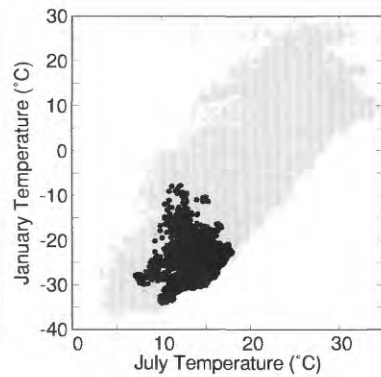
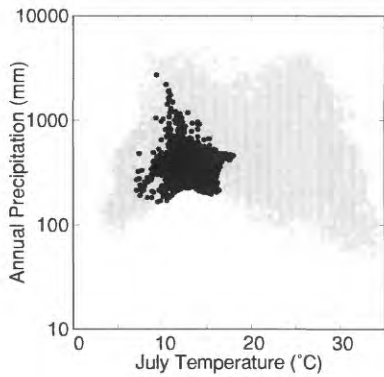
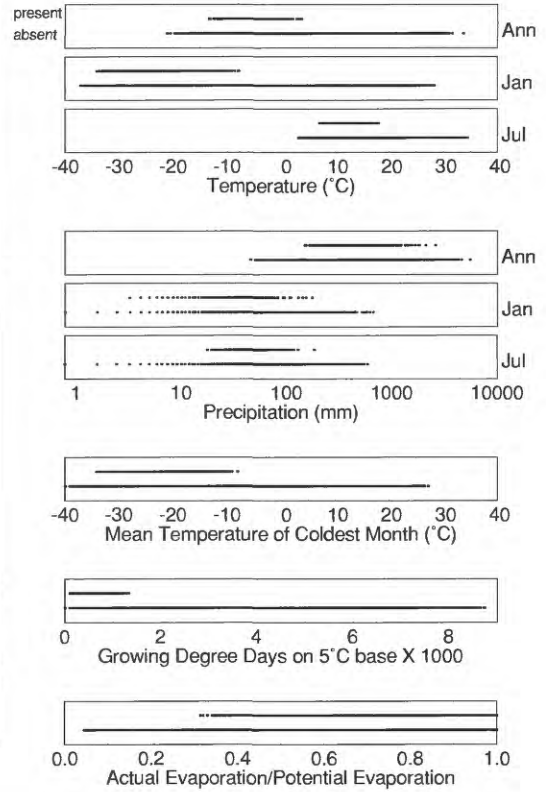
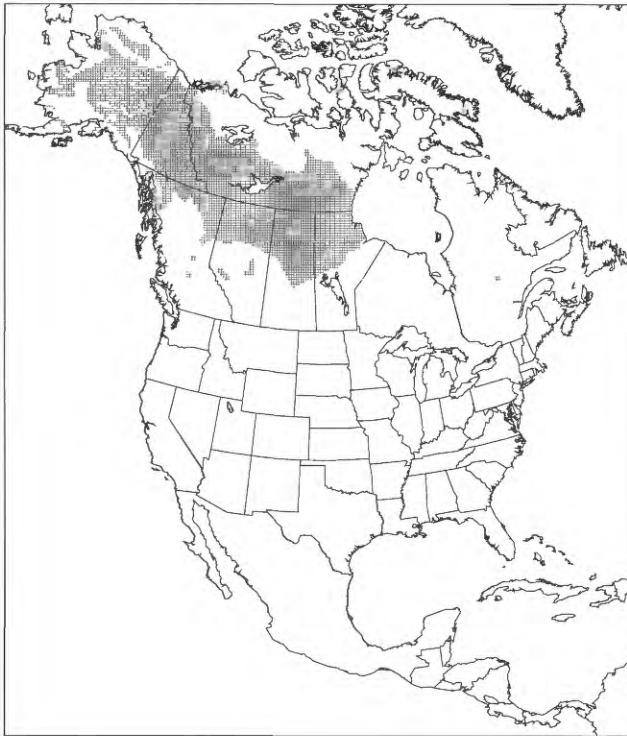
Sabal palmetto



Salix alaxensis

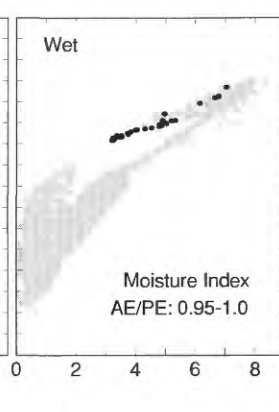
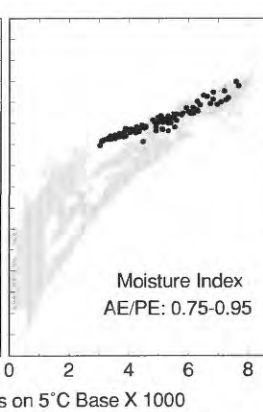
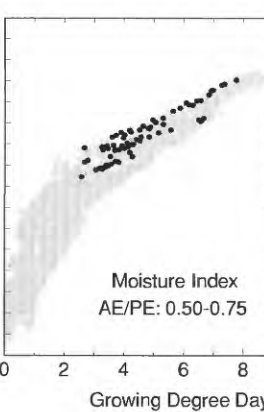
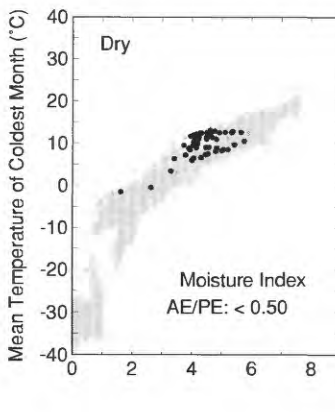
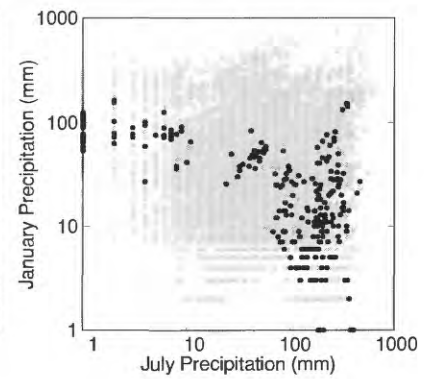
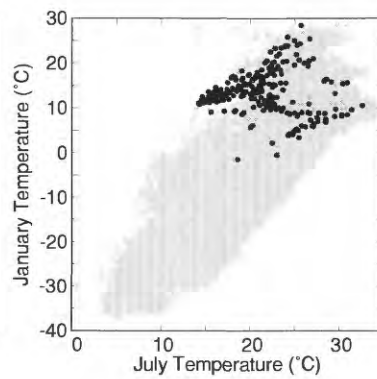
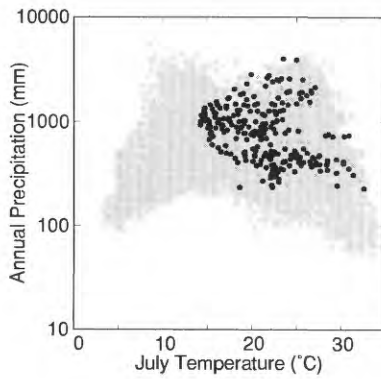
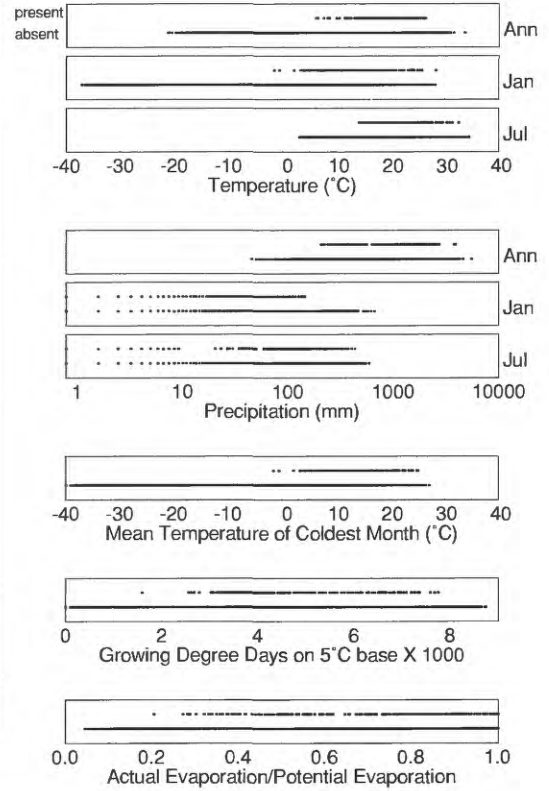


Salix arbusculoides

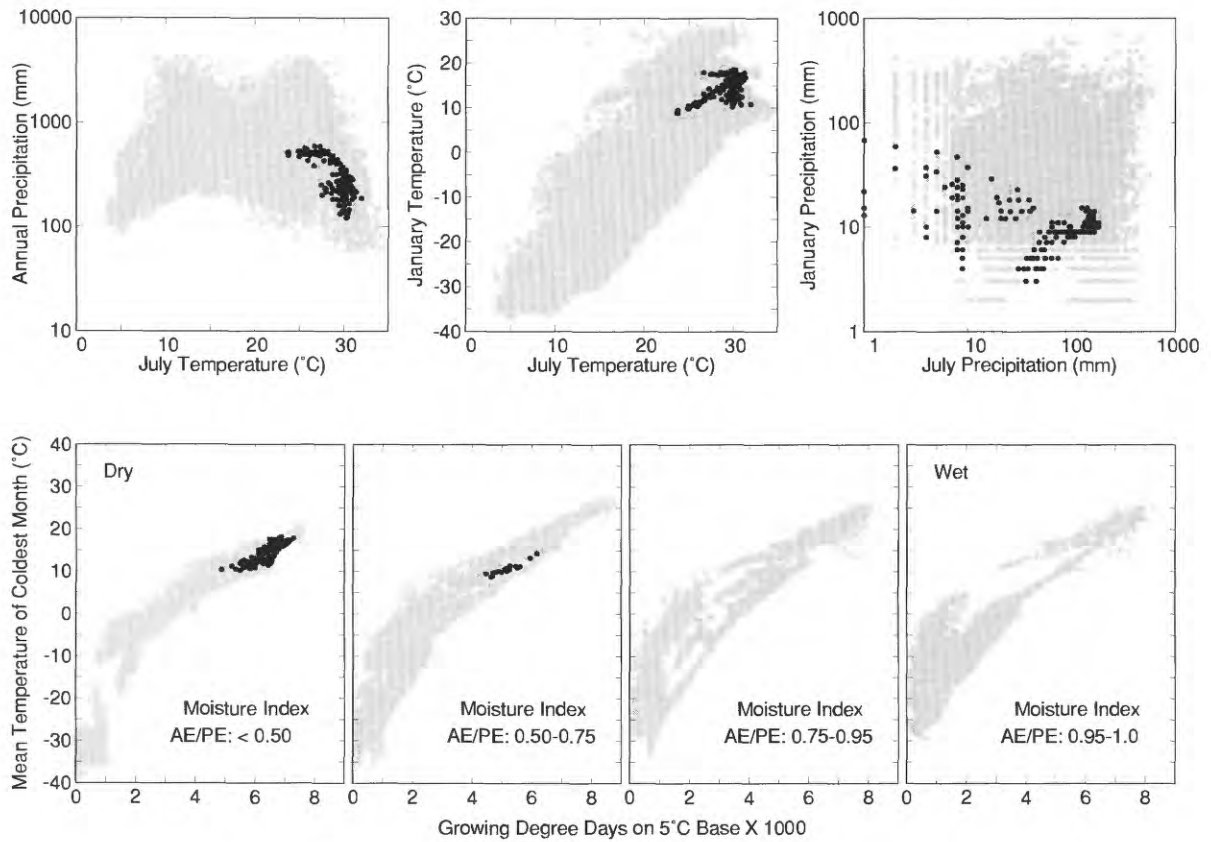
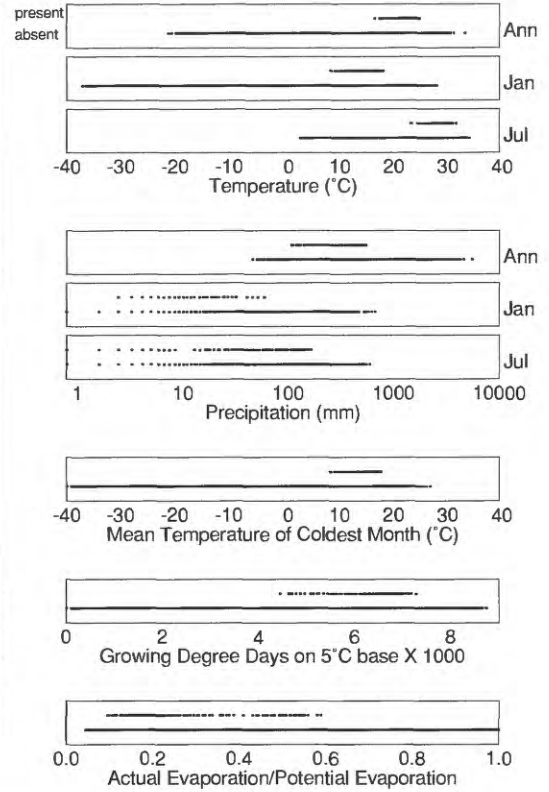


Growing Degree Days on 5°C Base X 1000

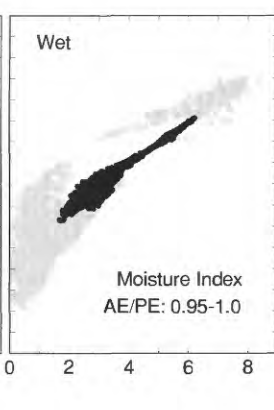
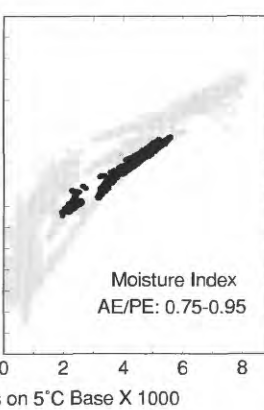
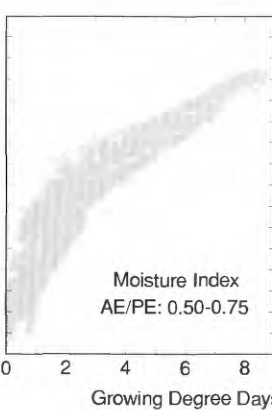
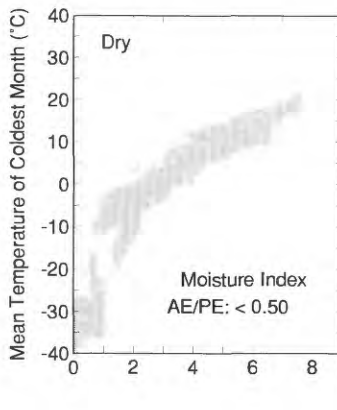
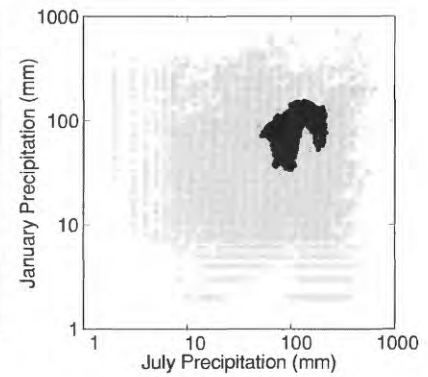
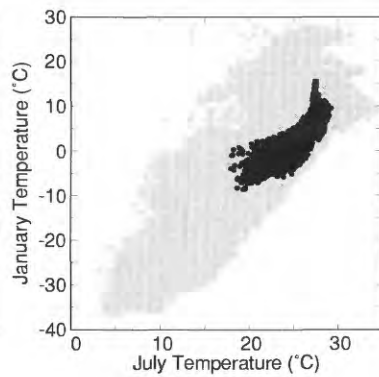
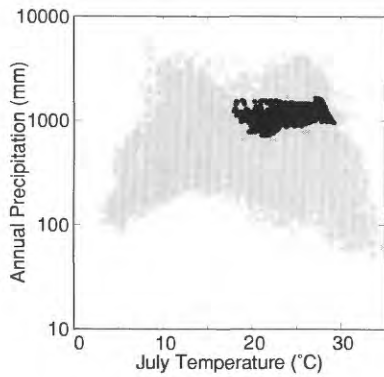
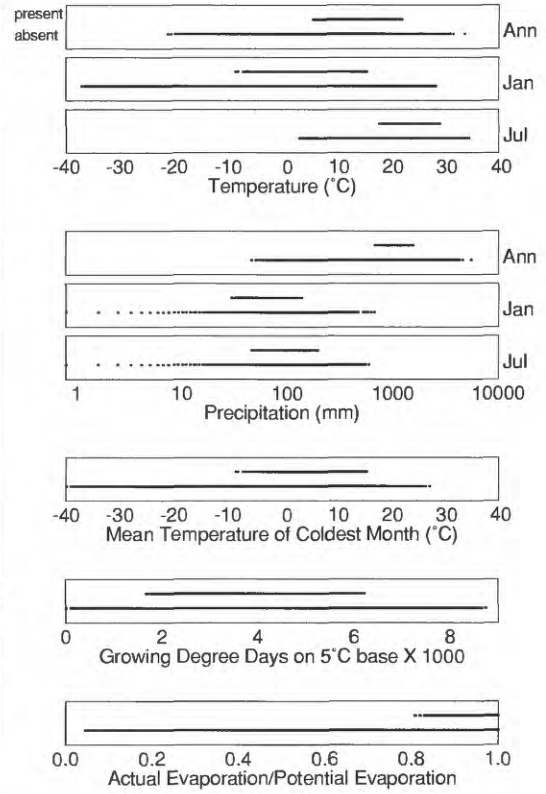
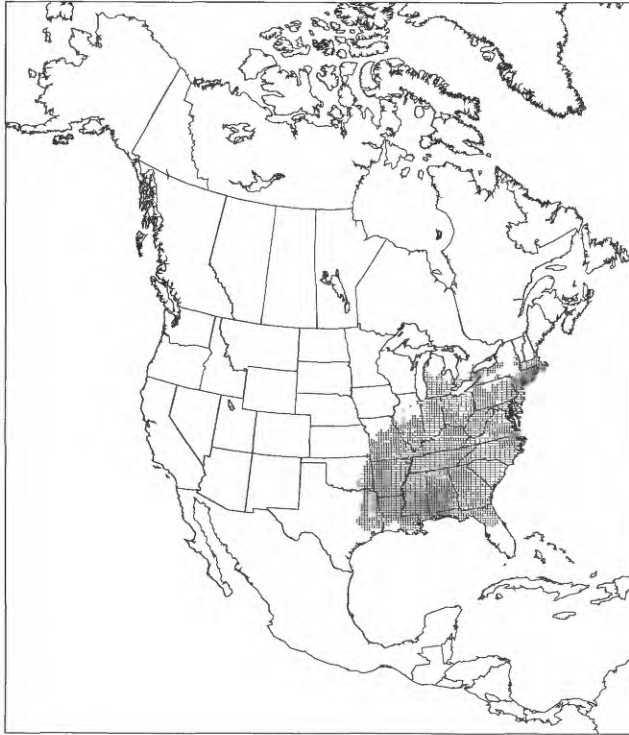
Sambucus mexicana



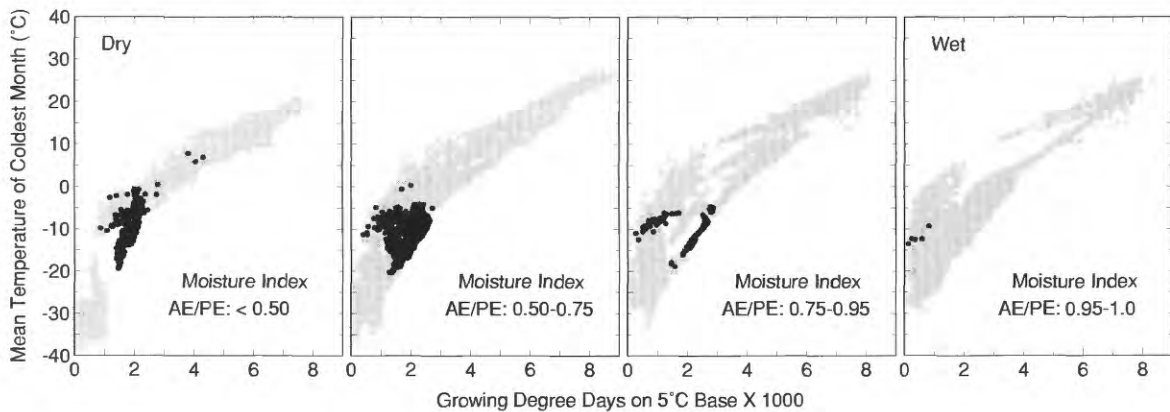
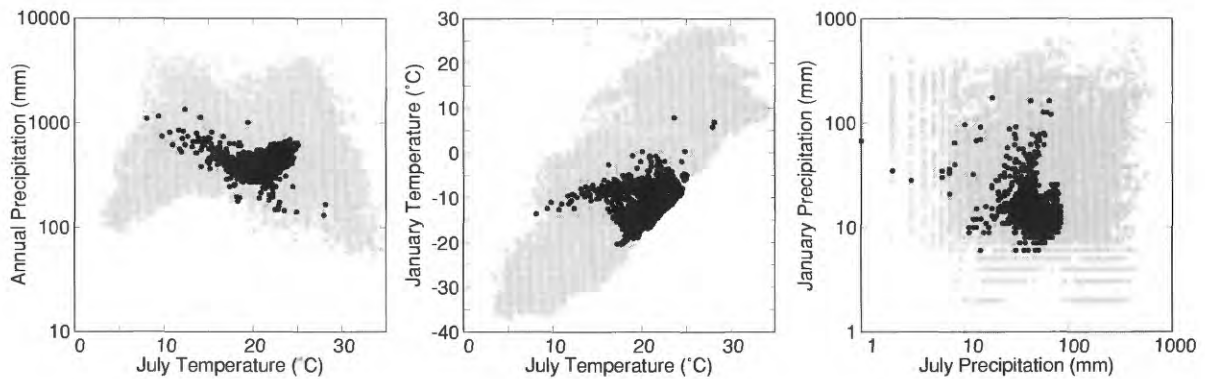
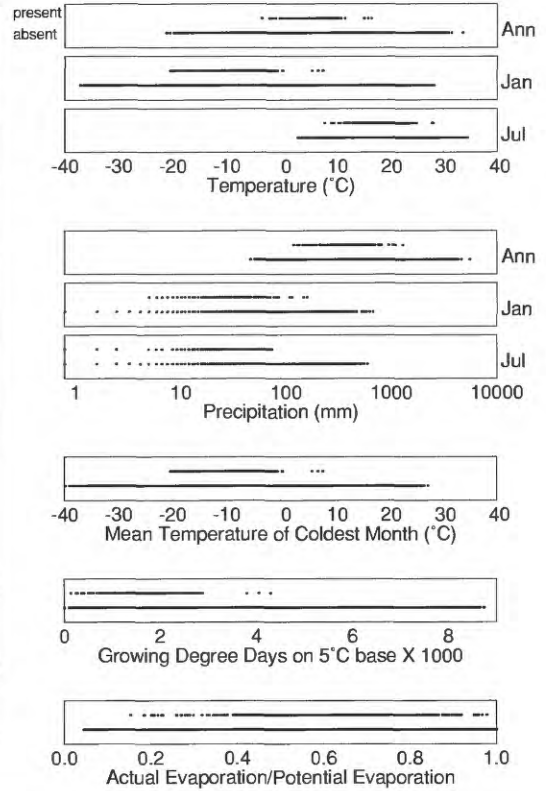
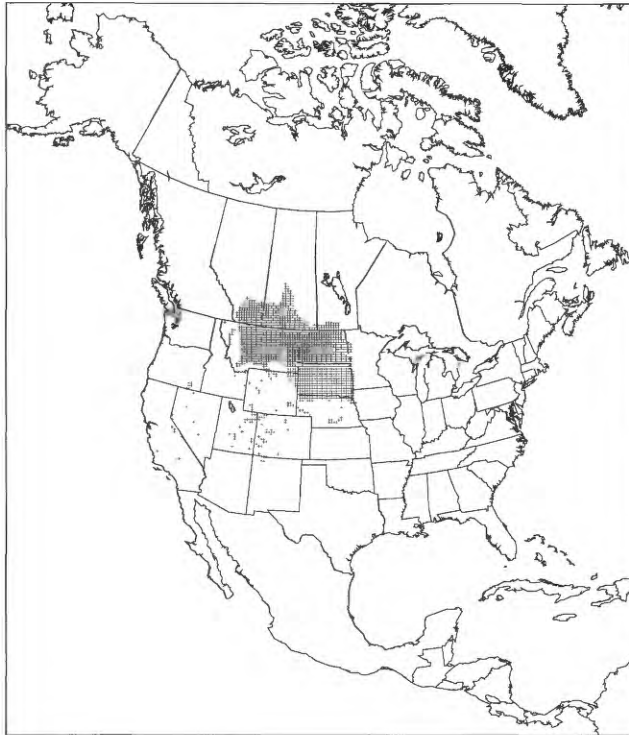
Sapium biloculare



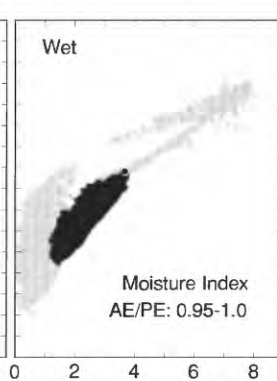
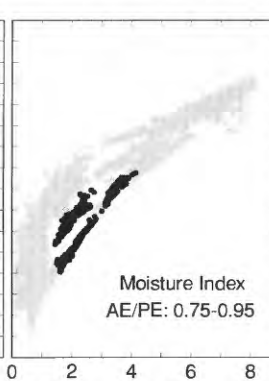
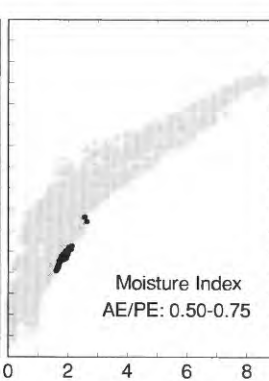
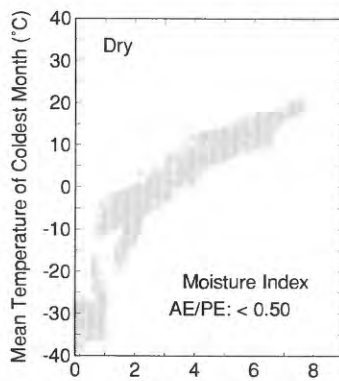
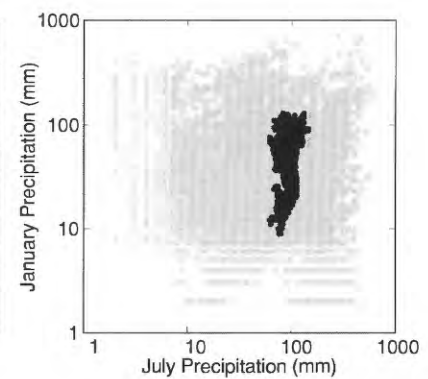
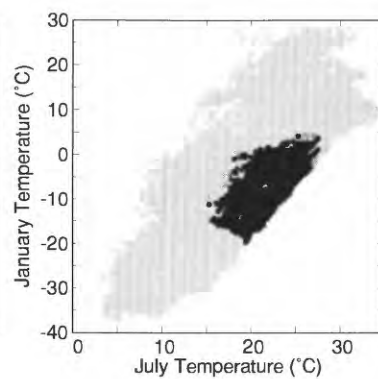
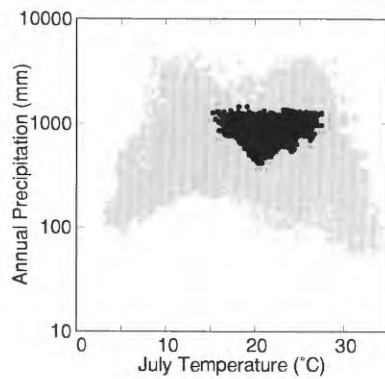
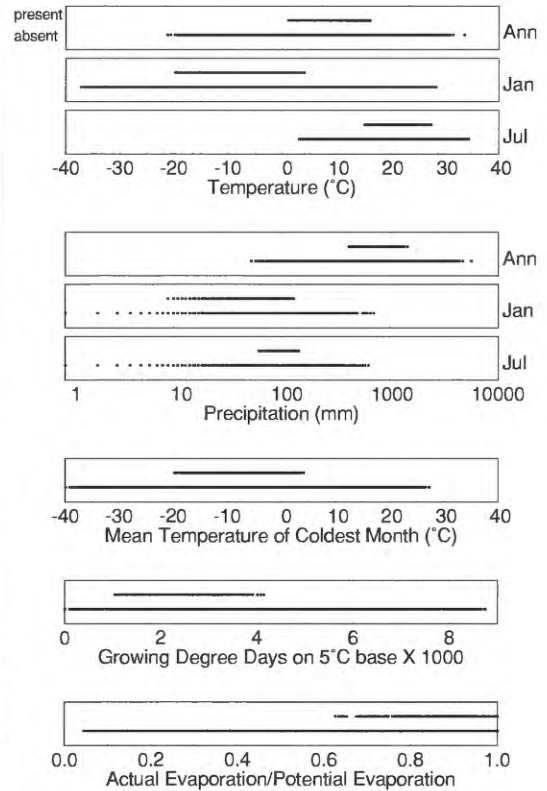
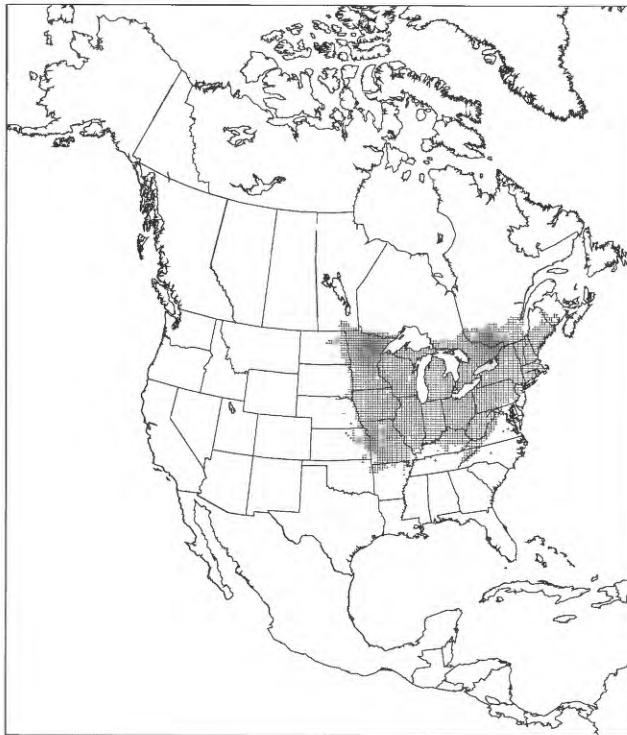
Sassafras albidum



Shepherdia argentea

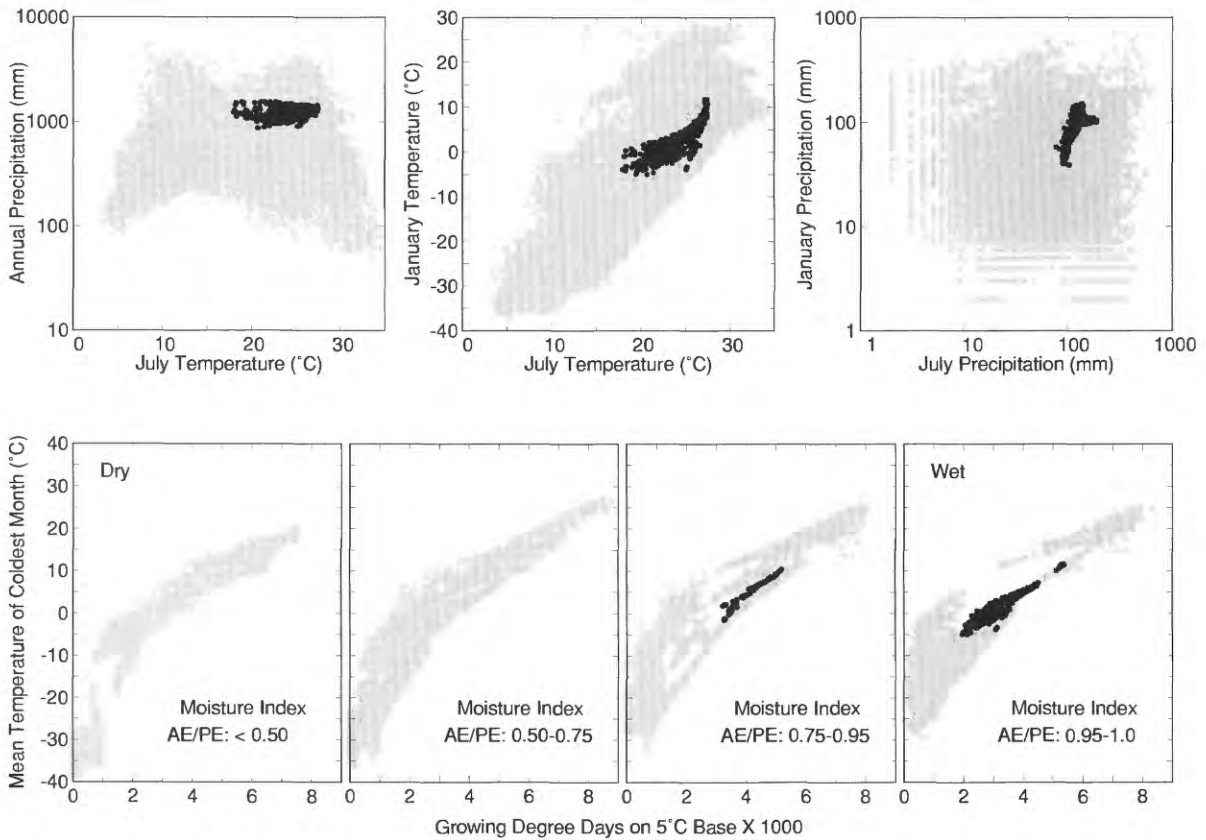
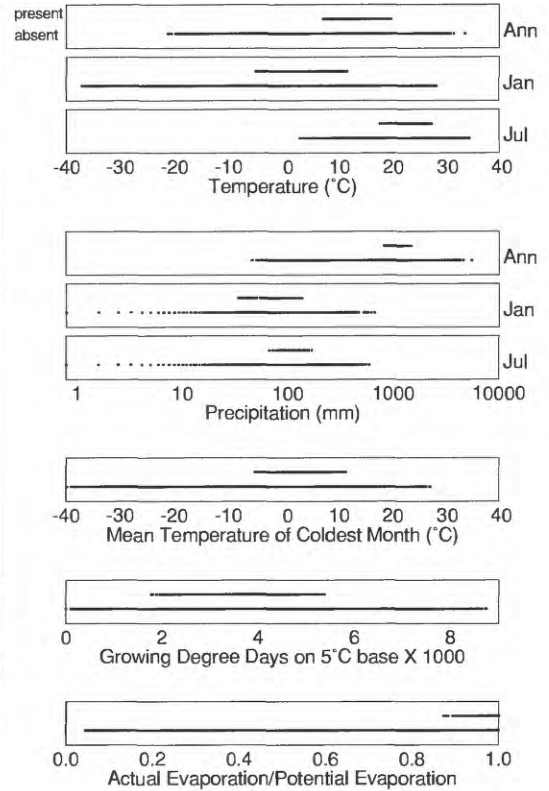
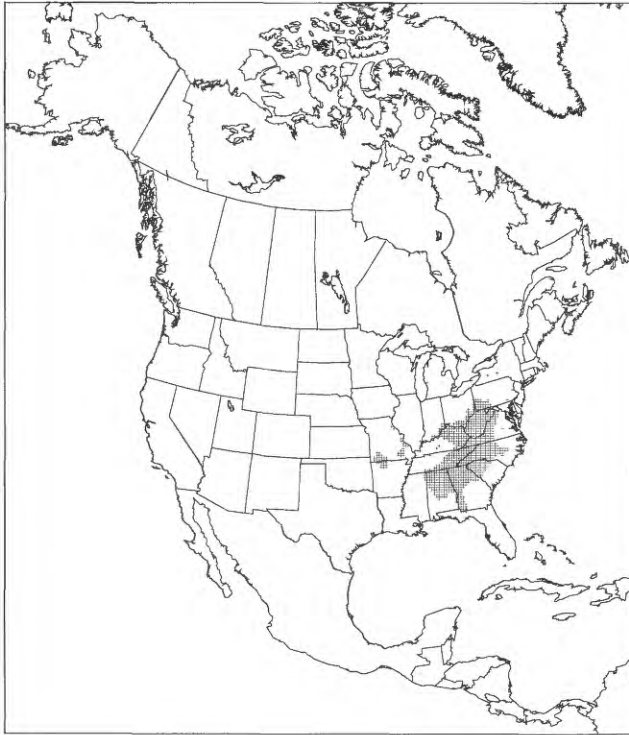


Tilia americana

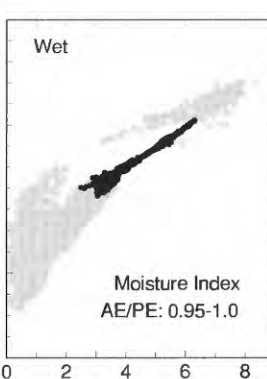
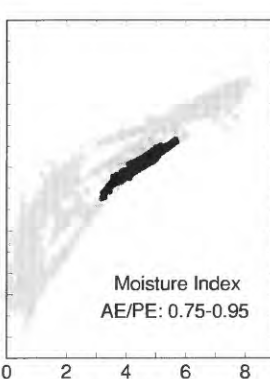
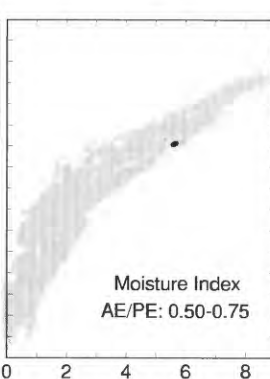
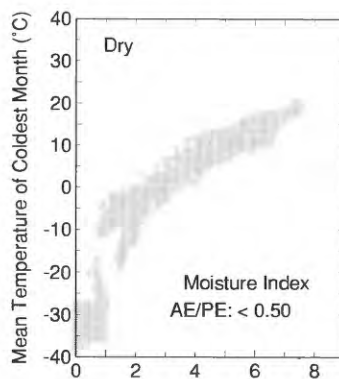
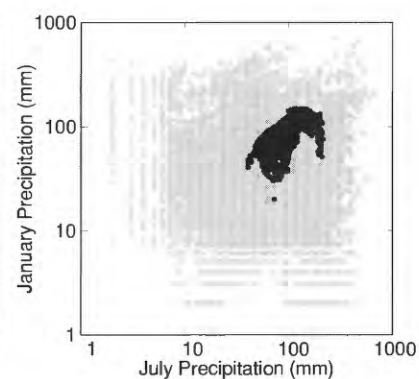
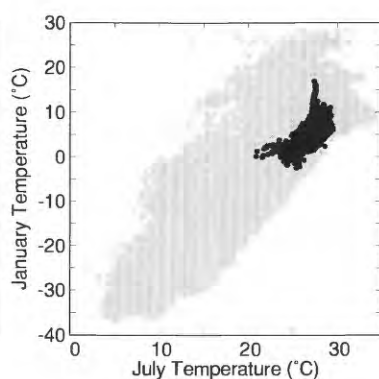
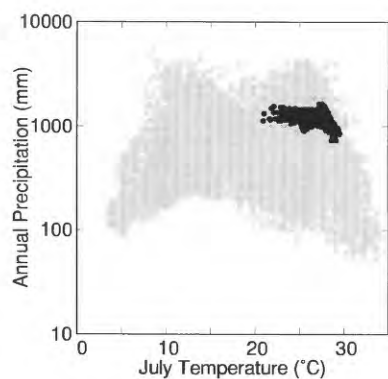
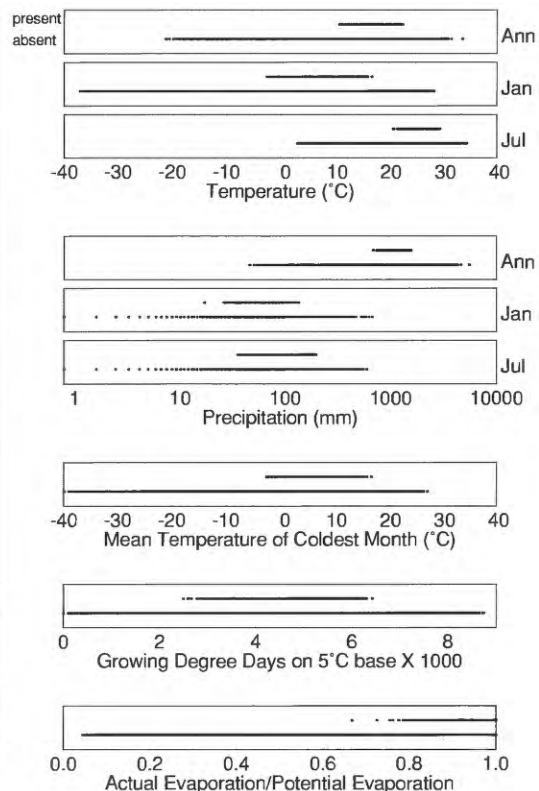
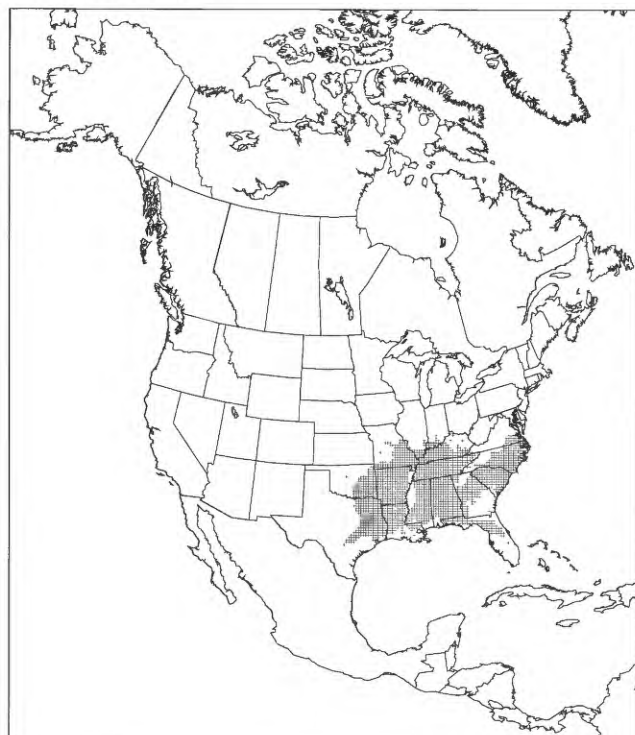


Growing Degree Days on 5°C Base X 1000

Tilia heterophylla

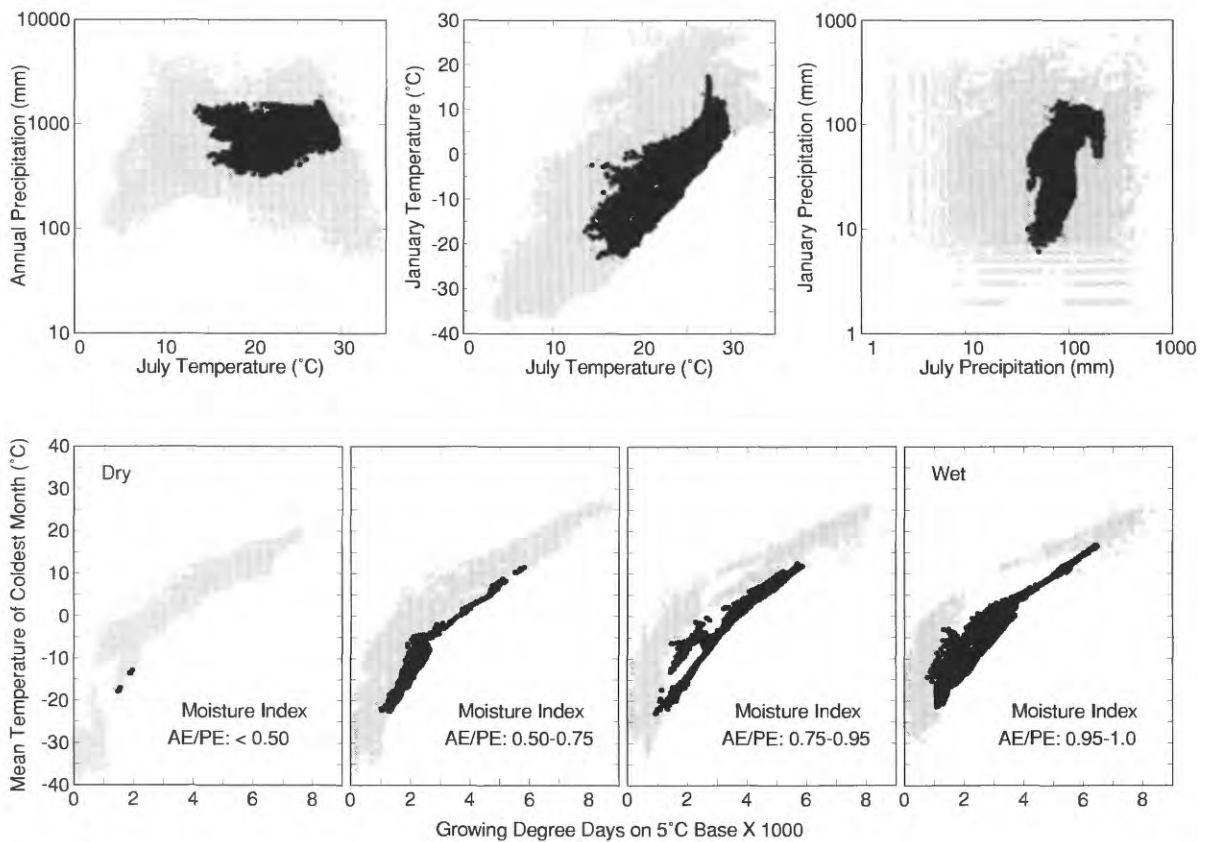
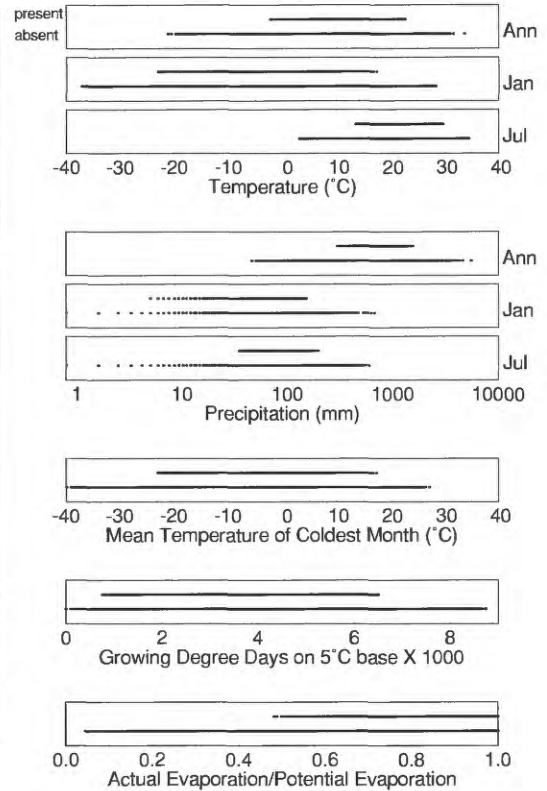
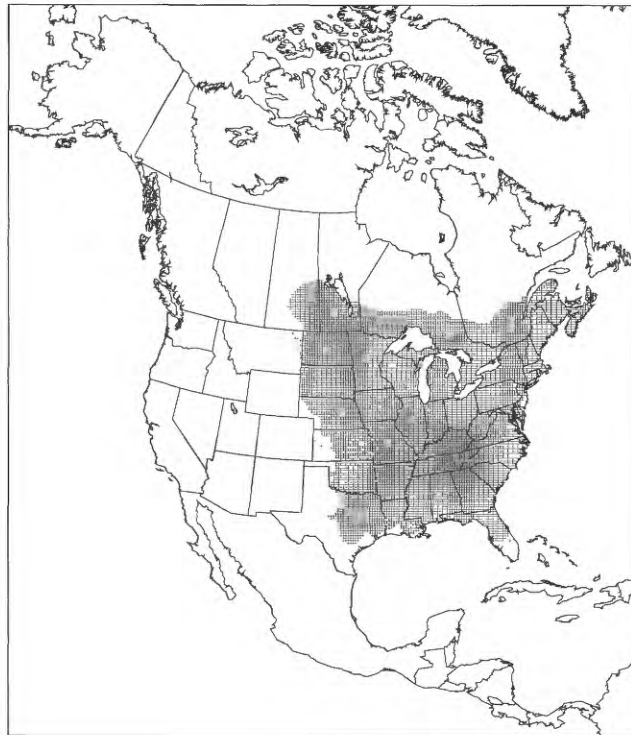


Ulmus alata

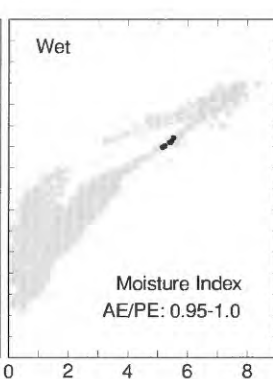
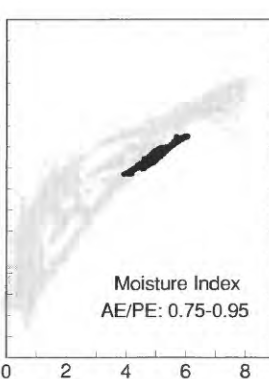
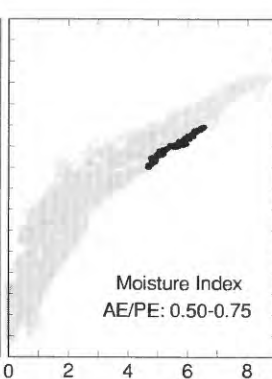
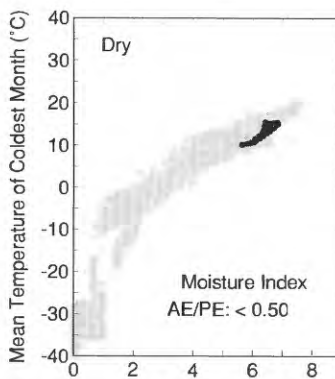
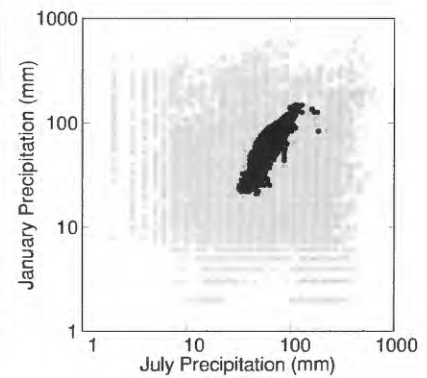
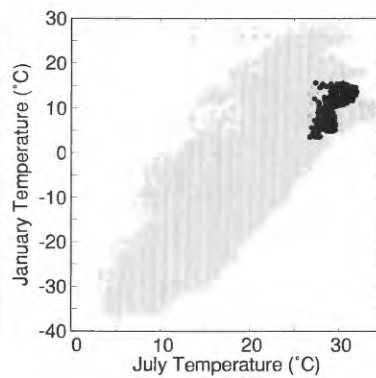
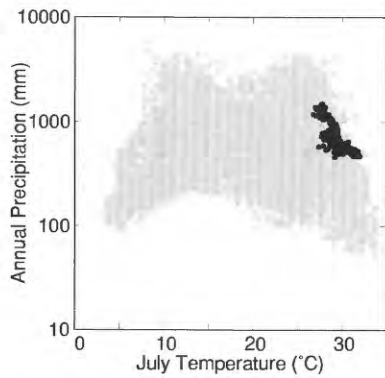
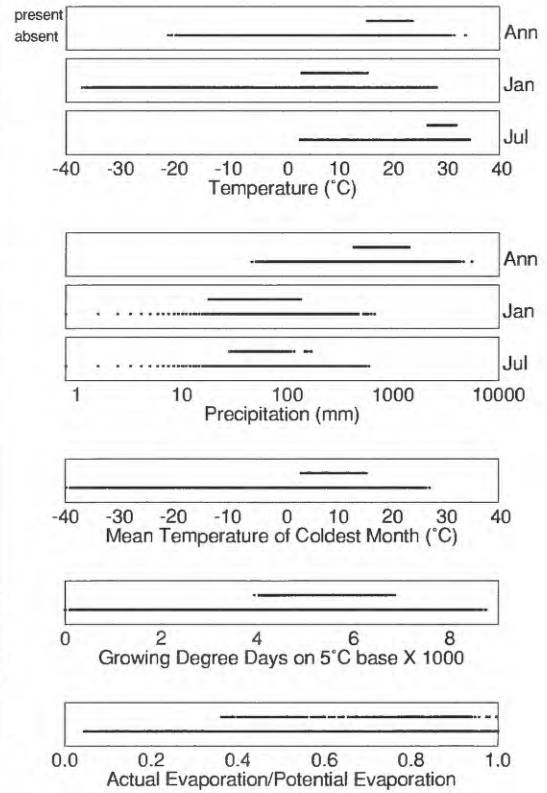


Growing Degree Days on 5°C Base X 1000

Ulmus americana

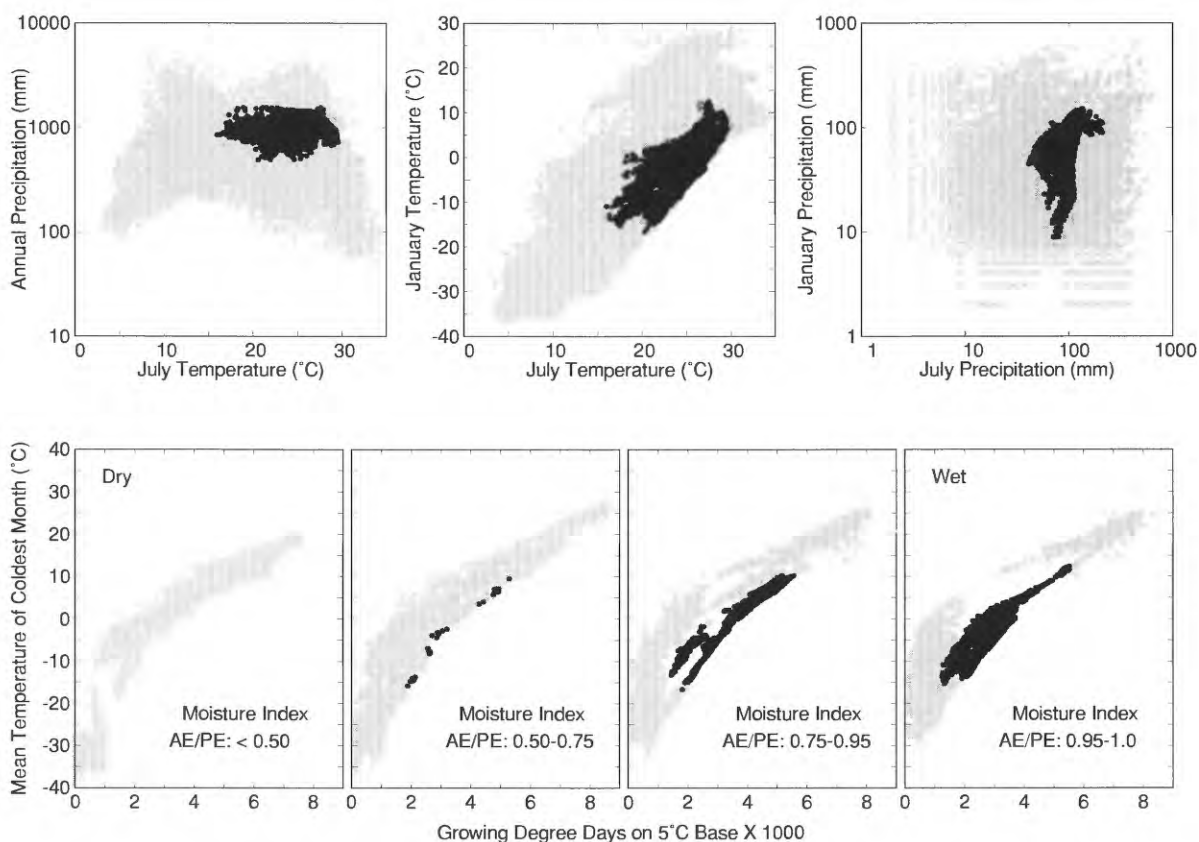
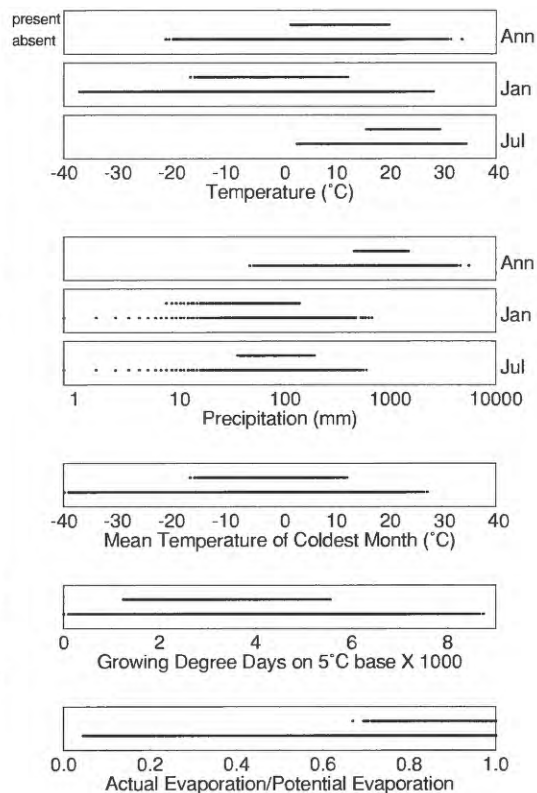
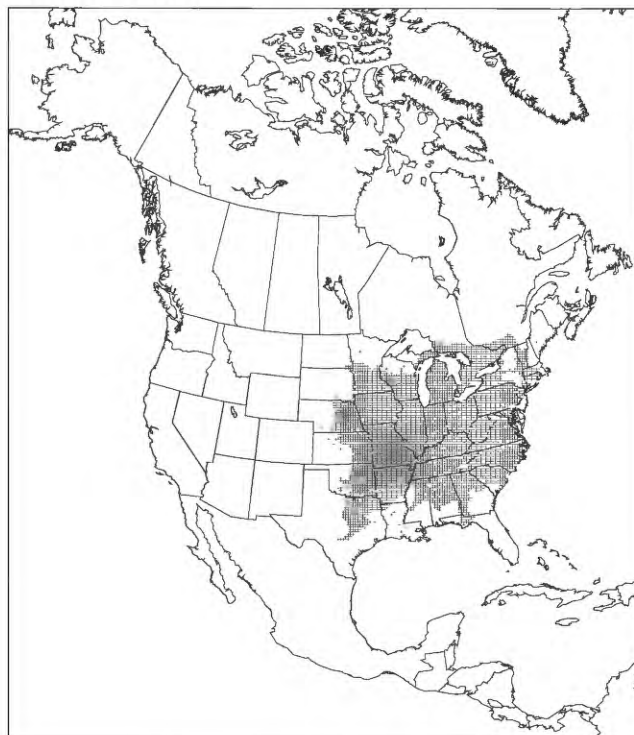


Ulmus crassifolia

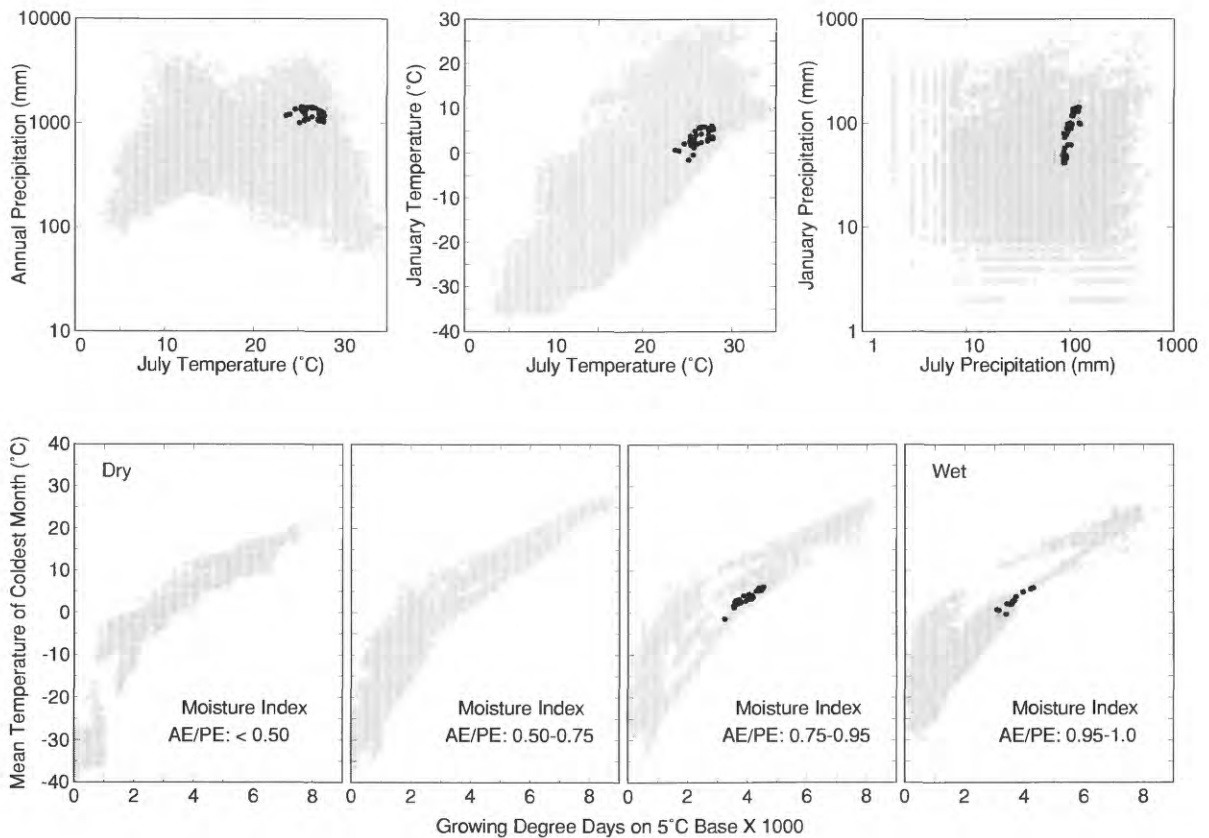
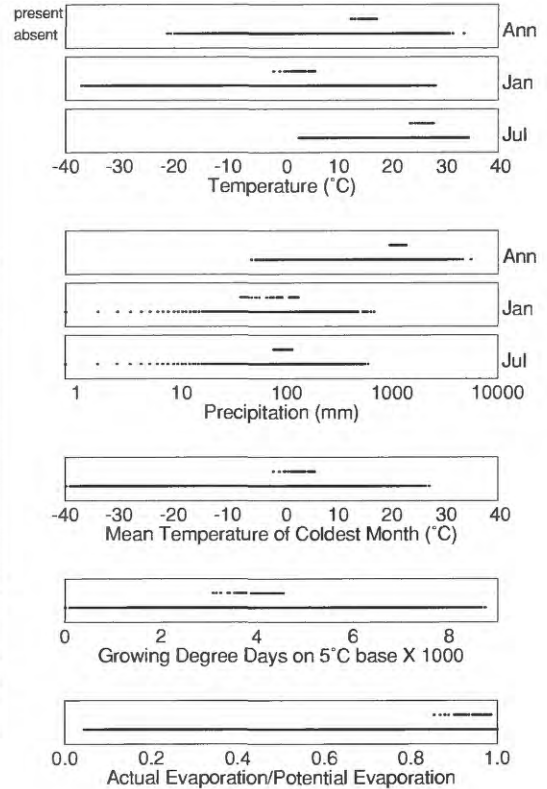


Growing Degree Days on 5°C Base X 1000

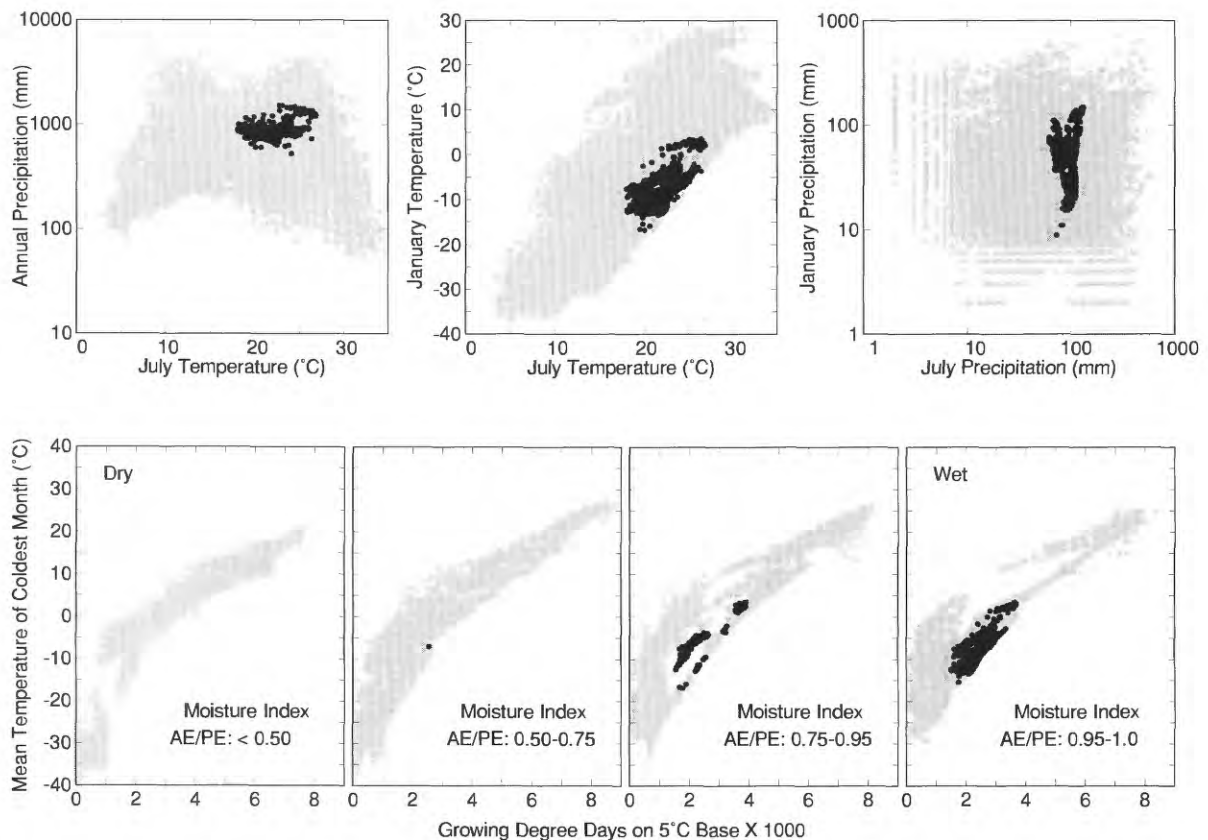
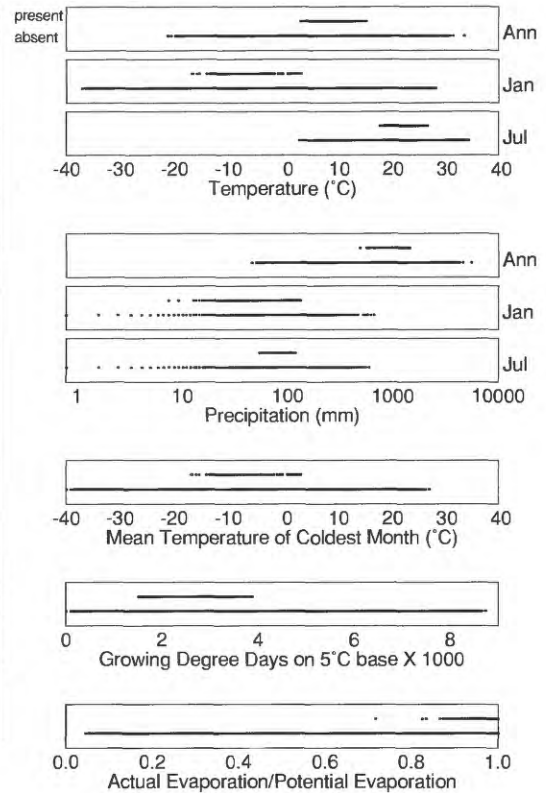
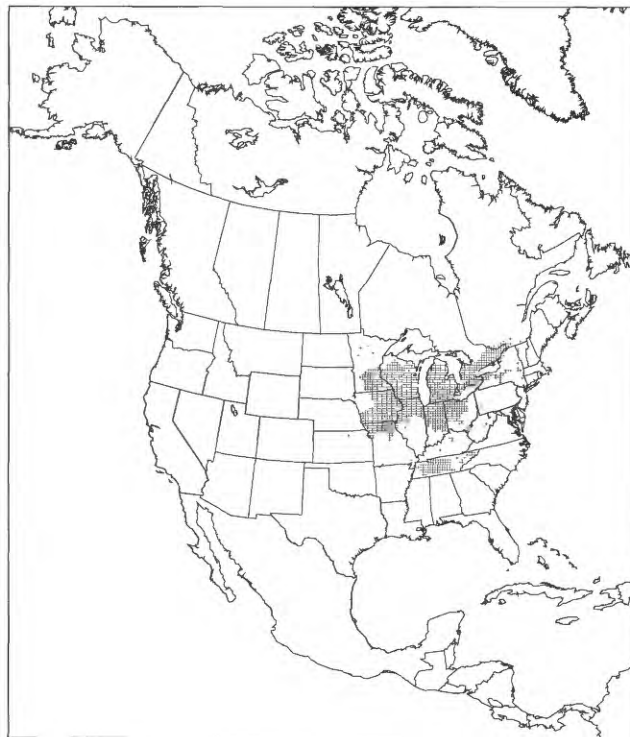
Ulmus rubra



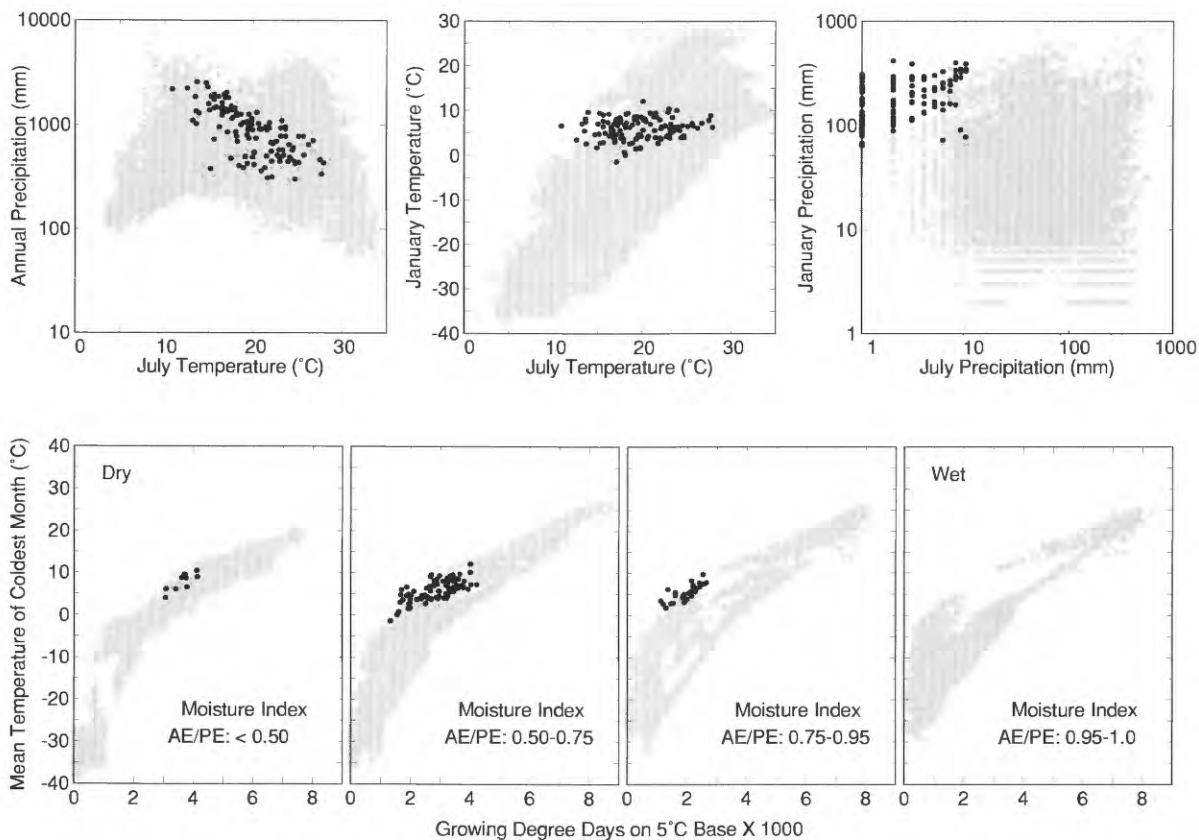
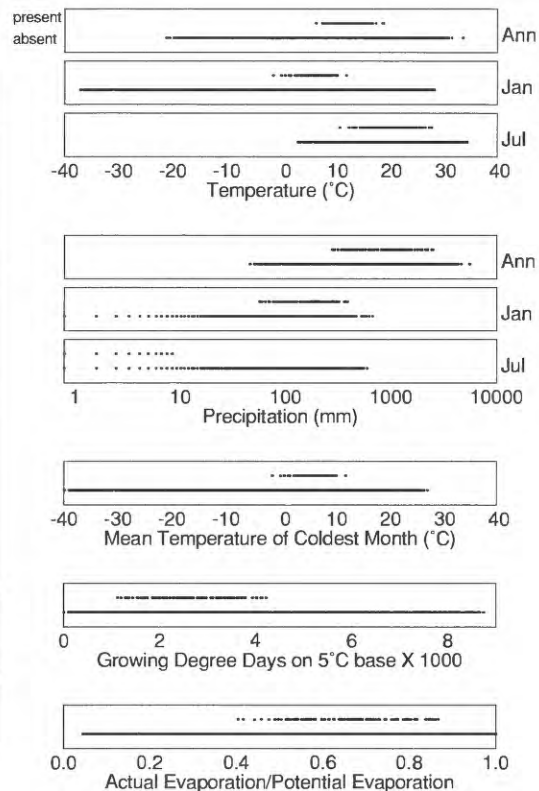
Ulmus serotina



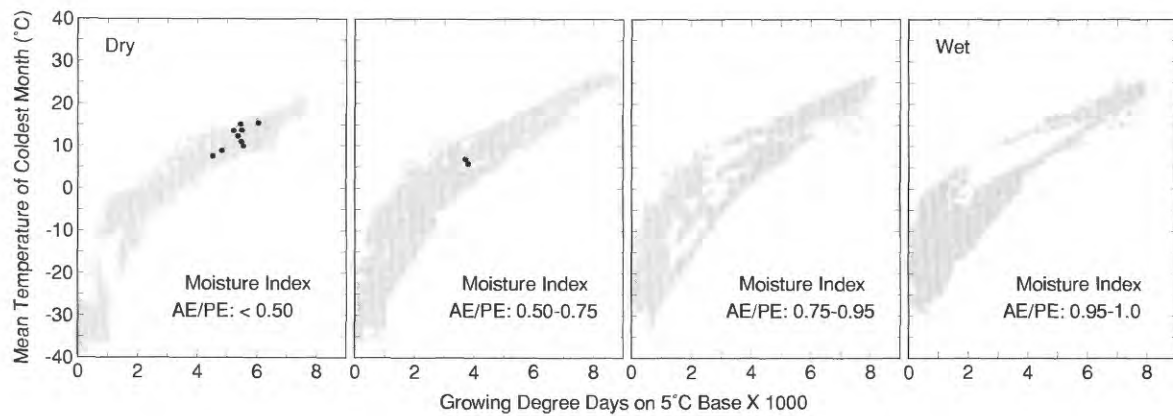
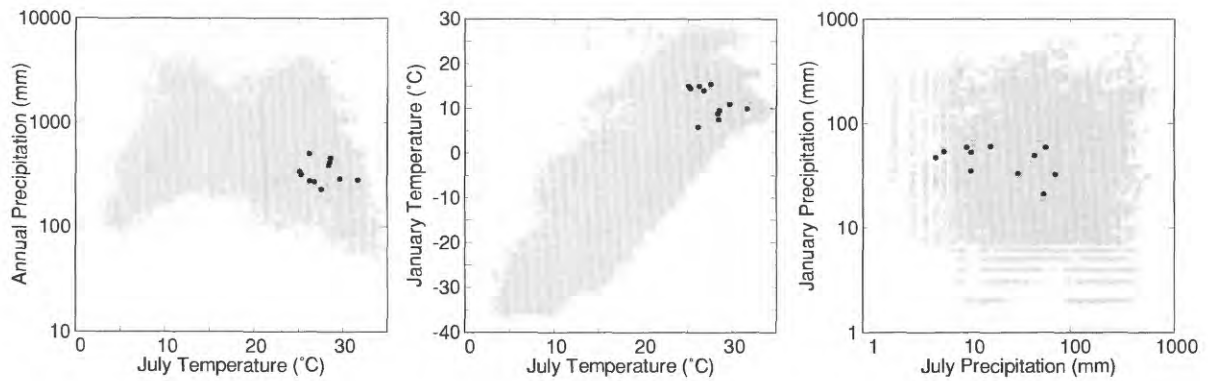
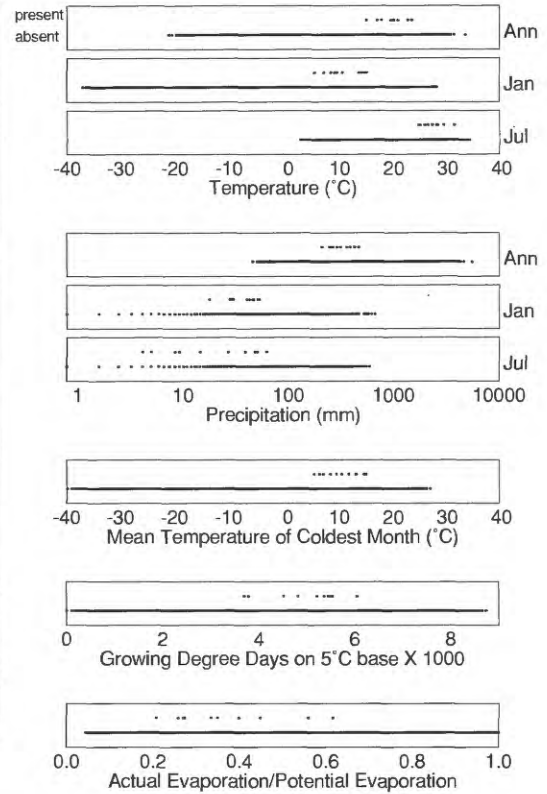
Ulmus thomasii



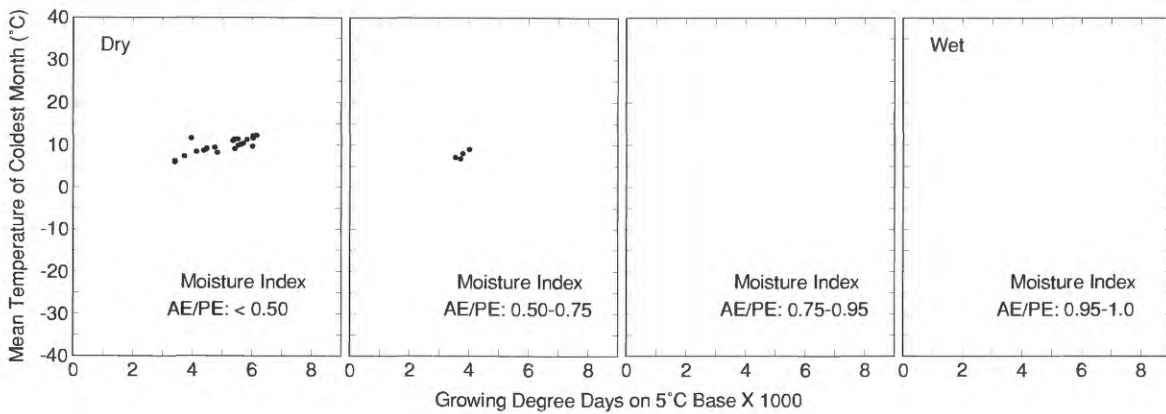
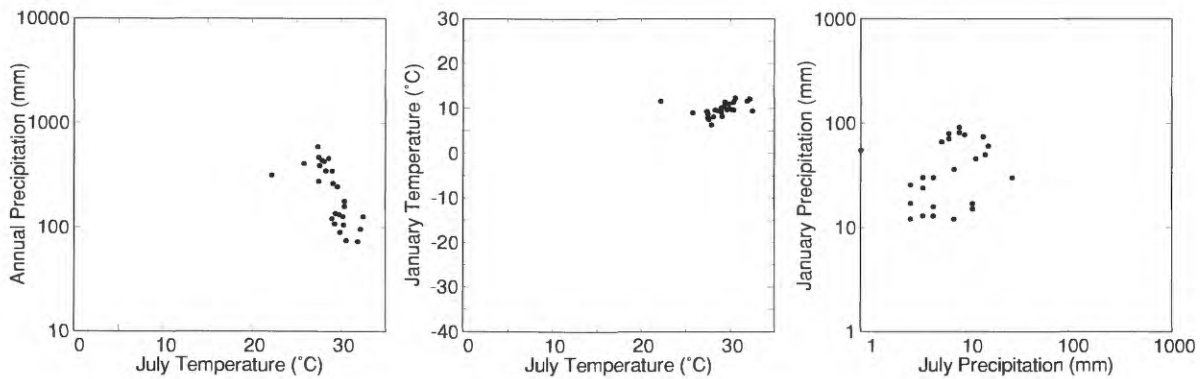
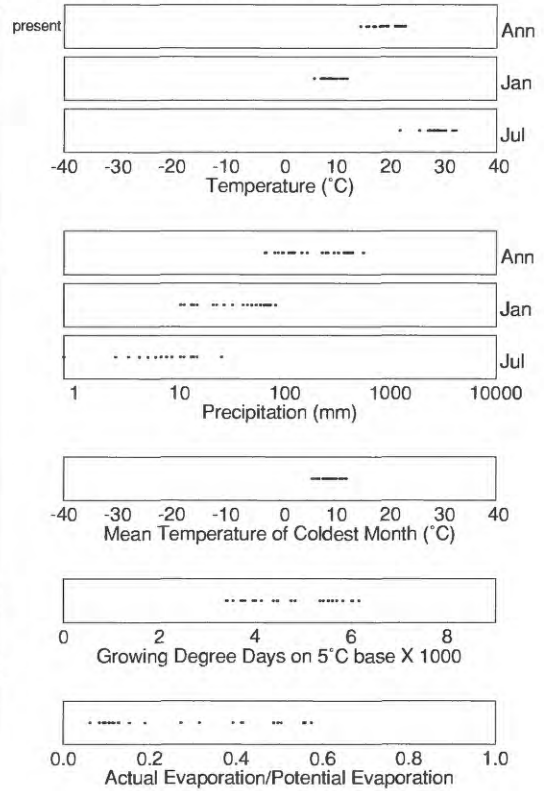
Umbellularia californica



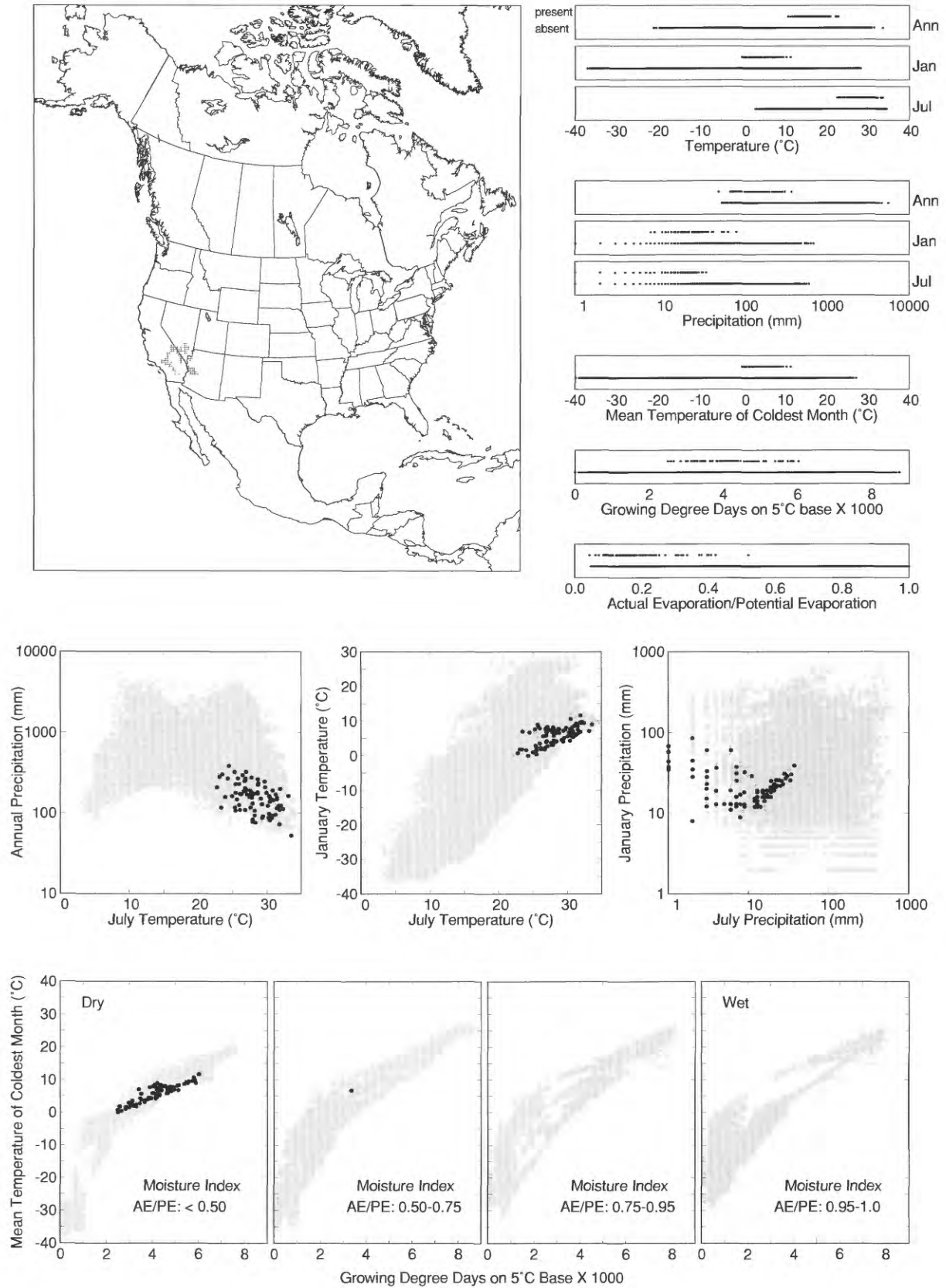
Vauquelinia californica



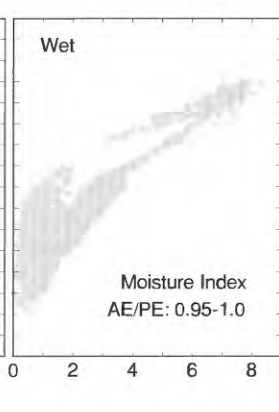
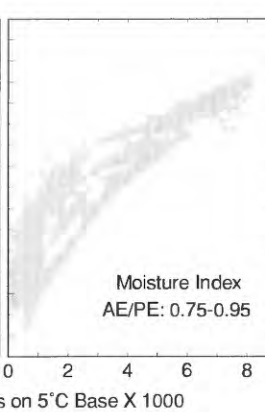
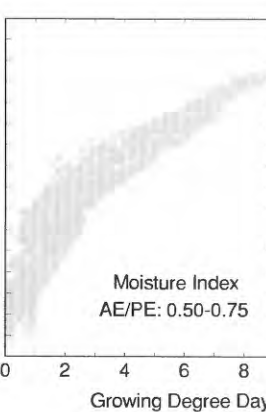
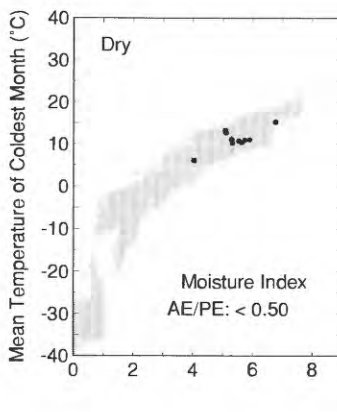
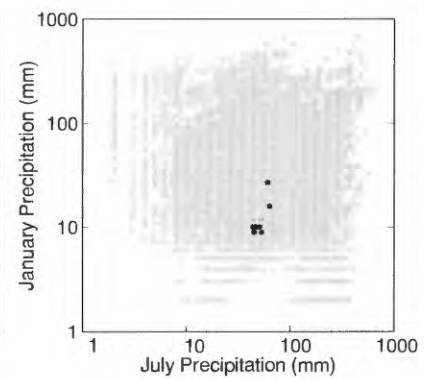
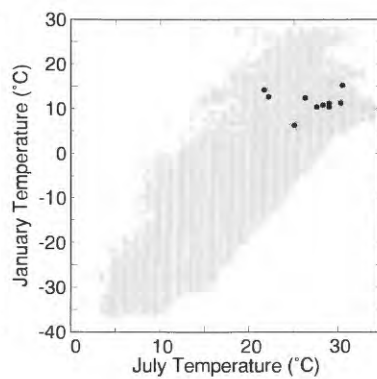
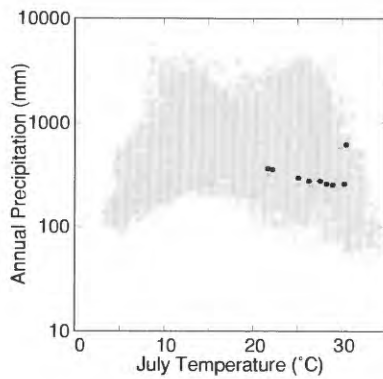
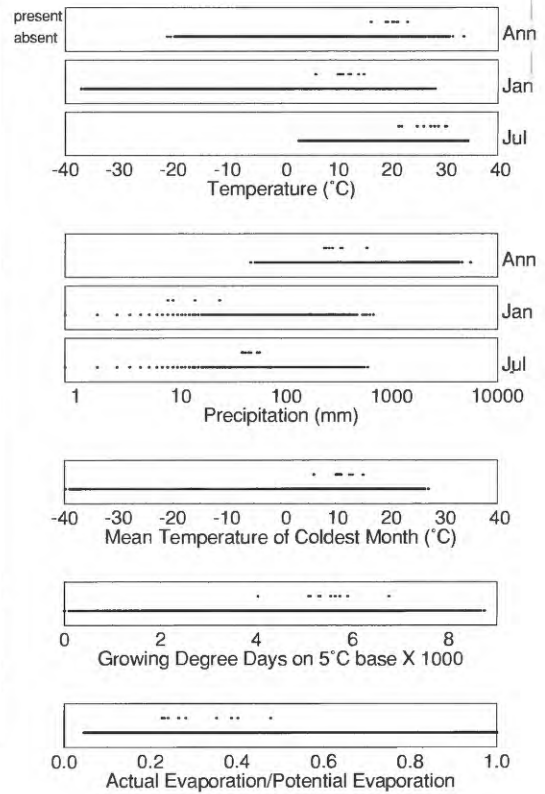
Washingtonia filifera (minimal data - nearest grid points used with environmental parameters)



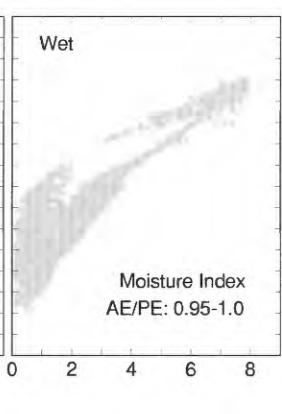
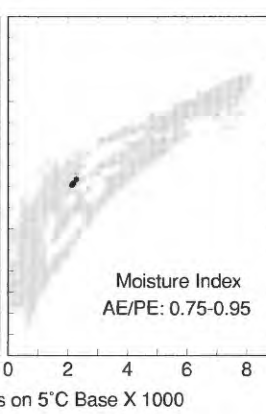
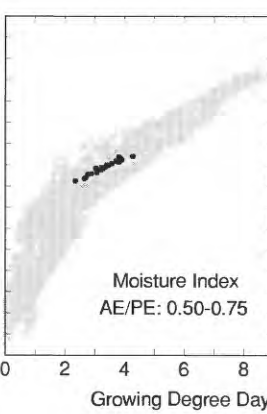
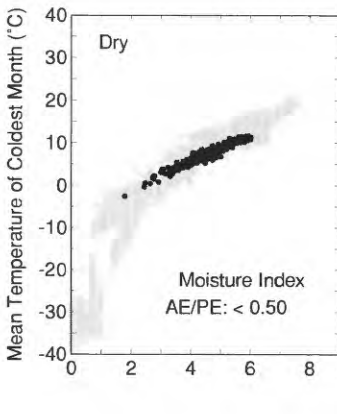
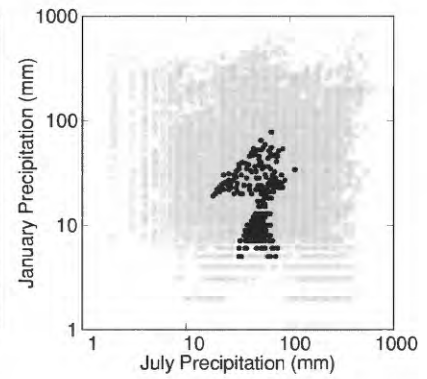
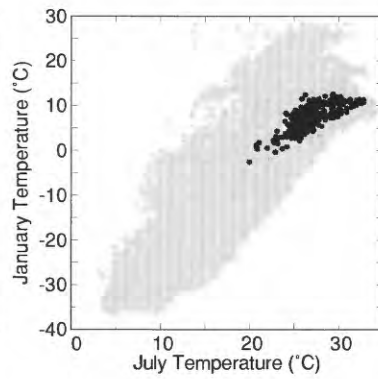
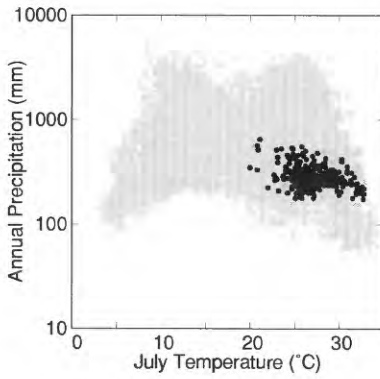
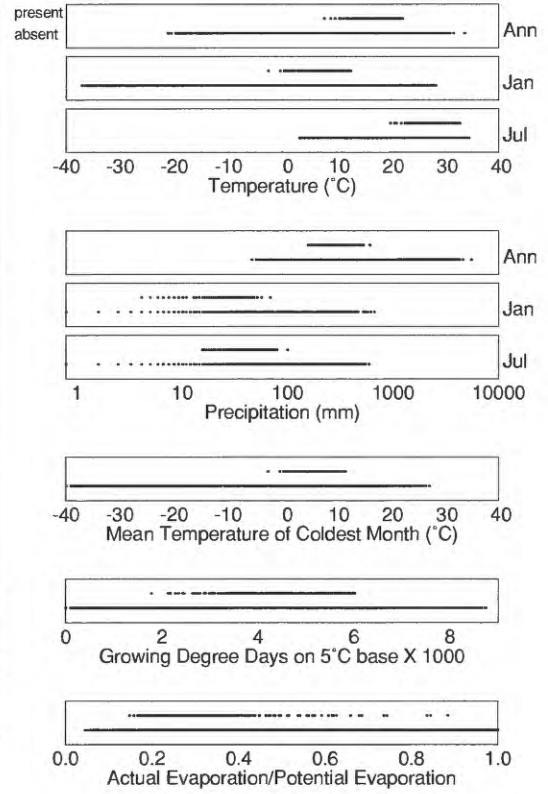
Yucca brevifolia



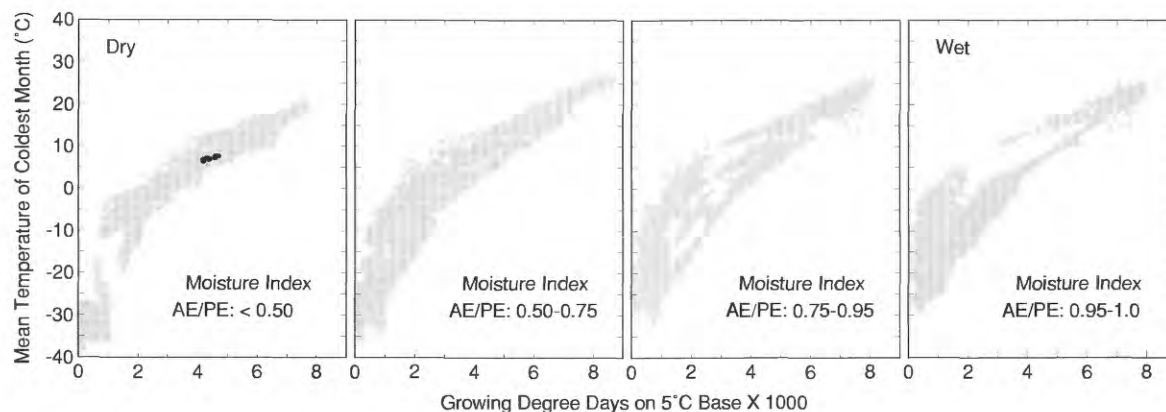
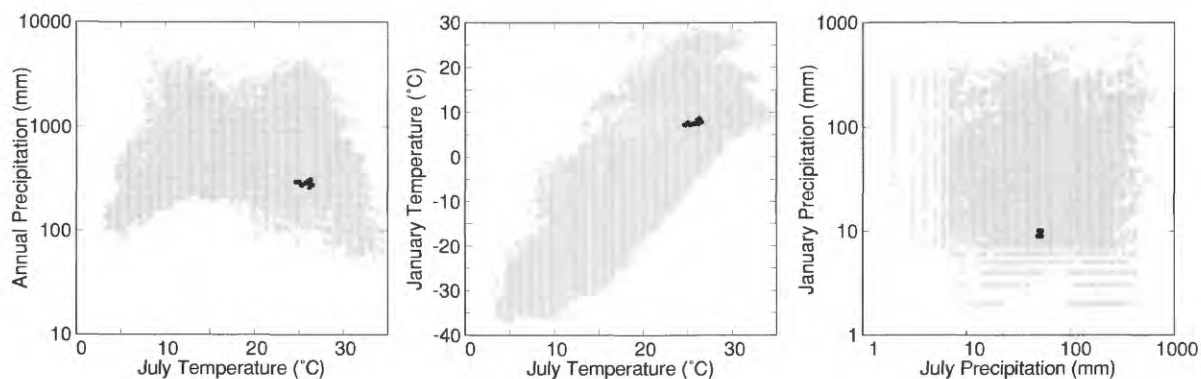
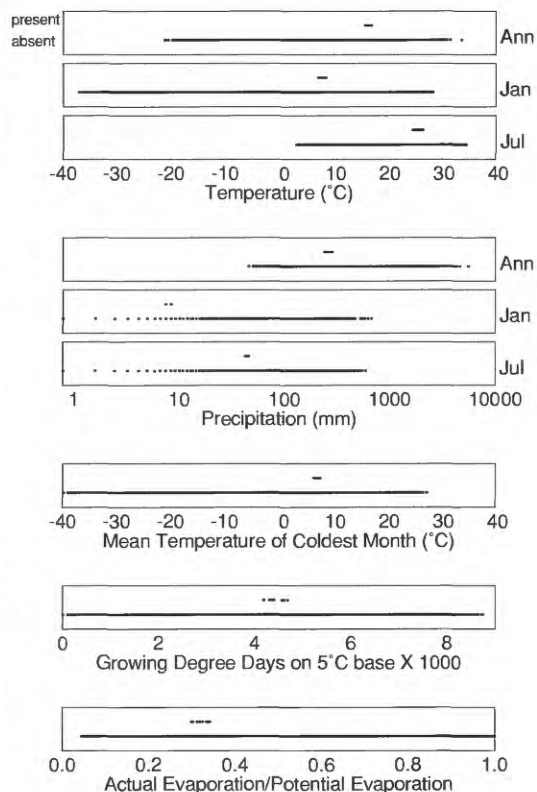
Yucca carnerosana



