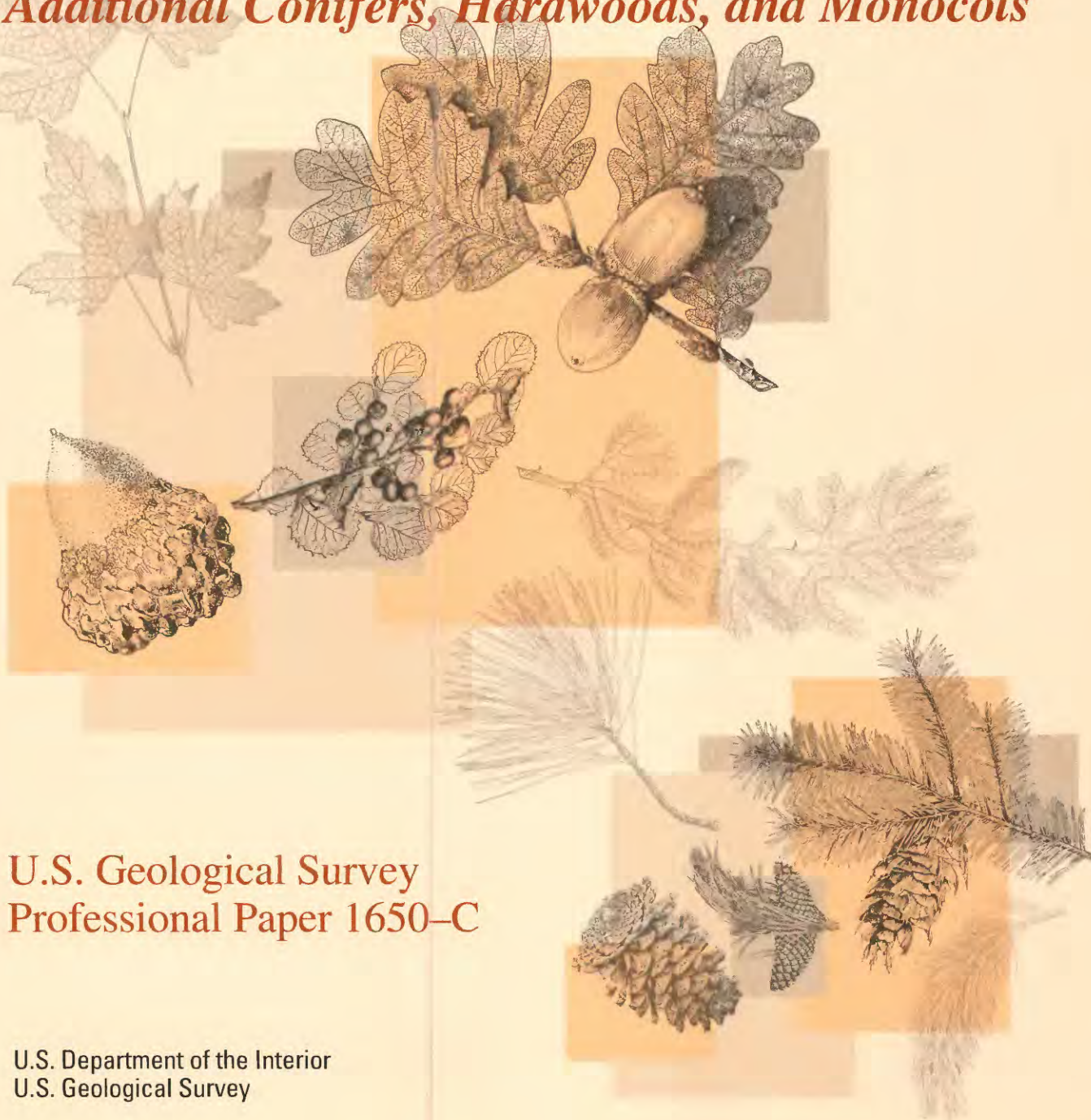


Atlas of Relations Between Climatic Parameters and Distributions of Important Trees and Shrubs in North America—

Additional Conifers, Hardwoods, and Monocots



U.S. Geological Survey
Professional Paper 1650-C



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By Robert S. Thompson, Katherine H. Anderson, Patrick J. Bartlein,
and Sharon A. Smith

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

By Robert S. Thompson,¹ Katherine H. Anderson,² Patrick J. Bartlein,³ and Sharon A. Smith⁴

Abstract

This volume, along with the two preceding volumes of this U.S. Geological Survey Professional Paper (1650-A and 1650-B), explores the continental-scale relations between climate and the geographic ranges of woody plant species in North America. To accomplish this, we constructed a 25-km equal-area grid of modern climatic and bioclimatic parameters for North America 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.

Introduction

This is the third volume in a series that explores the continental-scale relations between present-day climatic parameters and the distributions of woody plants in North America, based on a 25-km equal-area grid (containing 31,363 points) of climatic, bioclimatic, and plant species distribution data. The methodology, climatic data, and most conifer taxa are presented in U.S. Geological Survey (USGS) Professional Paper 1650-A (Thompson and others, 1999a), and many hardwood taxa are covered in USGS Professional Paper 1650-B (Thompson and others, 1999b). The present volume provides information on additional taxa, including 2 conifer species (table 1), 308 hardwood and monocot species (table 1), and 7 hardwood genera (table 2). Eighty-four of the hardwood species occur within the United States only in subtropical and tropical Florida and are treated differently in this volume than species with broader geographic ranges. For the latter species (and genera) the first part of this volume provides atlas pages of graphical displays of the modern relations between climate and the distribution of the taxon. For each taxon, these graphical displays include (1) a map of its

geographic distribution; (2) univariate plots that indicate the presence or absence of the taxon in relation to single climatic (mean January, mean July, and mean annual temperature; mean January, mean July, and mean annual precipitation) and bioclimatic (mean number of growing degree days (GDD₅), mean temperature of the coldest month (MTCO), and moisture index—actual evaporation divided by potential evaporation) 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.

The second part of this volume provides 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 reader (1) to see where (in relation to climate) the taxon is most abundant and (2) to examine the variability of taxon occurrence along specific environmental gradients. The third part of this volume provides tables of the data presented in the histograms so that readers can obtain quantitative information without having to interpret the data from the graphical displays.

The fourth (and last) section of this volume illustrates the climatic ranges, within the Florida subregion, of species whose geographic ranges in the United States are limited to Florida (last part of table 1; see fig. 1 on p. 377 for a map of the region considered in this section). Many of these species occur elsewhere in the Caribbean region, but we have maps only for their distributions in Florida (see Little, 1978). Table 3 lists species where less detailed data for the rest of North America were combined with the more detailed information from Florida (from Little, 1978) to obtain a continent-wide range map. As seen in figure 1, the climate of Florida occupies a very small range of warm-wet conditions relative to all of North America, and, as seen in figure 2, mean annual precipitation levels are high (1,300 to approximately 1,650 mm per year) throughout the region. The upper left hand corner of figure 2 shows the grid points used in our analysis, and the bivariate plots in the upper row of this figure demonstrate that temperature variables (annual temperature, mean temperature of the coldest month (MTCO), and growing degree days (on a 5°C base: GDD₅)) have very similar patterns relative to annual precipitation. We thus choose to illustrate only one of these temperature variables (GDD₅) in the graphical

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

[Taxa that occur only in Florida are listed at the end of the table]

Scientific name	Common name	Original source	Map or page number in original reference
<i>Juniperus erythrocarpa</i> Cory	redberry juniper	Little (1981)	36
<i>Picea chihuahuana</i> Martínez	Chihuahua spruce	Gordon (1968)	fig. 5, p. 882
<i>Acacia berlandieri</i> Benth.	Berlandier acacia	Little (1976)	1-N, 1-SW
<i>Acacia farnesiana</i> (L.) Willd.	sweet acacia	Little (1976)	2
<i>Acacia rigidula</i> Benth.	blackbrush acacia	Little (1976)	4
<i>Acacia roemeriana</i> Scheele	Roemer acacia	Little (1976)	5
<i>Acacia tortuosa</i> (L.) Willd.	twisted acacia	Little (1976)	6-N, 6-SW
<i>Acacia wrightii</i> Benth.	Wright acacia	Little (1976)	7
<i>Aesculus parviflora</i> Walt.	bottlebrush buckeye	Little (1977)	5
<i>Aesculus pavia</i> L.	red buckeye	Little (1977)	6
<i>Aesculus sylvatica</i> Bartr.	painted buckeye	Little (1977)	7
<i>Amelanchier interior</i> Nielsen	inland serviceberry	Little (1977)	13
<i>Amelanchier sanguinea</i> (Pursh) DC.	roundleaf serviceberry	Little (1977)	14
<i>Aralia spinosa</i> L.	devils-walkingstick	Little (1977)	15
<i>Asimina triloba</i> (L.) Dunal	pawpaw	Little (1977)	16
<i>Avicennia germinans</i> (L.) L.	black-mangrove	Little (1977, 1978)	17-N, 17-SE, 168
<i>Baccharis halimifolia</i> L.	eastern baccharis	Little (1977)	18-NE, 18-SE
<i>Betula uber</i> (Ashe) Fern.	Ashe birch	Little (1977)	19
<i>Bumelia celastrina</i> H.B.K.	saffron-plum	Little (1976, 1978)	23-N, 23-SW, 171
<i>Bumelia lanuginosa</i> (Michx.) Pers.	gum bumelia	Little (1976, 1977)	24, 20
<i>Bumelia lycioides</i> (L.) Pers.	buckthorn bumelia	Little (1977)	21
<i>Bumelia tenax</i> (L.) Willd.	tough bumelia	Little (1977)	22
<i>Caesalpinia mexicana</i> A. Gray	Mexican poinciana	Little (1976)	27-N, 27-SW
<i>Catalpa bignonioides</i> Walt.	southern catalpa	Little (1977)	30
<i>Catalpa speciosa</i> Warder	northern catalpa	Little (1971)	120-E
<i>Ceanothus arboreus</i> Greene	feltleaf ceanothus	Little (1976)	29
<i>Ceanothus spinosus</i> Nutt.	spiny ceanothus	Little (1976)	30
<i>Ceanothus thrysiflorus</i> Eschsch.	blueblossom	Little (1976)	31
<i>Celtis lindheimeri</i> Engelm.	Lindheimer hackberry	Little (1976)	32
<i>Celtis tenuifolia</i> Nutt.	Georgia hackberry	Little (1977)	31
<i>Cephalanthus occidentalis</i> L.	common buttonbush	Little (1976, 1977)	34-NW, 34-SW, 34-N, 32-NE, 32-SE, 32-N
<i>Cercis canadensis</i> L.	eastern redbud	Little (1976, 1977)	38-N, 38-SW, 33-N, 33-NE, 33-SE
<i>Cercis occidentalis</i> Torr.	California redbud	Little (1976)	39
<i>Chionanthus virginicus</i> L.	fringetree	Little (1977)	34
<i>Citharexylum berlandieri</i> Robinson	Berlandier fiddlewood	Little (1976)	45-N, 45-SW
<i>Cladrastis kentukea</i> (Dum.-Cours.) Rudd	yellowwood	Little (1977)	35
<i>Clethra acuminata</i> Michx.	cinnamon clethra	Little (1977)	36
<i>Cliftonia monophylla</i> (Lam.) Britton	buckwheat-tree	Little (1977)	37
<i>Condalia globosa</i> Johnst.	bitter condalia	Little (1976)	46
<i>Condalia hookeri</i> M. C. Johnst.	bluewood	Little (1976)	47
<i>Cordia boissieri</i> A. D.C.	anacahuita	Little (1976)	48-N, 48-SW
<i>Cornus alternifolia</i> L. f.	alternate-leaf dogwood	Little (1977)	38-NE, 38-SE, 38-N
<i>Cornus drummondii</i> C. A. Meyer	roughleaf dogwood	Little (1977)	39
<i>Cornus glabrata</i> Benth.	brown dogwood	Little (1976)	50
<i>Cornus nuttallii</i> Audubon	Pacific dogwood	Little (1976)	51-NW, 51-SW

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

Scientific name	Common name	Original source	Map or page number in original reference
<i>Cornus occidentalis</i> (Torr. & Gray) Coville	western dogwood	Little (1976)	52
<i>Cornus racemosa</i> Lam.	gray dogwood	Little (1977)	41
<i>Cornus rugosa</i> Lam.	roundleaf dogwood	Little (1977)	40-NE, 40-N
<i>Cornus sessilis</i> Torr.	blackfruit dogwood	Little (1976)	56
<i>Cornus stricta</i> Lam.	stiffcornel dogwood	Little (1977)	42
<i>Cotinus obovatus</i> Raf.	American smoketree	Little (1977)	46
<i>Crataegus chrysocarpa</i> Ashe	fireberry hawthorn	Little (1976)	57
<i>Crataegus columbiana</i> Howell	Columbia hawthorn	Little (1976)	58-N, 58-NW
<i>Crataegus douglasii</i> Lindl.	black hawthorn	Little (1976)	59-N, 59-NW
<i>Crataegus erythropoda</i> Ashe	Cerro hawthorn	Little (1976)	60
<i>Crataegus saligna</i> Greene	willow hawthorn	Little (1976)	61
<i>Crataegus succulenta</i> Schrad.	fleshy hawthorn	Little (1976)	62
<i>Crataegus tracyi</i> Ashe	Tracy hawthorn	Little (1976)	63
<i>Cyrilla racemiflora</i> L.	swamp cyrilla	Little (1977)	45-SE, 45-N
<i>Diospyros texana</i> Scheele	Texas persimmon	Little (1976)	65
<i>Ehretia anacua</i> (Mier & Berland.) Johnst.	anaqua	Little (1976)	67-N, 67-SW
<i>Elliottia racemosa</i> Mühl.	elliottia	Little (1977)	47
<i>Erythrina herbacea</i> L.	eastern coralbean	Little (1977)	48-SE, 48-N
<i>Esenbeckia berlandieri</i> Baill.	Berlandier esenbeckia	Little (1976)	69-N, 69-SW
<i>Euonymus atropurpureus</i> Jacq.	eastern wahoo	Little (1977)	49-NE, 49-SE
<i>Euonymus occidentalis</i> Nutt.	western wahoo	Little (1976)	70
<i>Eysenhardtia polystachya</i> (Ortega) Sarg.	kidneywood	Little (1976)	72-N, 72-W
<i>Eysenhardtia texana</i> Scheele	Texas kidneywood	Little (1976)	71
<i>Forestiera acuminata</i> (Michx.) Poir.	swamp-privet	Little (1977)	50
<i>Forestiera angustifolia</i> Torr.	Texas forestiera	Little (1976)	73-N, 73-W
<i>Forestiera segregata</i> (Jacq.) Krug & Urban	Florida-privet	Little (1977)	51
<i>Franklinia alatomaha</i> Bart.	franklinia	Little (1977)	52
<i>Garrya elliptica</i> Dougl.	wavyleaf silktassel	Little (1976)	86
<i>Gleditsia aquatica</i> Marsh.	waterlocust	Little (1977)	55
<i>Gordonia lasianthus</i> (L.) Ellis	loblolly-bay	Little (1977)	56
<i>Guaiacum angustifolium</i> Engelm.	Texas lignumvitae	Little (1976)	87
<i>Gymnocladus dioica</i> (L.) K. Koch	Kentucky coffeetree	Little (1977)	57
<i>Halesia carolina</i> L.	Carolina silverbell	Little (1977)	58
<i>Halesia diptera</i> Ellis	two-wing silverbell	Little (1977)	59
<i>Halesia parviflora</i> Michx.	little silverbell	Little (1977)	60
<i>Hamamelis virginiana</i> L.	witch-hazel	Little (1977)	61-N, 61-NE, 61-SE
<i>Heliopsis parvifolia</i> (A. Gray) Benth.	barreta	Little (1976)	89-N, 89-SW
<i>Ilex ambigua</i> (Michx.) Torr.	Carolina holly	Little (1977)	62
<i>Ilex amelanchier</i> M. A. Curt.	sarvis holly	Little (1977)	63
<i>Ilex cassine</i> L.	dahoon	Little (1977)	64-N, 64-SE
<i>Ilex coriacea</i> (Pursh) Chapm.	large gallberry	Little (1977)	65
<i>Ilex decidua</i> Walt.	possumhaw	Little (1977)	66
<i>Ilex laevigata</i> (Pursh) Gray	smooth winterberry	Little (1977)	67
<i>Ilex montana</i> Torr. & Gray	mountain winterberry	Little (1977)	68
<i>Ilex myrtifolia</i> Walt.	myrtle dahoon	Little (1977)	69
<i>Ilex vomitoria</i> Ait.	yaupon	Little (1977)	71-SE, 71-N
<i>Illicium floridanum</i> Ellis	Florida anise-tree	Little (1977)	72-N, 72-NE
<i>Illicium parviflorum</i> Michx.	yellow anise-tree	Little (1977)	73
<i>Leitneria floridana</i> Chapm.	corkwood	Little (1977)	74

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

Scientific name	Common name	Original source	Map or page number in original reference
<i>Leucaena pulverulenta</i> (Schlecht.) Benth.	great leadtree	Little (1976)	96-N, 96-SW
<i>Leucaena retusa</i> Benth.	littleleaf leadtree	Little (1976)	94
<i>Lyonothamnus floribundus</i> A. Gray	Lyontree	Little (1976)	98
<i>Lysiloma microphylla</i> Benth.	littleleaf lysiloma	Little (1976)	97-N, 97-SW
<i>Magnolia ashei</i> Weatherby	Ashe magnolia	Little (1977)	77
<i>Magnolia fraseri</i> Walt.	Fraser magnolia	Little (1977)	78
<i>Magnolia macrophylla</i> Michx.	bigleaf magnolia	Little (1977)	79
<i>Magnolia pyramidata</i> Bartr.	pyramid magnolia	Little (1977)	80
<i>Magnolia tripetala</i> L.	umbrella magnolia	Little (1977)	81
<i>Malus angustifolia</i> (Ait.) Michx.	southern crab apple	Little (1977)	82
<i>Malus coronaria</i> (L.) Mill.	sweet crab apple	Little (1977)	83
<i>Malus diversifolia</i> (Bong.) Roem.	Oregon crab apple	Little (1976)	100-N, 100-W
<i>Malus ioensis</i> (Wood) Britton	prairie crab apple	Little (1977)	84
<i>Myrica californica</i> Cham.	Pacific bayberry	Little (1976)	101
<i>Myrica cerifera</i> L.	southern bayberry	Little (1977)	85
<i>Nemopanthus collinus</i> (Alexander) R. C. Clark	mountain-holly	Little (1977)	89
<i>Osmanthus americanus</i> (L.) Benth. & Hook. f.	devilwood	Little (1977)	90
<i>Ostrya chisosensis</i> Correll	Chisos hophornbean	Little (1976)	105
<i>Oxydendrum arboreum</i> (L.) DC.	sourwood	Little (1977)	91
<i>Parkinsonia aculeata</i> L.	Jerusalem-thorn	Little (1976)	107
<i>Persea borbonia</i> (L.) Spreng.	redbay	Little (1977)	92
<i>Photinia arbutifolia</i> Lindl.	Christmas-berry	Little (1976)	109-NW, 109-SW
<i>Pinckneya pubens</i> Michx.	pinckneya	Little (1977)	93
<i>Pistacia texana</i> Swingle	Texas pistache	Little (1976)	108
<i>Pithecellobium flexicaule</i> (Benth.) Coult.	ebony blackbead	Little (1976)	110-N, 110-SW
<i>Pithecellobium pallens</i> (Benth.) Standl.	huajillo	Little (1976)	111-N, 111-SW
<i>Planera aquatica</i> J. F. Gmel.	planertree	Little (1977)	94
<i>Platanus racemosa</i> Nutt.	California sycamore	Little (1976)	112
<i>Platanus wrightii</i> S. Wats.	Arizona sycamore	Little (1976)	113
<i>Populus angustifolia</i> James	narrowleaf cottonwood	Little (1976)	114
<i>Populus arizonica</i> Sarg.	Arizona cottonwood	Little (1976)	115
<i>Populus deltoides</i> Bartr.	eastern cottonwood	Little (1971)	149-W, 149-E
<i>Populus hinckleyana</i> Correll	Hinckley cottonwood	Little (1976)	116
<i>Populus trichocarpa</i> Torr. & Gray	black cottonwood	Little (1971)	153-W, 153-N
<i>Prunus alleghaniensis</i> Porter	Allegheny plum	Little (1977)	96
<i>Prunus americana</i> Marsh.	American plum	Little (1976, 1977)	119-NW, 119-SW, 95-NE, 95-SE
<i>Prunus angustifolia</i> Marsh.	Chickasaw plum	Little (1976, 1977)	120, 97
<i>Prunus caroliniana</i> (Mill.) Ait.	Carolina laurelcherry	Little (1977)	98
<i>Prunus emarginata</i> Dougl.	bitter cherry	Little (1976)	122-N, 122-W
<i>Prunus fremontii</i> S. Wats.	desert apricot	Little (1976)	121
<i>Prunus hortulana</i> Bailey	hortulan plum	Little (1977)	99
<i>Prunus ilicifolia</i> (Nutt.) D. Dietr.	hollyleaf cherry	Little (1976)	123
<i>Prunus lyonii</i> (Eastw.) Sarg.	Catalina cherry	Little (1976)	124
<i>Prunus mexicana</i> Wats.	Mexican plum	Little (1977)	100-N, 100-SE
<i>Prunus munsoniana</i> Wight & Hedr.	wildgoose plum	Little (1977)	101
<i>Prunus nigra</i> Ait.	Canada plum	Little (1977)	102
<i>Prunus pensylvanica</i> L. f.	pin cherry	Little (1976, 1977)	125-N, 125-NW, 103-N, 103-NE
<i>Prunus subcordata</i> Benth.	Klamath plum	Little (1976)	126
<i>Prunus umbellata</i> Ell.	flatwoods plum	Little (1977)	105

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

Scientific name	Common name	Original source	Map or page number in original reference
<i>Prunus virginiana</i> L.	common chokecherry	Little (1976, 1977)	127-N, 127-NW, 127-SW, 104-N, 104-NE
<i>Ptelea crenulata</i> Greene	California hoptree	Little (1976)	129
<i>Quercus tomentella</i> Engelm.	island live oak	Little (1976)	145
<i>Rhamnus caroliniana</i> Walt.	Carolina buckthorn	Little (1977)	117-N, 117-SE
<i>Rhizophora mangle</i> L.	mangrove	Little (1971, 1978)	186-N, 186-E, 238
<i>Rhododendron catawbiense</i> Michx.	Catawba rhododendron	Little (1977)	118
<i>Rhododendron maximum</i> L.	rosebay rhododendron	Little (1977)	119
<i>Rhus copallina</i> L.	shining sumac	Little (1977)	120-SE, 120-N
<i>Rhus integrifolia</i> (Nutt.) Benth. & Hook. f.	lemonade sumac	Little (1976)	154
<i>Rhus kearneyi</i> Barkley	Kearney sumac	Little (1976)	156
<i>Rhus lanceolata</i> (A. Gray) Britton	prairie sumac	Little (1976)	158-N, 158-SW
<i>Rhus laurina</i> Nutt.	laurel sumac	Little (1976)	157
<i>Rhus typhina</i> L.	staghorn sumac	Little (1977)	122-N, 122-NE
<i>Robinia kelseyi</i> Hutchins.	Kelsey locust	Little (1977)	123
<i>Robinia viscosa</i> Vent.	clammy locust	Little (1977)	124
<i>Sabal mexicana</i> Mart.	Mexican palmetto	Little (1976)	161-N, 161-SW
<i>Sabal minor</i> (Jacq.) Pers.	dwarf palmetto	Little (1977)	125
<i>Salix amygdaloides</i> Anders.	peachleaf willow	Little (1971)	189-W, 189-E, 189-N
<i>Salix bebbiana</i> Sarg.	Bebb willow	Little (1976, 1977)	165-N, 165-NW, 165-SW, 127-N, 127-NE
<i>Salix bonplandiana</i> H.B.K.	Bonpland willow	Little (1976)	166-N, 166-SW
<i>Salix caroliniana</i> Michx.	Coastal Plain willow	Little (1977)	126
<i>Salix discolor</i> Mühl.	pussy willow	Little (1976, 1977)	167-N, 167-W, 128-N, 128-NE
<i>Salix exigua</i> Nutt.	coyote willow	Little (1976, 1977)	168-NW, 168-SW, 168-N, 129-NE, 129-SE, 129-N
<i>Salix floridana</i> Chapm.	Florida willow	Little (1977)	130
<i>Salix fluviatilis</i> Nutt.	river willow	Little (1976)	169
<i>Salix geyeriana</i> Anders.	Geyer willow	Little (1976)	170
<i>Salix hindsiana</i> Benth.	Hinds willow	Little (1976)	171
<i>Salix hookeriana</i> Barratt	Hooker willow	Little (1976)	172-N, 172-W
<i>Salix laevigata</i> Bebb	red willow	Little (1976)	176
<i>Salix lasiandra</i> Benth.	Pacific willow	Little (1976)	173-N, 173-W
<i>Salix lasiolepis</i> Benth.	arroyo willow	Little (1976)	174-NW, 174-SW
<i>Salix lucida</i> Mühl.	shining willow	Little (1977)	131-N, 131-NE
<i>Salix mackenzieana</i> (Hook.) Barratt	Mackenzie willow	Little (1976)	175-N, 175-W
<i>Salix nigra</i> Marsh.	black willow	Little (1971, 1976)	190-N, 190-W, 190-E, 177-N, 177-NW, 177-SW
<i>Salix pellita</i> Anders.	satiny willow	Little (1977)	132-N, 132-NE
<i>Salix petiolaris</i> J. E. Sm.	meadow willow	Little (1976, 1977)	178-N, 178-NW, 133-N, 133-NE
<i>Salix pyrifolia</i> Anders.	balsam willow	Little (1977)	134-N, 134-NE
<i>Salix scouleriana</i> Barratt	Scouler willow	Little (1976)	179-N, 179-W
<i>Salix sericea</i> Marsh.	silky willow	Little (1977)	135-N, 135-NE
<i>Salix sessilifolia</i> Nutt.	northwest willow	Little (1976)	180
<i>Salix sitchensis</i> Sanson	Sitka willow	Little (1976)	182-N, 182-W
<i>Salix taxifolia</i> H.B.K.	yewleaf willow	Little (1976)	183-N, 183-SW
<i>Salix tracyi</i> Ball	Tracy willow	Little (1976)	181
<i>Sambucus callicarpa</i> Greene	Pacific red elder	Little (1976)	184-N, 184-W
<i>Sambucus canadensis</i> L.	American elder	Little (1977)	136-NE, 136-SE, 136-N

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

Scientific name	Common name	Original source	Map or page number in original reference
<i>Sambucus glauca</i> Nutt.	blueberry elder	Little (1976)	185-NW, 185-SW
<i>Sambucus melanocarpa</i> A. Gray	blackbead elder	Little (1976)	187
<i>Sambucus velutina</i> Durand & Hilgard	velvet elder	Little (1976)	188
<i>Sapindus drummondii</i> Hook. & Arn.	western soapberry	Little (1976, 1977)	189, 138
<i>Sapindus saponaria</i> L.	wingleaf soapberry	Little (1977, 1978)	139, 240
<i>Serenoa repens</i> (Bartr.) Small	saw-palmetto	Little (1977)	137
<i>Solanum erianthum</i> D. Don	mullein nightshade	Little (1977, 1978)	140-N, 140-SE, 245
<i>Sophora affinis</i> Torr. & Gray	Texas sophora	Little (1977)	145
<i>Sophora secundiflora</i> (Ortega) Lag.	mescalbean	Little (1976)	192-N, 192-SW
<i>Sorbus americana</i> Marsh.	American mountain-ash	Little (1977)	141-N, 141-SE
<i>Sorbus decora</i> (Sarg.) Schneid.	showy mountain-ash	Little (1977)	142-N, 142-NE
<i>Sorbus scopulina</i> Greene	Greene mountain-ash	Little (1976)	193-N, 193-W
<i>Sorbus sitchensis</i> Roem.	Sitka mountain-ash	Little (1976)	194-N, 194-W
<i>Staphylea bolanderi</i> A. Gray	Sierra bladdernut	Little (1976)	195
<i>Staphylea trifolia</i> L.	American bladdernut	Little (1977)	143-NE, 143-SE
<i>Stewartia malacodendron</i> L.	Virginia stewartia	Little (1977)	146
<i>Stewartia ovata</i> (Cav.) Weatherby	mountain stewartia	Little (1977)	147
<i>Styrax americana</i> Lam.	American snowbell	Little (1977)	148
<i>Styrax grandifolia</i> Ait.	bigleaf snowbell	Little (1977)	149
<i>Styrax platanifolia</i> Engelm.	sycamore-leaf snowbell	Little (1977)	150
<i>Symplocos tinctoria</i> (L.) L'Hér.	common sweetleaf	Little (1977)	151
<i>Tilia caroliniana</i> Mill.	Carolina basswood	Little (1977)	153
<i>Toxicodendron vernix</i> (L.) Kuntze	poison-sumac	Little (1977)	152-NE, 152-SE
<i>Ungnadia speciosa</i> Endl.	Mexican-buckeye	Little (1976)	196
<i>Vaccinium arboreum</i> Marsh.	tree sparkleberry	Little (1977)	154
<i>Vauquelinia pauciflora</i> Standl.	fewflower vauquelinia	Little (1976)	198
<i>Viburnum lentago</i> L.	nannyberry	Little (1976, 1977)	199, 155
<i>Viburnum nudum</i> L.	possumhaw viburnum	Little (1977)	156
<i>Viburnum obovatum</i> Walt.	Walter viburnum	Little (1977)	157
<i>Viburnum prunifolium</i> L.	blackhaw	Little (1977)	158
<i>Viburnum rufidulum</i> Raf.	rusty blackhaw	Little (1977)	160
<i>Viburnum trilobum</i> Marsh.	American cranberrybush	Little (1976, 1977)	200, 159-N, 159-NE
<i>Yucca aloifolia</i> L.	aloe yucca	Little (1977)	161
<i>Yucca gloriosa</i> L.	moundlily yucca	Little (1977)	162
<i>Zanthoxylum americanum</i> Mill.	common prickly-ash	Little (1977)	163
<i>Zanthoxylum clava-herculis</i> L.	Hercules-club	Little (1977)	165
<i>Zanthoxylum fagara</i> (L.) Sarg.	lime prickly-ash	Little (1977, 1978)	164-N, 164-SE, 255
<i>Zanthoxylum hirsutum</i> Buckl.	Texas Hercules-club	Little (1977)	166

GENERA & GROUPS (see table 2)

AESCULUS	buckeye
MAGNOLIA	magnolia
PLATANUS	sycamore
POPULUS	cottonwood
STEWARTIA	stewartia
TILIA	basswood

FLORIDA SECTION

<i>Acacia choriophylla</i> Benth.	cinnecord	Little (1978)	159
<i>Acoelorrhaphe wrightii</i> (Griseb. & H. Wendl.) H. Wendl.	paurotis-palm	Little (1978)	161

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

Scientific name	Common name	Original source	Map or page number in original reference
FLORIDA SECTION—Continued			
<i>Alvaradoa amorphoides</i> Liebm.	Mexican alvaradoa	Little (1978)	162
<i>Amphitecna latifolia</i> (Mill.) A.H. Gentry	black-calabash	Little (1978)	163
<i>Amyris balsamifera</i> L.	balsam torchwood	Little (1978)	164
<i>Amyris elemifera</i> L.	torchwood	Little (1978)	165
<i>Ammona glabra</i> L.	pond-apple	Little (1978)	166
<i>Ardisia escallonioides</i> Schiede & Deppe	marlberry	Little (1978)	167
<i>Bourreria ovata</i> Miers	Bahama strongbark	Little (1978)	169
<i>Bursera simaruba</i> (L.) Sarg.	gumbo-limbo	Little (1978)	172
<i>Byrsonima lucida</i> DC.	key byrsonima	Little (1978)	173
<i>Calytranthes pallens</i> Griseb.	pale lidflower	Little (1978)	174
<i>Calytranthes zuzygium</i> (L.) Sw.	myrtle-of-the-river	Little (1978)	175
<i>Canella winterana</i> (L.) Gaertn.	canella	Little (1978)	176
<i>Capparis cynophallophora</i> L.	Jamaica caper	Little (1978)	177
<i>Capparis flexuosa</i> (L.) L.	limber caper	Little (1978)	178
<i>Cereus robinii</i> (Lem.) L. Benson	key tree-cactus	Little (1978)	179
<i>Chrysobalanus icaco</i> L.	cocoplum	Little (1978)	180
<i>Chrysophyllum oliviforme</i> L.	satinleaf	Little (1978)	181
<i>Citharexylum fruticosum</i> L.	Florida fiddlewood	Little (1978)	182
<i>Coccoloba diversifolia</i> Jacq.	pigeon-plum	Little (1978)	184
<i>Coccoloba uvifera</i> (L.) L.	seagrape	Little (1978)	185
<i>Coccothrinax argentata</i> (Jacq.) Bailey	Florida silverpalm	Little (1978)	186
<i>Colubrina arborescens</i> (Mill.) Sarg.	coffee colubrina	Little (1978)	187
<i>Colubrina cubensis</i> (Jacq.) Brongn.	Cuba colubrina	Little (1978)	188
<i>Colubrina elliptica</i> (Sw.) Briz. & Stern	soldierwood	Little (1978)	189
<i>Conocarpus erectus</i> L.	button-mangrove	Little (1978)	190
<i>Cordia sebestena</i> L.	Geiger-tree	Little (1978)	191
<i>Crossopetalum rhacoma</i> Crantz	Florida crossopetalum	Little (1978)	192
<i>Dipholis salicifolia</i> (L.) A. DC.	willow bastic	Little (1978)	194
<i>Drypetes diversifolia</i> Krug & Urban	milkbark	Little (1978)	196
<i>Drypetes lateriflora</i> (Sw.) Krug & Urban	Guiana-plum	Little (1978)	197
<i>Eugenia axillaris</i> (Sw.) Willd.	white stopper	Little (1978)	198
<i>Eugenia confusa</i> DC.	redberry stopper	Little (1978)	199
<i>Eugenia foetida</i> Pers.	boxleaf stopper	Little (1978)	200
<i>Eugenia rhombea</i> (Berg) Krug & Urban	red stopper	Little (1978)	201
<i>Exostema caribaeum</i> (Jacq.) Roem. & Schult.	princewood	Little (1978)	202
<i>Exothea paniculata</i> (Juss.) Radlk.	inkwood	Little (1978)	203
<i>Ficus aurea</i> Nutt.	Florida strangler fig	Little (1978)	204
<i>Ficus citrifolia</i> Mill.	shortleaf fig	Little (1978)	205
<i>Genipa clusiifolia</i> (Jacq.) Griseb.	seven-year-apple	Little (1978)	206
<i>Guaiaacum sanctum</i> L.	roughbark lignumvitae	Little (1978)	207
<i>Guapira discolor</i> (Spreng.) Little	blolly	Little (1978)	208
<i>Guettarda elliptica</i> Sw.	elliptic-leaf velvetseed	Little (1978)	209
<i>Guettarda scabra</i> (L.) Vent.	roughleaf velvetseed	Little (1978)	210
<i>Gymnanthes lucida</i> Sw.	oysterwood	Little (1978)	212
<i>Hamelia patens</i> Jacq.	scarletbush	Little (1978)	213
<i>Hippomane mancinella</i> L.	manchineel	Little (1978)	214
<i>Hypelate trifoliata</i> Sw.	hypelate	Little (1978)	215

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

Scientific name	Common name	Original source	Map or page number in original reference
FLORIDA SECTION—Continued			
<i>Ilex krugiana</i> Loes.	tawnyberry holly	Little (1978)	216
<i>Ilex longipes</i> Chapm.	Georgia holly	Little (1978)	158.2
<i>Jacquinia keyensis</i> Mez	joewood	Little (1978)	217
<i>Krugiodendron ferreum</i> (Vahl) Urban	leadwood	Little (1978)	218
<i>Laguncularia racemosa</i> (L.) Gaertn. f.	white-mangrove	Little (1978)	219
<i>Licaria triandra</i> (Sw.) Kosterm.	Florida licaria	Little (1978)	220
<i>Lysiloma latisiliquum</i> (L.) Benth.	Bahama lysiloma	Little (1978)	221
<i>Manilkara bahamensis</i> (Baker) Lam & Meeuse	wild-dilly	Little (1978)	222
<i>Mastichodendron foetidissimum</i> (Jacq.) Cronq.	false-mastic	Little (1978)	223
<i>Maytenus phyllanthoides</i> Benth.	Florida mayten	Little (1978)	224
<i>Metopium toxiferum</i> (L.) Krug & Urban	Florida poison-tree	Little (1978)	225
<i>Myrcianthes fragrans</i> (Sw.) McVaugh	twinberry stopper	Little (1978)	226
<i>Nectandra coriacea</i> (Sw.) Griseb.	Florida nectandra	Little (1978)	227
<i>Picramnia pentandra</i> Sw.	bitterbush	Little (1978)	228
<i>Piscidia piscipula</i> (L.) Sarg.	Florida fishpoison-tree	Little (1978)	229
<i>Pithecellobium guadalupense</i> (Pers.) Chapm.	Guadeloupe blackbead	Little (1978)	231
<i>Pithecellobium unguis-cati</i> (L.) Mart.	catclaw blackbead	Little (1978)	232
<i>Prunus myrtifolia</i> (L.) Urban	West Indies cherry	Little (1978)	233
<i>Pseudophoenix sargentii</i> H. Wendl. ex Sarg.	buccaneer-palm	Little (1978)	234
<i>Psidium longipes</i> (Berg) McVaugh	long-stalk stopper	Little (1978)	235
<i>Rapanea punctata</i> (Lam.) Lundell	Florida rapanea	Little (1978)	236
<i>Reynosia septentrionalis</i> Urban	darling-plum	Little (1978)	237
<i>Roystonea elata</i> (Bartr.) F. Harper	Florida royalpalm	Little (1978)	239
<i>Schaefferia frutescens</i> Jacq.	Florida-boxwood	Little (1978)	242
<i>Schoepfia chrysophylloides</i> (A. Rich.) Planch.	graytwig	Little (1978)	243
<i>Simarouba glauca</i> DC.	paradise-tree	Little (1978)	244
<i>Suriana maritima</i> L.	baycedar	Little (1978)	246
<i>Swietenia mahagoni</i> (L.) Jacq.	West Indies mahogany	Little (1978, 1971)	247, 192-E
<i>Tetrazygia bicolor</i> (Mill.) Cogn.	Florida tetrazygia	Little (1978)	248
<i>Thrinax morrisii</i> H. Wendl.	key thatcpalm	Little (1978)	249
<i>Thrinax radiata</i> Lodd. ex J. A. & J. H. Schult.	Florida thatcpalm	Little (1978)	250
<i>Trema lamarckiana</i> (Roem. & Schult.) Blume	West Indies trema	Little (1978)	251
<i>Trema micrantha</i> (L.) Blume	Florida trema	Little (1978)	252
<i>Ximenia americana</i> (L.)	tallowood	Little (1978)	253
<i>Zanthoxylum coriaceum</i> A. Rich.	Biscayne prickly-ash	Little (1978)	254

Table 2. Species comprising groups listed in table 1.

AESCULUS: *Aesculus californica*, *Aesculus glabra*, *Aesculus octandra*, *Aesculus parviflora*,
Aesculus pavia, *Aesculus sylvatica*

CATALPA: *Catalpa bignonioides*, *Catalpa speciosa*

MAGNOLIA: *Magnolia acuminata*, *Magnolia ashei*, *Magnolia fraseri*, *Magnolia grandiflora*,
Magnolia macrophylla, *Magnolia pyramidata*, *Magnolia tripetala*, *Magnolia virginiana*

PLATANUS: *Platanus occidentalis*, *Platanus racemosa*, *Platanus wrightii*

POPULUS: *Populus angustifolia*, *Populus arizonica*, *Populus balsamifera*, *Populus deltoides*,
Populus fremontii, *Populus grandidentata*, *Populus heterophylla*, *Populus hinckleyana*,
Populus tremuloides, *Populus trichocarpa*

STEWARTIA: *Stewartia malacodendron*, *Stewartia ovata*

TILIA: *Tilia americana*, *Tilia caroliniana*, *Tilia heterophylla*

displays on the pages following figure 2. The maps in figure 2 illustrate that there is very little difference in July temperature across the region, whereas January temperature, annual temperature, GDD₅, and MTCO all have north-to-south gradients. The southern one-third of Florida has significantly warmer winter temperatures (and hence higher mean annual temperature and mean GDD₅) than the central and northern parts of the State. January is drier in the southern portion of Florida than farther north, and within southern Florida the east coast is wetter on an annual basis than the west coast. Following figure 2 are illustrations with maps of Florida plant species paired with bivariate plots of mean annual precipitation plotted against GDD₅. The maps and climate data presented in these illustrations reveal that the “Florida only” species are largely restricted to the winter-warm climates of the southern third of the State.

With the completion of this volume, USGS Professional Paper 1650 provides information on 117 conifer species, 32 conifer groups (genera and subgenera), 547 hardwood or monocot species, and 27 hardwood groups. The maps for 661 of the 664 species were obtained from the U.S. Department of Agriculture (USDA) atlases published by E.L. Little, Jr. and coauthors (Critchfield and Little, 1966; Little, 1971, 1976, 1977, 1978, 1981; Viereck and Little, 1975).

Notes on Special Treatments of Selected Taxa

Nine of the hardwood species that we included from these “Little” volumes have range maps that may be incomplete or for which the native range is imperfectly known (table 4). It should be noted that (1) the Latin American and Caribbean distributions of species included in this Professional Paper are also probably either incomplete or poorly known and (2) the climatic data from these regions are sparse.

Black-mangrove (*Avicennia germinans*), a tree species that is confined to narrow strips along the coasts, was treated differently than other species. For this species we used the nearest grid point along the coast in both the graphical displays and tables.

This volume adds additional species to our coverages for the genera *Quercus*, *Juniperus*, and *Picea*. In our judgment, the new species did not significantly augment the climatic ranges depicted for *Quercus* and *Juniperus* in the preceding two volumes of this atlas. *Picea chihuahuana* (Gordon, 1968) does apparently live in warmer and more temperate environments than other North American species of spruce. However, the number of grid points covered by this species is too small to significantly alter the climatic range depicted for *Picea* in Professional Paper 1650-A (Thompson and others, 1999a).

Fifteen North American species in the Little and coauthors’ atlases have limited geographic ranges that are so small that the species do not appear our 25-km grid (table 5), and thus they are not included here. Alaska was given separate treatment by Viereck and Little (1975), who provided maps of the distributions of arctic and subarctic species within the State. Unfortunately for our purposes, maps are not available for the Canadian ranges of these species, and thus we cannot explore the relations between climate and the limits of these species on a continental basis (therefore, these species are not included here). In addition, Little (1981) mapped 35 species of *Crataegus* only by State or Province, a scale too coarse for our investigations.

Internet Availability

This volume is available online (<http://greenwood.cr.usgs.gov/pub/pppapers/p1650-c>).

Table 3. List of taxa where the North American maps were produced by merging data from Little (1978) with coarser data for the rest of the continent from other Little publications.

Scientific name	Common name	Original source	Map or page number in original reference	Comments
<i>Sapindus saponaria</i>	wingleaf soapberry	Little (1977, 1978)	139, 240	Used Little (1977) for lat > 30°N.; used Little (1978) for the rest.
<i>Solanum erianthum</i>	mullein nightshade	Little (1977, 1978)	140-N, 140-SE, 245	Used Little (1978) for Florida distribution; used Little (1977) for the rest.
<i>Zanthoxylum fagara</i>	lime prickly-ash	Little (1977, 1978)	164-N, 164-SE, 255	Used Little (1978) for Florida distribution; used Little (1977) for the rest.
<i>Bumelia celastrina</i>	saffron-plum	Little (1976, 1978)	23-N, 23-SW, 171	Used Little (1978) for Florida distribution; used Little (1976) for the rest.
<i>Dodonaea viscosa</i>	hopbush	Little (1976, 1978)	66-N, 66-SW, 195	Used Little (1978) for Florida distribution; used Little (1976) for the rest.

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Table 4. Species included in this volume with "Incomplete Ranges" (I.R.) or where the "Native Range is Uncertain" (N.R.U.)

Code	Scientific name	Common name	Original source	Map or page number in original source	Little's comments on distributions	Comments
I.R.	<i>Acacia farnesiana</i>	sweet acacia	Little (1976)	2	Widely distributed in tropical America (not mapped), also cultivated and naturalized northward in Southeastern United States and in Old World tropics. Native range in Texas perhaps less than shown.	
I.R.	<i>Crataegus chrysocarpa</i>	fireberry hawthorn	Little (1976)	57	Western range. Also east to Quebec, Newfoundland, Maine, and New York (not mapped).	
I.R.	<i>Crataegus succulenta</i>	fleshy hawthorn	Little (1976)	62	Western range. Also east to Nova Scotia, Maine, and North Carolina (not mapped).	
I.R.	<i>Osmanthus americanus</i>	devilwood	Little (1977)	90	Also Mex. (N.L., Tamps., Ver., Oax.) (incomplete).	
I.R.	<i>Parkinsonia aculeata</i>	Jerusalem-thorn	Little (1976)	107	Widely distributed in tropical America (not mapped), also cultivated and naturalized northward in Southeastern United States and in Old World tropics.	
I.R.	<i>Sapindus saponaria</i>	wingleaf soapberry	Little (1977, 1978)	139, 240	Also from Mex. S. to Brazil and Argentina. Through West Indies including Bahamas, P.R., and V.I. Also Hawaii and other Pacific Is.	Used Little (1977) for lat > 30°N.; used Little (1978) for the rest.
N.R.U.	<i>Catalpa bignonioides</i>	southern catalpa	Little (1977)	30	Native range uncertain. Widely naturalized beyond.	
N.R.U.	<i>Catalpa speciosa</i>	northern catalpa	Little (1971)	120-E	Native range uncertain and may have extended south to Louisiana.	
N.R.U.	<i>Prunus angustifolia</i>	Chickasaw plum	Little (1976, 1977)	120, 97	120; Also naturalized eastward. 97; Extensively naturalized and perhaps spread by Indians in prehistoric times. Original native range not accurately known but probably c. Tex. and Okla. Western range in volume 3 [of Little, 1976].	

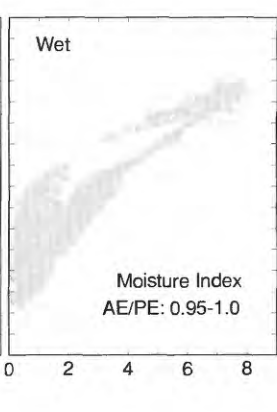
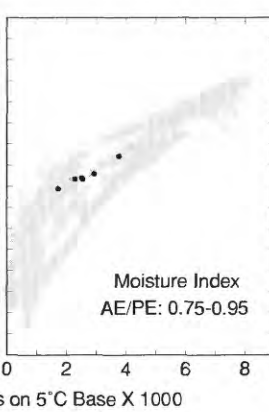
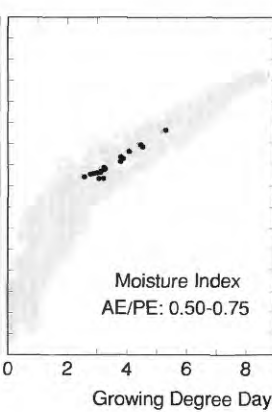
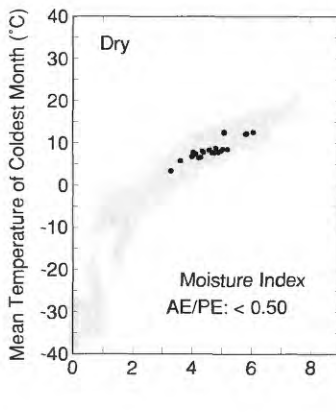
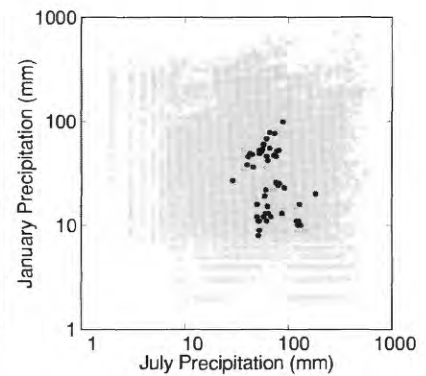
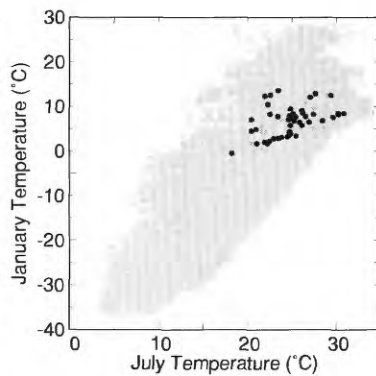
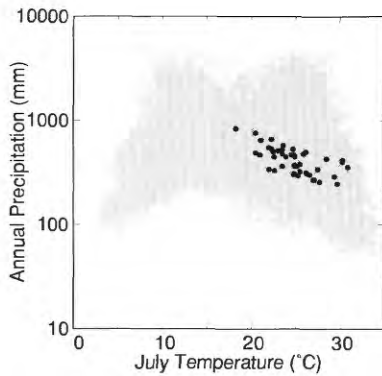
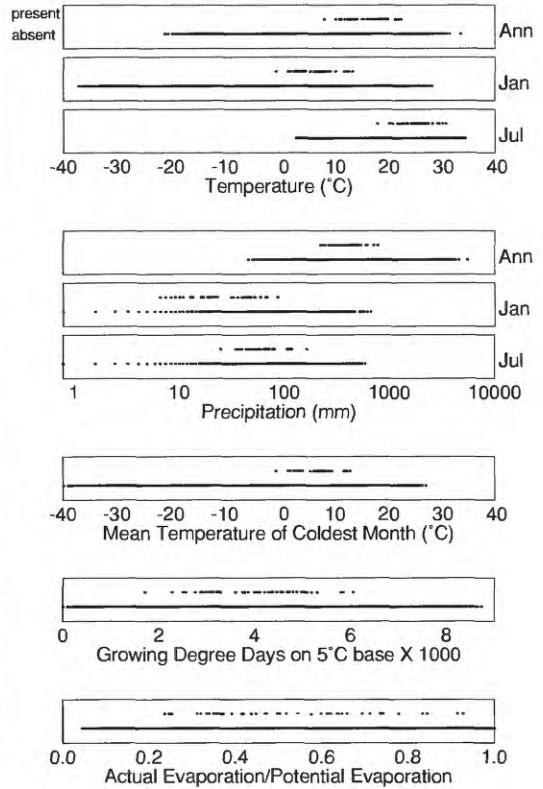
Table 5. Species from Little (1978) or Critchfield and Little (1966) not included in this volume.

Scientific name	Common name	Original source	Map or page number in original reference	Comments
<i>Acacia macracantha</i> Humb. & Bonpl. ex Willd.	long-spine acacia	Little (1978)	160	no nearest grid point
<i>Asimina parviflora</i> (Michx.) Dunal	smallflower pawpaw	Little (1978)	158.5	incomplete range in Little
<i>Bourreria radula</i> (Poir.) G. Don	rough strongbark	Little (1978)	170	no nearest grid point
<i>Cercocarpus traskiae</i> Eastw.	Catalina cercocarpus	Little (1976)	43	no nearest grid point
<i>Clusia rosea</i> Jacq.	Florida clusia	Little (1978)	183	no nearest grid point
<i>Cupania glabra</i> Sw.	Florida cupania	Little (1978)	193	no nearest grid point
<i>Gyminda latifolia</i> (Sw.) Urban	falsebox	Little (1978)	211	no nearest grid point
<i>Pinus cubensis</i> Griseb.	Cuban pine	Critchfield and Little (1966)	46	no nearest grid point
<i>Pinus culminicola</i> Andresen & Beaman	Potosi pinyon	Critchfield and Little (1966)	18	1 nearest grid point
<i>Pinus maximartinezii</i> Rzedowski	Martínez pinyon	Critchfield and Little (1966)	15	1 nearest grid point
<i>Pinus occidentalis</i> Sw.	West Indian pine	Critchfield and Little (1966)	46	no nearest grid point
<i>Pinus tropicalis</i> Morelet	tropical pine	Critchfield and Little (1966)	26	no nearest grid point
<i>Pisonia rotundata</i> Griseb.	pisonia	Little (1978)	230	no nearest grid point
<i>Savia bahamensis</i> Britton	maidenbush	Little (1978)	241	no nearest grid point
<i>Zanthoxylum flavum</i> Vahl	West Indies satinwood	Little (1978)	256	no nearest grid point

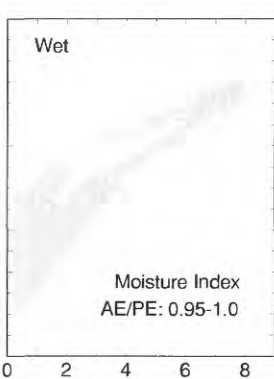
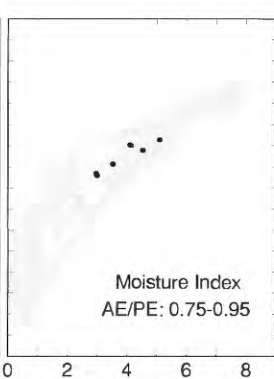
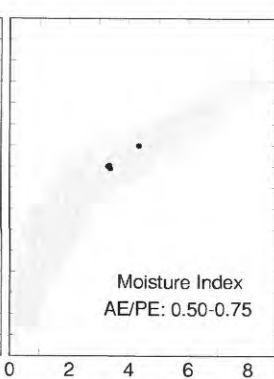
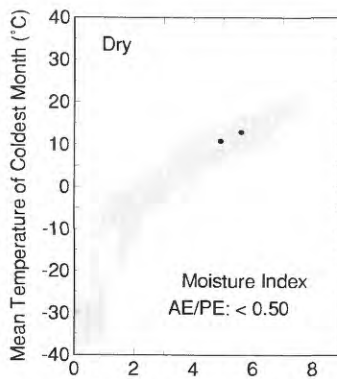
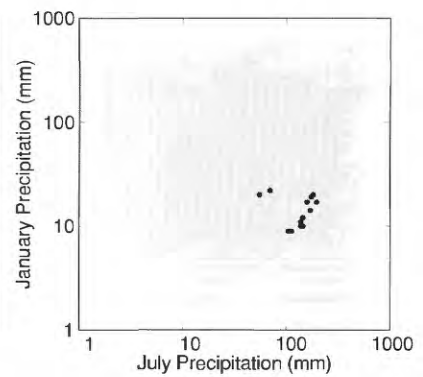
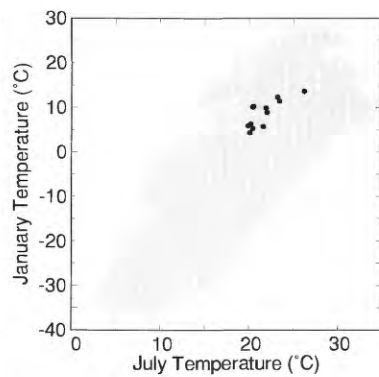
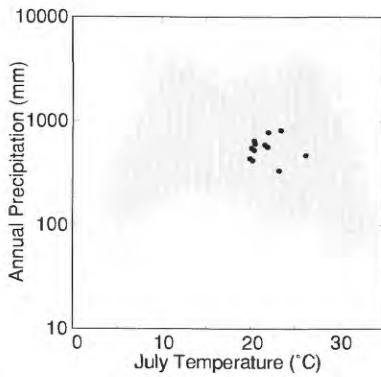
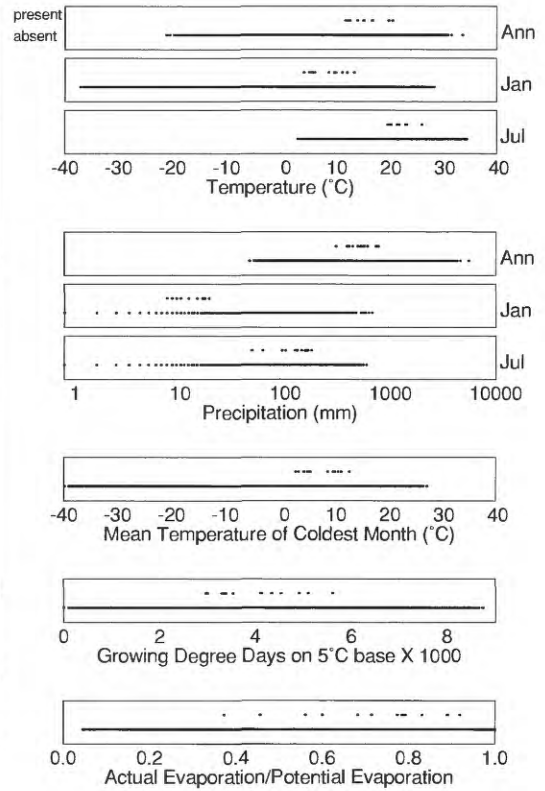
Additional Hardwoods, Conifers, and Monocots— Graphical Displays



Juniperus erythrocarpa

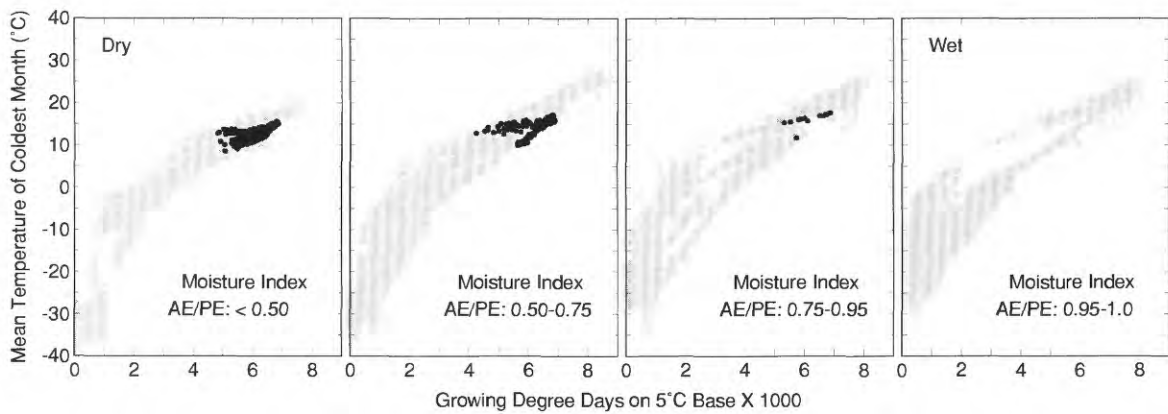
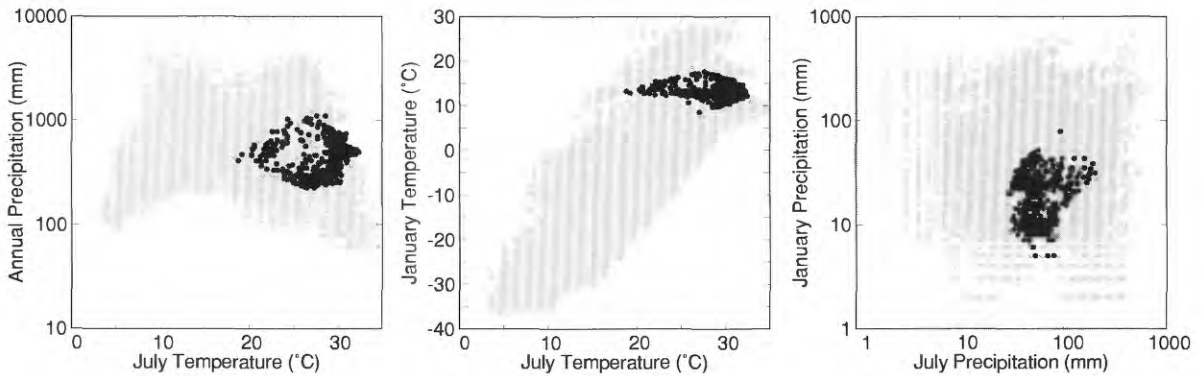
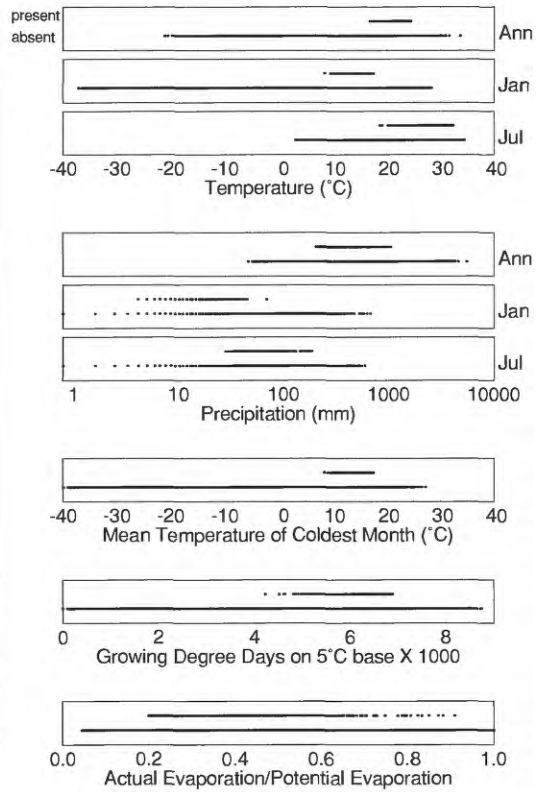
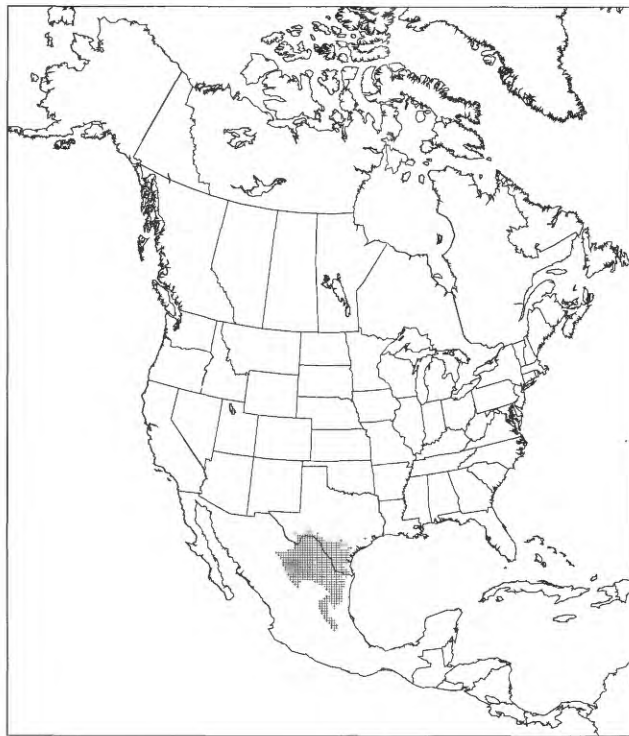


Picea chihuahuana

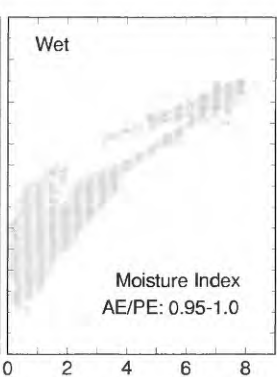
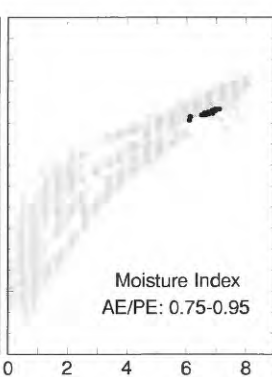
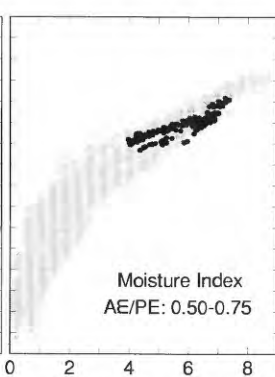
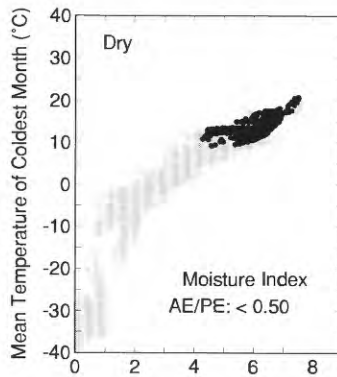
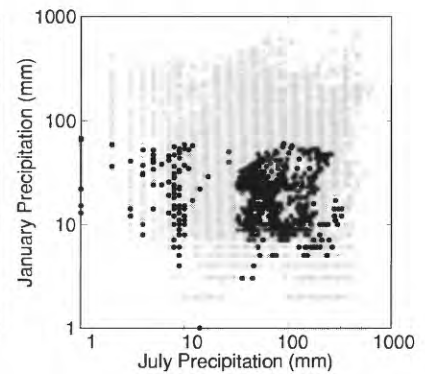
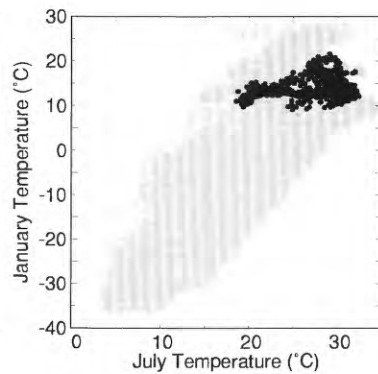
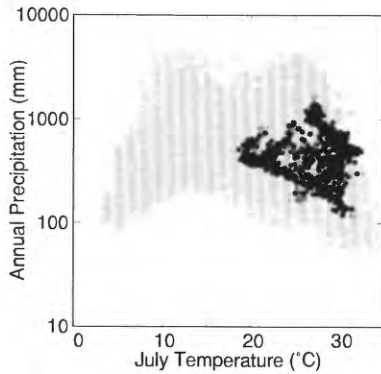
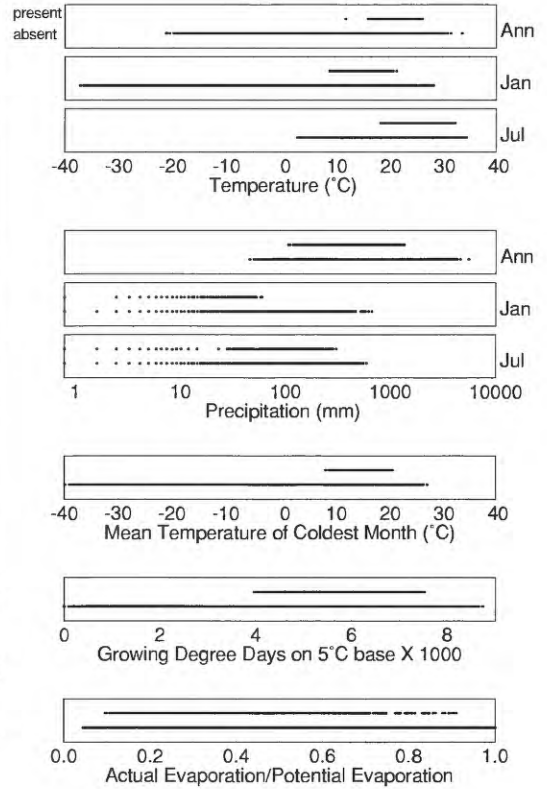


Growing Degree Days on 5°C Base X 1000

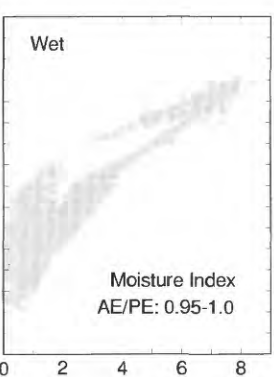
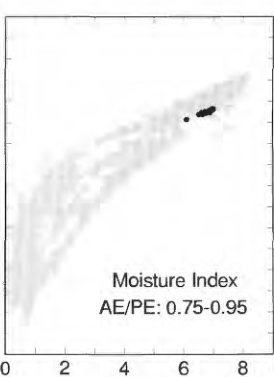
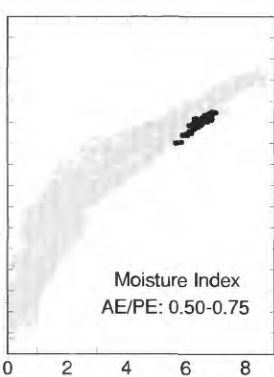
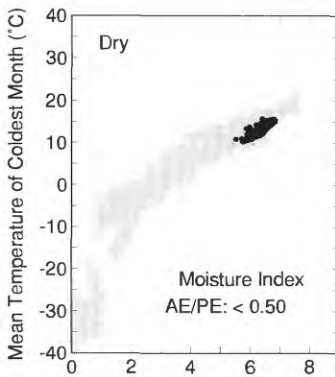
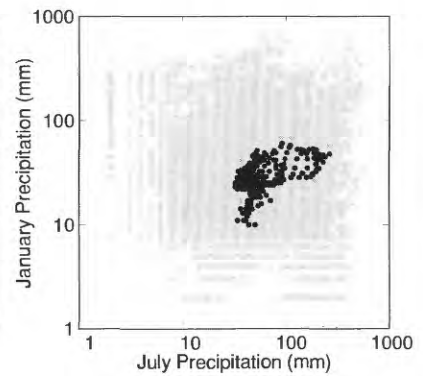
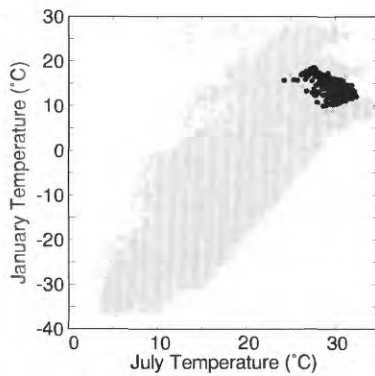
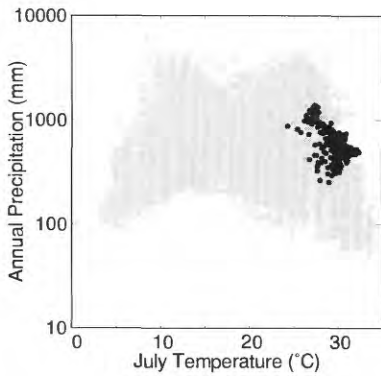
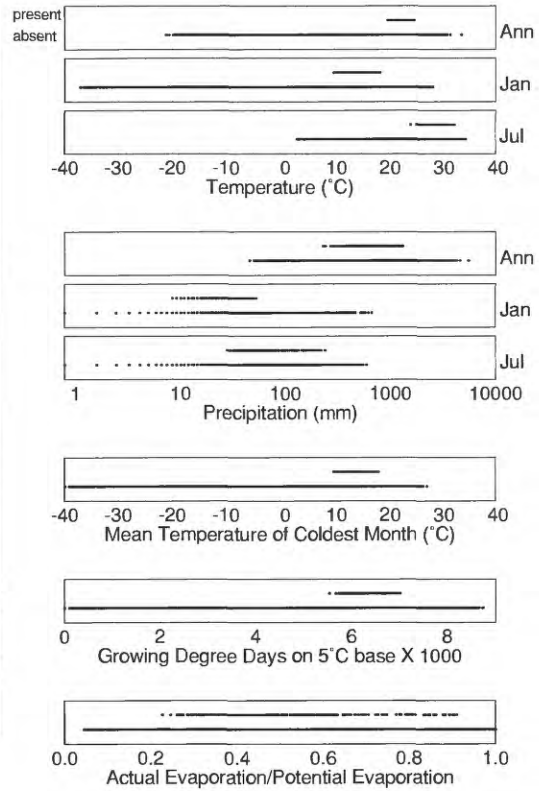
Acacia berlandieri



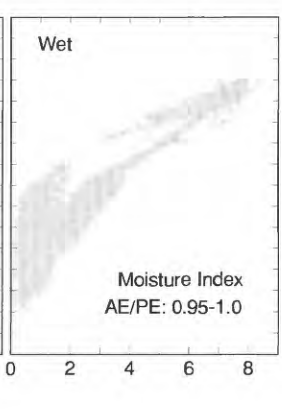
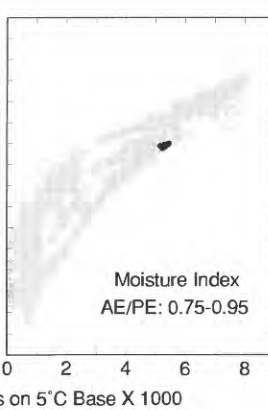
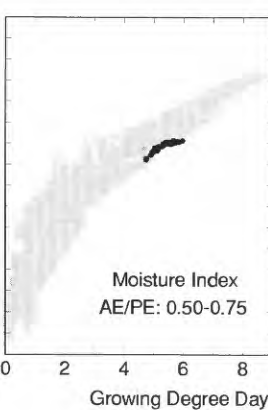
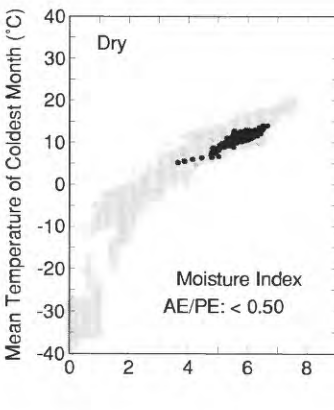
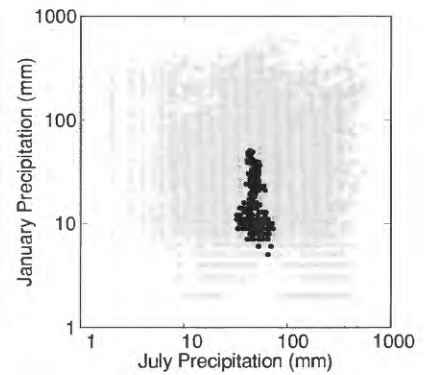
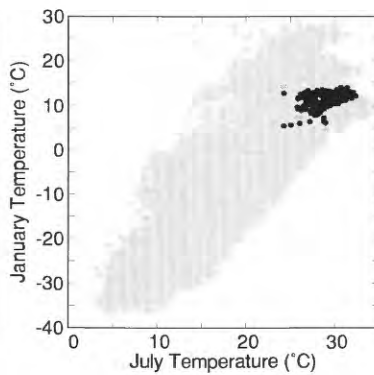
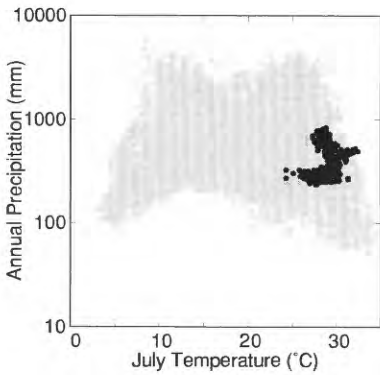
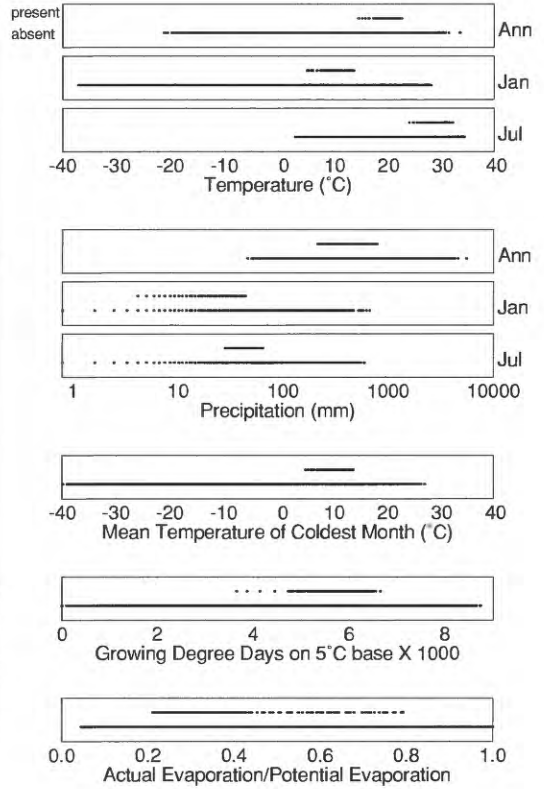
***Acacia farnesiana* (incomplete range)**



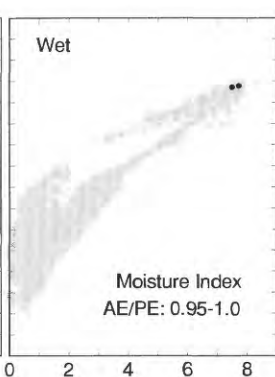
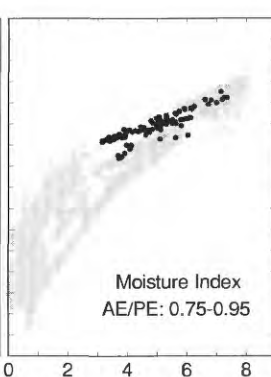
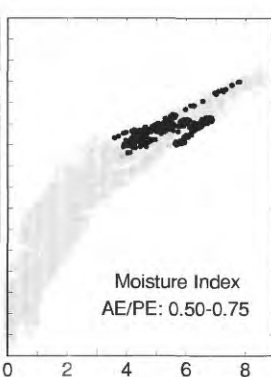
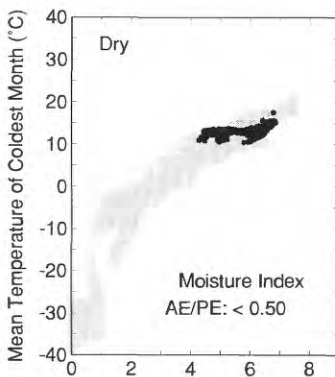
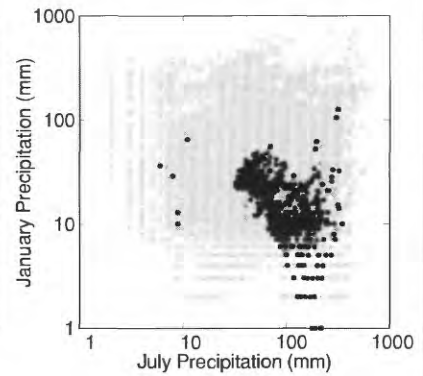
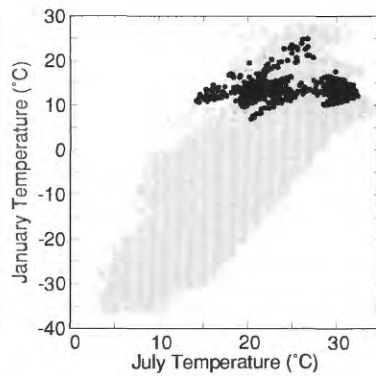
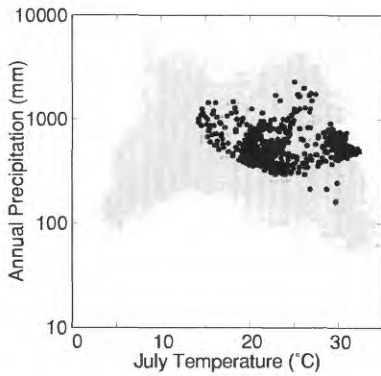
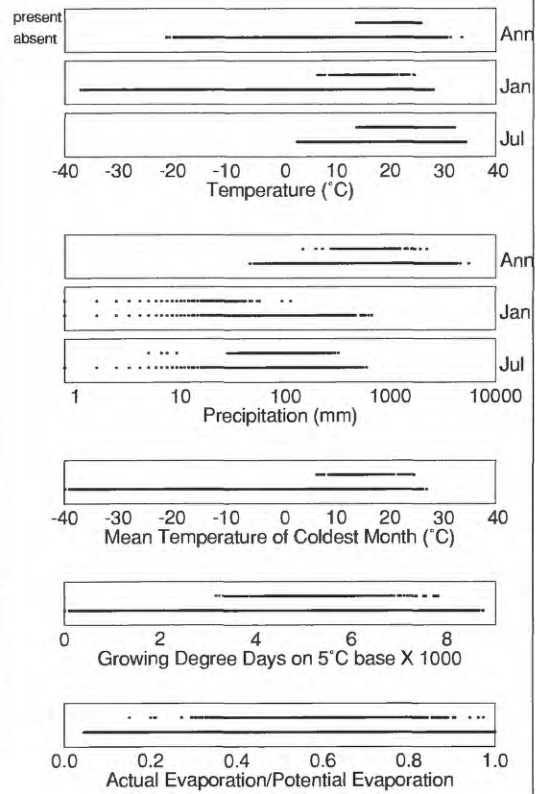
Acacia rigidula



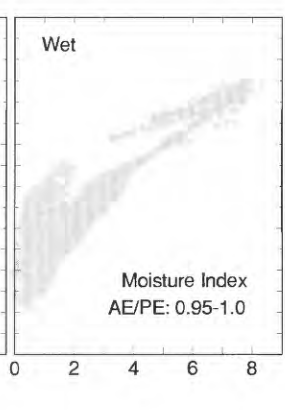
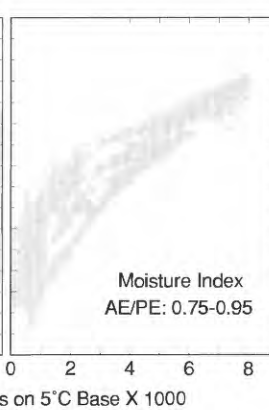
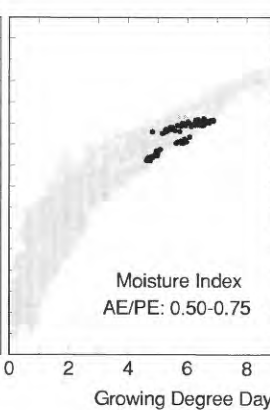
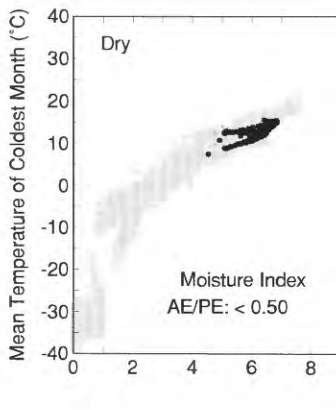
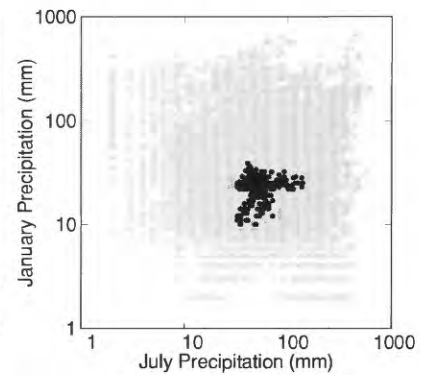
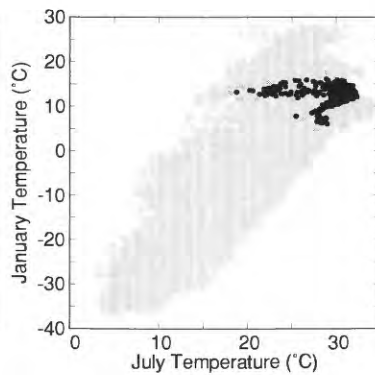
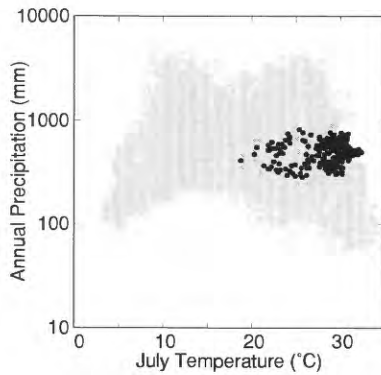
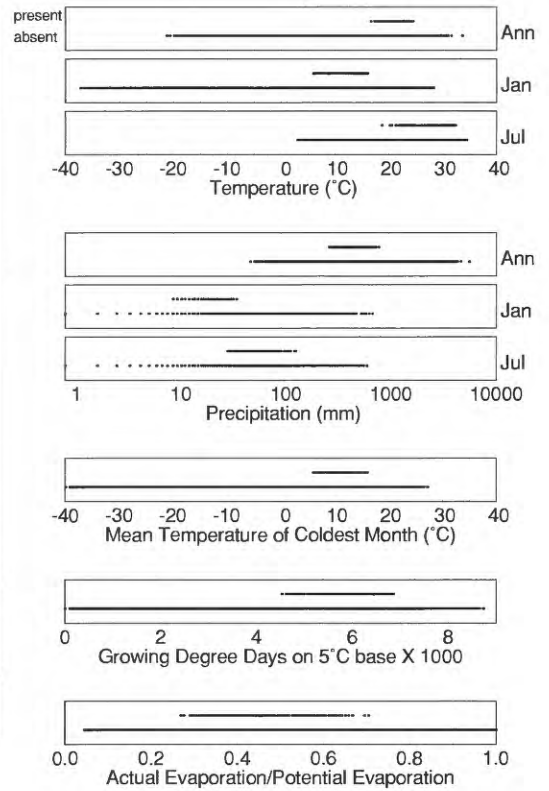
Acacia roemeriana



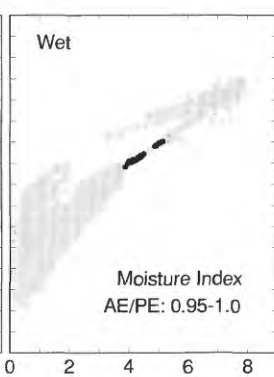
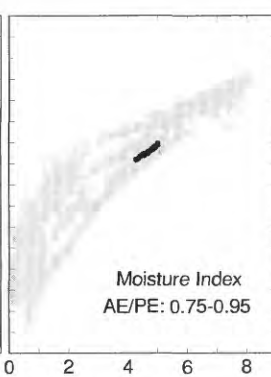
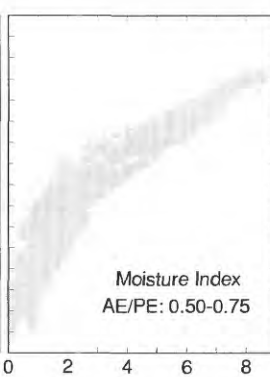
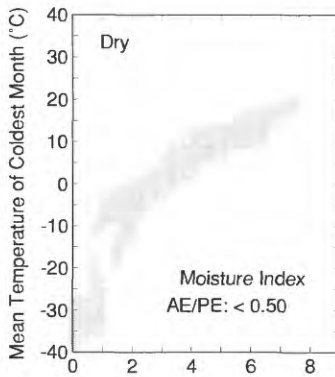
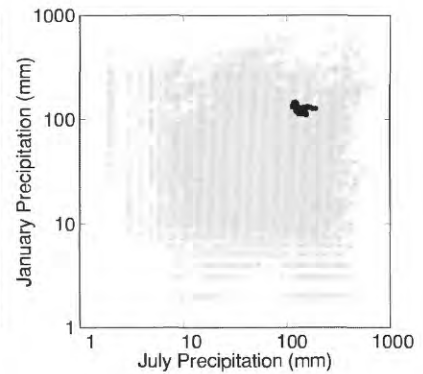
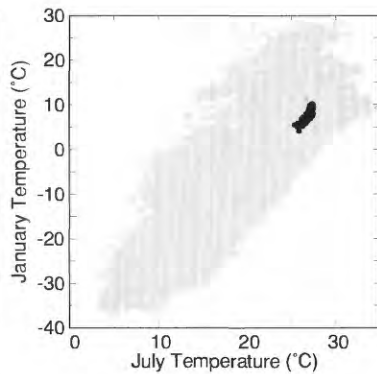
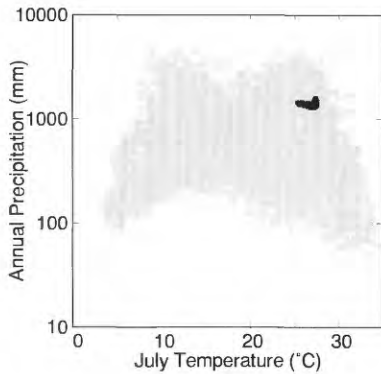
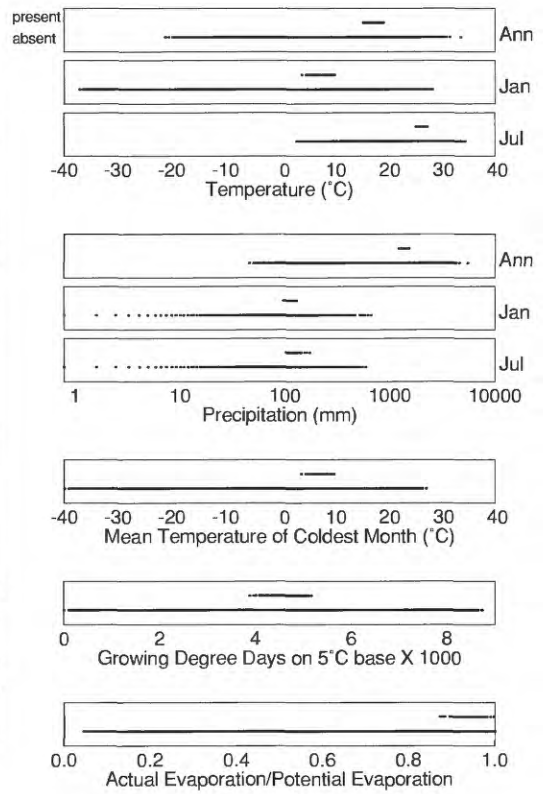
Acacia tortuosa



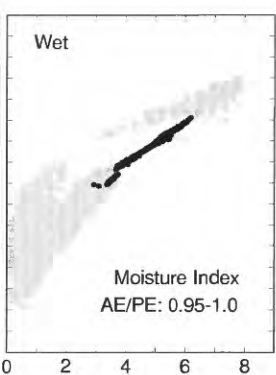
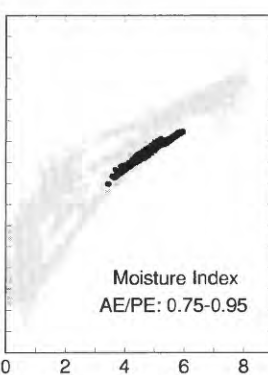
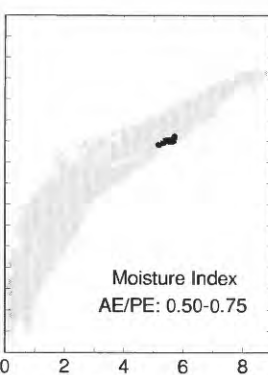
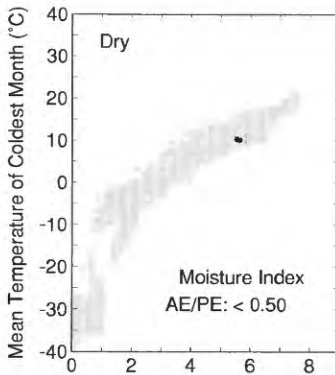
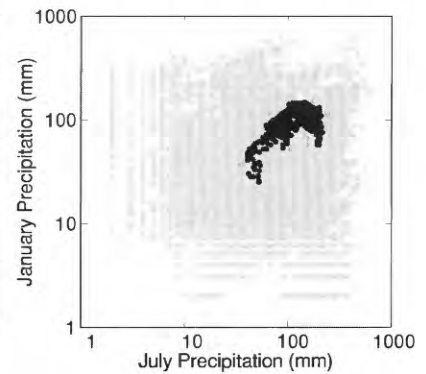
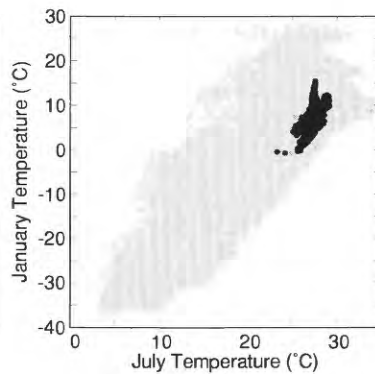
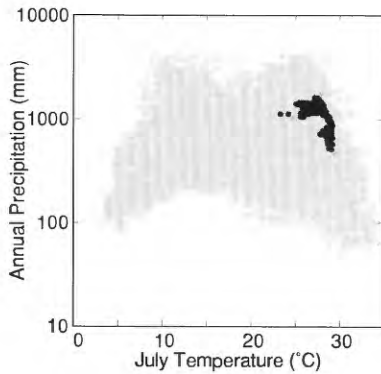
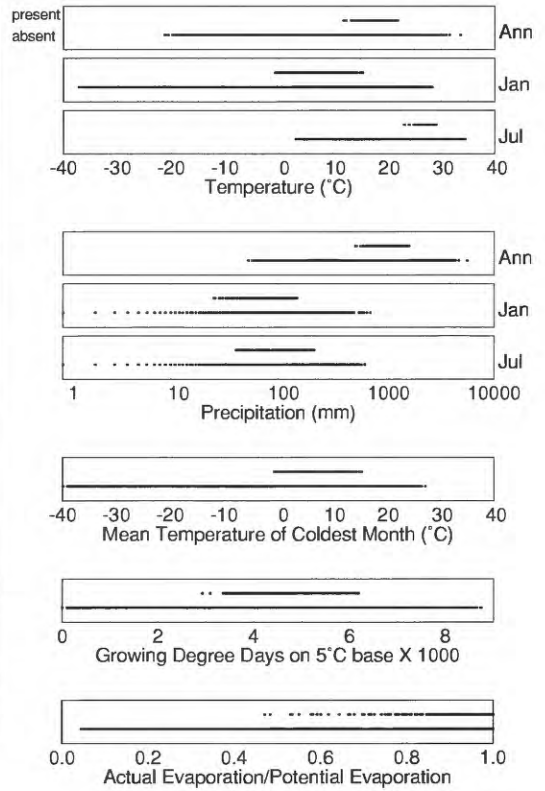
Acacia wrightii



Aesculus parviflora

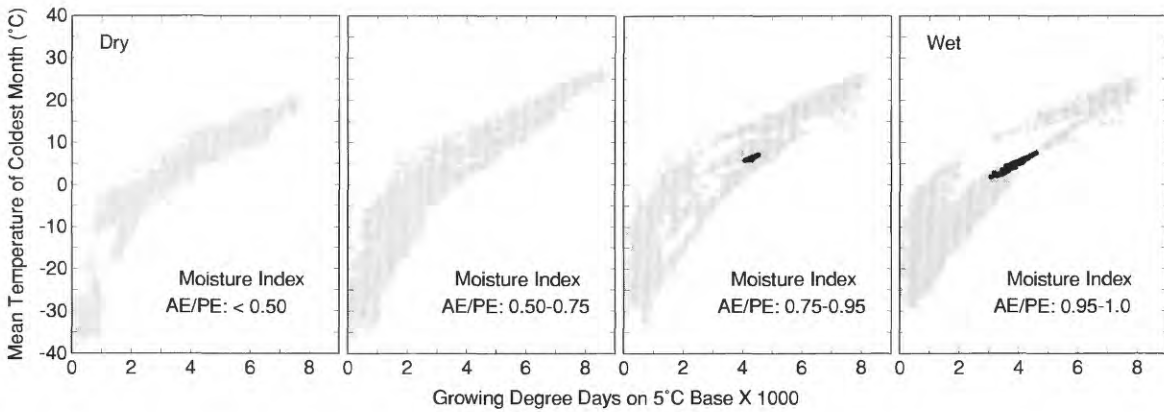
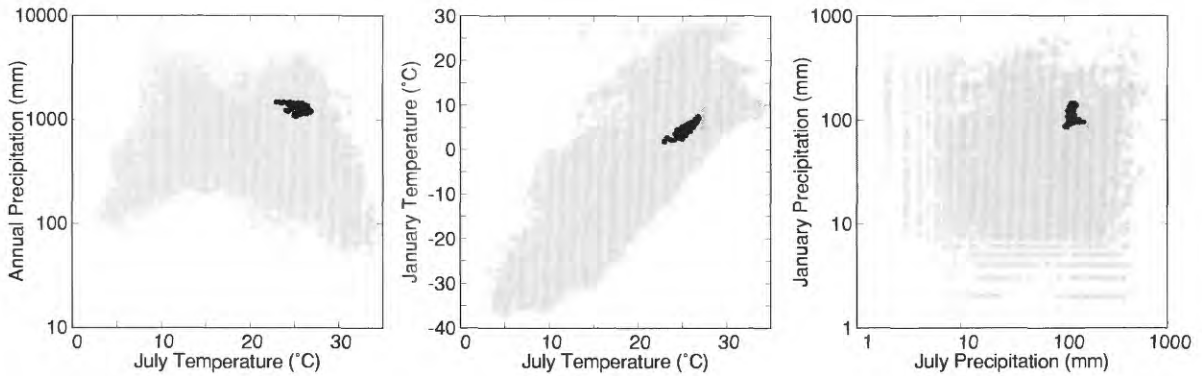
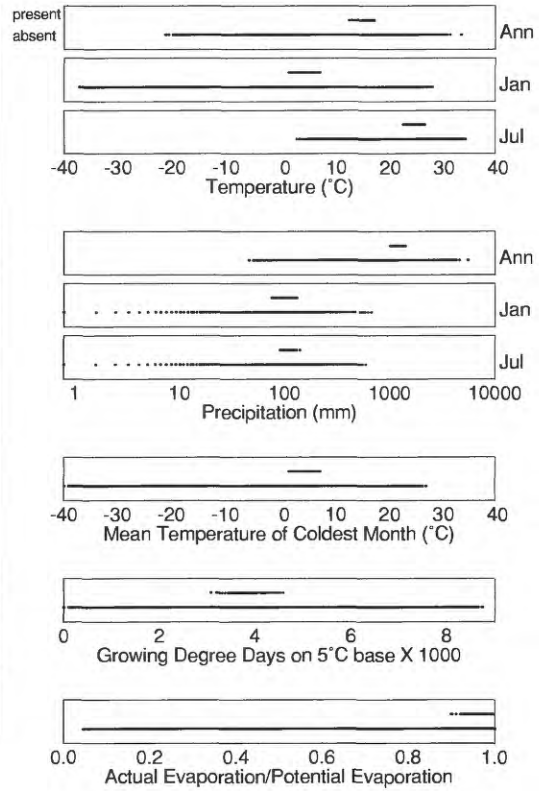


Aesculus pavia

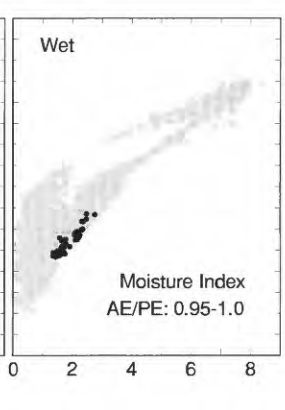
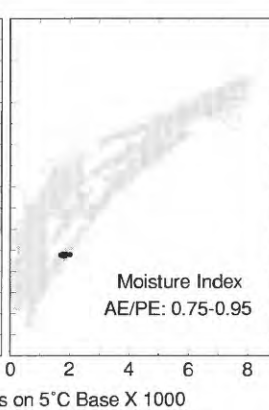
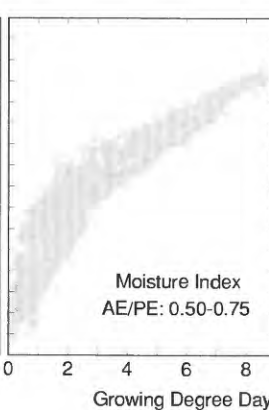
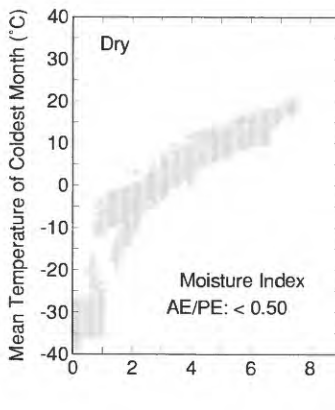
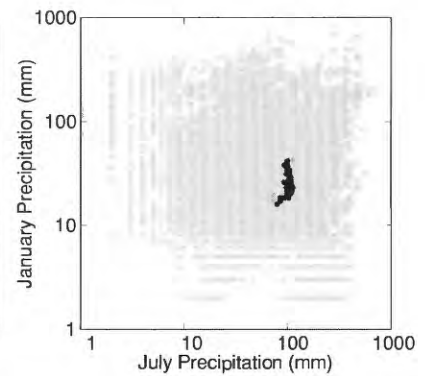
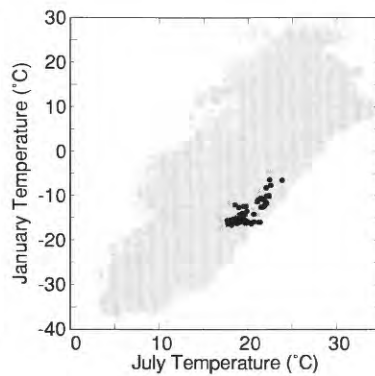
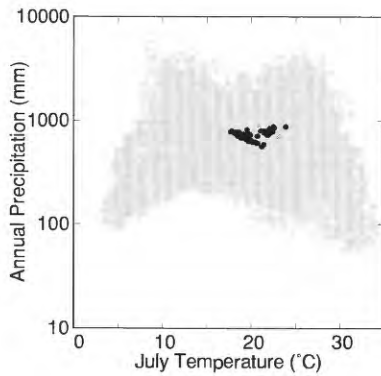
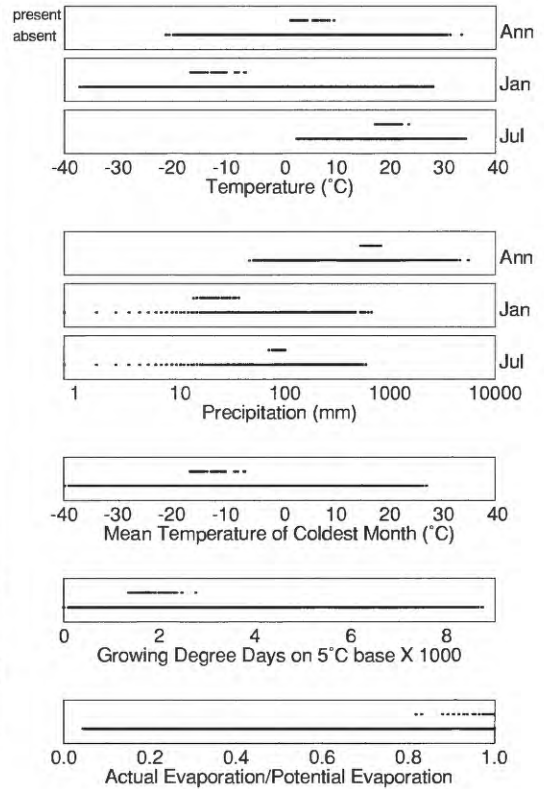


Growing Degree Days on 5°C Base X 1000

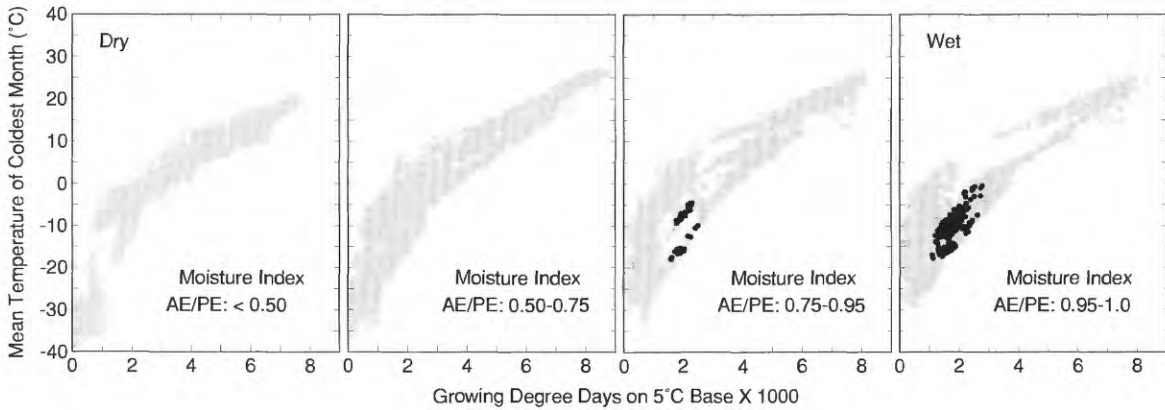
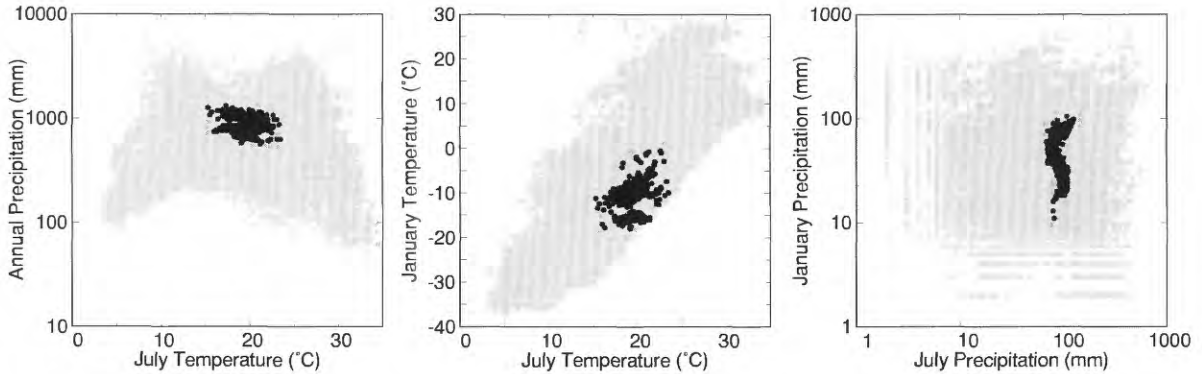
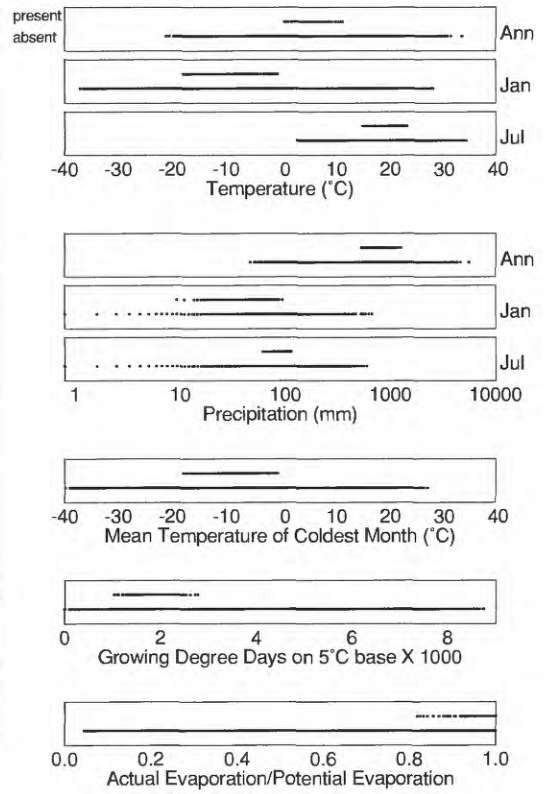
Aesculus sylvatica



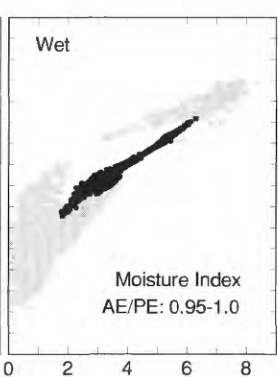
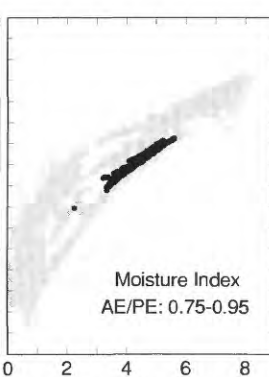
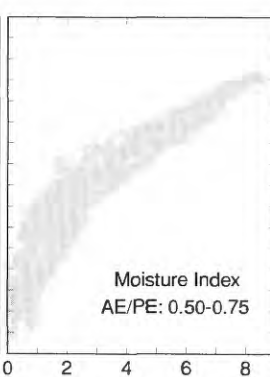
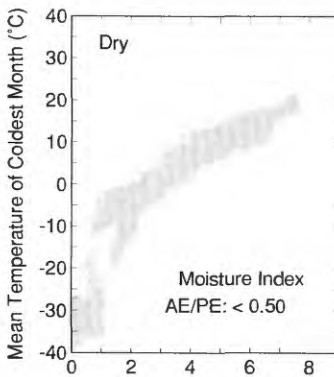
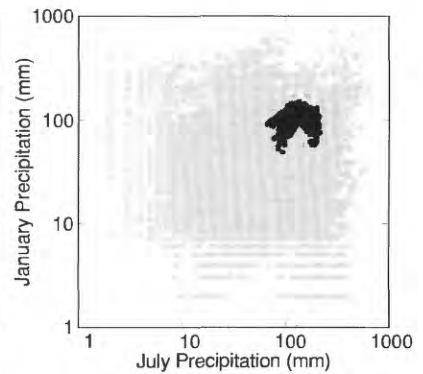
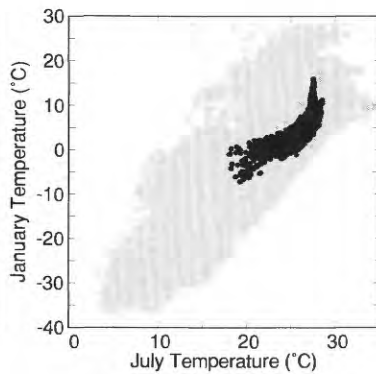
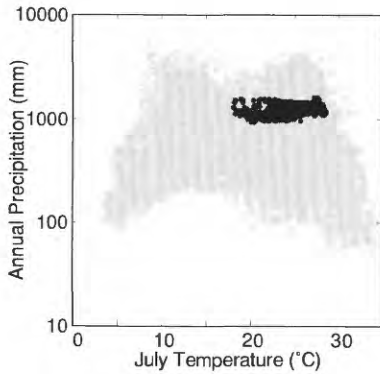
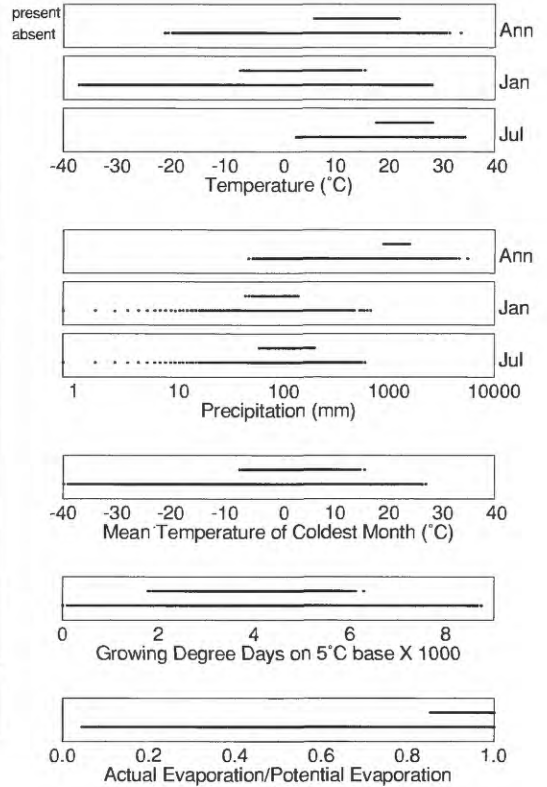
Amelanchier interior



Amelanchier sanguinea

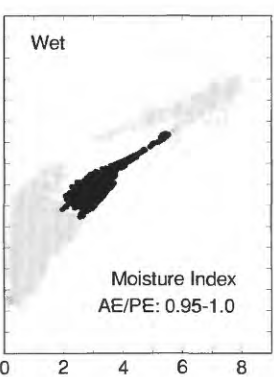
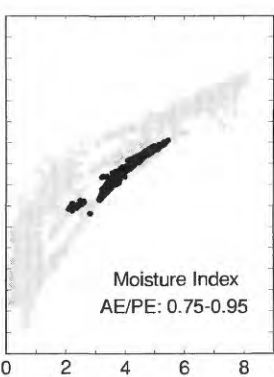
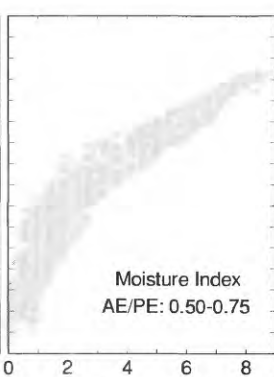
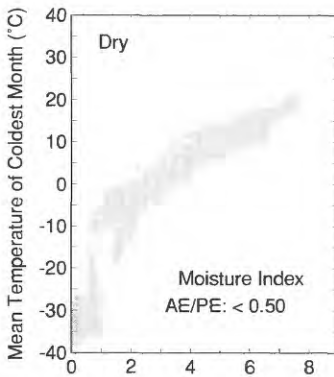
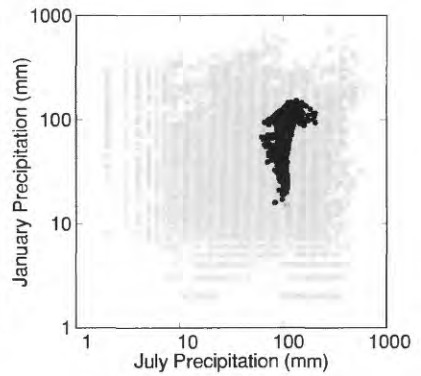
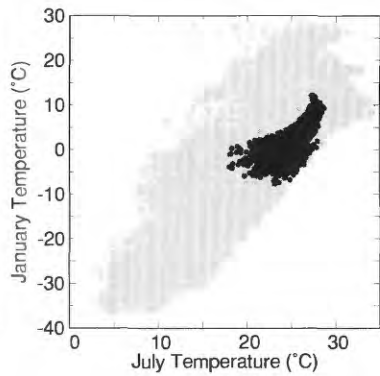
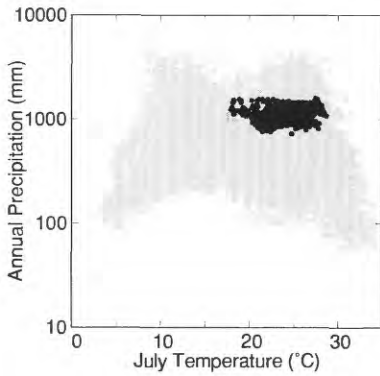
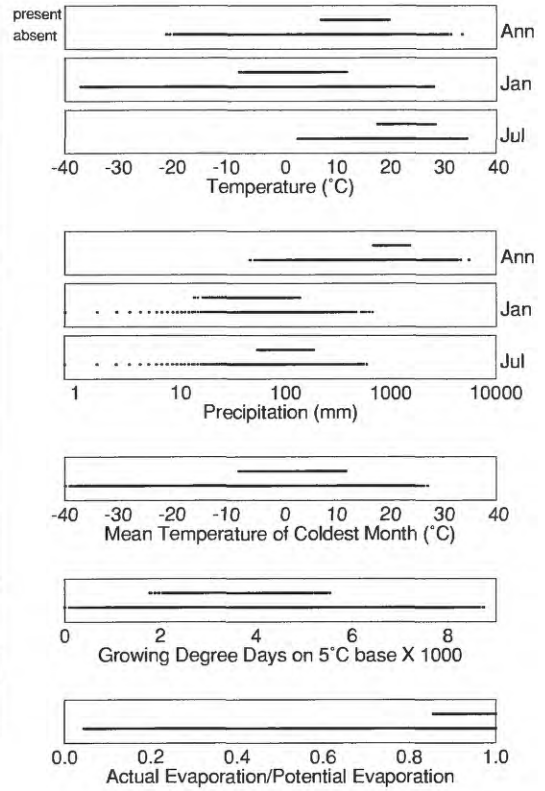
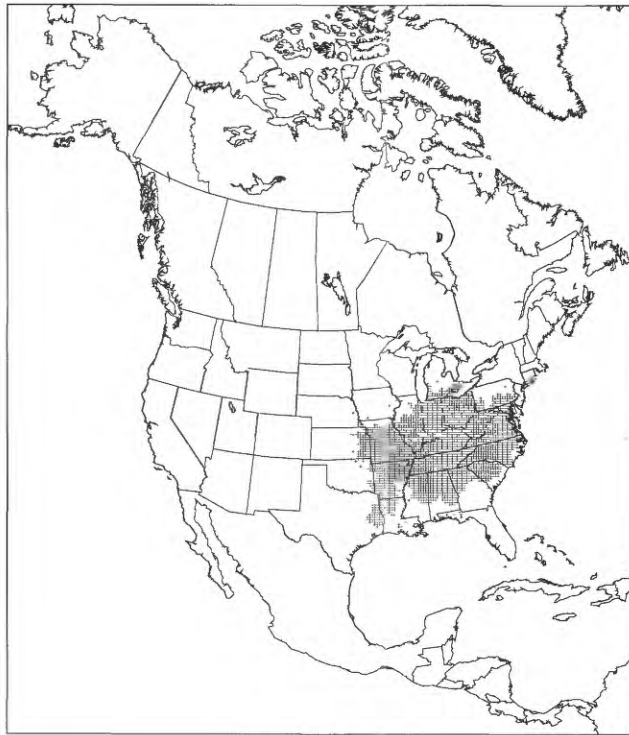


Aralia spinosa



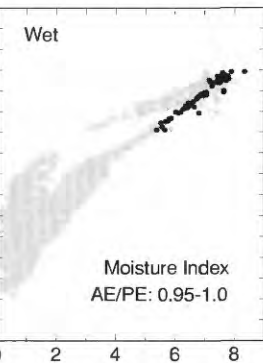
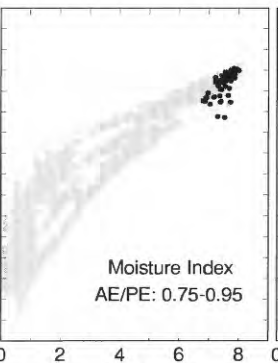
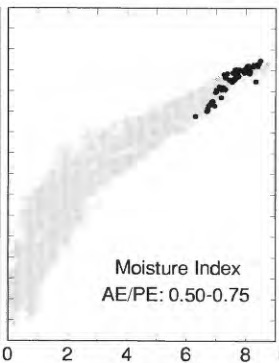
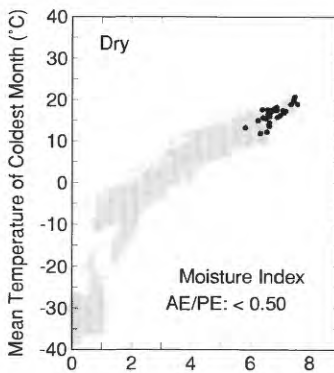
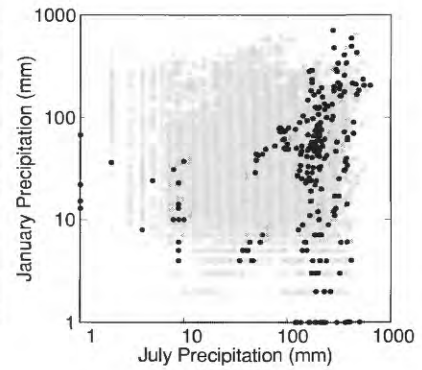
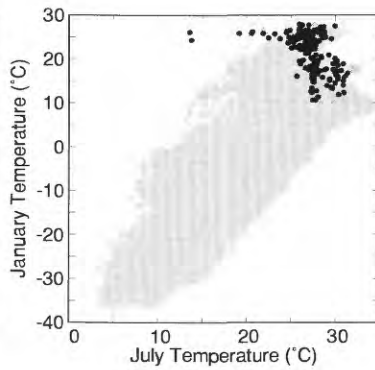
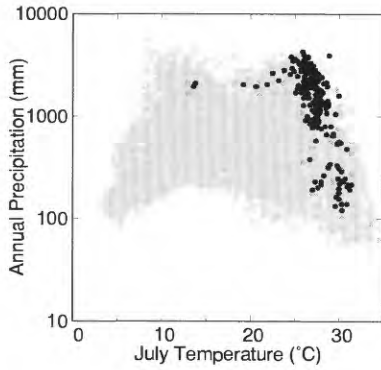
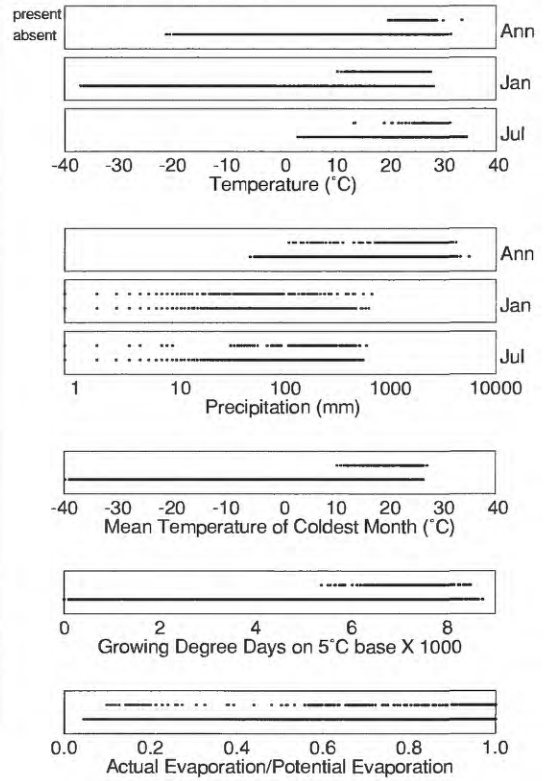
Growing Degree Days on 5°C Base X 1000

Asimina triloba



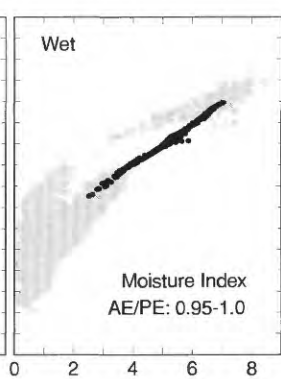
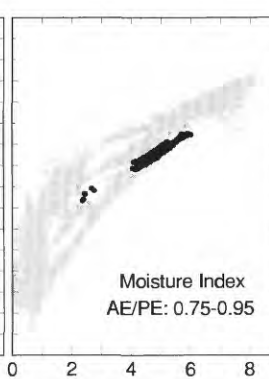
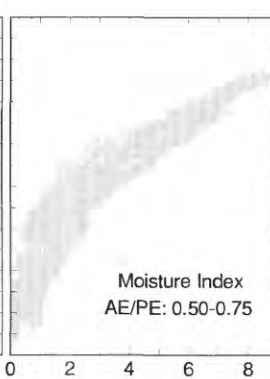
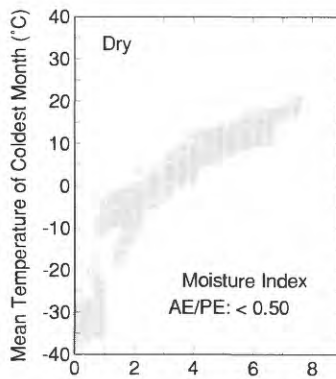
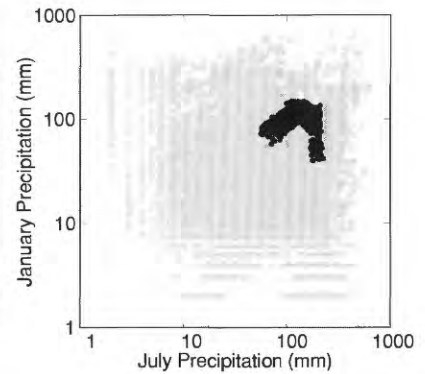
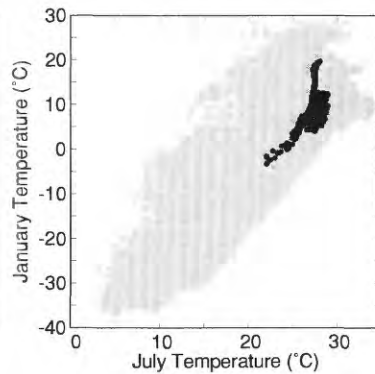
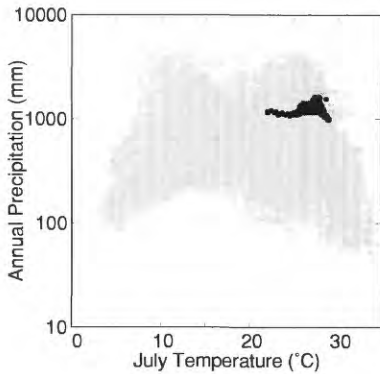
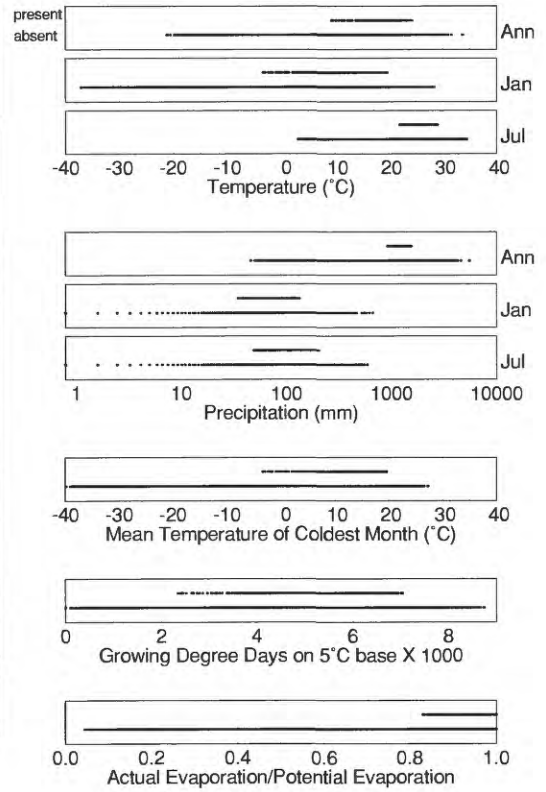
Growing Degree Days on 5°C Base X 1000

Avicennia germinans (coastal distribution: map points enlarged for viewing)

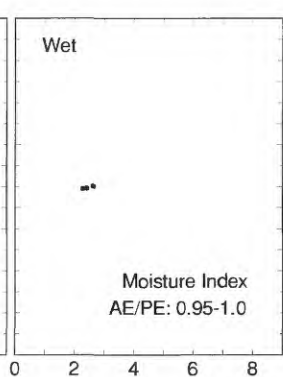
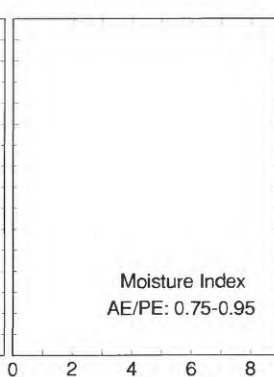
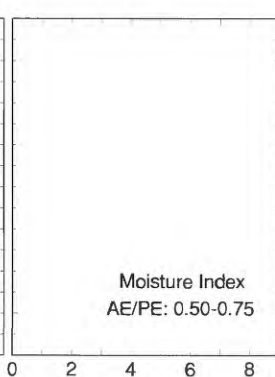
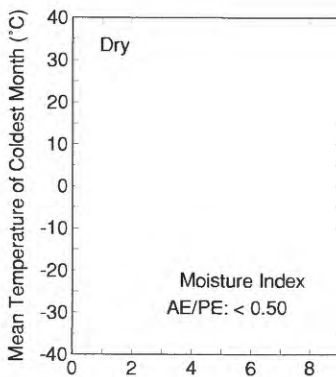
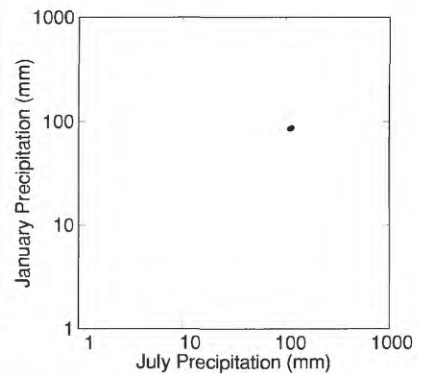
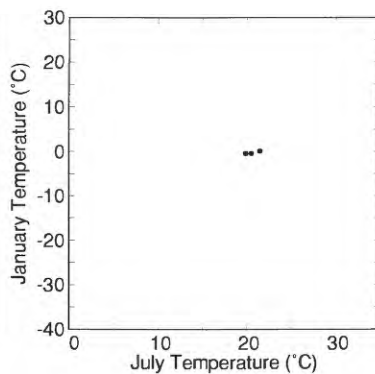
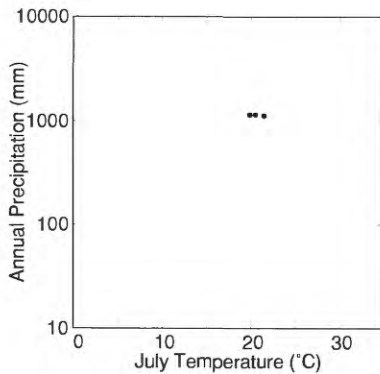
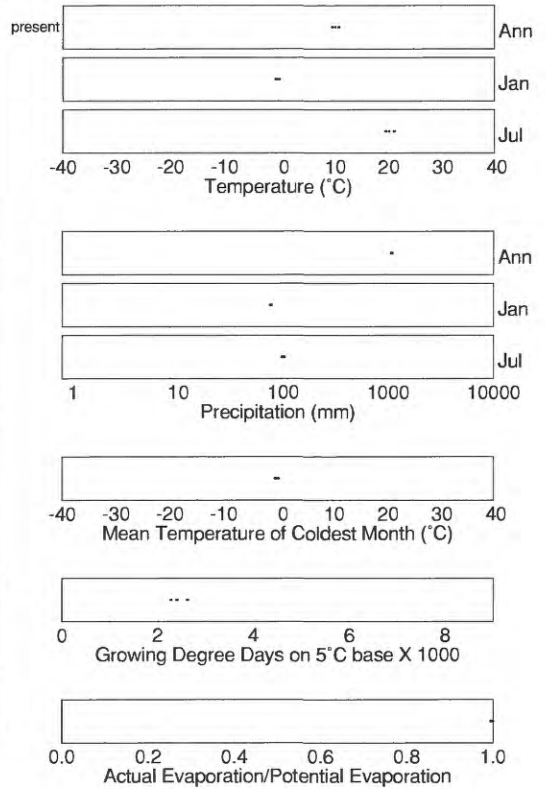


Growing Degree Days on 5°C Base X 1000

Baccharis halimifolia

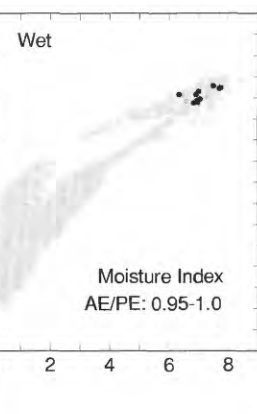
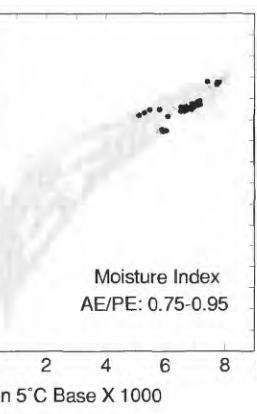
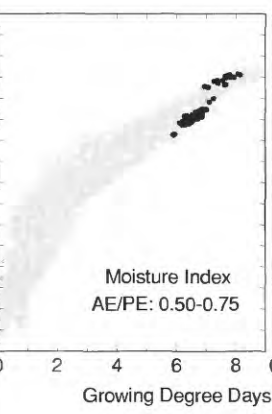
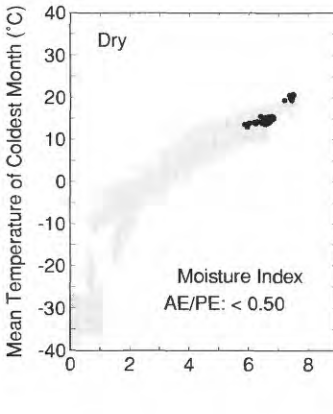
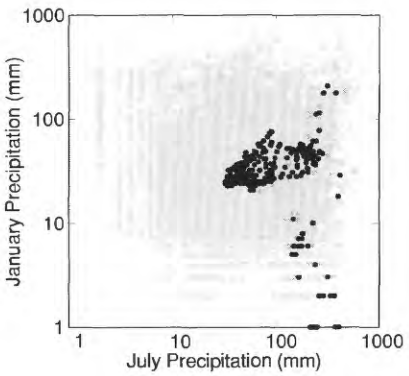
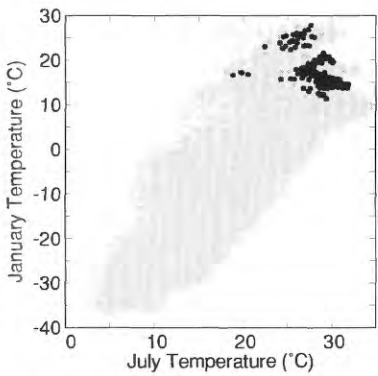
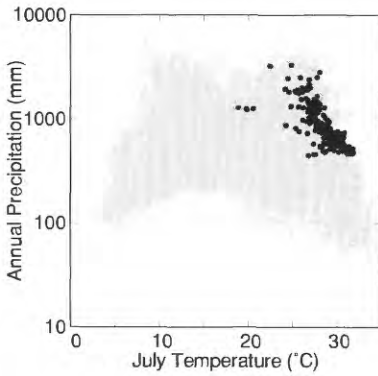
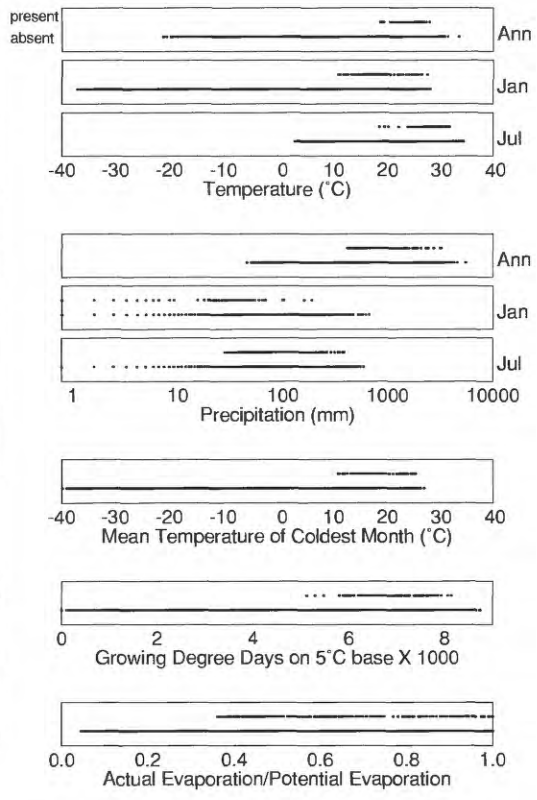