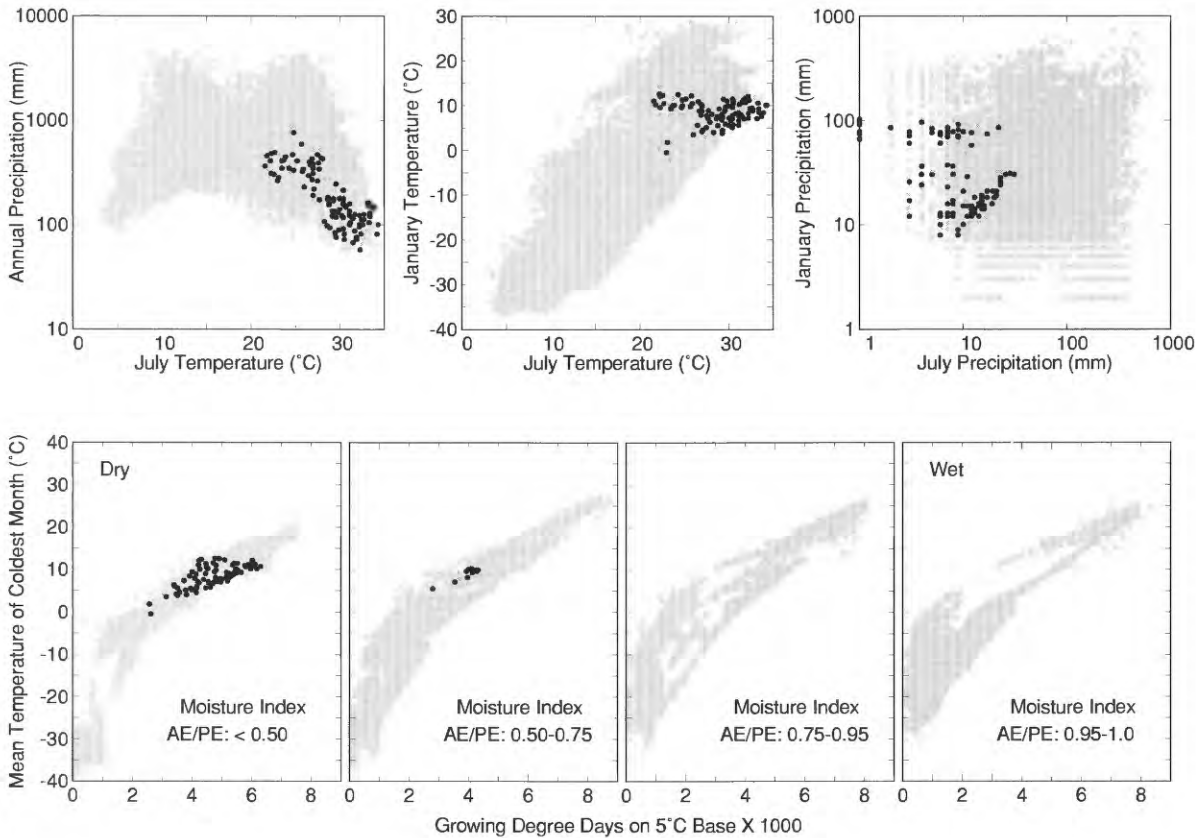
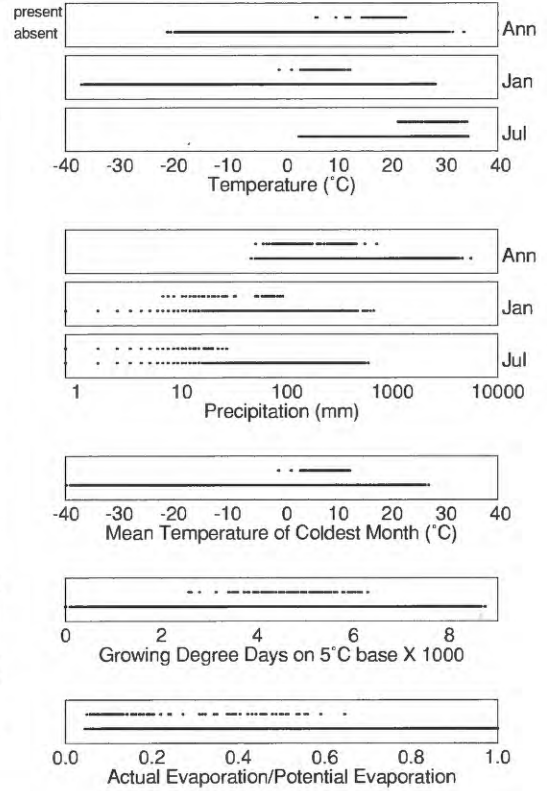
Yucca elata



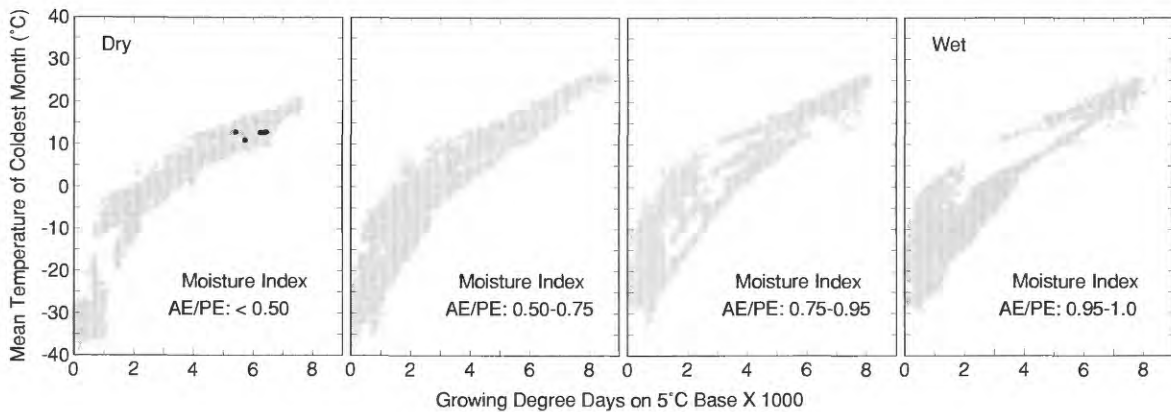
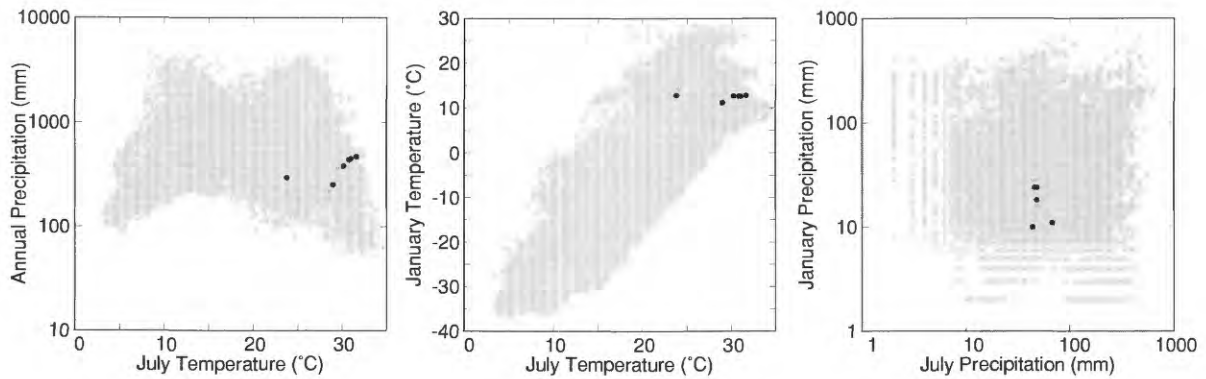
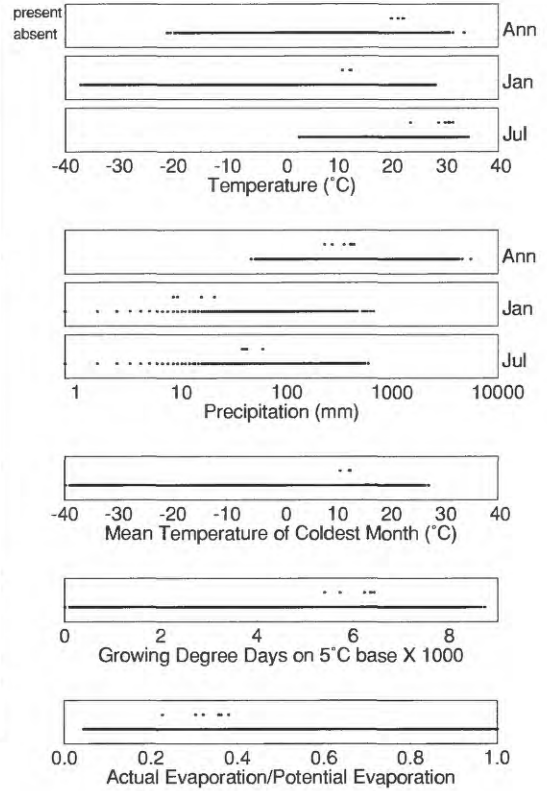
Yucca faxoniana



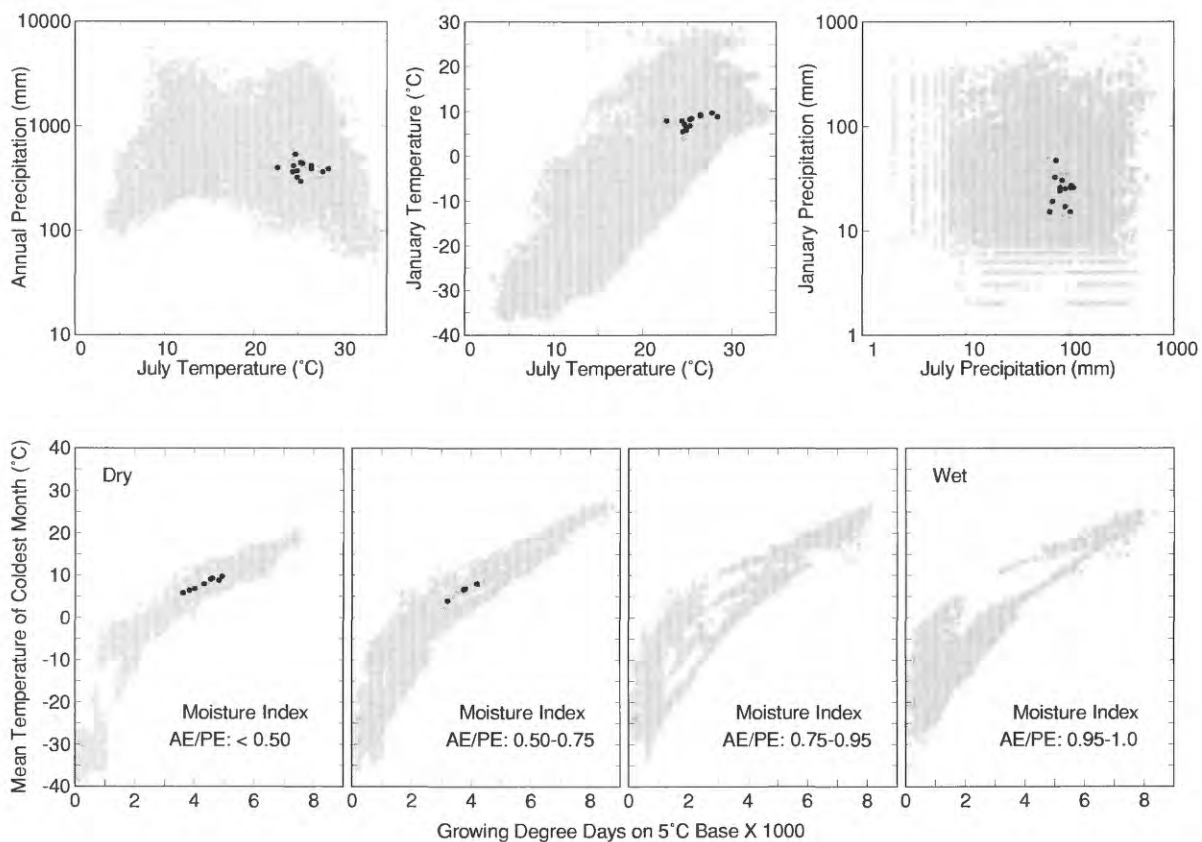
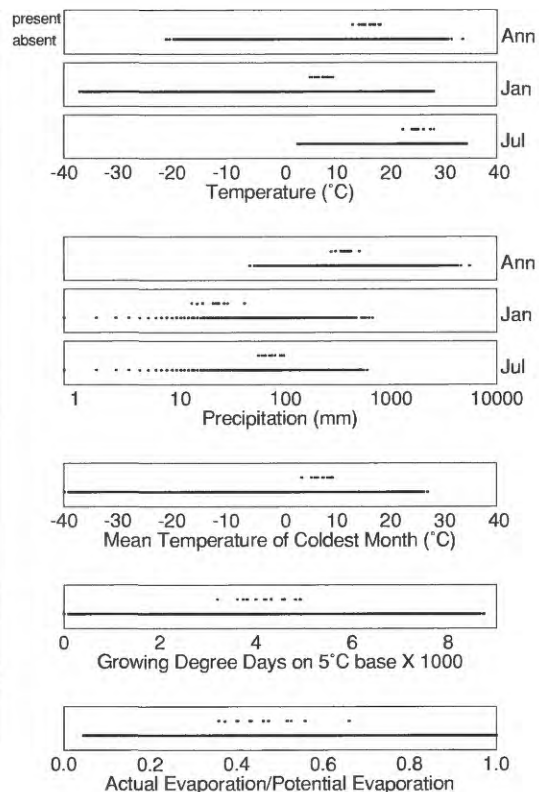
Yucca mohavensis



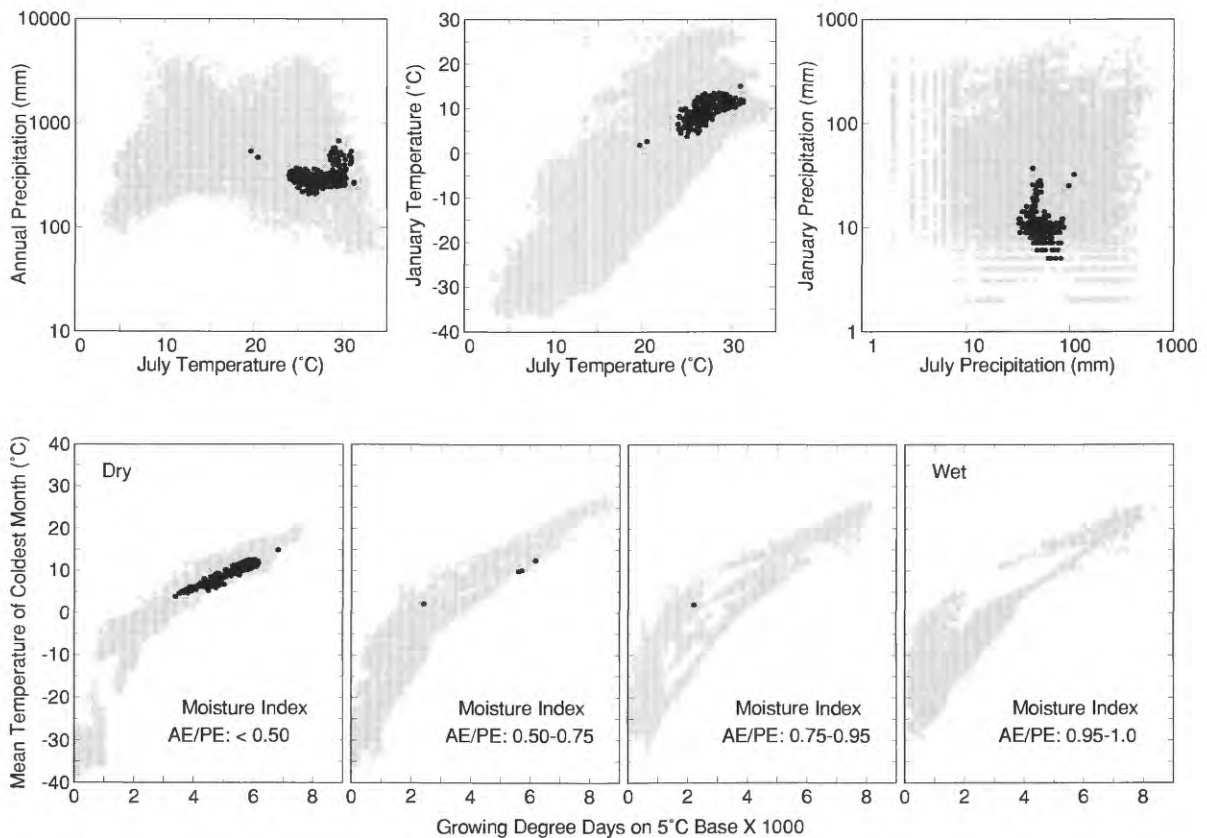
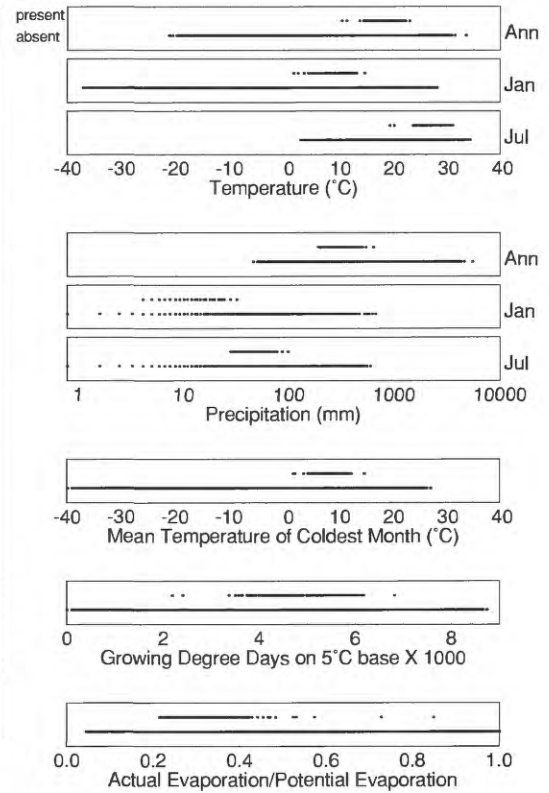
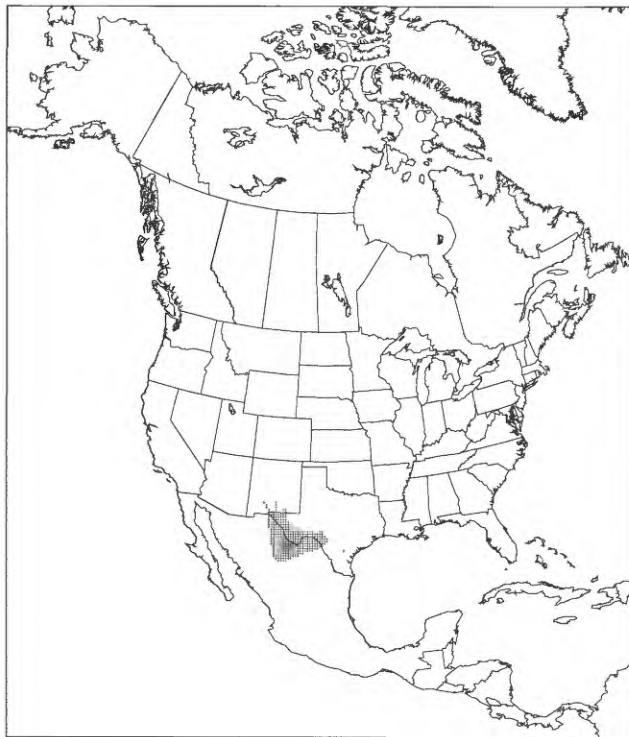
Yucca rostrata



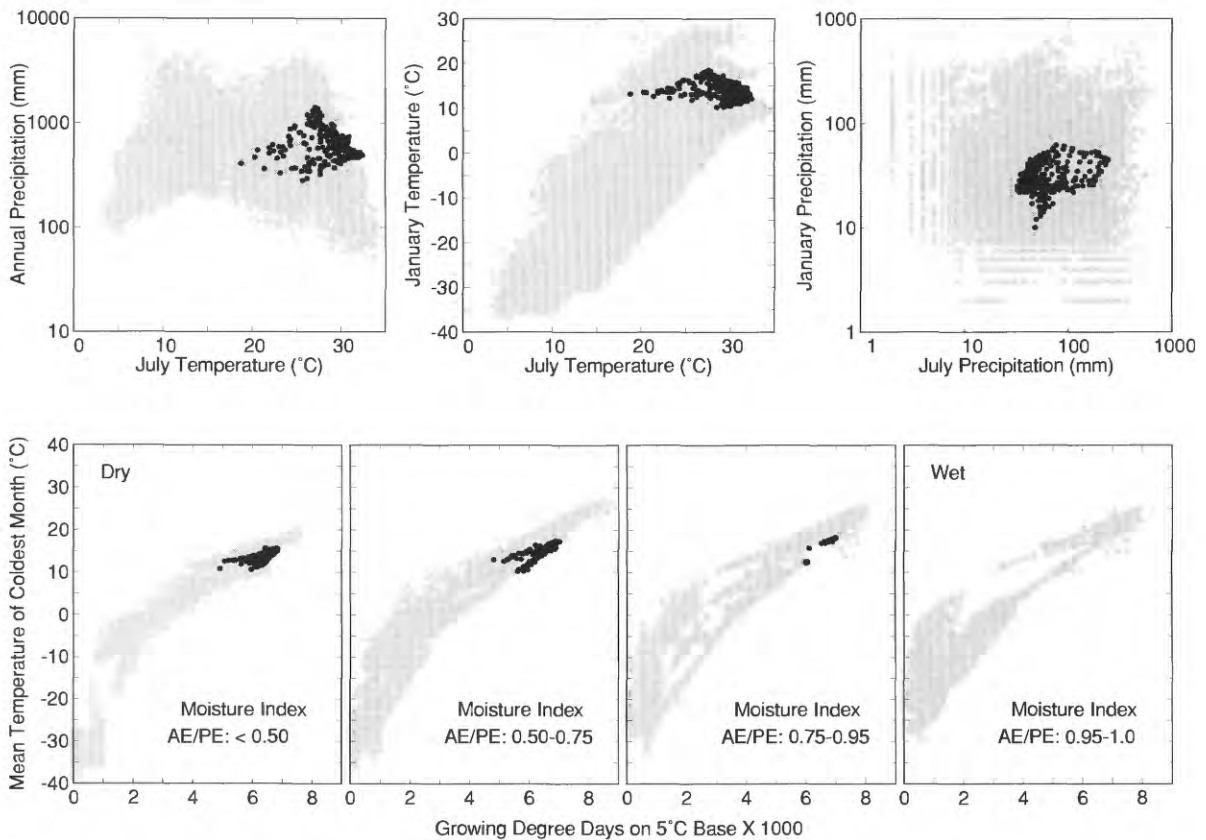
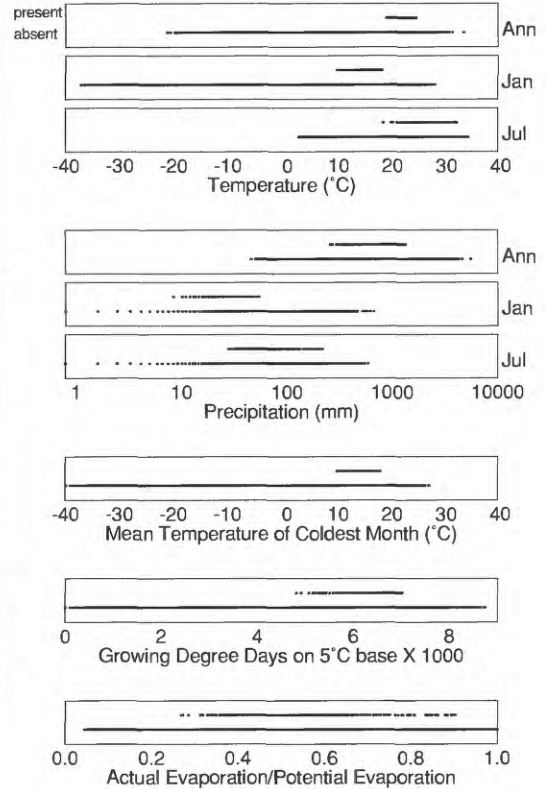
Yucca schottii



Yucca torreyi

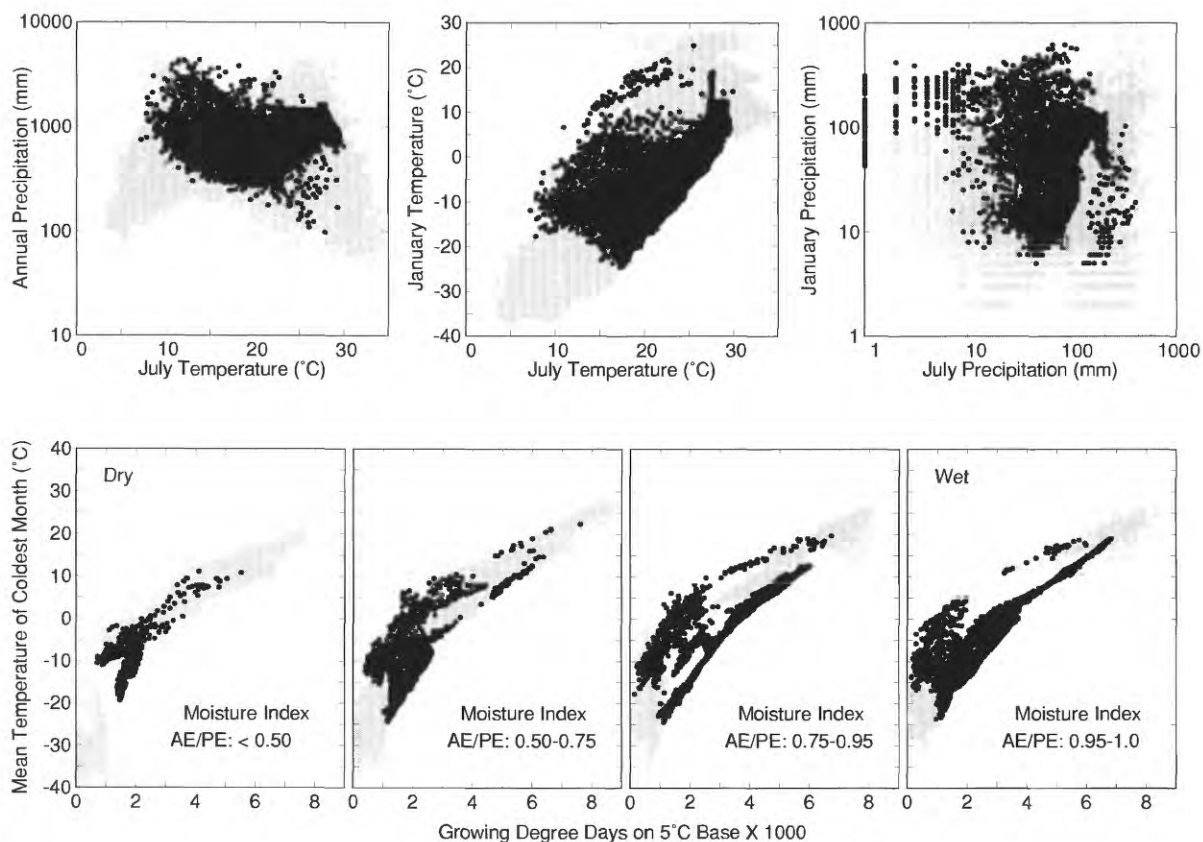
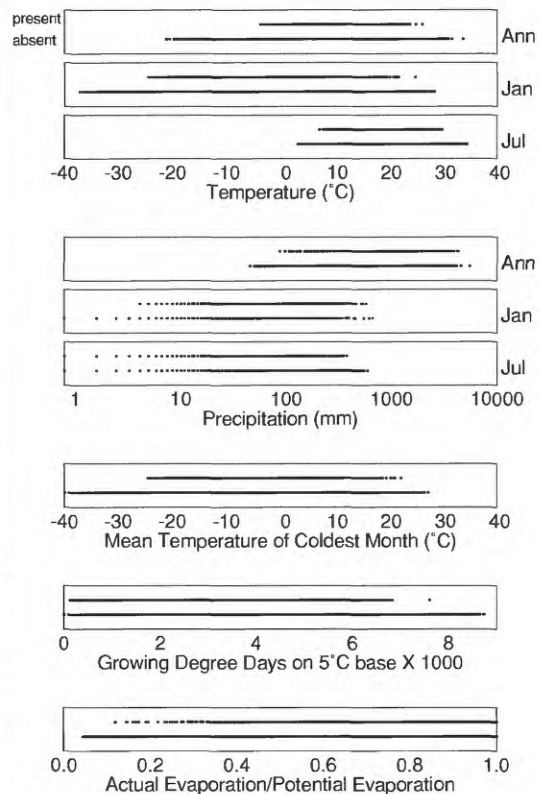
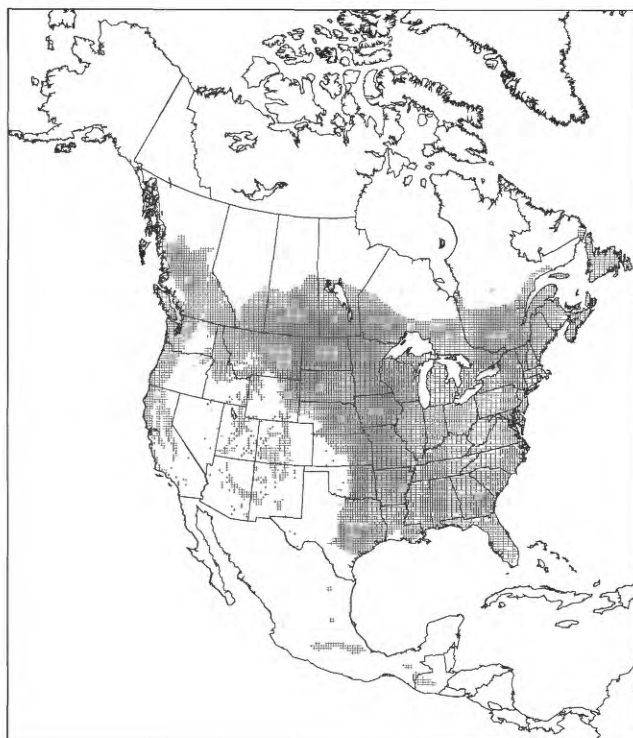


Yucca treculeana

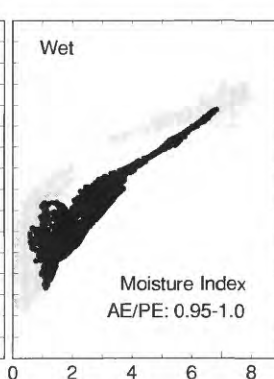
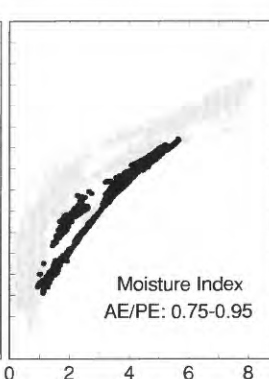
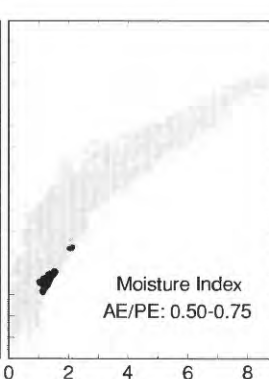
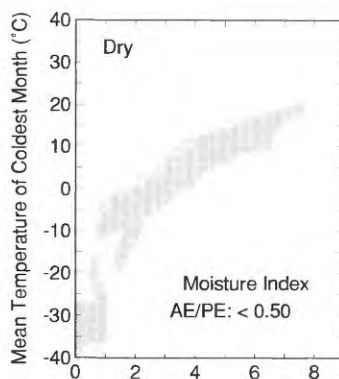
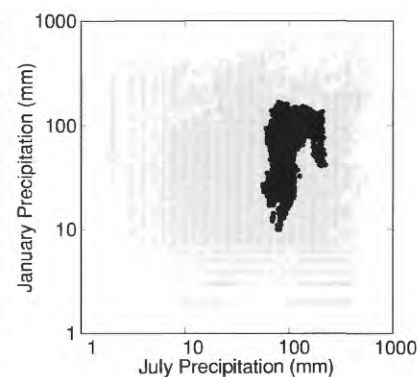
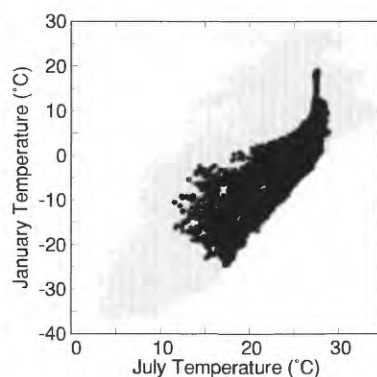
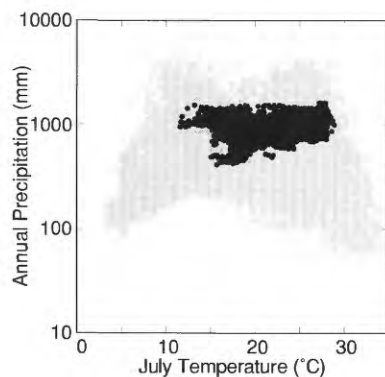
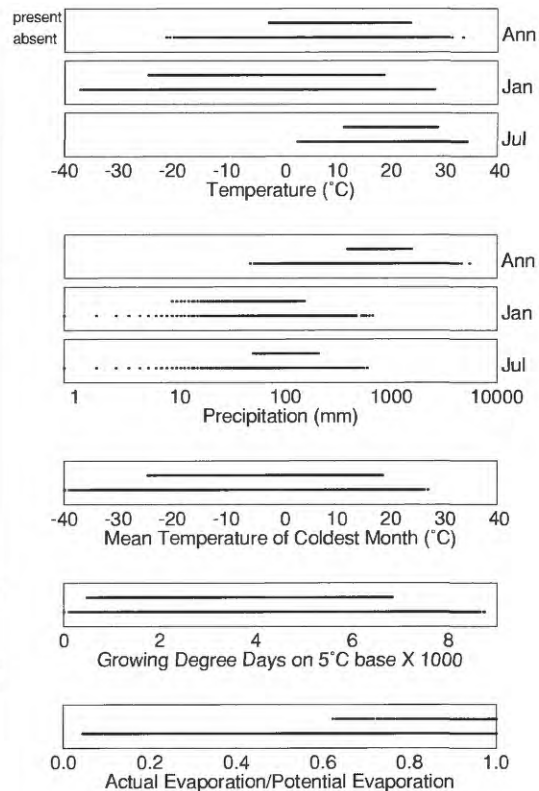
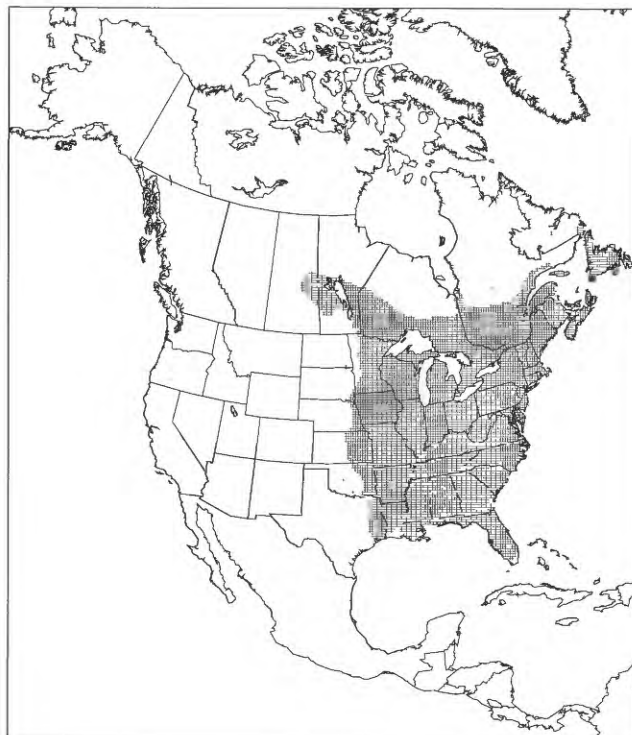


Hardwood Genera and Groups— Graphical Displays

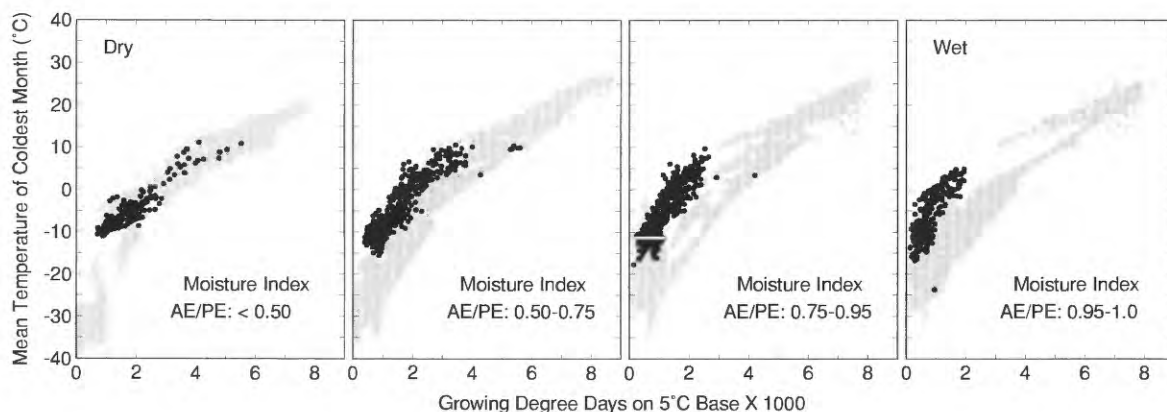
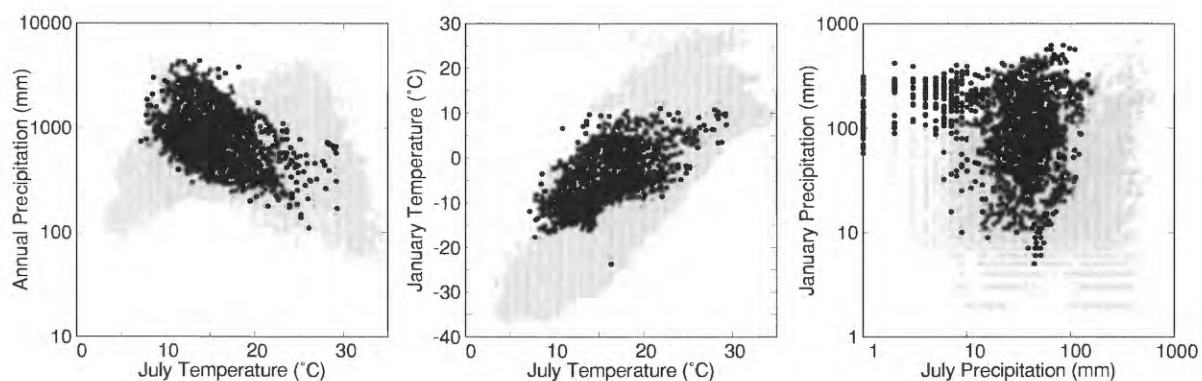
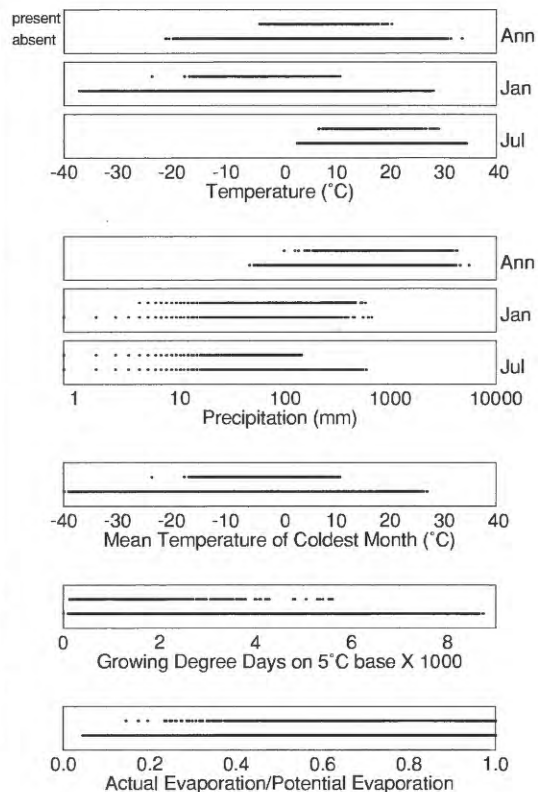
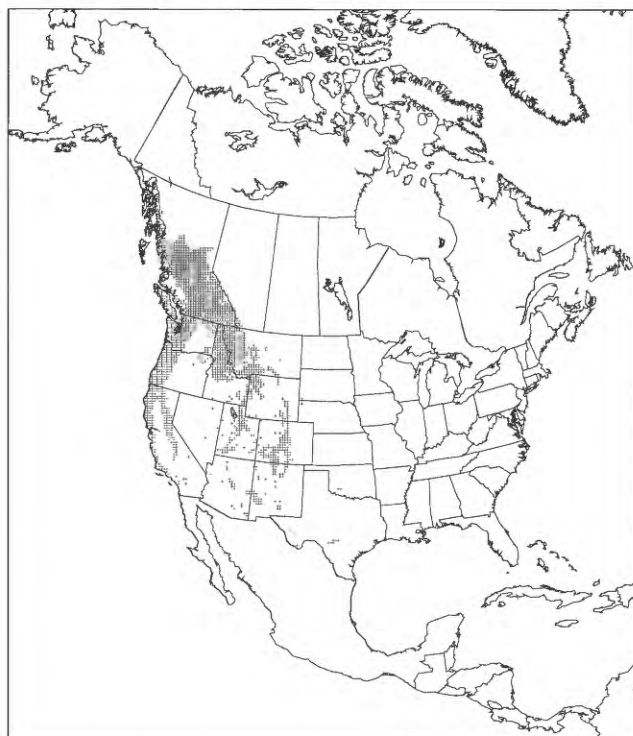




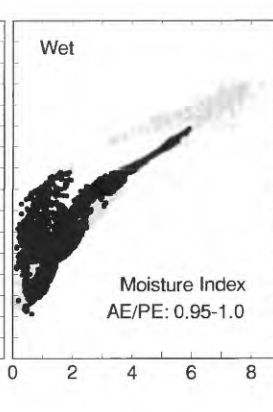
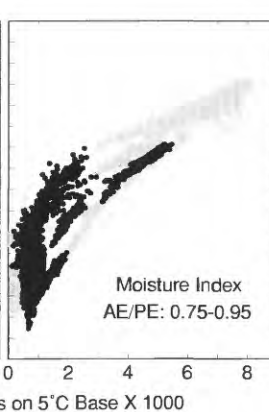
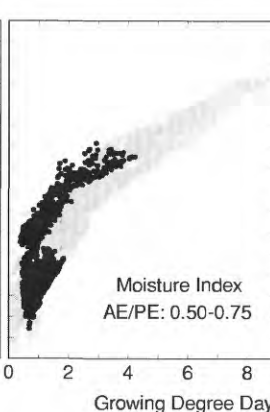
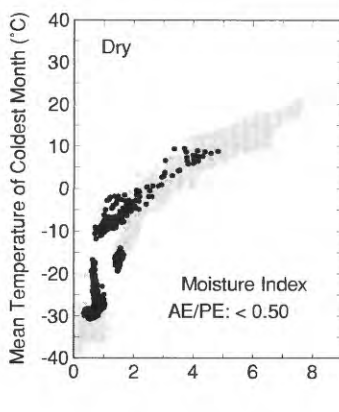
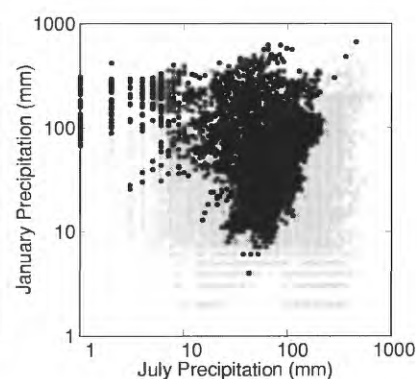
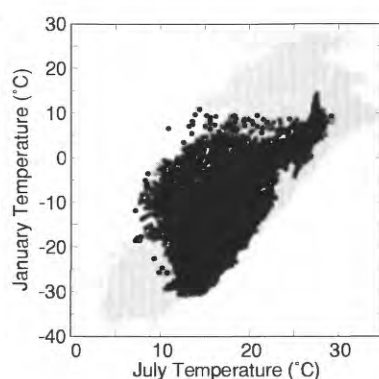
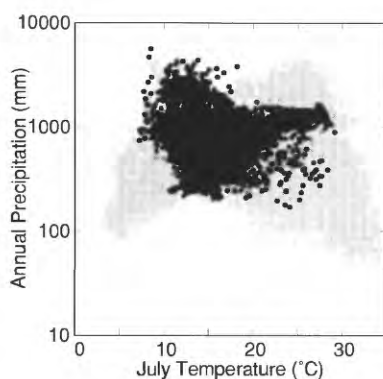
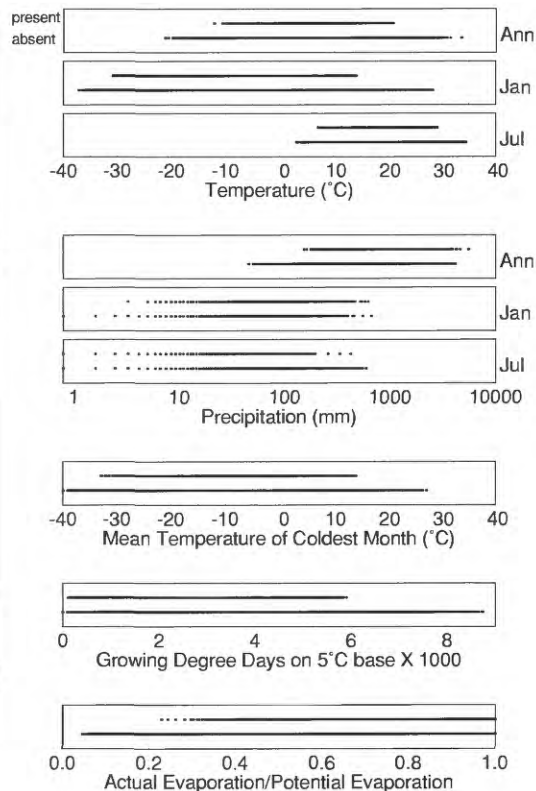
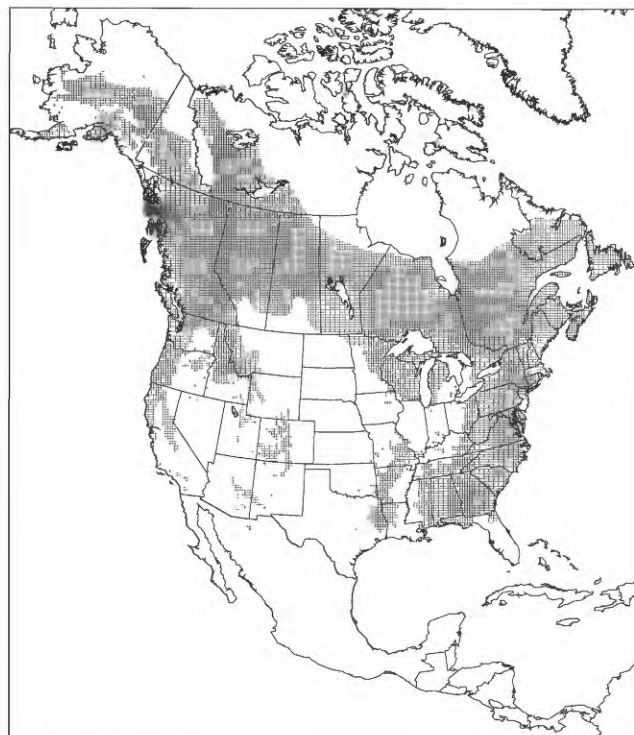
ACER EAST



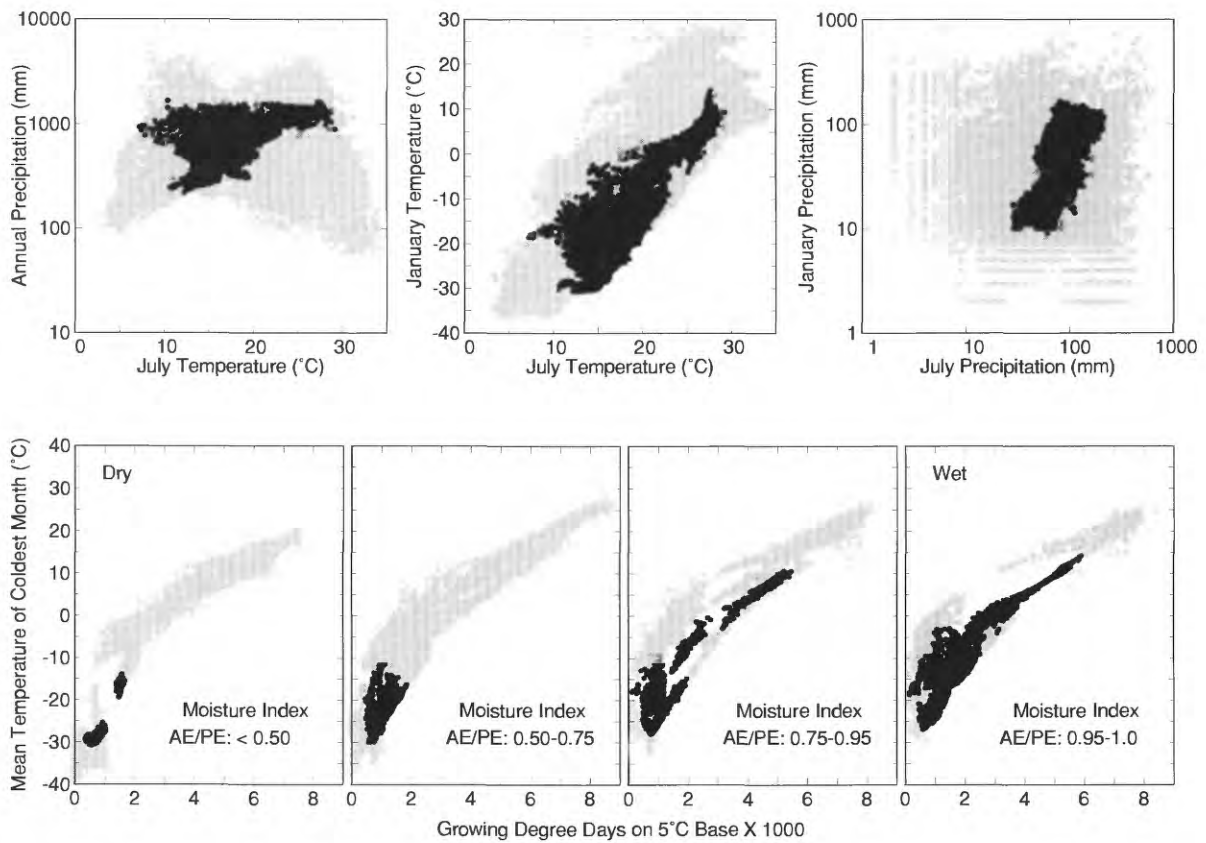
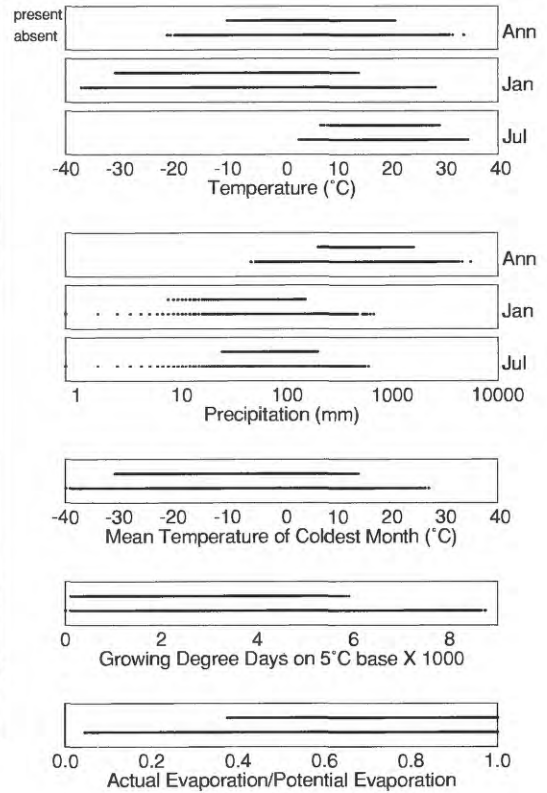
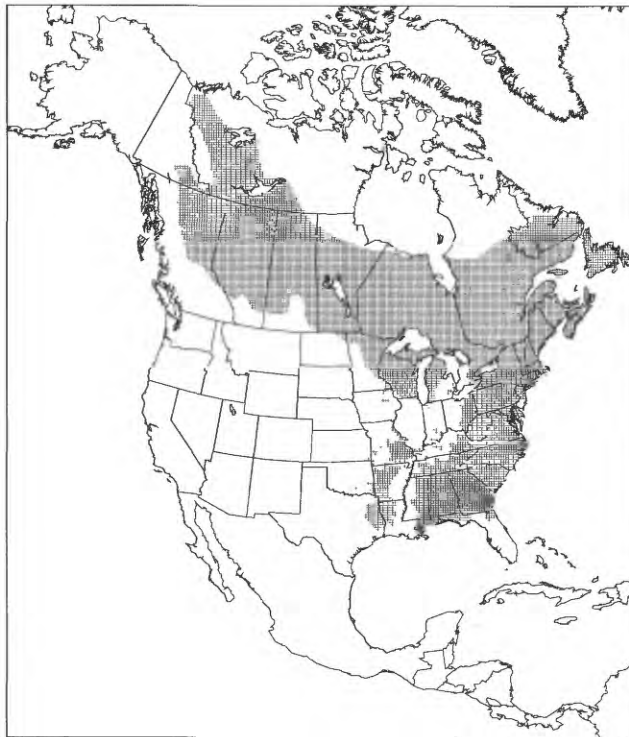
ACER WEST



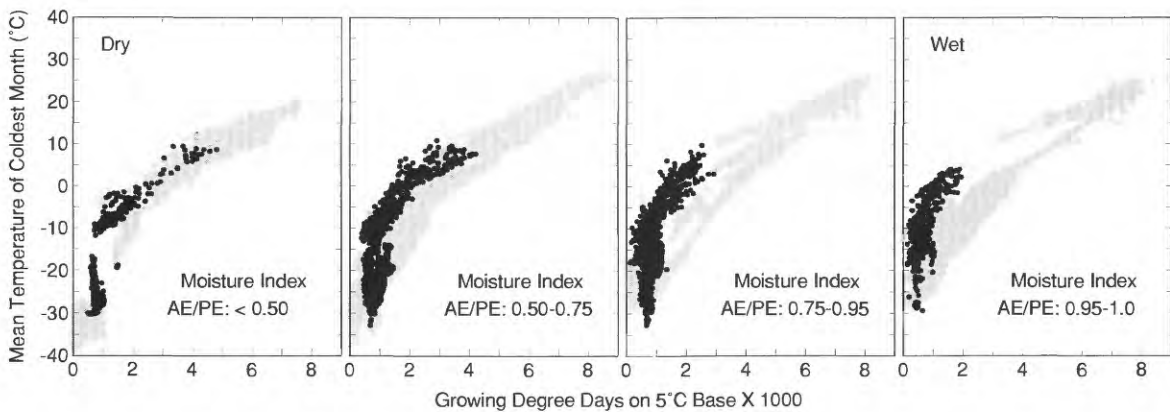
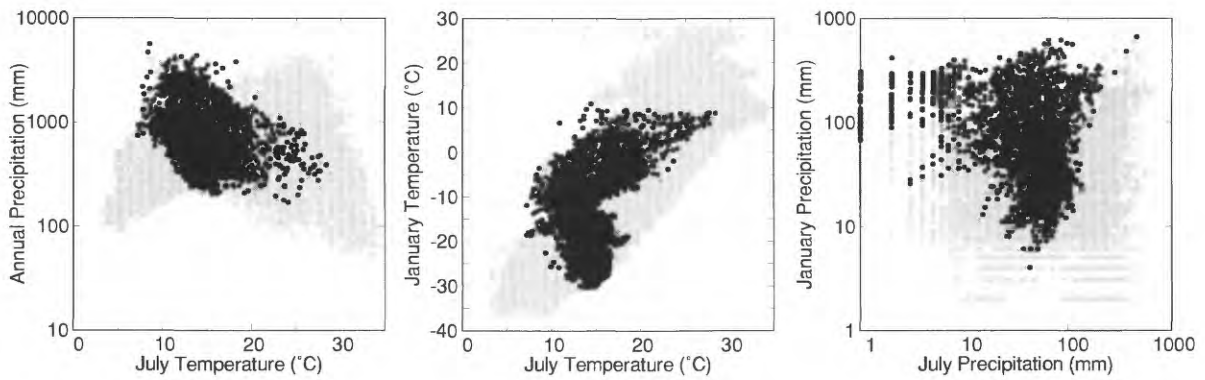
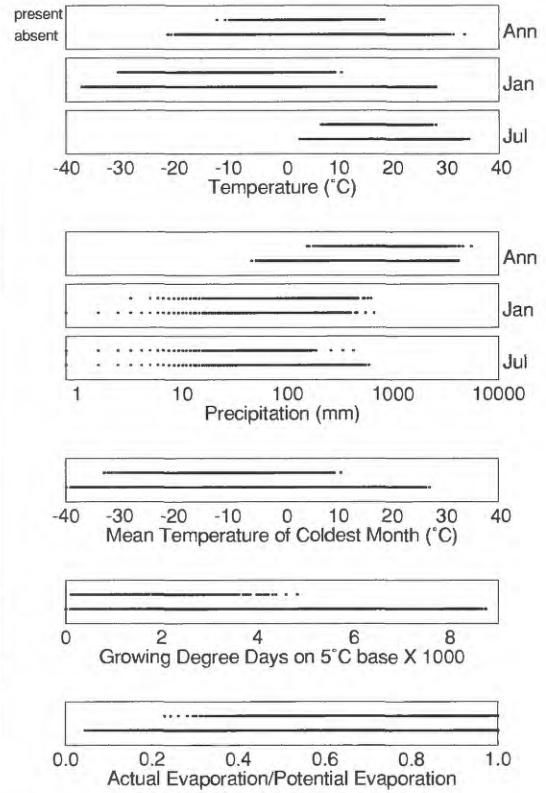
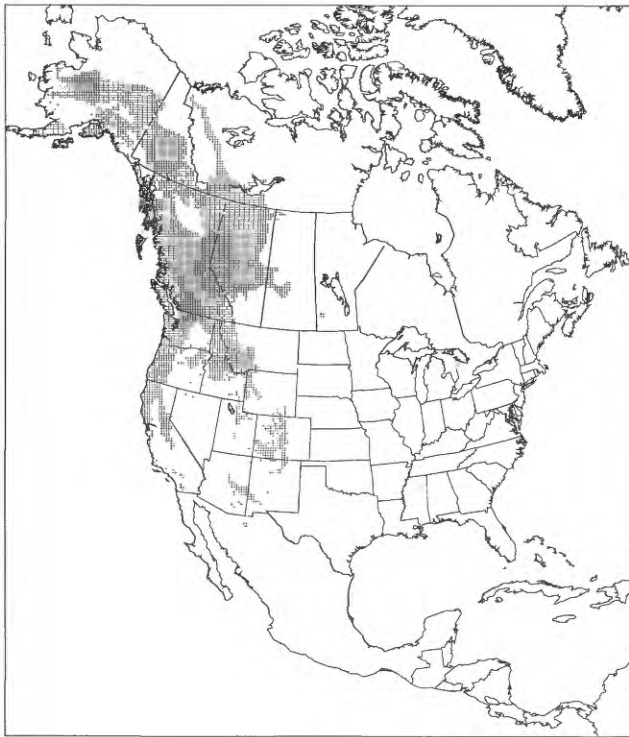
ALNUS



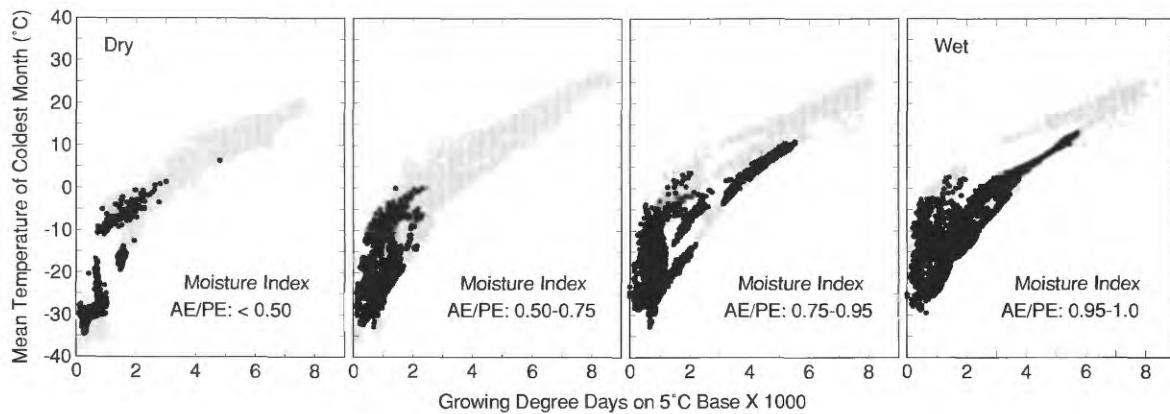
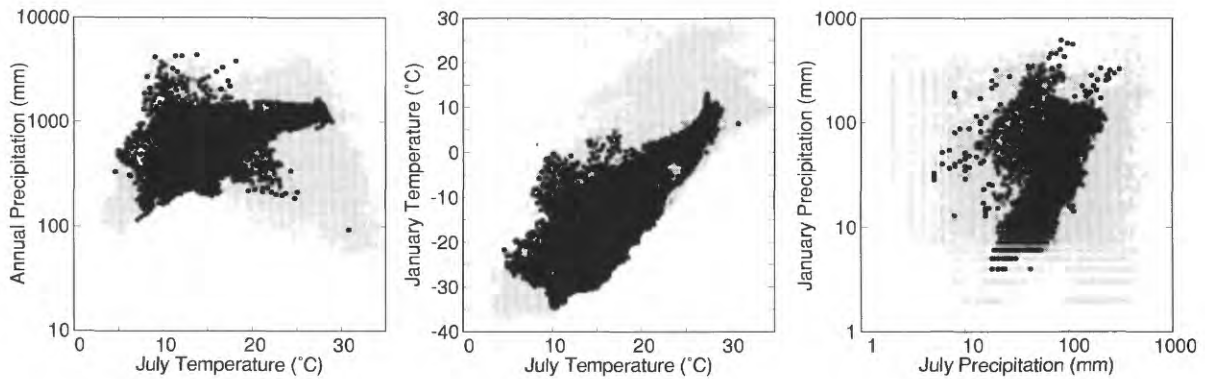
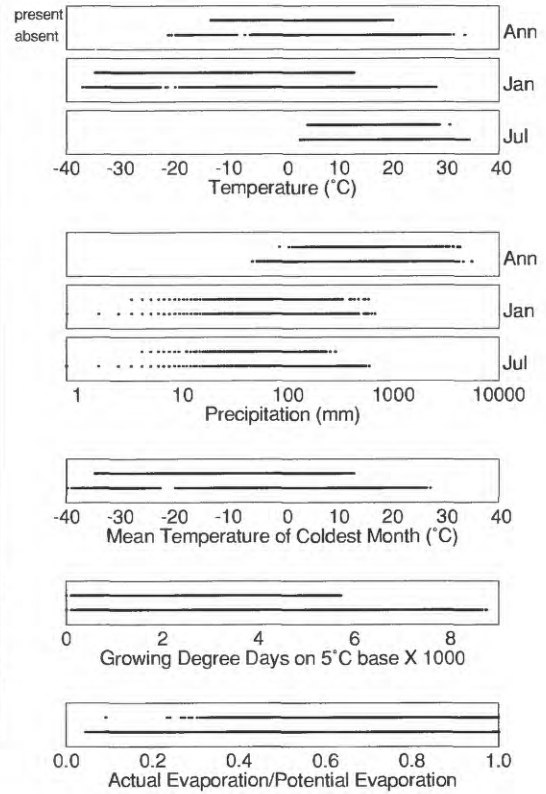
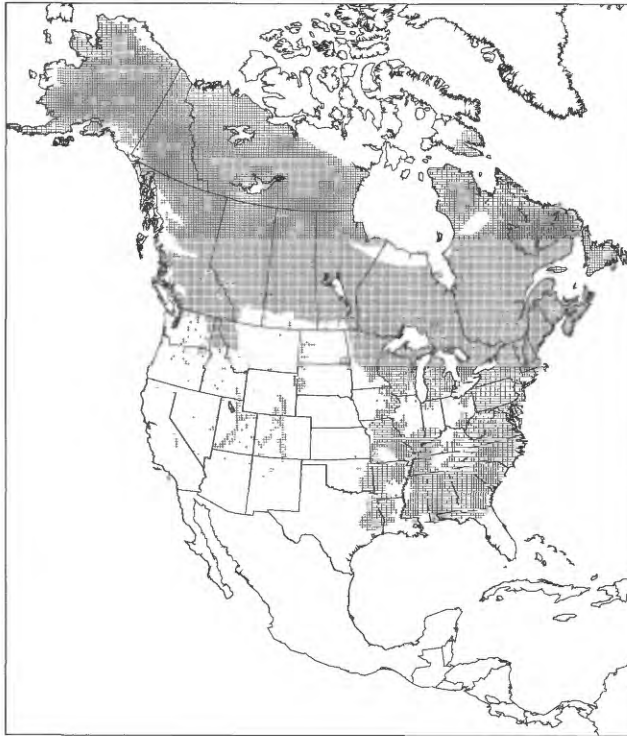
ALNUS EAST



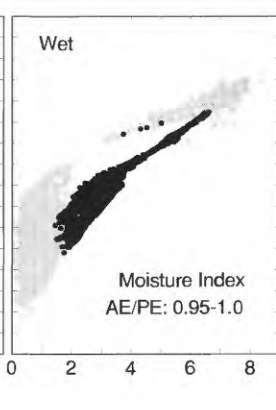
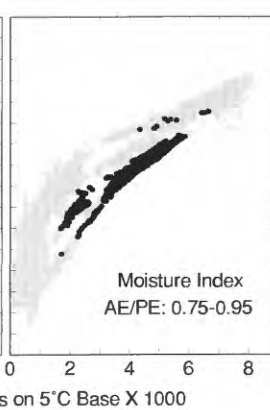
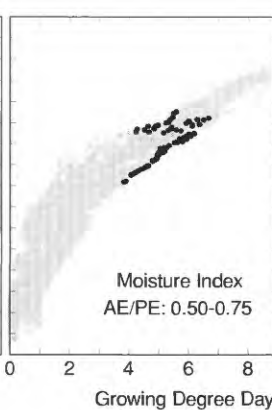
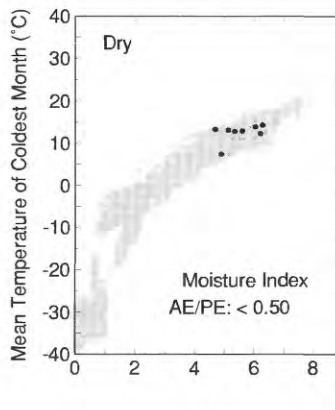
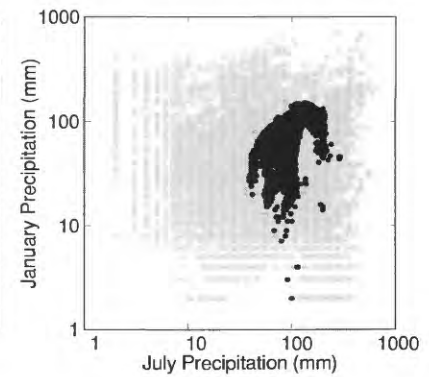
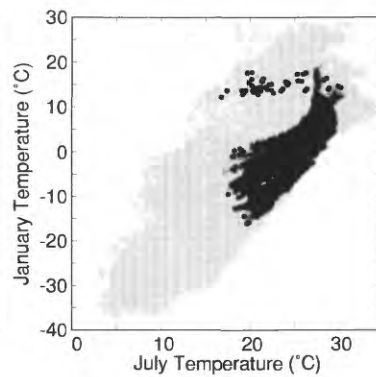
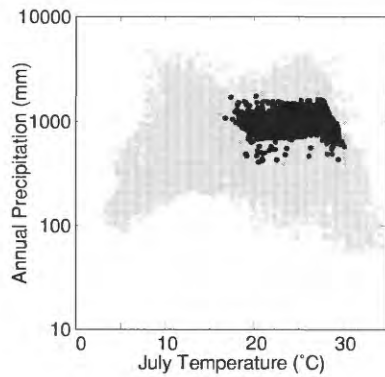
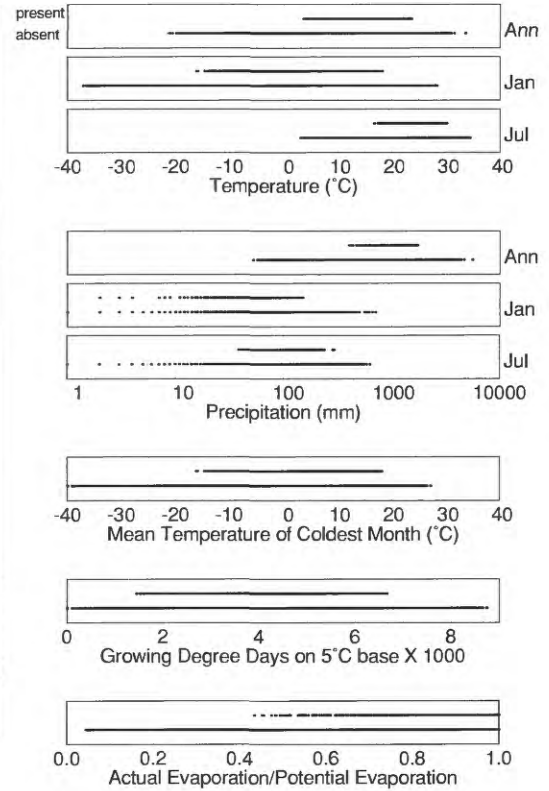
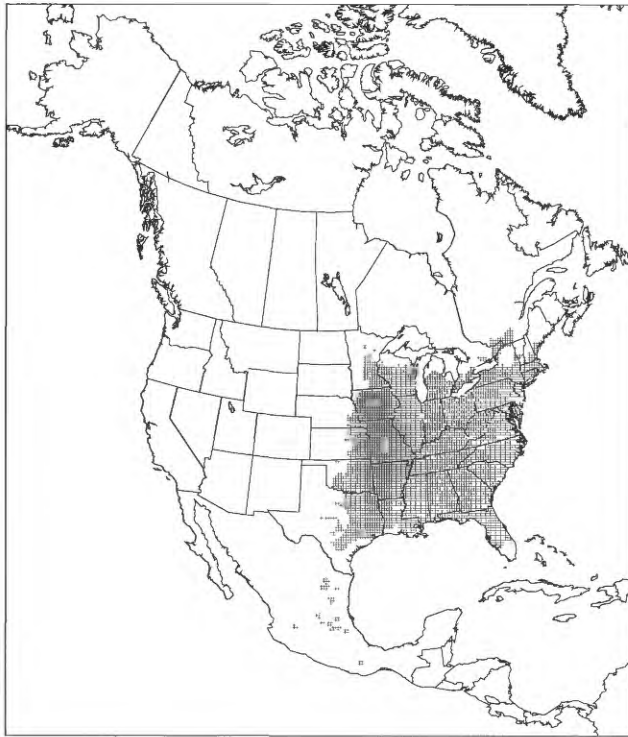
ALNUS WEST



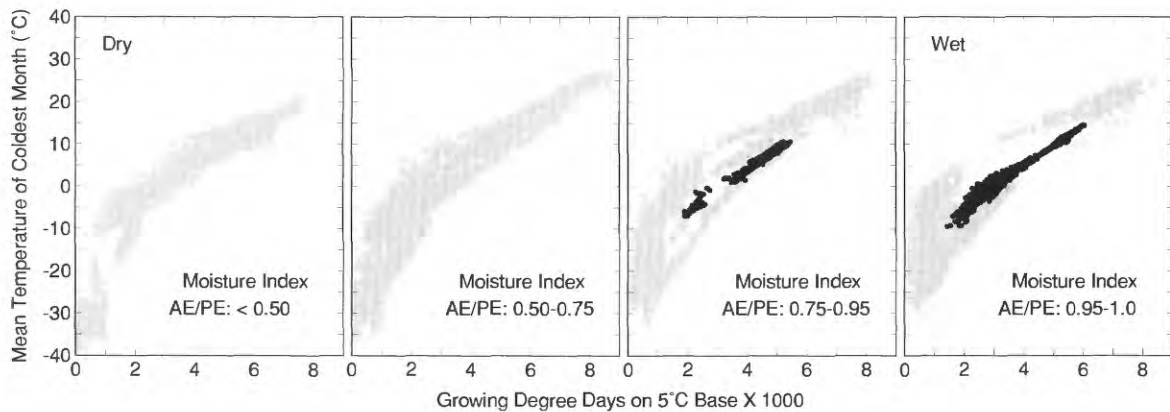
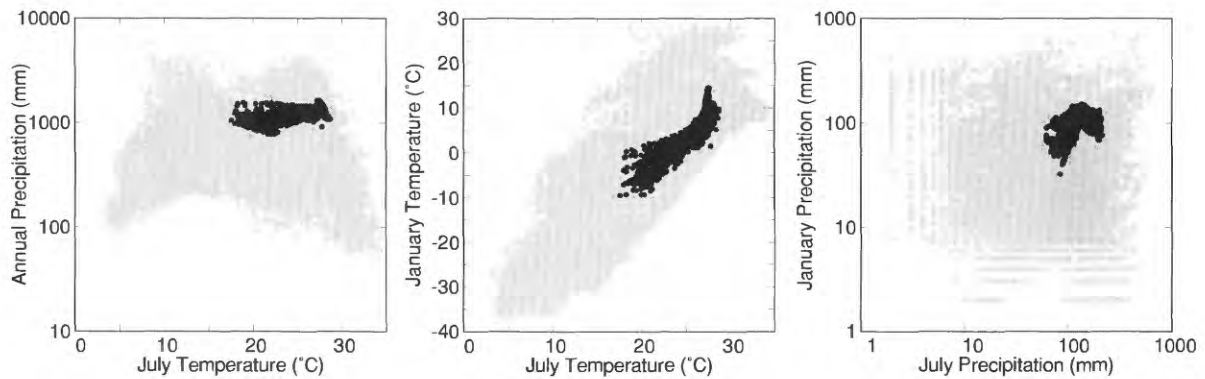
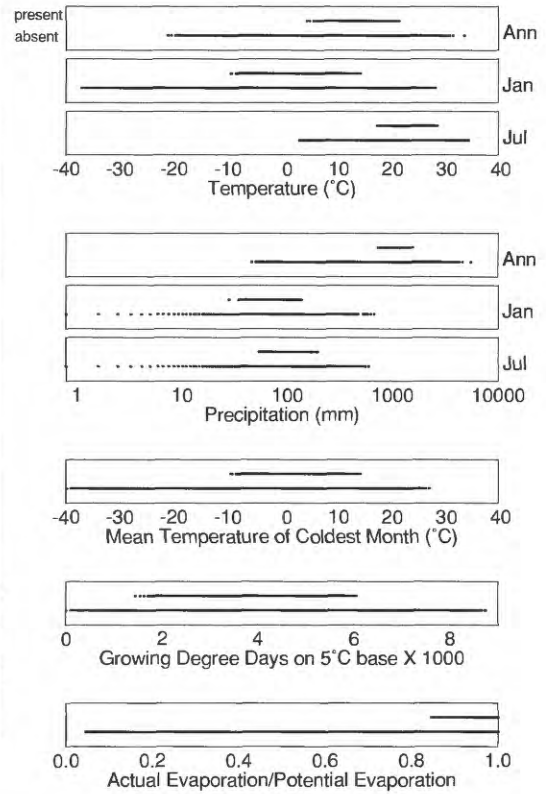
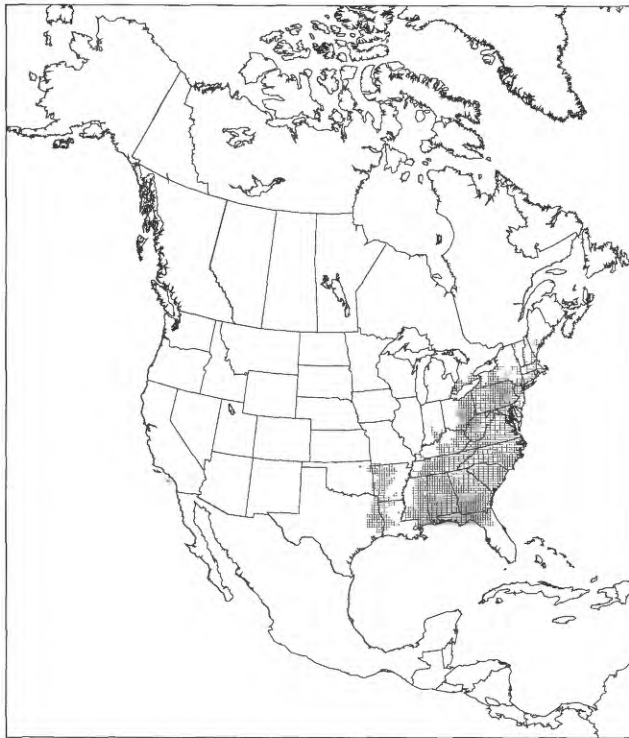
BETULA



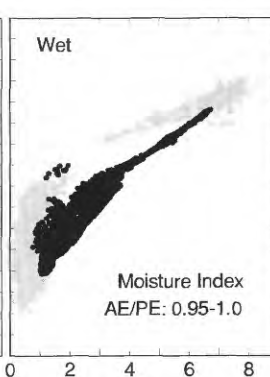
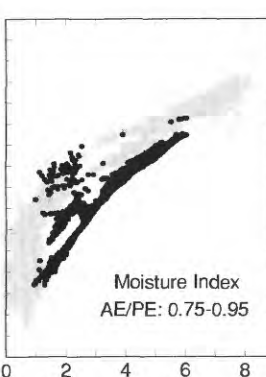
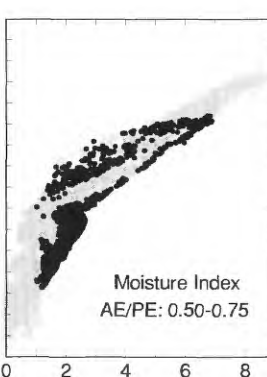
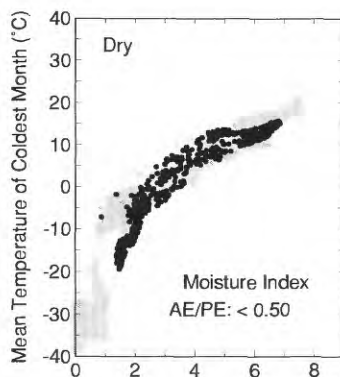
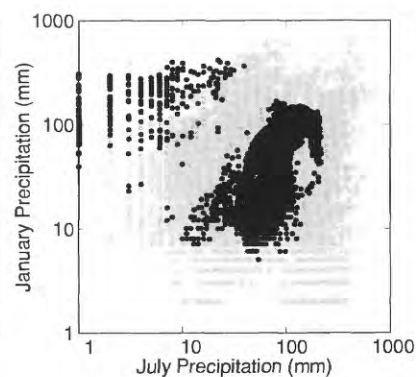
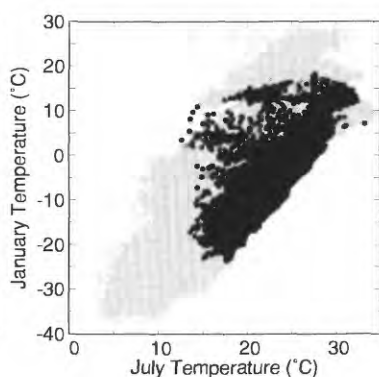
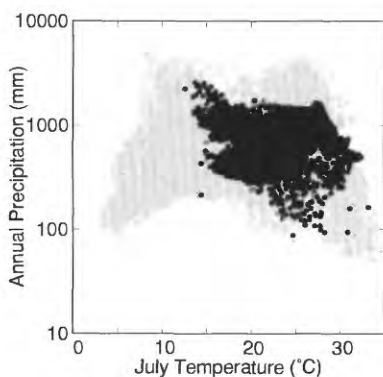
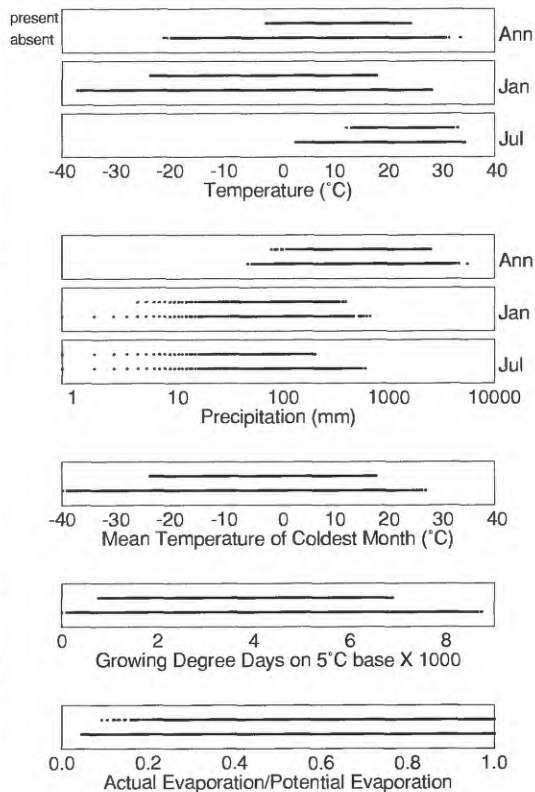
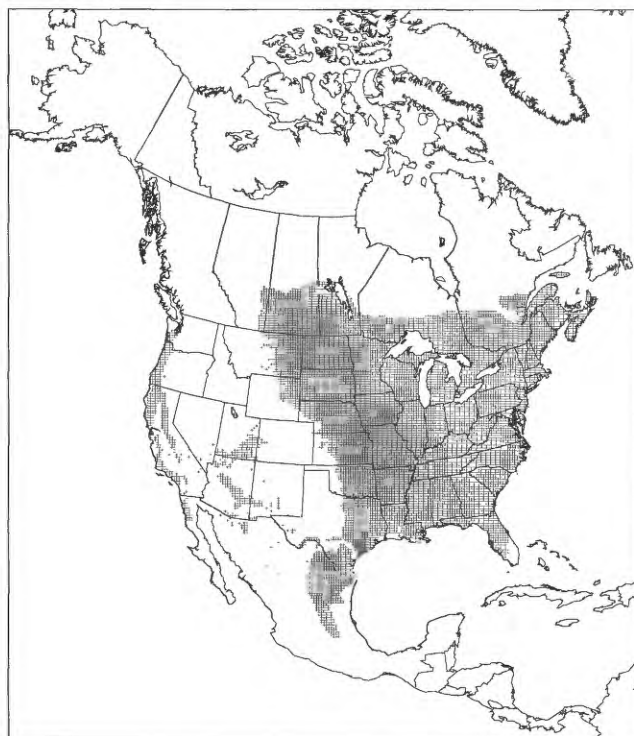
CARYA



CASTANEA

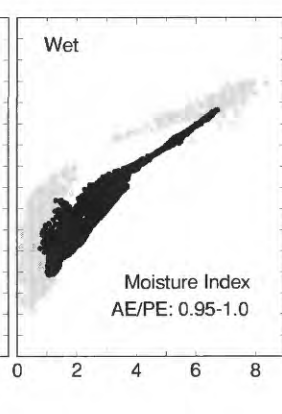
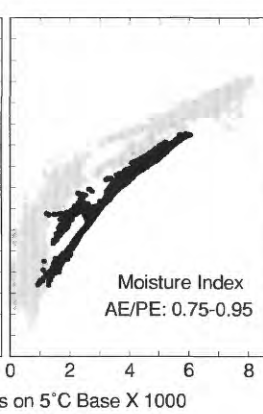
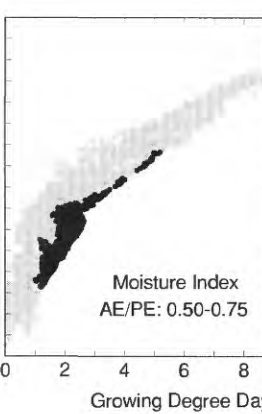
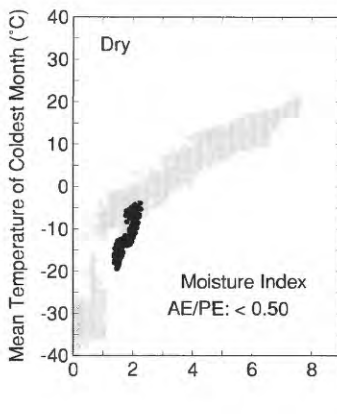
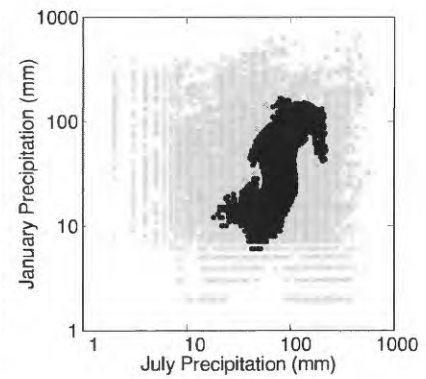
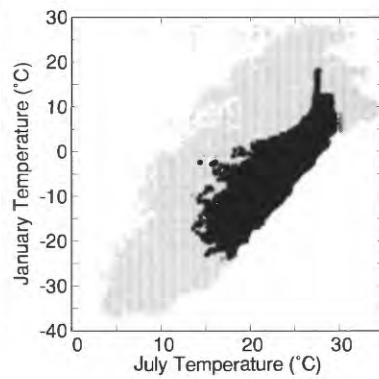
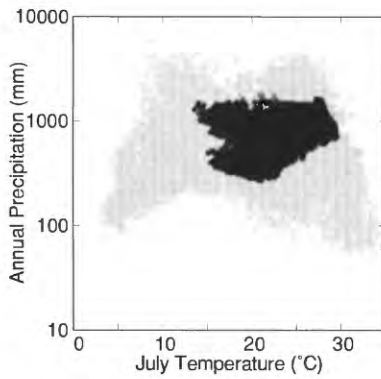
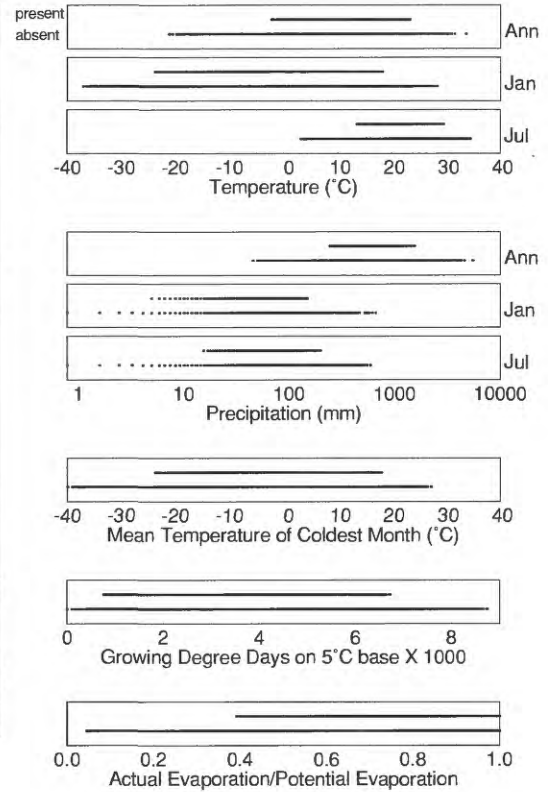
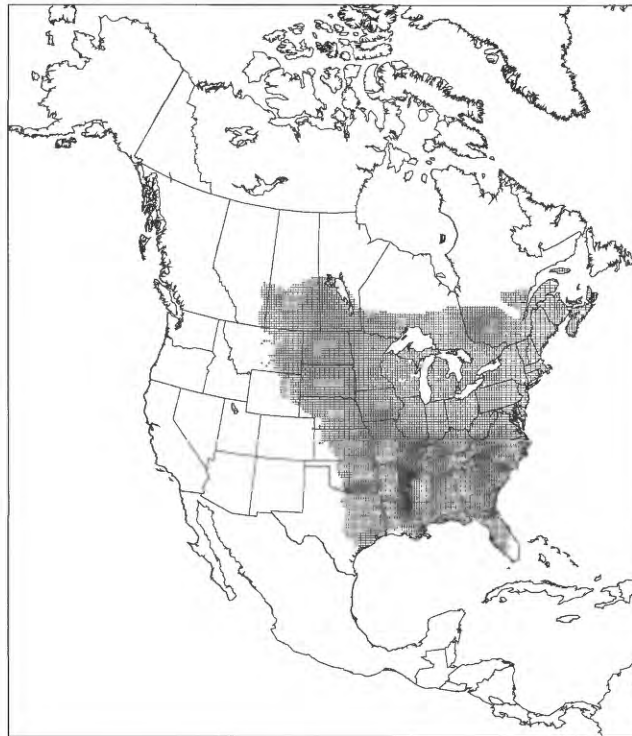


FRAXINUS

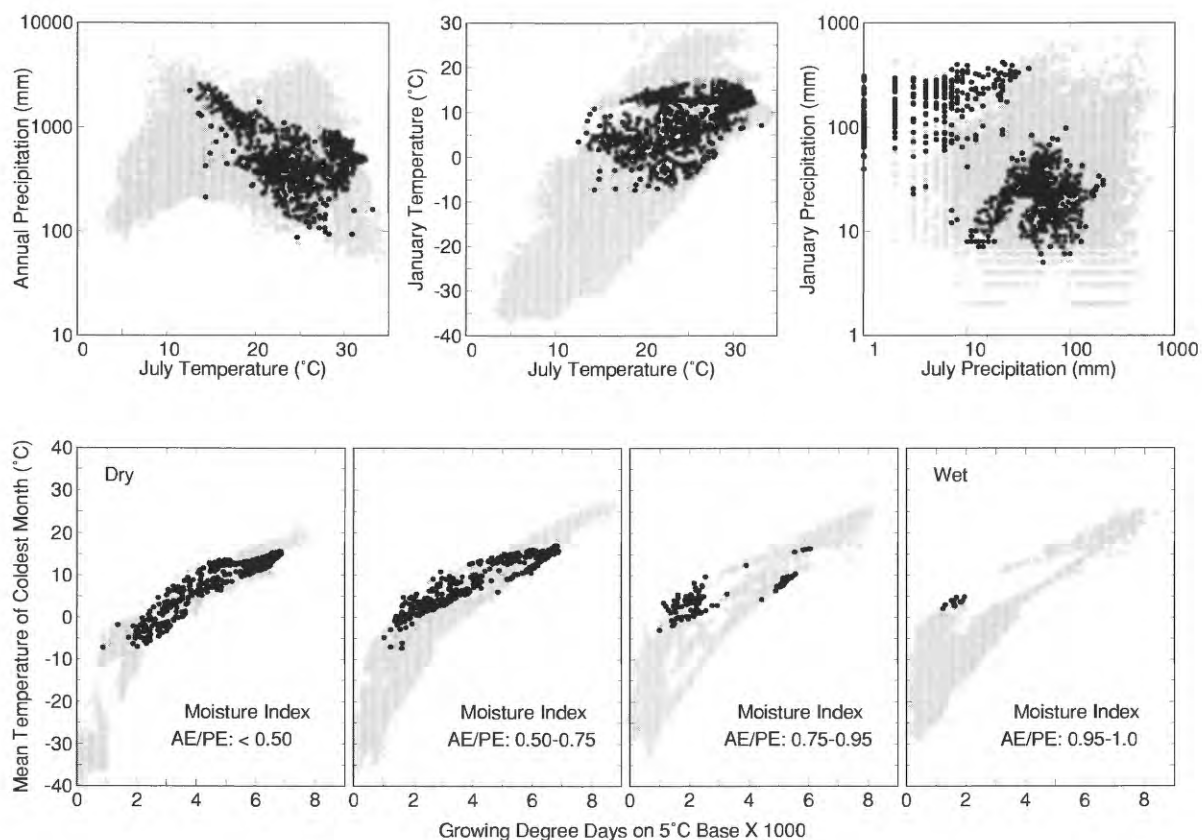
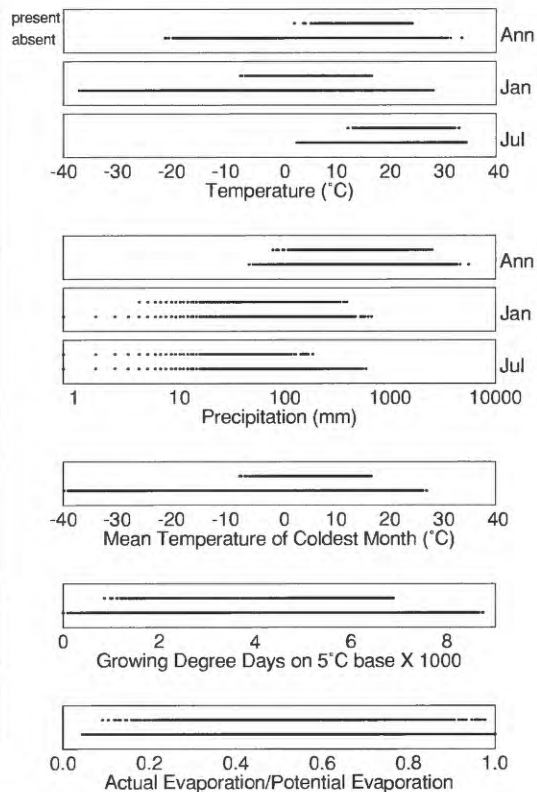
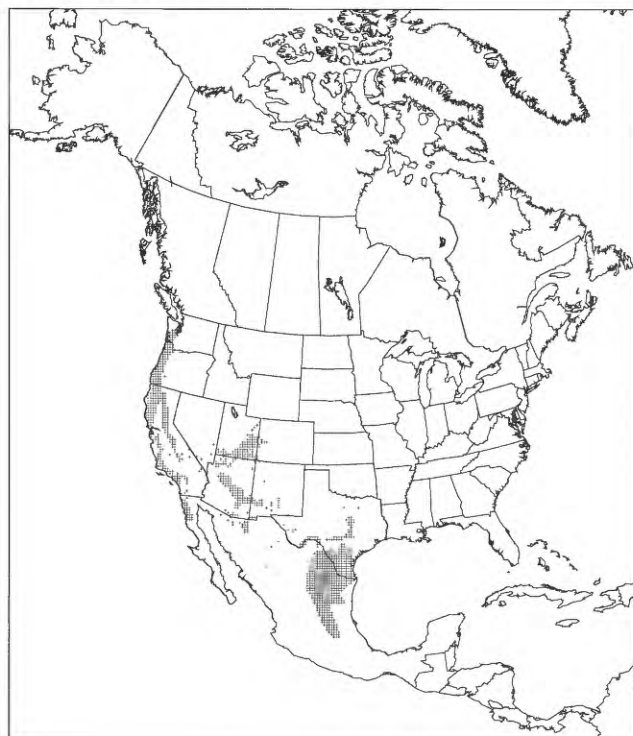