Betula uber (minimal data - nearest grid points used with environmental parameters)

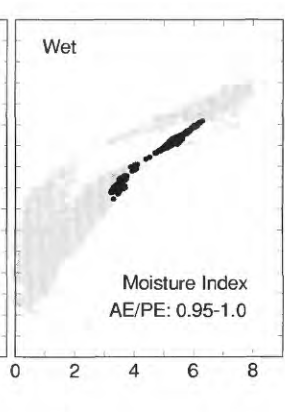
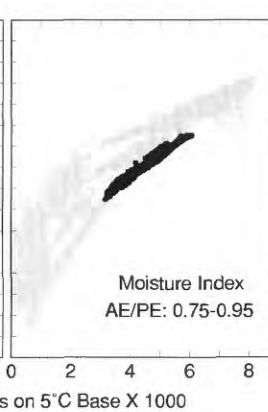
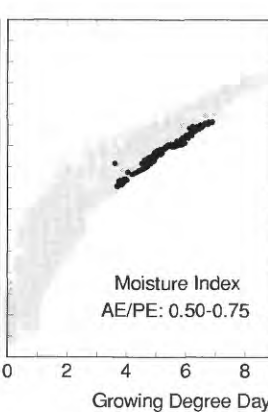
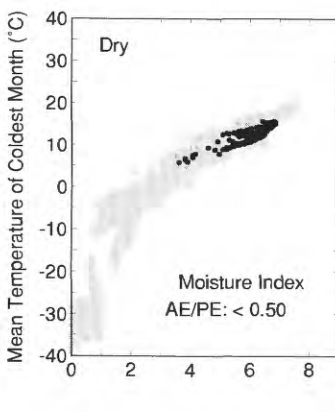
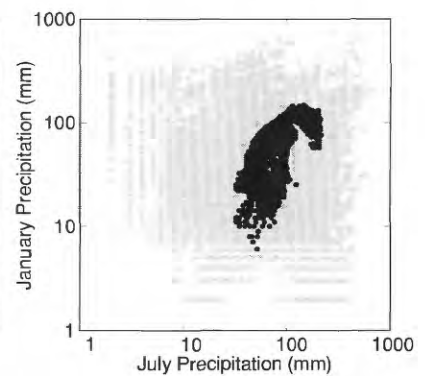
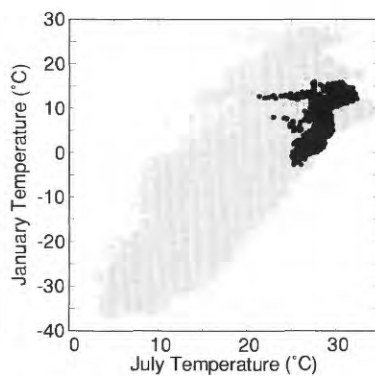
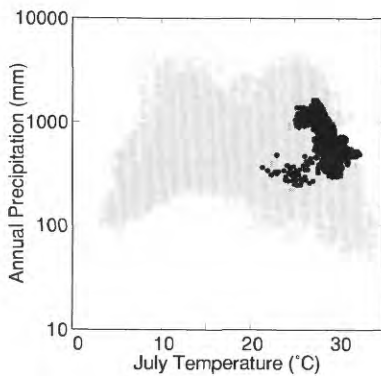
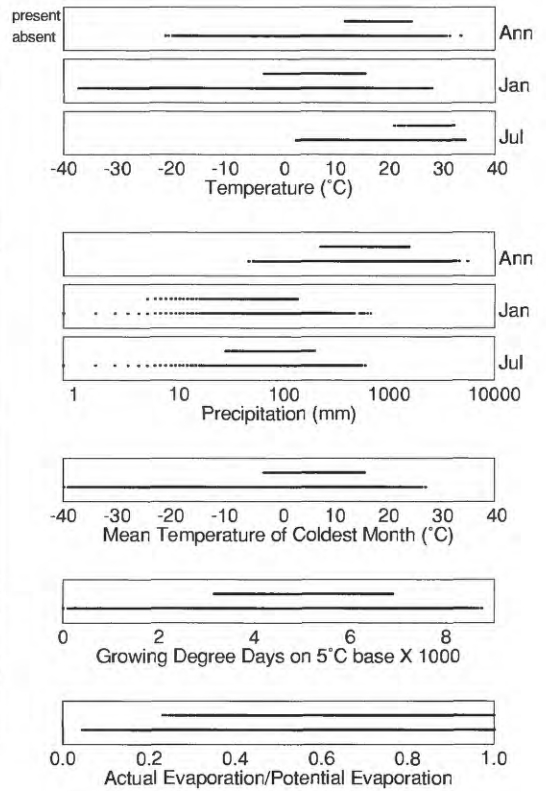
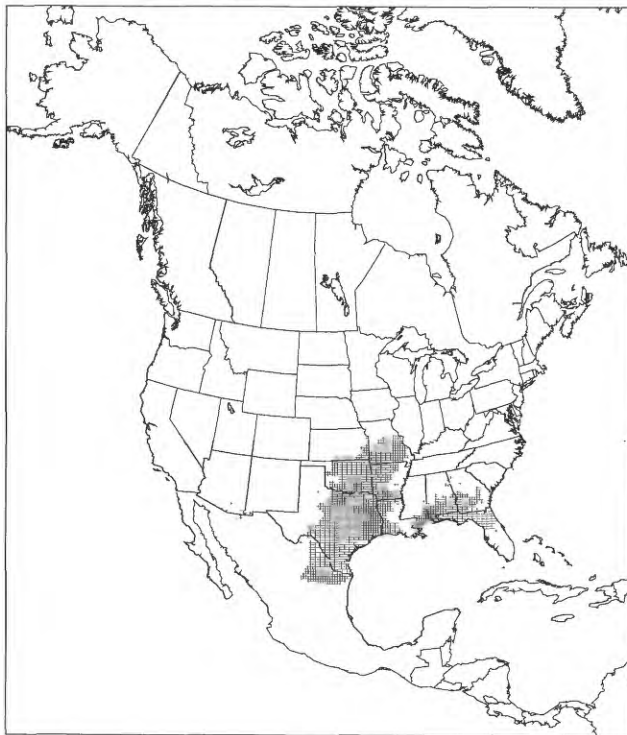


Growing Degree Days on 5°C Base X 1000

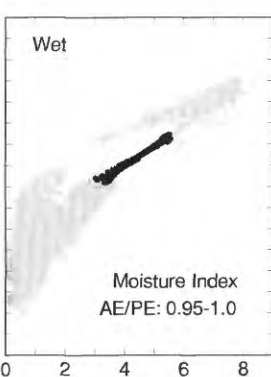
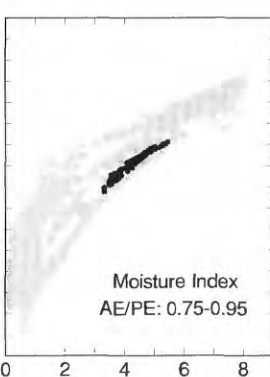
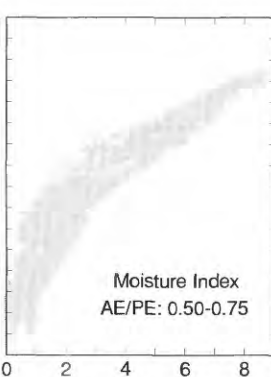
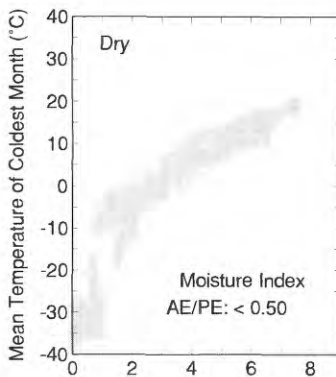
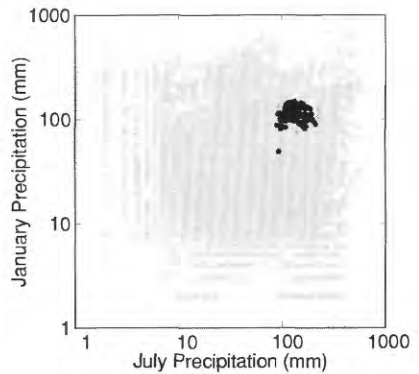
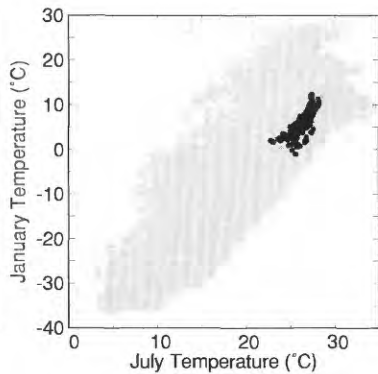
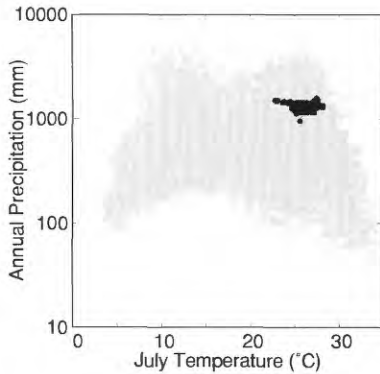
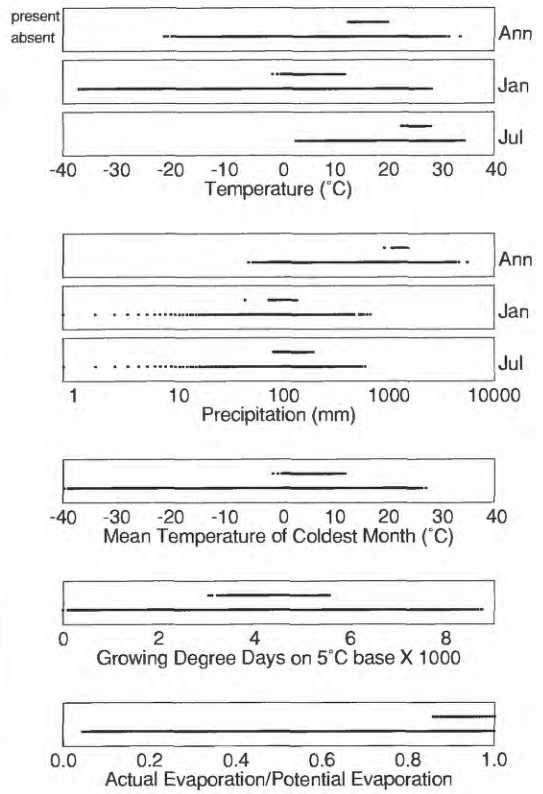
Bumelia celastrina



Bumelia lanuginosa

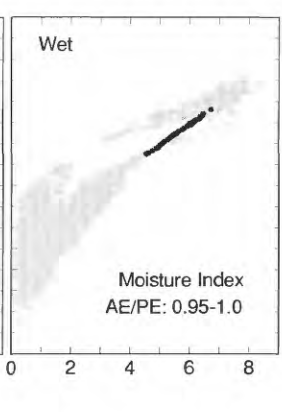
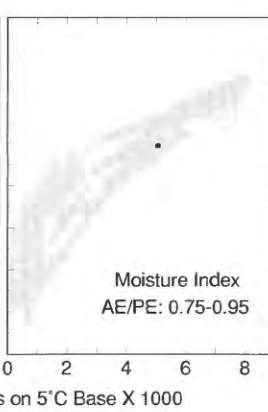
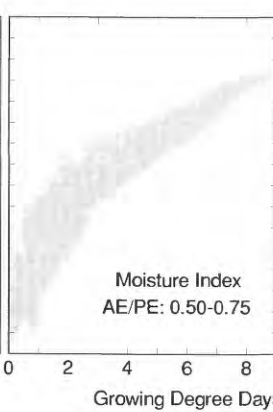
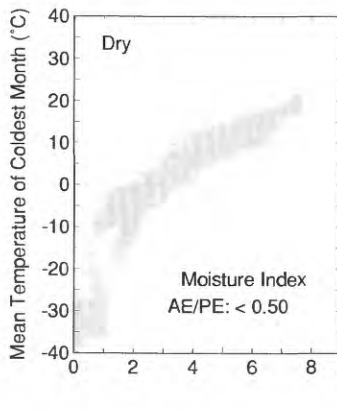
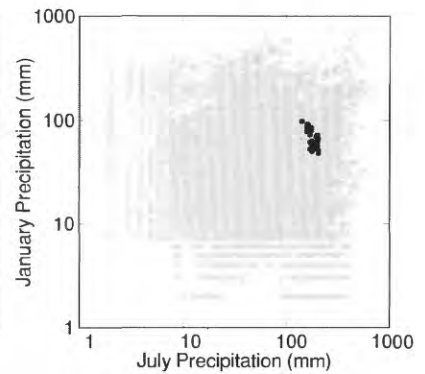
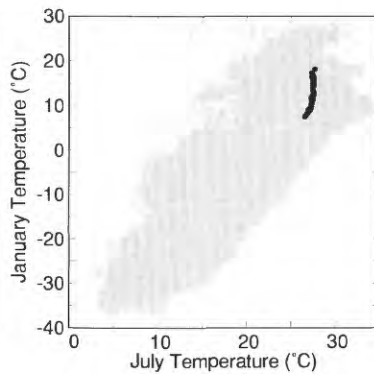
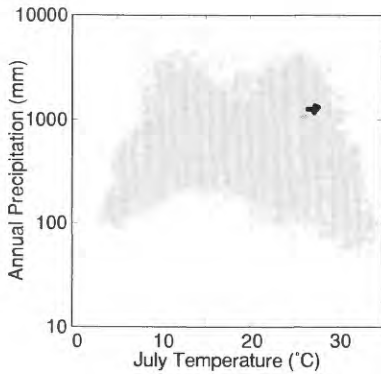
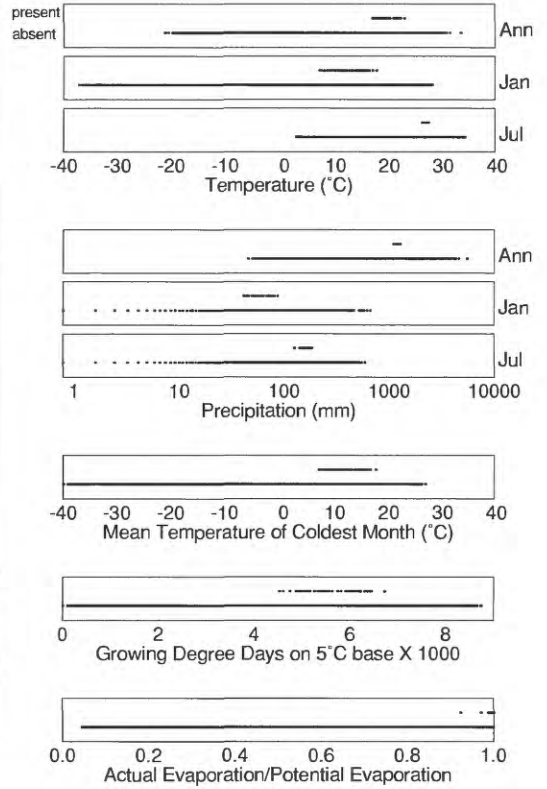


Bumelia lycioides

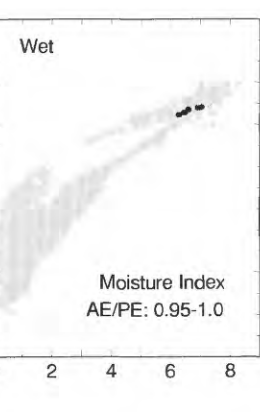
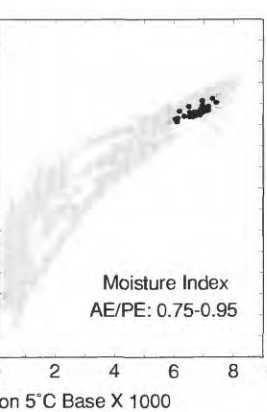
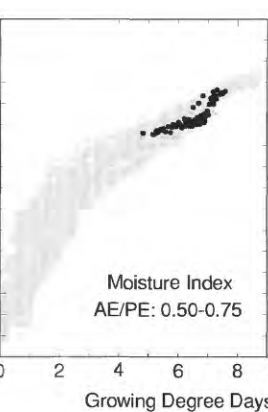
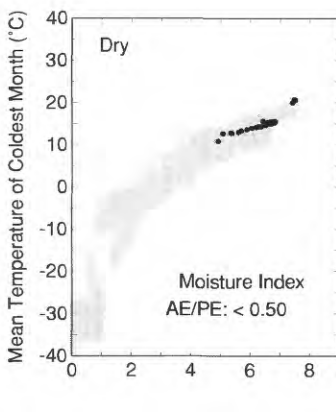
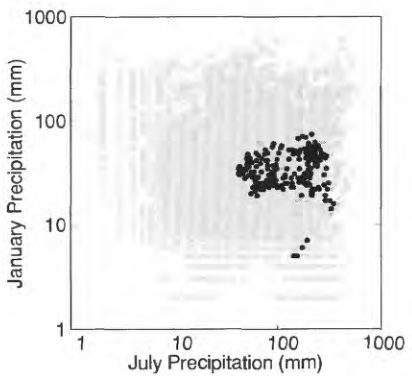
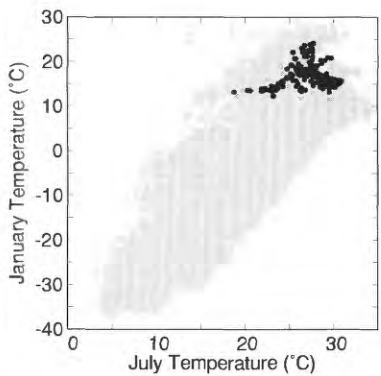
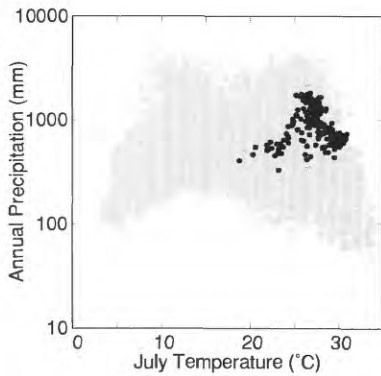
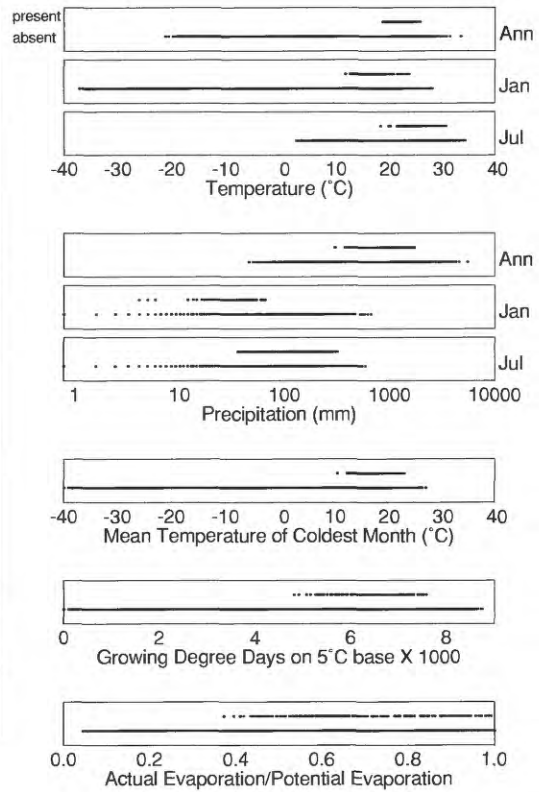


Growing Degree Days on 5°C Base X 1000

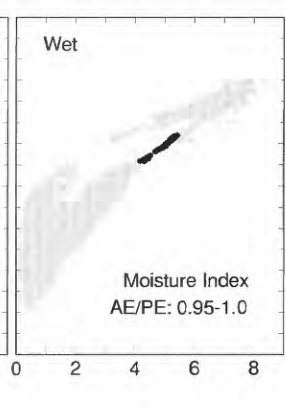
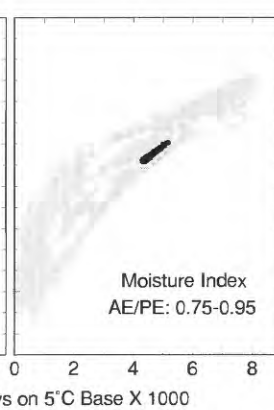
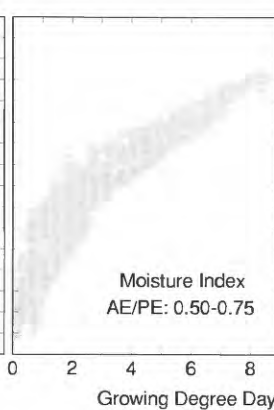
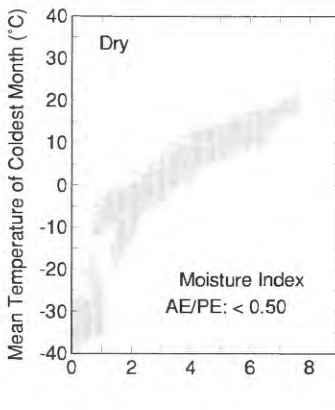
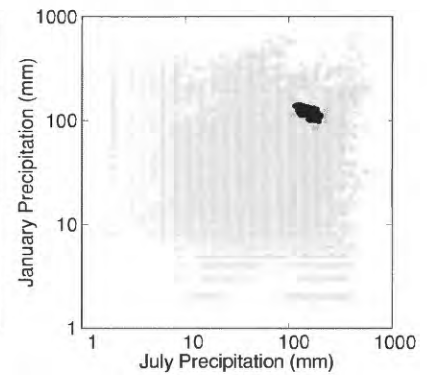
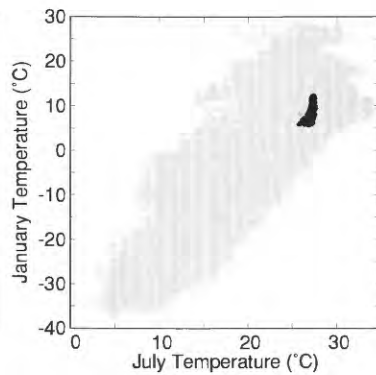
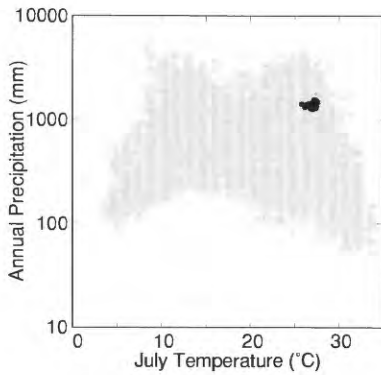
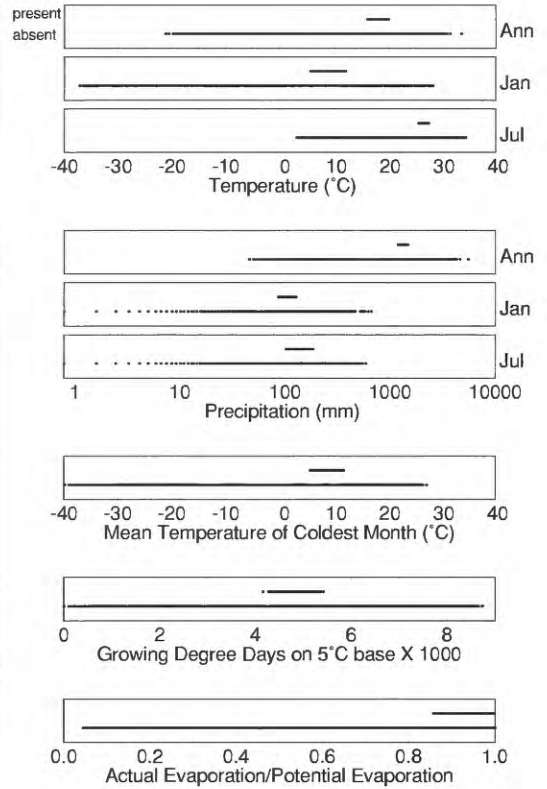
Bumelia tenax



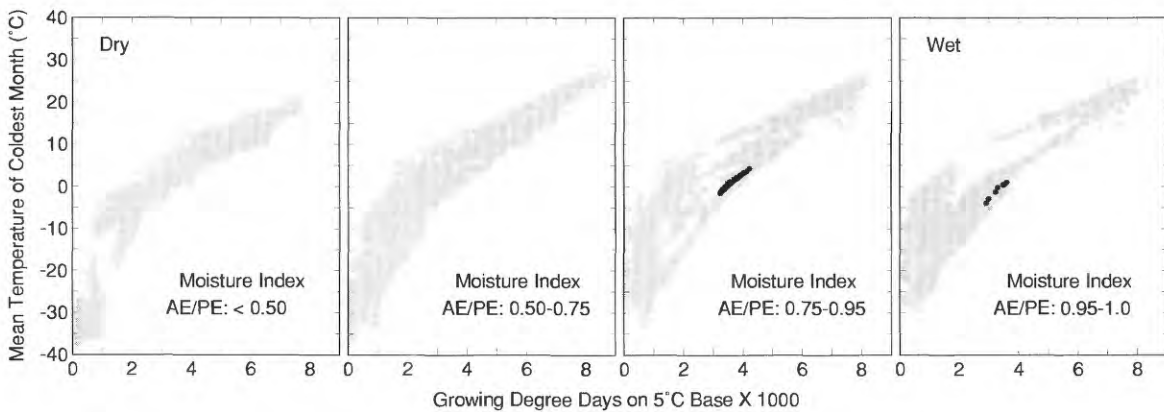
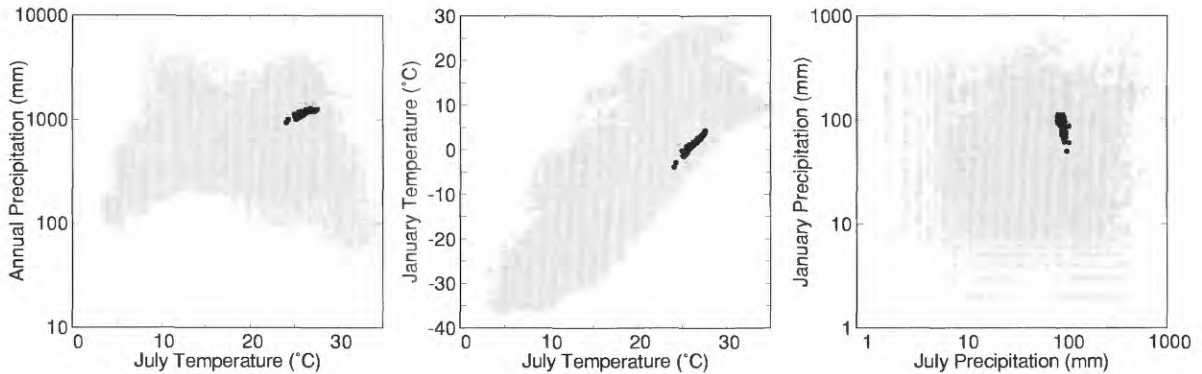
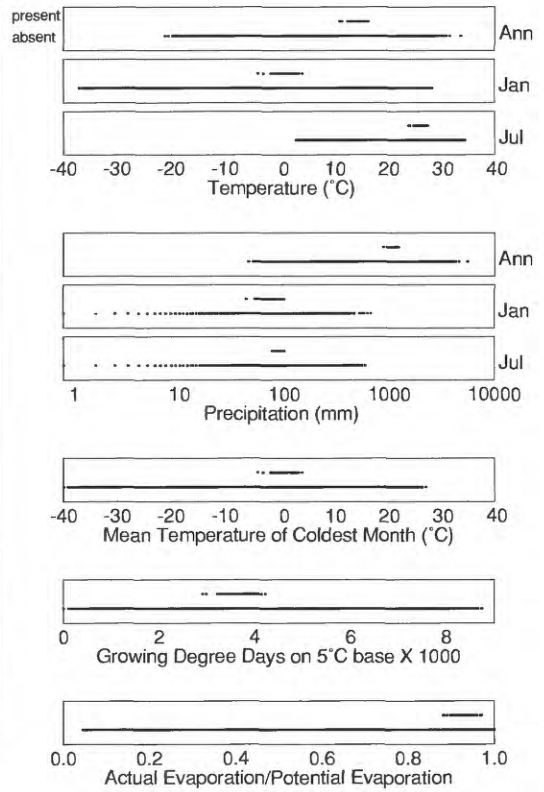
Caesalpinia mexicana



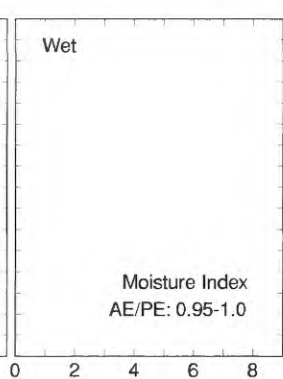
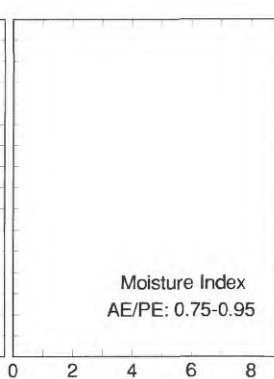
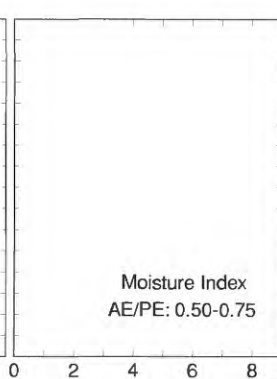
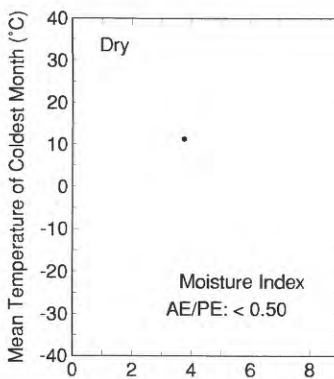
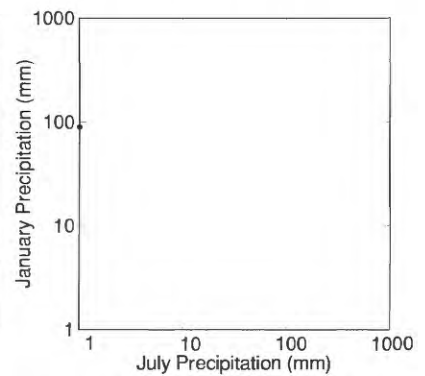
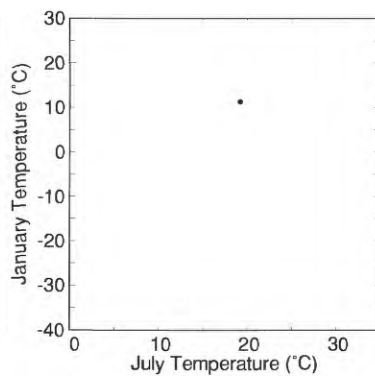
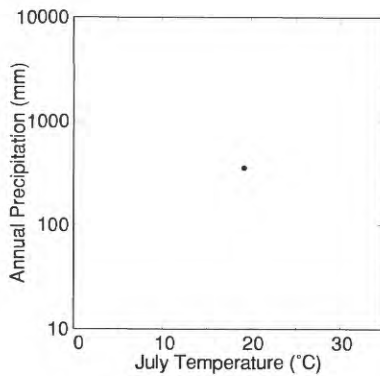
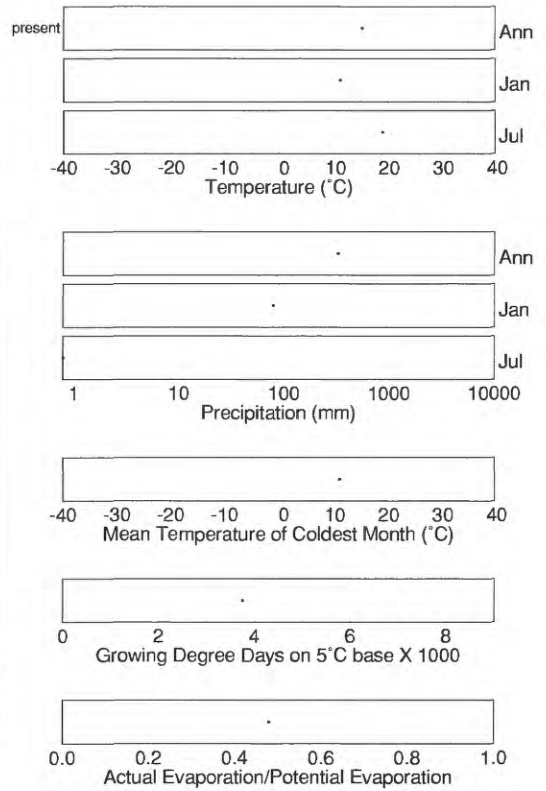
Catalpa bignonioides (native range uncertain)



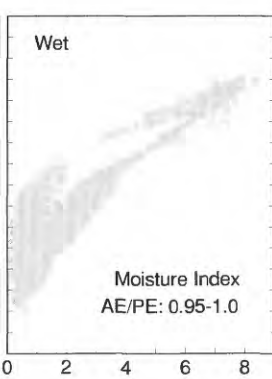
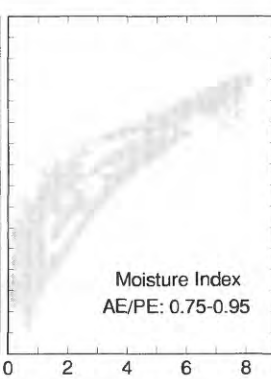
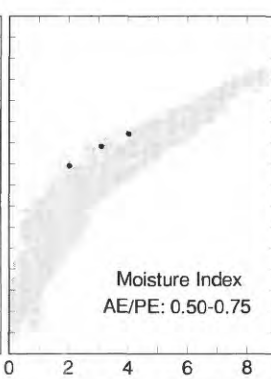
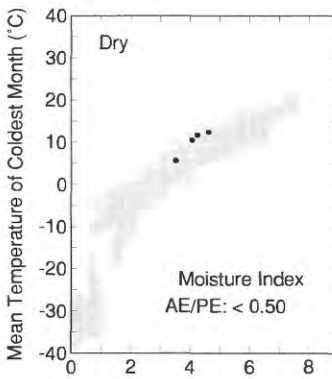
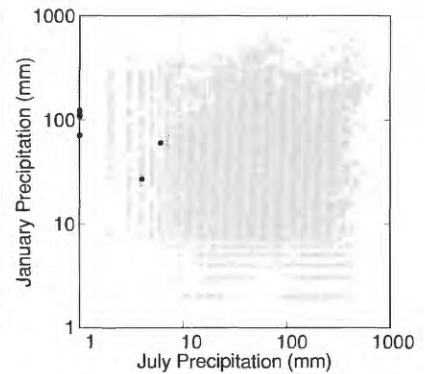
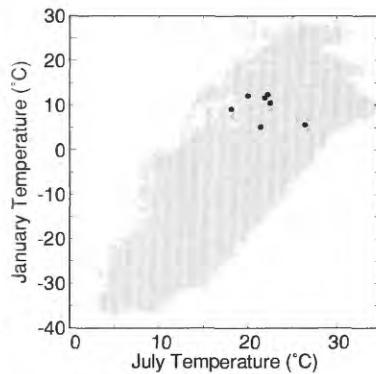
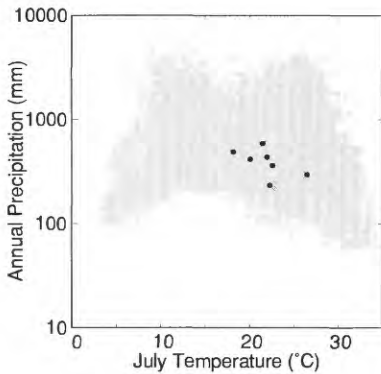
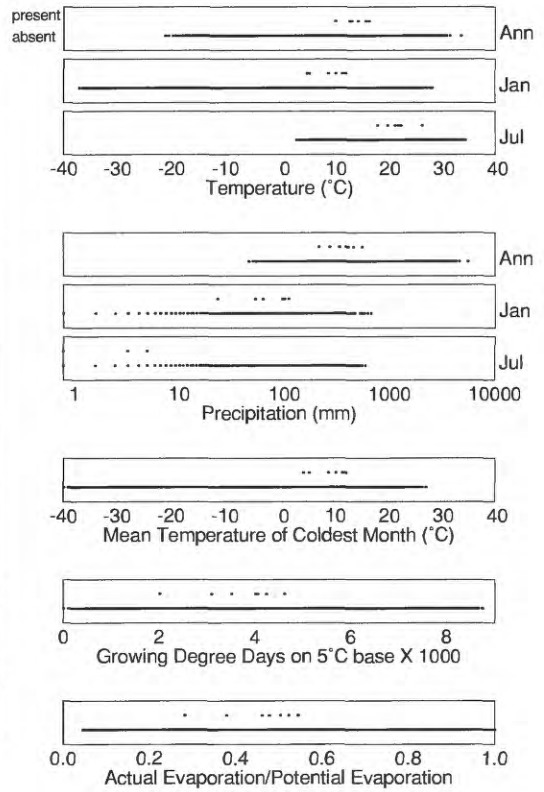
***Catalpa speciosa* (native range uncertain)**



Ceanothus arboreus (minimal data - nearest grid points used with environmental parameters)

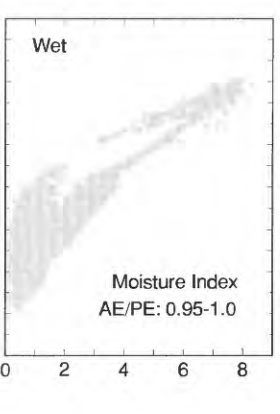
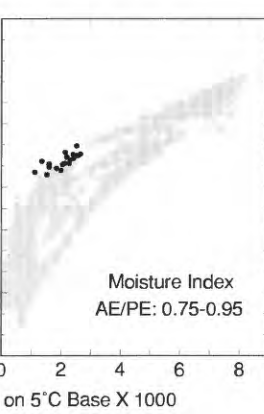
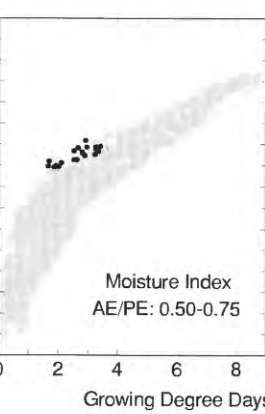
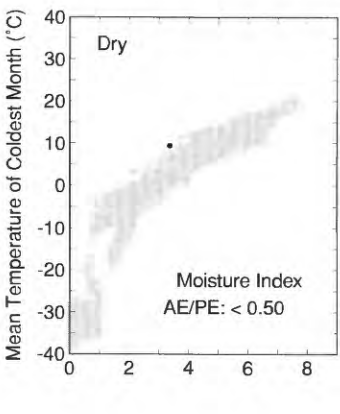
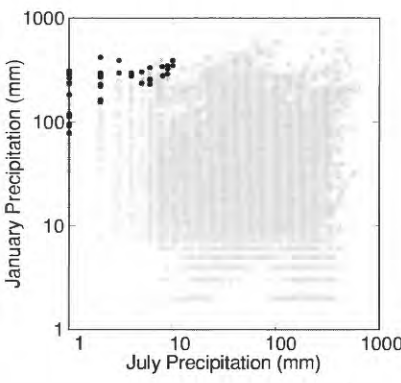
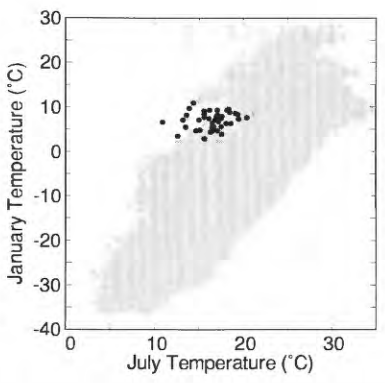
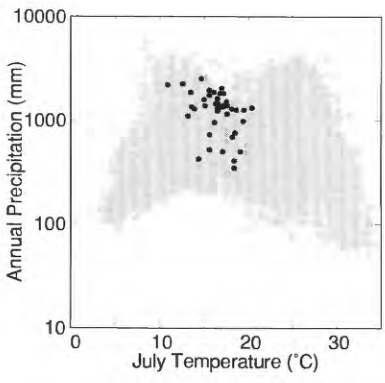
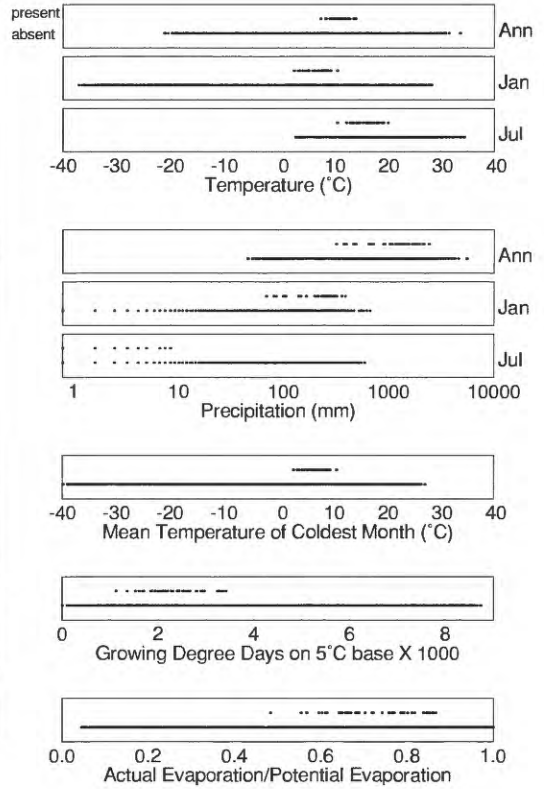
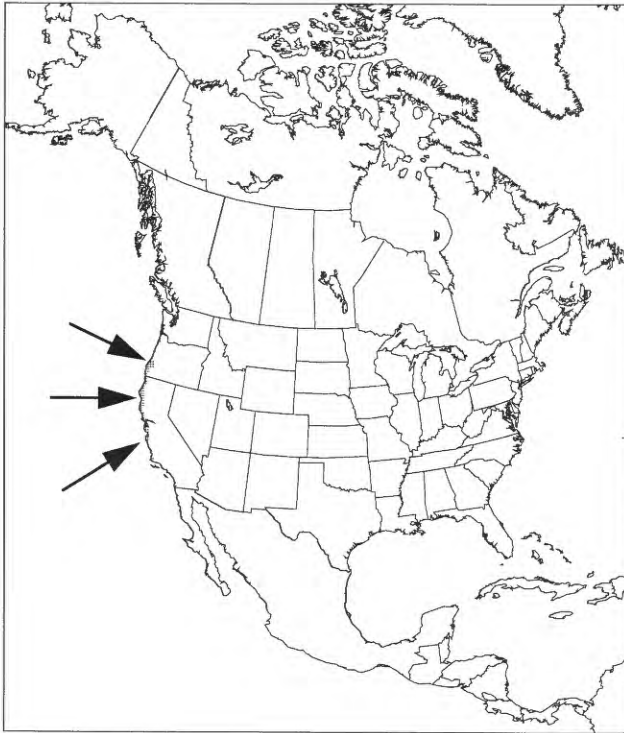


Ceanothus spinosus

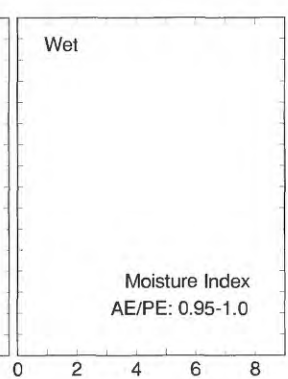
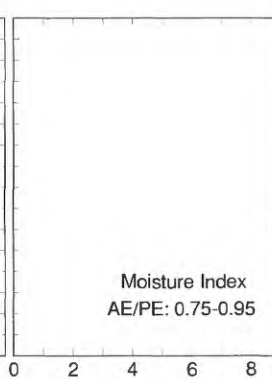
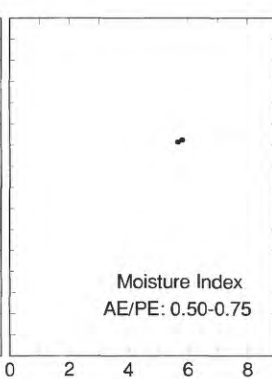
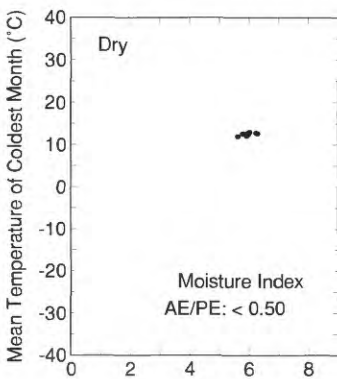
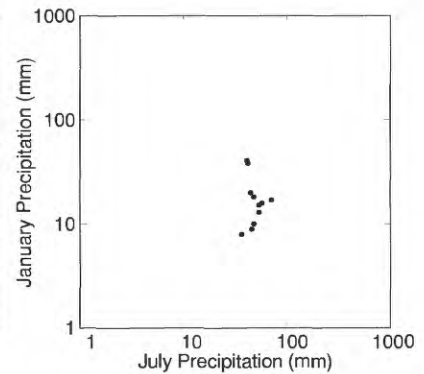
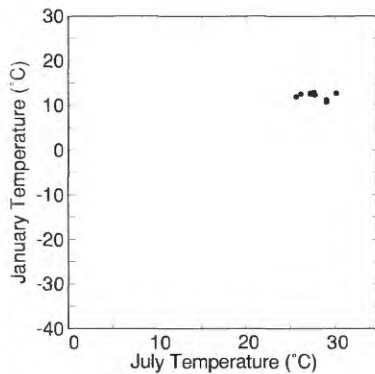
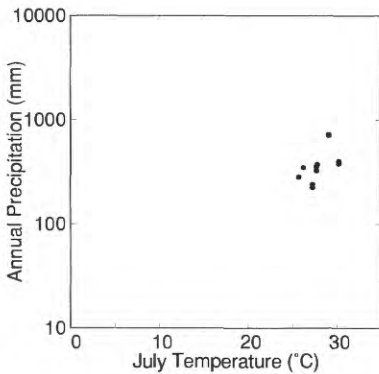
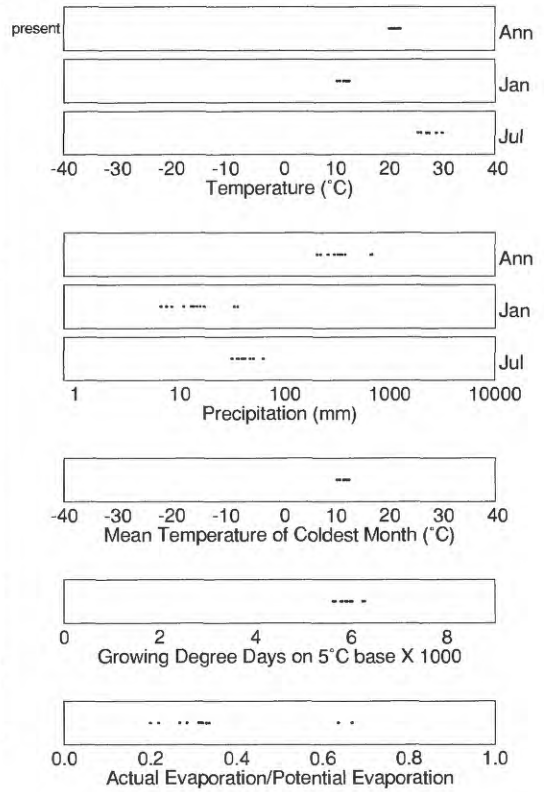


Growing Degree Days on 5°C Base X 1000

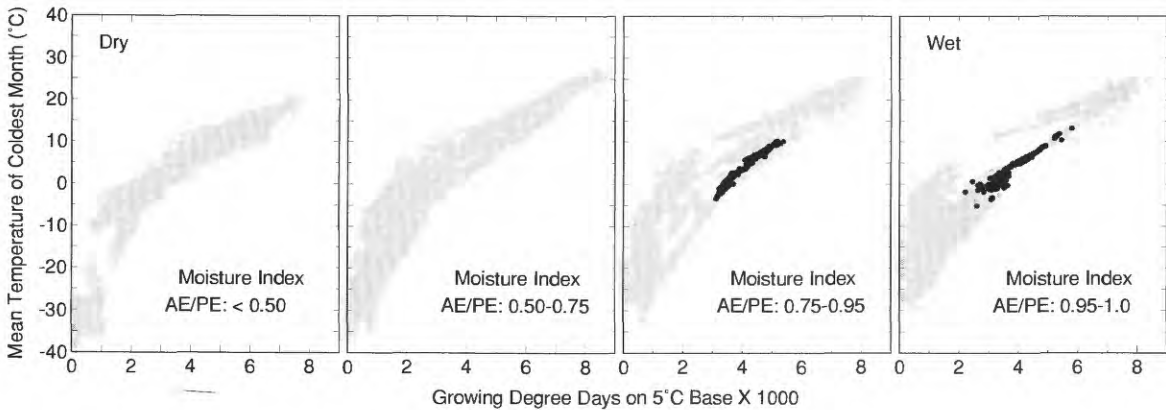
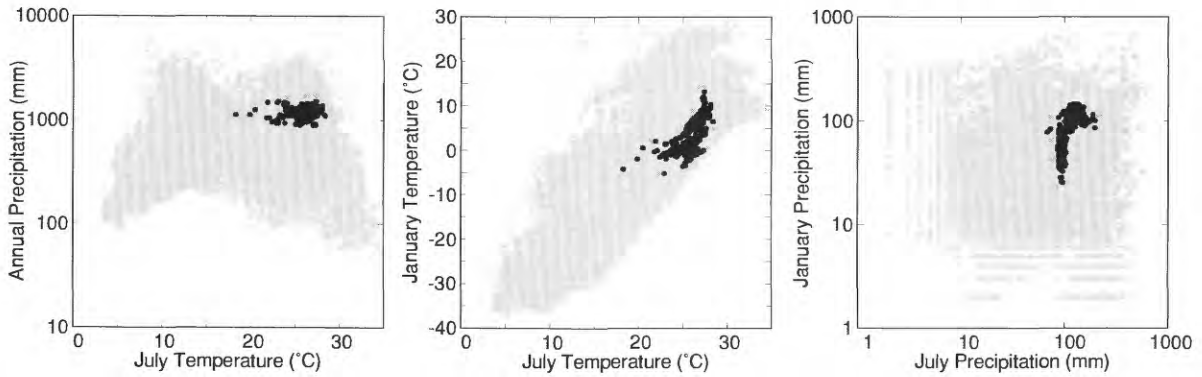
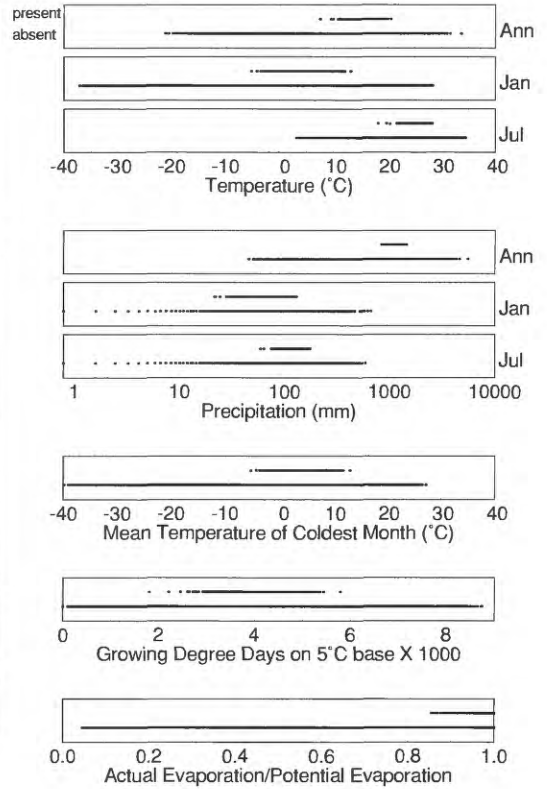
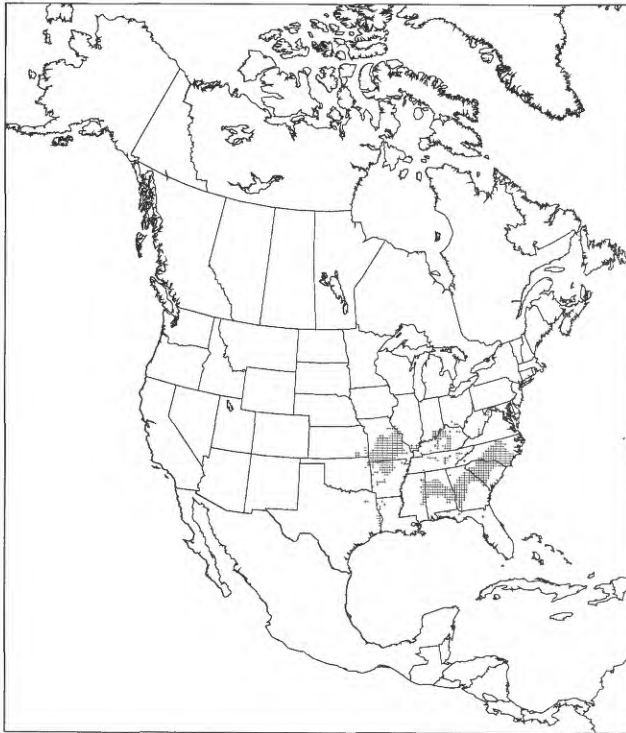
Ceanothus thyrsiflorus



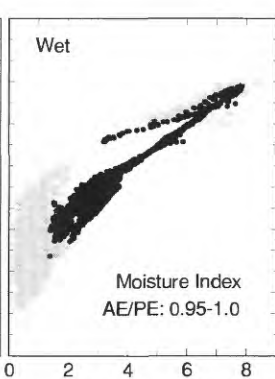
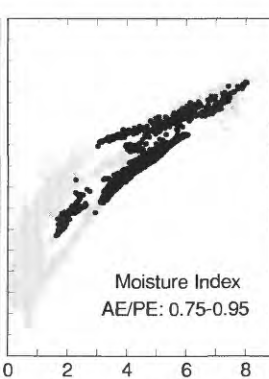
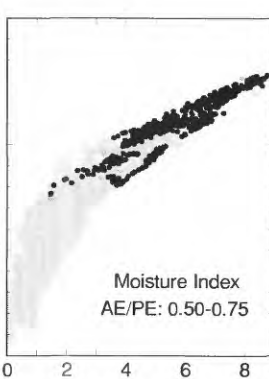
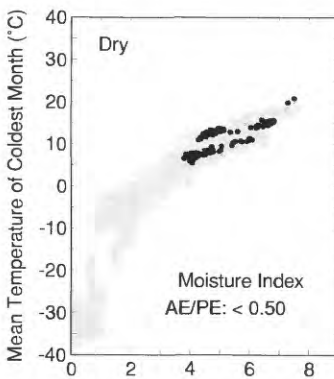
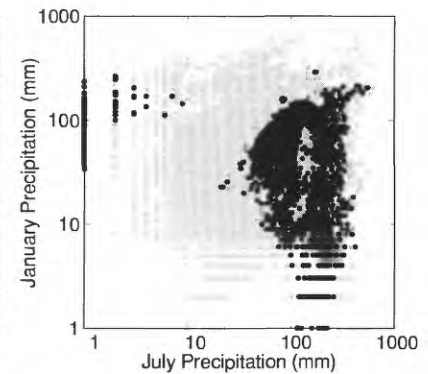
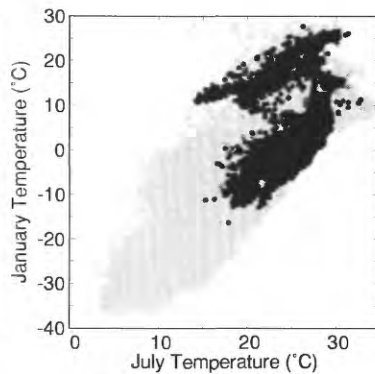
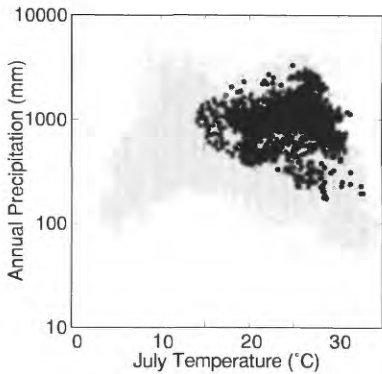
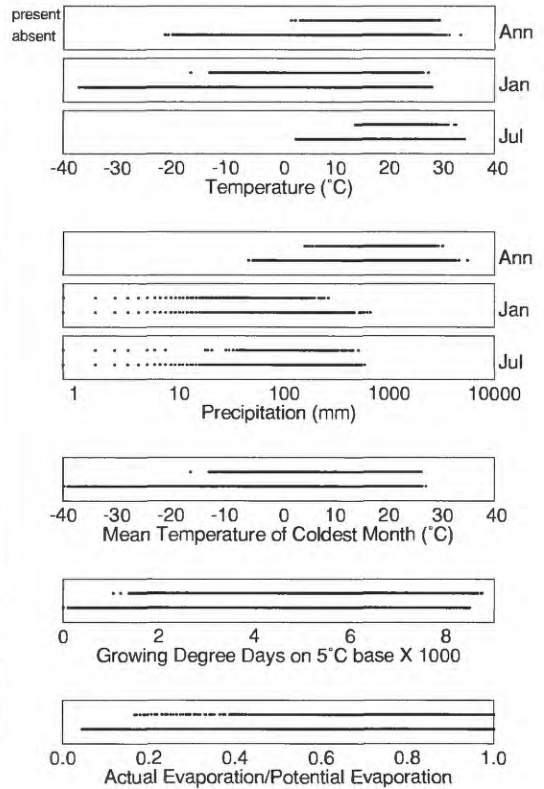
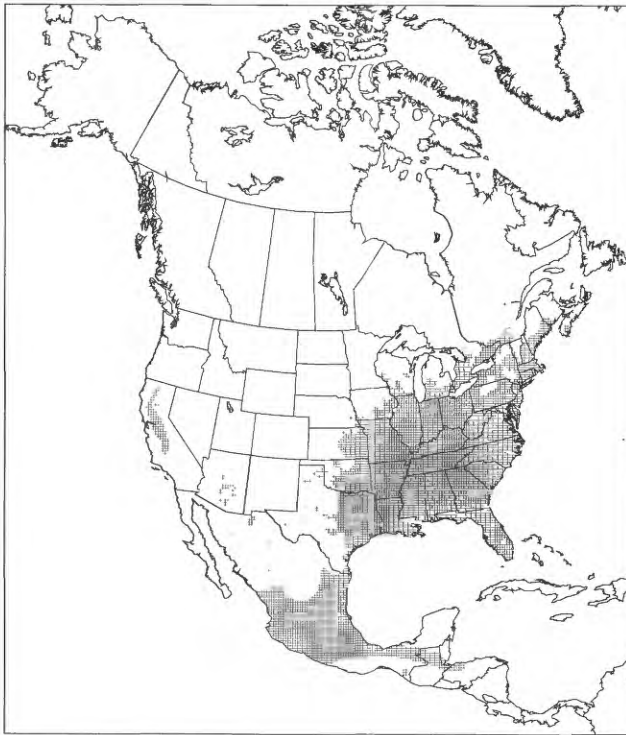
Celtis lindheimeri (minimal data - nearest grid points used with environmental parameters)



Celtis tenuifolia

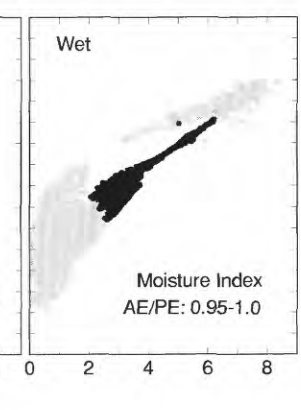
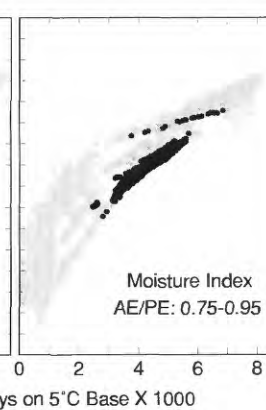
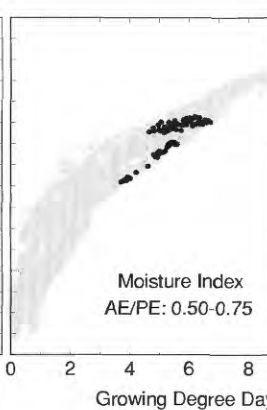
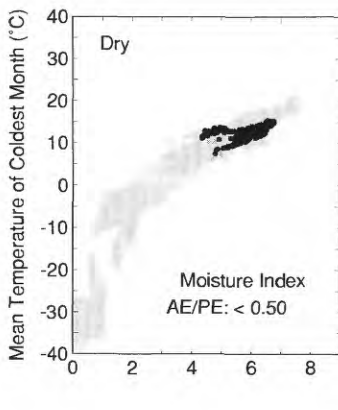
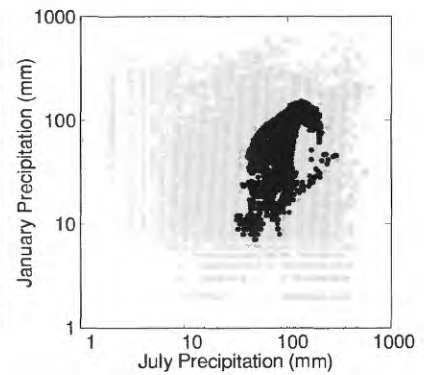
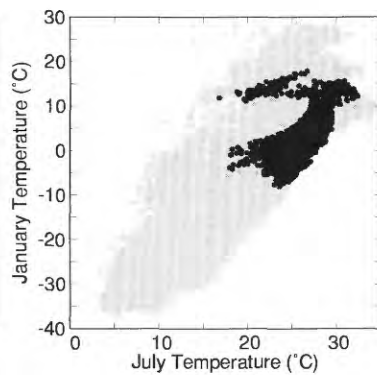
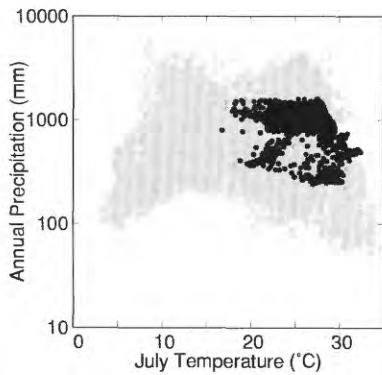
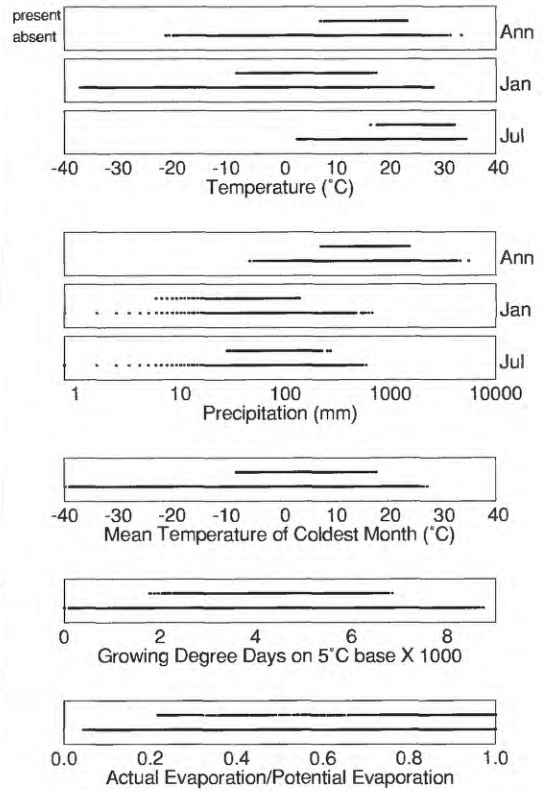
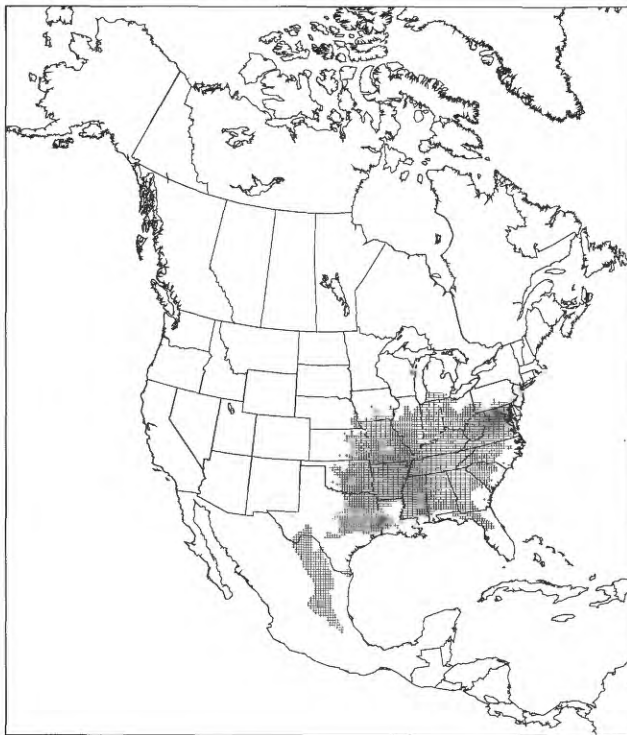


Cephalanthus occidentalis

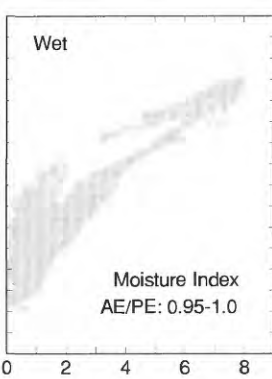
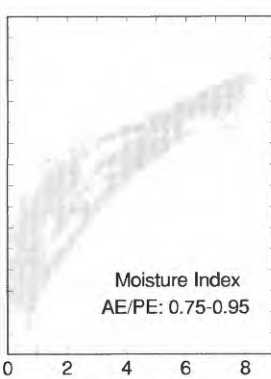
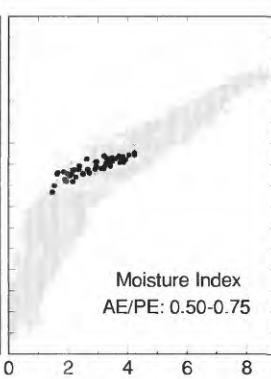
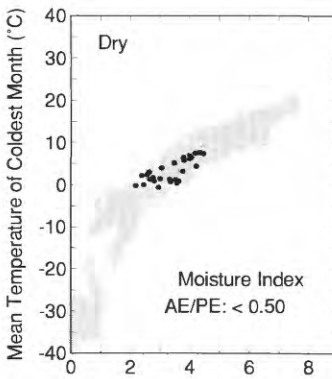
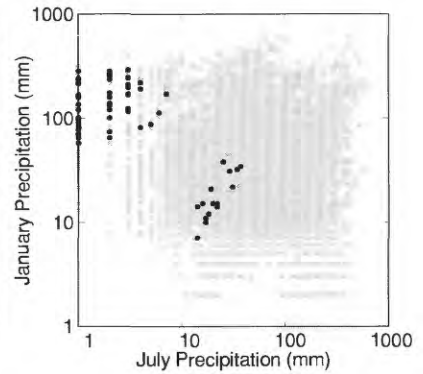
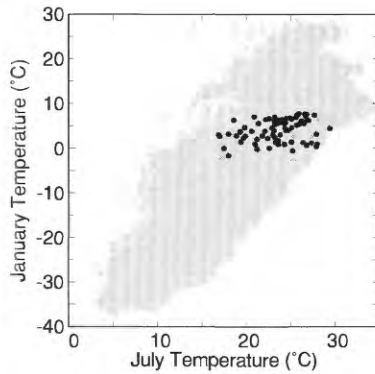
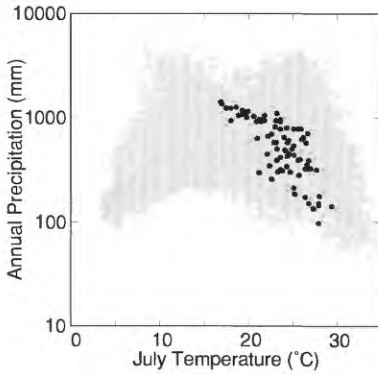
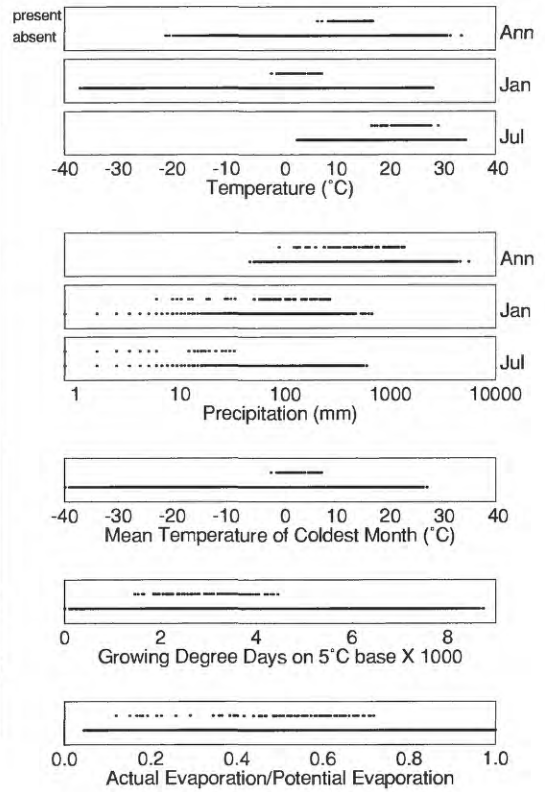


Growing Degree Days on 5°C Base X 1000

Cercis canadensis

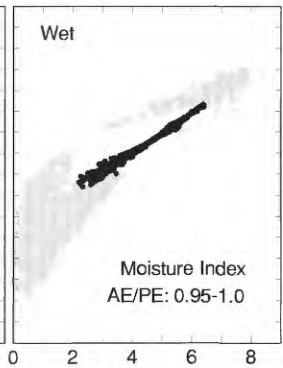
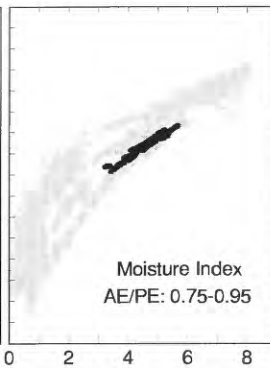
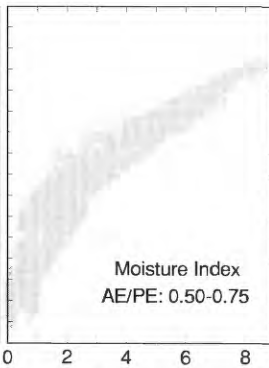
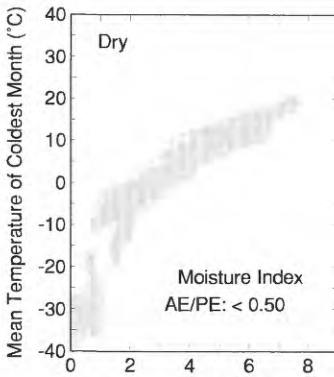
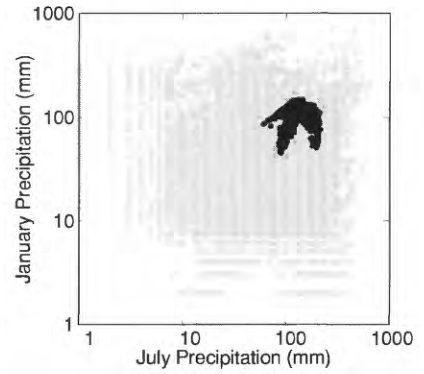
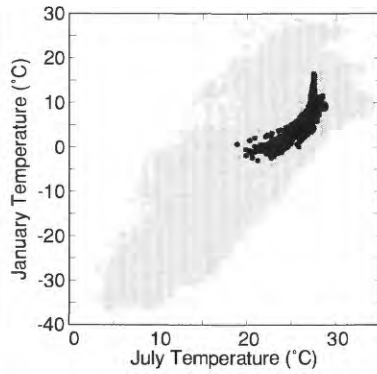
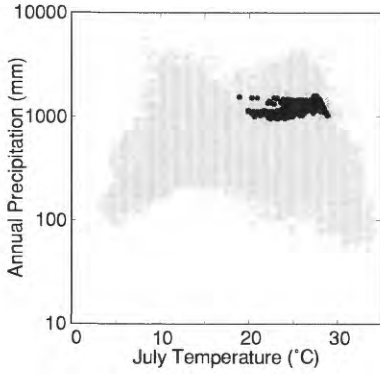
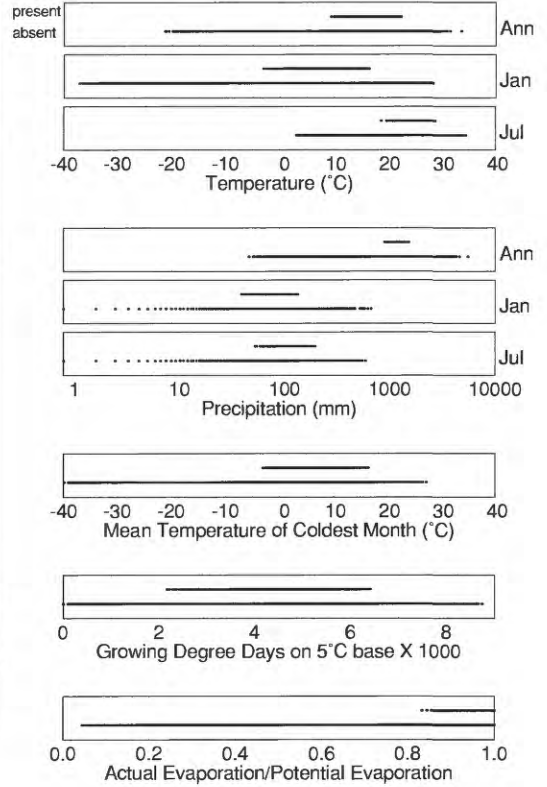
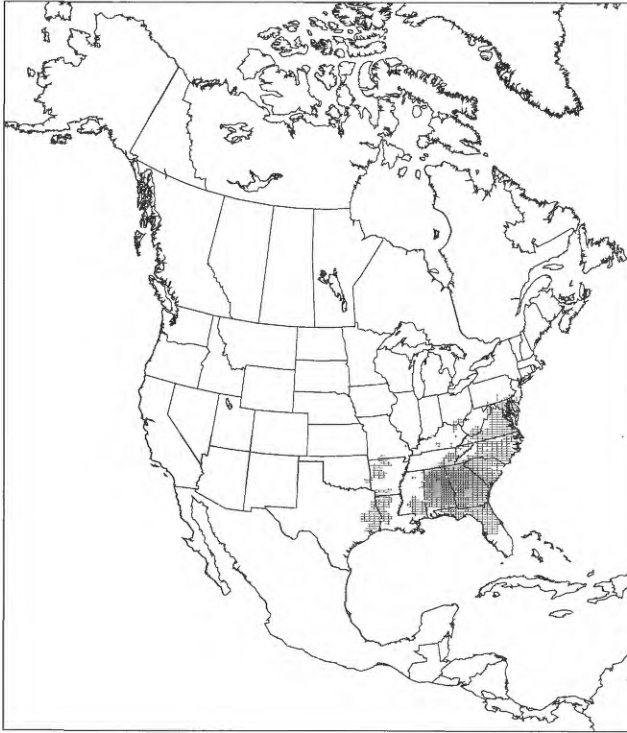


Cercis occidentalis

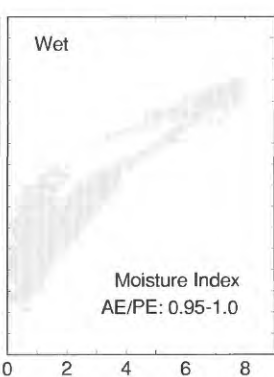
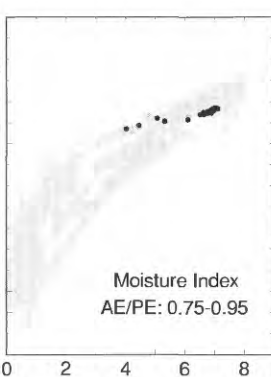
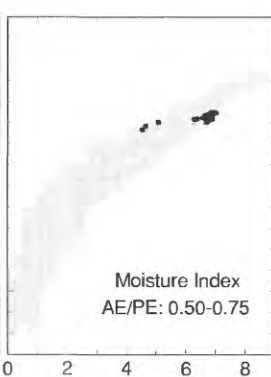
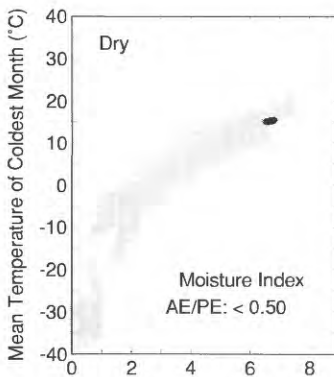
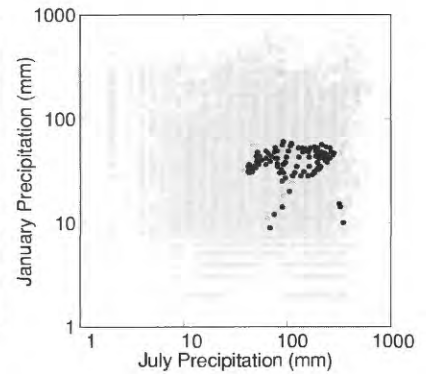
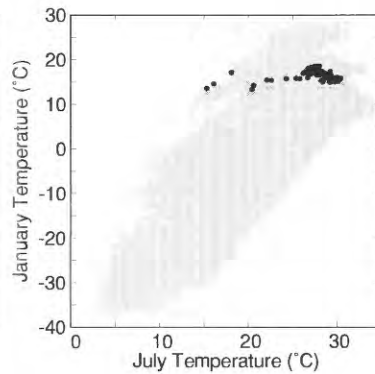
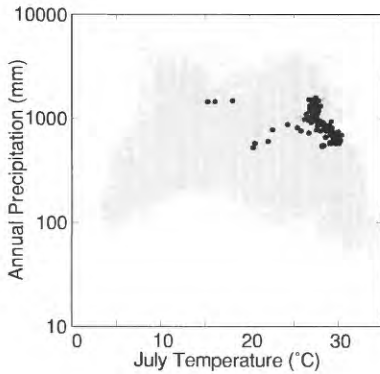
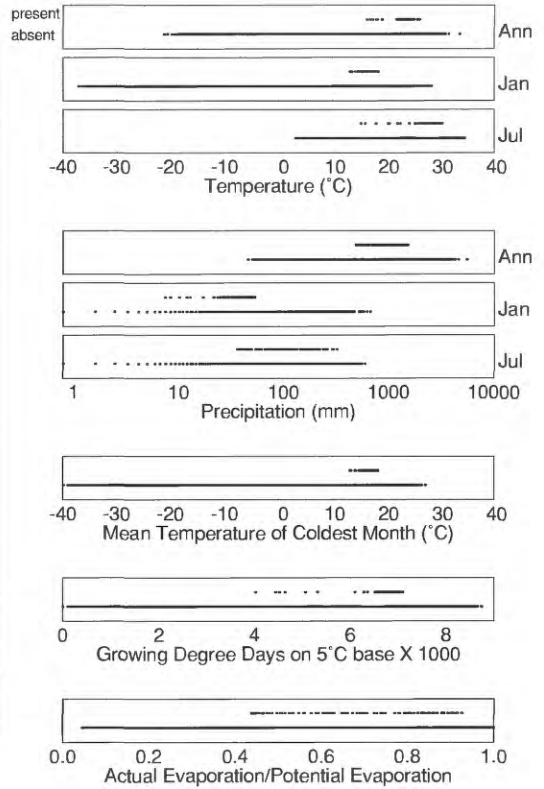


Growing Degree Days on 5°C Base X 1000

Chionanthus virginicus

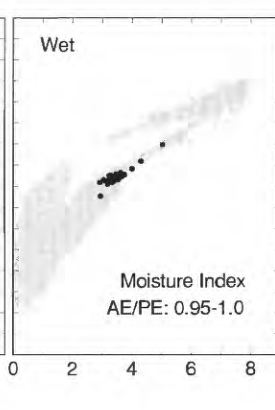
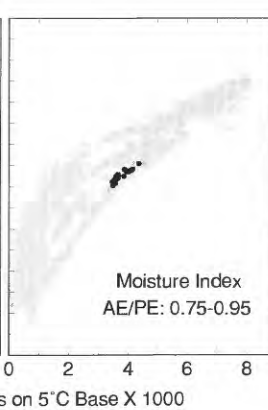
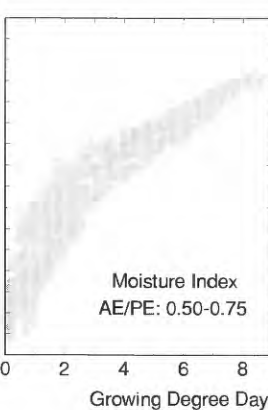
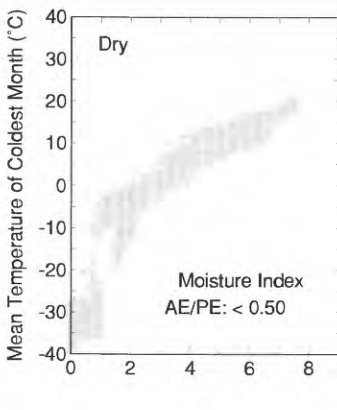
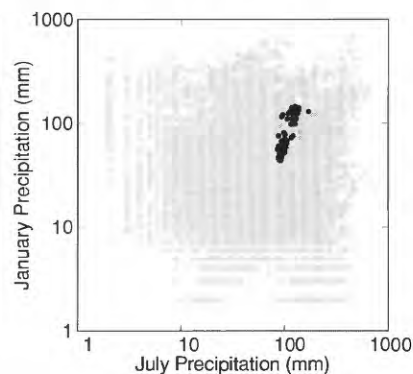
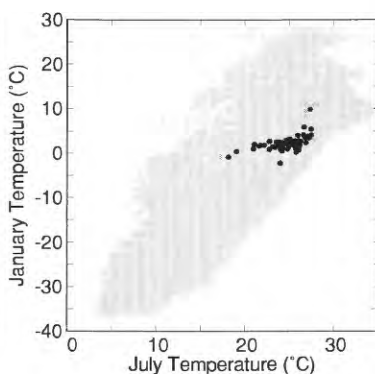
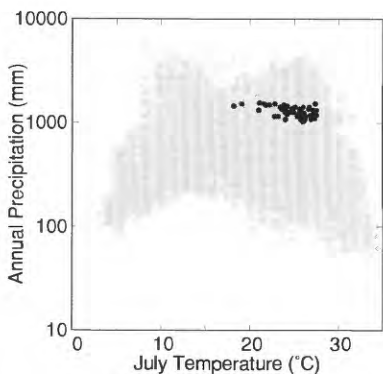
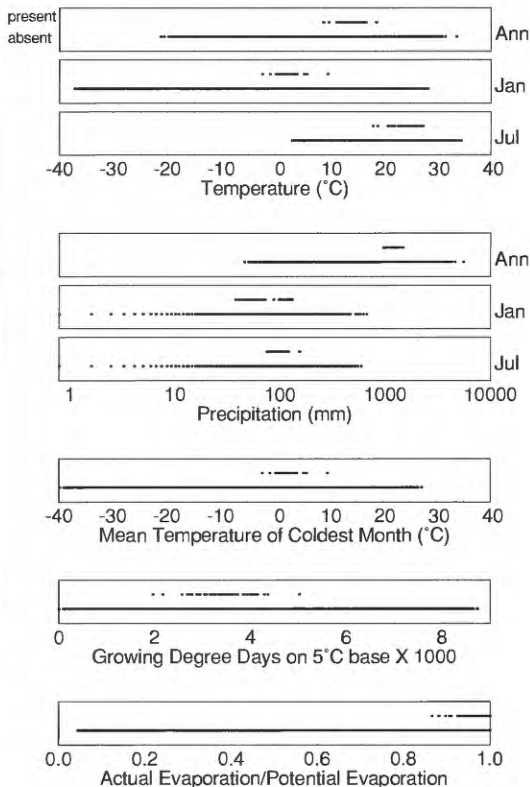


Citharexylum berlandieri

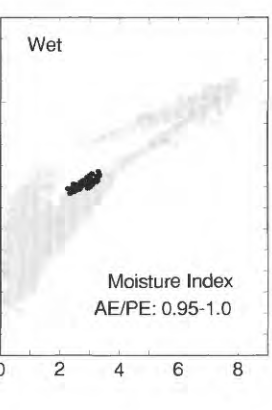
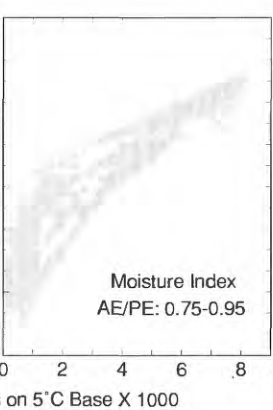
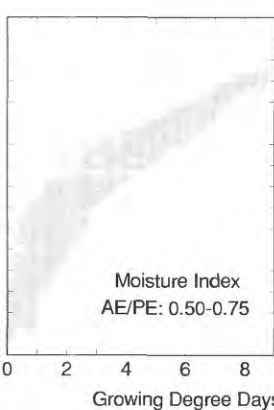
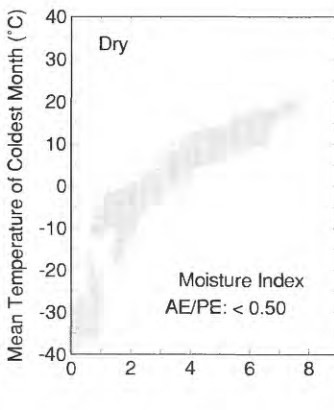
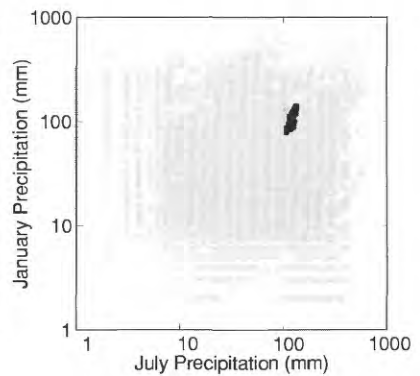
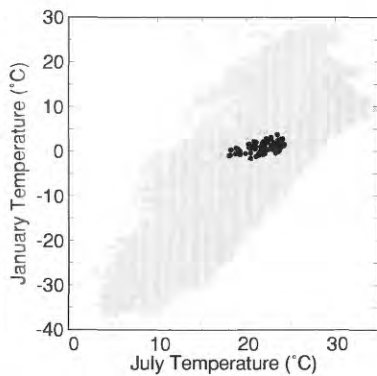
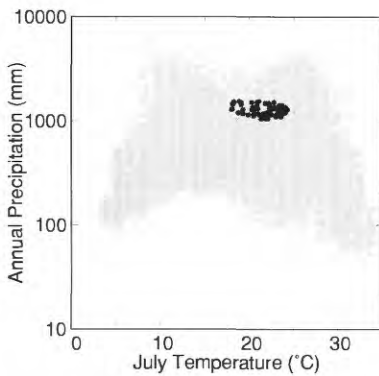
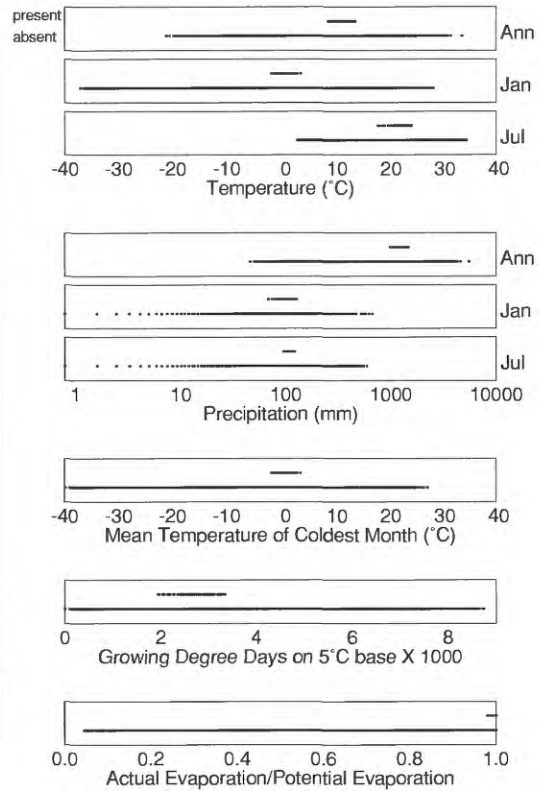


Growing Degree Days on 5°C Base X 1000

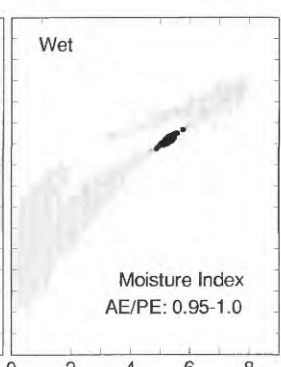
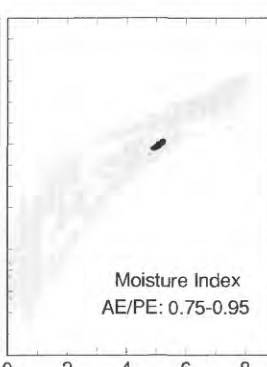
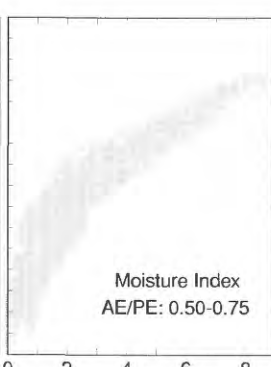
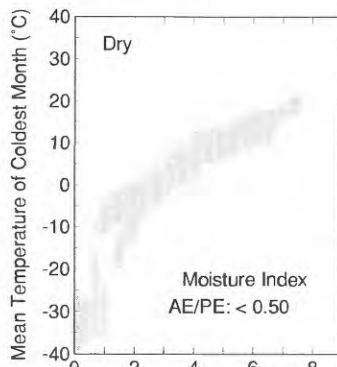
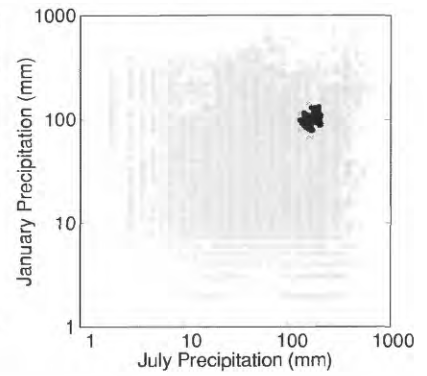
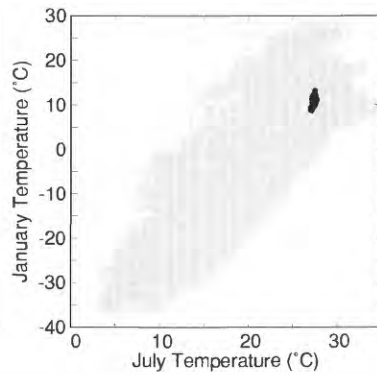
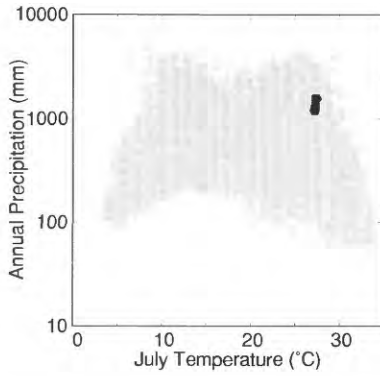
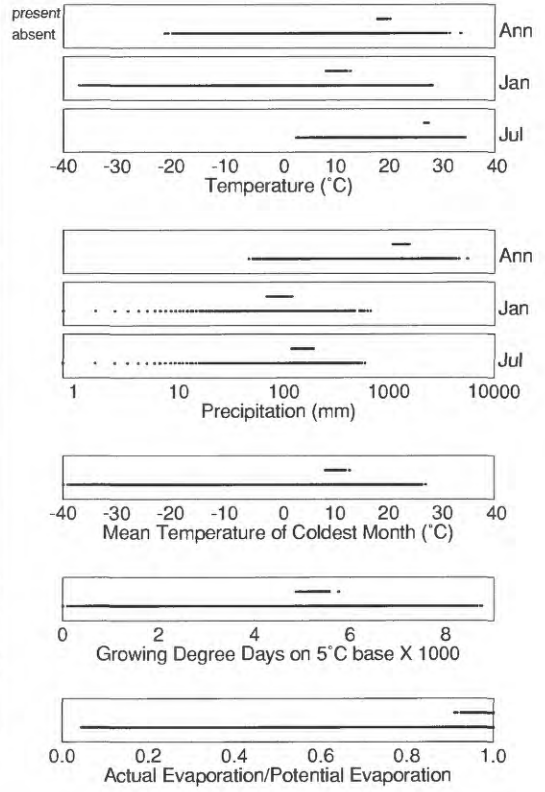
Cladrastis kentukea



Clethra acuminata

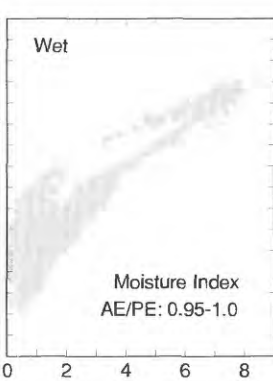
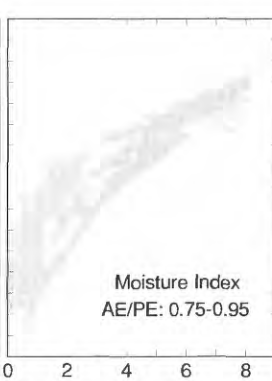
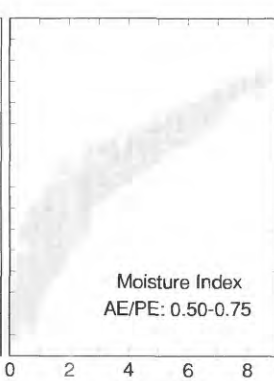
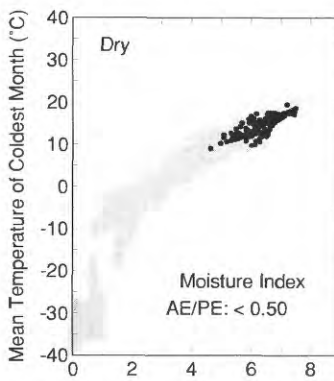
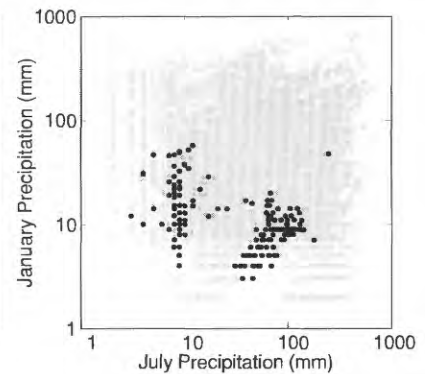
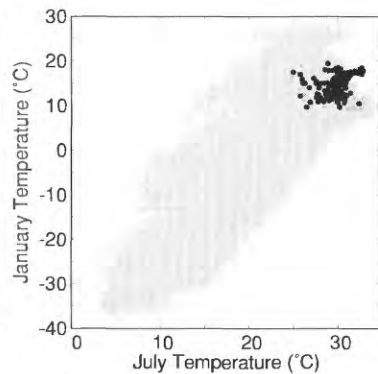
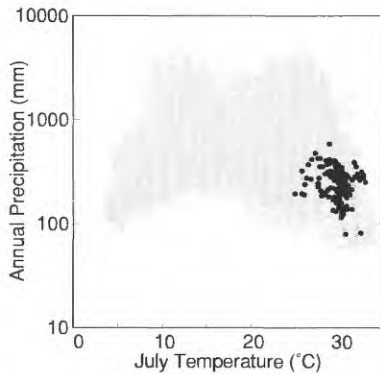
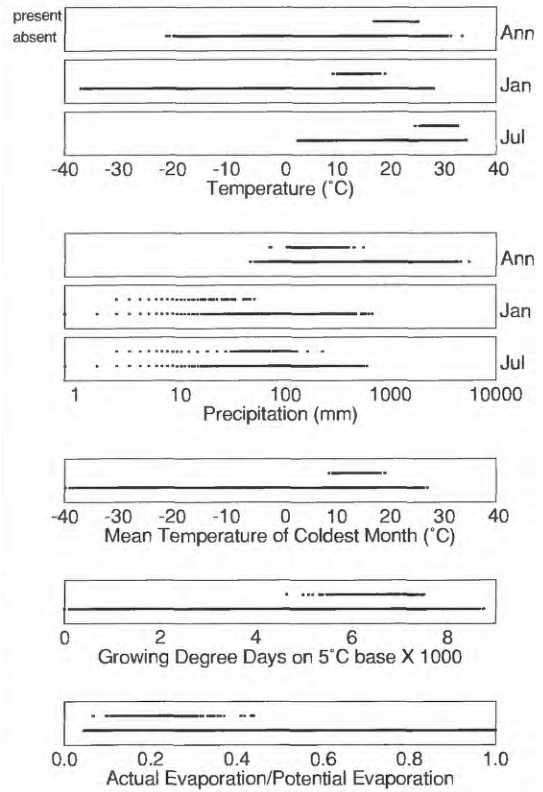


Cliftonia monophylla

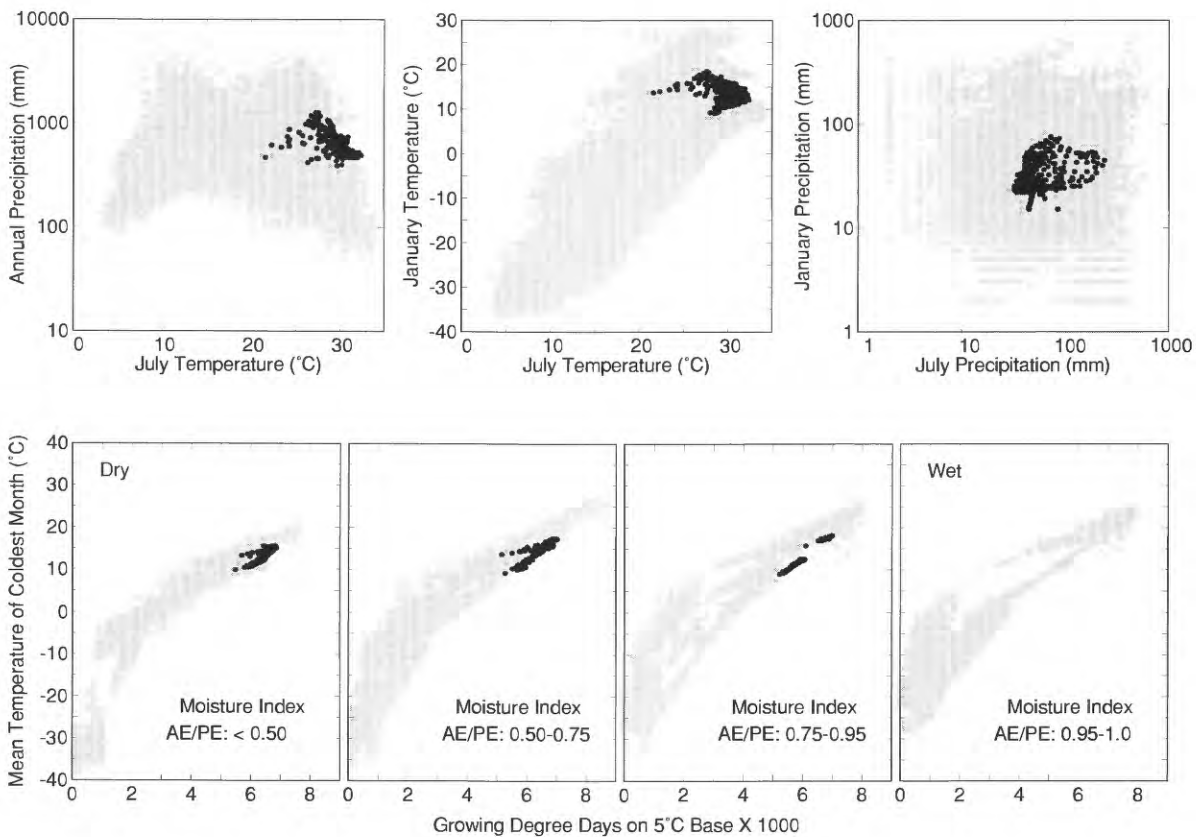
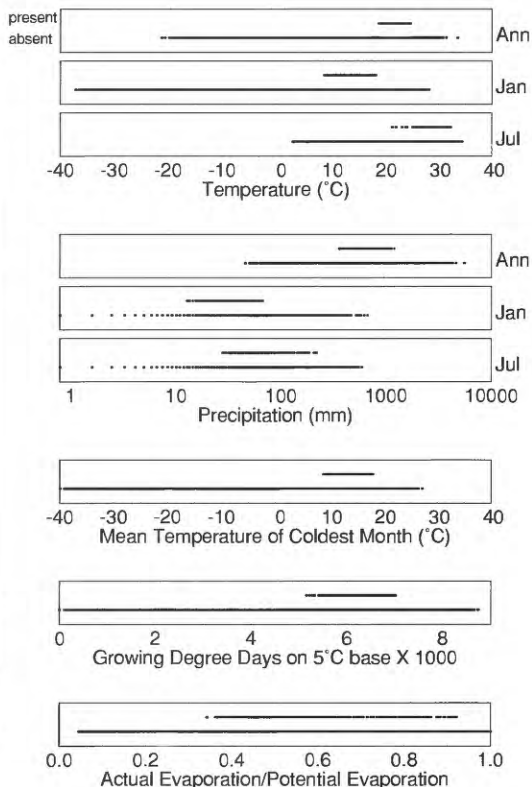


Growing Degree Days on 5°C Base X 1000

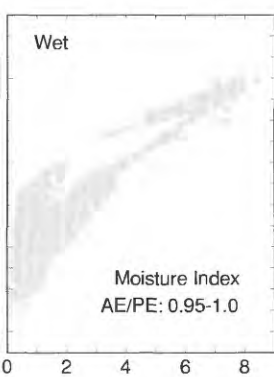
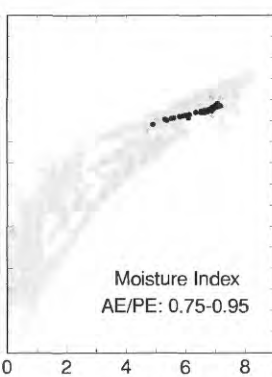
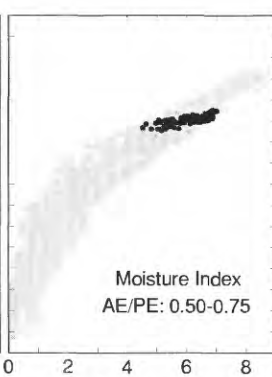
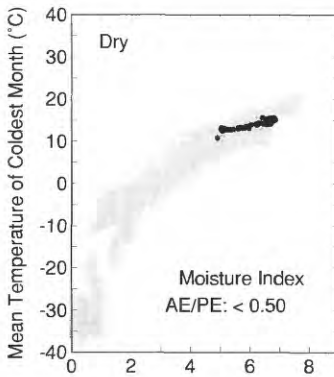
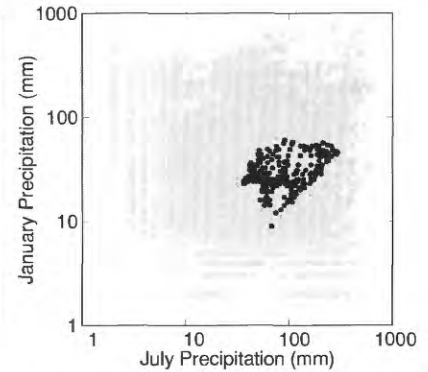
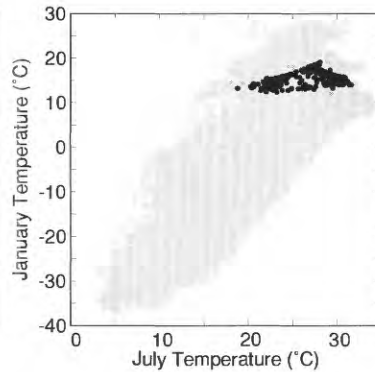
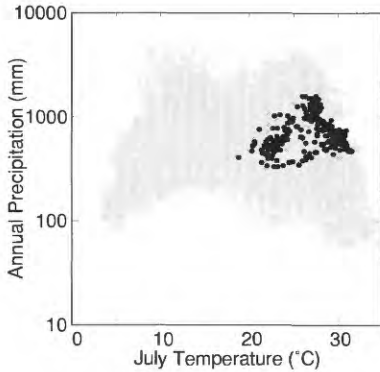
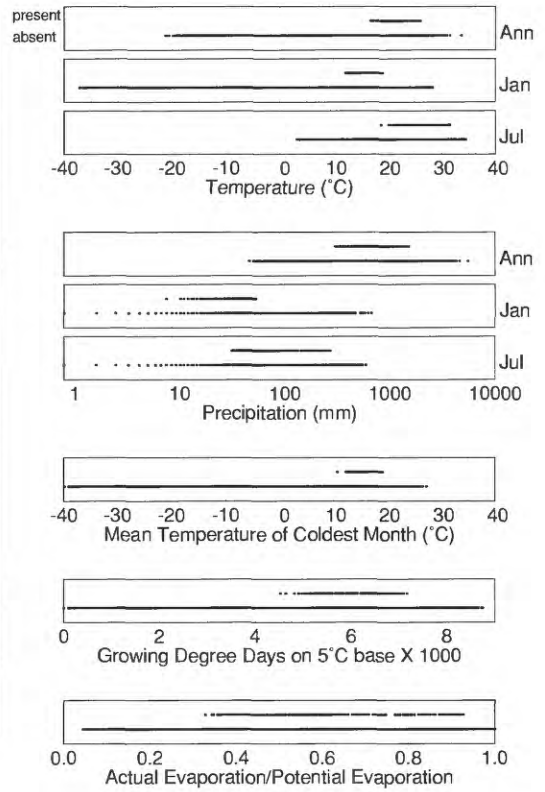
Condalia globosa



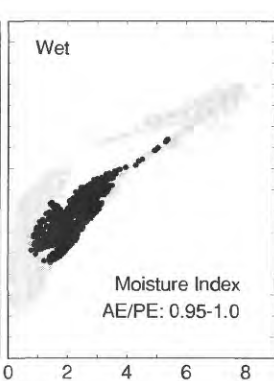
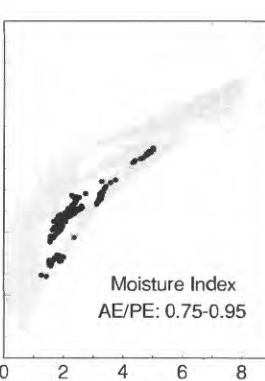
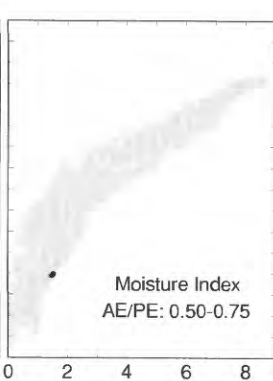
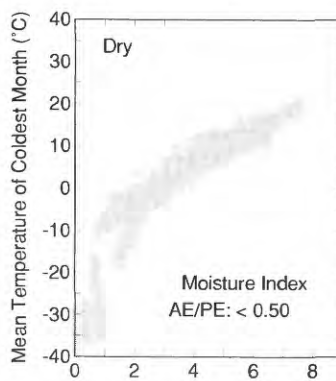
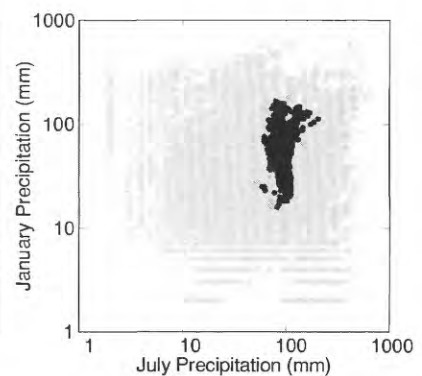
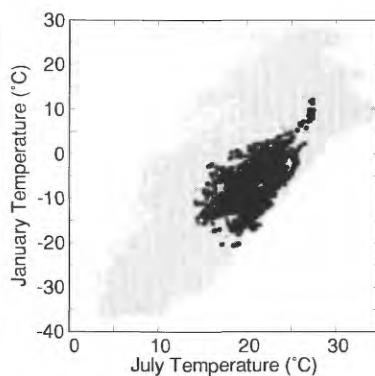
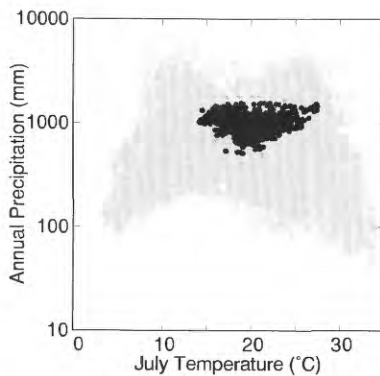
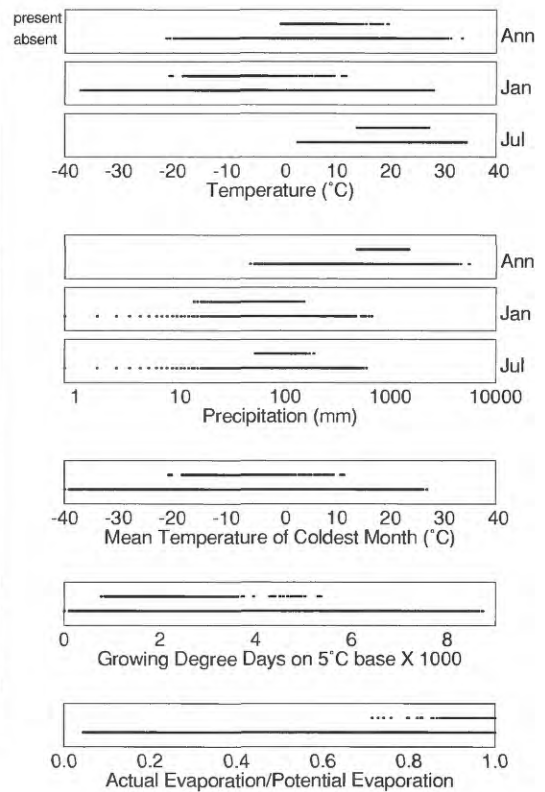
Condalia hookeri



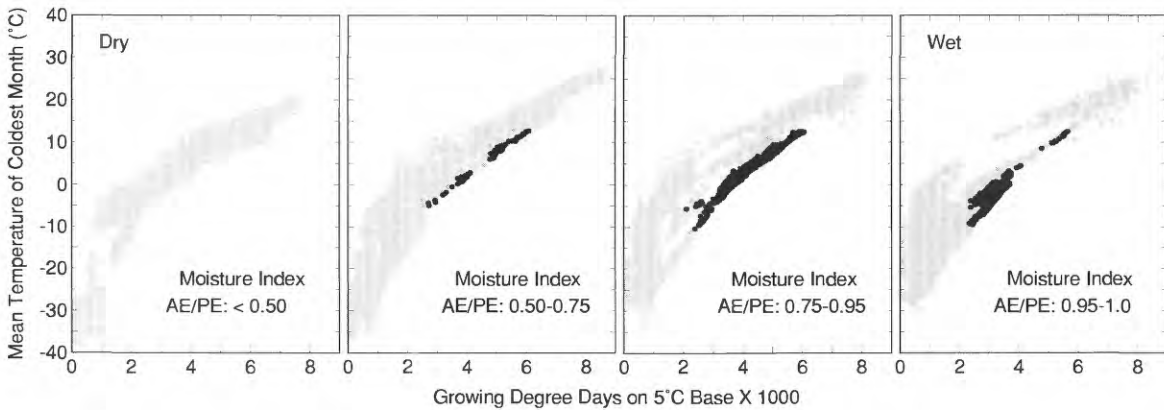
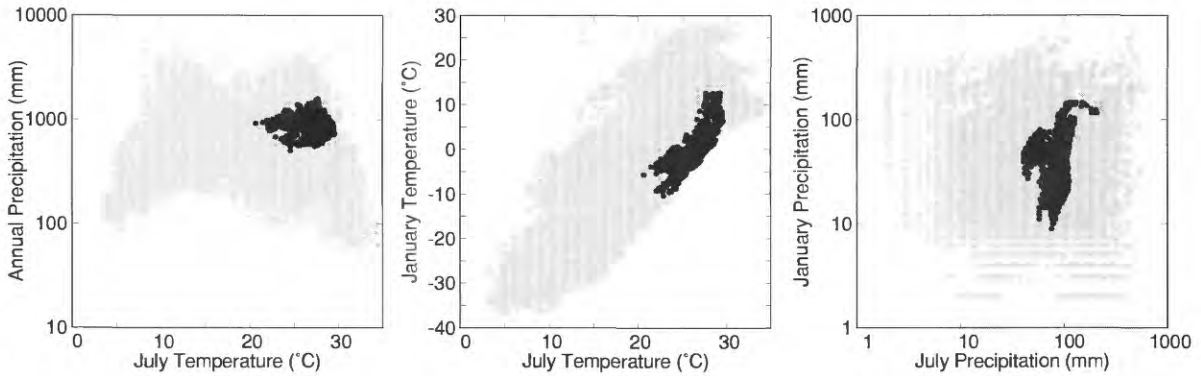
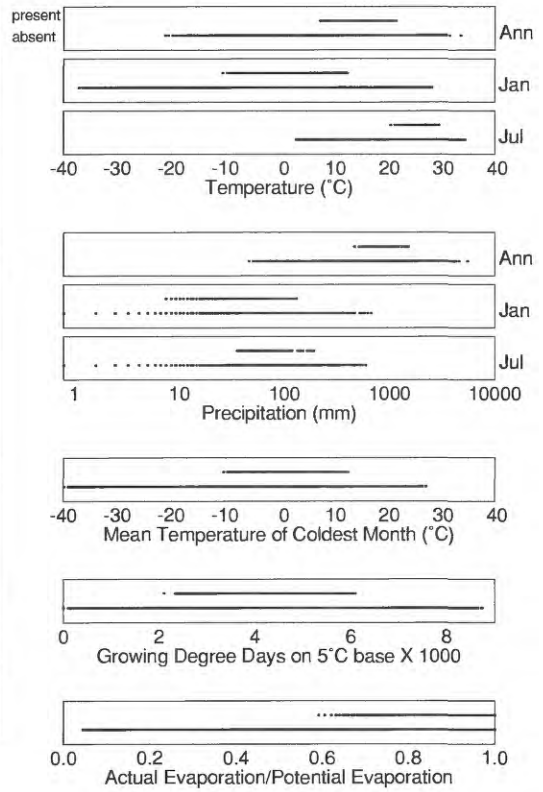
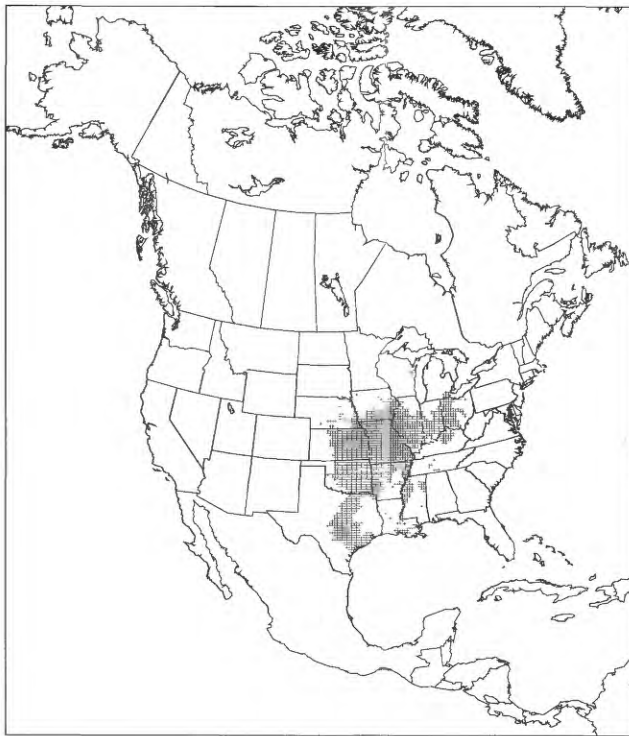
Cordia boissieri



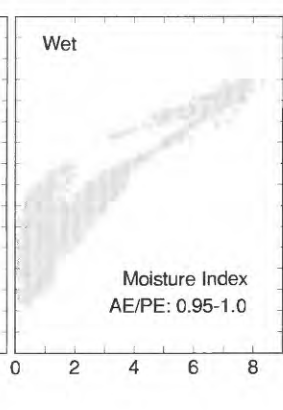
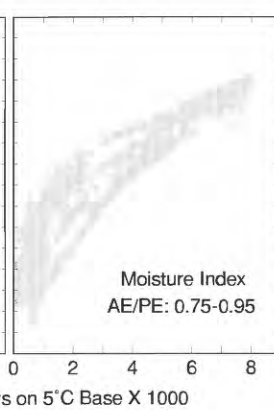
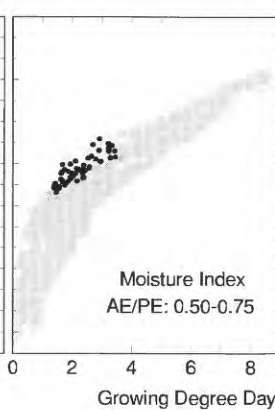
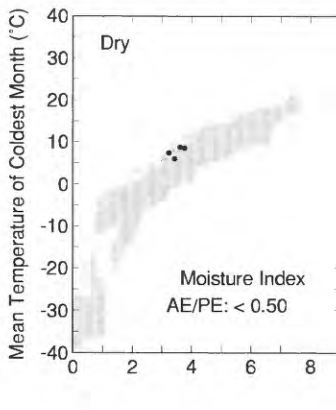
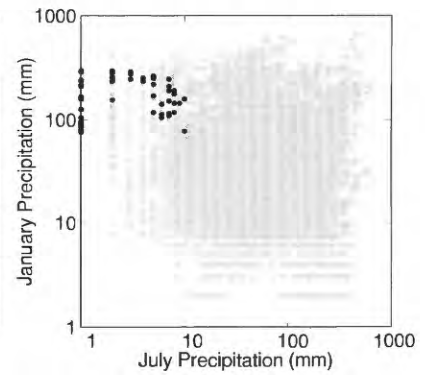
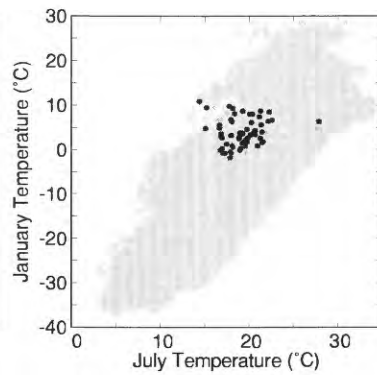
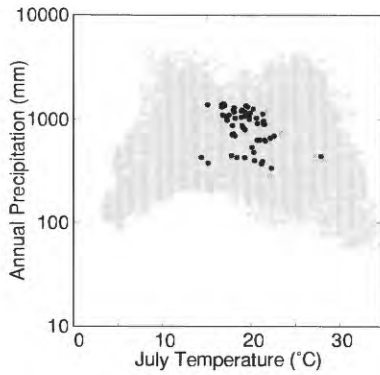
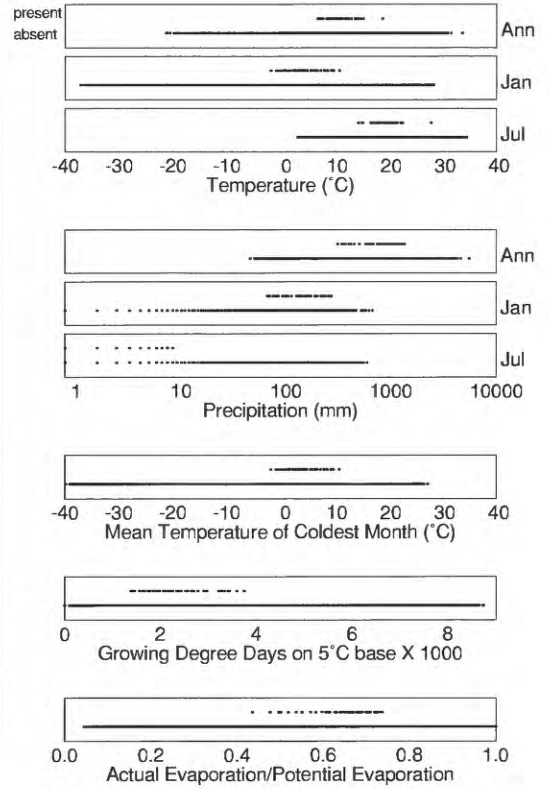
Cornus alternifolia



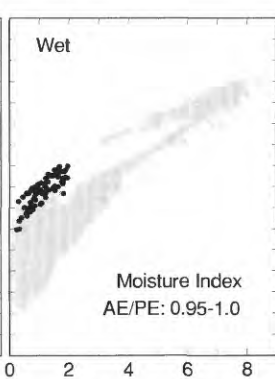
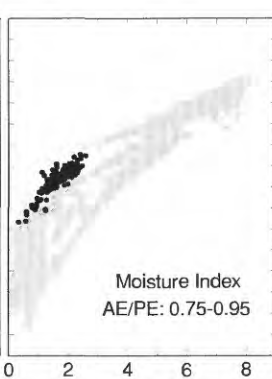
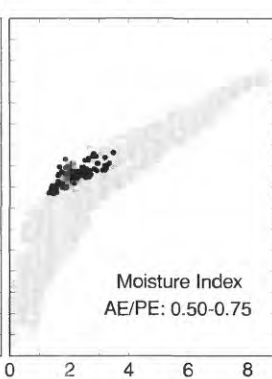
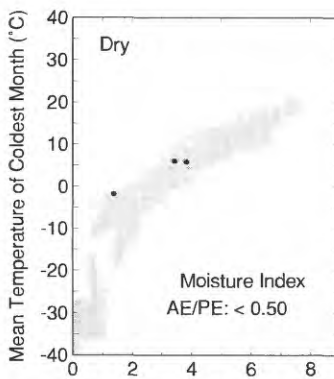
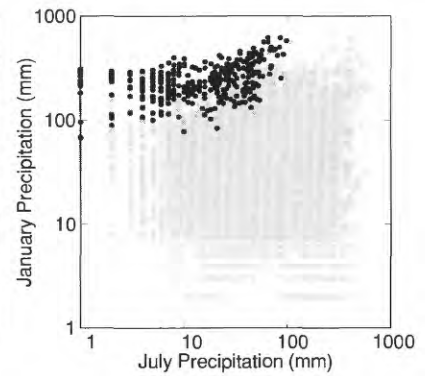
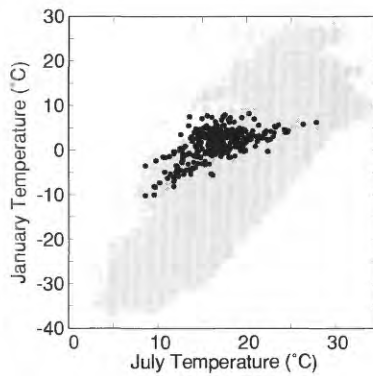
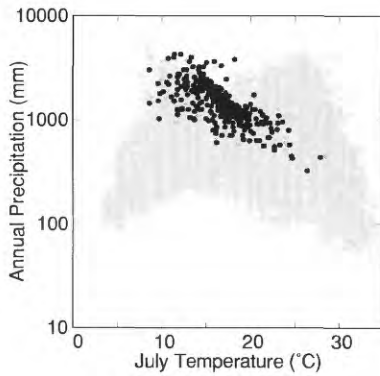
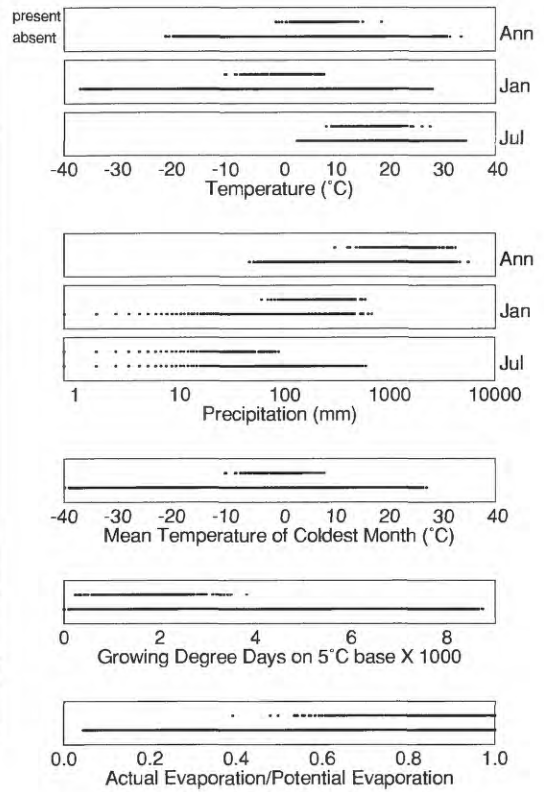
Cornus drummondii



Cornus glabrata

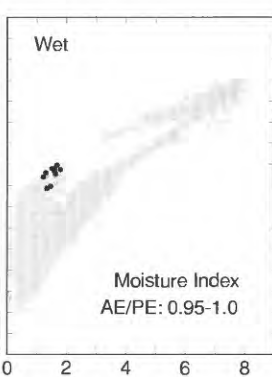
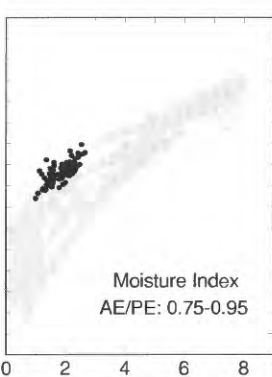
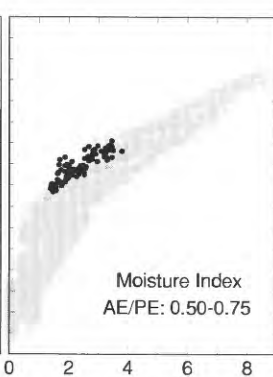
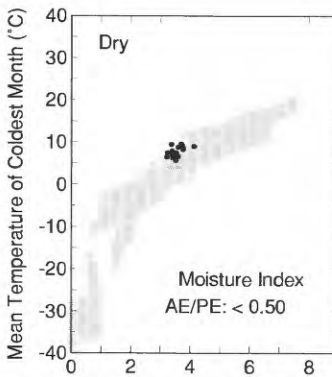
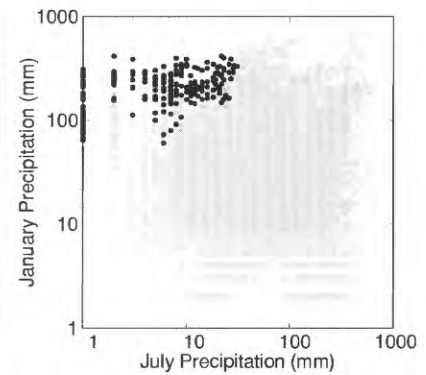
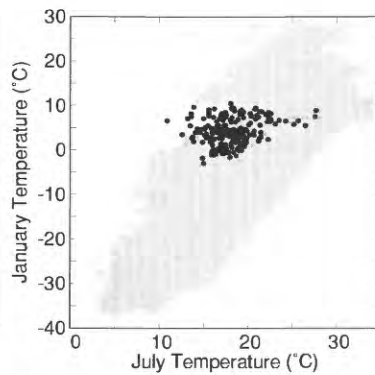
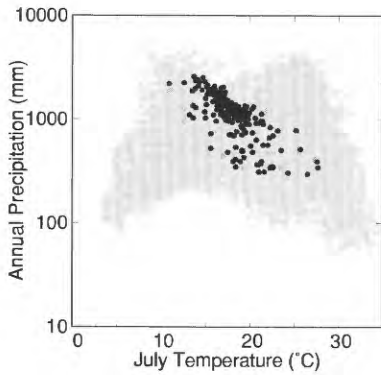
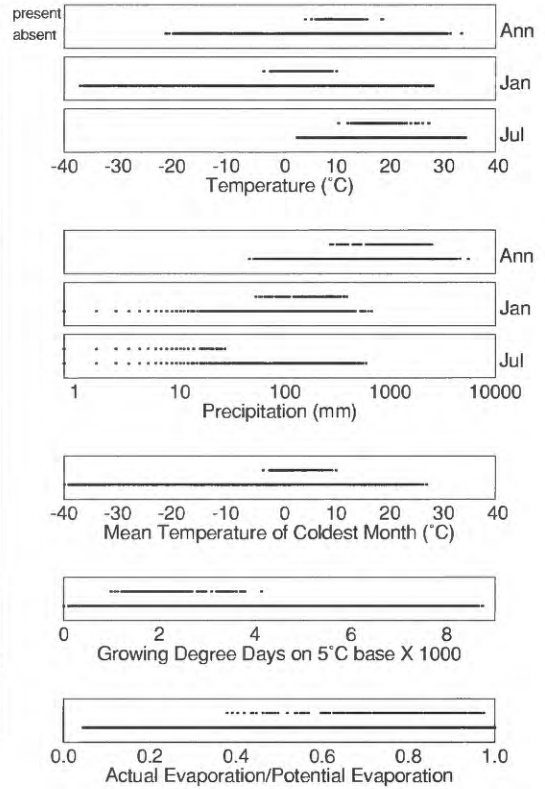