Growing Degree Days on 5°C Base X 1000

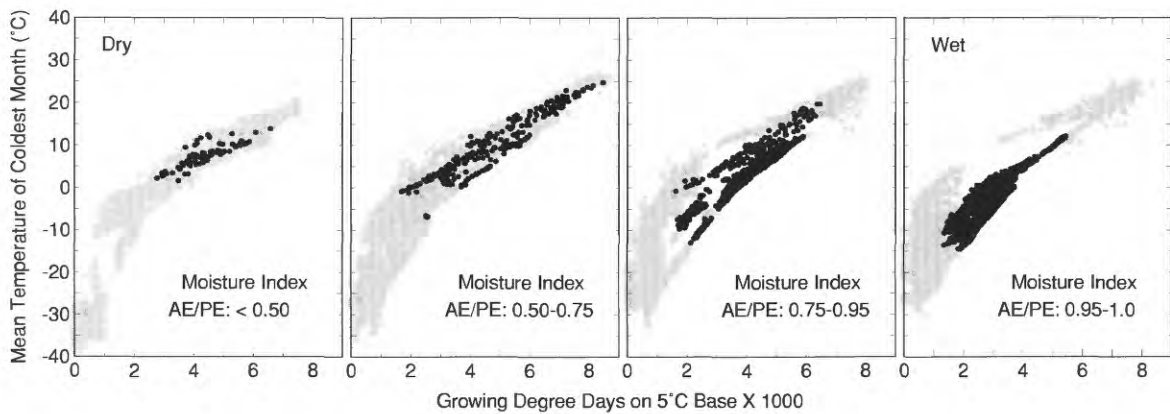
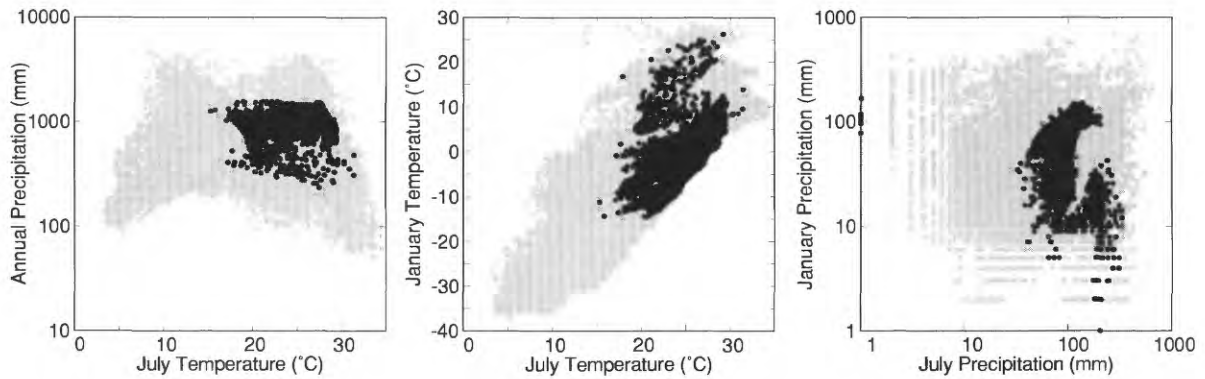
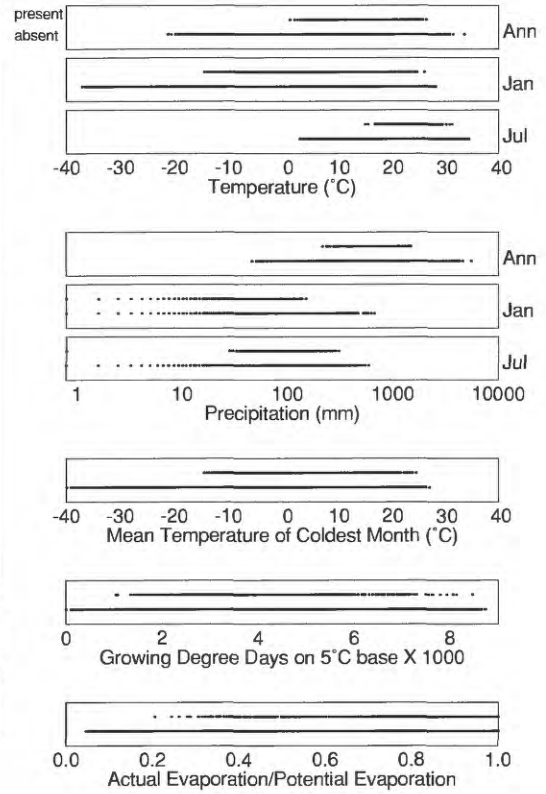
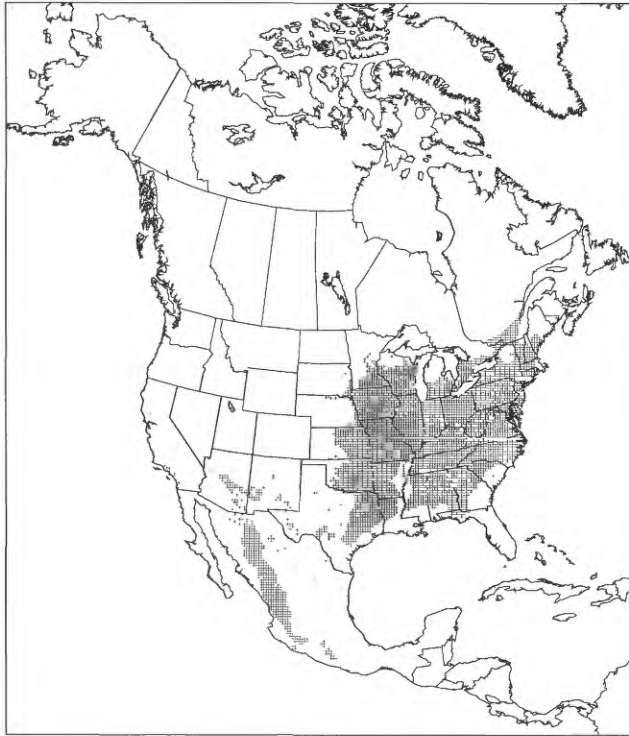
FRAXINUS EAST



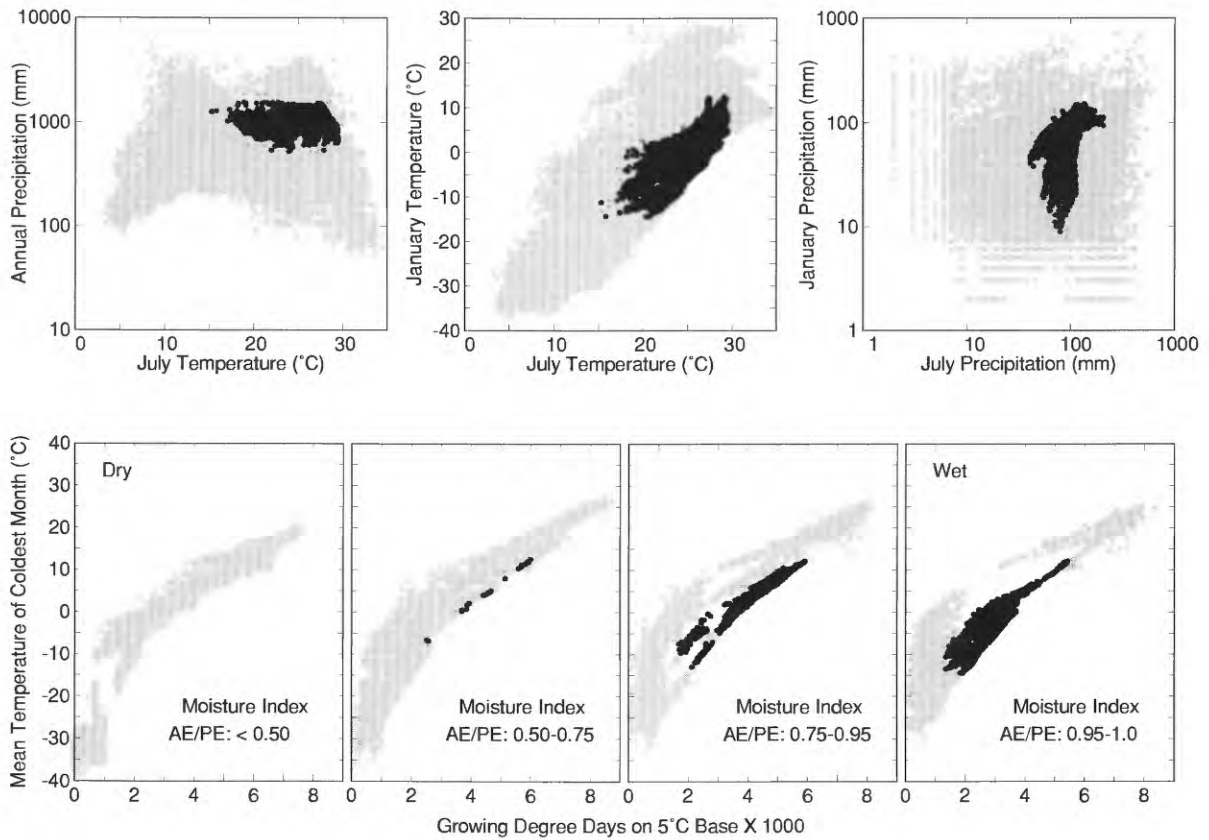
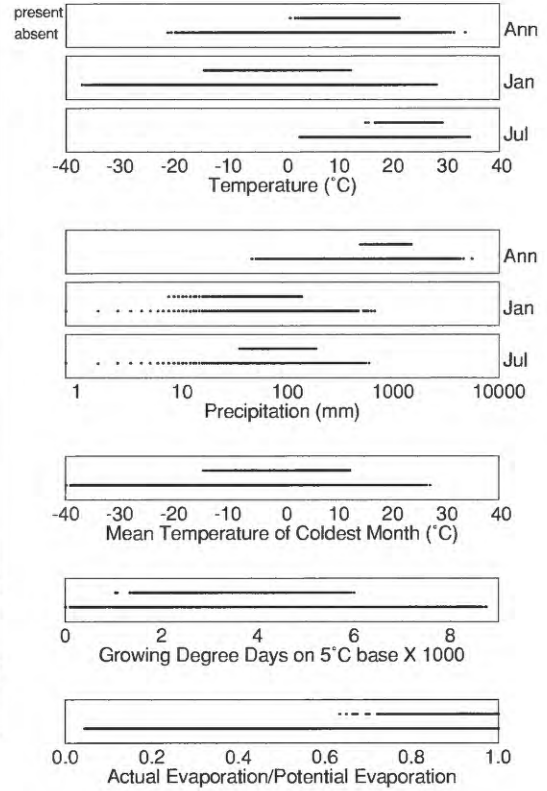
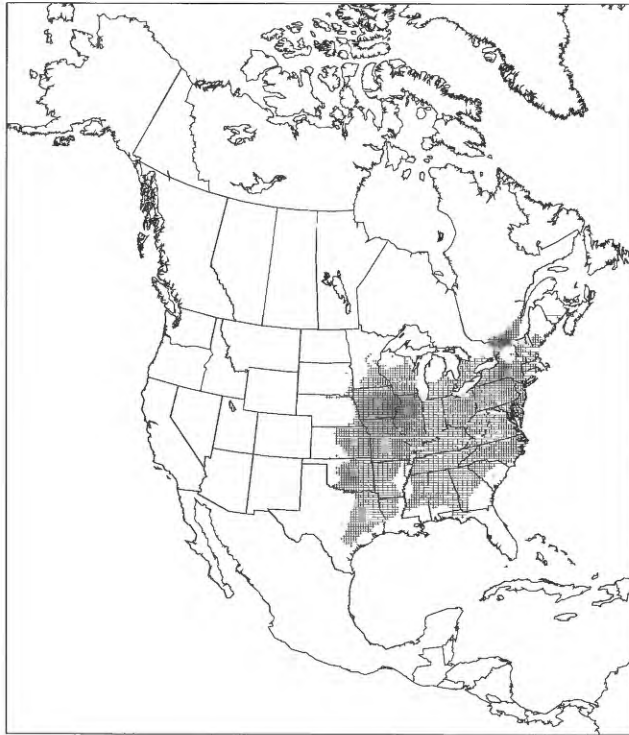
FRAXINUS WEST



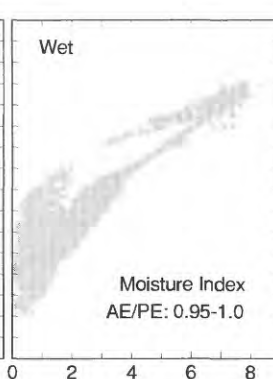
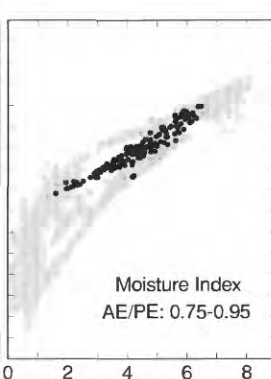
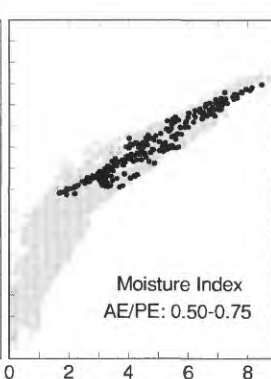
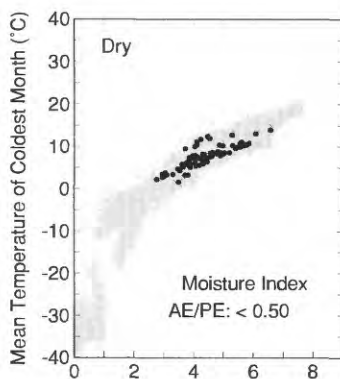
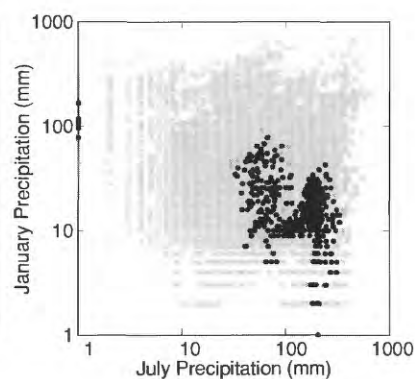
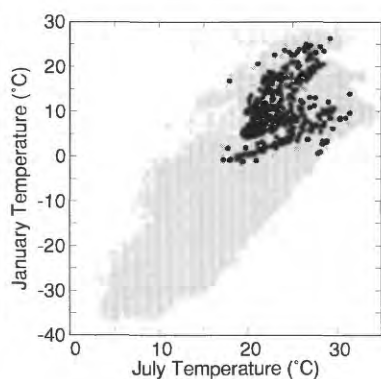
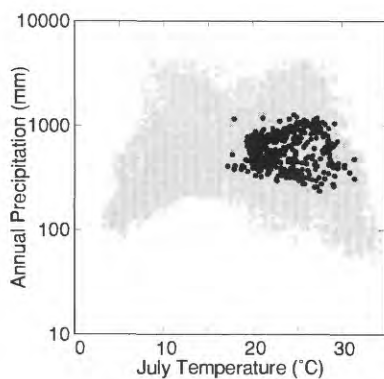
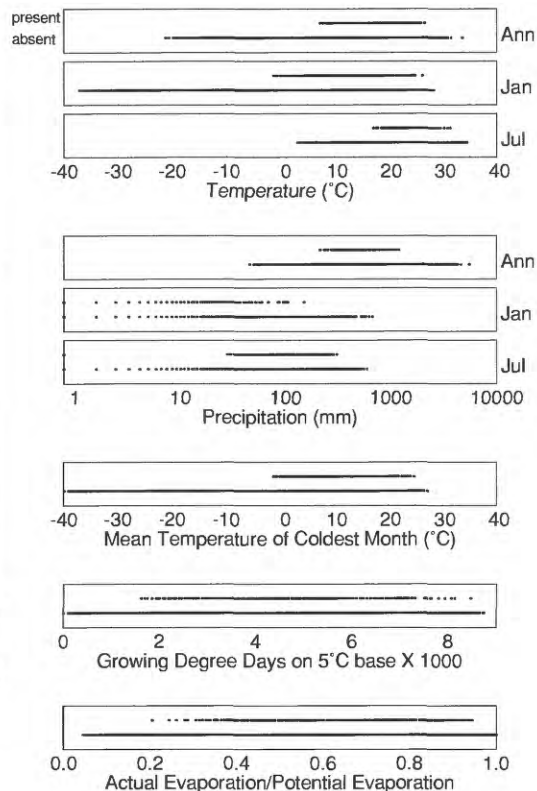
JUGLANS



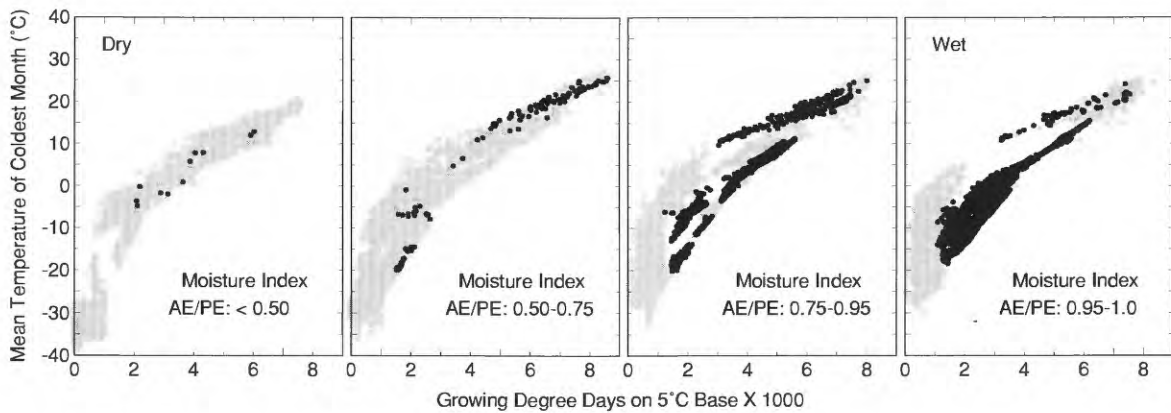
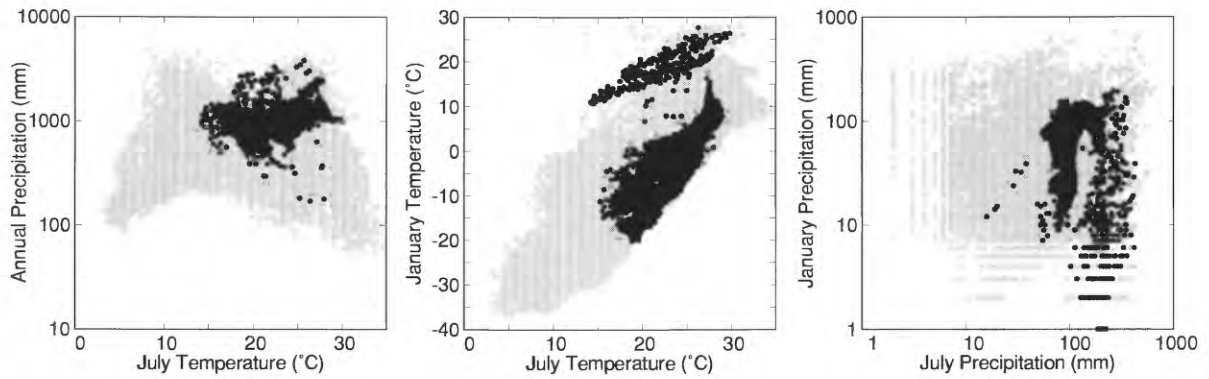
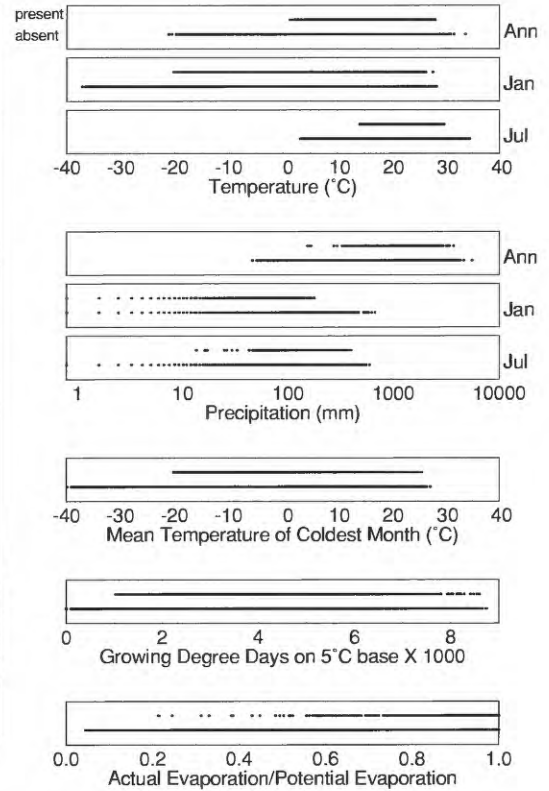
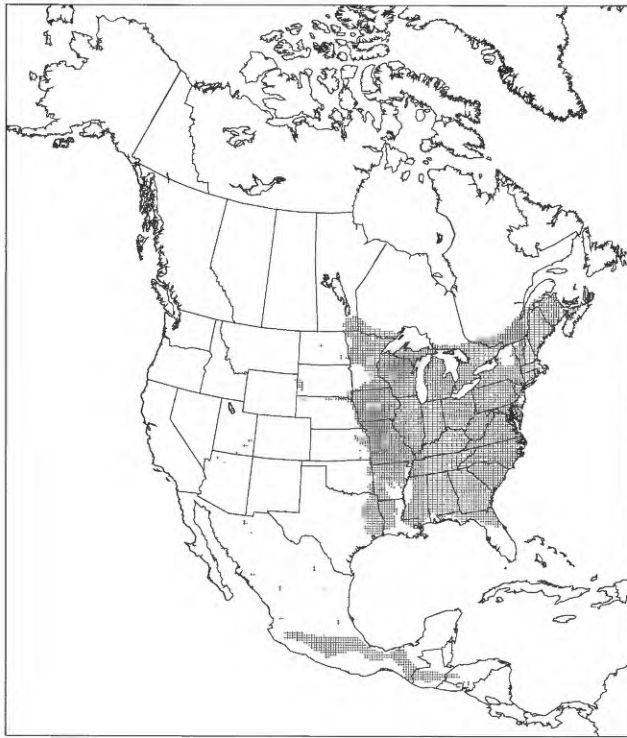
JUGLANS EAST



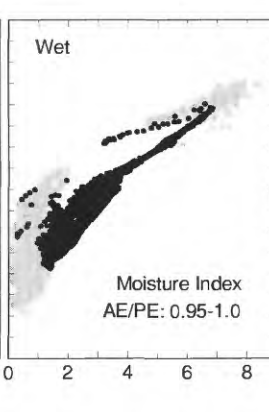
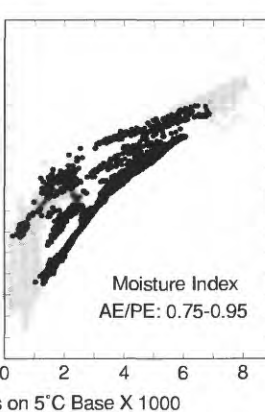
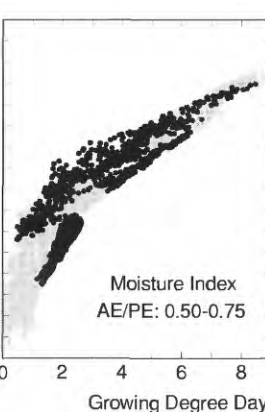
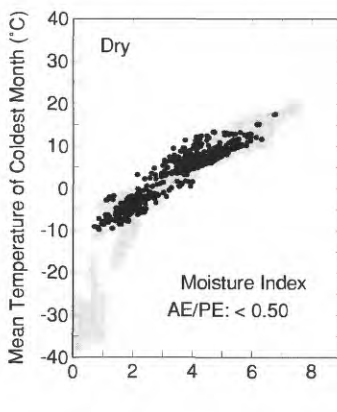
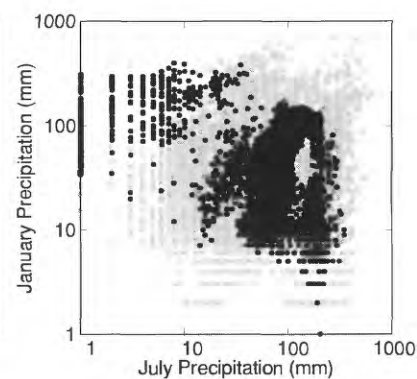
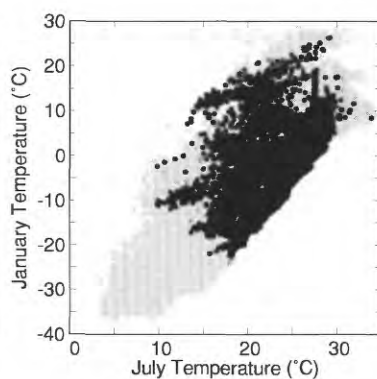
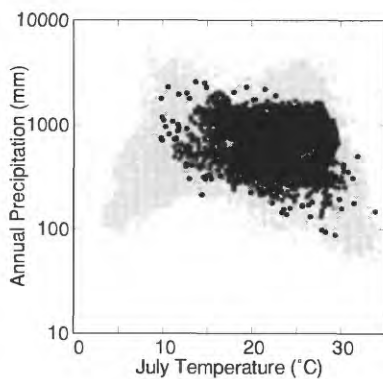
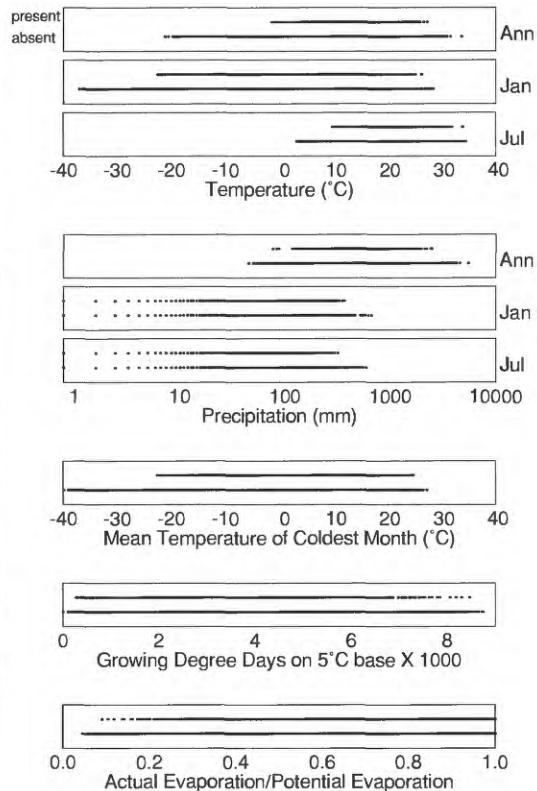
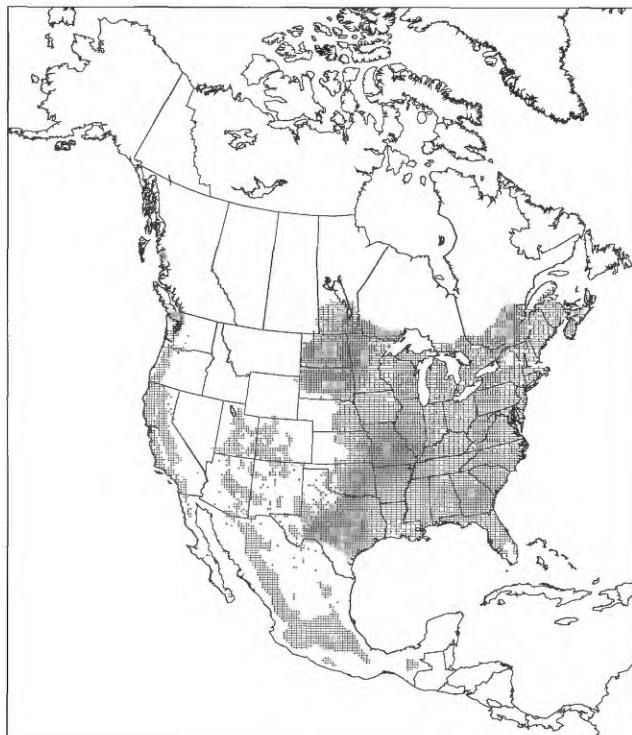
JUGLANS WEST



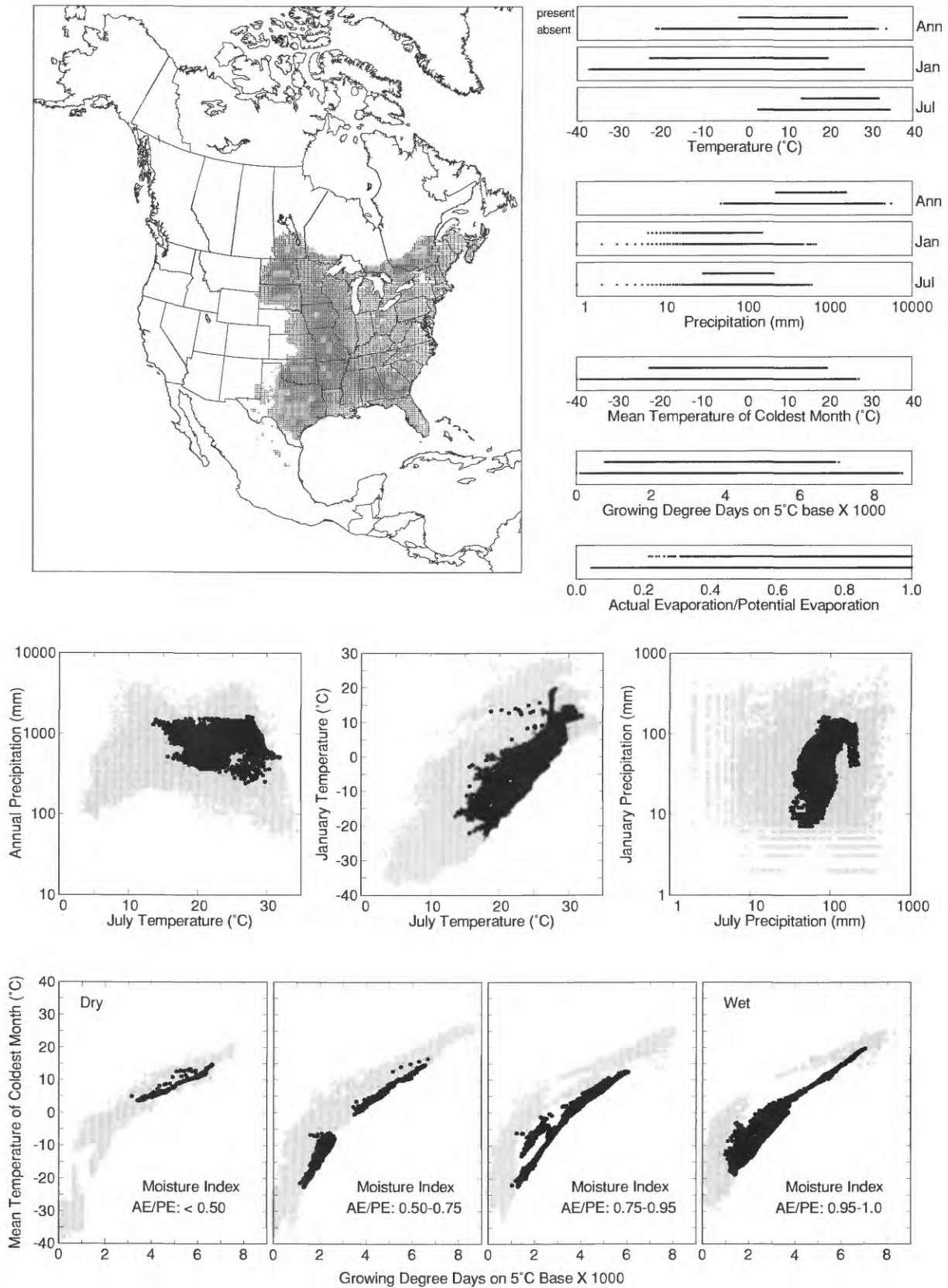
OSTRYA/CARPINUS



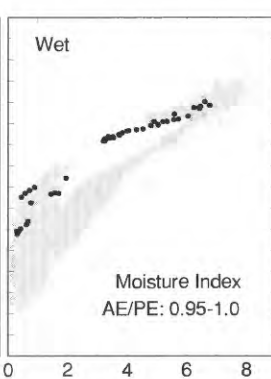
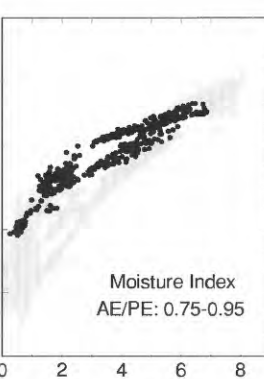
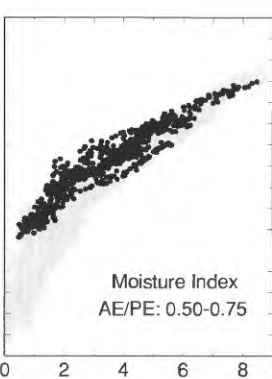
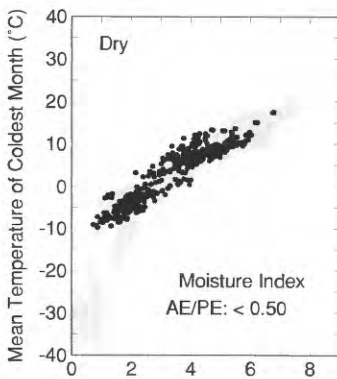
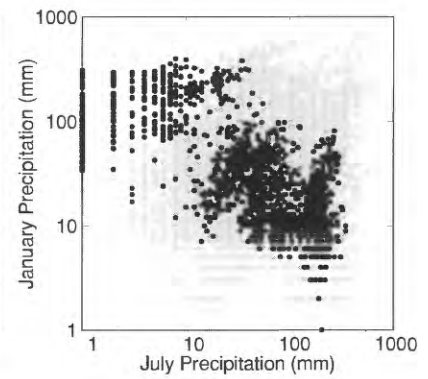
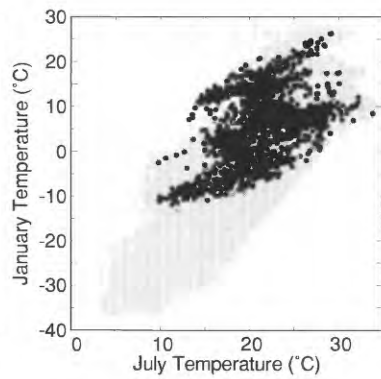
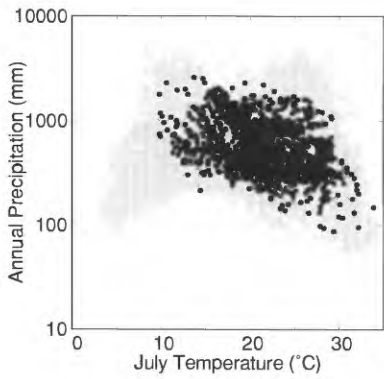
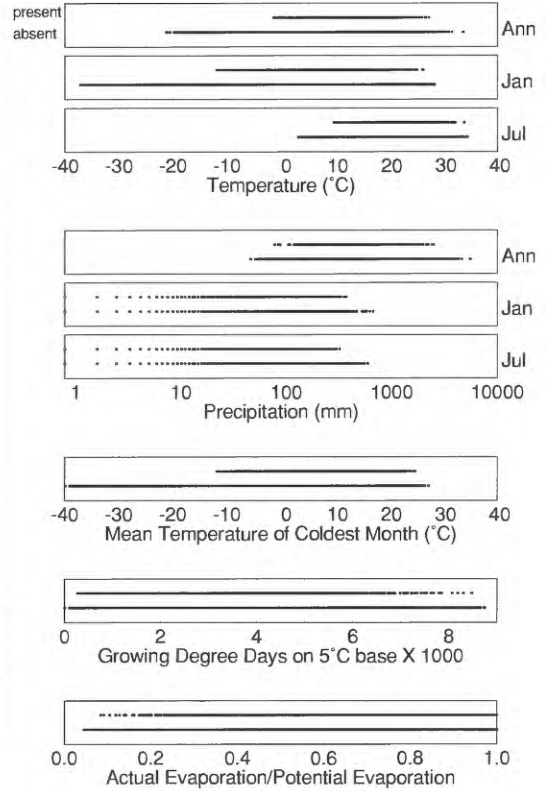
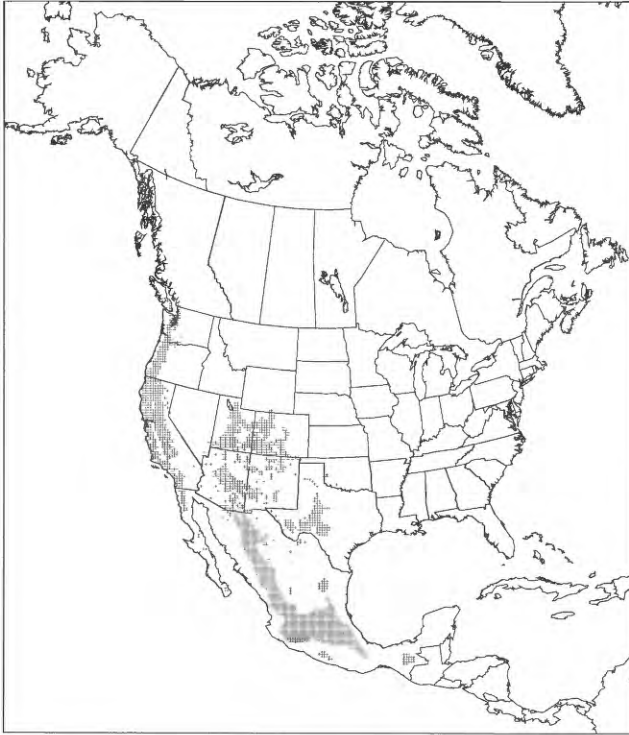
QUERCUS

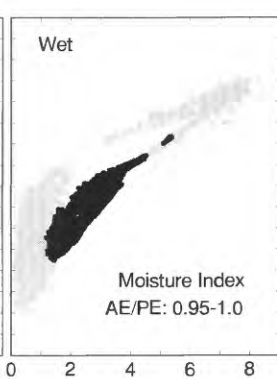
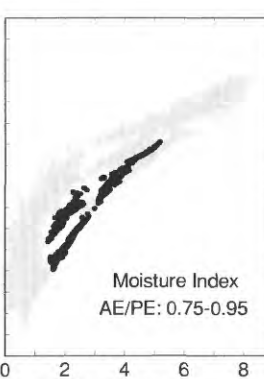
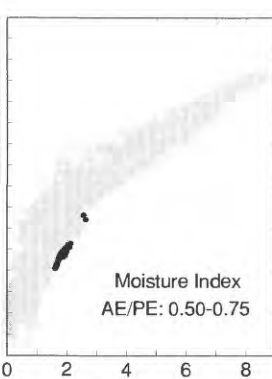
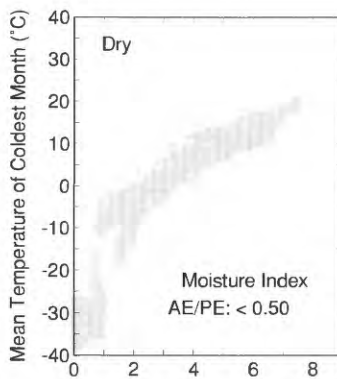
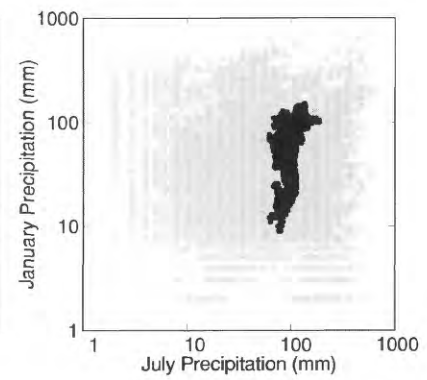
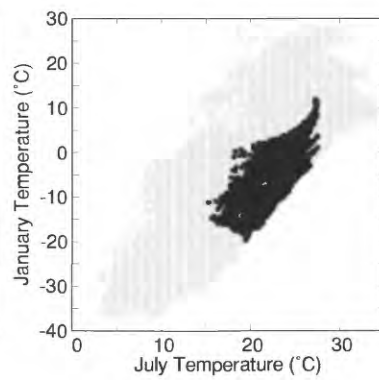
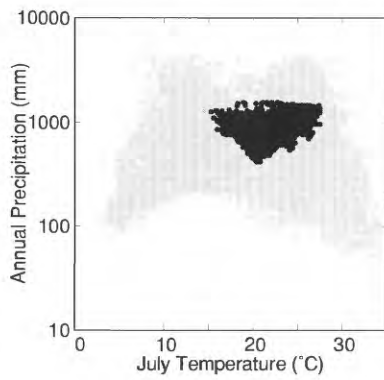
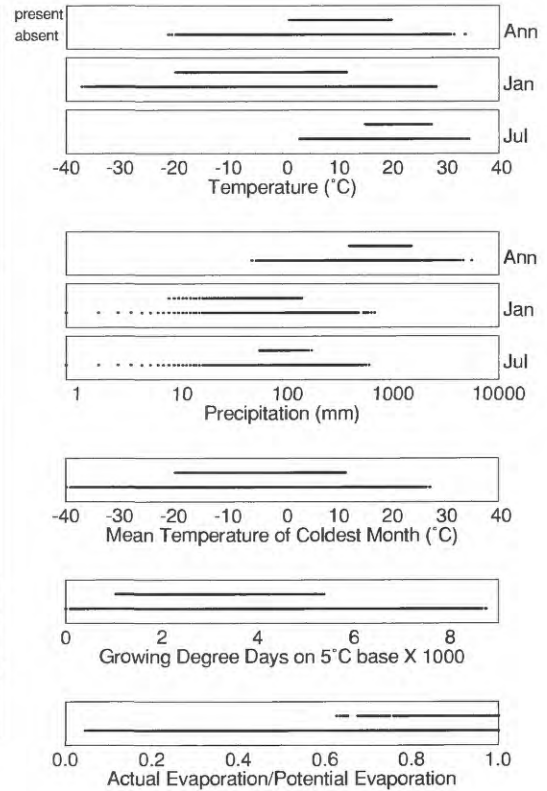
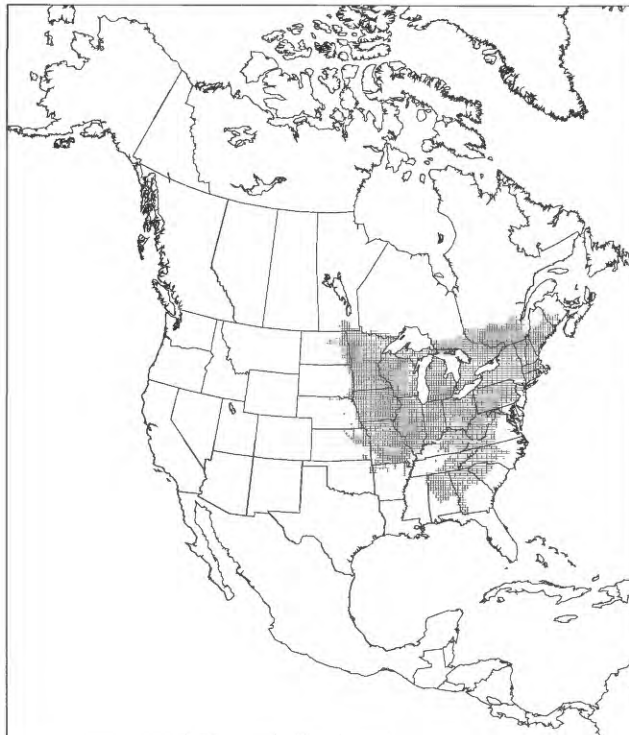


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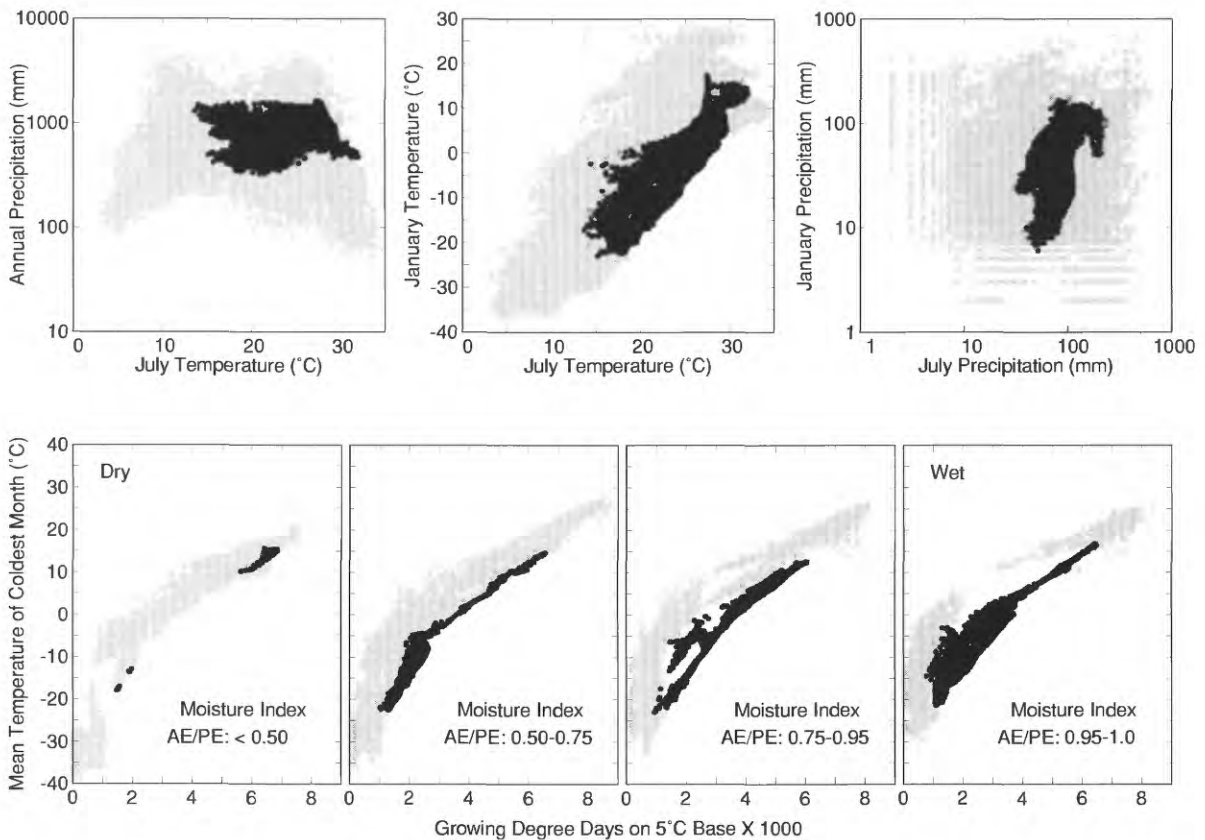
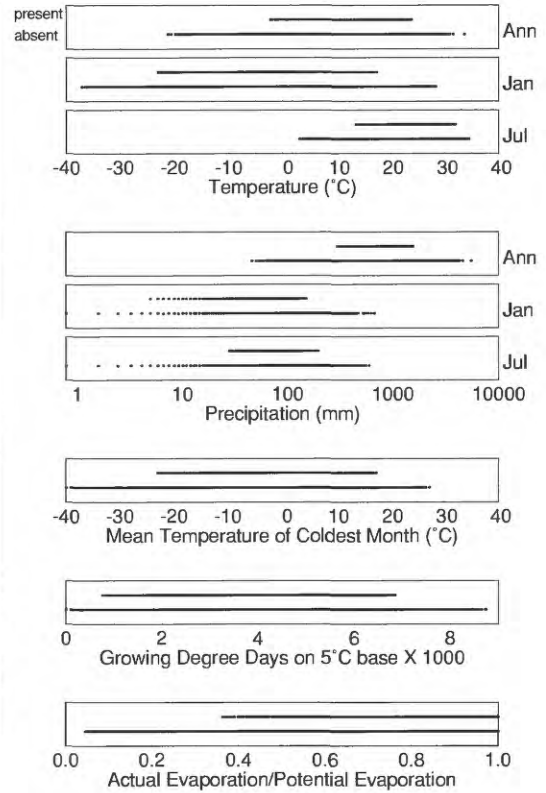
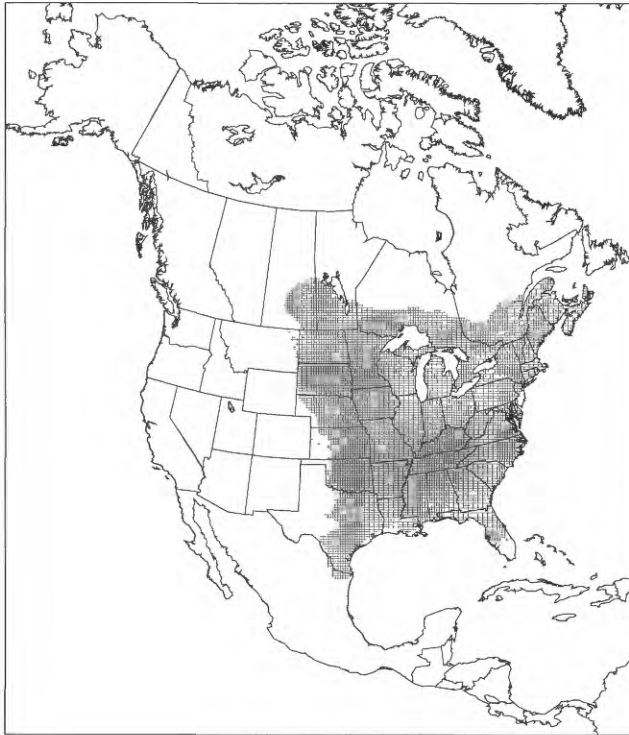
QUERCUS WEST