Cornus nuttallii



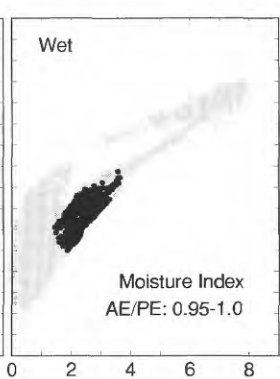
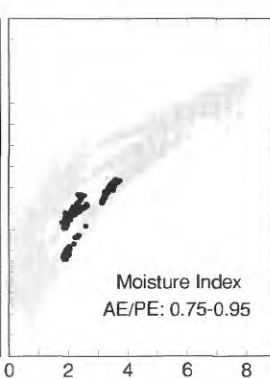
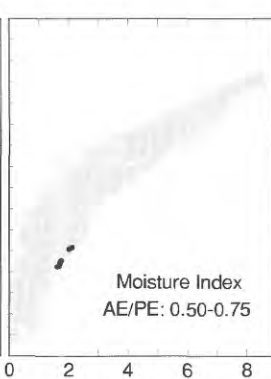
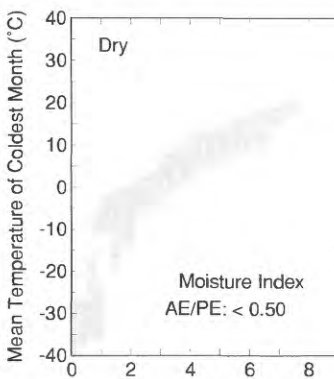
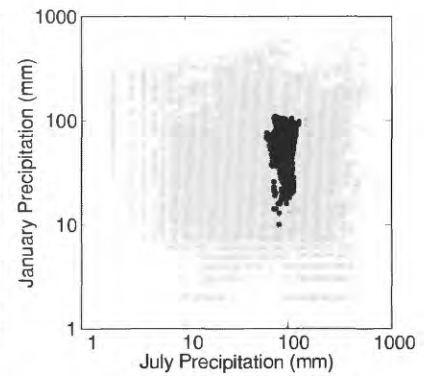
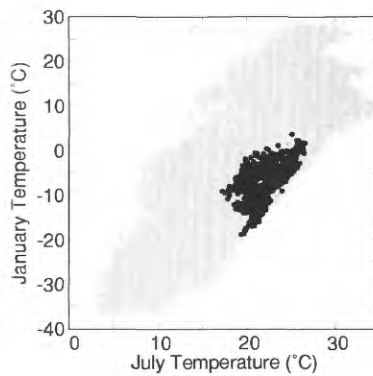
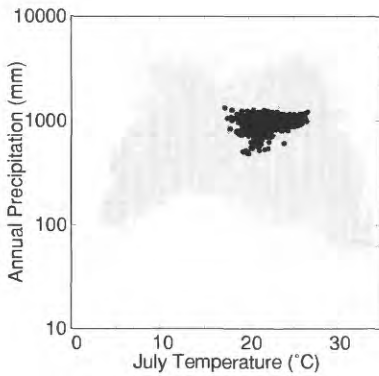
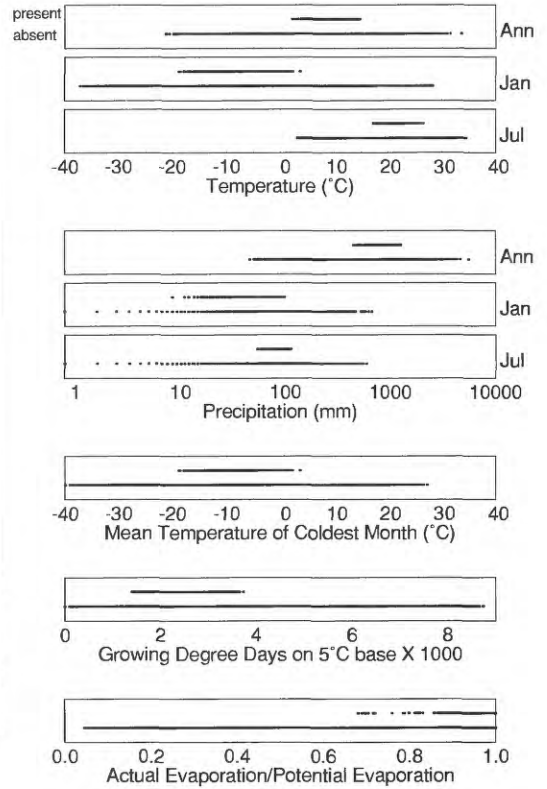
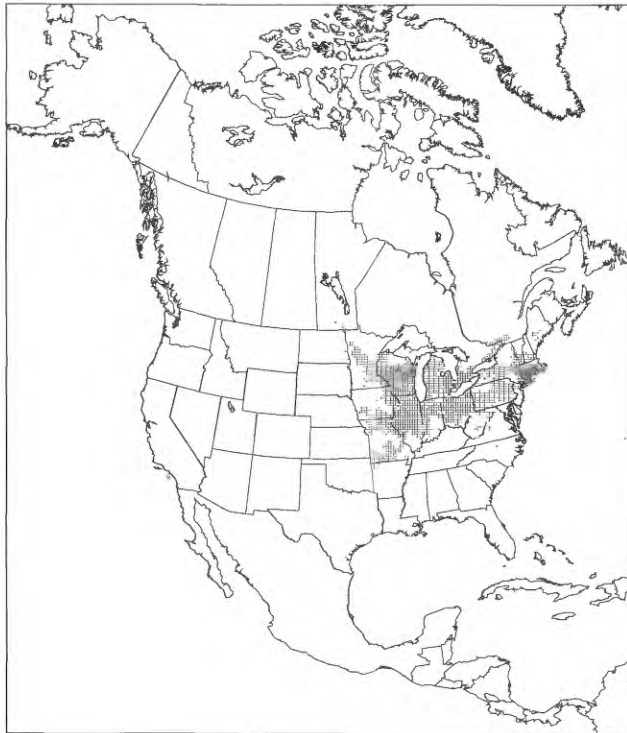
Growing Degree Days on 5°C Base X 1000

Cornus occidentalis

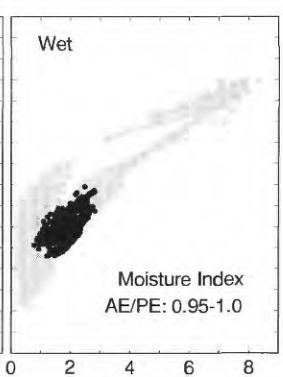
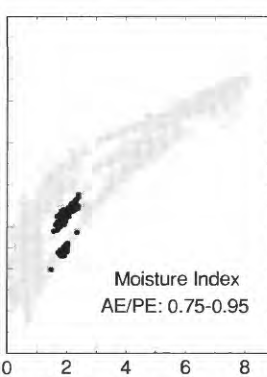
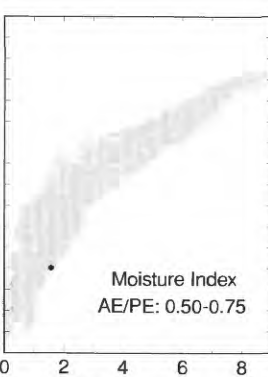
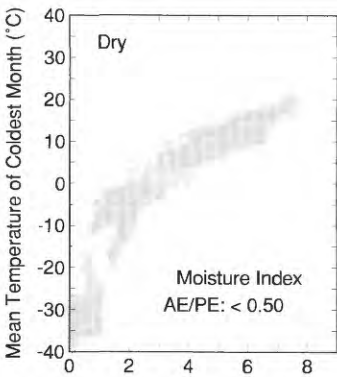
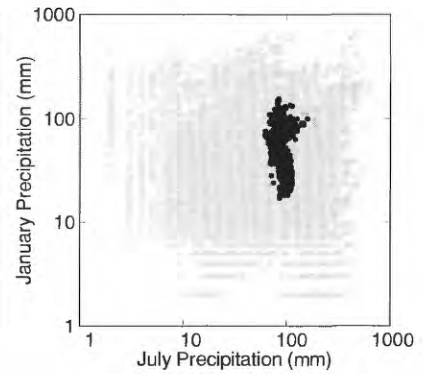
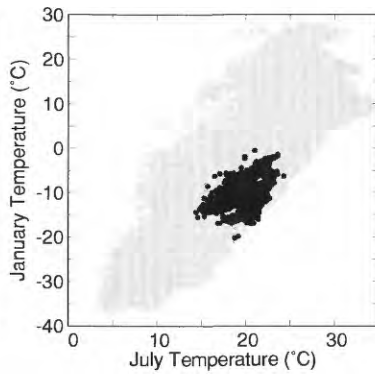
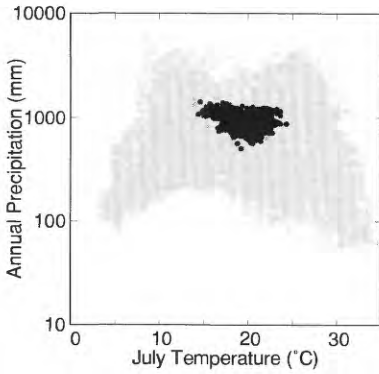
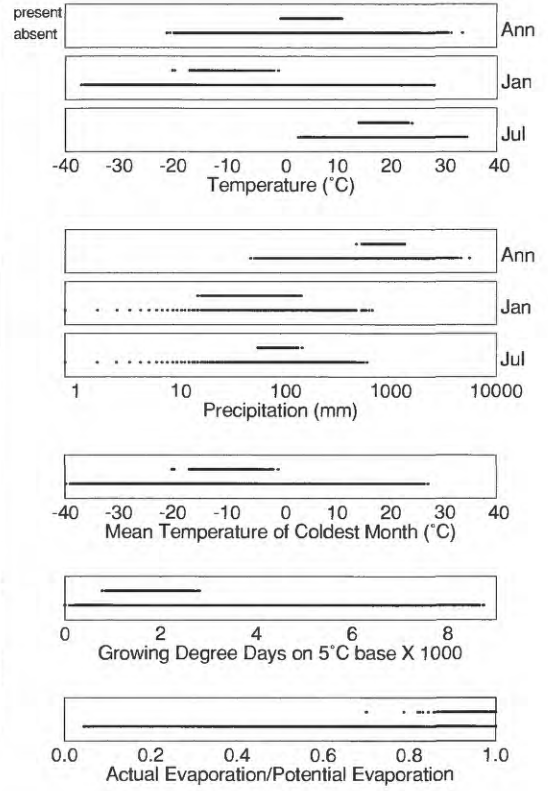
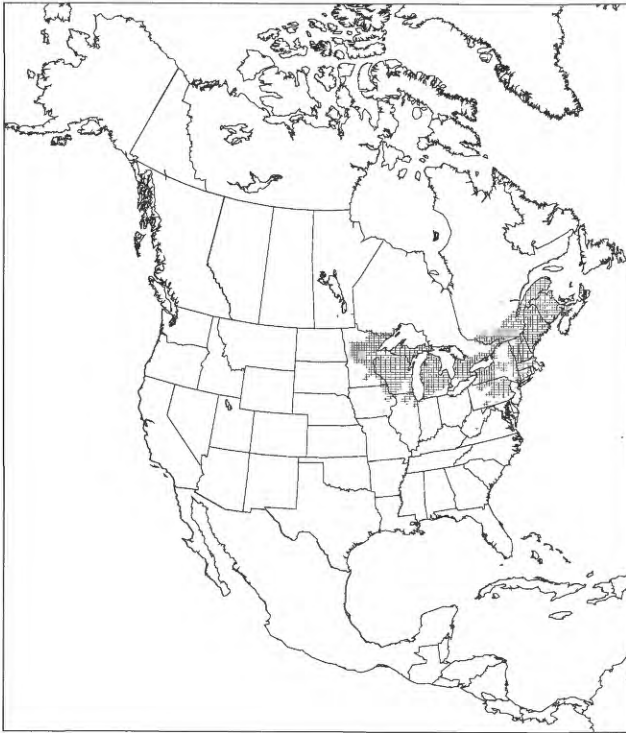


Growing Degree Days on 5°C Base X 1000

Cornus racemosa

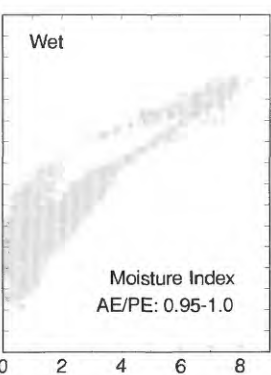
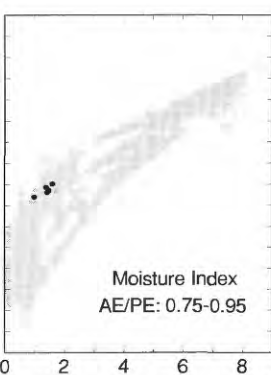
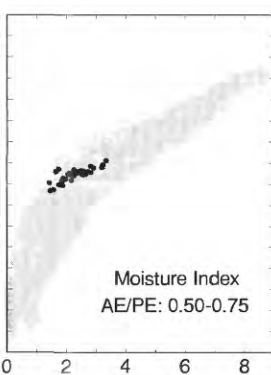
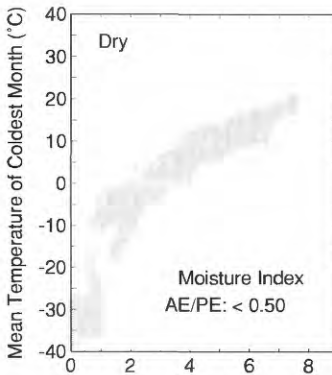
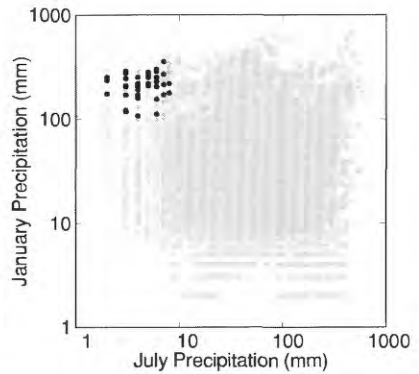
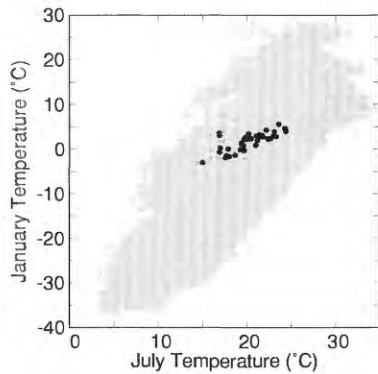
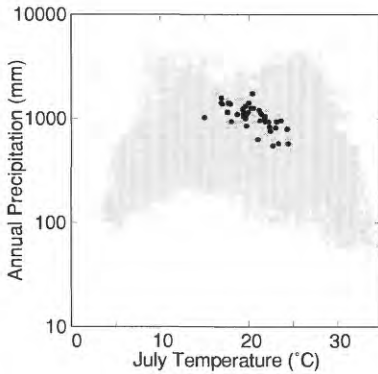
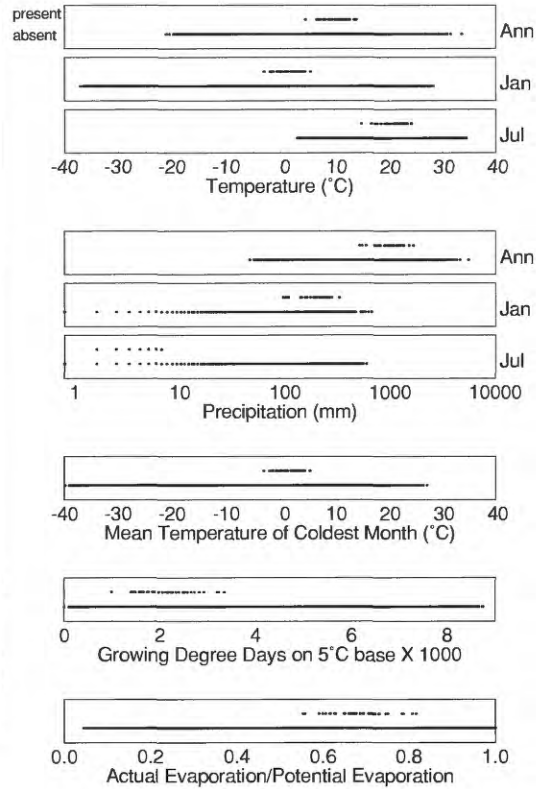


Cornus rugosa



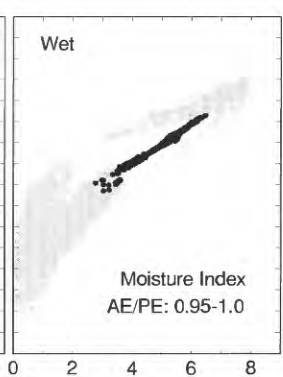
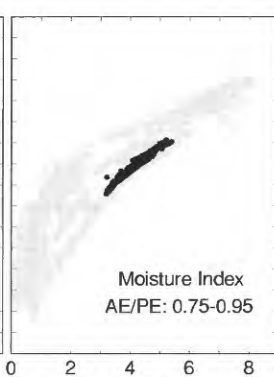
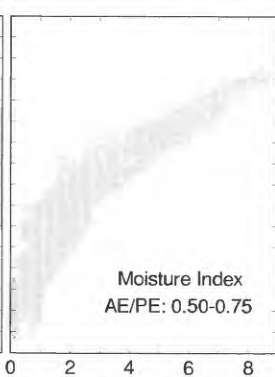
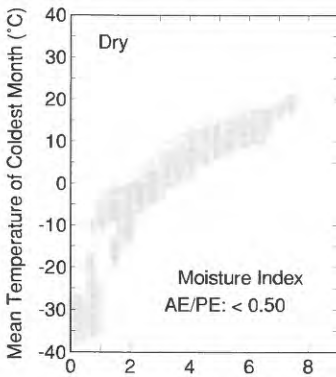
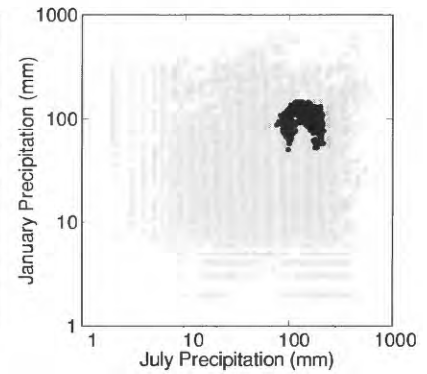
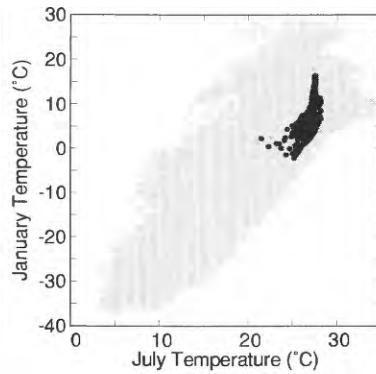
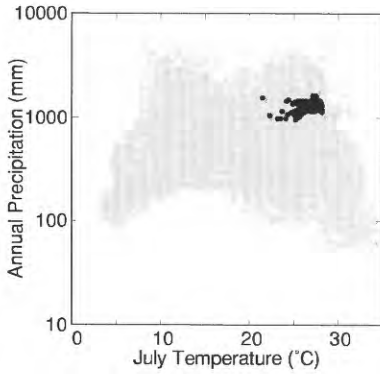
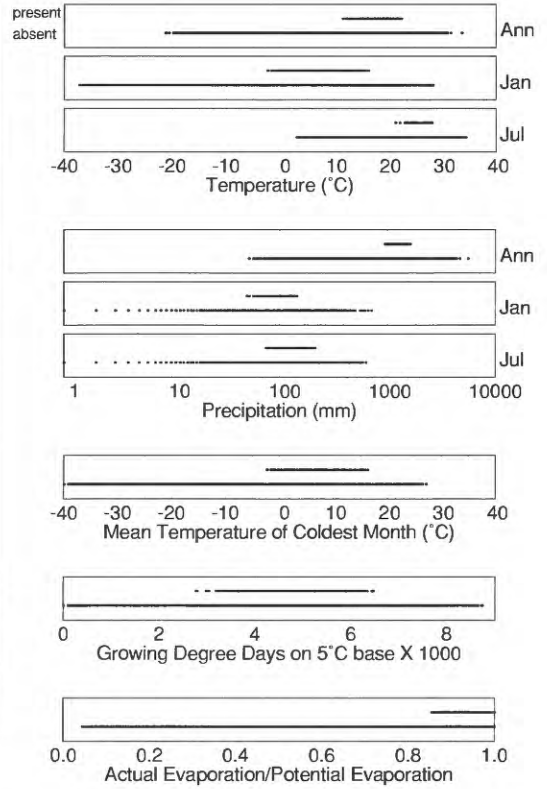
Growing Degree Days on 5°C Base X 1000

Cornus sessilis



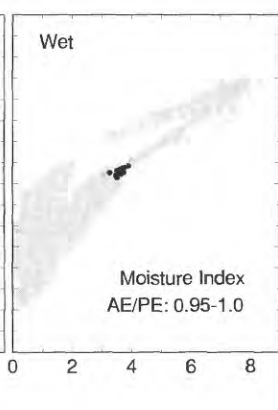
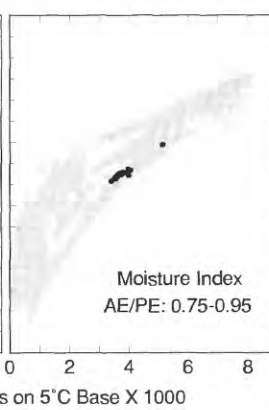
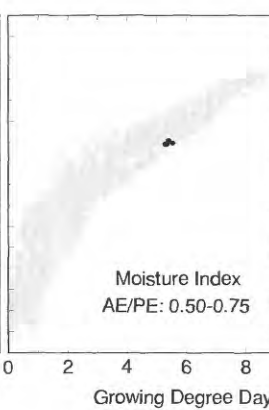
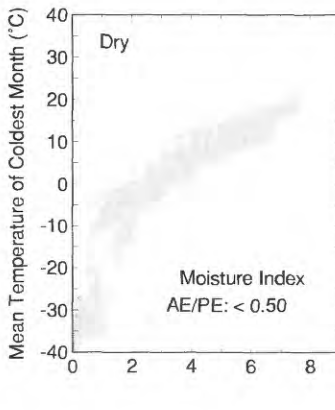
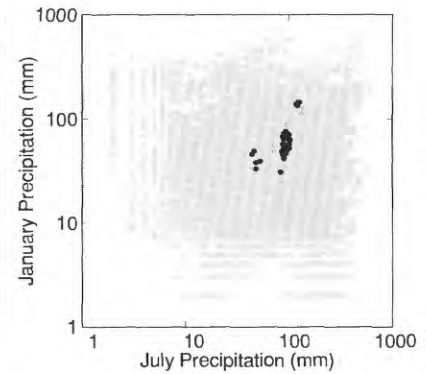
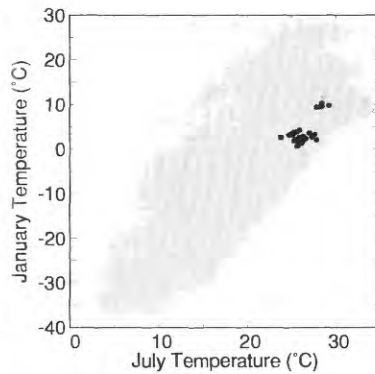
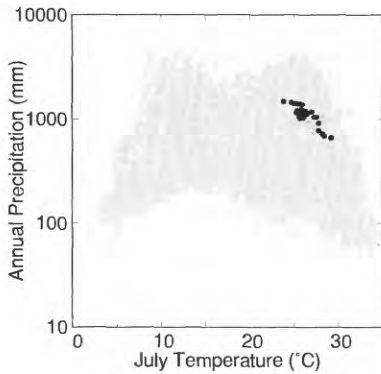
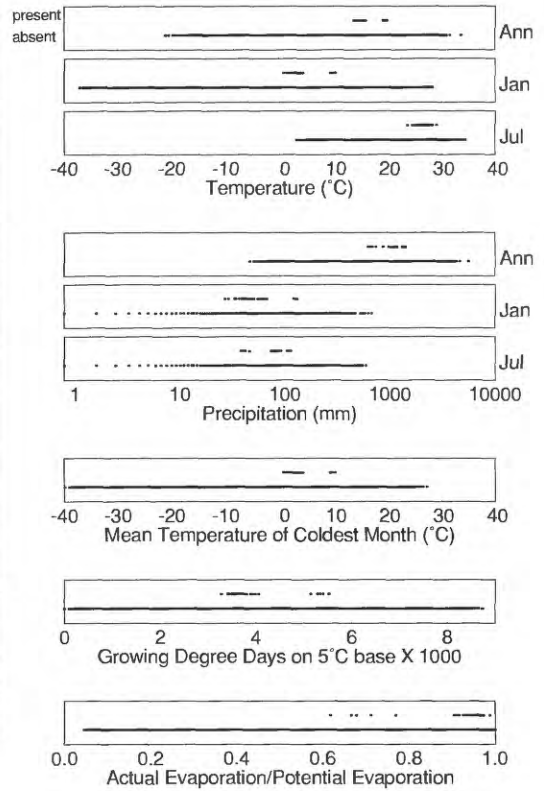
Growing Degree Days on 5°C Base X 1000

Cornus stricta

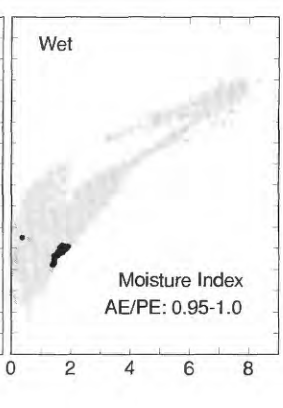
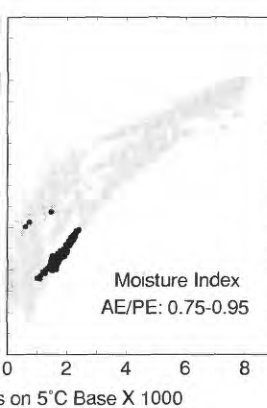
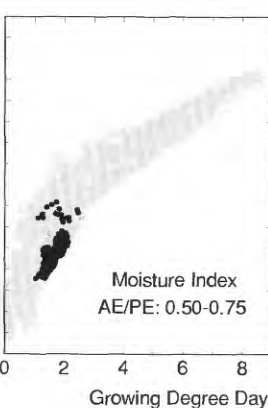
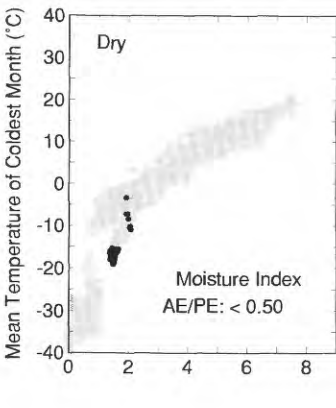
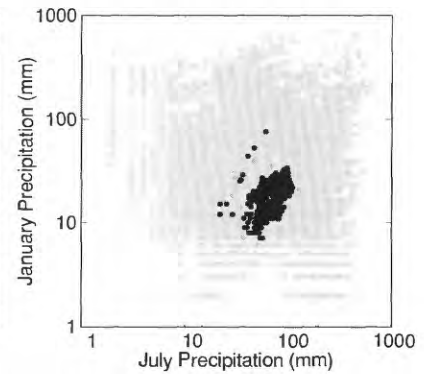
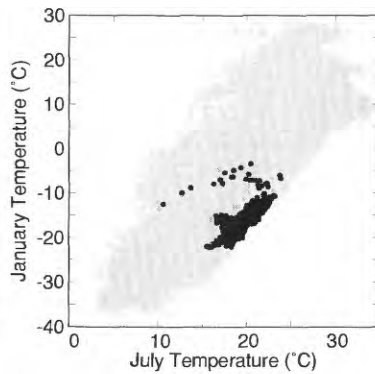
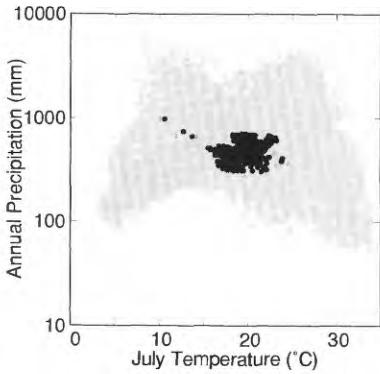
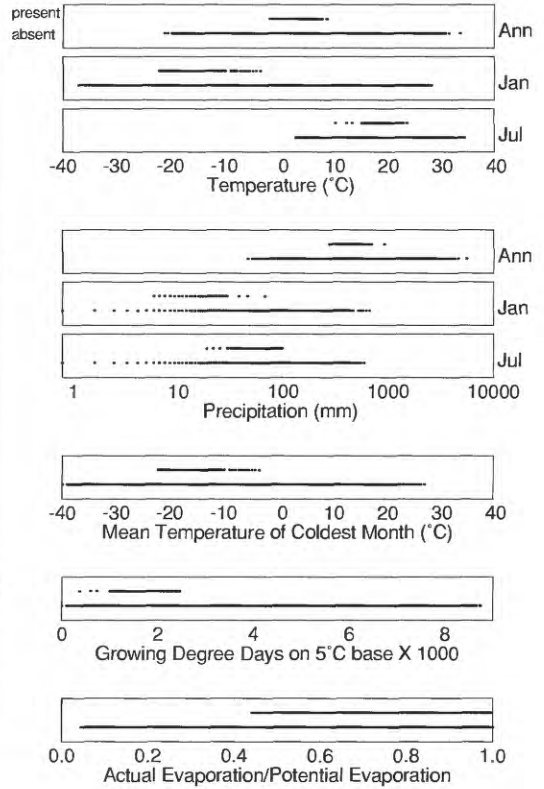


Growing Degree Days on 5°C Base X 1000

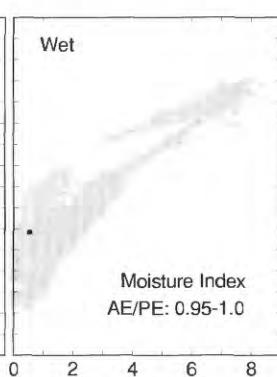
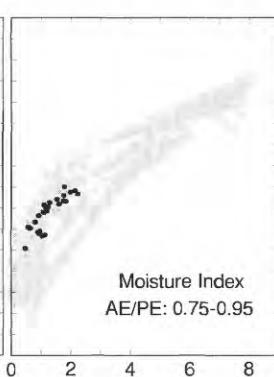
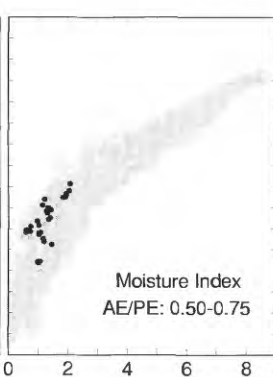
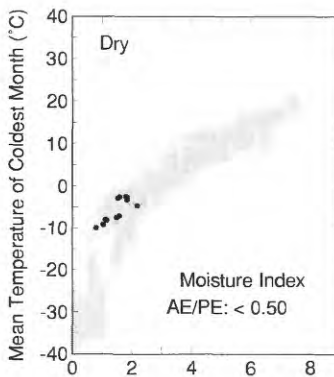
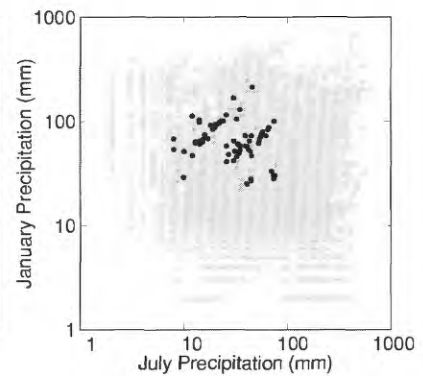
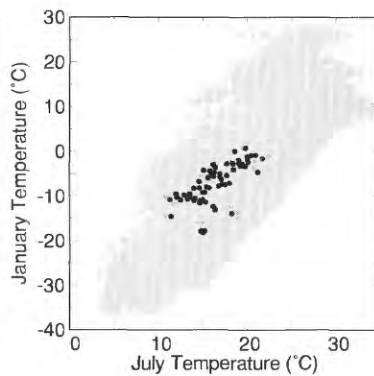
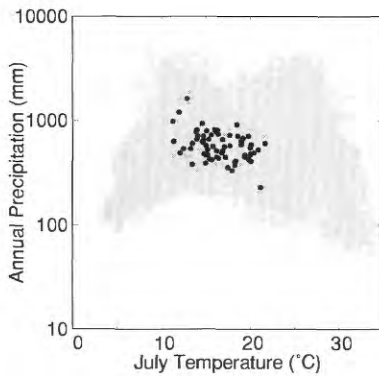
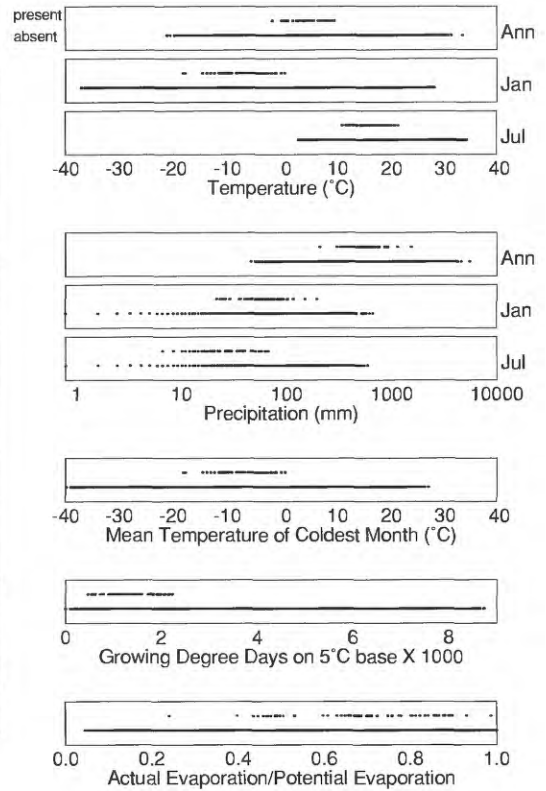
Cotinus obovatus



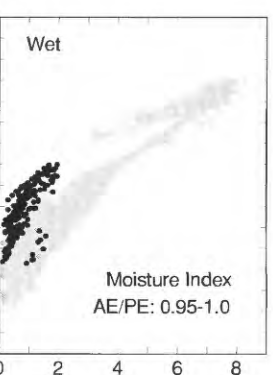
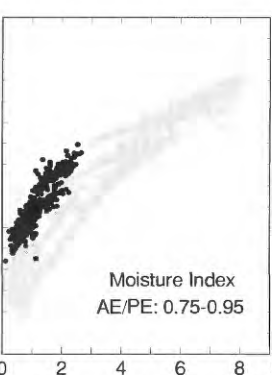
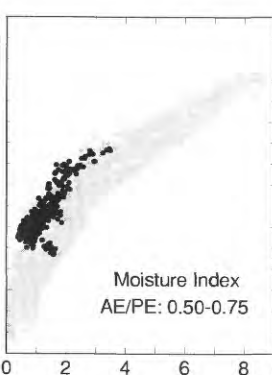
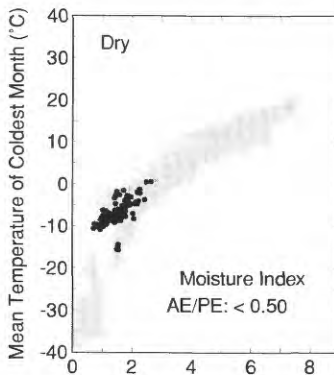
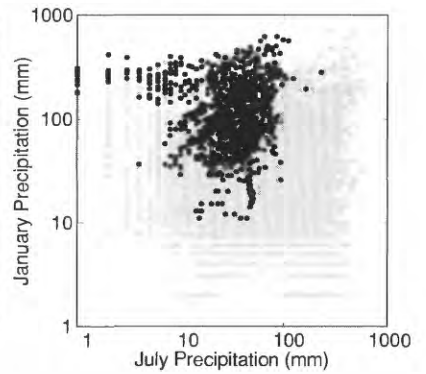
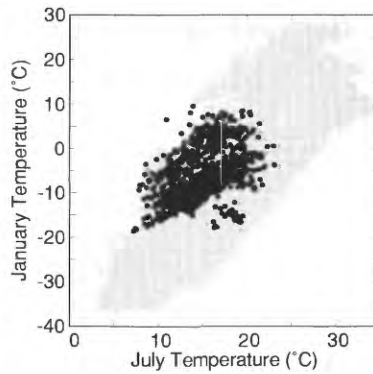
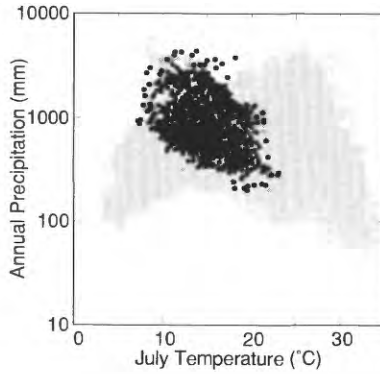
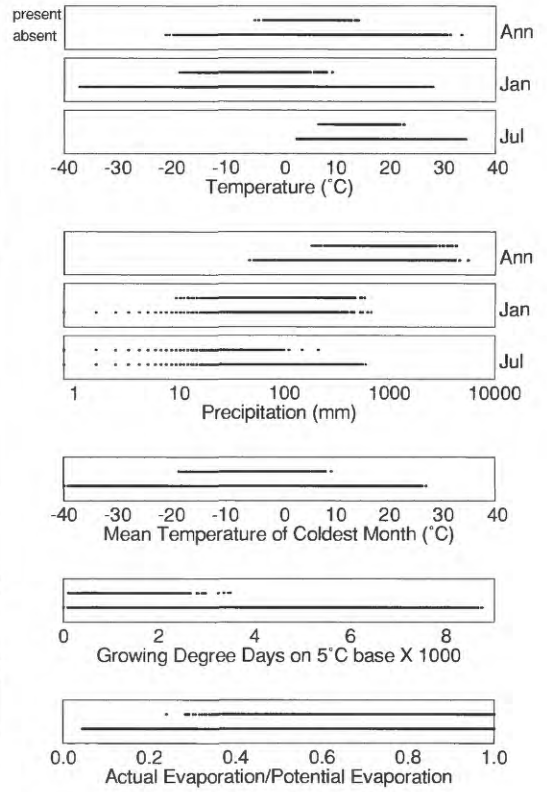
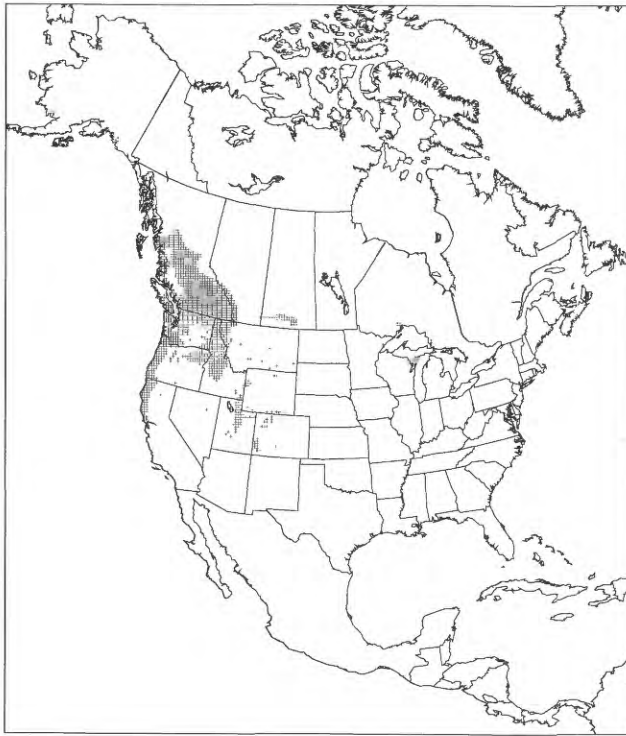
Crataegus chrysoarpa (incomplete range)



Crataegus columbiana

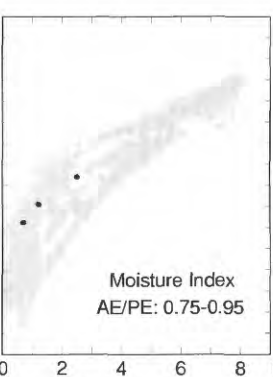
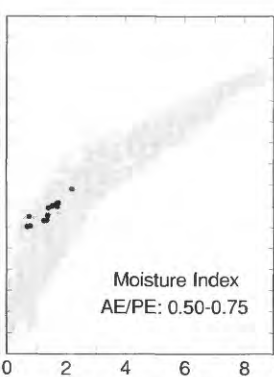
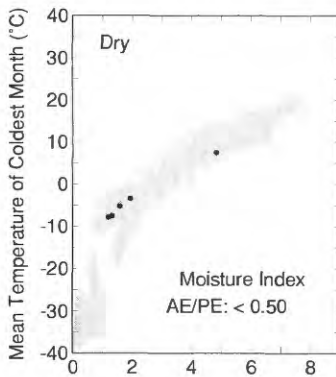
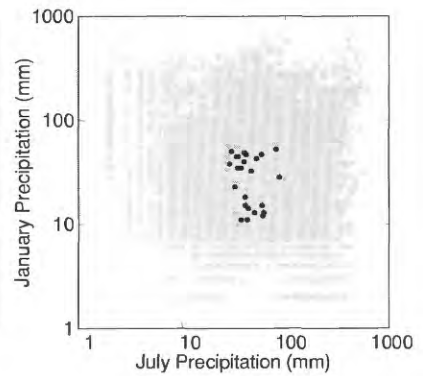
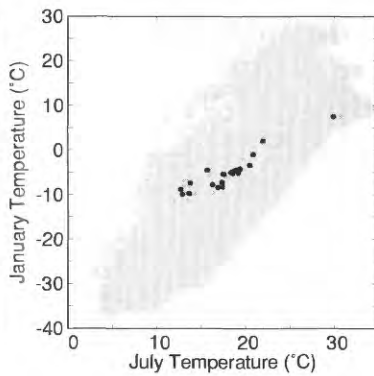
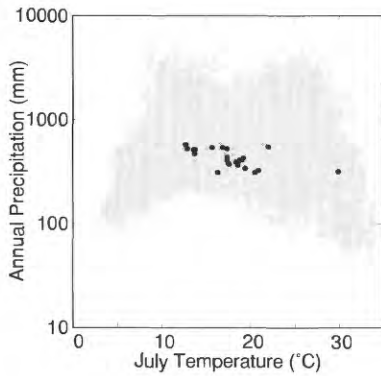
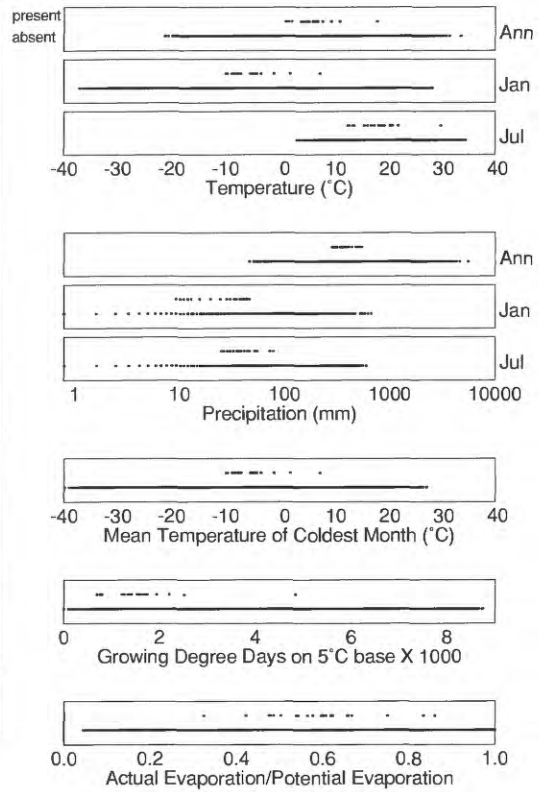


Crataegus douglasii



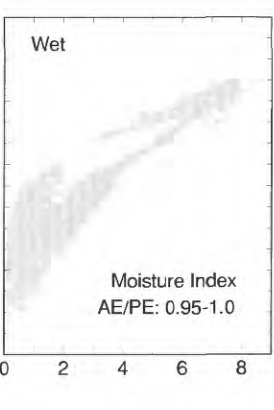
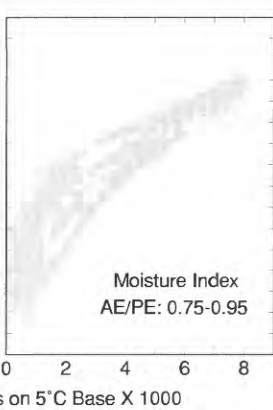
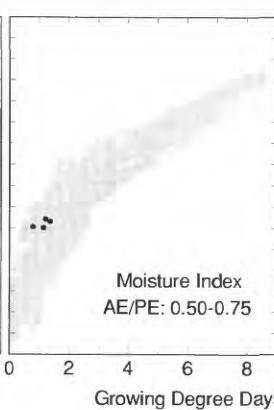
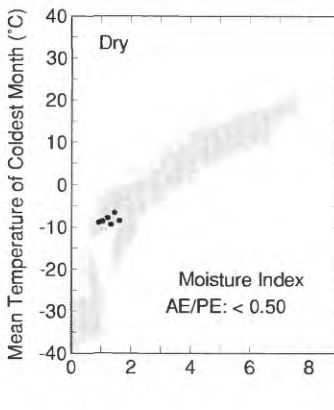
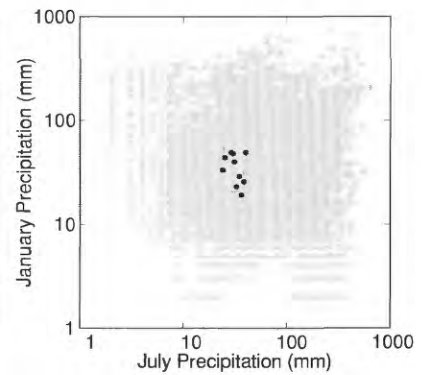
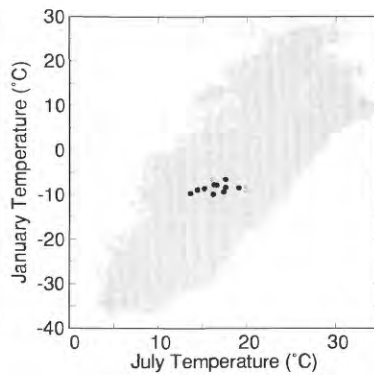
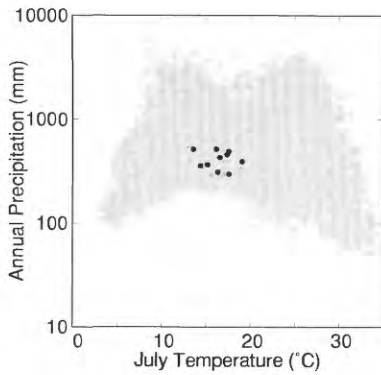
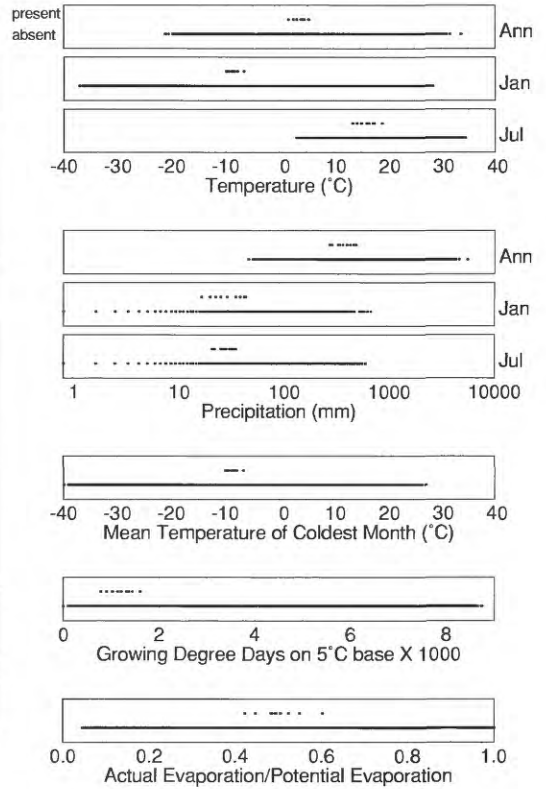
Growing Degree Days on 5°C Base X 1000

Crataegus erythropoda

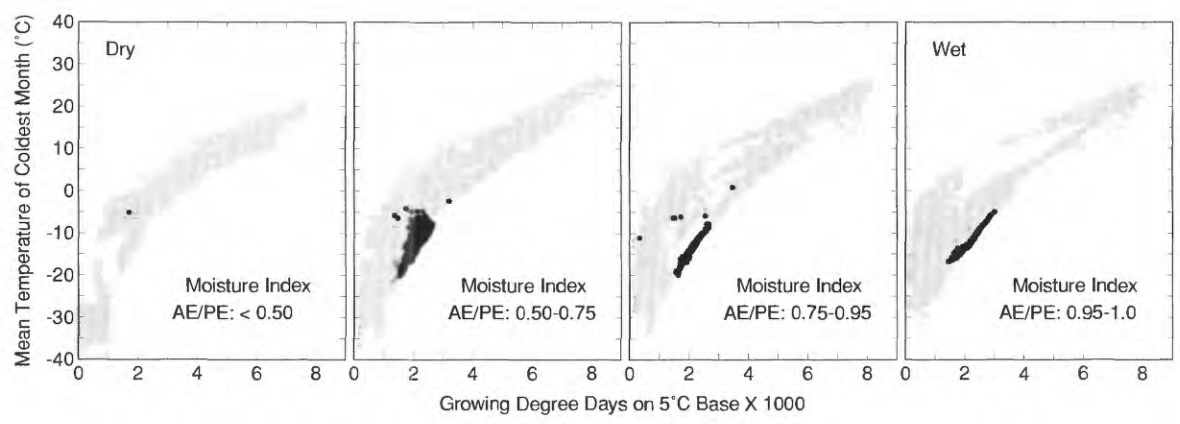
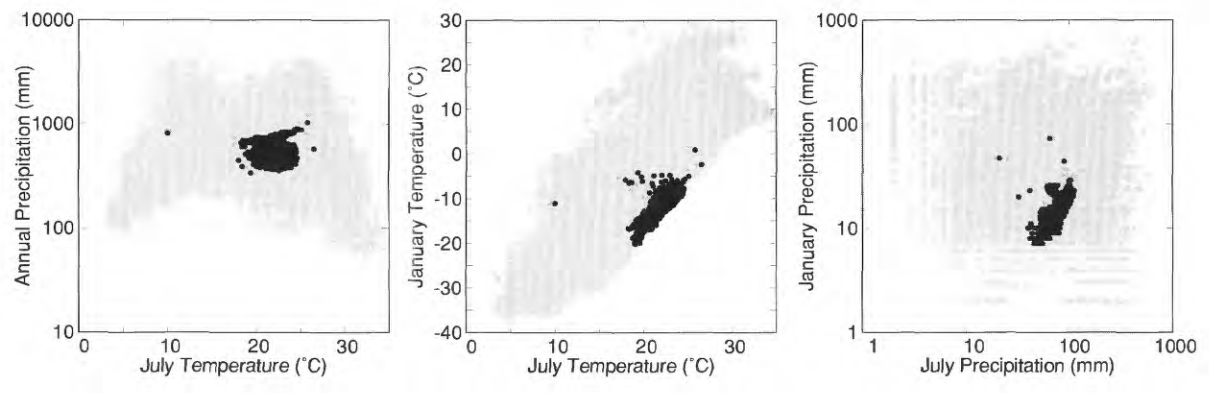
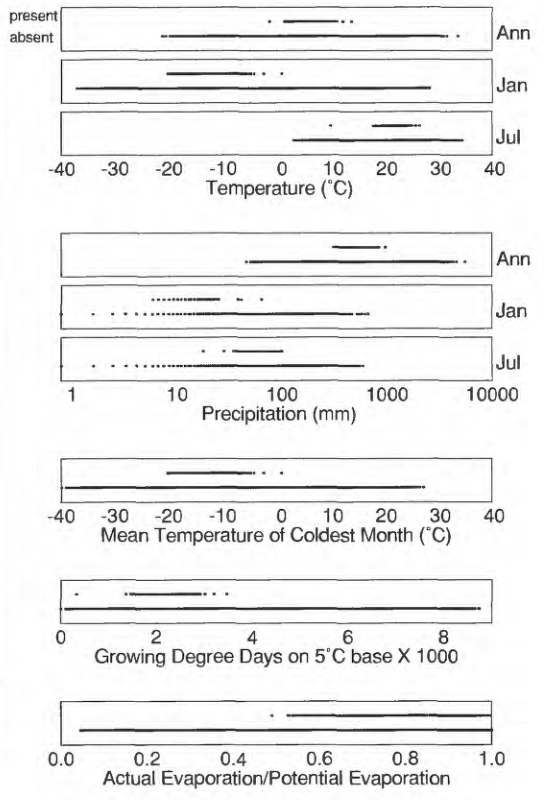
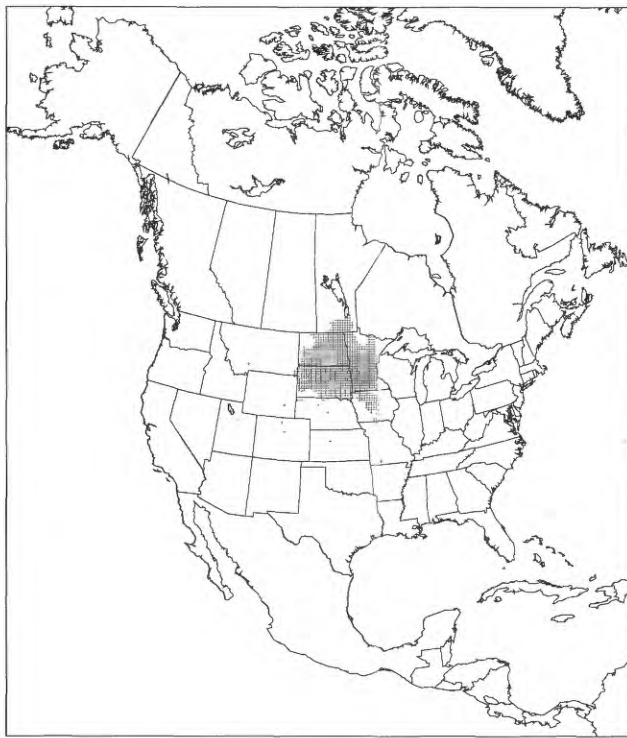


Growing Degree Days on 5°C Base X 1000

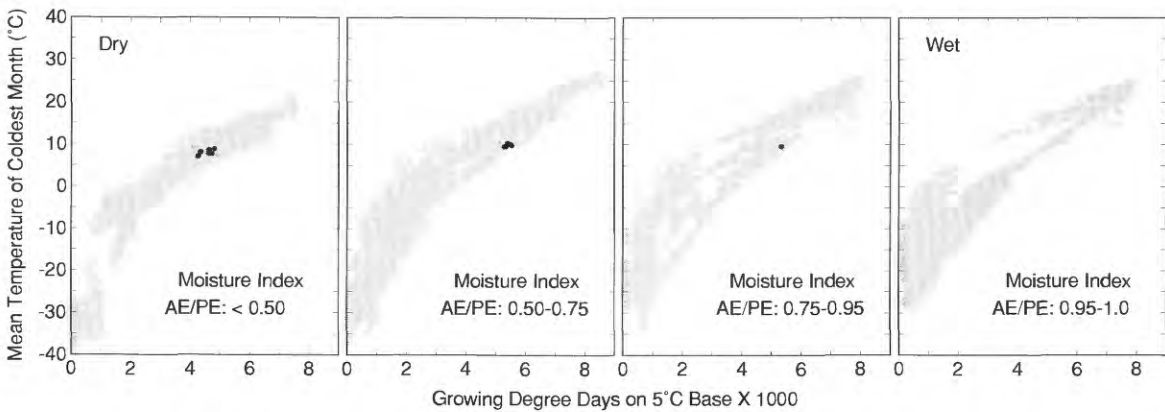
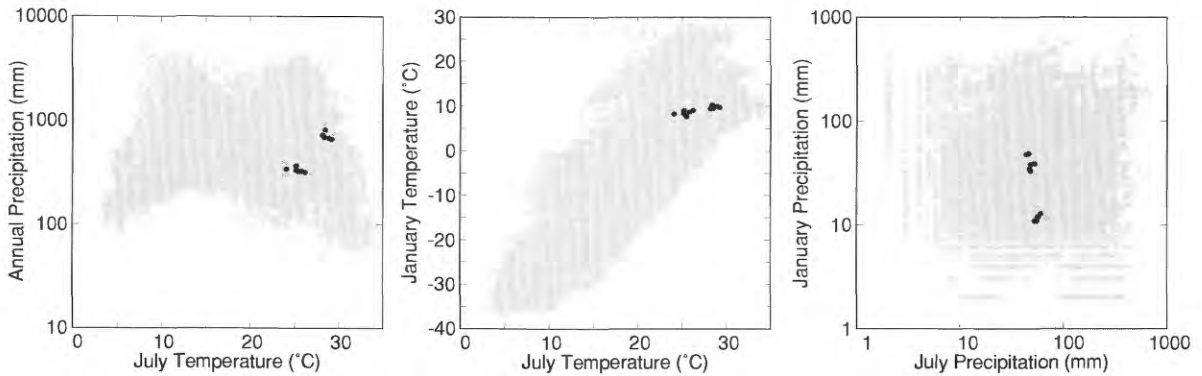
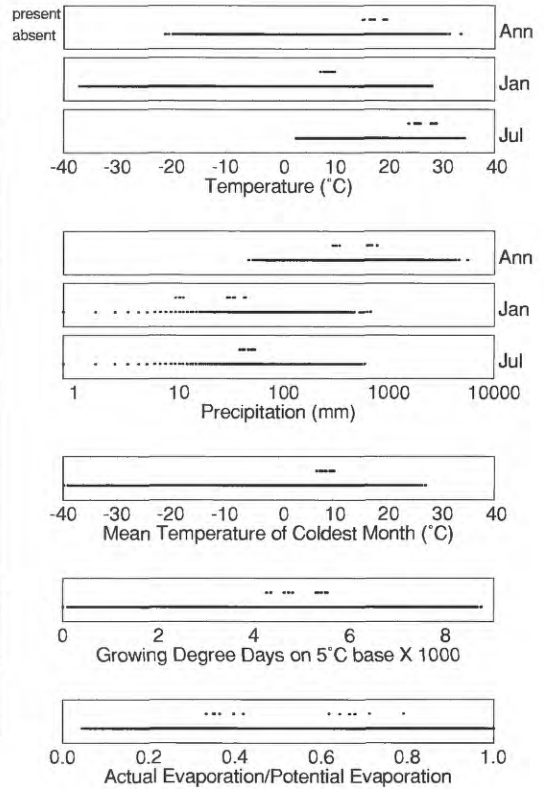
Crataegus saligna



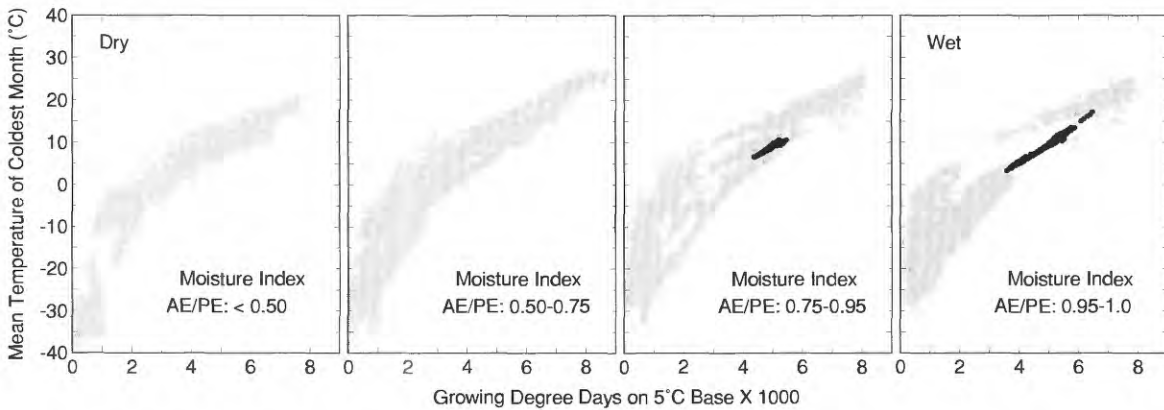
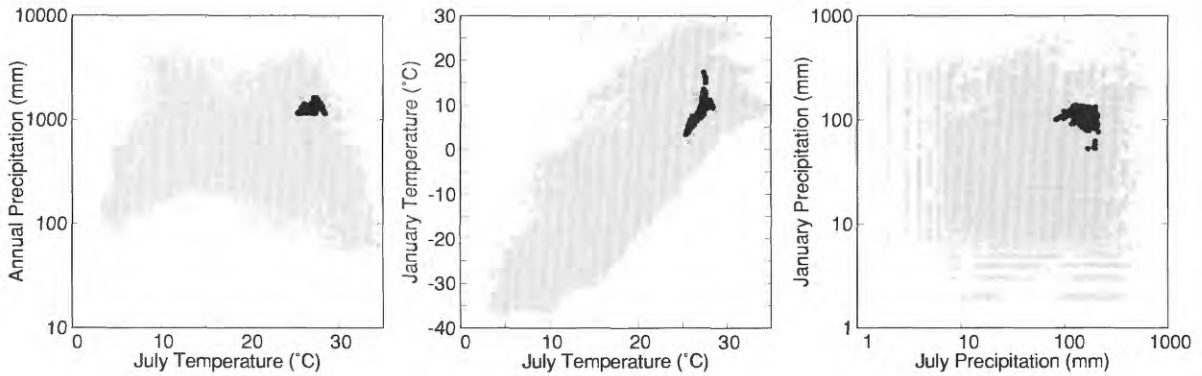
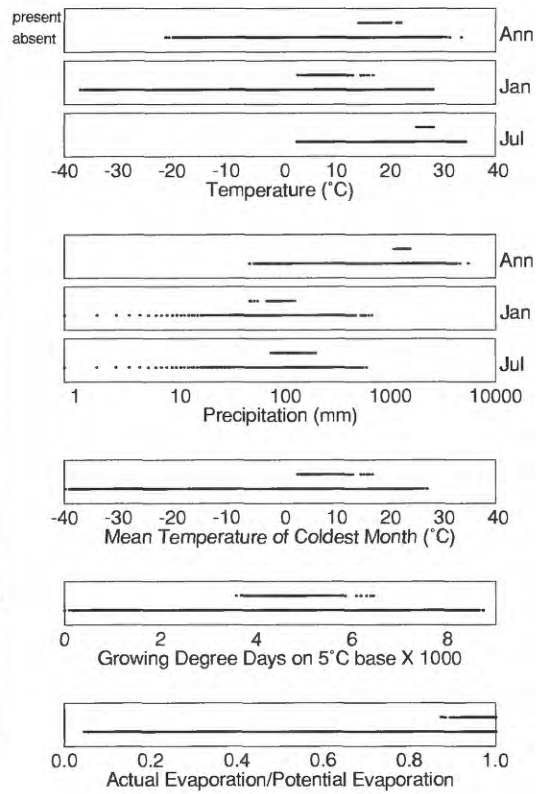
***Crataegus succulenta* (incomplete range)**



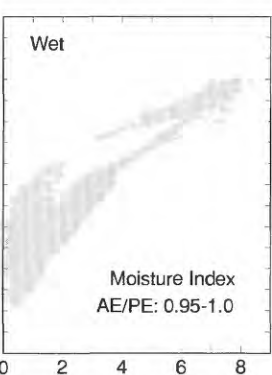
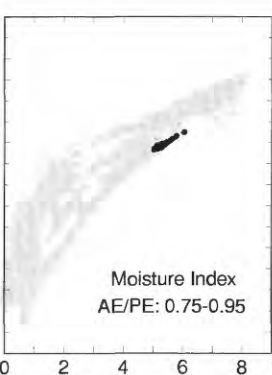
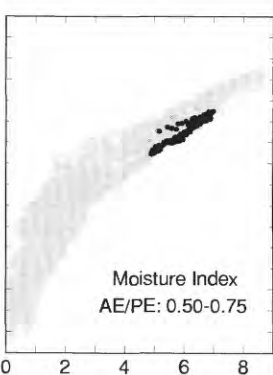
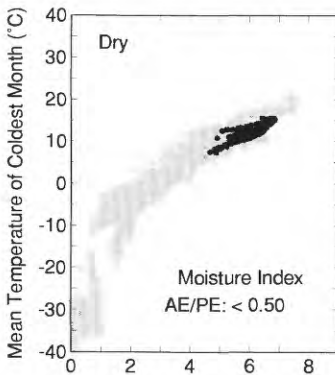
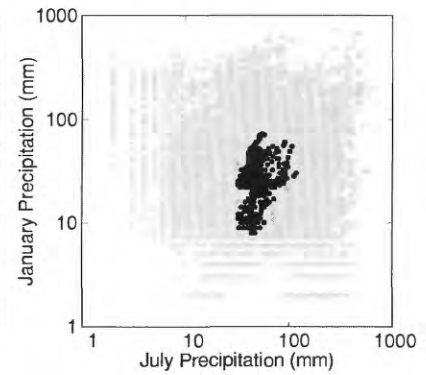
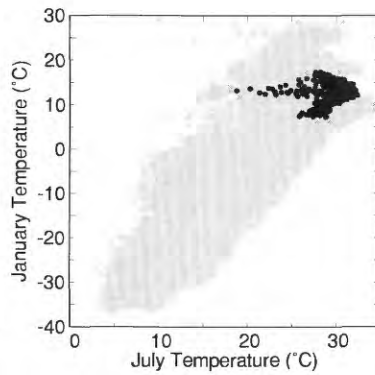
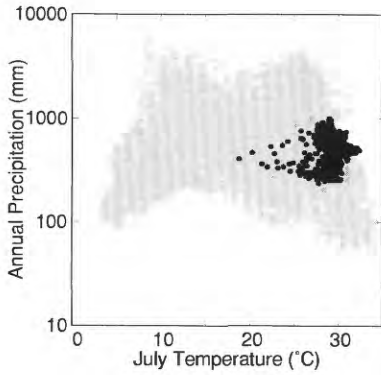
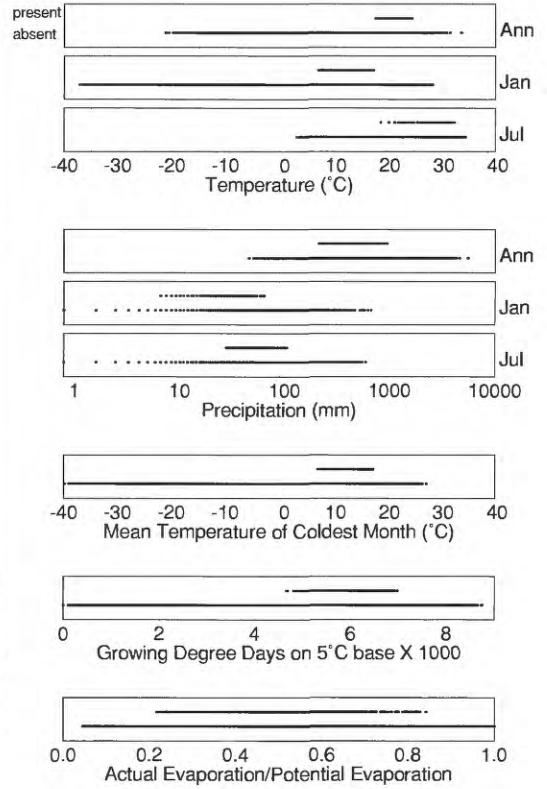
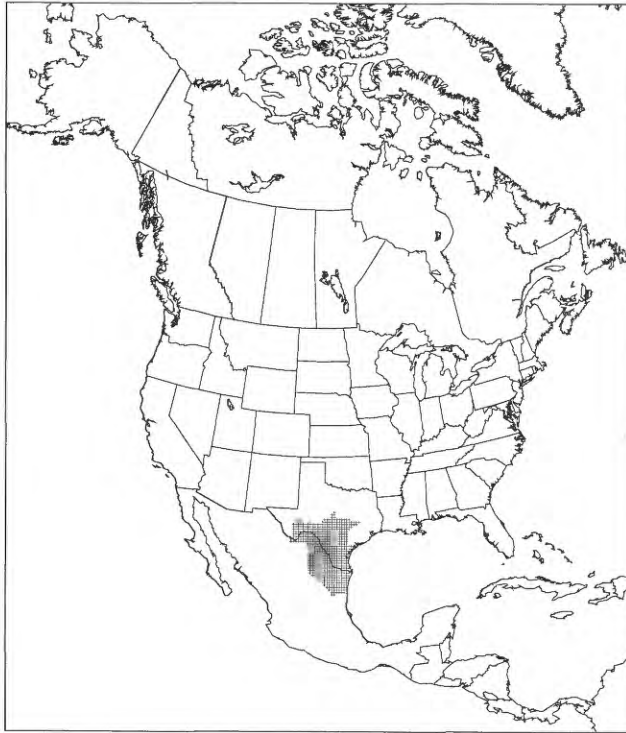
Crataegus tracyi



Cyrilla racemiflora

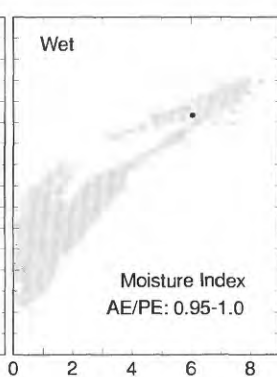
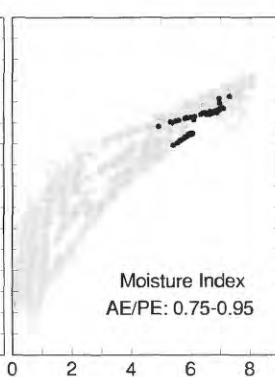
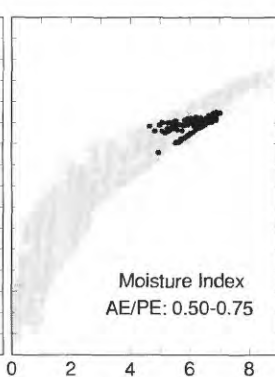
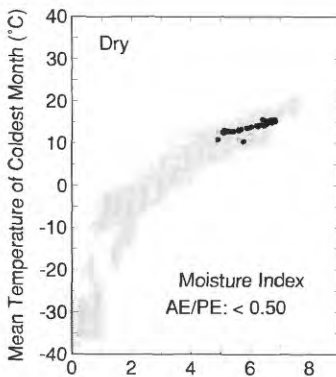
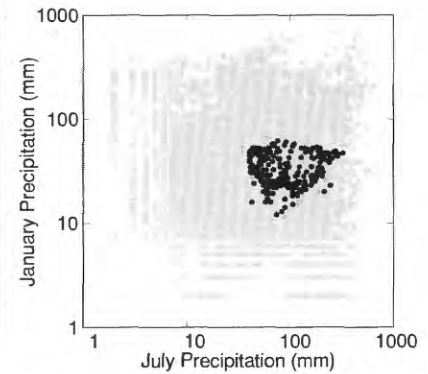
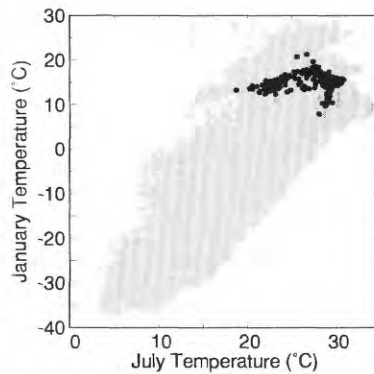
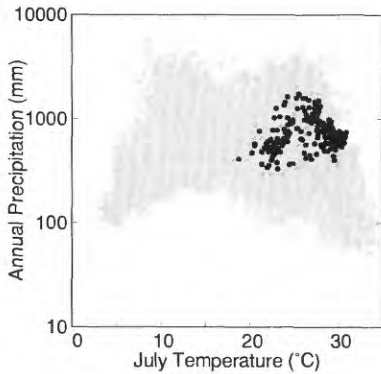
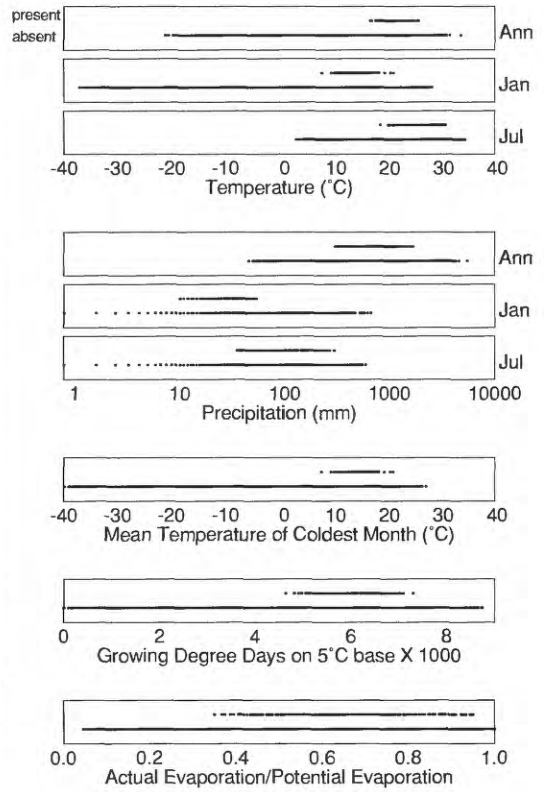


Diospyros texana



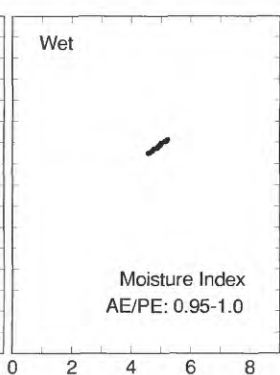
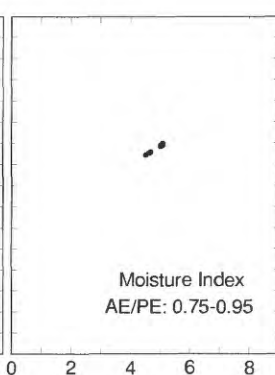
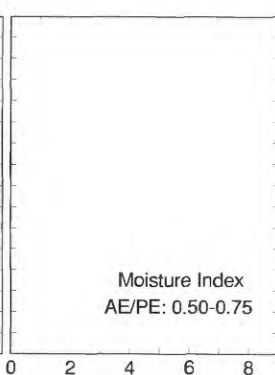
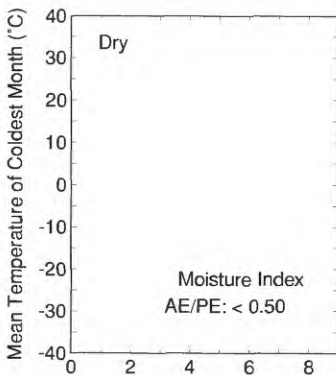
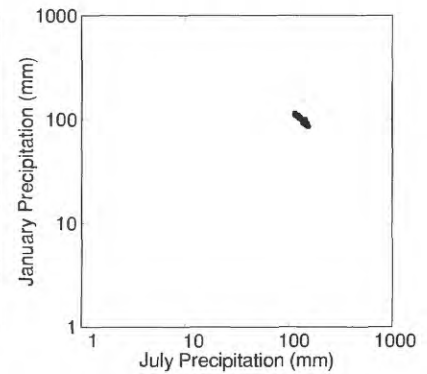
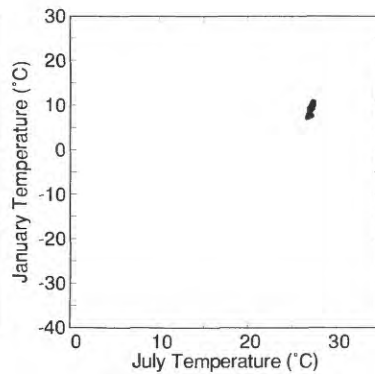
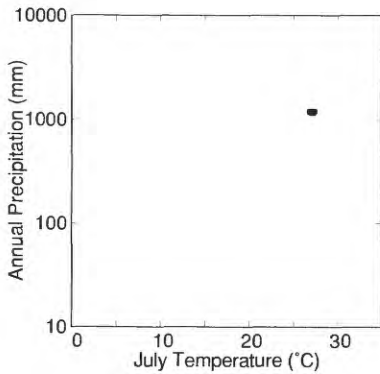
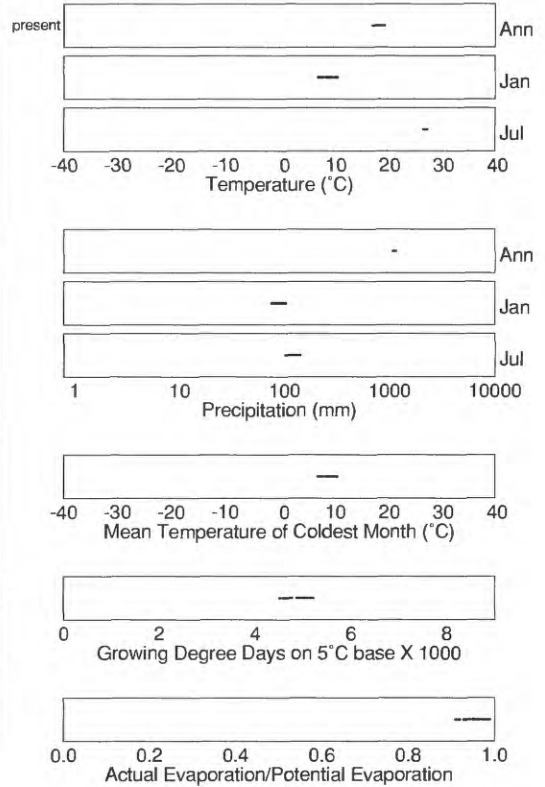
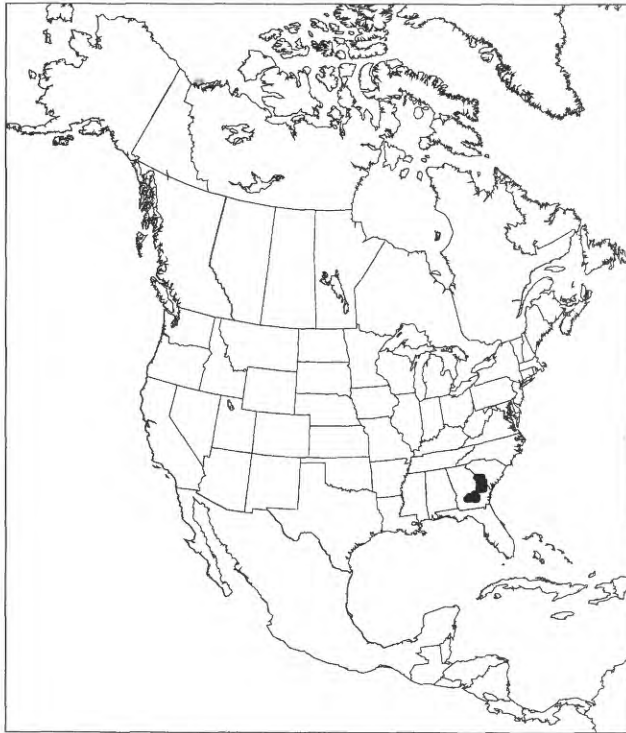
Growing Degree Days on 5°C Base X 1000

Ehretia anacua

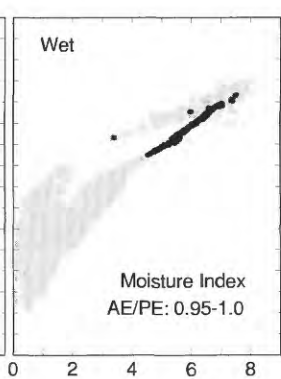
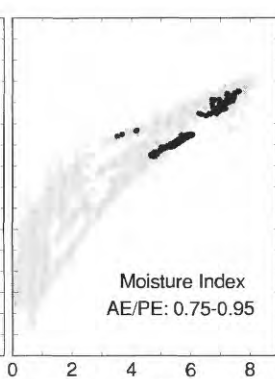
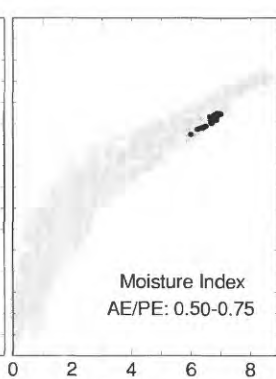
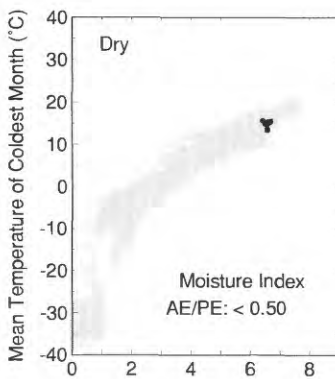
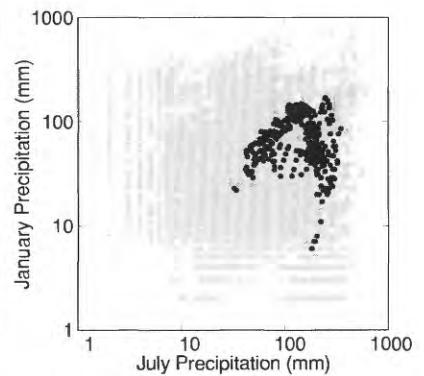
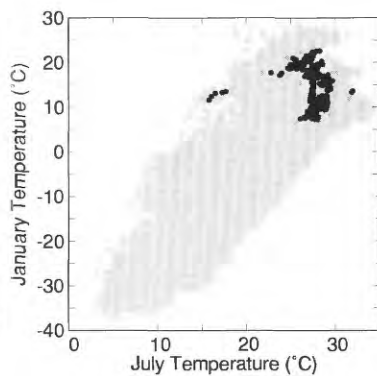
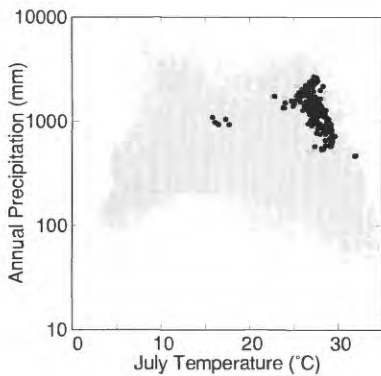
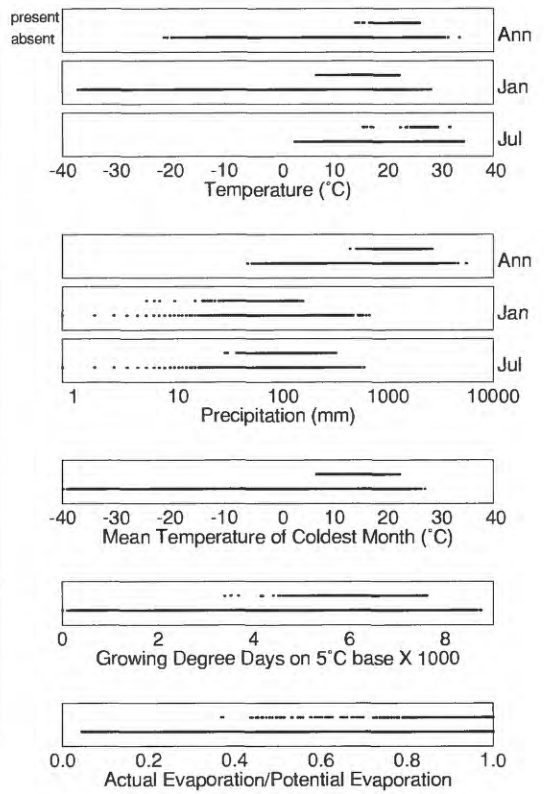


Growing Degree Days on 5°C Base X 1000

Elliottia racemosa (minimal data - nearest grid points used with environmental parameters)

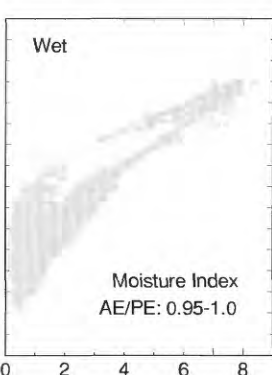
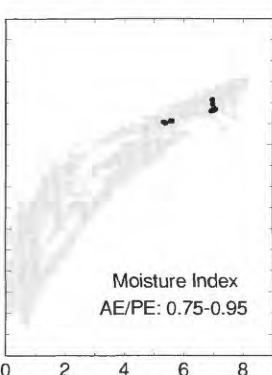
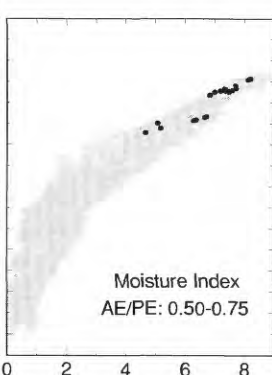
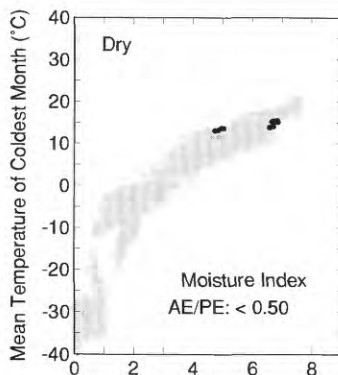
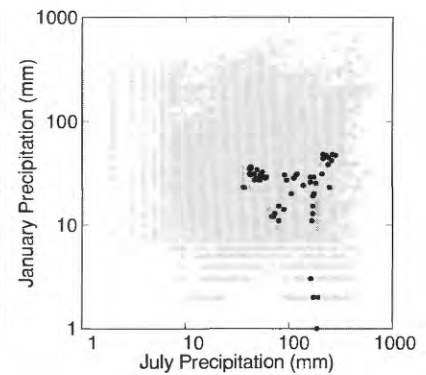
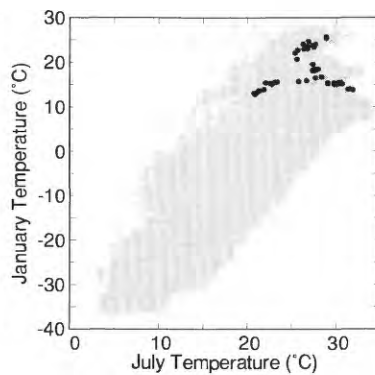
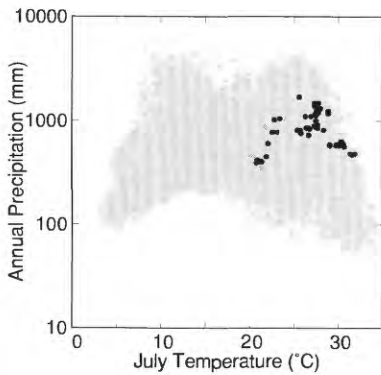
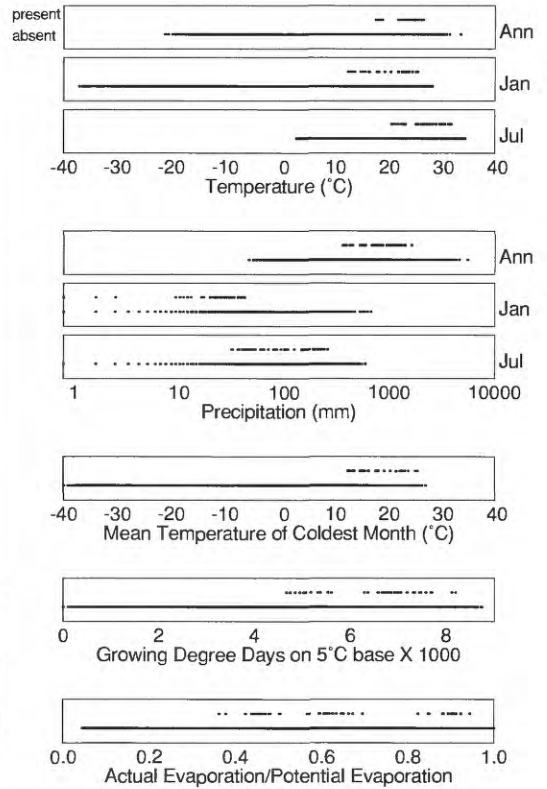


Erythrina herbacea



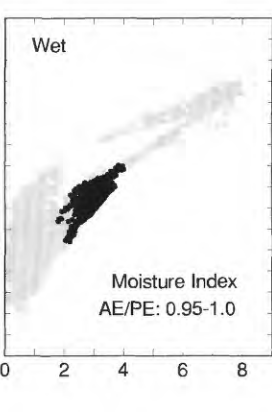
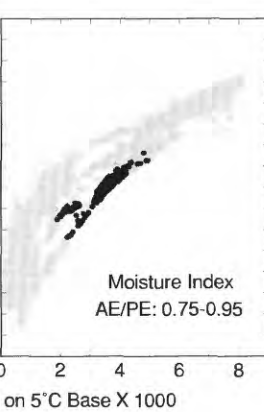
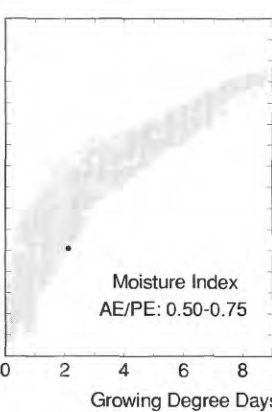
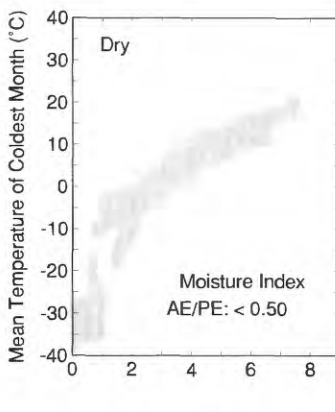
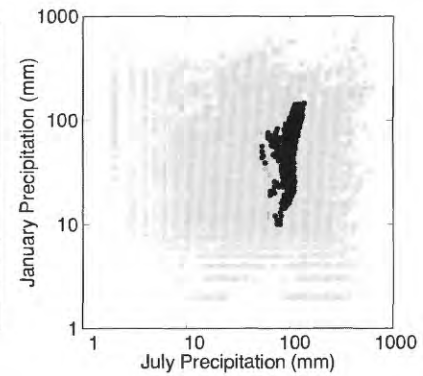
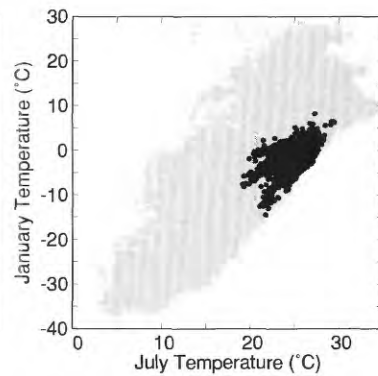
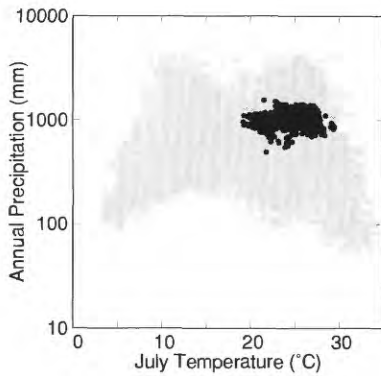
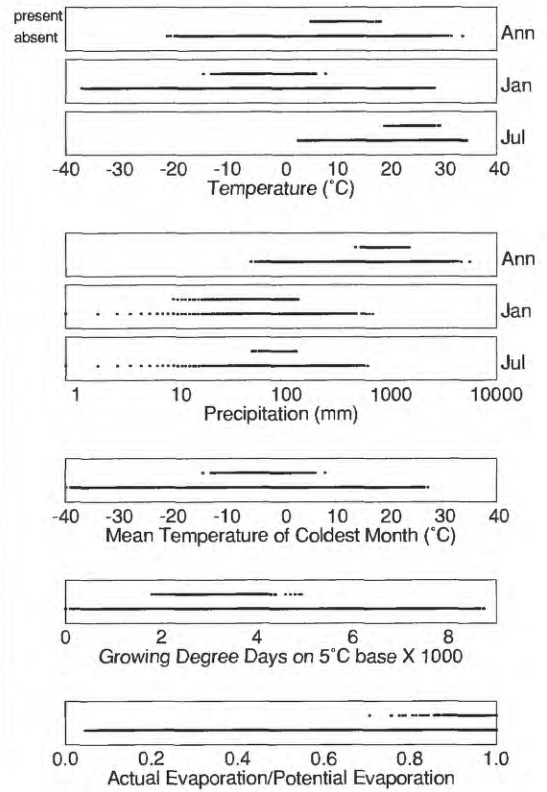
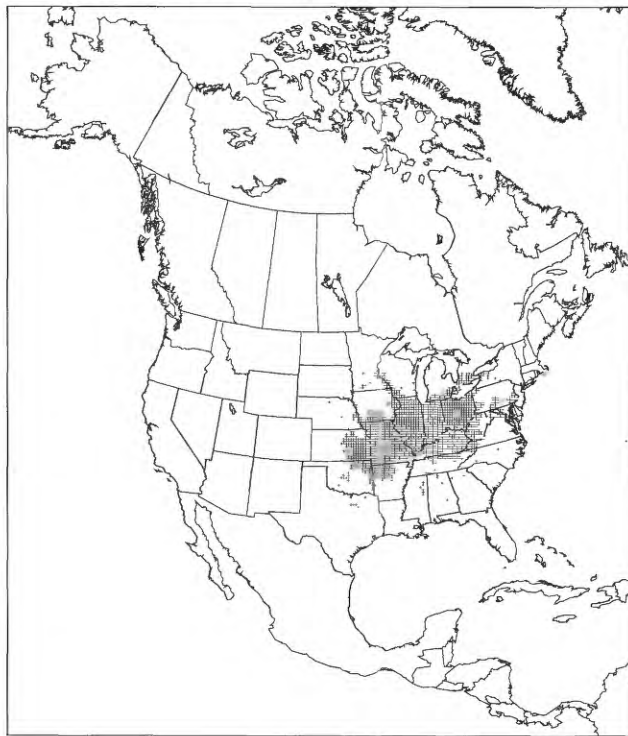
Growing Degree Days on 5°C Base X 1000

Esenbeckia berlandieri

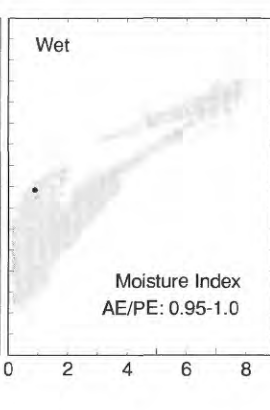
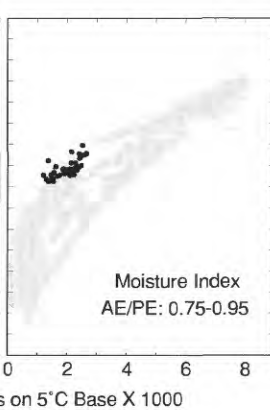
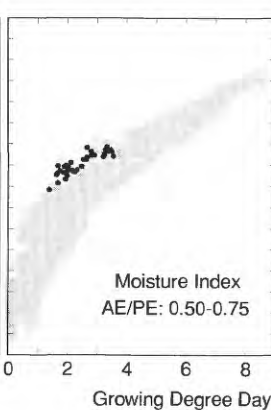
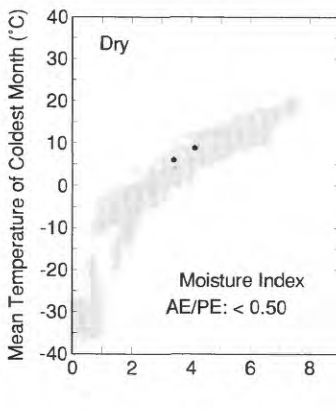
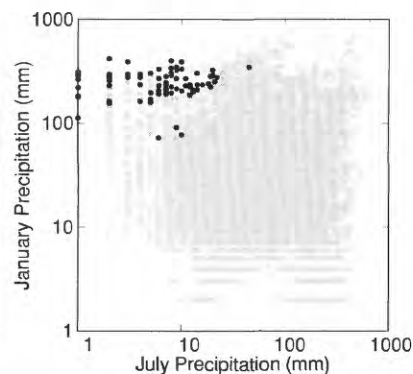
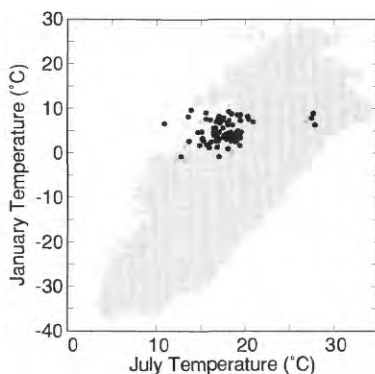
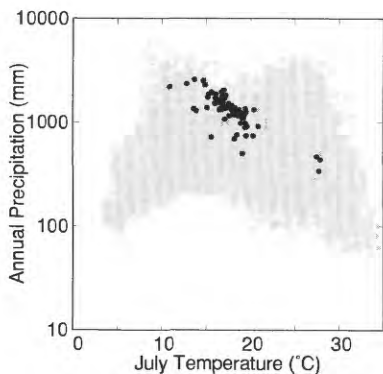
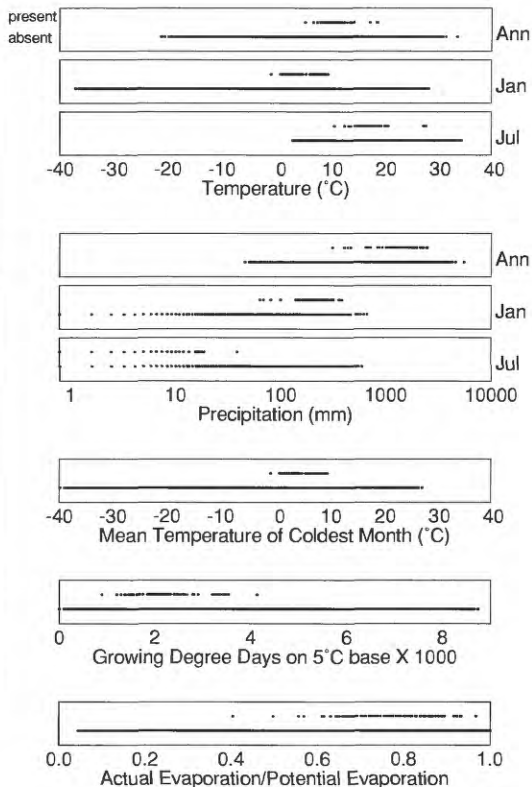


Growing Degree Days on 5°C Base X 1000

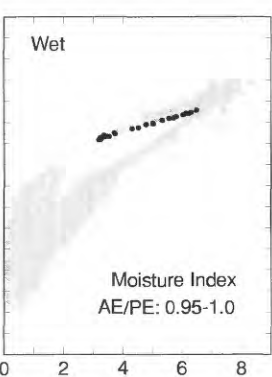
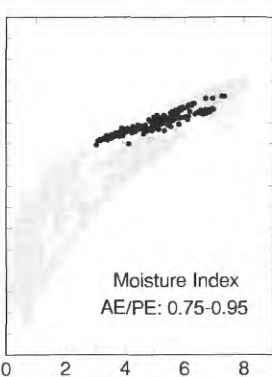
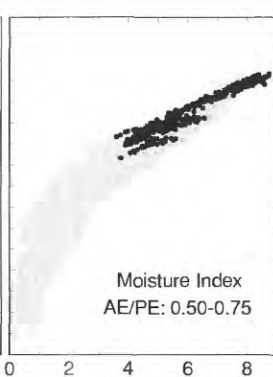
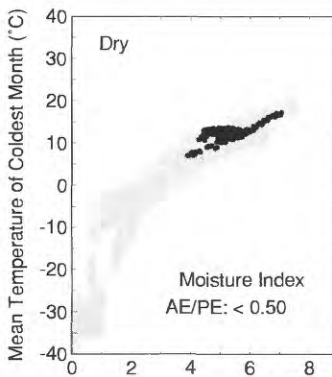
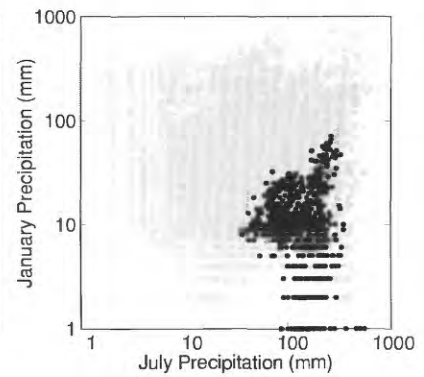
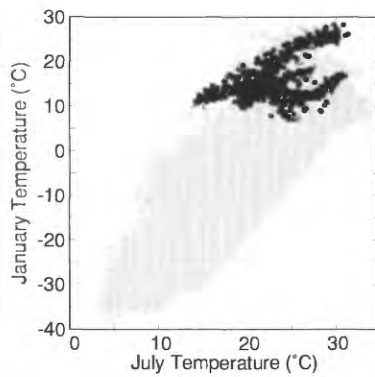
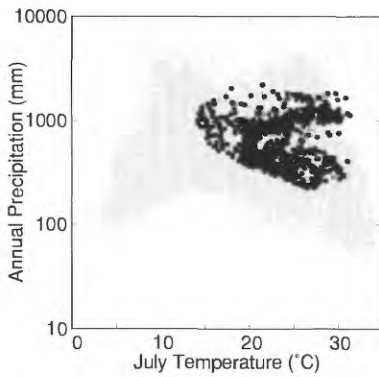
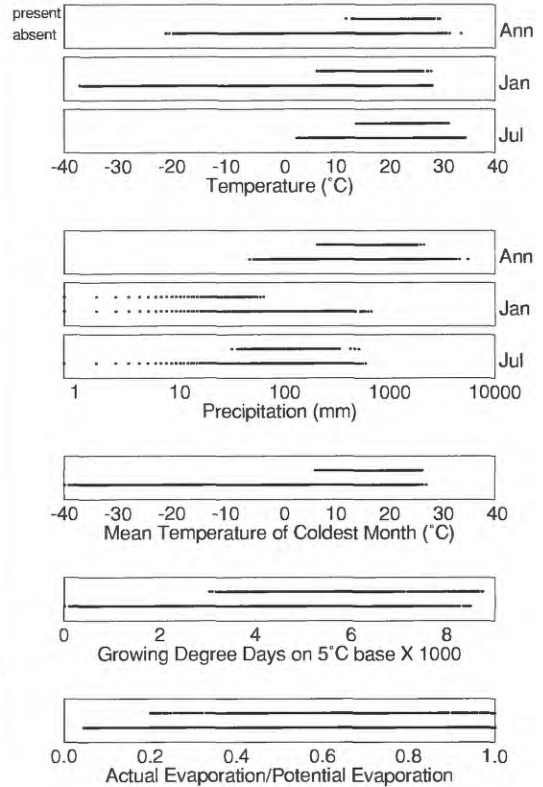
Euonymus atropurpureus



Euonymus occidentalis

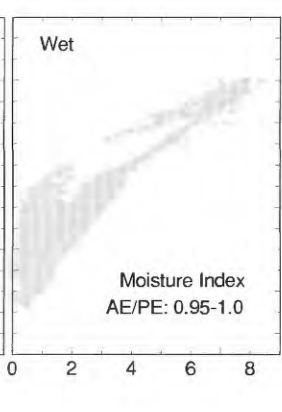
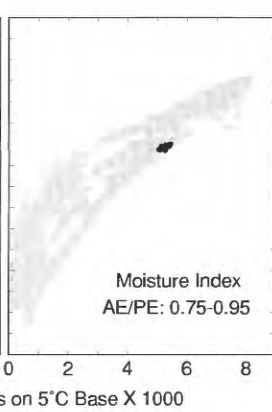
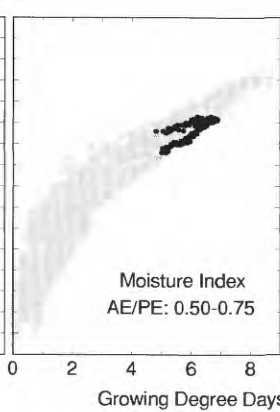
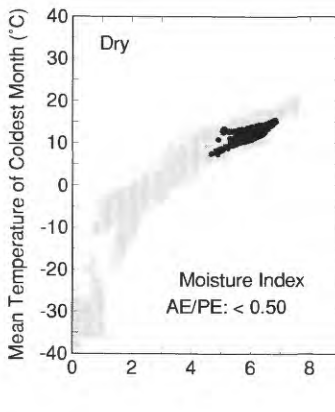
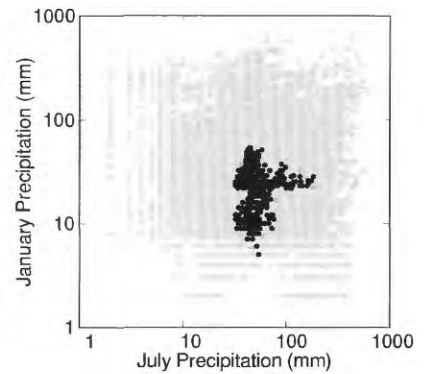
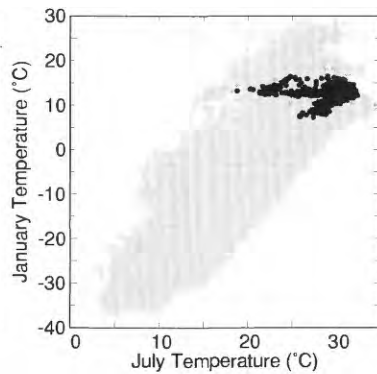
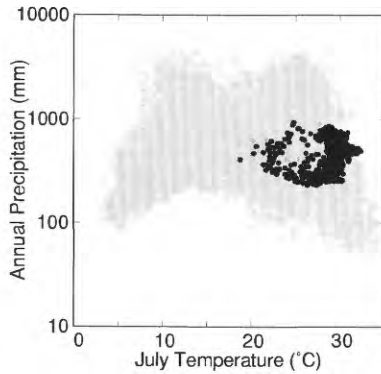
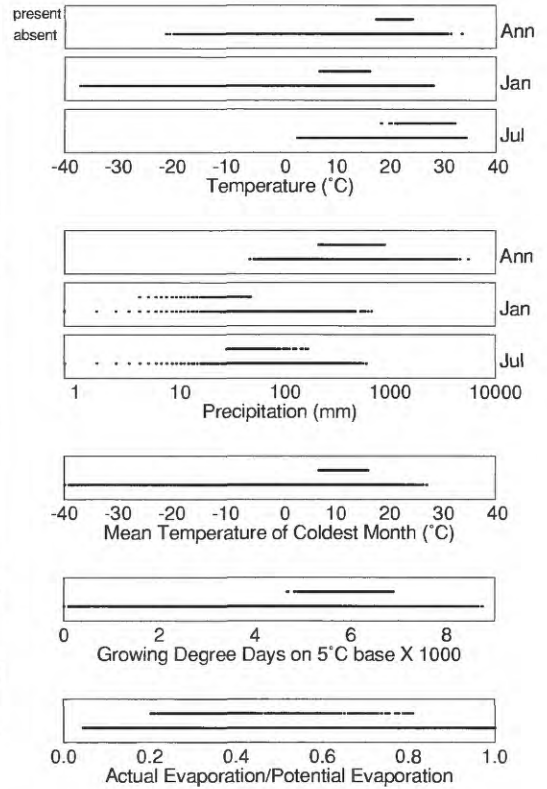
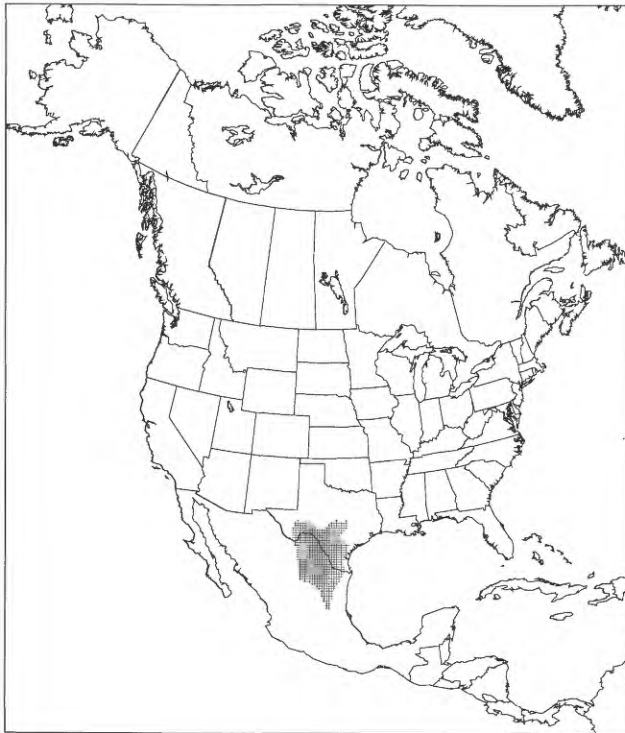


Eysenhardtia polystachya

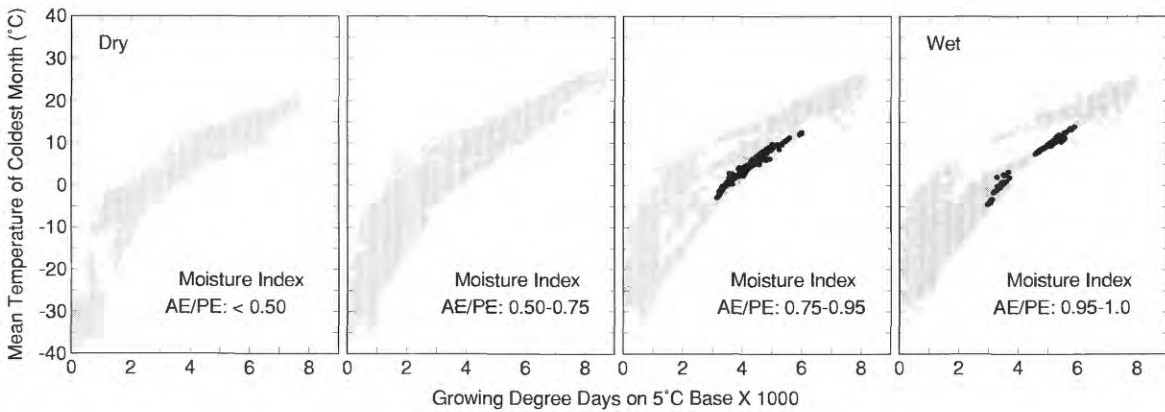
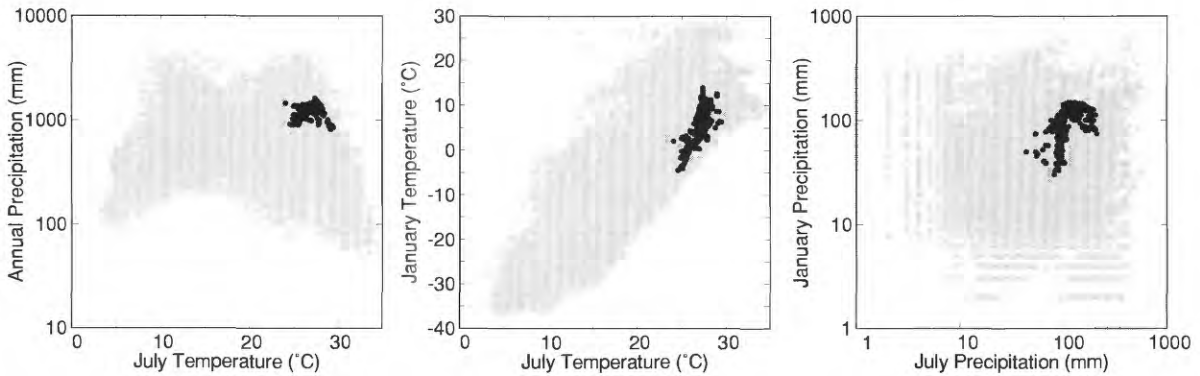
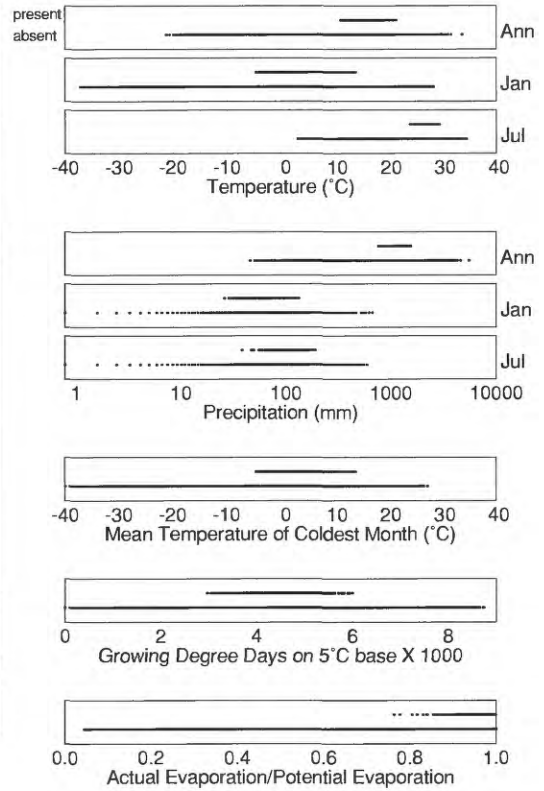


Growing Degree Days on 5°C Base X 1000

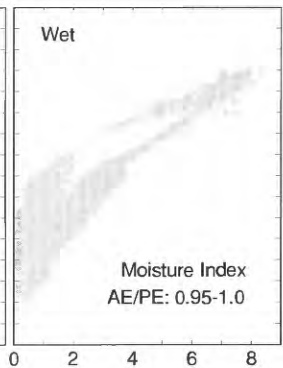
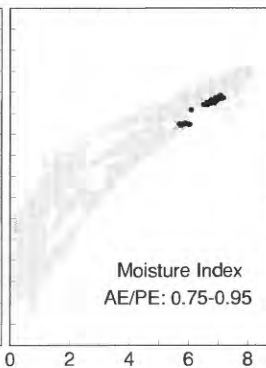
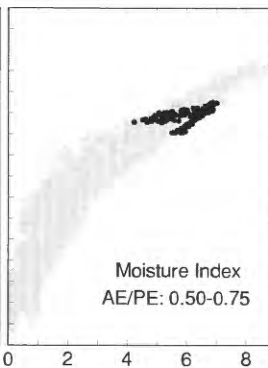
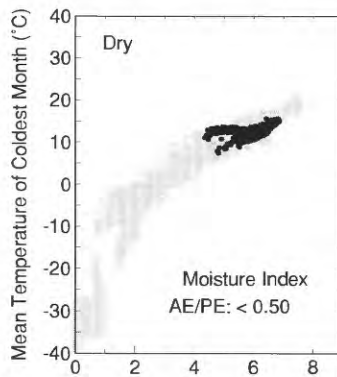
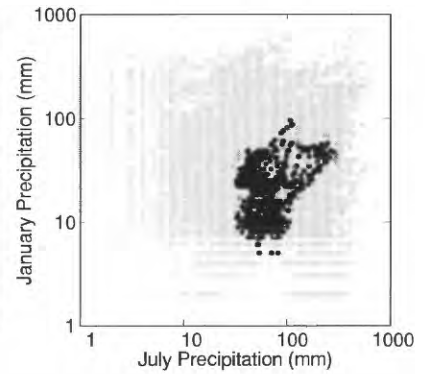
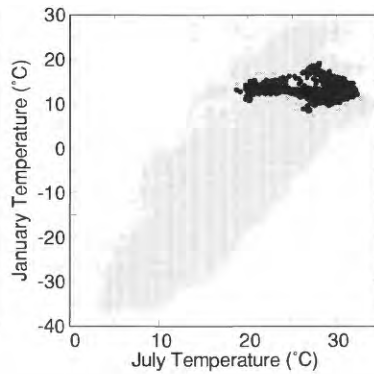
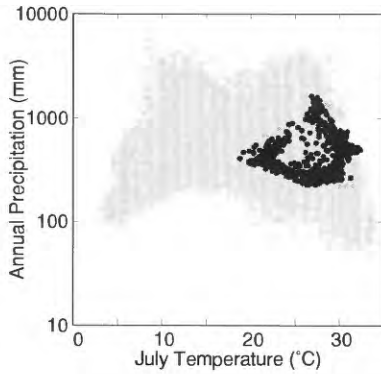
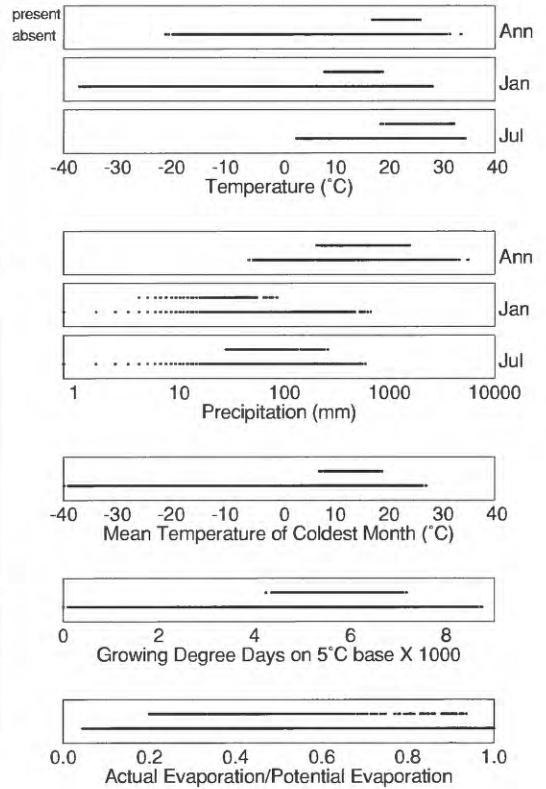
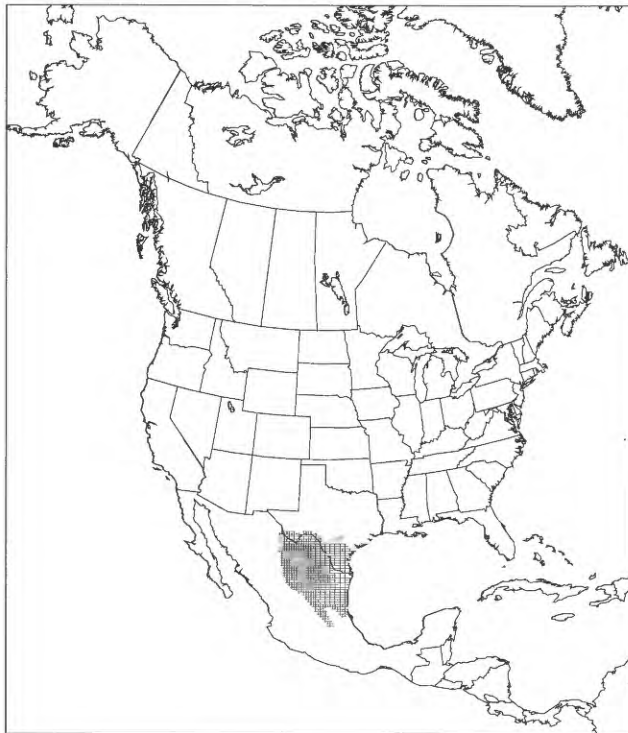
Eysenhardtia texana



Forestiera acuminata

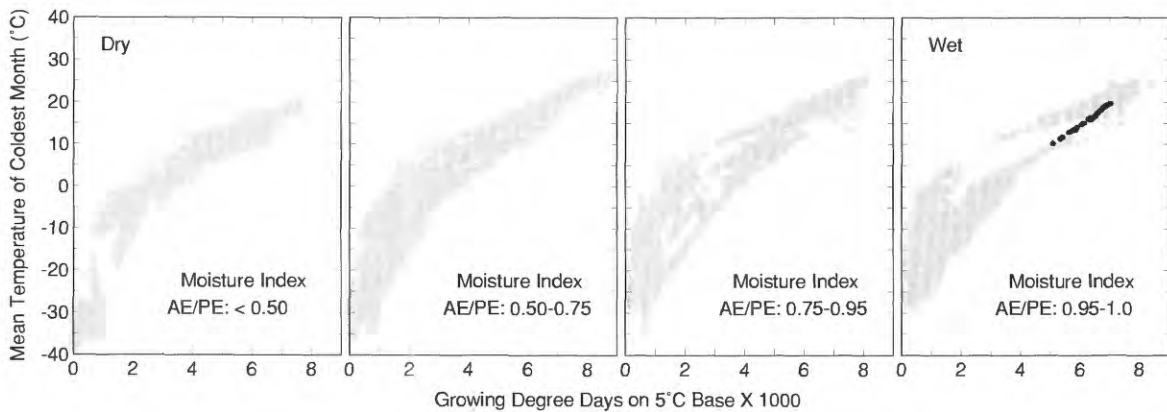
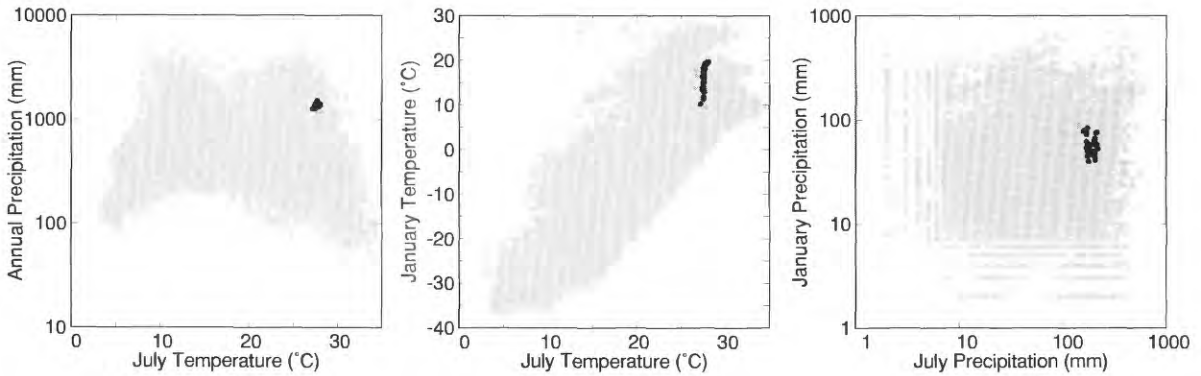
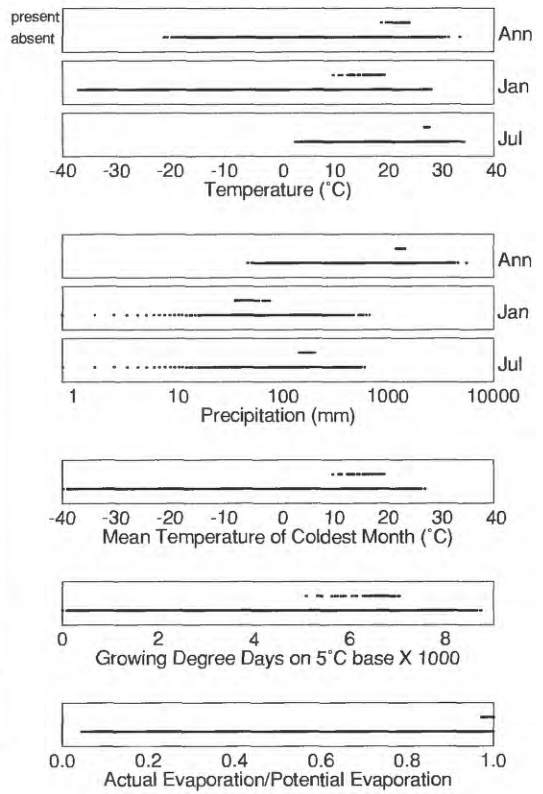


Forestiera angustifolia

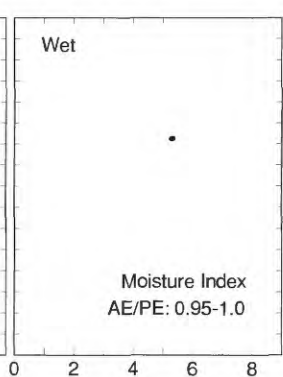
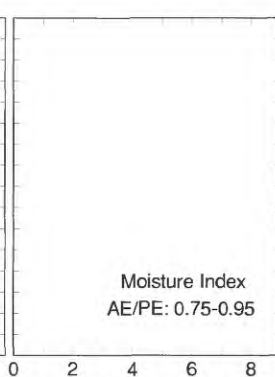
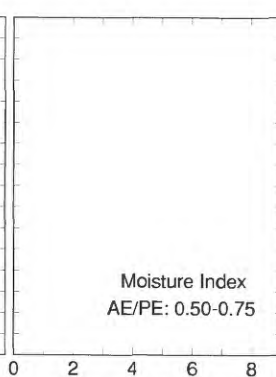
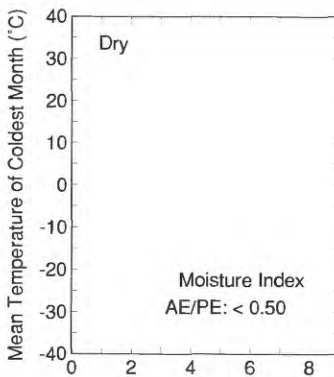
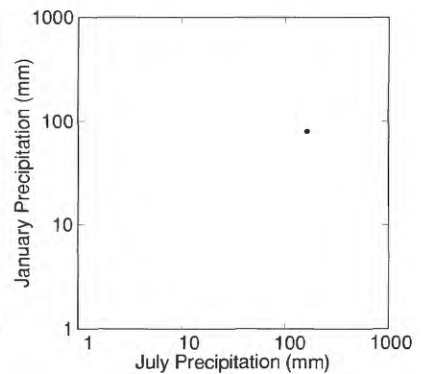
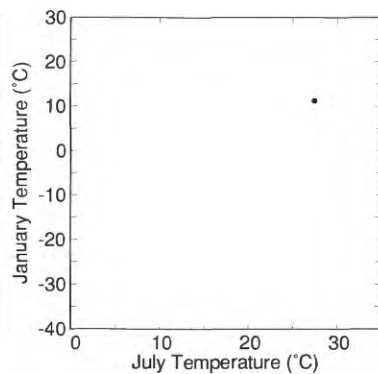
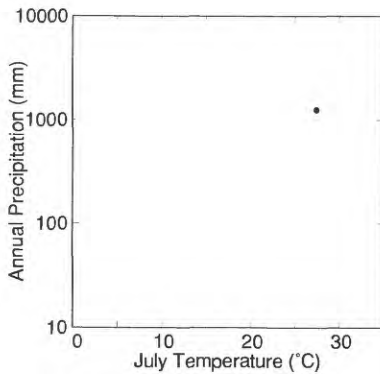
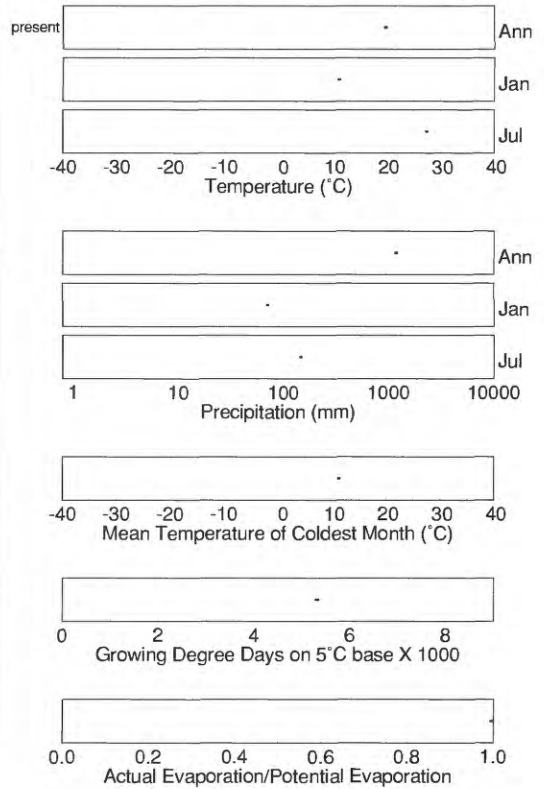


Growing Degree Days on 5°C Base X 1000

Forestiera segregata

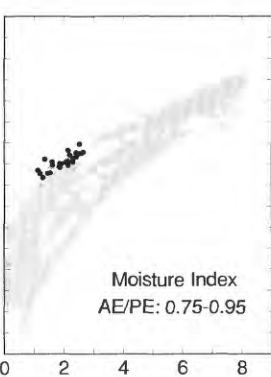
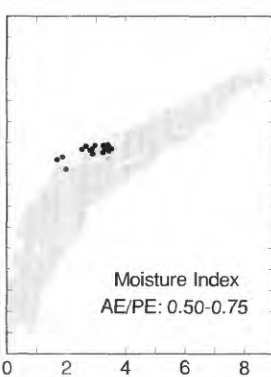
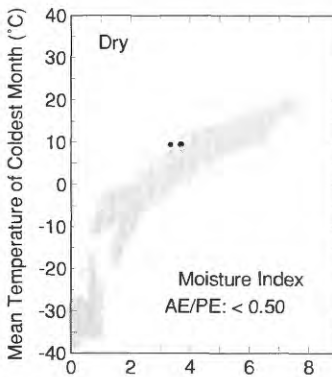
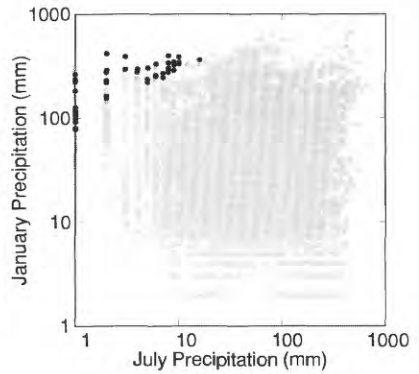
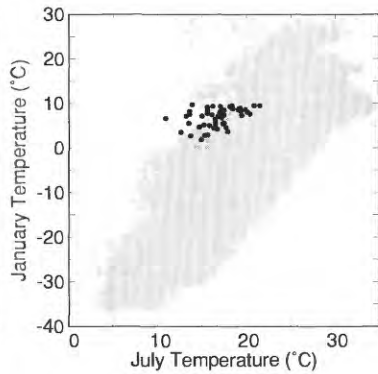
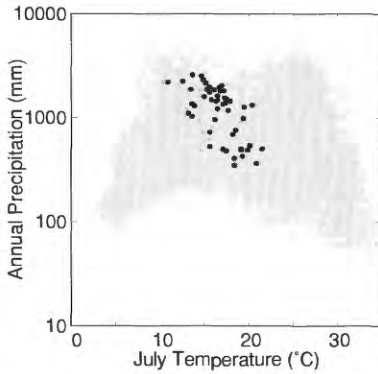
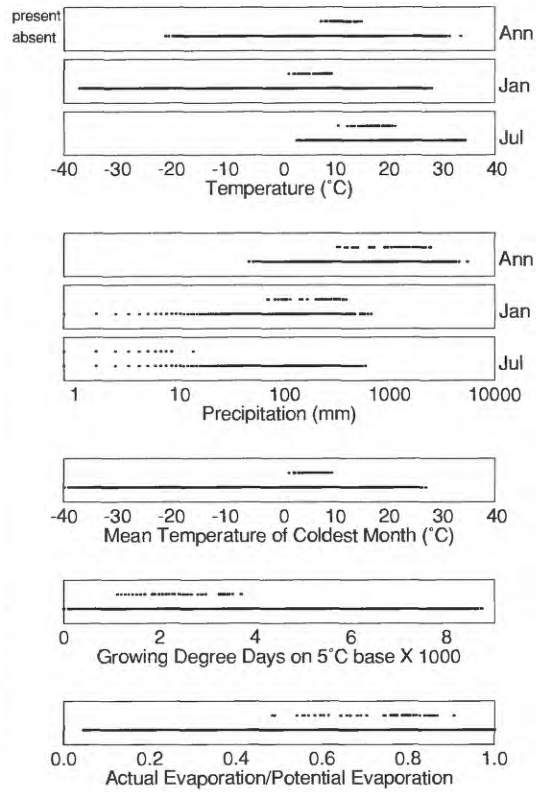


Franklinia alatamaha (minimal data - nearest grid points used with environmental parameters)

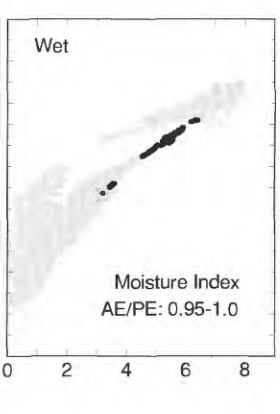
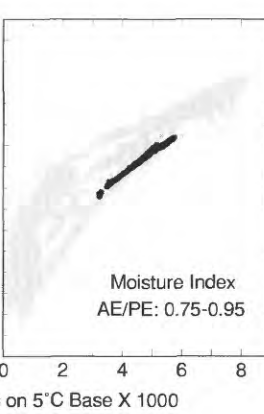
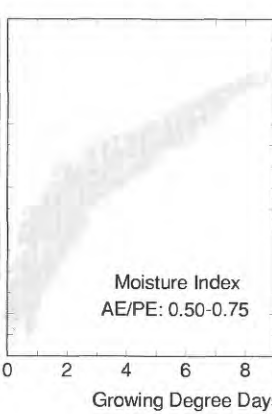
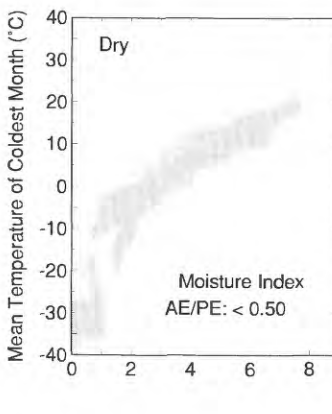
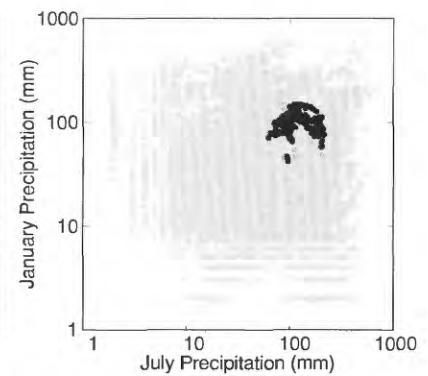
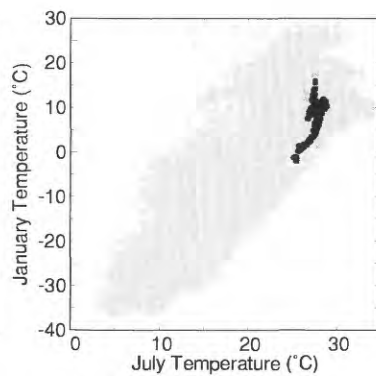
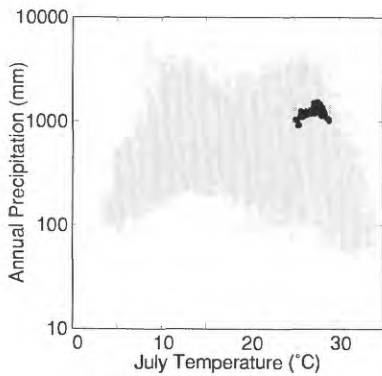
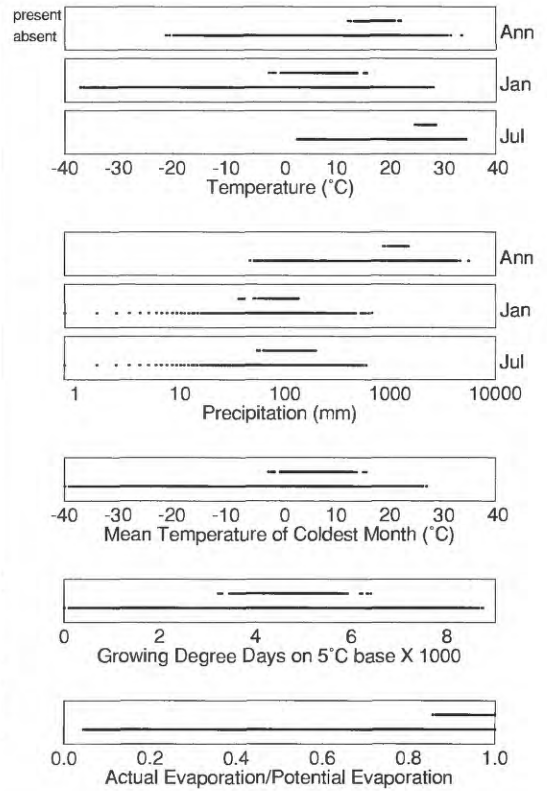


Growing Degree Days on 5°C Base X 1000

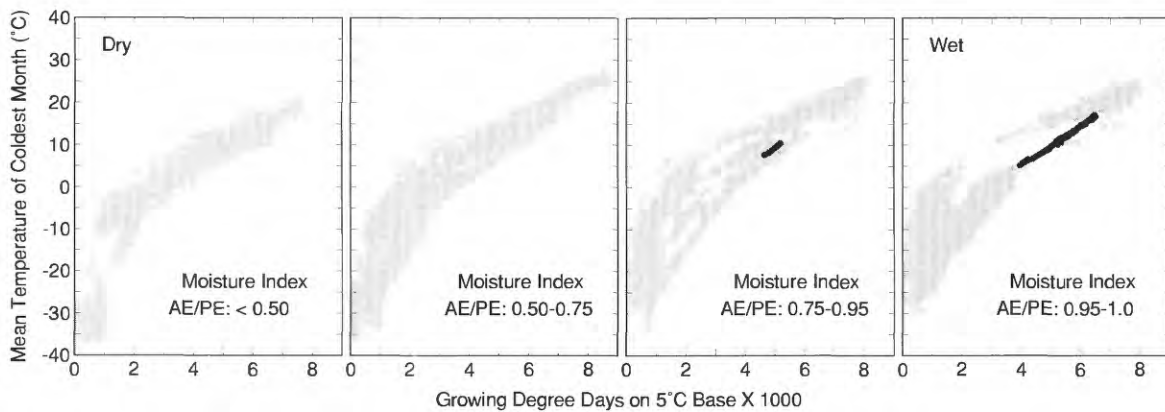
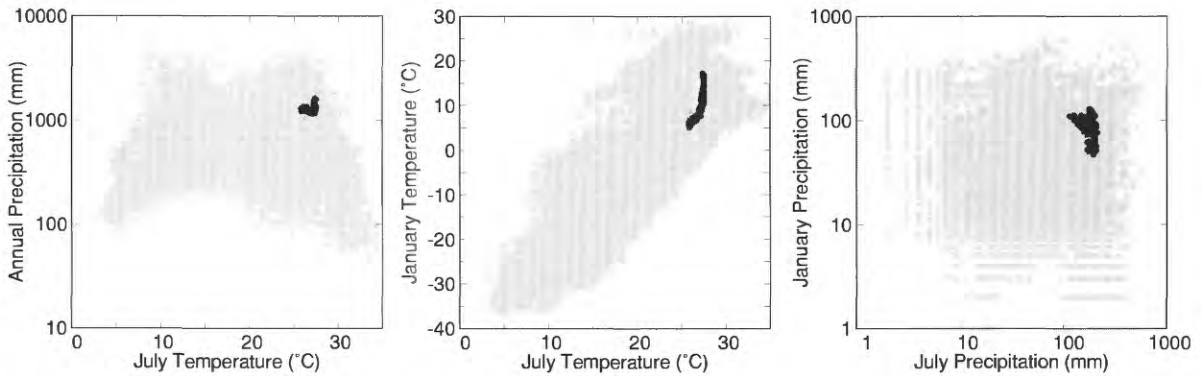
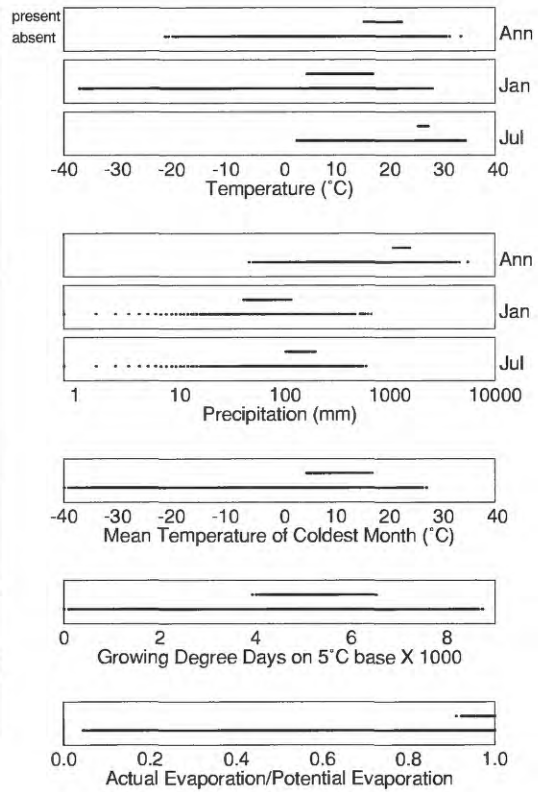
Garrya elliptica



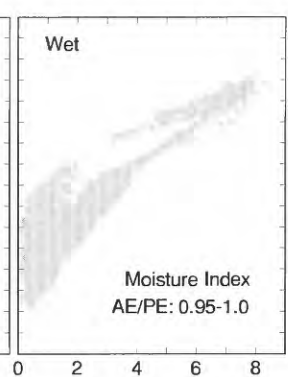
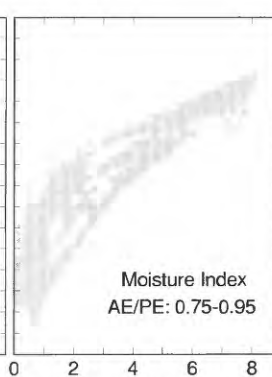
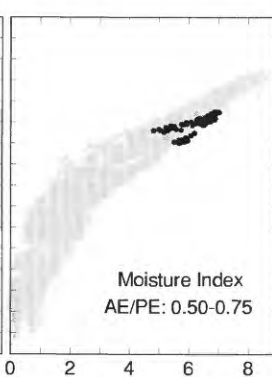
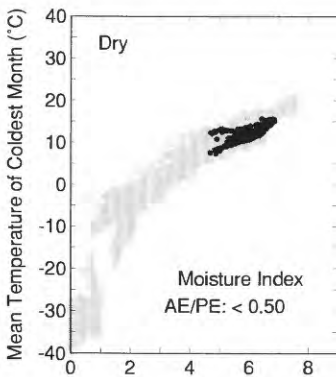
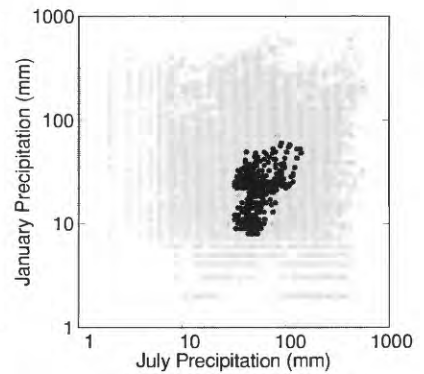
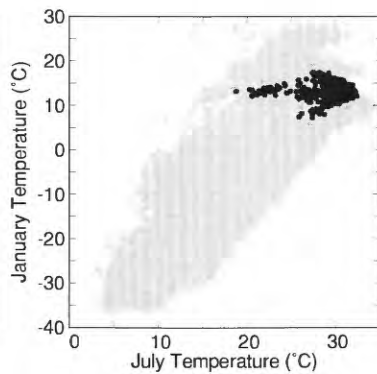
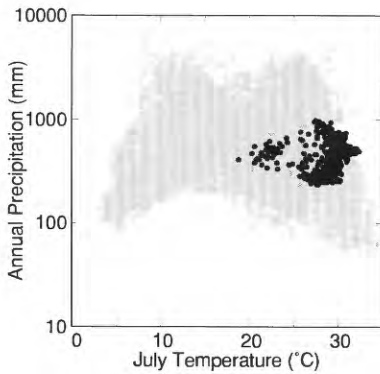
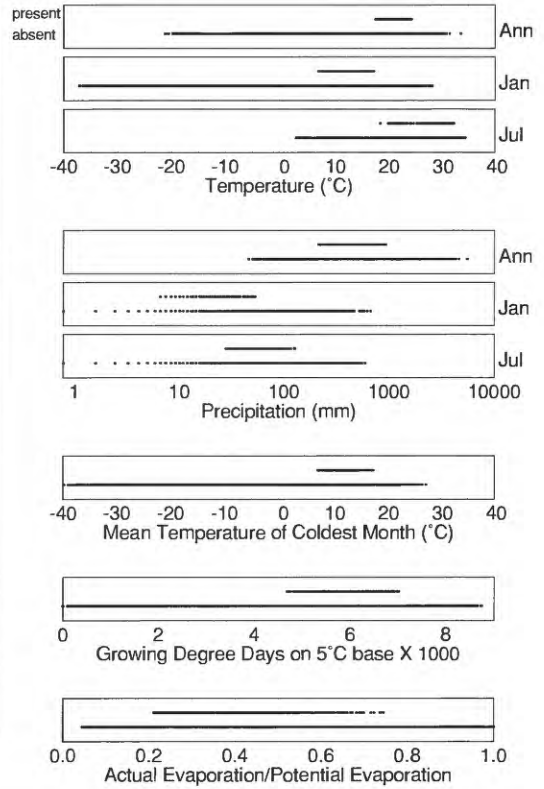
Gleditsia aquatica



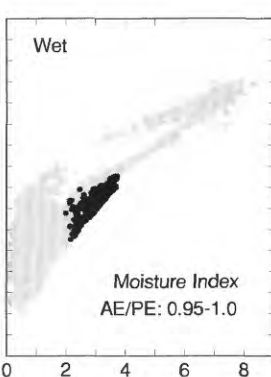
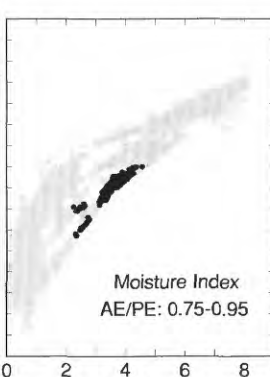
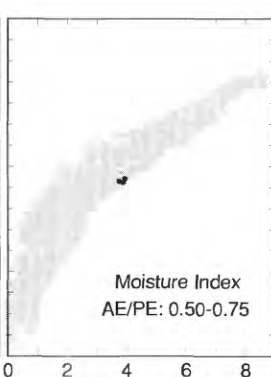
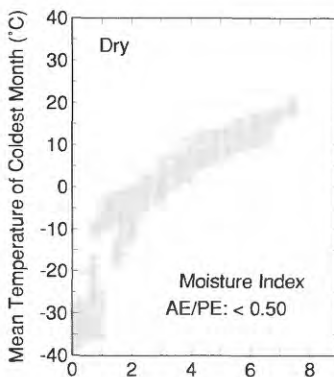
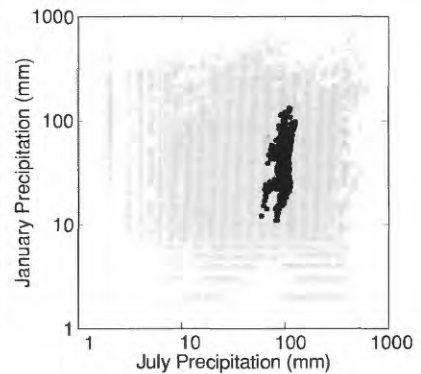
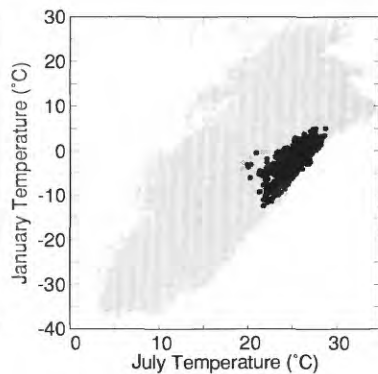
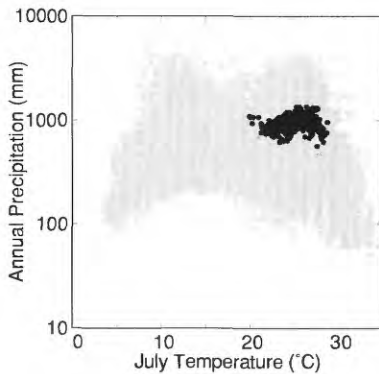
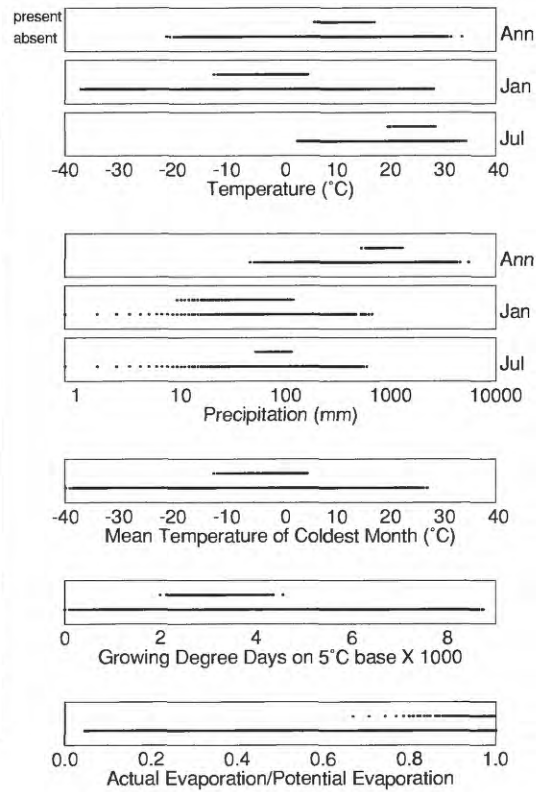
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Guaiacum angustifolium

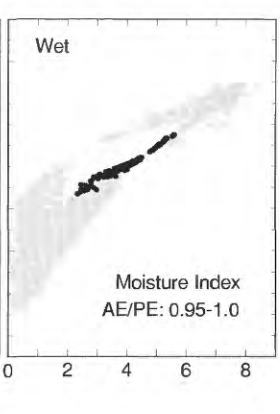
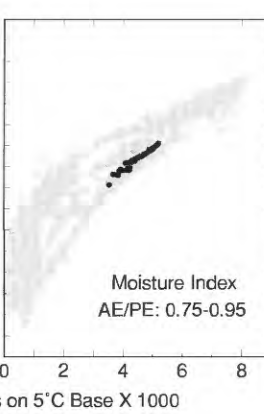
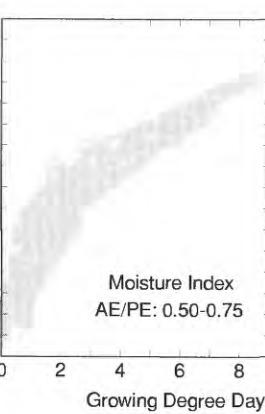
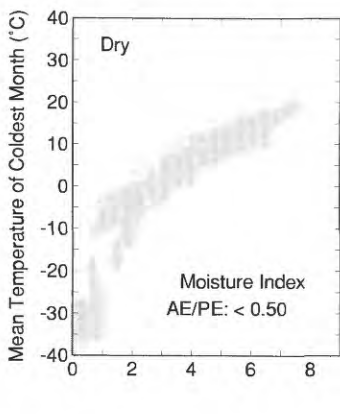
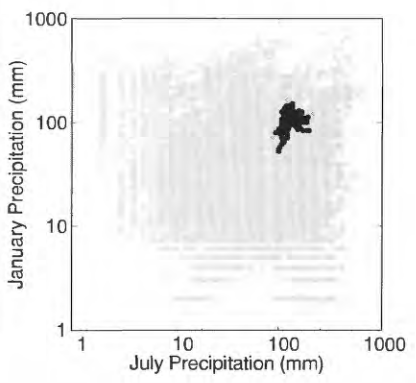
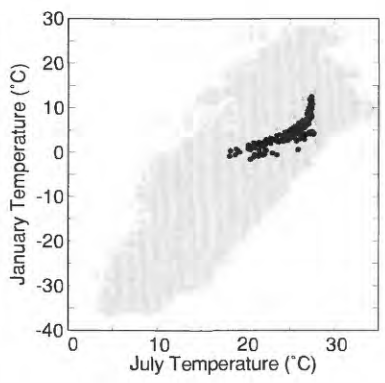
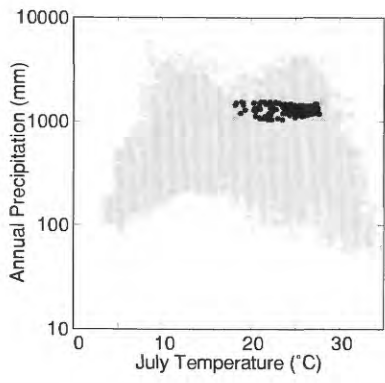
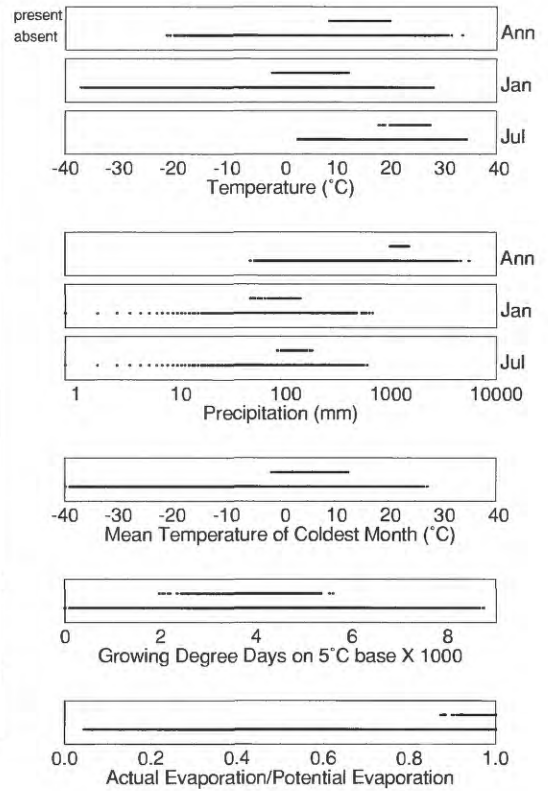


Gymnocladus dioicus

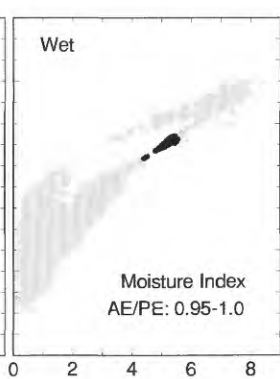
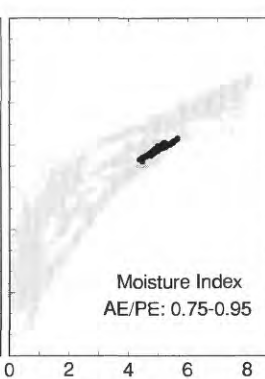
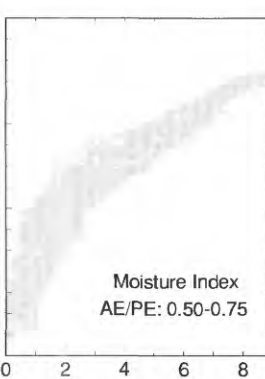
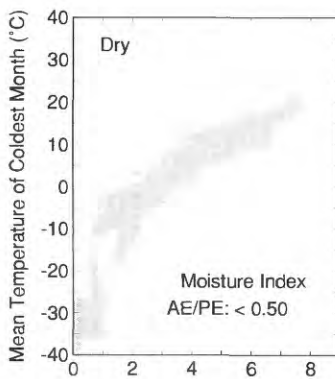
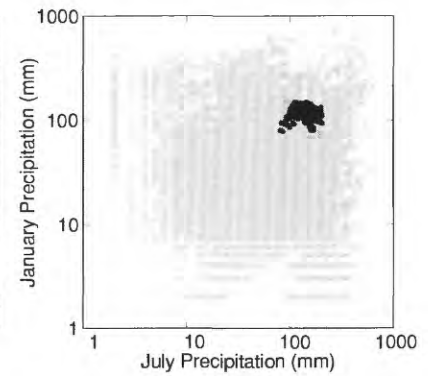
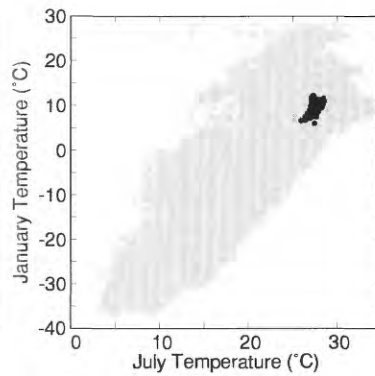
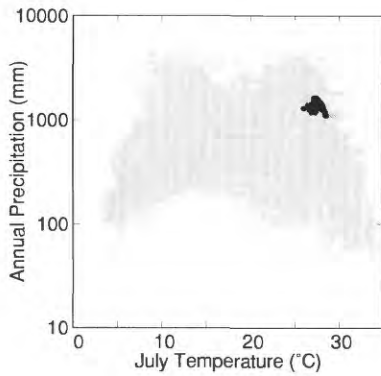
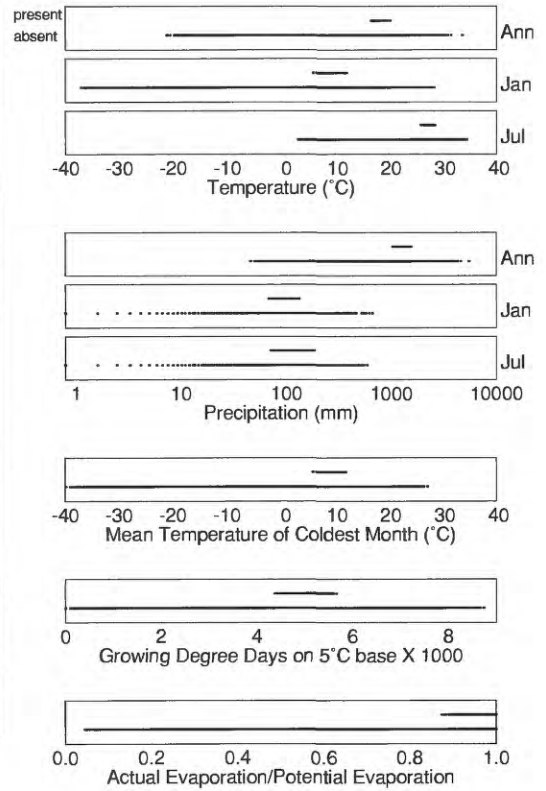


Growing Degree Days on 5°C Base X 1000

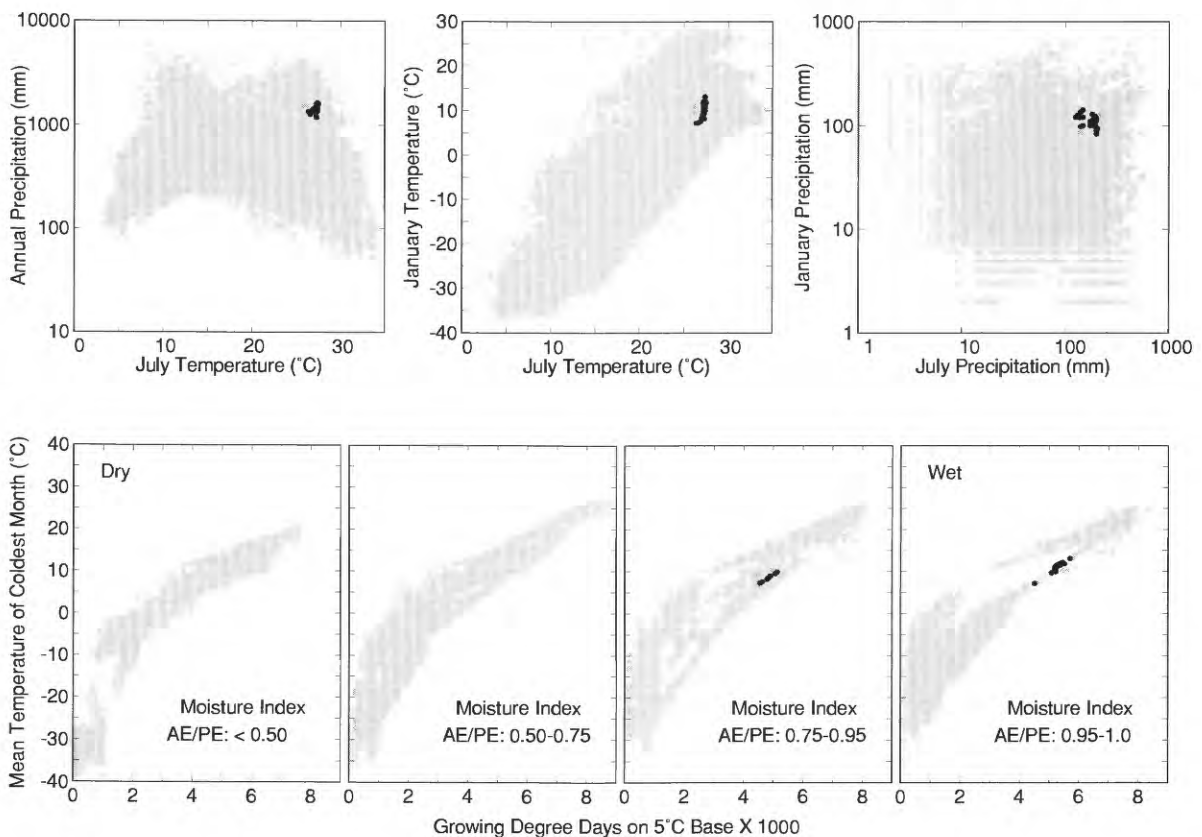
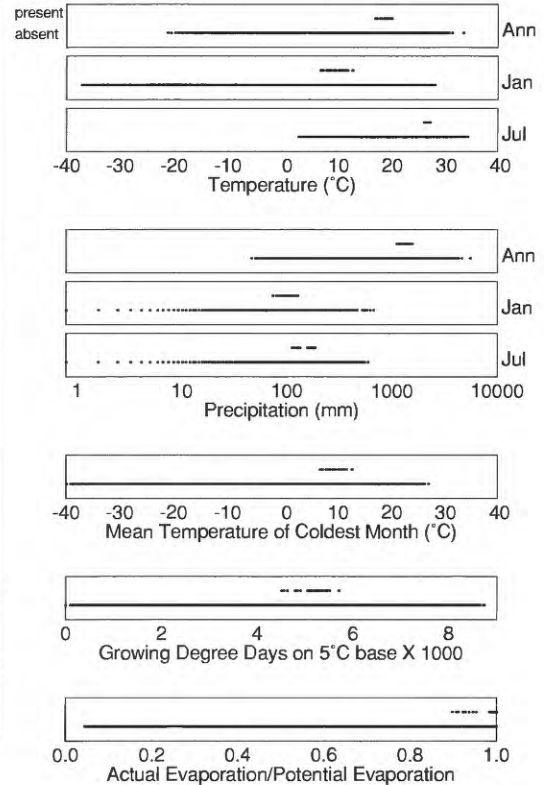
Halesia carolina



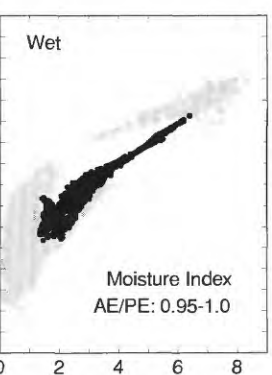
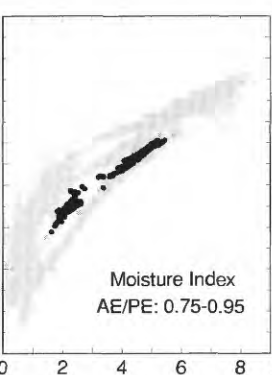
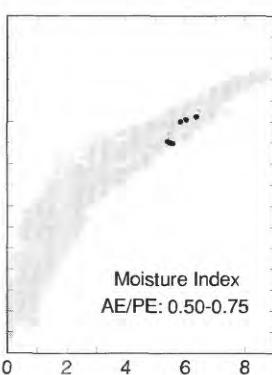
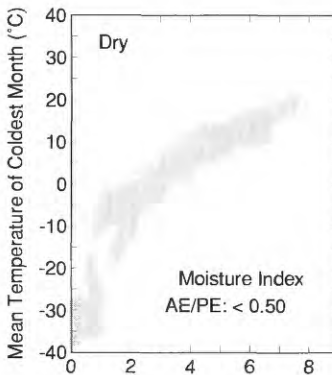
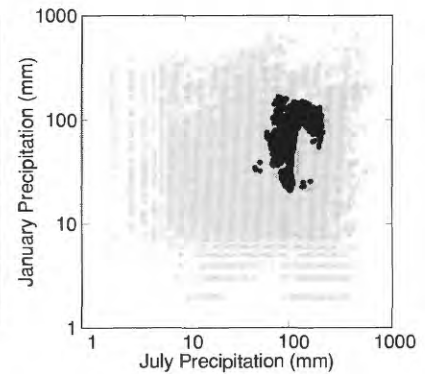
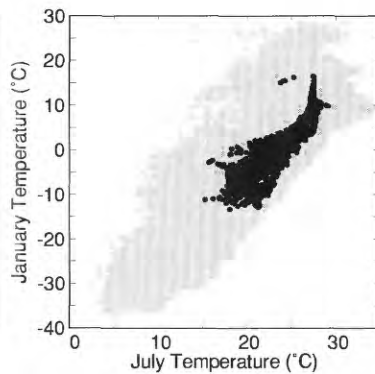
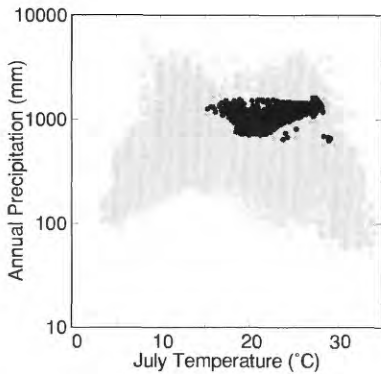
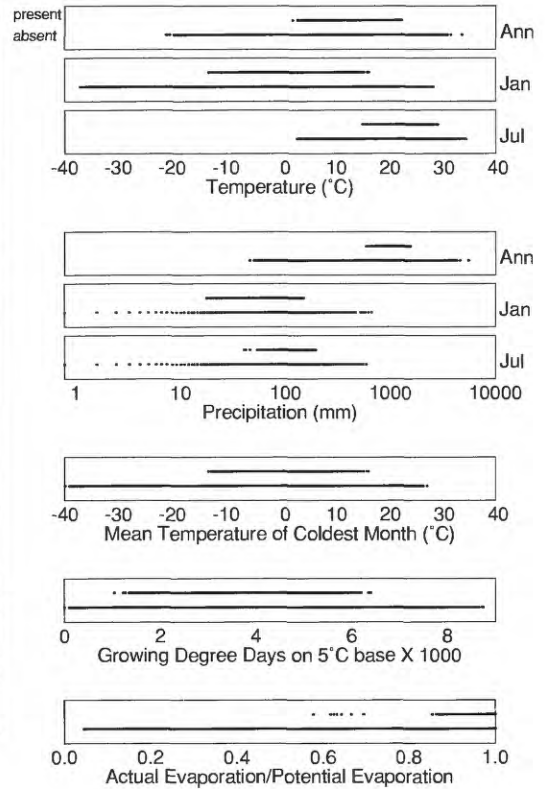
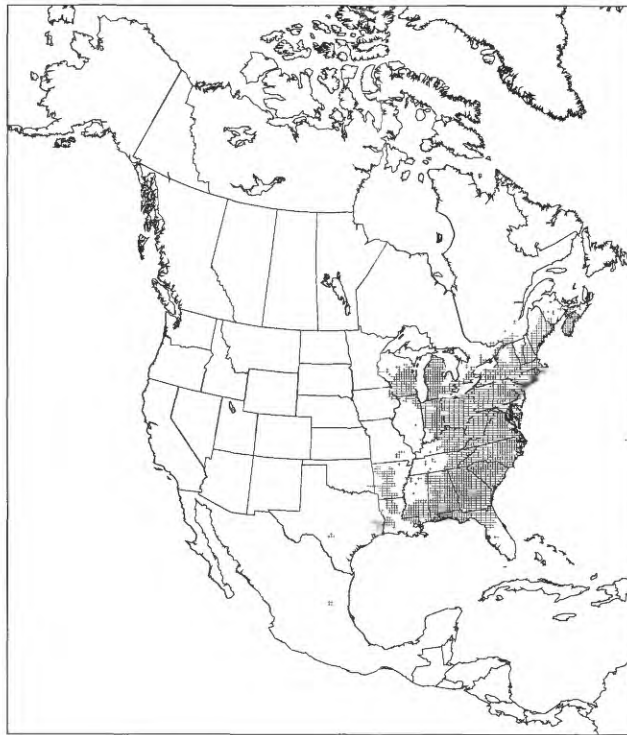
Halesia diptera



Halesia parviflora

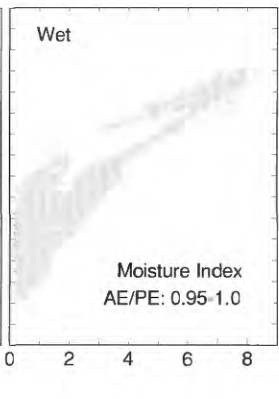
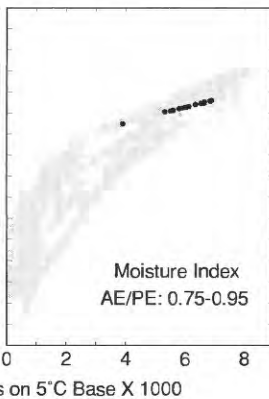
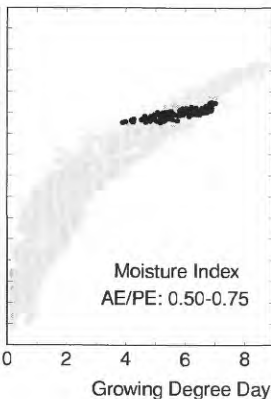
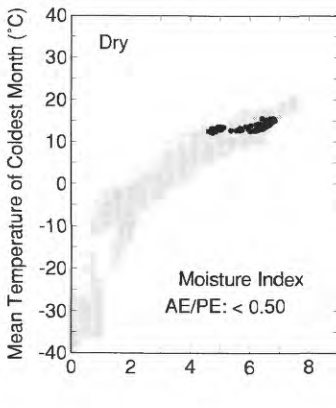
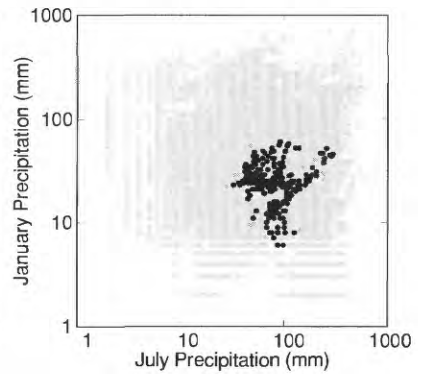
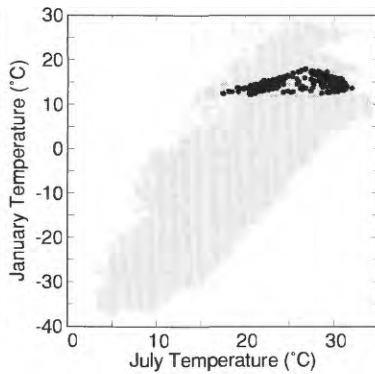
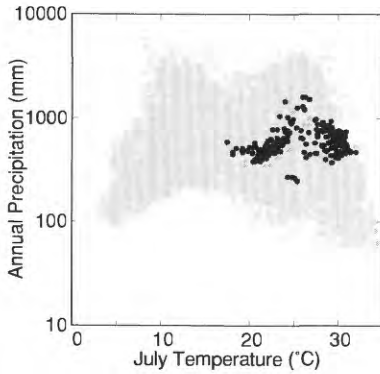
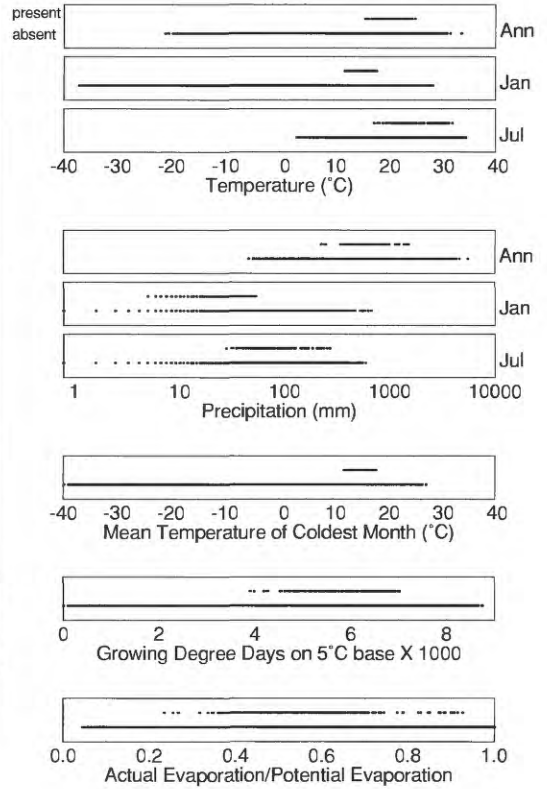


Hamamelis virginiana

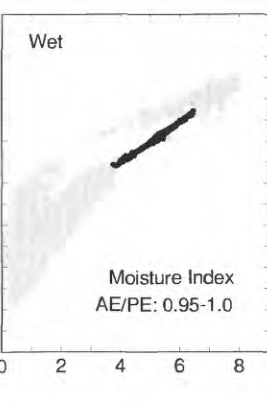
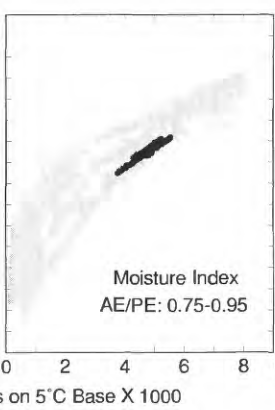
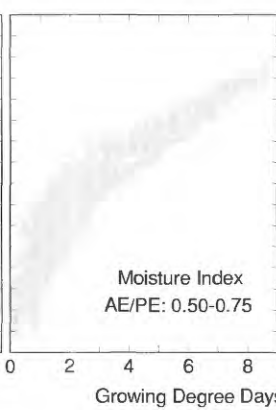
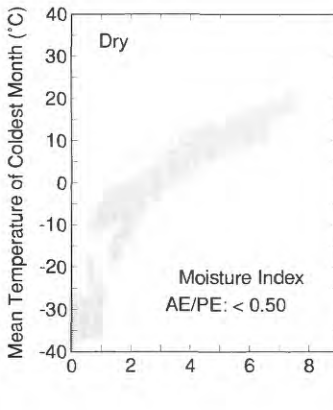
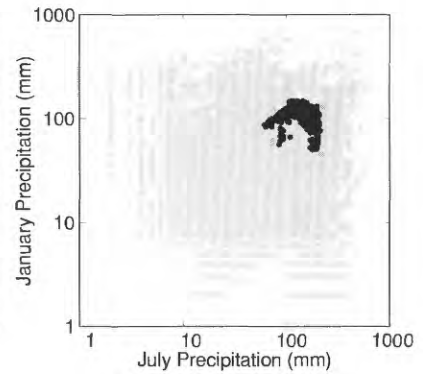
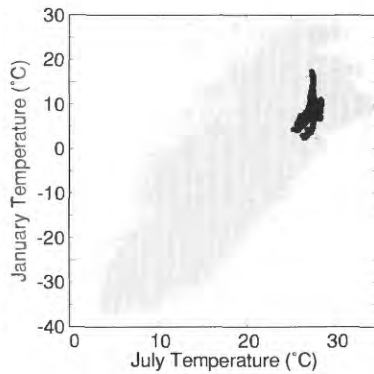
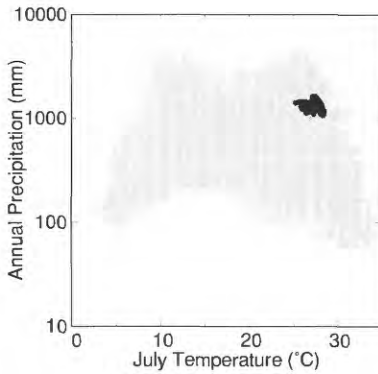
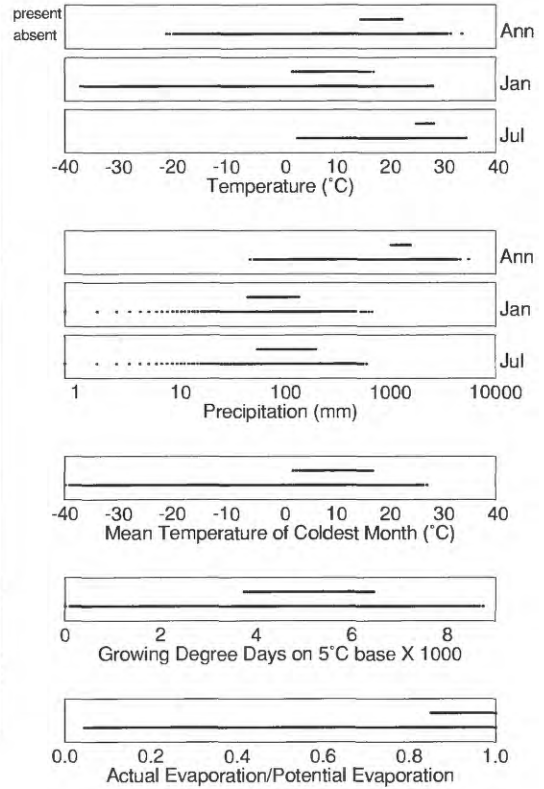


Growing Degree Days on 5°C Base X 1000

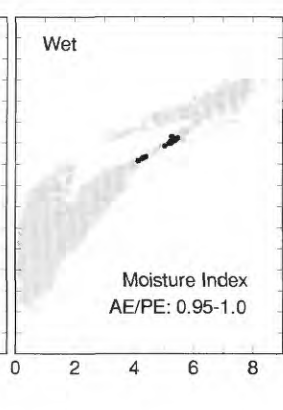
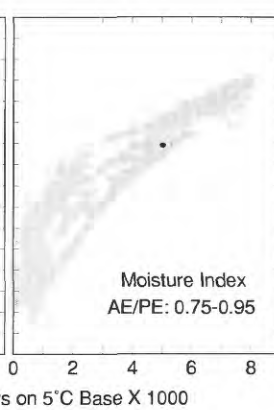
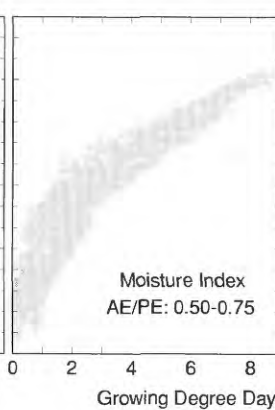
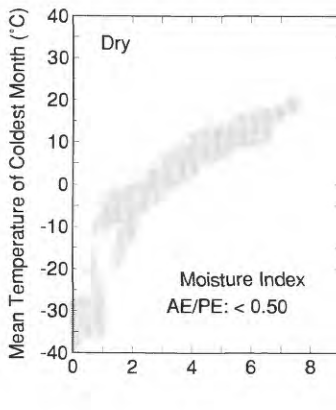
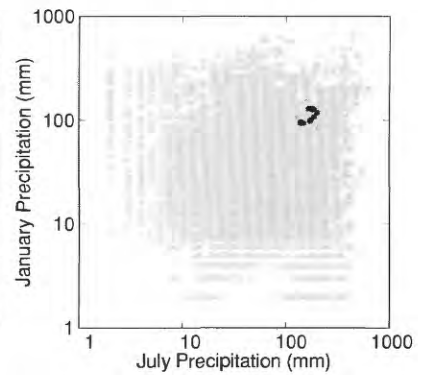
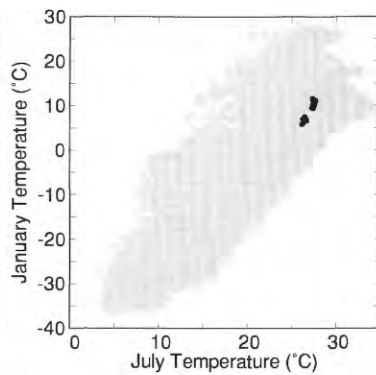
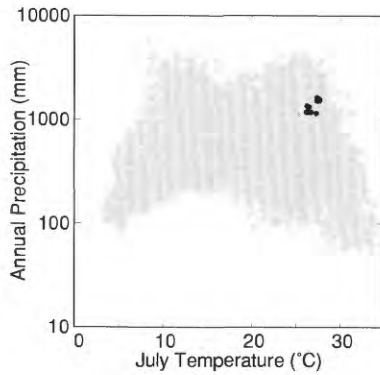
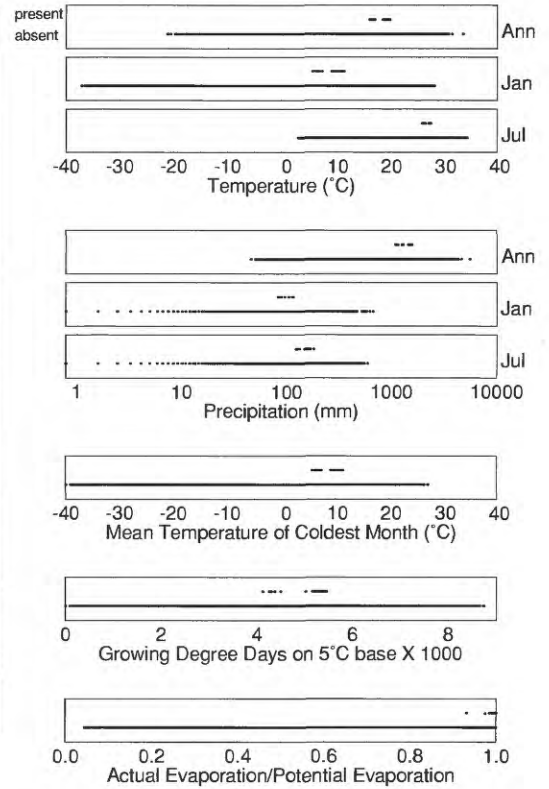
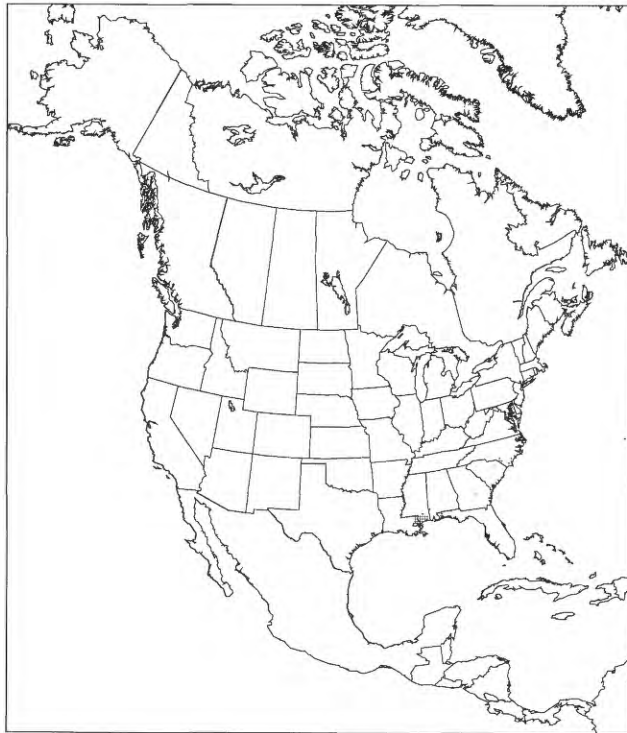
Helietta parvifolia



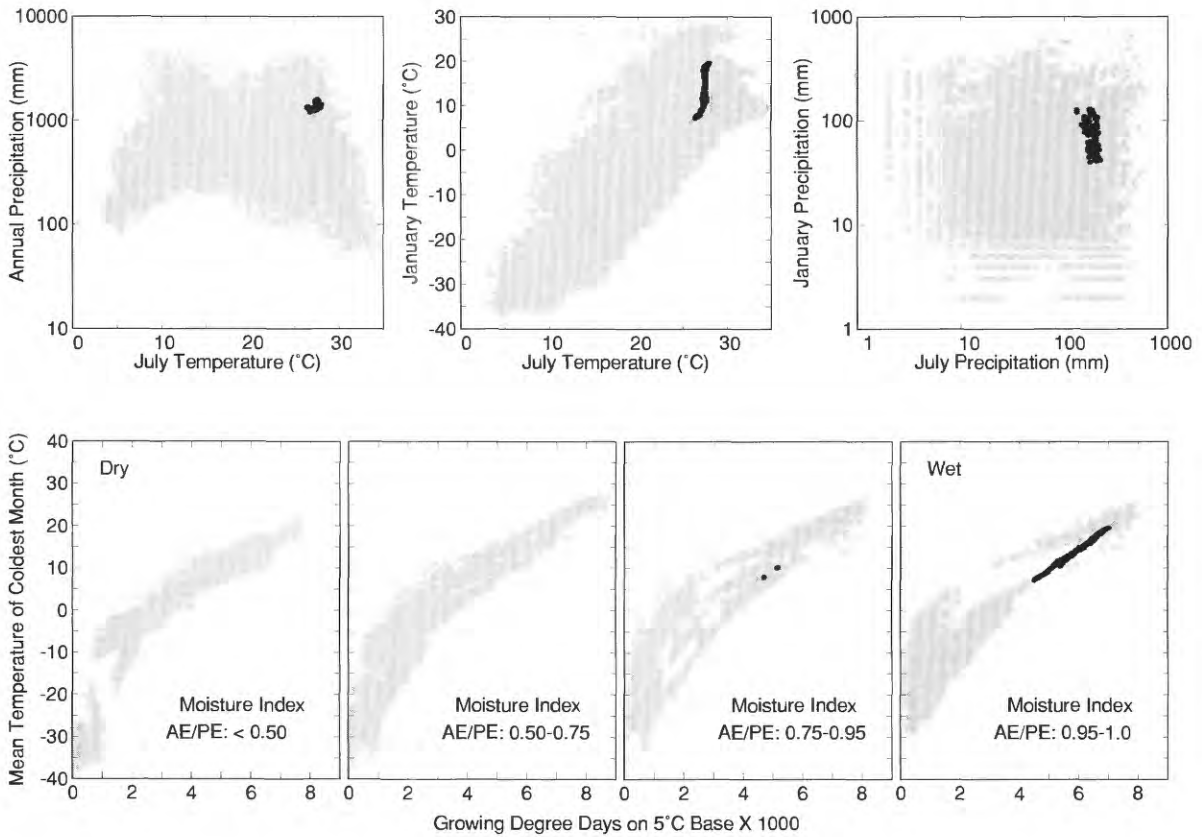
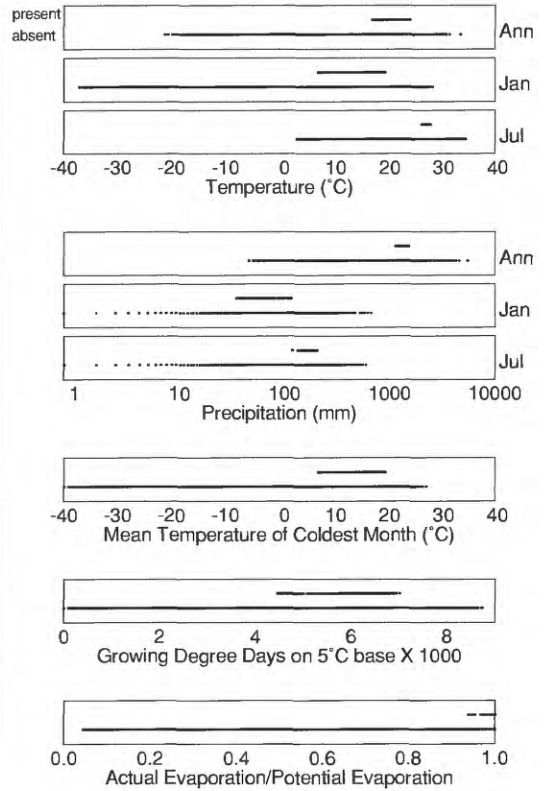
Ilex ambigua



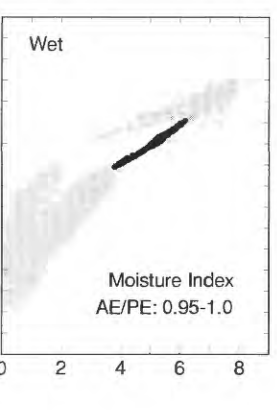
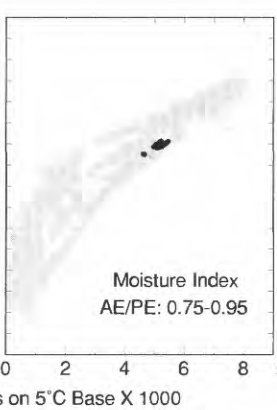
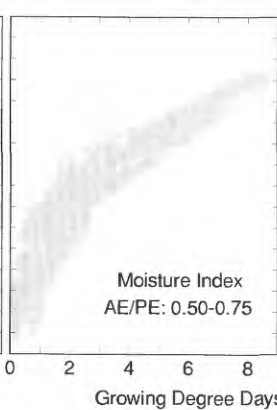
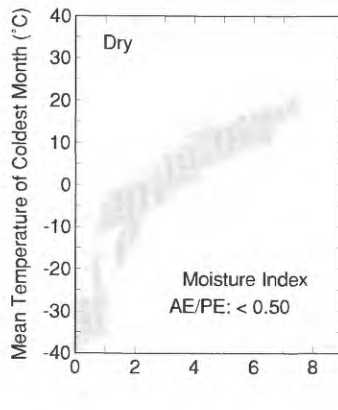
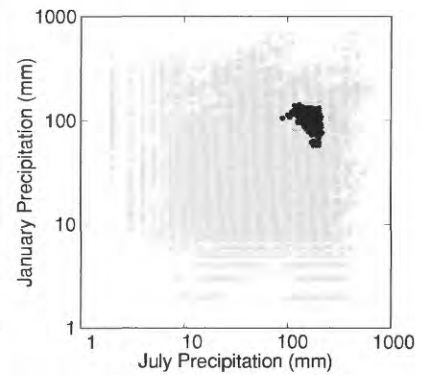
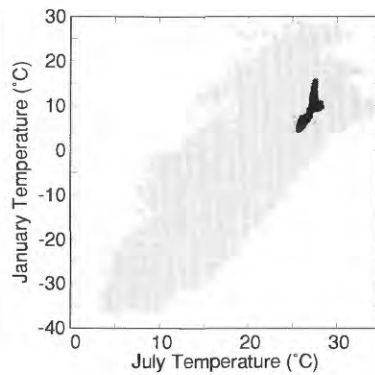
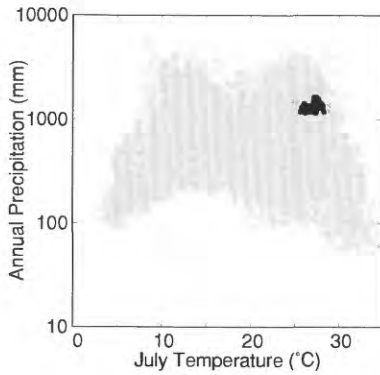
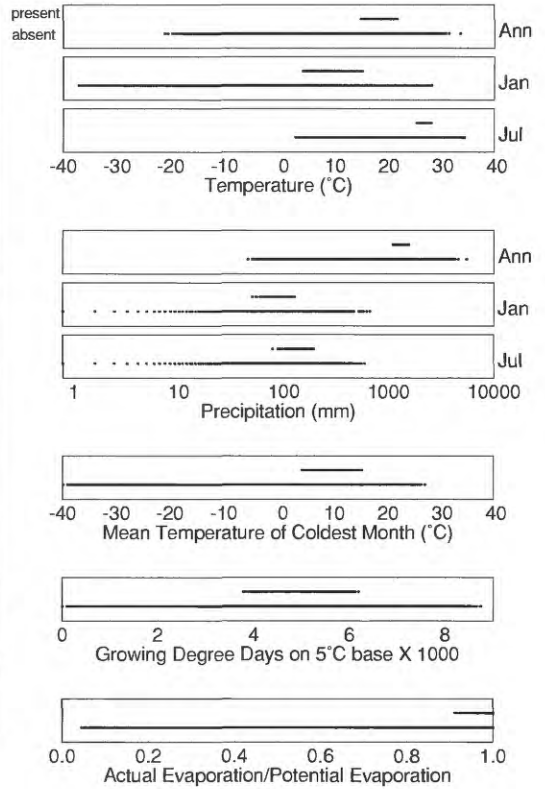
Ilex amelanchier



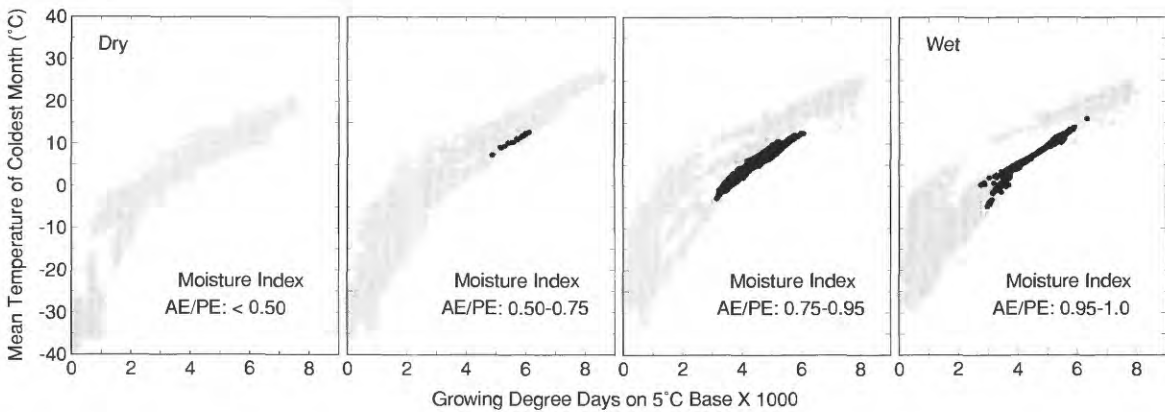
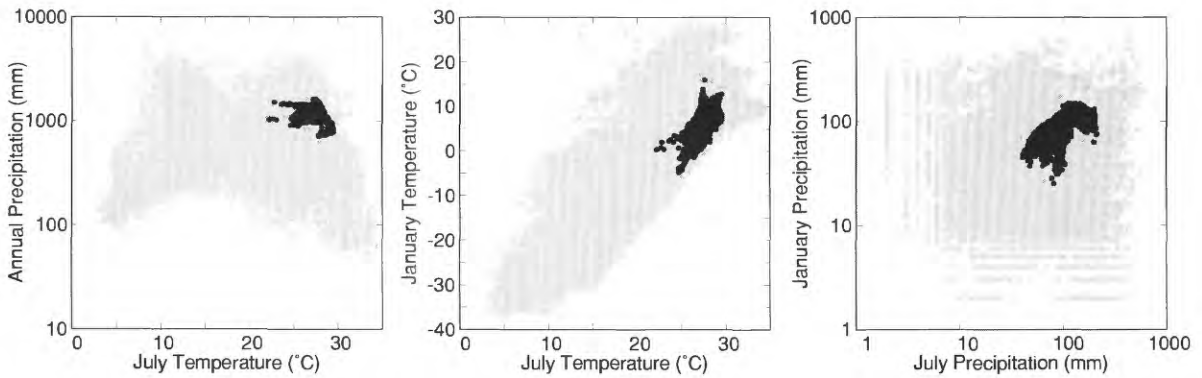
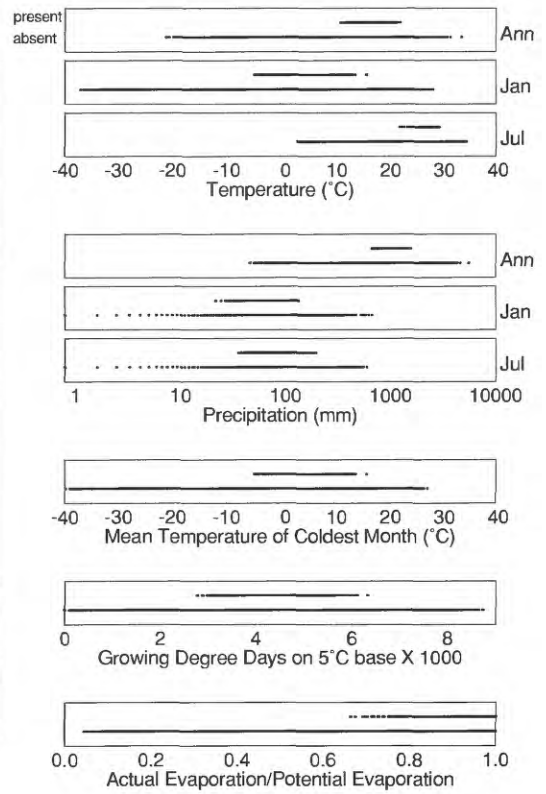
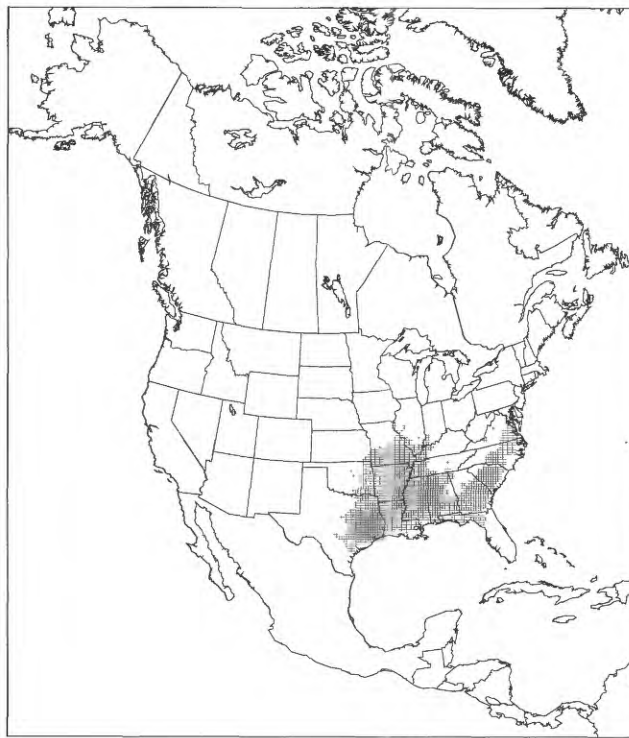
Ilex cassine



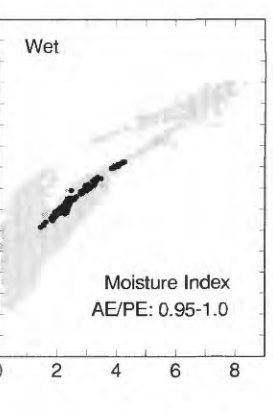
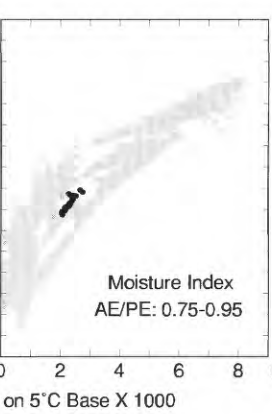
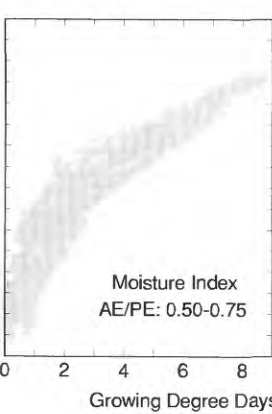
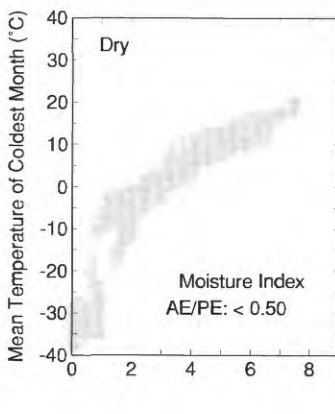
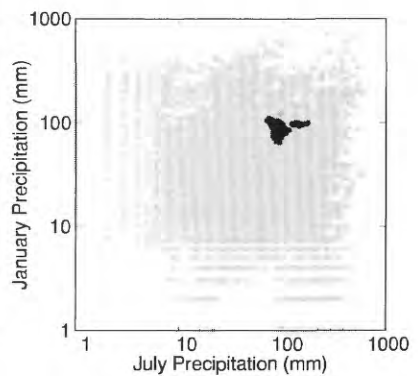
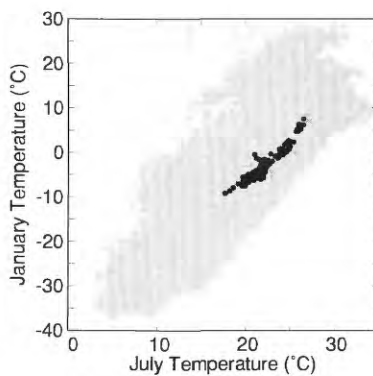
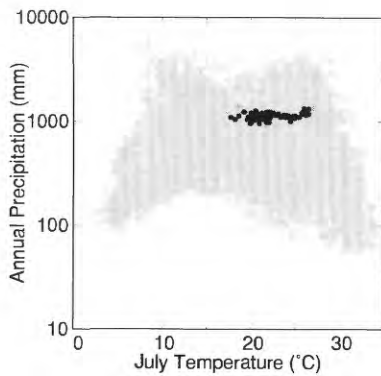
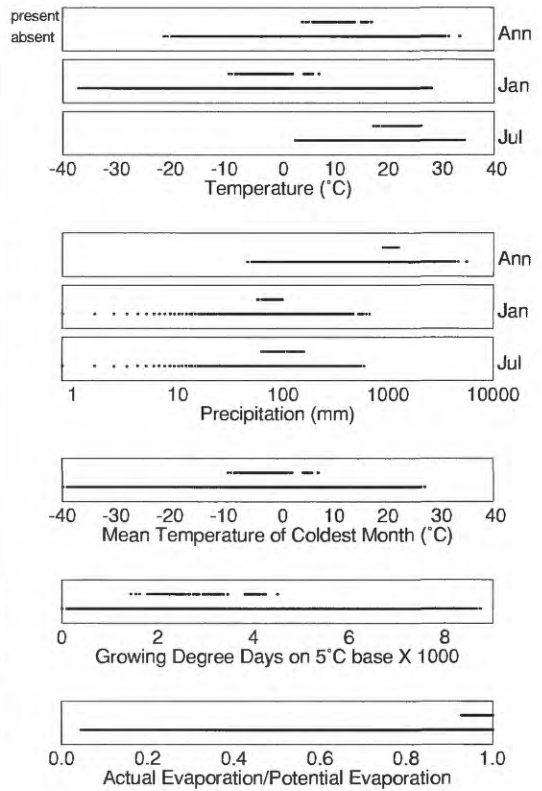
Ilex coriacea



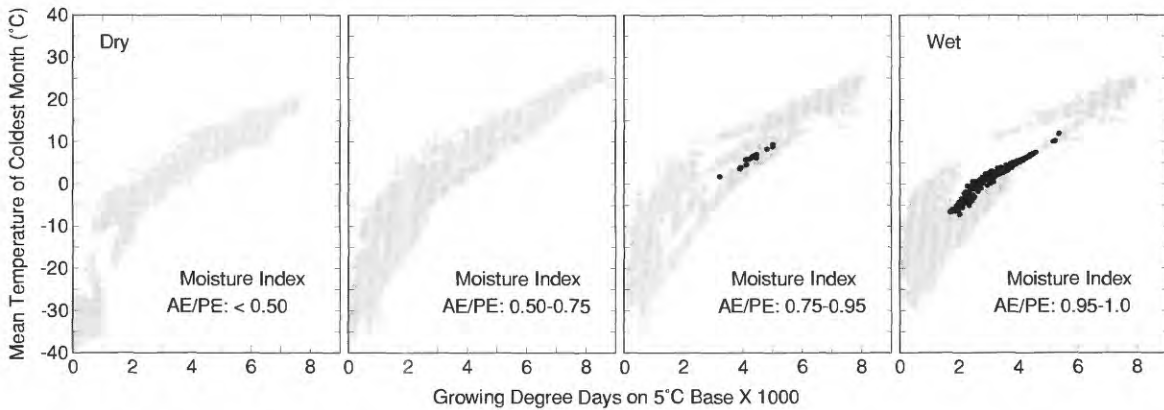
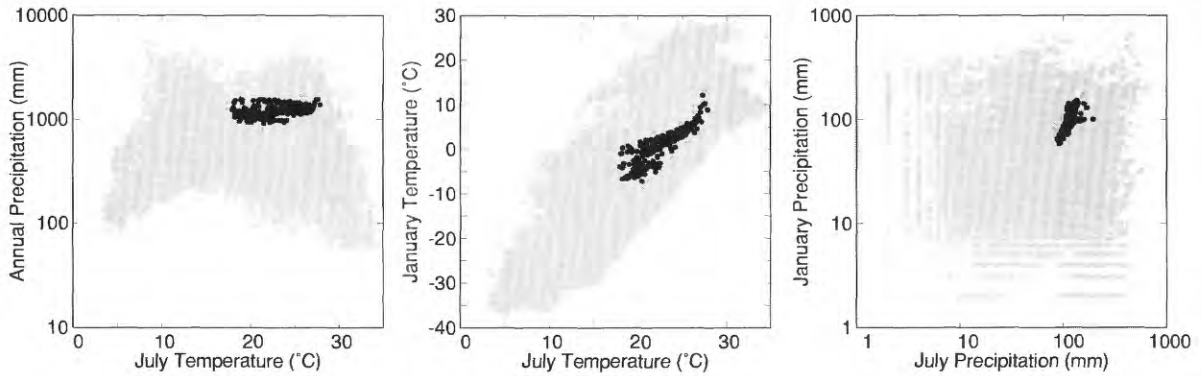
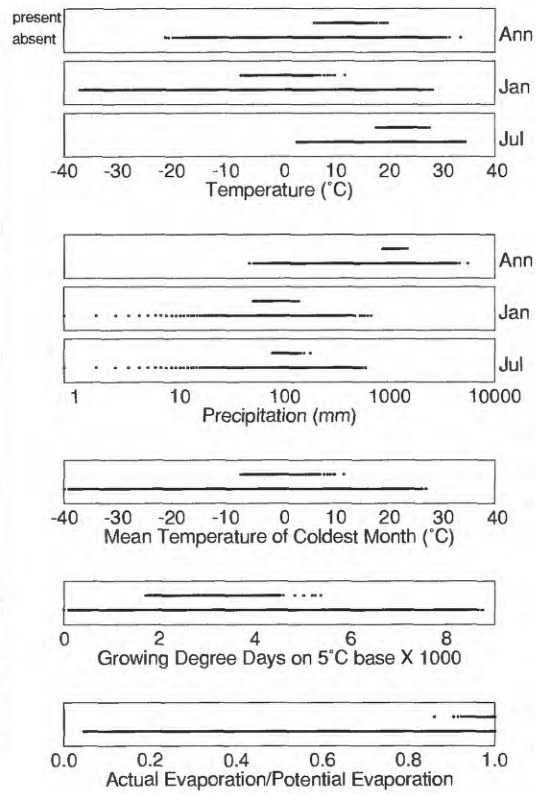
Ilex decidua



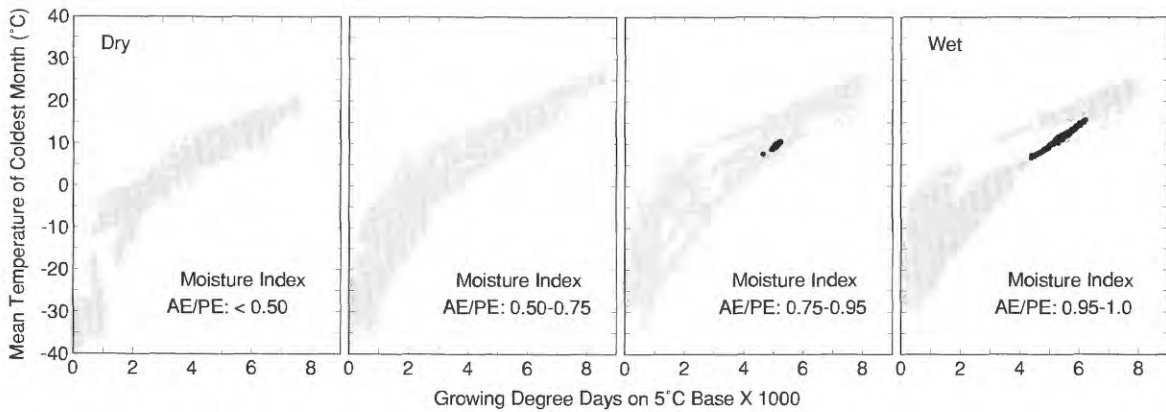
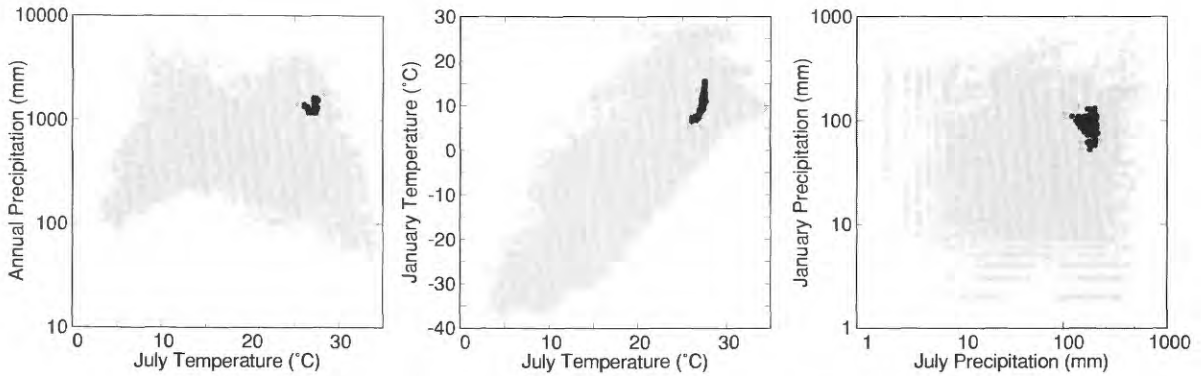
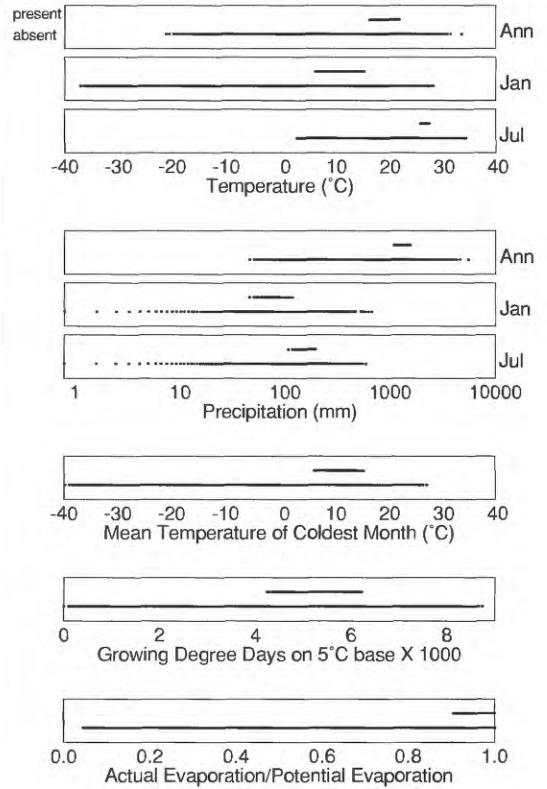
Ilex laevigata



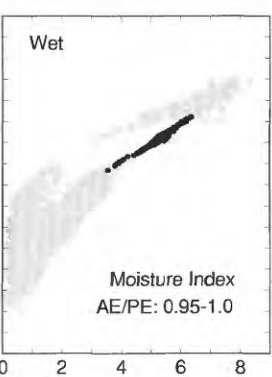
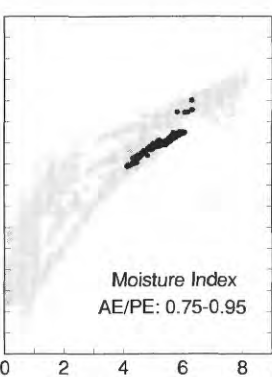
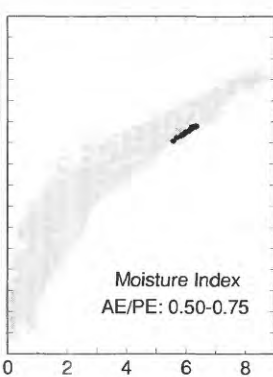
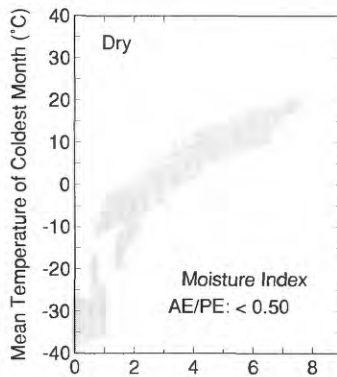
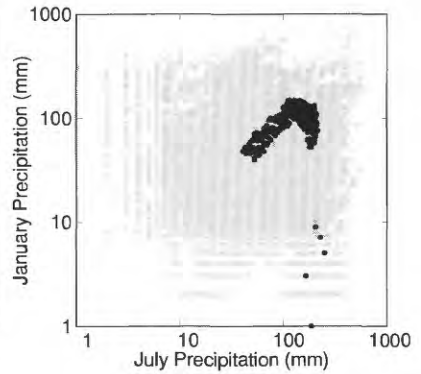
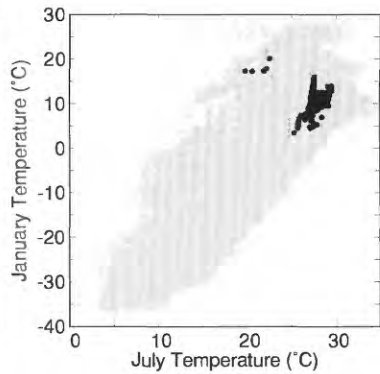
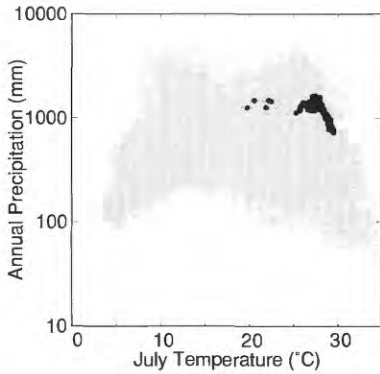
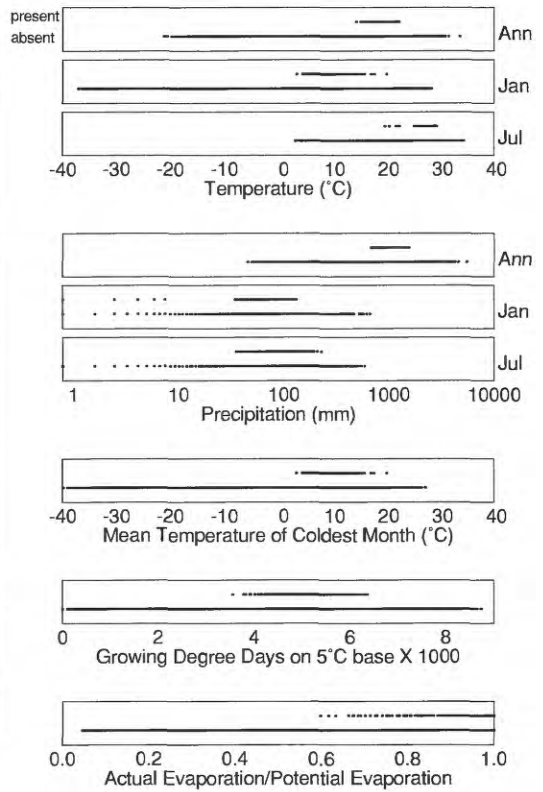
Ilex montana



Ilex myrtifolia

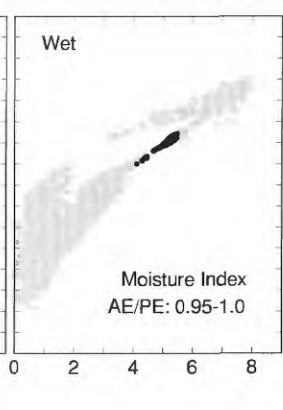
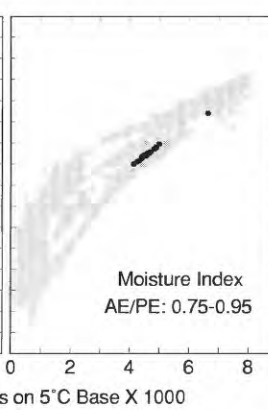
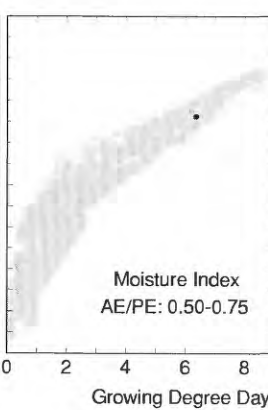
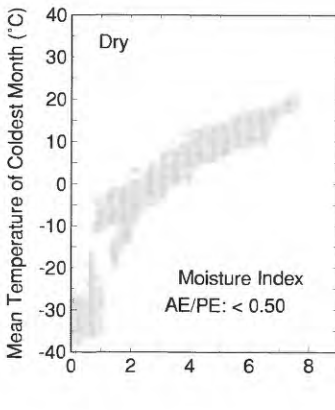
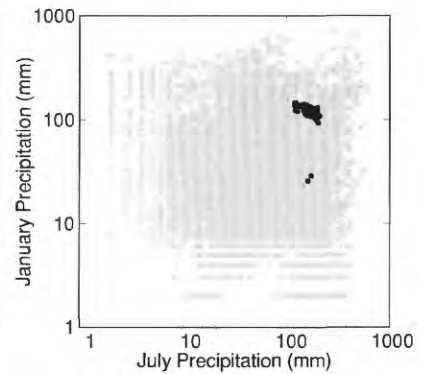
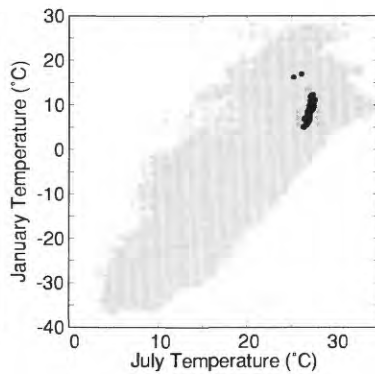
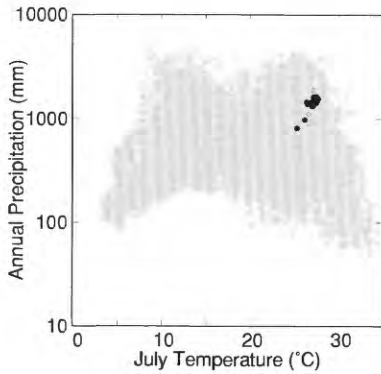
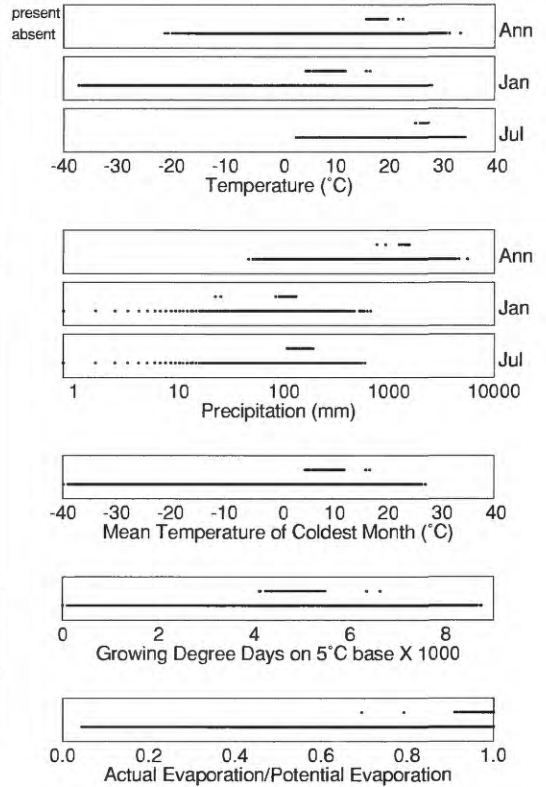


Ilex vomitoria

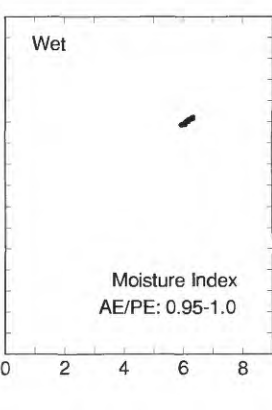
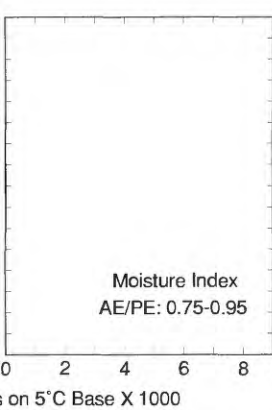
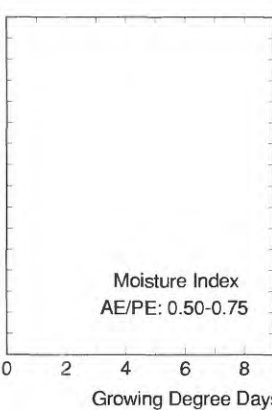
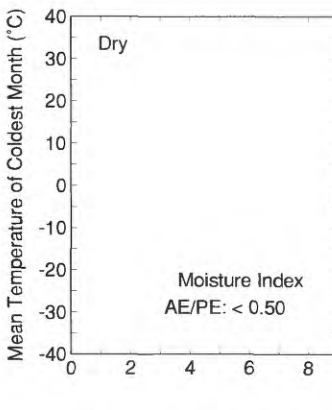
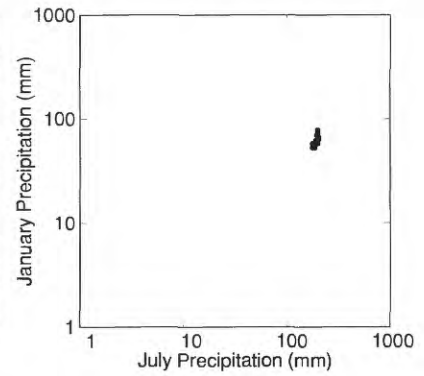
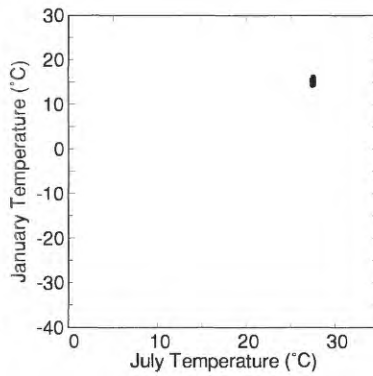
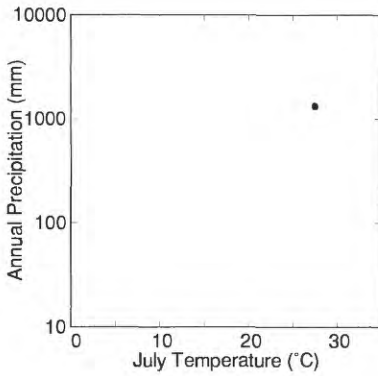
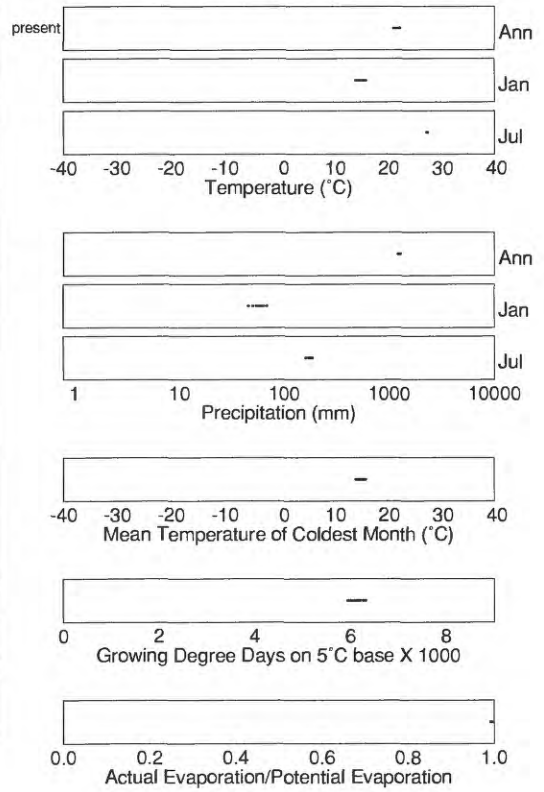


Growing Degree Days on 5°C Base X 1000

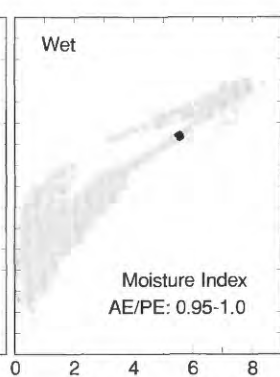
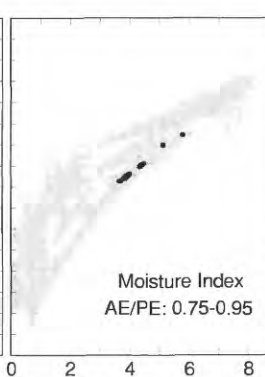
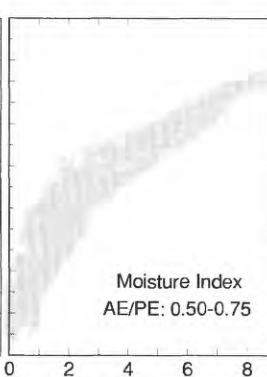
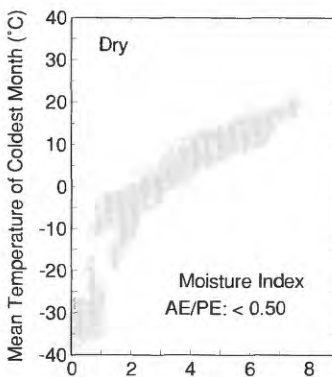
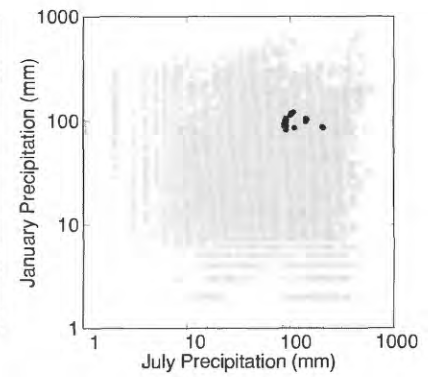
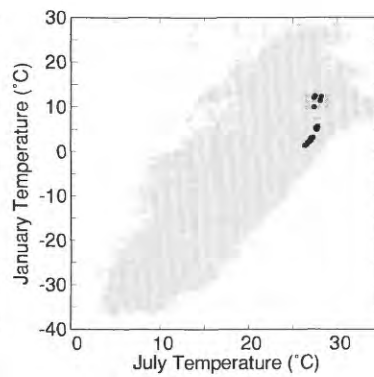
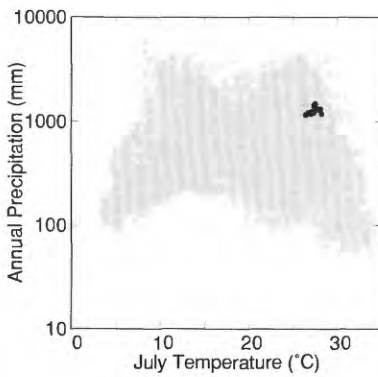
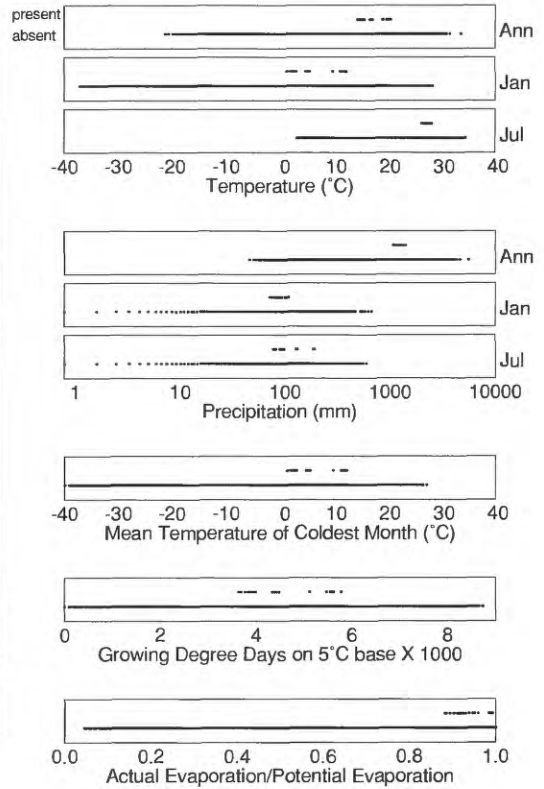
Illicium floridanum



Illicium parviflorum (minimal data - nearest grid points used with environmental parameters)

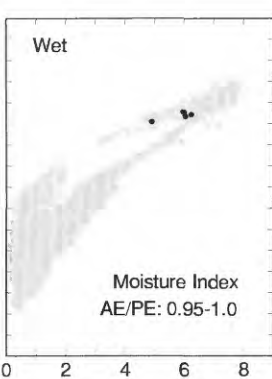
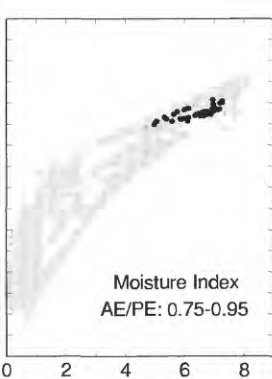
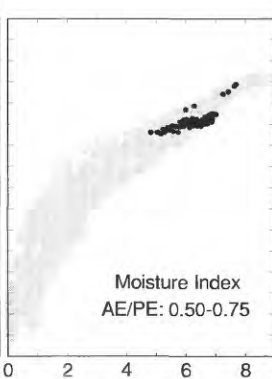
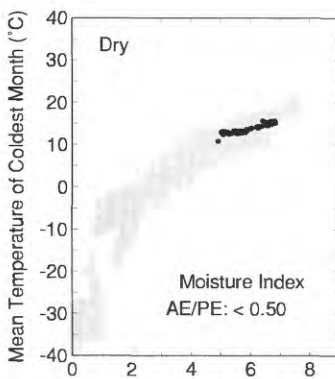
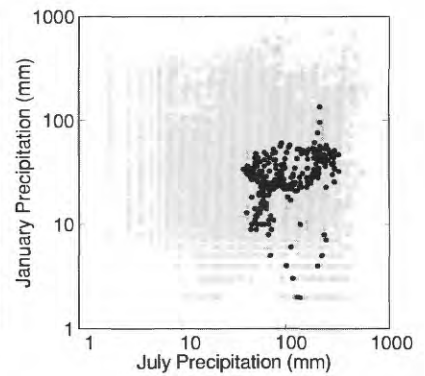
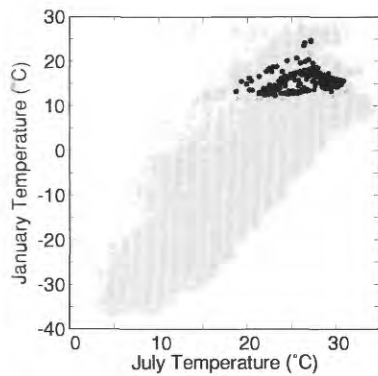
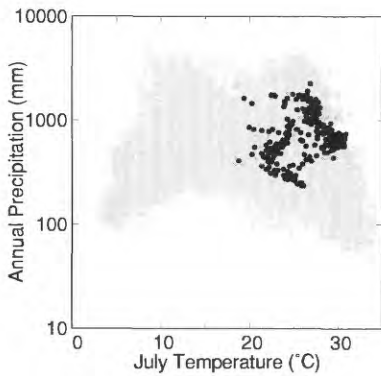
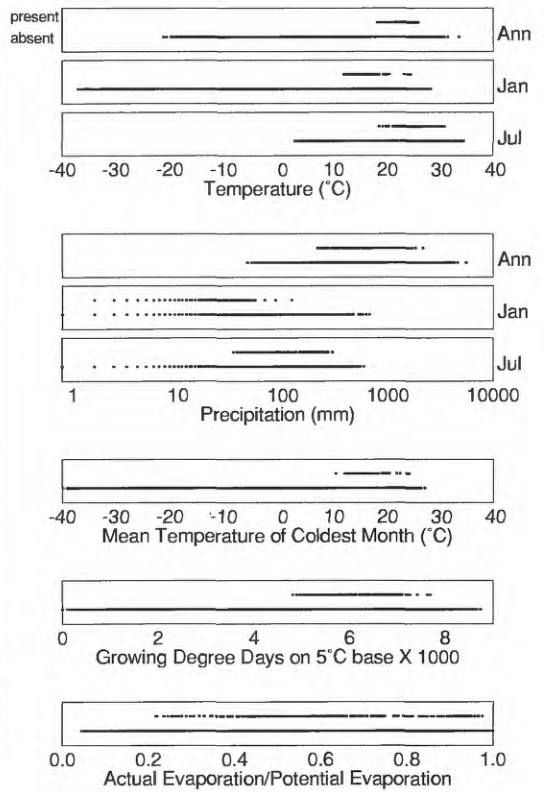


Leitneria floridana

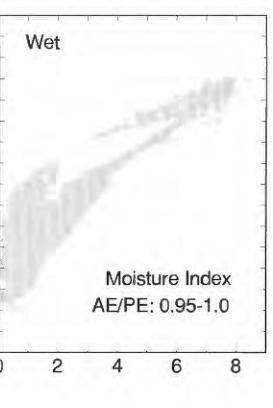
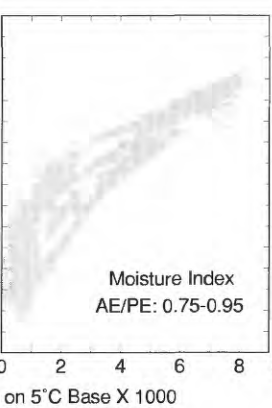
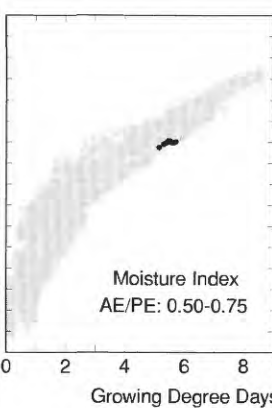
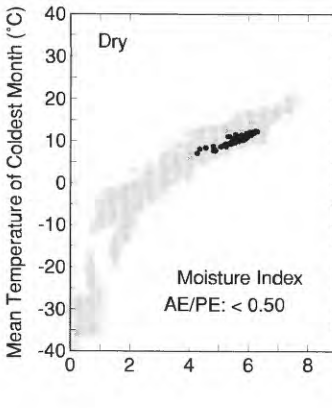
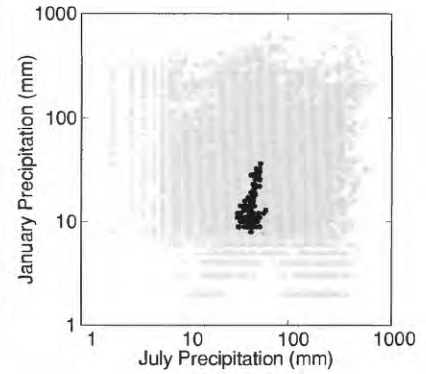
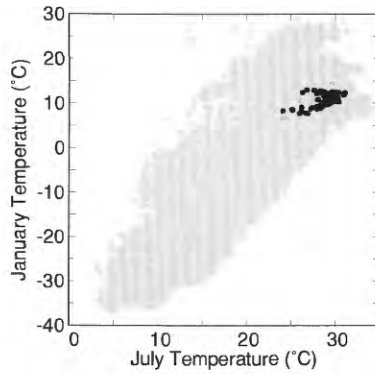
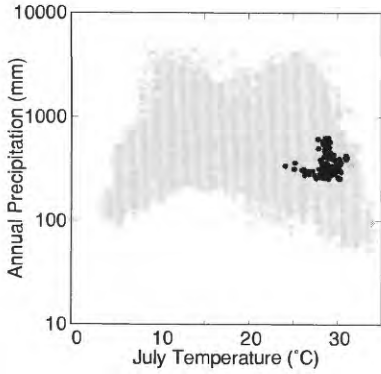
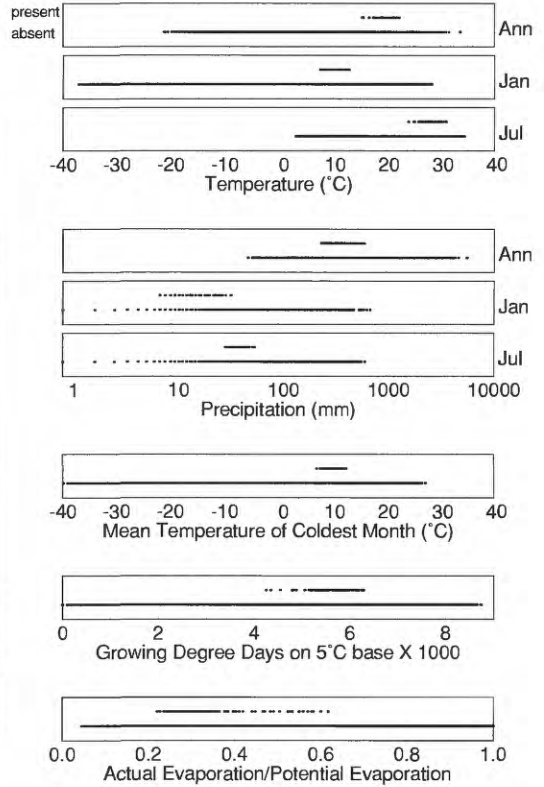


Growing Degree Days on 5°C Base X 1000

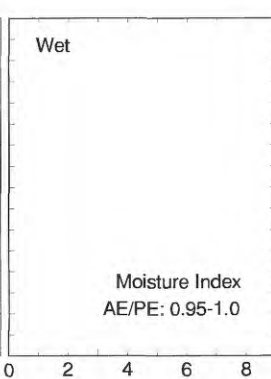
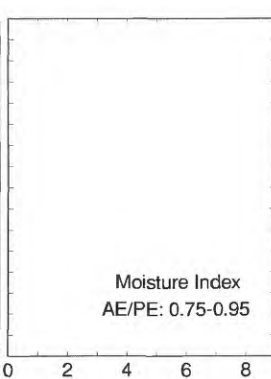
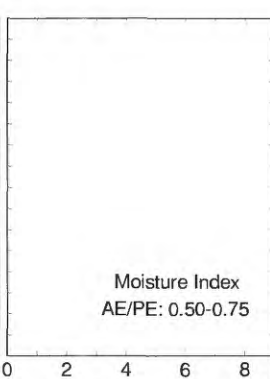
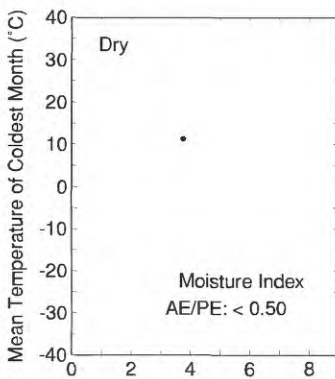
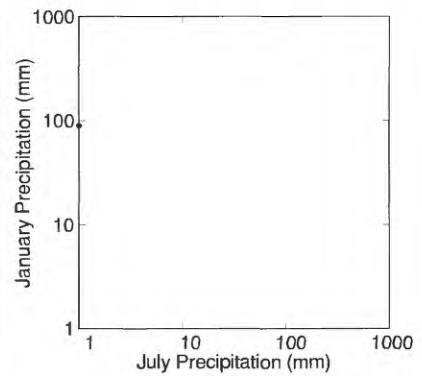
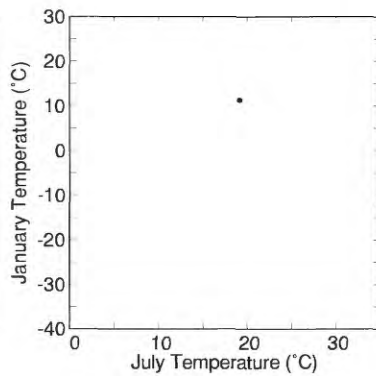
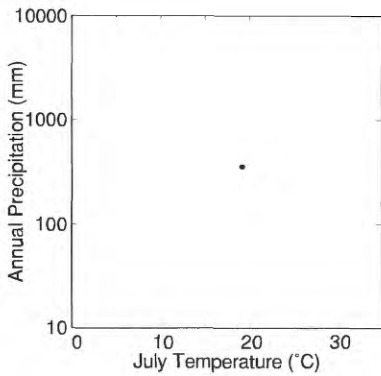
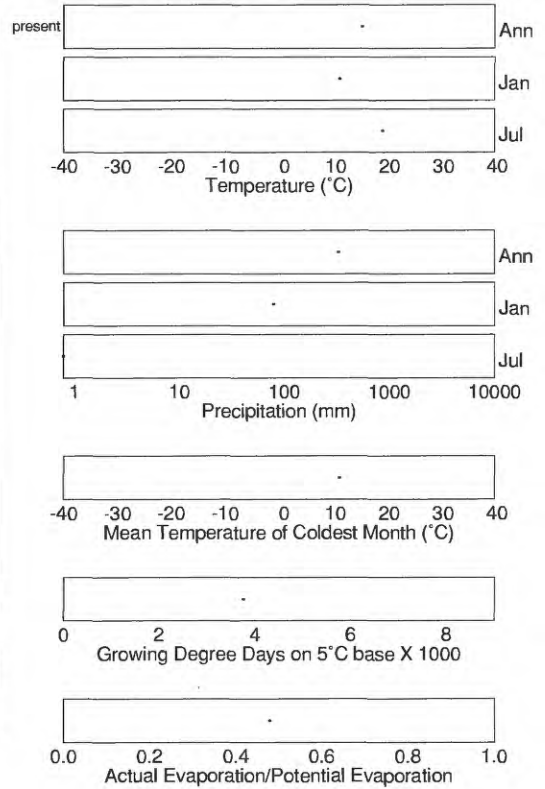
Leucaena pulverulenta



Leucaena retusa

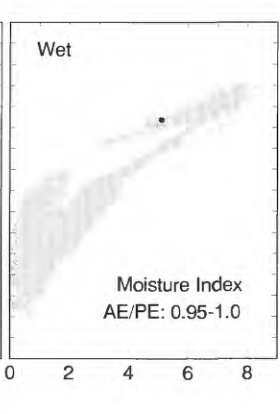
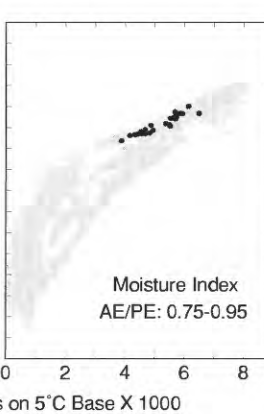
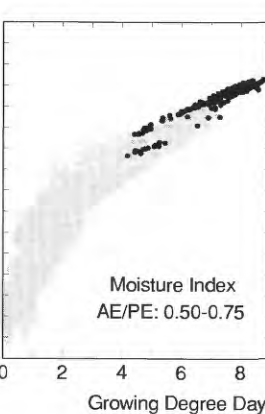
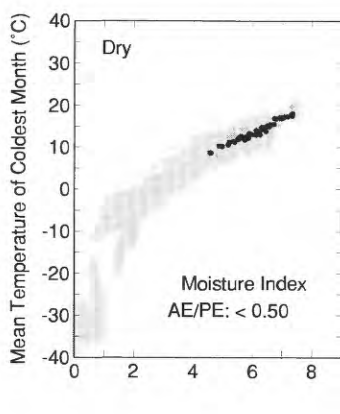
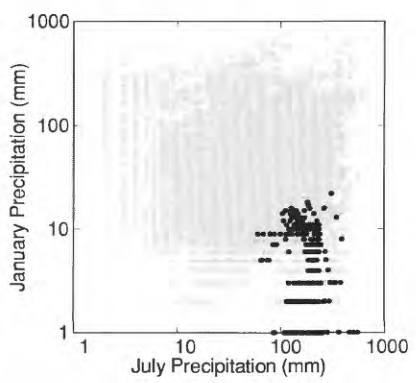
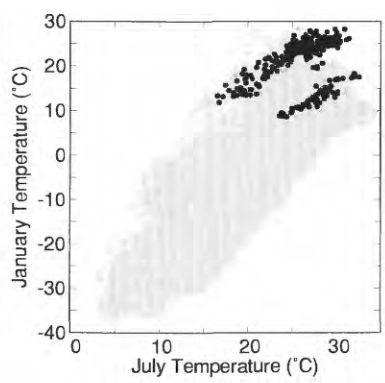
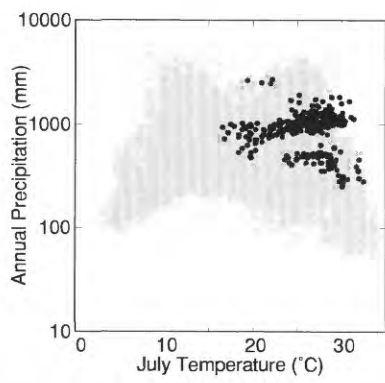
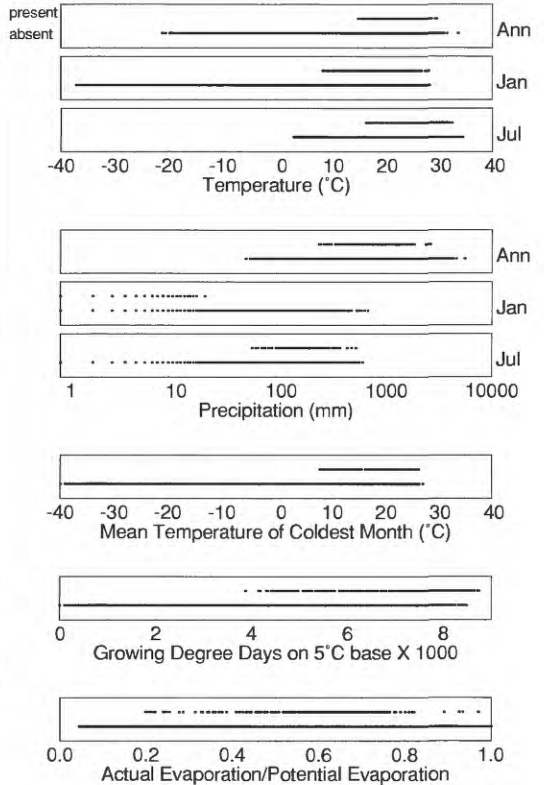


Lyonothamnus floribundus (minimal data - nearest grid points used with environmental parameters)

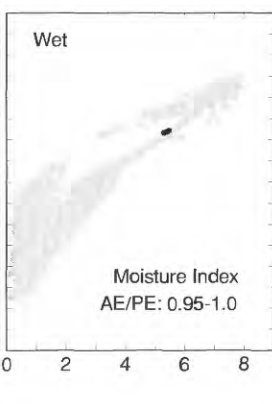
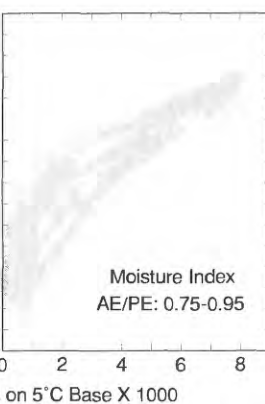
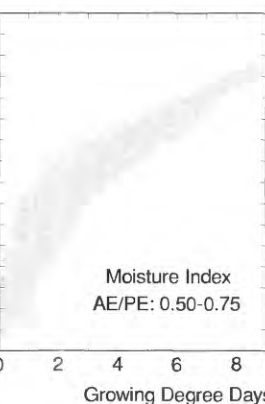
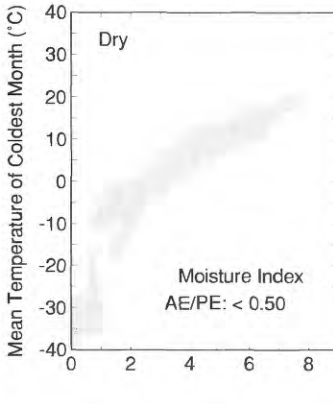
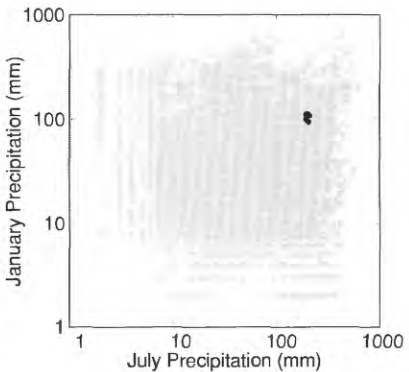
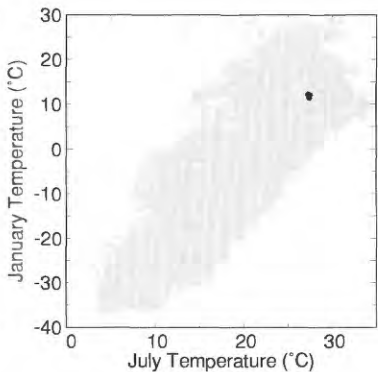
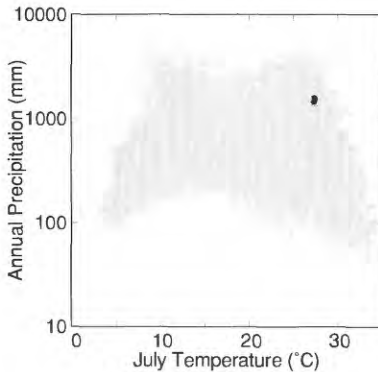
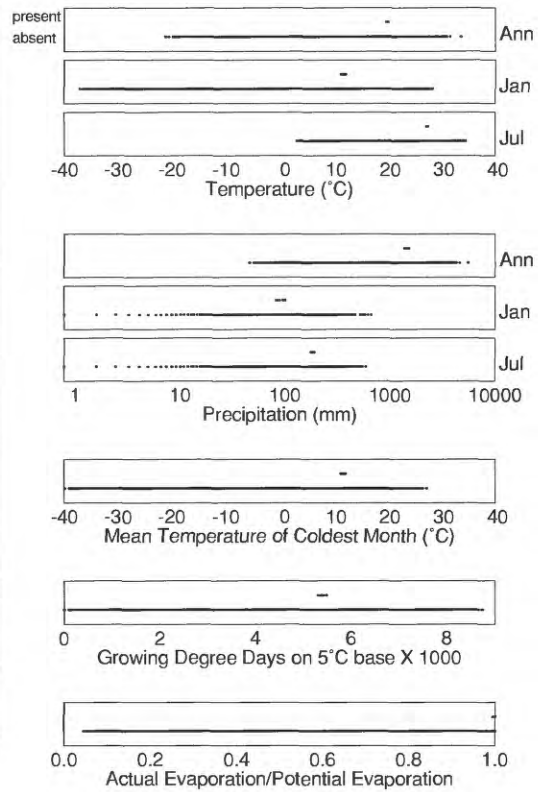


Growing Degree Days on 5°C Base X 1000

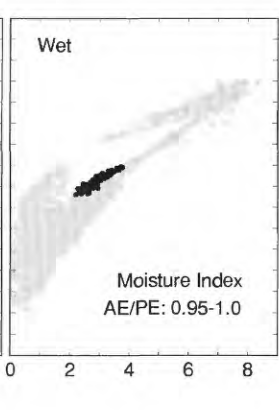
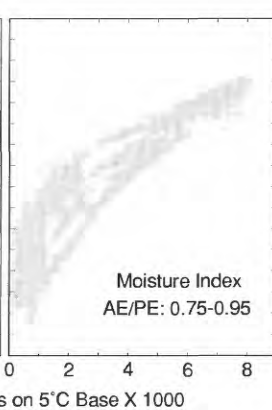
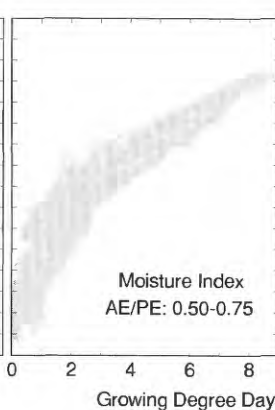
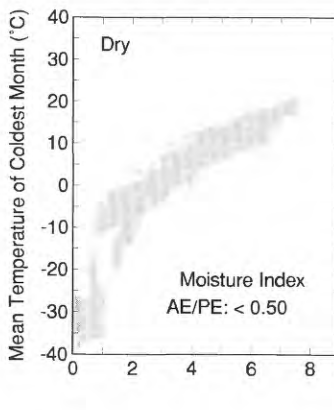
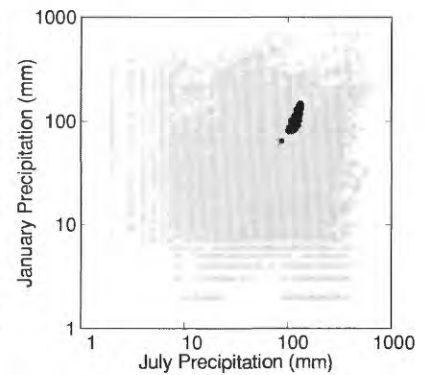
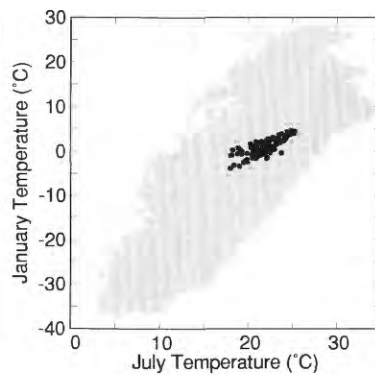
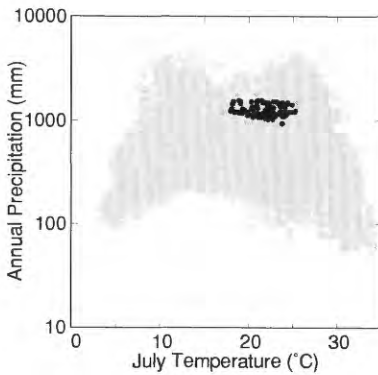
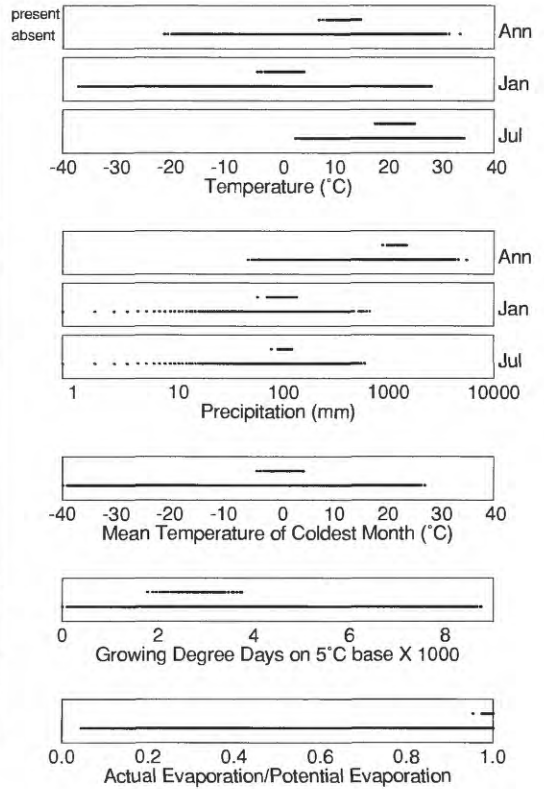
Lysiloma microphylla



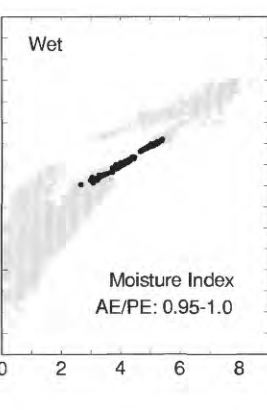
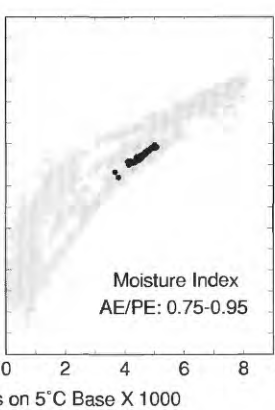
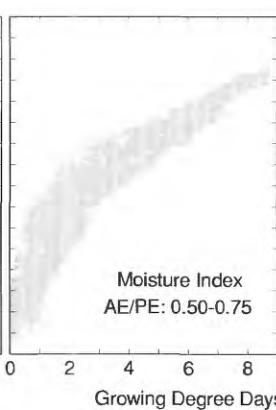
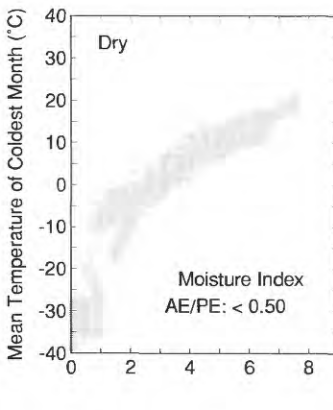
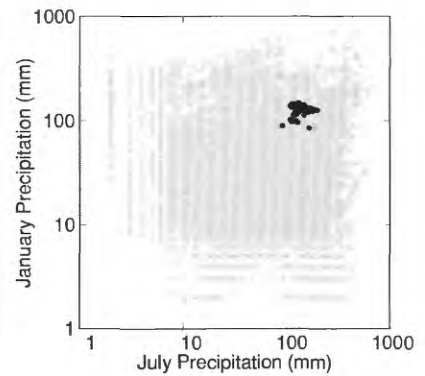
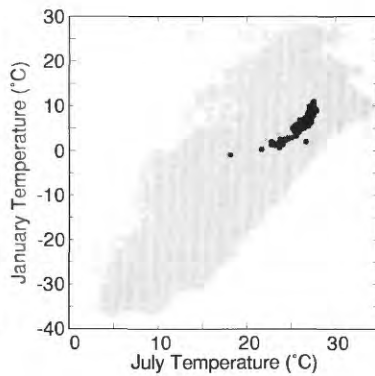
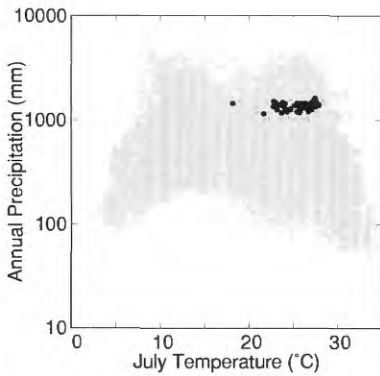
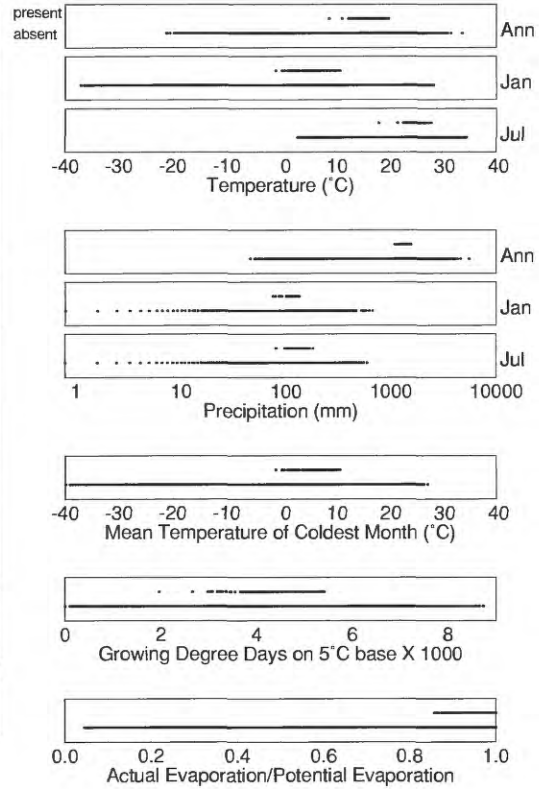
Magnolia ashei



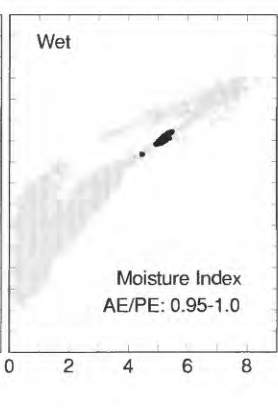
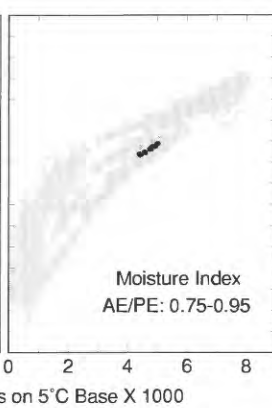
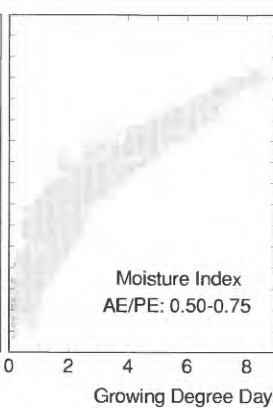
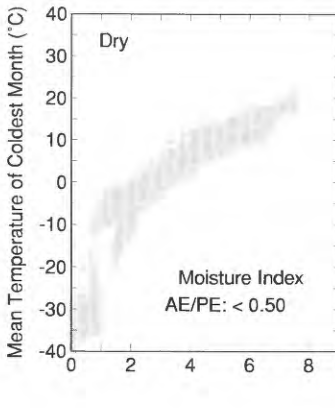
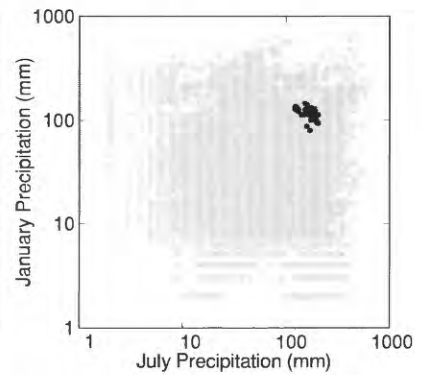
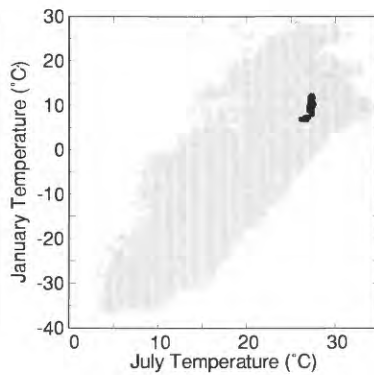
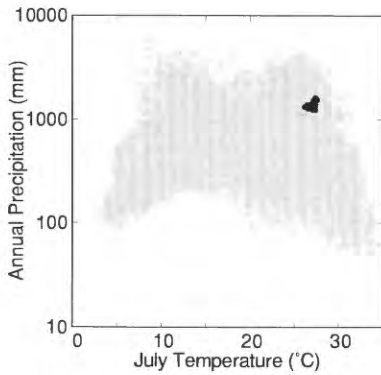
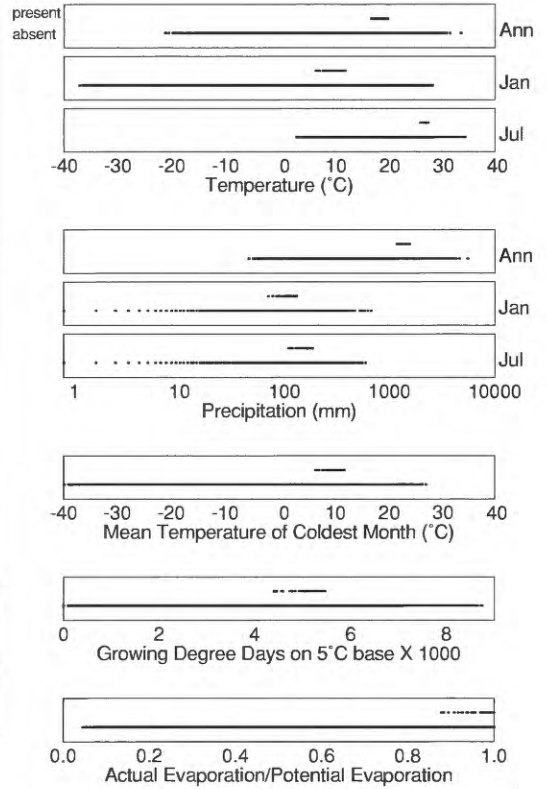
Magnolia fraseri