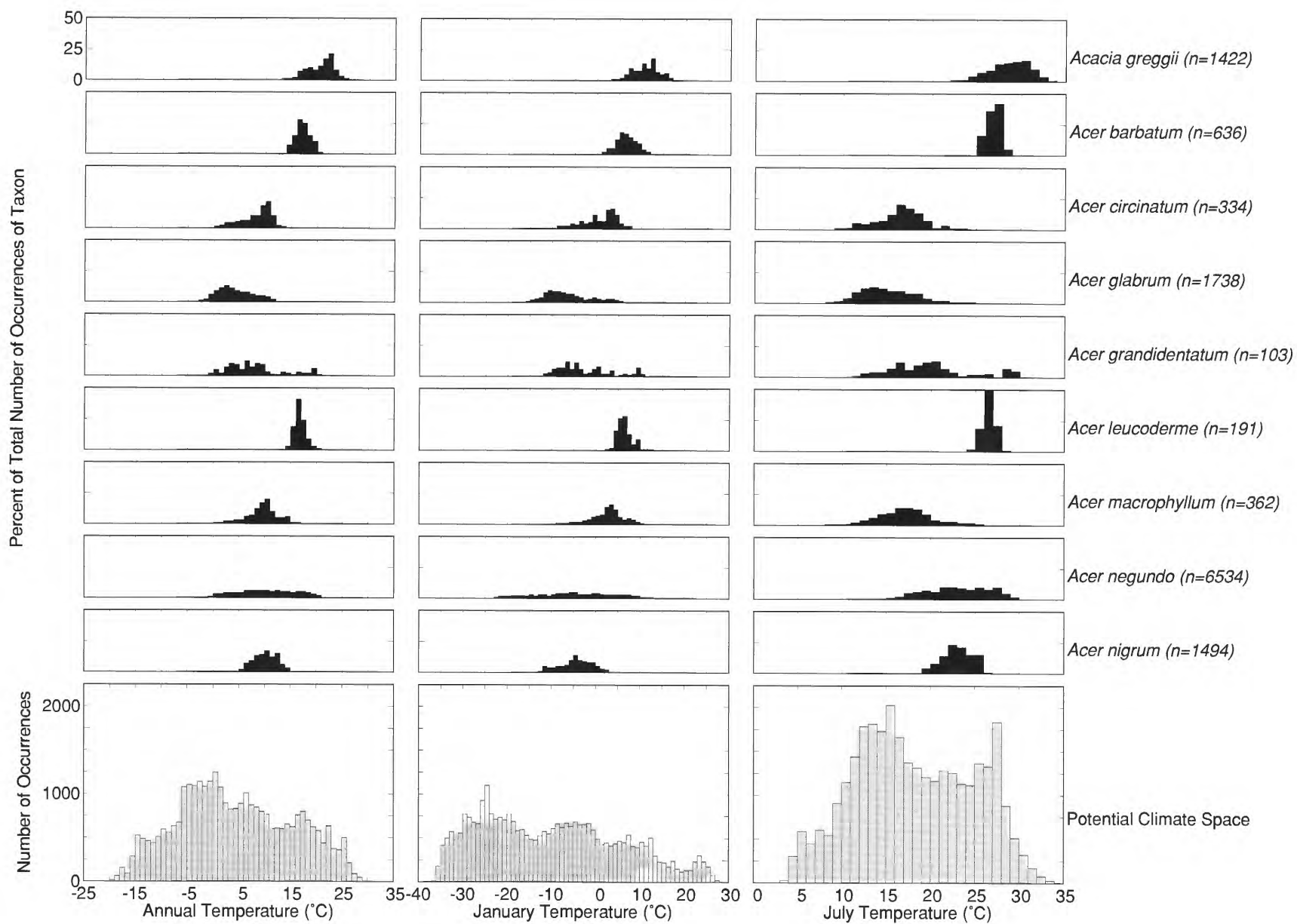
Growing Degree Days on 5°C Base X 1000

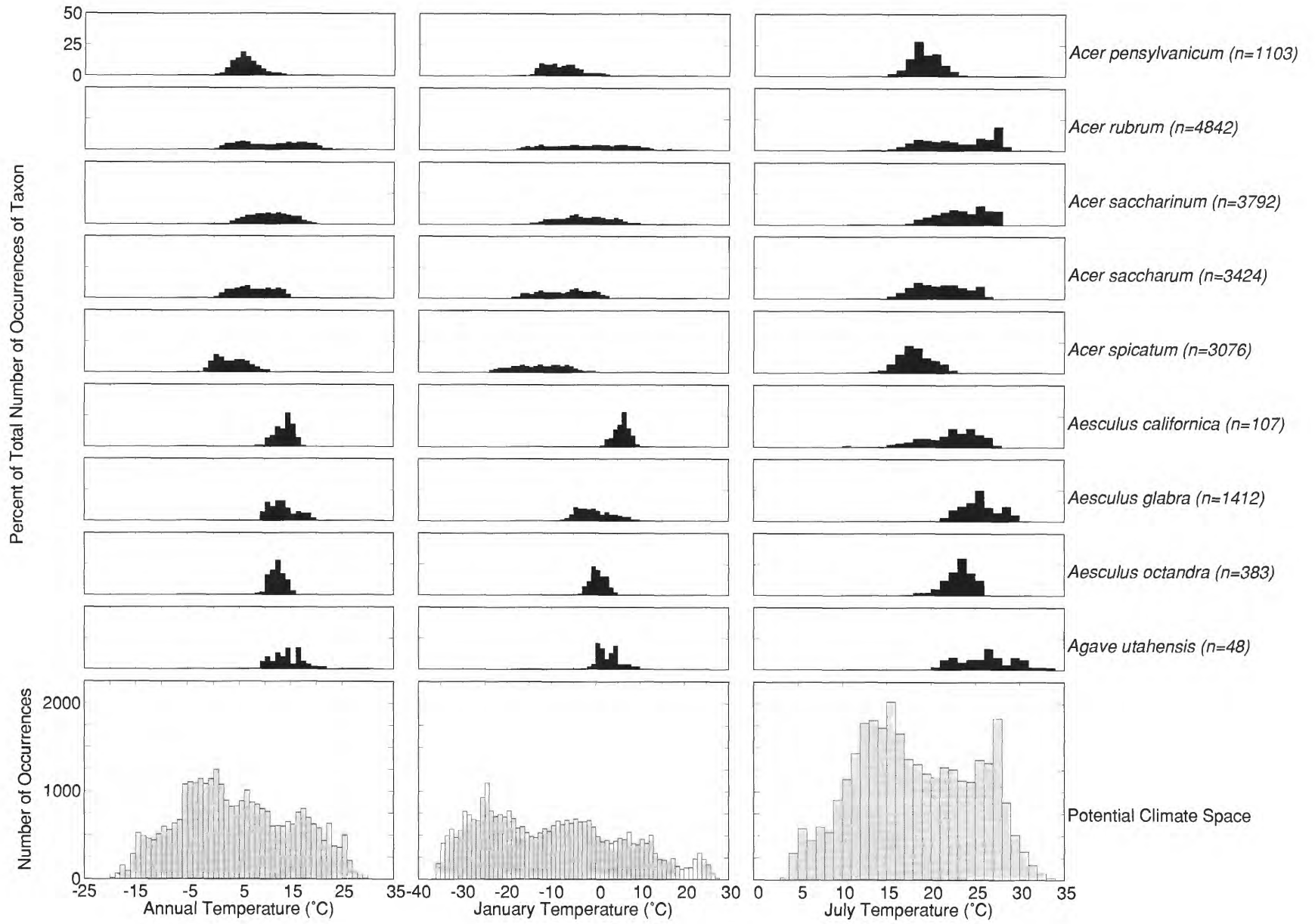
ULMUS

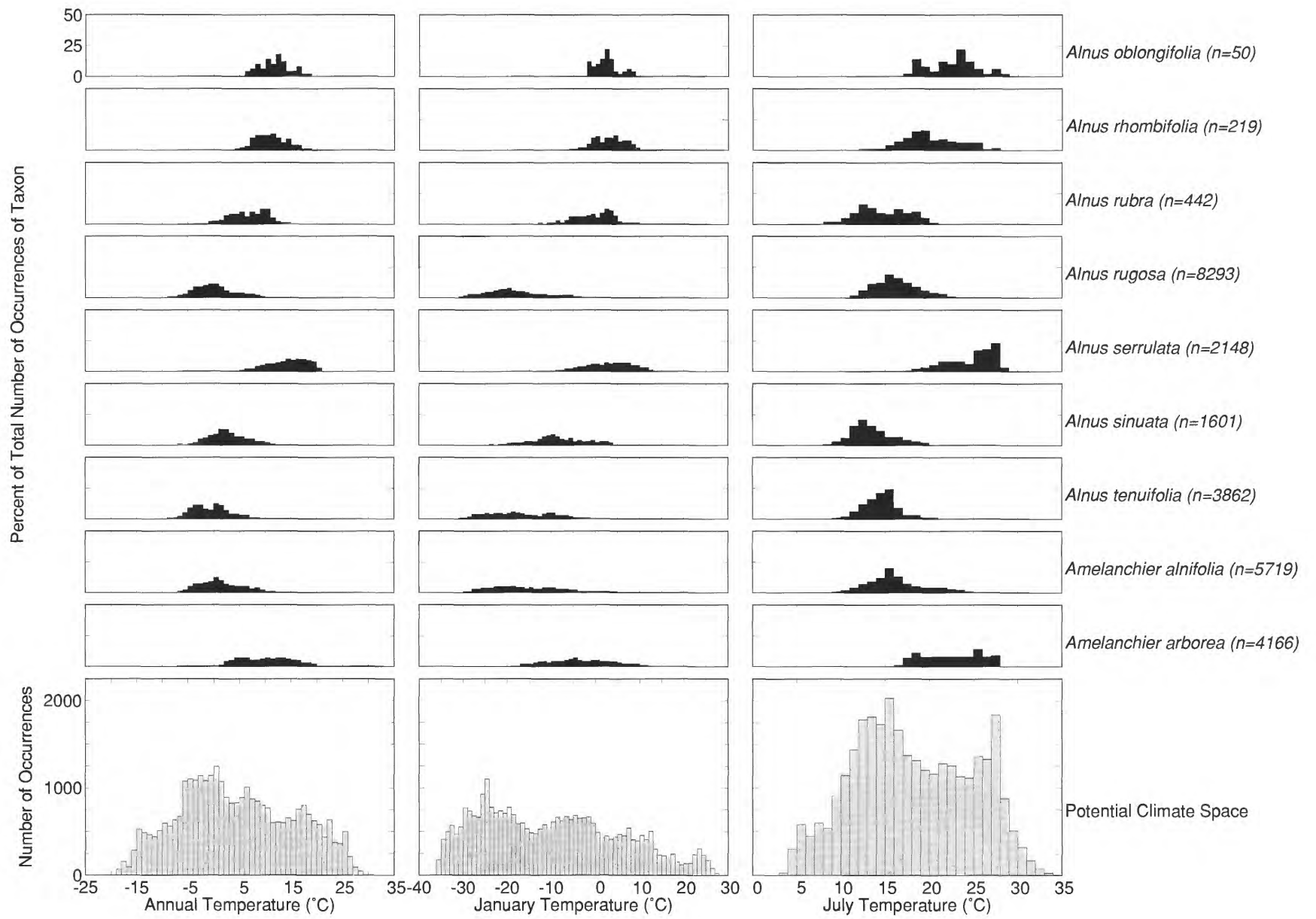


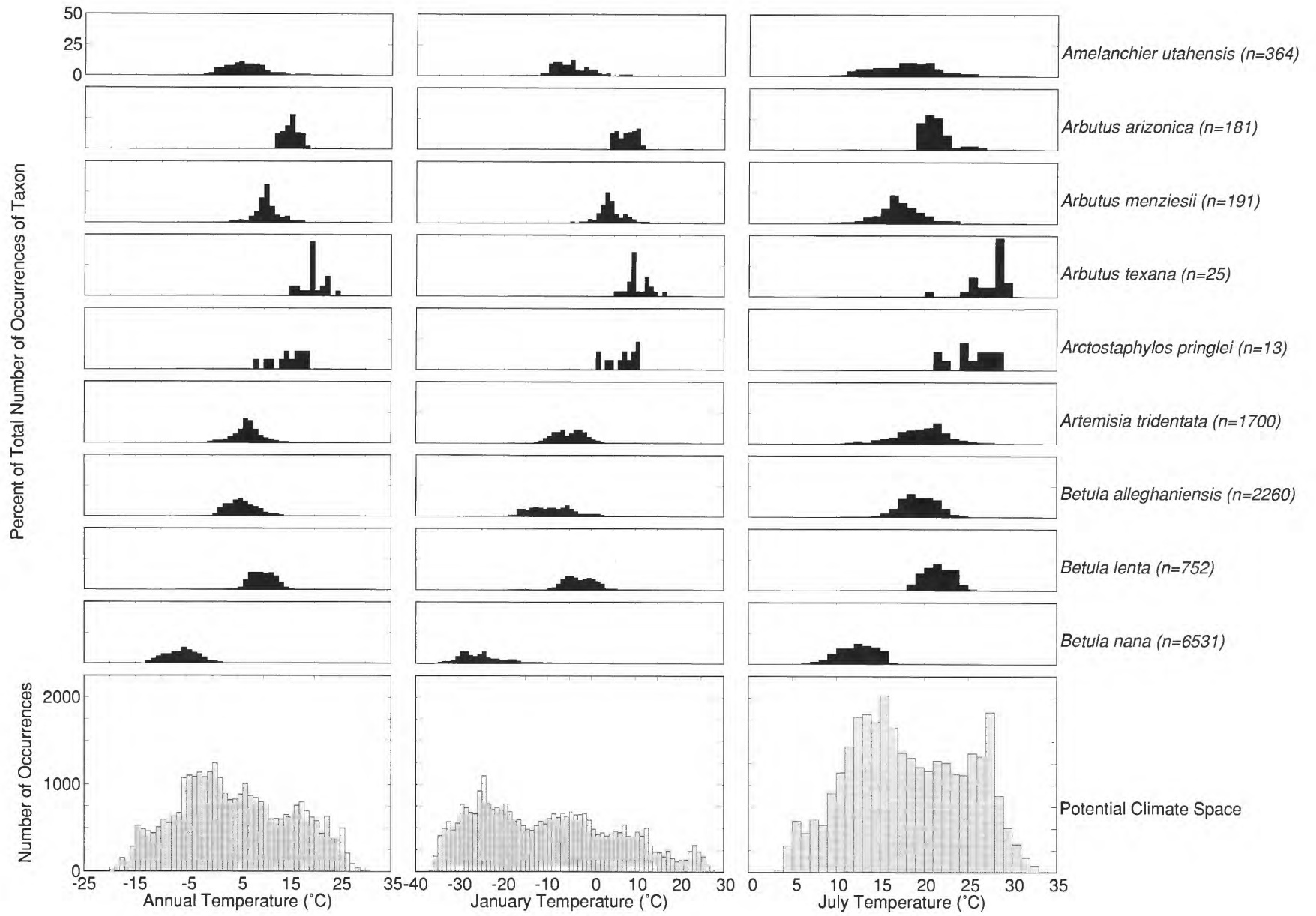
Hardwood Species— Histograms

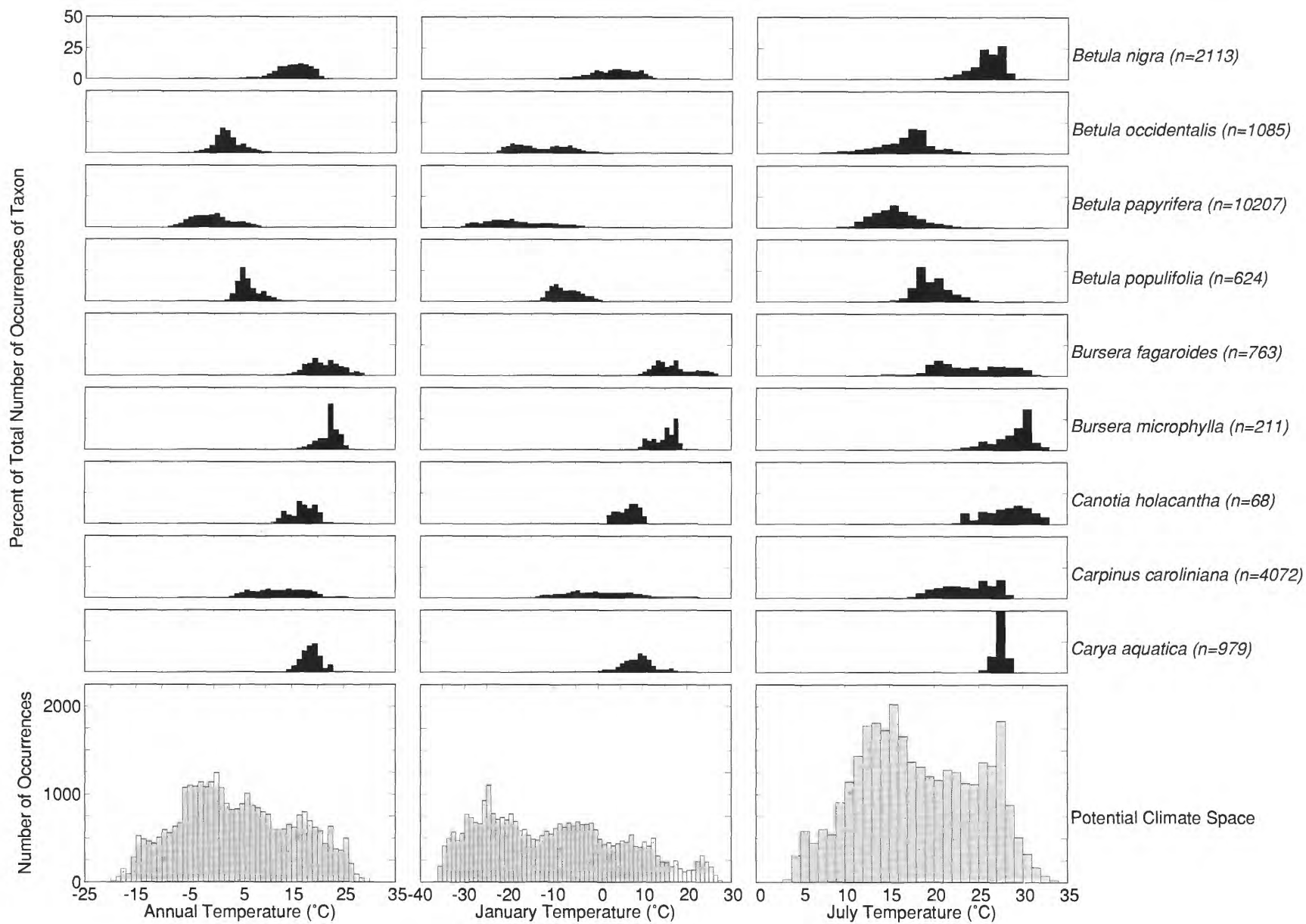


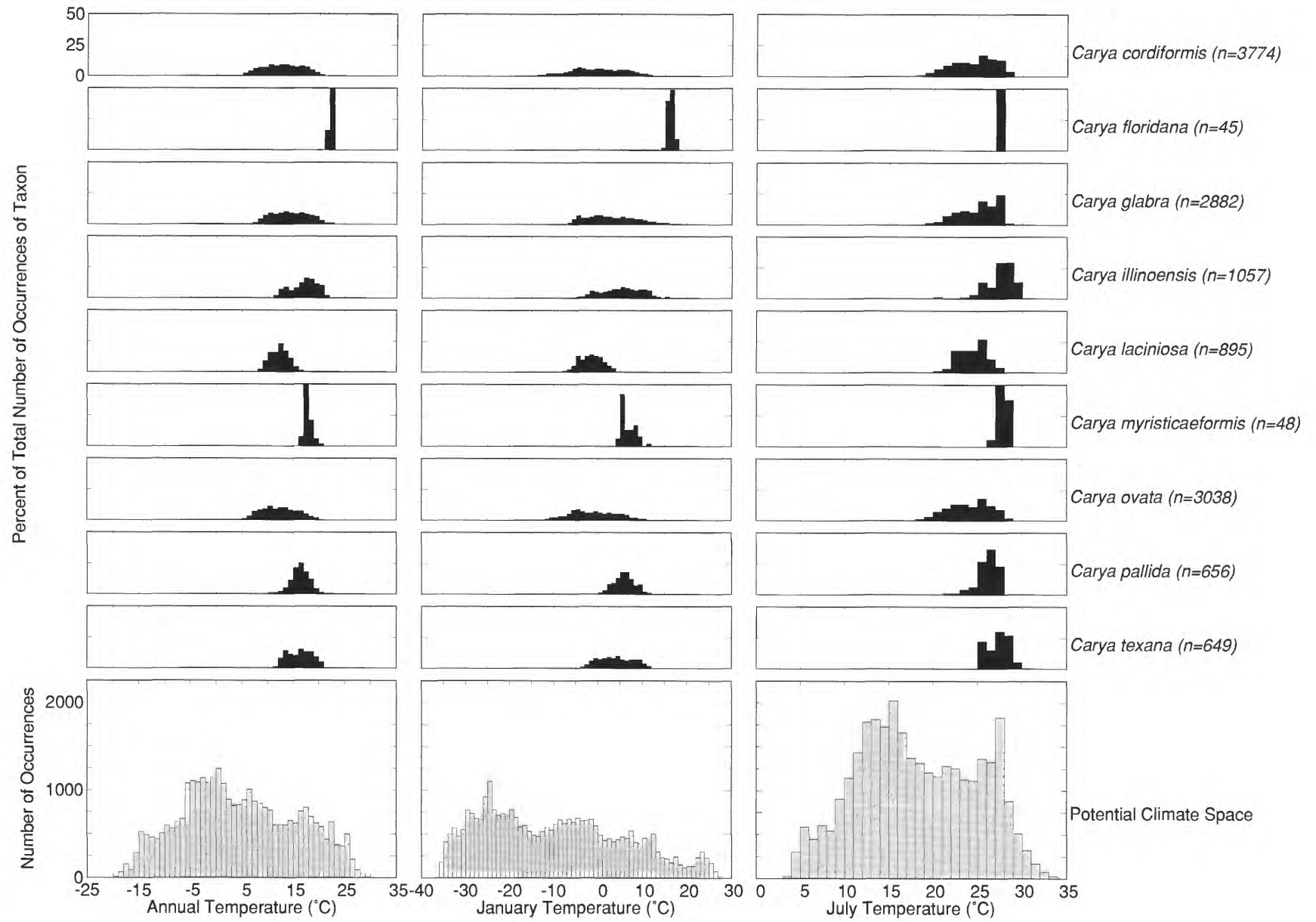


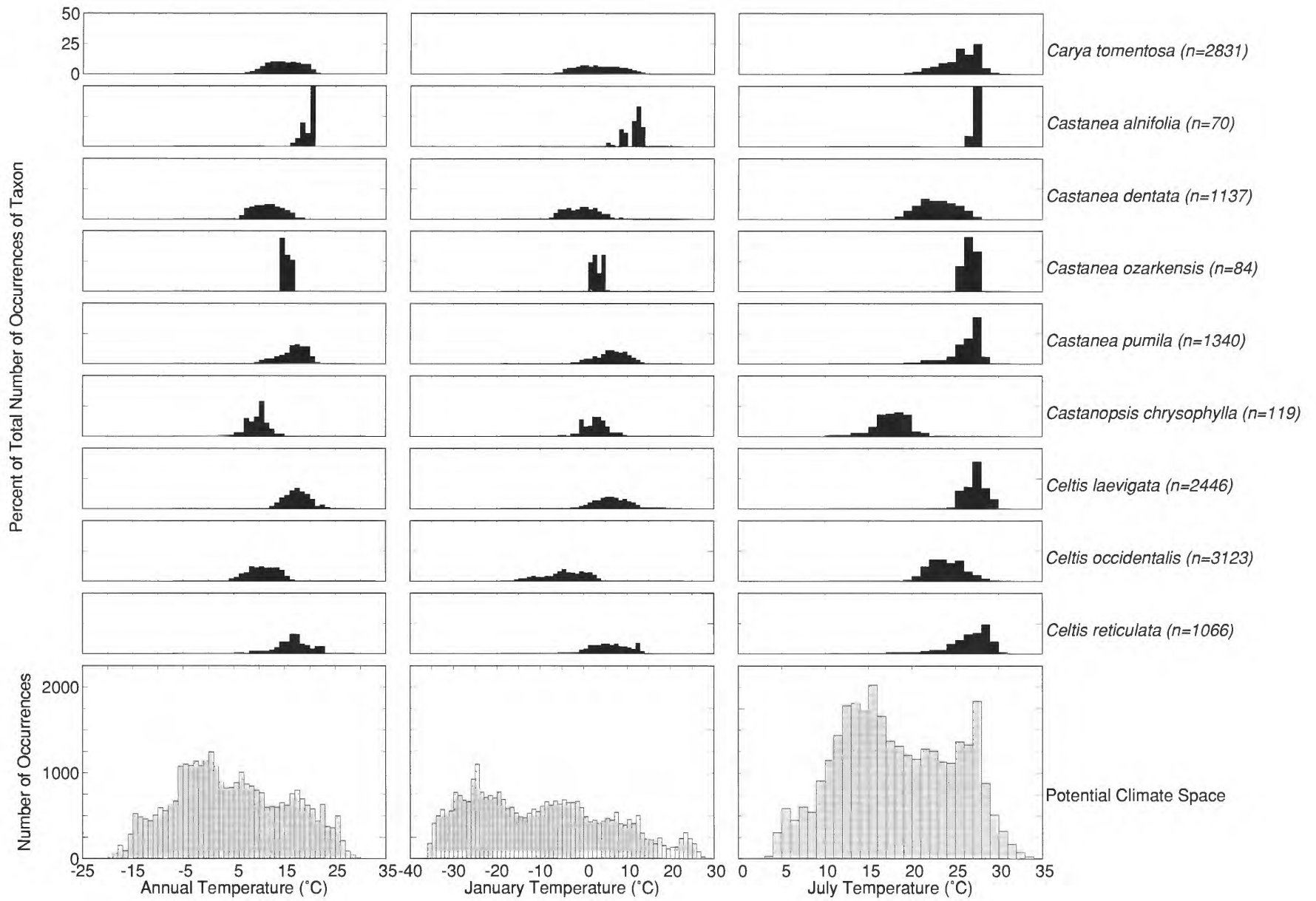


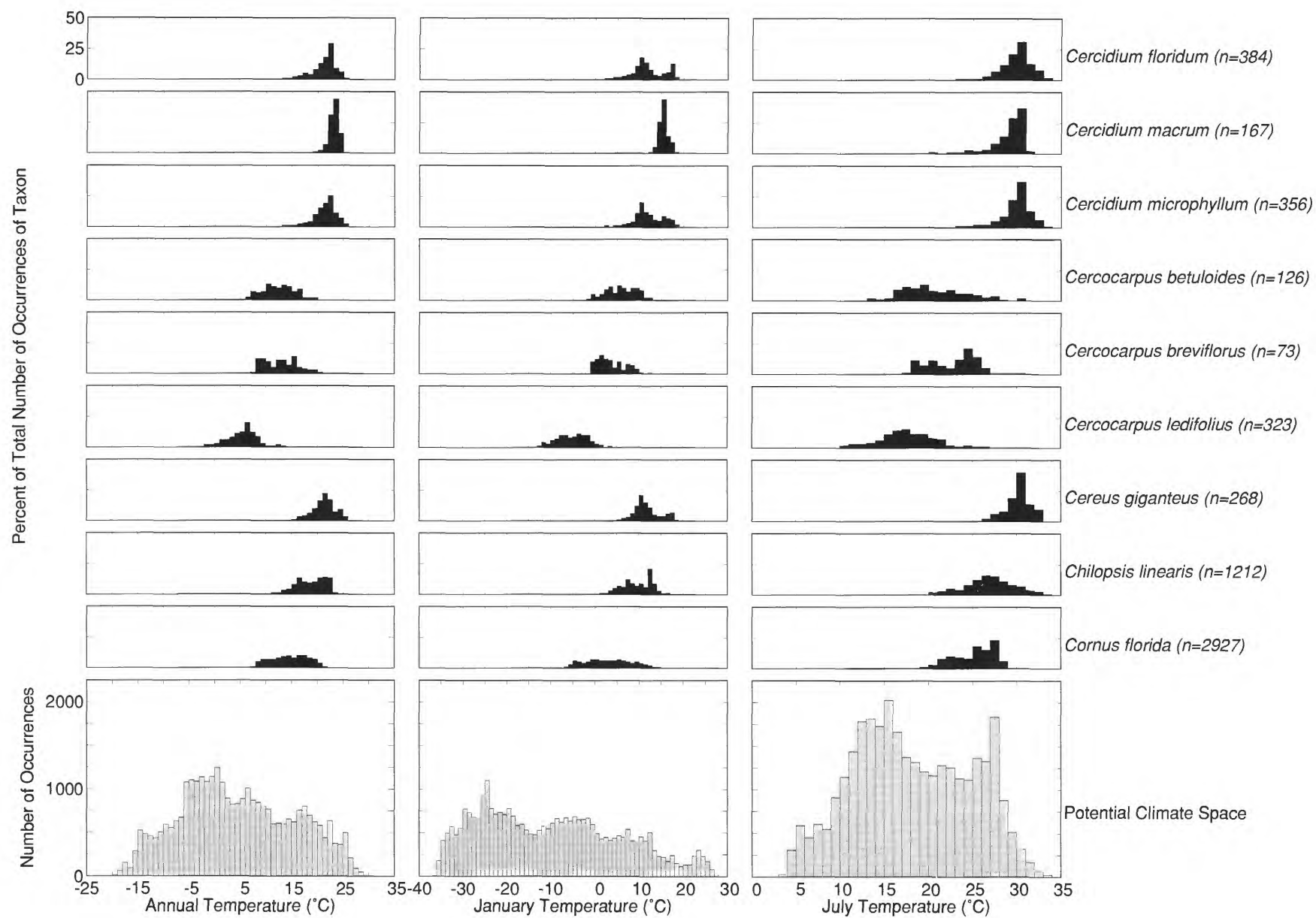


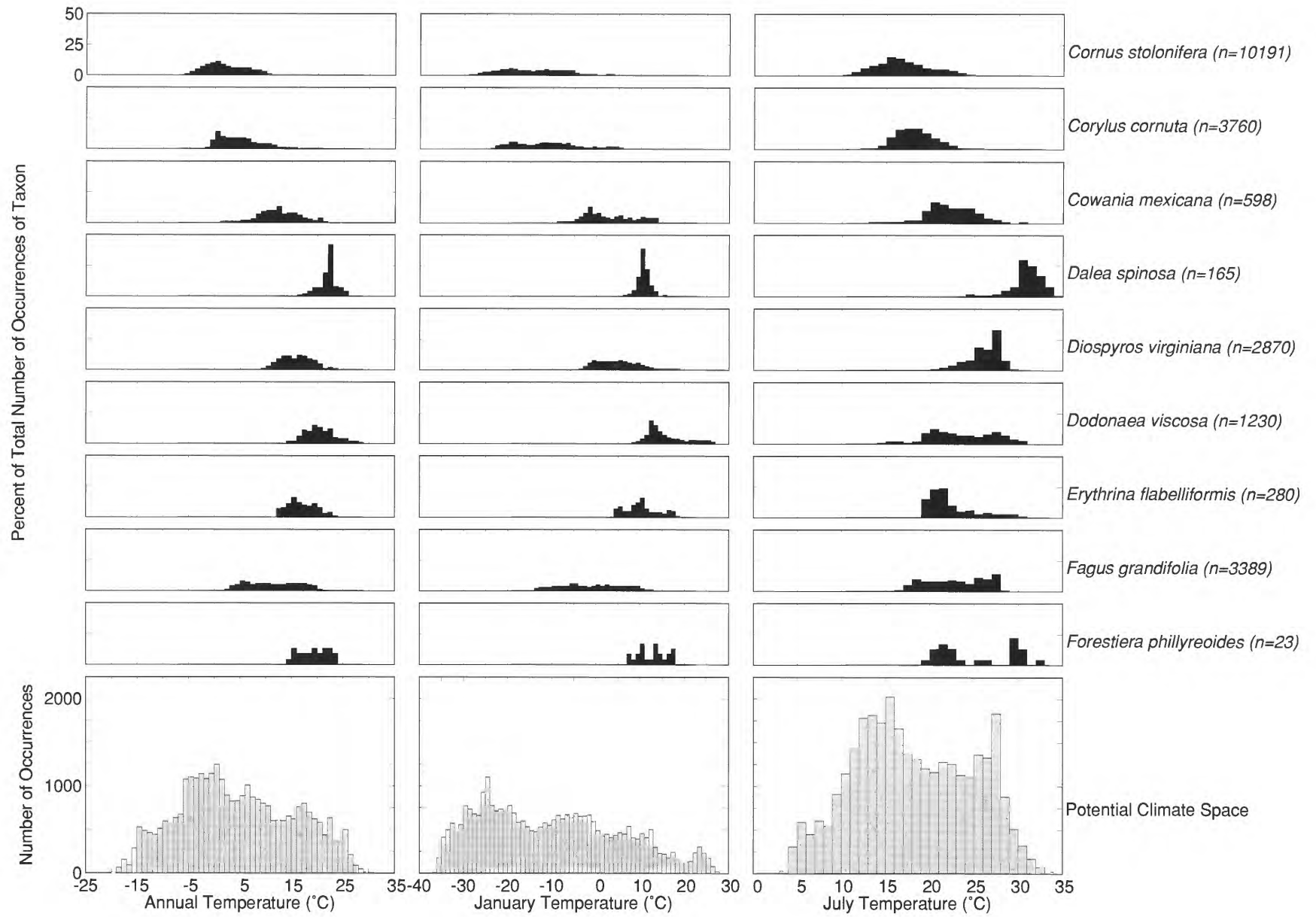


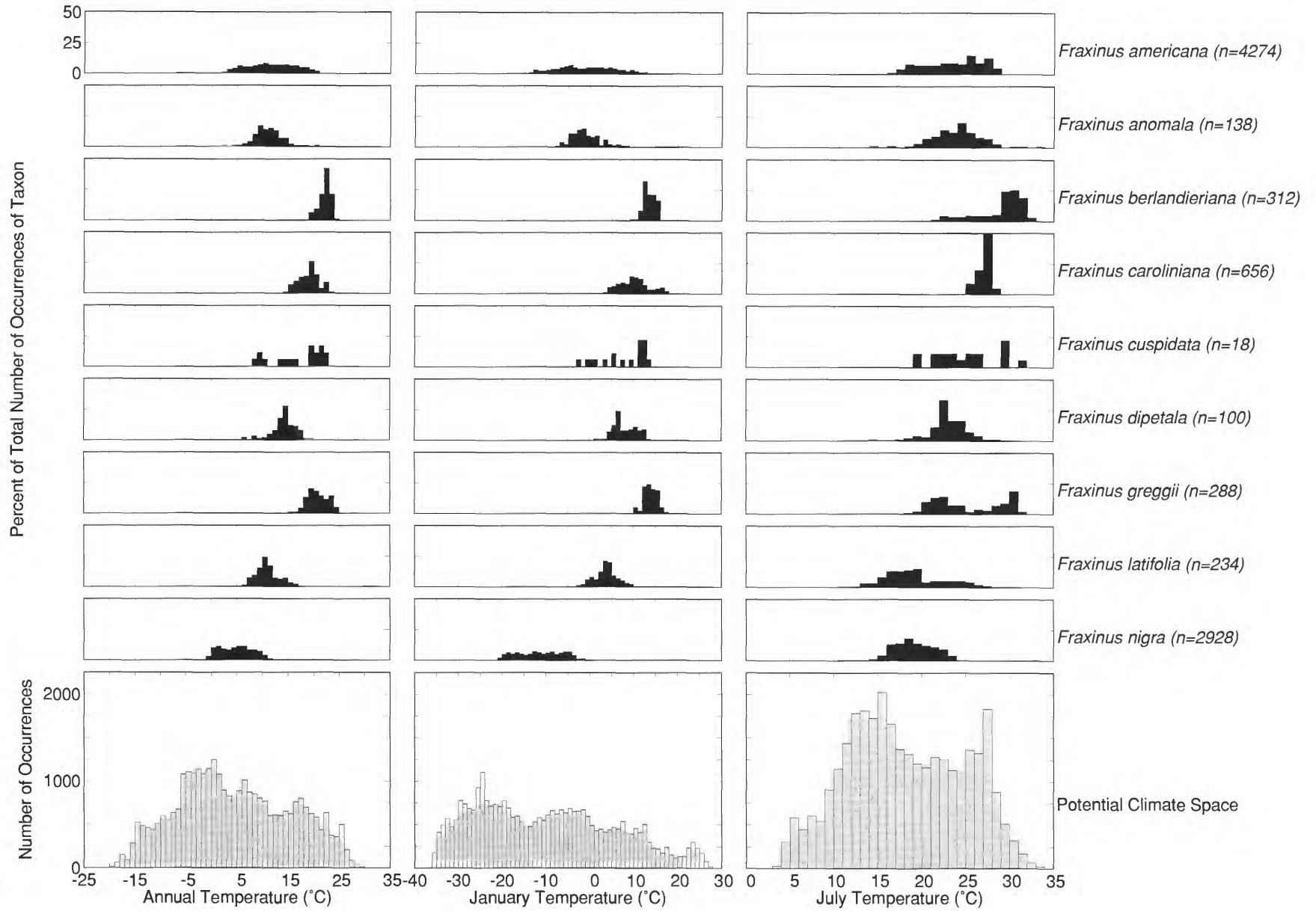


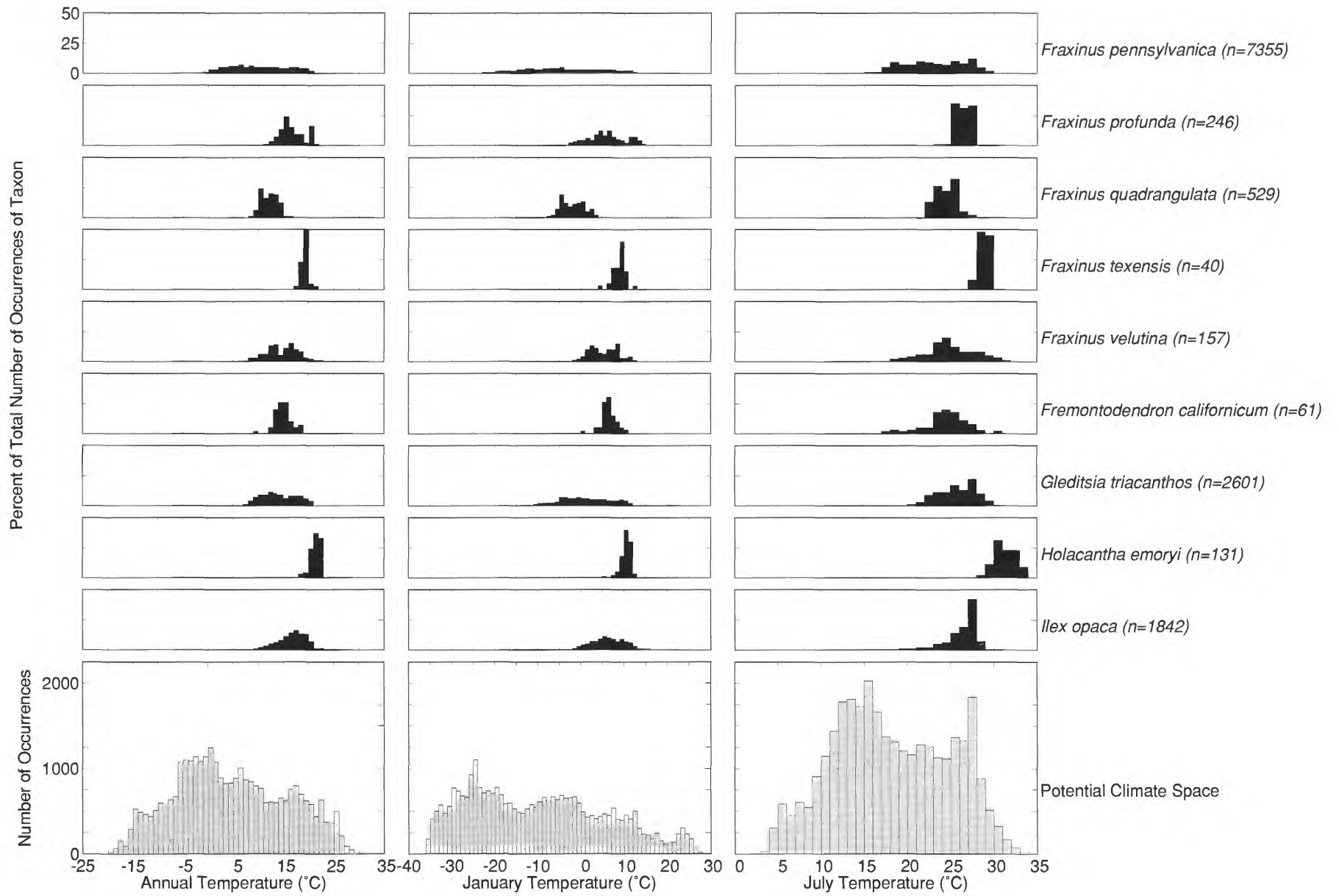


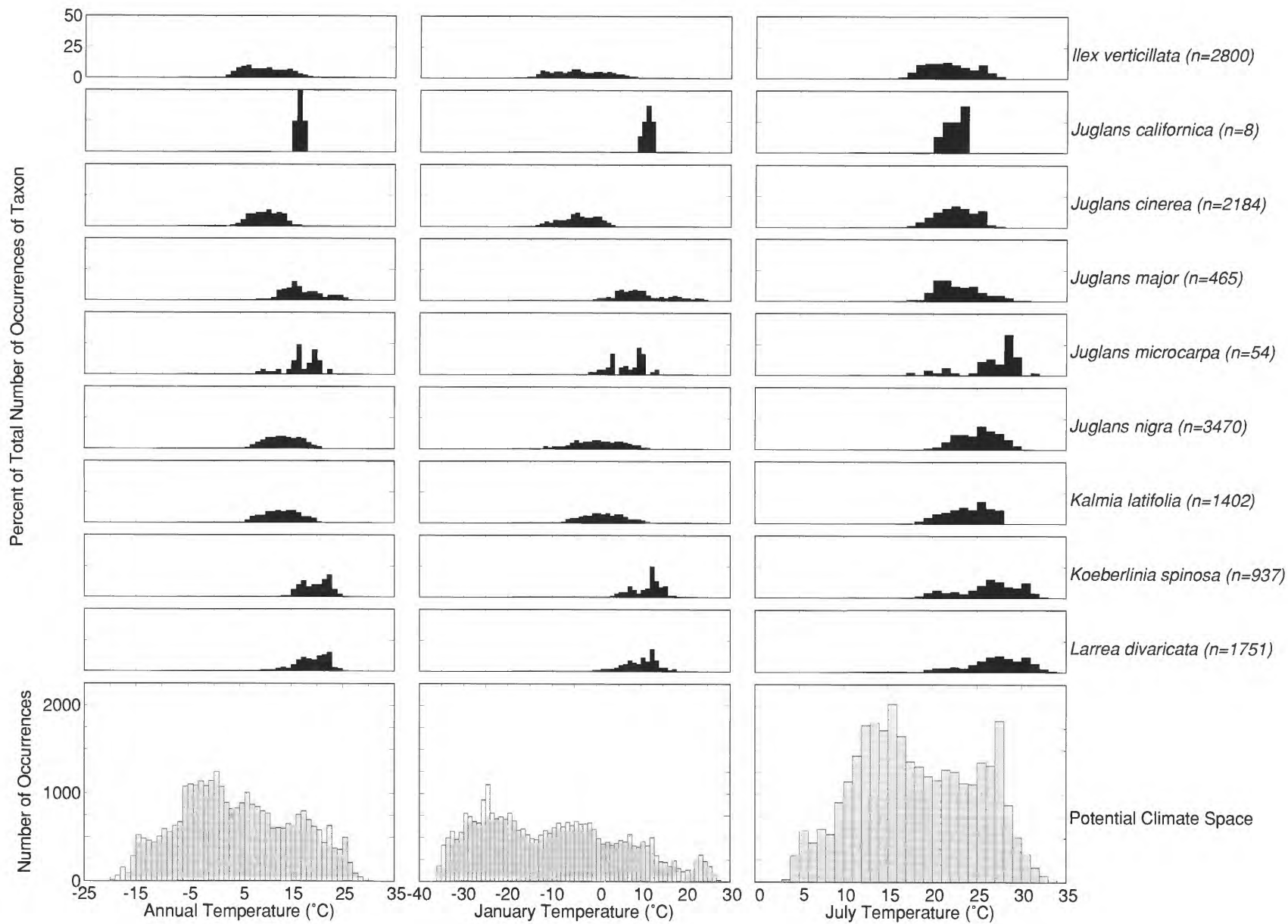


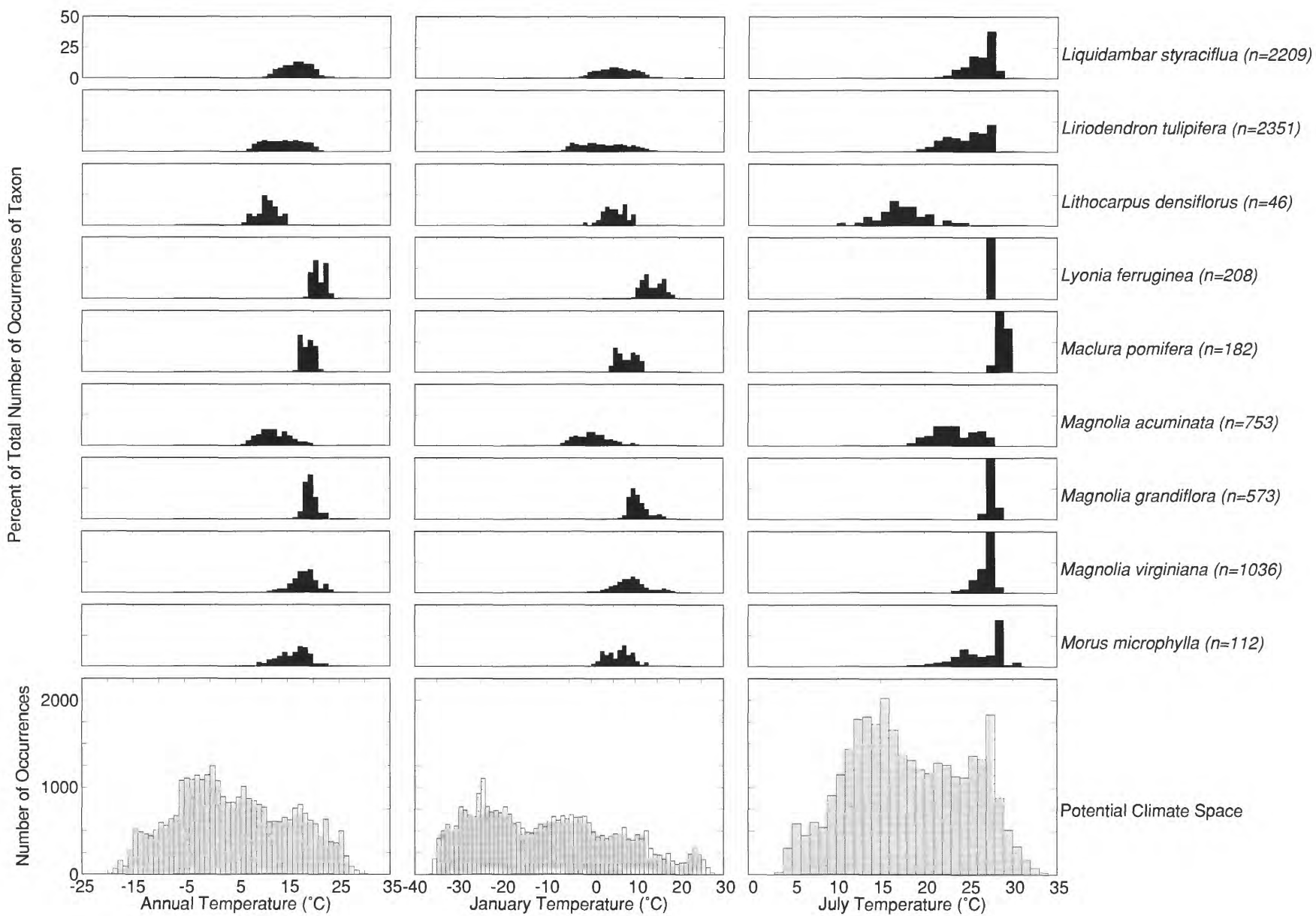


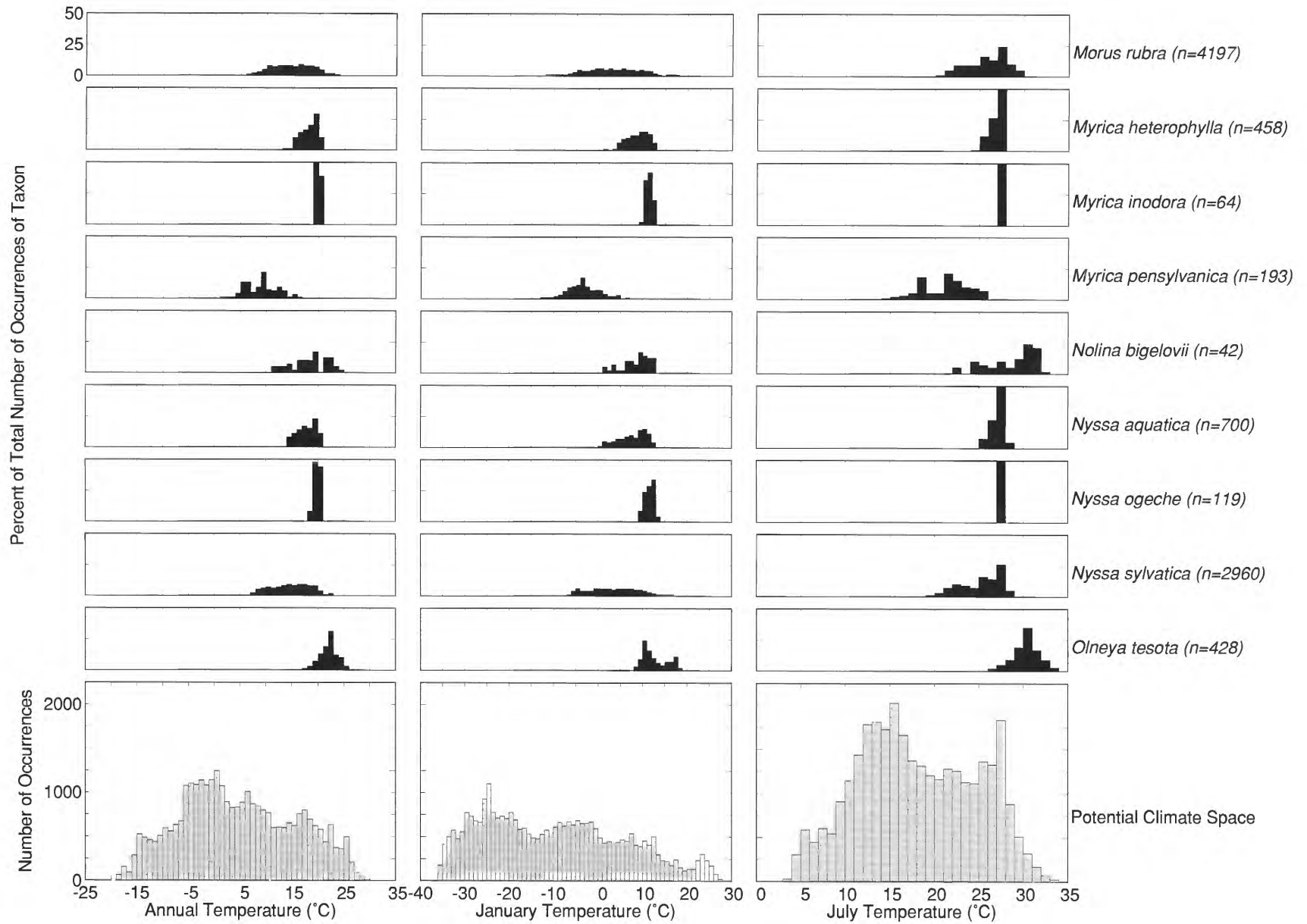


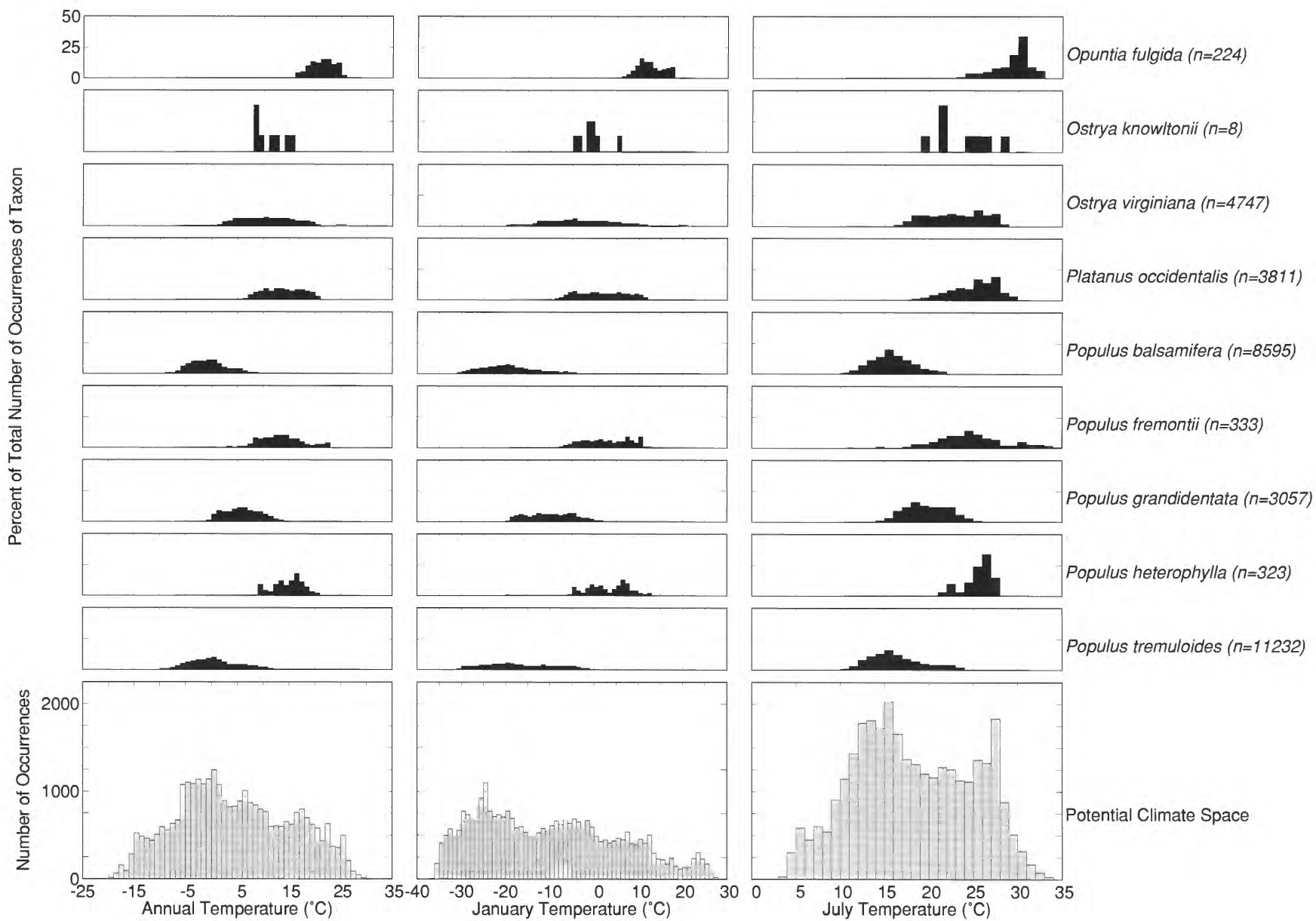


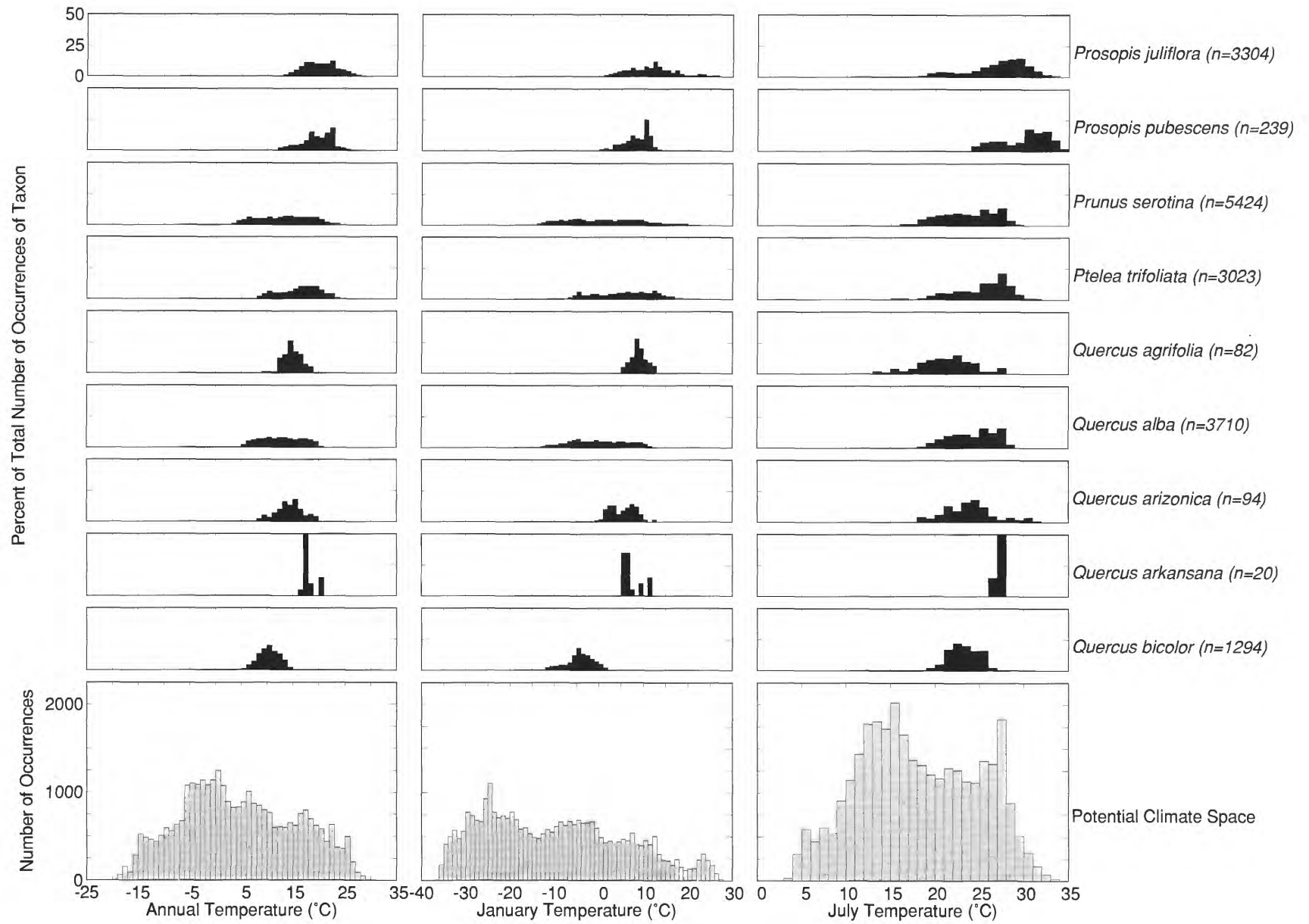


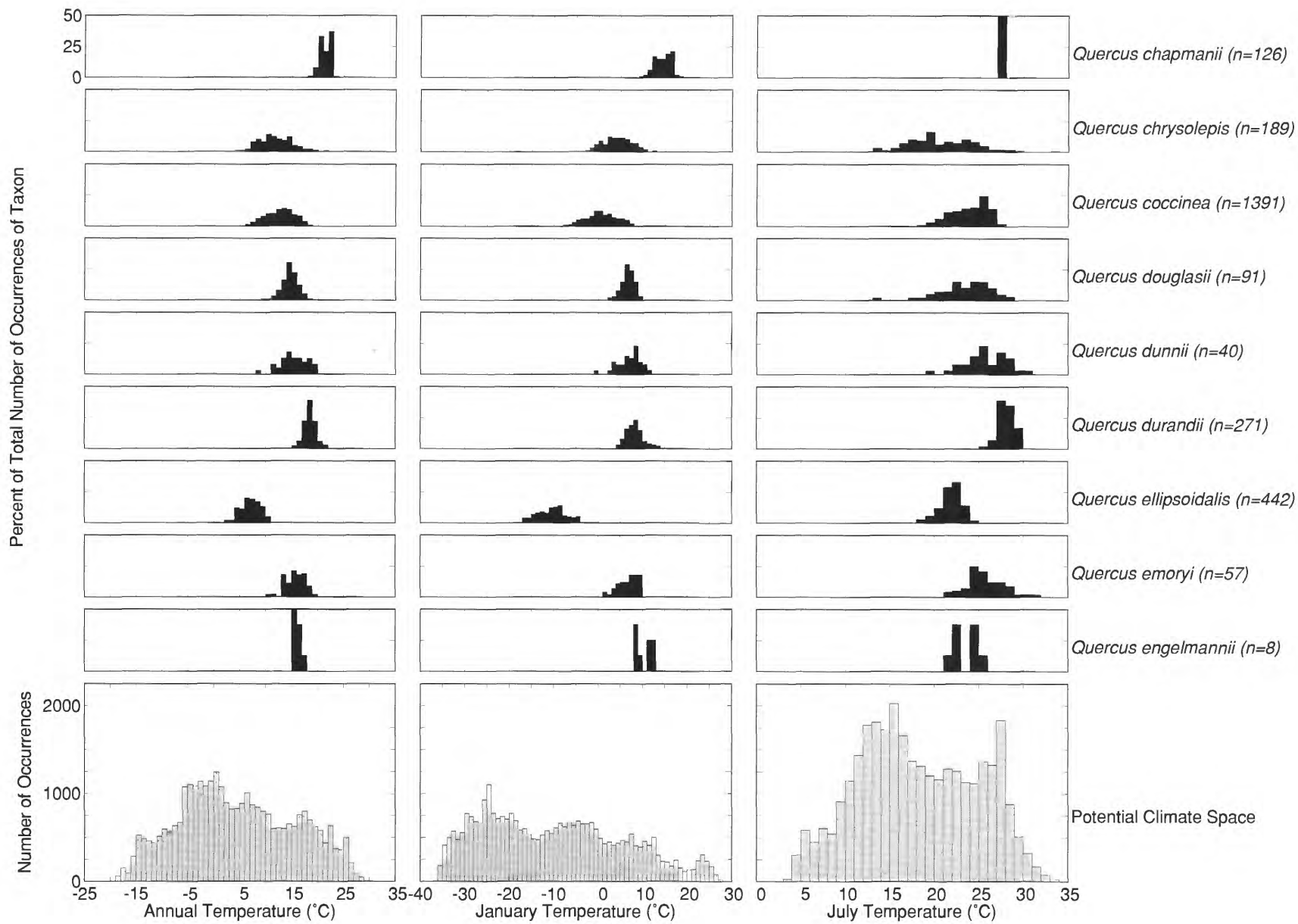


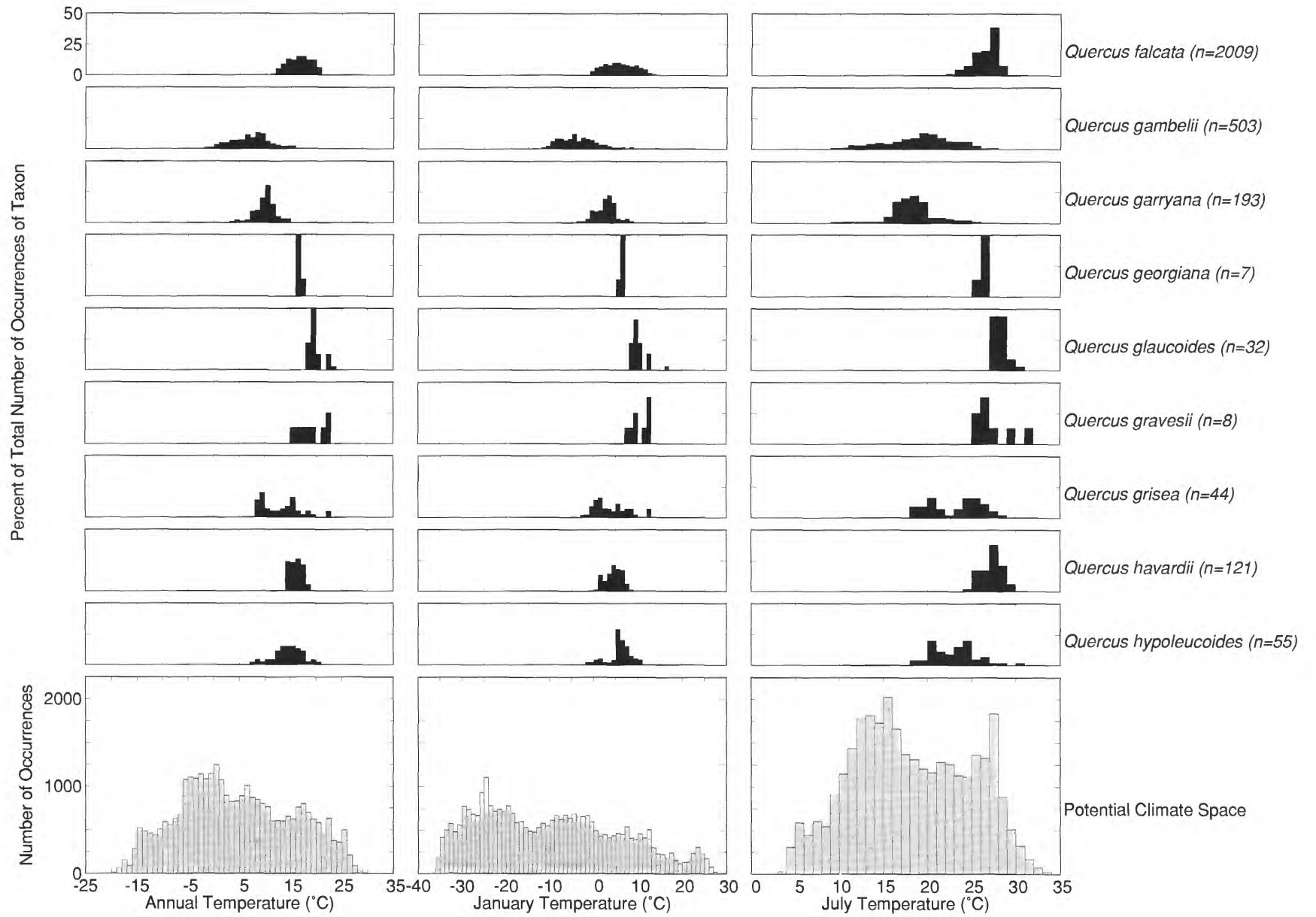


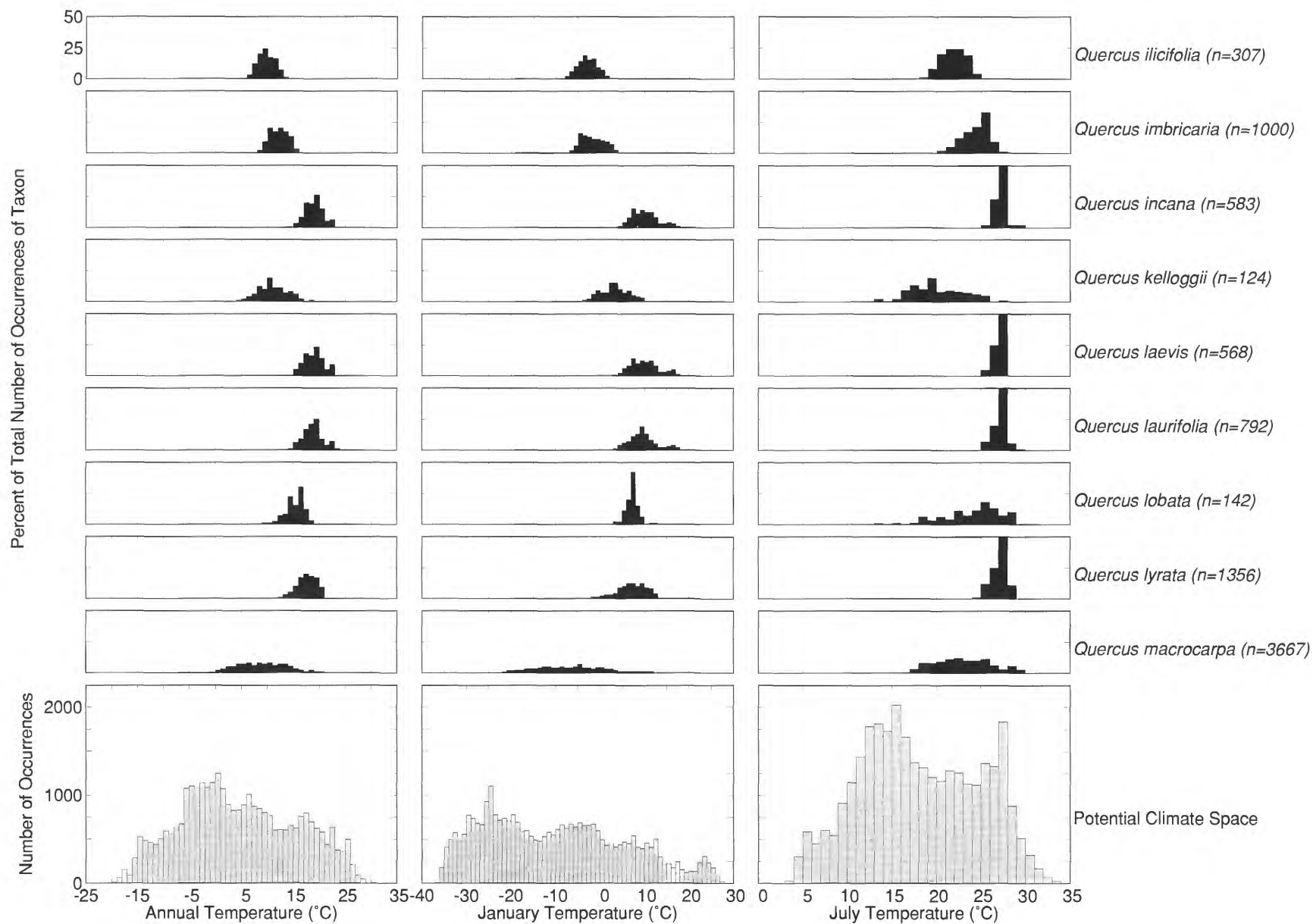


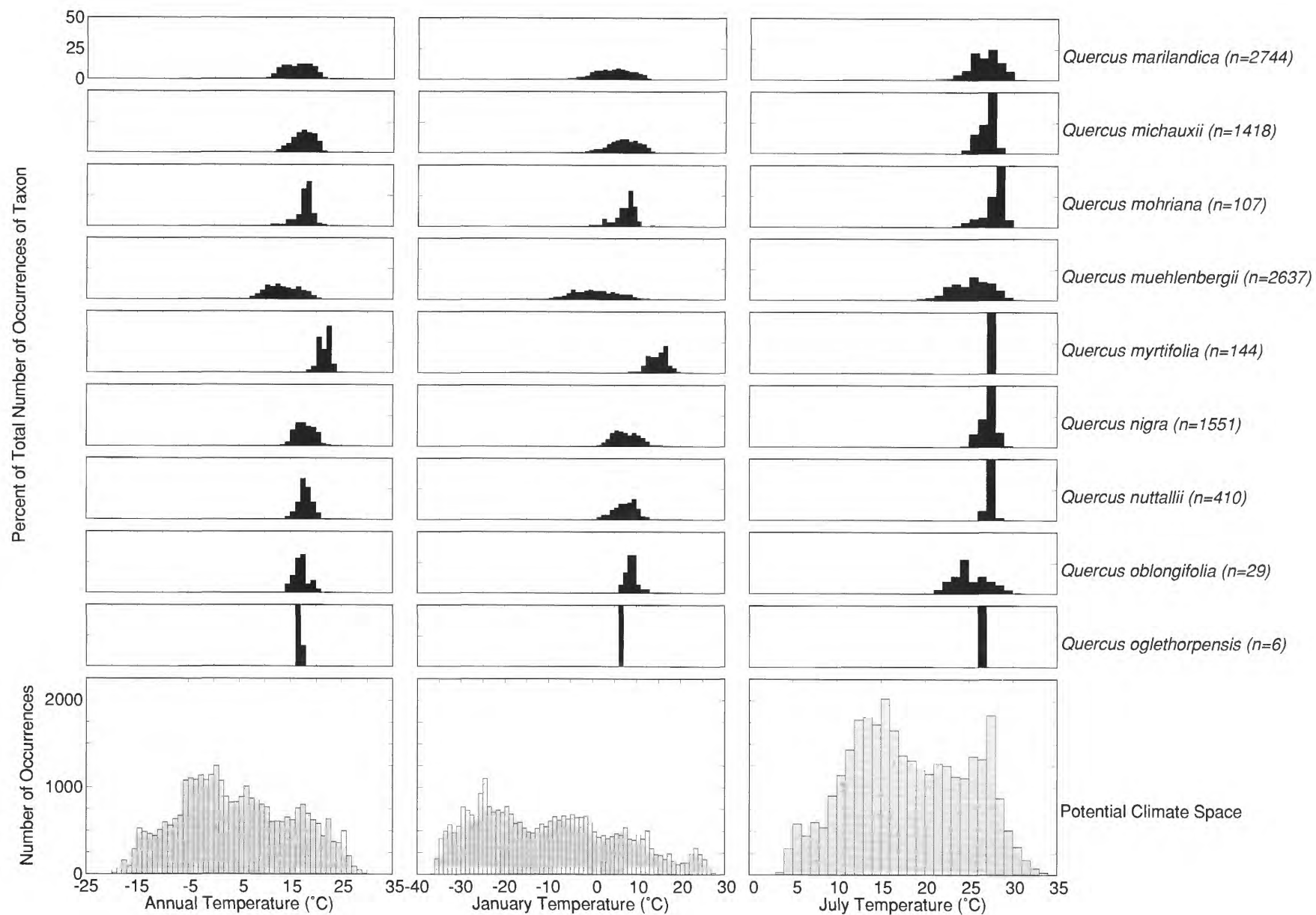


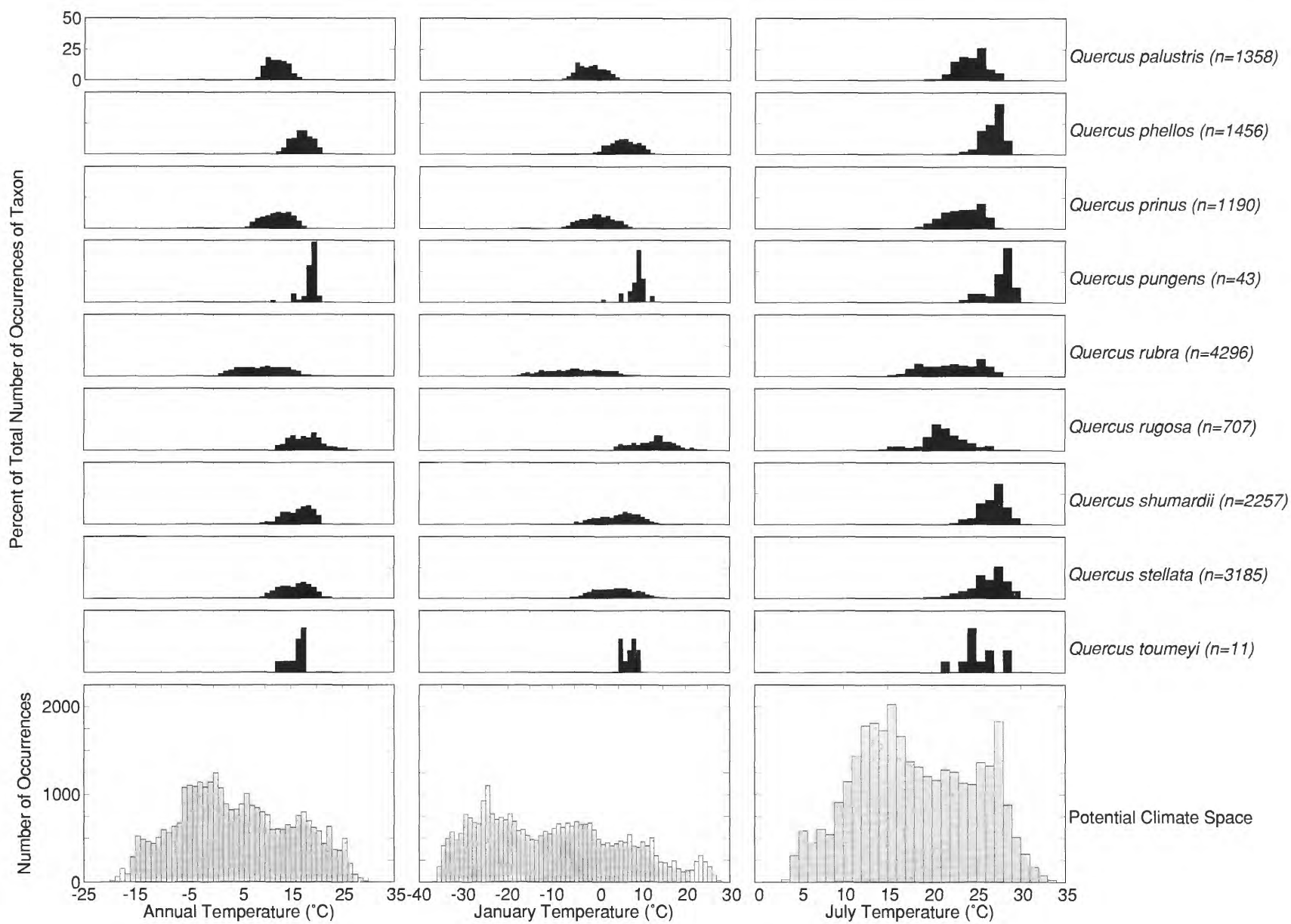


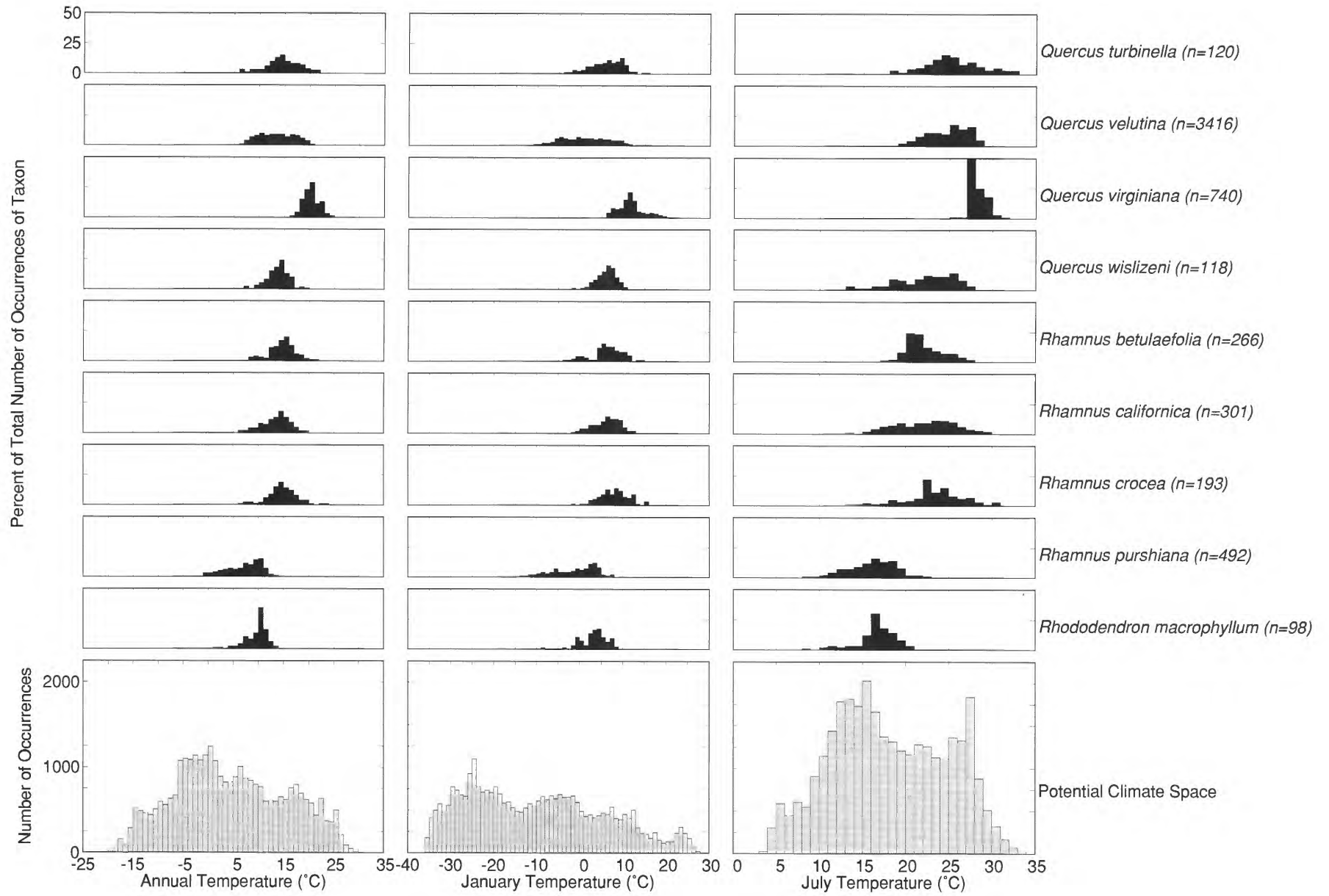


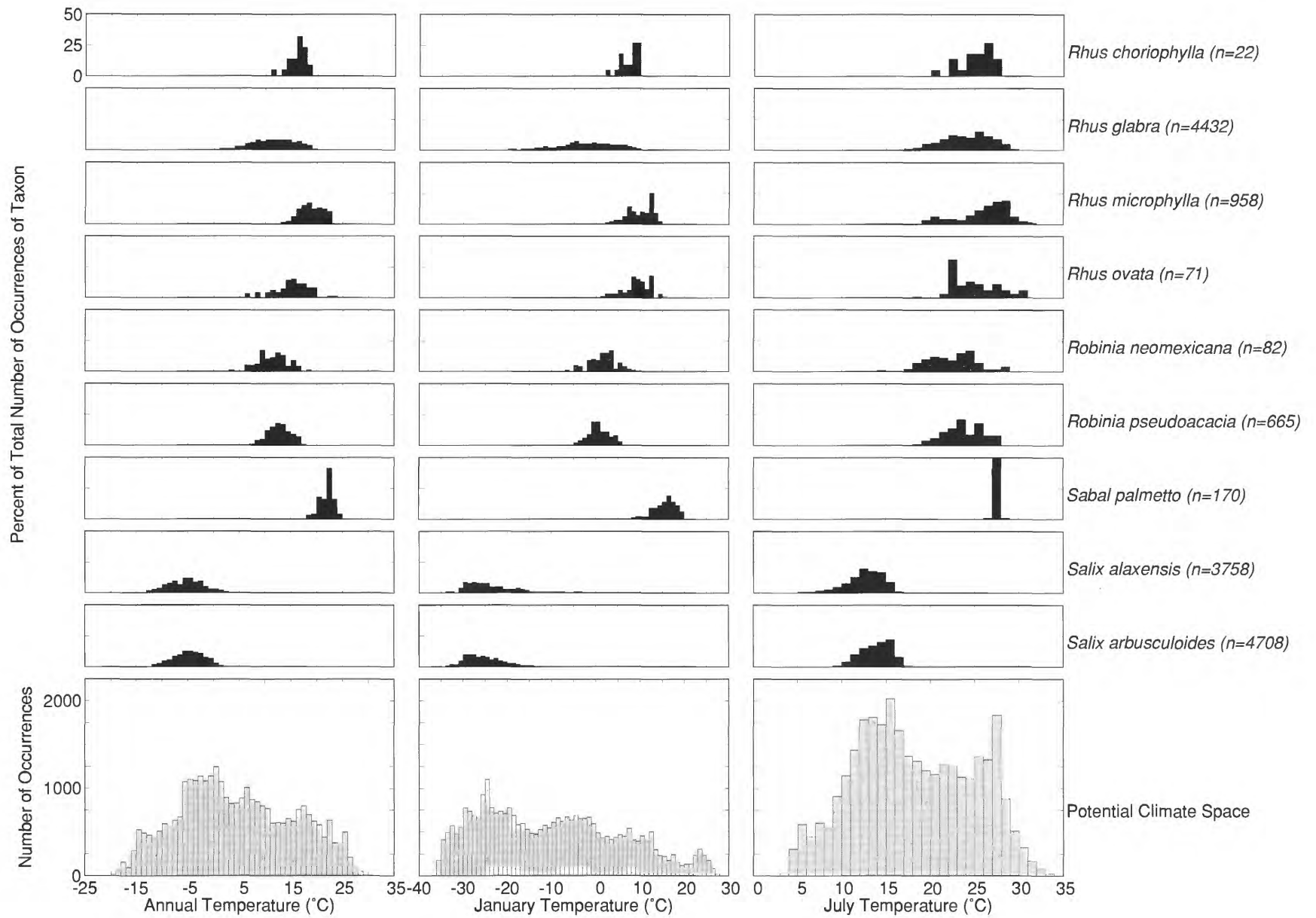


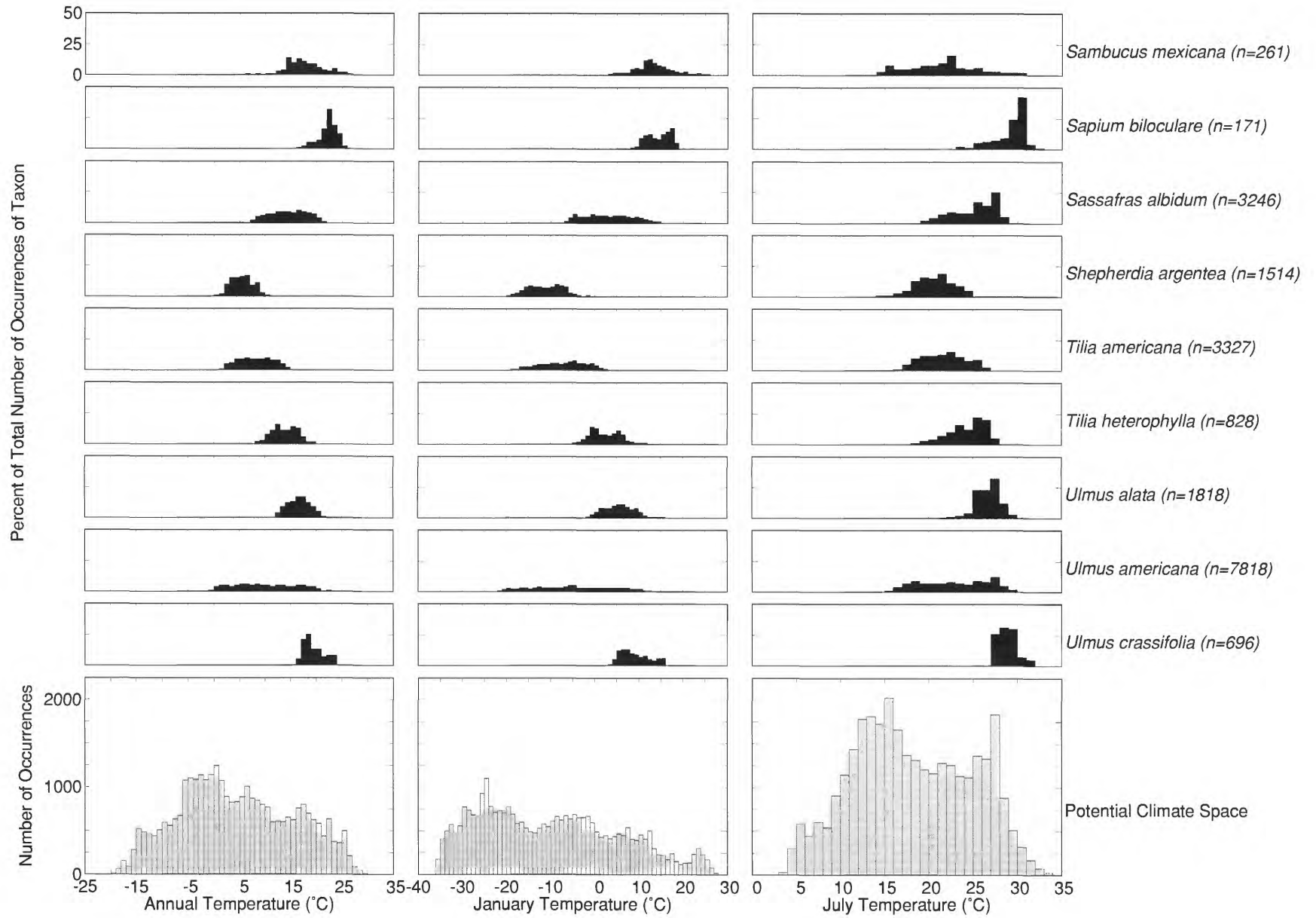


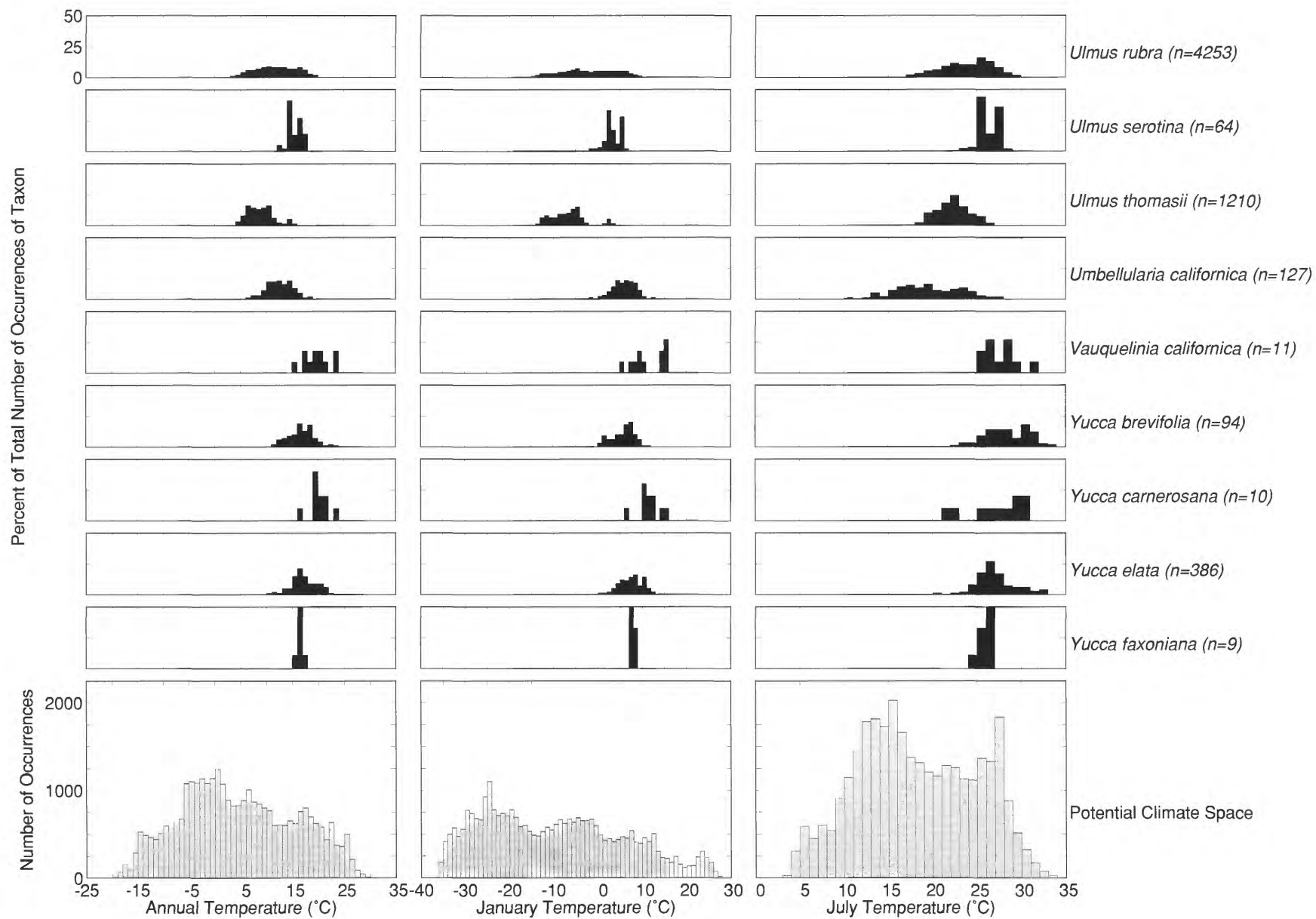


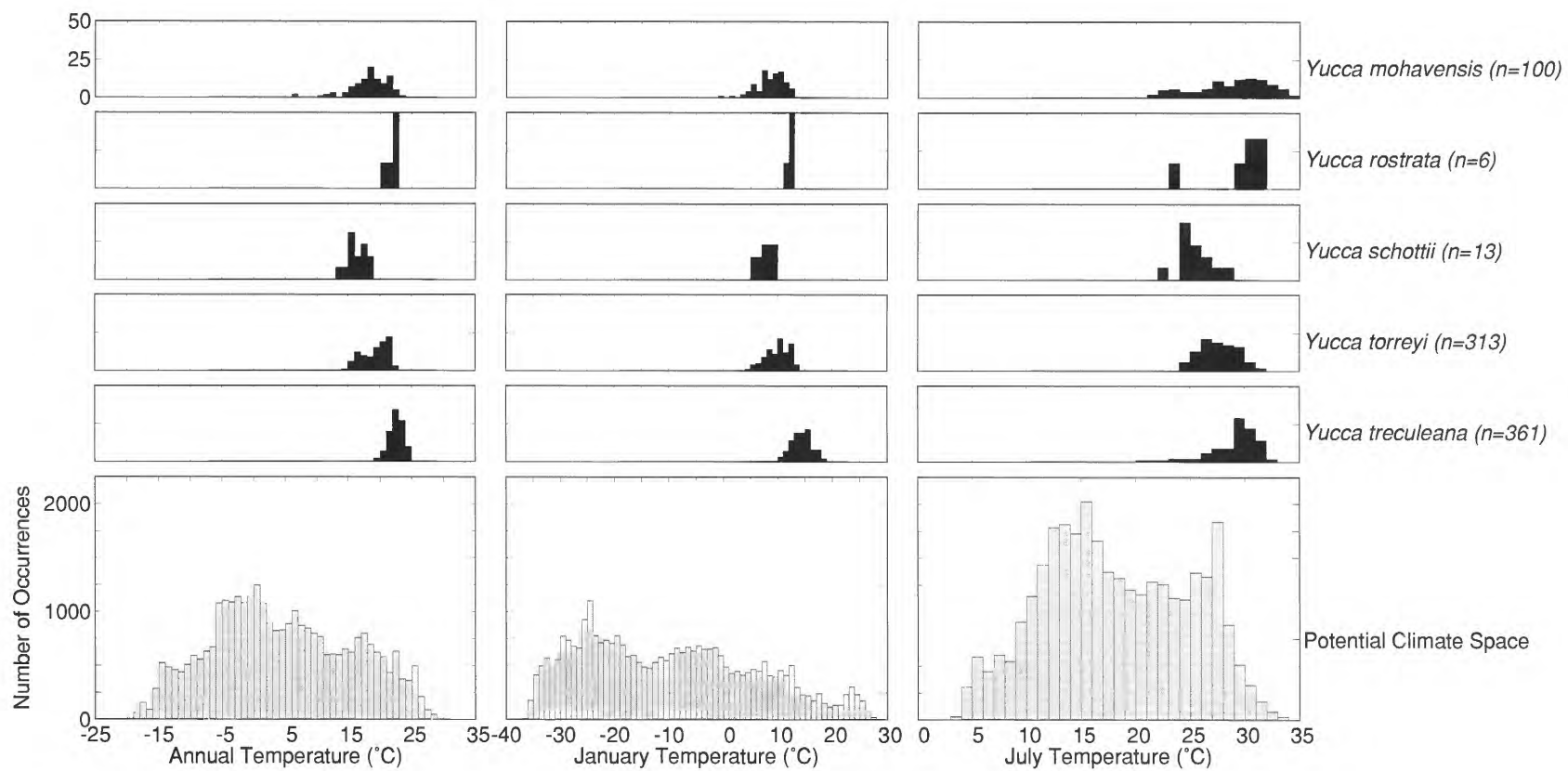


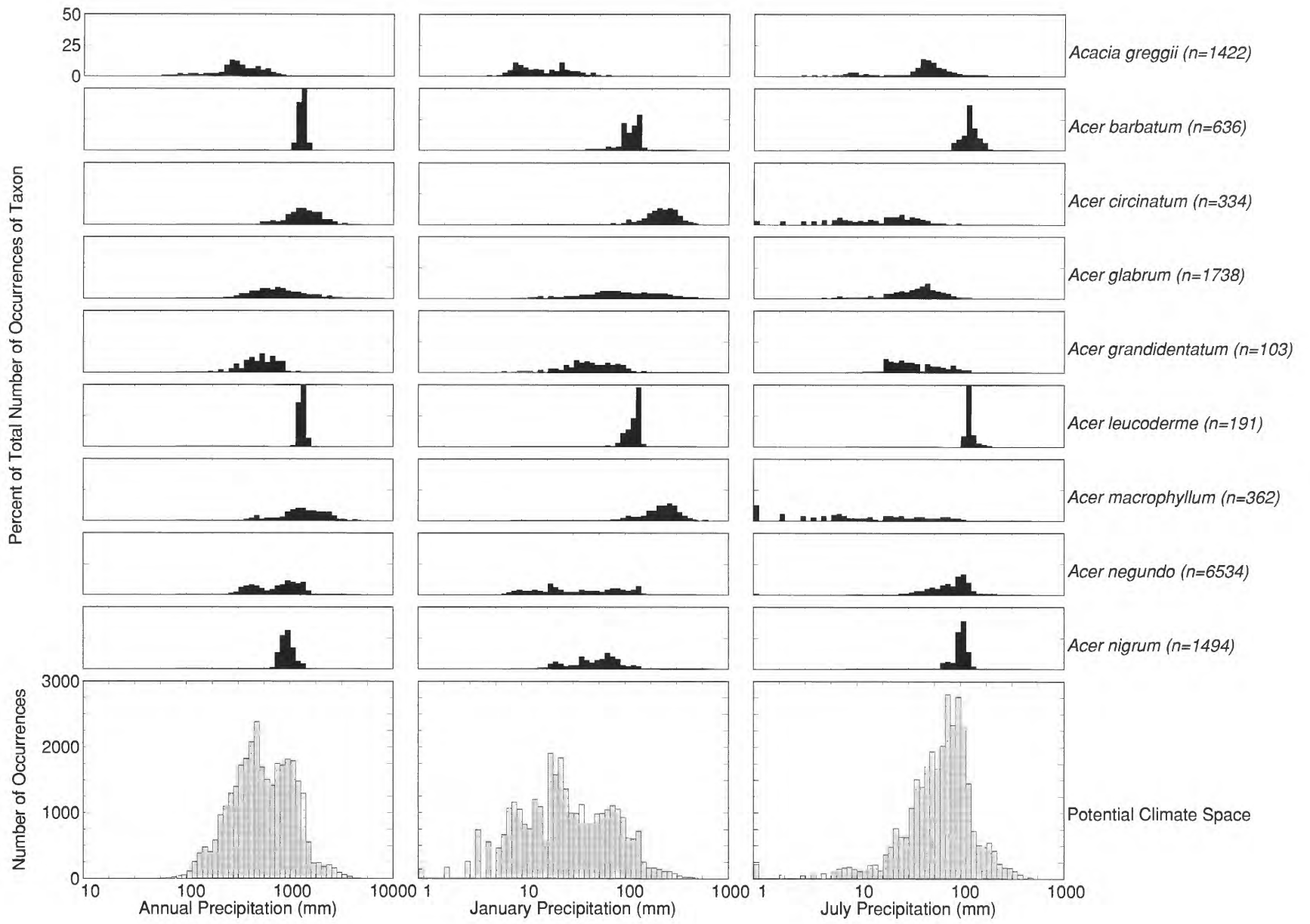


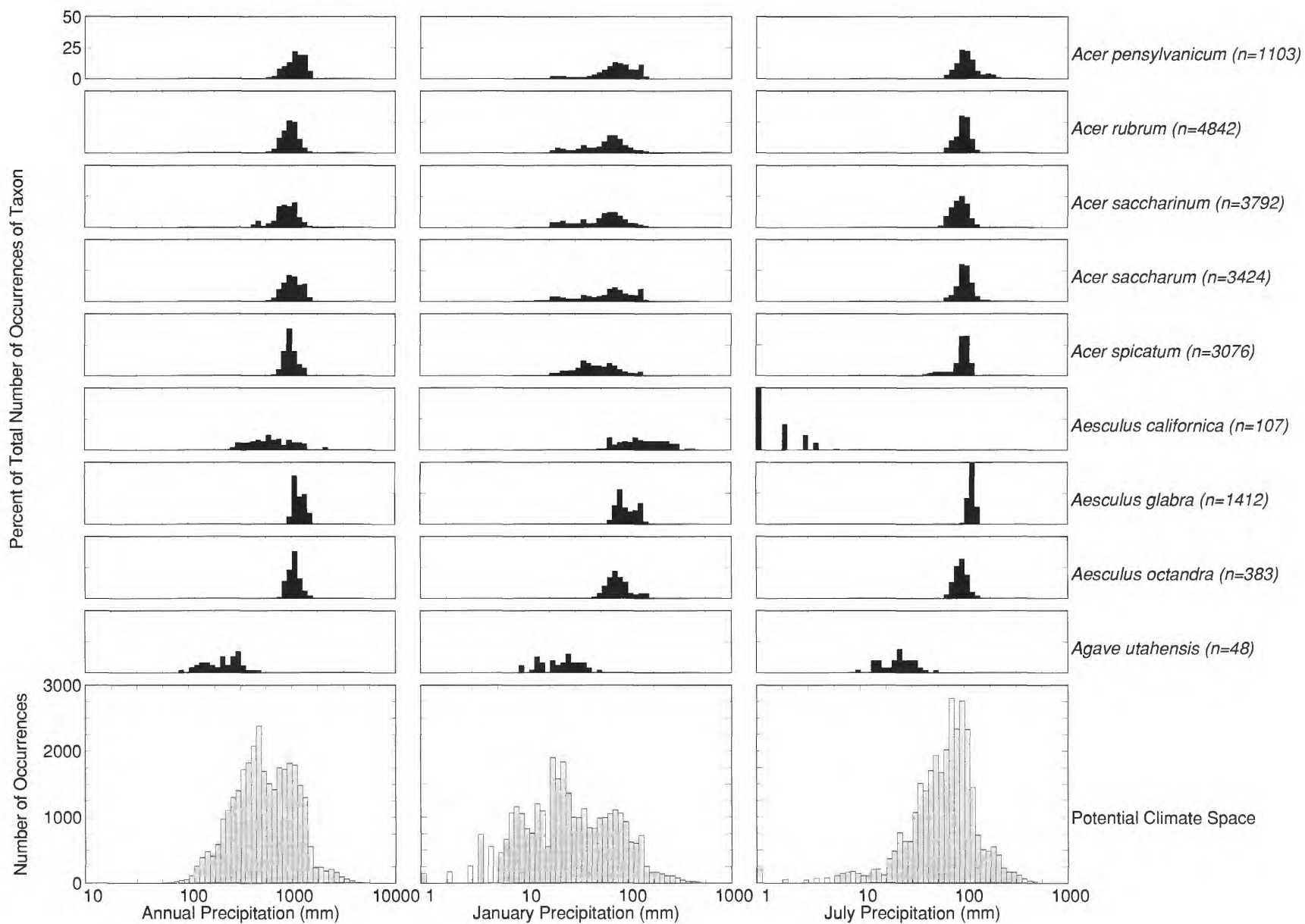


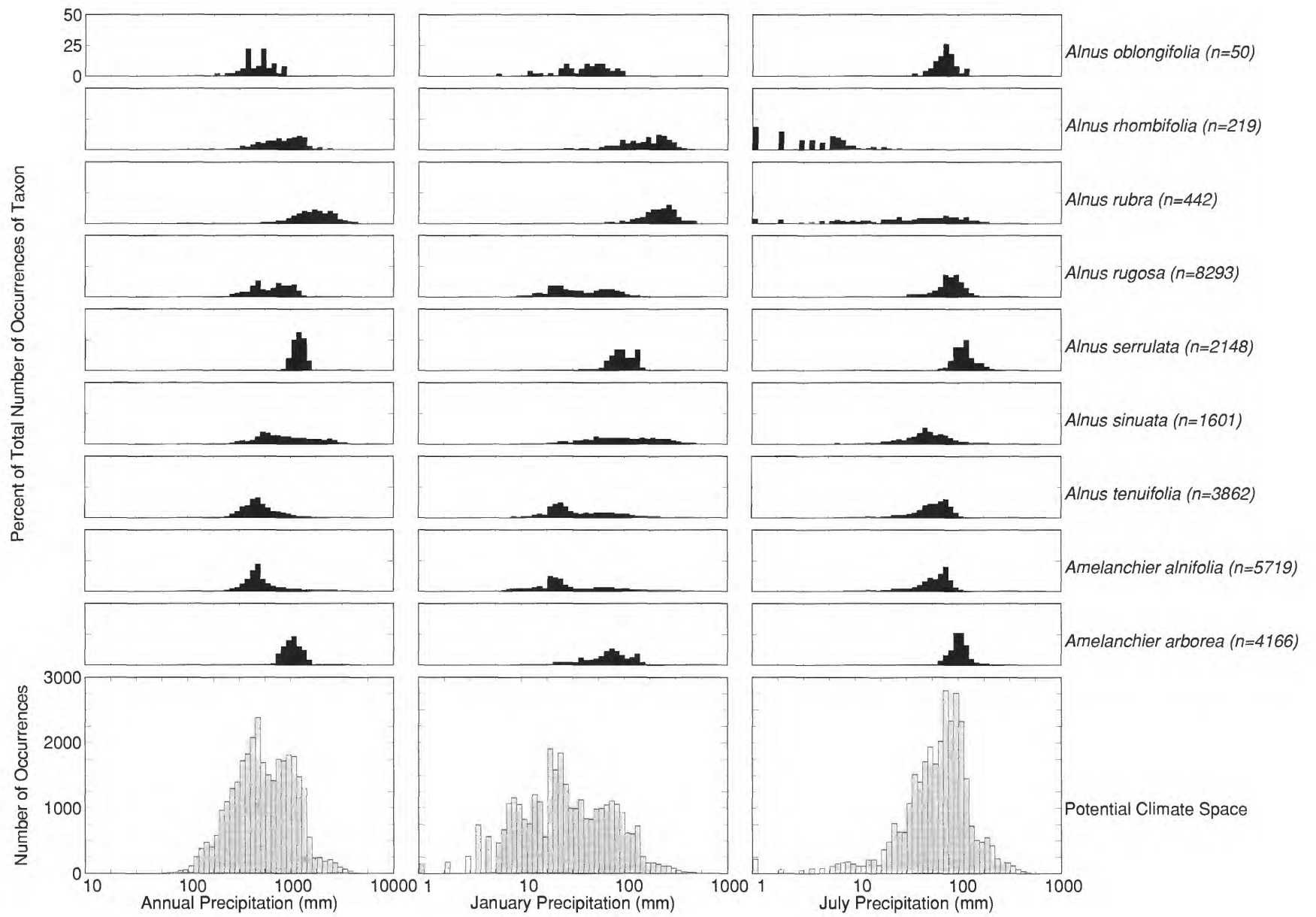


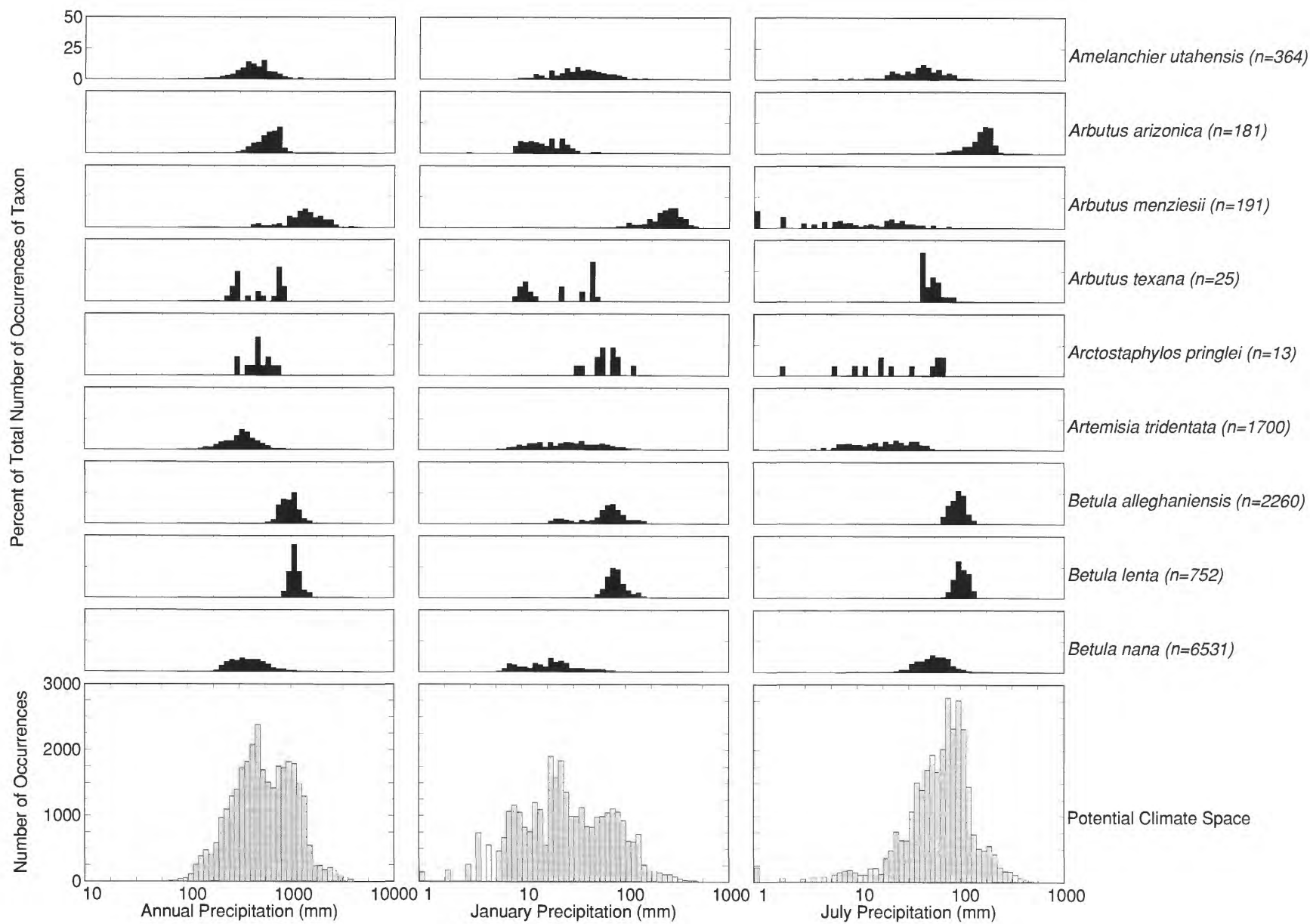


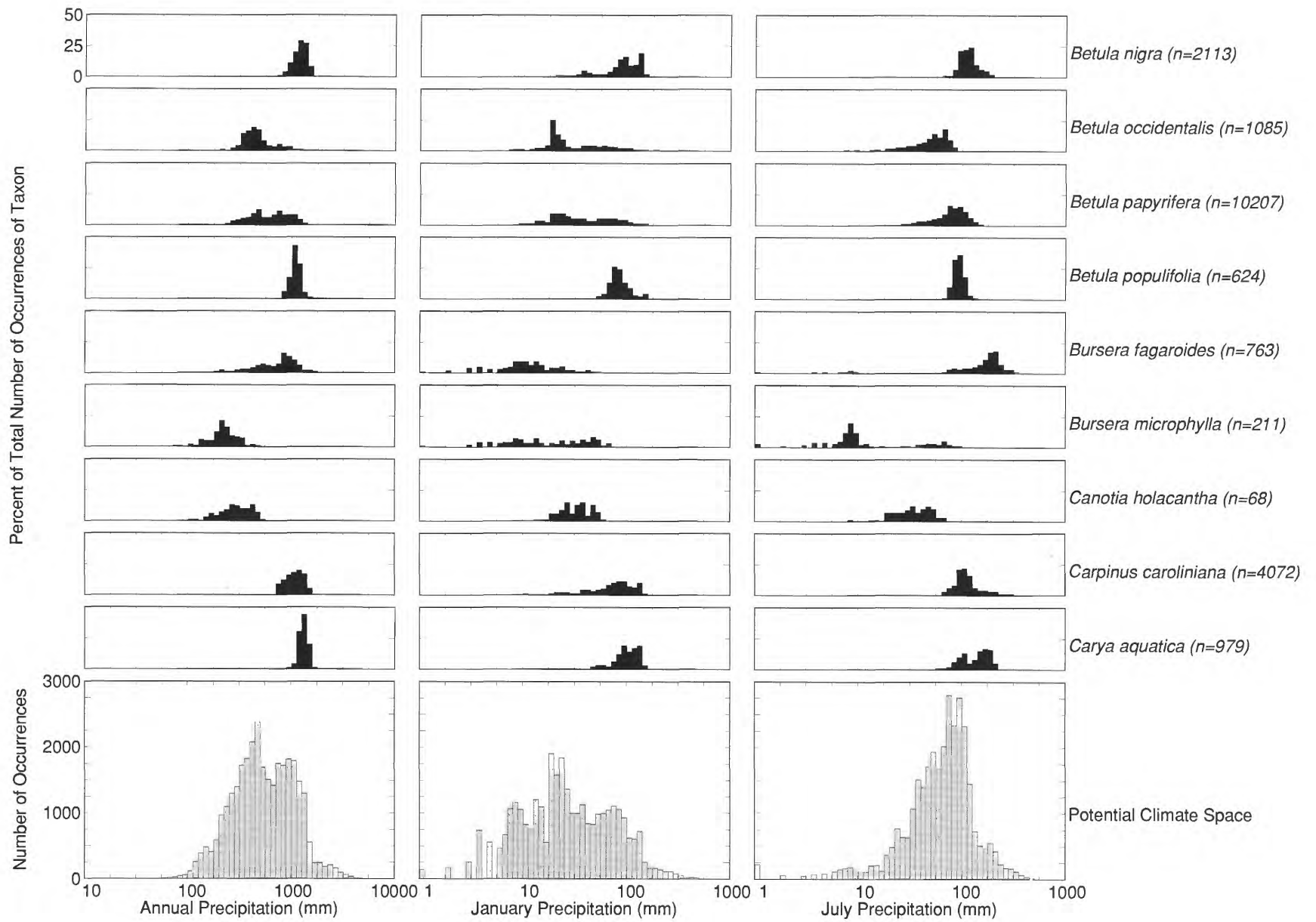


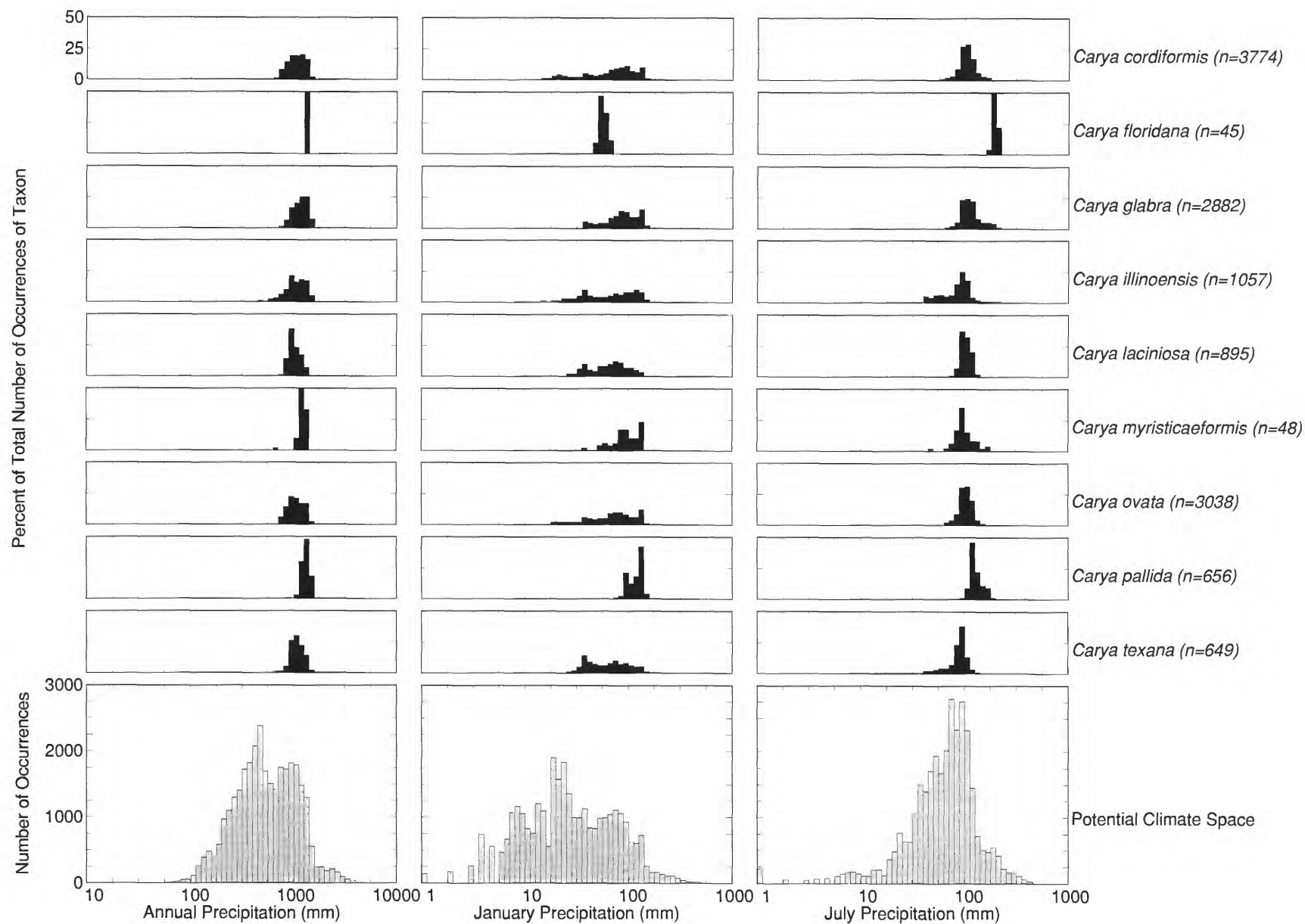


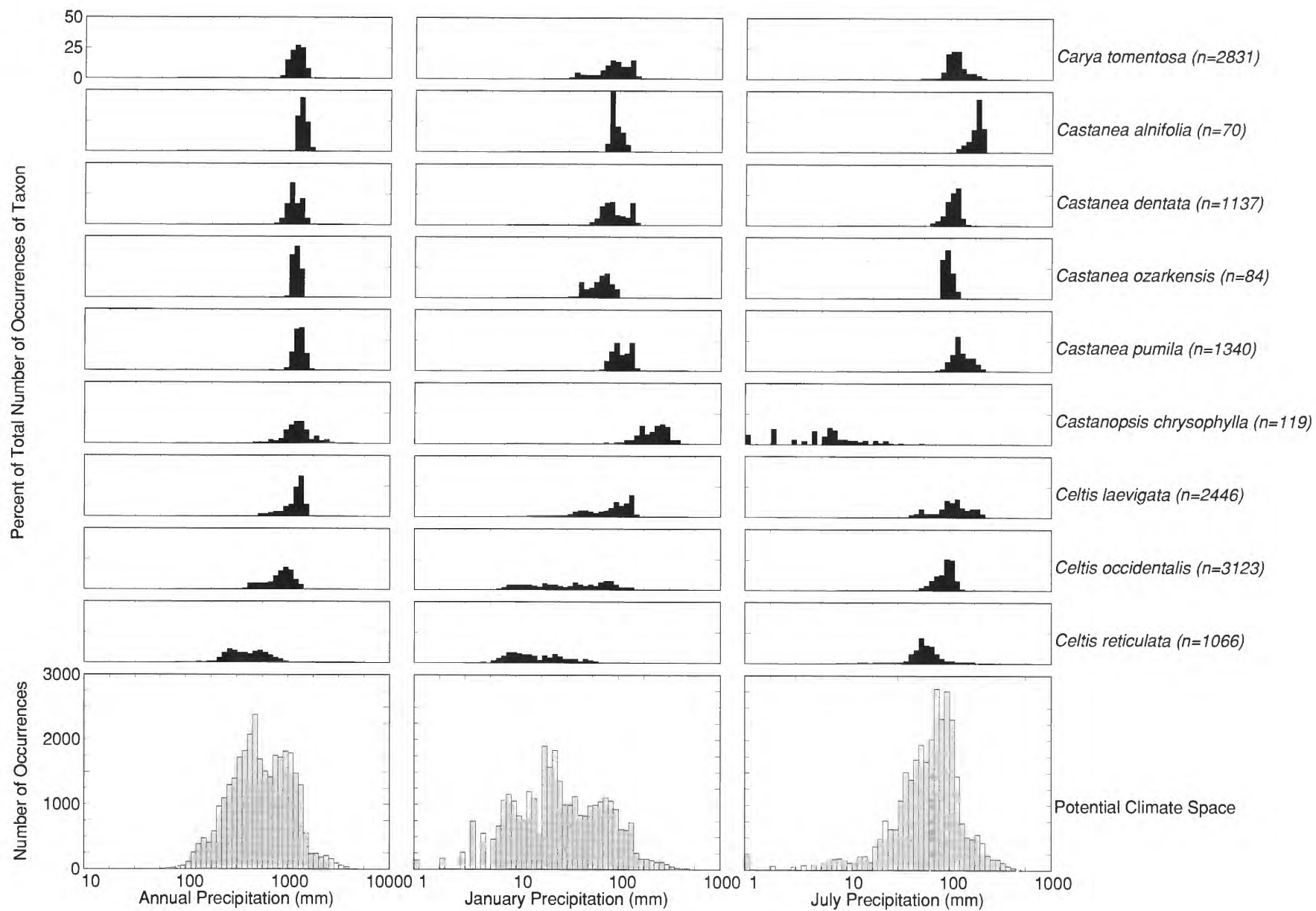


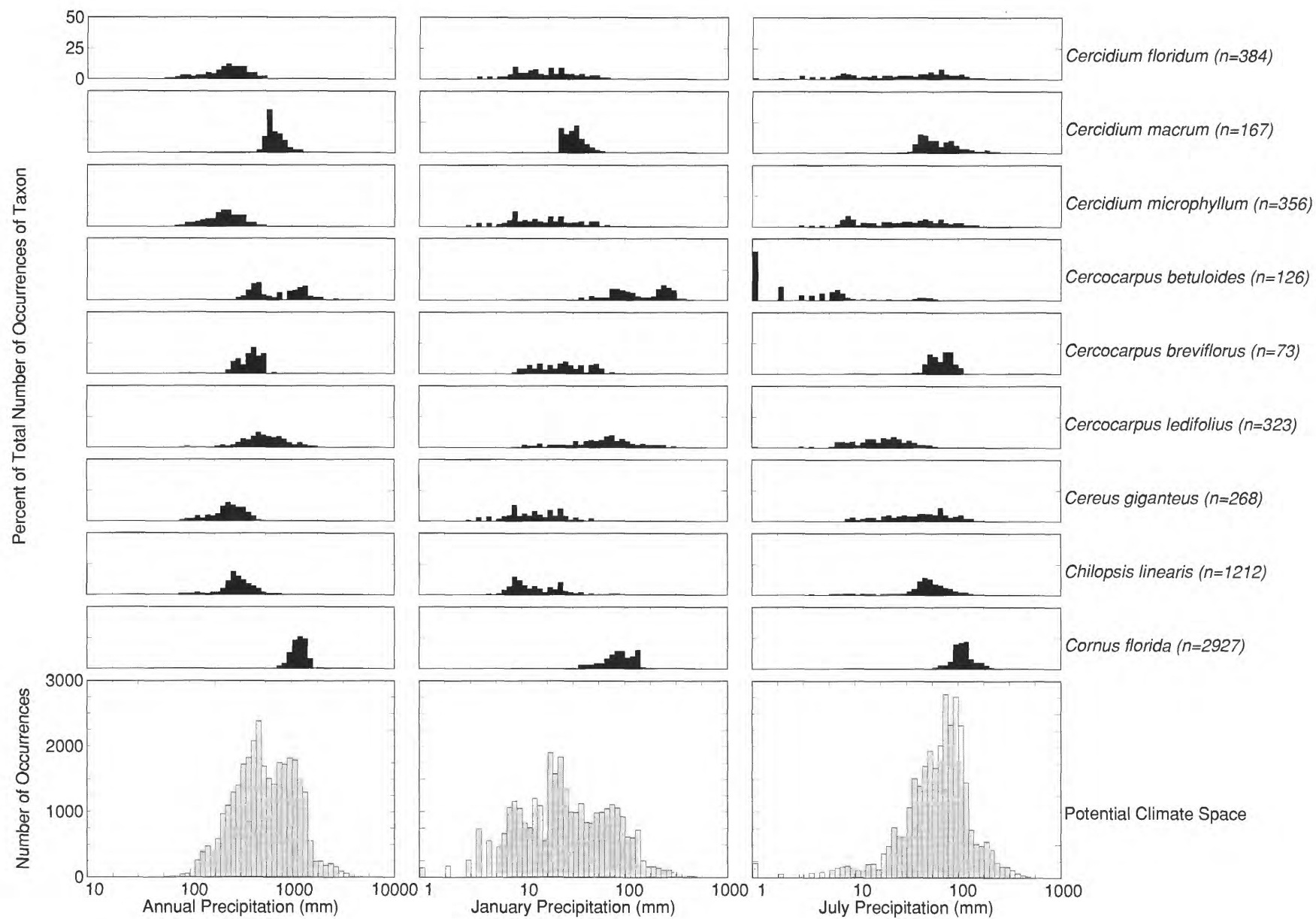


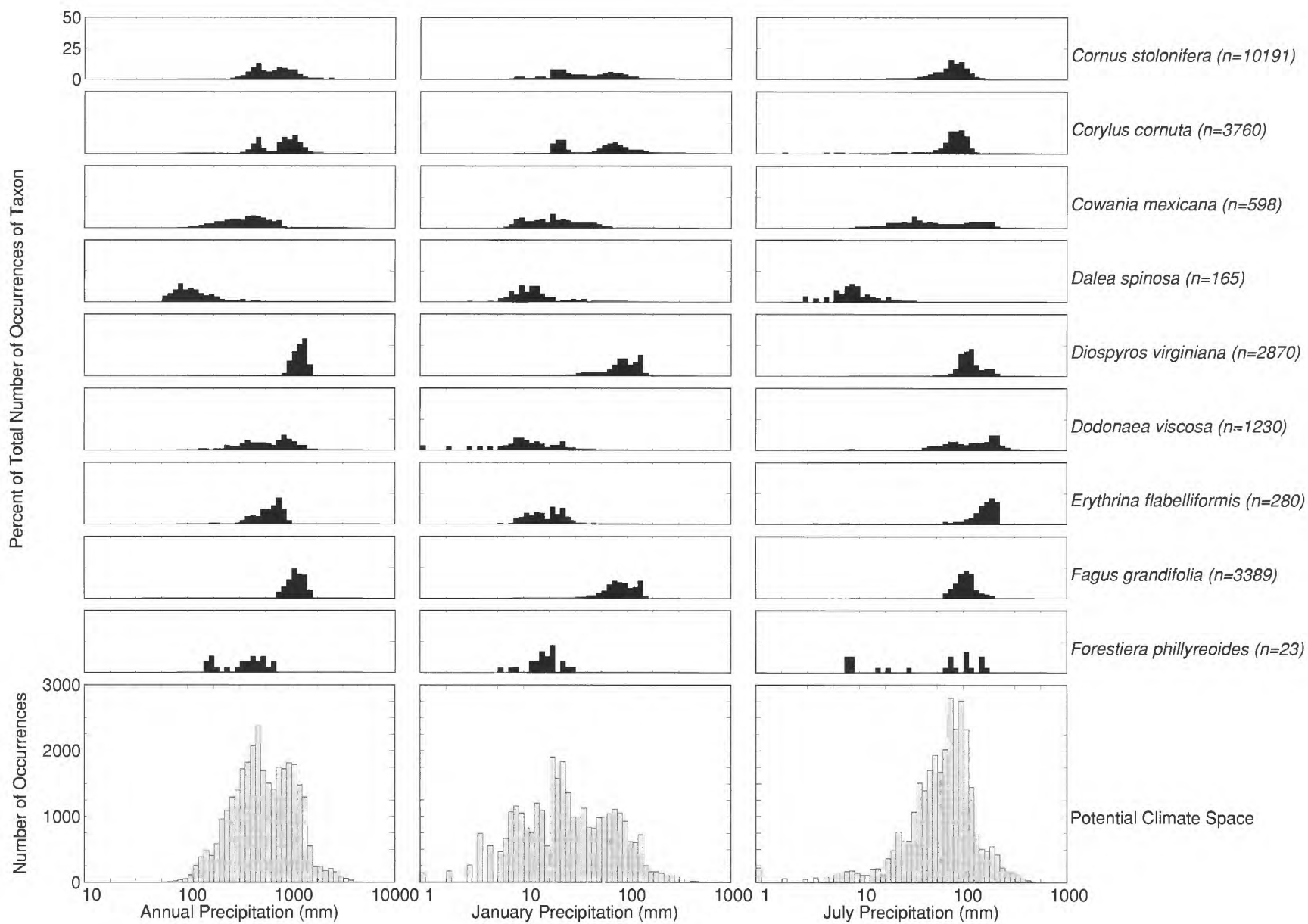


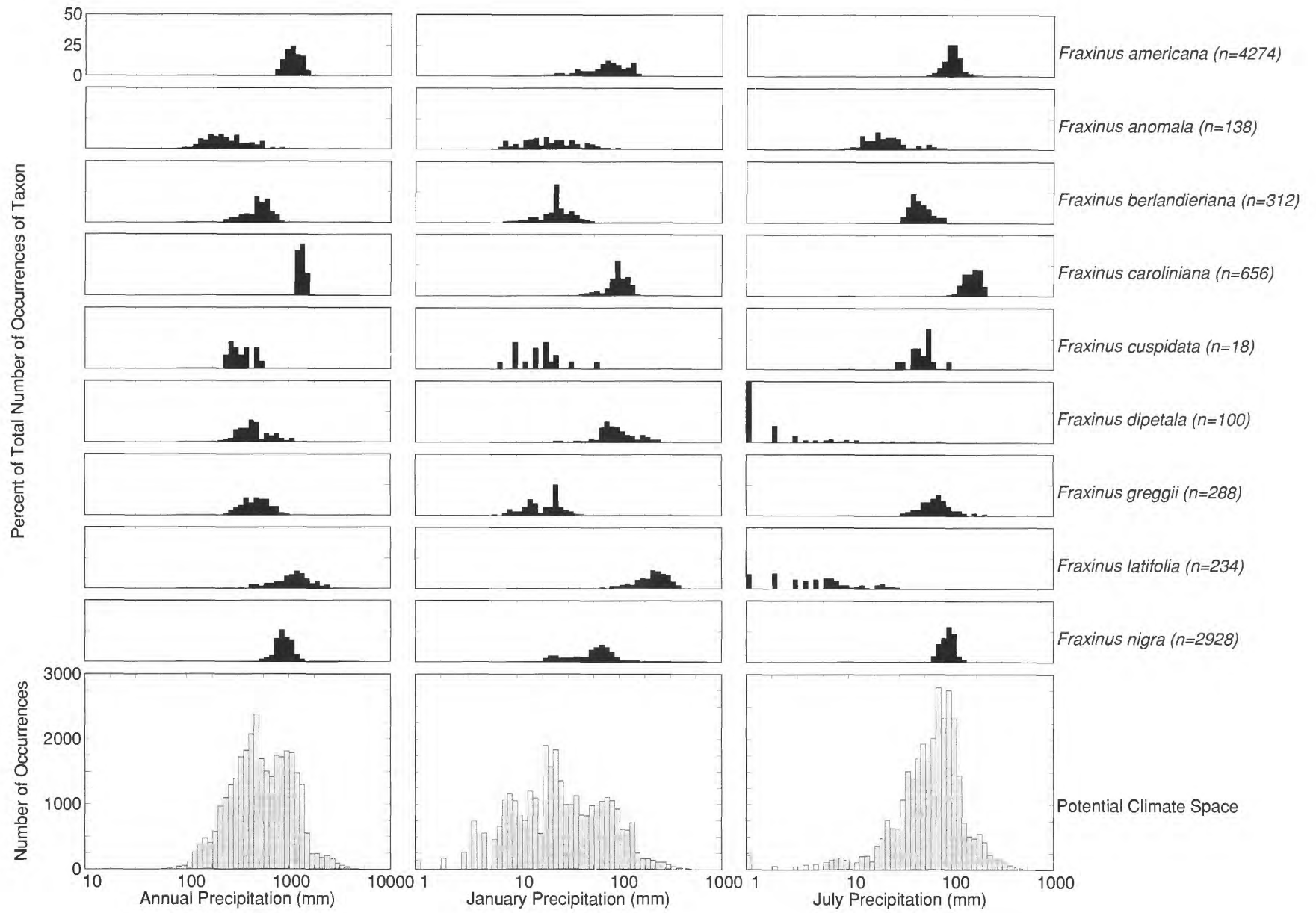


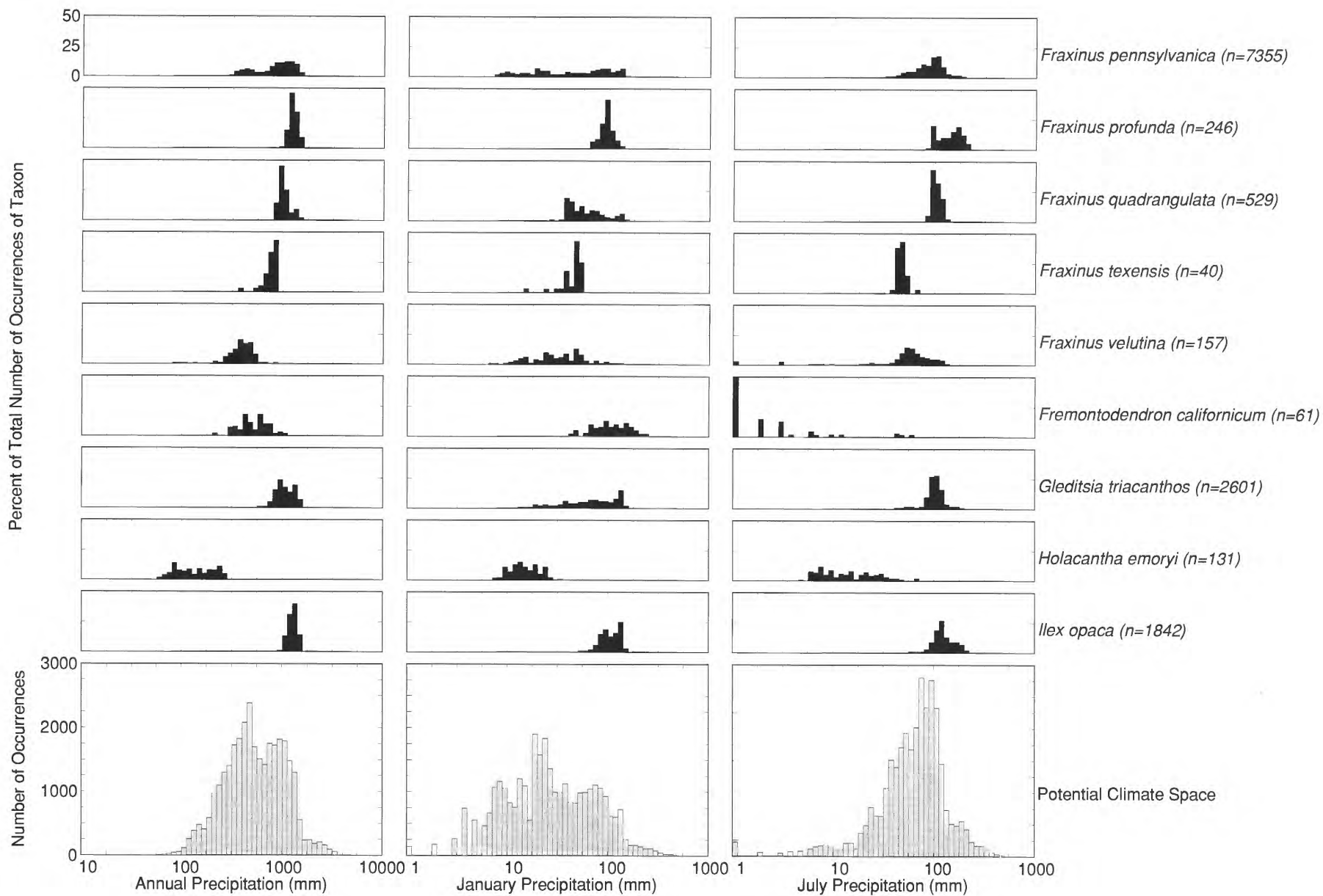


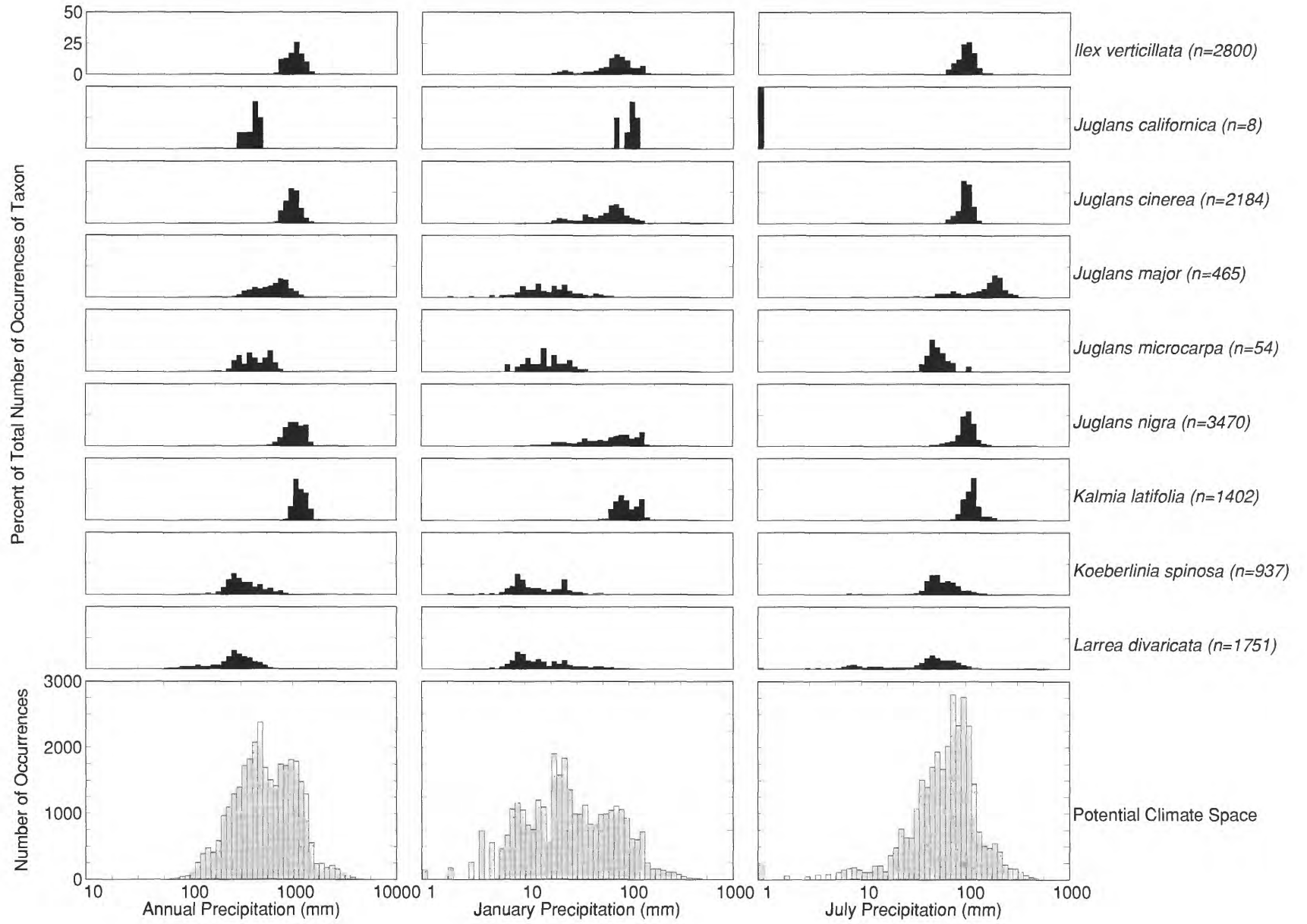


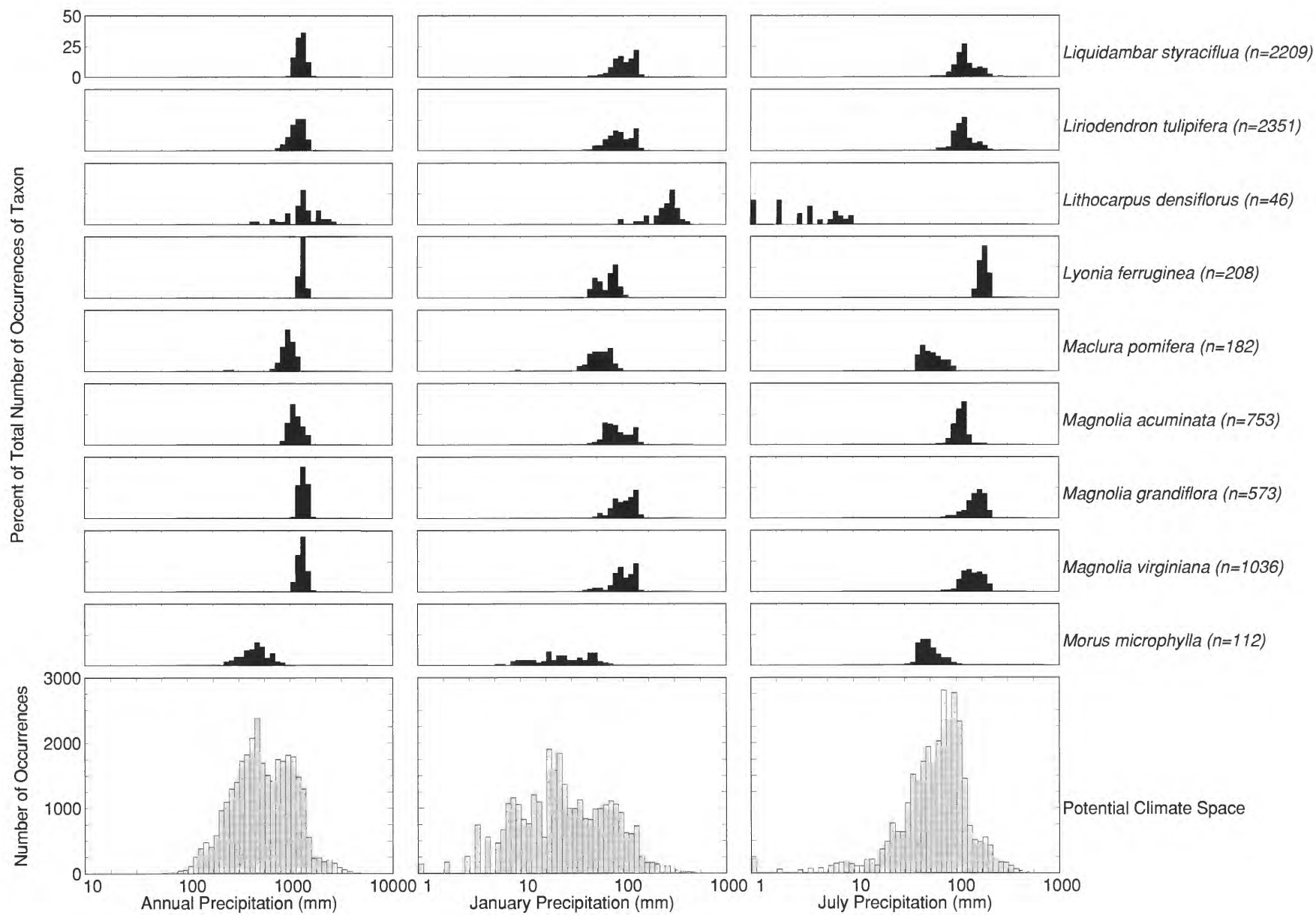


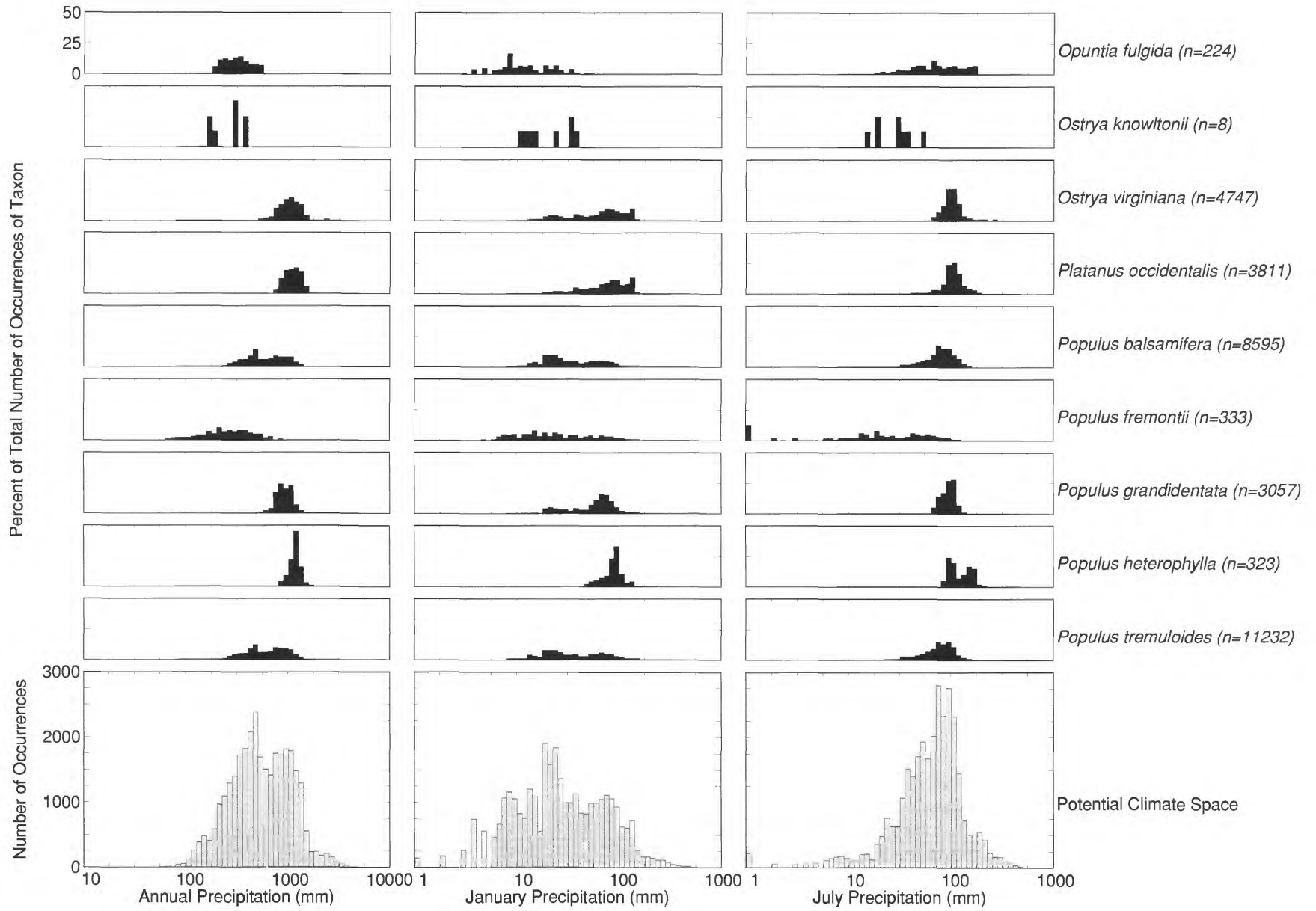


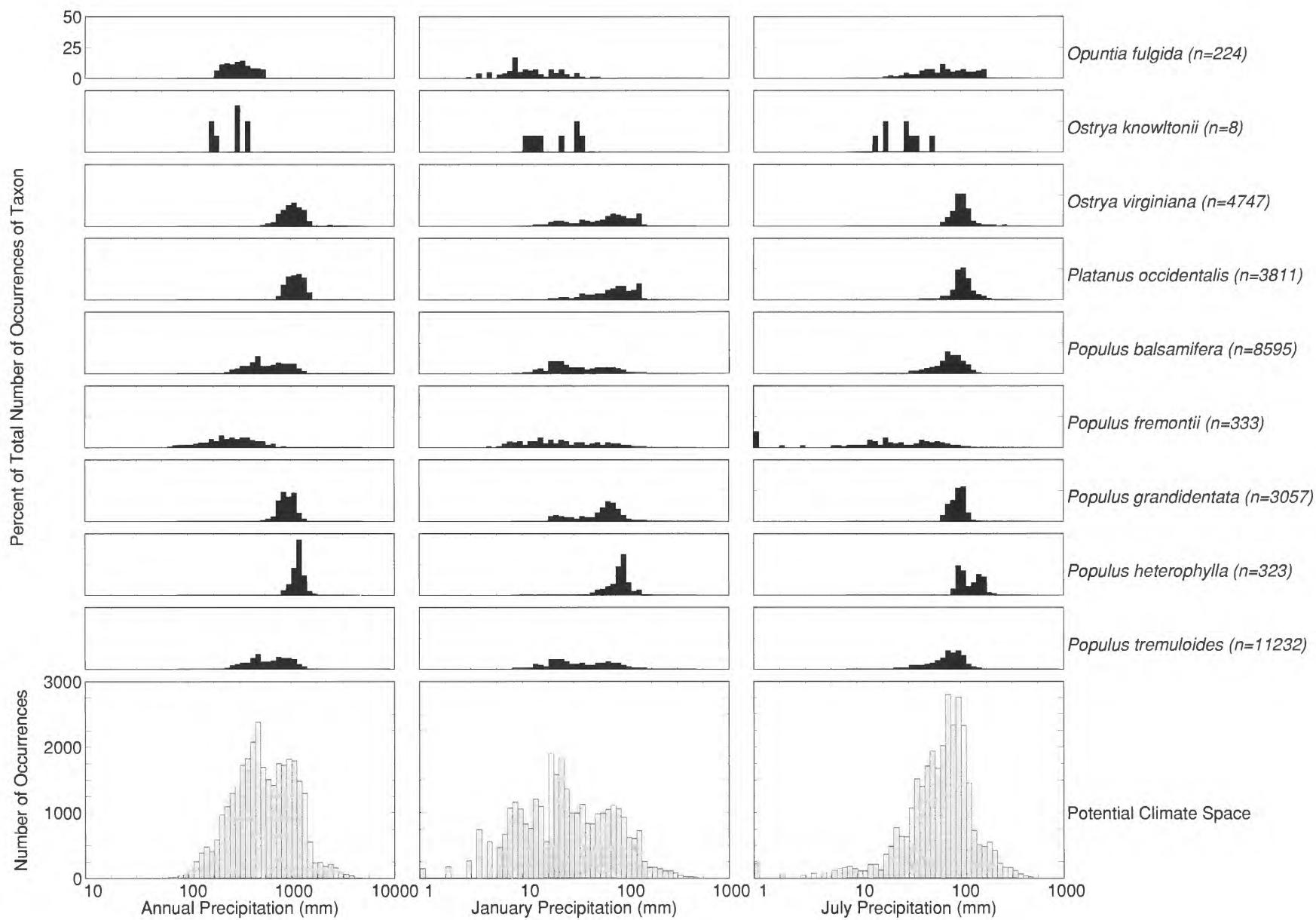


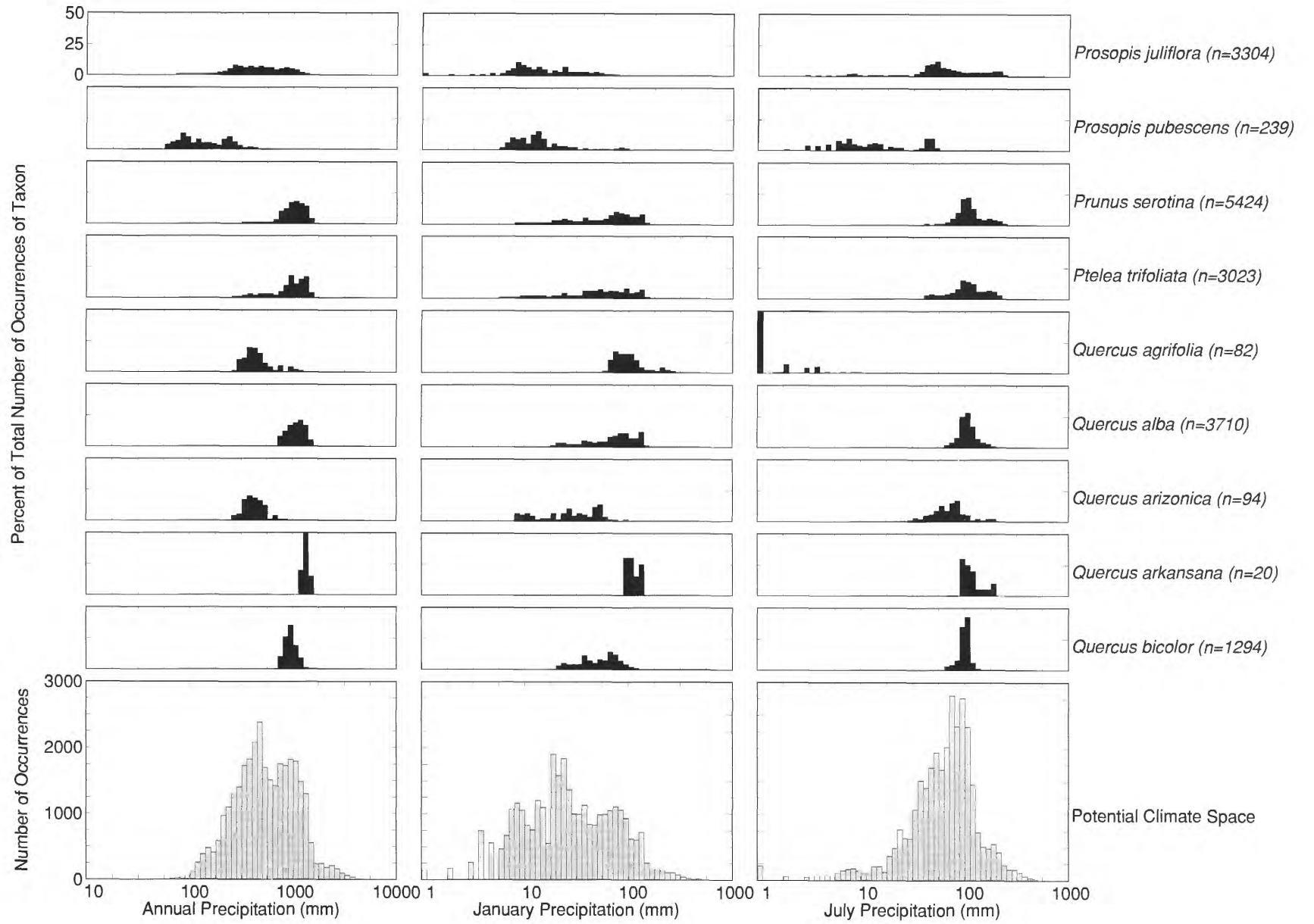


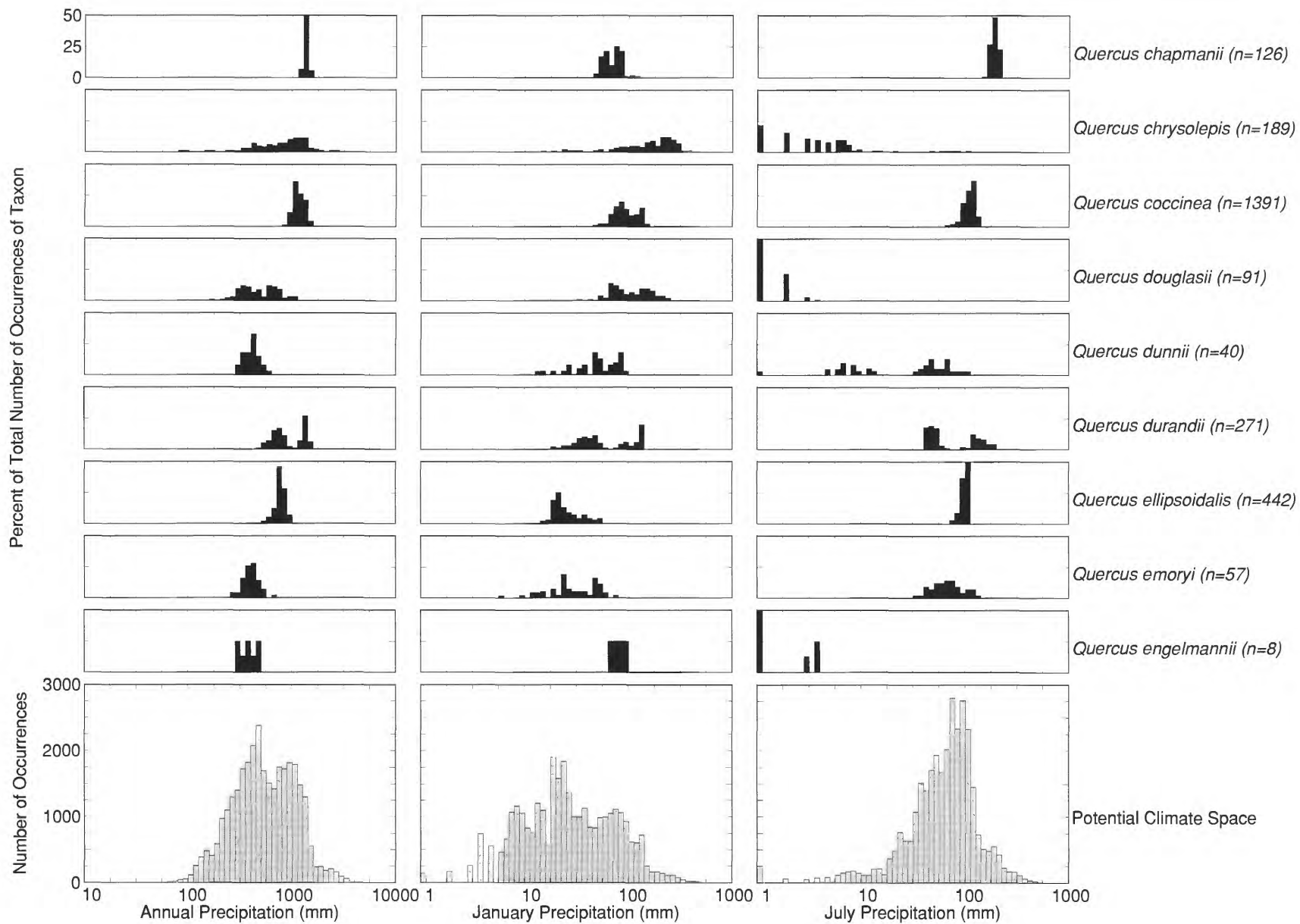


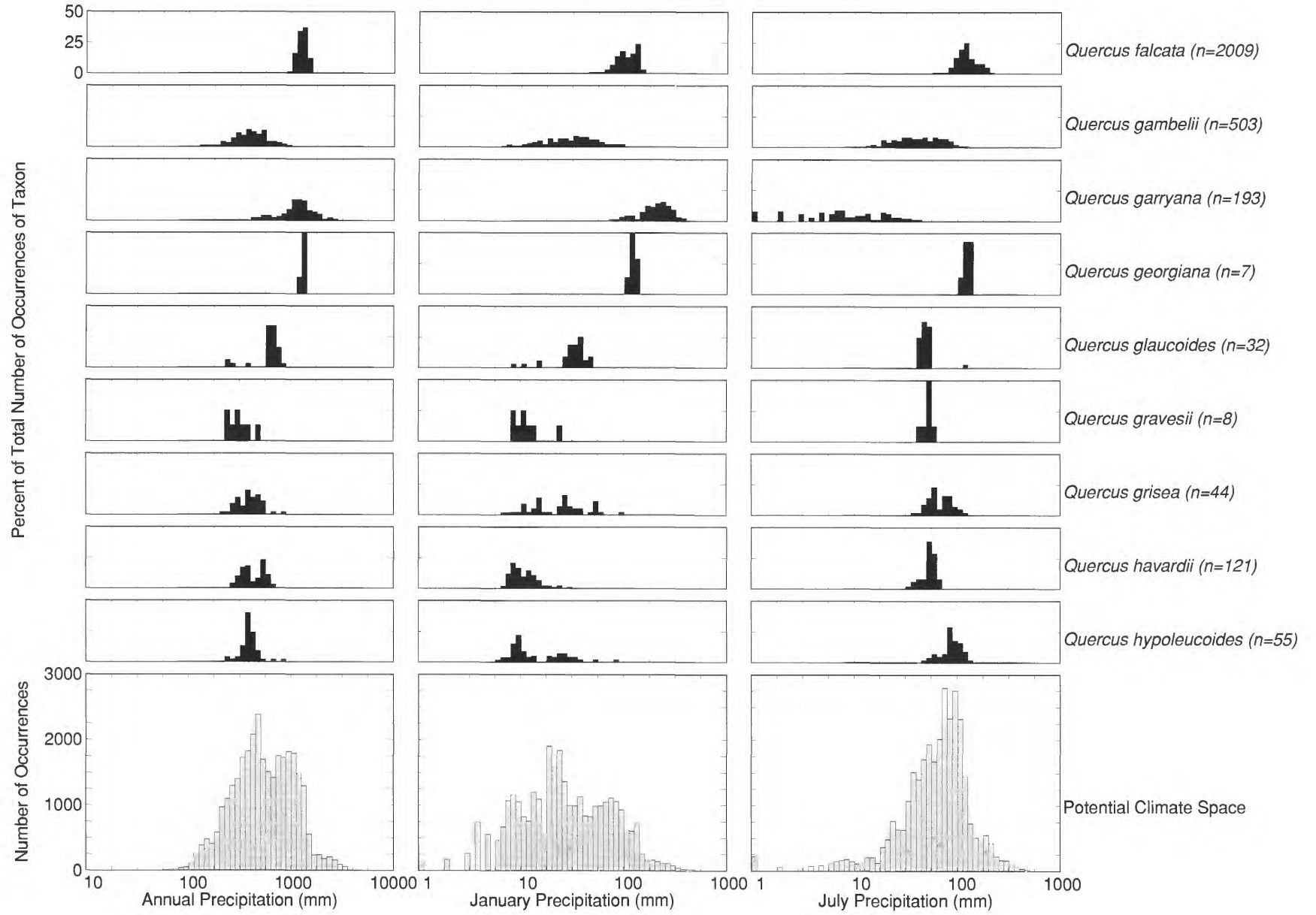


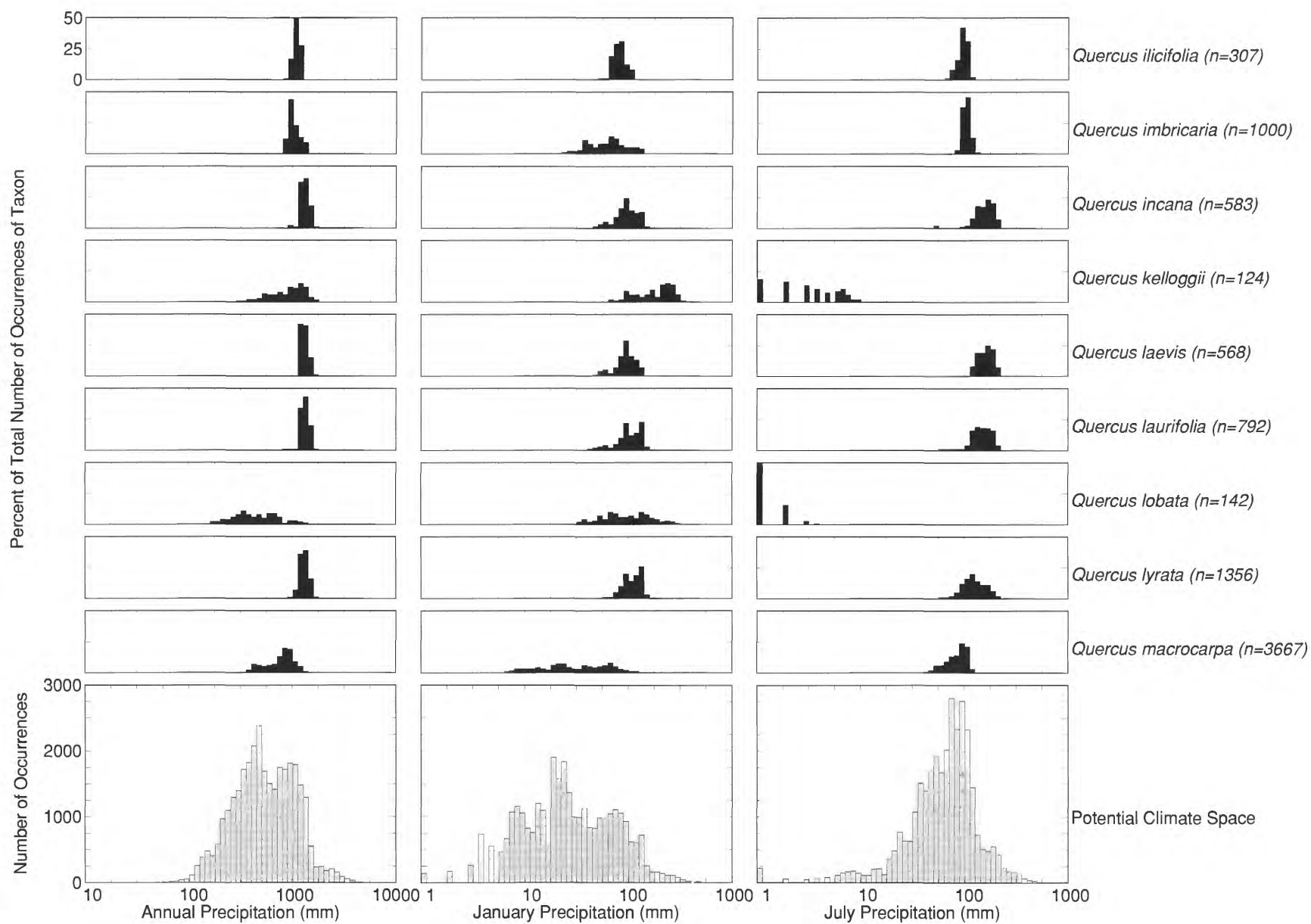


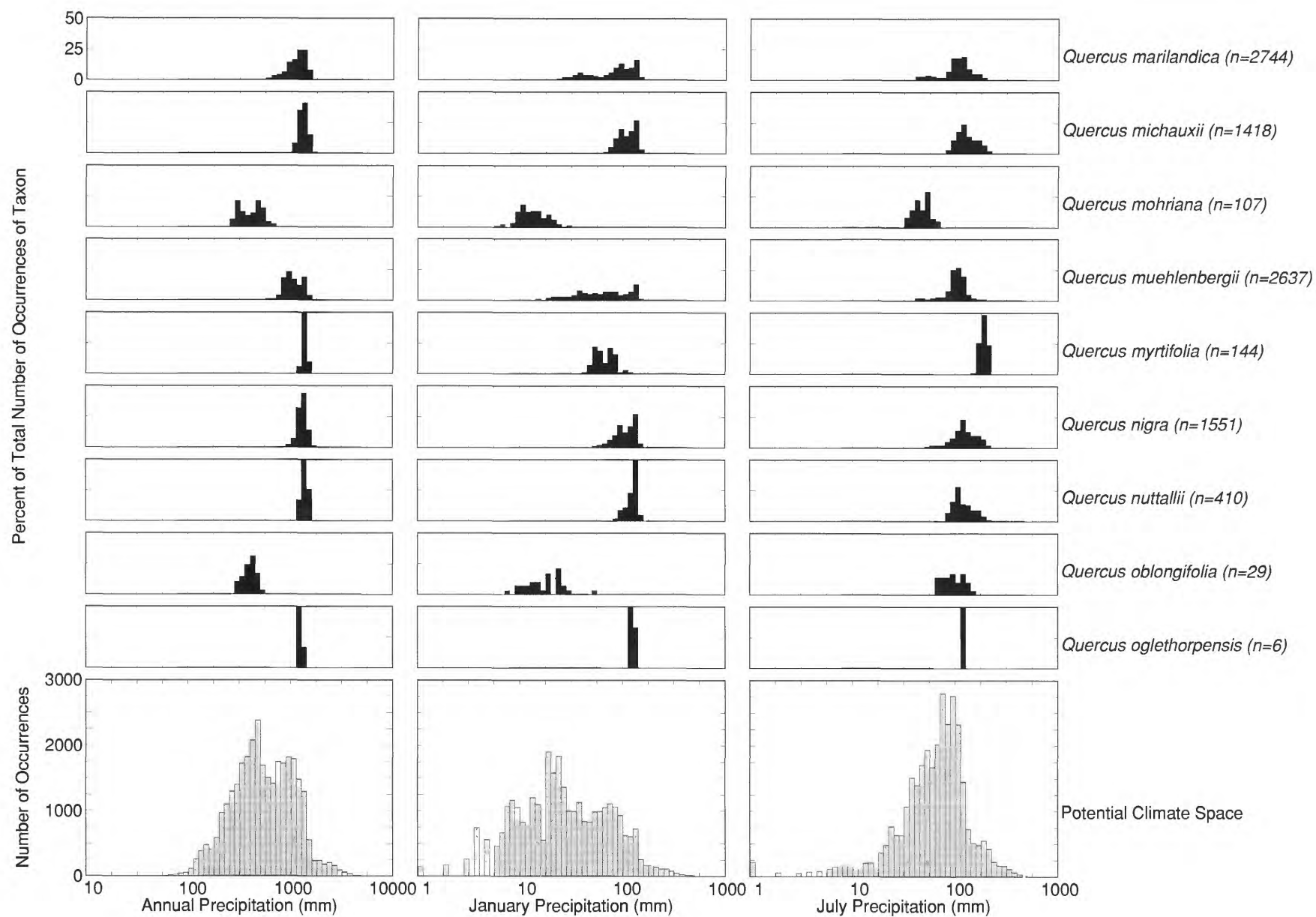


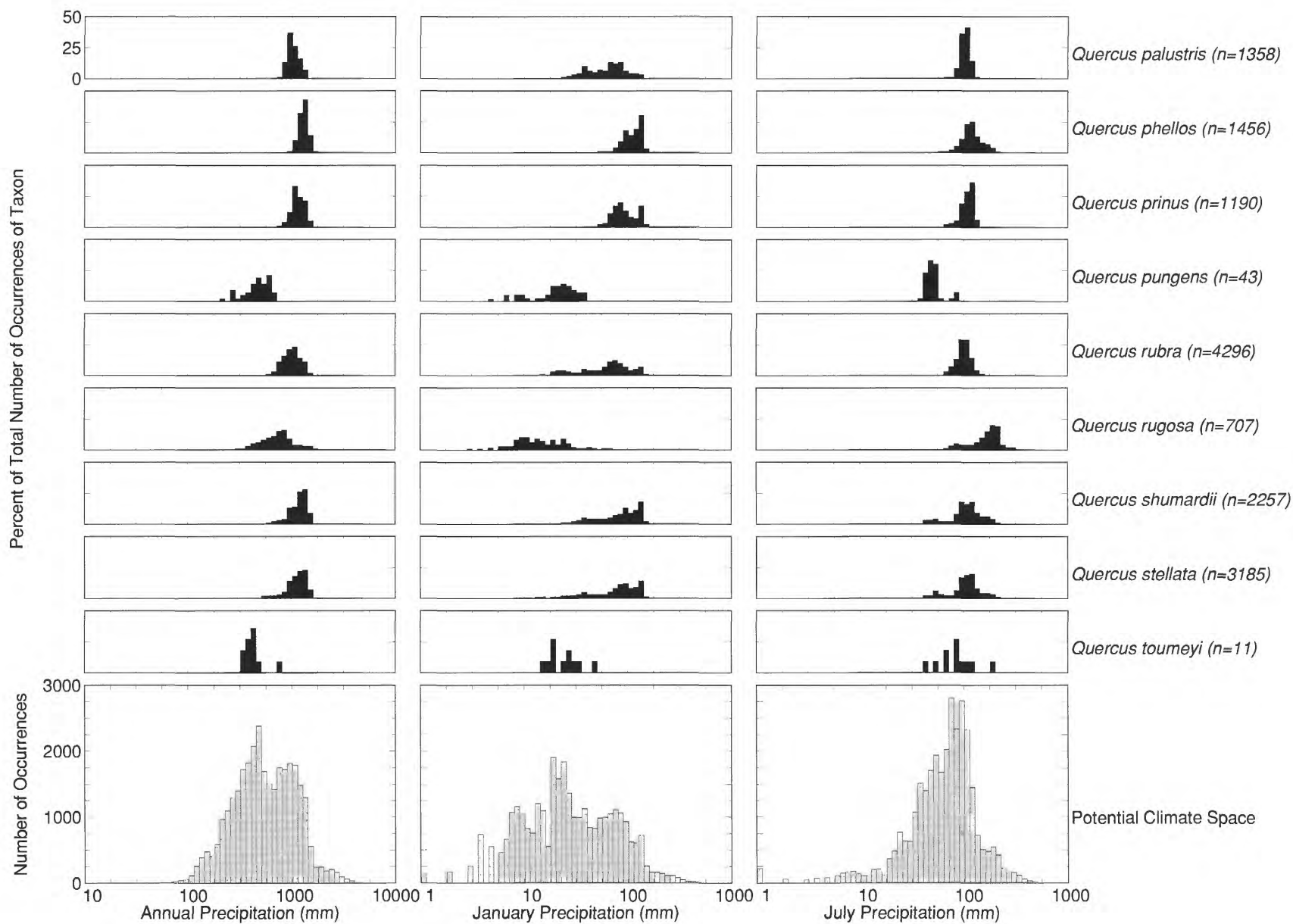


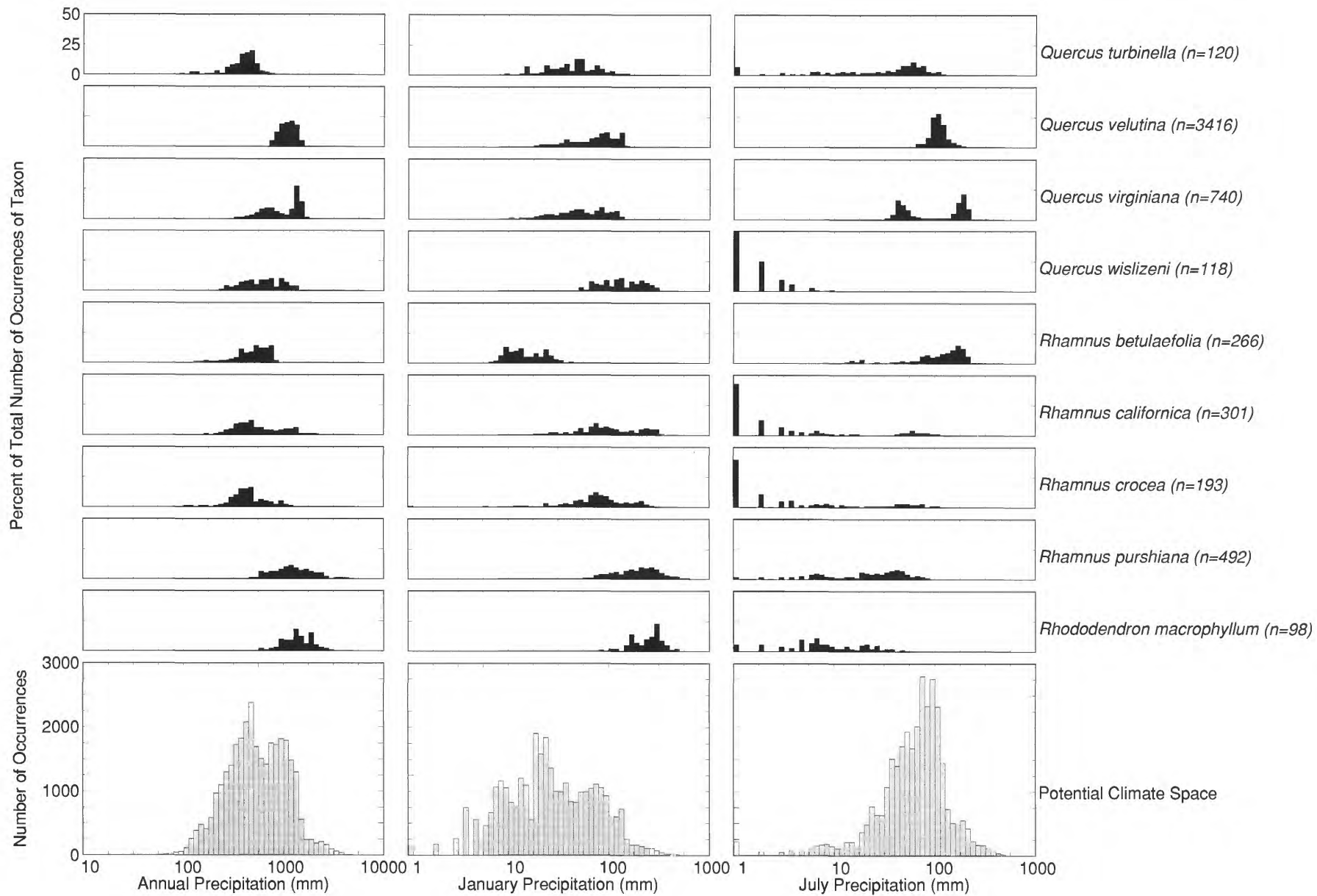


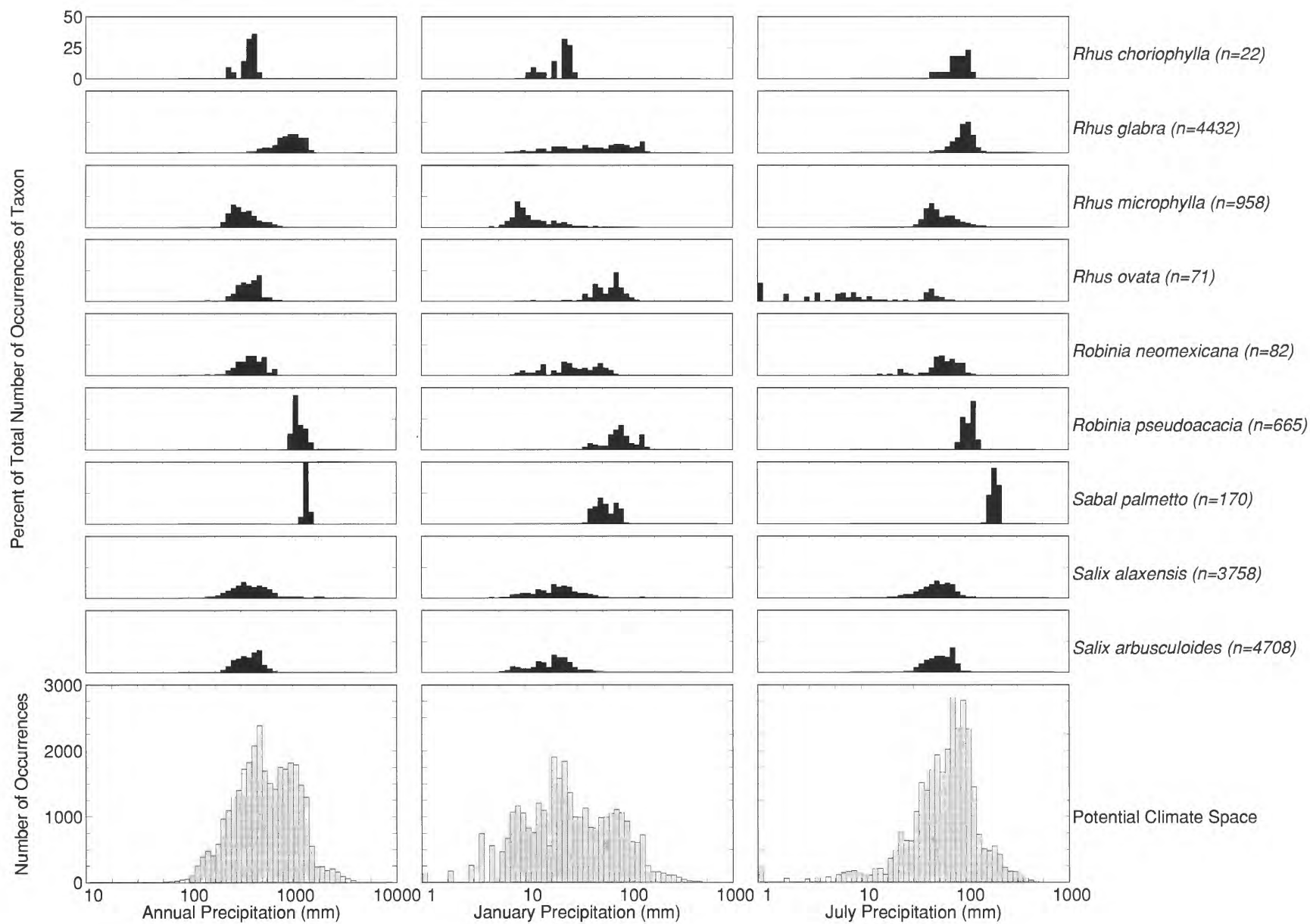


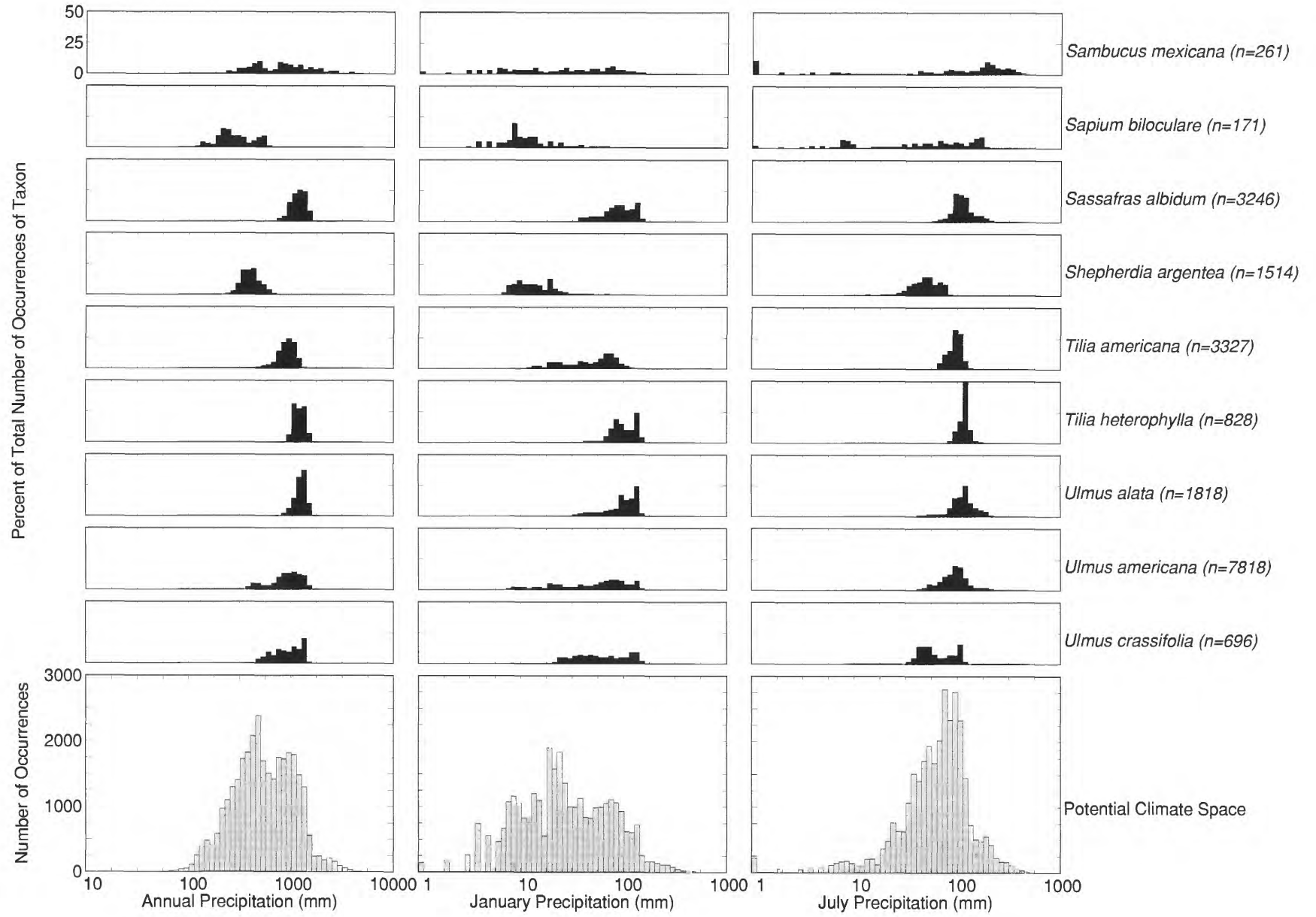


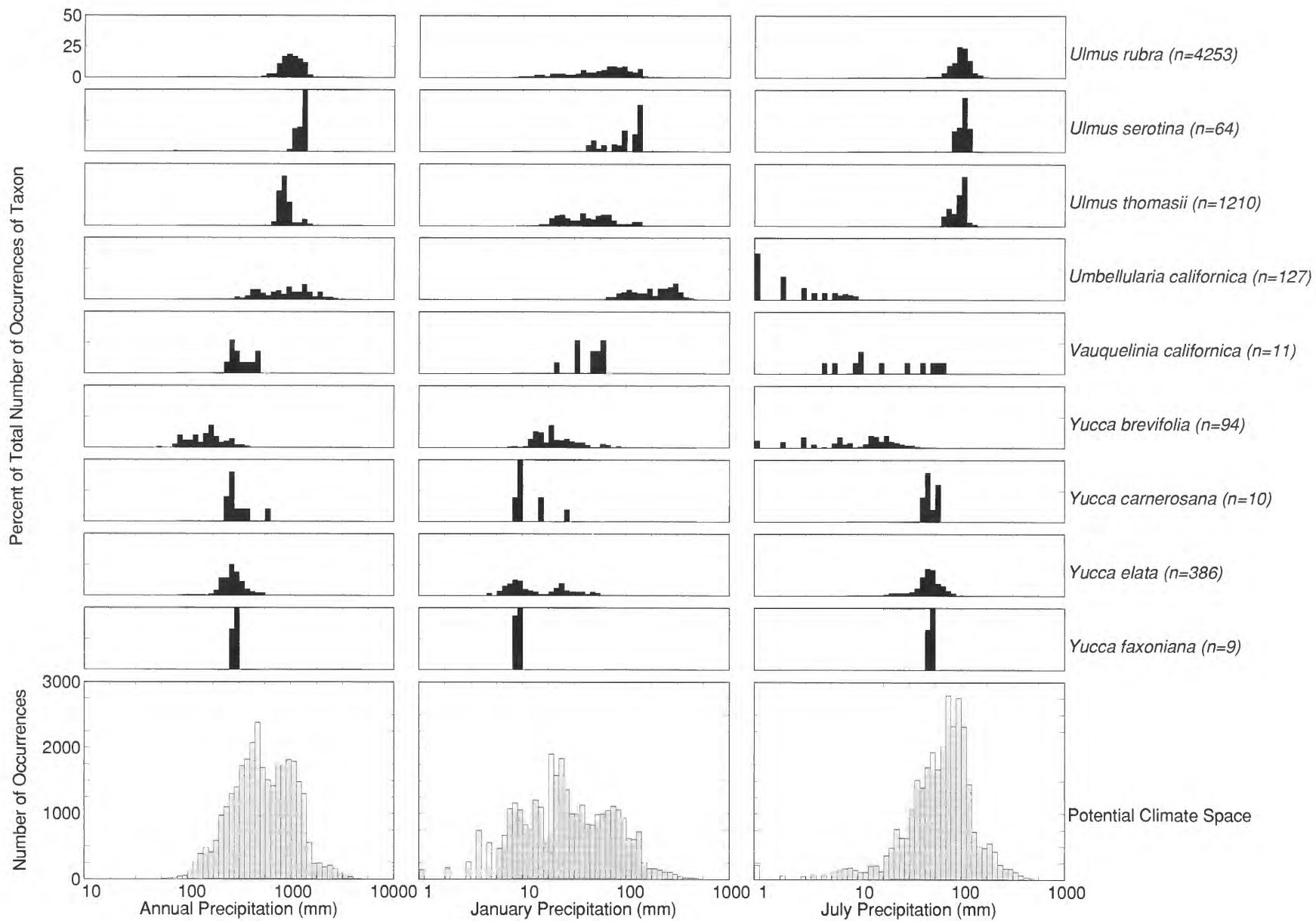


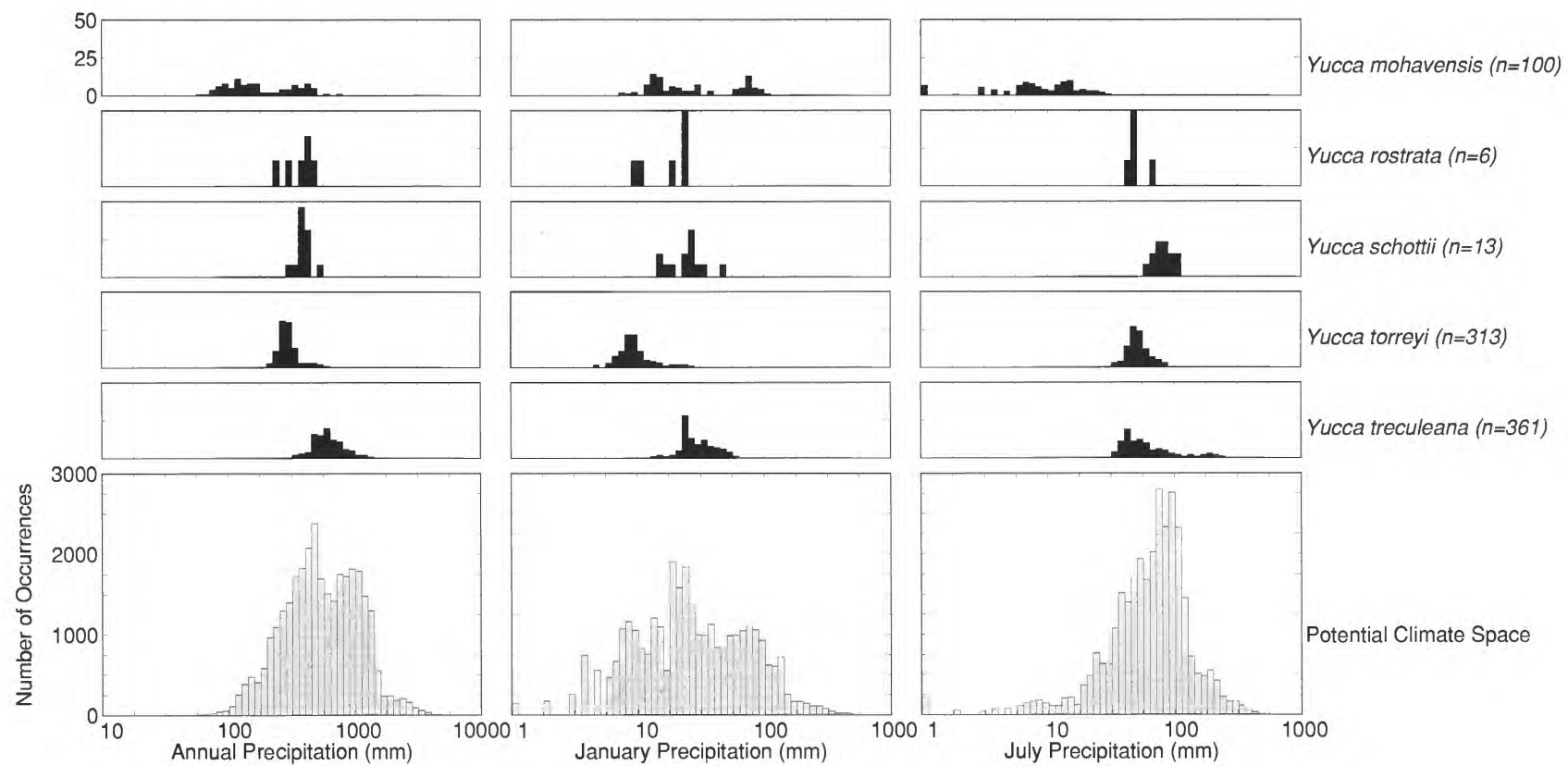


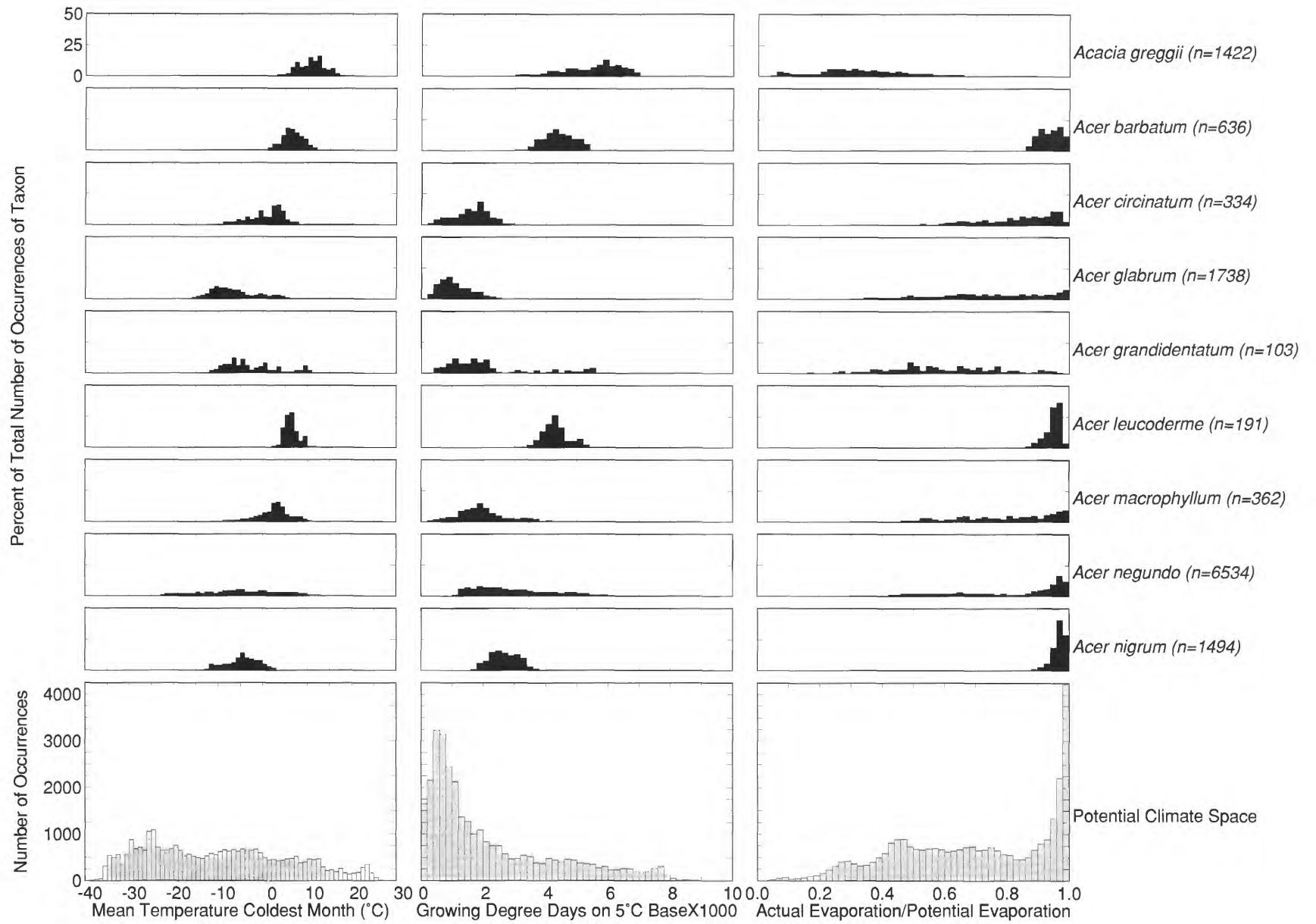


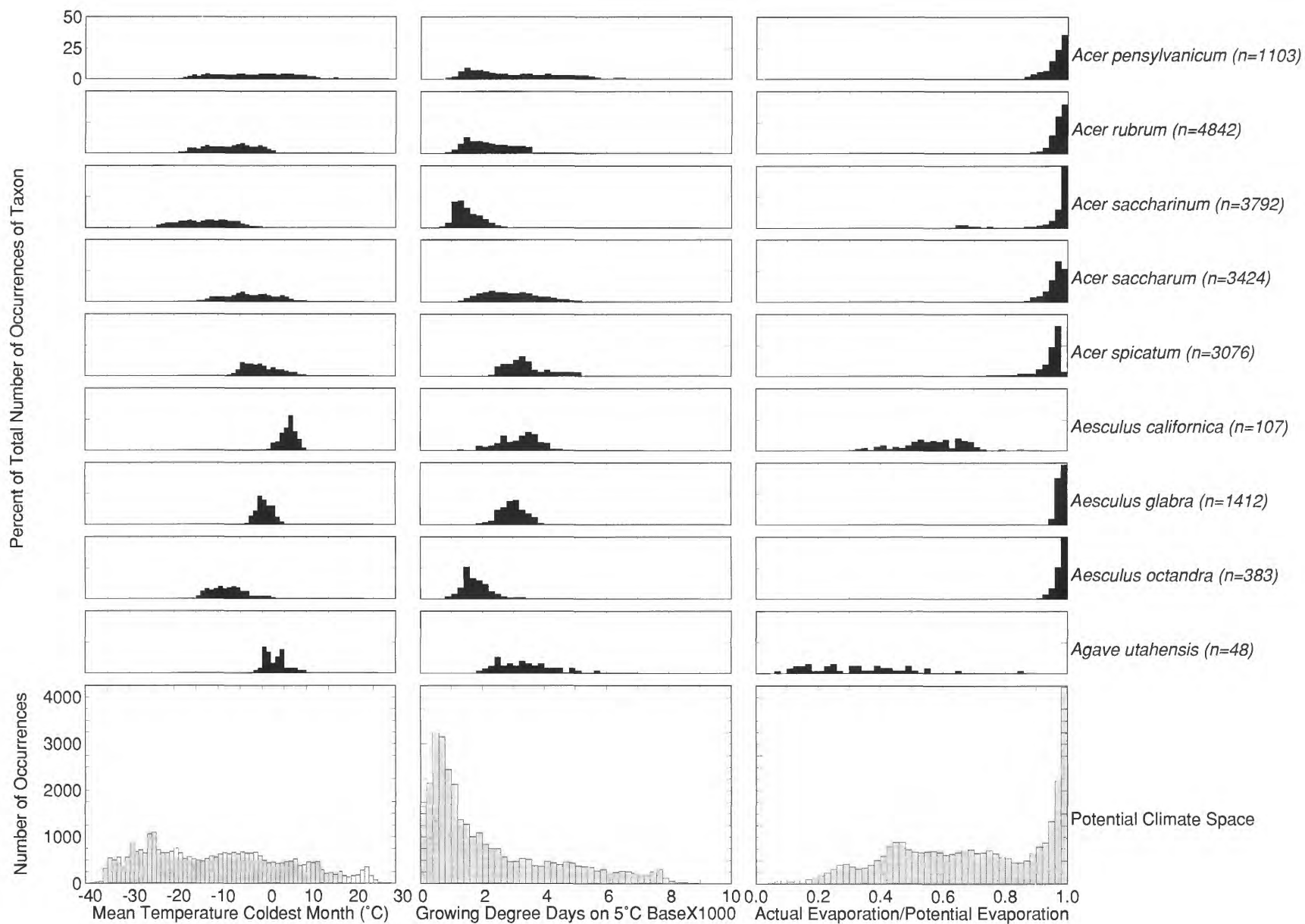


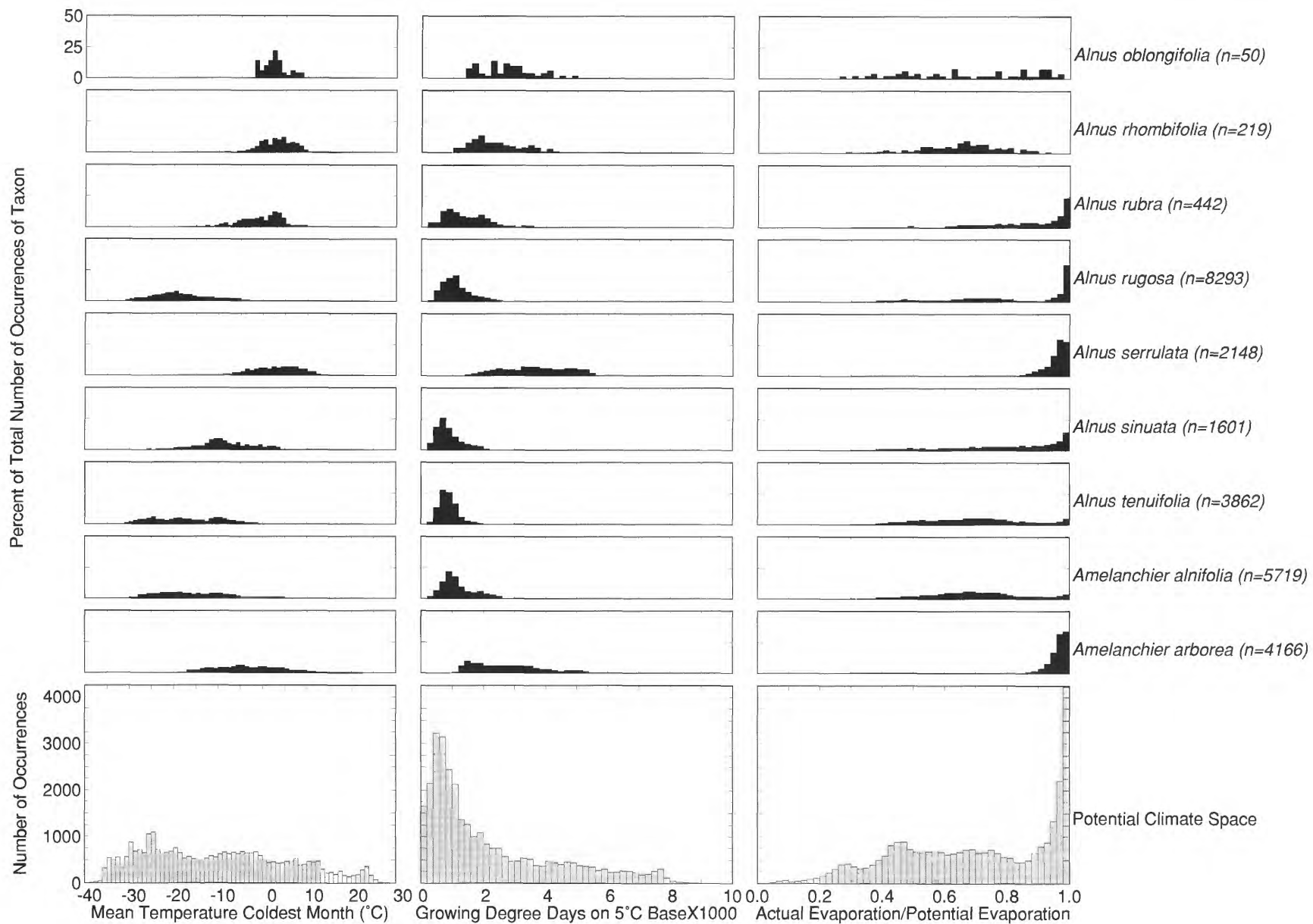


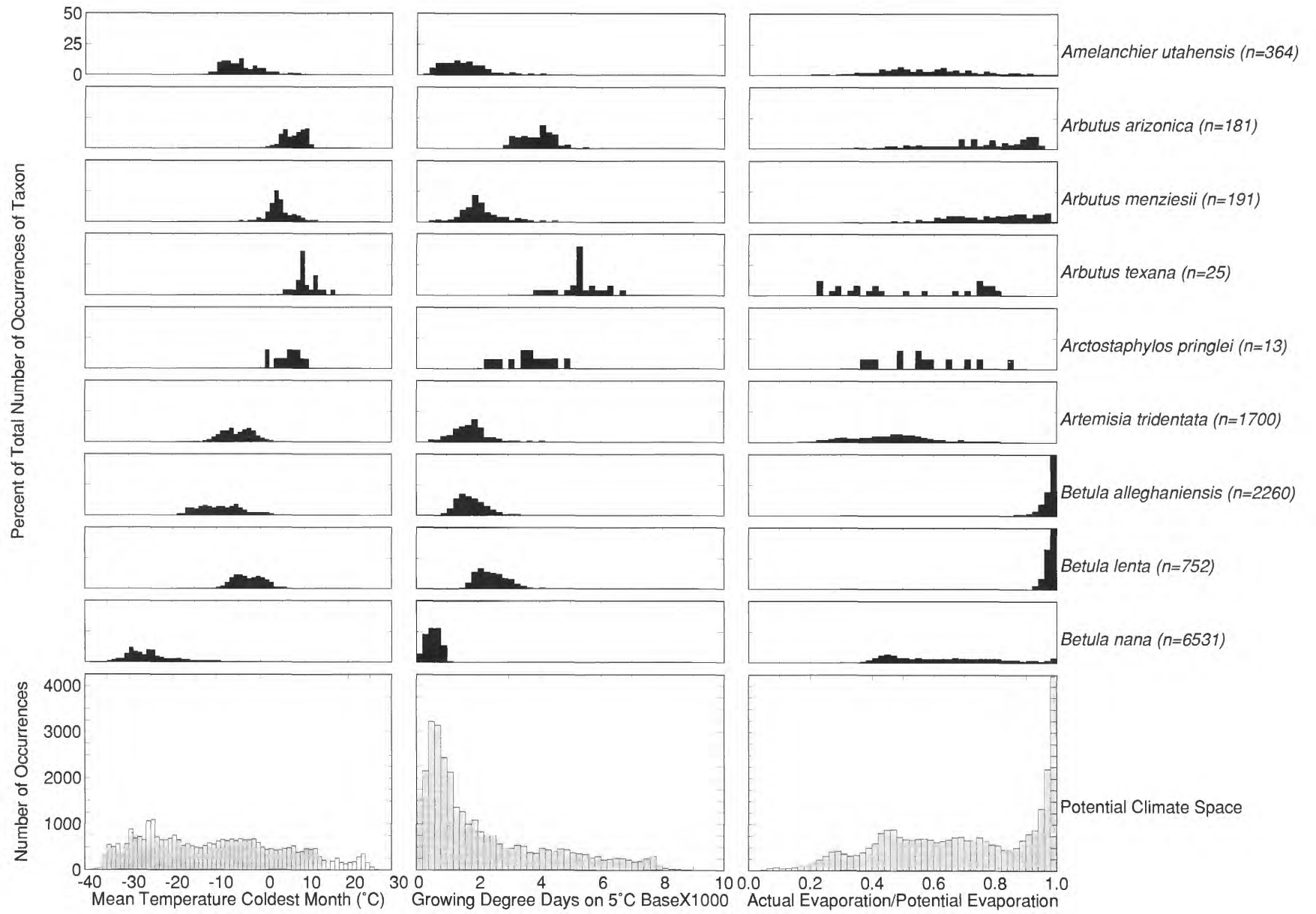


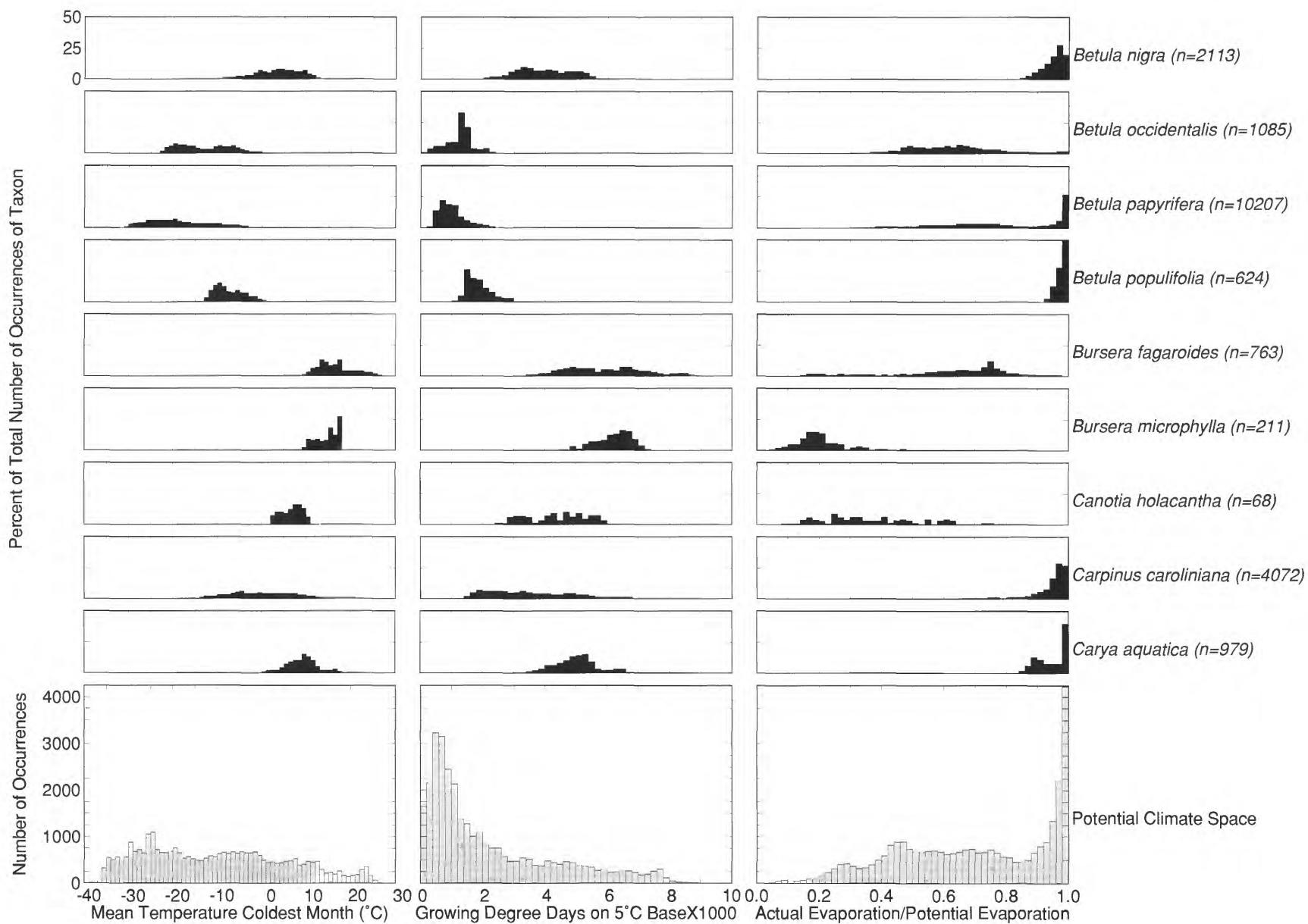


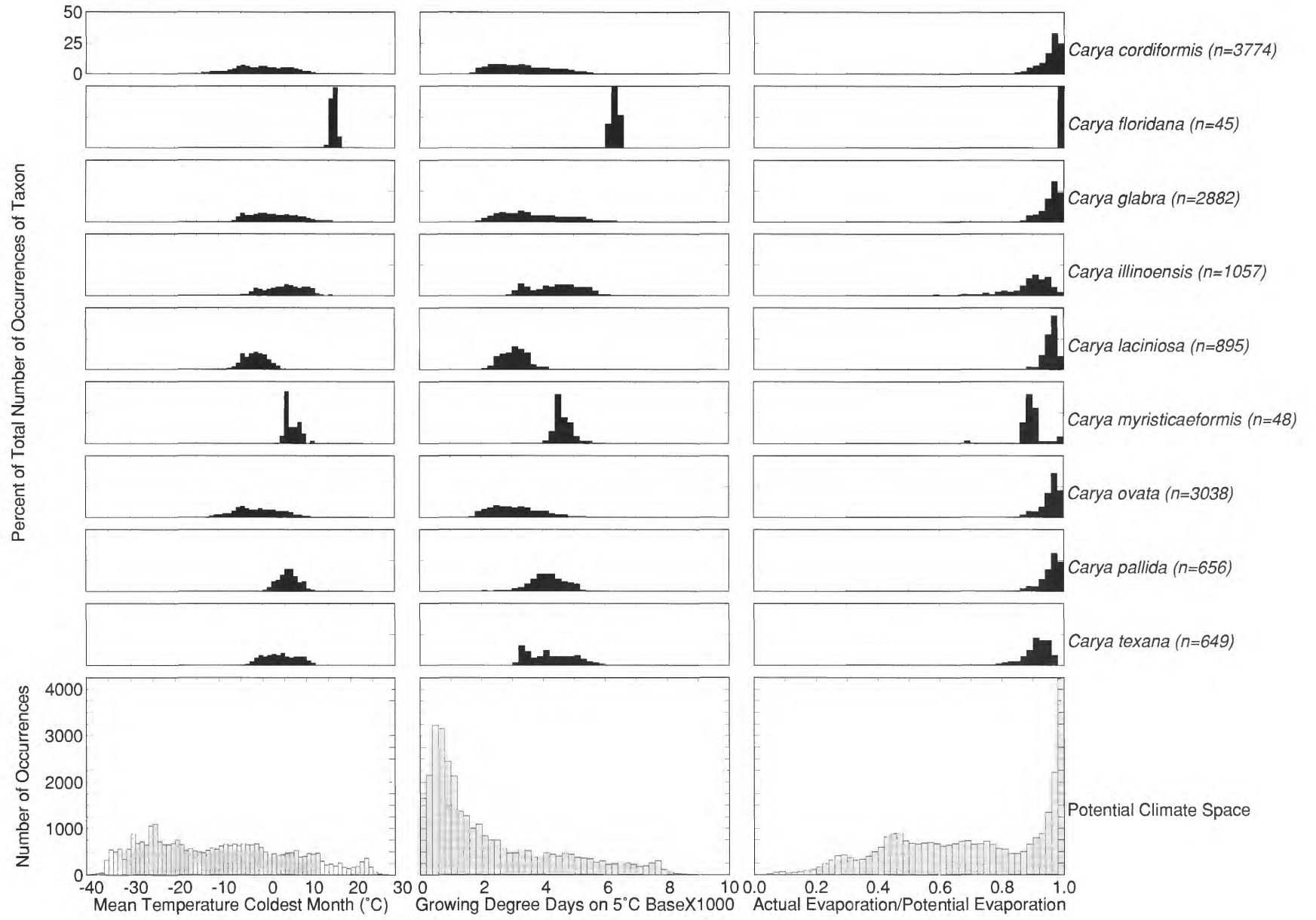


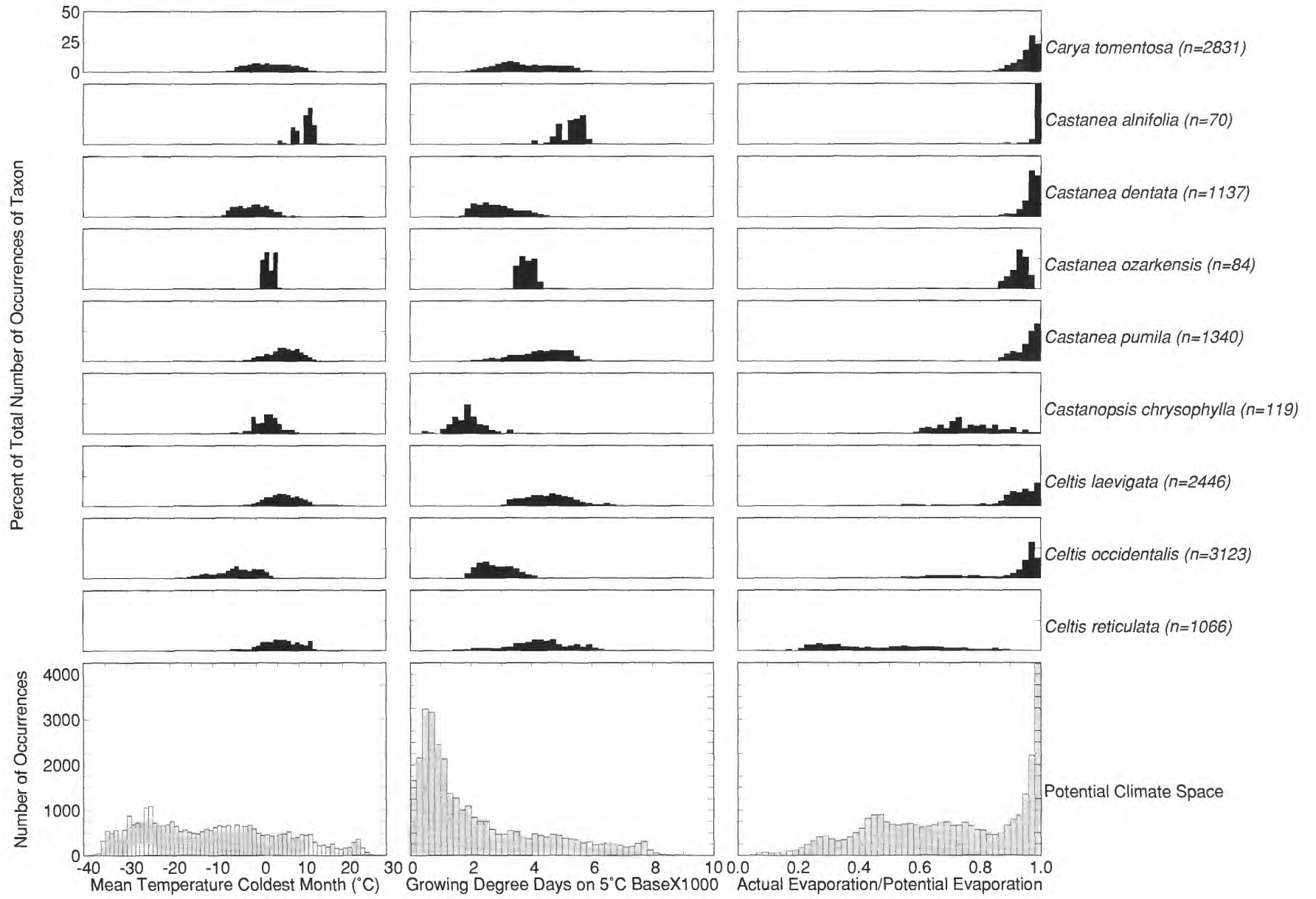


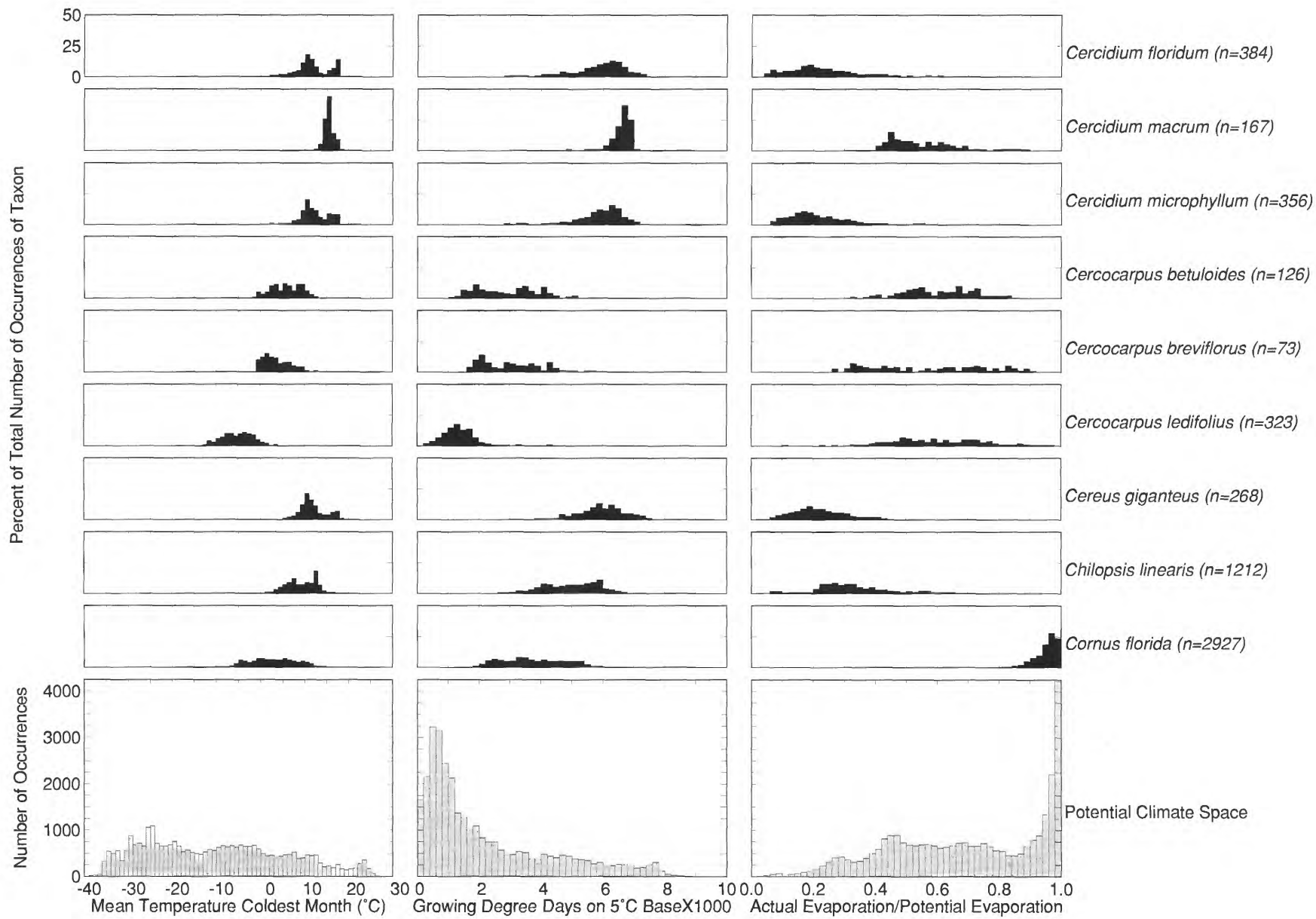


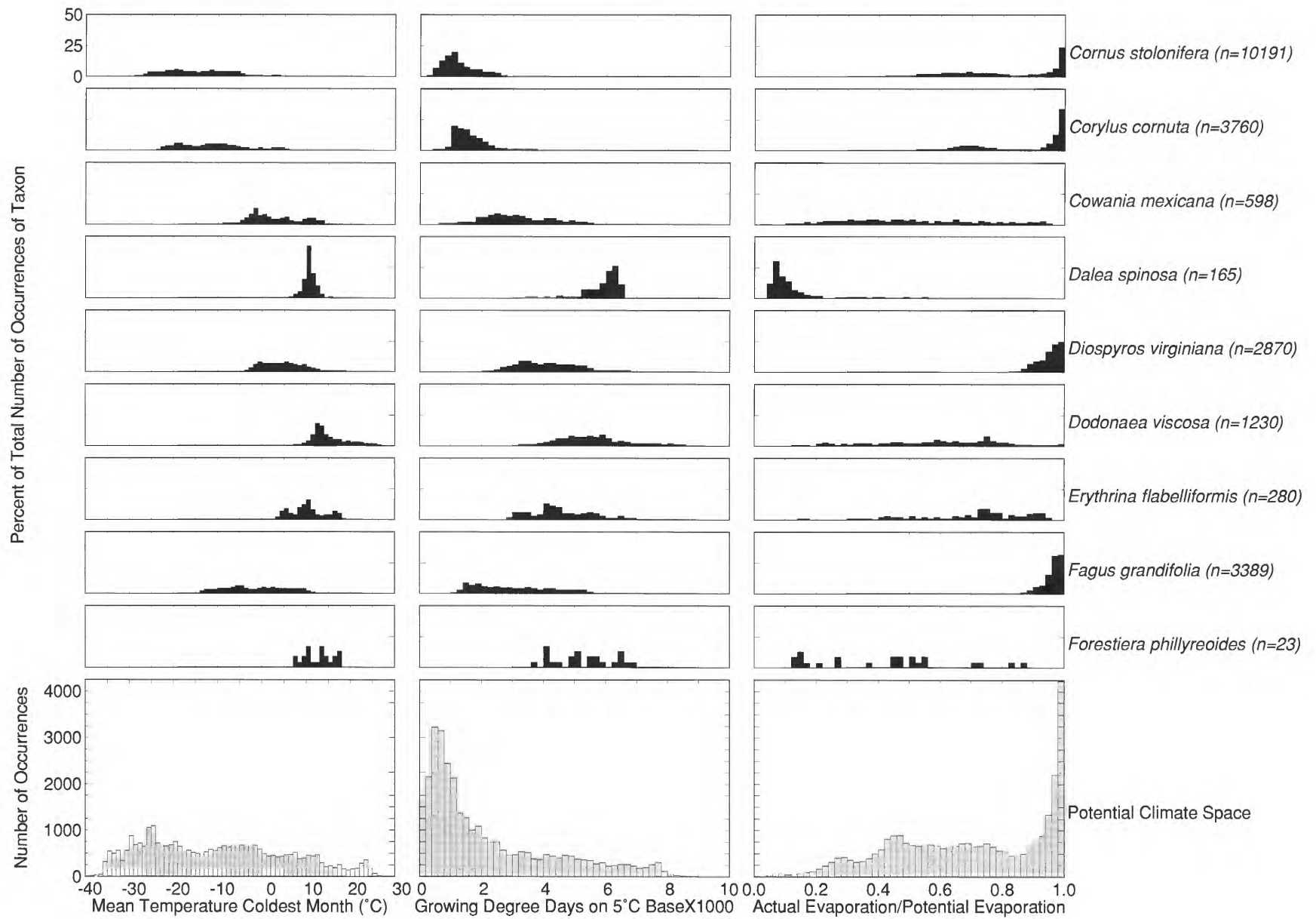


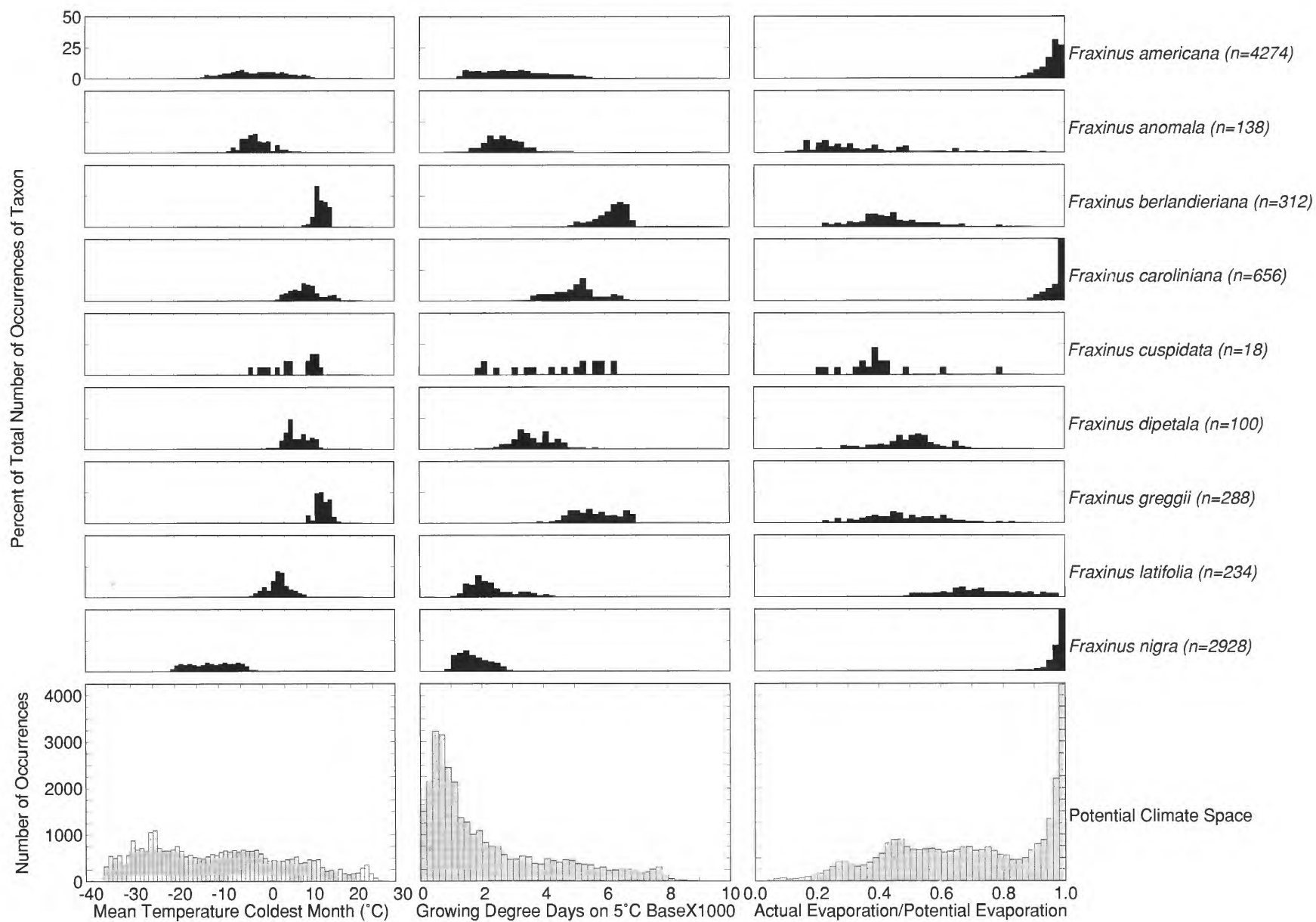


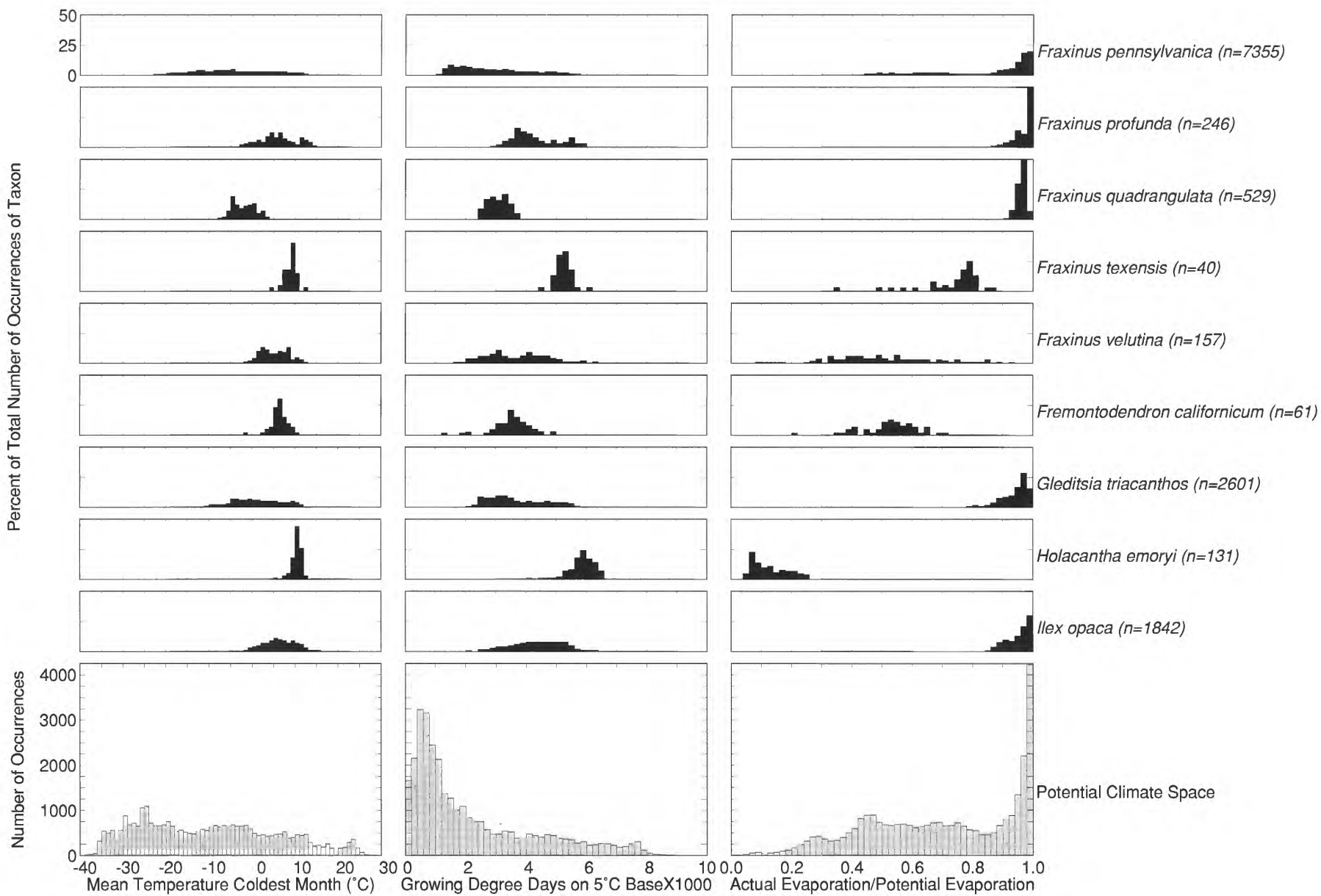


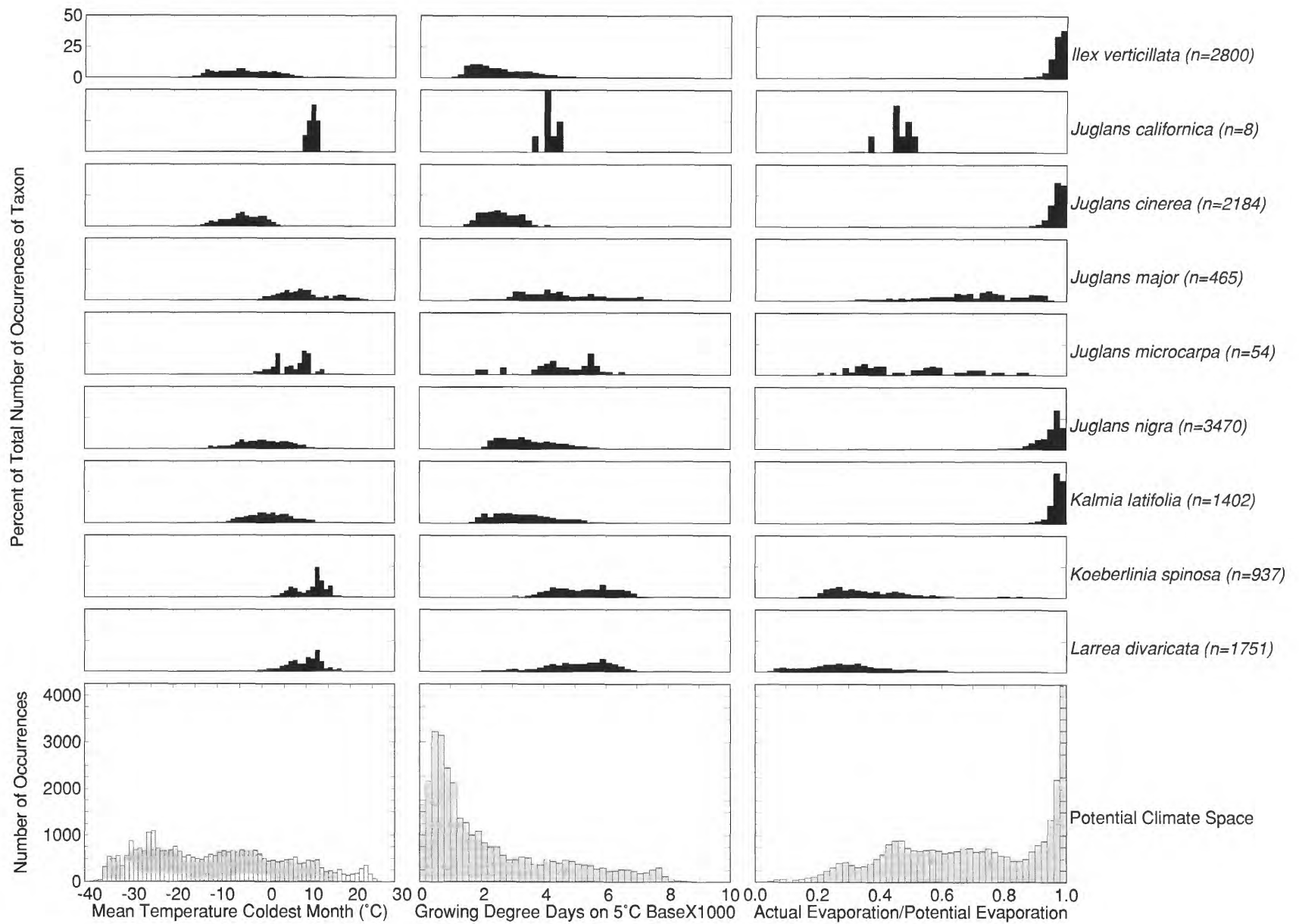


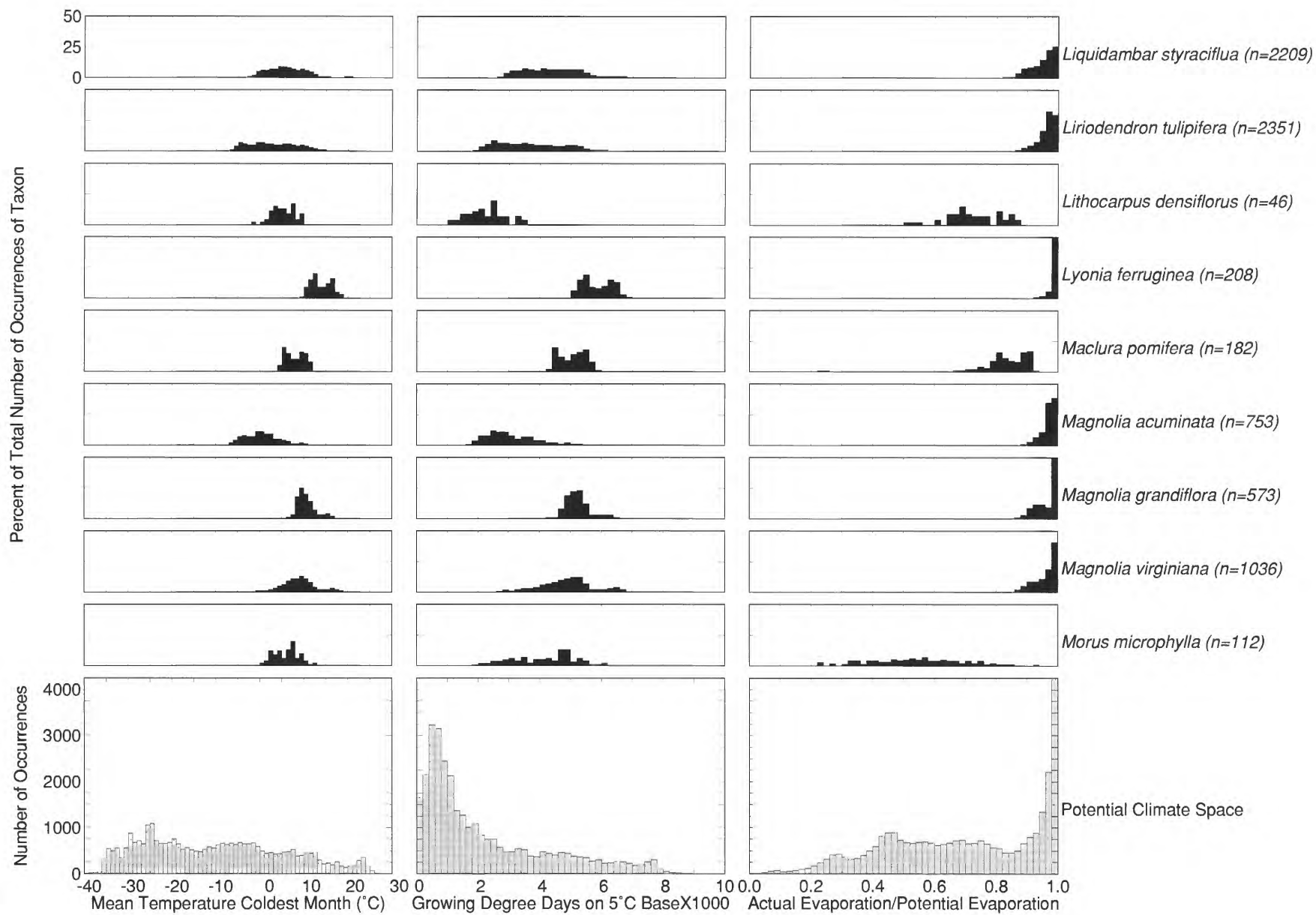


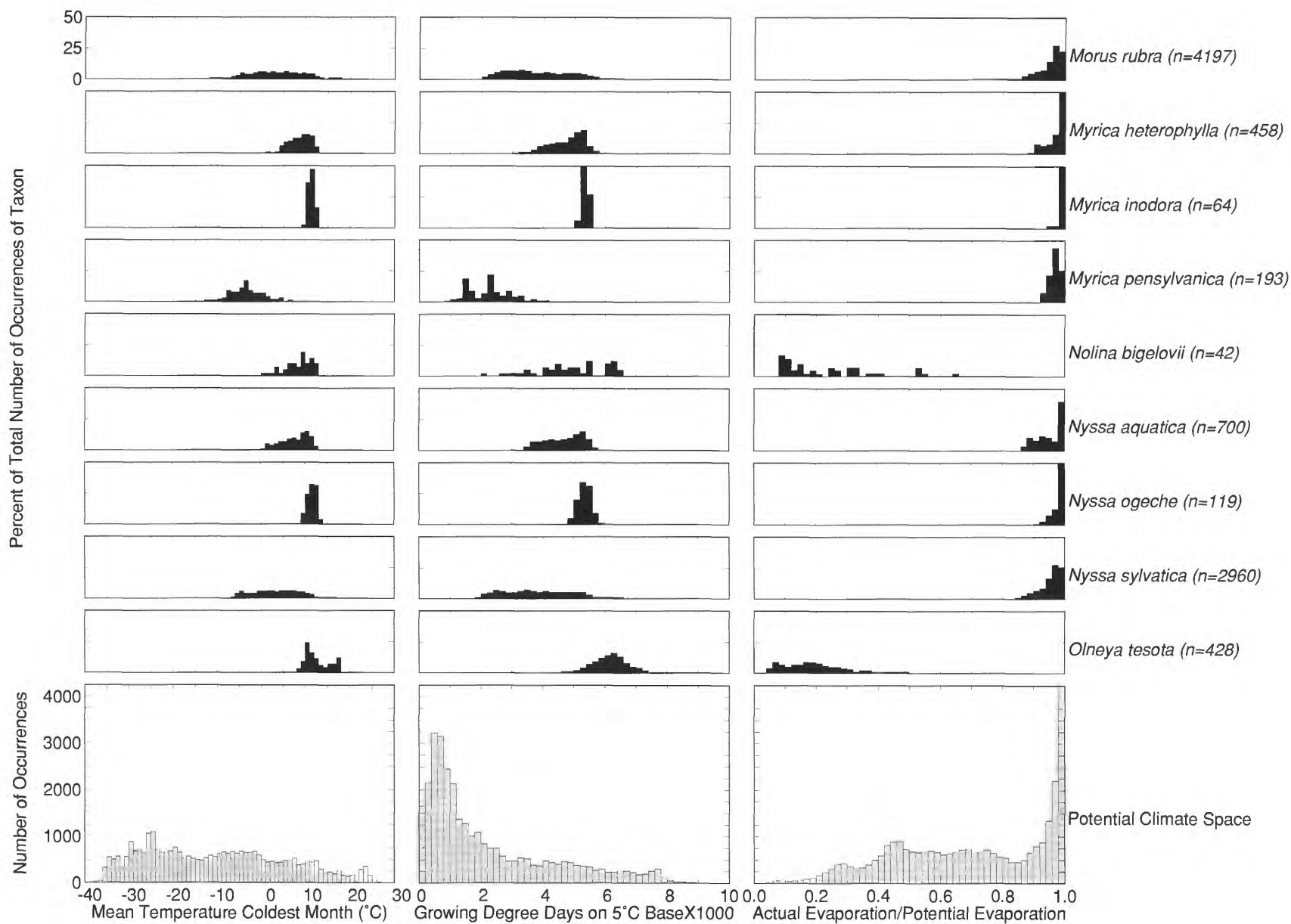


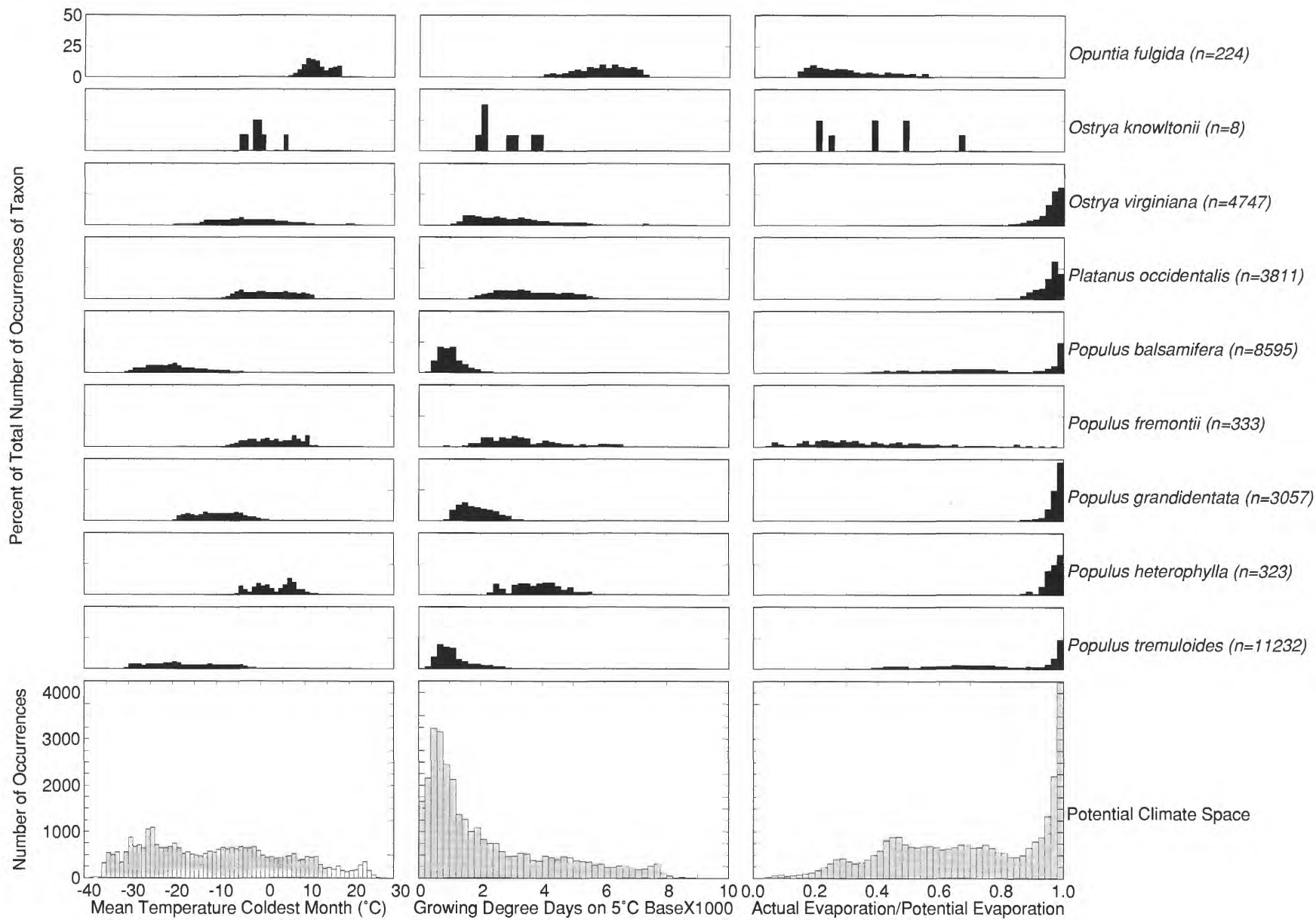


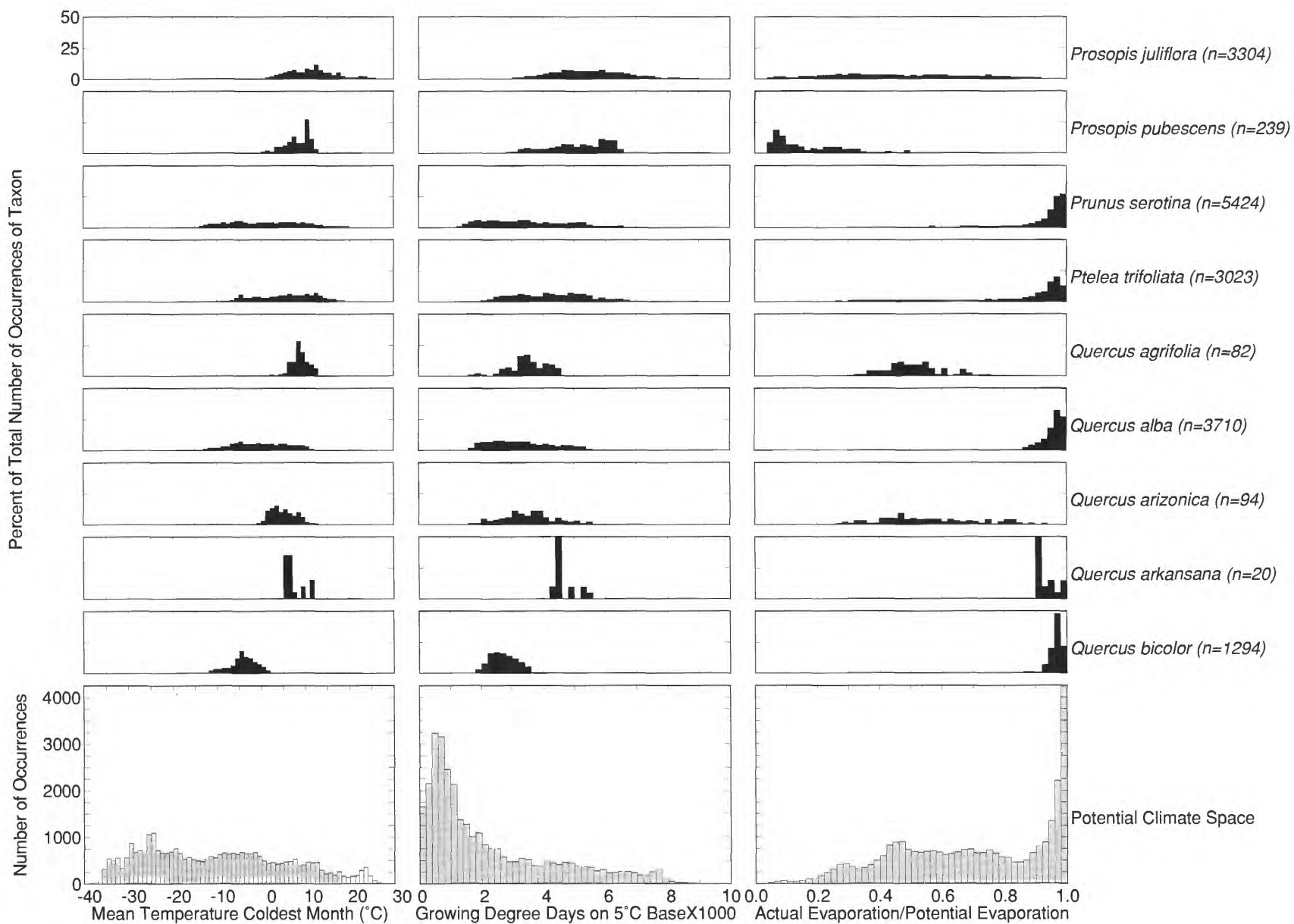


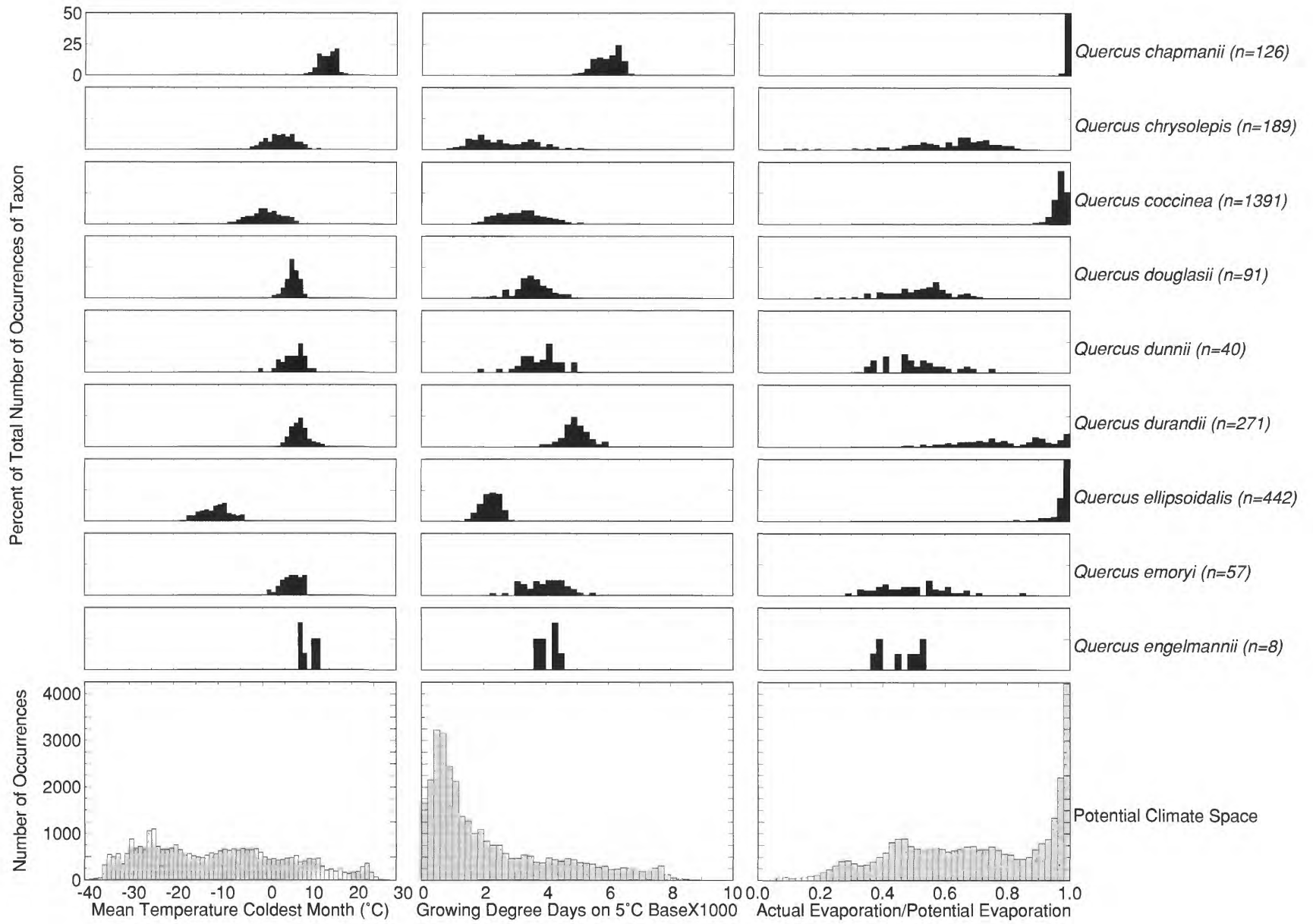


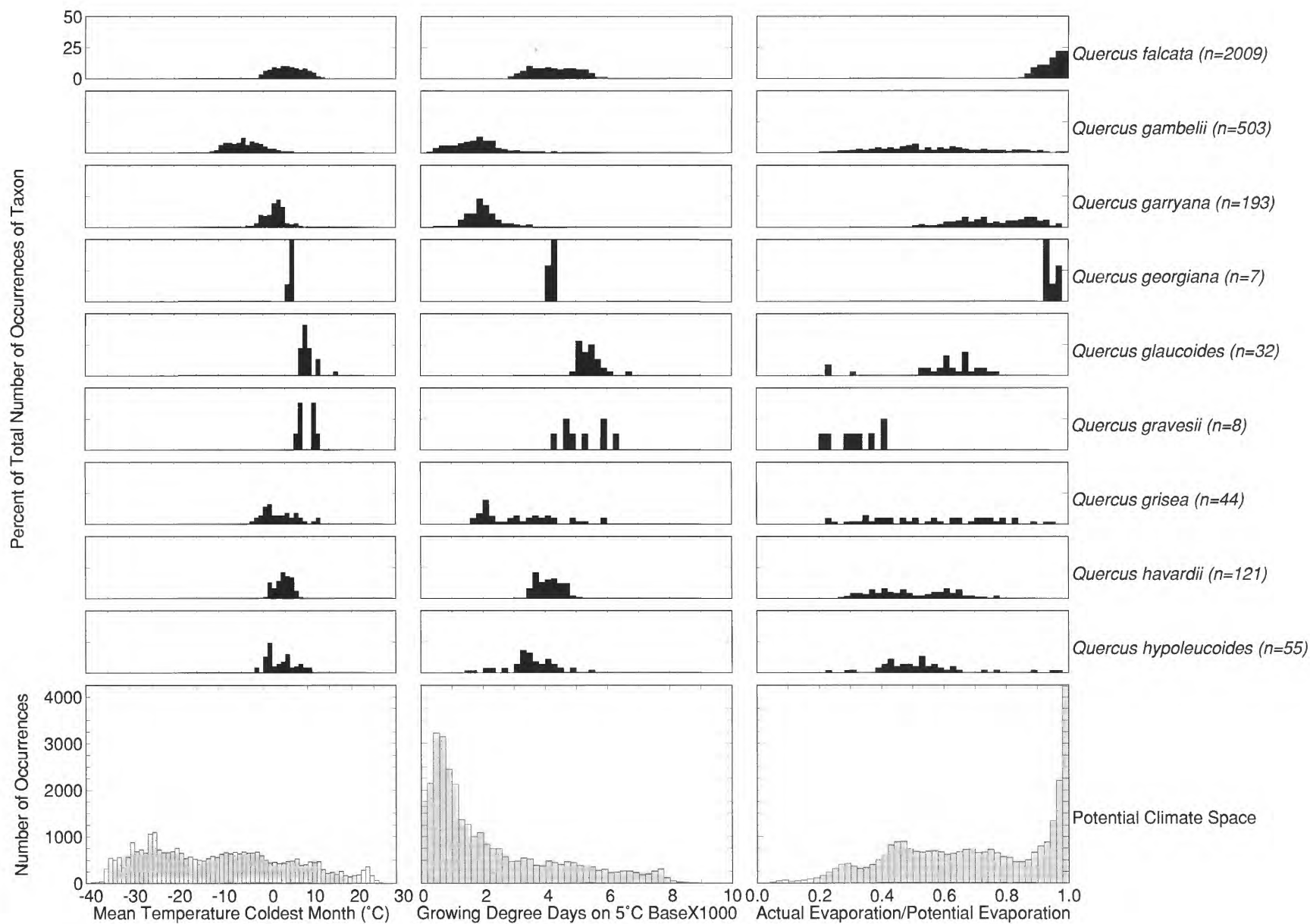


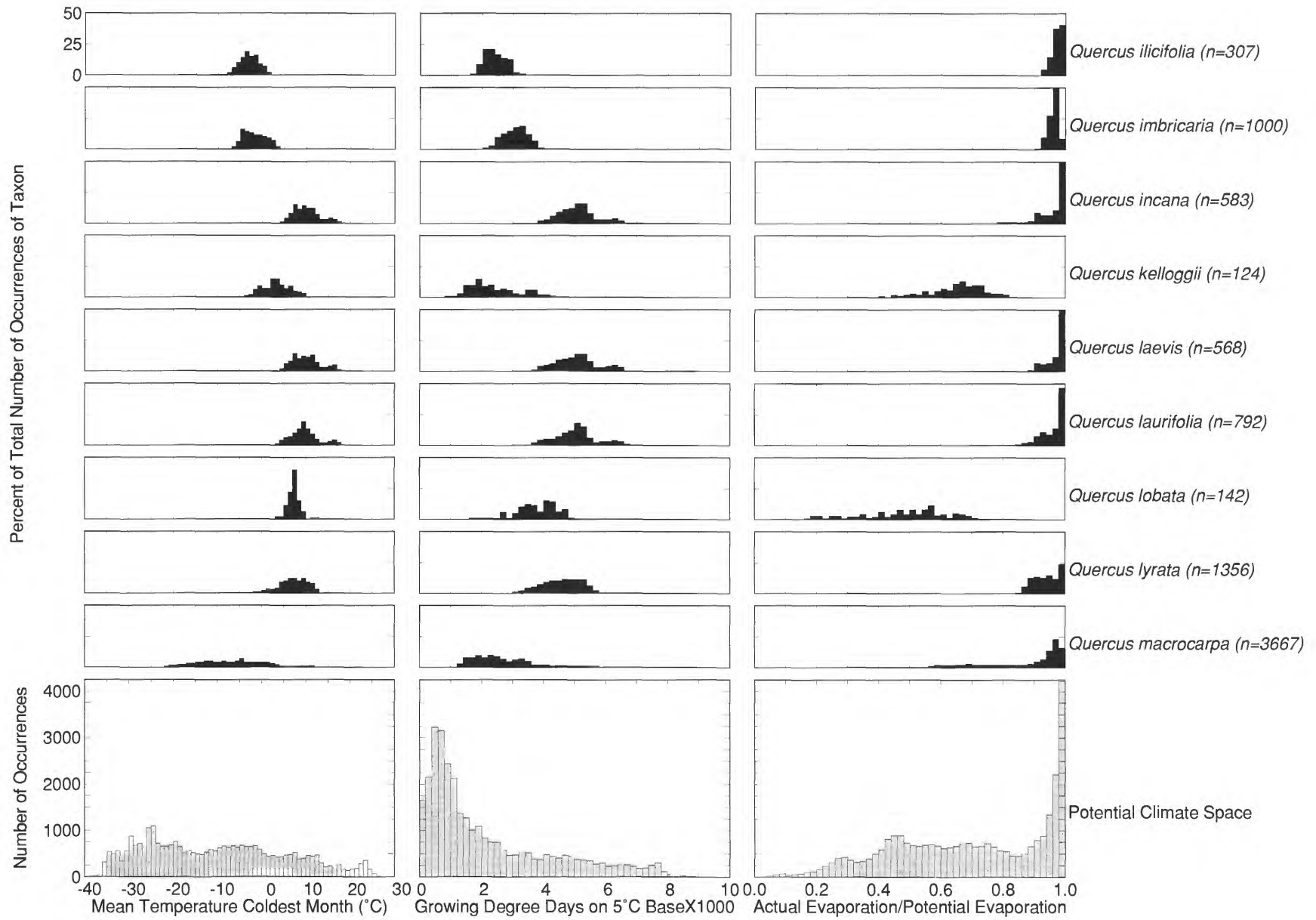


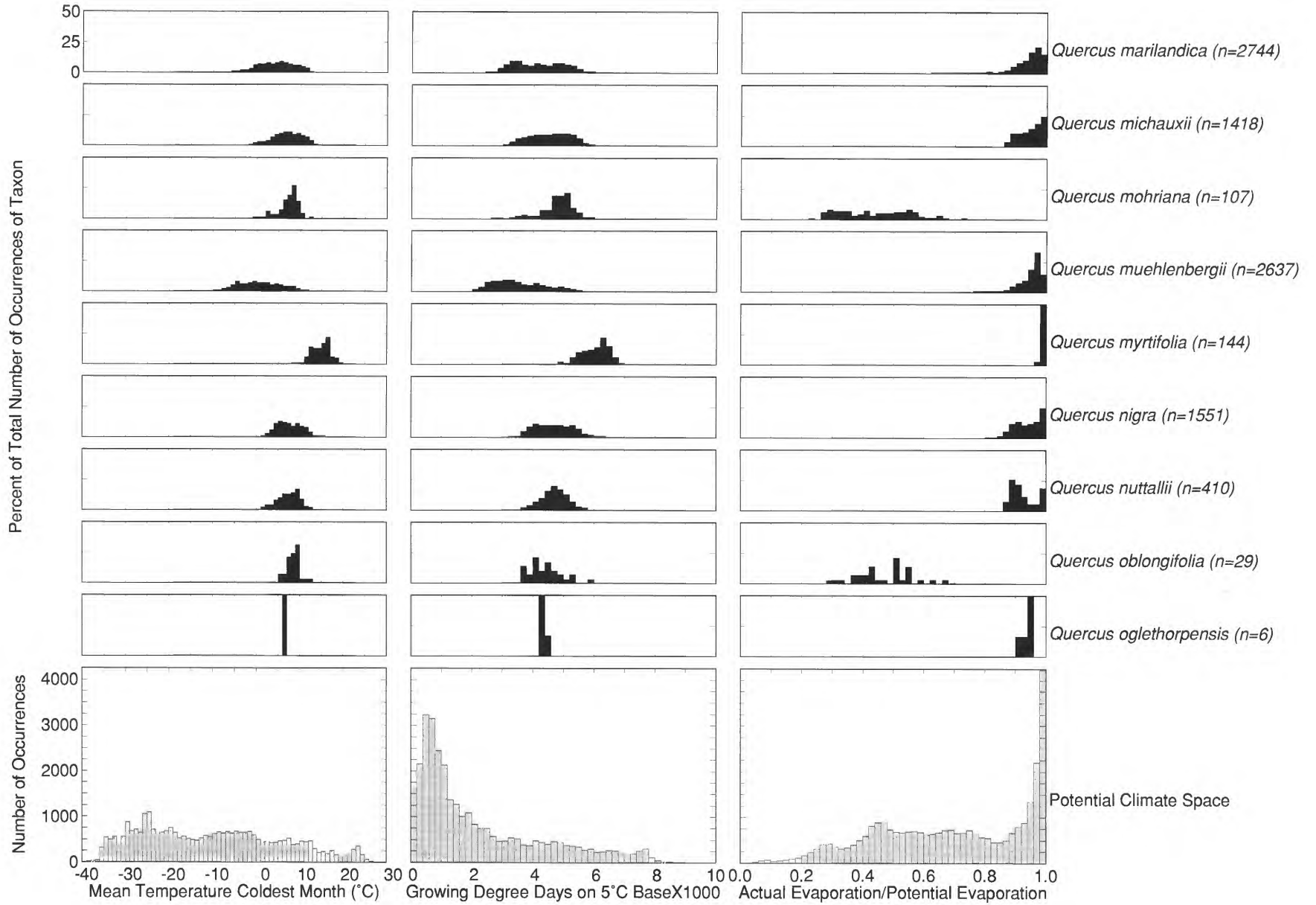


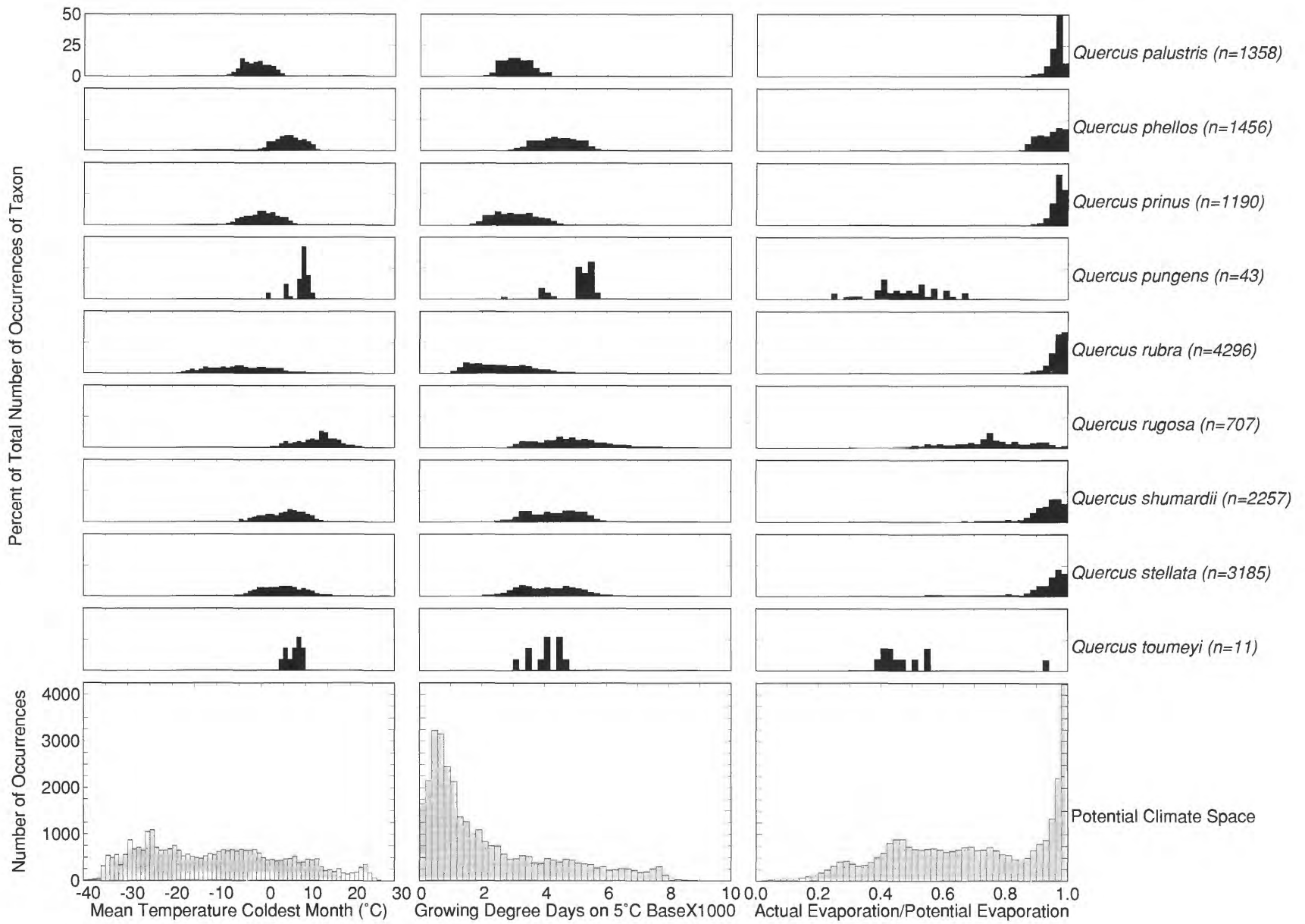


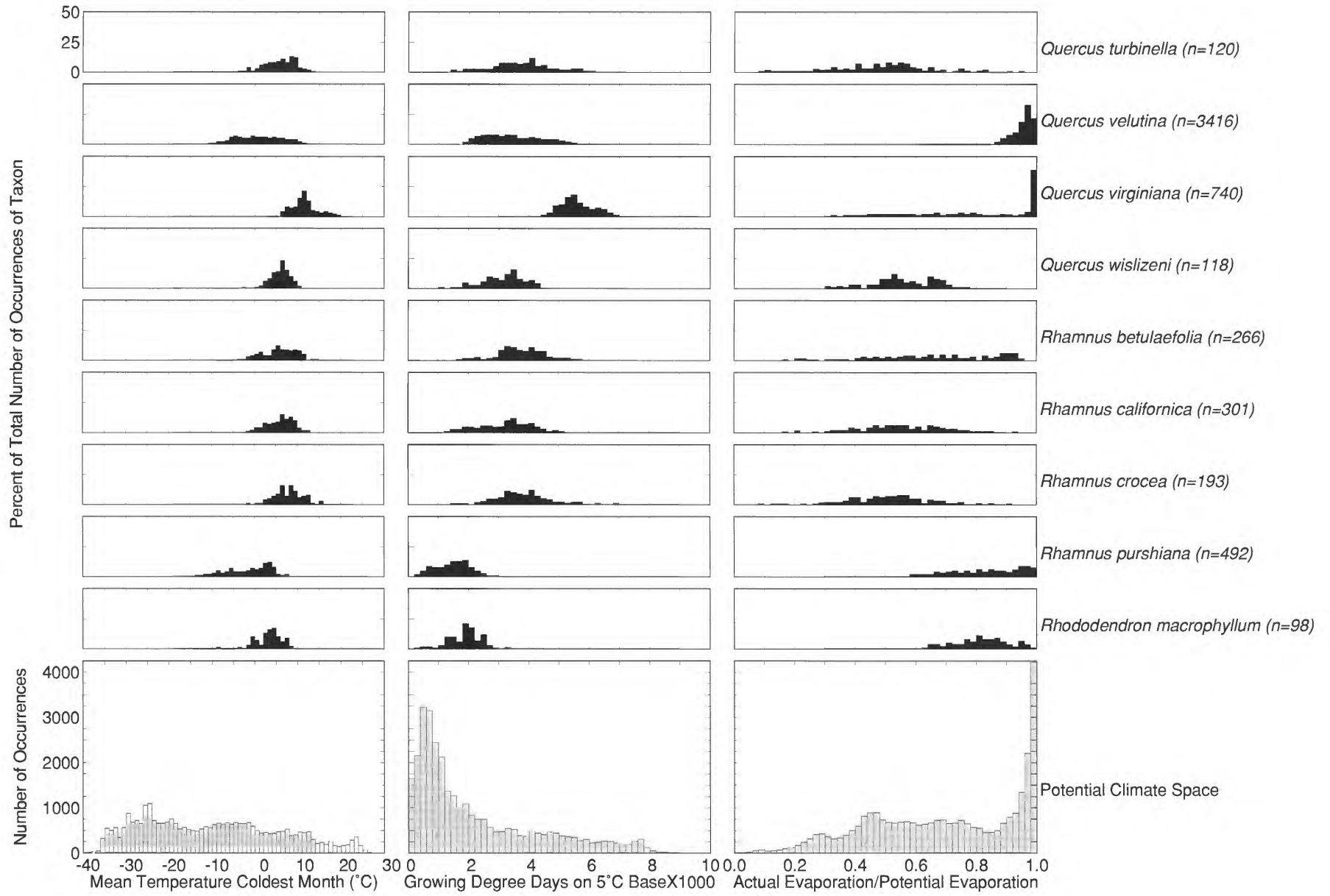


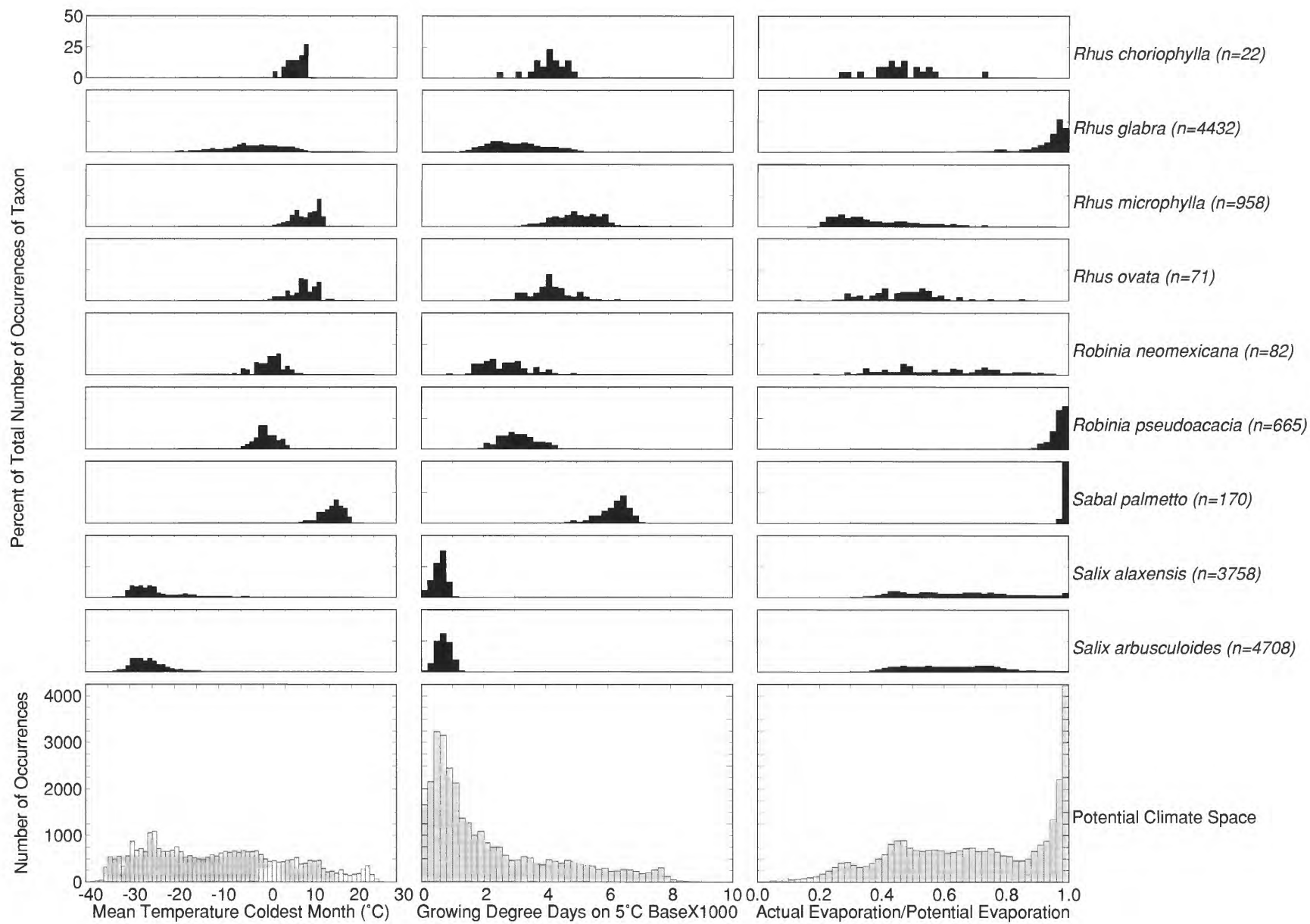


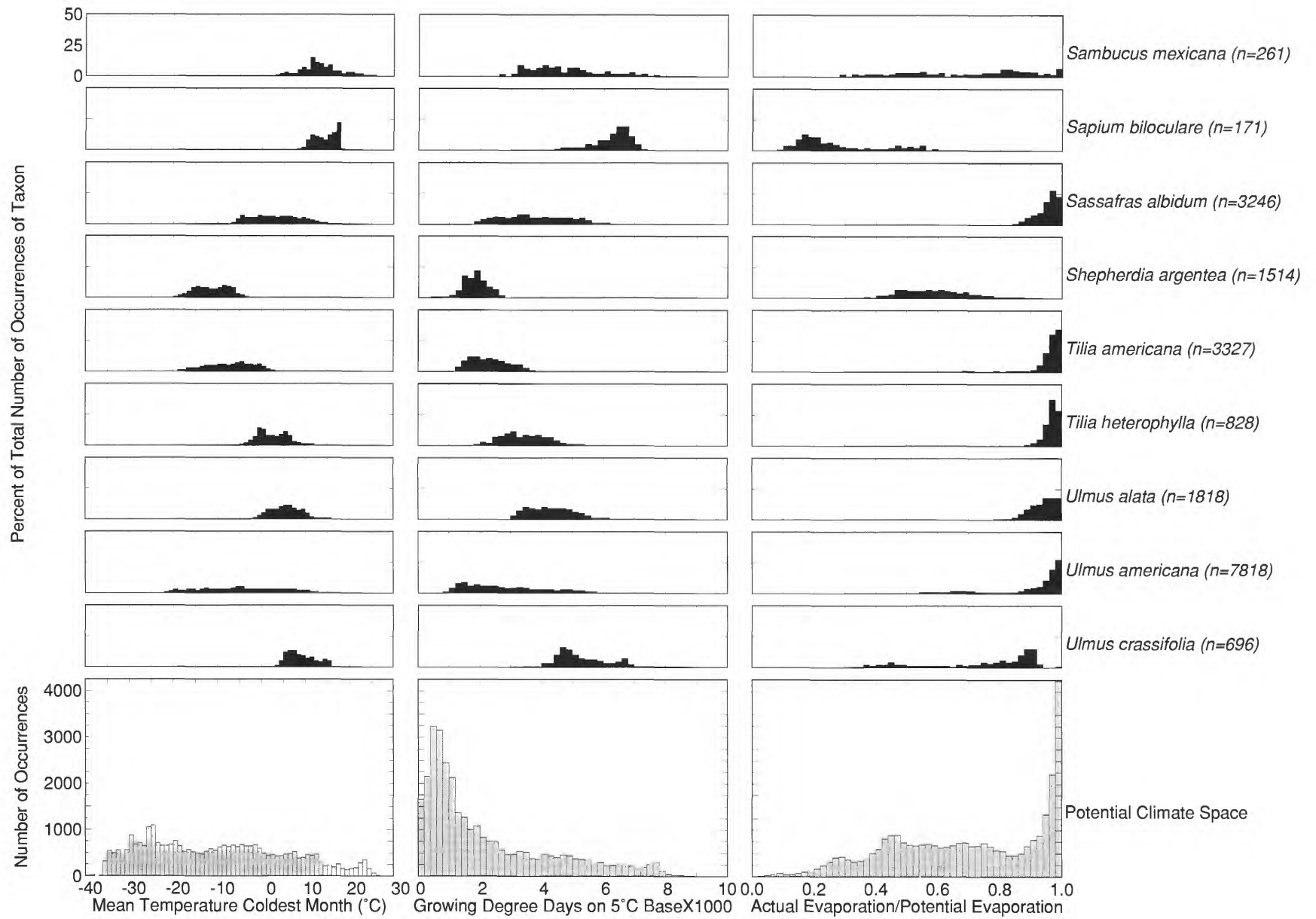


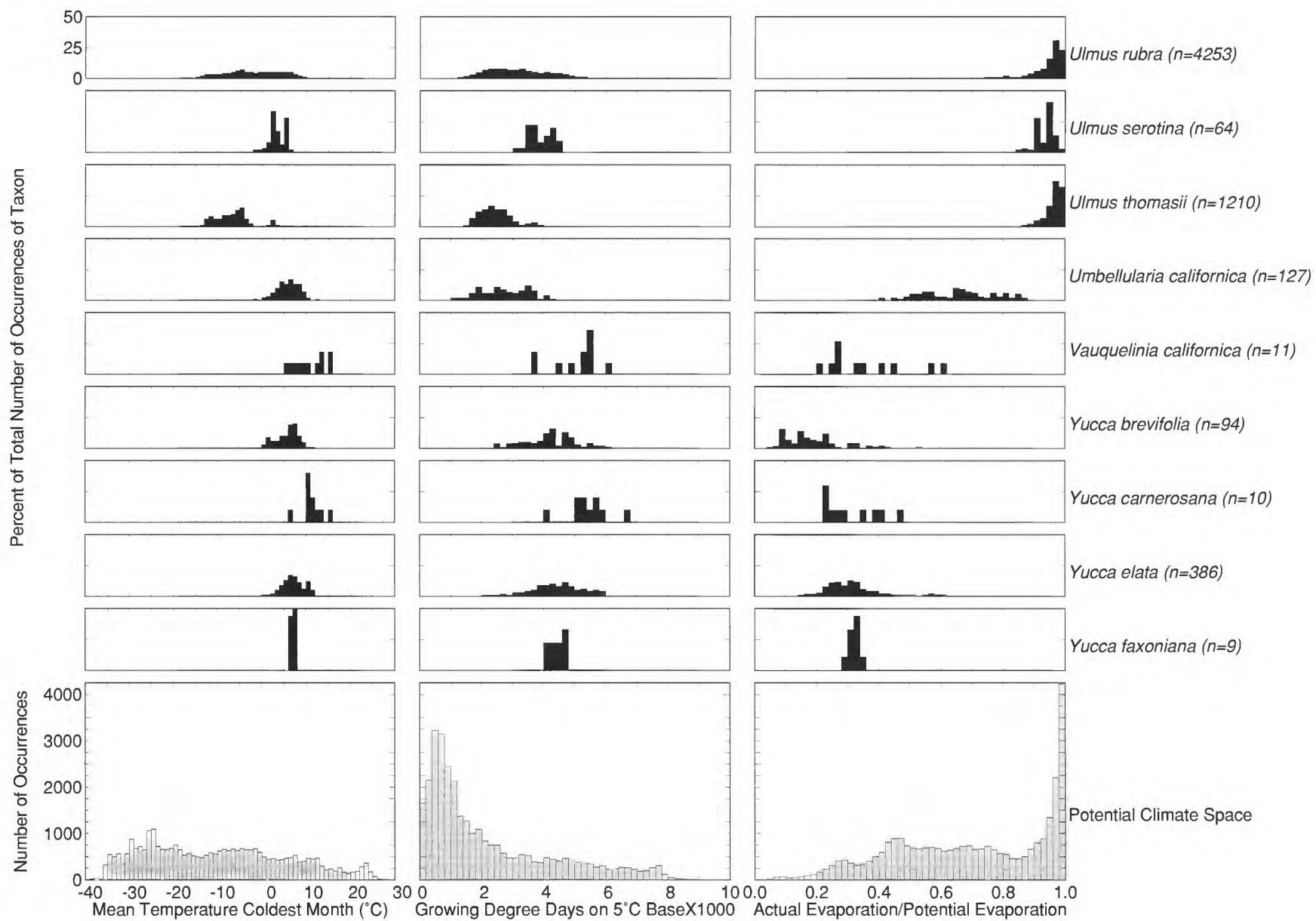


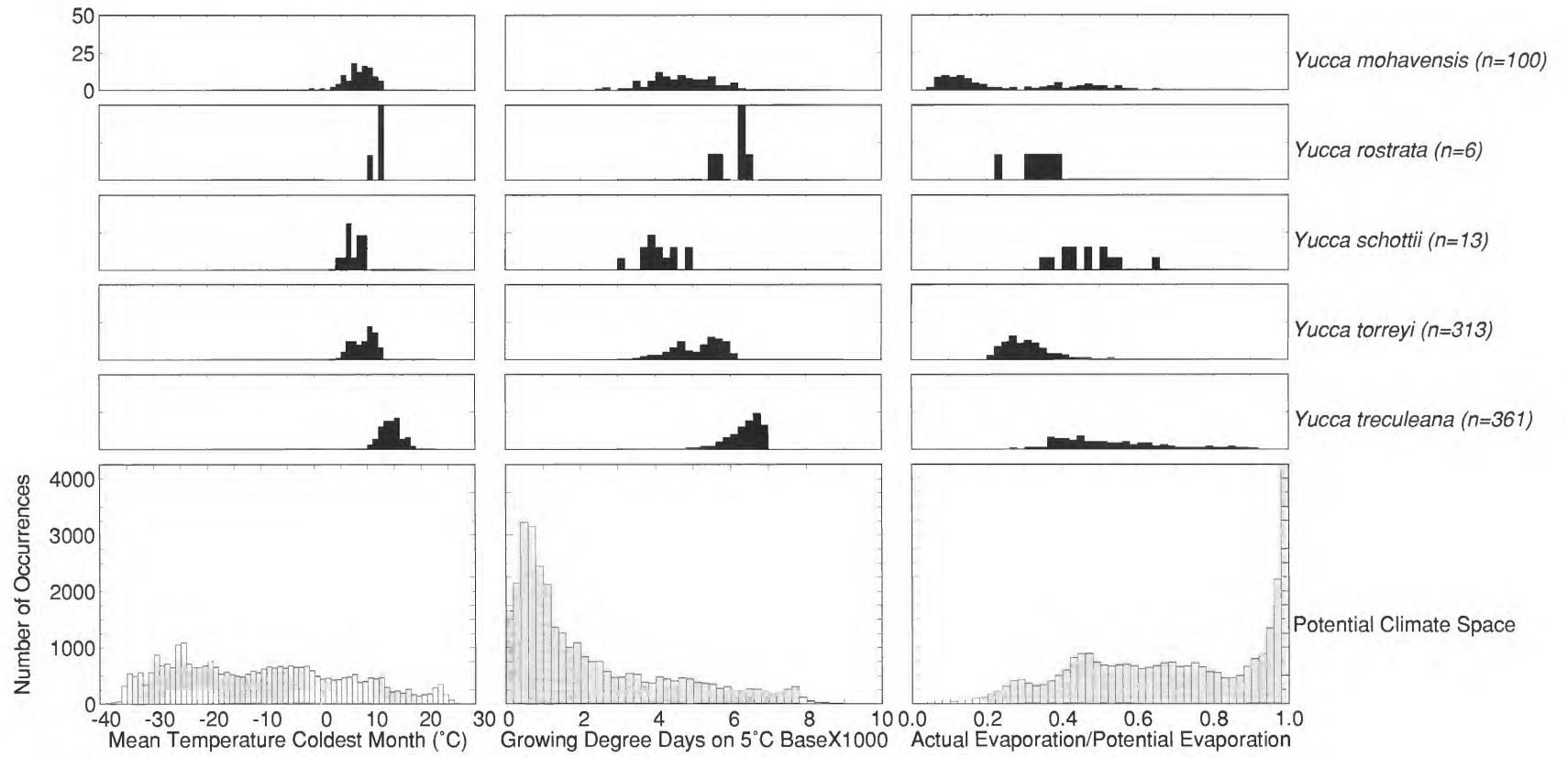






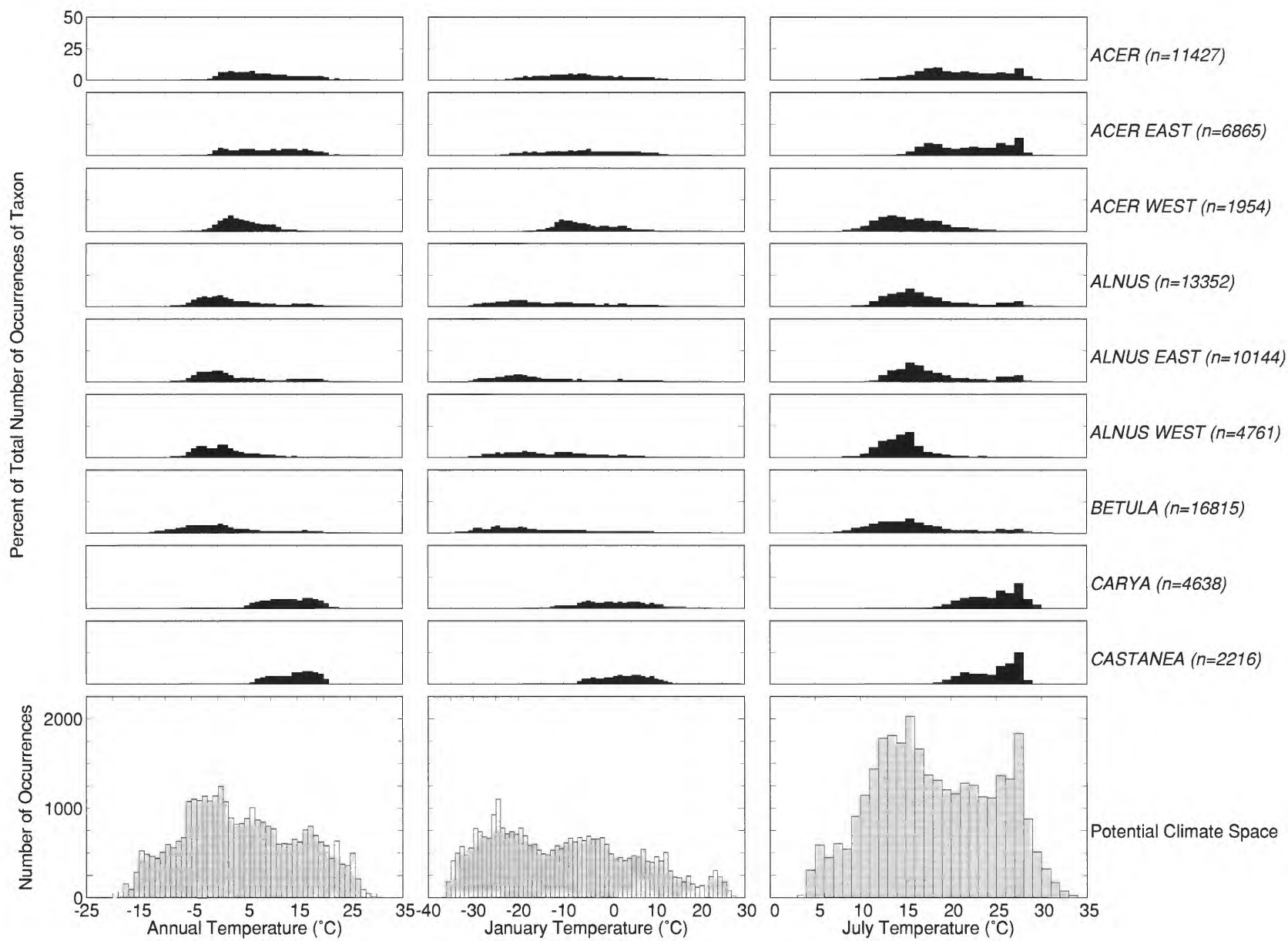


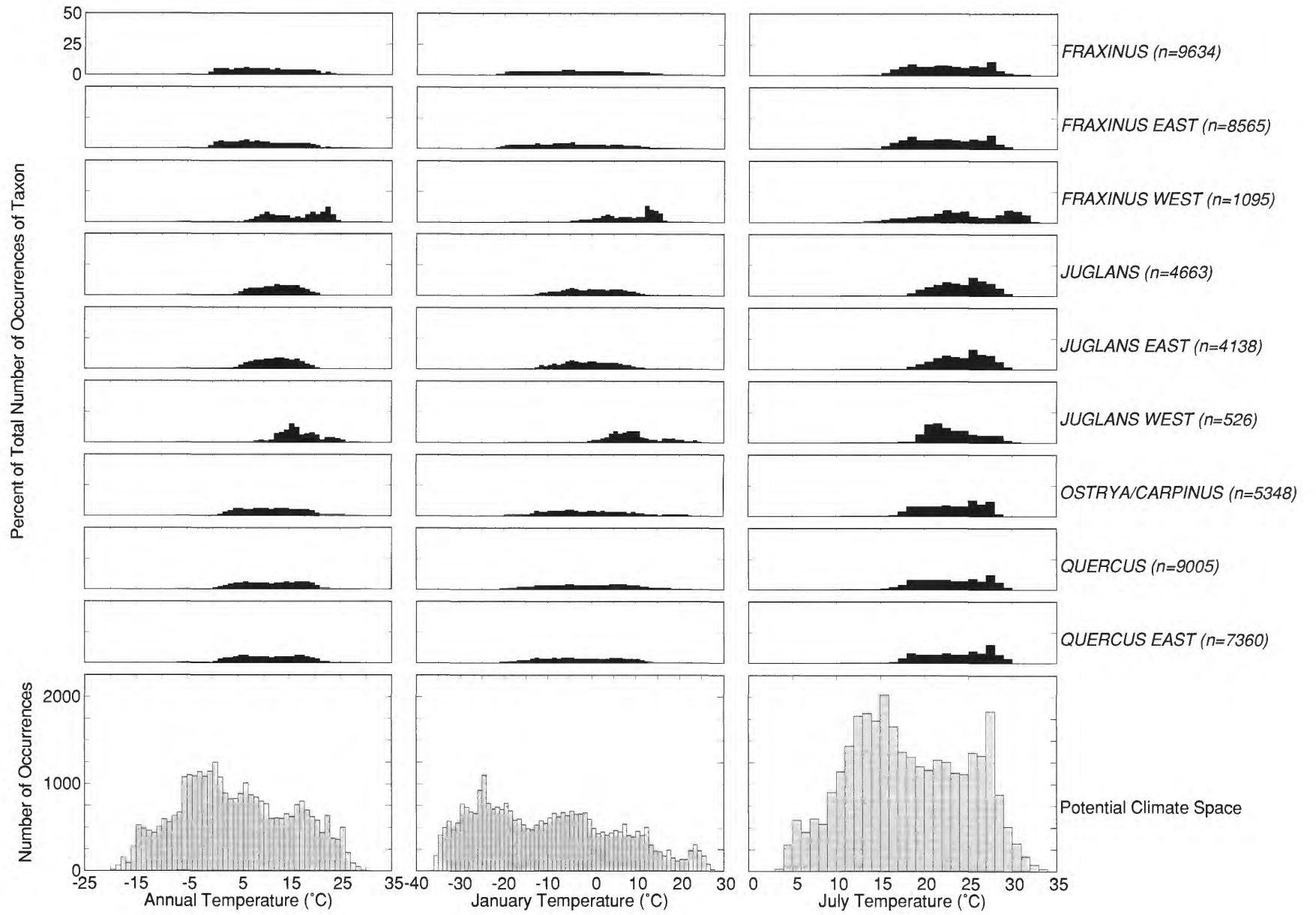


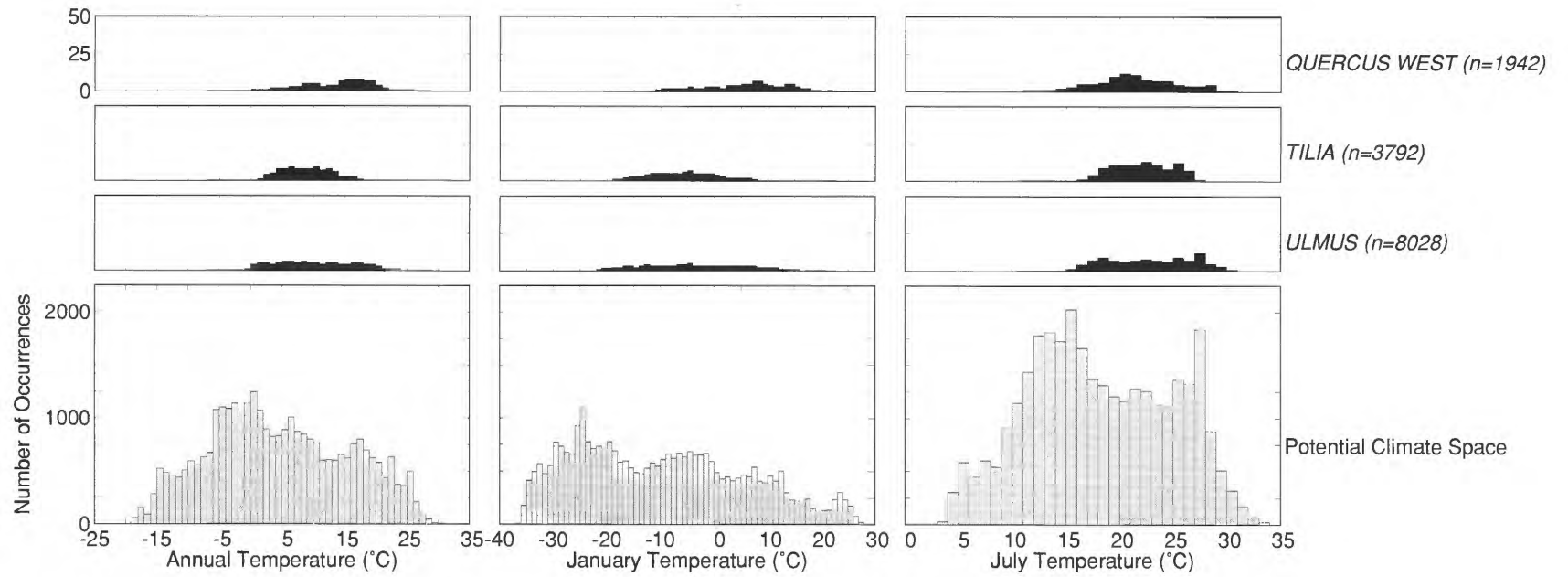


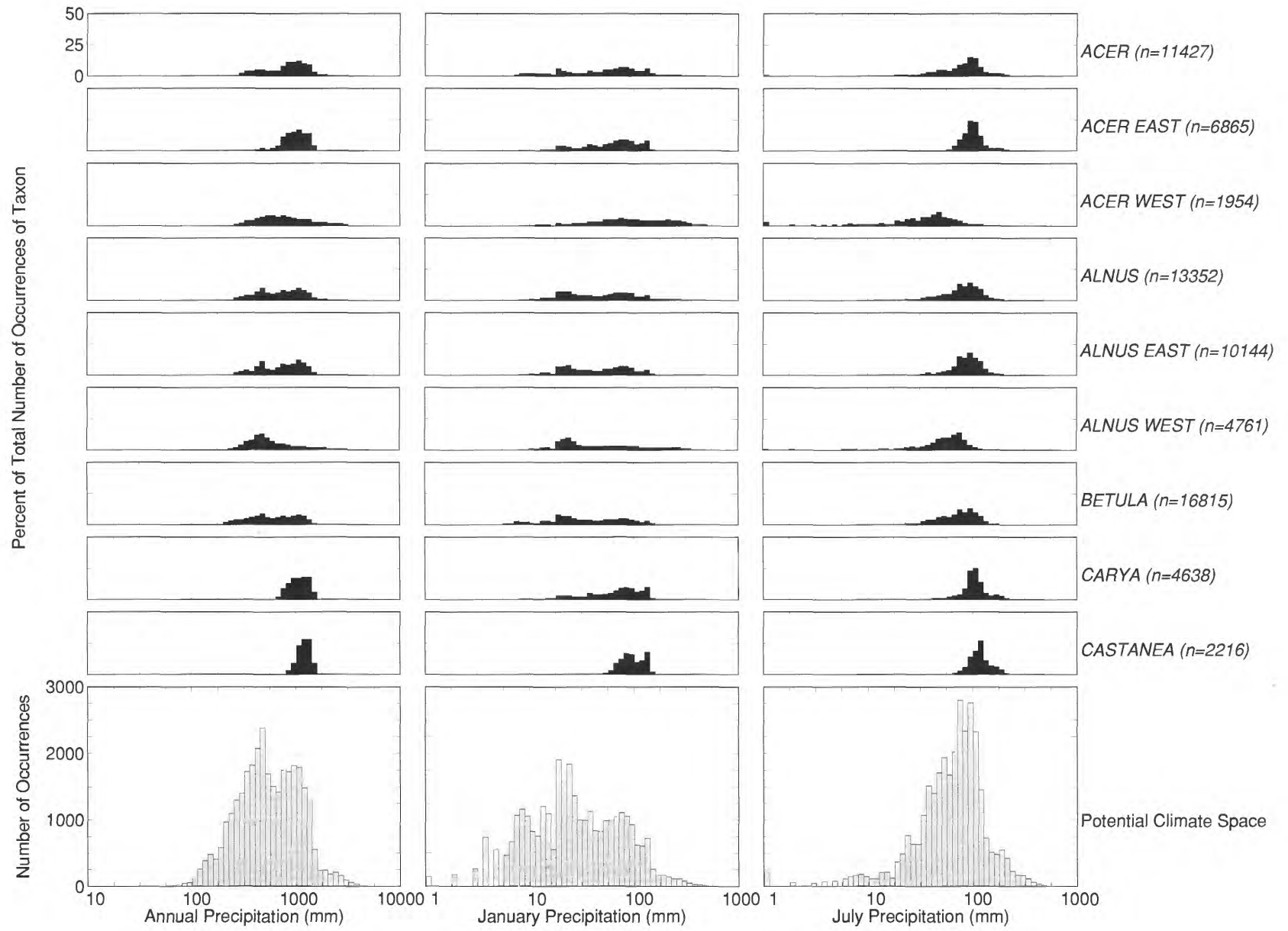
Hardwood Genera and Groups— Histograms

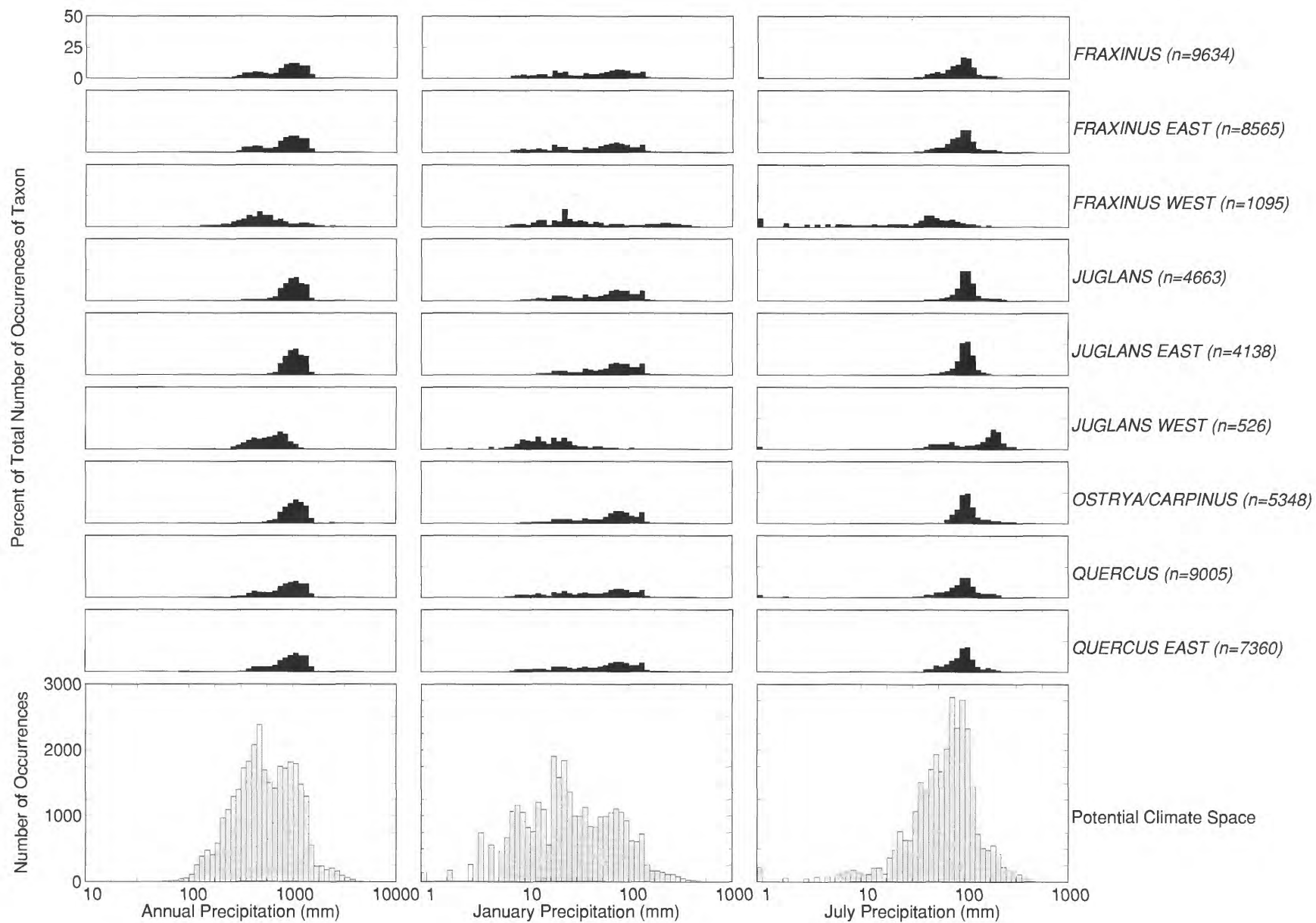


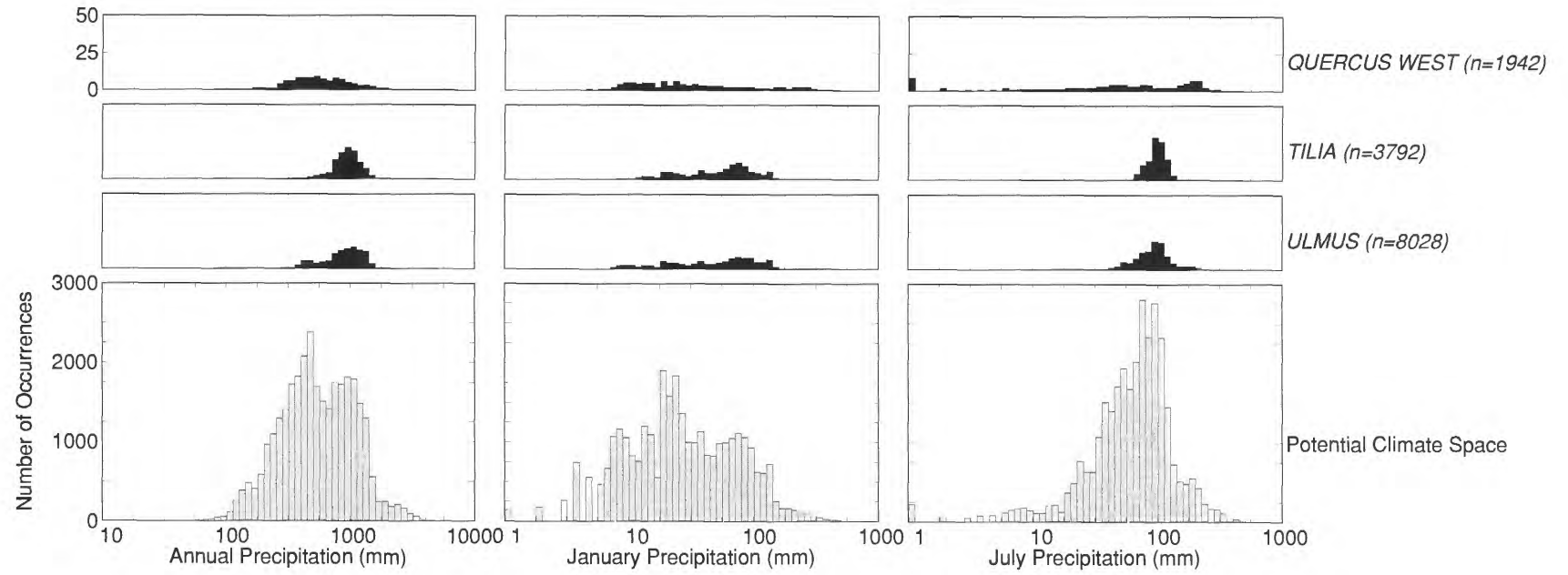


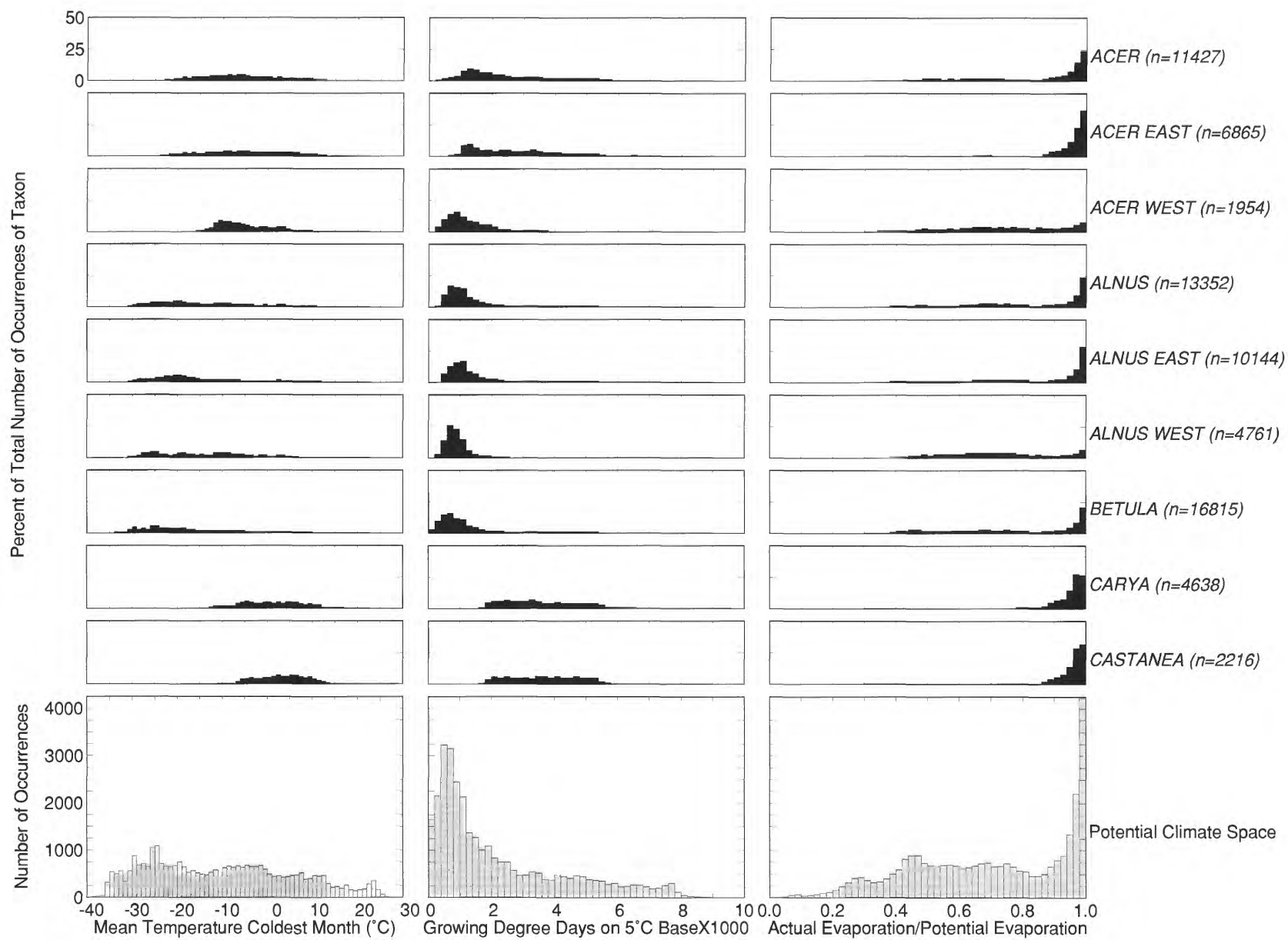


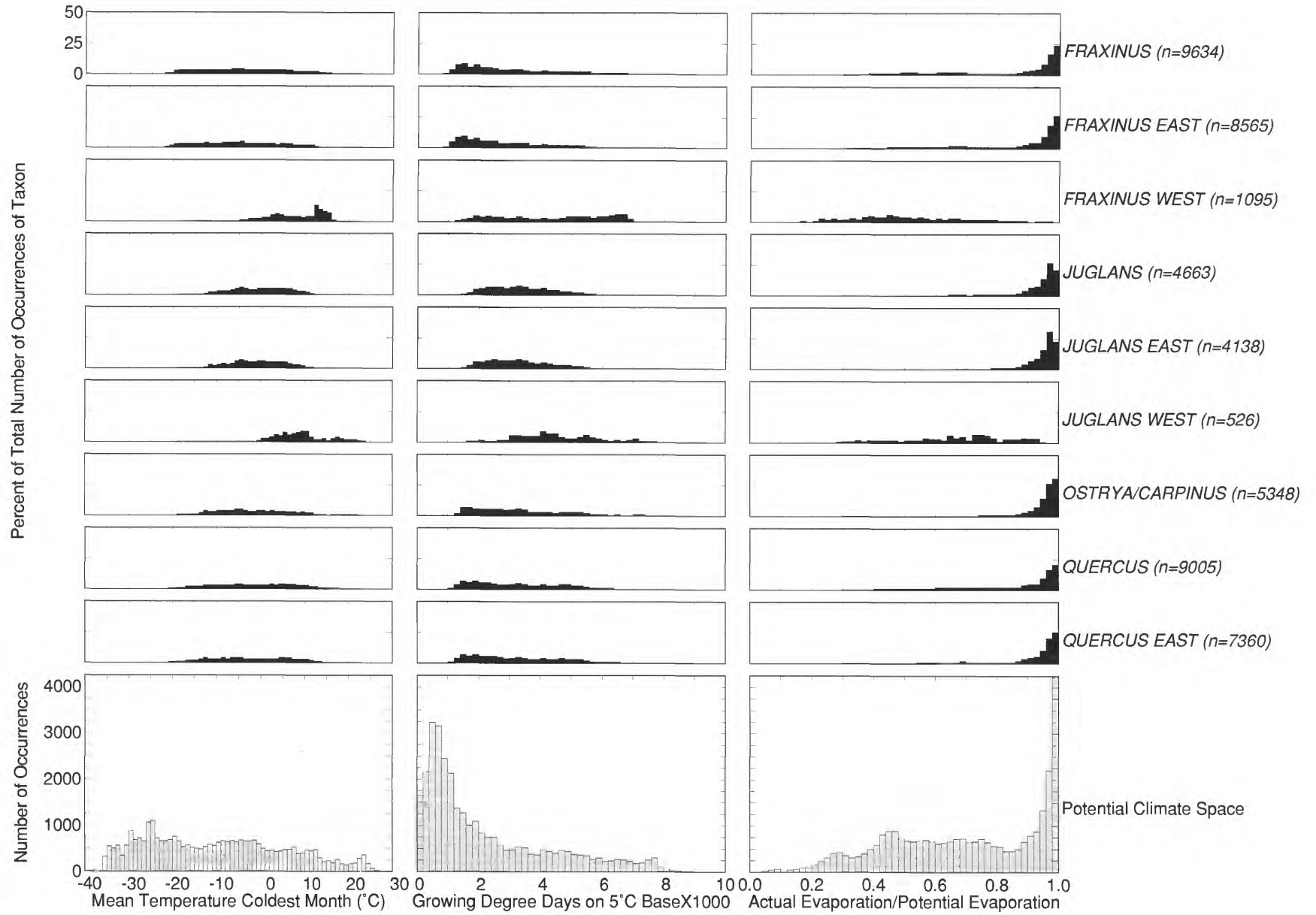


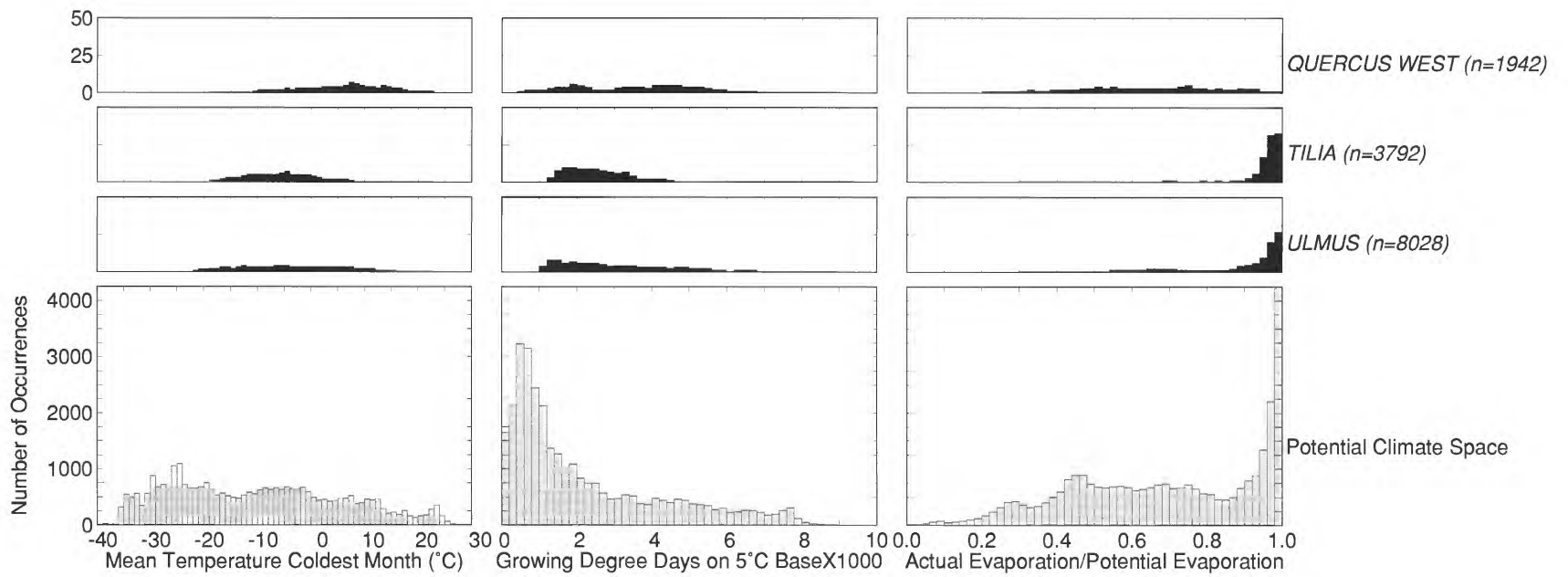












Hardwood Species— Tables



HARDWOODS				Annual Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	4.3	16.5	18.1	20.8	22.2	22.9	25.8
<i>Acer barbatum</i>	636	14.0	15.0	16.0	16.9	17.9	18.9	20.2
<i>Acer circinatum</i>	334	0.0	3.7	6.4	8.9	10.2	11.2	15.2
<i>Acer glabrum</i>	1738	-3.9	0.0	1.6	3.7	6.7	9.3	18.8
<i>Acer grandidentatum</i>	103	-0.6	2.1	3.8	6.8	9.7	17.5	20.6
<i>Acer leucoderme</i>	191	14.1	15.3	16.0	16.6	17.1	18.4	19.9
<i>Acer macrophyllum</i>	362	0.2	5.5	7.9	9.7	11.2	13.5	17.1
<i>Acer negundo</i>	6534	-2.3	2.5	6.0	10.1	14.7	17.9	26.1
<i>Acer nigrum</i>	1494	4.2	6.9	8.4	10.0	11.9	12.8	14.7
<i>Acer pennsylvanicum</i>	1103	-0.1	2.9	4.2	5.6	7.4	9.4	14.7
<i>Acer rubrum</i>	4842	-1.1	3.3	5.8	11.1	16.1	18.7	23.8
<i>Acer saccharinum</i>	3792	1.3	5.8	7.9	11.0	14.1	16.3	20.0
<i>Acer saccharum</i>	3424	-1.1	2.5	4.6	7.3	10.8	12.8	15.8
<i>Acer spicatum</i>	3076	-2.3	-0.3	0.8	3.3	5.8	7.7	14.1
<i>Aesculus californica</i>	107	8.6	11.2	12.3	13.9	14.8	15.6	17.0
<i>Aesculus glabra</i>	1412	8.0	10.0	11.1	12.9	14.8	17.4	20.3
<i>Aesculus octandra</i>	383	8.0	10.3	11.2	12.2	13.3	14.3	15.5
<i>Agave utahensis</i>	48	9.1	10.4	11.9	14.0	16.1	17.8	21.3
<i>Alnus oblongifolia</i>	50	6.6	7.4	9.5	11.8	13.3	15.9	18.1
<i>Alnus rhombifolia</i>	219	0.9	7.5	8.6	10.6	12.9	15.1	18.7
<i>Alnus rubra</i>	442	-3.7	2.1	4.0	7.1	9.6	10.8	15.1
<i>Alnus rugosa</i>	8293	-10.2	-4.7	-2.9	-0.4	2.1	5.6	11.2
<i>Alnus serrulata</i>	2148	3.4	8.9	11.5	14.7	17.3	18.9	20.9
<i>Alnus sinuata</i>	1601	-12.2	-2.0	0.1	2.2	4.9	7.6	12.3
<i>Alnus tenuifolia</i>	3862	-9.9	-4.9	-3.4	-0.7	1.7	4.5	18.1
<i>Amelanchier alnifolia</i>	5719	-10.7	-3.9	-1.8	0.8	4.1	7.2	14.6
<i>Amelanchier arborea</i>	4166	0.1	3.8	6.0	10.0	13.7	16.3	20.1
<i>Amelanchier utahensis</i>	364	-1.8	1.2	3.0	5.6	8.2	10.5	18.6
<i>Arbutus arizonica</i>	181	11.9	12.7	13.8	15.1	16.0	17.0	18.7
<i>Arbutus menziesii</i>	191	3.1	7.9	9.2	10.2	11.2	12.9	16.9
<i>Arbutus texana</i>	25	15.3	16.4	18.5	19.5	21.1	22.3	24.1
<i>Arctostaphylos pringlei</i>	13	8.3	8.3	11.7	15.3	17.1	18.1	18.8
<i>Artemisia tridentata</i>	1700	-3.6	3.2	5.4	6.8	8.3	10.6	23.0
<i>Betula alleghaniensis</i>	2260	-1.2	1.9	3.5	5.4	7.5	9.5	14.3
<i>Betula lenta</i>	752	4.4	6.8	7.9	9.6	11.5	12.7	16.3
<i>Betula nana</i>	6531	-13.4	-10.4	-8.5	-6.0	-3.9	-2.0	3.7
<i>Betula nigra</i>	2113	5.9	11.2	12.9	15.3	17.5	18.9	20.3
<i>Betula occidentalis</i>	1085	-4.8	-0.3	0.8	2.0	3.7	6.1	18.0
<i>Betula papyrifera</i>	10207	-12.2	-5.5	-3.7	-1.0	1.6	5.0	11.4
<i>Betula populifolia</i>	624	1.3	4.1	4.9	5.8	7.3	9.5	12.2
<i>Bursera fagaroides</i>	763	14.0	17.2	18.6	20.7	23.1	25.3	29.6
<i>Bursera microphylla</i>	211	16.3	19.6	21.2	22.4	23.2	24.2	25.1
<i>Canotia holacantha</i>	68	11.4	13.2	15.0	17.3	19.0	19.9	22.1
<i>Carpinus caroliniana</i>	4072	2.5	6.1	9.0	12.9	16.9	19.5	28.2
<i>Carya aquatica</i>	979	13.7	16.2	17.4	18.6	19.8	20.5	23.0
<i>Carya cordiformis</i>	3774	3.6	7.4	9.6	12.6	15.7	17.7	20.1
<i>Carya floridana</i>	45	21.5	21.7	21.9	22.2	22.4	22.5	22.7
<i>Carya glabra</i>	2882	4.4	9.6	11.3	14.0	16.9	19.0	22.4
<i>Carya illinoensis</i>	1057	9.1	12.8	14.9	17.2	18.8	20.0	23.5
<i>Carya laciniata</i>	895	7.3	9.7	10.7	12.1	13.3	14.2	18.1

HARDWOODS		Annual Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	16.2	16.9	17.2	17.4	18.0	18.5	20.1
<i>Carya ovata</i>	3038	3.6	7.7	9.5	12.0	14.6	16.8	22.4
<i>Carya pallida</i>	656	8.9	14.1	15.2	16.2	17.3	18.3	20.0