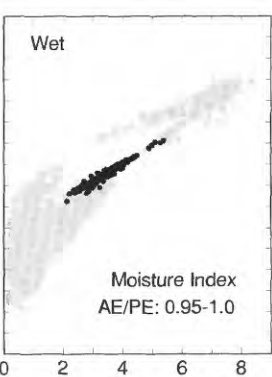
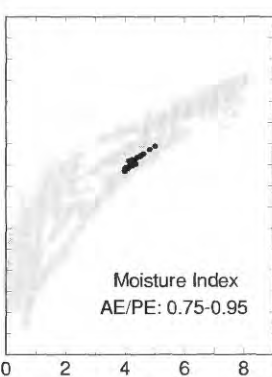
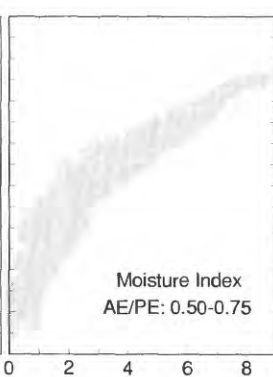
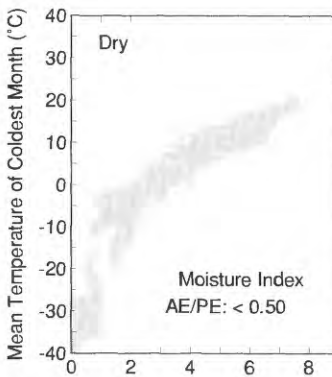
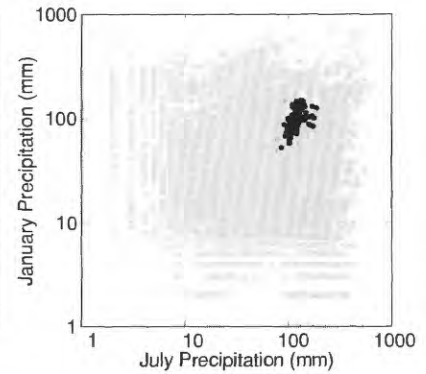
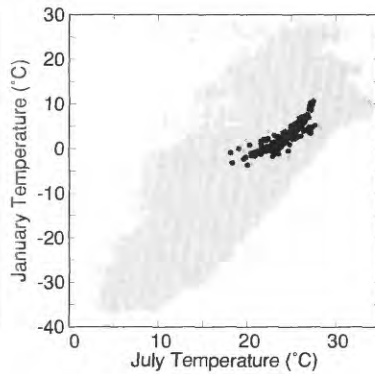
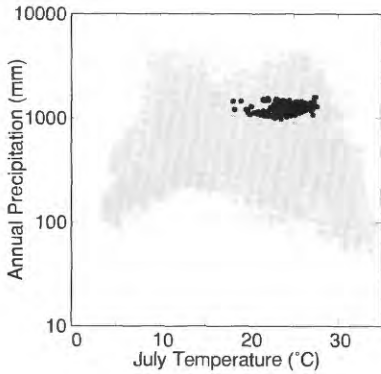
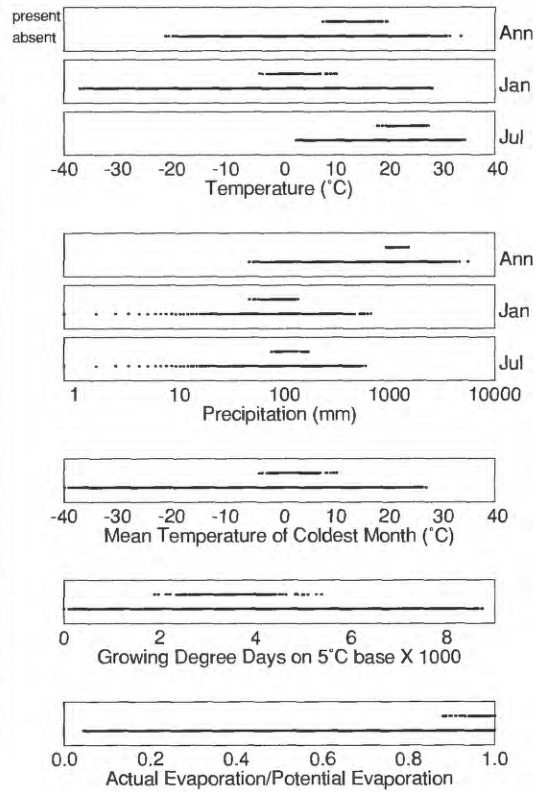
Magnolia macrophylla



Magnolia pyramidata

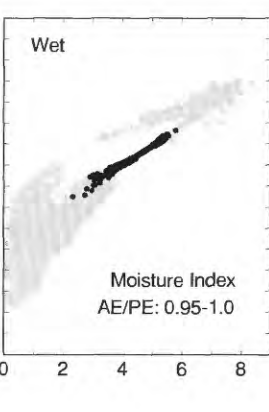
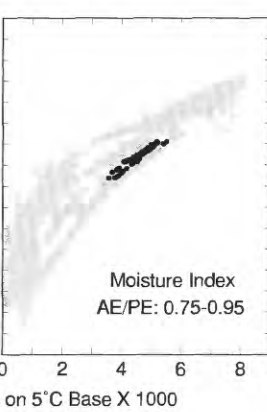
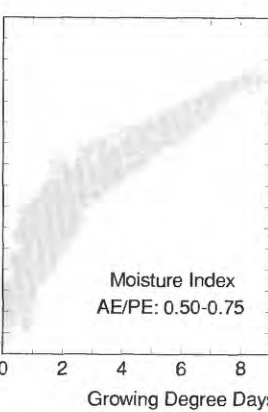
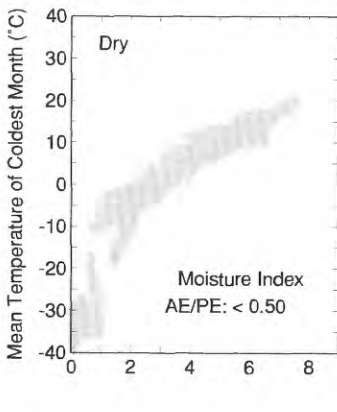
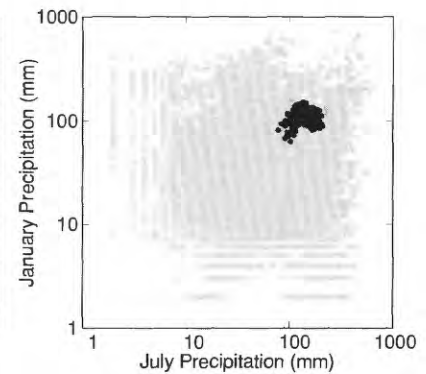
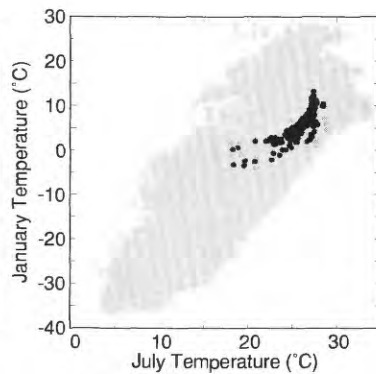
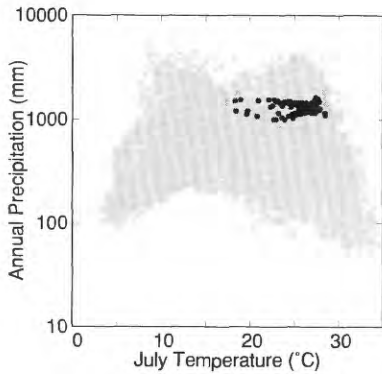
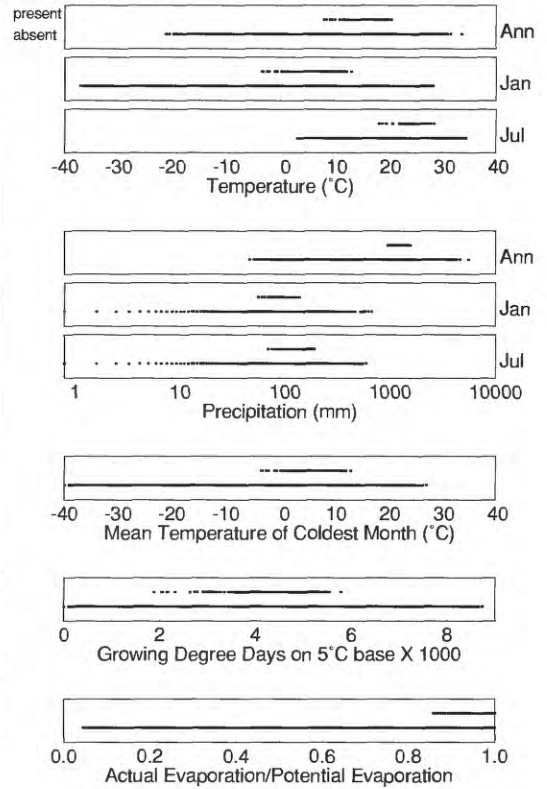


Magnolia tripetala

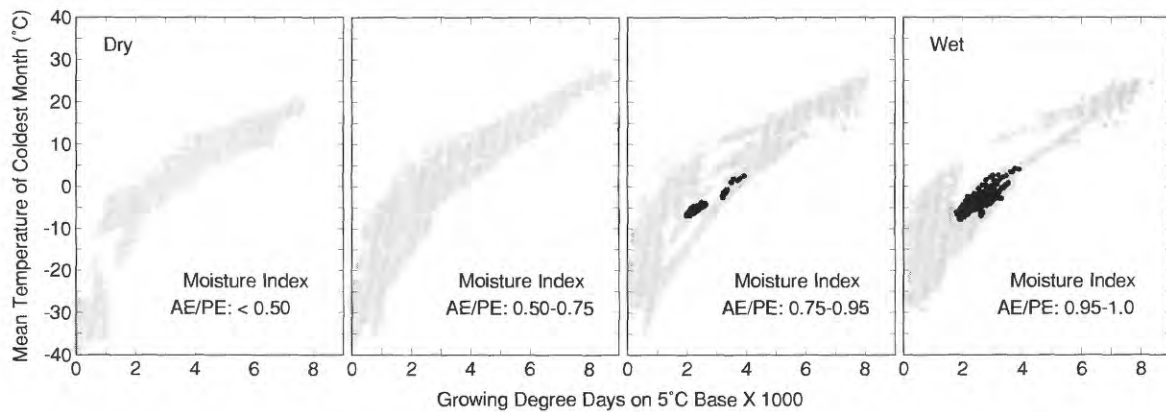
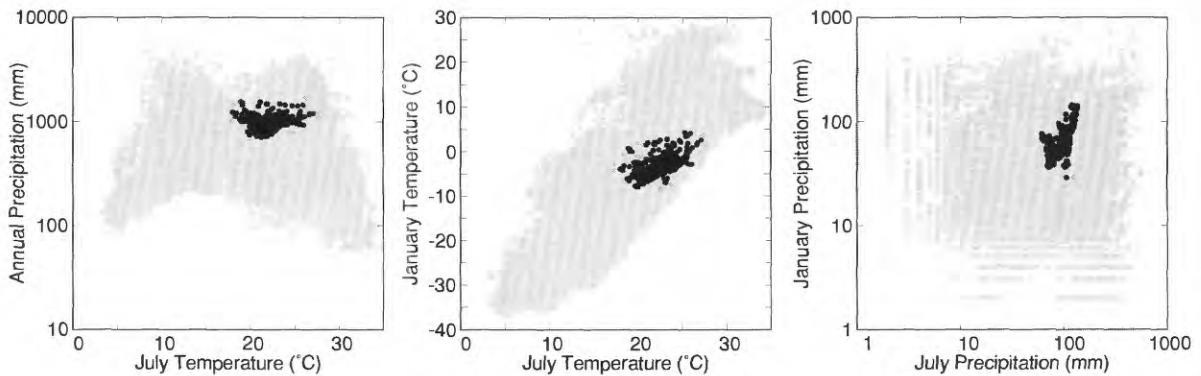
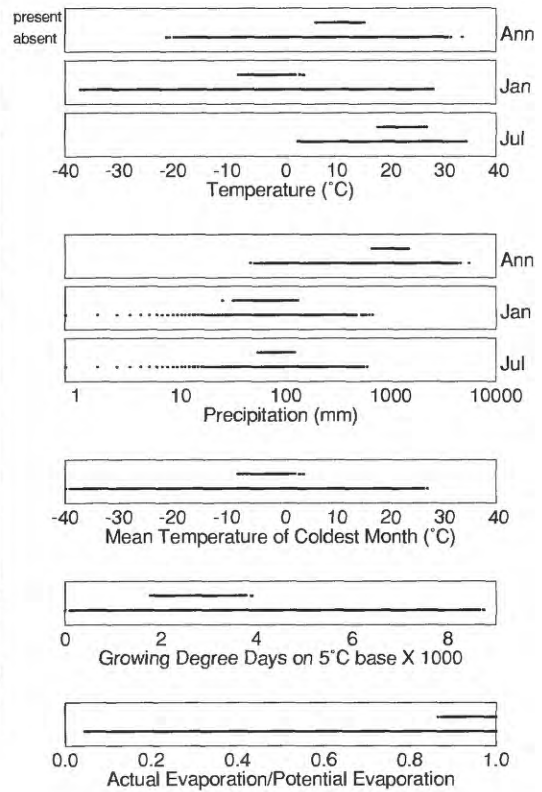
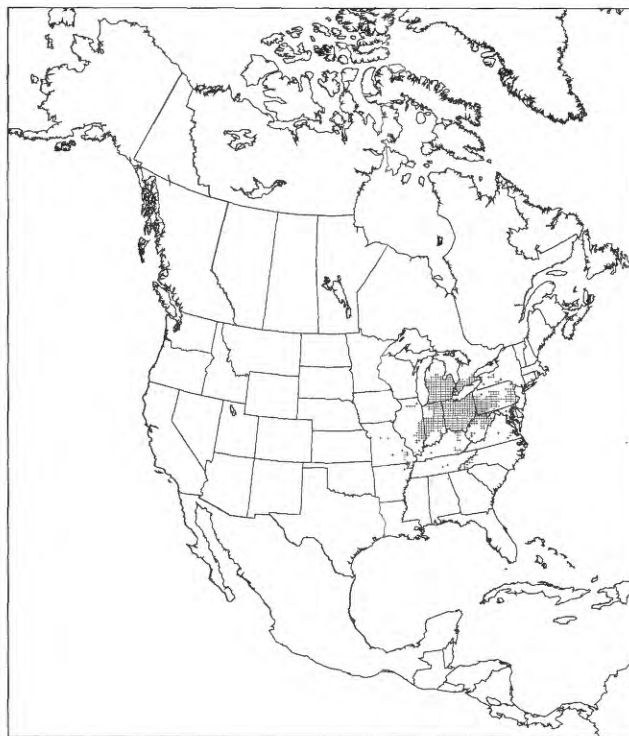


Growing Degree Days on 5°C Base X 1000

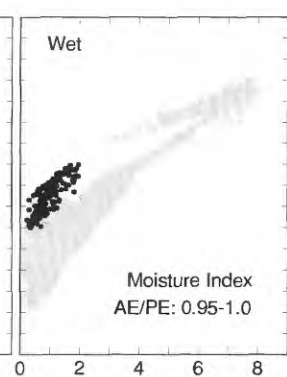
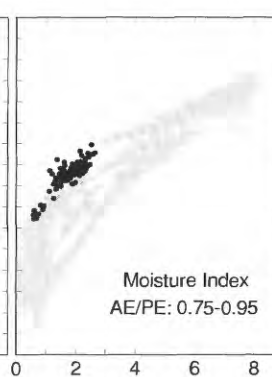
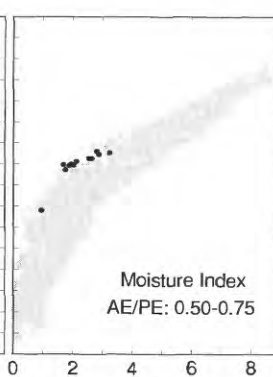
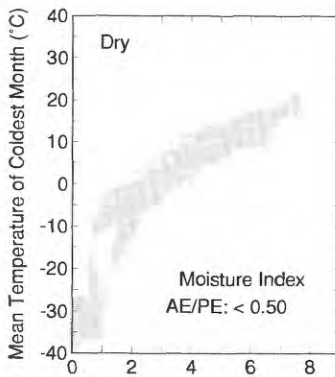
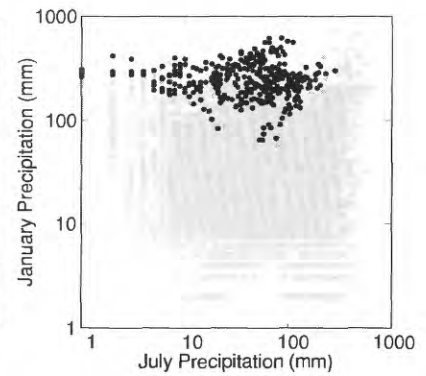
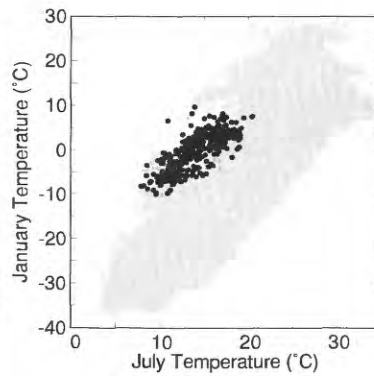
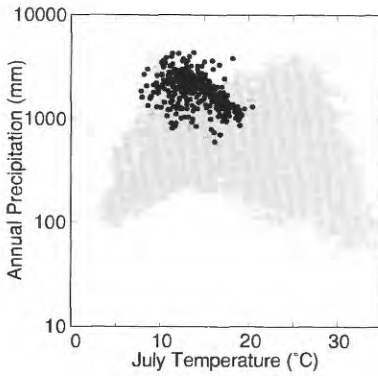
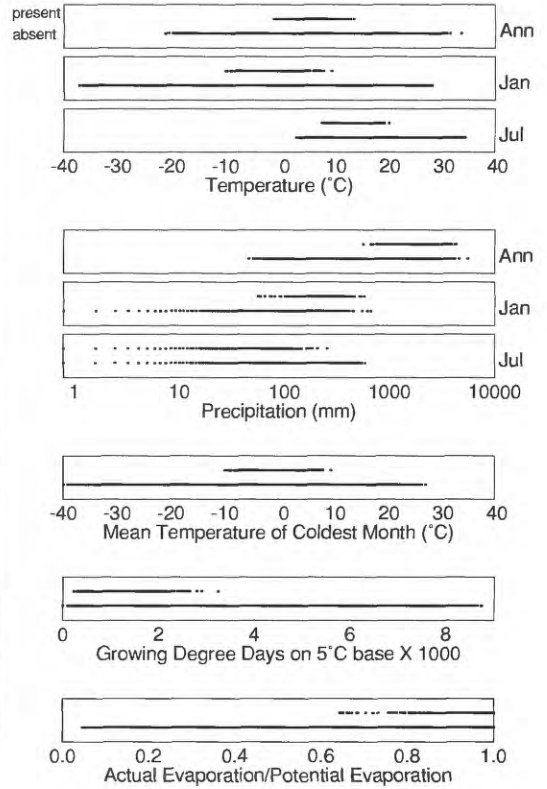
Malus angustifolia



Malus coronaria

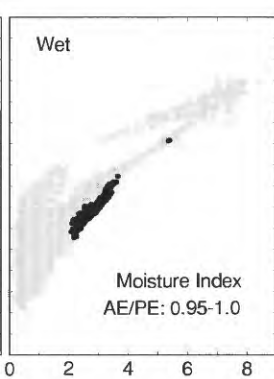
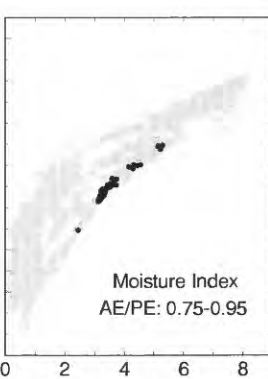
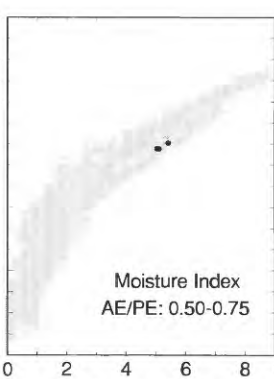
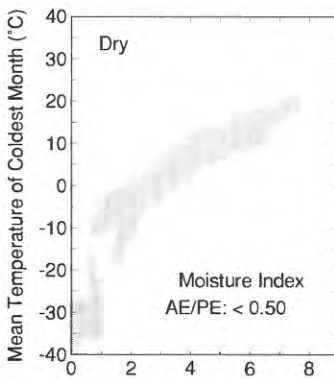
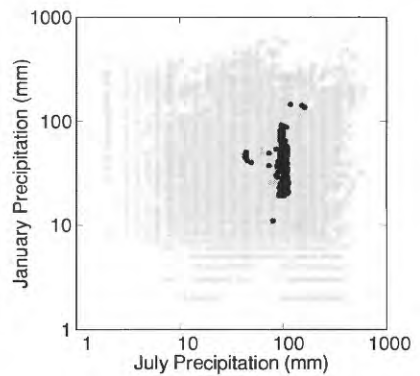
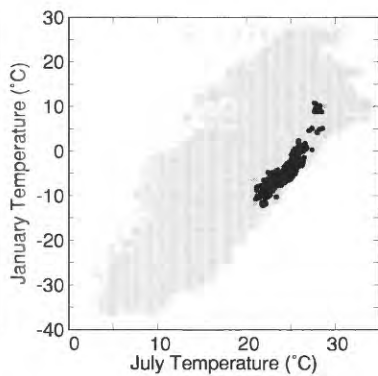
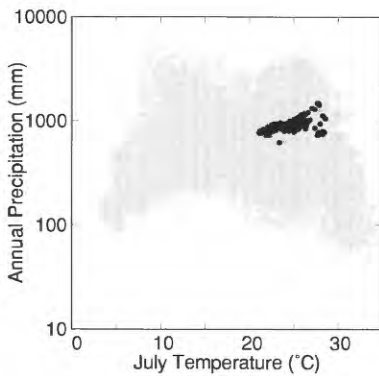
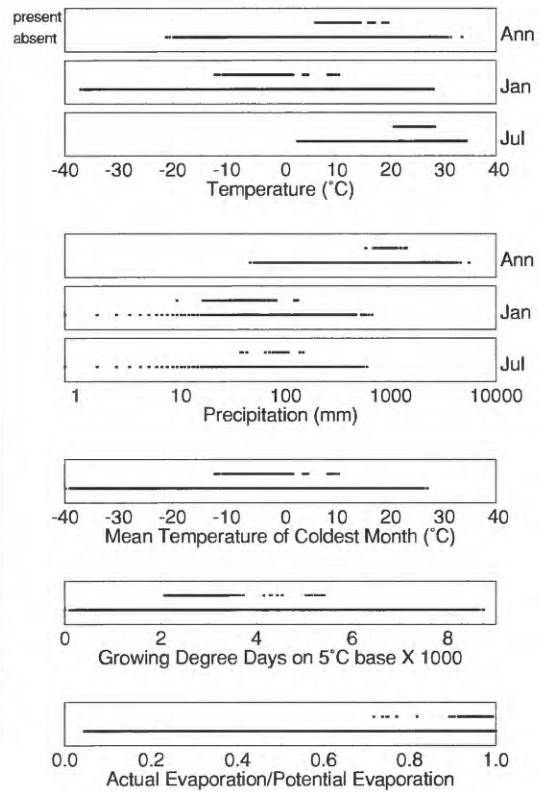


Malus diversifolia

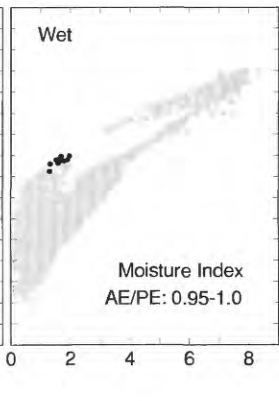
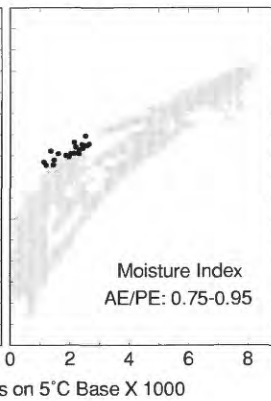
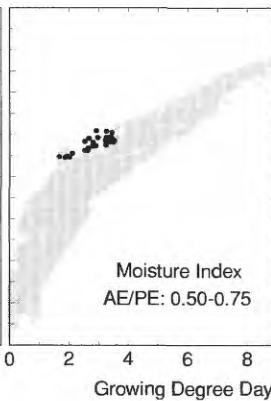
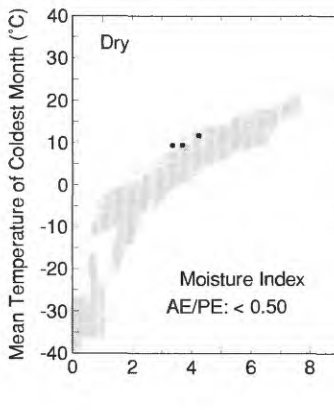
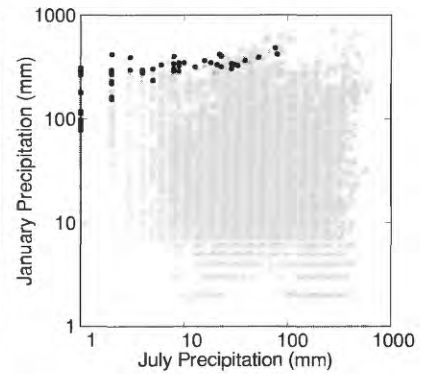
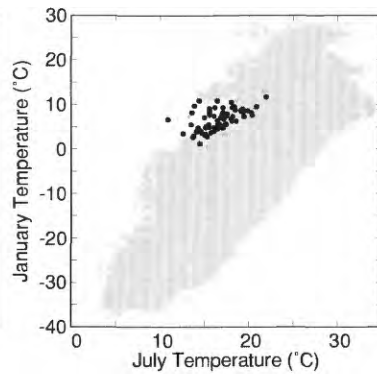
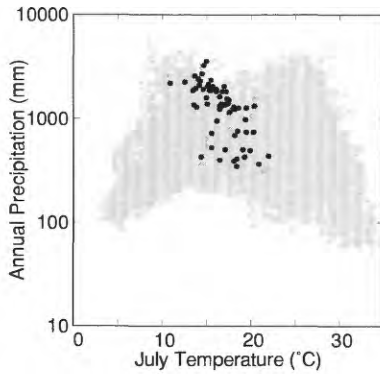
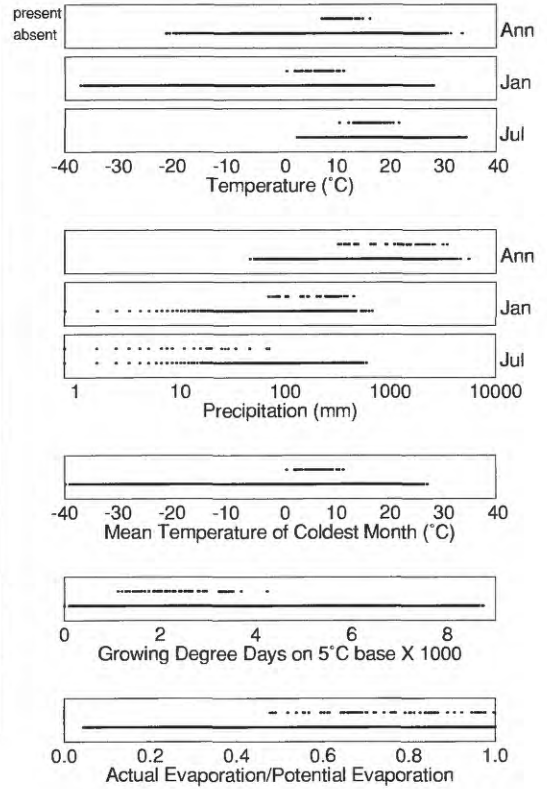


Growing Degree Days on 5°C Base X 1000

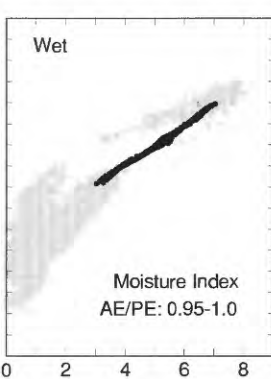
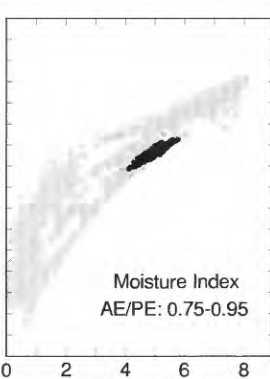
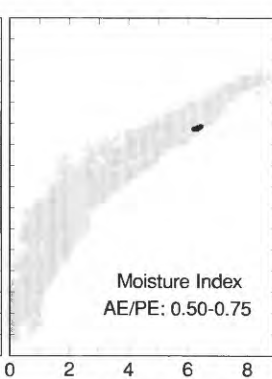
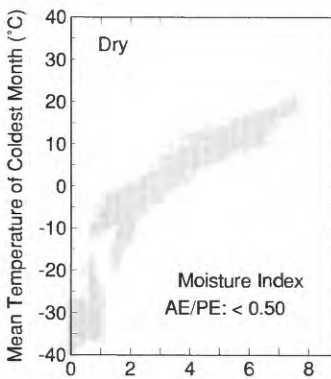
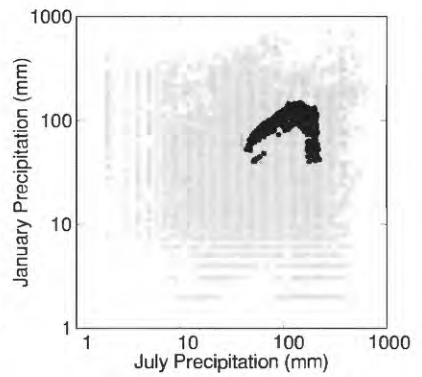
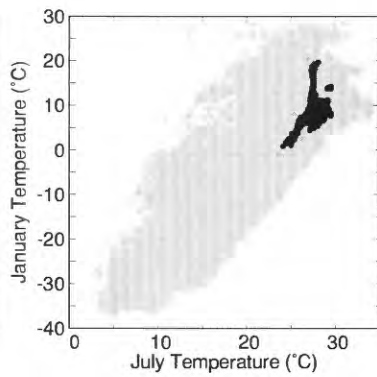
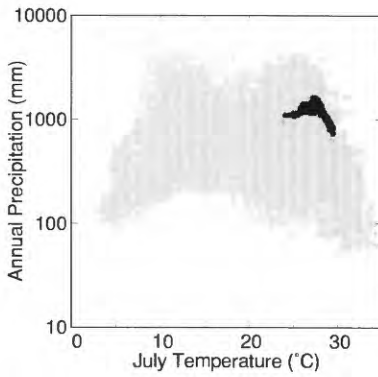
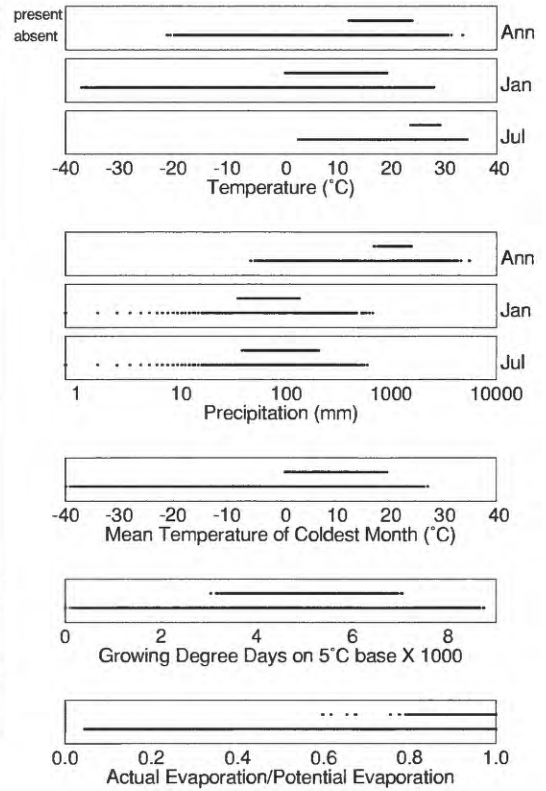
Malus ioensis



Myrica californica

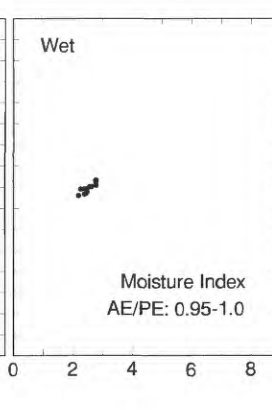
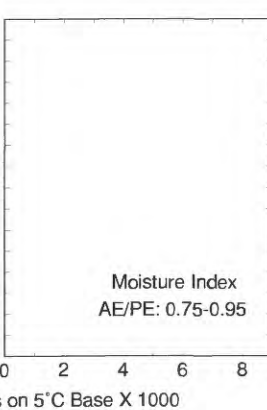
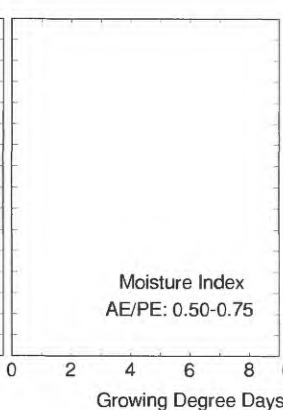
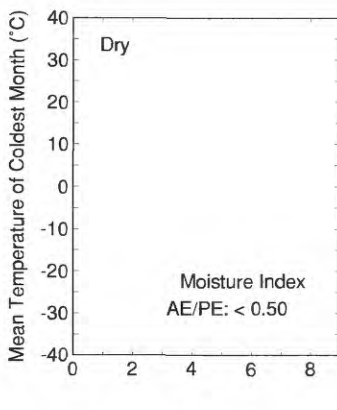
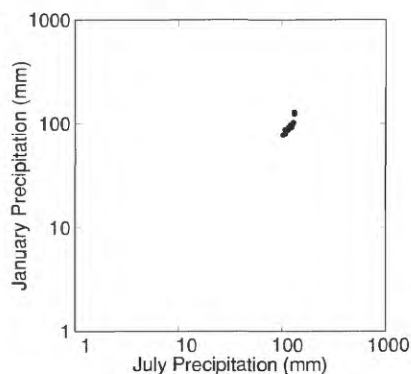
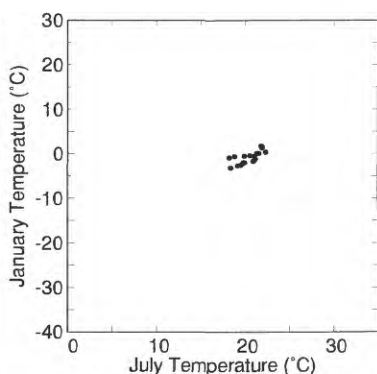
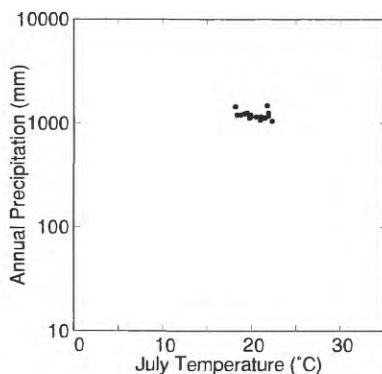
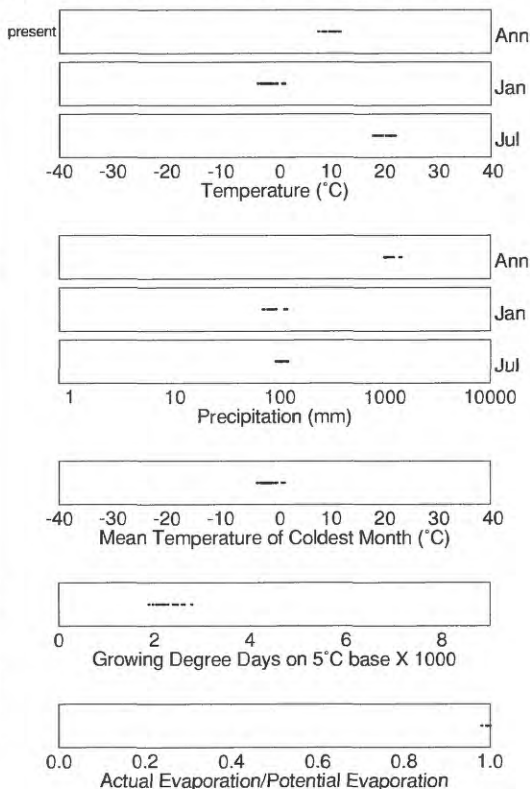


Myrica cerifera

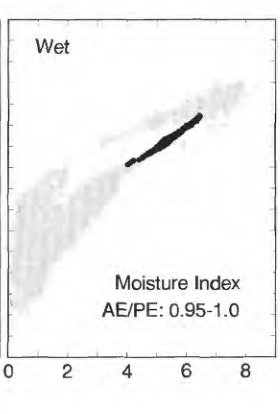
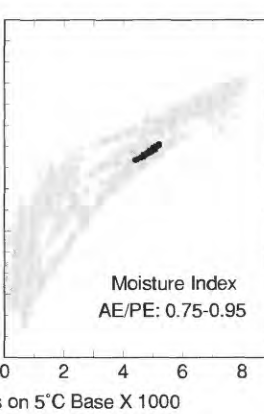
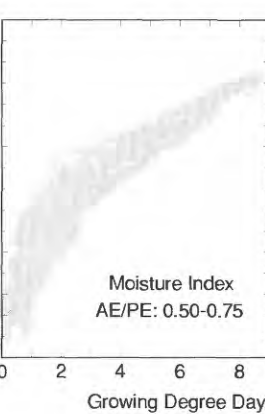
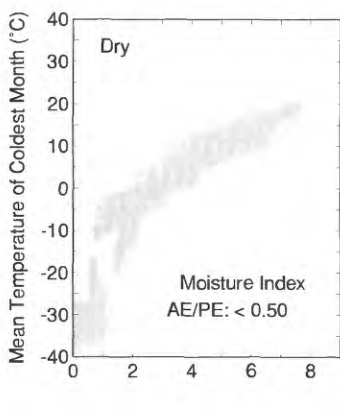
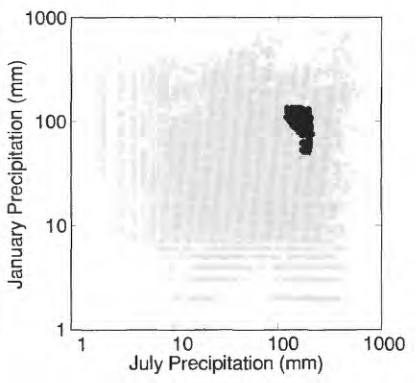
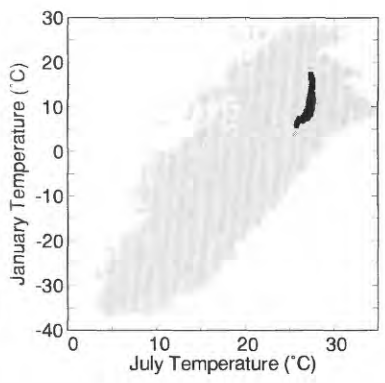
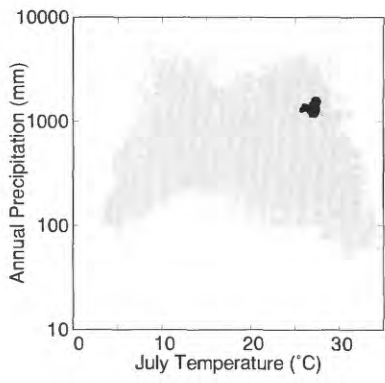
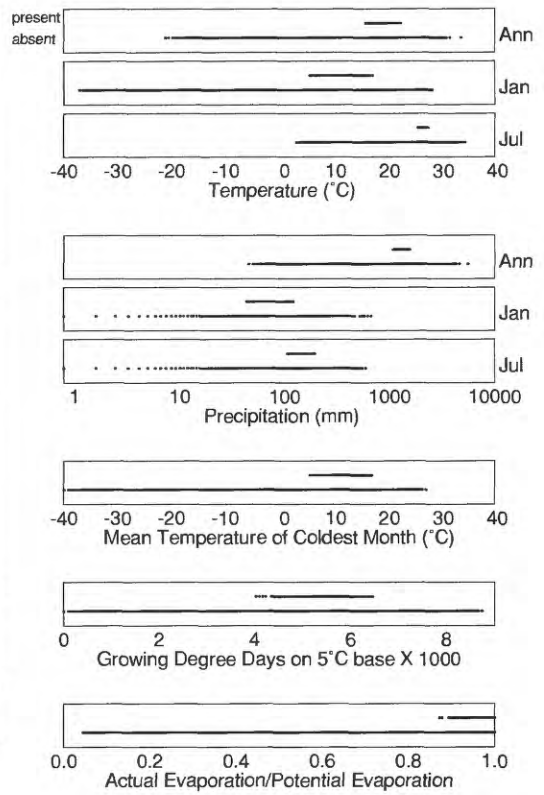


Growing Degree Days on 5°C Base X 1000

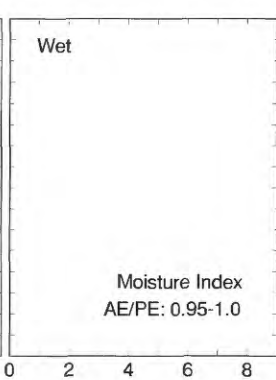
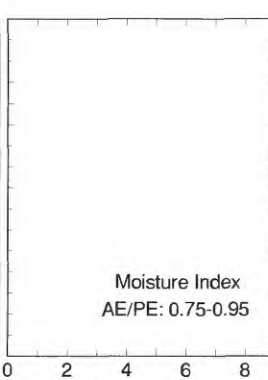
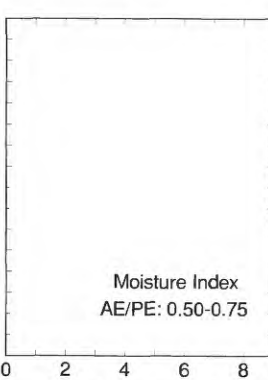
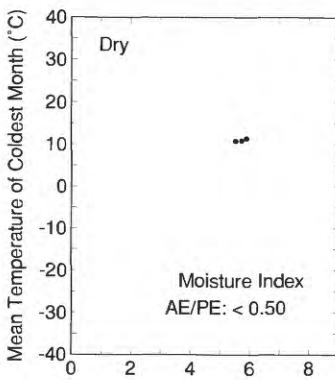
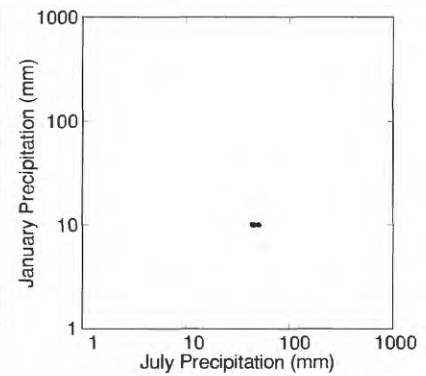
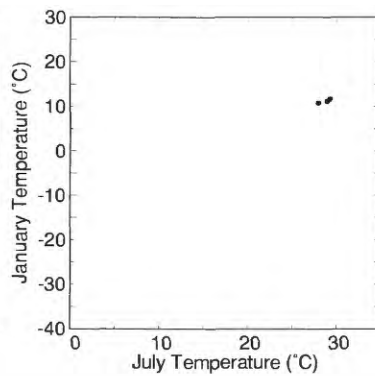
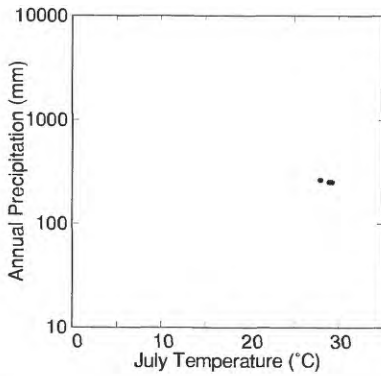
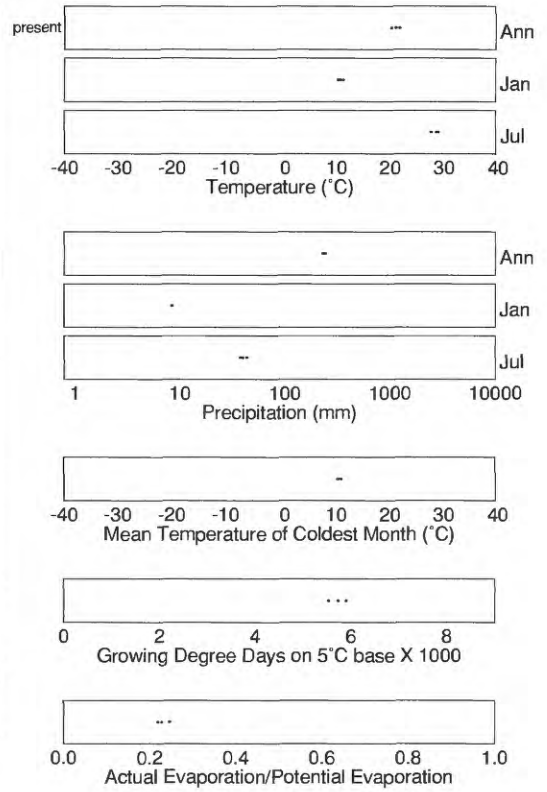
Nemopanthus collinus (minimal data - nearest grid points used with environmental parameters)



***Osmanthus americanus* (incomplete range)**

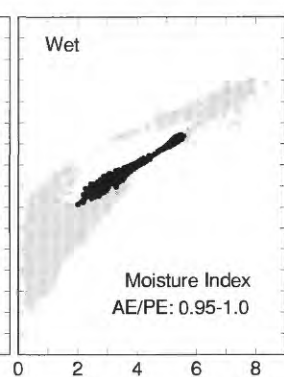
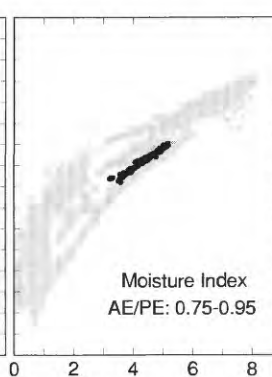
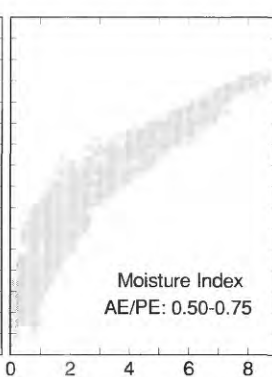
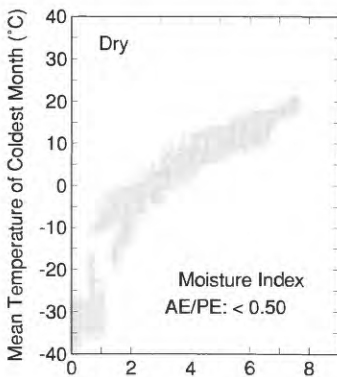
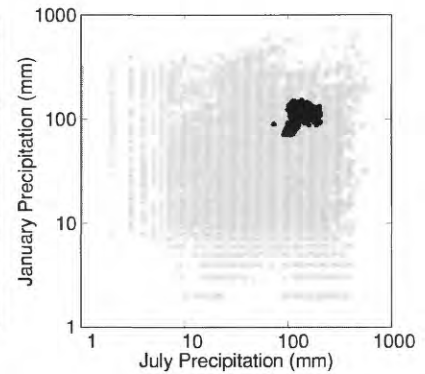
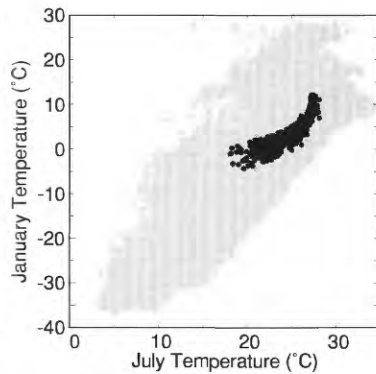
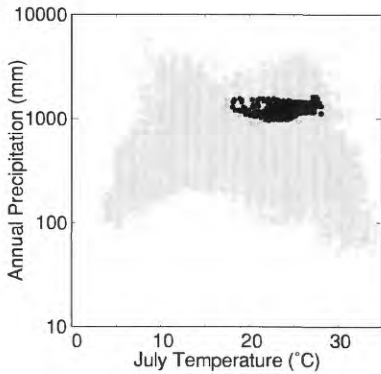
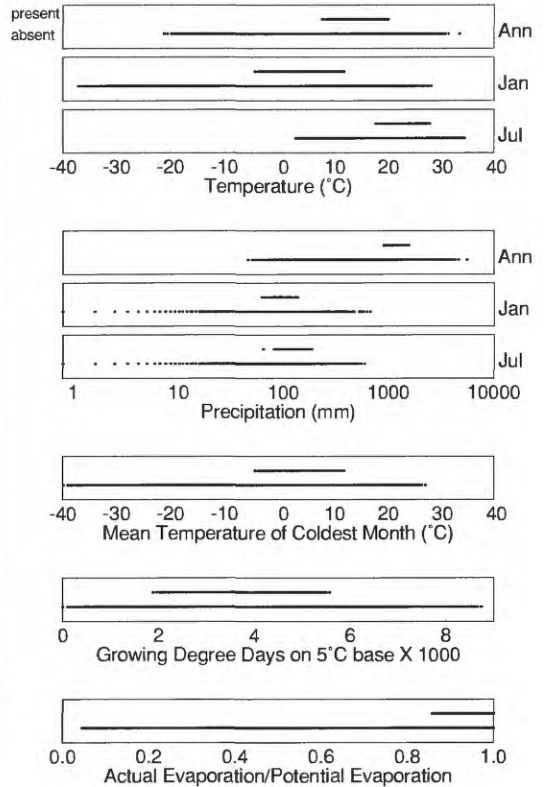
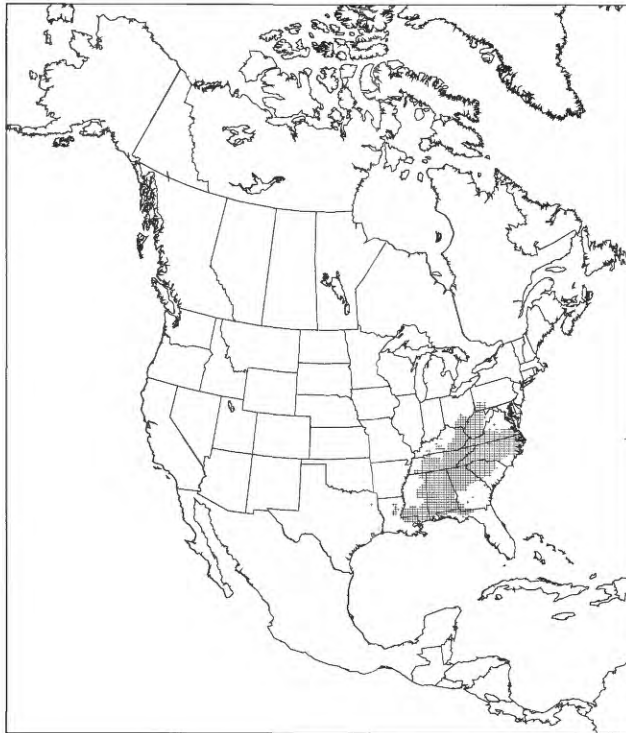


Ostrya chisosensis (minimal data - nearest grid points used with environmental parameters)



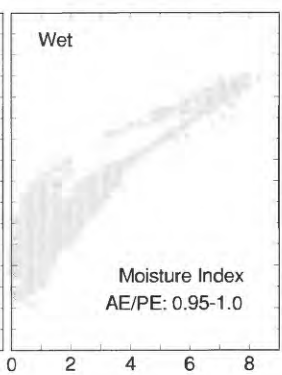
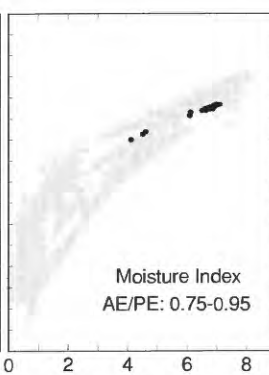
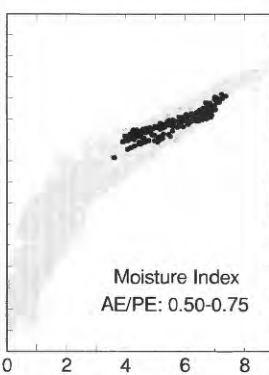
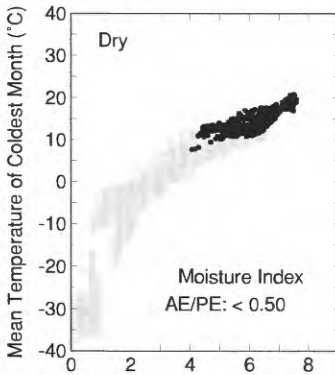
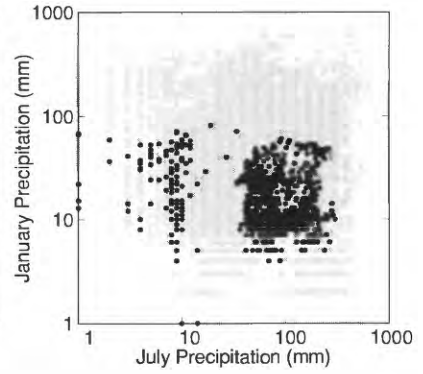
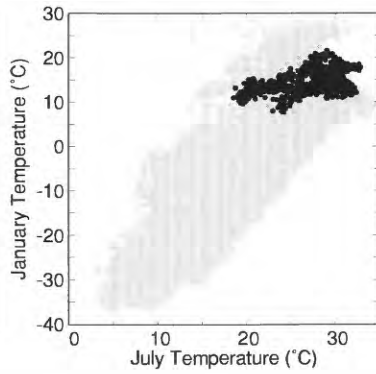
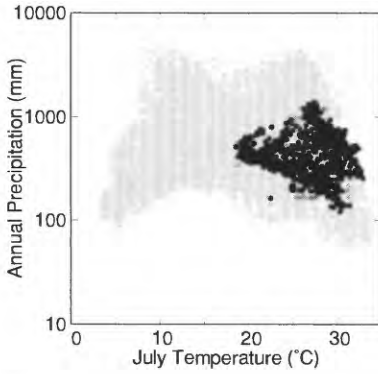
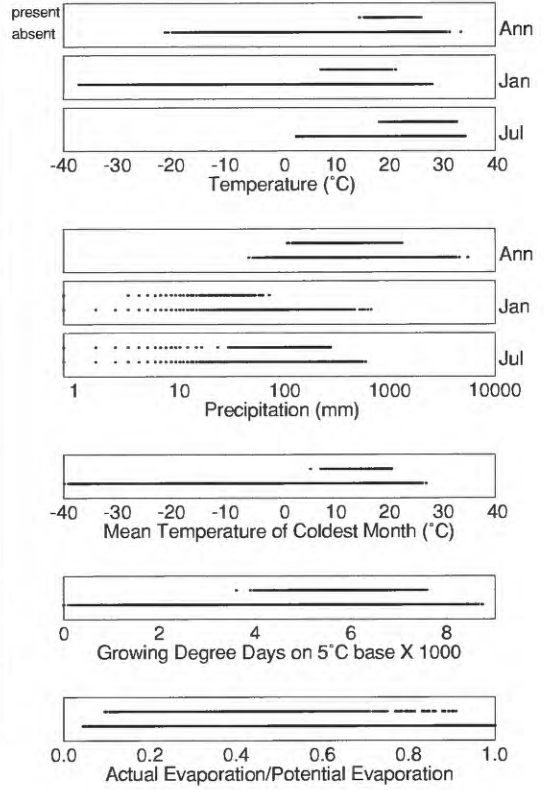
Growing Degree Days on 5°C Base X 1000

Oxydendrum arboreum

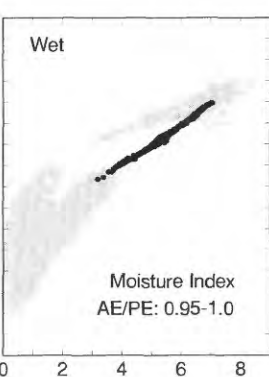
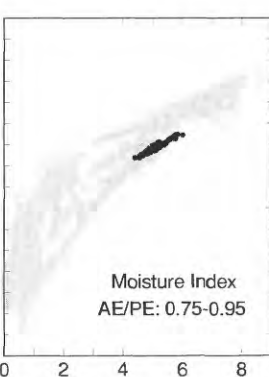
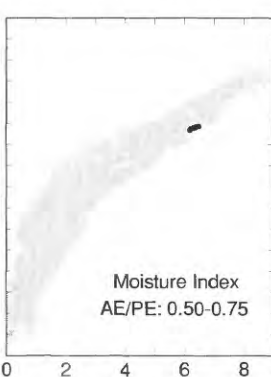
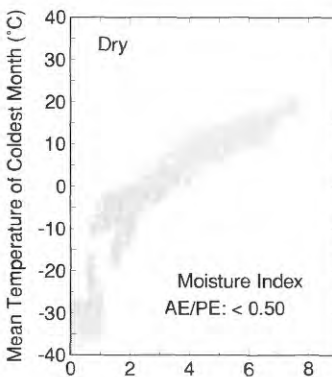
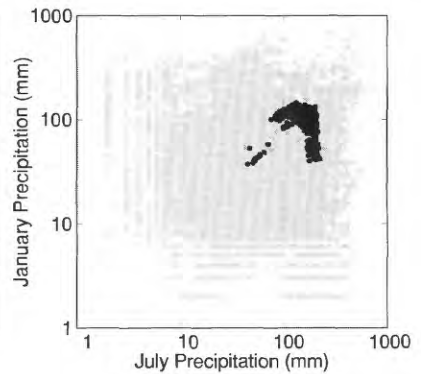
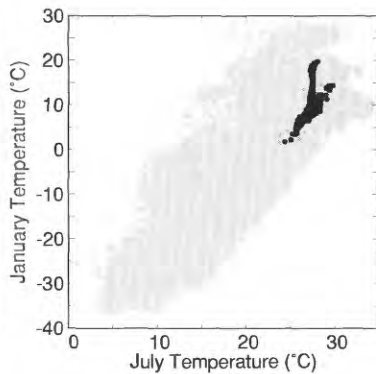
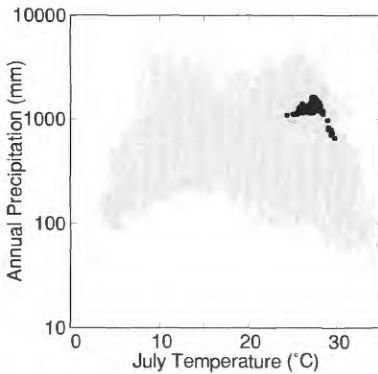
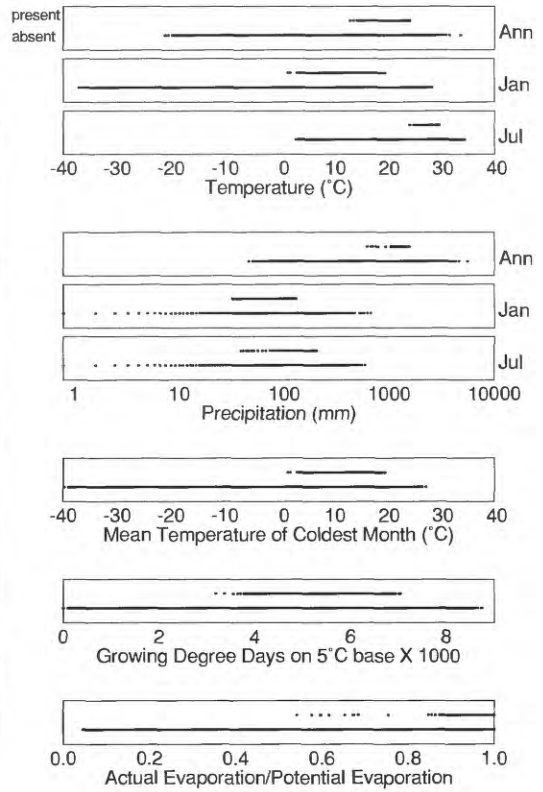


Growing Degree Days on 5°C Base X 1000

***Parkinsonia aculeata* (incomplete range)**

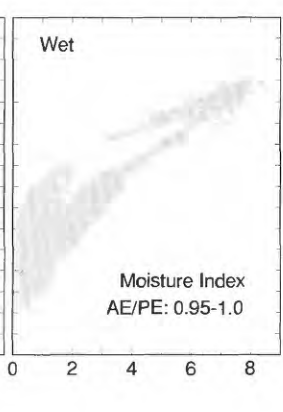
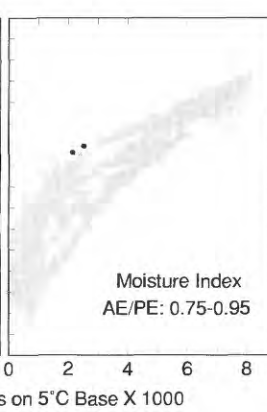
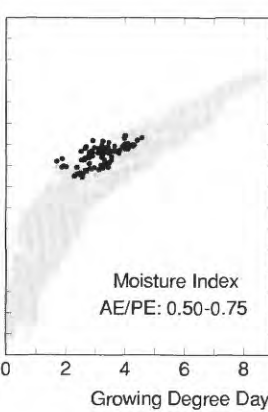
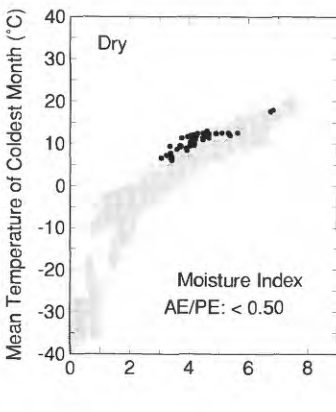
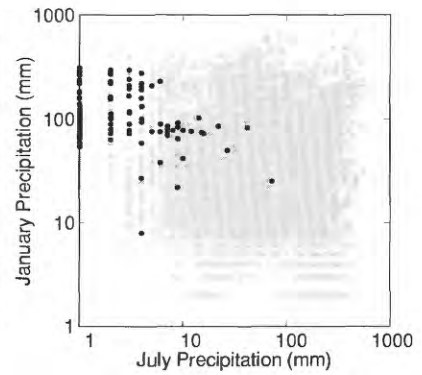
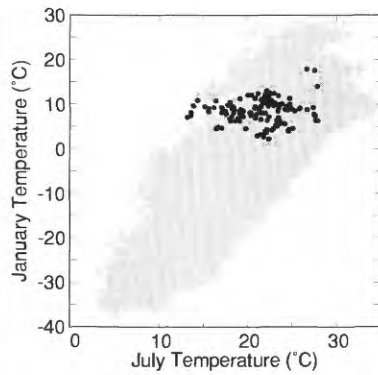
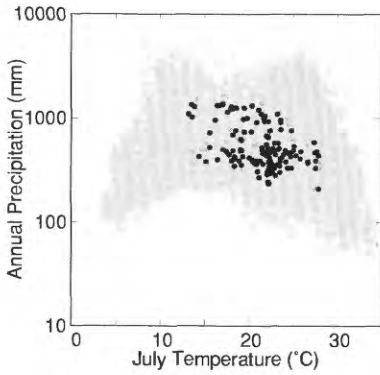
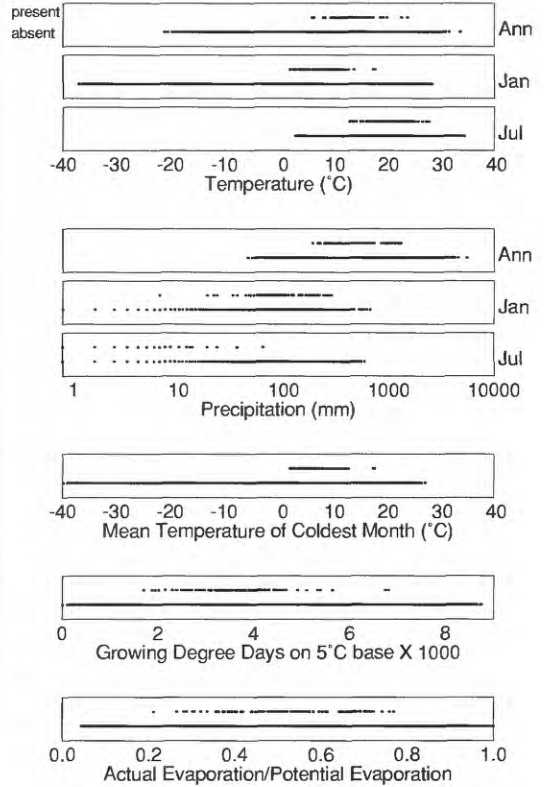


Persea borbonia

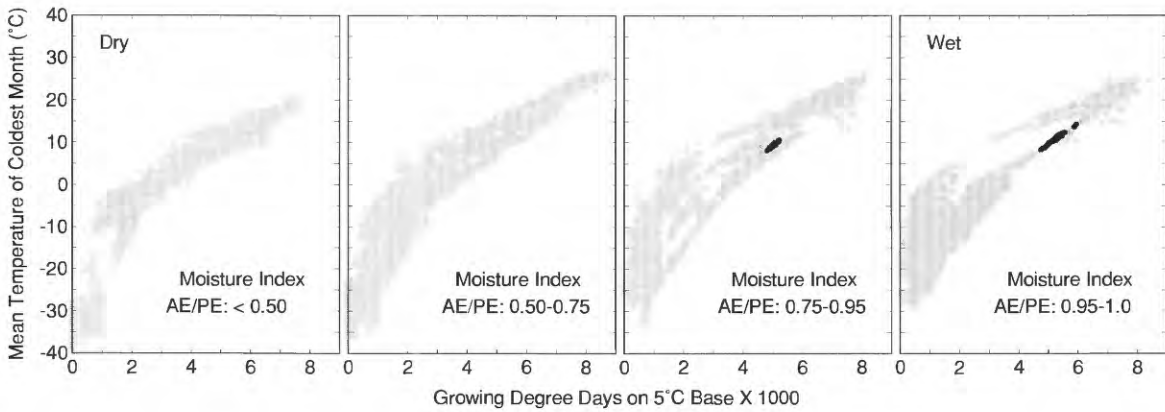
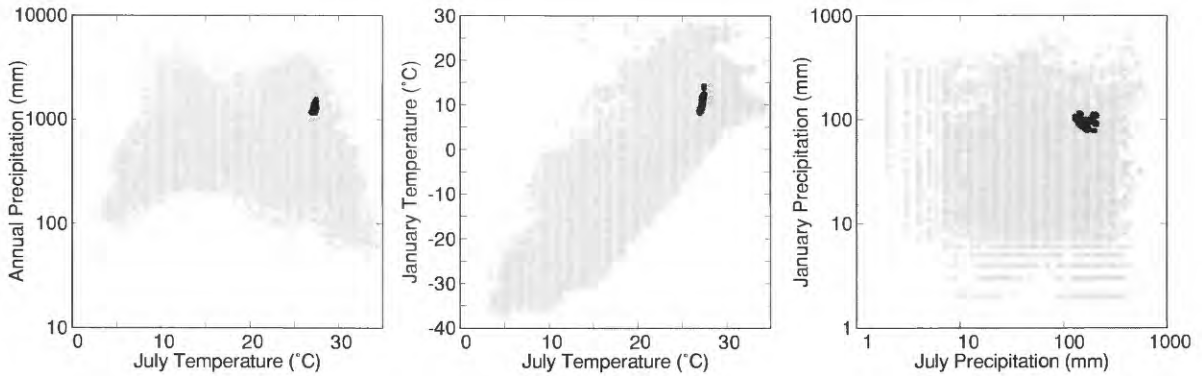
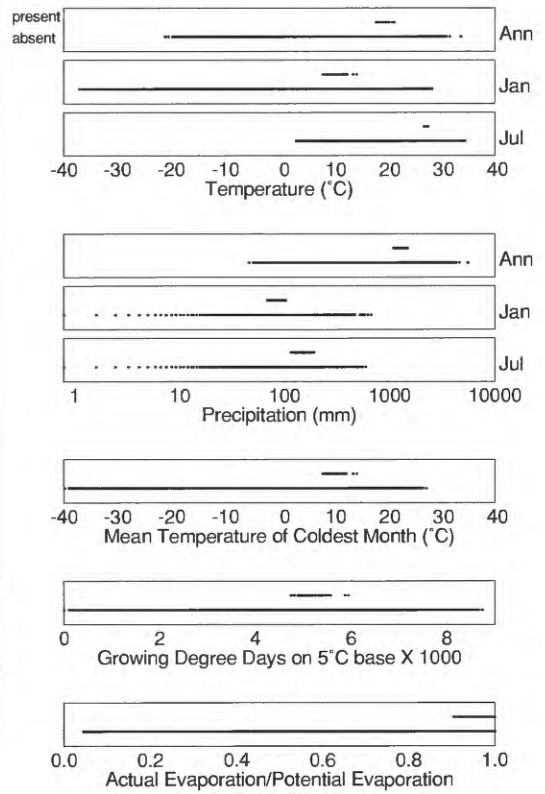


Growing Degree Days on 5°C Base X 1000

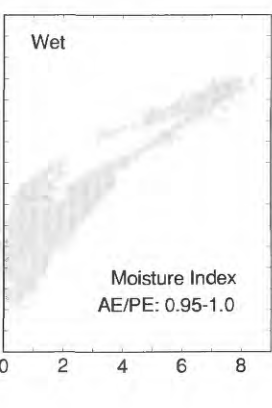
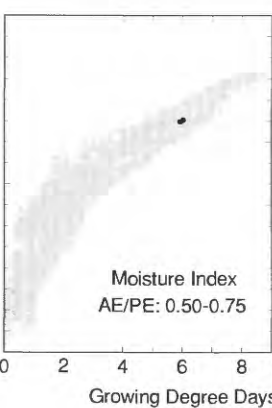
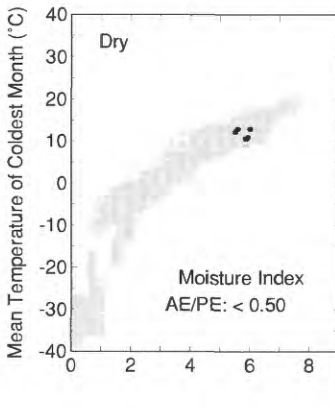
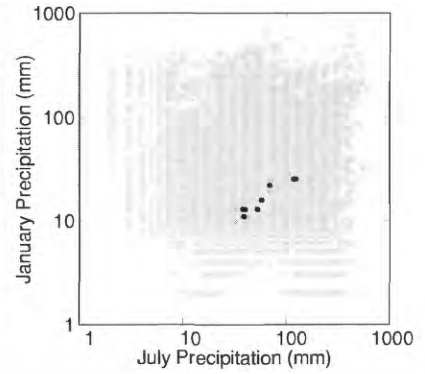
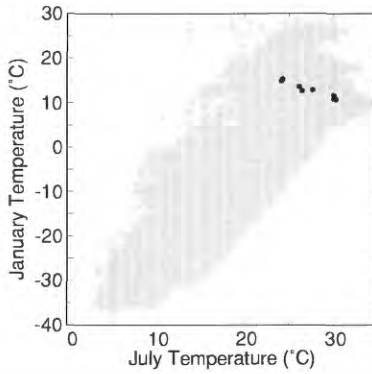
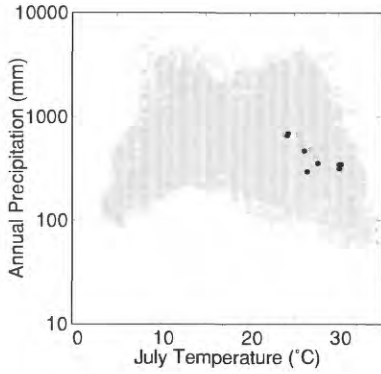
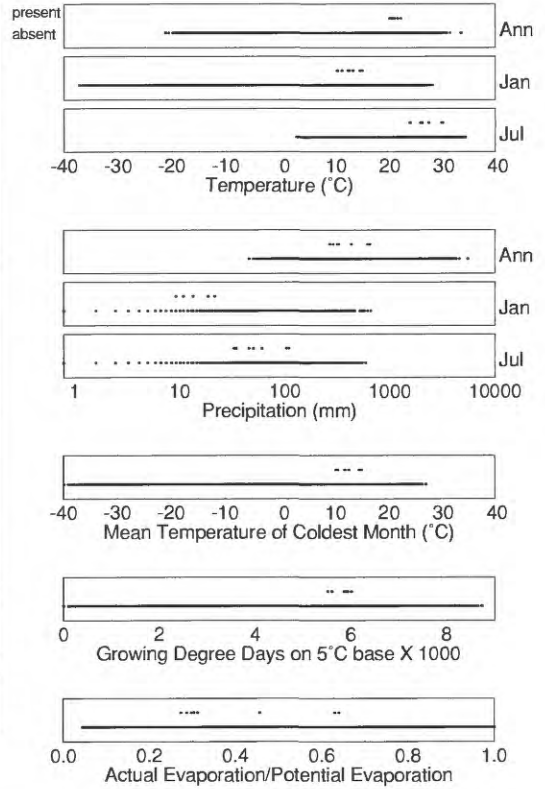
Photinia arbutifolia



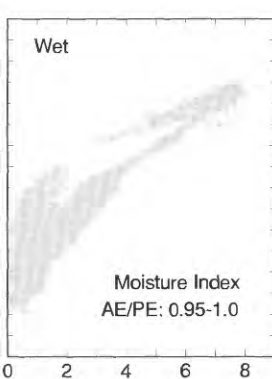
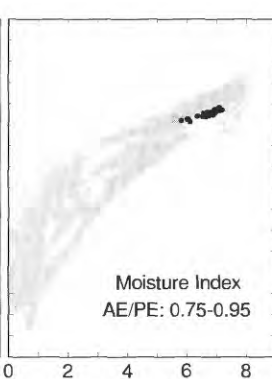
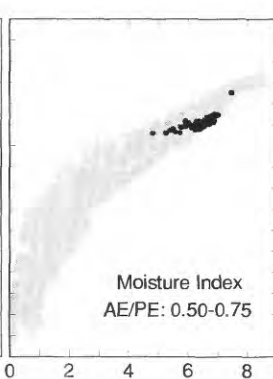
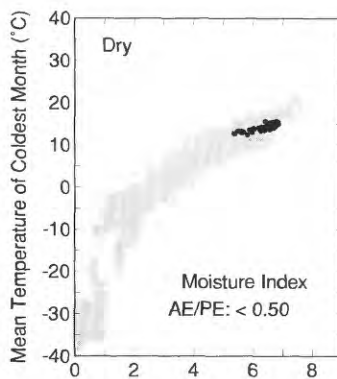
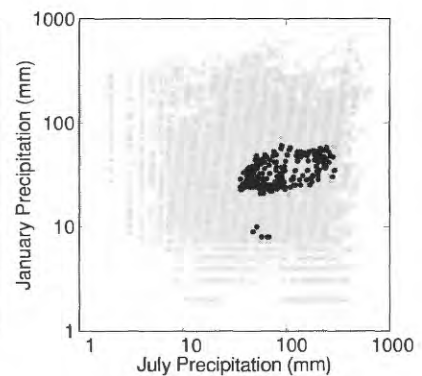
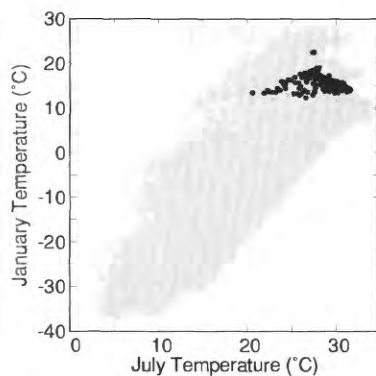
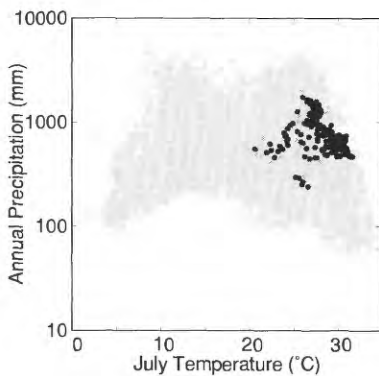
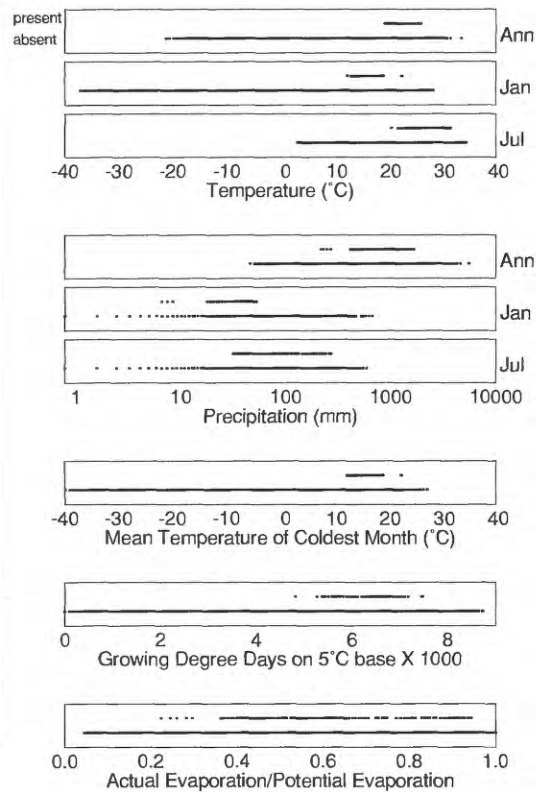
Pinckneya pubens



Pistacia texana

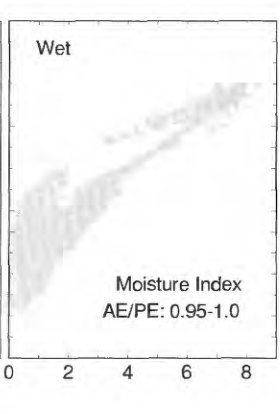
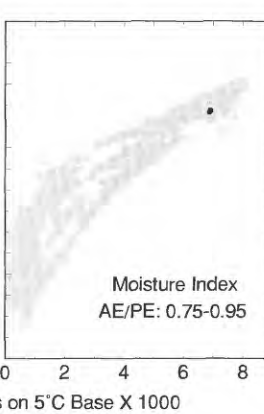
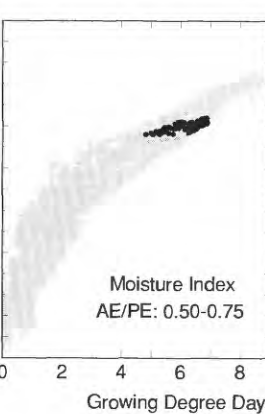
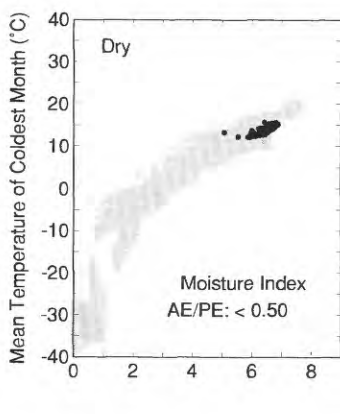
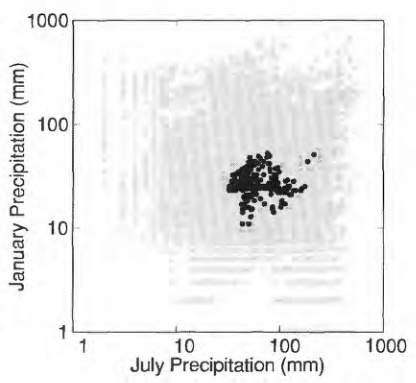
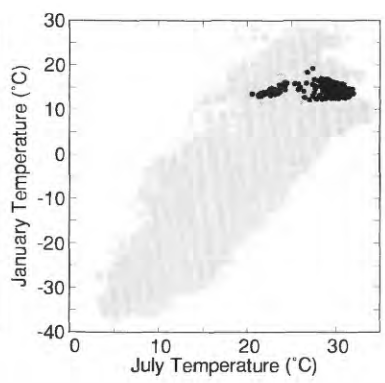
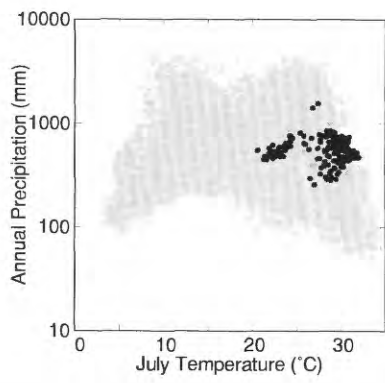
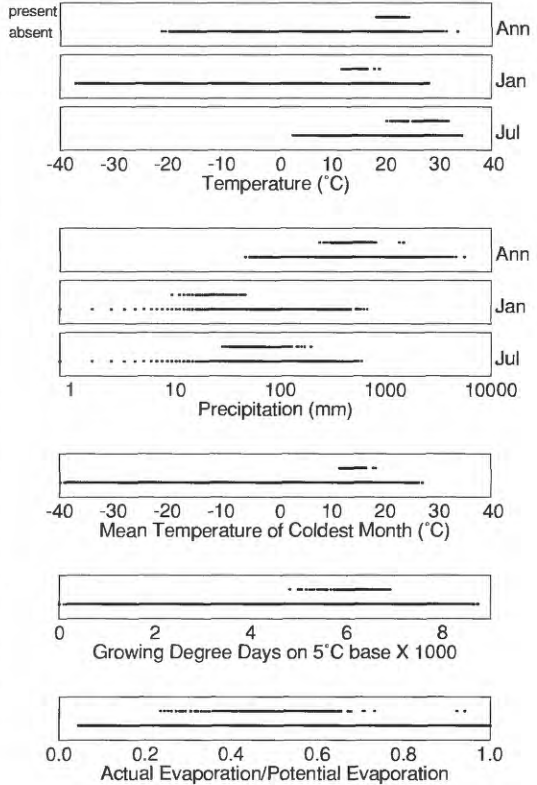
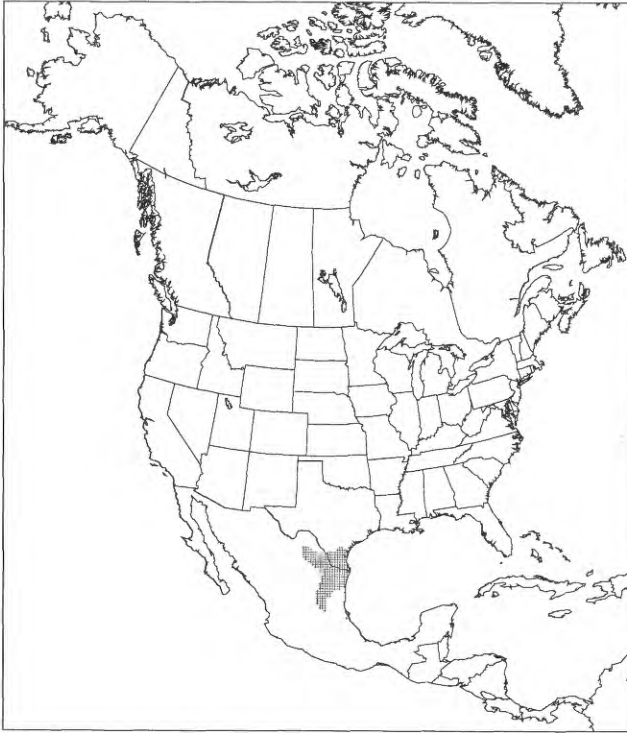


Pithecellobium flexicaule

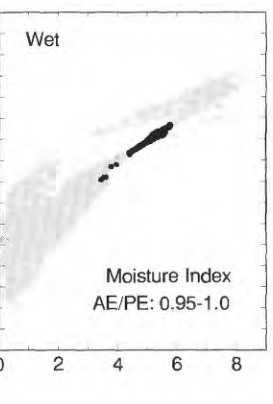
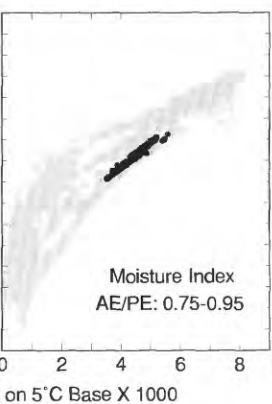
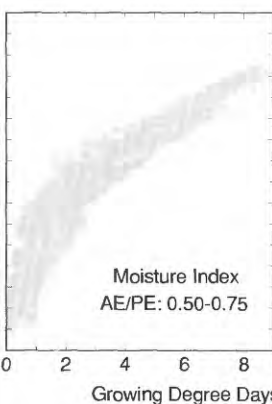
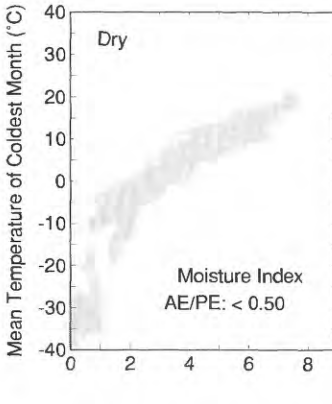
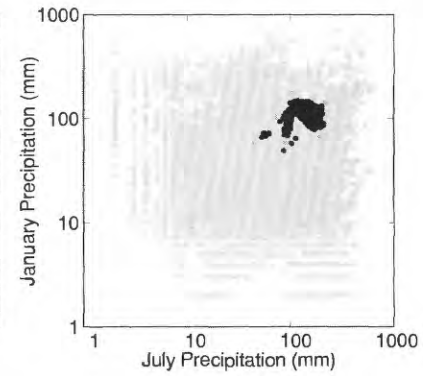
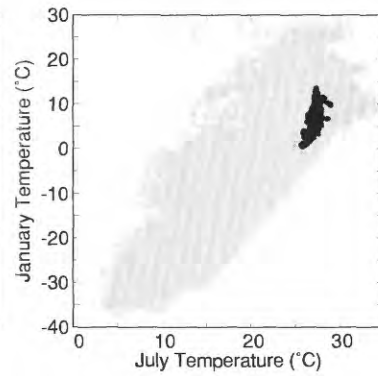
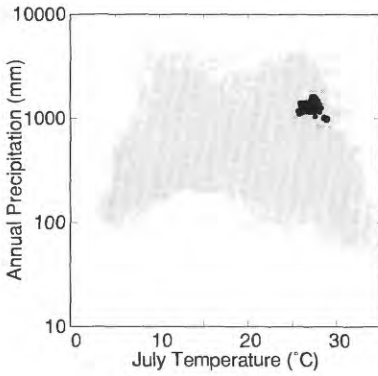
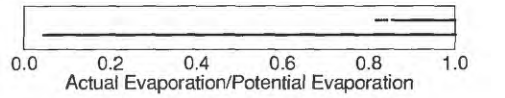
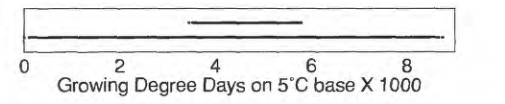
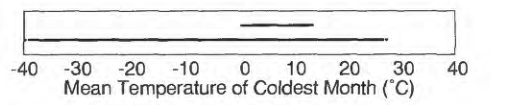
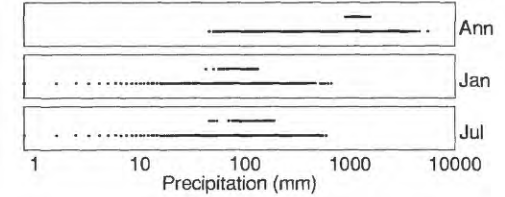
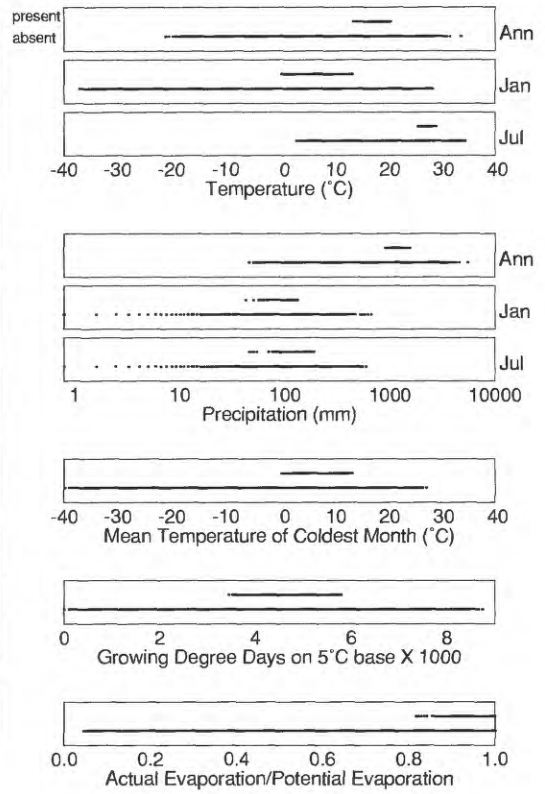


Growing Degree Days on 5°C Base X 1000

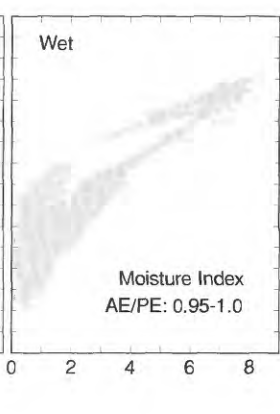
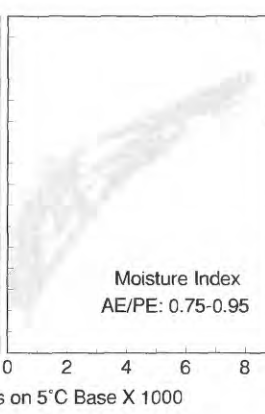
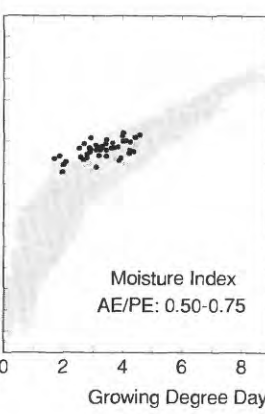
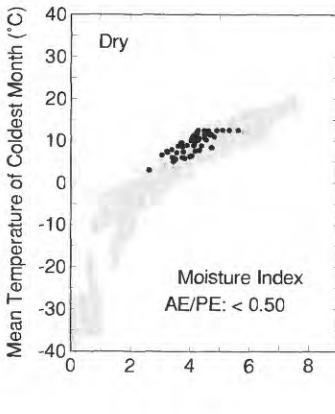
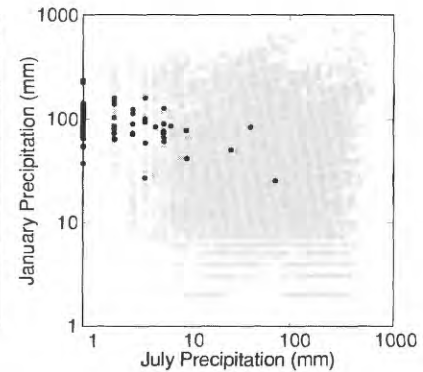
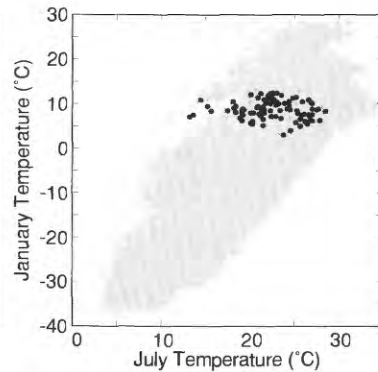
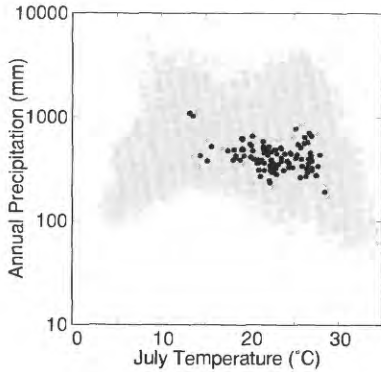
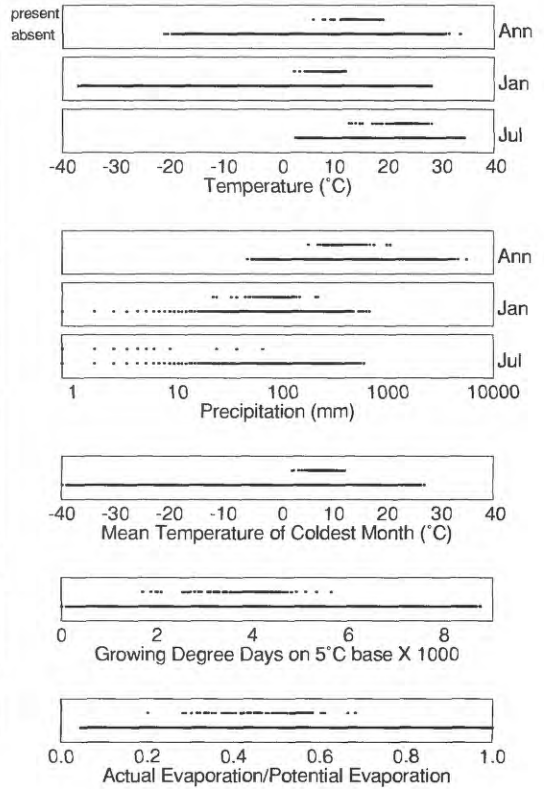
Pithecellobium pallens



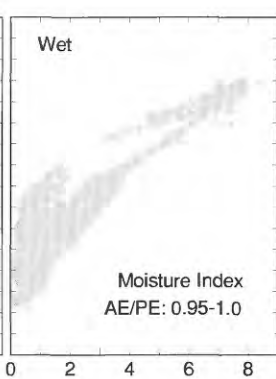
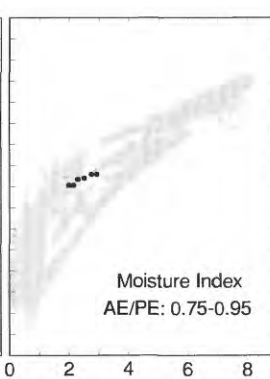
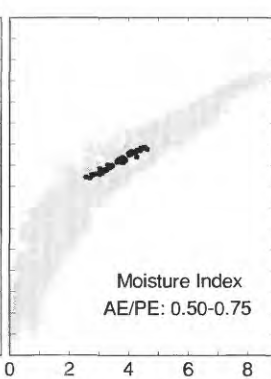
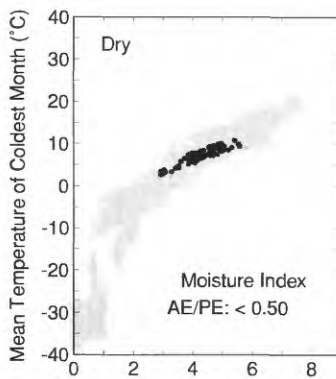
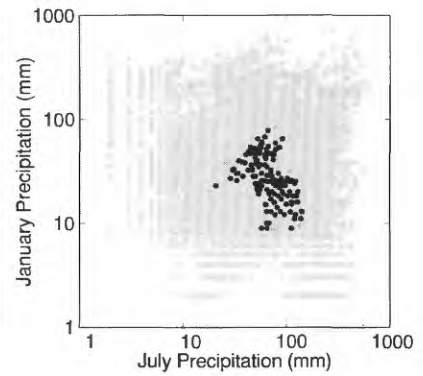
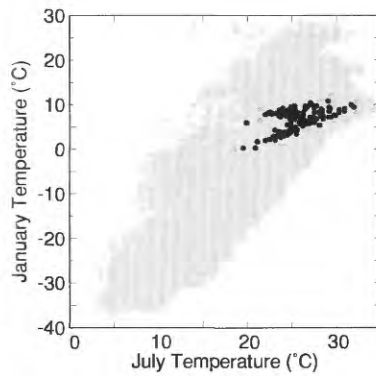
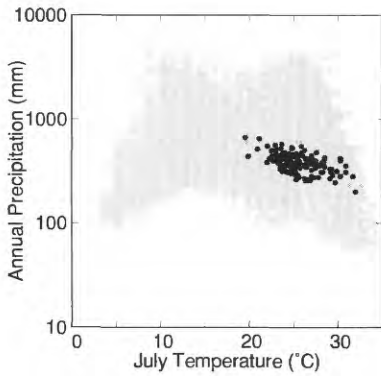
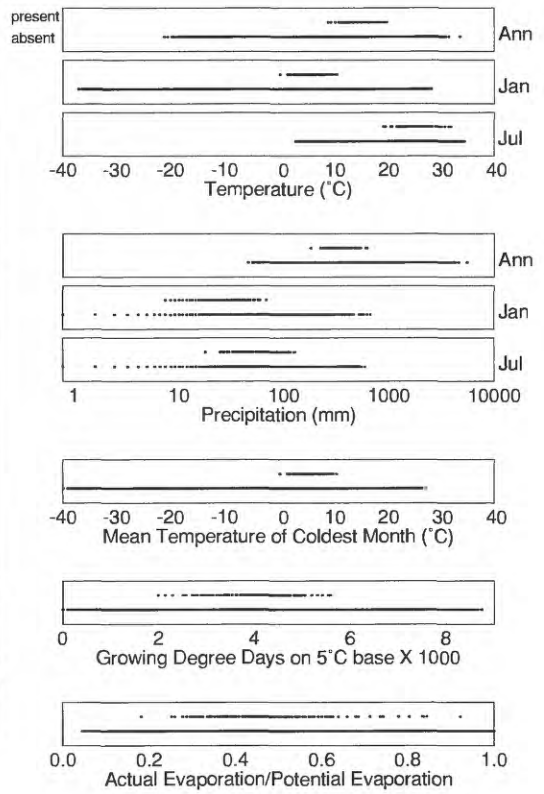
Planera aquatica



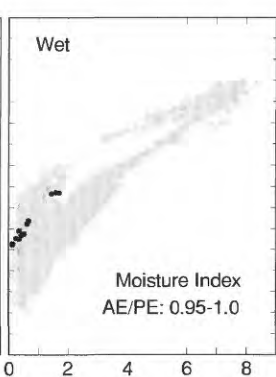
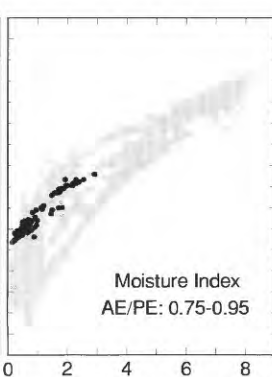
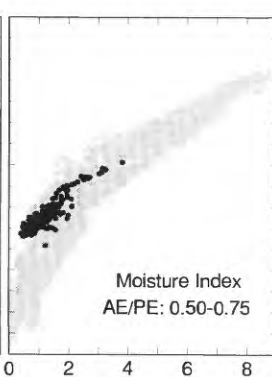
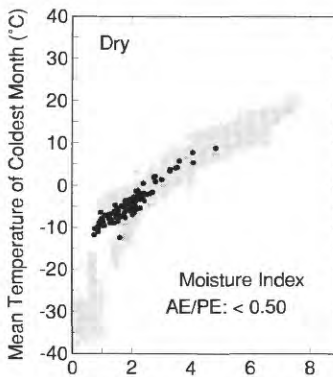
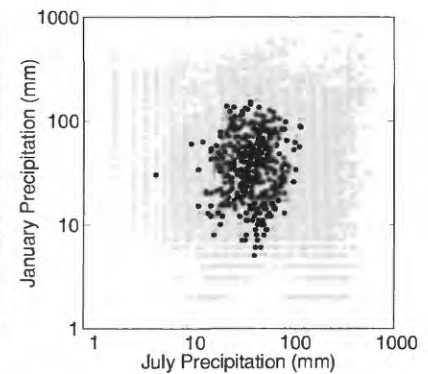
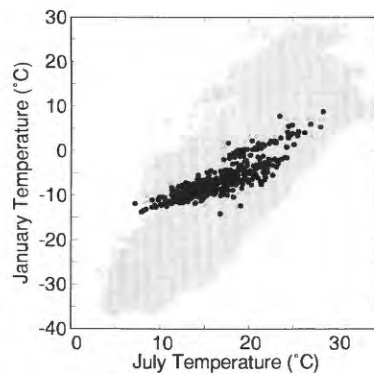
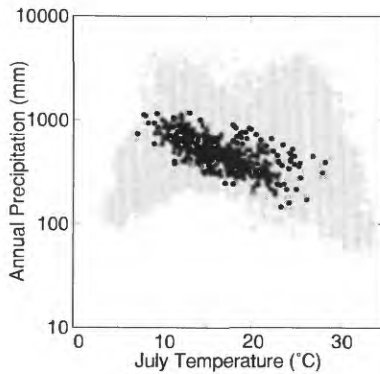
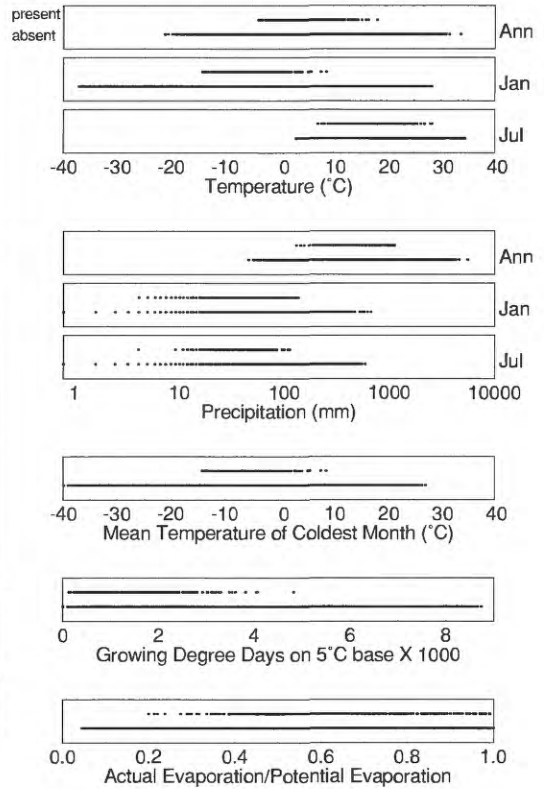
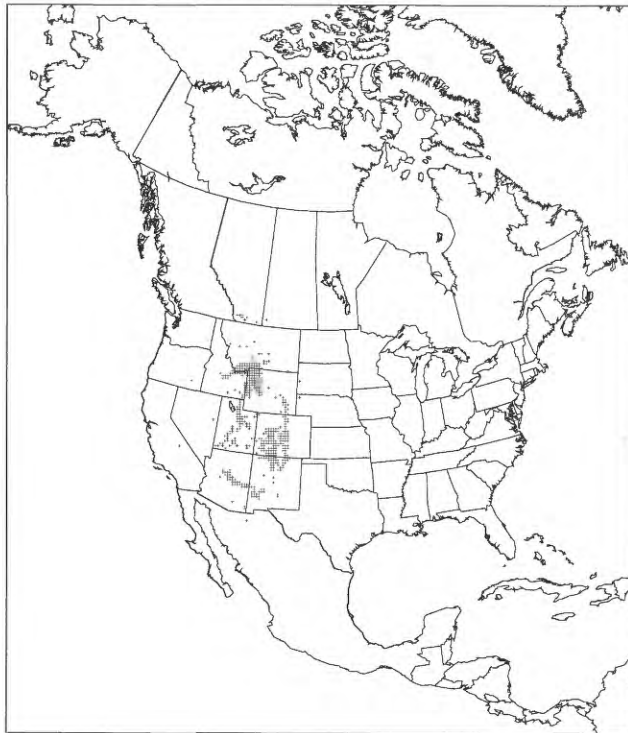
Platanus racemosa



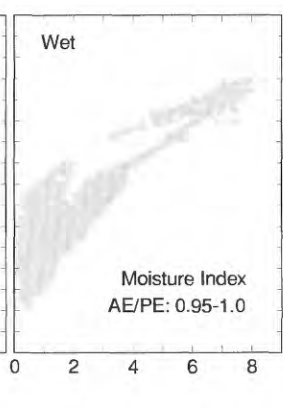
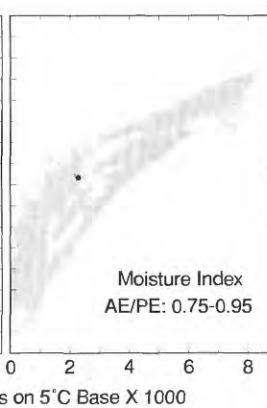
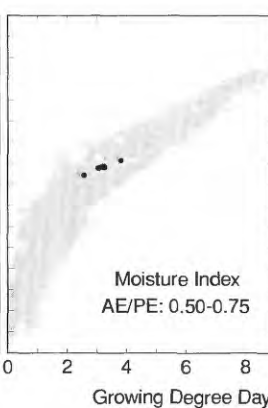
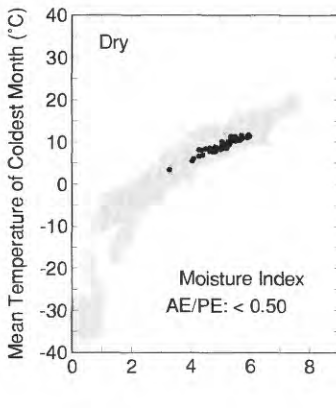
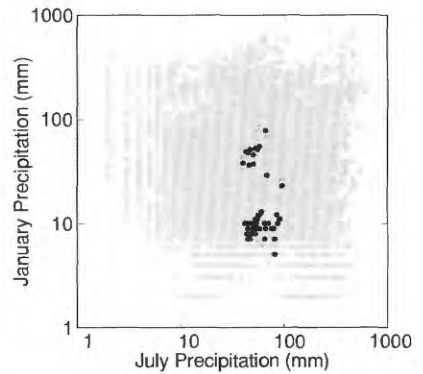
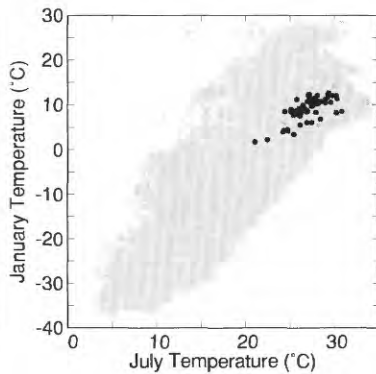
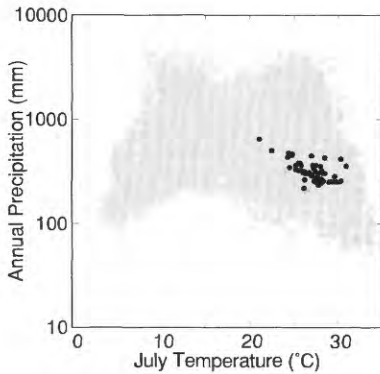
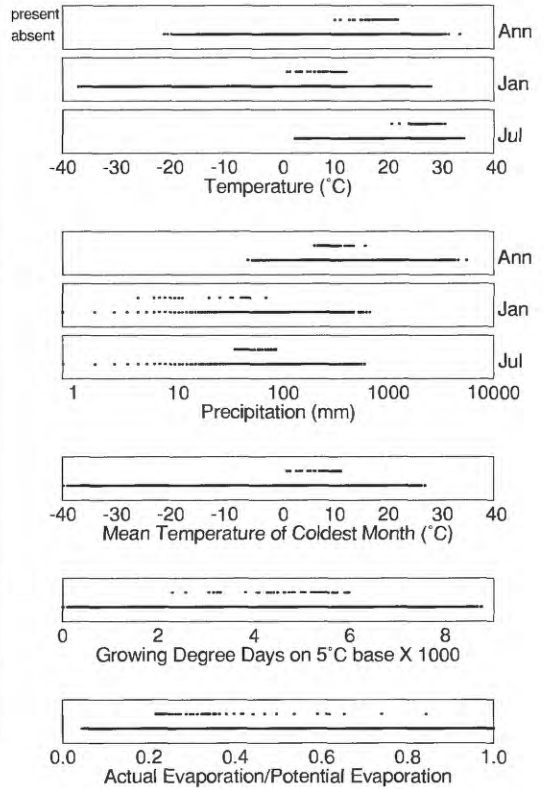
Platanus wrightii



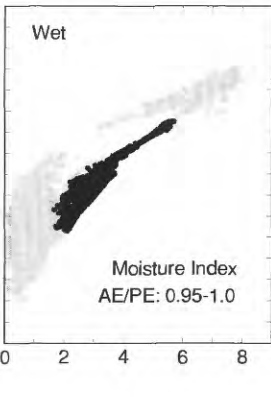
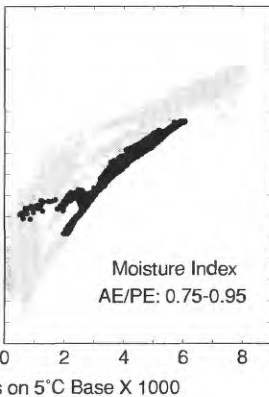
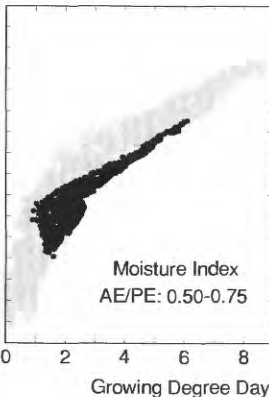
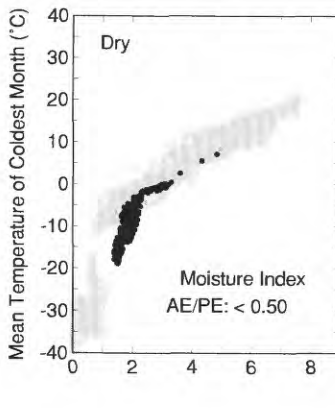
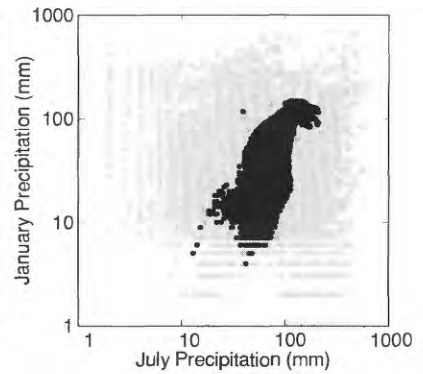
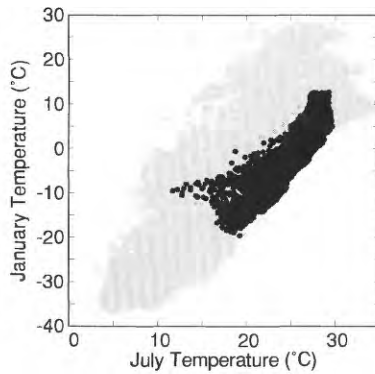
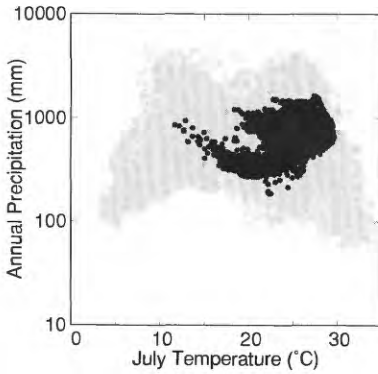
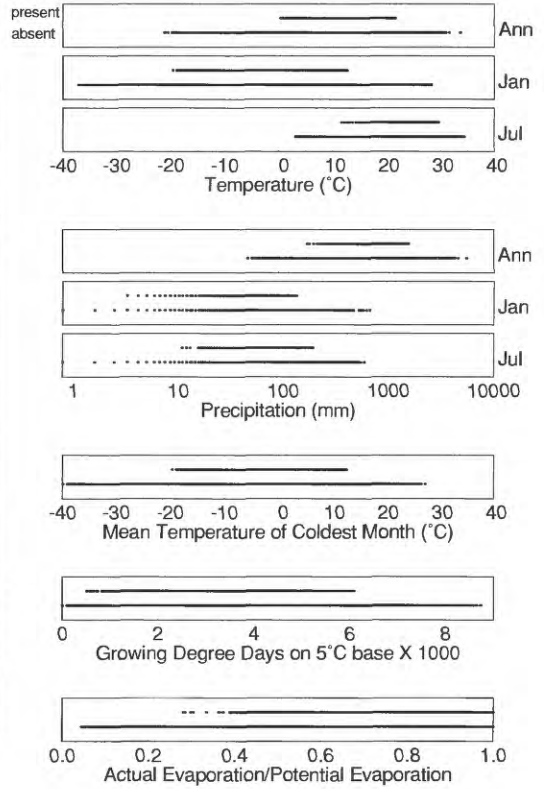
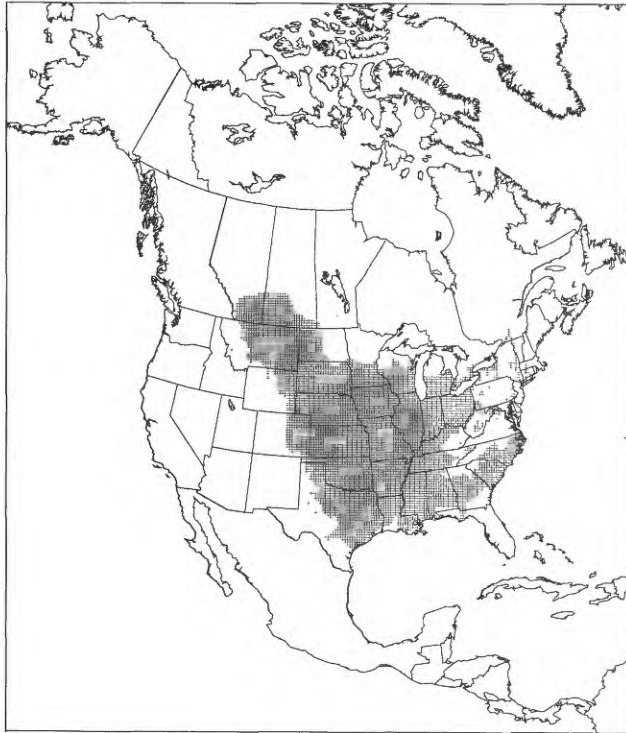
Populus angustifolia



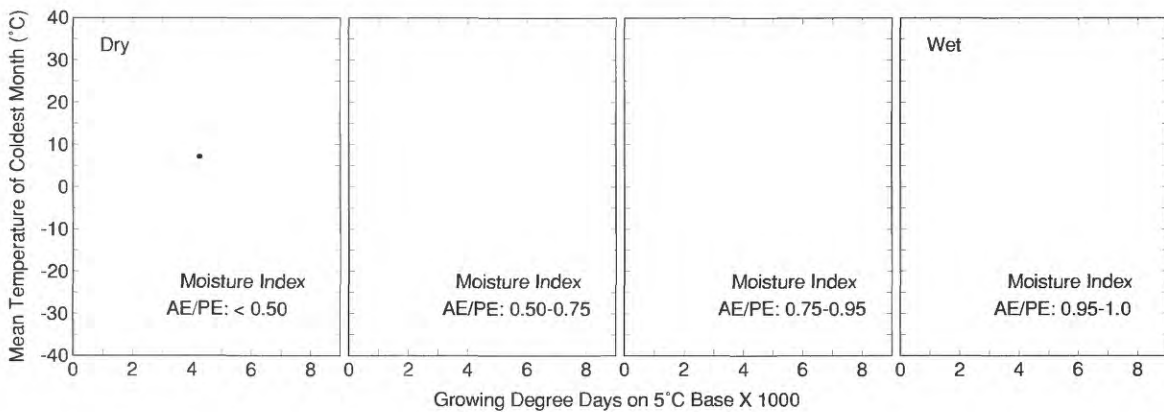
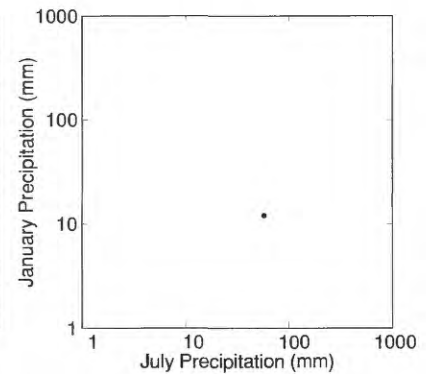
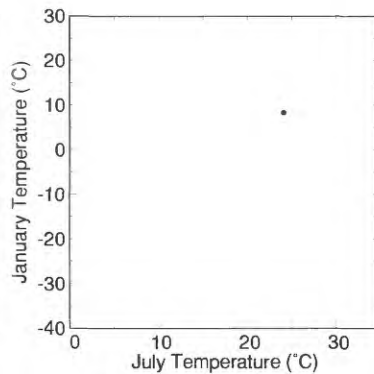
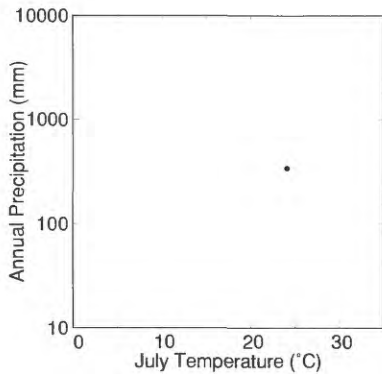
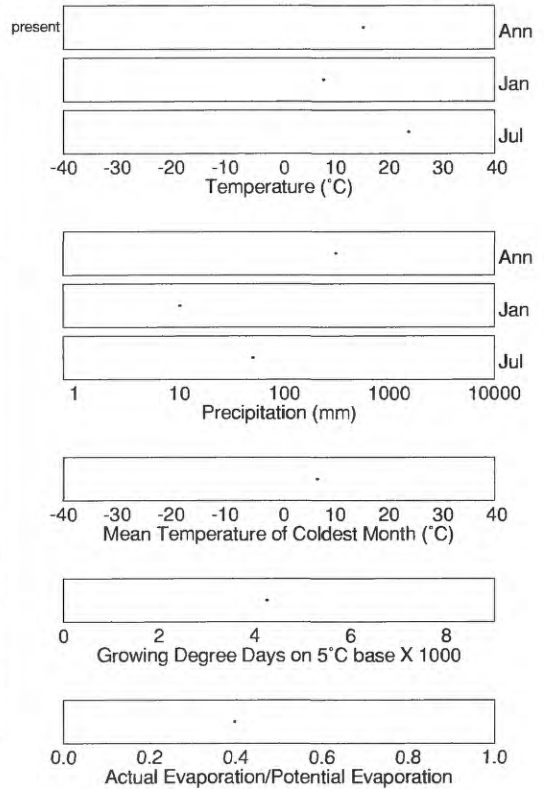
Populus arizonica



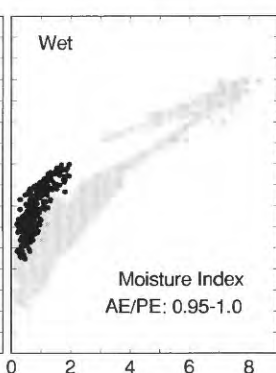
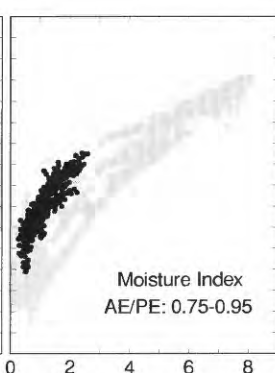
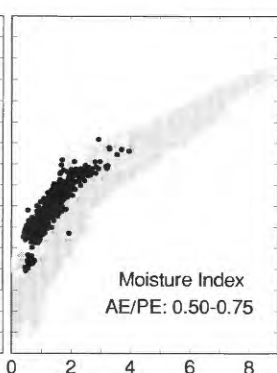
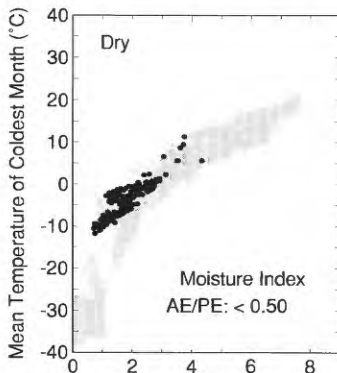
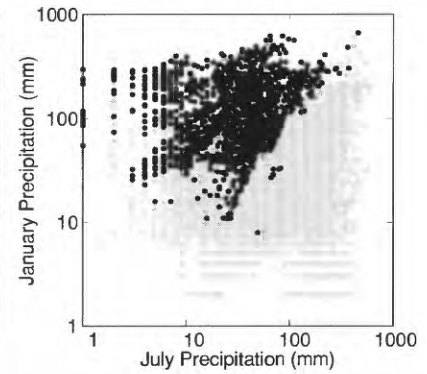
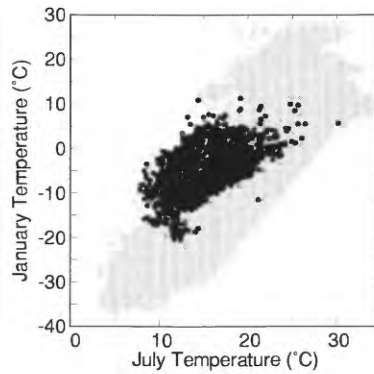
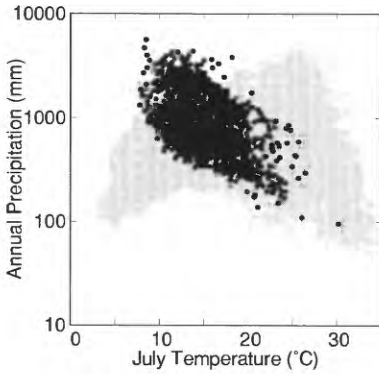
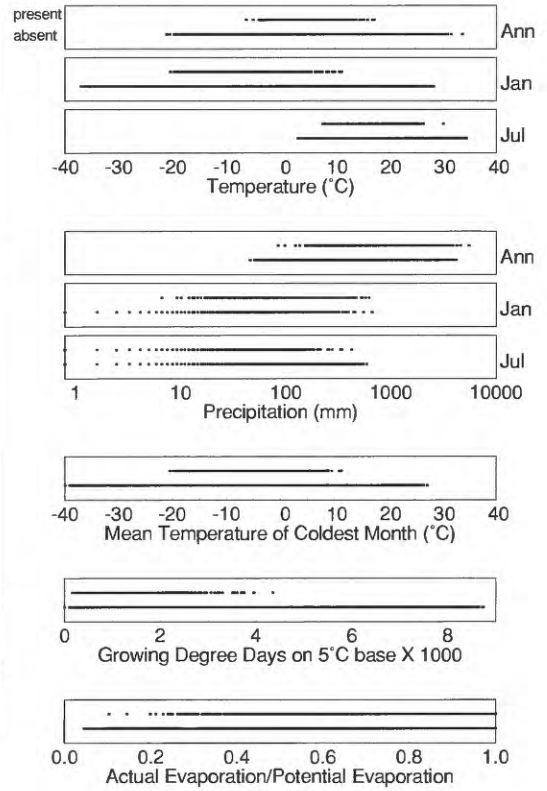
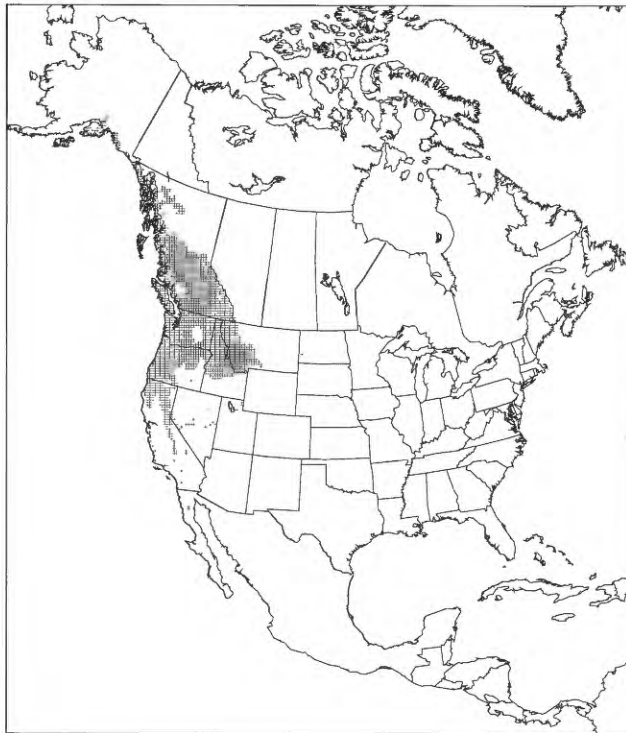
Populus deltoides



Populus hinckleyana (minimal data - nearest grid points used with environmental parameters)

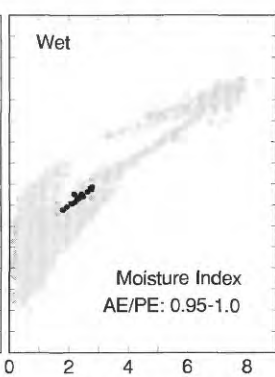
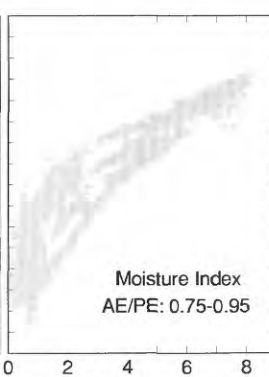
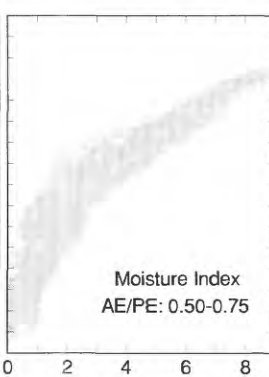
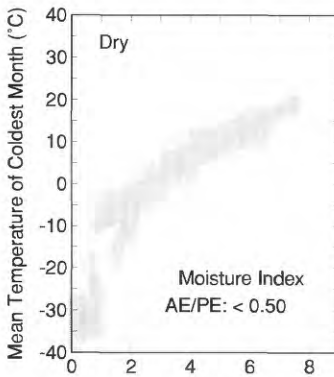
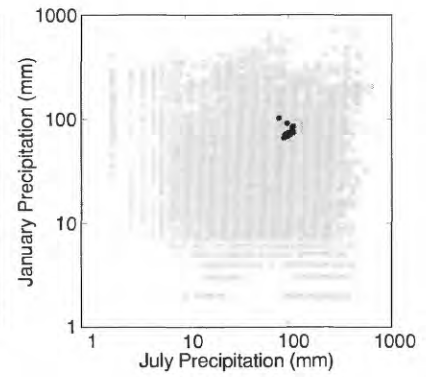
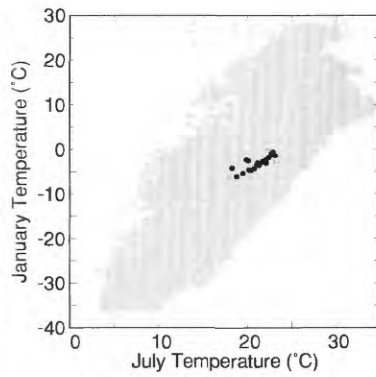
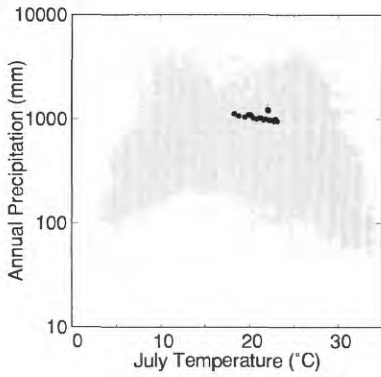
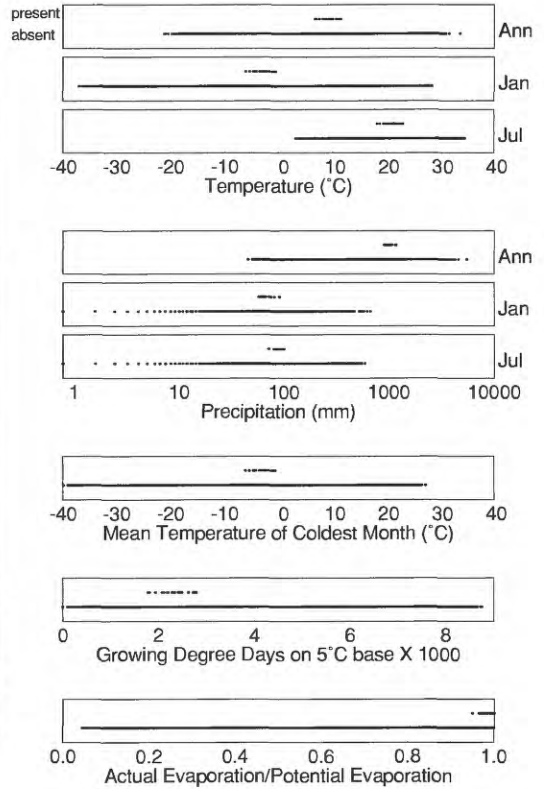


Populus trichocarpa



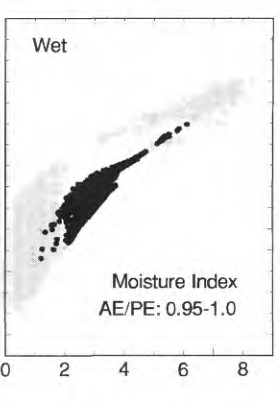
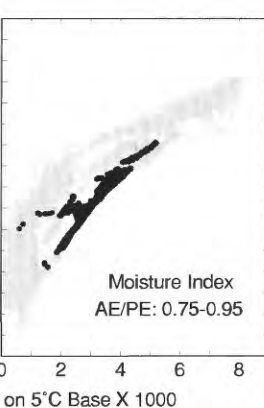
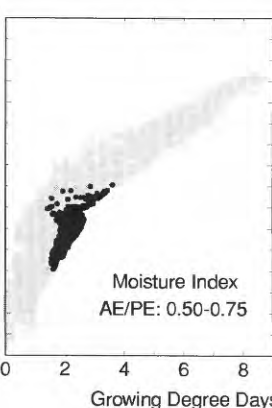
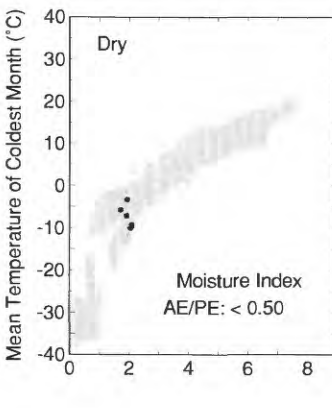
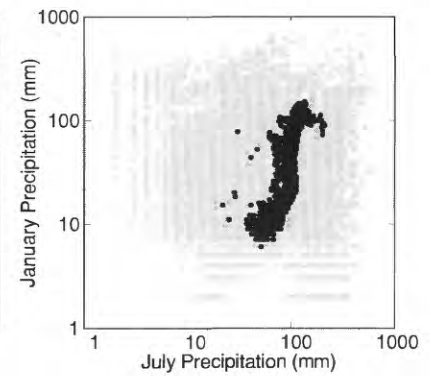
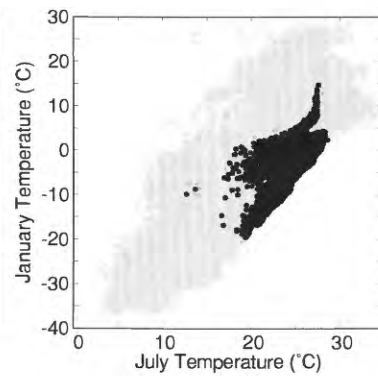
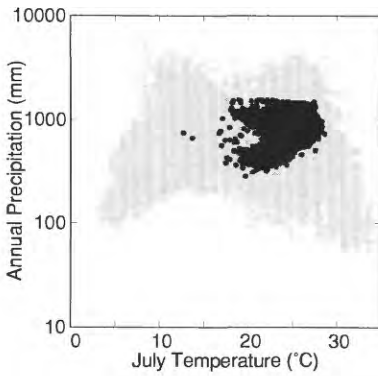
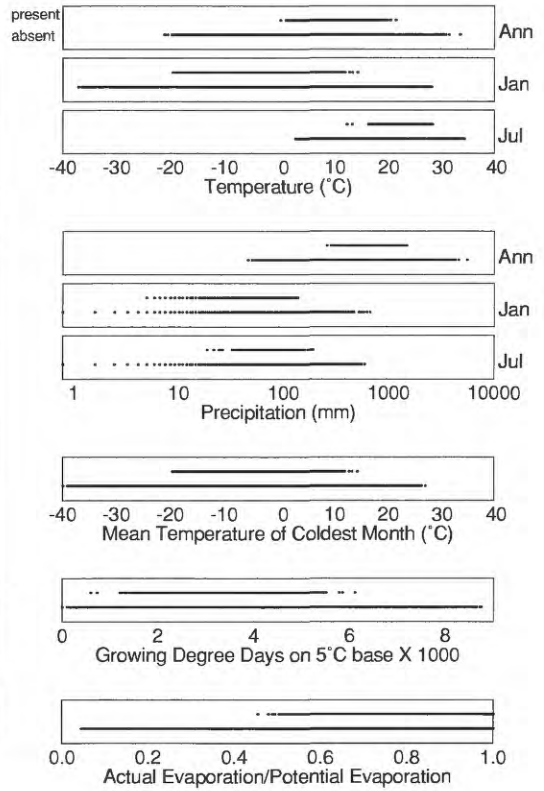
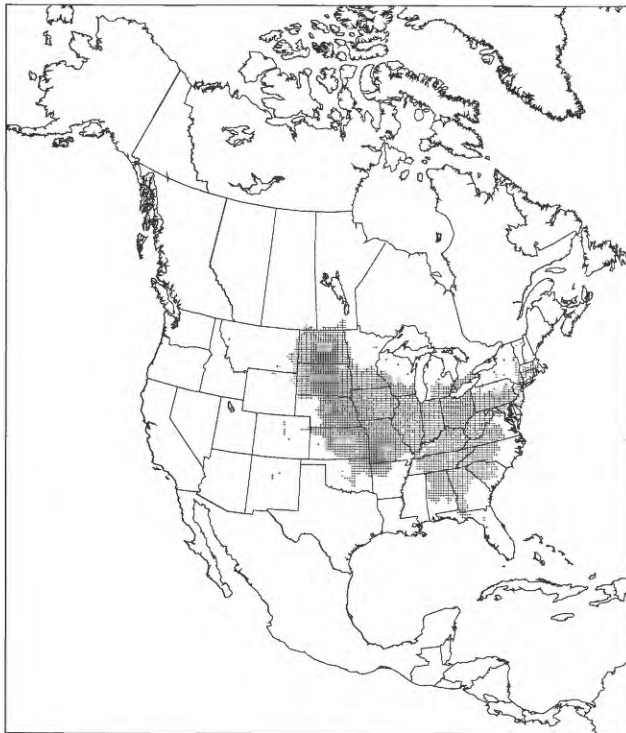
Growing Degree Days on 5°C Base X 1000

Prunus alleghaniensis

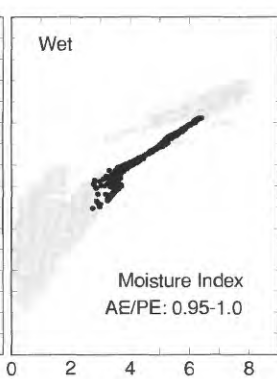
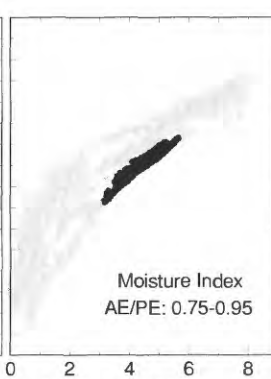
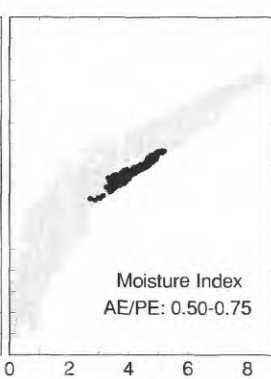
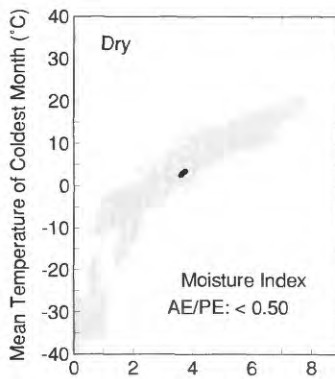
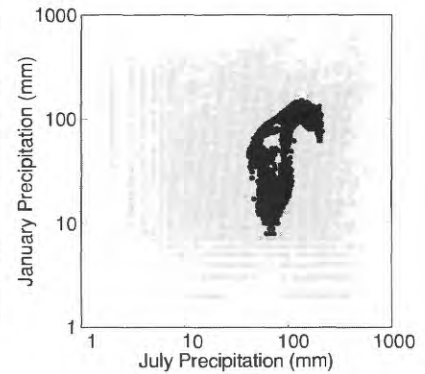
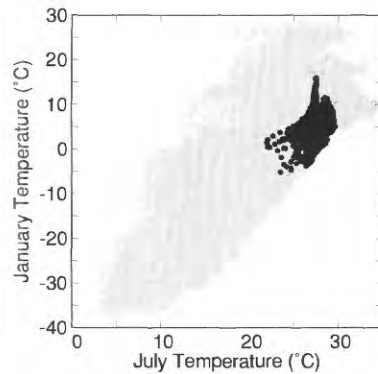
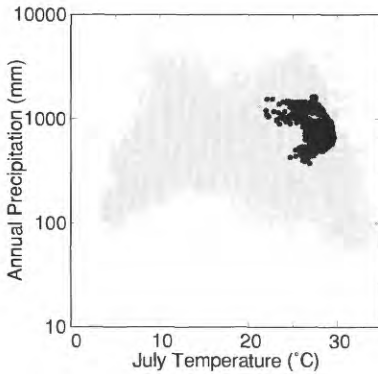
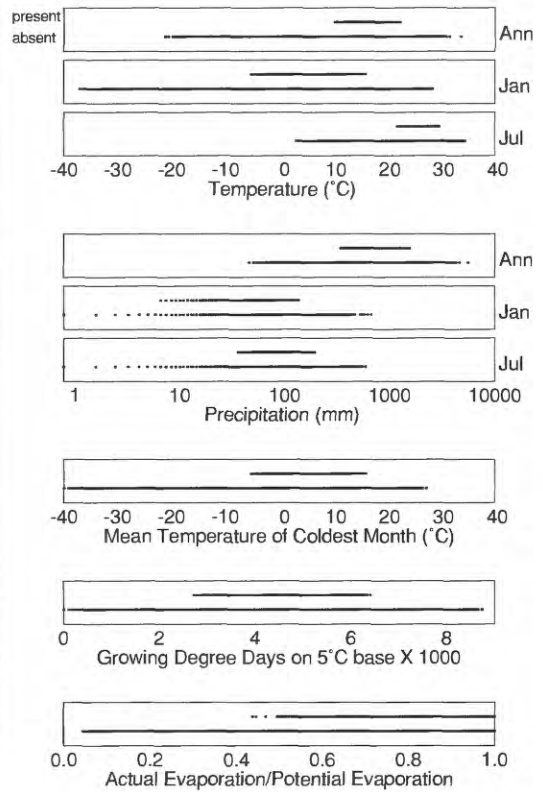
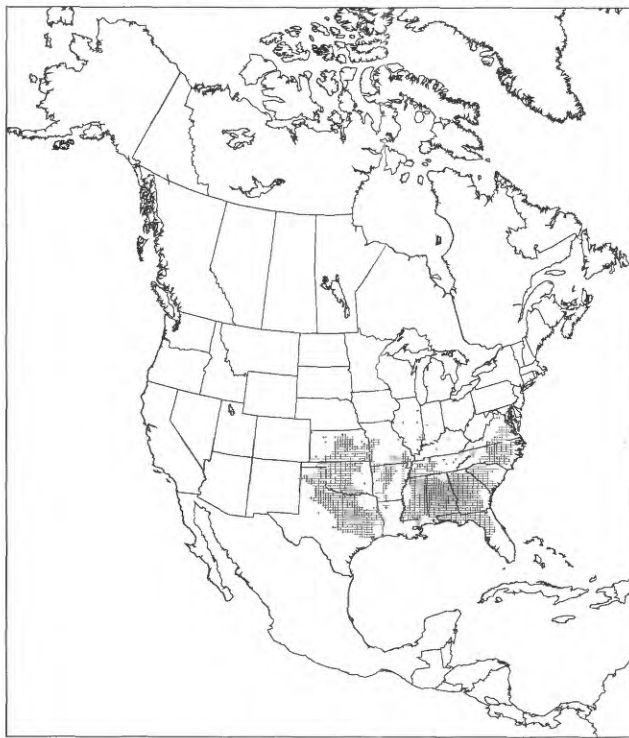


Growing Degree Days on 5°C Base X 1000

Prunus americana

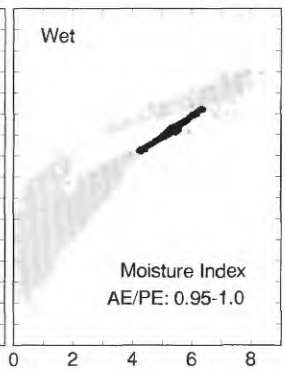
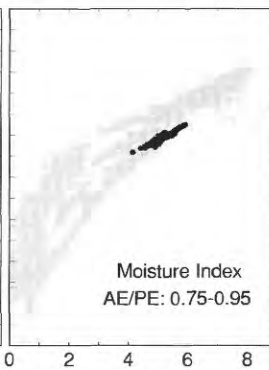
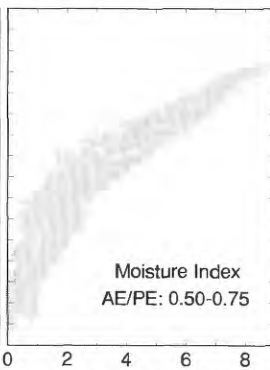
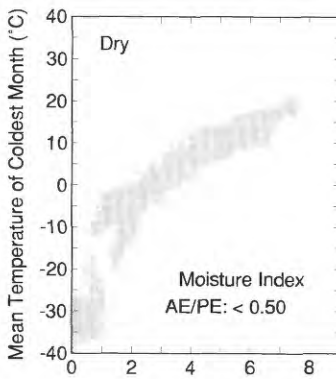
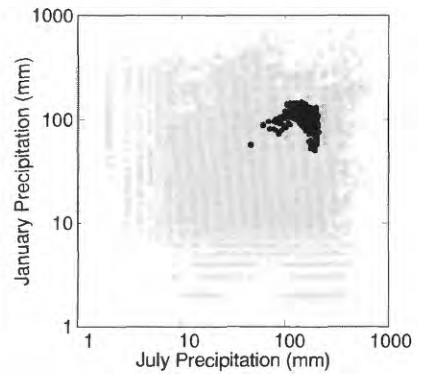
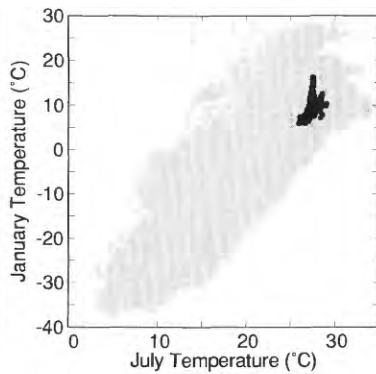
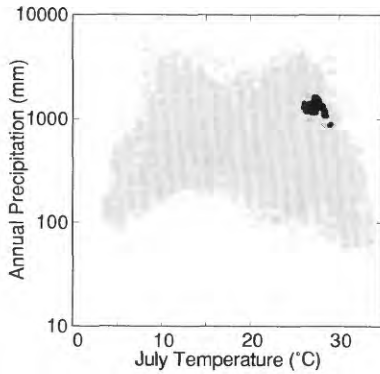
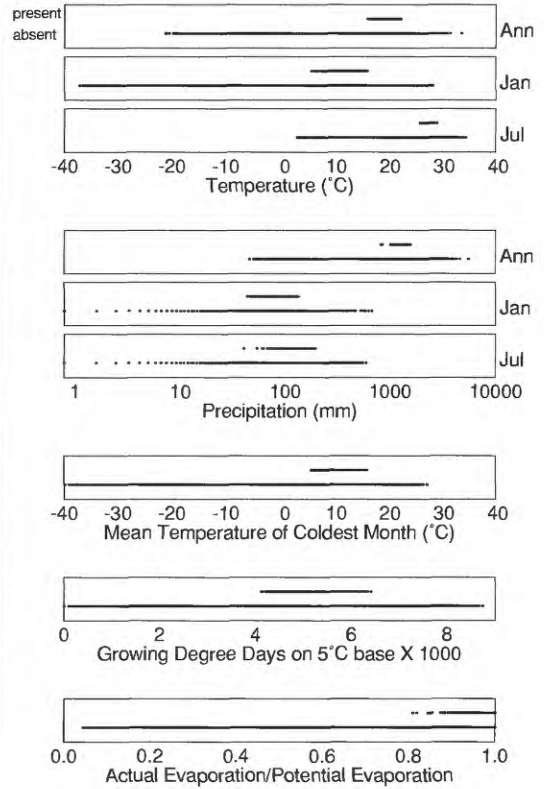


Prunus angustifolia (native range uncertain)



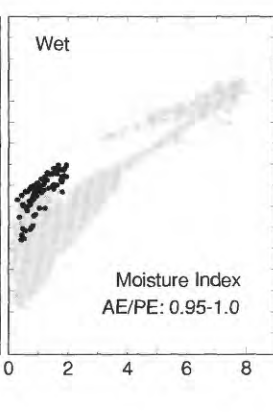
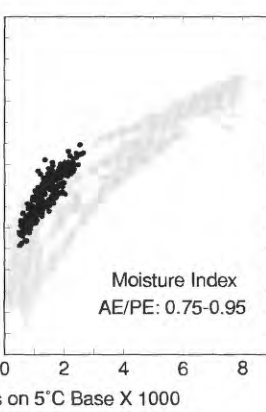
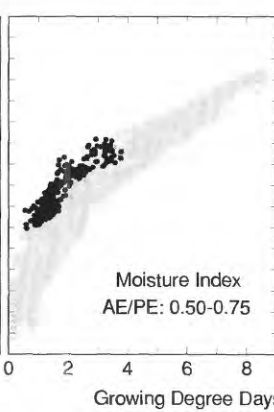
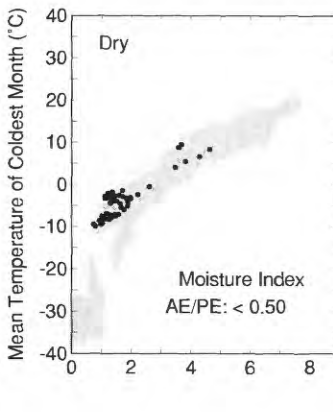
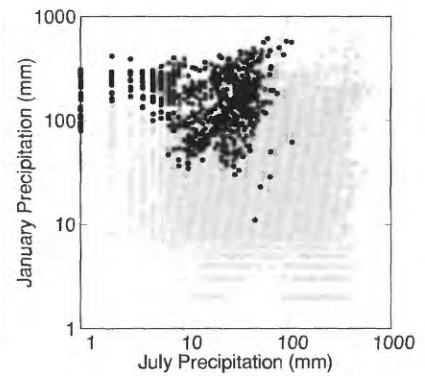
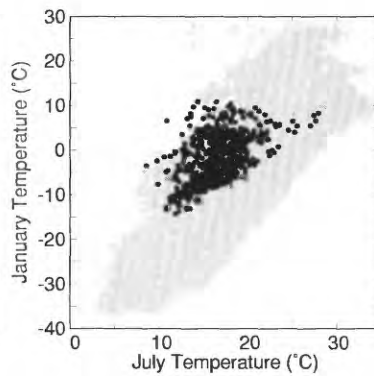
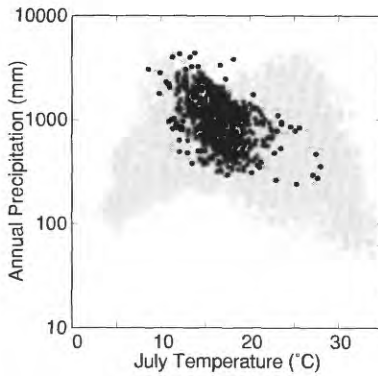
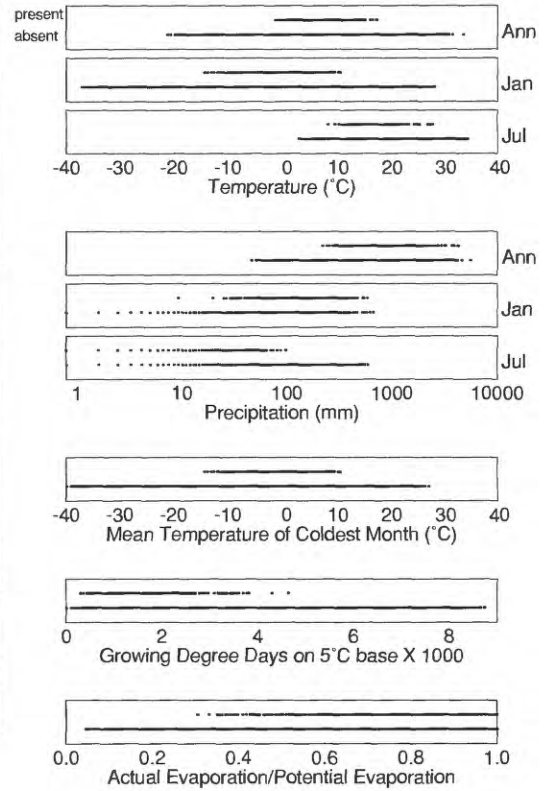
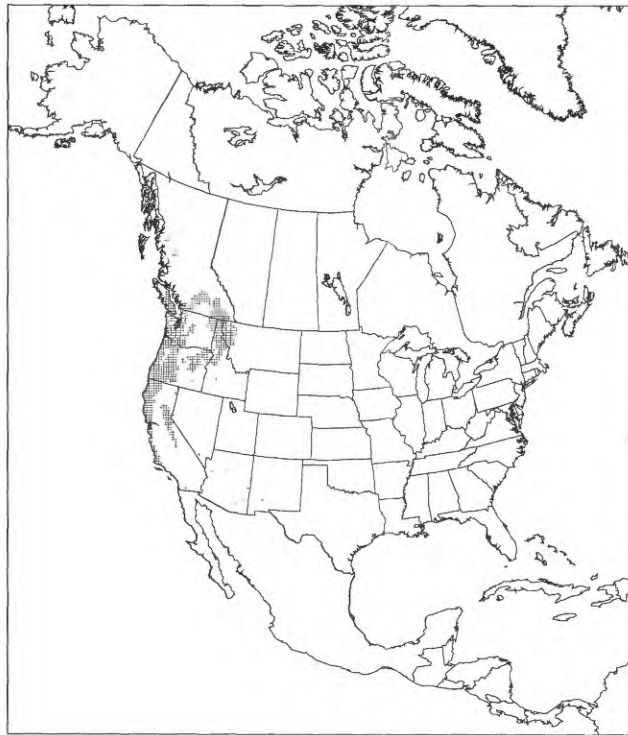
Growing Degree Days on 5°C Base X 1000

Prunus caroliniana

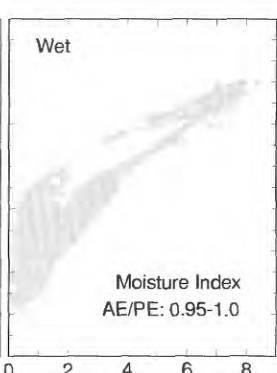
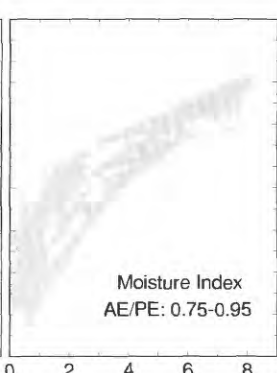
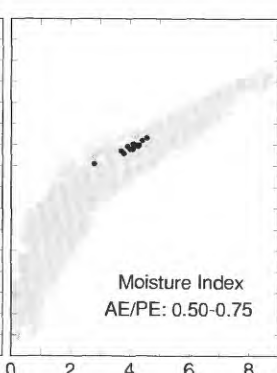
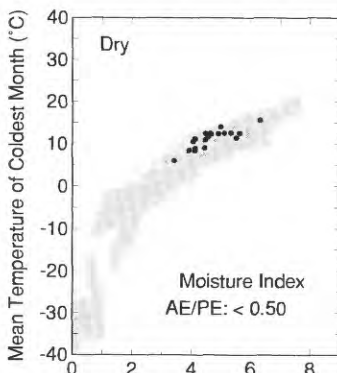
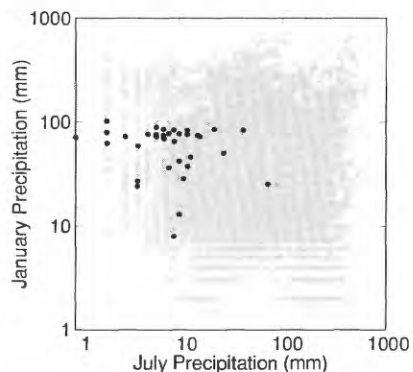
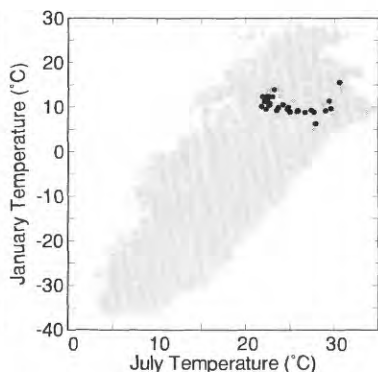
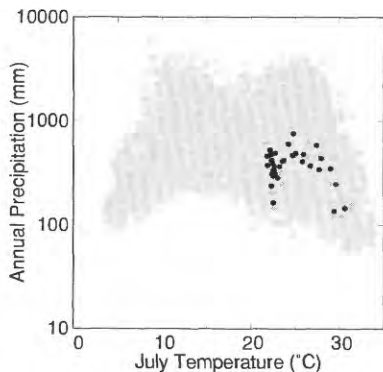
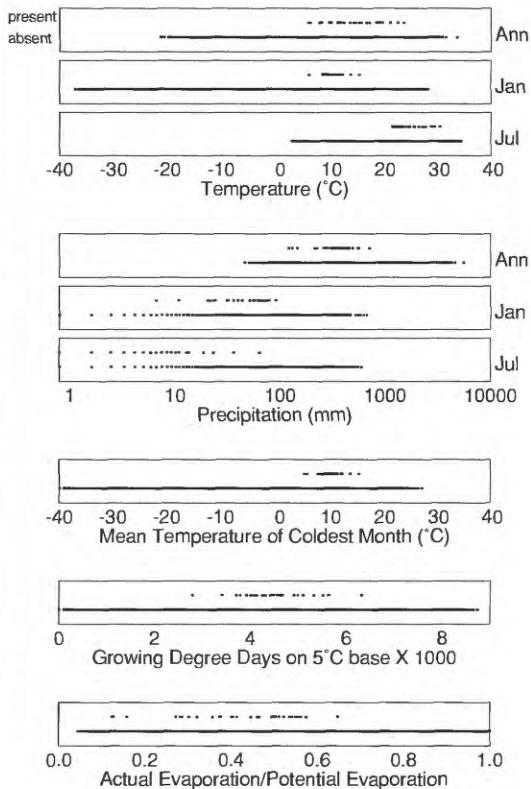


Growing Degree Days on 5°C Base X 1000

Prunus emarginata

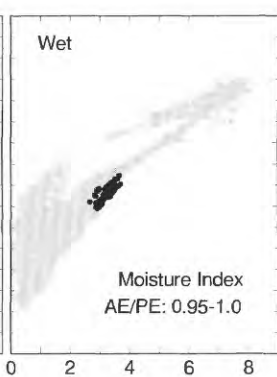
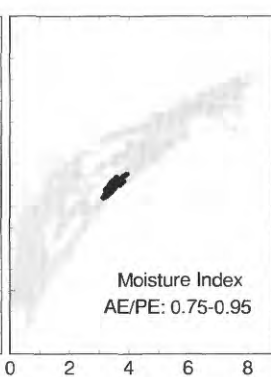
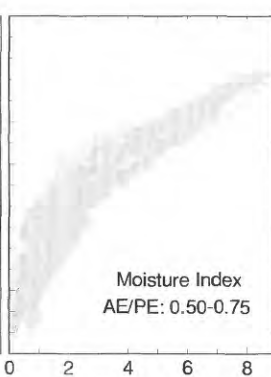
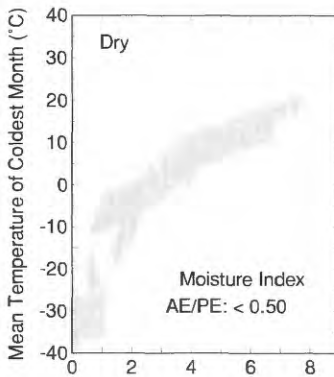
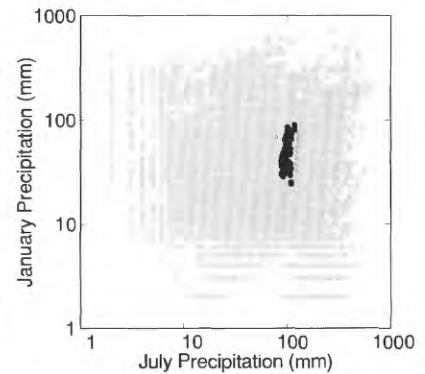
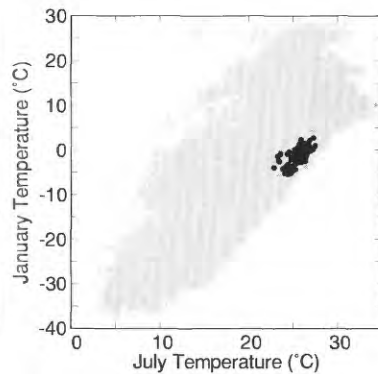
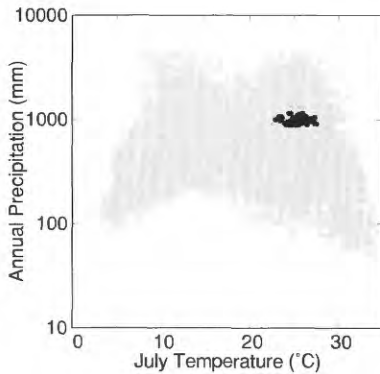
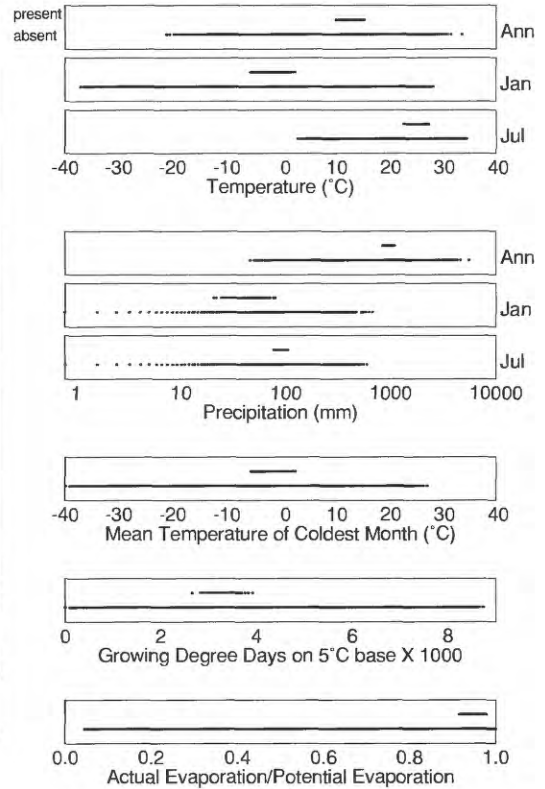


Prunus fremontii

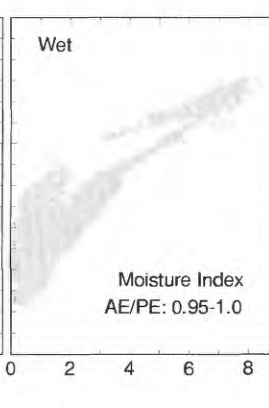
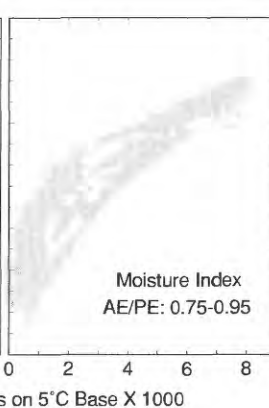
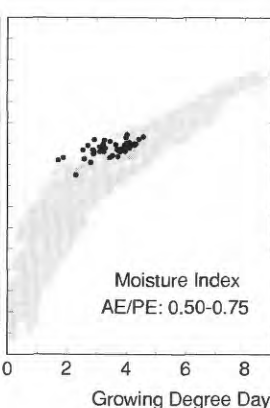
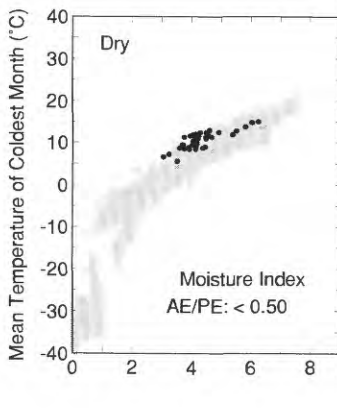
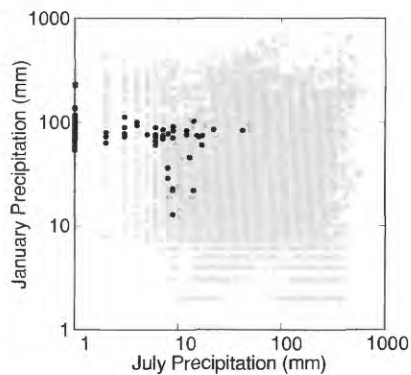
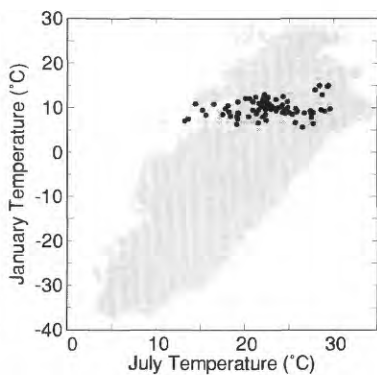
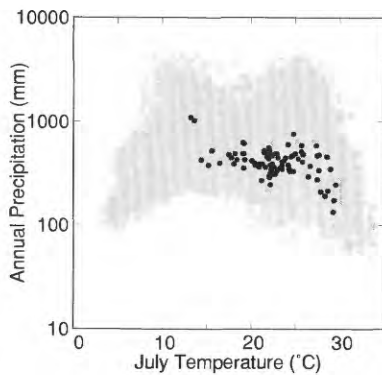
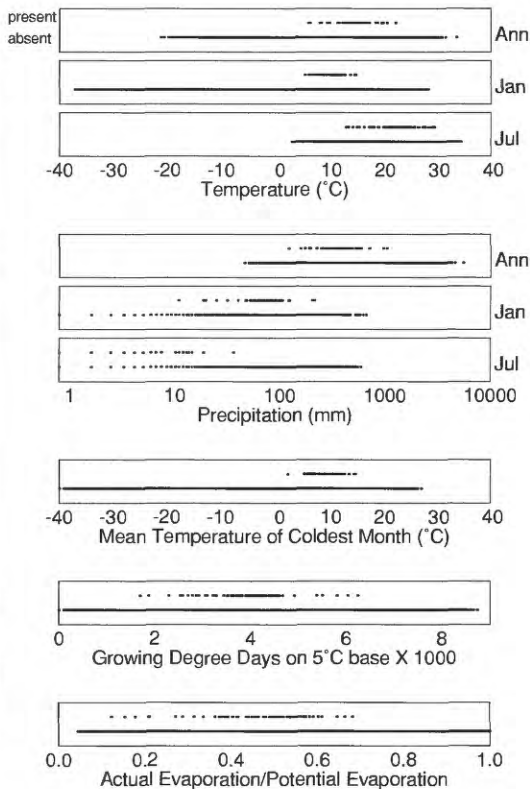


Growing Degree Days on 5°C Base X 1000

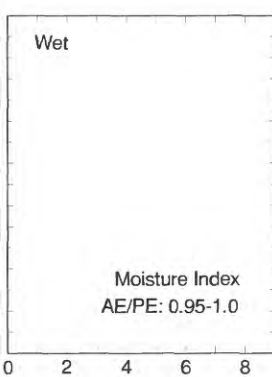
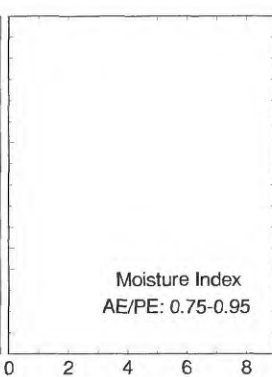
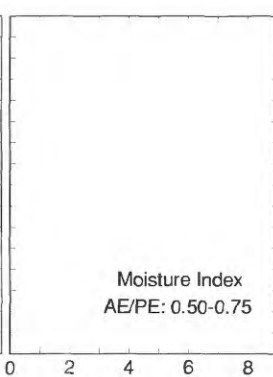
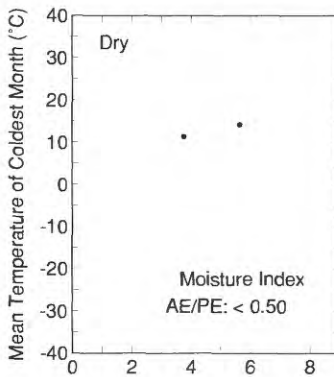
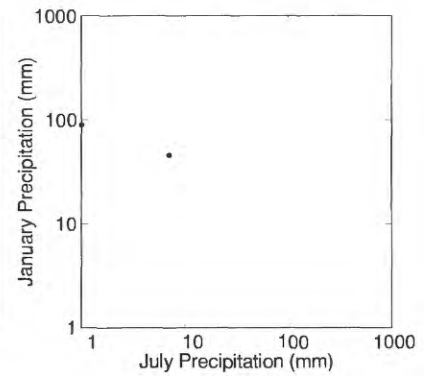
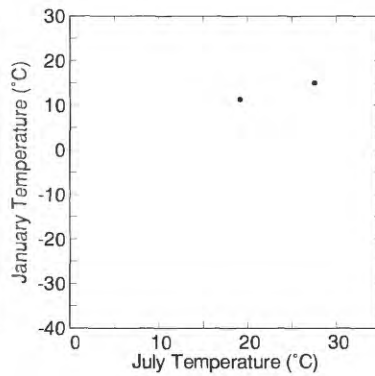
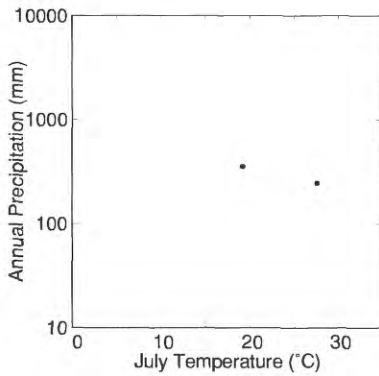
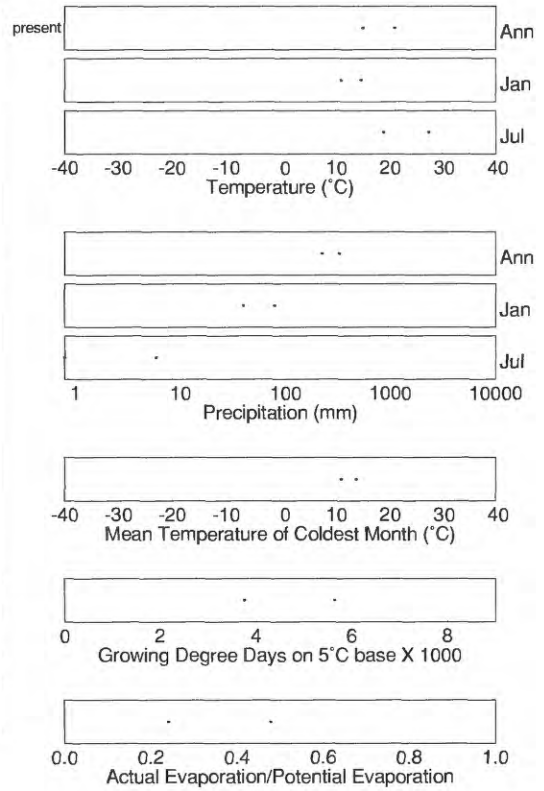
Prunus hortulana



Prunus ilicifolia

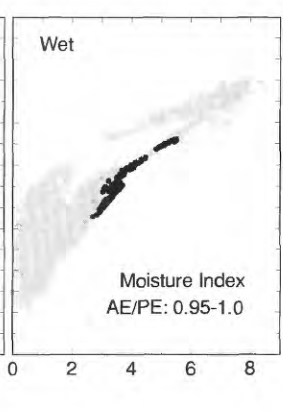
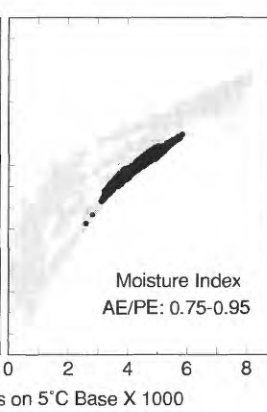
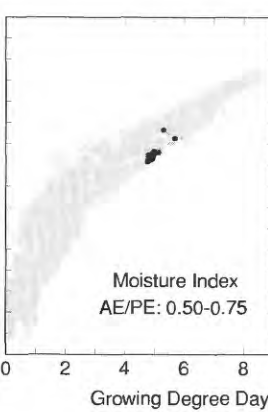
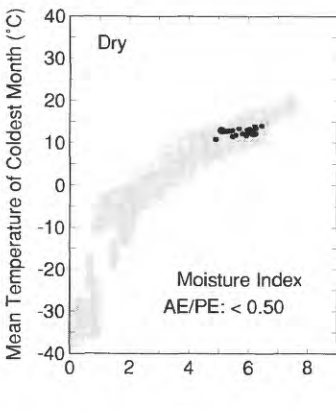
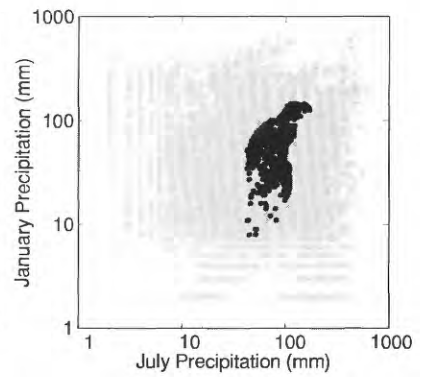
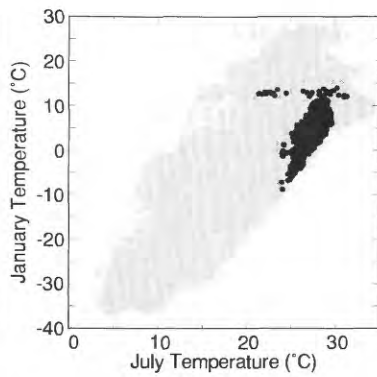
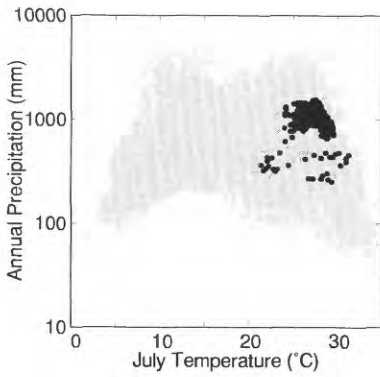
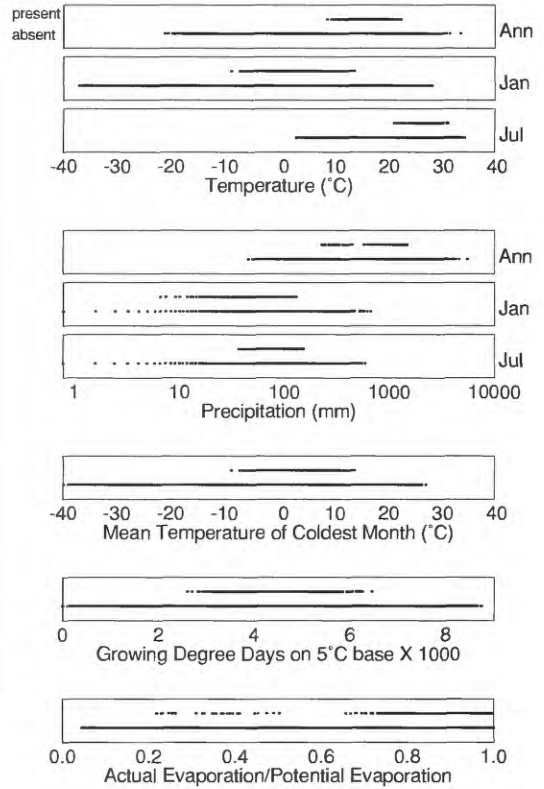


Prunus lyonii (minimal data - nearest grid points used with environmental parameters)

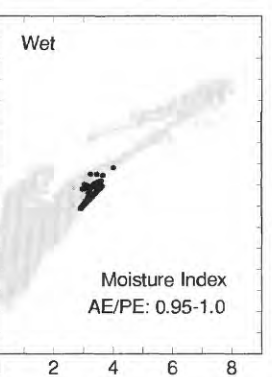
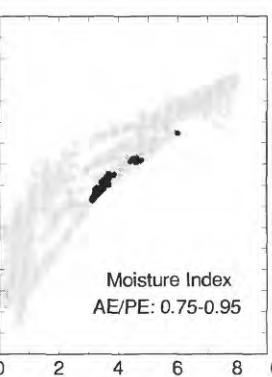
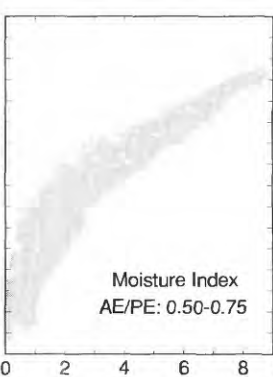
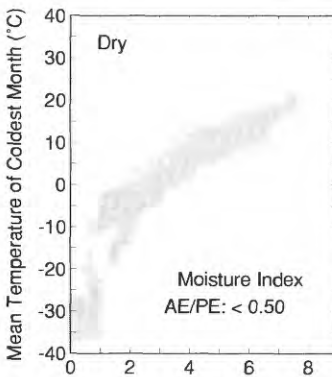
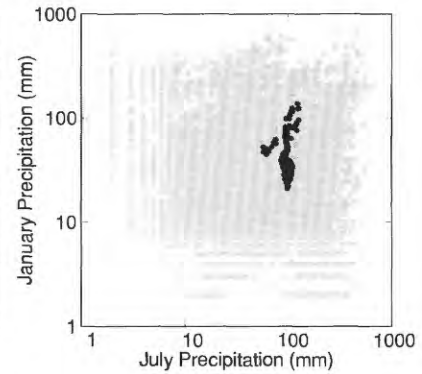
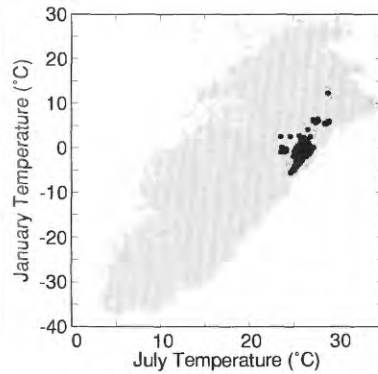
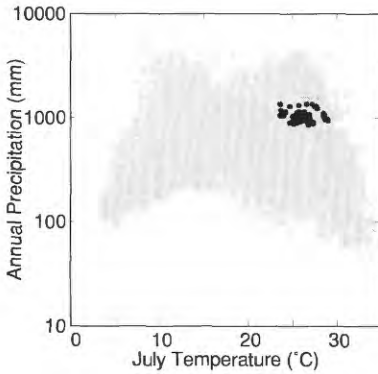
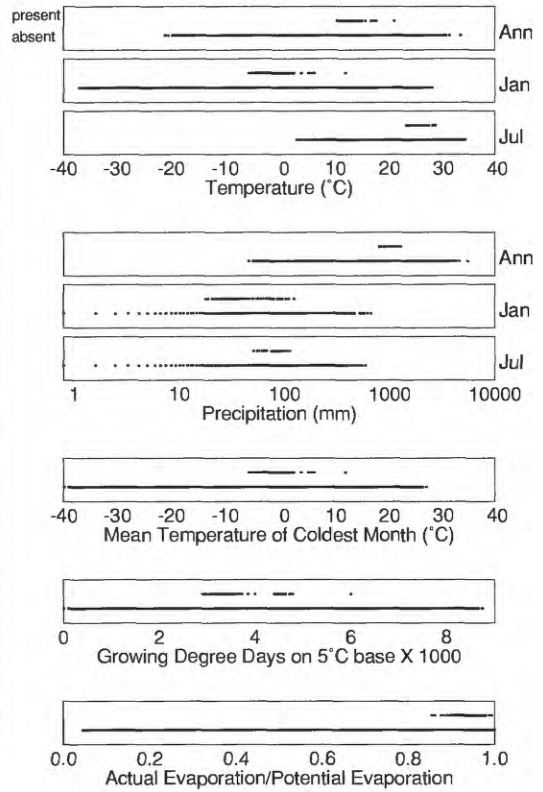


Growing Degree Days on 5°C Base X 1000

Prunus mexicana

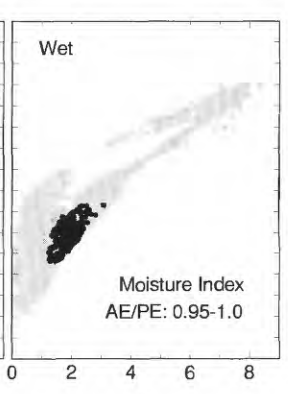
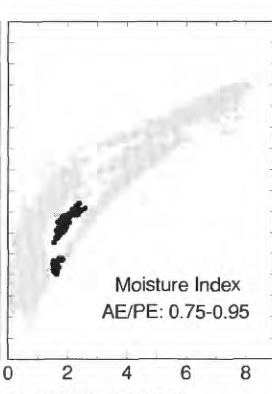
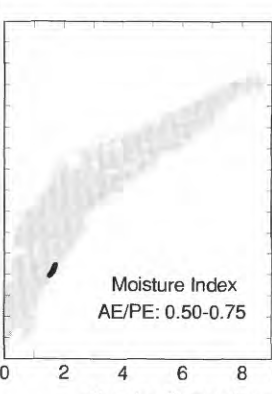
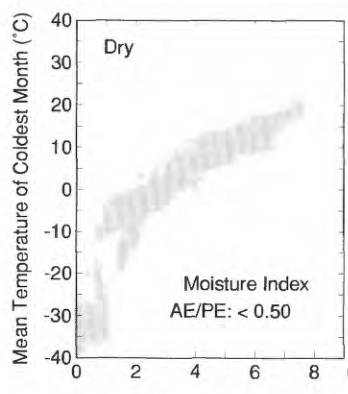
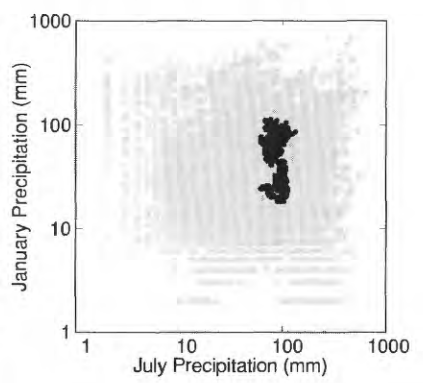
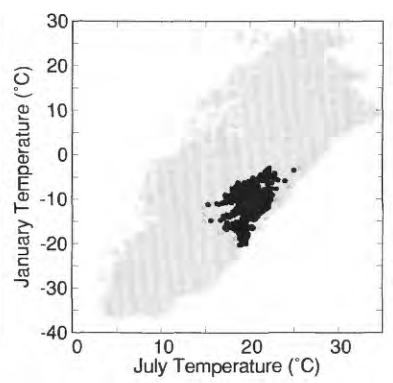
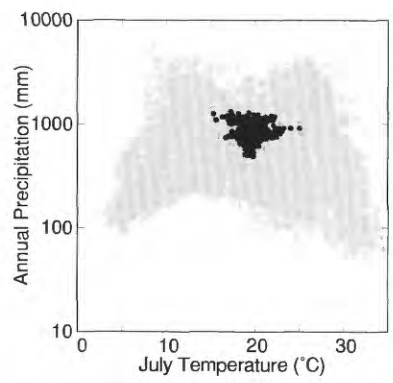
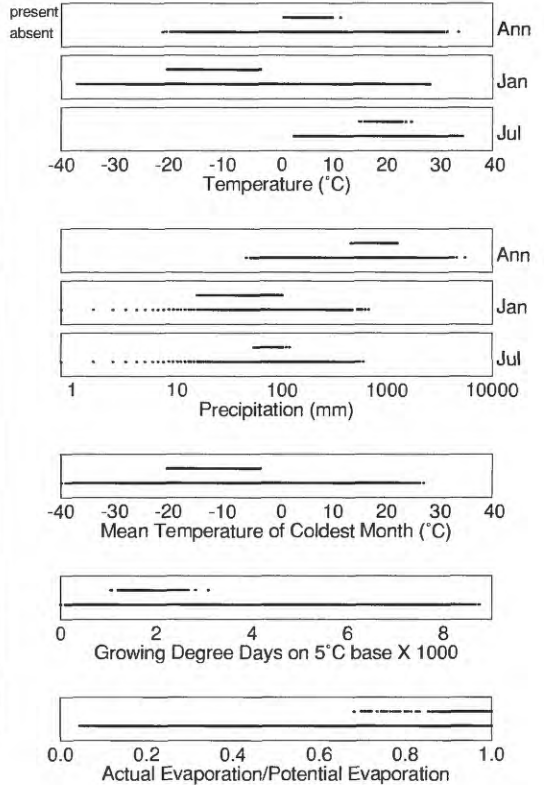


Prunus munsoniana



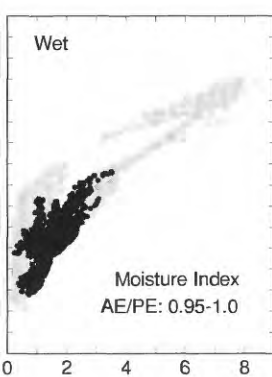
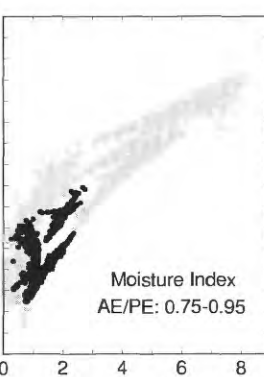
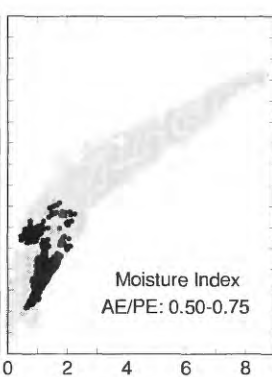
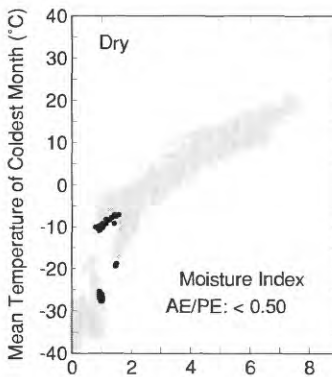
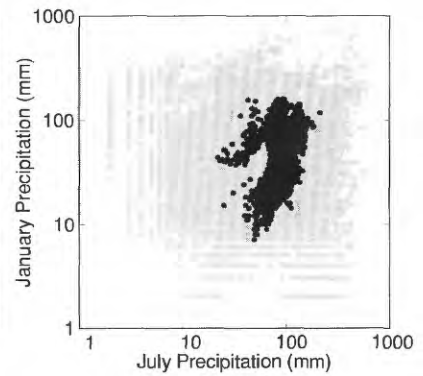
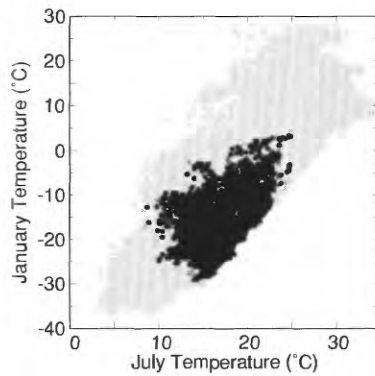
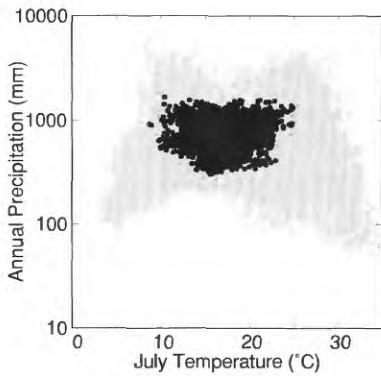
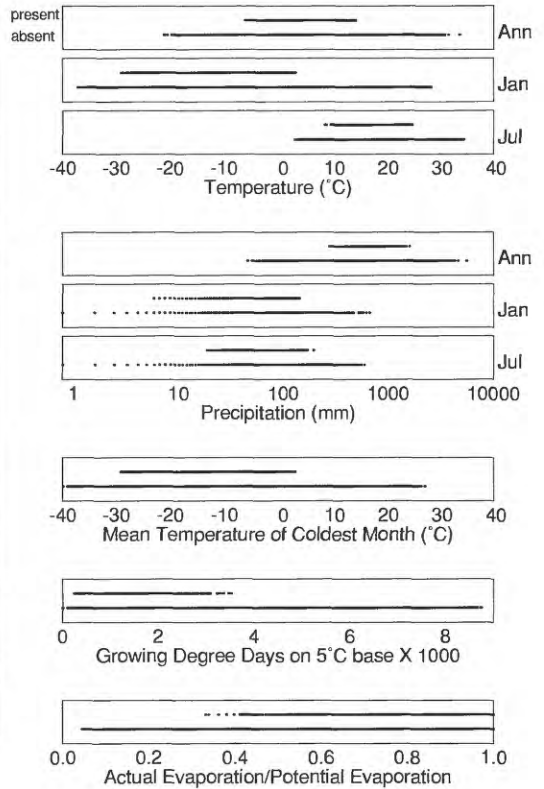
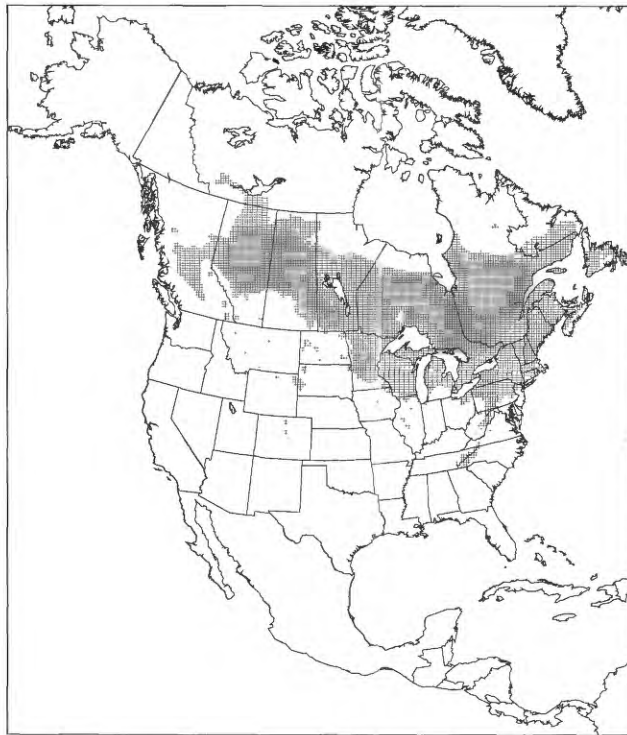
Growing Degree Days on 5°C Base X 1000

Prunus nigra



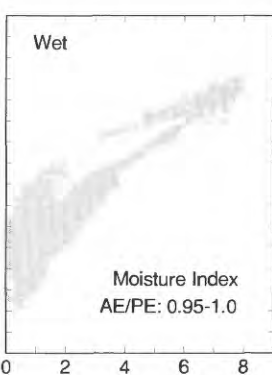
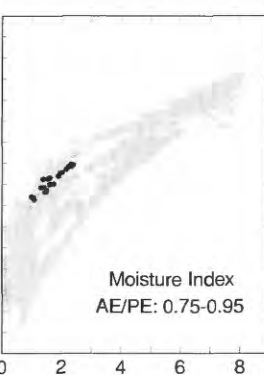
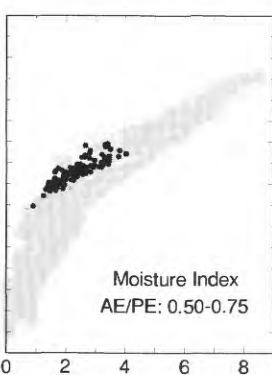
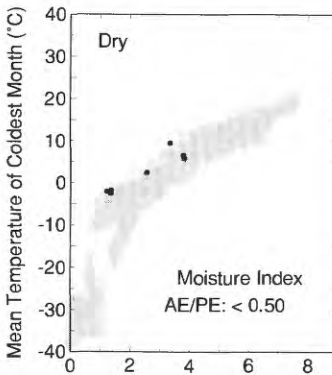
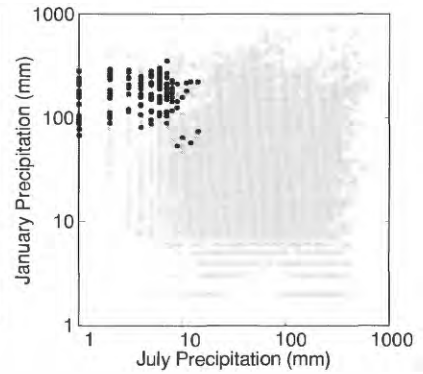
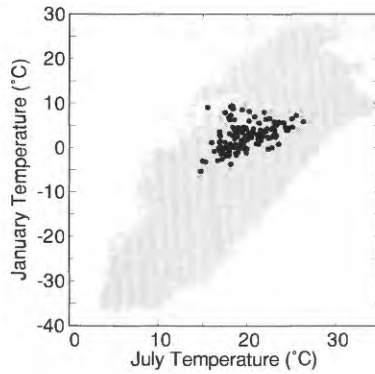
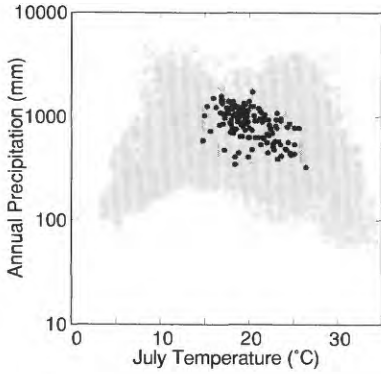
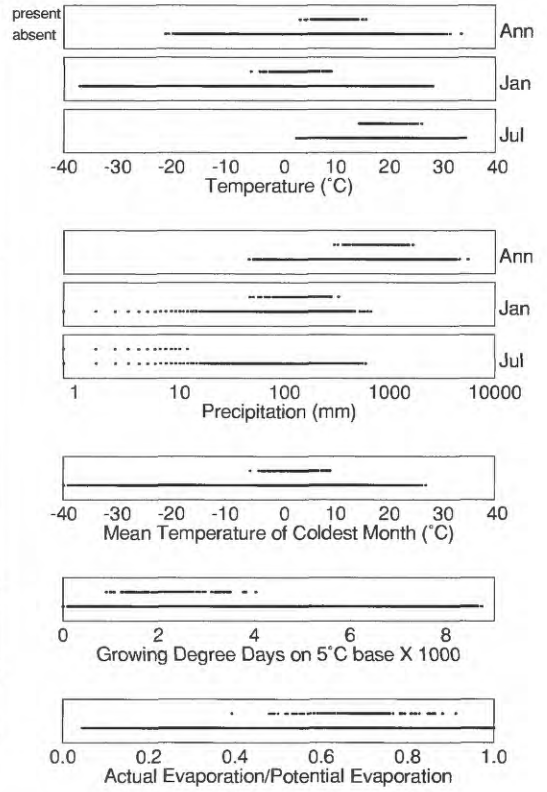
Growing Degree Days on 5°C Base X 1000

Prunus pensylvanica



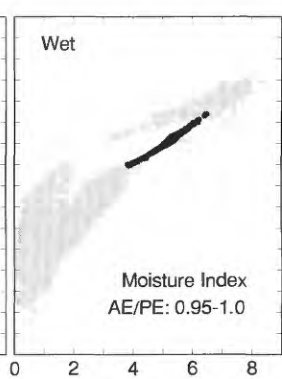
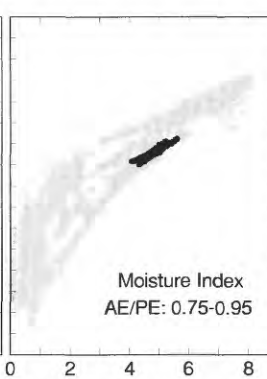
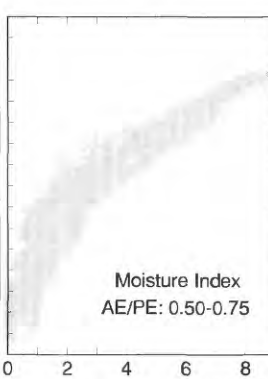
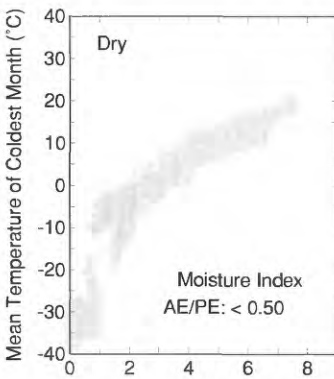
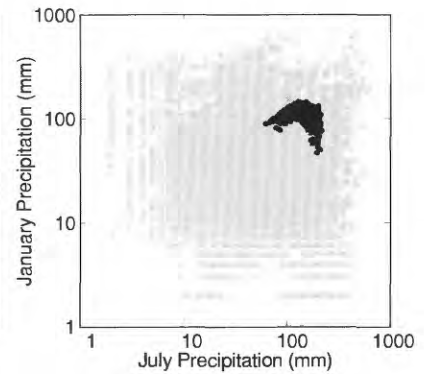
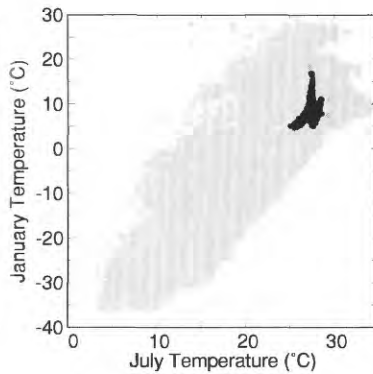
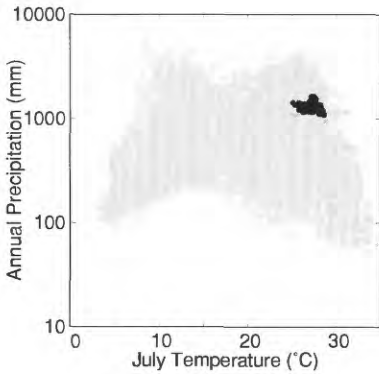
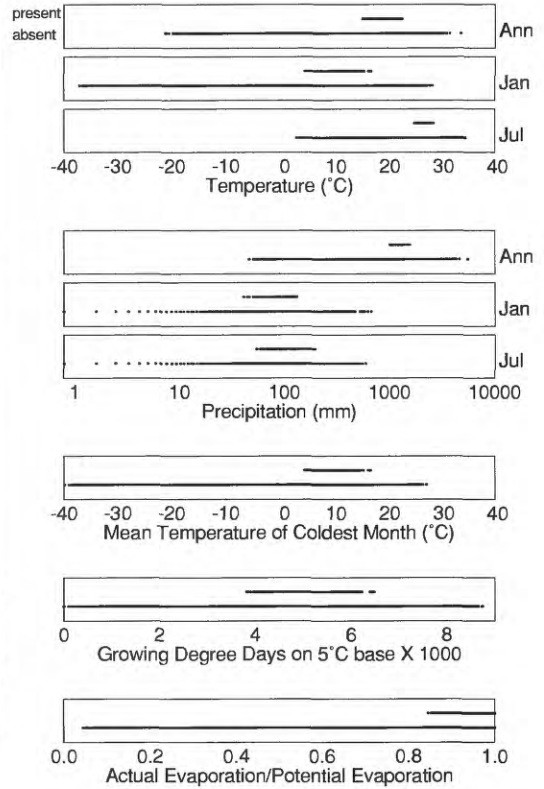
Growing Degree Days on 5°C Base X 1000

Prunus subcordata

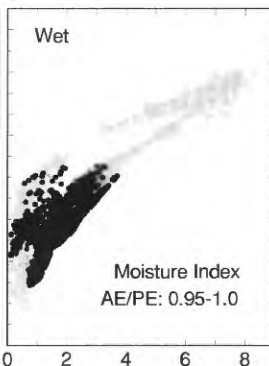
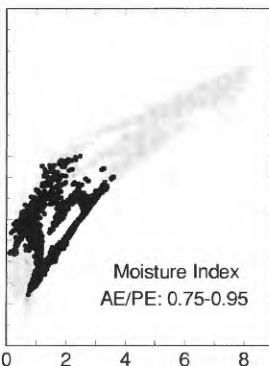
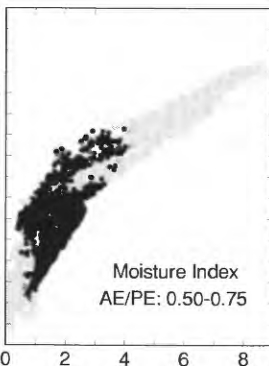
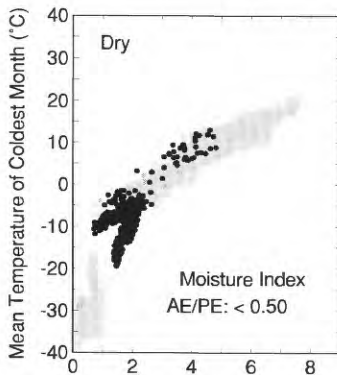
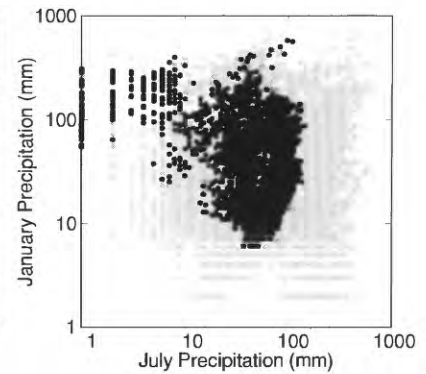
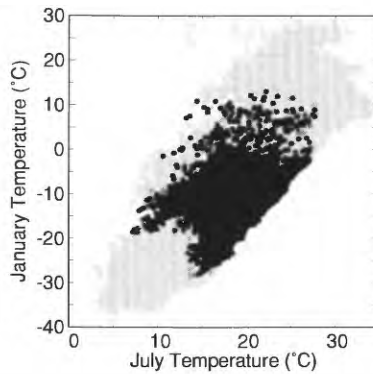
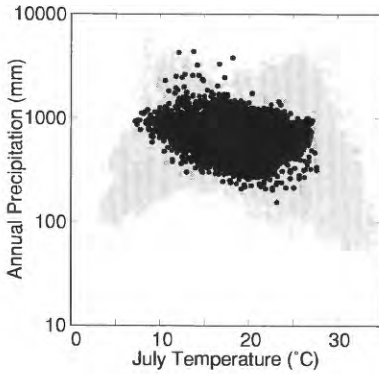
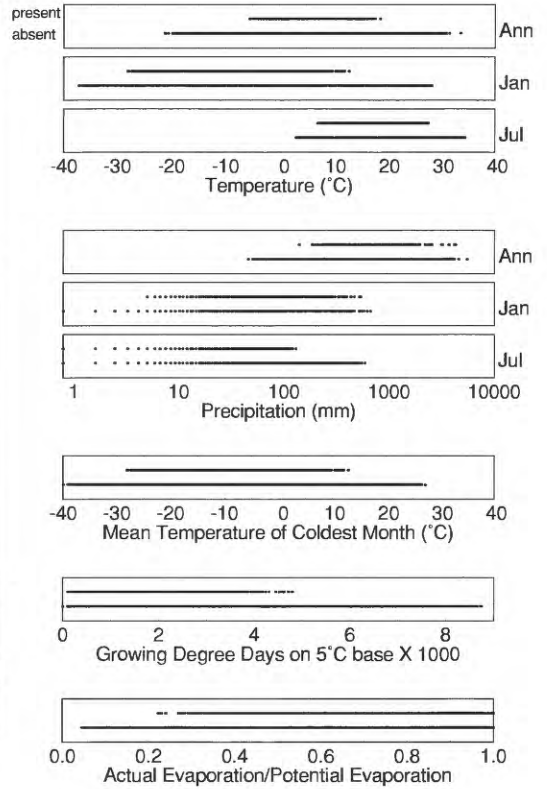
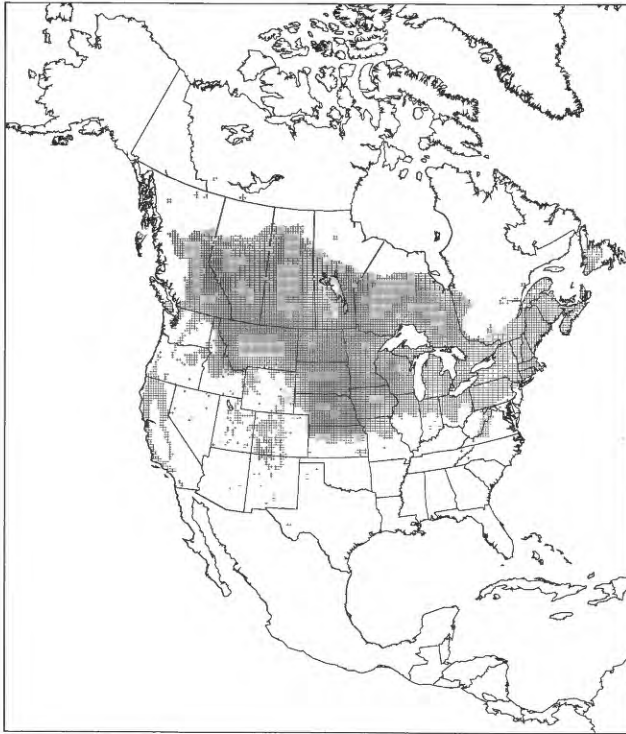


Growing Degree Days on 5°C Base X 1000

Prunus umbellata

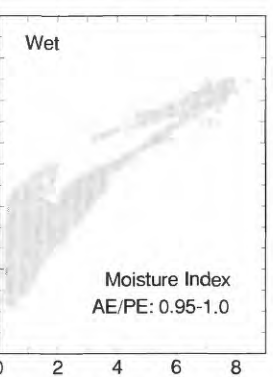
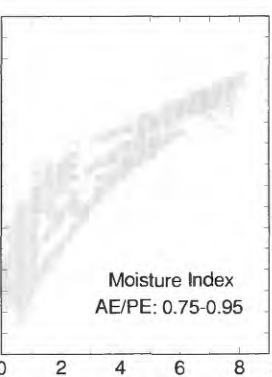
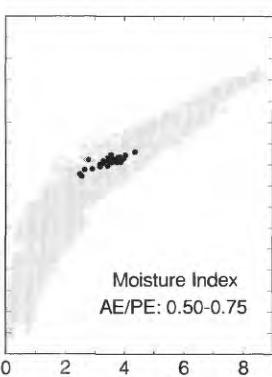
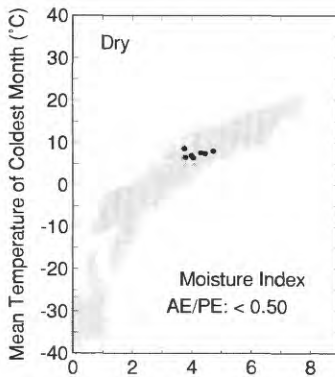
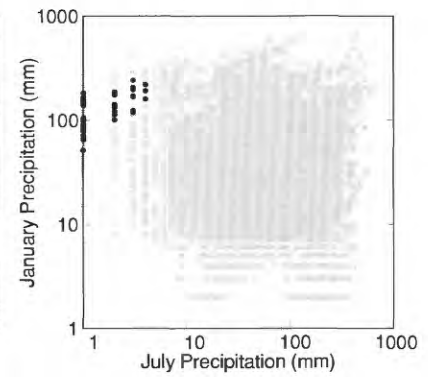
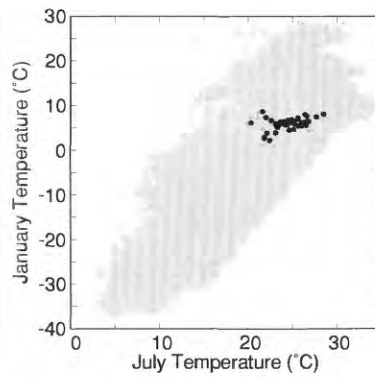
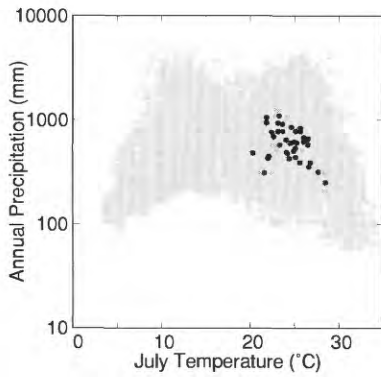
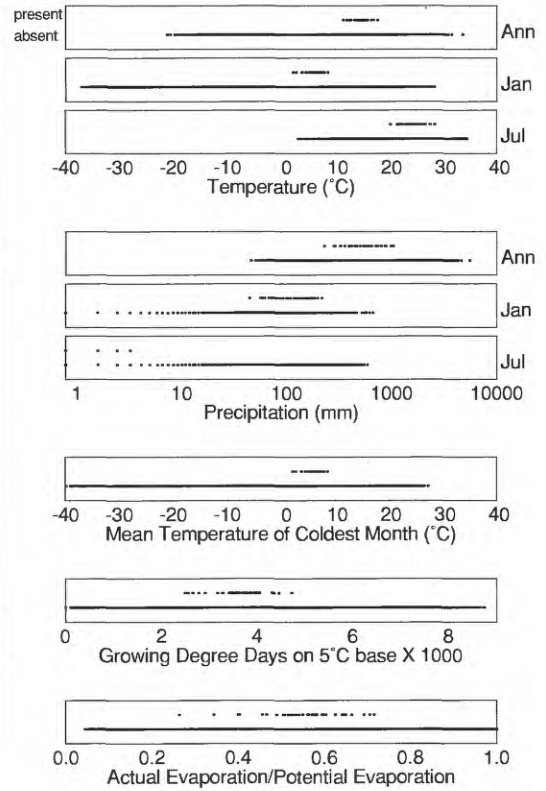


Prunus virginiana



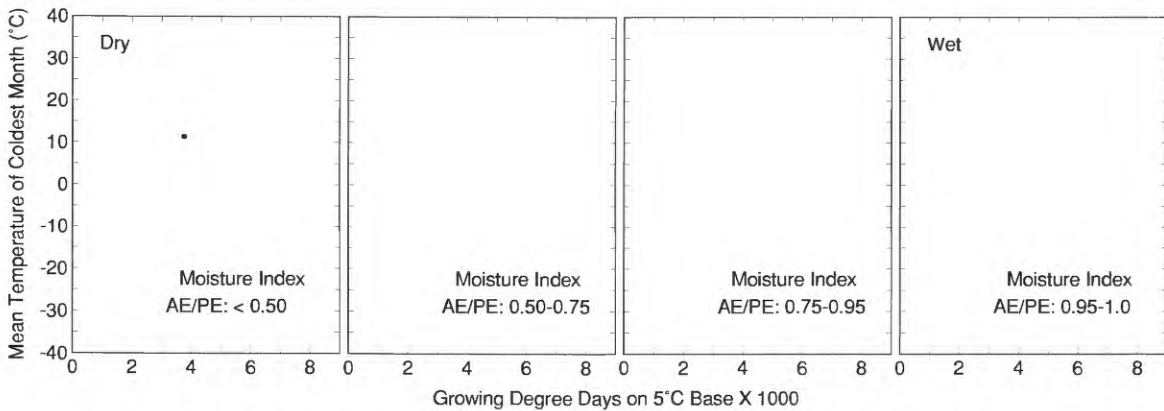
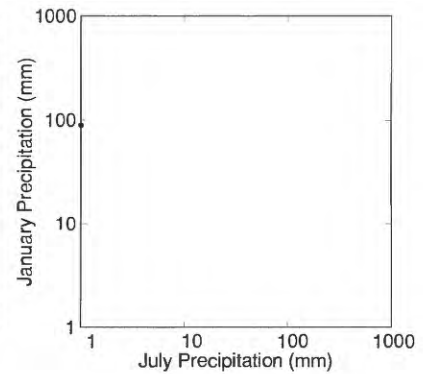
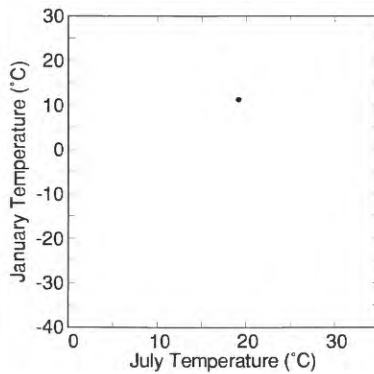
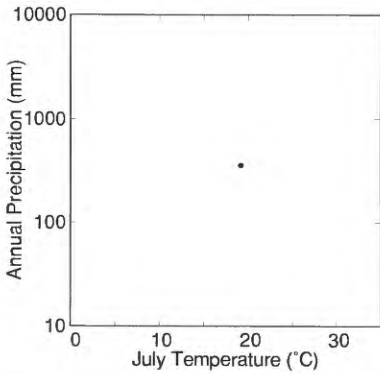
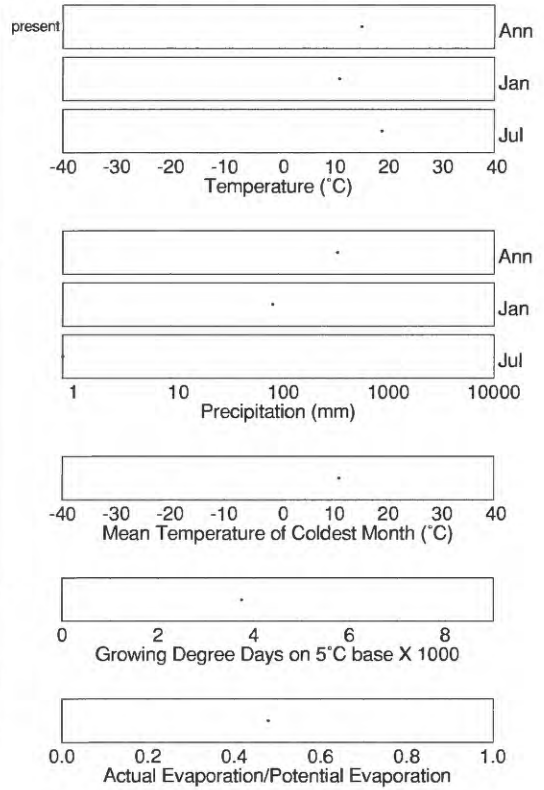
Growing Degree Days on 5°C Base X 1000

Ptelea crenulata

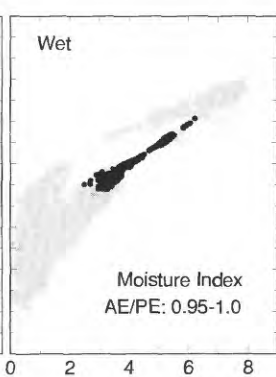
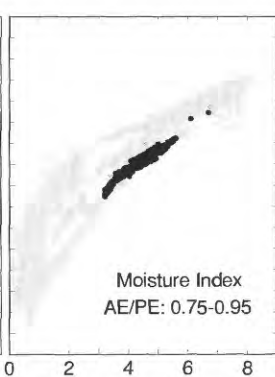
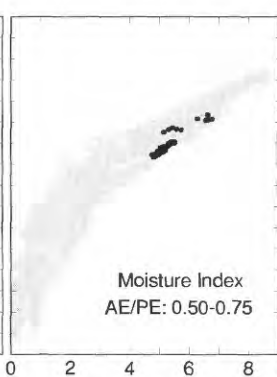
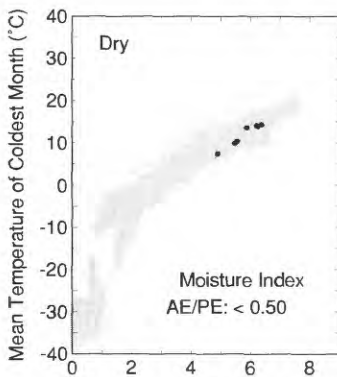
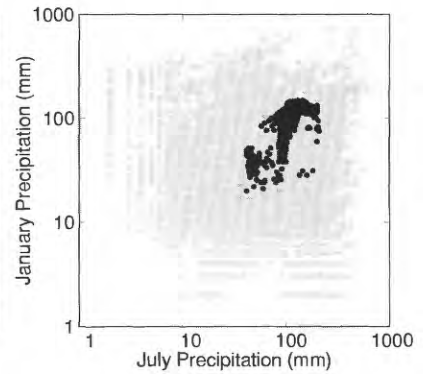
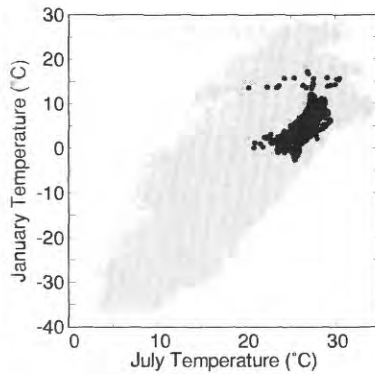
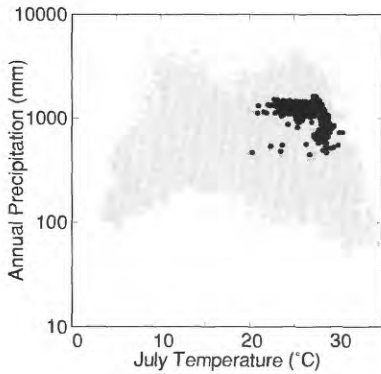
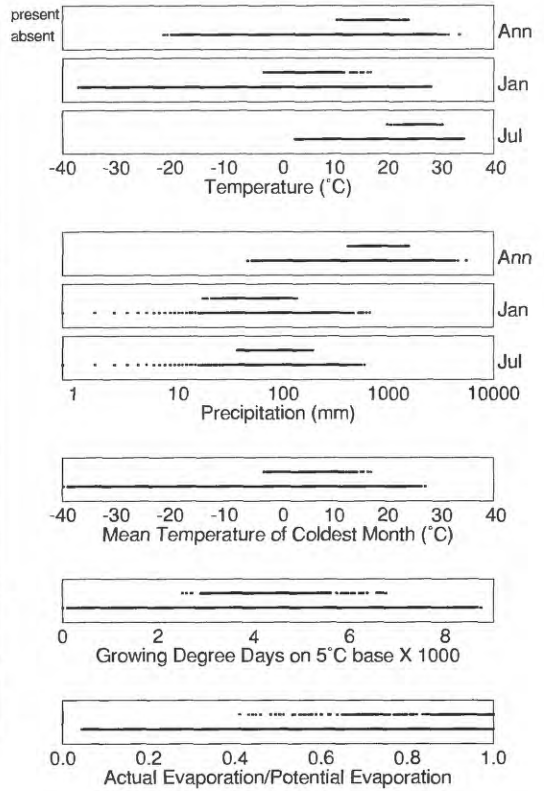


Growing Degree Days on 5°C Base X 1000

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

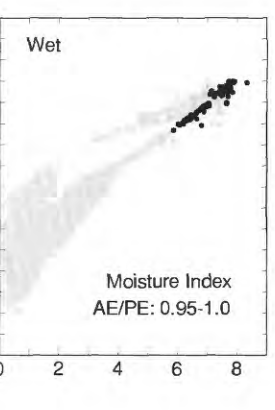
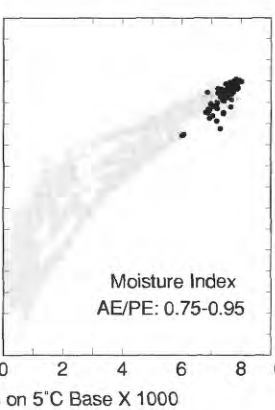
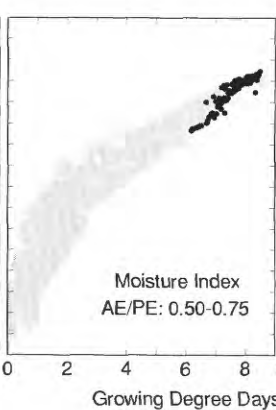
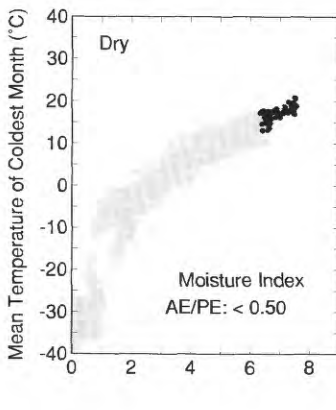
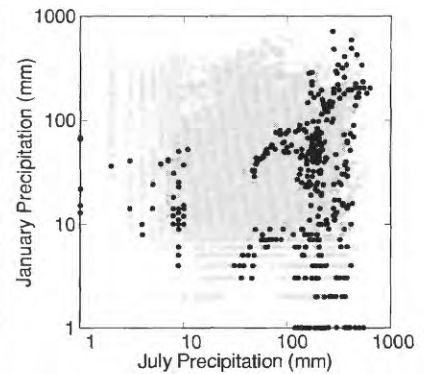
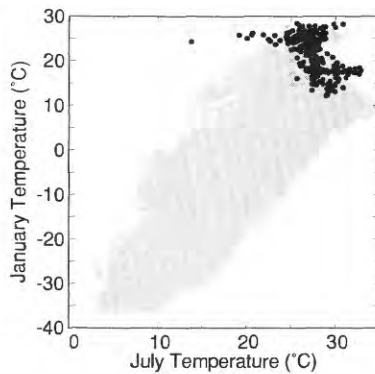
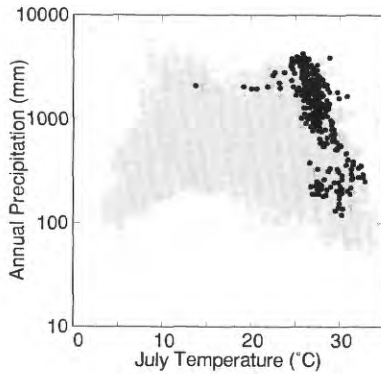
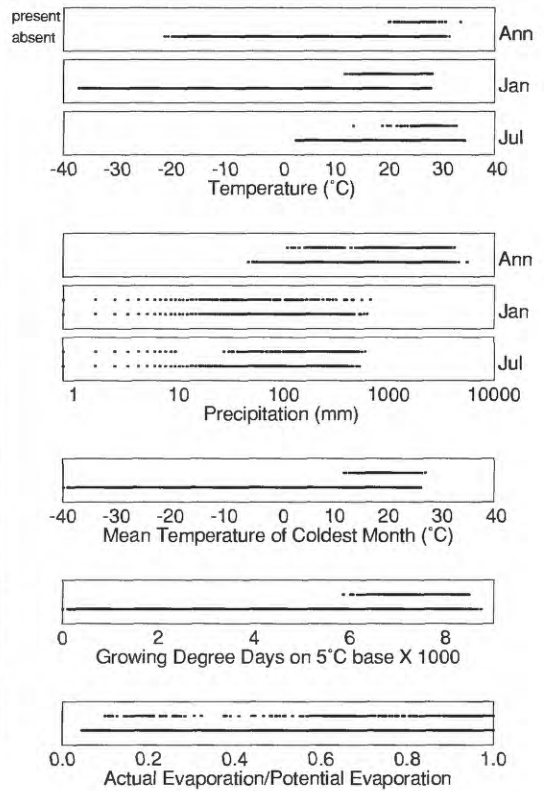


Rhamnus caroliniana

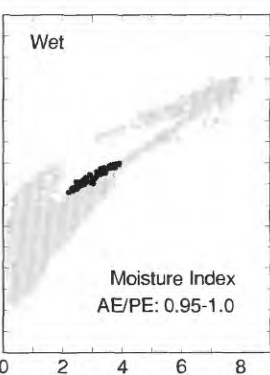
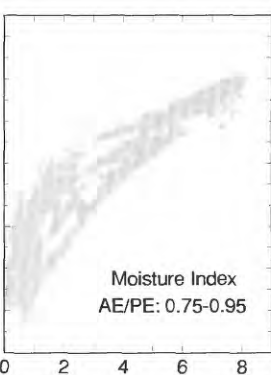
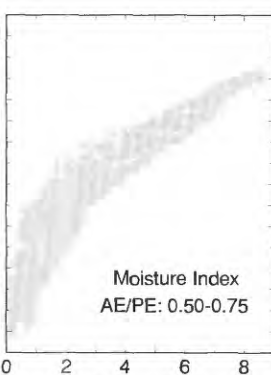
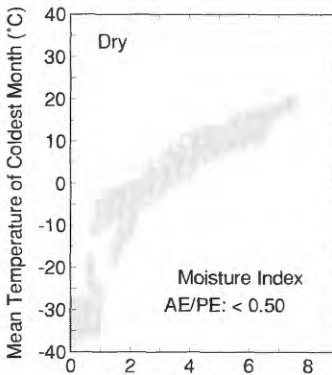
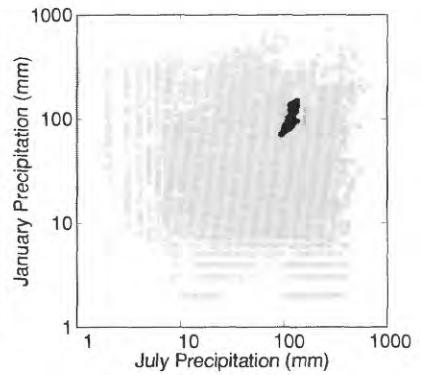
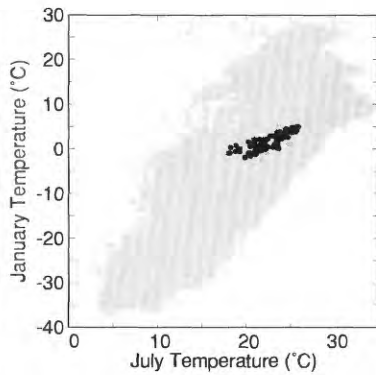
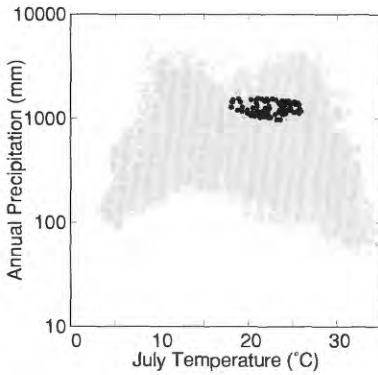
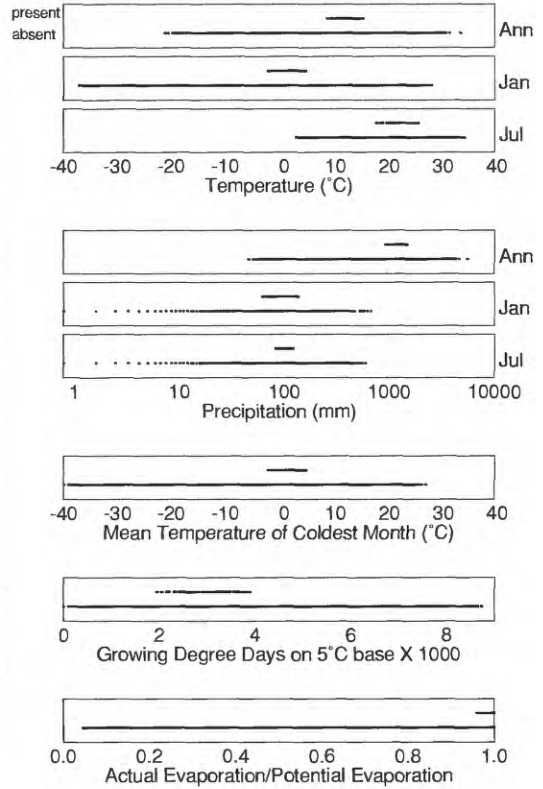


Growing Degree Days on 5°C Base X 1000

Rhizophora mangle (coastal distribution: nearest grid point used)

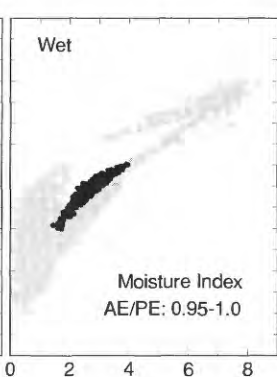
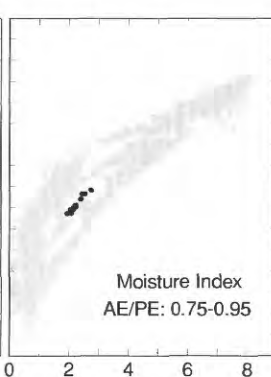
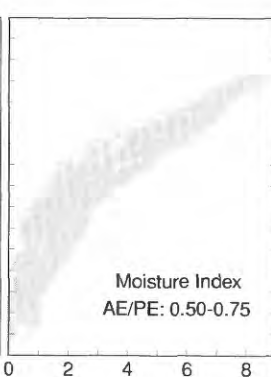
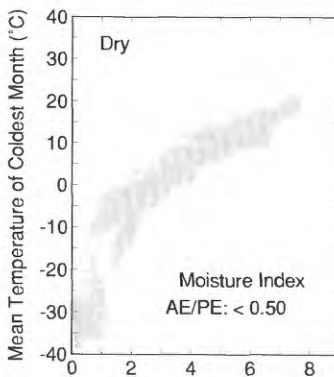
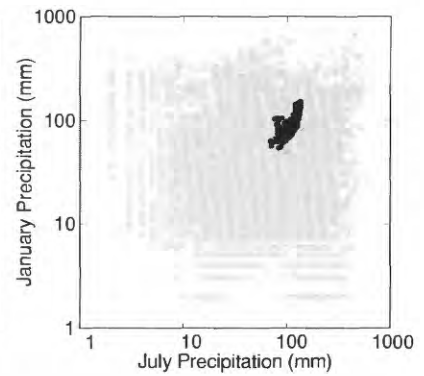
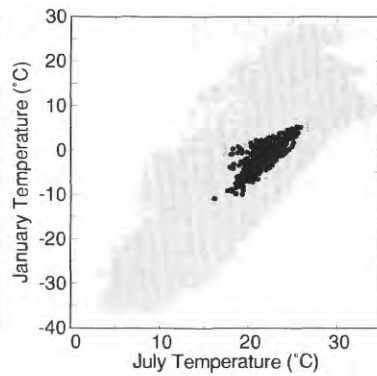
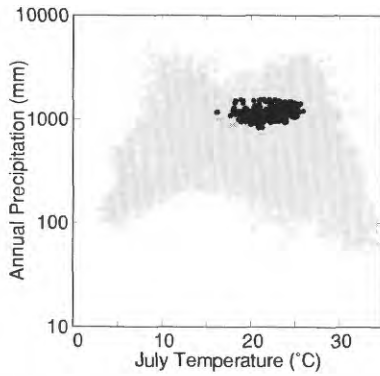
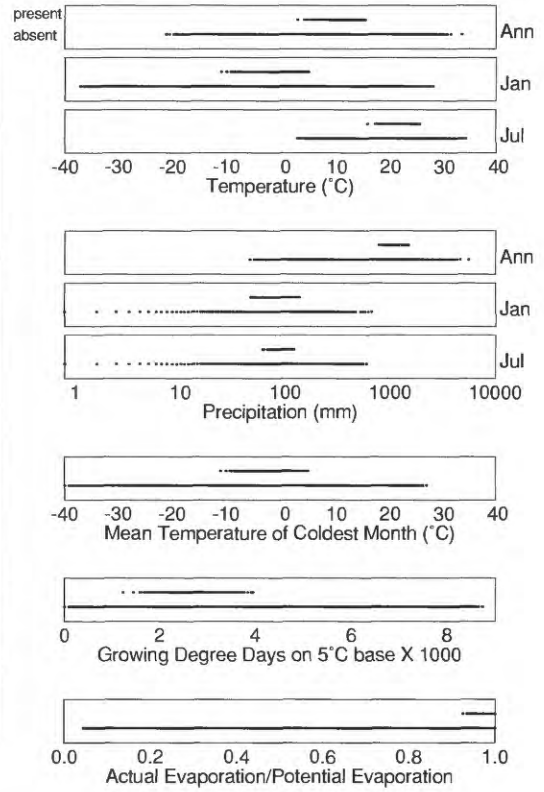


Rhododendron catawbiense



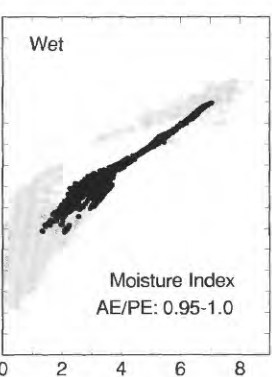
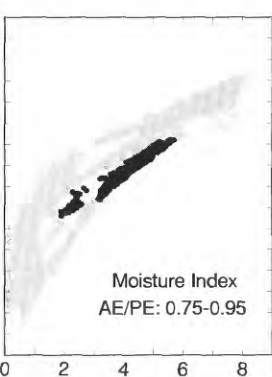
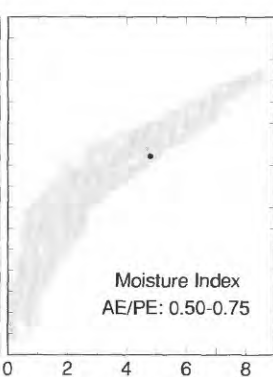
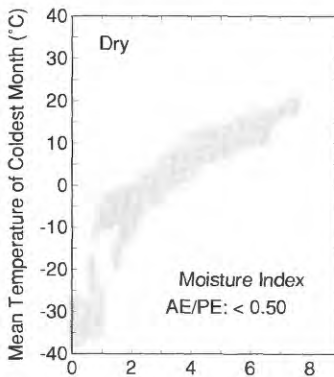
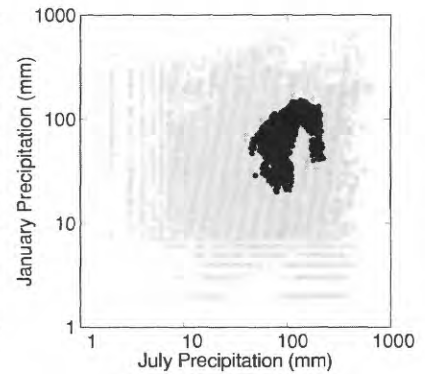
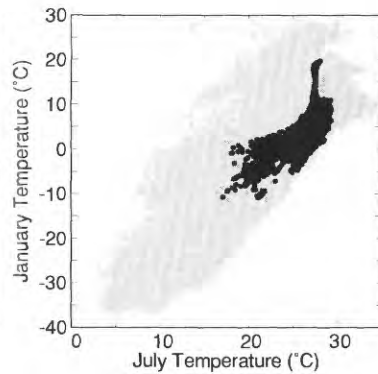
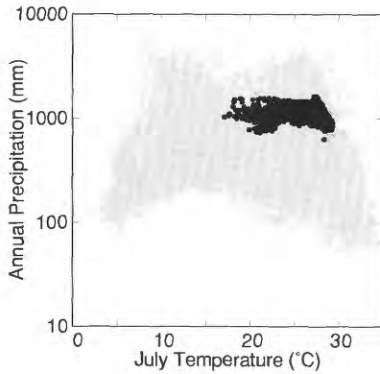
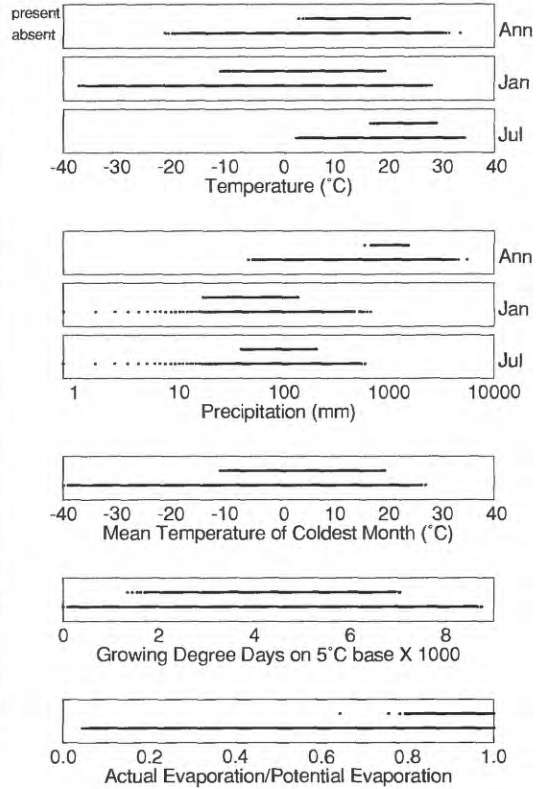
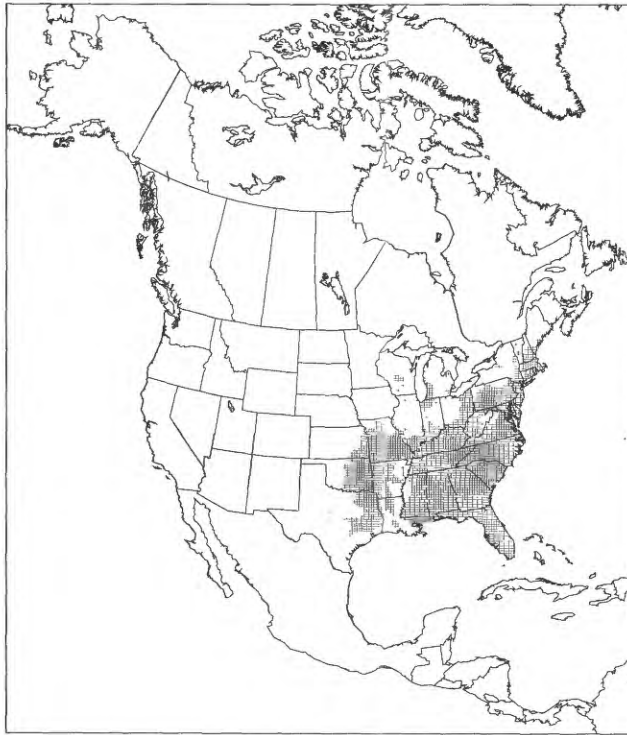
Growing Degree Days on 5°C Base X 1000

Rhododendron maximum



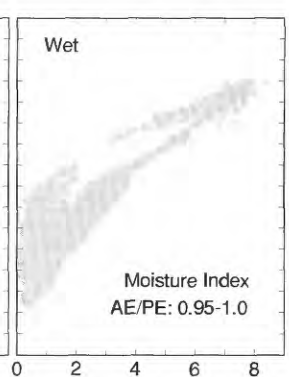
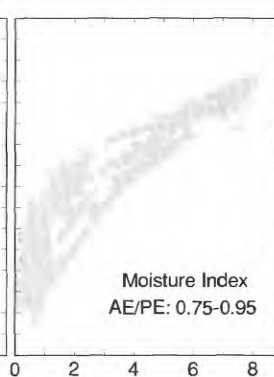
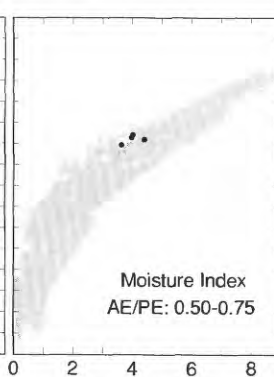
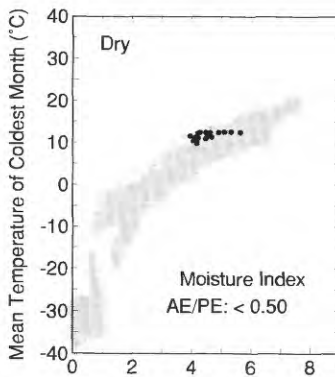
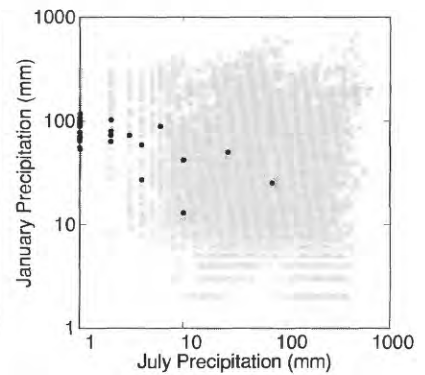
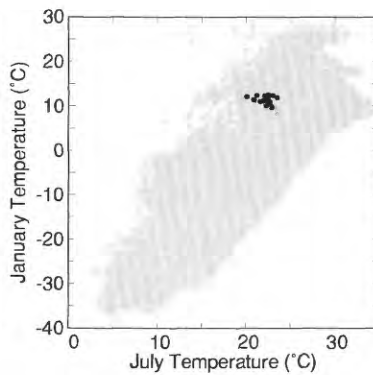
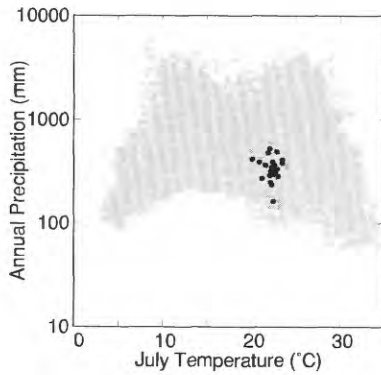
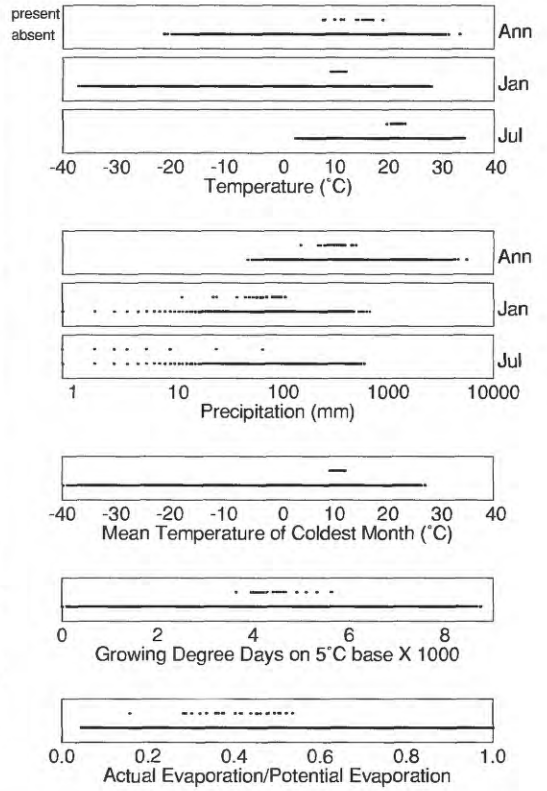
Growing Degree Days on 5°C Base X 1000

Rhus copallina

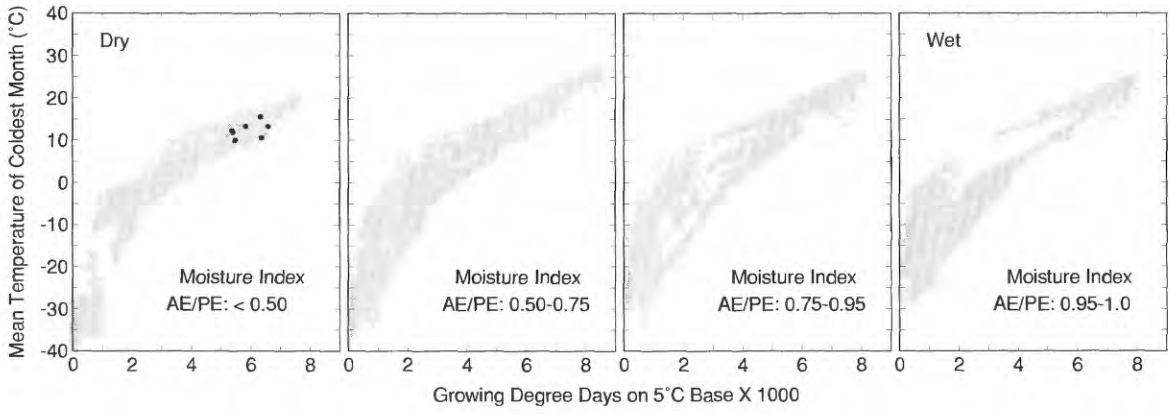
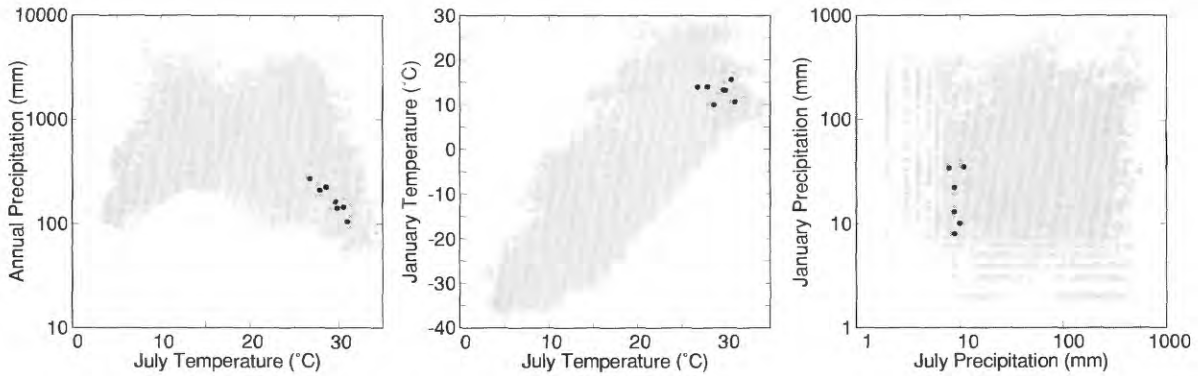
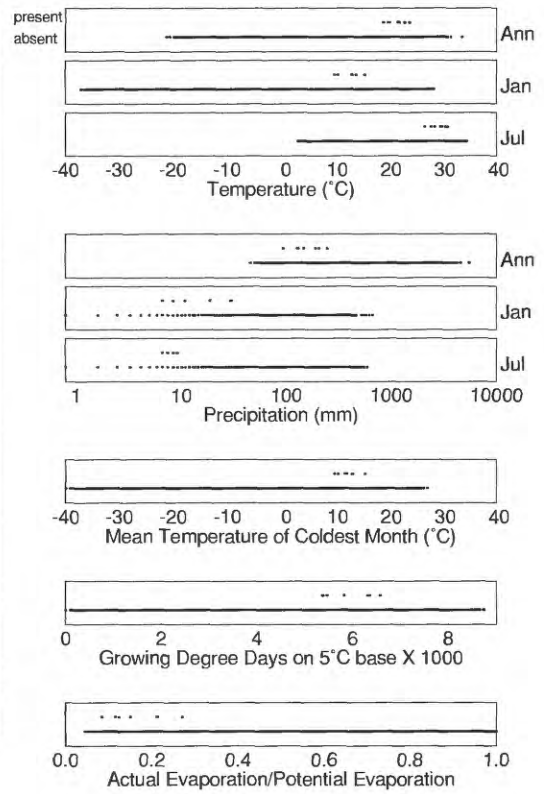


Growing Degree Days on 5°C Base X 1000

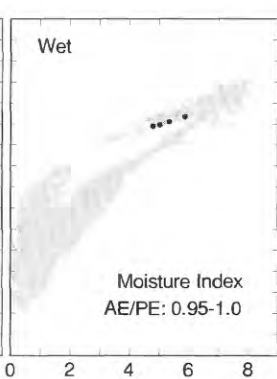
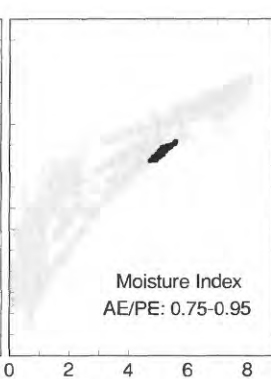
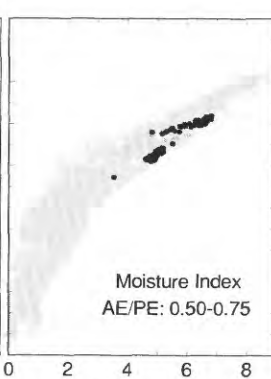
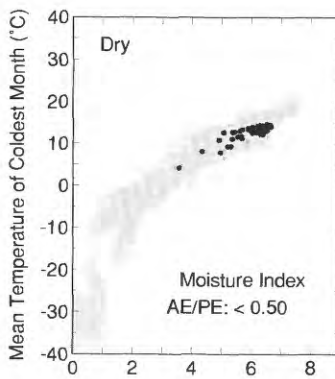
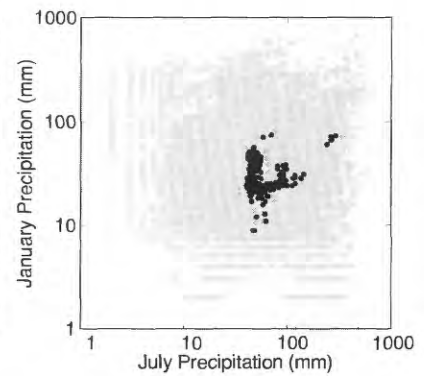
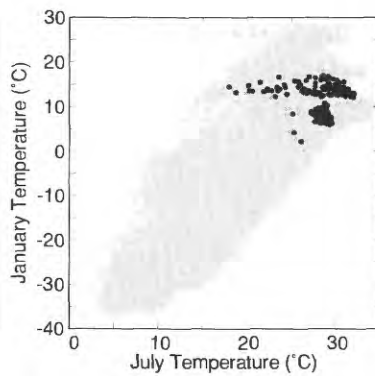
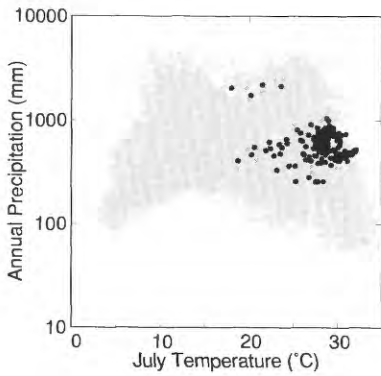
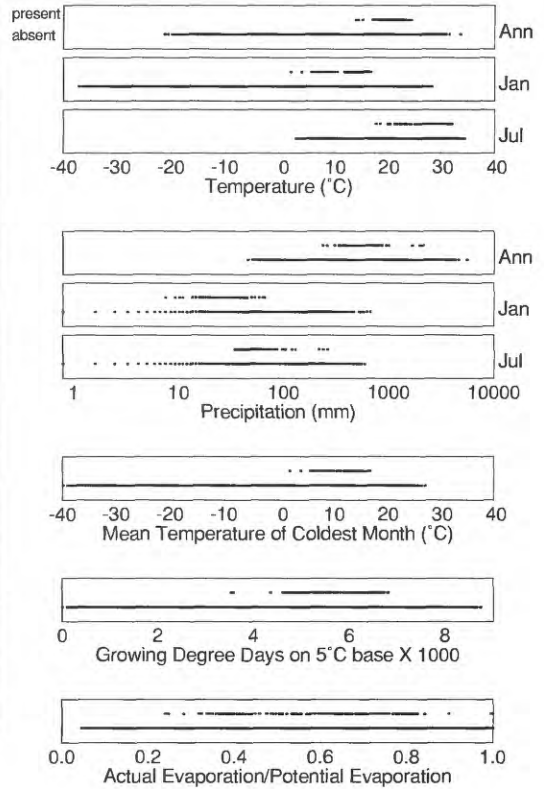
Rhus integrifolia



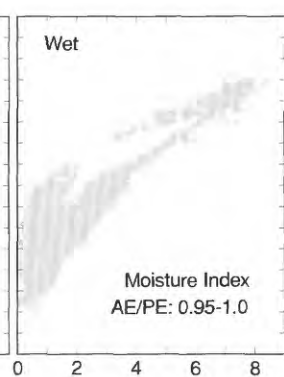
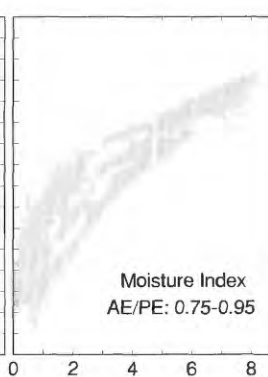
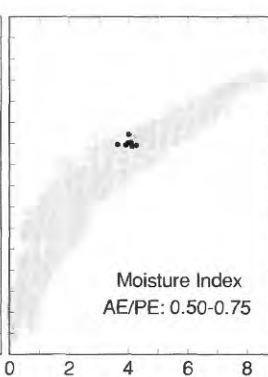
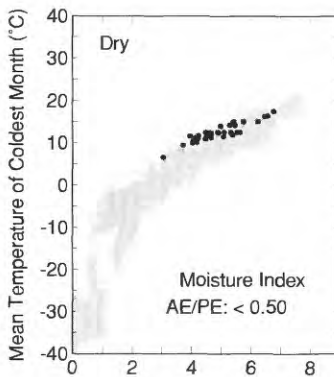
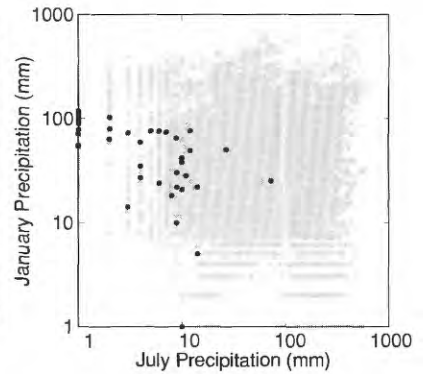
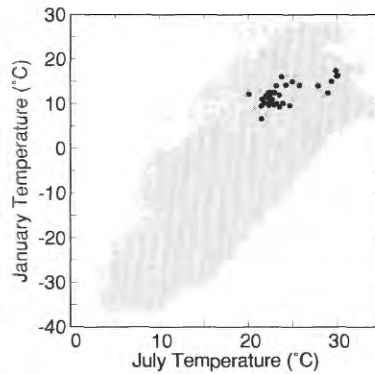
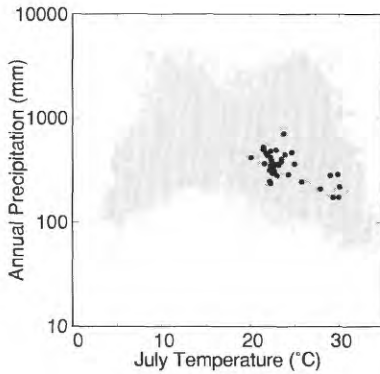
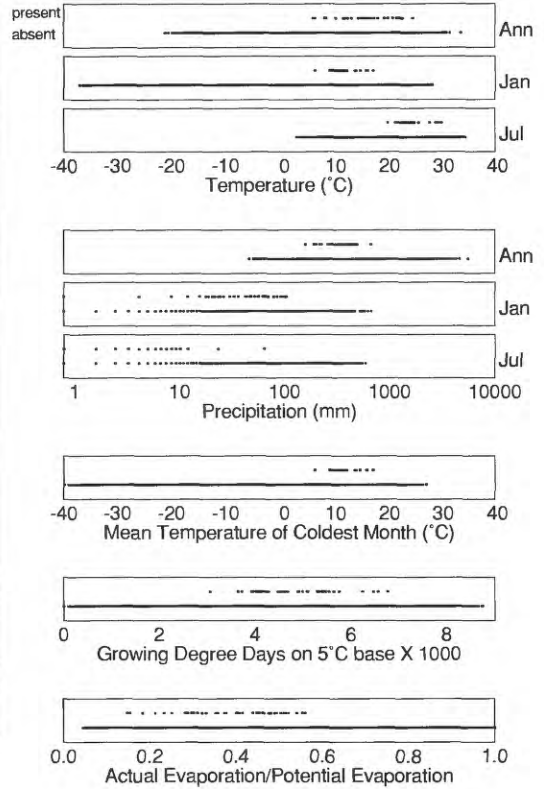
Rhus kearneyi



Rhus lanceolata

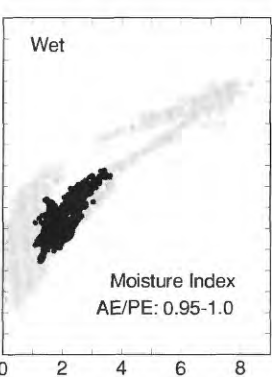
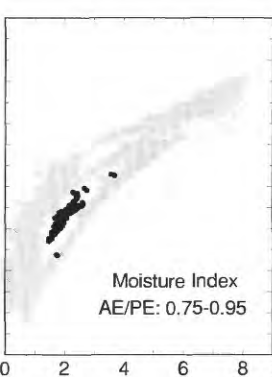
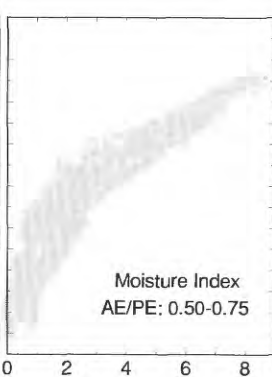
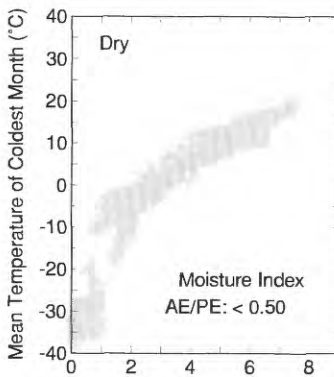
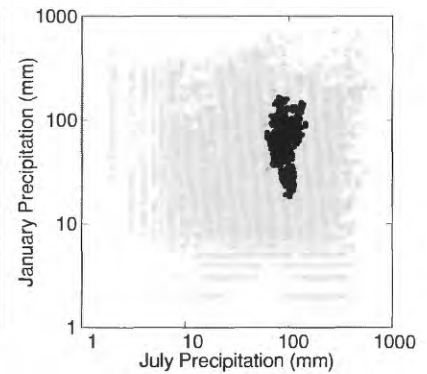
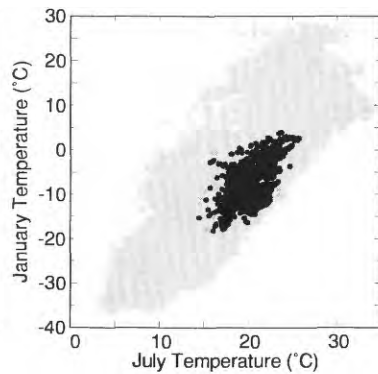
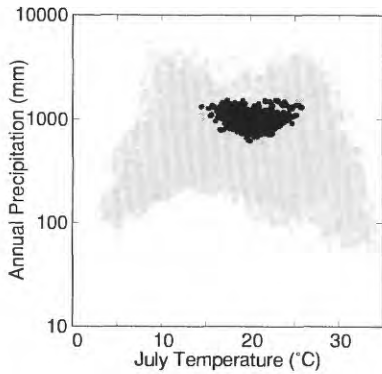
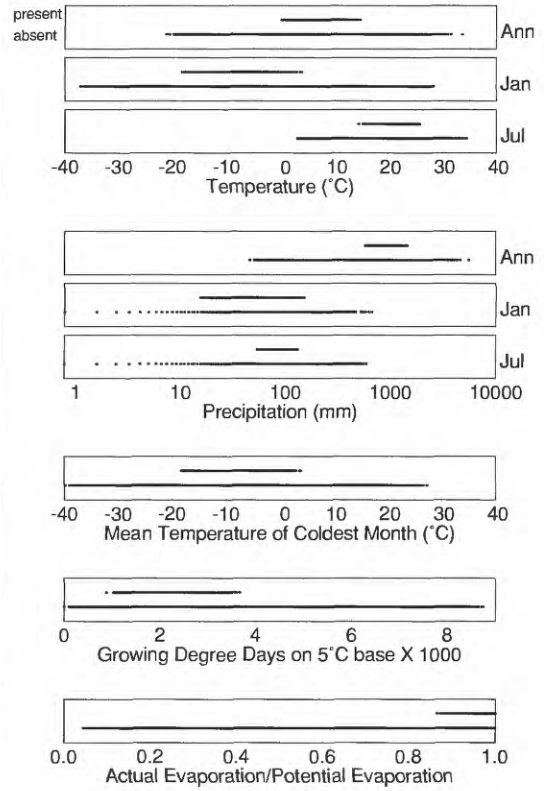
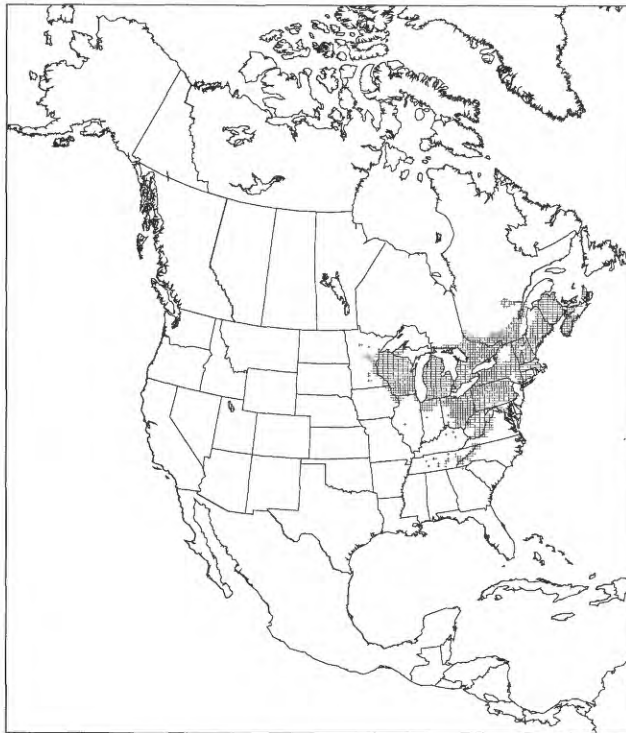


Rhus laurina



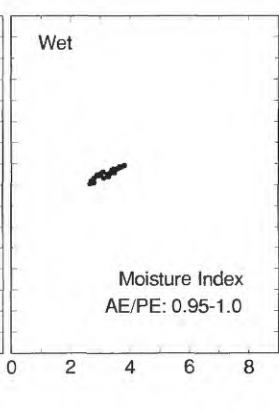
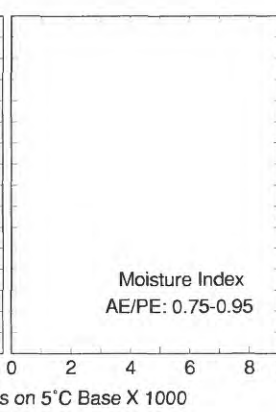
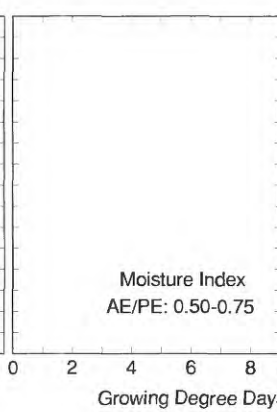
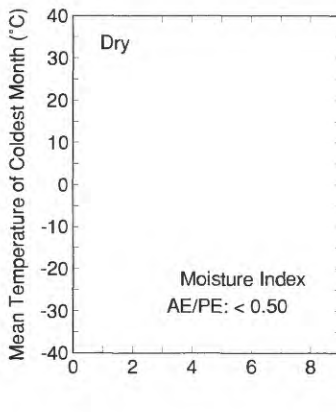
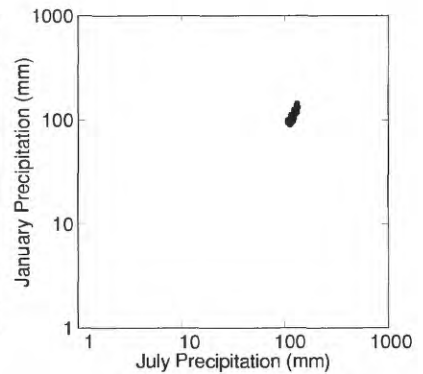
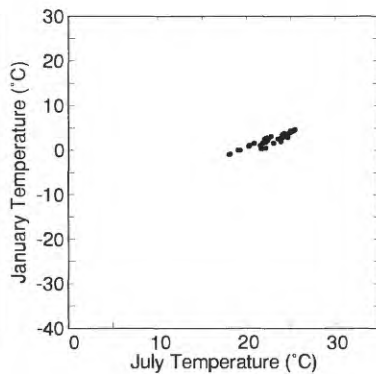
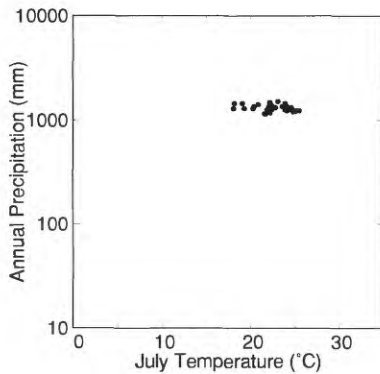
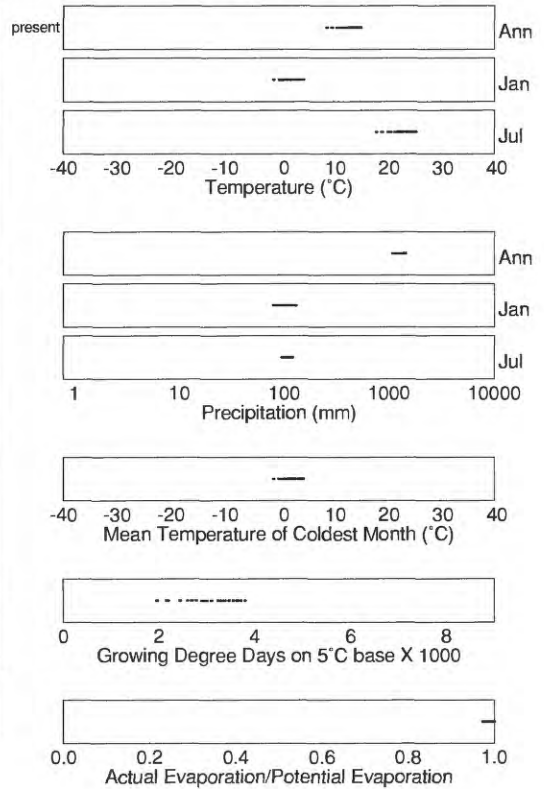
Growing Degree Days on 5°C Base X 1000

Rhus typhina

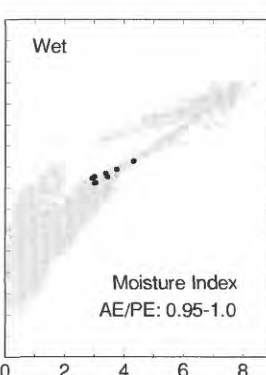
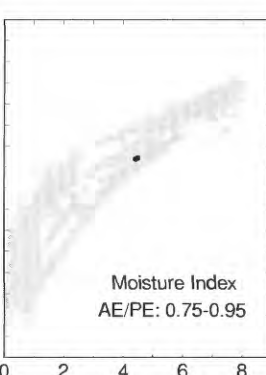
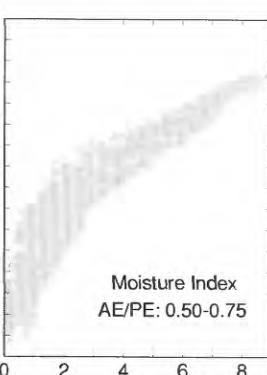
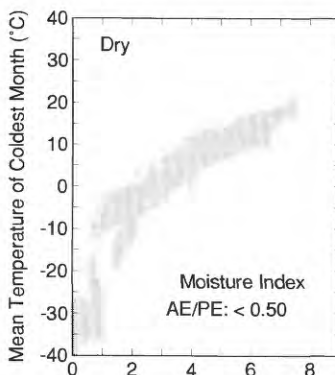
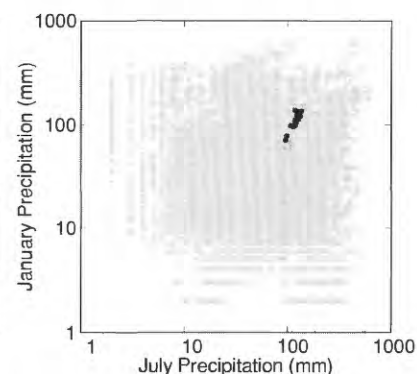
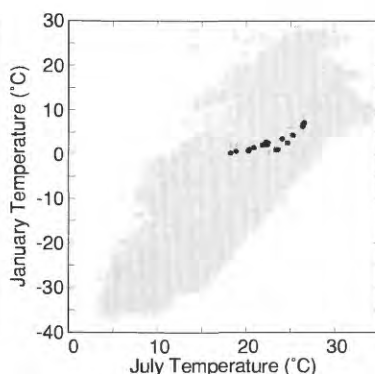
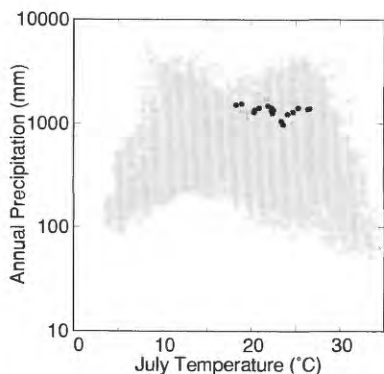
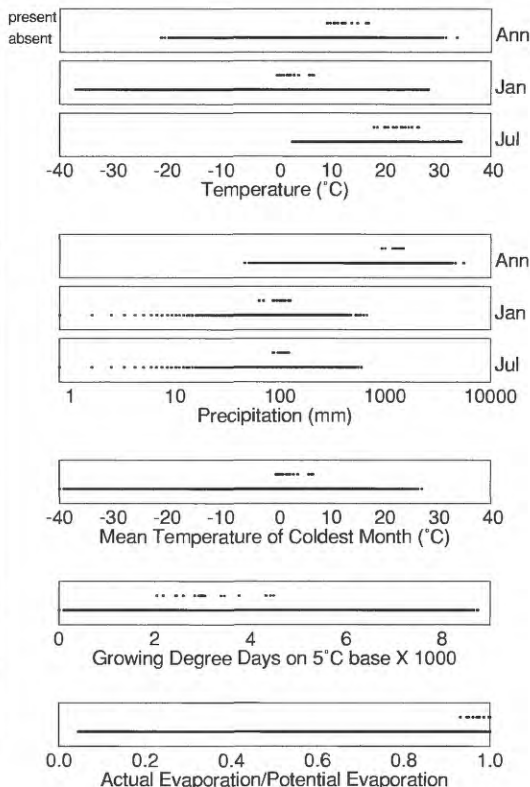