<i>Carya texana</i>	649	11.3	12.9	14.1	16.1	18.0	19.1	20.9
<i>Carya tomentosa</i>	2831	5.1	10.4	12.2	14.7	17.4	19.2	21.9
<i>Castanea alnifolia</i>	70	16.1	17.8	18.4	19.9	20.2	20.5	20.7
<i>Castanea dentata</i>	1137	4.4	7.7	9.2	11.4	13.5	15.4	19.0
<i>Castanea ozarkensis</i>	84	13.9	14.2	14.5	15.1	15.9	16.2	16.8
<i>Castanea pumila</i>	1340	8.0	12.6	15.0	16.9	18.5	19.7	21.5
<i>Castanopsis chrysophylla</i>	119	2.4	6.9	8.2	9.6	10.7	11.6	14.1
<i>Celtis laevigata</i>	2446	11.7	14.1	15.7	17.3	18.9	20.1	24.2
<i>Celtis occidentalis</i>	3123	1.8	6.6	8.5	10.6	12.8	14.3	18.1
<i>Celtis reticulata</i>	1066	0.7	12.0	14.5	16.6	18.5	21.2	26.9
<i>Cercidium floridum</i>	384	11.4	17.5	19.9	21.6	22.4	23.6	25.1
<i>Cercidium macrum</i>	167	19.3	21.9	22.6	23.0	23.5	24.0	24.4
<i>Cercidium microphyllum</i>	356	11.4	18.5	20.0	21.6	22.5	23.8	25.8
<i>Cercocarpus betuloides</i>	126	6.1	8.3	10.0	12.3	14.3	16.0	19.1
<i>Cercocarpus breviflorus</i>	73	7.3	8.7	9.6	12.8	15.3	17.0	20.7
<i>Cercocarpus ledifolius</i>	323	-1.7	1.3	3.8	5.9	7.3	8.6	17.2
<i>Cereus giganteus</i>	268	14.2	18.3	19.9	21.2	22.4	24.1	25.3
<i>Chilopsis linearis</i>	1212	6.1	15.2	16.6	19.0	21.0	22.2	24.4
<i>Cornus florida</i>	2927	5.5	9.4	11.6	14.5	17.3	19.1	22.0
<i>Cornus stolonifera</i>	10191	-8.7	-3.2	-1.3	1.2	4.8	7.4	19.7
<i>Corylus cornuta</i>	3760	-2.4	0.0	1.1	3.7	6.6	9.9	17.2
<i>Cowania mexicana</i>	598	0.6	7.8	9.7	12.2	15.1	17.5	21.3
<i>Dalea spinosa</i>	165	16.6	19.4	21.3	22.1	22.6	23.8	25.8
<i>Diospyros virginiana</i>	2870	8.0	11.8	13.4	15.8	18.0	19.8	24.2
<i>Dodonaea viscosa</i>	1230	12.2	16.8	18.2	20.1	22.3	24.8	29.6
<i>Erythrina flabelliformis</i>	280	11.9	13.3	14.7	16.5	19.2	20.7	25.3
<i>Fagus grandifolia</i>	3389	1.2	4.7	6.8	11.2	15.7	18.0	20.5
<i>Forestiera phillyreoides</i> (southern range not available)	23	14.4	15.3	16.8	19.0	21.5	22.6	23.8
<i>Fraxinus americana</i>	4274	0.1	5.1	7.9	11.6	15.3	17.8	21.7
<i>Fraxinus anomala</i>	138	2.6	8.2	9.2	10.8	12.6	14.0	20.7
<i>Fraxinus berlandieriana</i>	312	19.2	20.4	21.4	22.2	22.8	23.1	24.4
<i>Fraxinus caroliniana</i>	656	13.0	16.0	17.4	19.1	19.9	21.7	23.2
<i>Fraxinus cuspidata</i>	18	8.1	9.7	13.1	19.2	21.0	21.7	22.1
<i>Fraxinus dipetala</i>	100	6.1	11.5	12.9	14.3	15.3	16.8	19.3
<i>Fraxinus greggii</i>	288	15.8	18.3	19.2	20.4	22.1	23.3	24.4
<i>Fraxinus latifolia</i>	234	4.6	7.9	9.3	10.5	12.1	14.3	18.6
<i>Fraxinus nigra</i>	2928	-1.2	0.6	2.0	4.8	7.2	9.1	12.9
<i>Fraxinus pennsylvanica</i>	7355	-2.3	2.5	5.4	9.6	14.6	17.9	21.3
<i>Fraxinus profunda</i>	246	10.9	13.6	14.9	16.0	18.2	20.0	21.1
<i>Fraxinus quadrangulata</i>	529	8.1	9.9	10.5	12.0	13.2	14.1	17.3
<i>Fraxinus texensis</i>	40	17.0	18.3	18.8	19.2	19.5	19.7	21.5
<i>Fraxinus velutina</i>	157	8.3	10.6	12.6	14.9	16.8	18.3	22.0
<i>Fremontodendron californicum</i>	61	9.5	12.9	13.7	14.8	15.8	17.0	18.8
<i>Gleditsia triacanthos</i>	2601	6.9	9.6	11.3	13.7	16.9	18.8	21.1
<i>Holacantha emoryi</i>	131	18.0	20.1	20.7	21.5	22.0	22.4	22.7
<i>Ilex opaca</i>	1842	7.4	12.8	15.0	16.9	18.6	19.8	22.4
<i>Ilex verticillata</i>	2800	0.5	4.3	6.0	9.1	12.7	15.2	21.4

HARDWOODS		Annual Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	15.0	15.0	15.3	16.1	16.5	17.0	17.2
<i>Juglans cinerea</i>	2184	1.3	6.1	7.5	9.8	12.0	13.3	16.9
<i>Juglans major</i>	465	7.3	12.6	13.9	16.2	19.6	22.9	26.6
<i>Juglans microcarpa</i>	54	8.6	11.6	15.4	16.7	19.3	20.1	22.8
<i>Juglans nigra</i>	3470	5.9	8.8	10.7	13.2	16.0	17.8	21.4
<i>Kalmia latifolia</i>	1402	5.5	8.1	10.4	13.0	15.5	17.7	20.0
<i>Koeberlinia spinosa</i>	937	9.1	16.0	17.2	19.8	21.9	22.7	25.0
<i>Larrea divaricata</i>	1751	7.6	14.9	16.9	19.3	21.5	22.4	25.8
<i>Liquidambar styraciflua</i>	2209	9.3	12.7	14.4	16.6	18.5	19.9	25.3
<i>Liriodendron tulipifera</i>	2351	4.4	9.2	11.0	14.1	17.0	19.1	22.0
<i>Lithocarpus densiflorus</i>	46	6.8	7.7	9.4	10.8	12.3	13.1	14.3
<i>Lyonia ferruginea</i>	208	18.0	19.5	19.9	20.5	22.1	22.5	23.7
<i>Maclura pomifera</i>	182	16.6	17.2	17.5	18.8	19.8	20.3	21.4
<i>Magnolia acuminata</i>	753	6.3	8.5	10.0	11.9	14.5	16.4	19.7
<i>Magnolia grandiflora</i>	573	16.2	17.9	18.4	19.3	19.9	20.6	22.5
<i>Magnolia virginiana</i>	1036	9.4	15.1	16.8	18.2	19.7	21.3	23.7
<i>Morus microphylla</i>	112	9.1	11.8	14.0	16.4	18.0	19.1	22.4
<i>Morus rubra</i>	4197	4.9	9.6	11.7	14.8	17.8	19.8	23.8
<i>Myrica heterophylla</i>	458	12.7	15.7	16.8	18.3	19.4	19.8	20.5
<i>Myrica inodora</i>	64	19.1	19.4	19.6	19.7	19.9	20.0	20.1
<i>Myrica pensylvanica</i>	193	1.4	5.2	6.5	9.1	10.9	12.9	16.1
<i>Nolina bigelovii</i>	42	11.5	12.6	15.9	18.7	21.6	22.0	24.1
<i>Nyssa aquatica</i>	700	12.0	15.1	16.3	17.8	19.4	19.9	20.9
<i>Nyssa ogeche</i>	119	18.3	18.9	19.3	19.8	20.0	20.2	20.5
<i>Nyssa sylvatica</i>	2960	4.5	9.4	11.6	14.8	17.6	19.6	23.0
<i>Olneya tesota</i>	428	14.2	19.7	20.9	22.1	22.9	24.1	25.8
<i>Opuntia fulgida</i>	224	14.5	17.8	19.3	21.2	22.7	24.2	25.2
<i>Ostrya knowltonii</i>	8	8.2	8.2	8.3	9.7	12.2	14.3	15.3
<i>Ostrya virginiana</i>	4747	1.2	4.2	6.5	10.5	14.6	18.0	27.0
<i>Platanus occidentalis</i>	3811	5.4	8.7	10.7	13.8	16.9	18.8	21.8
<i>Populus balsamifera</i>	8595	-12.2	-5.2	-3.6	-1.1	1.3	4.4	11.5
<i>Populus fremontii</i>	333	2.6	8.3	10.6	13.2	16.0	19.7	24.9
<i>Populus grandidentata</i>	3057	-1.1	1.3	3.0	5.7	8.4	10.2	14.3
<i>Populus heterophylla</i>	323	9.0	9.9	12.8	15.2	16.8	18.0	20.0
<i>Populus tremuloides</i>	11232	-12.2	-5.3	-3.1	-0.1	3.4	7.2	21.4
<i>Prosopis juliflora</i>	3304	9.1	15.8	17.6	19.8	22.3	24.2	29.6
<i>Prosopis pubescens</i>	239	8.1	14.9	17.8	19.7	21.8	22.5	25.5
<i>Prunus serotina</i>	5424	1.3	6.1	9.0	13.1	17.1	19.6	27.2
<i>Ptelea trifoliata</i>	3023	3.4	10.3	13.1	16.5	19.1	20.6	25.0
<i>Quercus agrifolia</i>	82	9.6	12.5	13.7	14.4	15.9	16.9	18.8
<i>Quercus alba</i>	3710	4.1	7.2	9.4	12.6	16.0	18.1	20.1
<i>Quercus arizonica</i>	94	8.3	10.4	12.8	14.2	16.0	17.9	19.7
<i>Quercus arkansana</i>	20	16.8	16.9	16.9	17.1	17.4	19.9	19.9
<i>Quercus bicolor</i>	1294	4.5	7.6	8.8	10.1	11.7	12.9	14.8
<i>Quercus chapmanii</i>	126	18.3	19.9	20.3	21.3	22.1	22.4	23.2
<i>Quercus chrysolepis</i>	189	4.6	7.7	9.4	11.5	13.9	15.3	21.3
<i>Quercus coccinea</i>	1391	5.5	9.0	10.7	12.8	14.6	16.2	19.3
<i>Quercus douglasii</i>	91	9.6	12.5	13.7	14.5	15.4	16.4	17.9
<i>Quercus dunni</i>	40	8.3	11.8	13.8	15.5	17.0	18.7	19.4
<i>Quercus durandii</i>	271	15.4	17.0	17.7	18.3	19.0	19.8	21.2

HARDWOODS				Annual Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Quercus ellipsoidalis</i>	442	2.3	4.5	5.7	7.1	8.4	9.6	10.6
<i>Quercus emoryi</i>	57	10.4	13.2	14.2	15.6	17.3	17.5	19.7
<i>Quercus engelmannii</i>	8	15.3	15.3	15.4	15.6	16.4	16.6	16.9
<i>Quercus falcata</i>	2009	9.5	13.3	14.6	16.5	18.2	19.6	21.3
<i>Quercus gambelii</i>	503	-1.5	1.8	4.4	7.4	9.4	11.8	21.7
<i>Quercus garryana</i>	193	3.1	7.3	8.8	10.0	10.8	11.9	14.4
<i>Quercus georgiana</i>	7	15.9	15.9	16.2	16.6	16.7	16.7	16.9
<i>Quercus glaucooides</i>	32	18.4	18.6	19.0	19.3	19.9	22.2	23.3
<i>Quercus gravesii</i>	8	15.4	15.4	16.7	18.1	21.7	22.0	22.2
<i>Quercus grisea</i>	44	8.1	8.5	9.5	12.7	15.4	18.1	22.2
<i>Quercus havardii</i>	121	13.9	14.4	14.9	16.0	16.9	17.6	18.6
<i>Quercus hypoleucoides</i>	55	7.1	10.2	12.8	14.3	16.1	17.3	19.9
<i>Quercus ilicifolia</i>	307	4.4	7.5	8.3	9.5	10.7	11.7	13.4
<i>Quercus imbricaria</i>	1000	6.7	9.8	10.5	12.0	13.2	14.2	19.3
<i>Quercus incana</i>	583	15.0	16.8	17.6	18.9	19.9	21.2	23.0