Growing Degree Days on 5°C Base X 1000

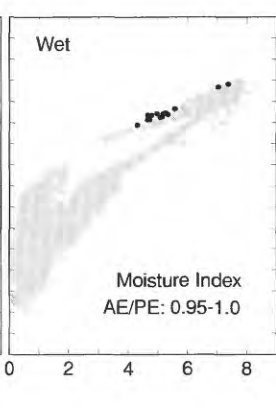
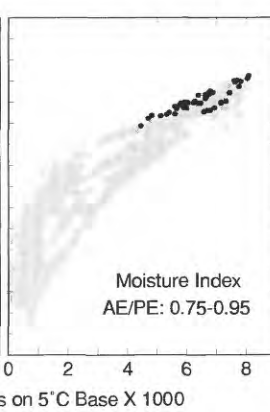
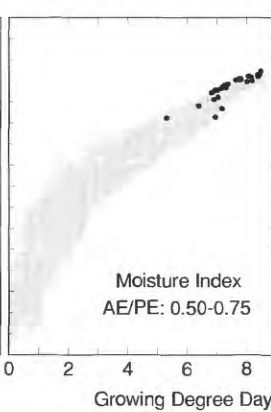
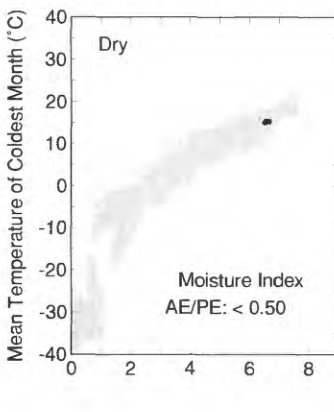
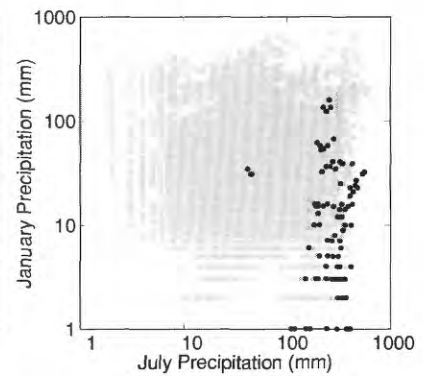
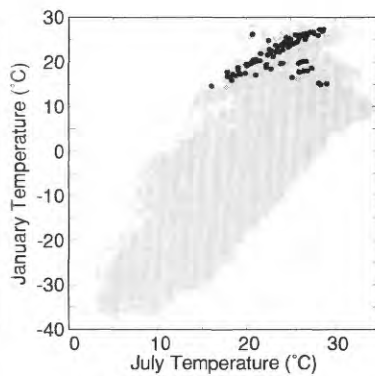
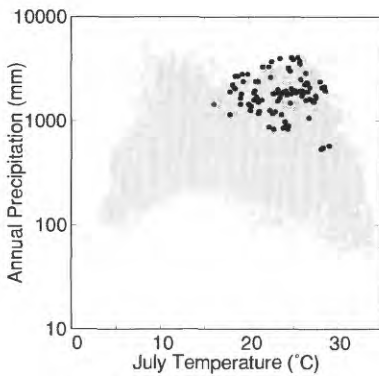
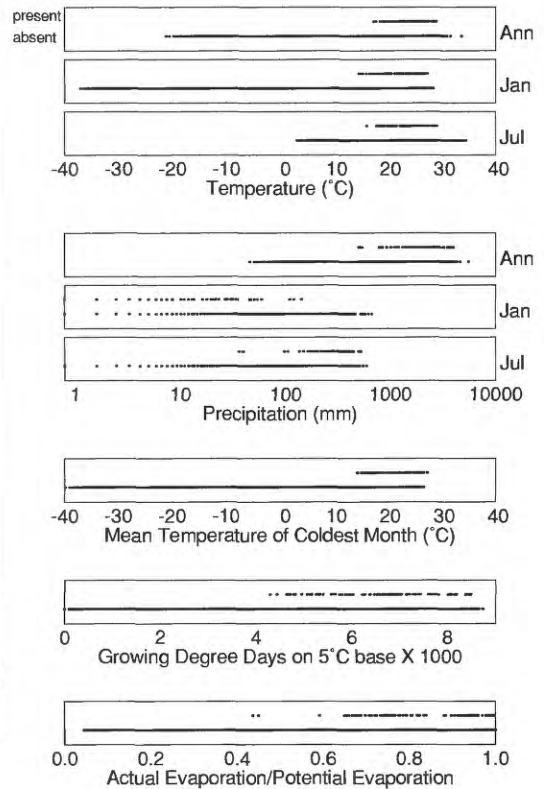
Robinia kelseyi (minimal data - nearest grid points used with environmental parameters)



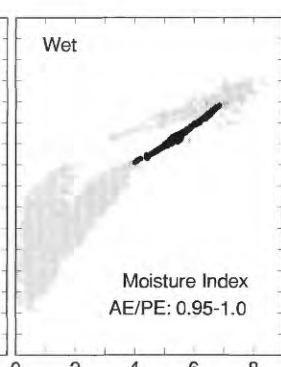
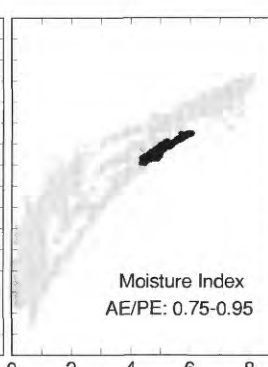
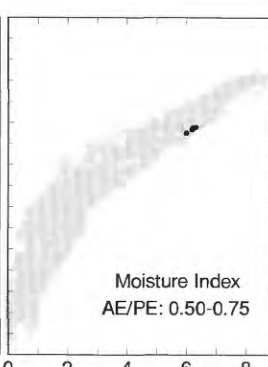
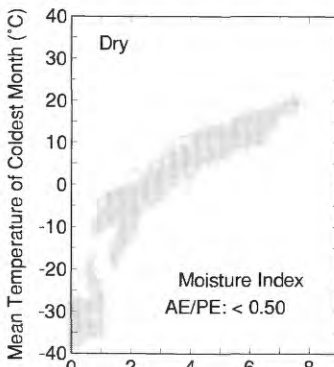
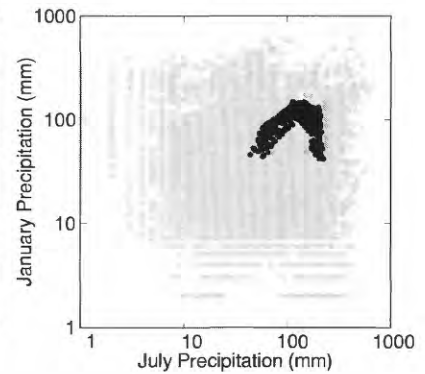
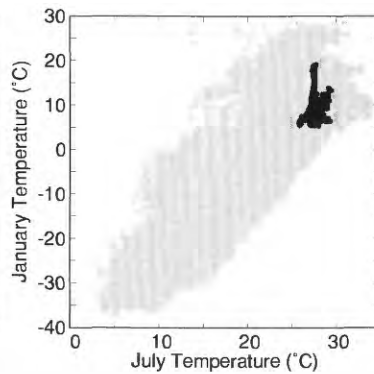
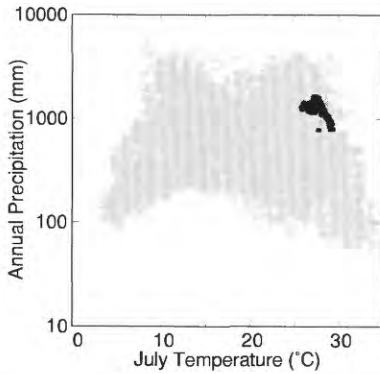
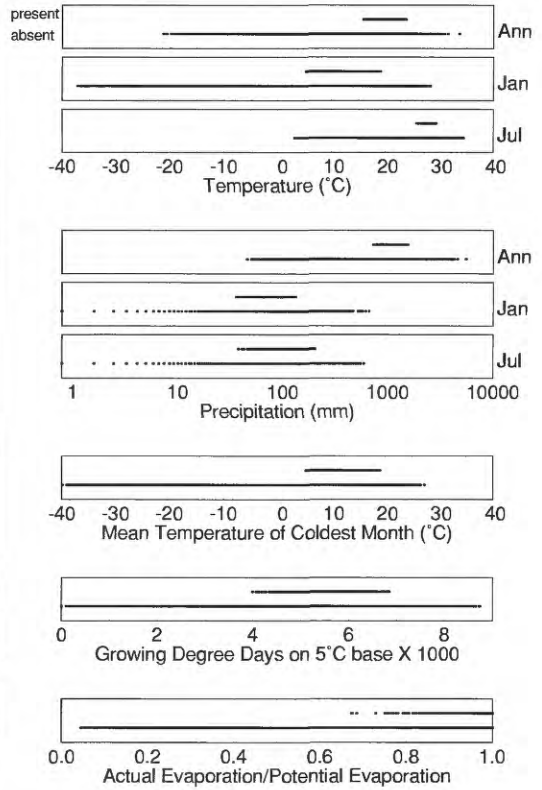
Robinia viscosa



Sabal mexicana

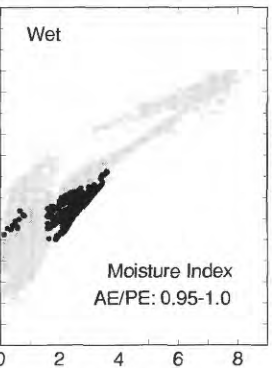
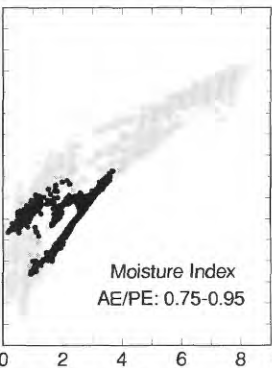
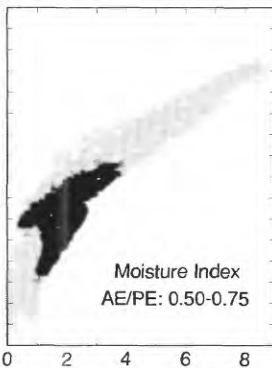
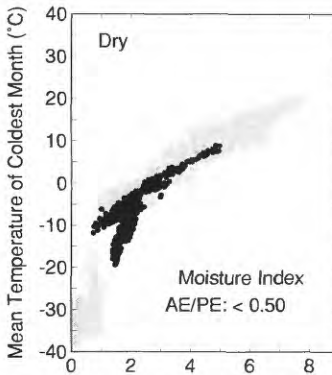
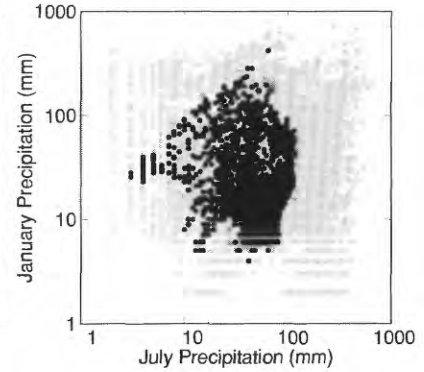
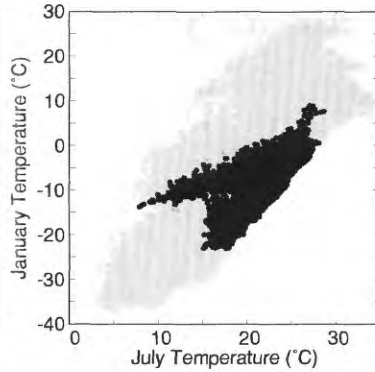
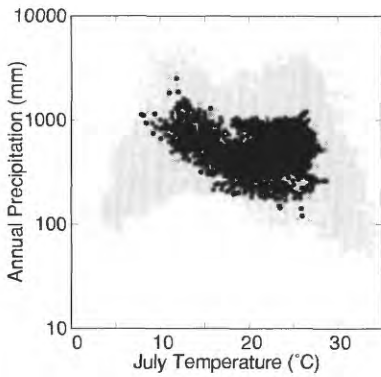
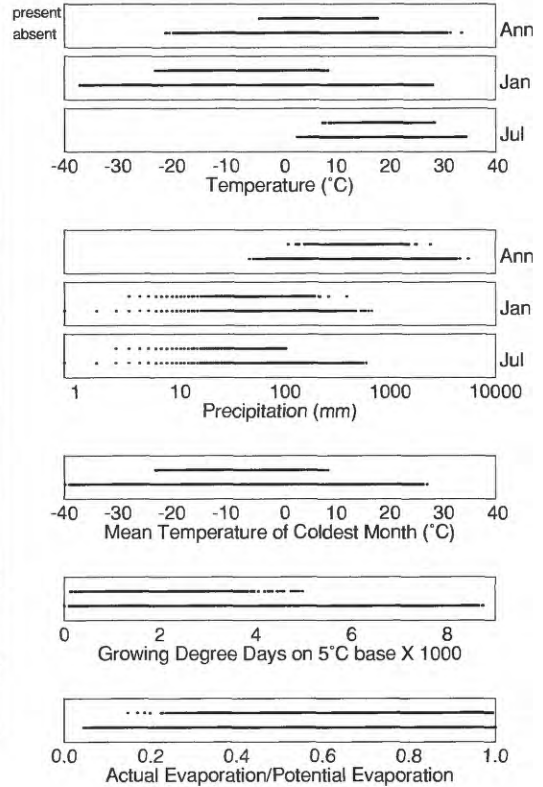
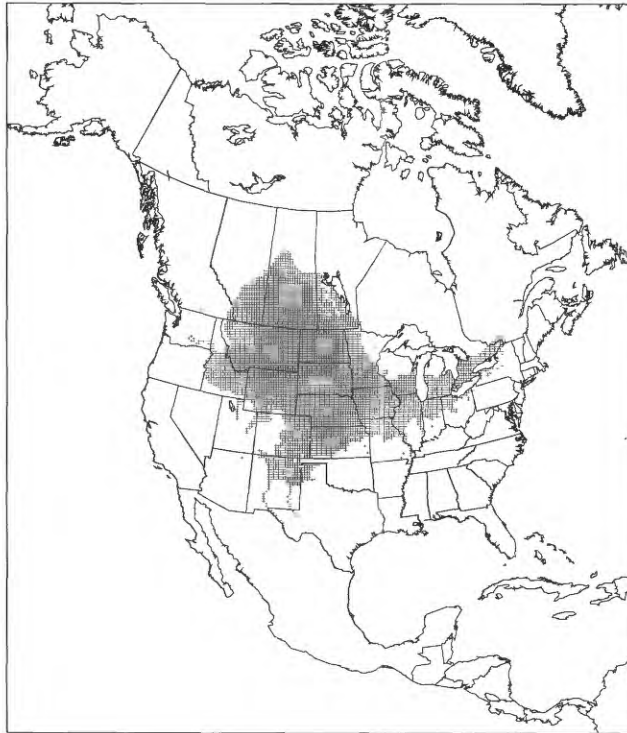


Sabal minor



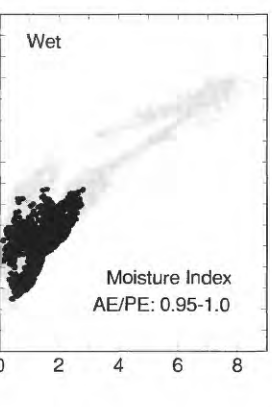
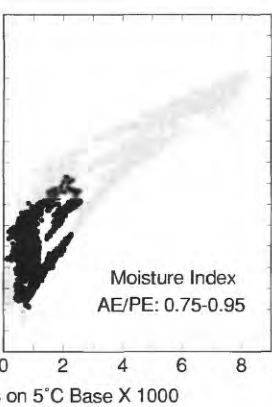
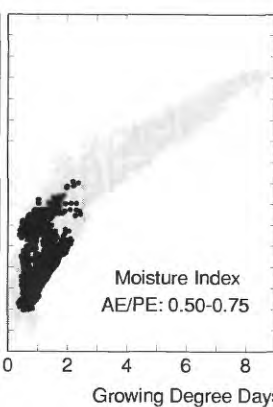
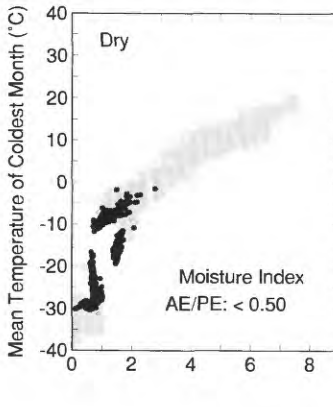
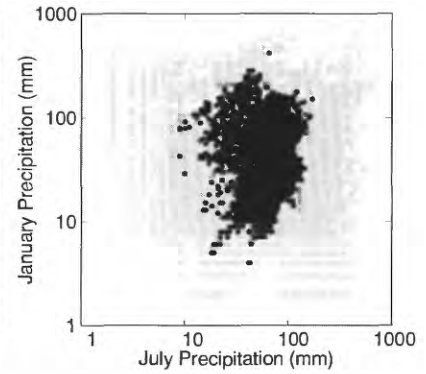
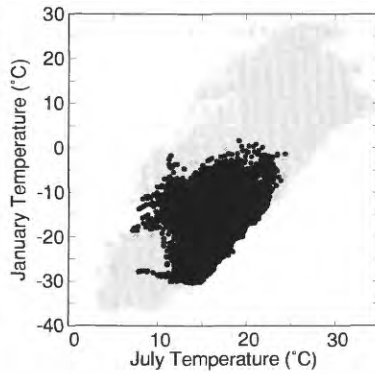
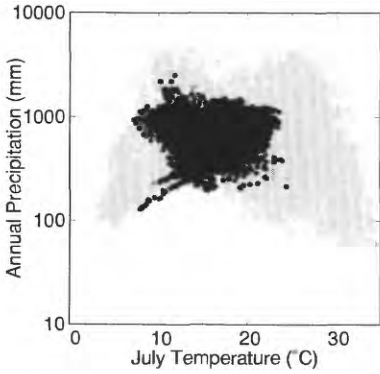
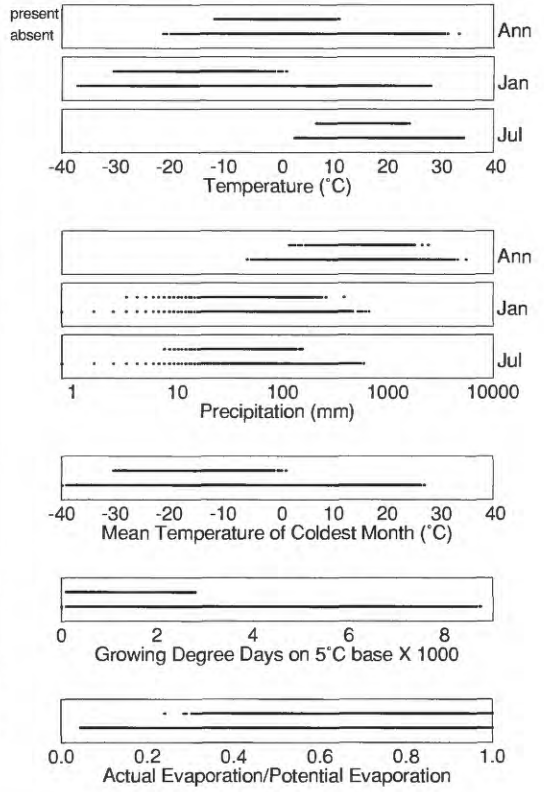
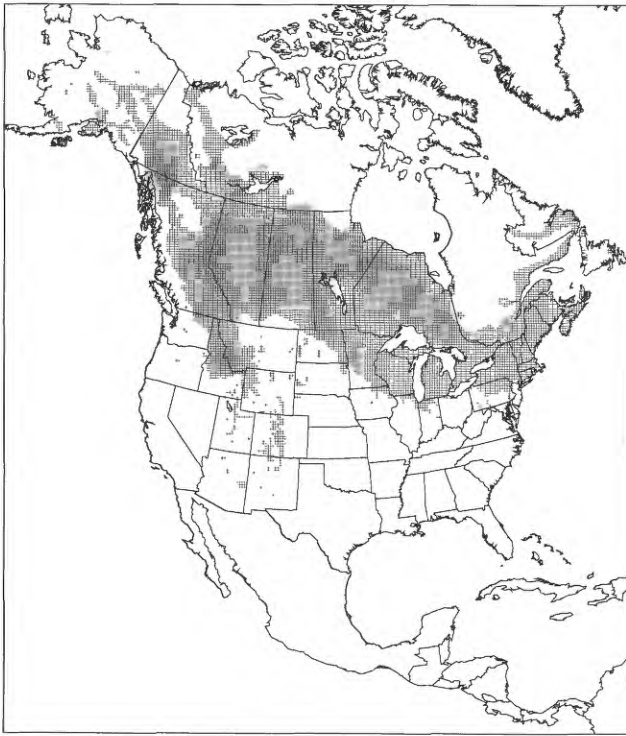
Growing Degree Days on 5°C Base X 1000

Salix amygdaloides

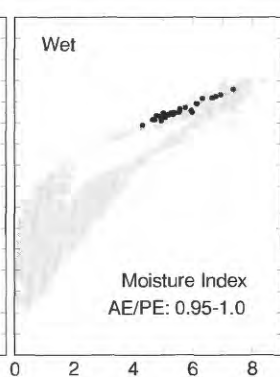
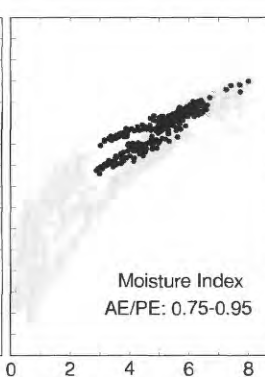
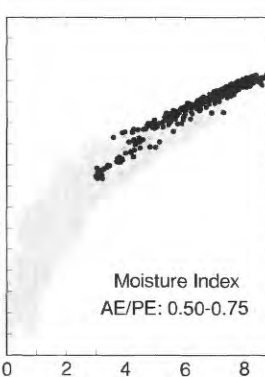
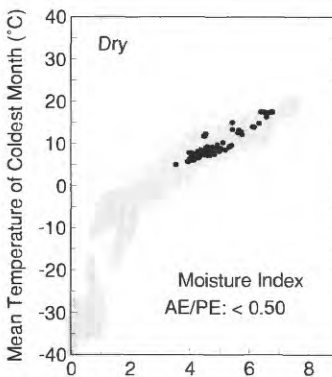
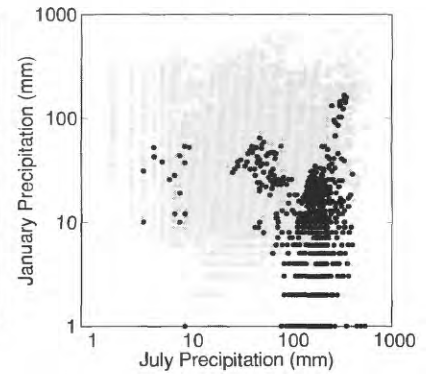
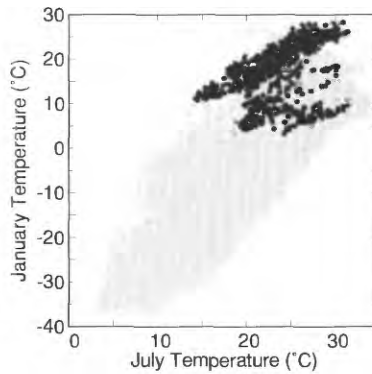
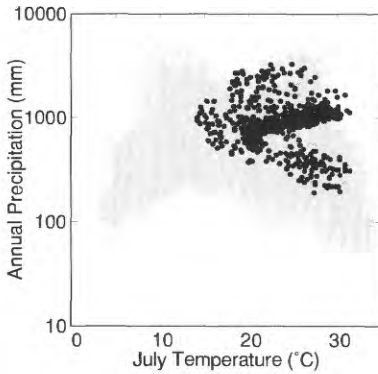
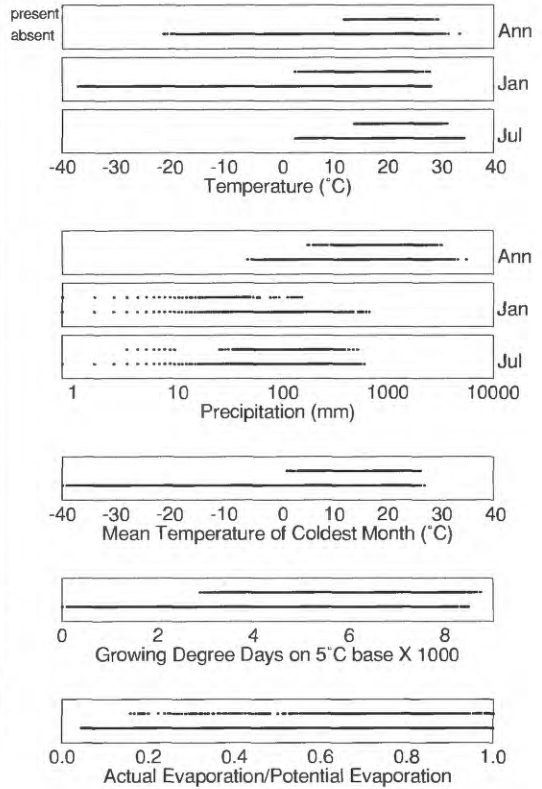


Growing Degree Days on 5°C Base X 1000

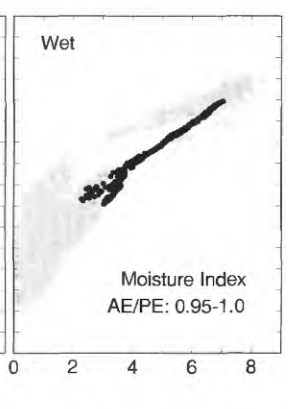
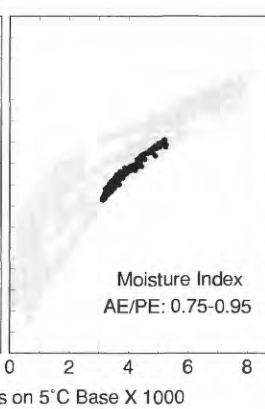
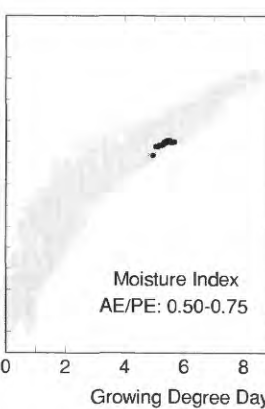
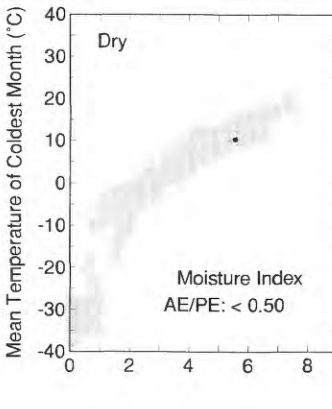
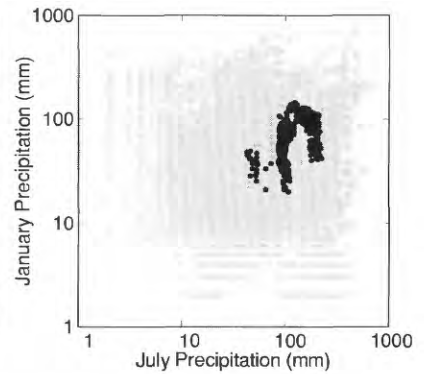
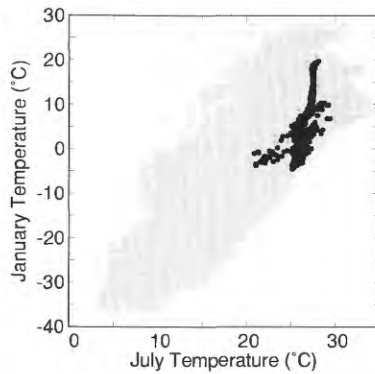
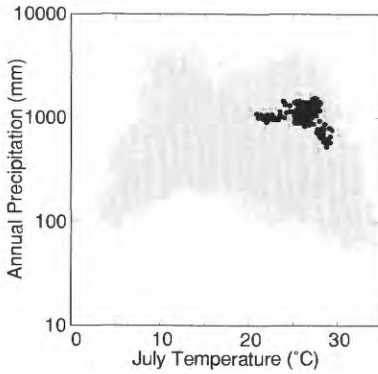
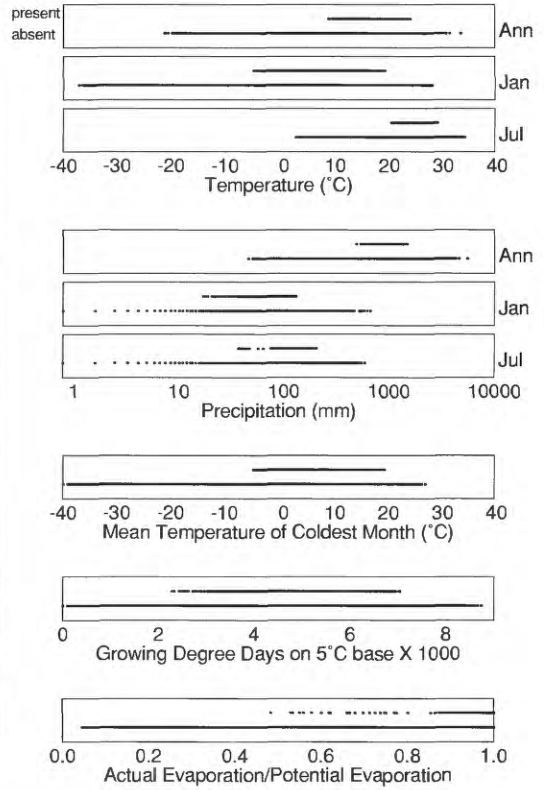
Salix bebbiana



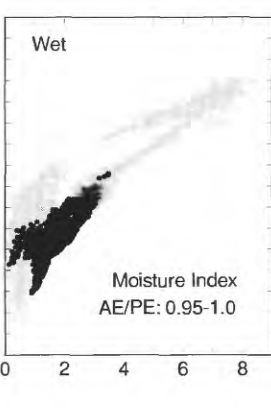
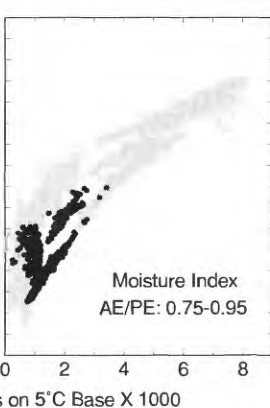
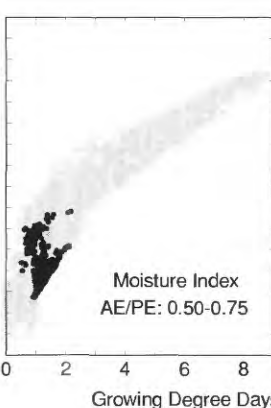
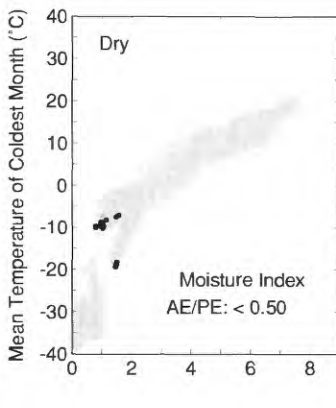
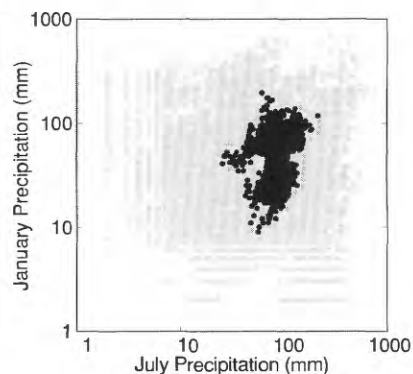
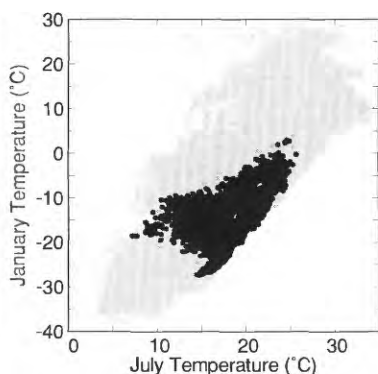
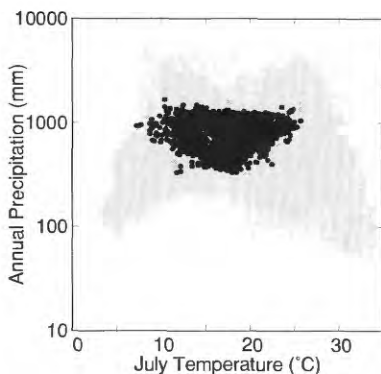
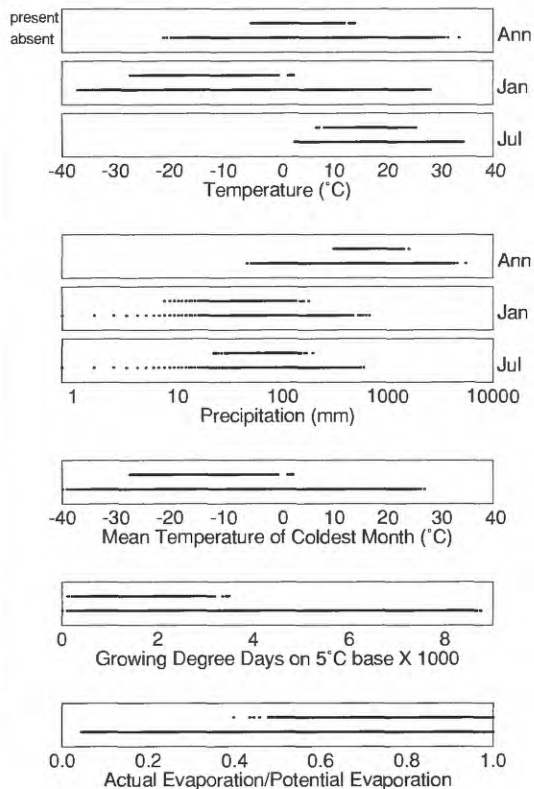
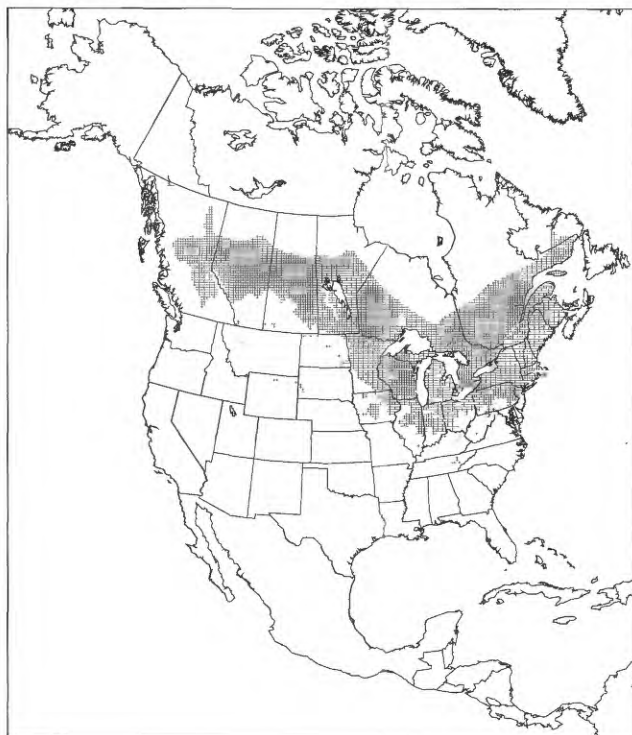
Salix bonplandiana



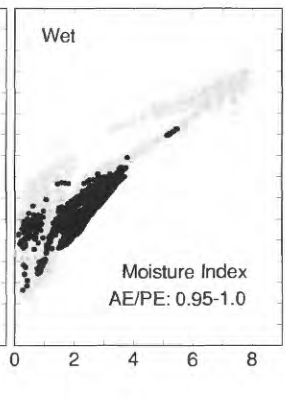
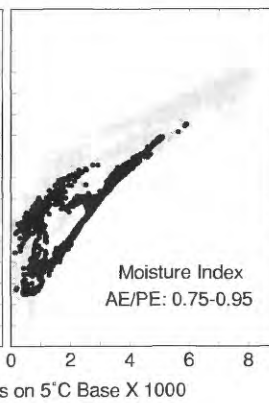
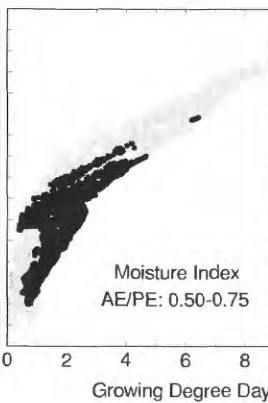
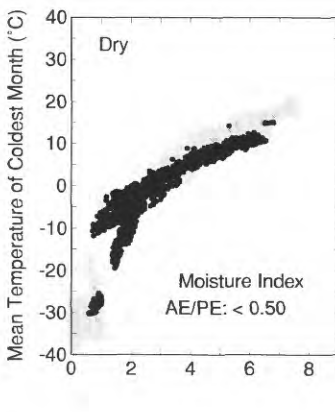
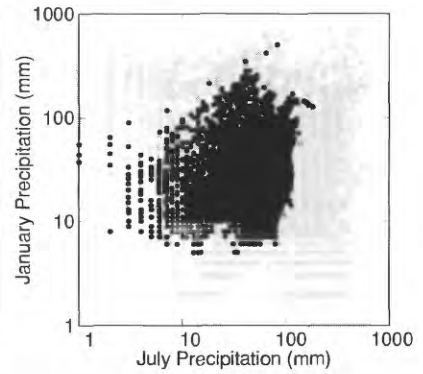
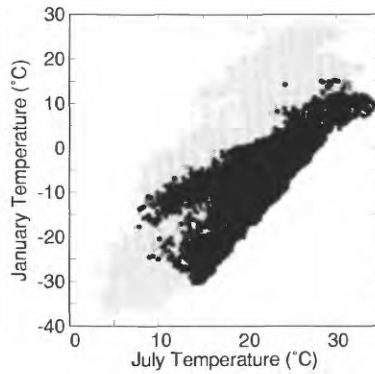
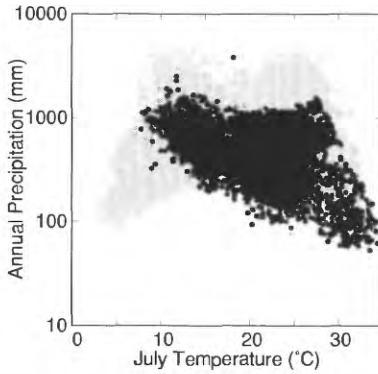
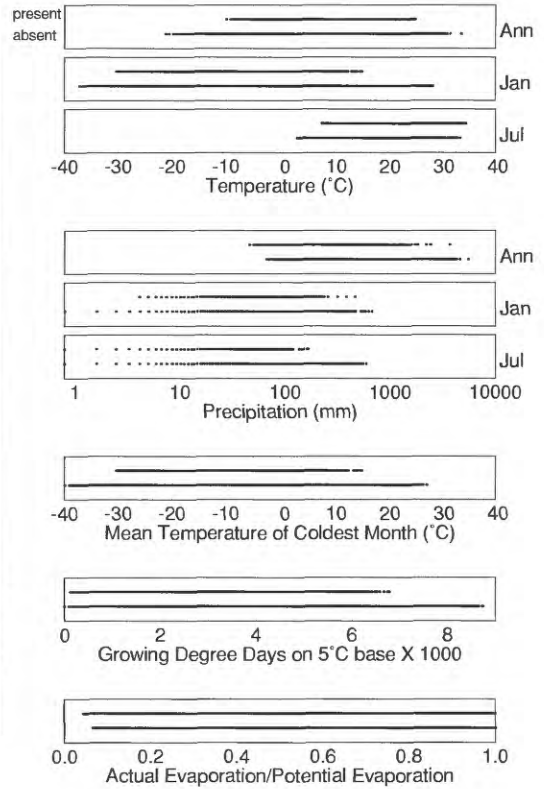
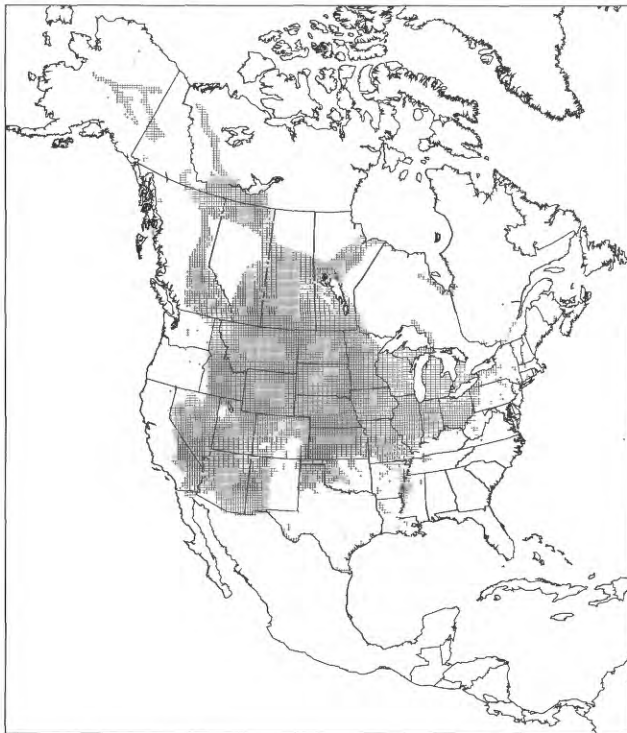
Salix caroliniana



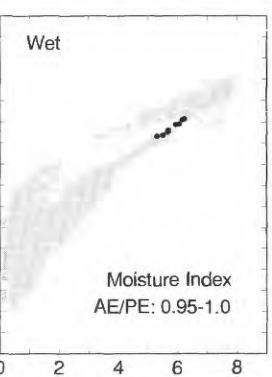
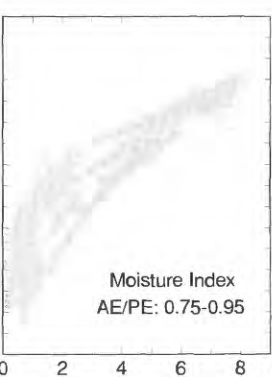
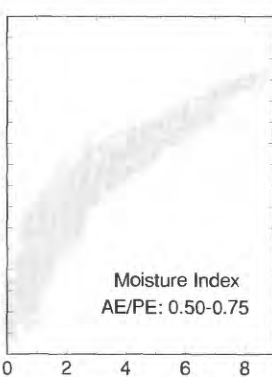
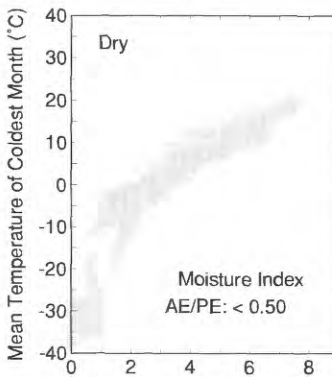
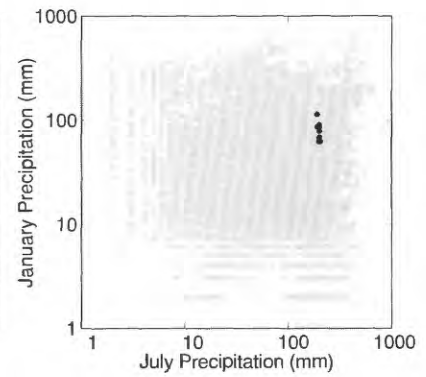
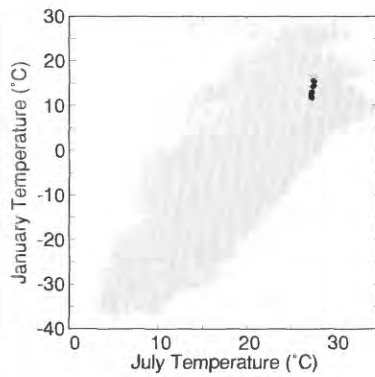
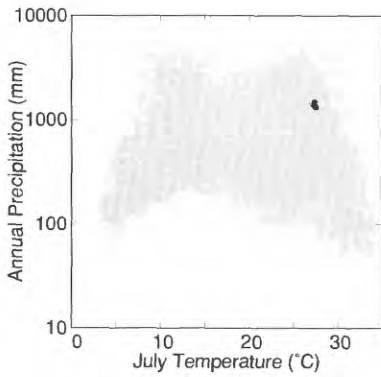
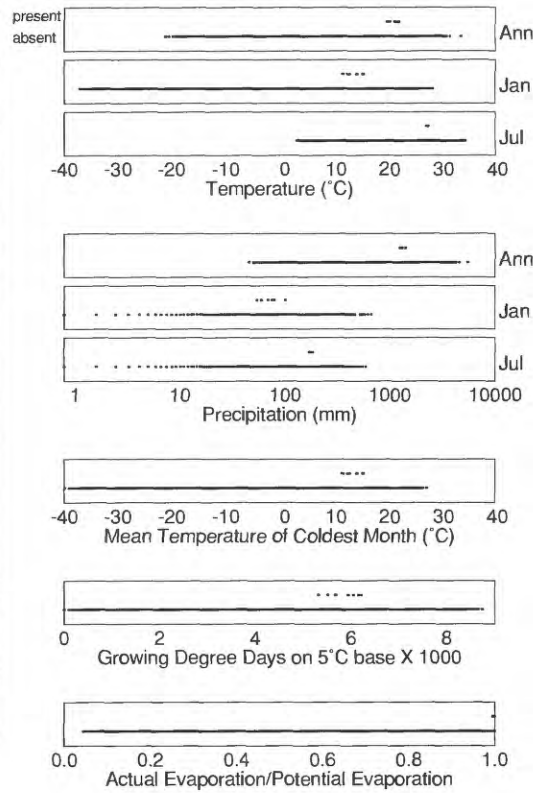
Salix discolor



Salix exigua

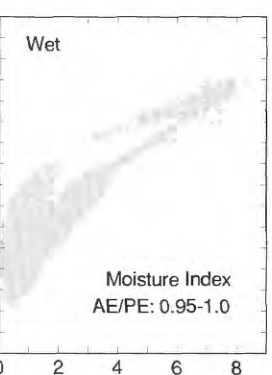
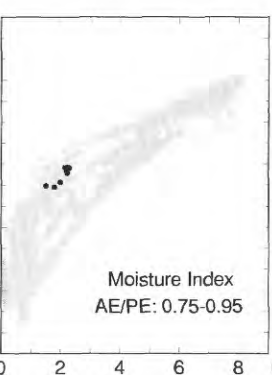
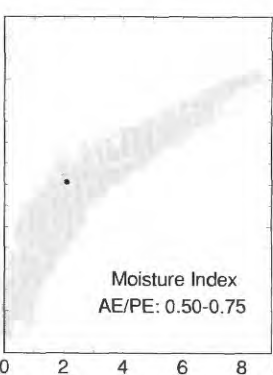
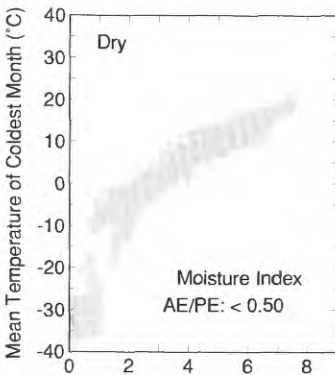
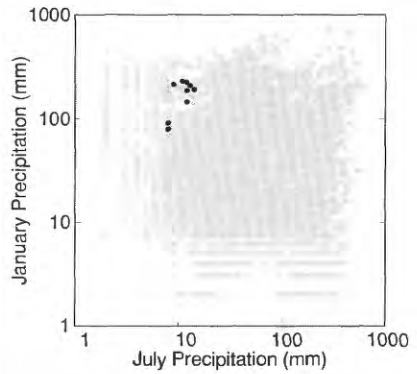
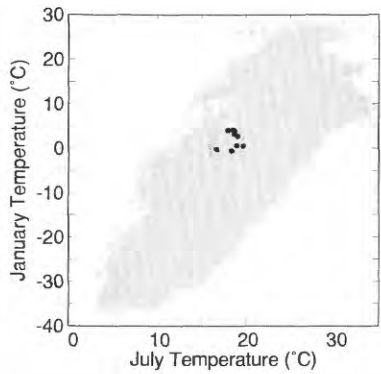
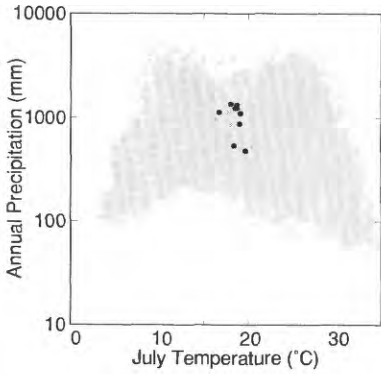
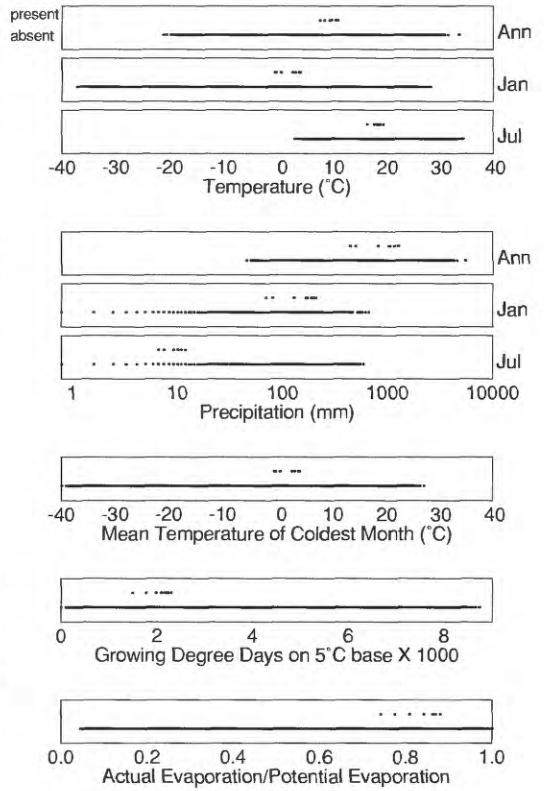


Salix floridana



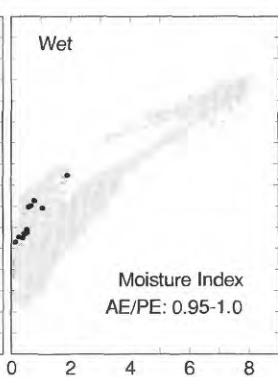
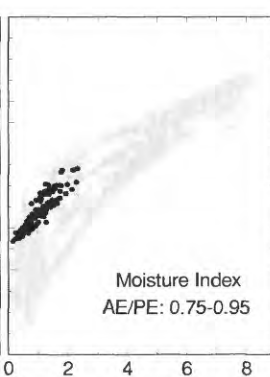
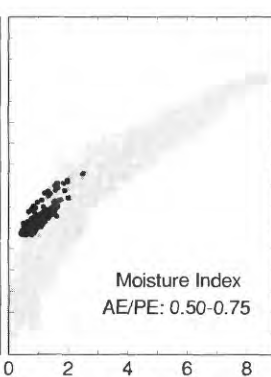
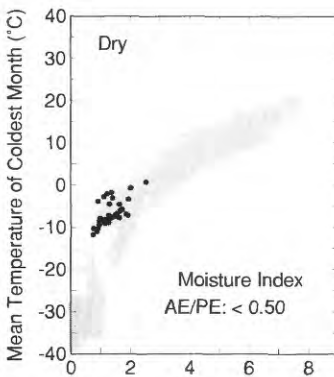
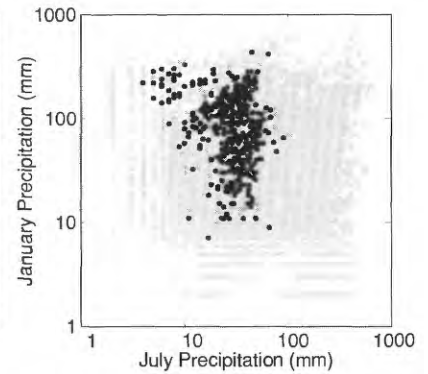
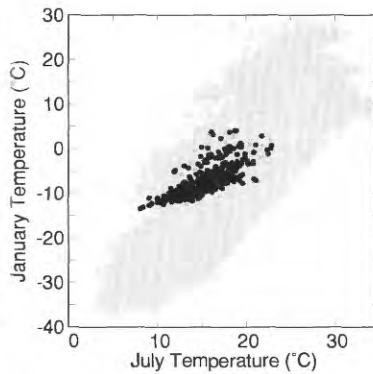
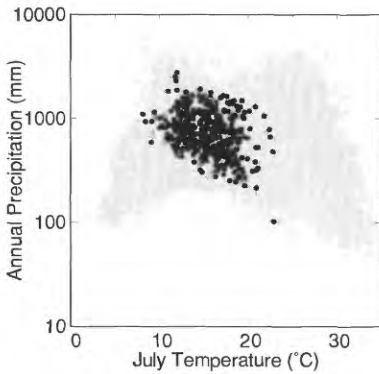
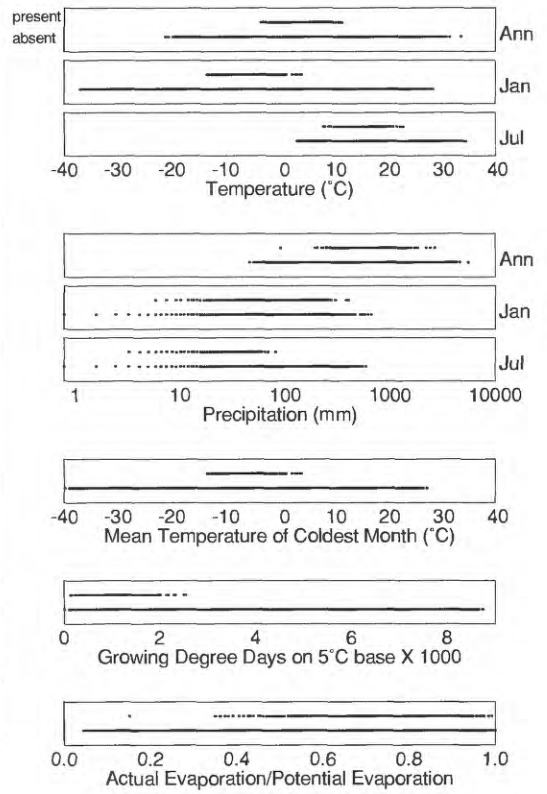
Growing Degree Days on 5°C Base X 1000

Salix fluviatilis

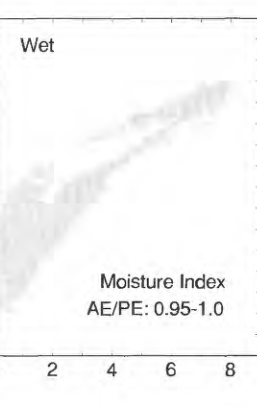
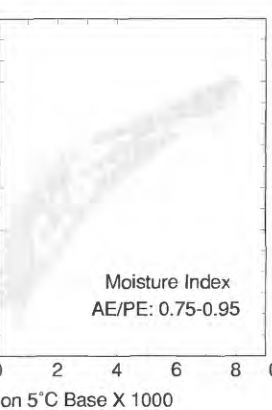
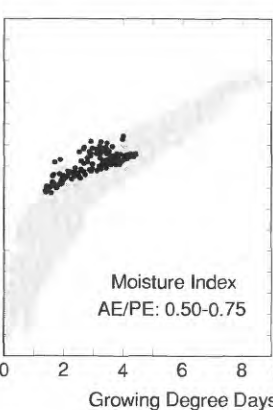
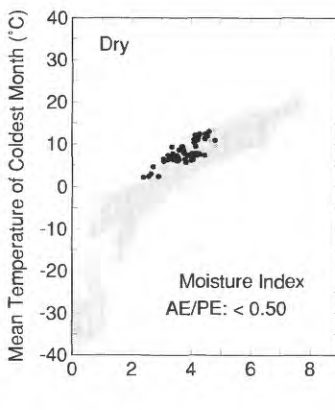
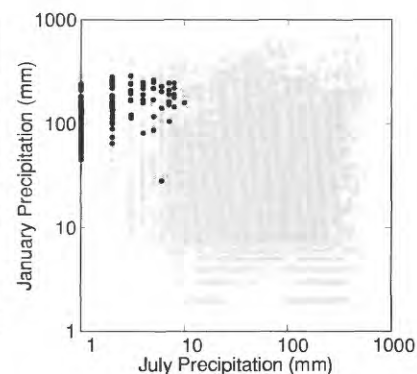
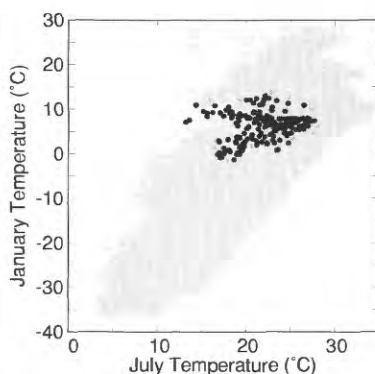
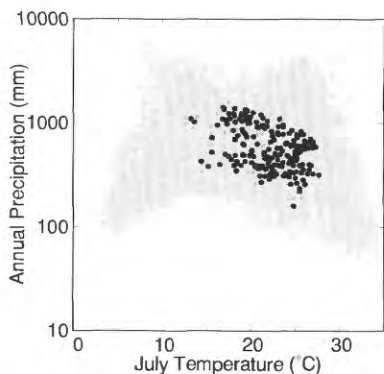
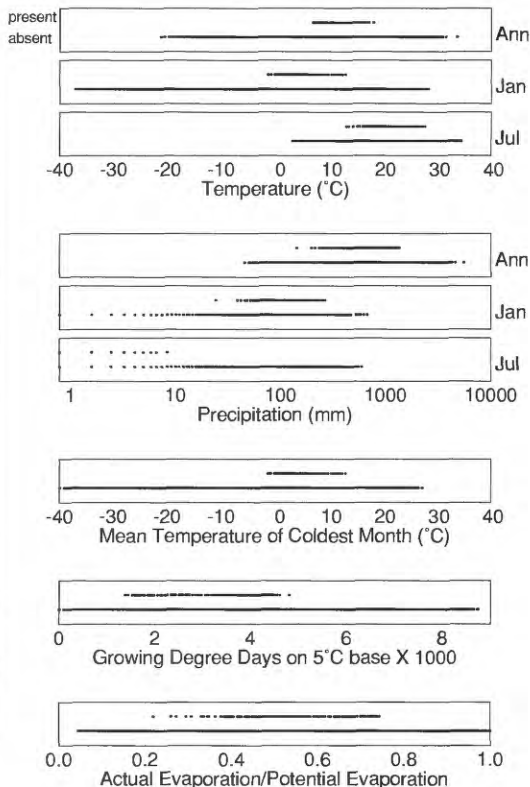


Growing Degree Days on 5°C Base X 1000

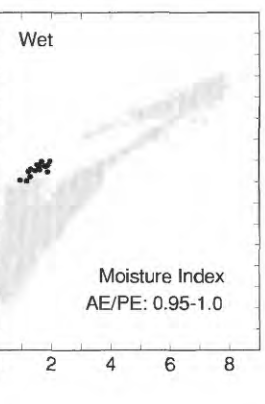
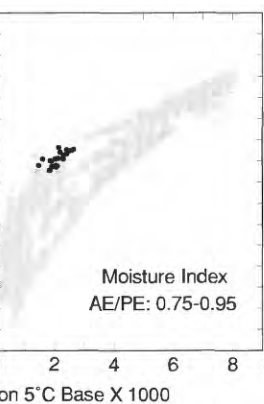
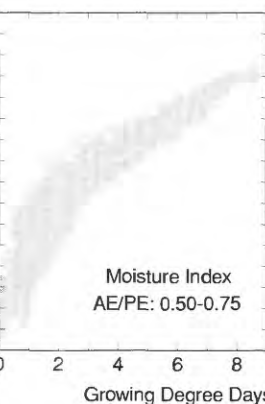
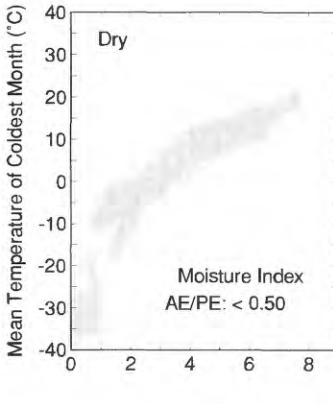
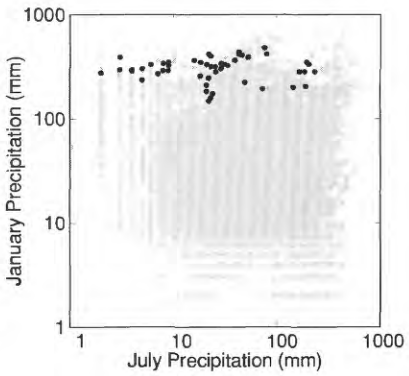
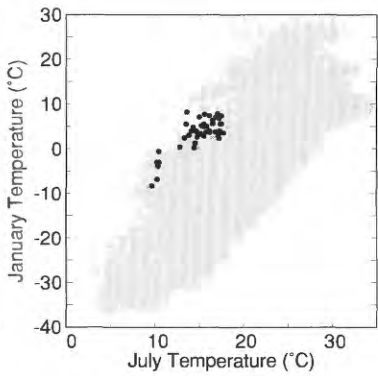
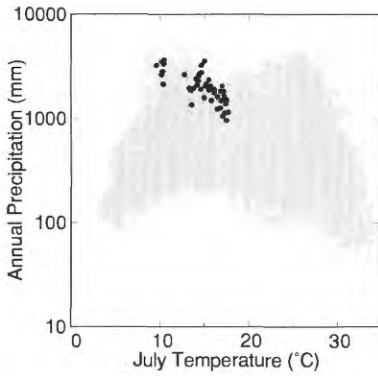
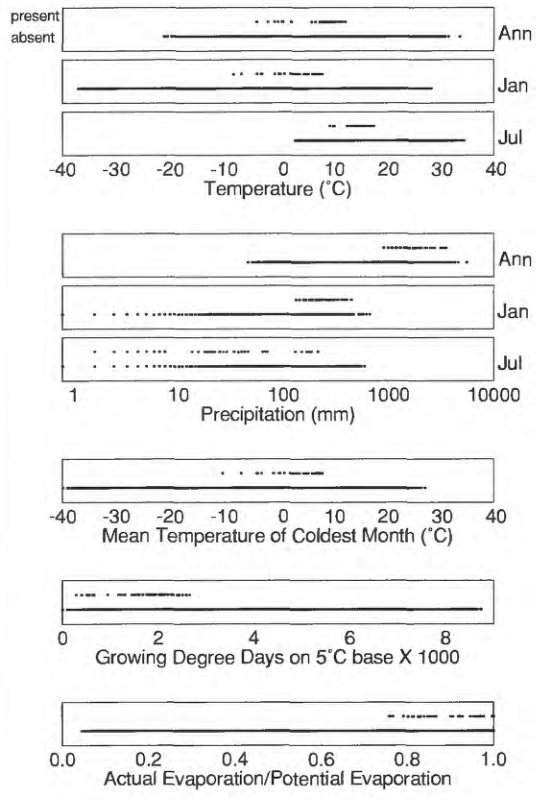
Salix geyeriana



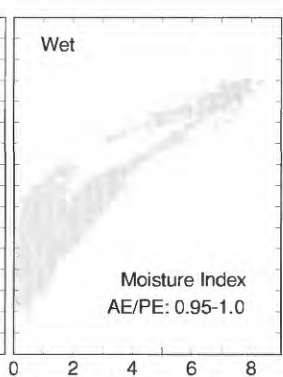
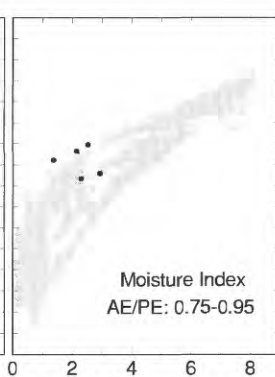
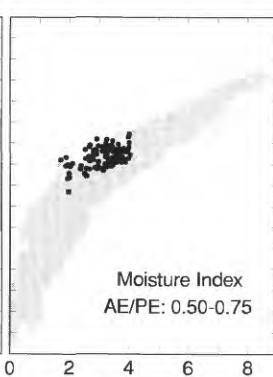
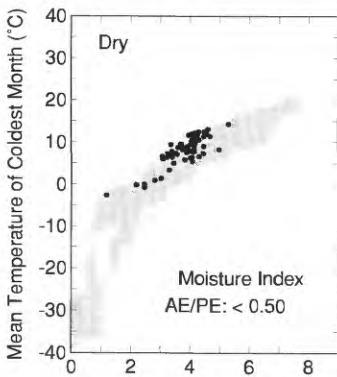
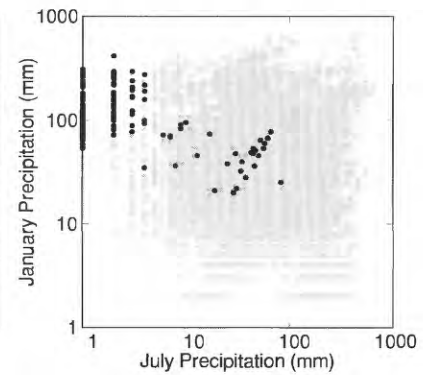
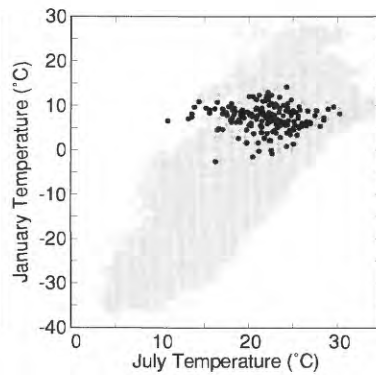
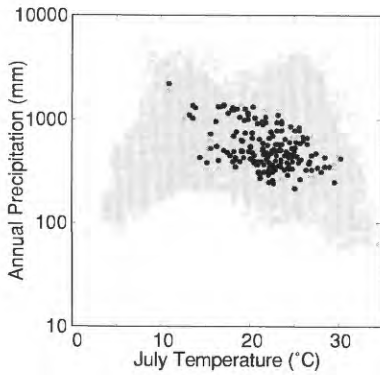
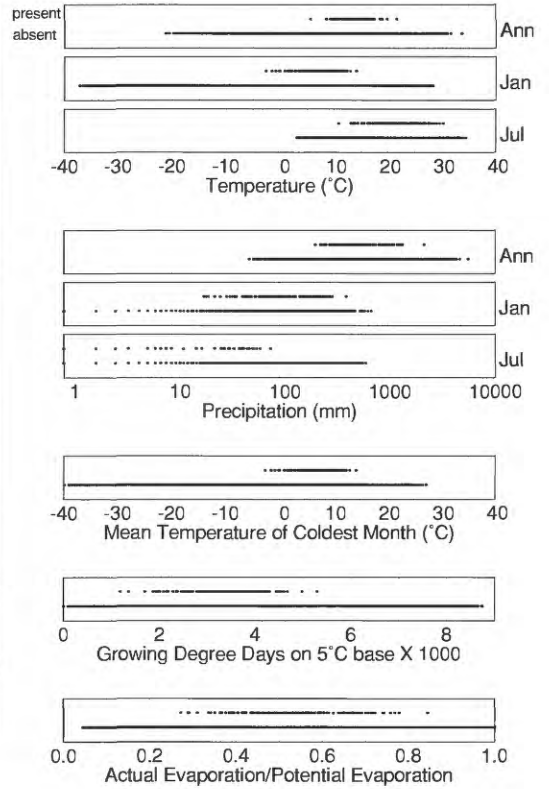
Salix hindsiana



Salix hookeriana

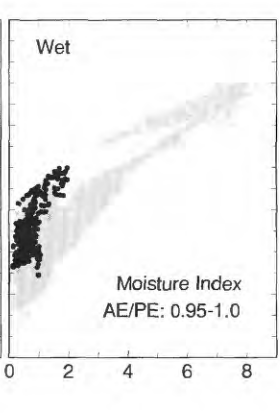
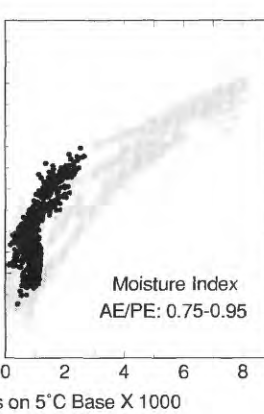
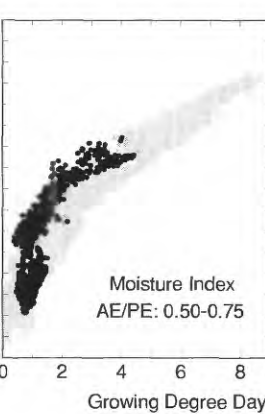
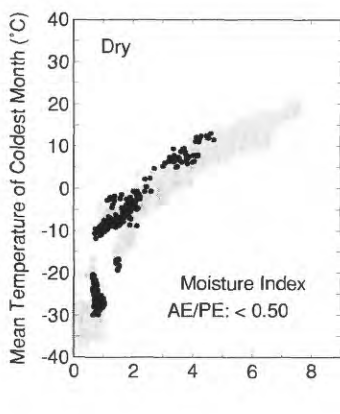
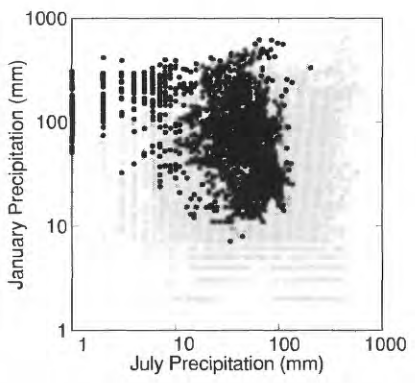
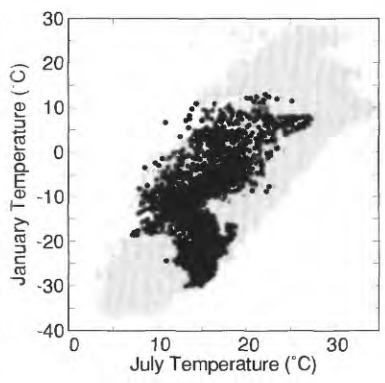
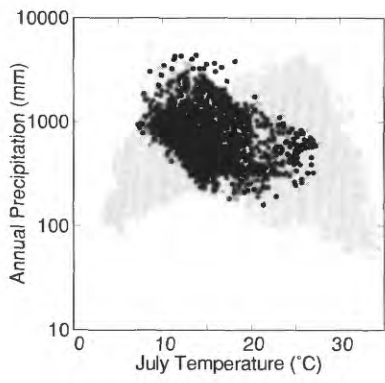
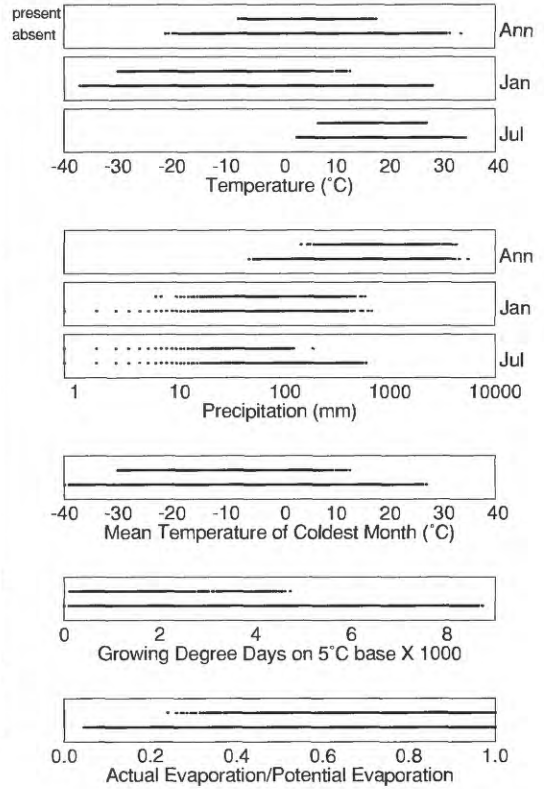
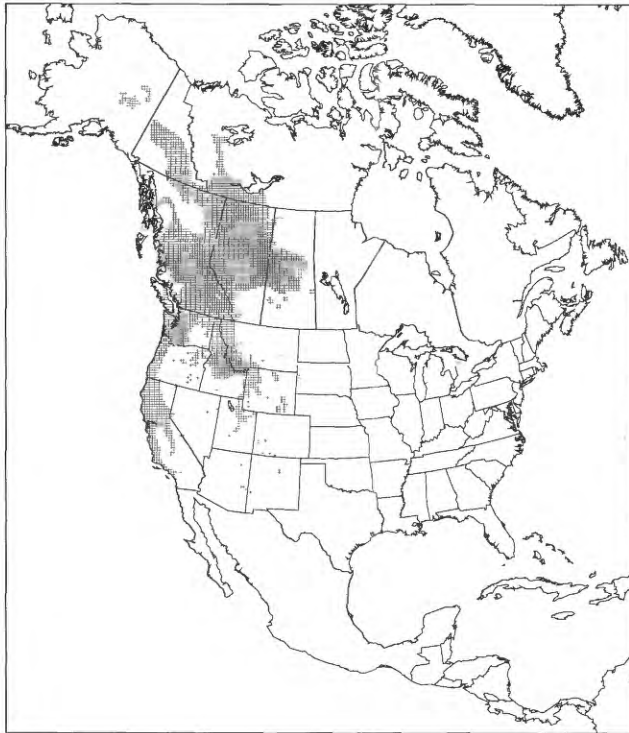


Salix laevigata

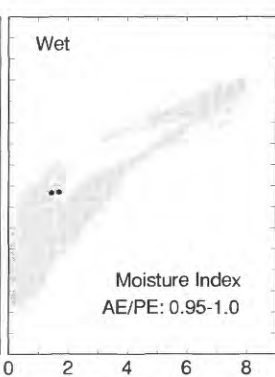
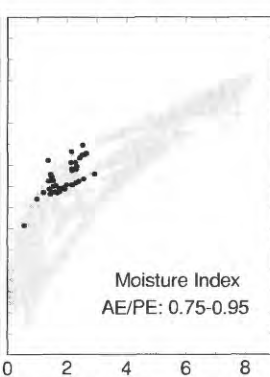
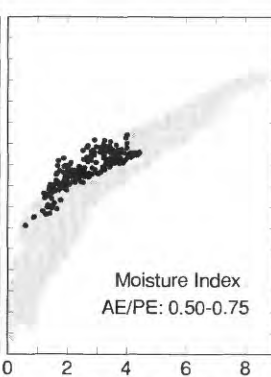
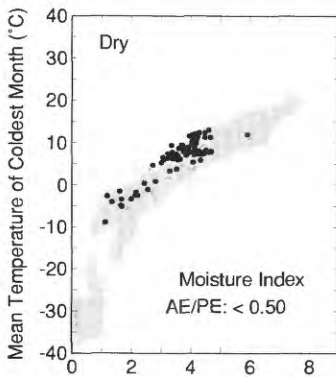
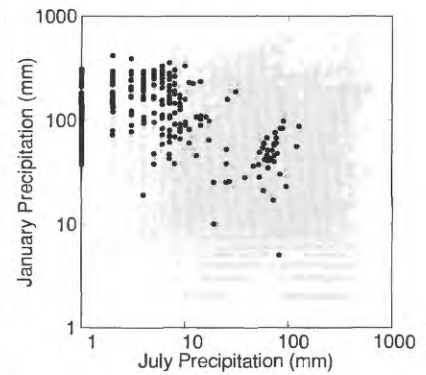
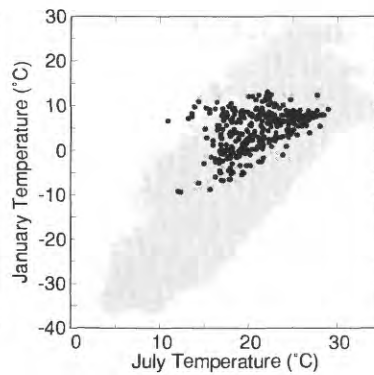
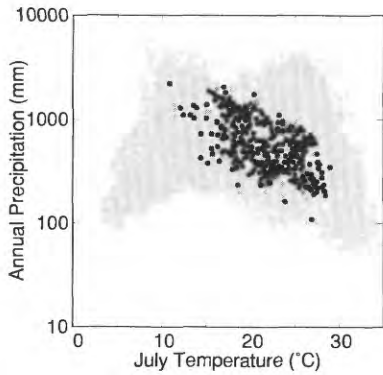
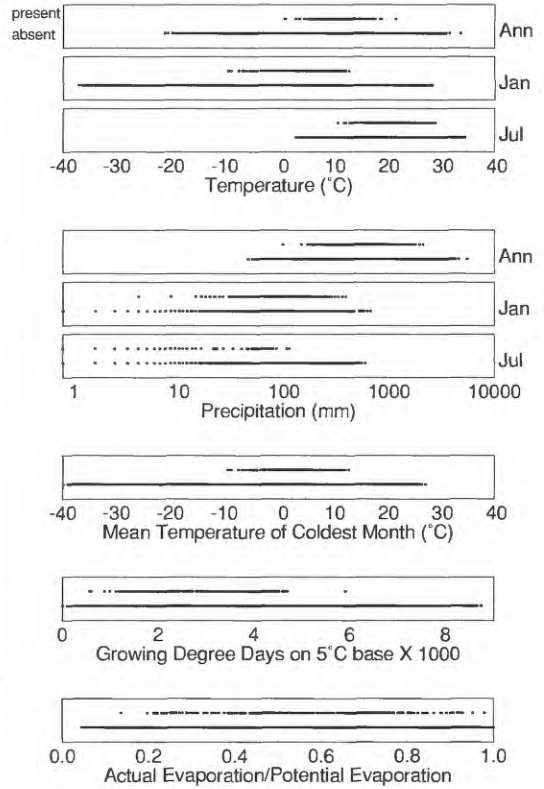


Growing Degree Days on 5°C Base X 1000

Salix lasiandra

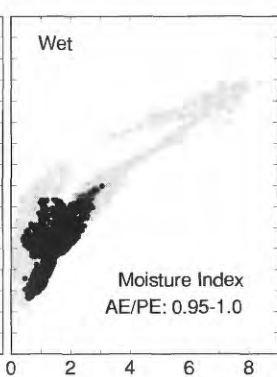
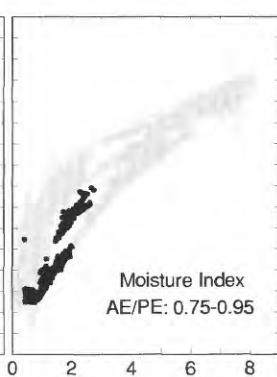
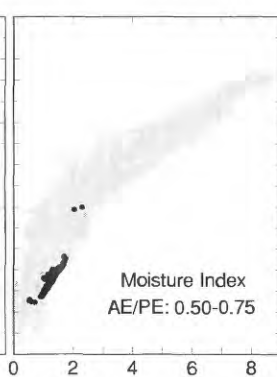
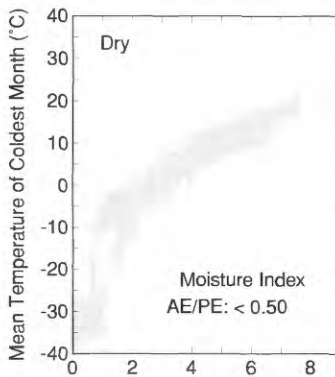
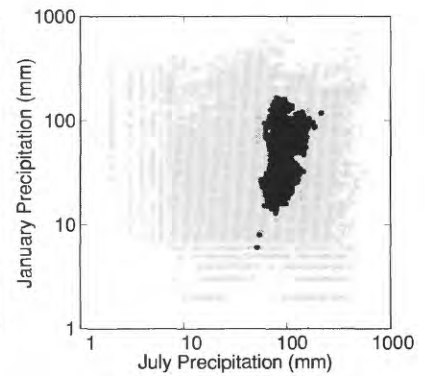
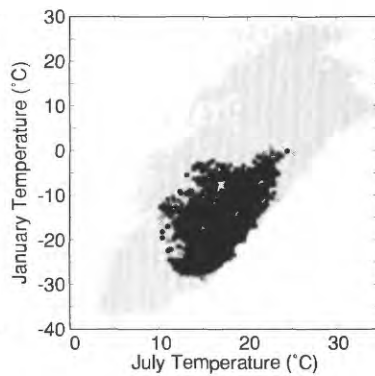
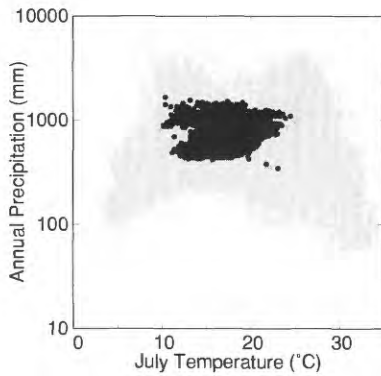
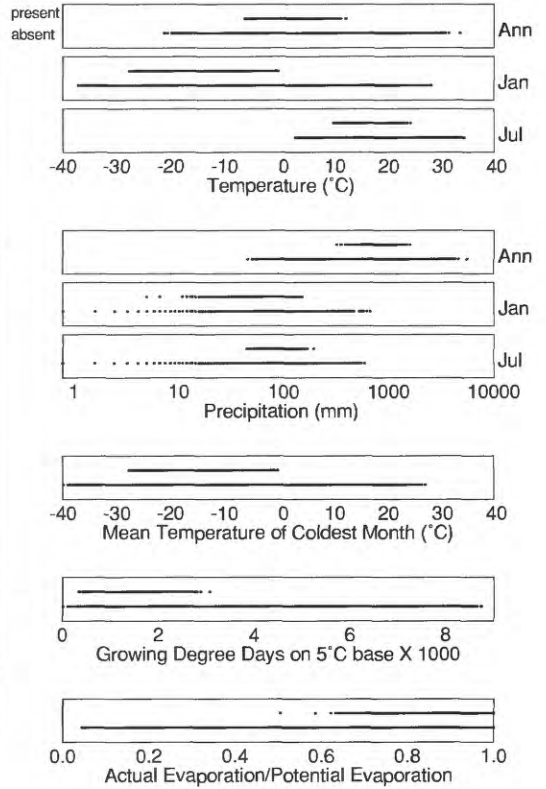
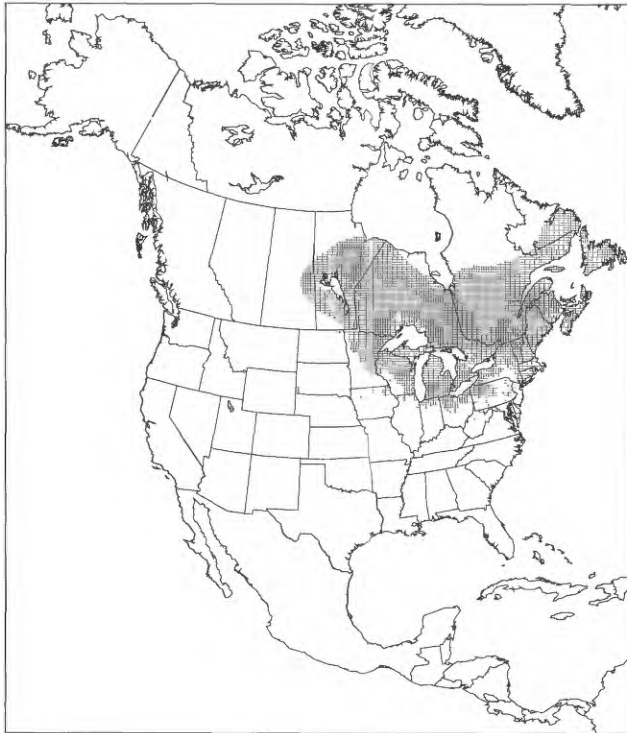


Salix lasiolepis

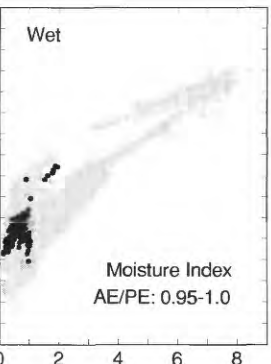
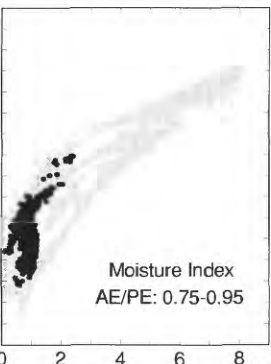
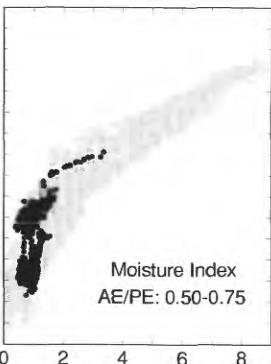
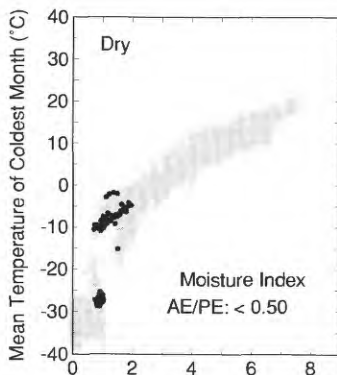
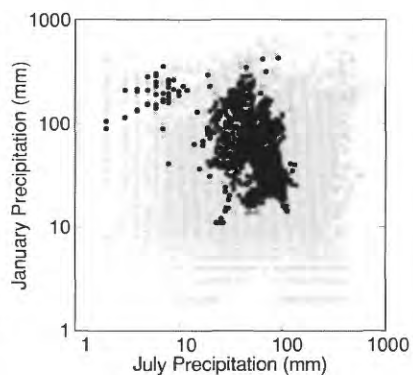
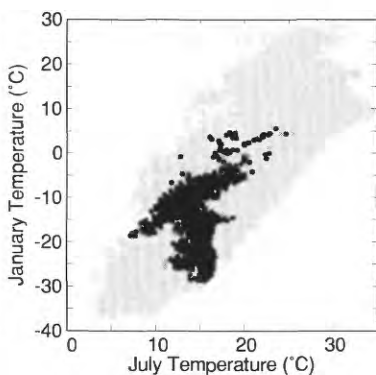
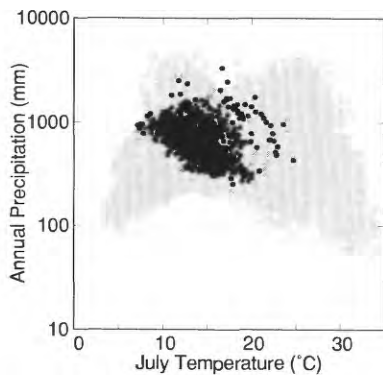
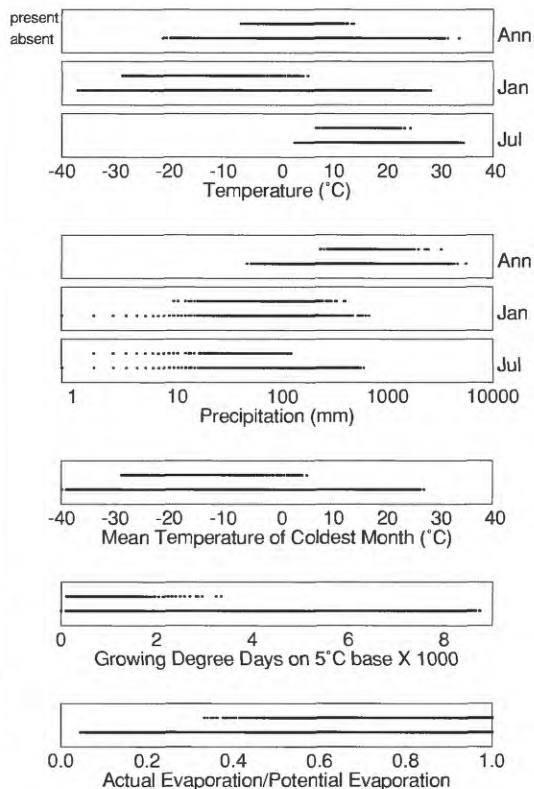
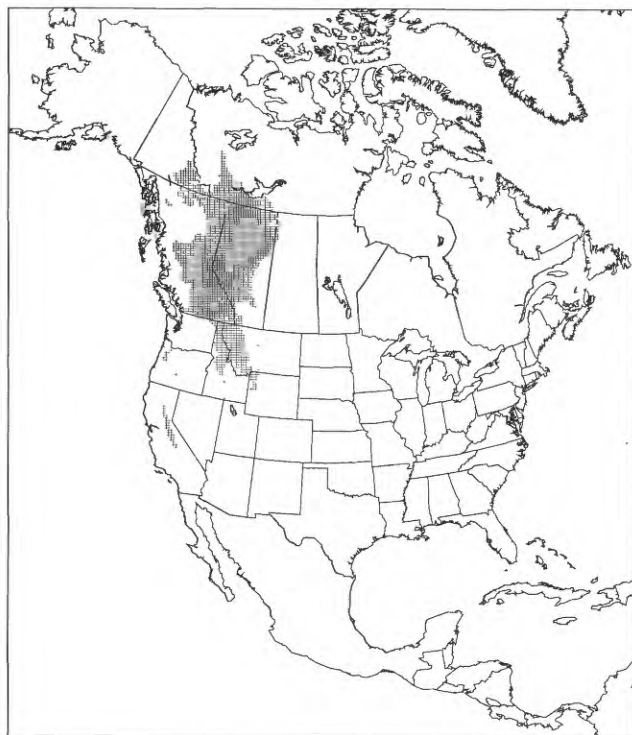


Growing Degree Days on 5°C Base X 1000

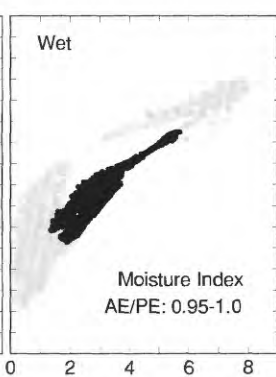
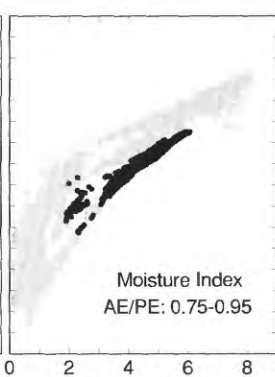
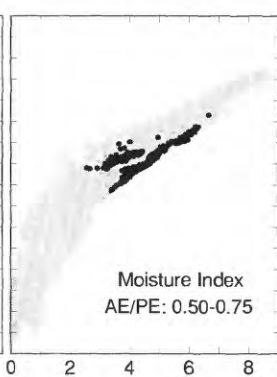
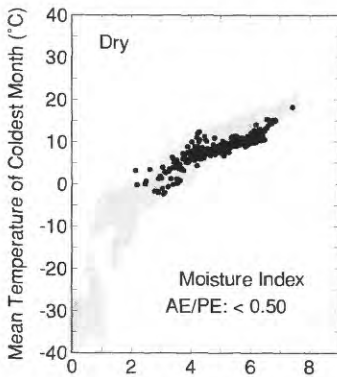
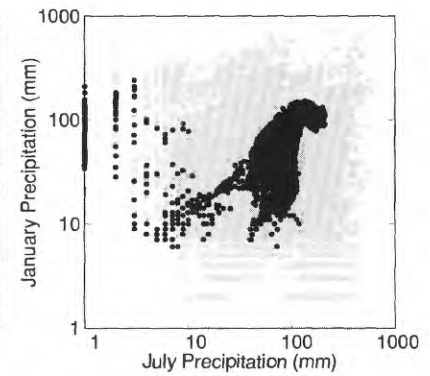
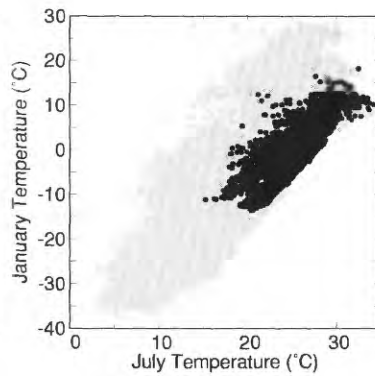
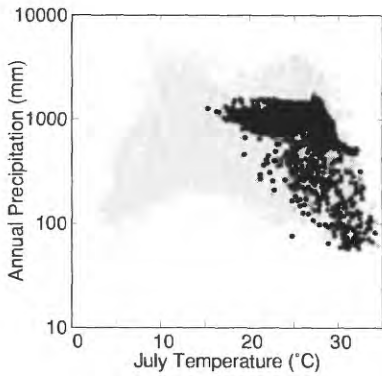
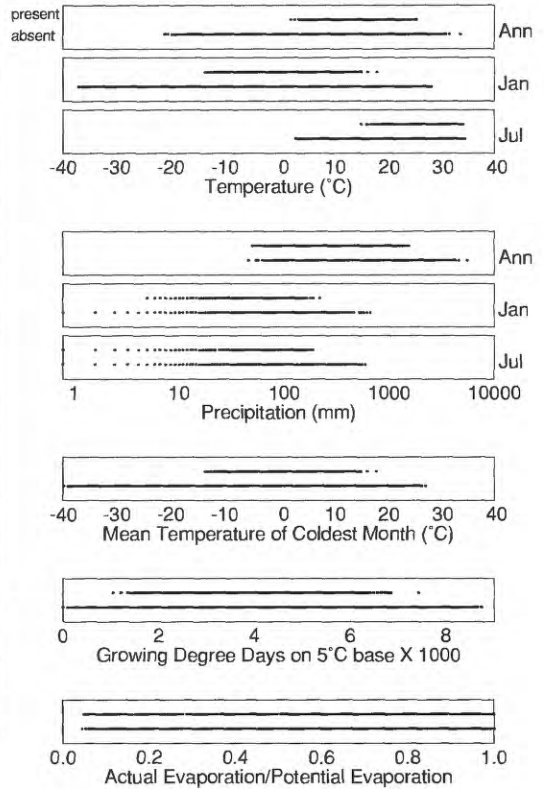
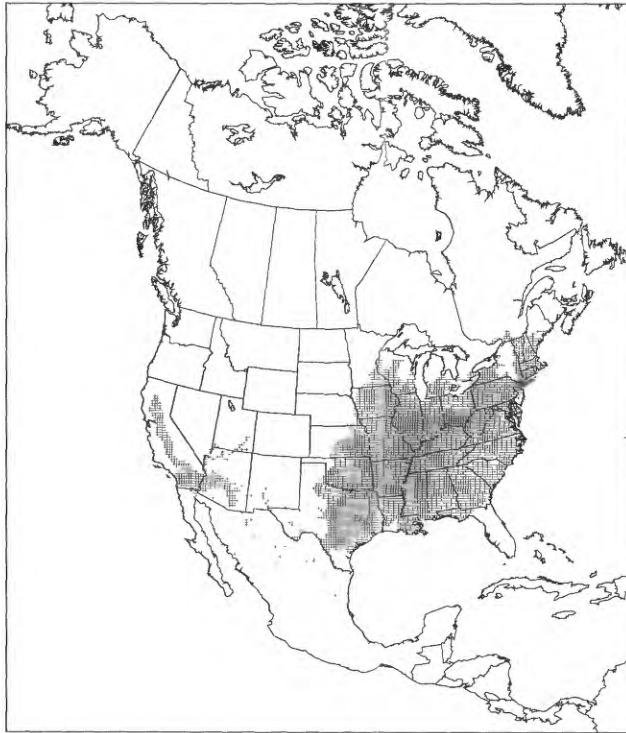
Salix lucida



Salix mackenzieana

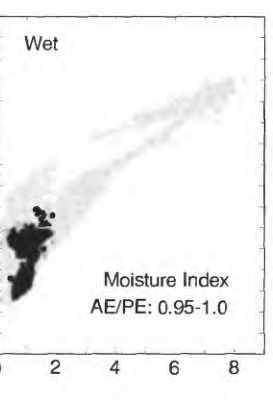
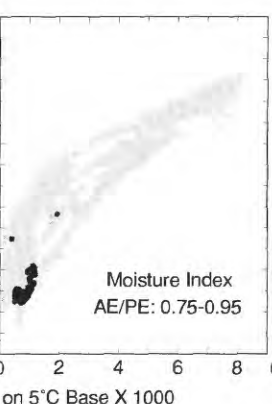
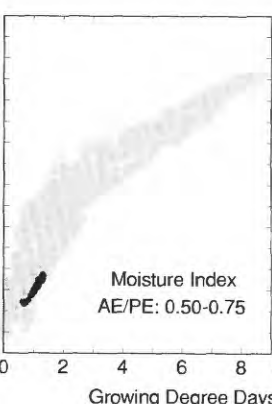
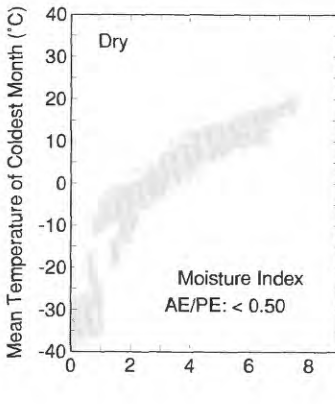
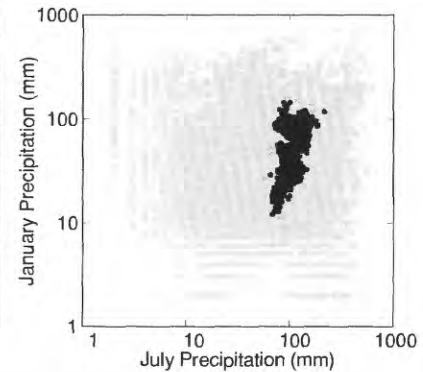
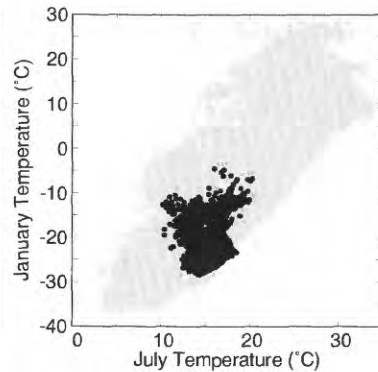
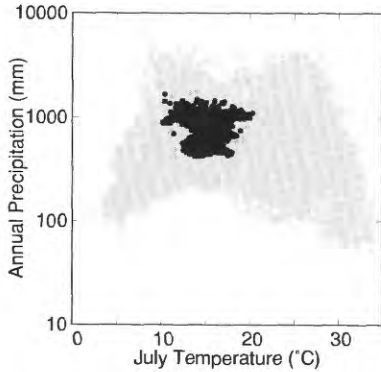
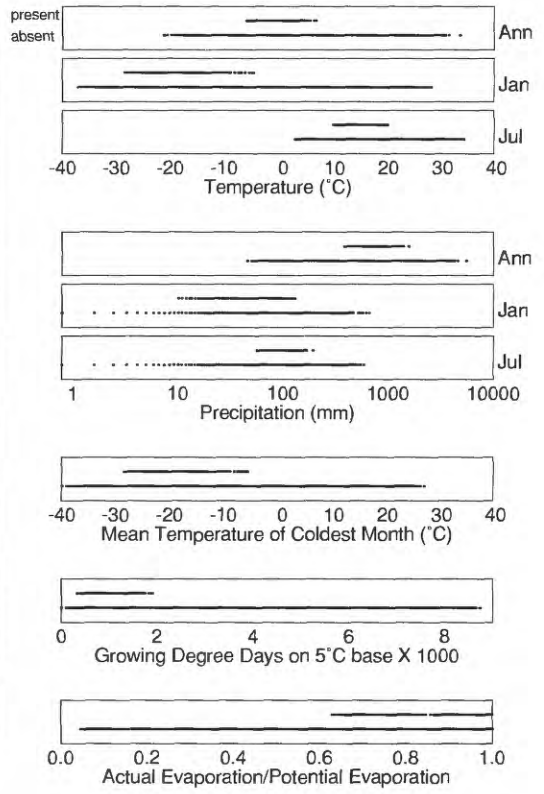
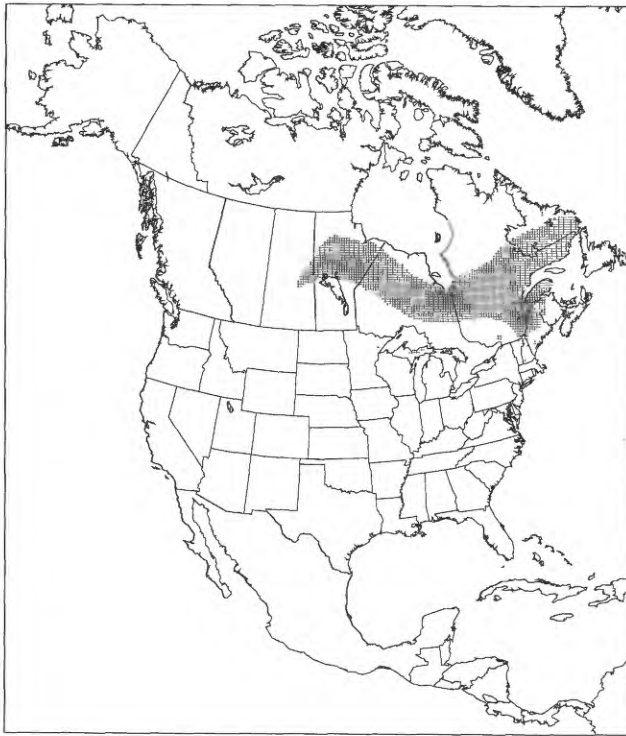


Salix nigra

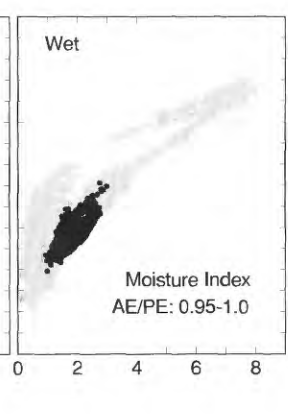
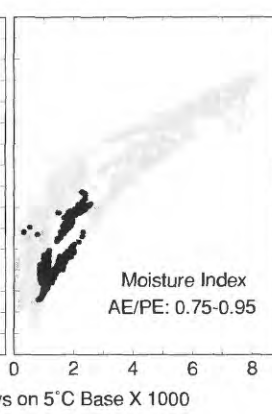
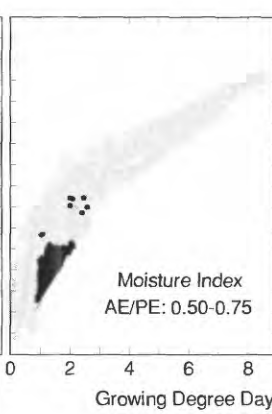
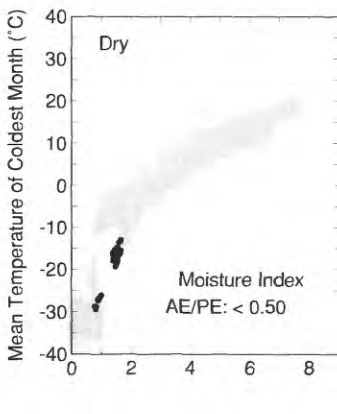
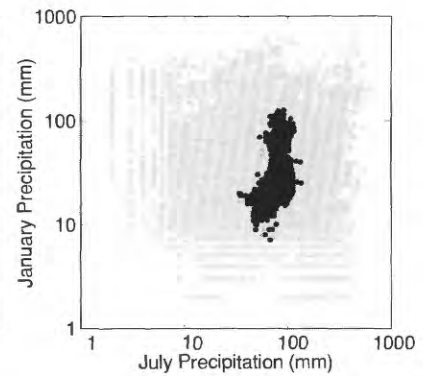
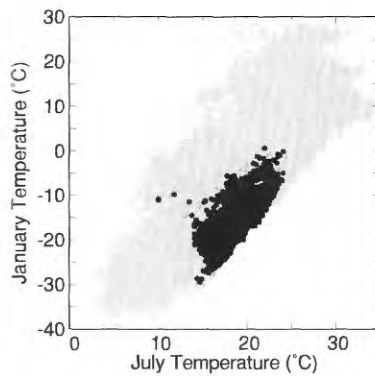
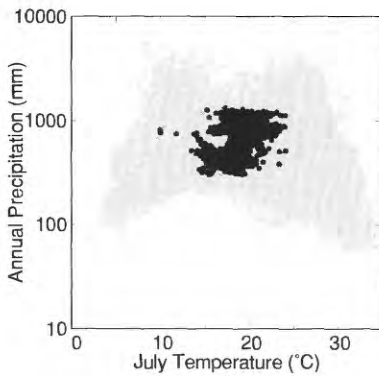
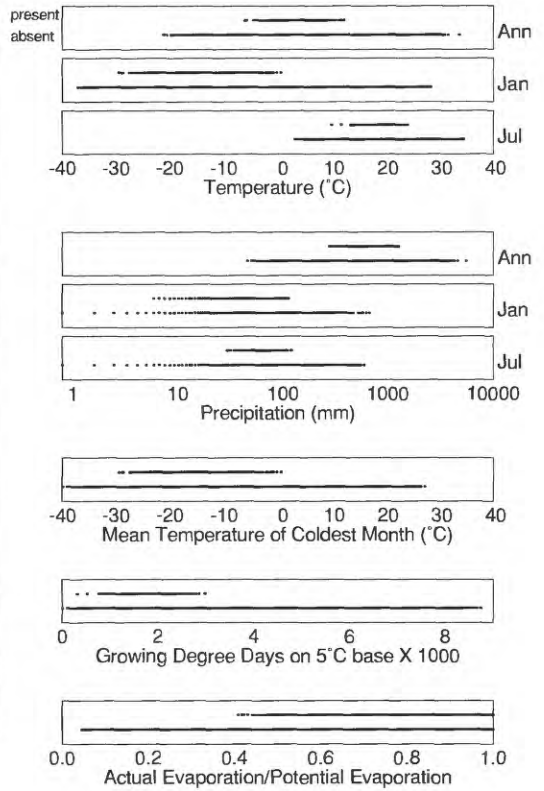
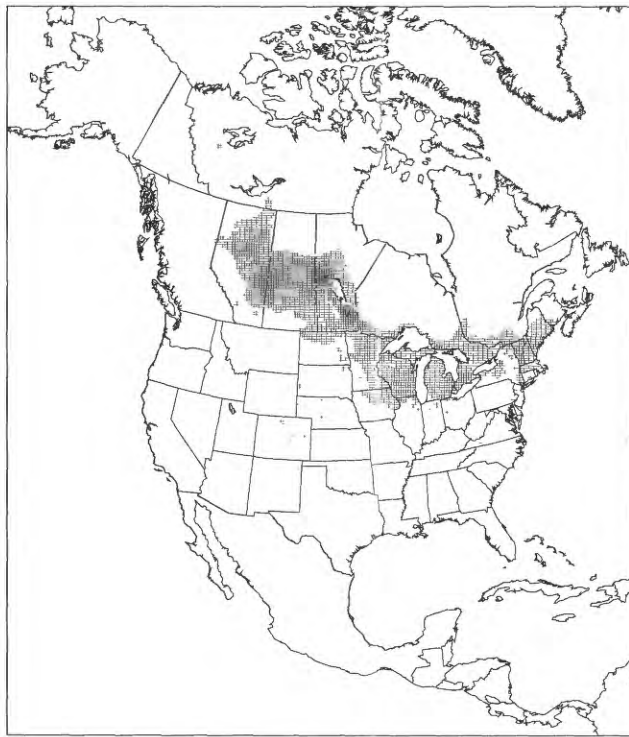


Growing Degree Days on 5°C Base X 1000

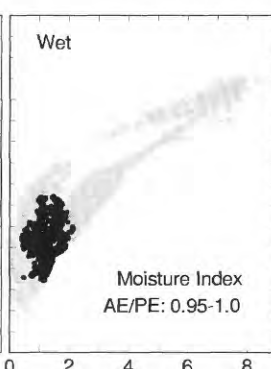
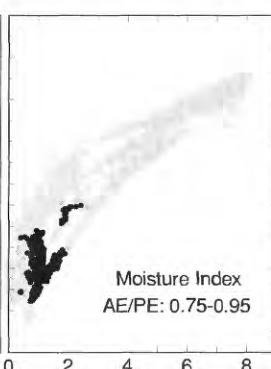
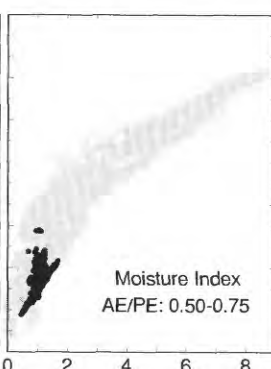
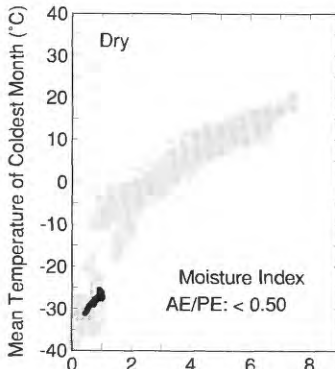
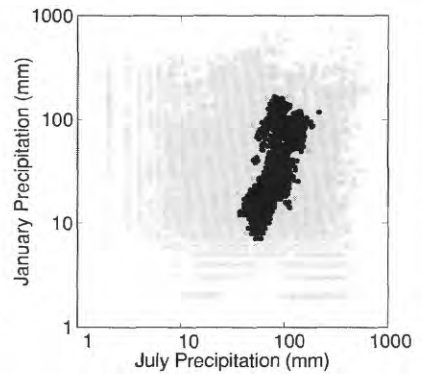
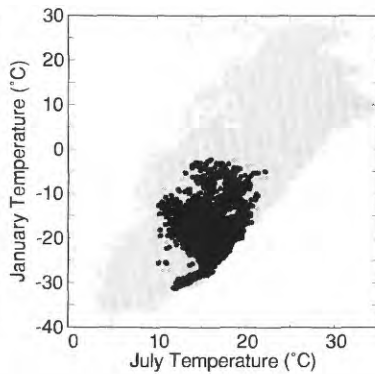
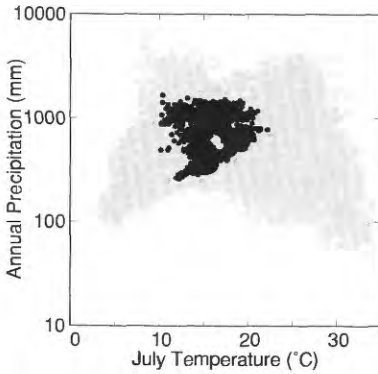
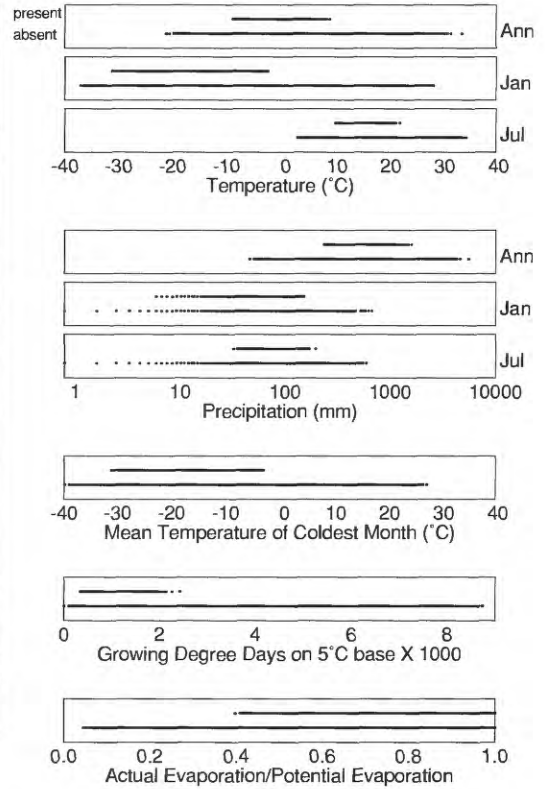
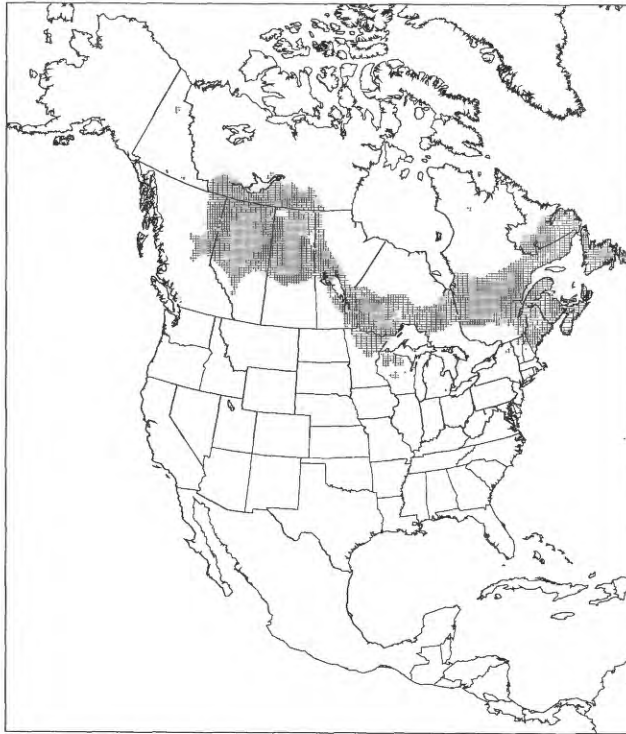
Salix pellita



Salix petiolaris

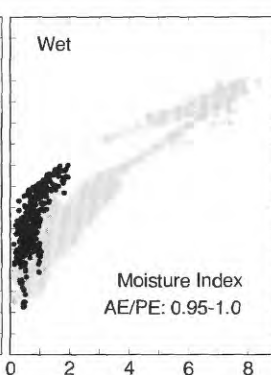
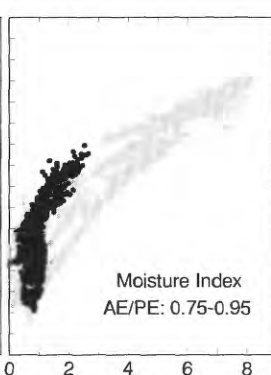
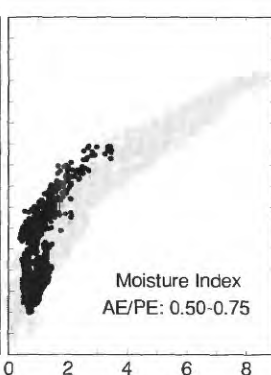
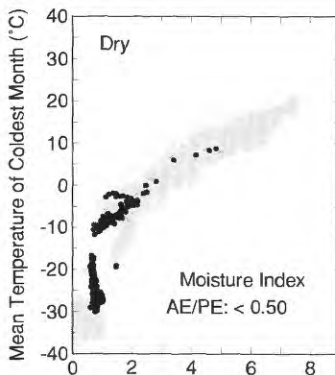
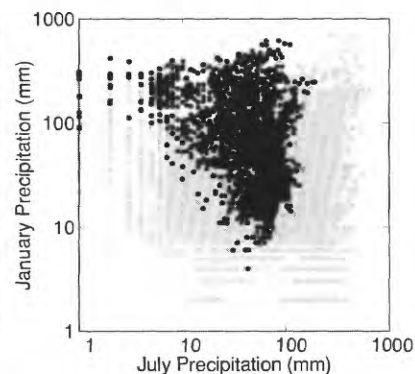
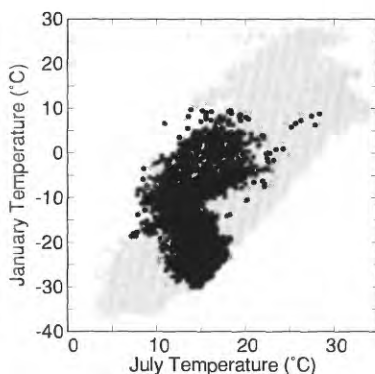
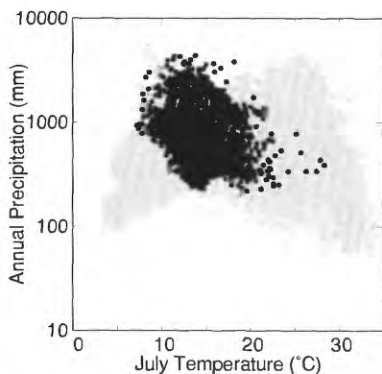
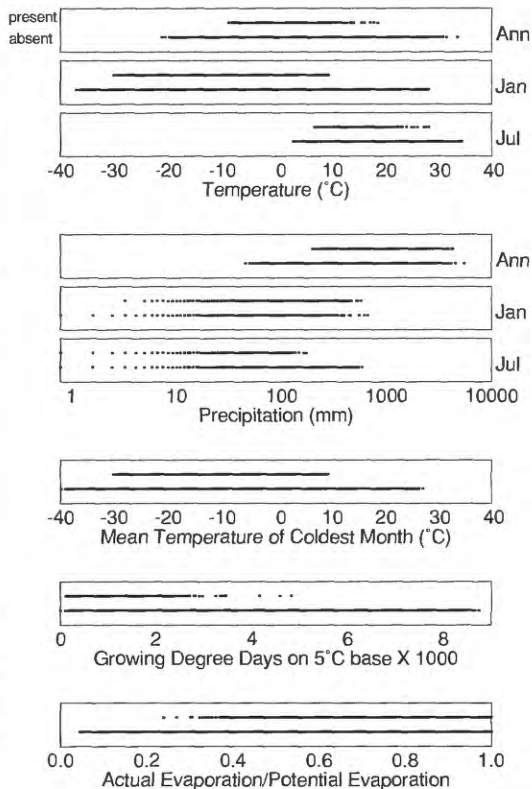
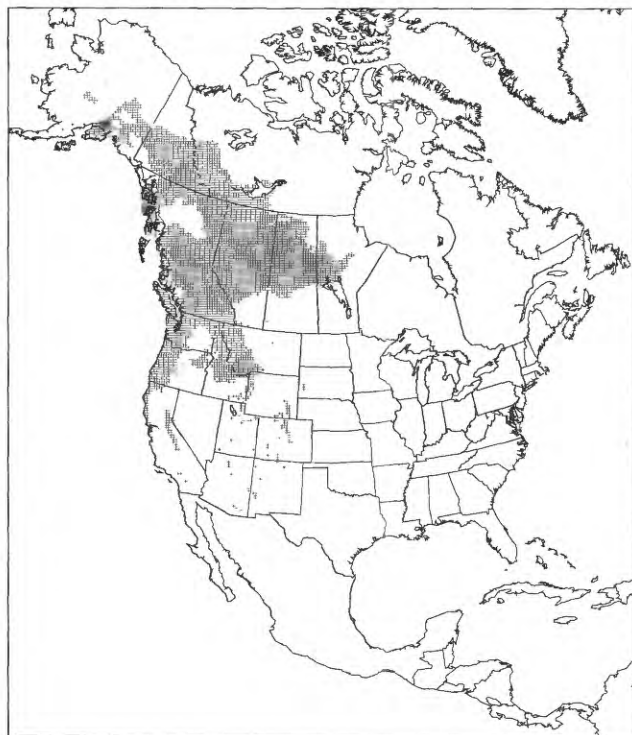


Salix pyrifolia

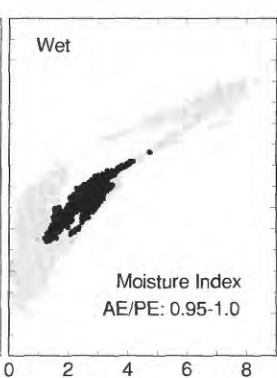
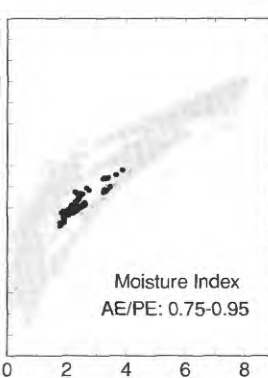
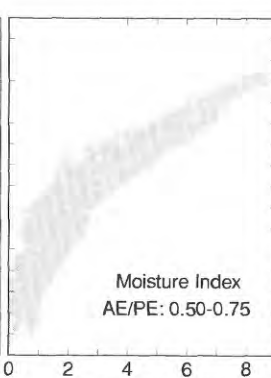
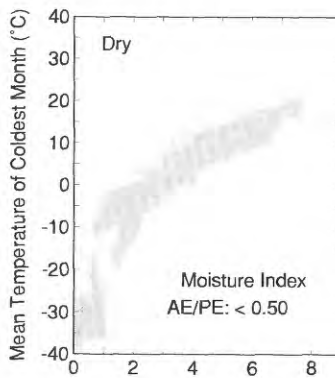
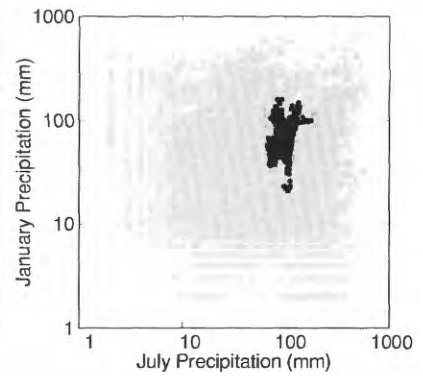
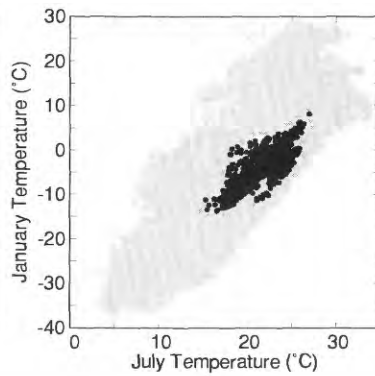
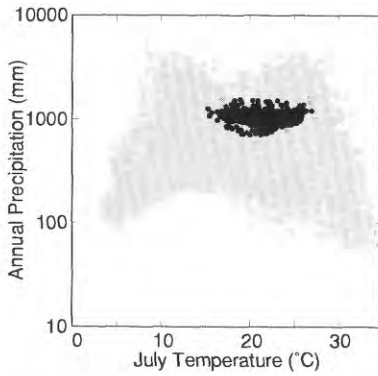
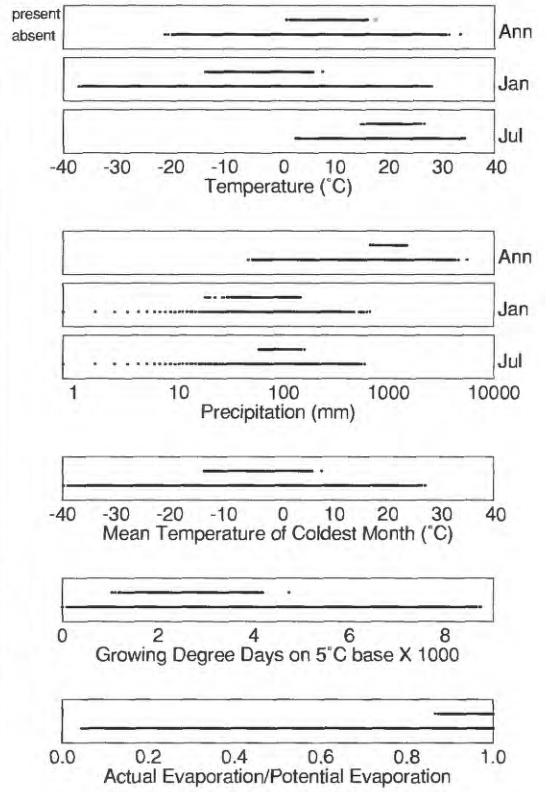
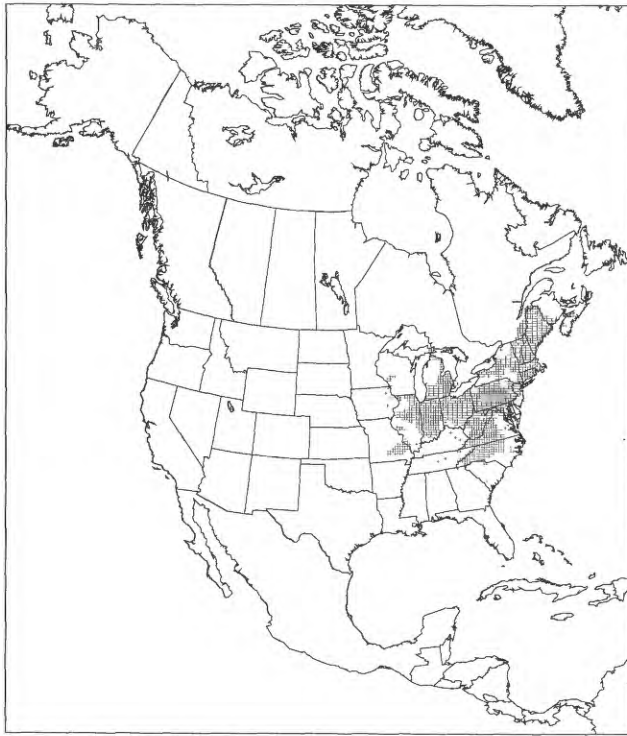


Growing Degree Days on 5°C Base X 1000

Salix scouleriana

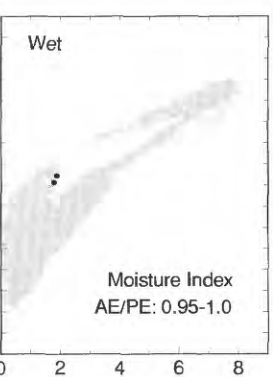
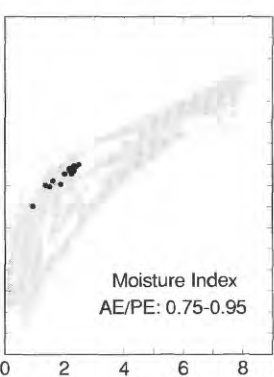
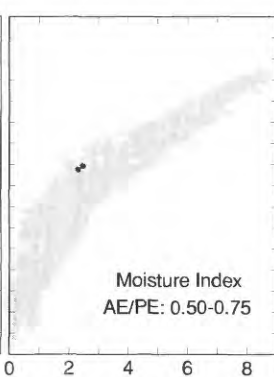
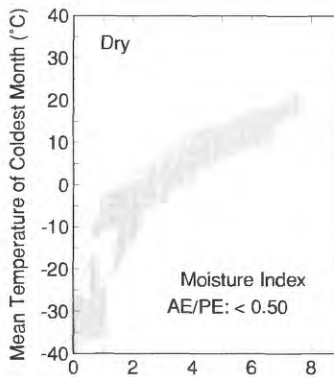
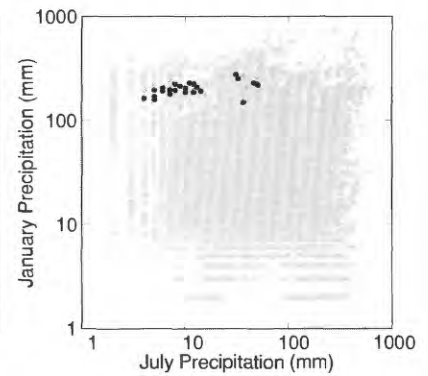
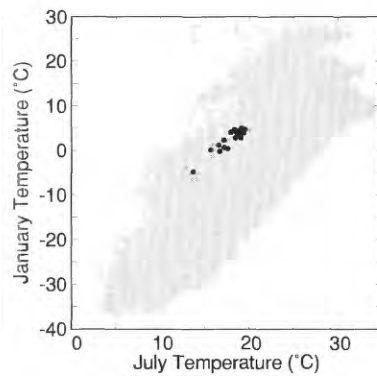
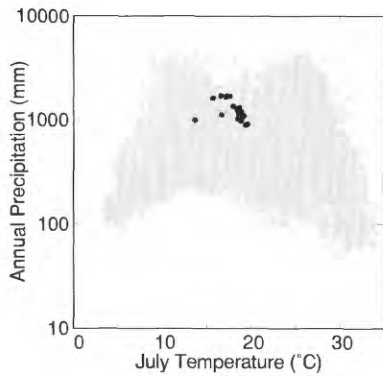
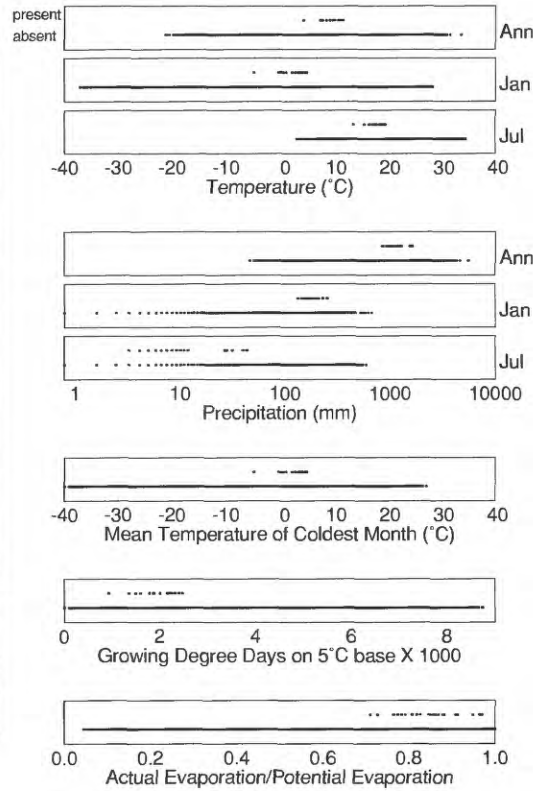