<i>Quercus kelloggii</i>	124	4.6	7.4	8.8	10.6	12.7	14.5	18.0
<i>Quercus laevis</i>	568	14.8	16.4	17.5	18.9	19.9	21.6	22.6
<i>Quercus laurifolia</i>	792	14.0	16.2	17.5	18.7	19.7	21.3	23.5
<i>Quercus lobata</i>	142	9.6	12.8	14.2	15.3	16.5	17.4	18.5
<i>Quercus lyrata</i>	1356	11.5	15.0	16.2	17.6	18.9	19.8	20.9
<i>Quercus macrocarpa</i>	3667	-1.5	2.9	5.4	8.8	12.6	15.4	21.8
<i>Quercus marilandica</i>	2744	8.8	12.3	13.7	16.1	18.0	19.4	21.8
<i>Quercus michauxii</i>	1418	8.8	14.3	15.8	17.3	18.8	19.8	21.3
<i>Quercus mohriana</i>	107	11.2	15.6	17.2	17.8	18.5	19.1	21.7
<i>Quercus muehlenbergii</i>	2637	6.1	9.5	11.0	13.2	16.0	17.9	21.6
<i>Quercus myrtifolia</i>	144	18.2	19.9	20.4	21.6	22.3	22.6	23.6
<i>Quercus nigra</i>	1551	13.1	15.4	16.3	17.6	19.1	20.0	22.3
<i>Quercus nuttallii</i>	410	14.2	16.1	17.0	17.7	18.5	19.4	20.7
<i>Quercus oblongifolia</i>	29	14.8	14.9	16.0	16.9	17.5	18.9	20.3
<i>Quercus oglethorpensis</i>	6	16.3	16.3	16.5	16.6	16.8	16.8	17.0
<i>Quercus palustris</i>	1358	7.9	9.7	10.4	11.9	13.5	14.6	16.5
<i>Quercus phellos</i>	1456	11.6	14.2	15.4	16.8	18.2	19.5	20.6
<i>Quercus prinus</i>	1190	4.5	8.4	10.0	12.2	14.3	15.6	18.2
<i>Quercus pungens</i>	43	11.8	15.6	18.5	18.9	19.3	19.8	20.0
<i>Quercus rubra</i>	4296	-1.1	3.5	5.8	9.6	13.1	15.3	19.4
<i>Quercus rugosa</i>	707	8.1	14.0	15.4	17.9	19.9	21.9	27.2
<i>Quercus shumardii</i>	2257	8.7	12.8	14.3	16.7	18.4	19.7	21.2
<i>Quercus stellata</i>	3185	7.4	11.7	13.3	15.9	17.9	19.5	22.2
<i>Quercus toumeyi</i>	11	12.7	12.7	14.3	16.3	17.3	17.3	17.8
<i>Quercus turbinella</i>	120	6.1	9.6	12.5	14.3	16.7	18.7	21.8
<i>Quercus velutina</i>	3416	5.7	8.5	10.3	13.1	16.1	18.0	20.1
<i>Quercus virginiana</i>	740	14.8	18.3	19.2	19.9	21.1	22.4	24.2
<i>Quercus wislizeni</i>	118	7.5	10.9	12.5	13.7	15.1	16.1	18.9
<i>Rhamnus betulaefolia</i>	266	4.3	10.9	13.0	14.5	16.1	17.5	21.8
<i>Rhamnus californica</i>	301	4.6	9.4	11.8	13.8	15.3	16.8	21.8
<i>Rhamnus crocea</i>	193	6.1	11.5	13.1	14.6	16.2	18.0	23.6
<i>Rhamnus purshiana</i>	492	-1.3	1.9	4.5	7.7	9.8	10.8	13.6
<i>Rhododendron macrophyllum</i>	98	1.7	6.8	8.3	10.0	10.8	11.8	13.7
<i>Rhus choriophylla</i>	22	11.5	13.2	15.0	16.2	17.3	17.5	18.0
<i>Rhus glabra</i>	4432	-2.3	5.6	8.4	11.5	14.5	16.8	24.4

HARDWOODS				Annual Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	11.7	16.0	17.1	18.6	20.6	21.8	22.8
<i>Rhus ovata</i>	71	6.1	10.3	13.7	15.4	17.2	18.9	23.2
<i>Robinia neomexicana</i>	82	3.4	7.6	9.5	11.3	13.2	15.2	18.1
<i>Robinia pseudoacacia</i>	665	7.4	9.9	11.2	12.5	14.1	15.7	17.9
<i>Sabal palmetto</i>	170	17.9	20.0	20.9	22.1	22.7	23.2	24.2
<i>Salix alaxensis</i>	3758	-16.3	-10.3	-8.1	-5.4	-3.1	-1.2	5.9
<i>Salix arbusculoides</i>	4708	-13.5	-9.0	-7.1	-4.9	-2.8	-1.0	3.6
<i>Sambucus mexicana</i>	261	6.1	13.7	14.8	17.0	19.6	22.6	26.3
<i>Sapium biloculare</i>	171	16.8	19.5	21.3	22.4	23.2	24.1	25.1
<i>Sassafras albidum</i>	3246	5.6	9.3	11.5	14.4	17.3	19.2	22.0
<i>Shepherdia argentea</i>	1514	-3.6	2.7	3.7	5.3	6.8	8.4	16.6
<i>Tilia americana</i>	3327	1.1	3.6	5.3	8.0	10.7	12.6	16.1
<i>Tilia heterophylla</i>	828	7.4	10.4	11.8	13.6	15.7	16.8	19.9
<i>Ulmus alata</i>	1818	10.8	13.5	14.8	16.5	18.0	19.4	22.5
<i>Ulmus americana</i>	7818	-2.3	1.6	4.8	9.4	14.8	18.0	22.6
<i>Ulmus crassifolia</i>	696	15.5	17.2	17.8	18.8	20.6	22.7	23.8
<i>Ulmus rubra</i>	4253	1.9	6.3	8.6	11.7	15.0	17.0	20.1
<i>Ulmus serotina</i>	64	12.6	14.1	14.4	15.0	16.4	16.9	17.3
<i>Ulmus thomasi</i>	1210	3.3	5.7	6.7	8.5	10.1	11.6	15.4
<i>Umbellularia californica</i>	127	6.4	9.3	10.6	12.3	14.1	15.2	18.8
<i>Vauquelinia californica</i>	11	15.3	15.3	17.3	19.8	20.4	23.0	23.7
<i>Yucca brevifolia</i>	94	10.9	13.1	14.9	16.6	18.1	19.3	22.9
<i>Yucca carnerosana</i>	10	16.4	16.4	19.3	19.5	21.2	21.4	23.2
<i>Yucca elata</i>	386	7.6	13.9	15.6	16.8	18.7	20.4	22.1
<i>Yucca faxoniana</i>	9	15.8	15.8	16.0	16.4	16.6	16.6	16.9
<i>Yucca mohavensis</i>	100	6.1	14.8	16.8	18.6	20.2	21.7	22.9
<i>Yucca rostrata</i>	6	20.2	20.2	21.4	22.3	22.4	22.4	22.4
<i>Yucca schottii</i>	13	13.2	13.2	14.9	16.4	17.3	18.1	18.3
<i>Yucca torreyi</i>	313	10.6	16.0	17.3	19.6	20.9	21.5	23.2
<i>Yucca treculeana</i>	361	19.3	20.9	21.7	22.6	23.1	23.8	24.8

HARDWOODS				January Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	-4.9	6.9	8.5	10.8	12.7	14.7	17.4
<i>Acer barbatum</i>	636	1.0	3.7	5.0	6.3	8.0	9.5	12.7
<i>Acer circinatum</i>	334	-10.7	-5.2	-1.6	1.8	3.5	4.6	7.6
<i>Acer glabrum</i>	1738	-23.8	-12.0	-10.4	-7.5	-3.2	1.7	8.7
<i>Acer grandidentatum</i>	103	-11.6	-9.6	-7.1	-4.4	0.5	8.2	10.7
<i>Acer leucoderme</i>	191	2.8	4.5	5.1	6.2	7.0	8.9	12.0
<i>Acer macrophyllum</i>	362	-8.4	-2.5	0.6	2.9	4.5	7.2	11.0
<i>Acer negundo</i>	6534	-23.8	-17.0	-11.0	-4.3	2.8	7.8	24.8
<i>Acer nigrum</i>	1494	-12.7	-10.1	-7.1	-4.5	-2.0	-0.1	3.0
<i>Acer pensylvanicum</i>	1103	-15.6	-12.9	-11.4	-8.6	-5.5	-3.1	3.1
<i>Acer rubrum</i>	4842	-19.5	-13.4	-9.2	-1.6	5.0	9.3	18.9
<i>Acer saccharinum</i>	3792	-16.6	-10.8	-7.1	-3.1	1.6	5.0	12.4
<i>Acer saccharum</i>	3424	-19.2	-14.7	-11.8	-6.5	-2.9	-0.1	5.5
<i>Acer spicatum</i>	3076	-24.6	-21.0	-17.8	-12.7	-8.2	-5.4	2.8
<i>Aesculus californica</i>	107	1.7	3.6	4.5	6.0	6.9	7.9	9.2
<i>Aesculus glabra</i>	1412	-9.1	-4.9	-3.6	-1.0	2.4	5.3	10.2
<i>Aesculus octandra</i>	383	-3.8	-1.8	-0.8	0.2	1.7	2.8	5.1
<i>Agave utahensis</i>	48	-1.3	-0.1	0.7	2.3	4.3	5.9	9.2
<i>Alnus oblongifolia</i>	50	-2.1	-1.4	0.5	2.0	3.4	6.4	8.7
<i>Alnus rhombifolia</i>	219	-9.6	-1.7	0.2	3.0	5.6	7.4	9.4
<i>Alnus rubra</i>	442	-15.6	-6.5	-3.8	-0.1	2.9	4.3	10.8
<i>Alnus rugosa</i>	8293	-30.9	-27.2	-23.6	-19.7	-14.6	-8.8	-0.5
<i>Alnus serrulata</i>	2148	-11.2	-4.0	-0.8	3.2	6.9	9.5	14.1
<i>Alnus sinuata</i>	1601	-28.0	-17.1	-12.5	-9.2	-4.6	0.1	7.6
<i>Alnus tenuifolia</i>	3862	-30.5	-26.4	-22.9	-17.9	-10.8	-6.9	8.7
<i>Amelanchier alnifolia</i>	5719	-30.2	-25.4	-22.1	-16.6	-9.8	-4.8	7.6
<i>Amelanchier arborea</i>	4166	-18.4	-12.7	-8.9	-4.0	1.5	5.6	12.0
<i>Amelanchier utahensis</i>	364	-11.6	-9.6	-8.1	-5.6	-2.2	0.2	9.9
<i>Arbutus arizonica</i>	181	4.0	4.7	5.5	7.8	9.7	10.3	11.8
<i>Arbutus menziesii</i>	191	-4.4	1.1	2.7	3.6	5.2	7.6	12.0
<i>Arbutus texana</i>	25	5.8	7.6	8.5	9.5	12.4	13.5	16.1
<i>Arctostaphylos pringlei</i>	13	1.6	1.6	3.4	7.2	9.7	10.5	10.8
<i>Artemisia tridentata</i>	1700	-13.6	-9.7	-7.8	-4.9	-2.5	-0.7	12.4
<i>Betula alleghaniensis</i>	2260	-20.0	-15.8	-13.2	-9.5	-5.8	-3.2	3.6
<i>Betula lenta</i>	752	-11.4	-6.8	-5.4	-3.1	-0.4	1.3	5.6
<i>Betula nana</i>	6531	-34.8	-30.7	-29.1	-25.6	-21.9	-17.3	-0.5
<i>Betula nigra</i>	2113	-12.5	-3.3	-0.2	3.8	7.1	9.5	13.0
<i>Betula occidentalis</i>	1085	-23.4	-20.7	-18.6	-14.4	-8.6	-5.7	6.3
<i>Betula papyrifera</i>	10207	-31.0	-27.4	-24.1	-20.0	-14.1	-8.9	3.5
<i>Betula populifolia</i>	624	-14.5	-11.4	-10.1	-8.0	-5.3	-3.0	1.5
<i>Bursera fagaroides</i>	763	8.0	12.0	13.5	16.1	19.3	23.7	26.6
<i>Bursera microphylla</i>	211	9.6	10.6	12.5	15.2	17.3	17.5	18.4
<i>Canotia holacantha</i>	68	2.1	2.9	4.5	6.9	8.4	9.3	10.4
<i>Carpinus caroliniana</i>	4072	-16.5	-9.3	-5.1	0.4	6.6	11.6	26.5
<i>Carya aquatica</i>	979	0.1	4.8	6.6	9.1	10.9	13.1	18.2
<i>Carya cordiformis</i>	3774	-16.2	-8.5	-5.0	-0.6	4.2	7.4	12.4
<i>Carya floridana</i>	45	14.3	15.2	15.5	16.0	16.5	16.7	17.6
<i>Carya glabra</i>	2882	-9.6	-4.6	-2.0	1.9	6.4	9.8	16.3
<i>Carya illinoensis</i>	1057	-7.6	-1.3	1.7	5.4	8.6	10.9	17.6
<i>Carya laciniosa</i>	895	-7.7	-4.9	-3.8	-1.7	0.1	1.7	8.6

HARDWOODS		January Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	4.2	5.1	5.4	6.0	7.9	8.6	11.2
<i>Carya ovata</i>	3038	-12.8	-7.2	-5.0	-1.2	2.8	6.0	15.6
<i>Carya pallida</i>	656	-2.3	2.7	4.2	5.7	7.2	9.0	12.1
<i>Carya texana</i>	649	-4.4	-1.1	0.9	3.8	7.0	9.2	11.4
<i>Carya tomentosa</i>	2831	-9.0	-3.4	-0.7	3.0	6.9	9.8	15.4
<i>Castanea alnifolia</i>	70	5.5	8.4	9.1	11.8	12.5	13.1	13.8
<i>Castanea dentata</i>	1137	-9.6	-5.7	-3.9	-0.7	2.0	4.0	9.9
<i>Castanea ozarkensis</i>	84	1.0	1.4	1.9	2.7	4.0	4.4	5.2
<i>Castanea pumila</i>	1340	-3.3	1.1	4.0	6.5	9.0	10.9	14.4
<i>Castanopsis chrysophylla</i>	119	-5.3	-0.9	0.5	2.7	4.2	5.5	9.2
<i>Celtis laevigata</i>	2446	-3.8	1.3	3.7	6.3	9.2	11.6	19.6
<i>Celtis occidentalis</i>	3123	-19.7	-11.7	-7.3	-4.2	-0.6	1.6	8.6
<i>Celtis reticulata</i>	1066	-8.4	0.3	2.6	5.7	9.5	12.4	22.5
<i>Cercidium floridum</i>	384	2.1	7.5	9.7	11.2	15.0	17.3	18.4
<i>Cercidium macrum</i>	167	12.3	14.2	14.6	15.1	15.8	16.8	18.1
<i>Cercidium microphyllum</i>	356	2.1	8.5	10.0	11.6	14.8	16.5	18.4
<i>Cercocarpus betuloides</i>	126	-1.4	1.2	3.3	5.7	8.6	9.9	12.0
<i>Cercocarpus breviflorus</i>	73	-1.0	-0.2	1.0	2.9	5.8	8.3	12.8
<i>Cercocarpus ledifolius</i>	323	-12.6	-9.7	-7.5	-4.9	-2.5	-0.8	9.4
<i>Cereus giganteus</i>	268	2.9	8.4	9.8	11.1	13.3	16.5	18.2
<i>Chilopsis linearis</i>	1212	0.7	5.0	7.1	9.7	12.5	13.1	16.6
<i>Cornus florida</i>	2927	-8.4	-4.2	-1.2	2.6	6.7	9.8	16.1
<i>Cornus stolonifera</i>	10191	-30.2	-24.5	-21.0	-15.9	-9.4	-5.6	13.5
<i>Corylus cornuta</i>	3760	-25.2	-20.9	-18.3	-12.0	-6.5	0.5	9.6
<i>Cowania mexicana</i>	598	-9.5	-3.6	-1.8	1.2	6.9	11.2	13.8
<i>Dalea spinosa</i>	165	6.2	9.2	9.9	10.5	11.3	12.2	14.9
<i>Diospyros virginiana</i>	2870	-4.9	-1.2	0.7	4.2	8.0	10.9	19.6
<i>Dodonaea viscosa</i>	1230	4.4	11.4	12.5	13.9	17.6	22.9	28.1
<i>Erythrina flabelliformis</i>	280	4.0	5.2	7.5	9.9	12.6	16.3	20.2
<i>Fagus grandifolia</i>	3389	-14.7	-10.6	-6.6	-1.4	4.7	8.4	13.4
<i>Forestiera phillyreoides</i> (southern range not available)	23	6.9	7.7	10.0	13.5	14.7	17.4	17.6
<i>Fraxinus americana</i>	4274	-15.6	-9.9	-6.4	-1.8	3.6	7.3	15.1
<i>Fraxinus anomala</i>	138	-7.4	-5.0	-3.4	-1.8	0.8	3.3	8.1
<i>Fraxinus berlandieriana</i>	312	9.1	11.8	12.5	13.2	14.5	15.0	15.6
<i>Fraxinus caroliniana</i>	656	0.8	5.5	7.4	9.8	11.7	15.2	18.1
<i>Fraxinus cuspidata</i>	18	-2.2	-0.3	2.9	9.6	11.9	12.6	13.8
<i>Fraxinus dipetala</i>	100	1.7	4.6	6.0	7.1	10.0	11.8	12.9
<i>Fraxinus greggii</i>	288	9.6	12.2	12.7	13.6	14.9	15.5	16.9
<i>Fraxinus latifolia</i>	234	-3.1	0.0	2.2	3.6	4.9	6.7	9.6
<i>Fraxinus nigra</i>	2928	-21.2	-18.6	-15.8	-11.3	-7.1	-4.7	-0.4
<i>Fraxinus pennsylvanica</i>	7355	-23.8	-16.6	-11.8	-4.9	2.4	7.5	12.6
<i>Fraxinus profunda</i>	246	-3.1	0.3	3.2	5.6	8.7	12.0	14.2
<i>Fraxinus quadrangulata</i>	529	-8.4	-5.1	-4.3	-2.1	0.0	1.8	6.0
<i>Fraxinus texensis</i>	40	4.2	7.2	7.6	9.1	9.5	10.2	12.4
<i>Fraxinus velutina</i>	157	-1.6	1.3	2.7	5.4	8.1	9.0	12.6
<i>Fremontodendron californicum</i>	61	0.7	3.9	5.5	6.3	7.4	8.6	10.5
<i>Gleditsia triacanthos</i>	2601	-11.0	-5.4	-3.2	0.6	5.3	9.0	12.5
<i>Holacantha emoryi</i>	131	5.8	8.9	9.8	10.5	11.1	11.4	12.5
<i>Ilex opaca</i>	1842	-4.0	1.2	3.6	6.2	9.1	11.2	16.4
<i>Ilex verticillata</i>	2800	-16.5	-12.2	-9.1	-4.6	0.5	4.2	14.6

HARDWOODS		January Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	9.4	9.4	9.9	11.0	11.8	12.0	12.3
<i>Juglans cinerea</i>	2184	-14.6	-10.2	-7.2	-4.3	-1.1	0.8	6.0
<i>Juglans major</i>	465	-1.0	4.0	5.7	8.8	13.6	18.8	26.2
<i>Juglans microcarpa</i>	54	-1.3	1.7	3.1	7.7	9.8	10.3	13.8
<i>Juglans nigra</i>	3470	-13.1	-6.6	-3.8	0.4	4.6	7.4	12.4
<i>Kalmia latifolia</i>	1402	-8.3	-5.0	-2.1	1.3	4.8	7.8	12.0
<i>Koeberlinia spinosa</i>	937	0.2	6.0	8.4	12.3	13.3	14.9	18.1
<i>Larrea divaricata</i>	1751	-2.5	4.3	7.1	10.4	12.6	13.7	18.4
<i>Liquidambar styraciflua</i>	2209	-3.6	0.1	2.6	5.7	9.0	11.7	25.3
<i>Liriodendron tulipifera</i>	2351	-9.6	-4.5	-1.7	2.3	6.7	9.9	15.5
<i>Lithocarpus densiflorus</i>	46	-1.7	2.3	3.4	4.9	7.2	8.1	9.6
<i>Lyonia ferruginea</i>	208	8.5	10.8	11.8	13.2	15.8	16.8	19.0
<i>Maclura pomifera</i>	182	4.1	5.2	5.8	7.8	9.7	10.7	11.7
<i>Magnolia acuminata</i>	753	-7.0	-4.6	-2.6	0.1	2.8	5.8	11.5
<i>Magnolia grandiflora</i>	573	6.0	8.2	9.0	10.0	11.5	13.4	16.3
<i>Magnolia virginiana</i>	1036	-2.9	4.0	6.3	8.7	10.8	14.4	18.8
<i>Morus microphylla</i>	112	0.2	2.1	3.7	6.5	8.1	9.6	12.8
<i>Morus rubra</i>	4197	-12.4	-5.4	-2.1	2.6	7.3	10.6	19.1
<i>Myrica heterophylla</i>	458	0.4	5.1	6.6	8.7	10.4	11.6	13.1
<i>Myrica inodora</i>	64	9.7	10.0	10.4	11.1	11.7	12.1	12.4
<i>Myrica pensylvanica</i>	193	-12.8	-7.7	-5.9	-3.8	-1.4	0.7	5.9
<i>Nolina bigelovii</i>	42	1.2	2.9	6.7	9.3	10.5	11.9	12.8
<i>Nyssa aquatica</i>	700	-2.4	2.6	5.2	7.9	10.1	11.2	13.0
<i>Nyssa ogeche</i>	119	8.9	9.9	10.4	11.5	12.0	12.4	13.5
<i>Nyssa sylvatica</i>	2960	-10.4	-4.3	-0.9	3.2	7.4	10.4	18.9
<i>Olneya tesota</i>	428	4.4	9.7	10.4	11.7	14.9	17.2	18.4
<i>Opuntia fulgida</i>	224	4.8	8.8	10.3	12.0	14.7	16.7	17.7
<i>Ostrya knowltonii</i>	8	-4.9	-4.9	-3.7	-1.8	-0.3	0.8	5.8
<i>Ostrya virginiana</i>	4747	-20.3	-12.6	-8.8	-3.6	2.8	8.2	25.6
<i>Platanus occidentalis</i>	3811	-10.2	-5.7	-3.3	1.3	6.0	9.1	12.4
<i>Populus balsamifera</i>	8595	-30.6	-27.1	-24.0	-20.2	-16.0	-10.6	-1.2
<i>Populus fremontii</i>	333	-8.2	-4.3	-1.6	2.9	7.4	10.0	12.3
<i>Populus grandidentata</i>	3057	-20.3	-17.1	-13.9	-9.7	-5.6	-2.9	2.7
<i>Populus heterophylla</i>	323	-5.3	-3.9	-0.6	3.3	6.6	8.6	12.4
<i>Populus tremuloides</i>	11232	-31.0	-27.6	-23.4	-18.6	-11.1	-6.2	13.6
<i>Prosopis juliflora</i>	3304	-0.7	5.1	7.7	11.7	14.8	18.6	28.1
<i>Prosopis pubescens</i>	239	-2.2	4.1	6.5	8.9	10.5	11.2	13.4
<i>Prunus serotina</i>	5424	-15.7	-9.5	-5.5	0.7	7.4	12.0	24.9
<i>Ptelea trifoliata</i>	3023	-12.2	-4.2	0.0	6.3	11.0	13.8	24.8
<i>Quercus agrifolia</i>	82	5.1	6.5	7.7	8.6	9.9	11.3	12.3
<i>Quercus alba</i>	3710	-14.3	-8.2	-5.0	-0.3	4.7	8.2	12.4
<i>Quercus arizonica</i>	94	-0.6	1.6	2.8	5.6	7.5	8.9	12.5
<i>Quercus arkansana</i>	20	5.4	5.5	5.7	6.0	7.2	10.9	11.7
<i>Quercus bicolor</i>	1294	-14.6	-8.8	-5.8	-4.2	-2.3	-0.5	3.9
<i>Quercus chapmanii</i>	126	9.0	11.9	12.7	14.4	15.8	16.3	18.0
<i>Quercus chrysolepis</i>	189	-3.1	-0.2	1.6	3.9	6.3	8.2	12.0
<i>Quercus coccinea</i>	1391	-8.4	-4.2	-1.7	0.5	3.2	5.6	10.7
<i>Quercus douglasii</i>	91	2.1	4.5	5.6	6.5	7.5	8.4	9.7
<i>Quercus dumii</i>	40	-0.9	3.5	4.9	7.2	8.7	9.7	11.2
<i>Quercus durandii</i>	271	4.1	5.7	6.7	7.9	9.1	10.2	14.2

HARDWOODS		January Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Quercus ellipsoidalis</i>	442	-17.0	-14.7	-12.7	-10.2	-8.5	-6.2	-4.5
<i>Quercus emoryi</i>	57	1.6	3.7	4.9	7.0	8.3	9.2	9.8
<i>Quercus engelmannii</i>	8	8.4	8.4	8.6	9.6	11.2	12.0	12.2
<i>Quercus falcata</i>	2009	-1.8	1.1	2.8	5.5	8.5	10.5	14.4
<i>Quercus gambelii</i>	503	-12.0	-9.1	-7.2	-4.4	-1.3	1.5	12.5
<i>Quercus garryana</i>	193	-4.1	-0.4	1.1	2.7	3.8	4.6	8.5
<i>Quercus georgiana</i>	7	5.3	5.3	5.9	6.3	6.3	6.5	6.8
<i>Quercus glaucoides</i>	32	8.1	8.3	9.0	9.7	10.1	12.5	16.4
<i>Quercus gravesii</i>	8	7.7	7.7	8.3	9.0	11.9	12.3	12.7
<i>Quercus grisea</i>	44	-2.2	-0.6	0.5	2.8	6.2	8.3	12.8
<i>Quercus havardii</i>	121	0.8	1.6	3.3	4.4	5.8	6.6	8.8
<i>Quercus hypoleucoides</i>	55	-1.5	1.0	5.2	6.0	6.9	8.3	10.8
<i>Quercus ilicifolia</i>	307	-9.6	-5.9	-4.8	-3.2	-1.6	-0.5	1.8
<i>Quercus imbricaria</i>	1000	-7.6	-4.9	-4.1	-2.2	0.1	1.7	9.8
<i>Quercus incana</i>	583	3.9	6.4	7.6	9.6	11.6	14.2	17.3
<i>Quercus kelloggii</i>	124	-3.6	-1.1	0.8	3.0	5.5	7.2	9.6
<i>Quercus laevis</i>	568	3.8	6.1	7.4	9.7	11.7	14.8	17.5
<i>Quercus laurifolia</i>	792	2.4	5.7	7.4	9.2	11.0	14.3	18.6
<i>Quercus lobata</i>	142	3.6	5.4	6.3	7.4	7.8	8.5	12.0
<i>Quercus lyrata</i>	1356	-4.2	2.9	5.1	7.2	9.5	11.0	13.3
<i>Quercus macrocarpa</i>	3667	-22.7	-16.6	-12.5	-6.8	-1.7	2.4	13.3
<i>Quercus marilandica</i>	2744	-6.3	-1.1	1.3	4.6	7.7	10.0	13.3
<i>Quercus michauxii</i>	1418	-2.3	2.2	4.4	6.9	9.4	11.2	14.5
<i>Quercus mohriana</i>	107	-0.6	3.3	6.3	7.8	8.6	9.2	13.2
<i>Quercus muehlenbergii</i>	2637	-10.8	-5.6	-3.3	0.2	4.2	7.5	13.1
<i>Quercus myrtifolia</i>	144	8.7	11.7	13.0	14.8	16.2	17.0	19.0
<i>Quercus nigra</i>	1551	1.2	3.9	5.2	7.2	9.7	11.6	15.9
<i>Quercus nuttallii</i>	410	0.9	3.8	5.6	7.5	9.2	10.1	12.5
<i>Quercus oblongifolia</i>	29	5.9	7.5	7.8	8.6	9.4	10.1	12.4
<i>Quercus oglethorpensis</i>	6	6.0	6.0	6.2	6.3	6.6	6.6	6.7
<i>Quercus palustris</i>	1358	-8.1	-5.1	-4.0	-1.7	0.5	2.4	4.5
<i>Quercus phellos</i>	1456	-1.7	2.0	3.9	6.0	8.5	10.1	13.1
<i>Quercus prinus</i>	1190	-10.1	-4.9	-2.6	0.1	2.7	4.8	8.4
<i>Quercus pungens</i>	43	1.7	5.8	8.7	9.2	9.8	10.2	12.8
<i>Quercus rubra</i>	4296	-18.4	-13.3	-9.8	-4.9	0.2	3.8	10.2
<i>Quercus rugosa</i>	707	-0.2	6.3	9.6	13.3	15.6	18.0	26.2
<i>Quercus shumardii</i>	2257	-5.6	-1.0	1.7	5.6	8.4	10.4	14.2
<i>Quercus stellata</i>	3185	-6.4	-1.7	0.6	4.2	7.4	10.1	15.9
<i>Quercus toumeyi</i>	11	5.4	5.4	5.7	7.6	8.3	8.9	9.2
<i>Quercus turbinella</i>	120	-3.8	0.8	3.2	6.1	8.8	10.0	14.9
<i>Quercus velutina</i>	3416	-12.0	-6.2	-3.9	0.4	4.9	8.1	12.1
<i>Quercus virginiana</i>	740	3.1	7.4	9.6	11.2	12.5	15.9	19.6
<i>Quercus wislizeni</i>	118	-1.3	2.9	4.5	6.1	7.5	8.6	10.8
<i>Rhamnus betulaeefolia</i>	266	-4.9	0.3	4.7	6.4	8.8	10.5	14.5
<i>Rhamnus californica</i>	301	-3.1	1.5	3.7	6.4	8.4	9.7	12.9
<i>Rhamnus crocea</i>	193	-1.6	3.8	5.7	7.9	9.9	12.0	15.7
<i>Rhamnus purshiana</i>	492	-14.4	-8.7	-5.4	-0.2	2.9	4.1	7.8
<i>Rhododendron macrophyllum</i>	98	-8.2	-0.8	1.7	3.6	5.0	6.9	8.1
<i>Rhus choriophylla</i>	22	2.6	4.5	5.8	8.0	8.9	9.3	9.8
<i>Rhus glabra</i>	4432	-23.1	-12.1	-6.8	-2.4	2.3	5.8	16.4

HARDWOODS				January Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	1.6	6.2	7.6	10.3	12.4	12.9	15.2
<i>Rhus ovata</i>	71	1.6	4.4	7.7	9.4	11.2	12.3	15.0
<i>Robinia neomexicana</i>	82	-6.6	-3.5	-0.7	1.7	3.3	5.7	8.7
<i>Robinia pseudoacacia</i>	665	-5.5	-2.6	-0.9	0.3	2.3	4.0	8.1
<i>Sabal palmetto</i>	170	8.2	12.2	13.9	15.8	17.3	18.4	19.6
<i>Salix alaxensis</i>	3758	-34.8	-29.6	-27.9	-24.9	-19.4	-14.5	0.0
<i>Salix arbusculoides</i>	4708	-34.2	-30.2	-28.6	-26.0	-22.7	-19.3	-7.9
<i>Sambucus mexicana</i>	261	-1.6	7.7	10.7	12.7	15.5	19.5	28.3
<i>Sapium biloculare</i>	171	8.7	10.7	12.1	14.7	16.6	17.4	18.4
<i>Sassafras albidum</i>	3246	-8.7	-4.5	-1.7	2.5	6.7	9.8	15.5
<i>Shepherdia argentea</i>	1514	-20.5	-16.5	-14.6	-11.4	-8.2	-6.5	7.7
<i>Tilia americana</i>	3327	-19.8	-14.5	-11.2	-6.7	-3.3	-0.7	4.0
<i>Tilia heterophylla</i>	828	-5.1	-1.6	-0.3	2.0	5.0	6.5	11.7
<i>Ulmus alata</i>	1818	-2.6	0.9	2.8	5.4	7.9	9.9	16.8
<i>Ulmus americana</i>	7818	-23.1	-17.4	-12.2	-5.1	2.5	7.7	17.3
<i>Ulmus crassifolia</i>	696	3.4	5.3	6.4	8.4	11.2	14.2	15.5
<i>Ulmus rubra</i>	4253	-16.7	-10.3	-6.4	-2.1	3.1	6.1	12.4
<i>Ulmus serotina</i>	64	-1.6	1.6	2.2	3.0	5.1	5.6	6.0
<i>Ulmus thomasii</i>	1210	-16.9	-11.8	-9.5	-6.7	-4.8	-2.9	3.4
<i>Umbellularia californica</i>	127	-1.5	2.7	4.1	6.0	7.5	8.6	12.0
<i>Vauquelinia californica</i>	11	5.7	5.7	8.7	10.8	14.4	14.9	15.3
<i>Yucca brevifolia</i>	94	-0.1	1.7	3.9	6.4	7.5	8.8	11.5
<i>Yucca carnerosana</i>	10	6.2	6.2	10.3	11.1	12.6	14.1	15.1
<i>Yucca elata</i>	386	-2.7	3.7	5.4	7.4	9.2	10.6	12.5
<i>Yucca faxoniana</i>	9	7.1	7.1	7.2	7.5	7.9	8.2	8.5
<i>Yucca mohavensis</i>	100	-0.6	5.0	7.0	8.7	10.1	11.3	12.5
<i>Yucca rostrata</i>	6	11.1	11.1	12.5	12.6	12.7	12.7	12.7
<i>Yucca schottii</i>	13	5.4	5.4	6.3	7.8	8.7	9.2	9.6
<i>Yucca torreyi</i>	313	1.8	6.6	8.3	10.1	11.6	12.5	14.9
<i>Yucca treculeana</i>	361	10.2	12.0	13.0	14.3	15.3	16.8	18.4

HARDWOODS				July Temperature (°C)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Acacia greggii</i>	1422	14.8	25.4	27.0	28.7	30.2	31.3	34.2	
<i>Acer barbatum</i>	636	24.9	25.6	26.1	26.8	27.2	27.6	28.2	
<i>Acer circinatum</i>	334	8.5	12.6	15.0	16.6	17.9	19.2	25.0	
<i>Acer glabrum</i>	1738	7.1	11.2	12.6	14.6	17.2	19.1	28.3	
<i>Acer grandidentatum</i>	103	11.2	14.2	16.5	19.4	21.8	28.1	29.2	
<i>Acer leucoderme</i>	191	24.2	25.4	25.9	26.4	26.7	27.3	28.0	
<i>Acer macrophyllum</i>	362	7.8	12.9	15.0	17.0	18.8	21.2	27.6	
<i>Acer negundo</i>	6534	8.7	18.2	20.6	23.1	25.9	27.6	29.8	
<i>Acer nigrum</i>	1494	17.9	20.6	21.8	22.9	24.2	25.3	26.5	
<i>Acer pensylvanicum</i>	1103	14.3	17.1	18.0	18.8	20.2	21.4	25.3	
<i>Acer rubrum</i>	4842	13.5	17.8	19.5	22.8	26.5	27.4	28.8	
<i>Acer saccharinum</i>	3792	15.2	19.6	21.4	23.5	25.6	26.9	28.2	
<i>Acer saccharum</i>	3424	13.5	17.3	18.6	20.8	23.1	25.1	26.9	
<i>Acer spicatum</i>	3076	11.5	15.8	16.8	17.9	19.4	20.8	24.6	
<i>Aesculus californica</i>	107	10.8	17.9	20.0	22.5	24.5	25.6	27.6	
<i>Aesculus glabra</i>	1412	20.2	22.7	23.9	25.4	26.8	28.4	29.4	
<i>Aesculus octandra</i>	383	18.0	20.9	22.0	23.3	24.0	25.0	25.7	
<i>Agave utahensis</i>	48	19.9	21.8	23.0	26.3	28.5	30.3	33.8	
<i>Alnus oblongifolia</i>	50	17.1	18.2	20.0	22.8	23.9	25.5	28.3	
<i>Alnus rhombifolia</i>	219	11.9	16.2	17.9	19.6	22.3	24.6	27.6	
<i>Alnus rubra</i>	442	7.9	11.0	12.4	14.3	16.9	18.5	21.3	
<i>Alnus rugosa</i>	8293	7.1	13.0	14.4	15.9	17.7	19.5	23.5	
<i>Alnus serrulata</i>	2148	15.6	20.8	22.8	25.5	26.9	27.3	29.1	
<i>Alnus sinuata</i>	1601	7.6	10.7	11.8	12.9	14.7	16.8	22.9	
<i>Alnus tenuifolia</i>	3862	7.1	11.9	13.1	14.5	15.5	16.6	28.3	
<i>Amelanchier alnifolia</i>	5719	7.1	12.2	14.0	15.5	17.7	20.9	27.6	
<i>Amelanchier arborea</i>	4166	13.9	18.0	19.5	22.5	25.3	26.7	28.5	
<i>Amelanchier utahensis</i>	364	9.0	12.7	14.9	17.9	20.3	22.6	31.4	
<i>Arbutus arizonica</i>	181	19.1	19.5	19.9	20.8	21.7	23.1	26.6	
<i>Arbutus menziesii</i>	191	9.7	14.1	15.7	16.9	18.5	20.0	23.5	
<i>Arbutus texana</i>	25	20.2	25.0	25.5	28.1	28.4	28.7	29.6	
<i>Arctostaphylos pringlei</i>	13	21.0	21.0	22.6	25.6	27.5	28.3	28.5	
<i>Artemisia tridentata</i>	1700	8.0	15.5	17.7	19.9	21.5	23.1	30.9	
<i>Betula alleghaniensis</i>	2260	13.1	16.7	17.8	19.2	20.7	21.8	25.4	
<i>Betula lenta</i>	752	17.2	19.3	20.2	21.4	22.7	23.6	26.1	
<i>Betula nana</i>	6531	4.5	9.3	10.5	12.3	13.9	15.0	16.4	
<i>Betula nigra</i>	2113	19.0	23.3	24.9	26.0	27.1	27.6	28.9	
<i>Betula occidentalis</i>	1085	7.1	12.4	15.0	17.1	18.3	19.5	30.8	
<i>Betula papyrifera</i>	10207	7.1	12.1	13.6	15.3	17.0	18.8	23.5	
<i>Betula populifolia</i>	624	14.3	17.5	18.2	19.2	20.6	21.9	24.1	
<i>Bursera fagaroides</i>	763	14.1	19.3	20.5	23.6	27.3	29.4	31.9	
<i>Bursera microphylla</i>	211	22.1	25.0	27.6	29.6	30.2	30.8	33.3	
<i>Canotia holacantha</i>	68	22.4	23.8	26.0	28.4	30.2	31.2	32.5	
<i>Carpinus caroliniana</i>	4072	14.1	19.4	21.2	23.8	26.2	27.3	29.8	
<i>Carya aquatica</i>	979	25.6	26.6	27.1	27.4	27.6	27.9	29.1	
<i>Carya cordiformis</i>	3774	17.8	20.8	22.4	24.8	26.4	27.4	29.2	
<i>Carya floridana</i>	45	27.3	27.3	27.4	27.4	27.5	27.5	27.5	
<i>Carya glabra</i>	2882	17.5	21.8	23.3	25.4	26.8	27.3	28.2	
<i>Carya illinoensis</i>	1057	19.0	25.3	26.4	27.7	28.4	29.0	30.1	
<i>Carya laciniata</i>	895	20.0	22.3	23.0	24.5	25.4	26.2	27.5	

HARDWOODS		July Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	26.6	26.9	27.5	27.8	27.9	28.3	28.6
<i>Carya ovata</i>	3038	16.7	20.6	22.1	24.1	25.8	27.0	29.8
<i>Carya pallida</i>	656	18.1	24.5	25.5	26.1	26.8	27.2	27.5
<i>Carya texana</i>	649	24.6	25.4	25.9	27.5	28.0	28.6	29.3
<i>Carya tomentosa</i>	2831	17.9	22.1	24.1	25.7	27.1	27.5	29.2
<i>Castanea alnifolia</i>	70	26.1	26.9	27.1	27.3	27.3	27.4	27.5
<i>Castanea dentata</i>	1137	17.5	20.0	21.2	22.7	24.5	25.8	27.4
<i>Castanea ozarkensis</i>	84	25.2	25.7	25.9	26.5	27.0	27.3	27.7
<i>Castanea pumila</i>	1340	18.0	23.5	25.4	26.7	27.3	27.6	28.6
<i>Castanopsis chrysophylla</i>	119	10.5	15.1	16.3	17.6	18.8	19.5	21.4
<i>Celtis laevigata</i>	2446	21.9	25.5	26.3	27.3	27.9	28.7	31.9
<i>Celtis occidentalis</i>	3123	18.6	21.4	22.3	23.7	25.3	26.5	28.9
<i>Celtis reticulata</i>	1066	11.2	22.9	25.3	27.0	28.3	29.0	33.1
<i>Cercidium floridum</i>	384	22.4	27.4	28.8	30.0	30.8	31.9	34.1
<i>Cercidium macrum</i>	167	20.5	26.9	28.3	29.5	30.2	30.6	31.7
<i>Cercidium microphyllum</i>	356	22.4	27.5	29.2	30.0	30.6	31.5	33.8
<i>Cercocarpus betuloides</i>	126	13.5	16.6	17.8	20.0	23.3	25.8	30.8
<i>Cercocarpus breviflorus</i>	73	17.1	18.6	20.4	23.6	24.8	26.1	30.8
<i>Cercocarpus ledifolius</i>	323	10.4	13.1	15.5	17.2	19.4	21.3	30.1
<i>Cereus giganteus</i>	268	23.2	28.2	29.5	30.1	30.8	31.9	33.8
<i>Chilopsis linearis</i>	1212	18.2	23.0	25.2	26.8	28.7	30.5	34.4
<i>Cornus florida</i>	2927	17.9	21.6	23.2	25.6	27.0	27.5	29.2
<i>Cornus stolonifera</i>	10191	7.7	12.8	14.5	16.2	18.5	21.2	29.4
<i>Corylus cornuta</i>	3760	8.0	15.5	16.4	18.0	19.6	21.3	26.7
<i>Cowania mexicana</i>	598	12.3	19.4	20.3	22.0	24.1	25.6	31.4
<i>Dalea spinosa</i>	165	24.2	28.7	30.1	30.9	31.9	32.5	34.1
<i>Diospyros virginiana</i>	2870	18.0	23.4	25.1	26.4	27.3	27.8	29.4
<i>Dodonaea viscosa</i>	1230	14.1	19.2	20.4	23.2	26.8	28.5	31.6
<i>Erythrina flabelliformis</i>	280	19.1	19.7	20.3	21.3	23.6	26.9	29.9
<i>Fagus grandifolia</i>	3389	14.3	18.3	19.9	22.9	25.9	27.2	28.4
<i>Forestiera phillyreoides</i> (southern range not available)	23	19.5	20.3	21.3	23.5	29.7	29.9	32.6
<i>Fraxinus americana</i>	4274	14.4	18.5	20.7	23.8	26.0	27.4	29.3
<i>Fraxinus anomala</i>	138	14.3	20.6	22.2	24.2	25.6	27.2	33.1
<i>Fraxinus berlandieriana</i>	312	18.7	24.2	28.3	29.7	30.7	31.4	32.3
<i>Fraxinus caroliniana</i>	656	24.4	25.9	26.7	27.2	27.4	27.6	28.4
<i>Fraxinus cuspidata</i>	18	19.1	19.6	22.1	24.2	28.9	29.6	31.0
<i>Fraxinus dipetala</i>	100	14.3	20.2	22.0	22.5	24.1	25.1	28.2
<i>Fraxinus greggii</i>	288	17.4	20.5	21.8	24.2	29.4	30.3	31.3
<i>Fraxinus latifolia</i>	234	12.5	15.4	16.8	18.6	21.3	24.4	28.2
<i>Fraxinus nigra</i>	2928	13.5	16.2	17.4	18.8	20.7	22.2	25.2
<i>Fraxinus pennsylvanica</i>	7355	14.3	18.2	20.2	23.0	26.0	27.5	29.5
<i>Fraxinus profunda</i>	246	23.3	25.4	25.7	26.1	27.0	27.3	27.7
<i>Fraxinus quadrangulata</i>	529	22.0	22.7	23.4	24.2	25.3	25.7	27.7
<i>Fraxinus texensis</i>	40	27.7	27.9	28.3	28.7	29.1	29.3	29.5
<i>Fraxinus velutina</i>	157	18.1	21.2	23.0	24.6	26.8	28.4	31.8
<i>Fremontodendron californicum</i>	61	17.7	20.3	23.0	24.5	25.8	26.9	30.2
<i>Gleditsia triacanthos</i>	2601	17.9	22.6	24.0	25.7	27.4	28.1	29.4
<i>Holacantha emoryi</i>	131	28.5	29.8	30.2	31.0	32.2	32.7	33.8
<i>Ilex opaca</i>	1842	17.9	23.6	25.5	26.8	27.4	27.8	29.0
<i>Ilex verticillata</i>	2800	15.1	18.2	19.5	21.6	23.9	25.5	27.6

HARDWOODS		July Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	20.0	20.0	21.4	21.9	22.9	23.1	23.4
<i>Juglans cinerea</i>	2184	15.2	19.5	20.8	22.4	24.0	25.3	27.4
<i>Juglans major</i>	465	17.1	19.9	20.8	22.5	24.7	26.8	31.3
<i>Juglans microcarpa</i>	54	17.6	20.9	25.4	27.8	28.6	29.4	31.3
<i>Juglans nigra</i>	3470	18.0	22.0	23.3	25.3	26.7	27.9	29.4
<i>Kalmia latifolia</i>	1402	17.9	20.2	21.9	24.0	25.7	27.0	27.5
<i>Koeberlinia spinosa</i>	937	17.4	20.7	24.2	26.6	28.8	30.3	32.3
<i>Larrea divaricata</i>	1751	18.0	22.2	25.2	27.4	29.7	31.0	34.4
<i>Liquidambar styraciflua</i>	2209	15.4	23.6	25.1	26.6	27.3	27.7	28.9
<i>Liriodendron tulipifera</i>	2351	17.5	21.4	22.7	25.1	26.7	27.3	27.9
<i>Lithocarpus densiflorus</i>	46	10.8	13.8	15.7	17.0	18.8	20.3	24.1
<i>Lyonia ferruginea</i>	208	26.8	27.2	27.3	27.4	27.4	27.5	27.6
<i>Maclura pomifera</i>	182	27.5	27.9	28.4	28.7	28.9	29.1	29.4
<i>Magnolia acuminata</i>	753	17.9	20.1	21.4	23.0	25.3	26.5	27.7
<i>Magnolia grandiflora</i>	573	25.8	26.9	27.1	27.3	27.5	27.9	28.6
<i>Magnolia virginiana</i>	1036	21.8	25.6	26.5	27.1	27.4	27.6	28.6
<i>Morus microphylla</i>	112	18.8	22.8	24.4	26.6	28.3	28.6	30.8
<i>Morus rubra</i>	4197	17.9	22.3	24.0	26.0	27.4	28.2	30.0
<i>Myrica heterophylla</i>	458	24.6	25.8	26.4	27.0	27.3	27.4	27.8
<i>Myrica inodora</i>	64	27.1	27.1	27.3	27.3	27.4	27.5	27.6
<i>Myrica pensylvanica</i>	193	13.9	17.5	18.6	21.5	22.9	24.3	25.7
<i>Nolina bigelovii</i>	42	22.0	24.2	26.2	29.5	30.8	31.3	31.9
<i>Nyssa aquatica</i>	700	24.7	25.9	26.6	27.2	27.5	27.7	28.4
<i>Nyssa ogeche</i>	119	26.9	27.1	27.2	27.3	27.3	27.4	27.4
<i>Nyssa sylvatica</i>	2960	15.0	21.6	23.1	25.6	27.2	27.5	29.2
<i>Olneya tesota</i>	428	24.7	28.2	29.4	30.1	31.0	32.1	33.8
<i>Opuntia fulgida</i>	224	23.5	26.1	28.3	29.8	30.4	31.3	32.7
<i>Ostrya knowltonii</i>	8	19.5	19.5	21.1	21.5	25.1	26.3	27.9
<i>Ostrya virginiana</i>	4747	14.6	18.5	20.1	23.0	25.5	27.0	28.6
<i>Platanus occidentalis</i>	3811	17.8	21.4	23.2	25.4	27.0	27.8	31.0
<i>Populus balsamifera</i>	8595	6.5	12.6	14.0	15.5	17.1	18.7	23.6
<i>Populus fremontii</i>	333	14.1	20.0	22.2	24.6	26.8	30.6	34.1
<i>Populus grandidentata</i>	3057	13.5	16.5	17.8	19.5	21.6	22.8	25.4
<i>Populus heterophylla</i>	323	21.1	22.7	24.7	25.8	26.6	27.0	27.8
<i>Populus tremuloides</i>	11232	7.1	12.6	13.9	15.6	17.9	20.8	28.9
<i>Prosopis juliflora</i>	3304	14.1	21.2	25.2	27.6	29.2	30.6	34.4
<i>Prosopis pubescens</i>	239	19.6	25.7	27.6	30.5	32.0	33.1	34.4
<i>Prunus serotina</i>	5424	14.1	19.3	21.2	23.8	26.2	27.4	31.3
<i>Ptelea trifoliata</i>	3023	14.1	20.7	23.0	25.9	27.4	28.4	32.3
<i>Quercus agrifolia</i>	82	13.1	16.4	19.1	21.2	23.3	24.7	27.8
<i>Quercus alba</i>	3710	17.6	20.5	22.1	24.6	26.4	27.3	28.7
<i>Quercus arizonica</i>	94	18.2	20.3	21.8	23.8	25.3	28.4	31.3
<i>Quercus arkansana</i>	20	26.4	26.7	27.0	27.4	27.5	27.6	27.8
<i>Quercus bicolor</i>	1294	17.9	21.1	21.9	23.0	24.4	25.3	26.3
<i>Quercus chapmanii</i>	126	26.9	27.3	27.3	27.4	27.5	27.5	27.6
<i>Quercus chrysolepis</i>	189	13.1	16.6	17.9	20.3	23.3	25.0	33.8
<i>Quercus coccinea</i>	1391	17.9	20.9	22.1	24.0	25.4	26.2	27.7
<i>Quercus douglasii</i>	91	13.1	19.2	21.7	23.8	25.5	26.6	28.4
<i>Quercus dumii</i>	40	19.5	22.4	24.2	25.3	27.4	28.3	30.2
<i>Quercus durandii</i>	271	25.7	26.9	27.2	28.0	28.7	29.1	29.5

HARDWOODS		July Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Quercus ellipsoidalis</i>	442	18.0	19.9	21.1	21.8	22.6	23.1	24.4
<i>Quercus emoryi</i>	57	21.0	22.9	24.4	25.1	26.9	28.0	31.3
<i>Quercus engelmannii</i>	8	21.5	21.5	22.0	22.8	24.4	24.7	25.2
<i>Quercus falcata</i>	2009	18.2	24.5	25.5	26.7	27.3	27.8	28.9
<i>Quercus gambelii</i>	503	9.7	13.6	16.7	19.3	21.5	24.1	29.3
<i>Quercus garryana</i>	193	9.7	15.9	16.8	18.0	19.2	21.1	25.0
<i>Quercus georgiana</i>	7	25.8	25.8	25.9	26.0	26.0	26.1	26.5
<i>Quercus glaucooides</i>	32	26.9	27.2	27.6	28.0	28.6	28.9	30.3
<i>Quercus gravesii</i>	8	25.1	25.1	25.1	26.2	27.3	29.7	31.8
<i>Quercus grisea</i>	44	18.2	18.8	20.3	23.8	25.4	26.2	28.0
<i>Quercus havardii</i>	121	24.6	25.4	26.2	27.2	28.0	28.5	29.2
<i>Quercus hypoleucoides</i>	55	18.0	20.1	20.8	23.0	24.4	26.2	30.4
<i>Quercus ilicifolia</i>	307	17.5	19.8	20.5	21.7	22.6	23.5	24.8
<i>Quercus imbricaria</i>	1000	18.3	22.1	23.1	24.6	25.4	25.8	27.8
<i>Quercus incana</i>	583	25.6	26.4	26.9	27.2	27.4	27.5	29.2
<i>Quercus kelloggii</i>	124	13.5	16.6	17.8	19.6	22.0	24.1	26.9
<i>Quercus laevis</i>	568	25.5	26.1	26.8	27.2	27.3	27.4	27.6
<i>Quercus laurifolia</i>	792	24.6	26.0	26.8	27.2	27.4	27.7	29.4
<i>Quercus lobata</i>	142	13.1	19.0	22.1	24.7	26.3	27.7	28.7
<i>Quercus lyrata</i>	1356	23.7	25.7	26.4	27.1	27.5	27.9	29.0
<i>Quercus macrocarpa</i>	3667	15.5	18.8	20.6	22.8	25.3	27.7	29.6
<i>Quercus marilandica</i>	2744	18.0	24.4	25.4	26.6	27.5	28.6	29.5
<i>Quercus michauxii</i>	1418	18.0	25.4	26.0	27.0	27.4	27.7	28.4
<i>Quercus mohriana</i>	107	23.4	25.7	27.4	27.9	28.2	28.4	29.4
<i>Quercus muehlenbergii</i>	2637	18.1	22.1	23.4	25.3	26.8	27.9	29.4
<i>Quercus myrtifolia</i>	144	26.9	27.3	27.3	27.4	27.5	27.5	27.6
<i>Quercus nigra</i>	1551	23.5	25.7	26.5	27.2	27.6	28.1	29.3
<i>Quercus nuttallii</i>	410	26.2	26.9	27.2	27.4	27.6	27.7	28.1
<i>Quercus oblongifolia</i>	29	21.5	22.5	23.5	24.8	26.6	27.7	29.2
<i>Quercus oglethorpensis</i>	6	26.2	26.2	26.3	26.4	26.5	26.5	26.6
<i>Quercus palustris</i>	1358	19.1	22.1	23.0	24.4	25.4	26.4	27.8
<i>Quercus phellos</i>	1456	22.7	25.2	25.9	26.9	27.5	27.9	28.9
<i>Quercus prinus</i>	1190	17.9	20.5	21.8	23.5	25.1	25.8	27.2
<i>Quercus pungens</i>	43	23.0	24.6	27.5	28.0	28.5	28.9	29.1
<i>Quercus rubra</i>	4296	13.5	17.9	19.6	22.3	25.0	26.1	28.1
<i>Quercus rugosa</i>	707	14.1	17.8	19.9	21.1	22.9	24.9	30.4
<i>Quercus shumardii</i>	2257	20.8	24.8	25.7	26.9	27.6	28.5	29.5
<i>Quercus stellata</i>	3185	17.9	23.4	25.2	26.6	27.6	28.5	29.6
<i>Quercus toumeyi</i>	11	21.3	21.3	24.1	24.8	26.4	28.3	28.4
<i>Quercus turbinella</i>	120	17.9	21.1	23.0	24.9	27.0	29.9	32.1
<i>Quercus velutina</i>	3416	17.9	21.5	22.9	25.1	26.6	27.4	28.9
<i>Quercus virginiana</i>	740	18.7	27.2	27.4	27.7	28.8	29.3	31.8
<i>Quercus wislizeni</i>	118	13.1	17.9	19.7	22.4	24.9	26.1	27.8
<i>Rhamnus betulaefolia</i>	266	14.8	19.8	20.4	21.5	23.4	25.3	28.9
<i>Rhamnus californica</i>	301	10.8	17.0	19.3	22.4	24.8	26.6	33.1
<i>Rhamnus crocea</i>	193	13.1	18.3	22.0	23.1	25.2	27.4	30.8
<i>Rhamnus purshiana</i>	492	7.8	12.1	14.1	16.3	18.0	19.2	24.3
<i>Rhododendron macrophyllum</i>	98	8.5	13.5	15.8	16.7	18.0	18.9	20.6
<i>Rhus choriophylla</i>	22	20.4	21.9	24.1	25.2	26.4	27.2	27.4
<i>Rhus glabra</i>	4432	10.5	19.9	21.9	24.0	26.0	27.3	29.4

HARDWOODS				July Temperature (°C)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Rhus microphylla</i>	958	18.5	21.0	24.6	26.6	28.0	28.8	31.2	
<i>Rhus ovata</i>	71	18.1	22.0	22.4	24.3	26.7	28.4	30.8	
<i>Robinia neomexicana</i>	82	14.1	18.8	20.1	22.7	24.4	25.5	28.4	
<i>Robinia pseudoacacia</i>	665	17.9	20.8	22.1	23.6	25.4	26.5	27.9	
<i>Sabal palmetto</i>	170	26.8	27.3	27.3	27.4	27.5	27.5	28.0	
<i>Salix alaxensis</i>	3758	4.2	9.3	11.2	12.6	13.9	14.9	16.3	
<i>Salix arbusculoides</i>	4708	7.0	11.3	12.5	14.0	15.1	15.8	17.9	
<i>Sambucus mexicana</i>	261	14.1	15.7	18.3	21.4	23.6	26.6	32.5	
<i>Sapium biloculare</i>	171	23.6	26.6	28.5	29.8	30.2	30.6	31.9	
<i>Sassafras albidum</i>	3246	17.9	21.5	23.2	25.6	27.1	27.6	29.1	
<i>Shepherdia argentea</i>	1514	8.0	17.6	18.9	20.6	21.9	23.3	28.1	
<i>Tilia americana</i>	3327	15.2	18.2	19.6	21.6	23.4	25.2	27.4	
<i>Tilia heterophylla</i>	828	17.9	21.3	22.8	24.6	25.9	26.5	27.4	
<i>Ulmus alata</i>	1818	20.8	25.1	25.7	26.7	27.5	28.1	29.4	
<i>Ulmus americana</i>	7818	13.5	17.6	19.3	22.8	26.0	27.5	29.6	
<i>Ulmus crassifolia</i>	696	26.7	27.6	27.8	28.7	29.2	30.1	31.9	
<i>Ulmus rubra</i>	4253	15.9	19.9	21.9	24.2	26.0	27.3	29.5	
<i>Ulmus serotina</i>	64	23.6	25.3	25.4	25.9	27.3	27.7	27.9	
<i>Ulmus thomasi</i>	1210	18.0	19.7	20.9	22.2	23.5	24.8	26.8	
<i>Umbellularia californica</i>	127	10.8	15.1	16.8	19.3	22.1	24.3	27.8	
<i>Vauquelinia californica</i>	11	25.0	25.0	26.1	27.5	28.4	29.6	31.6	
<i>Yucca brevifolia</i>	94	22.7	25.2	26.7	28.2	30.5	31.4	33.5	
<i>Yucca carnerosana</i>	10	21.6	21.6	25.0	27.5	28.9	30.2	30.4	
<i>Yucca elata</i>	386	19.9	24.6	25.6	26.5	27.9	30.1	32.7	
<i>Yucca faxoniana</i>	9	24.6	24.6	24.9	26.0	26.1	26.2	26.4	
<i>Yucca mohavensis</i>	100	21.5	23.4	26.6	29.2	31.0	32.5	34.2	
<i>Yucca rostrata</i>	6	23.7	23.7	28.9	30.1	30.9	30.9	31.5	
<i>Yucca schottii</i>	13	22.6	22.6	24.4	25.2	26.4	27.7	28.3	
<i>Yucca torreyi</i>	313	19.6	25.1	26.1	27.3	28.7	29.6	31.2	
<i>Yucca treculeana</i>	361	18.7	26.1	28.1	29.4	30.5	31.3	32.3	

HARDWOODS			Annual Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	55	130	245	305	440	575	880
<i>Acer barbatum</i>	636	725	1150	1190	1285	1370	1405	1555
<i>Acer circinatum</i>	334	520	845	1080	1350	1750	2090	4250
<i>Acer glabrum</i>	1738	105	375	505	745	1140	1800	4370
<i>Acer grandidentatum</i>	103	170	305	390	510	680	810	1175
<i>Acer leucoderme</i>	191	1120	1175	1205	1335	1385	1415	1535
<i>Acer macrophyllum</i>	362	305	610	1005	1360	1880	2475	4370
<i>Acer negundo</i>	6534	95	360	455	820	1100	1330	3330
<i>Acer nigrum</i>	1494	620	790	850	920	1025	1140	1490
<i>Acer pennsylvanicum</i>	1103	725	880	975	1045	1125	1230	1560
<i>Acer rubrum</i>	4842	550	795	950	1100	1270	1385	1630
<i>Acer saccharinum</i>	3792	585	775	875	1010	1175	1355	1605
<i>Acer saccharum</i>	3424	490	770	860	970	1075	1185	1525
<i>Acer spicatum</i>	3076	415	620	760	895	1045	1160	1560
<i>Aesculus californica</i>	107	265	320	445	620	905	1170	2175
<i>Aesculus glabra</i>	1412	575	830	895	955	1065	1195	1485
<i>Aesculus octandra</i>	383	930	1030	1065	1150	1320	1415	1560
<i>Agave utahensis</i>	48	80	115	150	220	290	335	500
<i>Alnus oblongifolia</i>	50	195	315	380	470	570	690	890
<i>Alnus rhombifolia</i>	219	170	420	570	855	1160	1390	2555
<i>Alnus rubra</i>	441	310	955	1260	1680	2280	2785	4685
<i>Alnus rugosa</i>	8293	220	355	460	675	910	1080	1650
<i>Alnus serrulata</i>	2148	815	1005	1085	1190	1335	1410	1630
<i>Alnus sinuata</i>	1601	245	435	555	815	1400	2235	4370
<i>Alnus tenuifolia</i>	3862	200	325	390	480	620	880	2520
<i>Amelanchier alnifolia</i>	5719	170	345	410	470	615	1075	4370
<i>Amelanchier arborea</i>	4166	600	800	895	1030	1170	1365	1630
<i>Amelanchier utahensis</i>	364	90	265	345	430	545	680	1175
<i>Arbutus arizonica</i>	181	295	410	500	615	720	765	900
<i>Arbutus menziesii</i>	191	405	745	1065	1370	1750	2135	3650
<i>Arbutus texana</i>	25	250	265	290	495	780	795	825
<i>Arctostaphylos pringlei</i>	13	305	305	385	475	590	640	755
<i>Artemisia tridentata</i>	1700	70	200	265	340	425	555	1620
<i>Betula alleghaniensis</i>	2260	540	755	825	970	1085	1190	1560
<i>Betula lenta</i>	752	800	940	1000	1075	1160	1265	1560
<i>Betula nana</i>	6531	115	235	280	370	495	630	4130
<i>Betula nigra</i>	2113	715	935	1070	1190	1335	1410	1620
<i>Betula occidentalis</i>	1085	90	330	370	435	515	770	1805
<i>Betula papyrifera</i>	10207	195	335	440	630	870	1080	4370
<i>Betula populifolia</i>	624	800	950	1020	1100	1170	1265	1525
<i>Bursera fagaroides</i>	763	130	335	510	805	985	1160	1810
<i>Bursera microphylla</i>	211	65	135	180	215	265	320	705
<i>Canotia holacantha</i>	68	105	170	225	305	390	440	520
<i>Carpinus caroliniana</i>	4072	600	810	925	1090	1260	1395	3810
<i>Carya aquatica</i>	979	820	1175	1235	1310	1395	1515	1630
<i>Carya cordiformis</i>	3774	630	805	905	1060	1215	1355	1560
<i>Carya floridana</i>	45	1285	1295	1300	1315	1325	1335	1405
<i>Carya glabra</i>	2882	725	920	1025	1175	1315	1405	1630
<i>Carya illinoensis</i>	1057	410	765	910	1065	1250	1335	1595
<i>Carya laciniata</i>	895	765	880	920	1000	1130	1245	1485

HARDWOODS			Annual Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	700	1115	1180	1235	1310	1345	1400
<i>Carya ovata</i>	3038	410	830	915	1055	1215	1360	1755
<i>Carya pallida</i>	656	1040	1170	1220	1350	1410	1465	1590
<i>Carya texana</i>	649	655	920	980	1080	1200	1290	1490
<i>Carya tomentosa</i>	2831	770	955	1055	1180	1315	1405	1630
<i>Castanea alnifolia</i>	70	1145	1210	1250	1360	1435	1565	1610
<i>Castanea dentata</i>	1137	765	945	1020	1105	1285	1395	1560
<i>Castanea ozarkensis</i>	84	920	1060	1090	1175	1240	1315	1365
<i>Castanea pumila</i>	1340	970	1095	1170	1265	1380	1465	1630
<i>Castanopsis chrysophylla</i>	119	475	885	1015	1225	1425	1855	2555
<i>Celtis laevigata</i>	2446	360	765	1025	1225	1350	1425	1630
<i>Celtis occidentalis</i>	3123	335	490	680	880	1035	1165	1560
<i>Celtis reticulata</i>	1066	95	235	280	385	550	675	1155
<i>Cercidium floridum</i>	384	55	95	170	240	315	395	535
<i>Cercidium macrum</i>	167	480	545	575	635	740	860	1260
<i>Cercidium microphyllum</i>	356	70	120	165	220	285	345	520
<i>Cercocarpus betuloides</i>	126	295	385	445	680	1170	1385	2555
<i>Cercocarpus breviflorus</i>	73	245	270	315	405	475	530	640
<i>Cercocarpus ledifolius</i>	323	90	300	410	540	745	980	1795
<i>Cereus giganteus</i>	268	80	130	195	250	310	370	590
<i>Chilopsis linearis</i>	1212	60	175	250	290	360	455	860
<i>Cornus florida</i>	2927	330	945	1045	1170	1310	1405	1630
<i>Cornus stolonifera</i>	10191	175	380	460	655	910	1130	4370
<i>Corylus cornuta</i>	3760	310	445	505	855	1070	1245	3820
<i>Cowania mexicana</i>	598	85	170	240	370	505	655	990
<i>Dalea spinosa</i>	165	55	70	80	100	140	185	470
<i>Diospyros virginiana</i>	2870	635	980	1080	1210	1340	1420	1630
<i>Dodonaea viscosa</i>	1230	120	275	385	635	915	1145	2035
<i>Erythrina flabelliformis</i>	280	175	390	505	645	755	820	965
<i>Fagus grandifolia</i>	3389	710	850	985	1115	1280	1400	1630
<i>Forestiera phillyreoides</i> (southern range not available)	23	140	145	190	400	460	570	665
<i>Fraxinus americana</i>	4274	620	845	935	1065	1220	1375	1595
<i>Fraxinus anomala</i>	138	95	135	170	215	310	445	830
<i>Fraxinus berlandieriana</i>	312	240	320	420	505	585	680	835
<i>Fraxinus caroliniana</i>	656	1010	1170	1220	1310	1380	1520	1630
<i>Fraxinus cuspidata</i>	18	250	250	280	315	390	480	510
<i>Fraxinus dipetala</i>	100	205	305	345	435	565	770	1125
<i>Fraxinus greggii</i>	288	250	310	380	475	585	720	1020
<i>Fraxinus latifolia</i>	234	90	550	830	1115	1405	1870	2555
<i>Fraxinus nigra</i>	2928	470	715	790	880	1015	1115	1495
<i>Fraxinus pennsylvanica</i>	7355	270	395	570	895	1145	1330	1630
<i>Fraxinus profunda</i>	246	955	1115	1170	1245	1320	1395	1550
<i>Fraxinus quadrangulata</i>	529	820	890	915	975	1070	1275	1520
<i>Fraxinus texensis</i>	40	390	630	700	785	820	845	890
<i>Fraxinus velutina</i>	157	85	270	335	390	460	510	830
<i>Fremontodendron californicum</i>	61	205	320	415	505	640	770	1085
<i>Gleditsia triacanthos</i>	2601	475	830	910	1045	1275	1395	1595
<i>Holacantha emoryi</i>	131	55	75	90	125	195	245	280
<i>Ilex opaca</i>	1842	810	1110	1180	1290	1380	1470	1630
<i>Ilex verticillata</i>	2800	660	785	895	1040	1165	1320	1565

HARDWOODS			Annual Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	310	310	350	415	440	470	495
<i>Juglans cinerea</i>	2184	680	795	885	980	1085	1190	1560
<i>Juglans major</i>	465	270	375	475	665	815	920	1245
<i>Juglans microcarpa</i>	54	235	260	320	430	570	635	715
<i>Juglans nigra</i>	3470	525	790	895	1045	1215	1360	1560
<i>Kalmia latifolia</i>	1402	865	1000	1065	1160	1335	1420	1620
<i>Koeberlinia spinosa</i>	937	70	230	260	315	440	575	1170
<i>Larrea divaricata</i>	1751	50	115	210	275	350	440	830
<i>Liquidambar styraciflua</i>	2209	950	1085	1165	1275	1375	1475	3345
<i>Liriodendron tulipifera</i>	2351	715	940	1055	1185	1340	1420	1630
<i>Lithocarpus densiflorus</i>	46	410	720	1220	1350	1520	1965	2555
<i>Lyonia ferruginea</i>	208	1170	1235	1290	1320	1350	1400	1545
<i>Maclura pomifera</i>	182	250	795	880	960	1055	1150	1250
<i>Magnolia acuminata</i>	753	800	955	1025	1110	1255	1410	1605
<i>Magnolia grandiflora</i>	573	1065	1195	1260	1340	1445	1530	1630
<i>Magnolia virginiana</i>	1036	1030	1145	1205	1315	1395	1480	1630
<i>Morus microphylla</i>	112	245	310	370	460	545	655	830
<i>Morus rubra</i>	4197	390	795	905	1100	1290	1395	1630
<i>Myrica heterophylla</i>	458	1110	1170	1205	1265	1390	1545	1630
<i>Myrica inodora</i>	64	1255	1410	1510	1555	1590	1605	1630
<i>Myrica pensylvanica</i>	193	930	1040	1095	1140	1200	1335	1475
<i>Nolina bigelovii</i>	42	100	110	125	170	275	425	755
<i>Nyssa aquatica</i>	700	1005	1180	1230	1310	1445	1535	1630
<i>Nyssa ogeche</i>	119	1145	1200	1230	1295	1370	1460	1545
<i>Nyssa sylvatica</i>	2960	720	960	1065	1190	1320	1410	2295
<i>Olneya tesota</i>	428	55	85	135	210	290	380	565
<i>Opuntia fulgida</i>	224	85	205	245	305	390	485	595
<i>Ostrya knowltonii</i>	8	170	170	175	290	315	385	390
<i>Ostrya virginiana</i>	4747	355	750	865	1030	1205	1385	3810
<i>Platanus occidentalis</i>	3811	335	865	945	1105	1260	1385	1620
<i>Populus balsamifera</i>	8595	195	330	435	585	860	1055	2670
<i>Populus fremontii</i>	333	70	120	175	265	385	520	1240
<i>Populus grandidentata</i>	3057	530	740	805	920	1045	1135	1495
<i>Populus heterophylla</i>	323	780	955	1100	1190	1255	1325	1605
<i>Populus tremuloides</i>	11232	145	330	440	625	875	1065	3270
<i>Prosopis juliflora</i>	3304	50	195	275	425	695	965	3020
<i>Prosopis pubescens</i>	239	55	70	85	120	215	265	440
<i>Prunus serotina</i>	5424	235	735	855	1025	1205	1365	3985
<i>Ptelea trifoliata</i>	3023	120	465	805	990	1230	1360	1810
<i>Quercus agrifolia</i>	82	265	310	360	425	500	745	1155
<i>Quercus alba</i>	3710	685	810	920	1090	1250	1385	1595
<i>Quercus arizonica</i>	94	270	315	350	410	480	550	830
<i>Quercus arkansana</i>	20	1230	1250	1275	1290	1380	1530	1570
<i>Quercus bicolor</i>	1294	625	800	870	930	1035	1135	1485
<i>Quercus chapmanii</i>	126	1230	1285	1305	1320	1340	1375	1600
<i>Quercus chrysolepis</i>	189	85	415	550	890	1165	1385	2555
<i>Quercus coccinea</i>	1391	750	995	1060	1140	1265	1390	1560
<i>Quercus douglasii</i>	91	175	305	340	480	650	775	1085
<i>Quercus dunni</i>	40	295	320	350	415	445	495	600
<i>Quercus durandii</i>	271	440	595	690	820	1350	1395	1605

HARDWOODS			Annual Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Quercus ellipsoidalis</i>	442	520	660	735	780	830	885	940
<i>Quercus emoryi</i>	57	265	320	360	405	445	475	640
<i>Quercus engelmannii</i>	8	285	285	305	360	430	450	485
<i>Quercus falcata</i>	2009	985	1100	1170	1270	1365	1445	1630
<i>Quercus gambelii</i>	503	95	245	305	400	510	655	1175
<i>Quercus garryana</i>	193	425	630	960	1165	1390	1710	2555
<i>Quercus georgiana</i>	7	1175	1175	1275	1295	1305	1315	1320
<i>Quercus glaucooides</i>	32	240	260	595	635	695	730	840
<i>Quercus gravesii</i>	8	250	250	250	300	325	360	505
<i>Quercus grisea</i>	44	200	275	310	385	480	520	830
<i>Quercus havardii</i>	121	270	310	340	405	535	580	680
<i>Quercus hypoleucoides</i>	55	245	320	360	385	415	460	875
<i>Quercus ilicifolia</i>	307	875	985	1030	1085	1145	1185	1270
<i>Quercus imbricaria</i>	1000	795	895	920	990	1105	1255	1465
<i>Quercus incana</i>	583	850	1170	1215	1310	1390	1525	1630
<i>Quercus kelloggii</i>	124	310	495	640	940	1215	1380	1750
<i>Quercus laevis</i>	568	1120	1170	1210	1295	1360	1520	1630
<i>Quercus laurifolia</i>	792	745	1170	1215	1315	1400	1505	1630
<i>Quercus lobata</i>	142	170	235	310	420	640	775	1280
<i>Quercus lyrata</i>	1356	885	1145	1195	1290	1385	1480	1630
<i>Quercus macrocarpa</i>	3667	350	460	625	820	935	1060	1360
<i>Quercus marilandica</i>	2744	585	855	985	1170	1315	1410	1630
<i>Quercus michauxii</i>	1418	935	1145	1195	1300	1390	1475	1630
<i>Quercus mohriana</i>	107	260	290	315	420	490	535	690
<i>Quercus muehlenbergii</i>	2637	260	825	900	1025	1250	1385	1570
<i>Quercus myrtifolia</i>	144	1190	1285	1305	1320	1350	1435	1585
<i>Quercus nigra</i>	1551	835	1140	1200	1305	1385	1470	1630
<i>Quercus nuttallii</i>	410	1155	1235	1290	1350	1440	1520	1605
<i>Quercus oblongifolia</i>	29	305	310	355	405	435	475	545
<i>Quercus oglethorpensis</i>	6	1220	1220	1230	1230	1265	1265	1305
<i>Quercus palustris</i>	1358	755	890	920	1000	1120	1240	1455
<i>Quercus phellos</i>	1456	925	1130	1195	1295	1385	1465	1630
<i>Quercus prinus</i>	1190	755	970	1045	1130	1275	1395	1560
<i>Quercus pungens</i>	43	215	270	385	490	570	625	675
<i>Quercus rubra</i>	4296	560	770	870	1000	1140	1310	1560
<i>Quercus rugosa</i>	707	250	455	580	750	900	1195	2295
<i>Quercus shumardii</i>	2257	510	900	1020	1195	1335	1415	1630
<i>Quercus stellata</i>	3185	430	795	975	1150	1305	1400	1630
<i>Quercus toumeyii</i>	11	320	320	360	415	415	460	715
<i>Quercus turbinella</i>	120	95	265	320	405	470	510	770
<i>Quercus velutina</i>	3416	710	855	940	1100	1245	1385	1595
<i>Quercus virginiana</i>	740	305	530	675	1130	1340	1485	1610
<i>Quercus wislizeni</i>	118	245	320	435	610	905	1085	1370
<i>Rhamnus betulaefolia</i>	266	95	265	385	520	660	745	865
<i>Rhamnus californica</i>	301	120	300	370	485	855	1250	2175
<i>Rhamnus crocea</i>	193	105	295	350	425	560	775	1250
<i>Rhamnus purshiana</i>	492	440	655	885	1215	1690	2280	4370
<i>Rhododendron macrophyllum</i>	98	600	910	1125	1385	1805	2040	2985
<i>Rhus choriophylla</i>	22	235	240	345	385	415	440	470
<i>Rhus glabra</i>	4432	190	575	765	940	1145	1335	1560

HARDWOODS			Annual Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	190	245	270	315	395	510	780
<i>Rhus ovata</i>	71	155	275	330	390	455	500	755
<i>Robinia neomexicana</i>	82	150	265	320	400	495	550	690
<i>Robinia pseudoacacia</i>	665	920	995	1040	1105	1245	1395	1560
<i>Sabal palmetto</i>	170	1220	1285	1310	1330	1360	1425	1500
<i>Salix alaxensis</i>	3757	115	230	290	375	505	635	4685
<i>Salix arbusculoides</i>	4708	165	260	305	385	460	520	2670
<i>Sambucus mexicana</i>	261	230	340	445	790	1180	1755	3985
<i>Sapium biloculare</i>	171	115	175	210	265	380	500	590
<i>Sassafras albidum</i>	3246	715	935	1035	1170	1315	1405	1630
<i>Shepherdia argentea</i>	1514	130	305	340	395	455	535	1360
<i>Tilia americana</i>	3327	415	690	795	910	1035	1125	1440
<i>Tilia heterophylla</i>	828	875	1030	1075	1190	1355	1410	1560
<i>Ulmus alata</i>	1818	730	1030	1150	1255	1360	1425	1620
<i>Ulmus americana</i>	7818	325	480	735	930	1150	1330	1630
<i>Ulmus crassifolia</i>	696	450	570	720	945	1195	1320	1490
<i>Ulmus rubra</i>	4253	485	750	850	985	1170	1320	1560
<i>Ulmus serotina</i>	64	1010	1055	1185	1290	1345	1395	1410
<i>Ulmus thomasii</i>	1210	525	750	790	850	905	1020	1520
<i>Umbellularia californica</i>	127	305	435	535	915	1335	1750	2555
<i>Vauquelinia californica</i>	11	225	225	270	310	385	455	500
<i>Yucca brevifolia</i>	94	50	85	105	155	190	265	385
<i>Yucca carnerosana</i>	10	250	250	255	270	350	360	615
<i>Yucca elata</i>	386	170	210	240	270	315	370	640
<i>Yucca faxoniana</i>	9	265	265	270	285	290	300	310
<i>Yucca mohavensis</i>	100	55	80	110	155	330	425	755
<i>Yucca rostrata</i>	6	250	250	290	380	440	440	470
<i>Yucca schottii</i>	13	295	295	360	390	415	440	530
<i>Yucca torreyi</i>	313	205	250	265	290	315	370	675
<i>Yucca treculeana</i>	361	280	455	505	590	725	910	1405

HARDWOODS		January Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	0	8	10	14	25	35	127
<i>Acer barbatum</i>	636	19	83	96	114	132	138	146
<i>Acer circinatum</i>	334	75	137	177	227	286	334	570
<i>Acer glabrum</i>	1738	5	27	52	87	162	254	616
<i>Acer grandidentatum</i>	103	7	21	32	46	70	91	143
<i>Acer leucoderme</i>	191	66	98	110	127	135	140	145
<i>Acer macrophyllum</i>	362	59	123	176	234	289	343	612
<i>Acer negundo</i>	6534	5	10	17	33	80	123	284
<i>Acer nigrum</i>	1494	11	22	37	54	73	89	144
<i>Acer pensylvanicum</i>	1103	41	61	69	78	91	115	166
<i>Acer rubrum</i>	4842	15	41	62	81	104	131	166
<i>Acer saccharinum</i>	3792	10	21	39	69	93	128	150
<i>Acer saccharum</i>	3424	12	27	43	66	82	99	166
<i>Acer spicatum</i>	3076	17	23	39	62	80	100	166
<i>Aesculus californica</i>	107	55	69	97	138	197	256	420
<i>Aesculus glabra</i>	1412	13	27	37	49	70	92	144
<i>Aesculus octandra</i>	383	67	77	83	93	121	136	150
<i>Agave utahensis</i>	48	10	13	16	23	31	36	55
<i>Alnus oblongifolia</i>	50	6	15	27	43	59	78	98
<i>Alnus rhombifolia</i>	219	26	71	105	170	236	284	400
<i>Alnus rubra</i>	442	43	132	174	230	284	334	667
<i>Alnus rugosa</i>	8293	9	18	22	33	63	87	166
<i>Alnus serrulata</i>	2148	35	68	80	95	121	136	163
<i>Alnus sinuata</i>	1601	9	32	54	93	181	266	616
<i>Alnus tenuifolia</i>	3862	4	18	22	28	61	103	415
<i>Amelanchier alnifolia</i>	5719	6	12	19	24	61	141	616
<i>Amelanchier arborea</i>	4166	18	34	51	73	96	129	166
<i>Amelanchier utahensis</i>	364	8	16	23	35	51	73	149
<i>Arbutus arizonica</i>	181	3	10	11	16	23	26	54
<i>Arbutus menziesii</i>	191	84	147	204	252	299	345	470
<i>Arbutus texana</i>	25	9	10	11	24	48	49	51
<i>Arctostaphylos pringlei</i>	13	32	32	52	63	78	85	127
<i>Artemisia tridentata</i>	1700	5	11	15	29	48	73	318
<i>Betula alleghaniensis</i>	2260	17	26	53	69	83	103	163
<i>Betula lenta</i>	752	52	63	71	80	91	109	150
<i>Betula nana</i>	6531	4	8	12	19	27	44	332
<i>Betula nigra</i>	2113	18	40	74	94	122	137	150
<i>Betula occidentalis</i>	1085	7	17	19	23	49	83	318
<i>Betula papyrifera</i>	10207	4	17	22	32	63	91	612
<i>Betula populifolia</i>	624	48	68	74	84	99	130	166
<i>Bursera fagaroides</i>	763	1	4	8	11	17	27	67
<i>Bursera microphylla</i>	211	0	5	9	15	37	52	81
<i>Canotia holacantha</i>	68	14	19	25	32	42	49	59
<i>Carpinus caroliniana</i>	4072	1	25	49	78	101	130	167
<i>Carya aquatica</i>	979	45	74	89	105	126	134	149
<i>Carya cordiformis</i>	3774	12	24	43	75	100	129	150
<i>Carya floridana</i>	45	49	51	52	55	61	63	69
<i>Carya glabra</i>	2882	34	47	68	89	116	135	150
<i>Carya illinoensis</i>	1057	2	29	40	70	106	127	149
<i>Carya laciniata</i>	895	18	35	45	68	87	109	143

HARDWOODS			January Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	37	63	81	99	122	136	140
<i>Carya ovata</i>	3038	9	30	47	74	101	132	150
<i>Carya pallida</i>	656	70	95	103	126	136	140	150
<i>Carya texana</i>	649	25	36	42	64	90	116	147
<i>Carya tomentosa</i>	2831	27	47	72	91	116	135	150
<i>Castanea alnifolia</i>	70	74	81	85	89	99	109	127
<i>Castanea dentata</i>	1137	48	65	73	85	115	137	150
<i>Castanea ozarkensis</i>	84	32	43	52	66	77	85	98
<i>Castanea pumila</i>	1340	51	81	90	104	128	138	147
<i>Castanopsis chrysophylla</i>	119	79	145	173	232	280	296	400
<i>Celtis laevigata</i>	2446	11	33	51	93	122	136	149
<i>Celtis occidentalis</i>	3123	6	10	15	37	69	91	147
<i>Celtis reticulata</i>	1066	3	8	10	14	24	36	116
<i>Cercidium floridum</i>	384	3	8	10	16	25	40	67
<i>Cercidium macrum</i>	167	23	24	27	31	35	43	60
<i>Cercidium microphyllum</i>	356	3	7	9	15	25	41	64
<i>Cercocarpus betuloides</i>	126	36	67	87	135	239	284	400
<i>Cercocarpus breviflorus</i>	73	9	11	15	25	38	51	78
<i>Cercocarpus ledifolius</i>	323	11	21	42	66	98	158	329
<i>Cereus giganteus</i>	268	3	6	9	13	22	27	59
<i>Chilopsis linearis</i>	1212	5	8	9	12	21	28	93
<i>Cornus florida</i>	2927	12	52	71	90	115	134	150
<i>Cornus stolonifera</i>	10191	4	15	22	36	71	108	612
<i>Corylus cornuta</i>	3760	8	21	23	61	87	139	501
<i>Cowania mexicana</i>	598	5	9	12	19	28	45	97
<i>Dalea spinosa</i>	165	3	8	10	12	15	30	92
<i>Diospyros virginiana</i>	2870	16	45	73	93	120	136	150
<i>Dodonaea viscosa</i>	1230	0	3	8	11	17	25	93
<i>Erythrina flabelliformis</i>	280	3	10	12	17	22	26	47
<i>Fagus grandifolia</i>	3389	25	56	70	86	114	135	166
<i>Forestiera phillyreoides</i> (southern range not available)	23	6	8	13	17	19	24	31
<i>Fraxinus americana</i>	4274	14	37	56	77	102	132	166
<i>Fraxinus anomala</i>	138	7	9	13	19	30	49	98
<i>Fraxinus berlandieriana</i>	312	5	14	21	24	29	36	51
<i>Fraxinus caroliniana</i>	656	42	63	85	97	113	128	147
<i>Fraxinus cuspidata</i>	18	7	10	10	16	22	24	59
<i>Fraxinus dipetala</i>	100	25	63	74	89	115	172	253
<i>Fraxinus greggii</i>	288	6	10	13	20	25	28	43
<i>Fraxinus latifolia</i>	234	23	113	162	214	272	317	414
<i>Fraxinus nigra</i>	2928	16	23	39	59	74	89	166
<i>Fraxinus pennsylvanica</i>	7355	6	11	19	47	89	122	166
<i>Fraxinus profunda</i>	246	50	76	86	95	101	109	139
<i>Fraxinus quadrangulata</i>	529	25	39	41	52	74	115	147
<i>Fraxinus texensis</i>	40	16	33	38	47	50	51	56
<i>Fraxinus velutina</i>	157	7	13	21	32	48	59	137
<i>Fremontodendron californicum</i>	61	41	60	78	104	147	172	239
<i>Gleditsia triacanthos</i>	2601	9	23	40	69	112	135	149
<i>Holacantha emoryi</i>	131	8	10	12	14	19	23	33
<i>Ilex opaca</i>	1842	51	81	91	108	129	138	150
<i>Ilex verticillata</i>	2800	19	36	60	77	94	123	161

HARDWOODS		January Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	77	77	78	107	112	115	117
<i>Juglans cinerea</i>	2184	18	27	44	67	82	99	147
<i>Juglans major</i>	465	1	9	11	16	24	33	78
<i>Juglans microcarpa</i>	54	7	9	11	16	22	28	37
<i>Juglans nigra</i>	3470	9	21	39	71	101	130	150
<i>Kalmia latifolia</i>	1402	52	71	80	93	120	136	150
<i>Koeberlinia spinosa</i>	937	1	7	9	11	21	26	65
<i>Larrea divaricata</i>	1751	0	8	9	12	21	32	98
<i>Liquidambar styraciflua</i>	2209	1	73	86	103	127	137	166
<i>Liriodendron tulipifera</i>	2351	37	62	76	92	120	136	150
<i>Lithocarpus densiflorus</i>	46	91	161	237	284	299	336	420
<i>Lyonia ferruginea</i>	208	46	52	57	79	84	91	109
<i>Maclura pomifera</i>	182	10	45	51	60	72	80	97
<i>Magnolia acuminata</i>	753	44	65	71	85	111	135	150
<i>Magnolia grandiflora</i>	573	52	78	86	108	128	136	147
<i>Magnolia virginiana</i>	1036	42	69	86	101	127	137	147
<i>Morus microphylla</i>	112	6	11	17	26	44	53	78
<i>Morus rubra</i>	4197	9	26	43	77	106	131	150
<i>Myrica heterophylla</i>	458	77	85	92	99	113	127	145
<i>Myrica inodora</i>	64	89	93	105	117	126	129	132
<i>Myrica pensylvanica</i>	193	63	80	86	95	105	144	163
<i>Nolina bigelovii</i>	42	7	9	13	23	30	83	90
<i>Nyssa aquatica</i>	700	61	90	97	112	128	137	149
<i>Nyssa ogeche</i>	119	73	80	82	86	93	100	111
<i>Nyssa sylvatica</i>	2960	3	57	73	91	116	135	150
<i>Olneya tesota</i>	428	3	7	9	12	19	30	72
<i>Opuntia fulgida</i>	224	3	5	9	11	20	26	55
<i>Ostrya knowltonii</i>	8	11	11	12	15	32	33	39
<i>Ostrya virginiana</i>	4747	2	22	40	71	98	129	193
<i>Platanus occidentalis</i>	3811	15	36	54	82	108	132	150
<i>Populus balsamifera</i>	8595	4	17	21	30	58	84	203
<i>Populus fremontii</i>	333	3	9	12	22	49	85	284
<i>Populus grandidentata</i>	3057	16	23	41	64	77	91	166
<i>Populus heterophylla</i>	323	44	62	80	91	98	107	140
<i>Populus tremuloides</i>	11232	4	15	21	33	64	90	425
<i>Prosopis juliflora</i>	3304	0	7	9	12	24	42	99
<i>Prosopis pubescens</i>	239	5	8	9	12	15	23	95
<i>Prunus serotina</i>	5424	0	18	33	70	96	127	166
<i>Ptelea trifoliata</i>	3023	2	14	29	53	90	124	147
<i>Quercus agrifolia</i>	82	60	69	78	94	116	161	268
<i>Quercus alba</i>	3710	14	31	51	80	105	132	150
<i>Quercus arizonica</i>	94	9	10	16	28	47	54	98
<i>Quercus arkansana</i>	20	92	94	98	109	126	135	138
<i>Quercus bicolor</i>	1294	15	27	38	55	73	86	142
<i>Quercus chapmanii</i>	126	48	52	58	69	80	85	125
<i>Quercus chrysolepis</i>	189	16	74	113	174	239	284	400
<i>Quercus coccinea</i>	1391	42	68	78	90	116	135	150
<i>Quercus douglasii</i>	91	35	64	74	104	149	181	237
<i>Quercus dunni</i>	40	13	23	36	51	75	84	92
<i>Quercus durandii</i>	271	18	29	36	49	124	135	143

HARDWOODS			January Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Quercus ellipsoidalis</i>	442	14	18	21	23	31	42	53	
<i>Quercus emoryi</i>	57	6	13	22	28	47	53	78	
<i>Quercus engelmannii</i>	8	66	66	69	78	90	93	99	
<i>Quercus falcata</i>	2009	42	78	89	106	129	138	150	
<i>Quercus gambelii</i>	503	6	12	19	30	45	62	149	
<i>Quercus garryana</i>	193	79	115	166	210	256	294	400	
<i>Quercus georgiana</i>	7	103	103	117	127	127	132	132	
<i>Quercus glaucooides</i>	32	9	15	29	32	37	44	50	
<i>Quercus gravesii</i>	8	9	9	9	11	12	13	23	
<i>Quercus grisea</i>	44	7	10	13	24	32	55	98	
<i>Quercus havardii</i>	121	7	8	9	10	12	15	29	
<i>Quercus hypoleucoides</i>	55	6	9	10	11	23	30	90	
<i>Quercus ilicifolia</i>	307	52	69	73	81	88	98	112	
<i>Quercus imbricaria</i>	1000	20	37	44	64	81	111	141	
<i>Quercus incana</i>	583	48	69	84	97	114	130	146	
<i>Quercus kelloggii</i>	124	67	97	119	192	250	284	358	
<i>Quercus laevis</i>	568	49	65	84	96	110	126	138	
<i>Quercus laurifolia</i>	792	42	66	89	102	127	136	149	
<i>Quercus lobata</i>	142	34	47	67	94	142	182	293	
<i>Quercus lyrata</i>	1356	39	83	95	112	130	138	149	
<i>Quercus macrocarpa</i>	3667	7	11	19	31	57	74	136	
<i>Quercus marilandica</i>	2744	13	34	50	90	117	135	150	
<i>Quercus michauxii</i>	1418	47	84	95	112	130	138	149	
<i>Quercus mohriana</i>	107	6	10	11	13	17	20	29	
<i>Quercus muehlenbergii</i>	2637	9	27	40	66	107	134	150	
<i>Quercus myrtifolia</i>	144	44	51	54	65	80	86	126	
<i>Quercus nigra</i>	1551	44	78	92	111	130	138	149	
<i>Quercus nuttallii</i>	410	75	101	116	129	136	139	149	
<i>Quercus oblongifolia</i>	29	8	10	12	18	24	26	54	
<i>Quercus oglethorpensis</i>	6	122	122	122	125	130	130	133	
<i>Quercus palustris</i>	1358	22	36	45	68	85	105	141	
<i>Quercus phellos</i>	1456	45	85	96	116	132	139	149	
<i>Quercus prinus</i>	1190	43	68	77	88	116	136	150	
<i>Quercus pungens</i>	43	5	9	17	22	28	32	37	
<i>Quercus rubra</i>	4296	12	24	41	69	89	122	161	
<i>Quercus rugosa</i>	707	1	8	10	13	22	27	82	
<i>Quercus shumardii</i>	2257	19	38	58	93	121	136	147	
<i>Quercus stellata</i>	3185	11	31	50	86	113	134	150	
<i>Quercus toumeyi</i>	11	16	16	18	25	26	35	49	
<i>Quercus turbinella</i>	120	10	18	29	46	60	83	159	
<i>Quercus velutina</i>	3416	17	32	49	82	107	132	150	
<i>Quercus virginiana</i>	740	11	23	35	52	85	112	147	
<i>Quercus wislizeni</i>	118	51	68	94	134	197	239	308	
<i>Rhamnus betulaefolia</i>	266	7	10	11	14	22	26	78	
<i>Rhamnus californica</i>	301	11	36	65	96	177	265	420	
<i>Rhamnus crocea</i>	193	0	35	55	79	112	182	268	
<i>Rhamnus purshiana</i>	492	60	91	132	204	278	344	616	
<i>Rhododendron macrophyllum</i>	98	84	159	180	265	296	344	492	
<i>Rhus choriophylla</i>	22	11	12	18	24	26	27	30	
<i>Rhus glabra</i>	4432	6	15	24	52	89	127	193	

HARDWOODS			January Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	5	8	9	10	15	23	50
<i>Rhus ovata</i>	71	12	38	49	69	78	90	114
<i>Robinia neomexicana</i>	82	8	11	18	28	48	59	78
<i>Robinia pseudoacacia</i>	665	38	49	69	83	98	135	150
<i>Sabal palmetto</i>	170	40	45	50	57	75	82	91
<i>Salix alaxensis</i>	3758	2	10	14	21	29	43	667
<i>Salix arbusculoides</i>	4708	4	9	13	19	24	30	196
<i>Sambucus mexicana</i>	261	1	5	9	25	57	90	161
<i>Sapium biloculare</i>	171	3	5	9	10	14	23	67
<i>Sassafras albidum</i>	3246	34	50	70	89	116	134	150
<i>Shepherdia argentea</i>	1514	6	8	10	12	18	24	172
<i>Tilia americana</i>	3327	9	20	28	55	74	86	128
<i>Tilia heterophylla</i>	828	39	72	83	98	130	139	150
<i>Ulmus alata</i>	1818	20	52	84	105	128	138	149
<i>Ulmus americana</i>	7818	6	13	24	58	88	121	166
<i>Ulmus crassifolia</i>	696	21	28	38	58	101	129	149
<i>Ulmus rubra</i>	4253	9	20	38	65	92	120	150
<i>Ulmus serotina</i>	64	42	47	78	117	130	140	142
<i>Ulmus thomasi</i>	1210	9	21	25	41	62	79	147
<i>Umbellularia californica</i>	127	65	91	118	197	276	299	420
<i>Vauquelinia californica</i>	11	21	21	33	49	54	59	60
<i>Yucca brevifolia</i>	94	8	12	15	19	27	37	86
<i>Yucca carnerosana</i>	10	9	9	10	10	16	16	27
<i>Yucca elata</i>	386	5	7	9	11	23	35	78
<i>Yucca faxoniana</i>	9	9	9	9	10	10	10	10
<i>Yucca mohavensis</i>	100	8	12	14	21	69	79	103
<i>Yucca rostrata</i>	6	10	10	11	18	24	24	24
<i>Yucca schottii</i>	13	15	15	17	26	27	32	47
<i>Yucca torreyi</i>	313	5	7	9	10	11	16	37
<i>Yucca treculeana</i>	361	10	22	24	28	36	46	61

HARDWOODS			July Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	3	10	34	46	58	82	248
<i>Acer barbatum</i>	636	65	94	112	122	133	154	209
<i>Acer circinatum</i>	334	1	4	7	18	29	41	97
<i>Acer glabrum</i>	1738	1	14	25	40	52	71	160
<i>Acer grandidentatum</i>	103	12	19	24	34	53	86	126
<i>Acer leucoderme</i>	191	103	114	116	119	125	132	194
<i>Acer macrophyllum</i>	362	0	1	4	11	34	66	109
<i>Acer negundo</i>	6534	0	44	60	89	106	122	405
<i>Acer nigrum</i>	1494	61	79	95	103	109	118	138
<i>Acer pensylvanicum</i>	1103	64	77	84	94	103	112	136
<i>Acer rubrum</i>	4842	61	80	92	104	119	150	222
<i>Acer saccharinum</i>	3792	61	84	93	101	111	123	200
<i>Acer saccharum</i>	3424	61	77	89	99	107	117	164
<i>Acer spicatum</i>	3076	56	72	80	92	103	112	164
<i>Aesculus californica</i>	107	0	1	1	1	2	3	6
<i>Aesculus glabra</i>	1412	42	65	90	99	107	114	131
<i>Aesculus octandra</i>	383	95	109	114	119	124	129	138
<i>Agave utahensis</i>	48	10	14	17	24	30	35	52
<i>Alnus oblongifolia</i>	50	37	53	64	74	88	95	126
<i>Alnus rhombifolia</i>	219	0	1	2	5	7	10	30
<i>Alnus rubra</i>	442	0	5	13	41	80	119	452
<i>Alnus rugosa</i>	8293	28	54	72	85	100	115	212
<i>Alnus serrulata</i>	2148	48	90	99	114	128	160	211
<i>Alnus sinuata</i>	1601	1	22	35	49	68	89	202
<i>Alnus tenuifolia</i>	3862	0	28	44	59	74	85	144
<i>Amelanchier alnifolia</i>	5719	1	27	47	62	75	84	163
<i>Amelanchier arborea</i>	4166	61	79	91	102	113	126	204
<i>Amelanchier utahensis</i>	364	4	20	28	41	55	74	126
<i>Arbutus arizonica</i>	181	63	101	132	160	181	196	246
<i>Arbutus menziesii</i>	191	0	1	3	8	21	31	72
<i>Arbutus texana</i>	25	42	42	43	50	58	60	89
<i>Arctostaphylos pringlei</i>	13	2	2	10	22	57	66	70
<i>Artemisia tridentata</i>	1700	0	7	11	19	30	41	82
<i>Betula alleghaniensis</i>	2260	61	74	83	95	105	114	164
<i>Betula lenta</i>	752	61	83	92	101	114	125	137
<i>Betula nana</i>	6531	18	34	42	54	69	81	307
<i>Betula nigra</i>	2113	56	91	99	112	126	151	211
<i>Betula occidentalis</i>	1085	5	24	38	53	66	73	102
<i>Betula papyrifera</i>	10207	7	45	62	80	98	112	223
<i>Betula populifolia</i>	624	65	79	84	92	99	107	140
<i>Bursera fagaroides</i>	763	0	75	122	178	209	244	350
<i>Bursera microphylla</i>	211	0	5	8	9	27	61	248
<i>Canotia holacantha</i>	68	9	20	24	33	46	55	66
<i>Carpinus caroliniana</i>	4072	54	81	95	107	125	170	425
<i>Carya aquatica</i>	979	44	90	106	145	173	197	218
<i>Carya cordiformis</i>	3774	47	86	95	104	115	129	204
<i>Carya floridana</i>	45	168	186	195	199	201	203	207
<i>Carya glabra</i>	2882	61	92	99	111	126	162	214
<i>Carya illinoensis</i>	1057	39	53	69	92	103	114	292
<i>Carya laciniosa</i>	895	62	91	96	103	112	120	137

HARDWOODS			July Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Carya myristicaeformis</i>	48	48	78	88	96	110	132	169	
<i>Carya ovata</i>	3038	61	87	95	104	113	122	242	
<i>Carya pallida</i>	656	93	114	118	125	138	161	203	
<i>Carya texana</i>	649	41	62	83	91	98	107	153	
<i>Carya tomentosa</i>	2831	43	91	99	111	126	158	214	
<i>Castanea alnifolia</i>	70	124	145	166	191	199	206	214	
<i>Castanea dentata</i>	1137	61	85	96	109	119	125	158	
<i>Castanea ozarkensis</i>	84	84	88	90	94	103	108	120	
<i>Castanea pumila</i>	1340	62	99	113	124	149	175	214	
<i>Castanopsis chrysophylla</i>	119	1	2	4	7	9	16	51	
<i>Celtis laevigata</i>	2446	32	54	87	109	138	178	222	
<i>Celtis occidentalis</i>	3123	44	68	80	95	105	113	164	
<i>Celtis reticulata</i>	1066	5	38	48	56	69	87	272	
<i>Cercidium floridum</i>	384	0	6	10	32	65	97	248	
<i>Cercidium macrum</i>	167	34	42	46	59	85	117	231	
<i>Cercidium microphyllum</i>	356	3	8	10	29	55	86	248	
<i>Cercocarpus betuloides</i>	126	0	0	1	2	7	10	57	
<i>Cercocarpus breviflorus</i>	73	40	50	55	70	83	96	112	
<i>Cercocarpus ledifolius</i>	323	0	8	12	19	26	37	60	
<i>Cereus giganteus</i>	268	7	13	23	46	69	100	184	
<i>Chilopsis linearis</i>	1212	2	14	41	51	66	88	159	
<i>Cornus florida</i>	2927	47	87	97	111	126	158	293	
<i>Cornus stolonifera</i>	10191	2	39	58	77	96	109	212	
<i>Corylus cornuta</i>	3760	1	43	71	83	98	108	157	
<i>Cowania mexicana</i>	598	4	19	28	47	114	162	216	
<i>Dalea spinosa</i>	165	3	5	7	9	11	17	34	
<i>Diospyros virginiana</i>	2870	44	89	99	114	131	172	222	
<i>Dodonaea viscosa</i>	1230	4	52	77	130	192	221	555	
<i>Erythrina flabelliformis</i>	280	4	97	138	166	194	208	231	
<i>Fagus grandifolia</i>	3389	61	79	92	106	120	138	211	
<i>Forestiera phillyreoides</i> (southern range not available)	23	8	8	9	72	108	159	172	
<i>Fraxinus americana</i>	4274	51	78	91	102	113	126	214	
<i>Fraxinus anomala</i>	138	10	13	17	22	30	47	89	
<i>Fraxinus berlandieriana</i>	312	32	37	42	47	56	68	115	
<i>Fraxinus caroliniana</i>	656	77	125	137	162	185	200	218	
<i>Fraxinus cuspidata</i>	18	31	34	45	52	63	63	96	
<i>Fraxinus dipetala</i>	100	0	0	0	1	2	7	72	
<i>Fraxinus greggii</i>	288	32	46	56	71	88	108	206	
<i>Fraxinus latifolia</i>	234	0	1	2	6	9	20	39	
<i>Fraxinus nigra</i>	2928	59	74	83	94	103	111	164	
<i>Fraxinus pennsylvanica</i>	7355	18	52	71	93	108	125	211	
<i>Fraxinus profunda</i>	246	89	97	108	145	171	196	211	
<i>Fraxinus quadrangulata</i>	529	86	92	95	102	111	119	133	
<i>Fraxinus texensis</i>	40	38	43	44	46	48	53	65	
<i>Fraxinus velutina</i>	157	0	22	46	57	74	101	137	
<i>Fremontodendron californicum</i>	61	0	0	1	1	3	7	57	
<i>Gleditsia triacanthos</i>	2601	41	81	93	103	113	125	207	
<i>Holacantha emoryi</i>	131	5	7	8	12	22	31	65	
<i>Ilex opaca</i>	1842	45	97	108	122	145	176	214	
<i>Ilex verticillata</i>	2800	61	77	90	102	113	125	194	

HARDWOODS		July Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	0	0	0	0	0	0	1
<i>Juglans cinerea</i>	2184	61	81	93	100	108	118	156
<i>Juglans major</i>	465	32	63	102	171	203	233	328
<i>Juglans microcarpa</i>	54	37	41	46	51	61	72	109
<i>Juglans nigra</i>	3470	41	77	93	104	115	126	204
<i>Kalmia latifolia</i>	1402	74	93	103	115	124	137	204
<i>Koeberlinia spinosa</i>	937	5	43	47	56	73	92	248
<i>Larrea divaricata</i>	1751	0	8	21	47	64	84	248
<i>Liquidambar styraciflua</i>	2209	54	96	107	120	144	183	415
<i>Liriodendron tulipifera</i>	2351	61	93	103	116	131	165	214
<i>Lithocarpus densiflorus</i>	46	1	1	2	4	7	8	10
<i>Lyonia ferruginea</i>	208	137	162	170	191	200	205	218
<i>Maclura pomifera</i>	182	41	44	48	56	70	85	97
<i>Magnolia acuminata</i>	753	61	92	102	112	121	128	199
<i>Magnolia grandiflora</i>	573	70	113	137	160	181	199	214
<i>Magnolia virginiana</i>	1036	69	109	123	143	172	198	222
<i>Morus microphylla</i>	112	35	44	46	52	63	80	110
<i>Morus rubra</i>	4197	38	71	94	106	122	159	222
<i>Myrica heterophylla</i>	458	97	128	137	154	171	187	211
<i>Myrica inodora</i>	64	155	172	181	193	199	205	211
<i>Myrica pensylvanica</i>	193	71	76	81	88	100	108	146
<i>Nolina bigelovii</i>	42	4	6	12	17	24	30	42
<i>Nyssa aquatica</i>	700	84	97	108	137	164	186	211
<i>Nyssa ogeche</i>	119	138	150	161	171	186	203	211
<i>Nyssa sylvatica</i>	2960	49	88	98	112	128	166	272
<i>Olneya tesota</i>	428	0	6	9	22	64	111	248
<i>Opuntia fulgida</i>	224	8	31	47	69	111	151	186
<i>Ostrya knowltonii</i>	8	16	16	19	29	34	38	55
<i>Ostrya virginiana</i>	4747	49	80	91	102	114	130	425
<i>Platanus occidentalis</i>	3811	41	80	94	105	119	138	206
<i>Populus balsamifera</i>	8595	11	49	67	80	98	115	212
<i>Populus fremontii</i>	333	0	1	10	20	46	68	126
<i>Populus grandidentata</i>	3057	61	75	84	96	105	113	164
<i>Populus heterophylla</i>	323	80	94	100	114	151	170	206
<i>Populus tremuloides</i>	11232	2	40	59	78	97	109	221
<i>Prosopis juliflora</i>	3304	0	13	44	56	102	183	555
<i>Prosopis pubescens</i>	239	1	5	7	12	25	46	54
<i>Prunus serotina</i>	5424	5	79	93	105	124	175	464
<i>Ptelea trifoliata</i>	3023	14	55	84	105	136	179	348
<i>Quercus agrifolia</i>	82	0	0	0	1	1	3	10
<i>Quercus alba</i>	3710	58	85	95	105	118	135	211
<i>Quercus arizonica</i>	94	30	45	55	72	88	110	200
<i>Quercus arkansana</i>	20	96	97	100	106	124	172	195
<i>Quercus bicolor</i>	1294	61	85	95	101	107	111	137
<i>Quercus chapmanii</i>	126	160	168	176	197	201	204	218
<i>Quercus chrysolepis</i>	189	0	1	2	4	6	8	106
<i>Quercus coccinea</i>	1391	66	94	101	111	120	126	178
<i>Quercus douglasii</i>	91	0	0	0	1	2	2	4
<i>Quercus dunni</i>	40	0	6	9	43	58	70	103
<i>Quercus durandii</i>	271	42	44	47	54	128	154	200

HARDWOODS			July Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Quercus ellipsoidalis</i>	442	72	87	96	102	105	108	112	
<i>Quercus emoryi</i>	57	32	45	53	67	83	111	128	
<i>Quercus engelmannii</i>	8	0	0	0	1	3	4	4	
<i>Quercus falcata</i>	2009	54	92	104	118	135	167	214	
<i>Quercus gambelii</i>	503	12	20	28	41	62	77	126	
<i>Quercus garryana</i>	193	1	2	4	8	14	23	44	
<i>Quercus georgiana</i>	7	111	111	119	127	130	130	131	
<i>Quercus glaucoides</i>	32	42	44	45	48	52	54	117	
<i>Quercus gravesii</i>	8	42	42	47	52	53	56	60	
<i>Quercus grisea</i>	44	40	49	55	63	83	96	119	
<i>Quercus havardii</i>	121	34	43	51	54	59	63	69	
<i>Quercus hypoleucoides</i>	55	47	58	80	89	104	113	128	
<i>Quercus ilicifolia</i>	307	71	81	91	97	105	109	123	
<i>Quercus imbricaria</i>	1000	84	94	98	104	109	116	133	
<i>Quercus incana</i>	583	43	123	137	161	184	200	218	
<i>Quercus kelloggii</i>	124	0	1	2	4	6	8	10	
<i>Quercus laevis</i>	568	113	129	142	164	186	199	215	
<i>Quercus laurifolia</i>	792	54	117	128	149	173	196	216	
<i>Quercus lobata</i>	142	0	0	0	1	1	2	4	
<i>Quercus lyrata</i>	1356	47	91	105	123	149	174	214	
<i>Quercus macrocarpa</i>	3667	40	56	71	89	101	107	131	
<i>Quercus marilandica</i>	2744	41	58	92	107	125	153	211	
<i>Quercus michauxii</i>	1418	71	98	109	123	151	177	214	
<i>Quercus mohriana</i>	107	32	36	42	46	54	57	71	
<i>Quercus muehlenbergii</i>	2637	42	72	93	104	115	126	211	
<i>Quercus myrtifolia</i>	144	153	168	178	197	201	204	218	
<i>Quercus nigra</i>	1551	43	88	106	122	150	179	214	
<i>Quercus nuttallii</i>	410	84	92	103	113	140	168	206	
<i>Quercus oblongifolia</i>	29	65	68	77	97	120	128	148	
<i>Quercus oglethorpensis</i>	6	114	114	115	115	116	116	119	
<i>Quercus palustris</i>	1358	62	91	96	103	109	116	133	
<i>Quercus phellos</i>	1456	58	92	104	117	134	163	211	
<i>Quercus prinus</i>	1190	61	90	100	110	119	125	138	
<i>Quercus pungens</i>	43	39	43	45	49	52	58	84	
<i>Quercus rubra</i>	4296	61	81	92	101	110	121	170	
<i>Quercus rugosa</i>	707	5	91	137	177	204	223	350	
<i>Quercus shumardii</i>	2257	41	58	92	109	128	162	214	
<i>Quercus stellata</i>	3185	41	56	91	107	123	153	214	
<i>Quercus toumeyi</i>	11	45	45	66	84	101	127	198	
<i>Quercus turbinella</i>	120	0	4	12	45	62	79	119	
<i>Quercus velutina</i>	3416	58	86	95	106	118	133	204	
<i>Quercus virginiana</i>	740	32	43	46	111	187	201	222	
<i>Quercus wislizeni</i>	118	0	0	1	1	2	3	10	
<i>Rhamnus betulaeifolia</i>	266	14	44	84	129	169	189	212	
<i>Rhamnus californica</i>	301	0	0	1	2	7	58	126	
<i>Rhamnus crocea</i>	193	0	0	1	2	12	53	109	
<i>Rhamnus purshiana</i>	492	1	5	9	24	41	53	109	
<i>Rhododendron macrophyllum</i>	98	1	2	5	8	17	26	47	
<i>Rhus choriophylla</i>	22	49	53	74	88	102	108	121	
<i>Rhus glabra</i>	4432	4	69	84	99	109	121	186	

HARDWOODS		July Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	32	42	46	53	73	96	172
<i>Rhus ovata</i>	71	0	1	3	9	41	50	72
<i>Robinia neomexicana</i>	82	16	26	52	62	80	93	119
<i>Robinia pseudoacacia</i>	665	85	92	98	112	121	126	138
<i>Sabal palmetto</i>	170	157	169	181	198	203	209	222
<i>Salix alaxensis</i>	3758	10	33	43	54	69	81	452
<i>Salix arbusculoides</i>	4708	21	39	47	59	74	80	203
<i>Sambucus mexicana</i>	261	0	1	40	130	215	291	464
<i>Sapium biloculare</i>	171	0	7	10	57	118	157	184
<i>Sassafras albidum</i>	3246	53	88	96	109	125	158	214
<i>Shepherdia argentea</i>	1514	0	31	39	49	60	72	84
<i>Tilia americana</i>	3327	61	76	87	97	105	111	143
<i>Tilia heterophylla</i>	828	76	98	110	118	123	129	186
<i>Ulmus alata</i>	1818	41	83	97	115	129	159	214
<i>Ulmus americana</i>	7818	40	61	78	95	109	128	214
<i>Ulmus crassifolia</i>	696	32	42	47	58	93	109	185
<i>Ulmus rubra</i>	4253	41	74	88	99	110	123	211
<i>Ulmus serotina</i>	64	85	88	93	106	111	120	127
<i>Ulmus thomasii</i>	1210	61	72	85	99	105	109	133
<i>Umbellularia californica</i>	127	0	1	1	2	5	8	10
<i>Vauquelinia californica</i>	11	5	5	10	17	45	57	70
<i>Yucca brevifolia</i>	94	0	2	6	13	19	24	37
<i>Yucca carnerosana</i>	10	44	44	46	50	60	63	63
<i>Yucca elata</i>	386	18	32	43	50	56	66	112
<i>Yucca faxoniana</i>	9	49	49	50	51	52	52	53
<i>Yucca mohavensis</i>	100	0	3	6	9	15	20	31
<i>Yucca rostrata</i>	6	44	44	46	46	48	48	67
<i>Yucca schottii</i>	13	63	63	70	83	101	103	108
<i>Yucca torreyi</i>	313	32	42	46	51	57	68	109
<i>Yucca treculeana</i>	361	32	38	43	53	75	123	238

HARDWOODS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	-4.9	6.6	8.1	10.7	12.5	14.6	17.1
<i>Acer barbatum</i>	636	1.0	3.7	5.0	6.3	8.0	9.5	12.7
<i>Acer circinatum</i>	334	-10.7	-5.2	-1.6	1.8	3.5	4.6	7.6
<i>Acer glabrum</i>	1738	-23.8	-12.0	-10.5	-7.6	-3.2	1.7	8.7
<i>Acer grandidentatum</i>	103	-11.6	-9.6	-7.1	-4.4	0.5	7.3	10.7
<i>Acer leucoderme</i>	191	2.8	4.5	5.1	6.2	7.0	8.9	11.8
<i>Acer macrophyllum</i>	362	-9.7	-2.5	0.6	2.8	4.5	7.2	11.0
<i>Acer negundo</i>	6534	-23.8	-17.0	-11.0	-4.3	2.8	7.8	22.2
<i>Acer nigrum</i>	1494	-12.7	-10.1	-7.1	-4.5	-2.0	-0.1	3.0
<i>Acer pennsylvanicum</i>	1103	-15.6	-12.9	-11.4	-8.6	-5.7	-3.1	3.1
<i>Acer rubrum</i>	4842	-19.5	-13.4	-9.2	-1.6	5.0	9.3	18.8
<i>Acer saccharinum</i>	3792	-16.6	-10.8	-7.1	-3.1	1.6	5.0	12.3
<i>Acer saccharum</i>	3424	-19.2	-14.7	-11.8	-6.6	-2.9	-0.1	5.5
<i>Acer spicatum</i>	3076	-24.6	-21.0	-17.8	-12.7	-8.4	-5.6	2.8
<i>Aesculus californica</i>	107	1.7	3.6	4.5	6.0	6.9	7.9	9.2
<i>Aesculus glabra</i>	1412	-9.1	-4.9	-3.6	-1.0	2.4	5.3	10.2
<i>Aesculus octandra</i>	383	-3.8	-1.8	-0.8	0.2	1.7	2.8	5.1
<i>Agave utahensis</i>	48	-1.3	-0.1	0.7	2.3	4.3	5.9	9.2
<i>Alnus oblongifolia</i>	50	-2.1	-1.5	0.5	2.0	3.4	6.4	8.7
<i>Alnus rhombifolia</i>	219	-9.6	-1.9	0.2	2.9	5.5	7.4	9.4
<i>Alnus rubra</i>	442	-15.6	-6.6	-3.8	-0.1	2.9	4.3	10.8
<i>Alnus rugosa</i>	8293	-30.9	-27.2	-23.6	-19.7	-14.6	-8.9	-0.5
<i>Alnus serrulata</i>	2148	-11.2	-4.0	-0.8	3.2	6.9	9.5	14.1
<i>Alnus sinuata</i>	1601	-28.0	-17.2	-12.5	-9.3	-4.6	0.1	7.6
<i>Alnus tenuifolia</i>	3862	-33.0	-27.0	-24.2	-18.3	-10.8	-6.9	8.7
<i>Amelanchier alnifolia</i>	5719	-30.2	-25.6	-22.3	-16.6	-9.8	-4.8	7.6
<i>Amelanchier arborea</i>	4166	-18.4	-12.7	-8.9	-4.0	1.5	5.6	11.8
<i>Amelanchier utahensis</i>	364	-11.6	-9.6	-8.1	-5.6	-2.2	0.2	8.4
<i>Arbutus arizonica</i>	181	1.2	4.5	5.4	7.7	9.7	10.3	11.8
<i>Arbutus menziesii</i>	191	-4.4	1.1	2.7	3.6	5.2	7.6	12.0
<i>Arbutus texana</i>	25	5.7	7.6	8.4	9.5	12.4	12.6	16.0
<i>Arctostaphylos pringlei</i>	13	1.6	1.6	3.4	6.7	8.0	9.2	10.8
<i>Artemisia tridentata</i>	1700	-13.6	-9.7	-7.8	-5.0	-2.5	-0.7	12.4
<i>Betula alleghaniensis</i>	2260	-20.0	-15.8	-13.2	-9.5	-5.9	-3.3	3.6
<i>Betula lenta</i>	752	-11.4	-6.8	-5.4	-3.1	-0.4	1.3	5.6
<i>Betula nana</i>	6531	-34.8	-30.8	-29.4	-26.1	-23.2	-17.7	-2.7
<i>Betula nigra</i>	2113	-12.5	-3.3	-0.2	3.8	7.1	9.5	13.0
<i>Betula occidentalis</i>	1085	-23.4	-20.7	-18.6	-14.4	-8.6	-5.7	6.3
<i>Betula papyrifera</i>	10207	-33.0	-27.7	-24.6	-20.2	-14.1	-9.1	3.5
<i>Betula populifolia</i>	624	-14.5	-11.4	-10.1	-8.0	-5.5	-3.2	1.5
<i>Bursera fagaroides</i>	763	7.8	11.9	13.5	16.0	19.0	22.7	26.4
<i>Bursera microphylla</i>	211	8.9	10.6	12.5	15.0	17.1	17.4	18.1
<i>Canotia holacantha</i>	68	2.1	2.9	4.5	6.9	8.4	9.3	10.4
<i>Carpinus caroliniana</i>	4072	-16.5	-9.3	-5.1	0.4	6.6	11.6	25.6
<i>Carya aquatica</i>	979	0.1	4.8	6.6	9.1	10.9	13.1	18.1
<i>Carya cordiformis</i>	3774	-16.2	-8.5	-5.0	-0.6	4.2	7.4	12.3
<i>Carya floridana</i>	45	14.3	15.2	15.5	16.0	16.5	16.7	17.6
<i>Carya glabra</i>	2882	-9.6	-4.6	-2.0	1.9	6.4	9.8	16.3
<i>Carya illinoensis</i>	1057	-7.6	-1.3	1.7	5.4	8.6	10.9	17.5
<i>Carya laciniosa</i>	895	-7.7	-4.9	-3.8	-1.7	0.1	1.7	8.6

HARDWOODS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	4.2	5.1	5.4	6.0	7.9	8.6	11.2
<i>Carya ovata</i>	3038	-12.8	-7.2	-5.0	-1.2	2.8	6.0	15.6
<i>Carya pallida</i>	656	-2.3	2.7	4.2	5.7	7.2	9.0	12.0
<i>Carya texana</i>	649	-4.4	-1.1	0.9	3.8	7.0	9.2	11.4
<i>Carya tomentosa</i>	2831	-9.0	-3.4	-0.7	3.0	6.9	9.8	15.4
<i>Castanea alnifolia</i>	70	5.5	8.4	9.1	11.8	12.5	13.1	13.8
<i>Castanea dentata</i>	1137	-9.6	-5.7	-3.9	-0.7	2.0	4.0	9.9
<i>Castanea ozarkensis</i>	84	1.0	1.4	1.9	2.7	4.0	4.4	5.2
<i>Castanea pumila</i>	1340	-3.3	1.1	4.0	6.5	9.0	10.9	14.4
<i>Castanopsis chrysophylla</i>	119	-5.3	-0.9	0.5	2.7	4.2	5.5	9.2
<i>Celtis laevigata</i>	2446	-3.8	1.3	3.7	6.3	9.2	11.6	19.6
<i>Celtis occidentalis</i>	3123	-19.7	-11.7	-7.3	-4.2	-0.6	1.6	8.6
<i>Celtis reticulata</i>	1066	-8.4	0.3	2.6	5.7	9.1	12.0	21.3
<i>Cercidium floridum</i>	384	2.1	7.5	9.7	11.2	14.9	17.2	17.8
<i>Cercidium macrum</i>	167	12.3	14.2	14.6	15.1	15.7	16.8	18.0
<i>Cercidium microphyllum</i>	356	2.1	8.5	10.0	11.6	14.7	16.5	17.7
<i>Cercocarpus betuloides</i>	126	-1.4	1.2	3.1	5.6	8.5	9.8	12.0
<i>Cercocarpus breviflorus</i>	73	-1.0	-0.2	1.0	2.9	5.7	7.9	12.8
<i>Cercocarpus ledifolius</i>	323	-12.6	-9.7	-7.5	-5.0	-2.6	-0.8	9.4
<i>Cereus giganteus</i>	268	2.9	8.4	9.8	11.1	13.0	16.5	18.2
<i>Chilopsis linearis</i>	1212	0.7	4.9	6.7	9.5	12.2	12.9	16.6
<i>Cornus florida</i>	2927	-8.4	-4.2	-1.2	2.6	6.7	9.8	16.1
<i>Cornus stolonifera</i>	10191	-30.2	-24.7	-21.1	-15.9	-9.5	-5.6	13.1
<i>Corylus cornuta</i>	3760	-25.2	-20.9	-18.3	-12.0	-6.6	0.5	9.6
<i>Cowania mexicana</i>	598	-9.5	-3.6	-1.8	1.2	6.5	11.0	13.8
<i>Dalea spinosa</i>	165	5.9	8.9	9.9	10.5	11.2	12.1	14.9
<i>Diospyros virginiana</i>	2870	-4.9	-1.2	0.7	4.2	8.0	10.9	19.6
<i>Dodonaea viscosa</i>	1230	4.4	11.1	12.4	13.6	17.4	22.0	26.4
<i>Erythrina flabelliformis</i>	280	2.4	4.9	7.1	9.9	12.5	16.3	19.9
<i>Fagus grandifolia</i>	3389	-14.7	-10.6	-6.7	-1.4	4.7	8.4	13.4
<i>Forestiera phillyreoides</i> (southern range not available)	23	6.9	7.7	10.0	13.5	14.7	17.4	17.6
<i>Fraxinus americana</i>	4274	-15.6	-9.9	-6.5	-1.8	3.6	7.3	15.1
<i>Fraxinus anomala</i>	138	-7.4	-5.0	-3.4	-1.8	0.8	3.3	8.1
<i>Fraxinus berlandieriana</i>	312	9.1	11.8	12.5	13.1	14.5	15.0	15.6
<i>Fraxinus caroliniana</i>	656	0.8	5.5	7.4	9.8	11.6	15.2	18.0
<i>Fraxinus cuspidata</i>	18	-2.2	-0.3	2.9	6.7	11.8	12.6	13.8
<i>Fraxinus dipetala</i>	100	1.7	4.6	5.9	7.1	9.8	11.8	12.9
<i>Fraxinus greggii</i>	288	9.6	12.1	12.7	13.4	14.9	15.5	16.9
<i>Fraxinus latifolia</i>	234	-3.1	0.0	2.2	3.6	4.8	6.7	9.6
<i>Fraxinus nigra</i>	2928	-21.2	-18.6	-15.8	-11.3	-7.1	-4.8	-0.4
<i>Fraxinus pennsylvanica</i>	7355	-23.8	-16.6	-11.8	-5.0	2.4	7.5	12.6
<i>Fraxinus profunda</i>	246	-3.1	0.3	3.2	5.6	8.7	11.9	14.2
<i>Fraxinus quadrangulata</i>	529	-8.4	-5.1	-4.3	-2.1	0.0	1.8	6.0
<i>Fraxinus texensis</i>	40	4.2	7.2	7.6	9.1	9.5	10.2	12.4
<i>Fraxinus velutina</i>	157	-1.6	1.3	2.7	5.1	7.8	9.0	12.6
<i>Fremontodendron californicum</i>	61	-1.2	3.9	5.4	6.3	7.4	8.6	9.9
<i>Gleditsia triacanthos</i>	2601	-11.0	-5.4	-3.2	0.6	5.3	9.0	12.5
<i>Holacantha emoryi</i>	131	5.8	8.9	9.8	10.5	11.0	11.3	12.4
<i>Ilex opaca</i>	1842	-4.0	1.2	3.6	6.2	9.1	11.2	16.4
<i>Ilex verticillata</i>	2800	-16.5	-12.2	-9.1	-4.6	0.5	4.2	14.6

HARDWOODS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	9.4	9.4	9.9	11.0	11.8	12.0	12.3
<i>Juglans cinerea</i>	2184	-14.6	-10.2	-7.2	-4.3	-1.1	0.8	6.0
<i>Juglans major</i>	465	-1.0	2.8	5.3	8.8	13.5	18.6	24.7
<i>Juglans microcarpa</i>	54	-1.3	1.6	3.1	7.7	9.8	10.3	13.8
<i>Juglans nigra</i>	3470	-13.1	-6.6	-3.8	0.4	4.6	7.4	12.4
<i>Kalmia latifolia</i>	1402	-8.3	-5.0	-2.1	1.3	4.8	7.8	12.0
<i>Koeberlinia spinosa</i>	937	0.2	5.7	7.6	12.1	13.1	14.9	17.8
<i>Larrea divaricata</i>	1751	-2.5	4.2	6.8	10.3	12.5	13.4	17.6
<i>Liquidambar styraciflua</i>	2209	-3.6	0.1	2.6	5.7	9.0	11.6	23.8
<i>Liriodendron tulipifera</i>	2351	-9.6	-4.5	-1.7	2.3	6.7	9.9	15.5
<i>Lithocarpus densiflorus</i>	46	-1.7	2.3	3.4	4.9	7.2	8.1	9.6
<i>Lyonia ferruginea</i>	208	8.5	10.8	11.8	13.2	15.8	16.8	19.0
<i>Maclura pomifera</i>	182	4.1	5.2	5.8	7.8	9.7	10.7	11.7
<i>Magnolia acuminata</i>	753	-7.0	-4.6	-2.6	0.1	2.8	5.8	11.4
<i>Magnolia grandiflora</i>	573	6.0	8.2	9.0	10.0	11.4	13.4	16.3
<i>Magnolia virginiana</i>	1036	-2.9	4.0	6.3	8.7	10.8	14.4	18.8
<i>Morus microphylla</i>	112	0.2	2.1	3.7	6.5	7.5	9.6	12.5
<i>Morus rubra</i>	4197	-12.4	-5.4	-2.1	2.6	7.3	10.6	19.1
<i>Myrica heterophylla</i>	458	0.4	5.1	6.6	8.7	10.4	11.5	13.1
<i>Myrica inodora</i>	64	9.7	10.0	10.4	11.1	11.6	12.0	12.3
<i>Myrica pensylvanica</i>	193	-12.8	-7.8	-6.1	-3.8	-1.4	0.7	5.9
<i>Nolina bigelovii</i>	42	0.8	2.9	6.1	8.9	10.5	11.7	12.7
<i>Nyssa aquatica</i>	700	-2.4	2.6	5.2	7.9	10.1	11.2	13.0
<i>Nyssa ogeche</i>	119	8.9	9.9	10.4	11.5	12.0	12.4	13.5
<i>Nyssa sylvatica</i>	2960	-10.4	-4.3	-0.9	3.2	7.4	10.4	18.9
<i>Olneya tesota</i>	428	4.4	9.7	10.4	11.7	14.9	17.1	18.1
<i>Opuntia fulgida</i>	224	4.8	8.8	10.3	12.0	14.7	16.7	17.7
<i>Ostrya knowltonii</i>	8	-4.9	-4.9	-3.7	-1.8	-0.3	0.8	5.7
<i>Ostrya virginiana</i>	4747	-20.3	-12.6	-8.8	-3.6	2.8	8.2	24.8
<i>Platanus occidentalis</i>	3811	-10.2	-5.7	-3.3	1.3	6.0	9.1	12.4
<i>Populus balsamifera</i>	8595	-33.0	-27.5	-24.5	-20.5	-16.1	-10.6	-1.2
<i>Populus fremontii</i>	333	-8.2	-4.3	-1.6	2.9	7.3	9.9	12.3
<i>Populus grandidentata</i>	3057	-20.3	-17.1	-13.9	-9.7	-5.7	-3.0	2.7
<i>Populus heterophylla</i>	323	-5.3	-3.9	-0.6	3.3	6.6	8.6	12.3
<i>Populus tremuloides</i>	11232	-33.0	-27.8	-24.0	-18.7	-11.1	-6.3	13.6
<i>Prosopis juliflora</i>	3304	-0.7	5.1	7.5	11.5	14.7	18.2	26.4
<i>Prosopis pubescens</i>	239	-2.2	4.1	6.5	8.8	10.4	11.1	12.6
<i>Prunus serotina</i>	5424	-15.7	-9.5	-5.5	0.7	7.3	11.9	24.9
<i>Ptelea trifoliata</i>	3023	-12.2	-4.2	0.0	6.3	11.0	13.6	23.6
<i>Quercus agrifolia</i>	82	2.7	6.2	7.7	8.6	9.9	11.3	12.3
<i>Quercus alba</i>	3710	-14.3	-8.2	-5.0	-0.3	4.7	8.2	12.3
<i>Quercus arizonica</i>	94	-0.6	1.5	2.8	4.4	7.3	8.9	12.5
<i>Quercus arkansana</i>	20	5.4	5.5	5.7	6.0	7.2	10.9	11.7
<i>Quercus bicolor</i>	1294	-14.6	-8.8	-5.8	-4.2	-2.3	-0.5	3.9
<i>Quercus chapmanii</i>	126	9.0	11.9	12.7	14.4	15.8	16.3	18.0
<i>Quercus chrysolepis</i>	189	-3.1	-0.2	1.6	3.9	6.2	8.1	12.0
<i>Quercus coccinea</i>	1391	-8.4	-4.2	-1.7	0.5	3.2	5.6	10.7
<i>Quercus douglasii</i>	91	2.1	4.5	5.6	6.5	7.5	8.4	9.7
<i>Quercus dunni</i>	40	-0.9	3.5	4.9	7.0	8.5	9.2	10.9
<i>Quercus durandii</i>	271	4.1	5.7	6.7	7.9	9.1	10.2	14.2

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Taxon name	N	0%	10%	25%	50%	75%	90%	100%	
<i>Quercus ellipsoidalis</i>	442	-17.0	-14.7	-12.7	-10.2	-8.5	-6.2	-4.5	
<i>Quercus emoryi</i>	57	1.6	3.7	4.8	6.5	8.2	9.2	9.8	
<i>Quercus engelmannii</i>	8	8.4	8.4	8.6	9.6	11.2	11.9	12.0	
<i>Quercus falcata</i>	2009	-1.8	1.1	2.8	5.5	8.5	10.5	14.4	
<i>Quercus gambelii</i>	503	-12.0	-9.1	-7.2	-4.4	-1.4	1.5	11.6	
<i>Quercus garryana</i>	193	-4.1	-0.4	1.1	2.7	3.8	4.6	8.5	
<i>Quercus georgiana</i>	7	5.3	5.3	5.9	6.3	6.3	6.5	6.8	
<i>Quercus glaucoides</i>	32	8.1	8.3	9.0	9.7	10.1	12.5	16.4	
<i>Quercus gravesii</i>	8	7.7	7.7	8.0	8.7	11.1	11.5	12.7	
<i>Quercus grisea</i>	44	-2.2	-1.1	0.5	2.8	6.0	8.0	12.7	
<i>Quercus havardii</i>	121	0.8	1.6	3.3	4.4	5.8	6.6	8.8	
<i>Quercus hypoleucoides</i>	55	-1.6	0.7	1.0	3.6	5.7	8.0	10.8	
<i>Quercus ilicifolia</i>	307	-9.6	-5.9	-4.8	-3.2	-1.6	-0.5	1.8	
<i>Quercus imbricaria</i>	1000	-7.6	-4.9	-4.1	-2.2	0.1	1.7	9.8	
<i>Quercus incana</i>	583	3.9	6.4	7.6	9.6	11.6	14.2	17.3	
<i>Quercus kelloggii</i>	124	-3.6	-1.1	0.8	3.0	5.5	7.2	9.6	
<i>Quercus laevis</i>	568	3.8	6.1	7.4	9.7	11.7	14.8	17.5	
<i>Quercus laurifolia</i>	792	2.4	5.7	7.4	9.2	11.0	14.3	18.6	
<i>Quercus lobata</i>	142	3.1	5.4	6.3	7.4	7.8	8.5	12.0	
<i>Quercus lyrata</i>	1356	-4.2	2.9	5.1	7.2	9.5	11.0	13.3	
<i>Quercus macrocarpa</i>	3667	-22.7	-16.6	-12.5	-6.8	-1.7	2.4	13.3	
<i>Quercus marilandica</i>	2744	-6.3	-1.1	1.3	4.6	7.7	10.0	13.3	
<i>Quercus michauxii</i>	1418	-2.3	2.2	4.4	6.9	9.4	11.2	14.5	
<i>Quercus mohriana</i>	107	-0.6	3.3	6.3	7.6	8.6	9.2	12.0	
<i>Quercus muehlenbergii</i>	2637	-10.8	-5.6	-3.3	0.2	4.2	7.5	13.1	
<i>Quercus myrtifolia</i>	144	8.7	11.7	13.0	14.8	16.2	17.0	19.0	
<i>Quercus nigra</i>	1551	1.2	3.9	5.2	7.2	9.7	11.6	15.9	
<i>Quercus nuttallii</i>	410	0.9	3.8	5.6	7.5	9.2	10.1	12.5	
<i>Quercus oblongifolia</i>	29	5.7	6.3	7.5	8.2	9.2	9.8	12.0	
<i>Quercus oglethorpensis</i>	6	6.0	6.0	6.2	6.3	6.6	6.6	6.7	
<i>Quercus palustris</i>	1358	-8.1	-5.1	-4.0	-1.7	0.5	2.4	4.5	
<i>Quercus phellos</i>	1456	-1.7	2.0	3.9	6.0	8.5	10.1	13.1	
<i>Quercus prinus</i>	1190	-10.1	-4.9	-2.6	0.1	2.7	4.8	8.4	
<i>Quercus pungens</i>	43	1.4	5.1	8.7	9.2	9.8	10.2	11.5	
<i>Quercus rubra</i>	4296	-18.4	-13.3	-9.8	-4.9	0.2	3.8	10.2	
<i>Quercus rugosa</i>	707	-1.6	5.7	9.6	13.2	15.5	17.8	24.7	
<i>Quercus shumardii</i>	2257	-5.6	-1.0	1.7	5.6	8.4	10.4	14.2	
<i>Quercus stellata</i>	3185	-6.4	-1.7	0.6	4.2	7.4	10.1	15.9	
<i>Quercus toumeyi</i>	11	3.9	3.9	5.6	7.6	8.1	8.9	9.2	
<i>Quercus turbinella</i>	120	-3.8	0.8	3.1	6.1	8.4	9.8	13.5	
<i>Quercus velutina</i>	3416	-12.0	-6.2	-3.9	0.4	4.9	8.1	12.0	
<i>Quercus virginiana</i>	740	3.1	7.4	9.6	11.2	12.5	15.9	19.6	
<i>Quercus wislizeni</i>	118	-2.9	2.9	4.5	6.1	7.5	8.6	10.8	
<i>Rhamnus betulaefolia</i>	266	-4.9	0.3	3.1	5.9	8.8	10.4	14.5	
<i>Rhamnus californica</i>	301	-3.1	1.5	3.7	6.3	8.3	9.6	12.9	
<i>Rhamnus crocea</i>	193	-1.6	3.8	5.7	7.9	9.8	12.0	15.7	
<i>Rhamnus purshiana</i>	492	-14.4	-8.7	-5.4	-0.2	2.9	4.1	7.8	
<i>Rhododendron macrophyllum</i>	98	-8.2	-0.8	1.7	3.6	5.0	6.9	8.1	
<i>Rhus choriophylla</i>	22	2.1	3.9	5.8	7.7	8.9	9.2	9.8	
<i>Rhus glabra</i>	4432	-23.1	-12.1	-6.8	-2.4	2.3	5.8	16.4	

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<i>Rhus microphylla</i>	958	1.6	6.1	7.3	10.1	12.2	12.8	14.4
<i>Rhus ovata</i>	71	1.6	4.4	7.0	9.1	11.2	12.3	15.0
<i>Robinia neomexicana</i>	82	-6.6	-3.5	-0.7	1.6	3.3	5.6	8.7
<i>Robinia pseudoacacia</i>	665	-5.5	-2.6	-0.9	0.3	2.3	4.0	8.1
<i>Sabal palmetto</i>	170	8.2	12.2	13.9	15.8	17.3	18.4	19.6
<i>Salix alaxensis</i>	3758	-35.7	-30.0	-28.3	-25.8	-21.1	-14.8	0.0
<i>Salix arbusculoides</i>	4708	-34.2	-30.2	-28.8	-26.3	-23.5	-20.2	-8.1
<i>Sambucus mexicana</i>	261	-1.6	7.4	10.6	12.6	15.5	19.5	25.1
<i>Sapium biloculare</i>	171	8.7	10.7	12.1	14.7	16.5	17.3	18.1
<i>Sassafras albidum</i>	3246	-8.7	-4.5	-1.7	2.5	6.7	9.8	15.5
<i>Shepherdia argentea</i>	1514	-20.5	-16.5	-14.6	-11.4	-8.2	-6.5	7.7
<i>Tilia americana</i>	3327	-19.8	-14.5	-11.2	-6.7	-3.3	-0.7	4.0
<i>Tilia heterophylla</i>	828	-5.1	-1.6	-0.3	2.0	5.0	6.5	11.6
<i>Ulmus alata</i>	1818	-2.6	0.9	2.8	5.4	7.9	9.9	16.8
<i>Ulmus americana</i>	7818	-23.1	-17.4	-12.2	-5.2	2.5	7.7	17.3
<i>Ulmus crassifolia</i>	696	3.4	5.3	6.4	8.4	11.2	14.2	15.5
<i>Ulmus rubra</i>	4253	-16.7	-10.3	-6.4	-2.1	3.1	6.1	12.3
<i>Ulmus serotina</i>	64	-1.6	1.6	2.2	3.0	5.1	5.6	6.0
<i>Ulmus thomasi</i>	1210	-16.9	-11.8	-9.5	-6.7	-4.8	-2.9	3.4
<i>Umbellularia californica</i>	127	-1.5	2.7	4.1	5.9	7.4	8.6	12.0
<i>Vauquelinia californica</i>	11	5.7	5.7	7.4	10.8	13.4	14.9	15.3
<i>Yucca brevifolia</i>	94	-0.1	1.7	3.9	6.4	7.5	8.8	11.5
<i>Yucca carnerosana</i>	10	6.0	6.0	10.3	10.8	12.6	13.1	15.1
<i>Yucca elata</i>	386	-2.7	3.7	5.3	6.9	8.8	10.5	11.6
<i>Yucca faxoniana</i>	9	6.3	6.3	6.7	7.0	7.4	7.5	7.5
<i>Yucca mohavensis</i>	100	-0.6	5.0	6.9	8.4	10.0	11.2	12.5
<i>Yucca rostrata</i>	6	10.8	10.8	12.5	12.6	12.7	12.7	12.7
<i>Yucca schottii</i>	13	3.9	3.9	6.3	7.8	8.7	9.2	9.6
<i>Yucca torreyi</i>	313	1.8	6.1	7.4	9.7	10.9	11.7	14.9
<i>Yucca treculeana</i>	361	10.2	11.9	12.9	14.3	15.3	16.8	18.2

HARDWOODS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Acacia greggii</i>	1422	1.0	4.2	4.9	5.7	6.2	6.5	7.0
<i>Acer barbatum</i>	636	3.5	3.7	4.1	4.4	4.8	5.1	5.7
<i>Acer circinatum</i>	334	0.3	0.8	1.2	1.7	2.0	2.3	3.8
<i>Acer glabrum</i>	1738	0.1	0.5	0.7	1.0	1.5	1.9	4.8
<i>Acer grandidentatum</i>	103	0.4	0.8	1.2	1.7	2.2	4.8	5.6
<i>Acer leucoderme</i>	191	3.5	3.8	4.1	4.3	4.5	4.9	5.4
<i>Acer macrophyllum</i>	362	0.2	0.9	1.4	1.9	2.3	3.1	4.1
<i>Acer negundo</i>	6534	0.2	1.5	1.9	2.6	3.7	4.8	7.6
<i>Acer nigrum</i>	1494	1.6	2.1	2.3	2.6	3.0	3.3	3.7
<i>Acer pensylvanicum</i>	1103	0.8	1.3	1.5	1.7	2.0	2.3	3.6
<i>Acer rubrum</i>	4842	0.8	1.4	1.8	2.8	4.1	5.0	6.8
<i>Acer saccharinum</i>	3792	1.0	1.8	2.2	2.8	3.5	4.2	5.5
<i>Acer saccharum</i>	3424	0.8	1.3	1.6	2.1	2.8	3.3	4.0
<i>Acer spicatum</i>	3076	0.5	1.1	1.2	1.4	1.8	2.1	3.5
<i>Aesculus californica</i>	107	1.4	2.4	2.7	3.3	3.6	3.9	4.5
<i>Aesculus glabra</i>	1412	2.1	2.6	2.9	3.3	3.8	4.6	5.7
<i>Aesculus octandra</i>	383	1.9	2.5	2.7	3.0	3.2	3.5	3.9
<i>Agave utahensis</i>	48	2.0	2.3	2.6	3.3	3.9	4.5	5.7
<i>Alnus oblongifolia</i>	50	1.4	1.6	2.1	2.7	3.1	4.0	4.8
<i>Alnus rhombifolia</i>	219	0.6	1.4	1.7	2.2	2.9	3.6	4.4
<i>Alnus rubra</i>	442	0.2	0.6	0.8	1.2	1.9	2.2	3.7
<i>Alnus rugosa</i>	8293	0.1	0.6	0.8	1.0	1.3	1.8	2.8
<i>Alnus serrulata</i>	2148	1.3	2.2	2.8	3.7	4.5	5.1	5.9
<i>Alnus sinuata</i>	1601	0.1	0.5	0.6	0.8	1.1	1.5	2.6
<i>Alnus tenuifolia</i>	3862	0.1	0.5	0.7	0.8	1.0	1.3	4.8
<i>Amelanchier alnifolia</i>	5719	0.1	0.6	0.8	1.0	1.4	2.0	3.6
<i>Amelanchier arborea</i>	4166	0.8	1.5	1.8	2.6	3.4	4.2	5.5
<i>Amelanchier utahensis</i>	364	0.2	0.7	0.9	1.4	2.0	2.4	5.0
<i>Arbutus arizonica</i>	181	2.9	3.1	3.5	4.0	4.3	4.5	5.6
<i>Arbutus menziesii</i>	191	0.4	1.4	1.6	2.0	2.3	2.9	4.5
<i>Arbutus texana</i>	25	3.9	4.3	5.1	5.3	5.6	6.1	6.8
<i>Arctostaphylos pringlei</i>	13	2.3	2.3	2.8	3.7	4.1	4.5	4.8
<i>Artemisia tridentata</i>	1700	0.1	1.0	1.4	1.8	2.0	2.5	5.8
<i>Betula alleghaniensis</i>	2260	0.8	1.2	1.4	1.7	2.1	2.4	3.5
<i>Betula lenta</i>	752	1.4	1.9	2.0	2.4	2.8	3.1	4.2
<i>Betula nana</i>	6531	0.0	0.2	0.4	0.6	0.7	0.9	1.1
<i>Betula nigra</i>	2113	1.8	2.9	3.3	3.9	4.6	5.1	5.7
<i>Betula occidentalis</i>	1085	0.1	0.6	1.0	1.3	1.5	1.7	4.8
<i>Betula papyrifera</i>	10207	0.1	0.5	0.7	0.9	1.2	1.6	2.7
<i>Betula populifolia</i>	624	1.0	1.4	1.5	1.7	2.0	2.4	3.0
<i>Bursera fagaroides</i>	763	3.1	4.4	4.9	5.9	6.8	7.5	8.7
<i>Bursera microphylla</i>	211	4.5	5.4	5.8	6.3	6.6	6.9	7.3
<i>Canotia holacantha</i>	68	2.6	3.0	3.4	4.4	5.1	5.6	5.9
<i>Carpinus caroliniana</i>	4072	1.3	1.9	2.3	3.2	4.4	5.3	8.6
<i>Carya aquatica</i>	979	3.5	4.1	4.6	5.0	5.3	5.8	6.7
<i>Carya cordiformis</i>	3774	1.5	2.1	2.5	3.2	4.0	4.7	5.6
<i>Carya floridana</i>	45	6.0	6.2	6.2	6.3	6.4	6.4	6.6
<i>Carya glabra</i>	2882	1.4	2.5	2.8	3.5	4.4	5.1	6.5
<i>Carya illinoensis</i>	1057	2.6	3.3	3.8	4.5	5.1	5.5	6.7
<i>Carya laciniata</i>	895	2.0	2.5	2.8	3.1	3.4	3.6	4.8

HARDWOODS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	4.1	4.4	4.5	4.6	4.8	5.0	5.5
<i>Carya ovata</i>	3038	1.5	2.1	2.5	3.0	3.6	4.3	6.4
<i>Carya pallida</i>	656	2.0	3.5	3.8	4.2	4.5	4.9	5.4
<i>Carya texana</i>	649	3.0	3.3	3.5	4.1	4.8	5.2	5.9
<i>Carya tomentosa</i>	2831	1.6	2.6	3.1	3.7	4.6	5.2	6.2
<i>Castanea alnifolia</i>	70	4.1	4.8	4.9	5.4	5.6	5.8	5.9
<i>Castanea dentata</i>	1137	1.4	2.0	2.3	2.8	3.3	3.9	5.1
<i>Castanea ozarkensis</i>	84	3.5	3.5	3.6	3.8	4.0	4.2	4.3
<i>Castanea pumila</i>	1340	1.9	3.0	3.7	4.4	5.0	5.3	6.0
<i>Castanopsis chrysophylla</i>	119	0.6	1.3	1.5	1.9	2.1	2.5	3.4
<i>Celtis laevigata</i>	2446	2.8	3.5	4.0	4.5	5.1	5.5	7.0
<i>Celtis occidentalis</i>	3123	1.5	2.1	2.4	2.8	3.3	3.6	4.8
<i>Celtis reticulata</i>	1066	0.5	2.9	3.6	4.3	4.9	5.7	7.3
<i>Cercidium floridum</i>	384	2.6	4.6	5.4	6.1	6.4	6.8	7.4
<i>Cercidium macrum</i>	167	4.8	6.3	6.5	6.7	6.8	6.8	7.0
<i>Cercidium microphyllum</i>	356	2.6	5.0	5.6	6.1	6.4	6.7	7.3
<i>Cercocarpus betuloides</i>	126	1.2	1.6	2.0	2.8	3.6	4.1	5.2
<i>Cercocarpus breviflorus</i>	73	1.6	1.9	2.2	3.0	3.8	4.4	5.6
<i>Cercocarpus ledifolius</i>	323	0.3	0.7	1.0	1.3	1.7	2.0	4.3
<i>Cereus giganteus</i>	268	3.0	4.9	5.5	6.0	6.4	6.9	7.4
<i>Chilopsis linearis</i>	1212	2.0	3.8	4.3	5.0	5.7	6.0	6.8
<i>Cornus florida</i>	2927	1.6	2.4	2.9	3.6	4.5	5.2	6.2
<i>Cornus stolonifera</i>	10191	0.1	0.6	0.9	1.1	1.6	2.1	5.3
<i>Corylus cornuta</i>	3760	0.2	1.1	1.2	1.5	1.9	2.3	4.5
<i>Cowania mexicana</i>	598	0.6	1.9	2.3	3.0	3.9	4.6	5.6
<i>Dalea spinosa</i>	165	3.4	5.3	5.7	6.1	6.3	6.4	6.5
<i>Diospyros virginiana</i>	2870	1.9	2.9	3.4	4.0	4.8	5.3	7.0
<i>Dodonaea viscosa</i>	1230	3.0	4.3	4.8	5.5	6.2	7.3	8.7
<i>Erythrina flabelliformis</i>	280	2.9	3.3	3.9	4.3	5.2	5.8	7.4
<i>Fagus grandifolia</i>	3389	1.0	1.6	1.9	2.8	4.0	4.8	5.8
<i>Forestiera phillyreoides</i> (southern range not available)	23	3.7	4.1	4.2	5.2	6.0	6.6	6.9
<i>Fraxinus americana</i>	4274	0.9	1.6	2.1	3.0	3.8	4.7	6.1
<i>Fraxinus anomala</i>	138	0.9	2.0	2.3	2.7	3.0	3.6	5.0
<i>Fraxinus berlandieriana</i>	312	4.9	5.5	5.9	6.3	6.6	6.8	6.9
<i>Fraxinus caroliniana</i>	656	3.2	4.1	4.6	5.1	5.4	6.2	6.7
<i>Fraxinus cuspidata</i>	18	1.9	2.1	3.1	4.8	5.7	5.9	6.3
<i>Fraxinus dipetala</i>	100	2.0	2.9	3.2	3.6	4.1	4.6	5.6
<i>Fraxinus greggii</i>	288	3.9	4.8	5.1	5.6	6.3	6.8	6.9
<i>Fraxinus latifolia</i>	234	1.0	1.5	1.8	2.1	2.6	3.4	4.4
<i>Fraxinus nigra</i>	2928	0.8	1.1	1.3	1.6	2.1	2.4	3.3
<i>Fraxinus pennsylvanica</i>	7355	0.8	1.5	1.9	2.6	3.7	4.8	6.0
<i>Fraxinus profunda</i>	246	2.8	3.5	3.7	4.1	4.9	5.5	6.0
<i>Fraxinus quadrangulata</i>	529	2.4	2.6	2.8	3.1	3.3	3.5	4.5
<i>Fraxinus texensis</i>	40	4.4	4.9	5.1	5.2	5.3	5.5	6.2
<i>Fraxinus velutina</i>	157	1.7	2.4	2.9	3.5	4.3	4.8	6.3
<i>Fremontodendron californicum</i>	61	1.4	2.9	3.2	3.5	3.9	4.2	5.0
<i>Gleditsia triacanthos</i>	2601	1.8	2.6	2.9	3.5	4.4	5.1	5.9
<i>Holacantha emoryi</i>	131	4.2	5.3	5.7	5.9	6.2	6.3	6.5
<i>Ilex opaca</i>	1842	1.8	3.1	3.7	4.4	5.0	5.4	6.4
<i>Ilex verticillata</i>	2800	0.8	1.6	1.8	2.3	3.1	3.8	6.0

HARDWOODS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	3.7	3.7	4.0	4.1	4.2	4.5	4.5
<i>Juglans cinerea</i>	2184	1.0	1.9	2.1	2.5	3.0	3.3	4.4
<i>Juglans major</i>	465	1.6	3.0	3.5	4.3	5.5	6.6	8.5
<i>Juglans microcarpa</i>	54	1.9	2.6	4.0	4.5	5.4	5.7	6.6
<i>Juglans nigra</i>	3470	1.8	2.4	2.8	3.3	4.1	4.8	6.0
<i>Kalmia latifolia</i>	1402	1.6	2.1	2.5	3.2	3.9	4.7	5.5
<i>Koeberlinia spinosa</i>	937	2.0	4.0	4.5	5.3	6.0	6.5	7.0
<i>Larrea divaricata</i>	1751	1.7	3.6	4.4	5.2	5.9	6.3	7.2
<i>Liquidambar styraciflua</i>	2209	2.3	3.1	3.6	4.3	5.0	5.4	7.7
<i>Liriodendron tulipifera</i>	2351	1.4	2.4	2.7	3.5	4.4	5.1	6.2
<i>Lithocarpus densiflorus</i>	46	1.1	1.4	1.7	2.1	2.6	2.9	3.4
<i>Lyonia ferruginea</i>	208	4.8	5.2	5.4	5.8	6.3	6.5	6.8
<i>Maclura pomifera</i>	182	4.3	4.5	4.6	5.1	5.4	5.6	5.8
<i>Magnolia acuminata</i>	753	1.7	2.1	2.5	2.9	3.6	4.2	5.3
<i>Magnolia grandiflora</i>	573	4.1	4.8	5.0	5.2	5.4	5.8	6.5
<i>Magnolia virginiana</i>	1036	2.4	3.8	4.4	4.9	5.3	6.0	6.8
<i>Morus microphylla</i>	112	2.0	2.7	3.3	4.3	4.8	5.3	6.1
<i>Morus rubra</i>	4197	1.5	2.5	3.0	3.7	4.8	5.4	6.9
<i>Myrica heterophylla</i>	458	3.1	3.9	4.4	4.9	5.2	5.4	5.8
<i>Myrica inodora</i>	64	5.1	5.2	5.3	5.3	5.4	5.5	5.5
<i>Myrica pensylvanica</i>	193	1.0	1.5	1.6	2.3	2.7	3.1	4.1
<i>Nolina bigelovii</i>	42	2.0	3.1	4.2	4.9	6.0	6.3	6.5
<i>Nyssa aquatica</i>	700	3.1	3.8	4.2	4.8	5.2	5.4	5.7
<i>Nyssa ogeche</i>	119	4.9	5.1	5.2	5.3	5.5	5.6	5.8
<i>Nyssa sylvatica</i>	2960	1.5	2.4	2.9	3.7	4.7	5.3	6.6
<i>Olneya tesota</i>	428	3.4	5.4	5.8	6.2	6.5	6.8	7.4
<i>Opuntia fulgida</i>	224	3.5	4.7	5.3	6.0	6.5	7.0	7.4
<i>Ostrya knowltonii</i>	8	1.8	1.8	2.1	2.2	3.1	3.6	3.9
<i>Ostrya virginiana</i>	4747	1.0	1.6	2.0	2.7	3.6	4.8	7.6
<i>Platanus occidentalis</i>	3811	1.6	2.3	2.8	3.4	4.4	5.1	6.2
<i>Populus balsamifera</i>	8595	0.1	0.6	0.7	1.0	1.2	1.6	2.9
<i>Populus fremontii</i>	333	0.8	2.0	2.4	3.1	4.1	5.4	6.5
<i>Populus grandidentata</i>	3057	0.8	1.2	1.4	1.8	2.3	2.6	3.5
<i>Populus heterophylla</i>	323	2.3	2.6	3.2	3.8	4.3	4.8	5.6
<i>Populus tremuloides</i>	11232	0.1	0.6	0.7	1.0	1.4	2.1	5.7
<i>Prosopis juliflora</i>	3304	2.0	4.0	4.7	5.4	6.3	7.0	8.7
<i>Prosopis pubescens</i>	239	1.9	3.6	4.5	5.2	5.9	6.3	6.5
<i>Prunus serotina</i>	5424	1.0	1.9	2.4	3.3	4.5	5.3	8.2
<i>Ptelea trifoliata</i>	3023	0.9	2.7	3.3	4.3	5.1	5.8	7.9
<i>Quercus agrifolia</i>	82	1.7	2.7	3.2	3.5	4.0	4.2	4.5
<i>Quercus alba</i>	3710	1.4	2.1	2.5	3.2	4.1	4.8	5.6
<i>Quercus arizonica</i>	94	1.7	2.3	3.0	3.5	4.0	4.7	5.4
<i>Quercus arkansana</i>	20	4.4	4.4	4.4	4.5	4.6	5.3	5.4
<i>Quercus bicolor</i>	1294	1.5	2.2	2.4	2.7	3.0	3.3	3.7
<i>Quercus chapmanii</i>	126	4.9	5.4	5.7	6.0	6.3	6.4	6.7
<i>Quercus chrysolepis</i>	189	1.0	1.5	1.9	2.5	3.3	3.8	5.1
<i>Quercus coccinea</i>	1391	1.6	2.3	2.6	3.2	3.6	4.1	5.2
<i>Quercus douglasii</i>	91	1.7	2.7	3.2	3.5	3.8	4.2	4.8
<i>Quercus dunnii</i>	40	1.8	3.0	3.4	3.9	4.1	4.4	5.0
<i>Quercus durandii</i>	271	3.9	4.4	4.7	4.9	5.2	5.5	6.0

HARDWOODS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Quercus ellipsoidalis</i>	442	1.4	1.8	2.0	2.2	2.5	2.6	2.9
<i>Quercus emoryi</i>	57	2.3	3.0	3.4	4.0	4.5	4.7	5.4
<i>Quercus engelmannii</i>	8	3.6	3.6	3.7	3.9	4.2	4.2	4.5
<i>Quercus falcata</i>	2009	2.0	3.3	3.6	4.3	4.9	5.3	6.0
<i>Quercus gambelii</i>	503	0.3	0.8	1.2	1.8	2.2	2.8	5.9
<i>Quercus garryana</i>	193	0.4	1.4	1.7	2.0	2.3	2.6	3.5
<i>Quercus georgiana</i>	7	4.0	4.0	4.2	4.3	4.3	4.4	4.4
<i>Quercus glaucoides</i>	32	5.0	5.0	5.1	5.4	5.6	5.9	6.7
<i>Quercus gravesii</i>	8	4.3	4.3	4.6	4.9	5.9	5.9	6.3
<i>Quercus grisea</i>	44	1.7	1.9	2.1	3.0	4.0	4.9	6.0
<i>Quercus havardii</i>	121	3.4	3.6	3.7	4.1	4.4	4.7	5.2
<i>Quercus hypoleucoides</i>	55	1.6	2.3	3.2	3.5	4.0	4.3	5.4
<i>Quercus ilicifolia</i>	307	1.4	2.0	2.1	2.4	2.7	2.9	3.3
<i>Quercus imbricaria</i>	1000	1.8	2.5	2.8	3.1	3.3	3.6	5.2
<i>Quercus incana</i>	583	3.7	4.4	4.7	5.1	5.4	6.0	6.6
<i>Quercus kelloggii</i>	124	1.0	1.5	1.8	2.2	2.8	3.5	4.2
<i>Quercus laevis</i>	568	3.7	4.2	4.6	5.1	5.4	6.1	6.5
<i>Quercus laurifolia</i>	792	3.4	4.1	4.6	5.0	5.3	6.0	6.8
<i>Quercus lobata</i>	142	1.7	2.8	3.4	3.8	4.2	4.6	5.0
<i>Quercus lyrata</i>	1356	3.0	3.8	4.2	4.6	5.1	5.4	5.9
<i>Quercus macrocarpa</i>	3667	1.0	1.6	1.9	2.5	3.2	4.0	6.3
<i>Quercus marilandica</i>	2744	2.0	3.1	3.4	4.1	4.8	5.3	6.3
<i>Quercus michauxii</i>	1418	2.0	3.6	4.0	4.5	5.1	5.4	6.1
<i>Quercus mohriana</i>	107	2.7	4.0	4.6	4.8	5.1	5.3	5.9
<i>Quercus muehlenbergii</i>	2637	1.8	2.5	2.8	3.3	4.1	4.8	5.9
<i>Quercus myrtifolia</i>	144	4.9	5.4	5.7	6.1	6.4	6.5	6.8
<i>Quercus nigra</i>	1551	3.2	3.9	4.2	4.7	5.2	5.5	6.4
<i>Quercus nuttallii</i>	410	3.6	4.1	4.4	4.7	5.0	5.3	5.7
<i>Quercus oblongifolia</i>	29	3.6	3.7	4.0	4.3	4.7	5.0	5.8
<i>Quercus oglethorpensis</i>	6	4.2	4.2	4.3	4.3	4.4	4.4	4.4
<i>Quercus palustris</i>	1358	2.0	2.5	2.7	3.0	3.4	3.7	4.3
<i>Quercus phellos</i>	1456	2.9	3.5	3.9	4.4	4.9	5.3	5.8
<i>Quercus prinus</i>	1190	1.5	2.2	2.5	3.0	3.5	3.9	4.9
<i>Quercus pungens</i>	43	2.6	3.9	5.1	5.3	5.5	5.6	5.7
<i>Quercus rubra</i>	4296	0.8	1.5	1.8	2.5	3.3	3.9	5.2
<i>Quercus rugosa</i>	707	1.7	3.4	4.0	4.8	5.5	6.2	8.5
<i>Quercus shumardii</i>	2257	2.3	3.2	3.6	4.3	5.0	5.3	5.9
<i>Quercus stellata</i>	3185	1.8	2.9	3.3	4.1	4.8	5.3	6.3
<i>Quercus toumeyii</i>	11	3.2	3.2	3.5	4.2	4.5	4.6	4.7
<i>Quercus turbinella</i>	120	1.6	2.3	3.0	3.7	4.3	5.0	6.0
<i>Quercus velutina</i>	3416	1.7	2.3	2.7	3.3	4.1	4.8	5.6
<i>Quercus virginiana</i>	740	3.6	4.9	5.2	5.5	5.9	6.4	7.0
<i>Quercus wislizeni</i>	118	1.1	2.1	2.7	3.2	3.6	4.0	4.4
<i>Rhamnus betulaeifolia</i>	266	1.0	2.7	3.2	3.7	4.3	4.6	6.1
<i>Rhamnus californica</i>	301	1.0	1.9	2.5	3.3	3.8	4.3	5.6
<i>Rhamnus crocea</i>	193	1.5	2.7	3.2	3.7	4.2	4.8	6.9
<i>Rhamnus purshiana</i>	492	0.2	0.7	1.0	1.5	1.9	2.2	3.2
<i>Rhododendron macrophyllum</i>	98	0.3	1.2	1.5	1.9	2.2	2.5	3.2
<i>Rhus choriophylla</i>	22	2.4	3.2	3.7	4.1	4.5	4.7	4.8
<i>Rhus glabra</i>	4432	0.3	1.9	2.3	2.9	3.6	4.4	6.8

HARDWOODS	Growing Degree Days on 5 °C base X 1000							
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	2.7	4.1	4.5	5.0	5.5	5.9	6.4
<i>Rhus ovata</i>	71	2.3	3.1	3.8	4.1	4.5	5.1	6.2
<i>Robinia neomexicana</i>	82	0.9	1.7	2.1	2.6	3.1	3.8	4.8
<i>Robinia pseudoacacia</i>	665	1.8	2.4	2.7	3.0	3.5	4.0	4.8
<i>Sabal palmetto</i>	170	4.7	5.5	5.9	6.3	6.5	6.7	7.0
<i>Salix alaxensis</i>	3758	0.0	0.3	0.5	0.6	0.7	0.8	1.1
<i>Salix arbusculoides</i>	4708	0.1	0.4	0.5	0.7	0.9	1.0	1.3
<i>Sambucus mexicana</i>	261	1.6	3.3	3.8	4.5	5.3	6.5	7.8
<i>Sapium biloculare</i>	171	4.4	5.5	6.0	6.5	6.7	6.9	7.3
<i>Sassafras albidum</i>	3246	1.7	2.4	2.9	3.6	4.5	5.2	6.2
<i>Shepherdia argentea</i>	1514	0.1	1.4	1.6	1.9	2.1	2.4	4.3
<i>Tilia americana</i>	3327	1.0	1.5	1.8	2.3	2.8	3.2	4.1
<i>Tilia heterophylla</i>	828	1.8	2.5	2.9	3.4	4.0	4.4	5.4
<i>Ulmus alata</i>	1818	2.5	3.4	3.7	4.3	4.8	5.3	6.4
<i>Ulmus americana</i>	7818	0.8	1.3	1.7	2.5	3.7	4.8	6.5
<i>Ulmus crassifolia</i>	696	3.9	4.5	4.7	5.1	5.8	6.5	6.8
<i>Ulmus rubra</i>	4253	1.2	1.9	2.3	3.0	3.8	4.4	5.5
<i>Ulmus serotina</i>	64	3.1	3.5	3.6	3.8	4.2	4.4	4.5
<i>Ulmus thomasii</i>	1210	1.5	1.8	2.1	2.4	2.7	3.0	3.9
<i>Umbellularia californica</i>	127	1.1	1.7	2.1	2.7	3.4	3.7	4.2
<i>Vauquelinia californica</i>	11	3.7	3.7	4.5	5.4	5.5	5.5	6.0
<i>Yucca brevifolia</i>	94	2.5	3.0	3.6	4.2	4.8	5.4	6.0
<i>Yucca carnerosana</i>	10	4.0	4.0	5.1	5.3	5.7	5.9	6.8
<i>Yucca elata</i>	386	1.8	3.4	3.9	4.5	5.0	5.5	6.0
<i>Yucca faxoniana</i>	9	4.2	4.2	4.2	4.4	4.6	4.6	4.7
<i>Yucca mohavensis</i>	100	2.6	3.5	4.1	4.7	5.2	5.8	6.3
<i>Yucca rostrata</i>	6	5.4	5.4	5.7	6.2	6.4	6.4	6.4
<i>Yucca schottii</i>	13	3.2	3.2	3.7	4.2	4.5	4.8	4.9
<i>Yucca torreyi</i>	313	2.2	4.3	4.7	5.3	5.7	5.9	6.8
<i>Yucca treculeana</i>	361	4.8	5.8	6.1	6.5	6.7	6.8	7.0

HARDWOODS								
Taxon name	N	0%	10%	Moisture Index		75%	90%	100%
				25%	50%			
<i>Acacia greggii</i>	1422	0.04	0.11	0.22	0.30	0.41	0.53	0.84
<i>Acer barbatum</i>	636	0.82	0.88	0.90	0.94	0.96	0.98	1.00
<i>Acer circinatum</i>	334	0.40	0.66	0.76	0.86	0.93	0.96	1.00
<i>Acer glabrum</i>	1738	0.14	0.49	0.62	0.76	0.91	0.98	1.00
<i>Acer grandidentatum</i>	103	0.17	0.37	0.48	0.57	0.71	0.83	0.97
<i>Acer leucoderme</i>	191	0.87	0.91	0.93	0.95	0.96	0.97	0.99
<i>Acer macrophyllum</i>	362	0.41	0.56	0.68	0.84	0.95	0.99	1.00
<i>Acer negundo</i>	6534	0.11	0.52	0.66	0.90	0.96	0.98	1.00
<i>Acer nigrum</i>	1494	0.82	0.94	0.95	0.97	0.98	0.99	1.00
<i>Acer pensylvanicum</i>	1103	0.89	0.95	0.97	0.98	0.99	0.99	1.00
<i>Acer rubrum</i>	4842	0.80	0.91	0.94	0.97	0.99	0.99	1.00
<i>Acer saccharinum</i>	3792	0.78	0.91	0.94	0.96	0.98	0.99	1.00
<i>Acer saccharum</i>	3424	0.69	0.94	0.96	0.97	0.99	0.99	1.00
<i>Acer spicatum</i>	3076	0.62	0.88	0.96	0.98	0.99	1.00	1.00
<i>Aesculus californica</i>	107	0.33	0.42	0.51	0.57	0.64	0.68	0.84
<i>Aesculus glabra</i>	1412	0.53	0.86	0.93	0.95	0.97	0.97	0.99
<i>Aesculus octandra</i>	383	0.94	0.96	0.97	0.98	0.99	0.99	1.00
<i>Agave utahensis</i>	48	0.07	0.13	0.17	0.31	0.41	0.48	0.84
<i>Alnus oblongifolia</i>	50	0.26	0.37	0.48	0.66	0.86	0.92	0.97
<i>Alnus rhombifolia</i>	219	0.22	0.49	0.57	0.66	0.73	0.81	0.92
<i>Alnus rubra</i>	442	0.34	0.71	0.84	0.96	0.99	1.00	1.00
<i>Alnus rugosa</i>	8293	0.37	0.53	0.70	0.95	0.99	1.00	1.00
<i>Alnus serrulata</i>	2148	0.80	0.90	0.94	0.96	0.98	0.99	1.00
<i>Alnus sinuata</i>	1601	0.32	0.55	0.69	0.87	0.97	0.99	1.00
<i>Alnus tenuifolia</i>	3862	0.29	0.48	0.57	0.69	0.80	0.93	1.00
<i>Amelanchier alnifolia</i>	5719	0.22	0.50	0.60	0.69	0.80	0.94	1.00
<i>Amelanchier arborea</i>	4166	0.85	0.93	0.95	0.97	0.98	0.99	1.00
<i>Amelanchier utahensis</i>	364	0.13	0.37	0.46	0.57	0.69	0.84	0.99
<i>Arbutus arizonica</i>	181	0.35	0.51	0.66	0.78	0.89	0.92	0.94
<i>Arbutus menziesii</i>	191	0.47	0.63	0.69	0.82	0.90	0.95	0.99
<i>Arbutus texana</i>	25	0.22	0.23	0.29	0.43	0.75	0.77	0.80
<i>Arctostaphylos pringlei</i>	13	0.37	0.37	0.40	0.55	0.64	0.74	0.84
<i>Artemisia tridentata</i>	1700	0.06	0.27	0.35	0.46	0.54	0.64	0.95
<i>Betula alleghaniensis</i>	2260	0.78	0.94	0.96	0.98	0.99	0.99	1.00
<i>Betula lenta</i>	752	0.89	0.95	0.97	0.98	0.99	0.99	1.00
<i>Betula nana</i>	6531	0.28	0.42	0.47	0.62	0.78	0.93	1.00
<i>Betula nigra</i>	2113	0.83	0.89	0.93	0.95	0.97	0.99	1.00
<i>Betula occidentalis</i>	1085	0.09	0.46	0.52	0.62	0.70	0.84	0.99
<i>Betula papyrifera</i>	10207	0.33	0.52	0.67	0.90	0.99	1.00	1.00
<i>Betula populifolia</i>	624	0.91	0.95	0.96	0.98	0.99	0.99	1.00
<i>Bursera fagaroides</i>	763	0.10	0.27	0.55	0.67	0.75	0.80	0.99
<i>Bursera microphylla</i>	211	0.05	0.11	0.15	0.18	0.23	0.30	0.46
<i>Canotia holacantha</i>	68	0.09	0.17	0.24	0.32	0.46	0.59	0.74
<i>Carpinus caroliniana</i>	4072	0.53	0.89	0.93	0.96	0.98	0.99	1.00
<i>Carya aquatica</i>	979	0.79	0.88	0.90	0.96	0.99	0.99	1.00
<i>Carya cordiformis</i>	3774	0.79	0.90	0.94	0.96	0.98	0.99	1.00
<i>Carya floridana</i>	45	0.98	0.99	0.99	0.99	0.99	0.99	1.00
<i>Carya glabra</i>	2882	0.85	0.91	0.94	0.96	0.98	0.99	1.00
<i>Carya illinoensis</i>	1057	0.43	0.77	0.86	0.90	0.93	0.95	1.00
<i>Carya laciniosa</i>	895	0.86	0.93	0.94	0.96	0.97	0.98	0.99

HARDWOODS		Moisture Index						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Carya myristicaeformis</i>	48	0.69	0.87	0.88	0.89	0.90	0.92	0.99
<i>Carya ovata</i>	3038	0.45	0.90	0.94	0.96	0.97	0.98	1.00
<i>Carya pallida</i>	656	0.85	0.91	0.94	0.96	0.98	0.99	1.00
<i>Carya texana</i>	649	0.57	0.85	0.89	0.91	0.94	0.95	0.98
<i>Carya tomentosa</i>	2831	0.79	0.90	0.93	0.96	0.98	0.99	1.00
<i>Castanea alnifolia</i>	70	0.88	0.98	0.99	0.99	0.99	1.00	1.00
<i>Castanea dentata</i>	1137	0.85	0.93	0.96	0.97	0.98	0.99	1.00
<i>Castanea ozarkensis</i>	84	0.86	0.88	0.91	0.93	0.94	0.96	0.96
<i>Castanea pumila</i>	1340	0.84	0.90	0.93	0.96	0.99	0.99	1.00
<i>Castanopsis chrysophylla</i>	119	0.59	0.63	0.69	0.74	0.82	0.90	0.98
<i>Celtis laevigata</i>	2446	0.34	0.77	0.88	0.93	0.97	0.99	1.00
<i>Celtis occidentalis</i>	3123	0.50	0.69	0.88	0.95	0.97	0.98	1.00
<i>Celtis reticulata</i>	1066	0.11	0.24	0.30	0.46	0.62	0.74	0.92
<i>Cercidium floridum</i>	384	0.04	0.08	0.15	0.20	0.28	0.38	0.74
<i>Cercidium macrum</i>	167	0.40	0.43	0.45	0.51	0.61	0.68	0.89
<i>Cercidium microphyllum</i>	356	0.06	0.10	0.14	0.18	0.26	0.33	0.74
<i>Cercocarpus betuloides</i>	126	0.33	0.46	0.52	0.60	0.68	0.73	0.83
<i>Cercocarpus breviflorus</i>	73	0.26	0.32	0.39	0.59	0.73	0.83	0.91
<i>Cercocarpus ledifolius</i>	323	0.10	0.41	0.49	0.59	0.71	0.78	0.97
<i>Cereus giganteus</i>	268	0.06	0.11	0.16	0.21	0.28	0.35	0.61
<i>Chilopsis linearis</i>	1212	0.05	0.18	0.24	0.30	0.39	0.51	0.84
<i>Cornus florida</i>	2927	0.37	0.90	0.93	0.96	0.98	0.99	1.00
<i>Cornus stolonifera</i>	10191	0.23	0.56	0.67	0.88	0.99	0.99	1.00
<i>Corylus cornuta</i>	3760	0.33	0.65	0.73	0.96	0.99	0.99	1.00
<i>Cowania mexicana</i>	598	0.10	0.23	0.32	0.47	0.66	0.84	0.94
<i>Dalea spinosa</i>	165	0.04	0.05	0.06	0.08	0.12	0.18	0.55
<i>Diospyros virginiana</i>	2870	0.68	0.89	0.92	0.96	0.98	0.99	1.00
<i>Dodonaea viscosa</i>	1230	0.09	0.25	0.44	0.61	0.74	0.81	0.99
<i>Erythrina flabelliformis</i>	280	0.14	0.42	0.59	0.74	0.84	0.91	0.94
<i>Fagus grandifolia</i>	3389	0.85	0.92	0.95	0.97	0.98	0.99	1.00
<i>Forestiera phillyreoides</i> (southern range not available)	23	0.12	0.13	0.16	0.45	0.53	0.73	0.86
<i>Fraxinus americana</i>	4274	0.71	0.90	0.94	0.96	0.98	0.99	1.00
<i>Fraxinus anomala</i>	138	0.11	0.17	0.22	0.29	0.44	0.59	0.92
<i>Fraxinus berlandieriana</i>	312	0.22	0.30	0.36	0.42	0.48	0.57	0.79
<i>Fraxinus caroliniana</i>	656	0.87	0.92	0.96	0.99	0.99	0.99	1.00
<i>Fraxinus cuspidata</i>	18	0.21	0.22	0.34	0.38	0.43	0.48	0.78
<i>Fraxinus dipetala</i>	100	0.21	0.37	0.45	0.50	0.55	0.61	0.68
<i>Fraxinus greggii</i>	288	0.21	0.30	0.38	0.46	0.56	0.63	0.88
<i>Fraxinus latifolia</i>	234	0.10	0.54	0.64	0.71	0.82	0.91	0.97
<i>Fraxinus nigra</i>	2928	0.69	0.93	0.96	0.98	0.99	0.99	1.00
<i>Fraxinus pennsylvanica</i>	7355	0.39	0.58	0.77	0.94	0.97	0.99	1.00
<i>Fraxinus profunda</i>	246	0.86	0.93	0.95	0.99	0.99	1.00	1.00
<i>Fraxinus quadrangulata</i>	529	0.88	0.94	0.95	0.96	0.97	0.97	0.99
<i>Fraxinus texensis</i>	40	0.35	0.57	0.70	0.77	0.79	0.80	0.87
<i>Fraxinus velutina</i>	157	0.09	0.29	0.39	0.48	0.61	0.74	0.92
<i>Fremontodendron californicum</i>	61	0.21	0.39	0.49	0.53	0.59	0.62	0.71
<i>Gleditsia triacanthos</i>	2601	0.49	0.87	0.91	0.95	0.97	0.98	1.00
<i>Holacantha emoryi</i>	131	0.04	0.06	0.07	0.11	0.17	0.21	0.25
<i>Ilex opaca</i>	1842	0.74	0.89	0.92	0.96	0.99	0.99	1.00
<i>Ilex verticillata</i>	2800	0.85	0.94	0.96	0.97	0.99	0.99	1.00

HARDWOODS		Moisture Index						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Juglans californica</i>	8	0.37	0.37	0.44	0.45	0.48	0.48	0.50
<i>Juglans cinerea</i>	2184	0.86	0.94	0.95	0.97	0.98	0.99	1.00
<i>Juglans major</i>	465	0.26	0.47	0.61	0.72	0.80	0.90	0.94
<i>Juglans microcarpa</i>	54	0.20	0.28	0.35	0.44	0.59	0.72	0.87
<i>Juglans nigra</i>	3470	0.63	0.88	0.92	0.96	0.97	0.98	1.00
<i>Kalmia latifolia</i>	1402	0.87	0.94	0.96	0.97	0.98	0.99	1.00
<i>Koeberlinia spinosa</i>	937	0.06	0.22	0.26	0.33	0.45	0.55	0.92
<i>Larrea divaricata</i>	1751	0.04	0.11	0.21	0.28	0.37	0.48	0.95
<i>Liquidambar styraciflua</i>	2209	0.71	0.88	0.92	0.96	0.98	0.99	1.00
<i>Liriodendron tulipifera</i>	2351	0.85	0.92	0.95	0.97	0.98	0.99	1.00
<i>Lithocarpus densiflorus</i>	46	0.51	0.61	0.66	0.71	0.80	0.84	0.86
<i>Lyonia ferruginea</i>	208	0.91	0.98	0.99	0.99	0.99	0.99	1.00
<i>Maclura pomifera</i>	182	0.22	0.75	0.80	0.84	0.89	0.90	0.92
<i>Magnolia acuminata</i>	753	0.88	0.93	0.96	0.97	0.99	0.99	1.00
<i>Magnolia grandiflora</i>	573	0.86	0.91	0.93	0.98	0.99	0.99	1.00
<i>Magnolia virginiana</i>	1036	0.85	0.90	0.94	0.97	0.99	0.99	1.00
<i>Morus microphylla</i>	112	0.22	0.33	0.44	0.55	0.64	0.74	0.92
<i>Morus rubra</i>	4197	0.35	0.86	0.92	0.96	0.98	0.99	1.00
<i>Myrica heterophylla</i>	458	0.86	0.92	0.96	0.98	0.99	0.99	1.00
<i>Myrica inodora</i>	64	0.95	0.99	0.99	0.99	0.99	0.99	1.00
<i>Myrica pensylvanica</i>	193	0.92	0.94	0.95	0.97	0.98	0.98	1.00
<i>Nolina bigelovii</i>	42	0.08	0.08	0.11	0.18	0.33	0.52	0.64
<i>Nyssa aquatica</i>	700	0.86	0.88	0.92	0.96	0.99	0.99	1.00
<i>Nyssa ogeche</i>	119	0.91	0.95	0.97	0.99	0.99	0.99	1.00
<i>Nyssa sylvatica</i>	2960	0.78	0.90	0.93	0.96	0.98	0.99	1.00
<i>Olivea tesota</i>	428	0.04	0.07	0.11	0.18	0.24	0.34	0.68
<i>Opuntia fulgida</i>	224	0.06	0.17	0.20	0.27	0.37	0.48	0.63
<i>Ostrya knowltonii</i>	8	0.21	0.21	0.21	0.38	0.48	0.49	0.67
<i>Ostrya virginiana</i>	4747	0.31	0.90	0.94	0.96	0.98	0.99	1.00
<i>Platanus occidentalis</i>	3811	0.33	0.89	0.93	0.96	0.97	0.99	1.00
<i>Populus balsamifera</i>	8595	0.33	0.51	0.67	0.89	0.99	1.00	1.00
<i>Populus fremontii</i>	333	0.05	0.14	0.22	0.33	0.48	0.64	0.97
<i>Populus grandidentata</i>	3057	0.74	0.94	0.96	0.98	0.99	0.99	1.00
<i>Populus heterophylla</i>	323	0.87	0.93	0.95	0.97	0.99	0.99	1.00
<i>Populus tremuloides</i>	11232	0.19	0.50	0.66	0.87	0.98	0.99	1.00
<i>Prosopis juliflora</i>	3304	0.04	0.17	0.27	0.44	0.62	0.75	0.94
<i>Prosopis pubescens</i>	239	0.04	0.06	0.07	0.12	0.23	0.30	0.49
<i>Prunus serotina</i>	5424	0.21	0.77	0.92	0.96	0.98	0.99	1.00
<i>Ptelea trifoliata</i>	3023	0.15	0.52	0.82	0.94	0.96	0.99	1.00
<i>Quercus agrifolia</i>	82	0.33	0.39	0.45	0.50	0.55	0.65	0.74
<i>Quercus alba</i>	3710	0.83	0.91	0.94	0.96	0.98	0.99	1.00
<i>Quercus arizonica</i>	94	0.27	0.35	0.44	0.53	0.67	0.80	0.92
<i>Quercus arkansana</i>	20	0.90	0.90	0.90	0.91	0.94	0.99	0.99
<i>Quercus bicolor</i>	1294	0.86	0.94	0.95	0.97	0.97	0.98	1.00
<i>Quercus chapmanii</i>	126	0.97	0.98	0.99	0.99	0.99	0.99	1.00
<i>Quercus chrysolepis</i>	189	0.09	0.47	0.54	0.65	0.71	0.76	0.83
<i>Quercus coccinea</i>	1391	0.86	0.94	0.95	0.97	0.98	0.99	1.00
<i>Quercus douglasii</i>	91	0.18	0.38	0.44	0.52	0.57	0.64	0.71
<i>Quercus dunni</i>	40	0.35	0.37	0.41	0.49	0.55	0.65	0.74
<i>Quercus durandii</i>	271	0.41	0.60	0.69	0.79	0.91	0.98	1.00

HARDWOODS								
Taxon name	N	0%	10%	Moisture Index		75%	90%	100%
				25%	50%			
<i>Quercus ellipsoidalis</i>	442	0.72	0.93	0.97	0.98	0.99	0.99	0.99
<i>Quercus emoryi</i>	57	0.28	0.35	0.40	0.48	0.56	0.61	0.84
<i>Quercus engelmannii</i>	8	0.36	0.36	0.38	0.45	0.51	0.52	0.53
<i>Quercus falcata</i>	2009	0.81	0.88	0.91	0.95	0.97	0.99	1.00
<i>Quercus gambelii</i>	503	0.11	0.32	0.42	0.54	0.67	0.83	0.99
<i>Quercus garryana</i>	193	0.51	0.62	0.67	0.77	0.86	0.91	0.97
<i>Quercus georgiana</i>	7	0.92	0.92	0.93	0.93	0.94	0.96	0.96
<i>Quercus glaucooides</i>	32	0.22	0.23	0.55	0.61	0.67	0.72	0.77
<i>Quercus gravesii</i>	8	0.21	0.21	0.22	0.31	0.36	0.41	0.41
<i>Quercus grisea</i>	44	0.22	0.28	0.38	0.55	0.73	0.83	0.95
<i>Quercus havardii</i>	121	0.27	0.33	0.38	0.48	0.61	0.65	0.76
<i>Quercus hypoleucoides</i>	55	0.23	0.40	0.43	0.51	0.56	0.63	0.97
<i>Quercus ilicifolia</i>	307	0.92	0.94	0.96	0.97	0.98	0.99	1.00
<i>Quercus imbricaria</i>	1000	0.87	0.93	0.95	0.96	0.97	0.97	1.00
<i>Quercus incana</i>	583	0.79	0.91	0.94	0.98	0.99	0.99	1.00
<i>Quercus kelloggii</i>	124	0.40	0.52	0.60	0.66	0.71	0.75	0.81
<i>Quercus laevis</i>	568	0.85	0.92	0.96	0.99	0.99	0.99	1.00
<i>Quercus laurifolia</i>	792	0.63	0.90	0.93	0.98	0.99	0.99	1.00
<i>Quercus lobata</i>	142	0.17	0.25	0.39	0.50	0.57	0.64	0.70
<i>Quercus lyrata</i>	1356	0.81	0.88	0.90	0.94	0.98	0.99	1.00
<i>Quercus macrocarpa</i>	3667	0.52	0.66	0.80	0.94	0.97	0.98	1.00
<i>Quercus marilandica</i>	2744	0.55	0.82	0.90	0.94	0.97	0.99	1.00
<i>Quercus michauxii</i>	1418	0.85	0.89	0.91	0.95	0.98	0.99	1.00
<i>Quercus mohriana</i>	107	0.23	0.29	0.32	0.42	0.53	0.56	0.72
<i>Quercus muehlenbergii</i>	2637	0.24	0.88	0.92	0.95	0.97	0.98	1.00
<i>Quercus myrtifolia</i>	144	0.97	0.98	0.99	0.99	0.99	0.99	1.00
<i>Quercus nigra</i>	1551	0.78	0.88	0.90	0.94	0.98	0.99	1.00
<i>Quercus nuttallii</i>	410	0.85	0.88	0.89	0.91	0.95	0.99	1.00
<i>Quercus oblongifolia</i>	29	0.28	0.32	0.39	0.46	0.52	0.55	0.67
<i>Quercus oglethorpensis</i>	6	0.90	0.90	0.92	0.94	0.95	0.95	0.95
<i>Quercus palustris</i>	1358	0.85	0.93	0.94	0.96	0.97	0.98	1.00
<i>Quercus phellos</i>	1456	0.83	0.88	0.90	0.94	0.97	0.99	1.00
<i>Quercus prinus</i>	1190	0.86	0.94	0.95	0.97	0.98	0.99	1.00
<i>Quercus pungens</i>	43	0.24	0.31	0.41	0.47	0.53	0.60	0.66
<i>Quercus rubra</i>	4296	0.81	0.93	0.95	0.97	0.98	0.99	1.00
<i>Quercus rugosa</i>	707	0.23	0.55	0.66	0.75	0.85	0.92	0.99
<i>Quercus shumardii</i>	2257	0.47	0.84	0.90	0.94	0.96	0.99	1.00
<i>Quercus stellata</i>	3185	0.41	0.79	0.90	0.95	0.97	0.99	1.00
<i>Quercus toumeyi</i>	11	0.38	0.38	0.41	0.44	0.51	0.55	0.92
<i>Quercus turbinella</i>	120	0.08	0.27	0.40	0.50	0.57	0.67	0.95
<i>Quercus velutina</i>	3416	0.83	0.90	0.93	0.96	0.97	0.99	1.00
<i>Quercus virginiana</i>	740	0.27	0.48	0.65	0.91	0.99	0.99	1.00
<i>Quercus wislizeni</i>	118	0.31	0.40	0.50	0.55	0.64	0.68	0.76
<i>Rhamnus betulaefolia</i>	266	0.11	0.32	0.51	0.66	0.85	0.91	0.95
<i>Rhamnus californica</i>	301	0.11	0.37	0.46	0.55	0.66	0.73	0.97
<i>Rhamnus crocea</i>	193	0.09	0.35	0.41	0.51	0.58	0.66	0.91
<i>Rhamnus purshiana</i>	492	0.46	0.66	0.74	0.85	0.94	0.97	1.00
<i>Rhododendron macrophyllum</i>	98	0.63	0.68	0.76	0.81	0.87	0.94	0.99
<i>Rhus choriophylla</i>	22	0.27	0.29	0.40	0.44	0.51	0.55	0.72
<i>Rhus glabra</i>	4432	0.26	0.76	0.90	0.95	0.97	0.98	1.00

HARDWOODS		Moisture Index						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>Rhus microphylla</i>	958	0.20	0.23	0.27	0.33	0.45	0.56	0.83
<i>Rhus ovata</i>	71	0.13	0.29	0.39	0.46	0.53	0.59	0.84
<i>Robinia neomexicana</i>	82	0.18	0.35	0.46	0.57	0.73	0.84	0.95
<i>Robinia pseudoacacia</i>	665	0.87	0.93	0.95	0.97	0.98	0.99	1.00
<i>Sabal palmetto</i>	170	0.97	0.98	0.99	0.99	0.99	0.99	1.00
<i>Salix alaxensis</i>	3758	0.16	0.42	0.49	0.64	0.79	0.94	1.00
<i>Salix arbusculoides</i>	4708	0.31	0.43	0.50	0.61	0.73	0.80	1.00
<i>Sambucus mexicana</i>	261	0.20	0.40	0.52	0.75	0.86	0.95	1.00
<i>Sapium biloculare</i>	171	0.09	0.14	0.17	0.21	0.30	0.49	0.58
<i>Sassafras albidum</i>	3246	0.80	0.90	0.93	0.96	0.98	0.99	1.00
<i>Shepherdia argentea</i>	1514	0.15	0.45	0.50	0.58	0.66	0.74	0.97
<i>Tilia americana</i>	3327	0.62	0.92	0.95	0.97	0.98	0.99	1.00
<i>Tilia heterophylla</i>	828	0.87	0.93	0.95	0.97	0.98	0.99	1.00
<i>Ulmus alata</i>	1818	0.66	0.88	0.91	0.94	0.97	0.99	1.00
<i>Ulmus americana</i>	7818	0.48	0.68	0.88	0.96	0.98	0.99	1.00
<i>Ulmus crassifolia</i>	696	0.36	0.45	0.69	0.83	0.89	0.91	0.99
<i>Ulmus rubra</i>	4253	0.66	0.88	0.93	0.96	0.97	0.99	1.00
<i>Ulmus serotina</i>	64	0.85	0.90	0.90	0.94	0.95	0.96	0.98
<i>Ulmus thomasii</i>	1210	0.71	0.93	0.95	0.97	0.98	0.99	1.00
<i>Umbellularia californica</i>	127	0.40	0.51	0.56	0.65	0.72	0.81	0.86
<i>Vauquelinia californica</i>	11	0.20	0.20	0.27	0.33	0.40	0.56	0.61
<i>Yucca brevifolia</i>	94	0.04	0.09	0.11	0.17	0.23	0.32	0.52
<i>Yucca carnerosana</i>	10	0.22	0.22	0.23	0.26	0.38	0.40	0.47
<i>Yucca elata</i>	386	0.14	0.22	0.25	0.30	0.34	0.43	0.88
<i>Yucca faxoniana</i>	9	0.29	0.29	0.30	0.32	0.33	0.33	0.34
<i>Yucca mohavensis</i>	100	0.04	0.07	0.10	0.16	0.39	0.49	0.64
<i>Yucca rostrata</i>	6	0.22	0.22	0.30	0.32	0.36	0.36	0.38
<i>Yucca schottii</i>	13	0.35	0.35	0.40	0.46	0.51	0.55	0.65
<i>Yucca torreyi</i>	313	0.21	0.23	0.26	0.29	0.33	0.38	0.84
<i>Yucca treculeana</i>	361	0.26	0.37	0.41	0.49	0.61	0.72	0.90

Hardwood Genera and Groups— Tables



HARDWOOD GROUPS				Annual Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	-3.9	0.8	3.1	7.1	12.8	17.6	26.1
<i>ACER</i> EAST	6865	-2.3	0.6	3.8	9.2	14.4	17.9	23.8
<i>ACER</i> WEST	1954	-3.9	0.2	1.9	4.2	7.5	10.3	20.6
<i>ALNUS</i>	13352	-12.2	-4.5	-2.4	0.8	5.8	13.7	20.9
<i>ALNUS</i> EAST	10144	-10.2	-4.4	-2.3	0.6	6.1	15.0	20.9
<i>ALNUS</i> WEST	4761	-12.2	-4.6	-3.0	0.3	3.2	7.6	18.7
<i>BETULA</i>	16815	-13.4	-8.4	-5.1	-1.0	3.9	12.6	20.3
<i>CARYA</i>	4638	3.6	7.5	10.0	13.6	17.2	19.4	23.5
<i>CASTANEA</i>	2216	4.4	8.6	11.3	14.9	17.5	19.2	21.5
<i>FRAXINUS</i>	9634	-2.3	1.6	4.8	9.5	15.2	19.0	24.4
<i>FRAXINUS</i> EAST	8565	-2.3	1.4	4.3	8.6	14.1	17.9	23.2
<i>FRAXINUS</i> WEST	1095	2.6	9.4	11.5	17.2	21.2	22.7	24.4
<i>JUGLANS</i>	4663	1.3	7.1	9.5	12.9	16.0	18.1	26.6
<i>JUGLANS</i> EAST	4138	1.3	6.9	9.1	12.4	15.5	17.6	21.4
<i>JUGLANS</i> WEST	526	7.3	12.6	14.1	16.3	19.4	22.7	26.6
<i>OSTRYA/CARPINUS</i>	5348	1.2	4.4	7.0	11.4	16.0	19.2	28.0
<i>QUERCUS</i>	9005	-1.5	3.7	6.7	11.7	16.5	19.1	27.2
<i>QUERCUS</i> EAST	7360	-1.5	3.4	6.3	11.2	16.4	19.1	24.2
<i>QUERCUS</i> WEST	1942	-1.5	6.0	9.5	14.6	17.9	19.9	27.2
<i>TILIA</i>	3792	1.1	3.8	5.8	8.8	12.0	14.4	19.9
<i>ULMUS</i>	8028	-2.3	1.7	4.9	9.7	15.3	18.6	23.8

HARDWOOD GROUPS				January Temperature (°C)				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	-24.6	-17.7	-12.4	-6.6	0.9	7.3	24.8
<i>ACER</i> EAST	6865	-24.6	-18.3	-12.3	-5.1	2.3	7.9	18.9
<i>ACER</i> WEST	1954	-23.8	-11.8	-10.1	-6.9	-1.3	3.3	11.0
<i>ALNUS</i>	13352	-30.9	-26.1	-22.0	-16.3	-6.5	2.9	14.1
<i>ALNUS</i> EAST	10144	-30.9	-26.5	-22.7	-18.1	-8.0	3.7	14.1
<i>ALNUS</i> WEST	4761	-30.5	-25.7	-21.6	-15.1	-7.6	-0.8	10.8
<i>BETULA</i>	16815	-34.8	-29.0	-25.0	-19.5	-9.9	-0.1	13.0
<i>CARYA</i>	4638	-16.2	-7.7	-4.4	1.0	6.3	10.1	18.2
<i>CASTANEA</i>	2216	-9.6	-4.6	-0.9	3.5	7.3	9.9	14.4
<i>FRAXINUS</i>	9634	-23.8	-17.5	-12.2	-4.7	3.9	9.9	18.1
<i>FRAXINUS</i> EAST	8565	-23.8	-18.0	-13.1	-6.0	1.7	7.5	18.1
<i>FRAXINUS</i> WEST	1095	-7.4	-0.2	3.5	9.1	13.0	14.7	16.9
<i>JUGLANS</i>	4663	-14.6	-8.8	-4.9	0.1	5.2	8.6	26.2
<i>JUGLANS</i> EAST	4138	-14.6	-9.1	-5.4	-1.0	3.8	7.0	12.4
<i>JUGLANS</i> WEST	526	-1.3	3.3	5.6	8.8	12.5	18.4	26.2
<i>OSTRYA/CARPINUS</i>	5348	-20.3	-12.3	-8.1	-2.1	5.2	10.7	27.6
<i>QUERCUS</i>	9005	-22.7	-13.5	-8.4	-0.9	6.3	10.7	26.2
<i>QUERCUS</i> EAST	7360	-22.7	-14.5	-9.7	-2.8	5.0	9.5	19.6
<i>QUERCUS</i> WEST	1942	-12.0	-5.4	0.2	6.8	11.3	15.3	26.2
<i>TILIA</i>	3792	-19.8	-14.1	-10.6	-5.7	-1.4	2.6	11.7
<i>ULMUS</i>	8028	-23.1	-17.2	-12.0	-4.9	3.3	8.8	17.3

HARDWOOD GROUPS		July Temperature (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	7.1	15.0	17.5	20.6	24.8	27.2	29.8
<i>ACER</i> EAST	6865	11.5	16.6	18.2	22.2	25.8	27.3	28.8
<i>ACER</i> WEST	1954	7.1	11.3	12.8	14.9	17.6	19.9	29.2
<i>ALNUS</i>	13352	7.1	12.5	14.0	15.9	18.8	24.9	29.1
<i>ALNUS</i> EAST	10144	7.1	13.2	14.8	16.5	19.8	25.7	29.1
<i>ALNUS</i> WEST	4761	7.1	11.5	12.8	14.4	15.6	17.5	28.3
<i>BETULA</i>	16815	4.5	10.4	12.5	15.1	18.2	24.6	30.8
<i>CARYA</i>	4638	16.7	20.9	22.6	25.3	27.2	27.8	30.1
<i>CASTANEA</i>	2216	17.5	20.8	22.6	25.5	27.0	27.3	28.6
<i>FRAXINUS</i>	9634	12.5	17.4	19.1	22.5	25.9	27.6	33.1
<i>FRAXINUS</i> EAST	8565	13.5	17.4	19.0	22.2	25.7	27.4	29.5
<i>FRAXINUS</i> WEST	1095	12.5	18.0	21.2	24.3	28.9	30.4	33.1
<i>JUGLANS</i>	4663	15.2	20.2	21.9	24.4	26.3	27.7	31.3
<i>JUGLANS</i> EAST	4138	15.2	20.3	22.1	24.7	26.4	27.7	29.4
<i>JUGLANS</i> WEST	526	17.1	20.0	20.9	22.7	25.3	27.7	31.3
<i>OSTRYA/CARPINUS</i>	5348	14.1	18.5	20.2	23.3	25.8	27.2	29.7
<i>QUERCUS</i>	9005	9.7	18.0	19.9	23.0	26.3	27.7	33.8
<i>QUERCUS</i> EAST	7360	13.5	18.4	20.5	23.9	26.9	28.0	31.8
<i>QUERCUS</i> WEST	1942	9.7	16.2	18.9	21.1	24.2	27.4	33.8
<i>TILIA</i>	3792	15.2	18.4	19.8	22.0	24.2	25.7	27.4
<i>ULMUS</i>	8028	13.5	17.6	19.4	23.0	26.4	27.7	31.9

HARDWOOD GROUPS		Annual Precipitation (mm)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	95	390	570	885	1135	1350	4370
<i>ACER</i> EAST	6865	415	720	835	1010	1200	1355	1630
<i>ACER</i> WEST	1954	105	380	505	750	1175	1860	4370
<i>ALNUS</i>	13351	170	355	465	735	1055	1285	4685
<i>ALNUS</i> EAST	10144	220	380	475	770	1060	1235	1650
<i>ALNUS</i> WEST	4760	170	335	410	510	790	1385	4685
<i>BETULA</i>	16815	90	285	400	605	955	1185	4370
<i>CARYA</i>	4638	410	790	900	1070	1260	1385	1755
<i>CASTANEA</i>	2216	765	995	1085	1200	1345	1420	1630
<i>FRAXINUS</i>	9634	85	380	545	875	1110	1315	2555
<i>FRAXINUS</i> EAST	8565	270	410	655	910	1130	1320	1630
<i>FRAXINUS</i> WEST	1095	85	255	360	485	705	1155	2555
<i>JUGLANS</i>	4663	235	710	845	995	1165	1335	1560
<i>JUGLANS</i> EAST	4138	525	785	890	1030	1190	1350	1560
<i>JUGLANS</i> WEST	526	235	355	445	625	790	905	1245
<i>OSTRYA/CARPINUS</i>	5348	170	760	880	1045	1225	1385	3810
<i>QUERCUS</i>	9005	85	425	640	905	1140	1335	2555
<i>QUERCUS</i> EAST	7360	240	505	745	960	1175	1345	1630
<i>QUERCUS</i> WEST	1942	85	295	385	540	815	1160	2555
<i>TILIA</i>	3792	415	710	815	940	1085	1225	1560
<i>ULMUS</i>	8028	325	480	720	920	1145	1325	1630

HARDWOOD GROUPS			January Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	5	13	23	58	93	133	616
<i>ACER</i> EAST	6865	10	23	40	69	96	127	166
<i>ACER</i> WEST	1954	5	28	54	92	176	267	616
<i>ALNUS</i>	13352	4	18	24	49	86	129	667
<i>ALNUS</i> EAST	10144	9	19	23	46	80	106	166
<i>ALNUS</i> WEST	4761	4	18	23	37	93	199	667
<i>BETULA</i>	16815	4	12	20	32	69	100	612
<i>CARYA</i>	4638	2	24	43	75	101	130	150
<i>CASTANEA</i>	2216	32	68	80	95	122	136	150
<i>FRAXINUS</i>	9634	5	12	21	52	85	122	414
<i>FRAXINUS</i> EAST	8565	6	12	21	55	85	118	166
<i>FRAXINUS</i> WEST	1095	5	12	19	28	77	217	414
<i>JUGLANS</i>	4663	1	18	30	66	93	124	166
<i>JUGLANS</i> EAST	4138	9	22	40	71	96	127	150
<i>JUGLANS</i> WEST	526	1	9	11	17	24	35	166
<i>OSTRYA/CARPINUS</i>	5348	1	21	38	72	96	127	193
<i>QUERCUS</i>	9005	1	12	22	54	88	126	400
<i>QUERCUS</i> EAST	7360	7	14	25	61	90	122	161
<i>QUERCUS</i> WEST	1942	1	10	13	25	63	163	400
<i>TILIA</i>	3792	9	20	32	61	82	108	150
<i>ULMUS</i>	8028	6	13	24	57	87	120	166

HARDWOOD GROUPS			July Precipitation (mm)					
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	0	35	56	86	105	124	405
<i>ACER</i> EAST	6865	56	77	89	100	113	135	222
<i>ACER</i> WEST	1954	0	8	23	38	52	71	160
<i>ALNUS</i>	13352	0	38	60	82	103	122	452
<i>ALNUS</i> EAST	10144	28	58	74	91	108	126	212
<i>ALNUS</i> WEST	4761	0	21	41	57	74	87	452
<i>BETULA</i>	16815	5	39	54	77	99	118	307
<i>CARYA</i>	4638	39	76	93	104	119	150	292
<i>CASTANEA</i>	2216	61	90	101	116	131	164	214
<i>FRAXINUS</i>	9634	0	45	67	90	107	125	218
<i>FRAXINUS</i> EAST	8565	18	54	74	94	108	127	218
<i>FRAXINUS</i> WEST	1095	0	2	12	43	60	85	206
<i>JUGLANS</i>	4663	0	73	91	102	116	138	328
<i>JUGLANS</i> EAST	4138	41	77	91	101	112	124	204
<i>JUGLANS</i> WEST	526	0	51	76	160	200	224	328
<i>OSTRYA/CARPINUS</i>	5348	16	80	93	104	120	164	425
<i>QUERCUS</i>	9005	0	45	71	95	112	155	350
<i>QUERCUS</i> EAST	7360	32	56	77	97	110	133	222
<i>QUERCUS</i> WEST	1942	0	2	19	54	150	201	350
<i>TILIA</i>	3792	61	77	89	99	108	120	186
<i>ULMUS</i>	8028	32	58	76	95	109	127	214

HARDWOOD GROUPS		Mean Temperature of the Coldest Month (°C)						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	-24.6	-17.7	-12.4	-6.6	0.9	7.3	22.2
<i>ACER</i> EAST	6865	-24.6	-18.3	-12.3	-5.2	2.3	7.9	18.8
<i>ACER</i> WEST	1954	-23.8	-11.8	-10.1	-6.9	-1.4	3.3	11.0
<i>ALNUS</i>	13352	-33.0	-26.5	-22.4	-16.4	-6.7	2.9	14.1
<i>ALNUS</i> EAST	10144	-30.9	-26.5	-22.7	-18.1	-8.1	3.7	14.1
<i>ALNUS</i> WEST	4761	-33.0	-26.5	-22.9	-15.1	-7.6	-0.8	10.8
<i>BETULA</i>	16815	-34.8	-29.3	-25.3	-19.8	-10.0	-0.1	13.0
<i>CARYA</i>	4638	-16.2	-7.7	-4.4	1.0	6.3	10.1	18.1
<i>CASTANEA</i>	2216	-9.6	-4.6	-0.9	3.5	7.3	9.9	14.4
<i>FRAXINUS</i>	9634	-23.8	-17.5	-12.2	-4.8	3.9	9.9	18.0
<i>FRAXINUS</i> EAST	8565	-23.8	-18.0	-13.1	-6.1	1.7	7.5	18.0
<i>FRAXINUS</i> WEST	1095	-7.4	-0.2	3.4	9.0	12.9	14.7	16.9
<i>JUGLANS</i>	4663	-14.6	-8.8	-4.9	0.1	5.1	8.6	24.7
<i>JUGLANS</i> EAST	4138	-14.6	-9.1	-5.4	-1.0	3.8	7.0	12.4
<i>JUGLANS</i> WEST	526	-1.3	2.6	5.3	8.7	12.5	18.1	24.7
<i>OSTRYA/CARPINUS</i>	5348	-20.3	-12.3	-8.1	-2.1	5.2	10.7	25.6
<i>QUERCUS</i>	9005	-22.7	-13.5	-8.4	-0.9	6.3	10.7	24.7
<i>QUERCUS</i> EAST	7360	-22.7	-14.5	-9.7	-2.8	5.0	9.5	19.6
<i>QUERCUS</i> WEST	1942	-12.0	-5.4	0.2	6.5	11.2	15.2	24.7
<i>TILIA</i>	3792	-19.8	-14.1	-10.6	-5.7	-1.4	2.6	11.6
<i>ULMUS</i>	8028	-23.1	-17.2	-12.0	-4.9	3.3	8.8	17.3

HARDWOOD GROUPS		Growing Degree Days on 5 °C base X 1000						
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	0.1	1.0	1.4	2.0	3.2	4.6	7.6
<i>ACER</i> EAST	6865	0.5	1.2	1.5	2.5	3.6	4.8	6.8
<i>ACER</i> WEST	1954	0.1	0.5	0.7	1.1	1.6	2.2	5.6
<i>ALNUS</i>	13352	0.1	0.6	0.8	1.1	1.6	3.4	5.9
<i>ALNUS</i> EAST	10144	0.1	0.6	0.8	1.1	1.9	3.7	5.9
<i>ALNUS</i> WEST	4761	0.1	0.5	0.7	0.9	1.1	1.6	4.8
<i>BETULA</i>	16815	0.0	0.3	0.6	0.9	1.5	3.2	5.7
<i>CARYA</i>	4638	1.4	2.1	2.6	3.4	4.5	5.2	6.7
<i>CASTANEA</i>	2216	1.4	2.2	2.8	3.7	4.6	5.2	6.0
<i>FRAXINUS</i>	9634	0.8	1.3	1.7	2.5	3.8	5.1	6.9
<i>FRAXINUS</i> EAST	8565	0.8	1.3	1.6	2.4	3.5	4.8	6.7
<i>FRAXINUS</i> WEST	1095	0.9	2.0	2.7	4.5	5.9	6.5	6.9
<i>JUGLANS</i>	4663	1.0	2.0	2.5	3.3	4.1	4.9	8.5
<i>JUGLANS</i> EAST	4138	1.0	2.0	2.5	3.1	3.9	4.7	6.0
<i>JUGLANS</i> WEST	526	1.6	3.0	3.5	4.3	5.4	6.5	8.5
<i>OSTRYA/CARPINUS</i>	5348	1.0	1.6	2.0	2.9	4.1	5.2	8.6
<i>QUERCUS</i>	9005	0.3	1.5	2.0	2.9	4.3	5.1	8.5
<i>QUERCUS</i> EAST	7360	0.8	1.5	2.0	2.9	4.2	5.2	7.0
<i>QUERCUS</i> WEST	1942	0.3	1.4	2.0	3.6	4.8	5.5	8.5
<i>TILIA</i>	3792	1.0	1.6	1.9	2.4	3.0	3.6	5.4
<i>ULMUS</i>	8028	0.8	1.3	1.7	2.6	3.9	5.0	6.8

HARDWOOD GROUPS				Moisture Index				
Taxon name	N	0%	10%	25%	50%	75%	90%	100%
<i>ACER</i>	11427	0.11	0.55	0.72	0.94	0.98	0.99	1.00
<i>ACER</i> EAST	6865	0.62	0.89	0.94	0.97	0.99	0.99	1.00
<i>ACER</i> WEST	1954	0.14	0.49	0.61	0.75	0.91	0.98	1.00
<i>ALNUS</i>	13352	0.22	0.53	0.69	0.93	0.99	0.99	1.00
<i>ALNUS</i> EAST	10144	0.37	0.58	0.74	0.96	0.99	1.00	1.00
<i>ALNUS</i> WEST	4761	0.22	0.49	0.59	0.72	0.87	0.97	1.00
<i>BETULA</i>	16815	0.09	0.47	0.63	0.87	0.98	0.99	1.00
<i>CARYA</i>	4638	0.43	0.88	0.93	0.96	0.98	0.99	1.00
<i>CASTANEA</i>	2216	0.84	0.91	0.94	0.97	0.98	0.99	1.00
<i>FRAXINUS</i>	9634	0.09	0.51	0.70	0.94	0.98	0.99	1.00
<i>FRAXINUS</i> EAST	8565	0.39	0.60	0.83	0.95	0.98	0.99	1.00
<i>FRAXINUS</i> WEST	1095	0.09	0.27	0.38	0.49	0.64	0.78	0.97
<i>JUGLANS</i>	4663	0.20	0.79	0.91	0.95	0.97	0.99	1.00
<i>JUGLANS</i> EAST	4138	0.63	0.88	0.93	0.96	0.97	0.99	1.00
<i>JUGLANS</i> WEST	526	0.20	0.42	0.57	0.69	0.78	0.89	0.94
<i>OSTRYA/CARPINUS</i>	5348	0.21	0.88	0.94	0.96	0.98	0.99	1.00
<i>QUERCUS</i>	9005	0.09	0.57	0.74	0.94	0.97	0.99	1.00
<i>QUERCUS</i> EAST	7360	0.21	0.66	0.88	0.95	0.98	0.99	1.00
<i>QUERCUS</i> WEST	1942	0.08	0.35	0.48	0.63	0.77	0.88	0.99
<i>TILIA</i>	3792	0.62	0.92	0.95	0.97	0.98	0.99	1.00
<i>ULMUS</i>	8028	0.36	0.66	0.87	0.96	0.98	0.99	1.00

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