Salix sericea



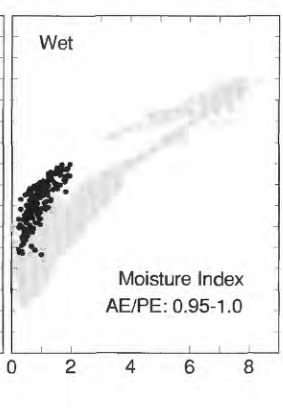
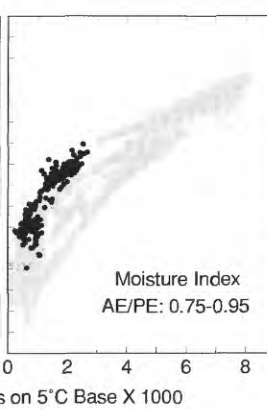
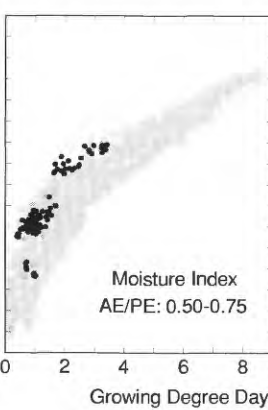
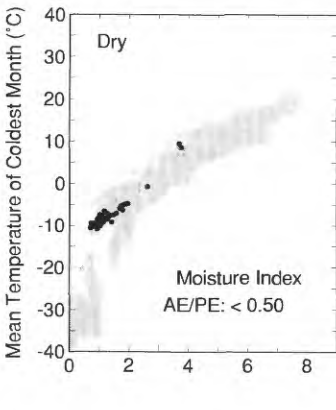
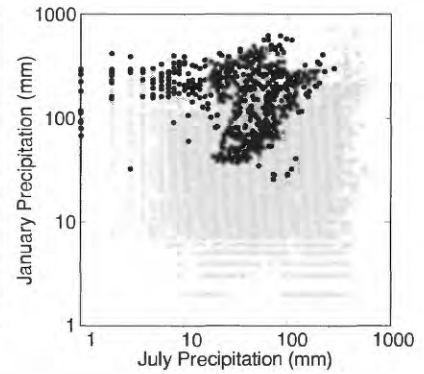
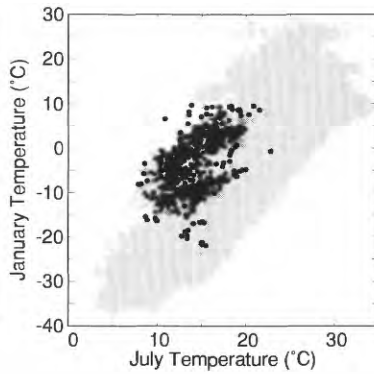
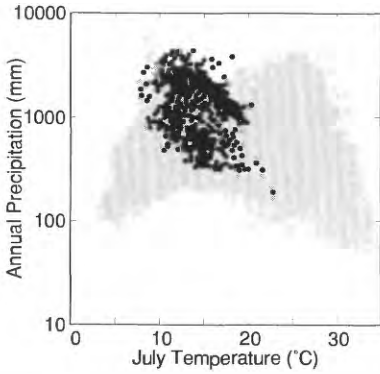
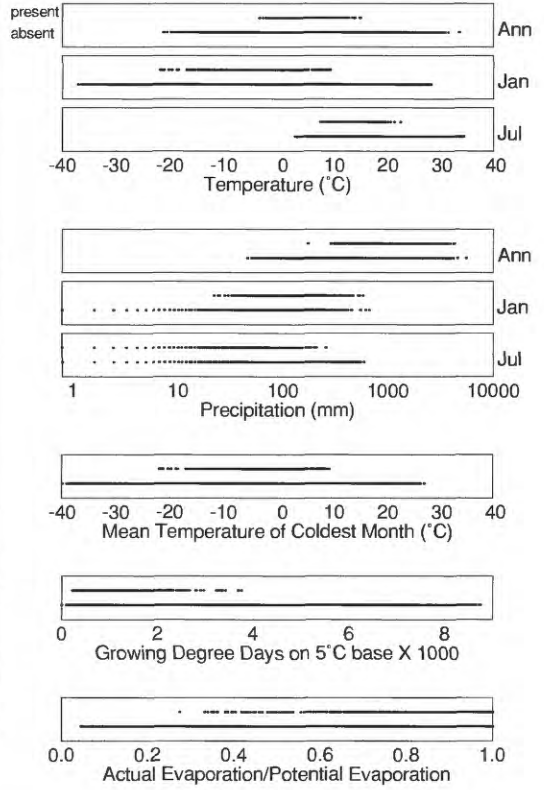
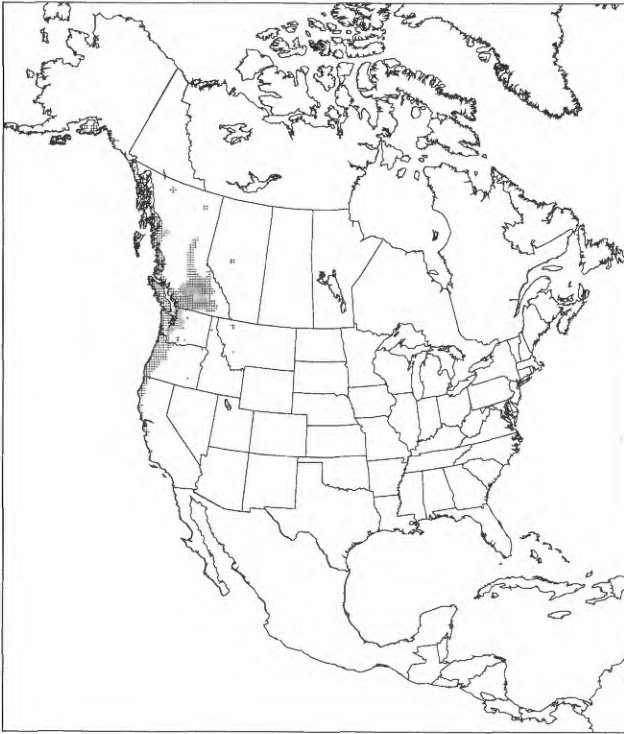
Growing Degree Days on 5°C Base X 1000

Salix sessilifolia

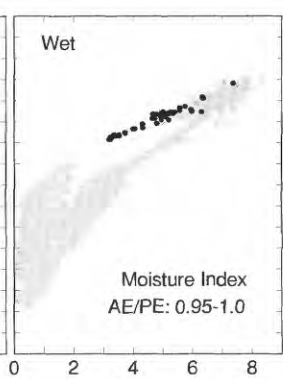
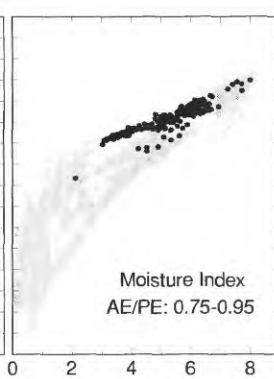
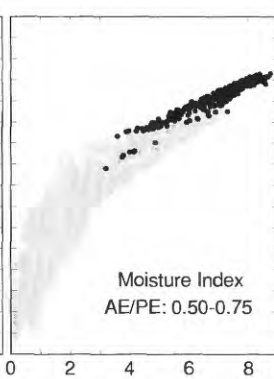
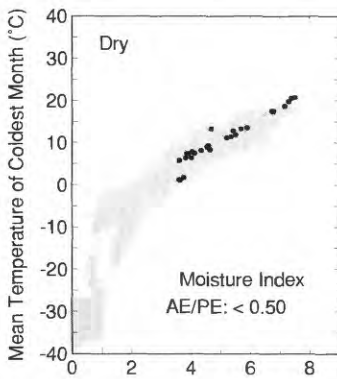
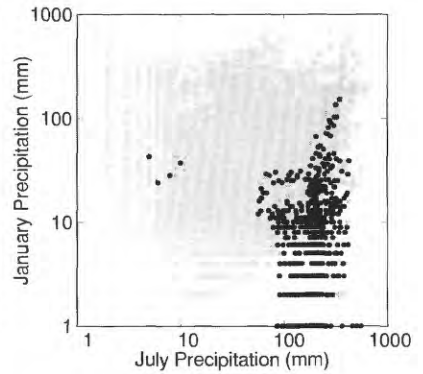
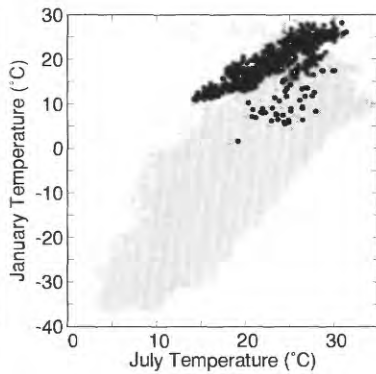
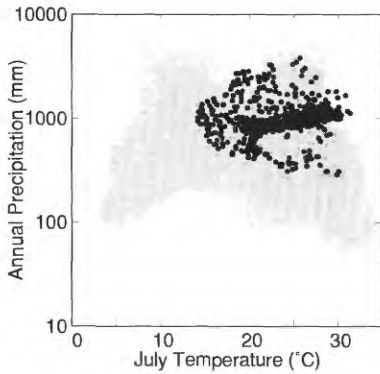
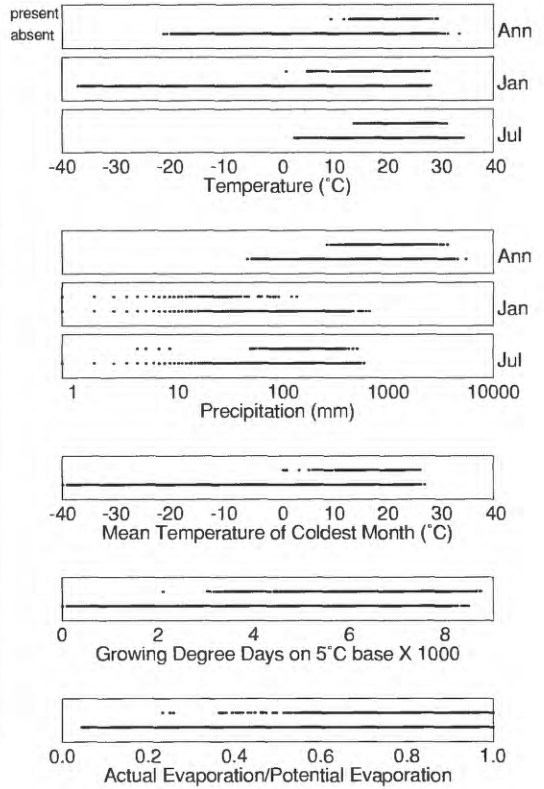


Growing Degree Days on 5°C Base X 1000

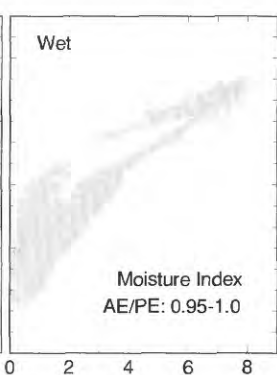
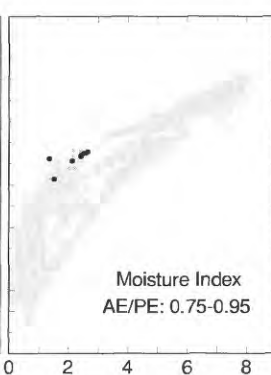
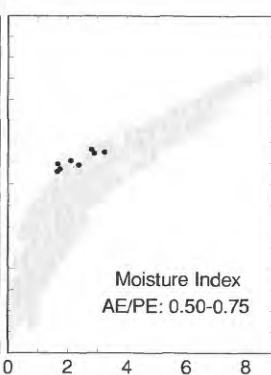
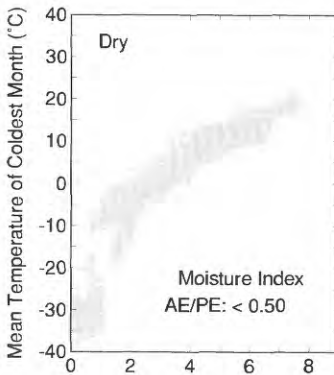
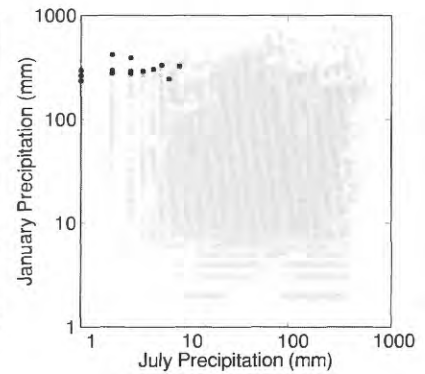
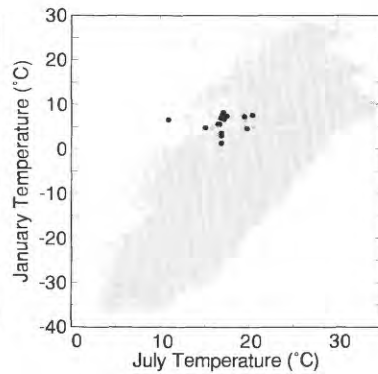
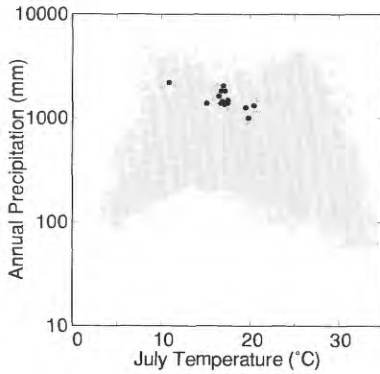
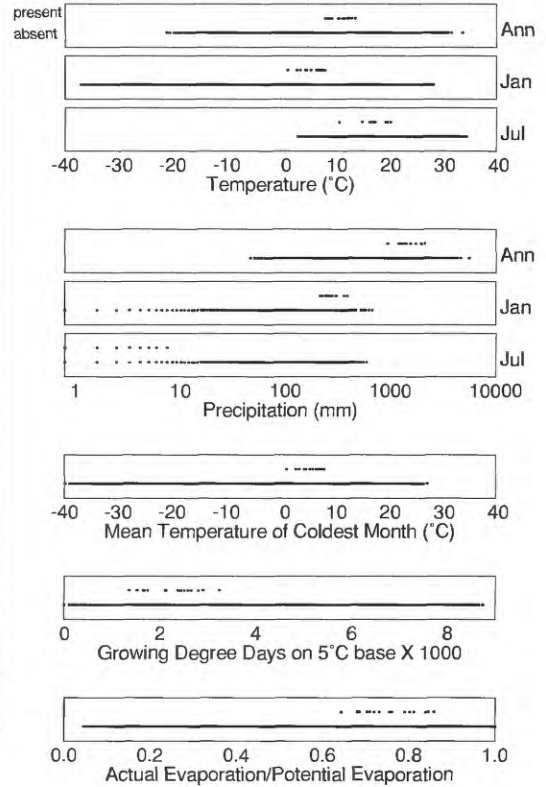
Salix sitchensis



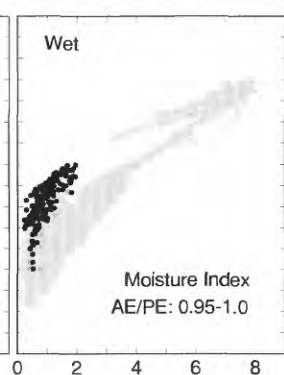
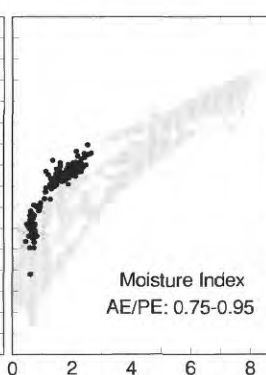
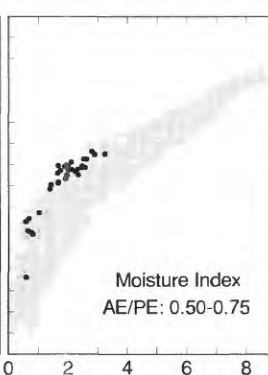
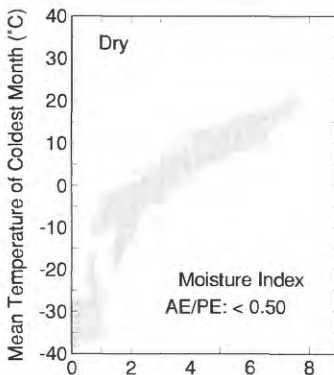
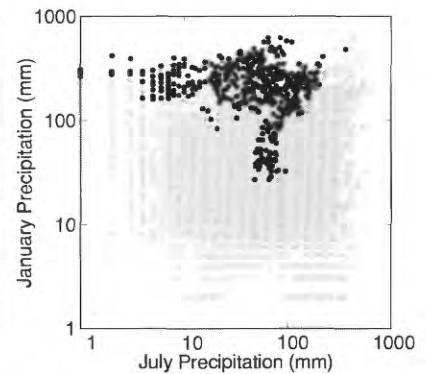
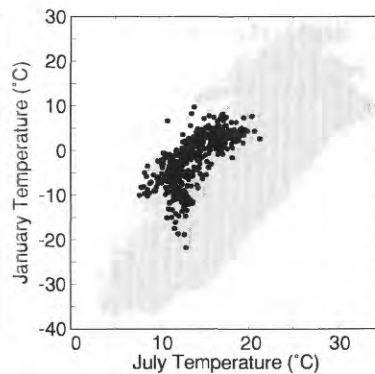
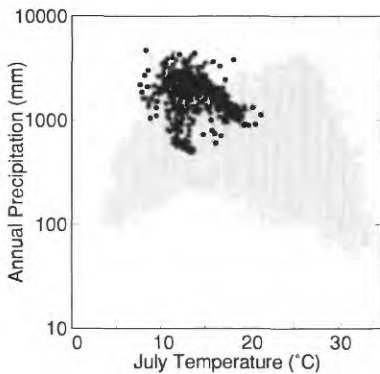
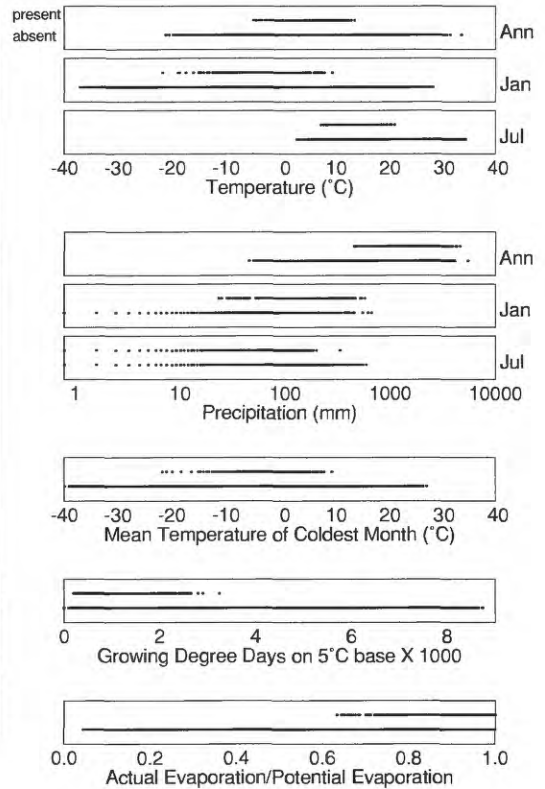
Salix taxifolia



Salix tracyi

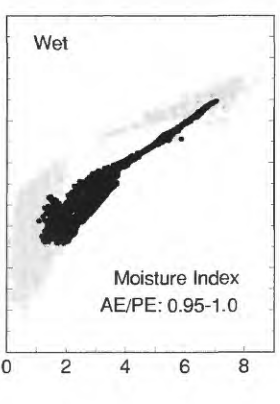
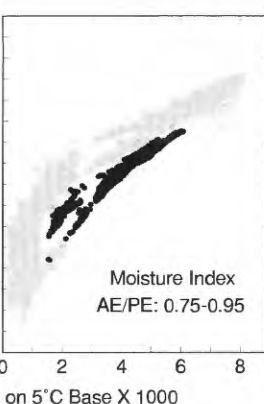
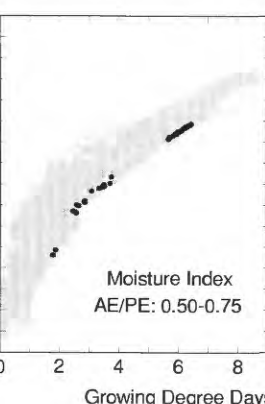
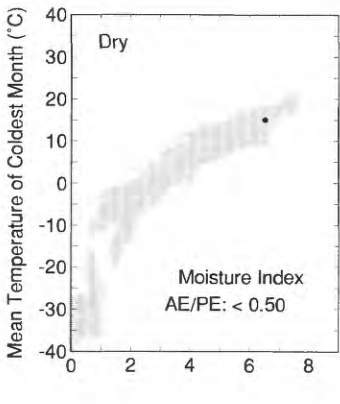
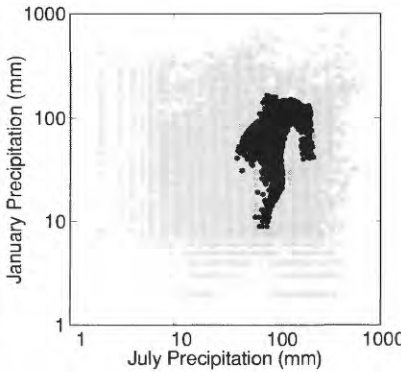
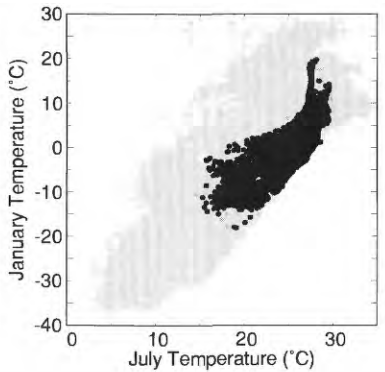
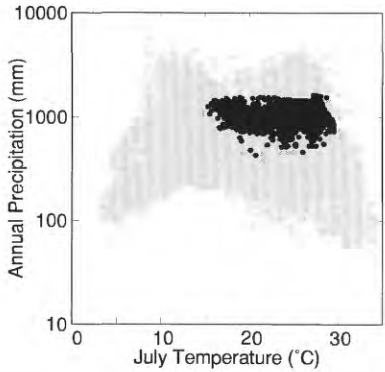
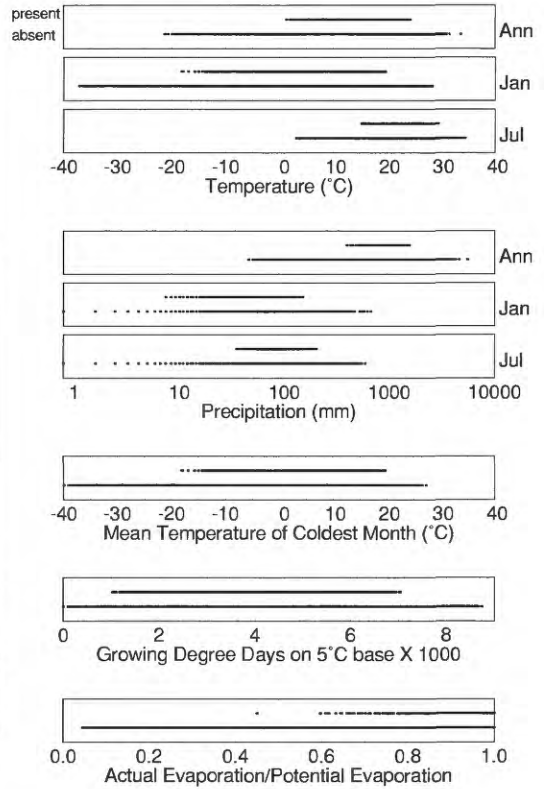
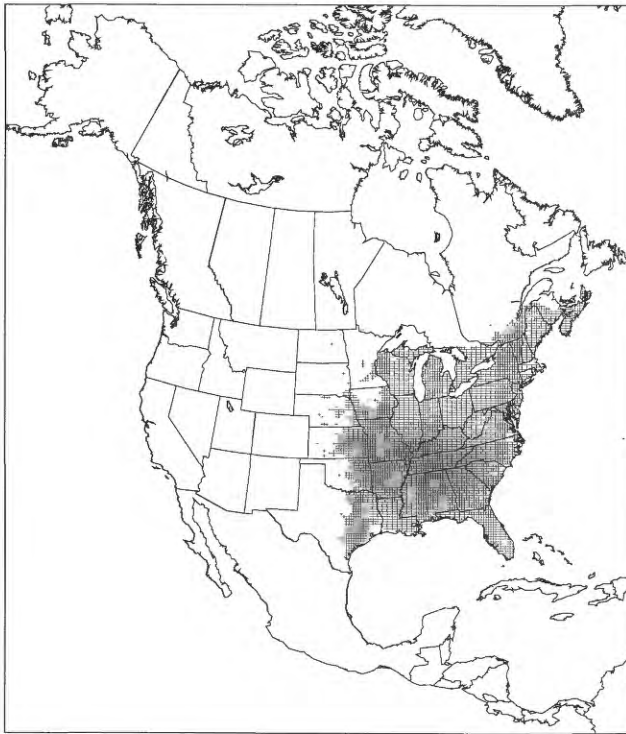


Sambucus callicarpa

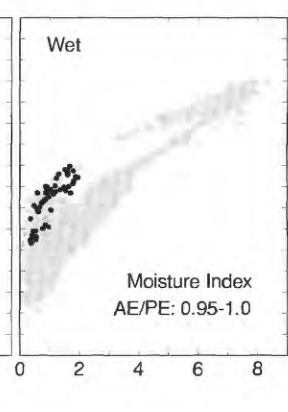
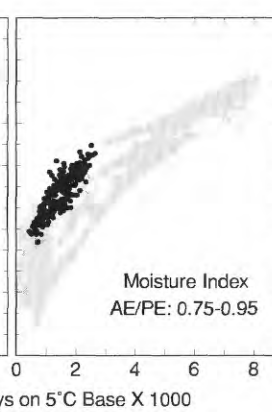
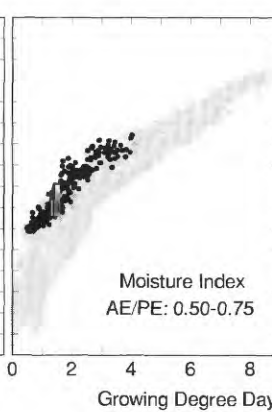
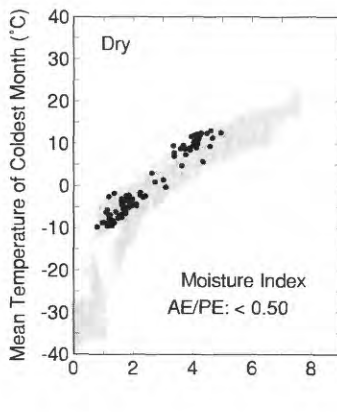
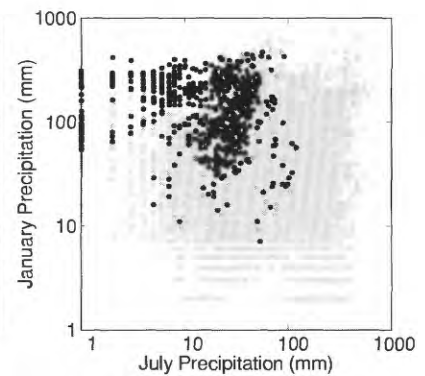
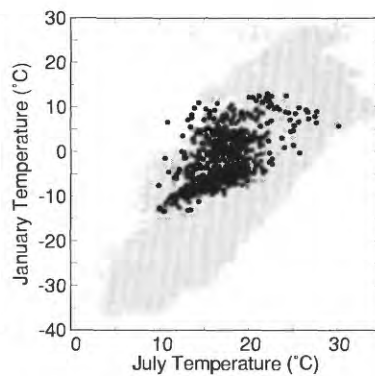
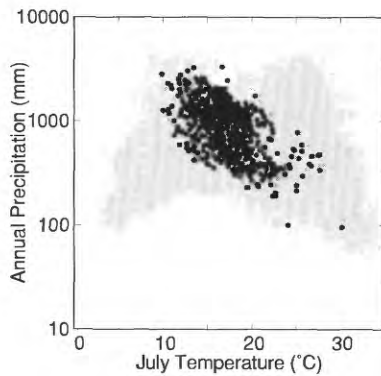
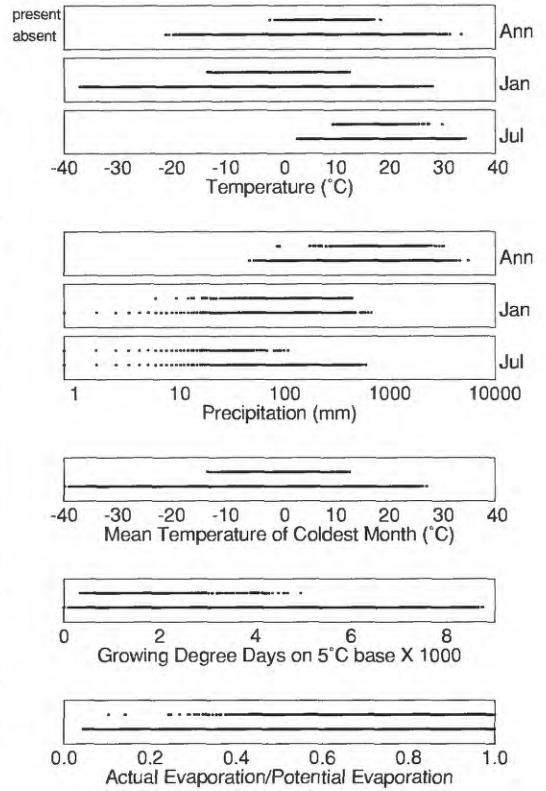


Growing Degree Days on 5°C Base X 1000

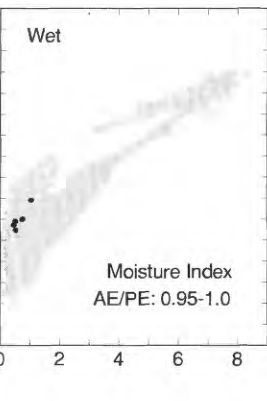
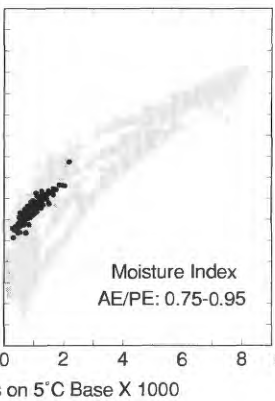
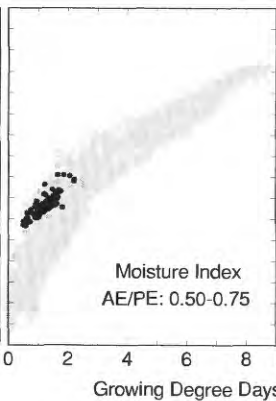
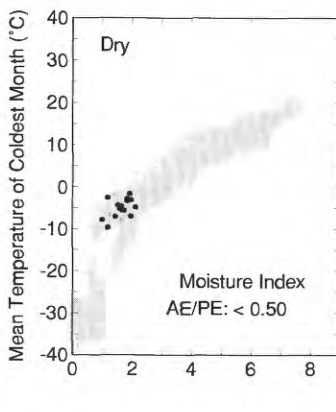
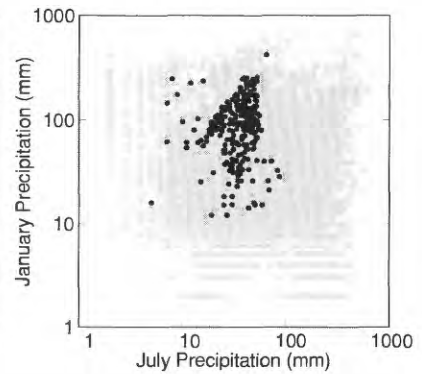
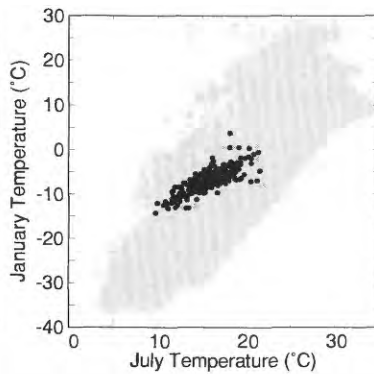
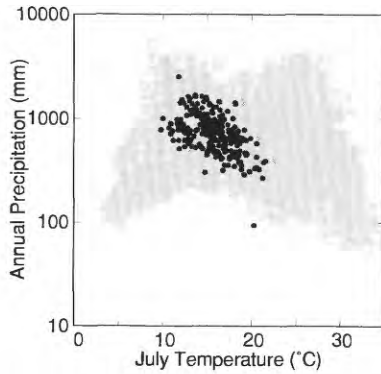
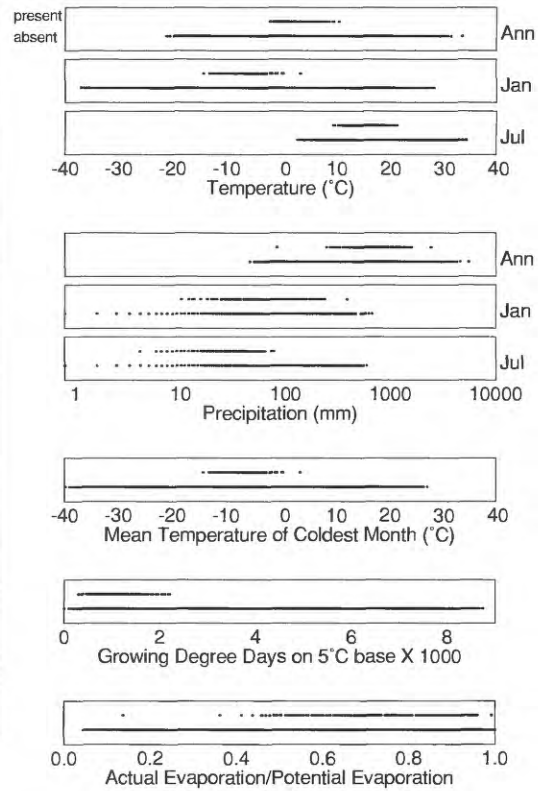
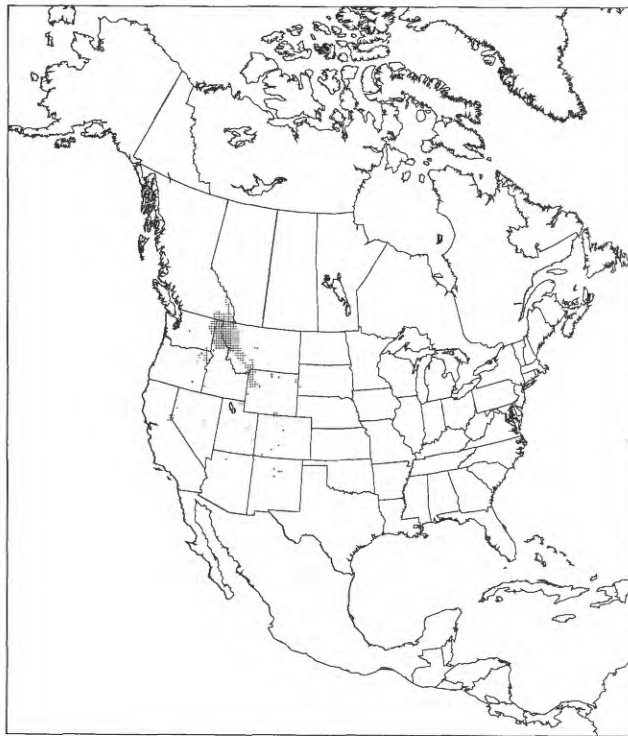
Sambucus canadensis



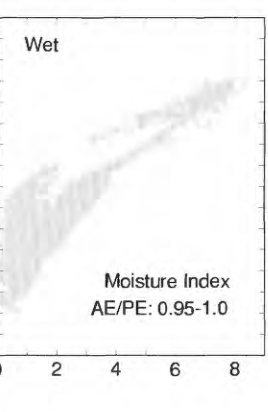
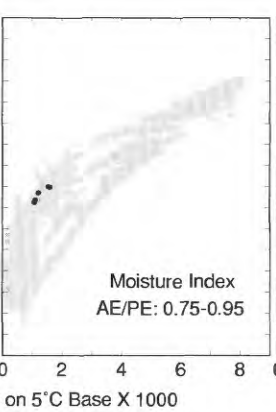
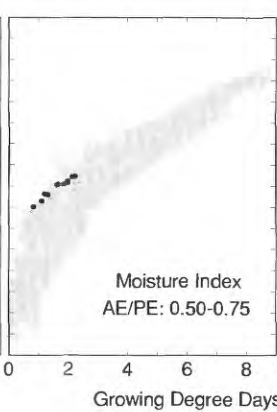
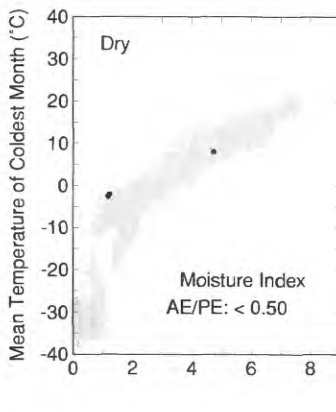
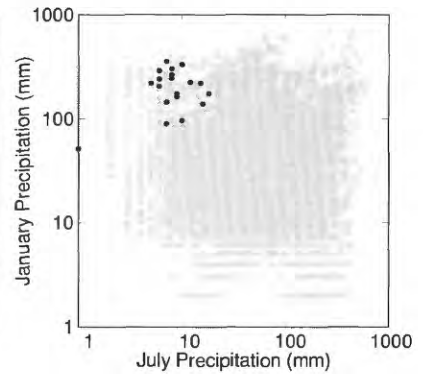
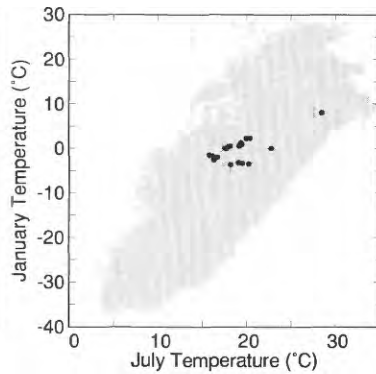
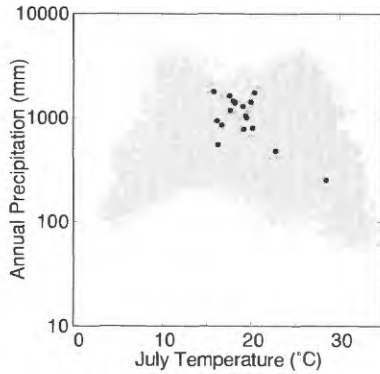
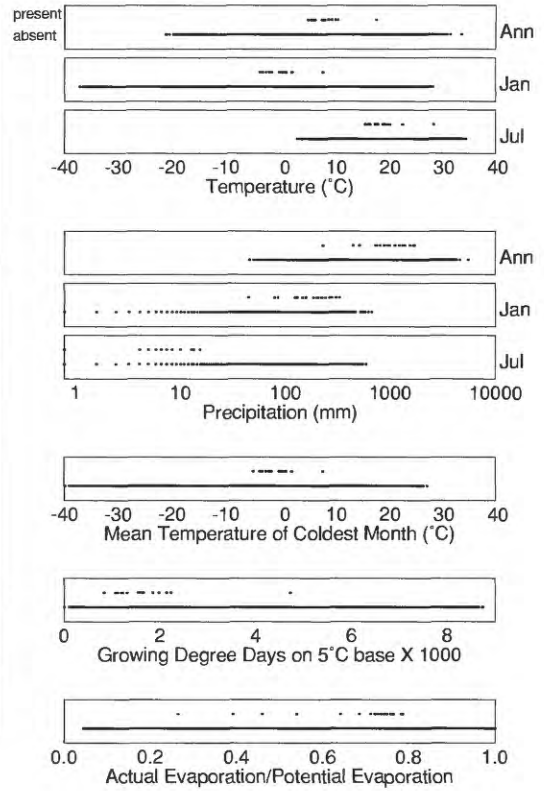
Sambucus glauca



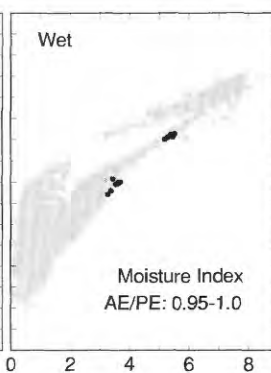
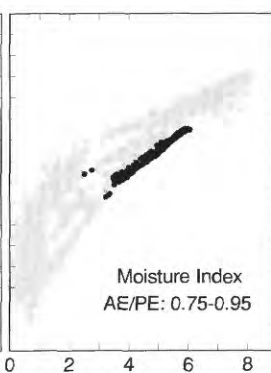
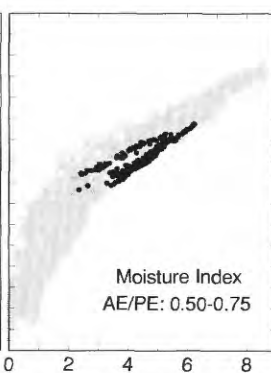
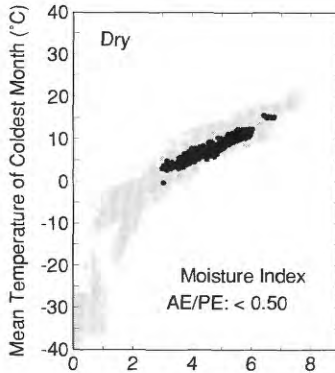
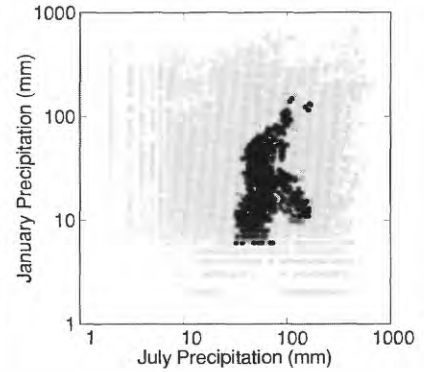
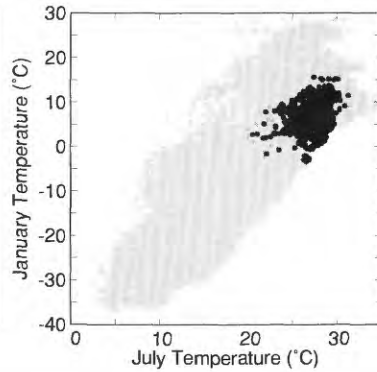
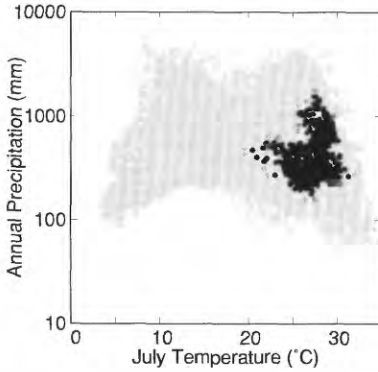
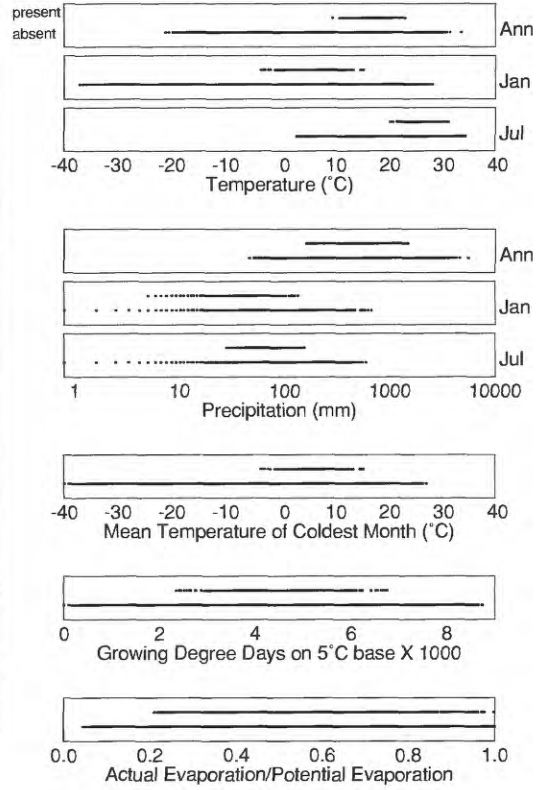
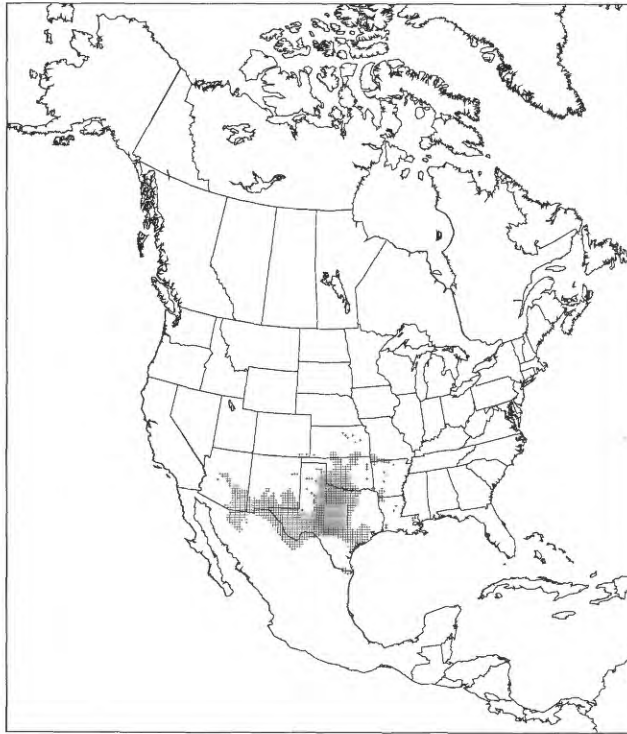
Sambucus melanocarpa



Sambucus velutina

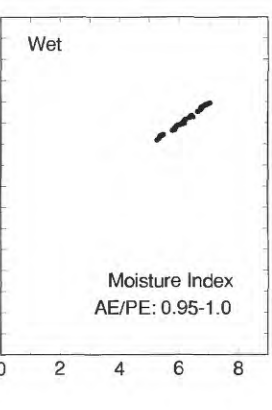
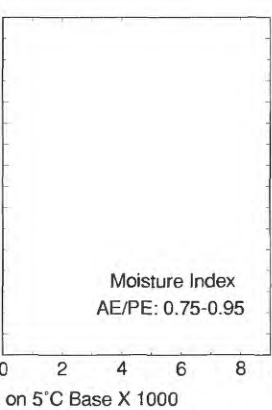
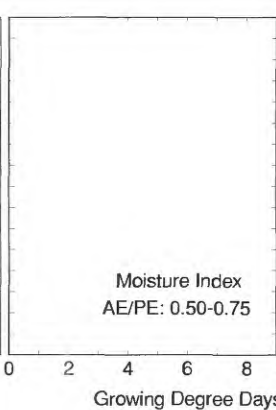
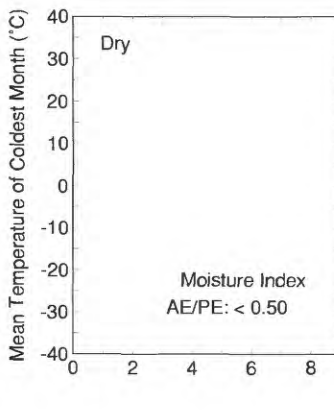
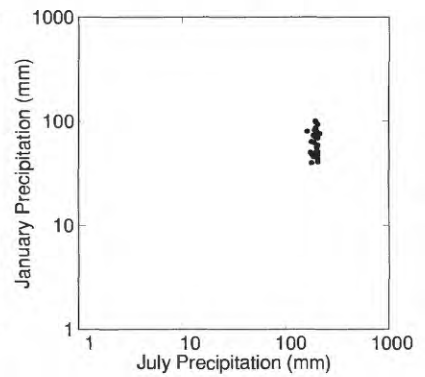
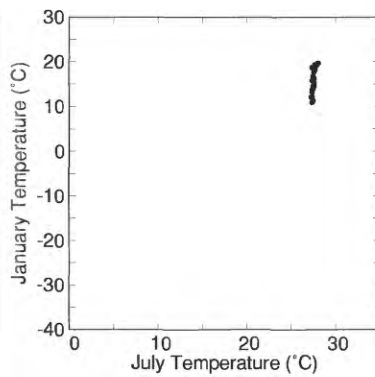
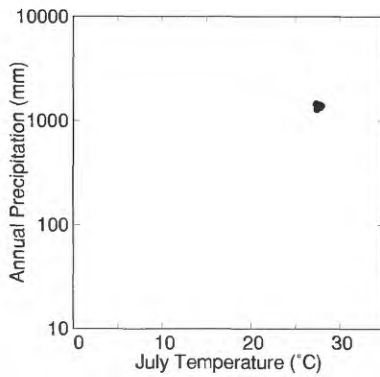
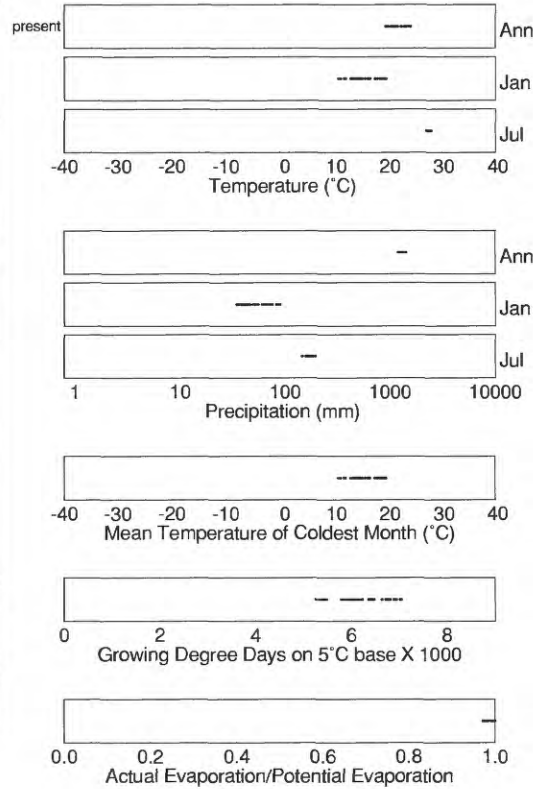


Sapindus drummondii

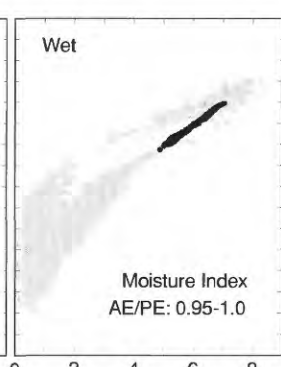
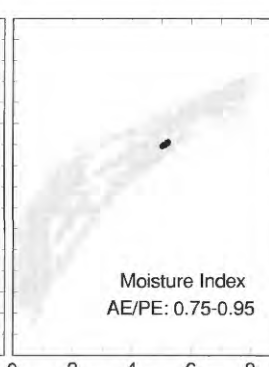
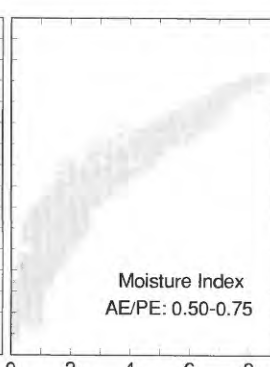
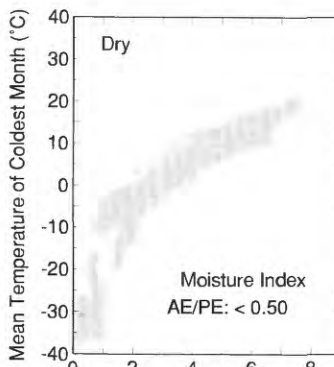
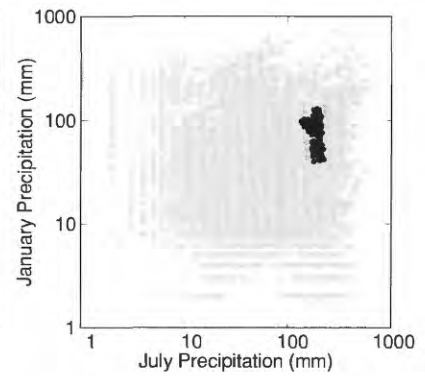
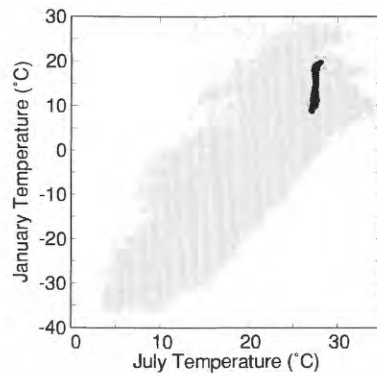
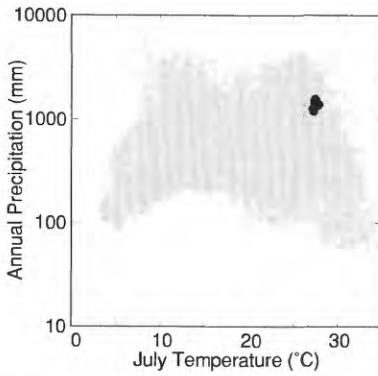
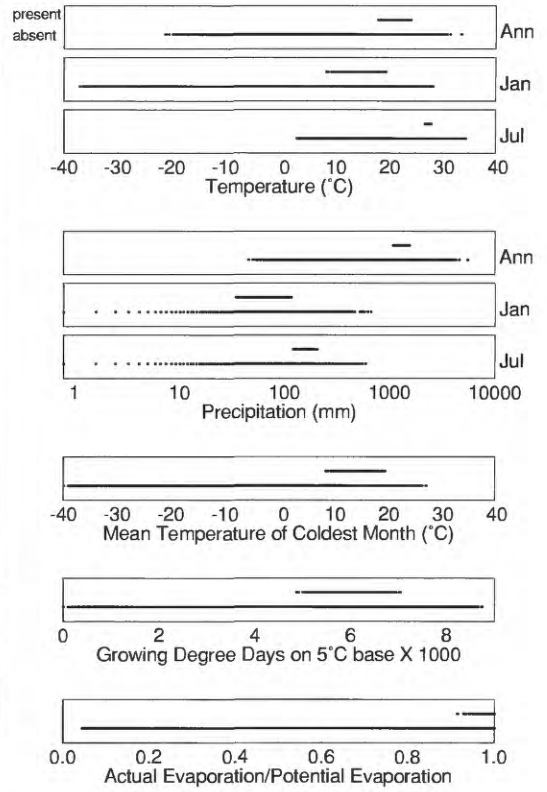


Growing Degree Days on 5°C Base X 1000

Sapindus saponaria (incomplete range; minimal data - nearest grid points with env. parameters)

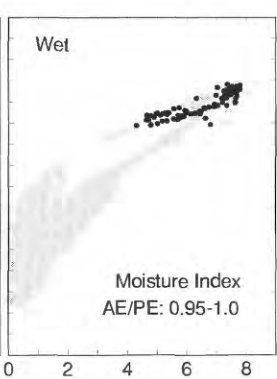
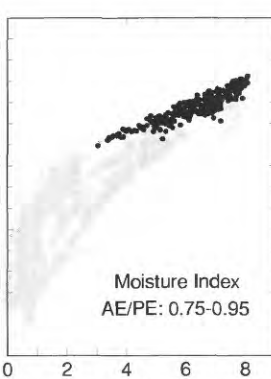
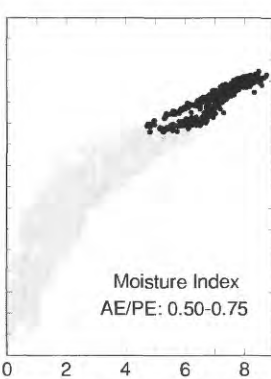
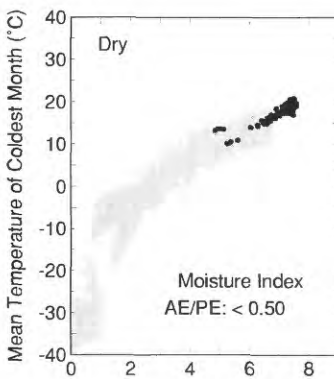
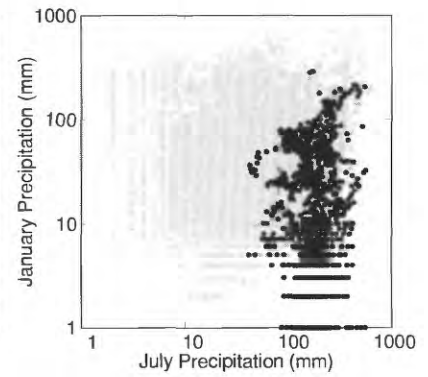
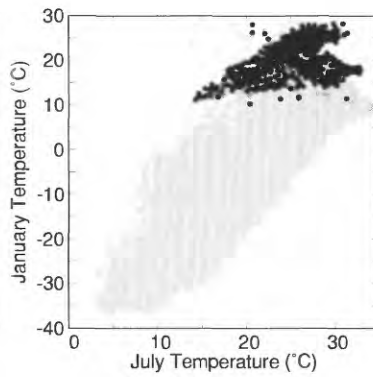
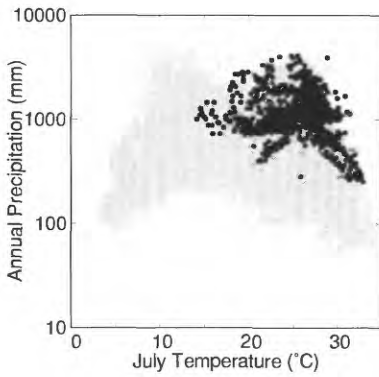
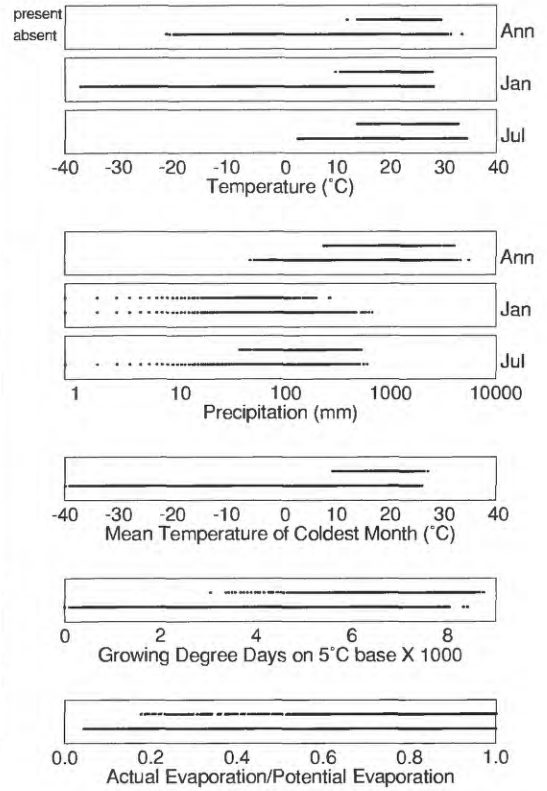


Serenoa repens



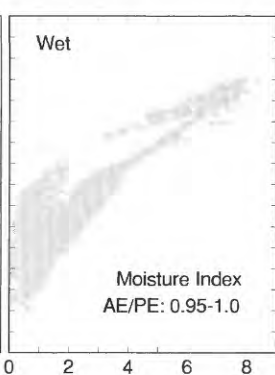
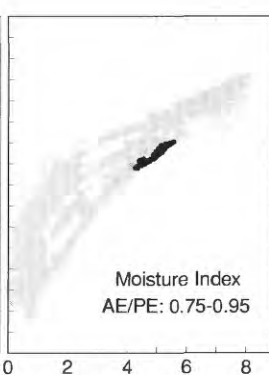
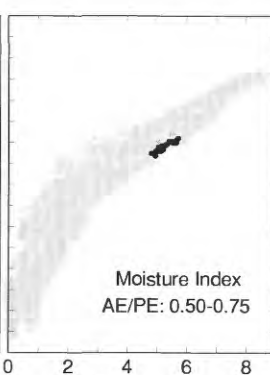
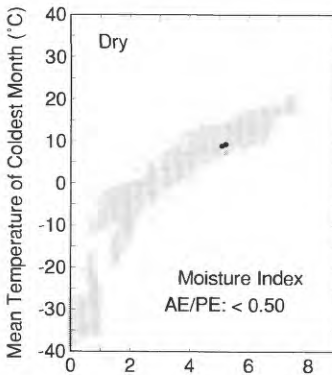
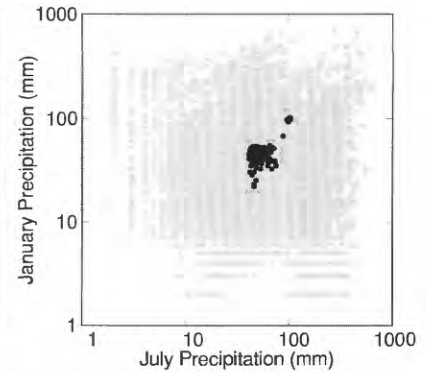
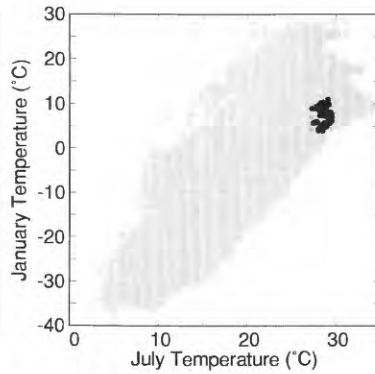
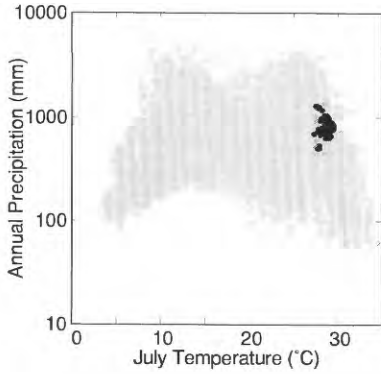
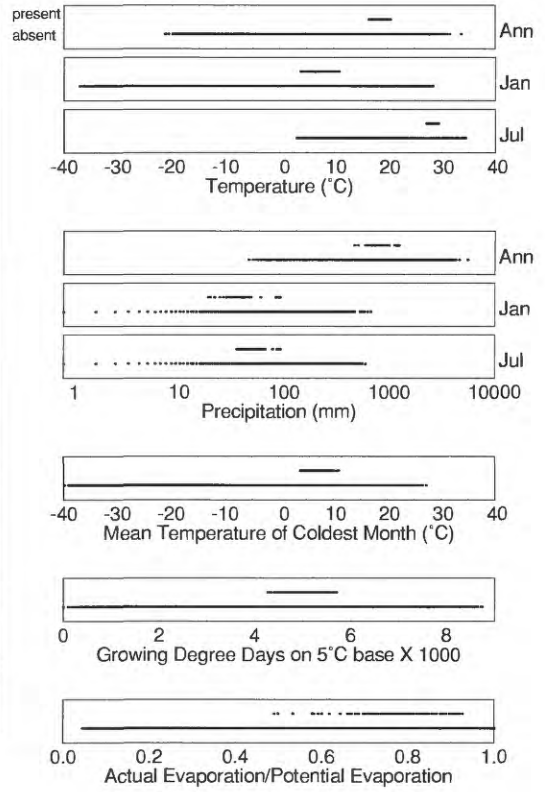
Growing Degree Days on 5°C Base X 1000

Solanum erianthum



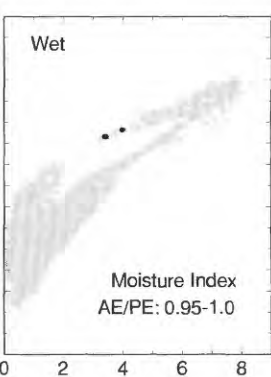
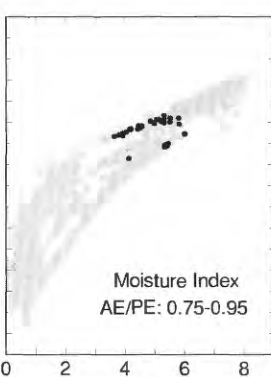
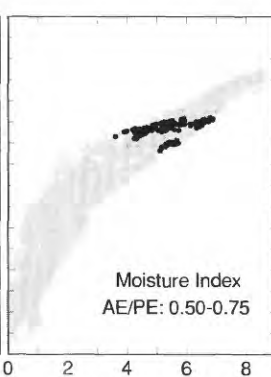
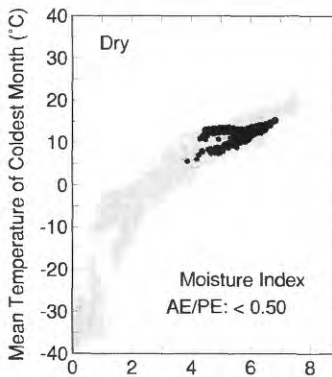
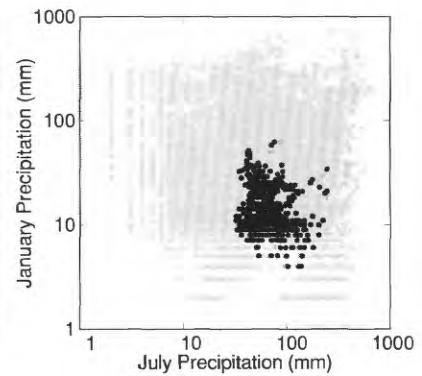
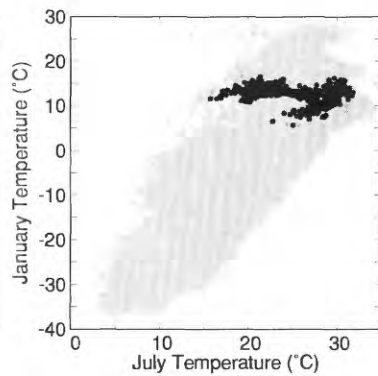
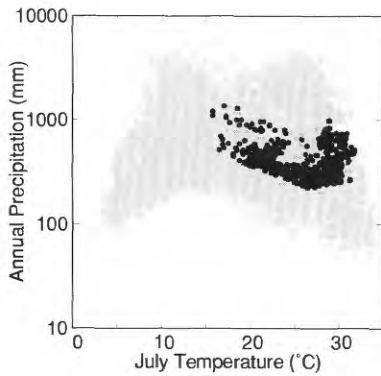
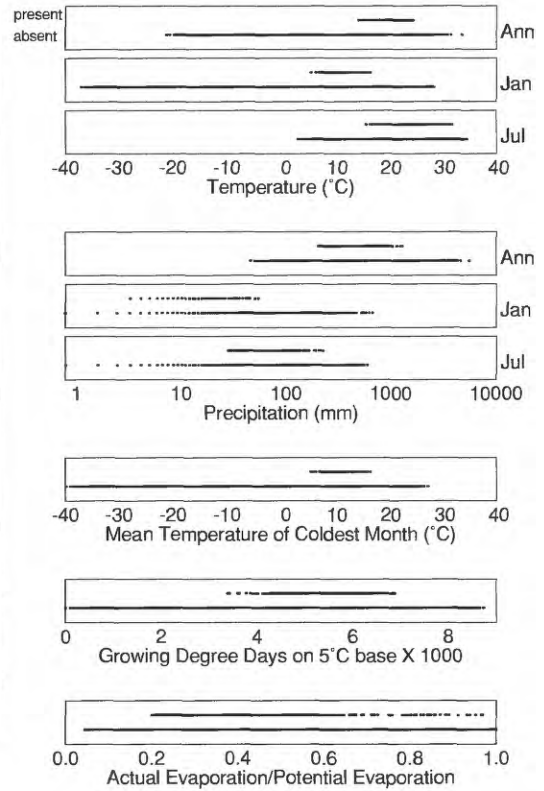
Growing Degree Days on 5°C Base X 1000

Sophora affinis



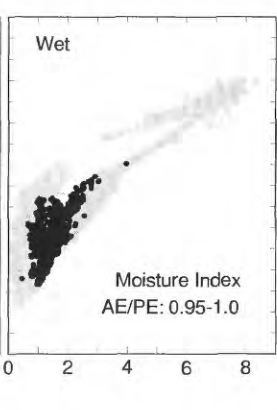
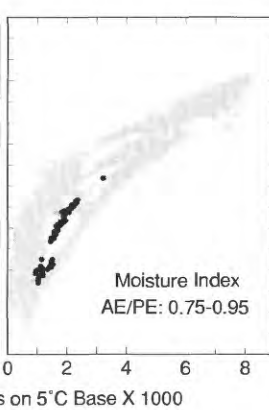
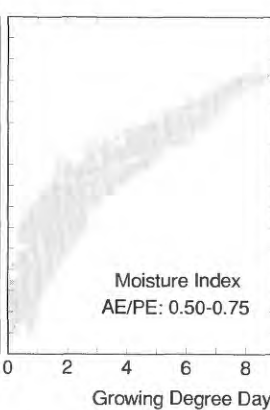
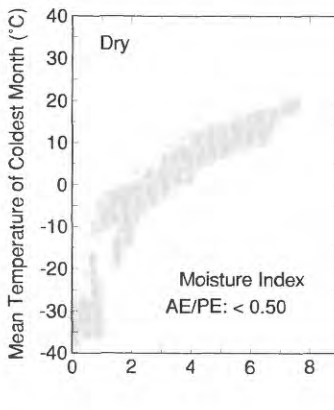
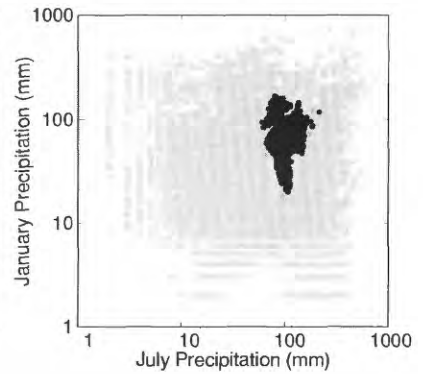
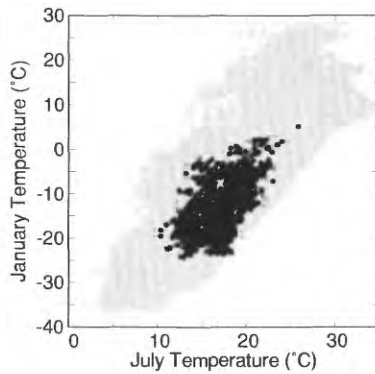
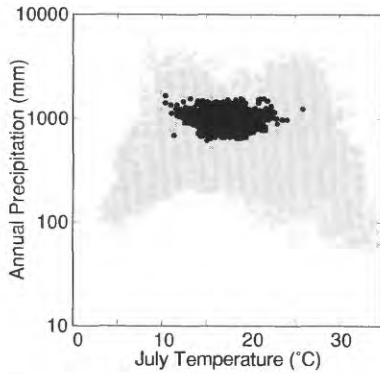
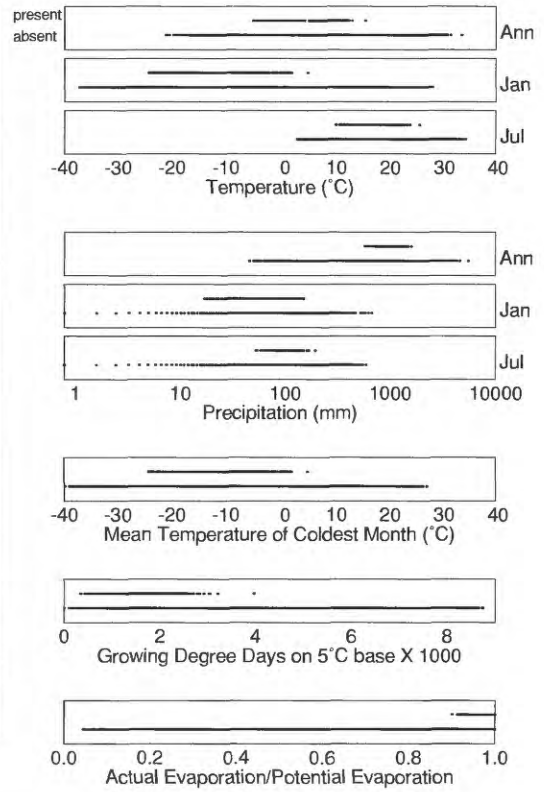
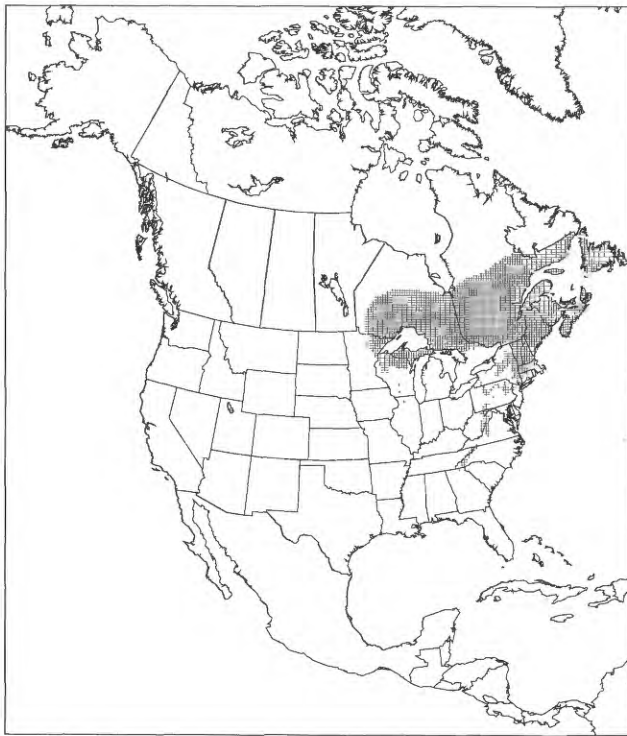
Growing Degree Days on 5°C Base X 1000

Sophora secundiflora

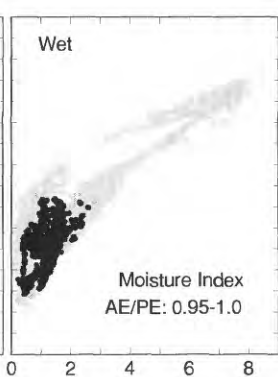
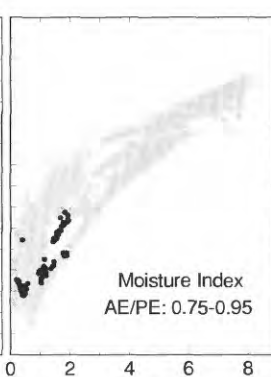
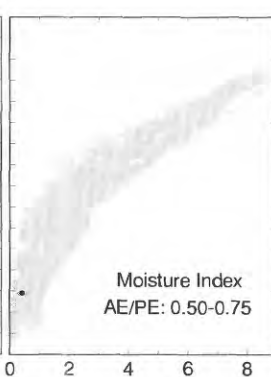
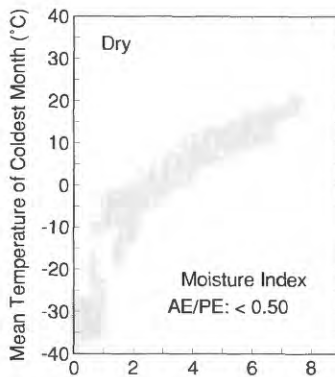
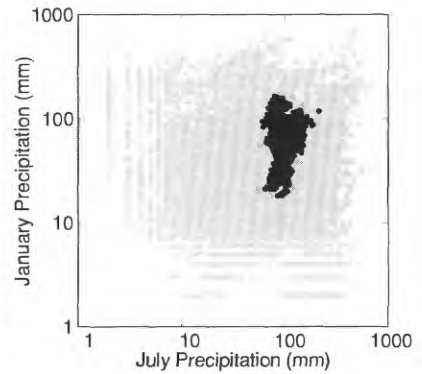
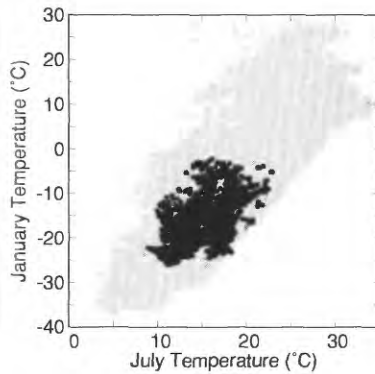
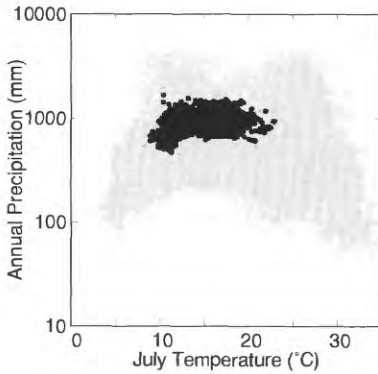
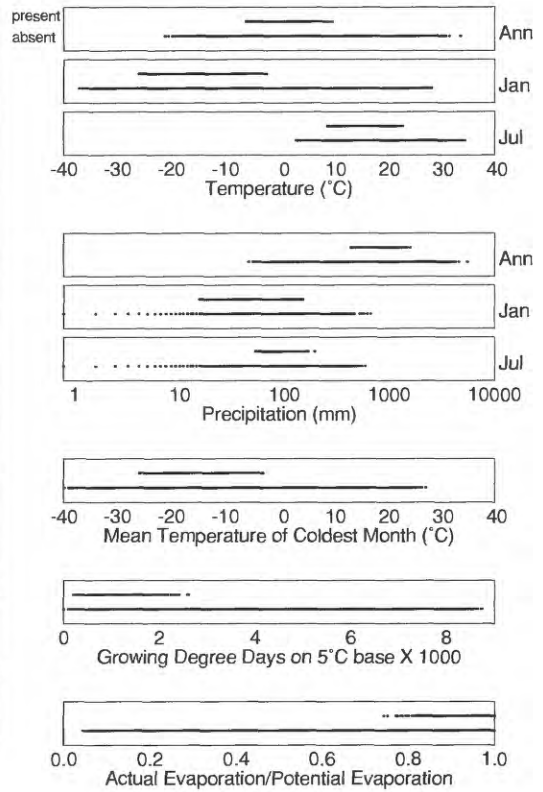
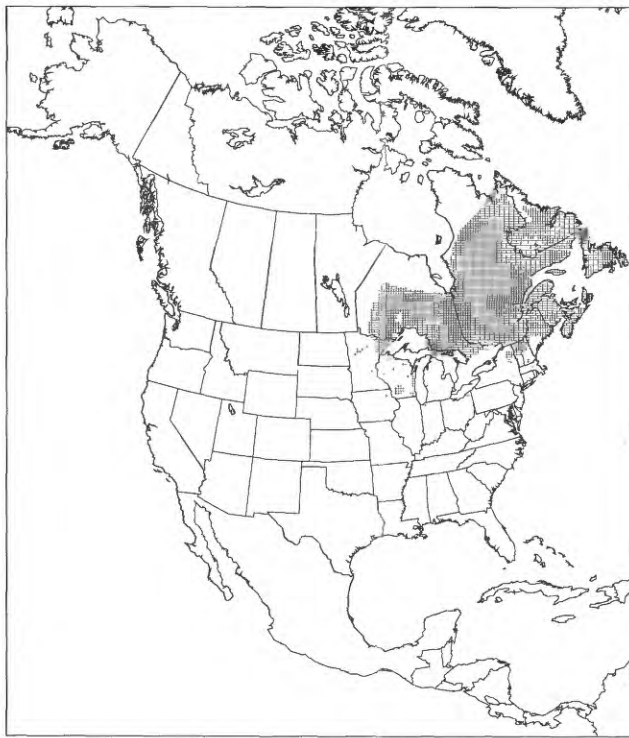


Growing Degree Days on 5°C Base X 1000

Sorbus americana

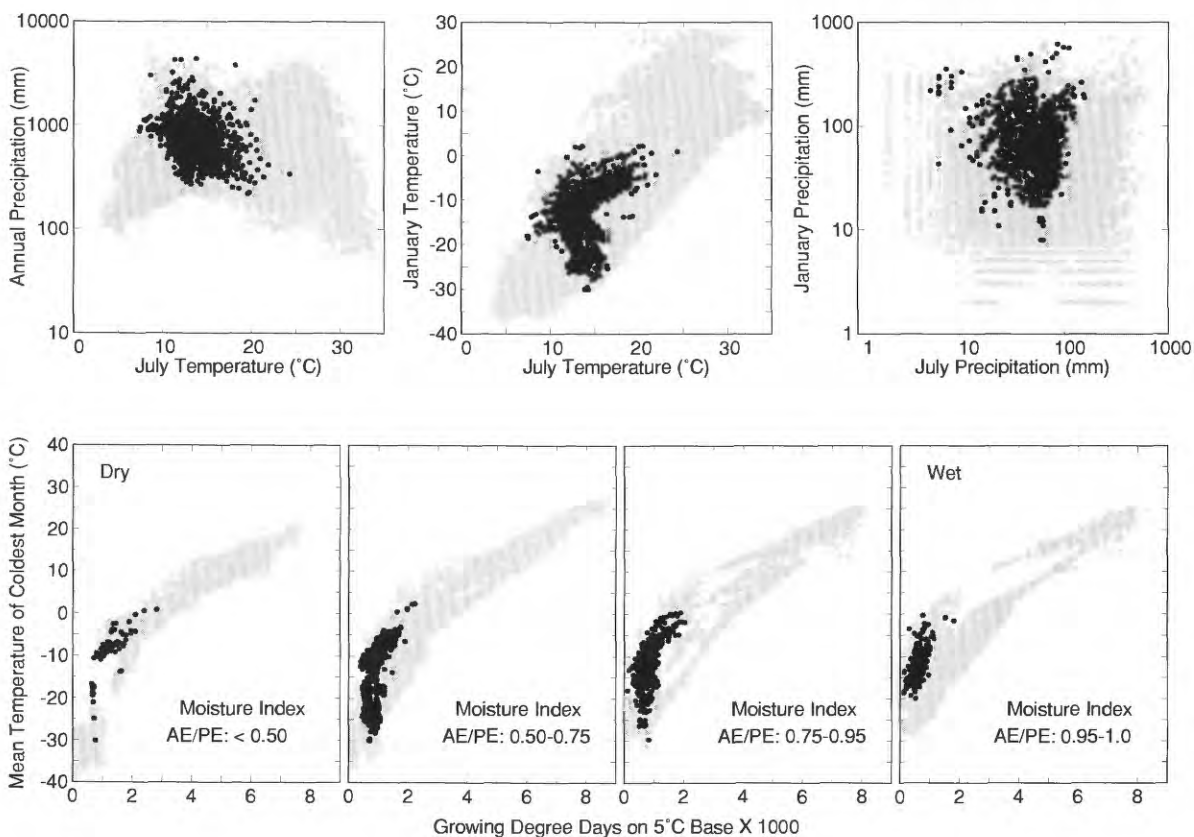
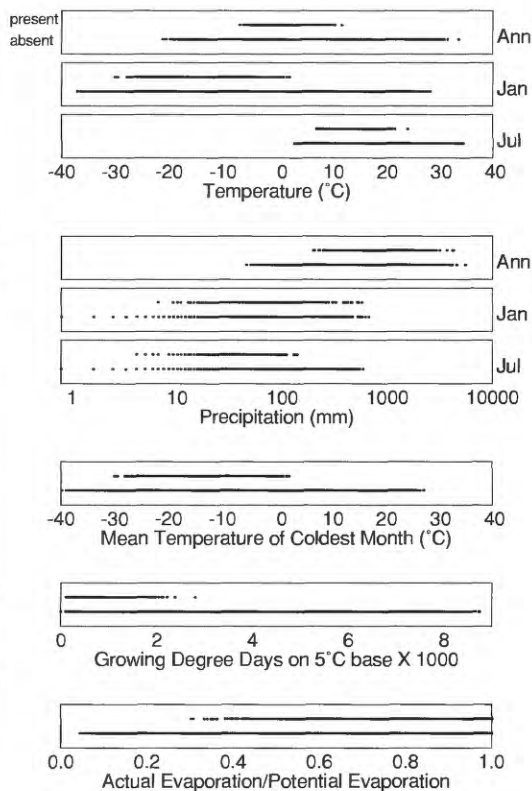
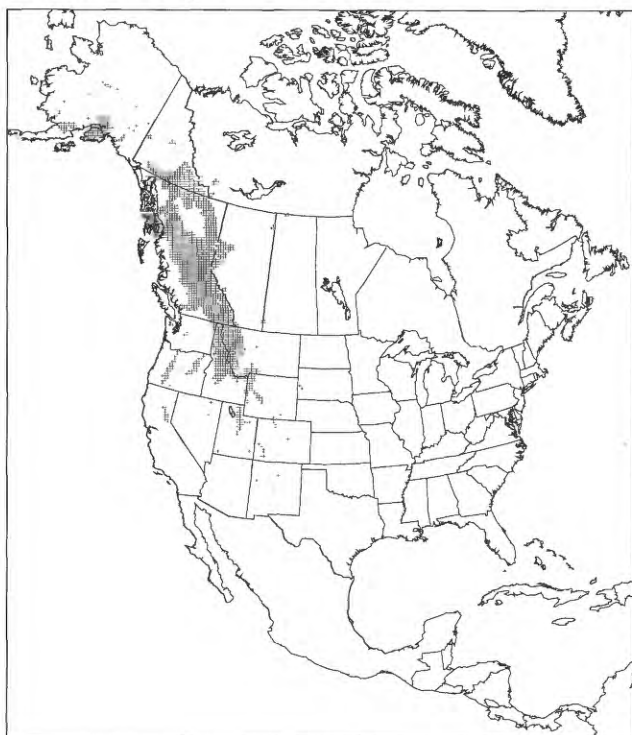


Sorbus decora

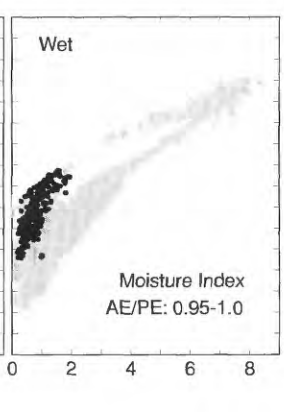
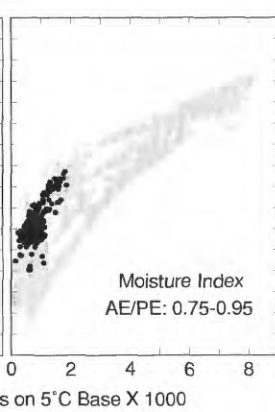
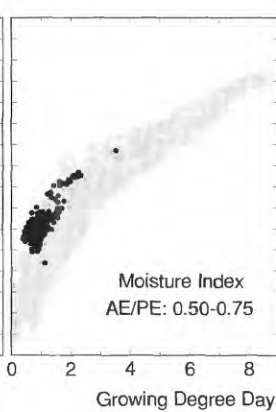
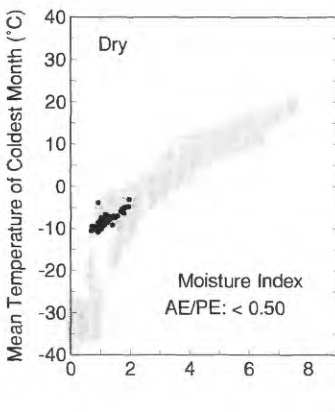
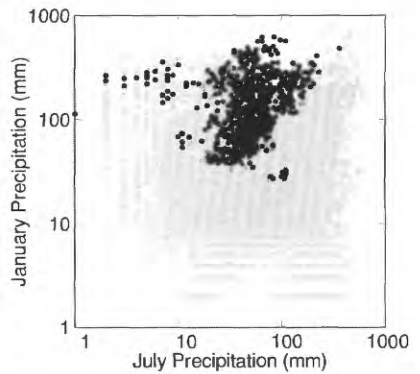
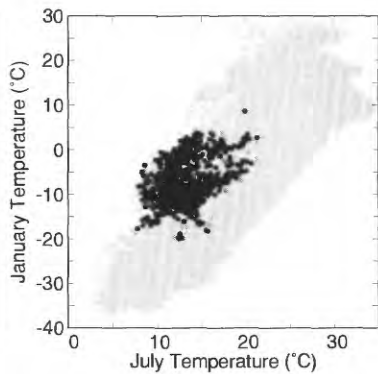
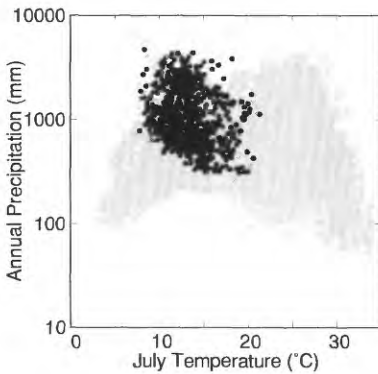
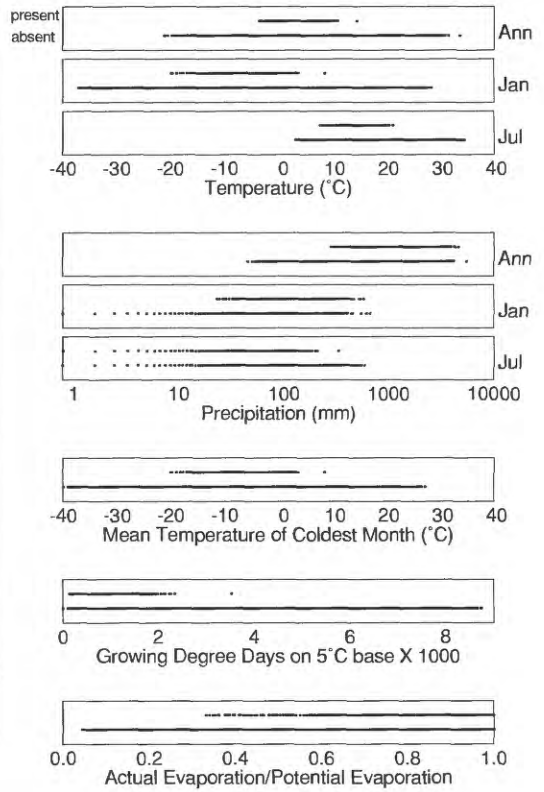


Growing Degree Days on 5°C Base X 1000

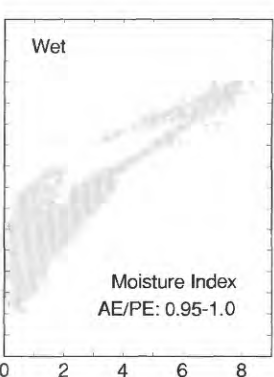
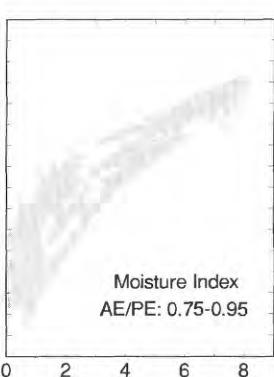
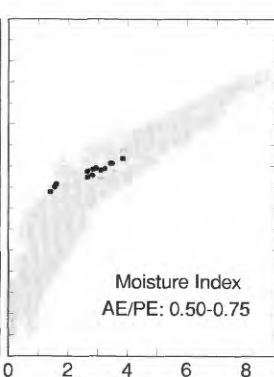
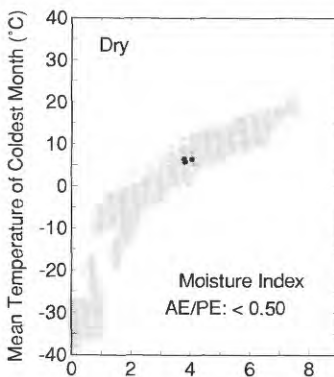
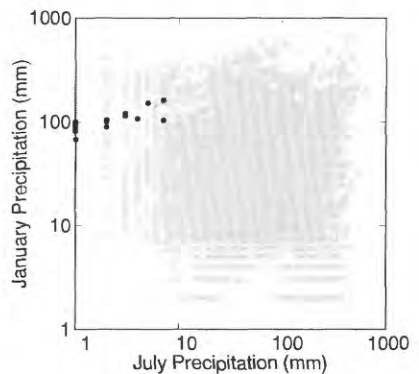
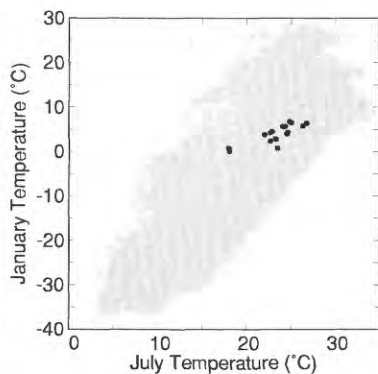
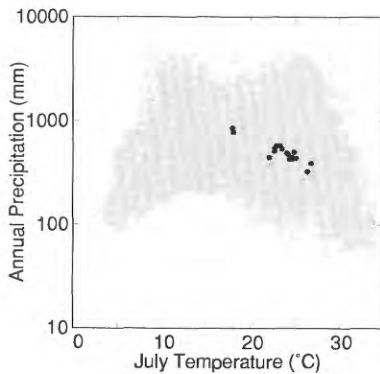
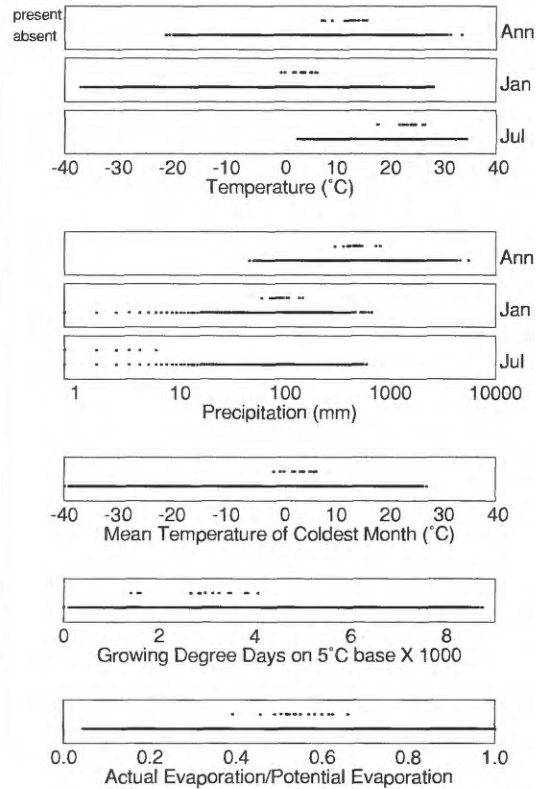
Sorbus scopulina



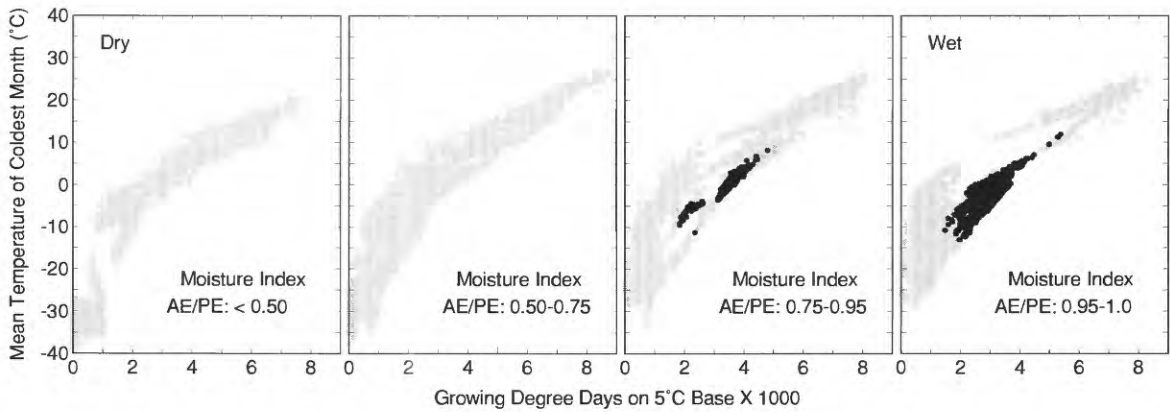
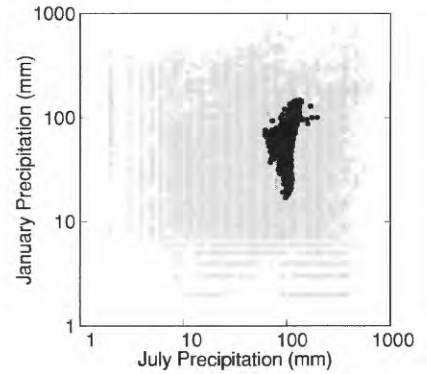
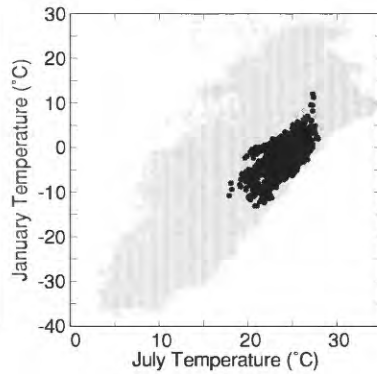
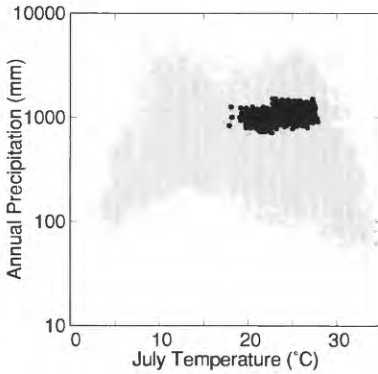
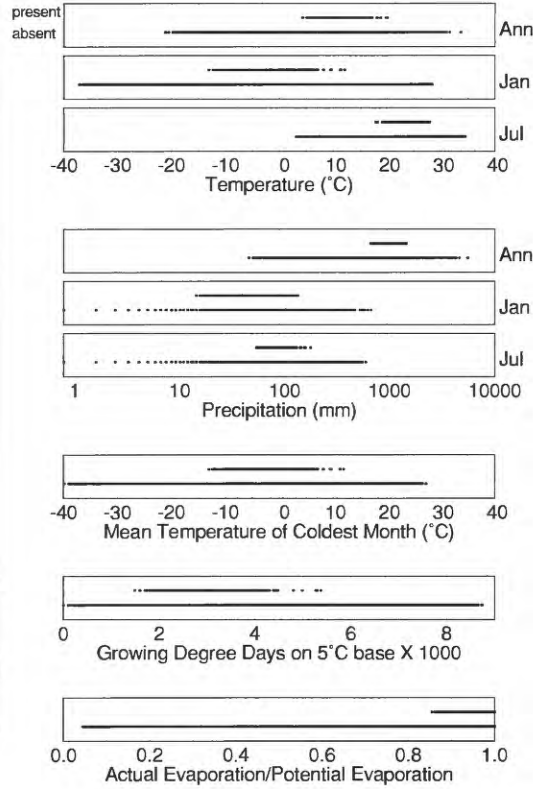
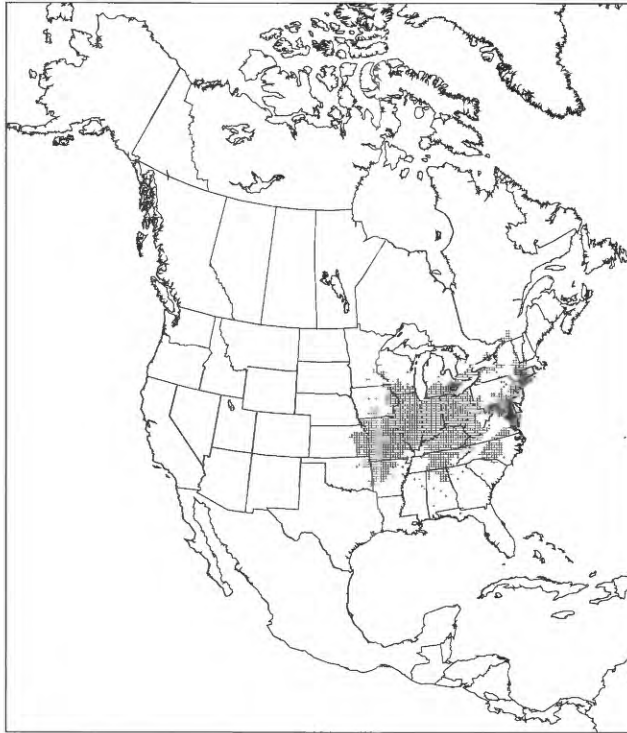
Sorbus sitchensis



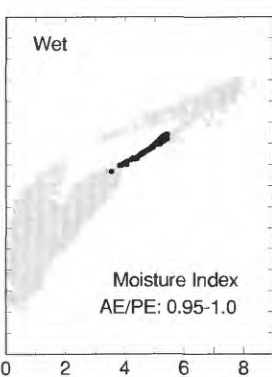
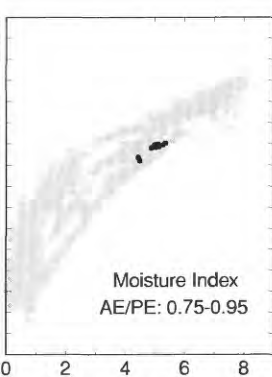
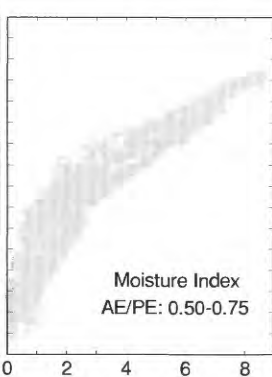
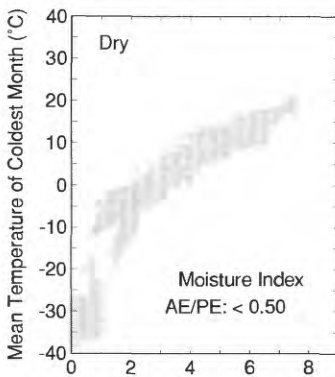
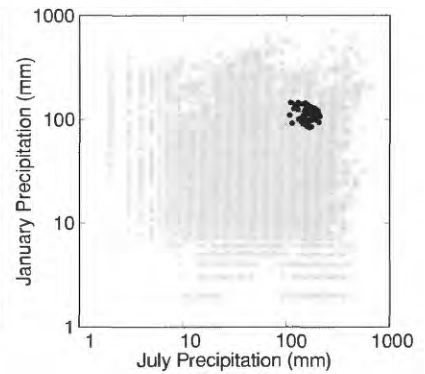
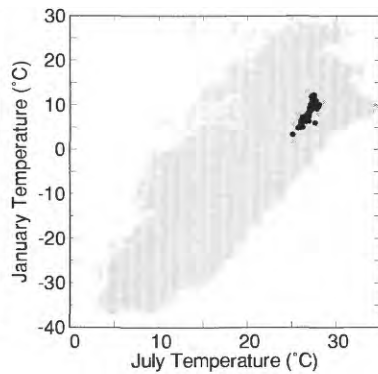
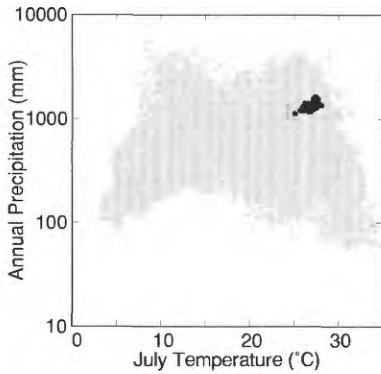
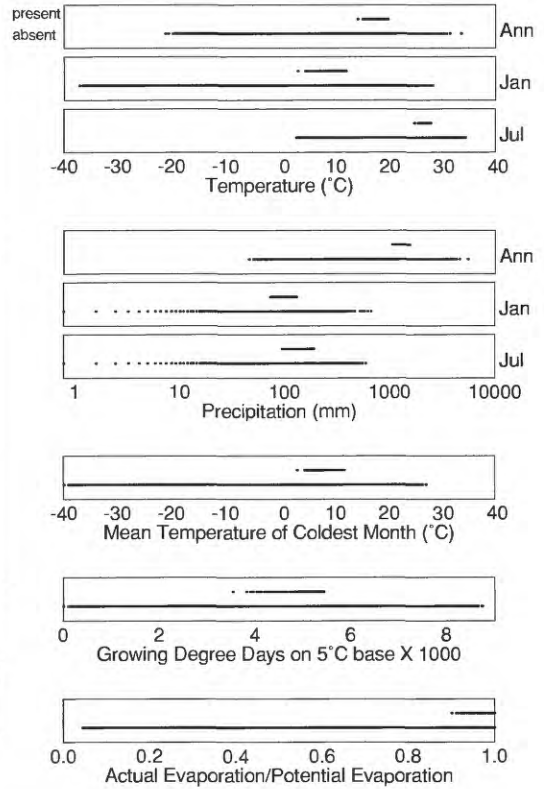
Staphylea bolanderi



Staphylea trifolia

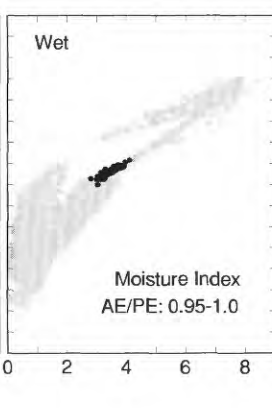
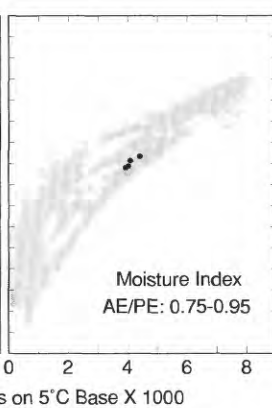
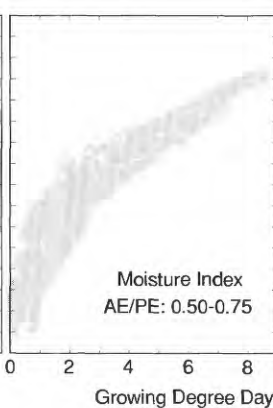
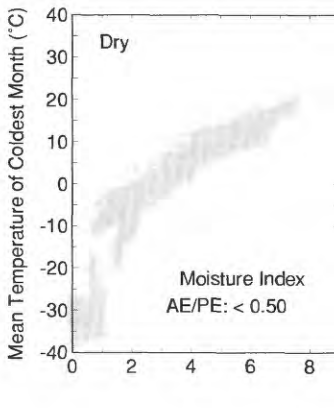
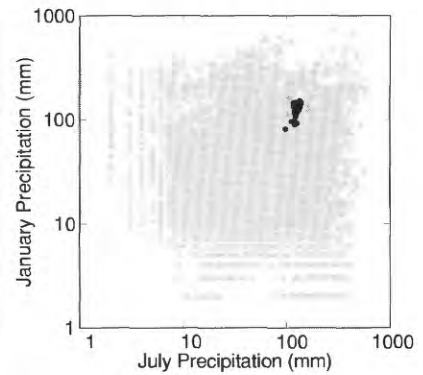
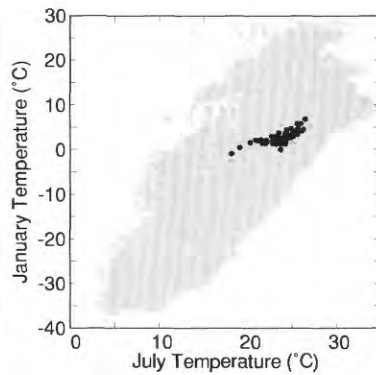
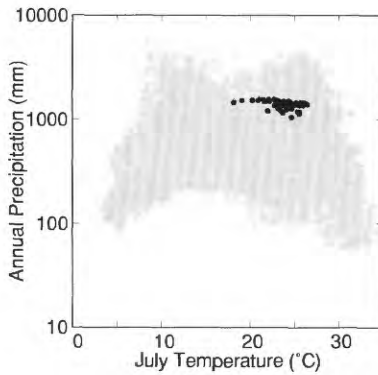
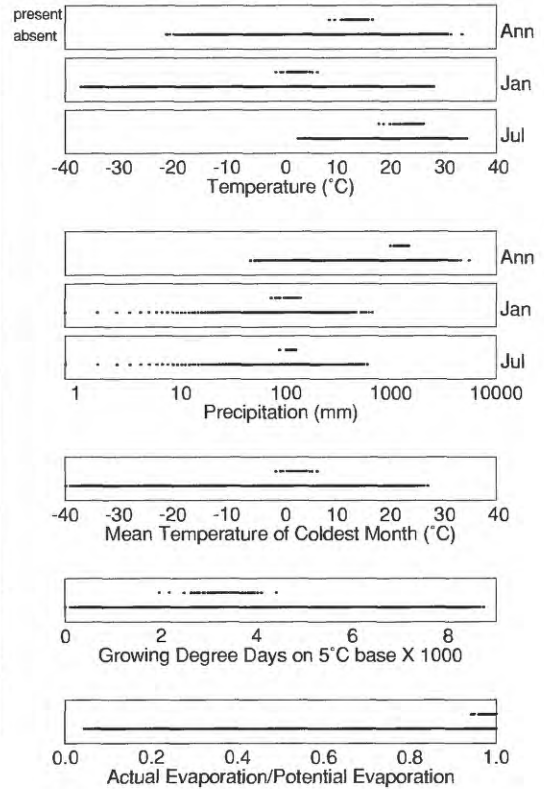


Stewartia malacodendron

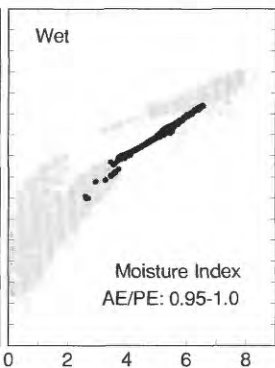
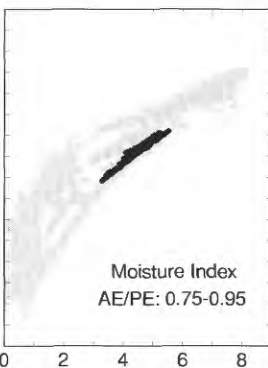
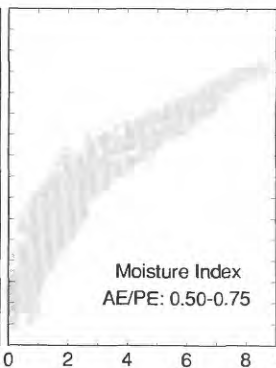
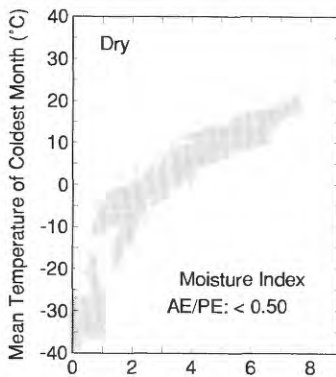
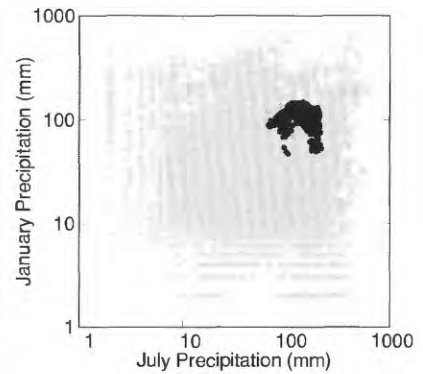
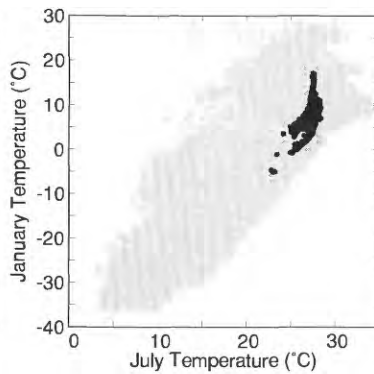
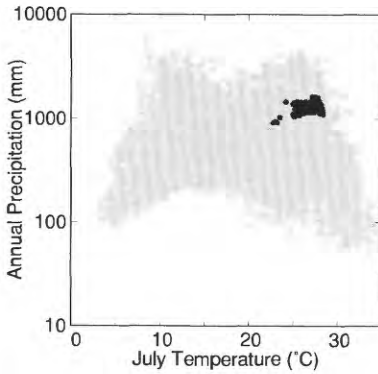
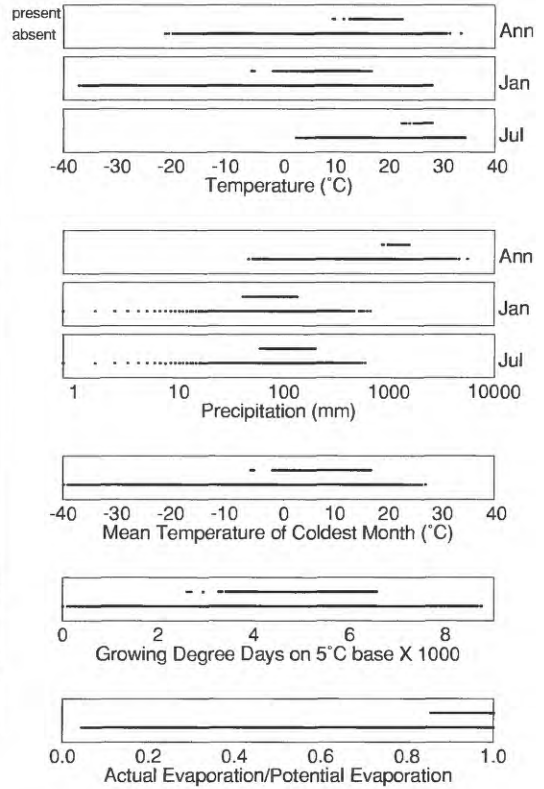


Growing Degree Days on 5°C Base X 1000

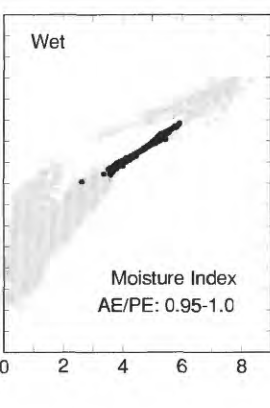
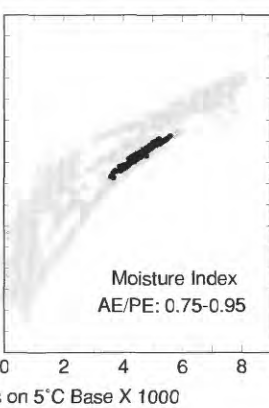
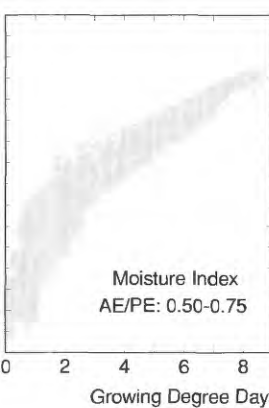
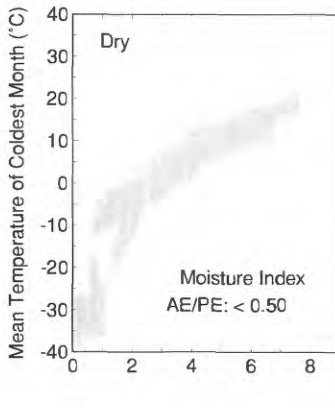
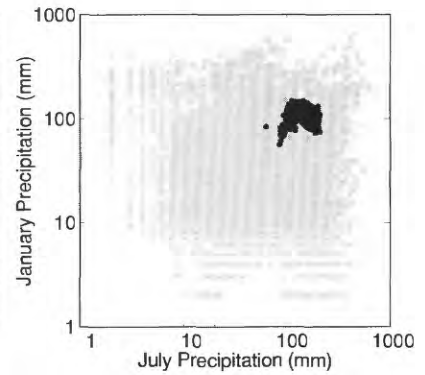
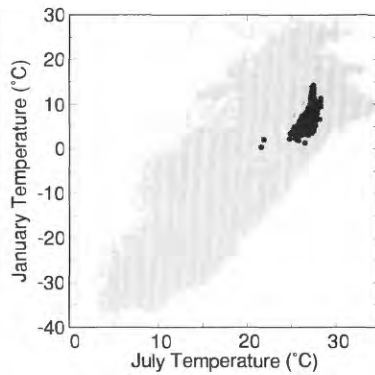
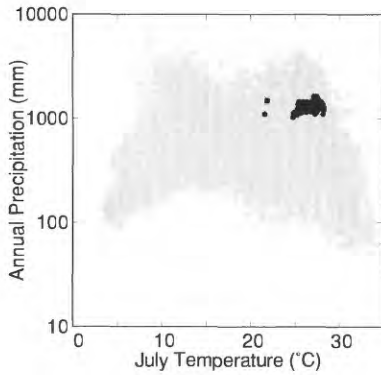
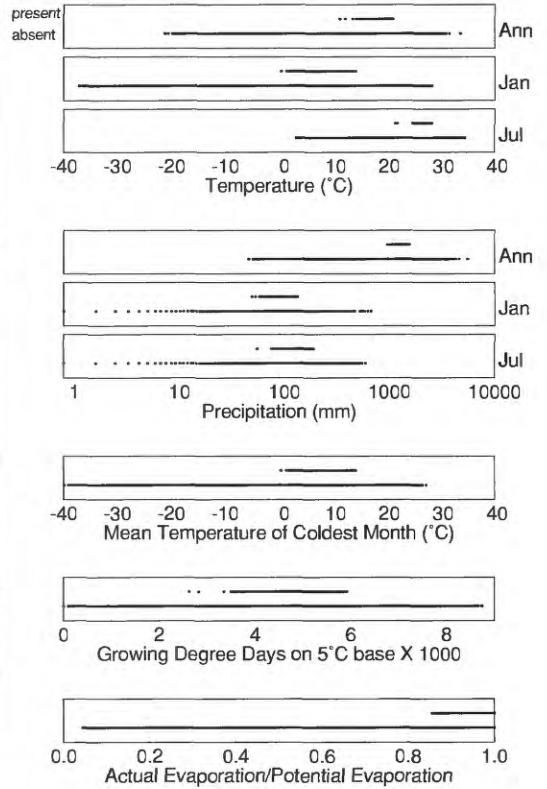
Stewartia ovata



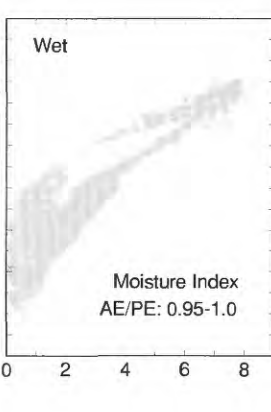
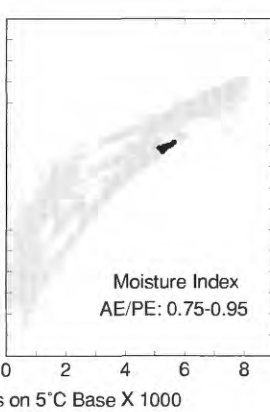
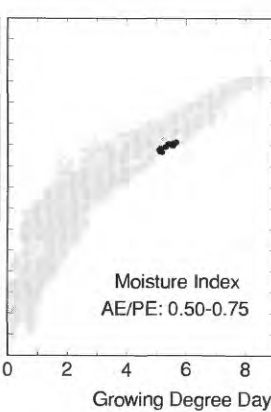
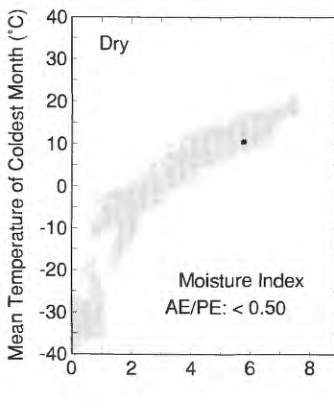
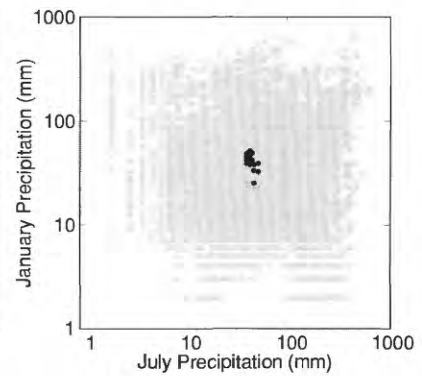
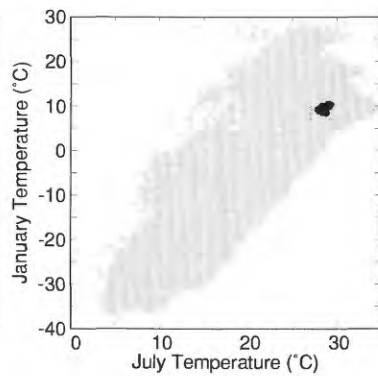
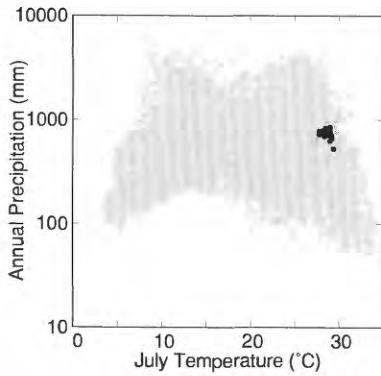
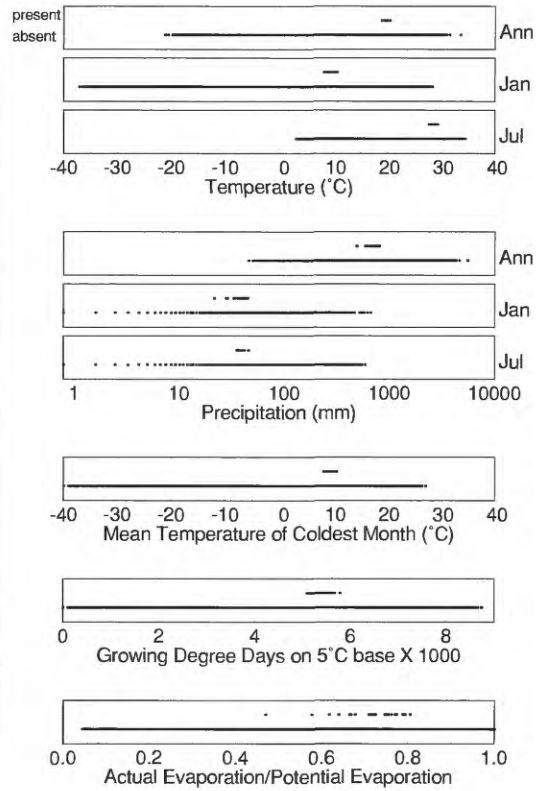
Styrax americana



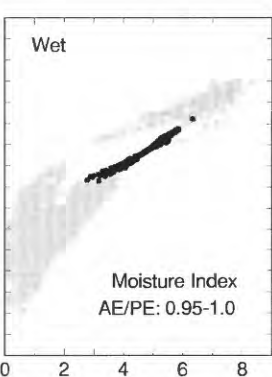
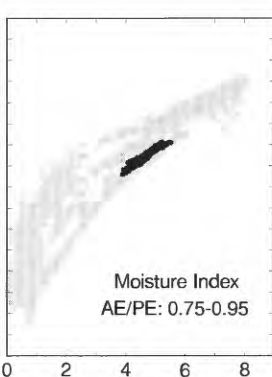
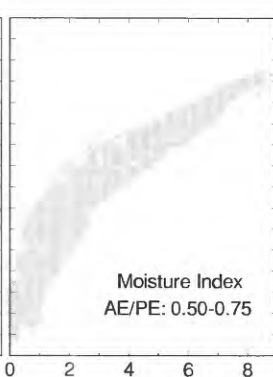
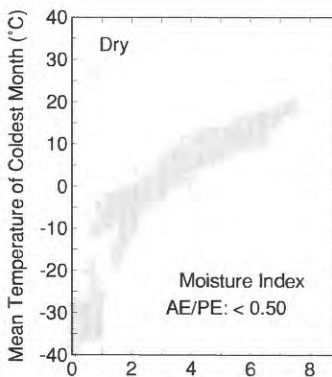
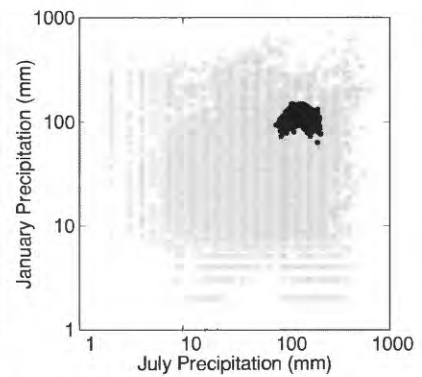
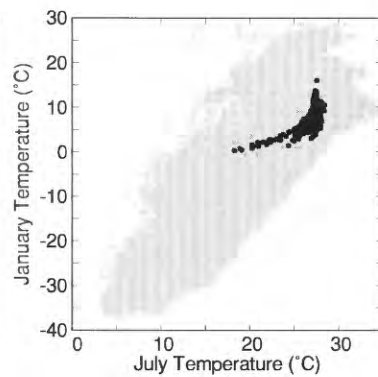
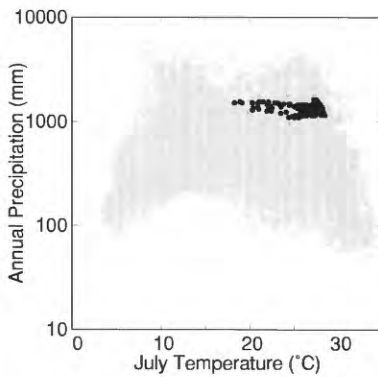
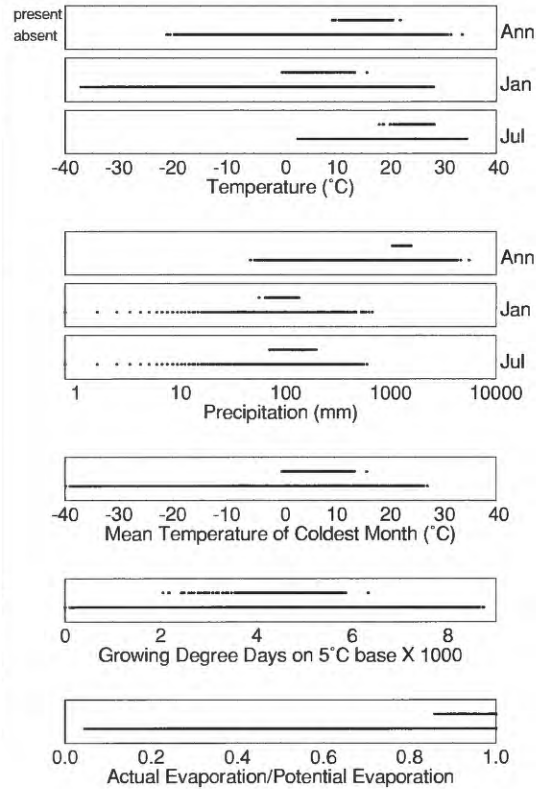
Styrax grandifolia



Styrax platanifolia

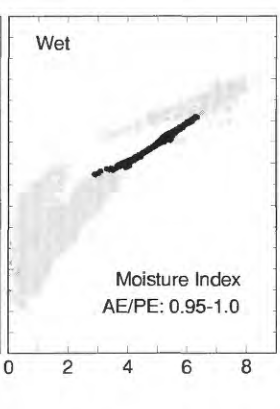
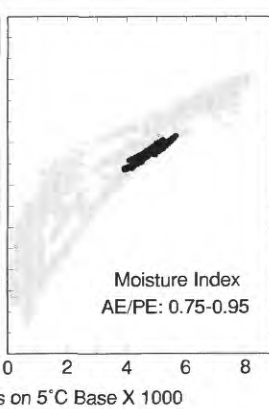
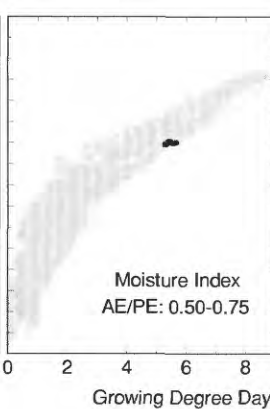
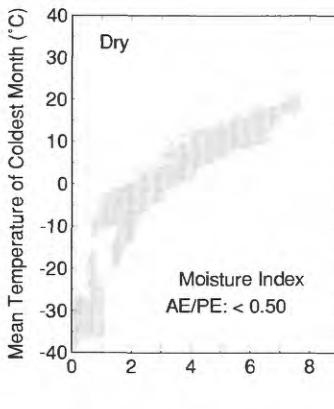
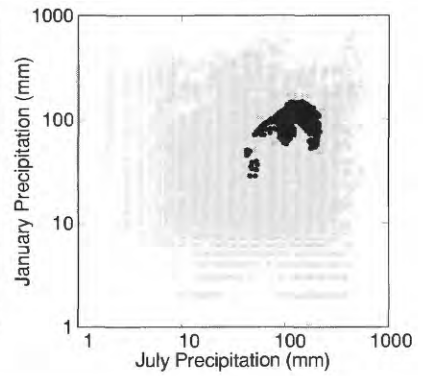
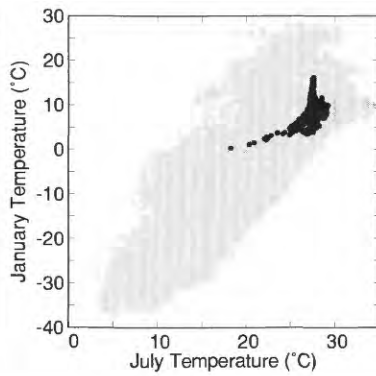
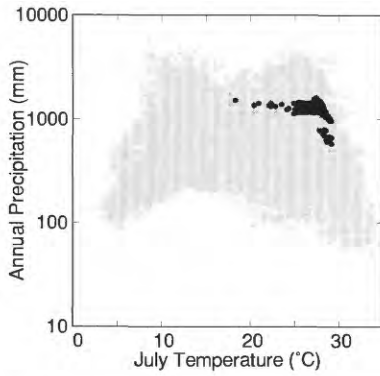
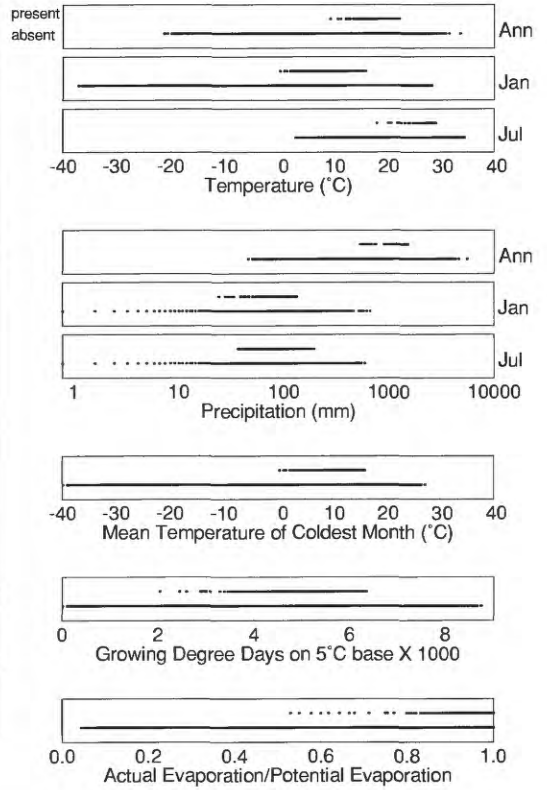


Symplocos tinctoria

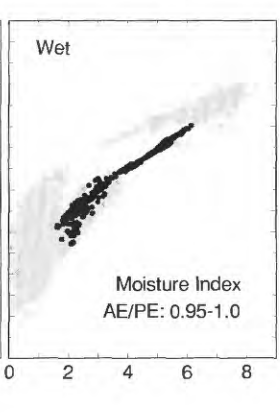
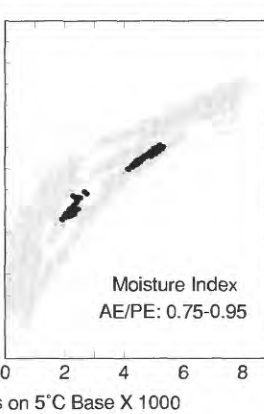
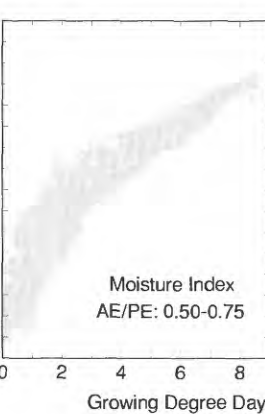
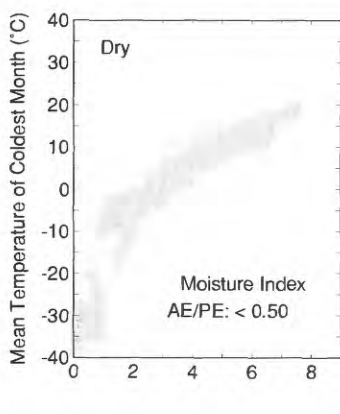
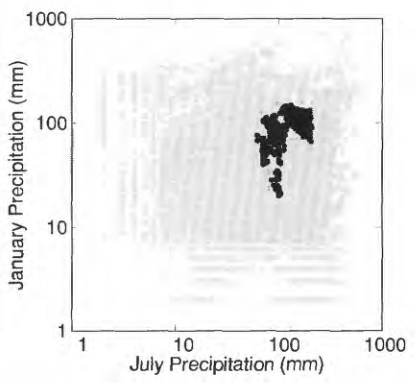
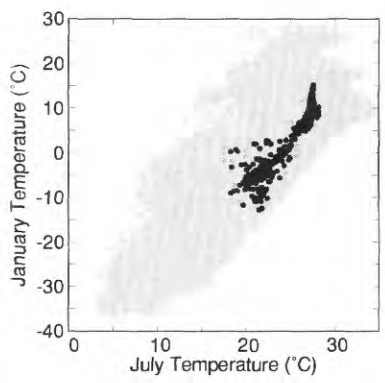
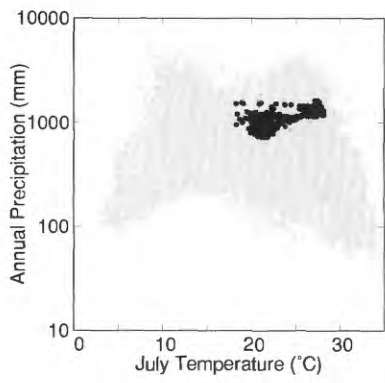
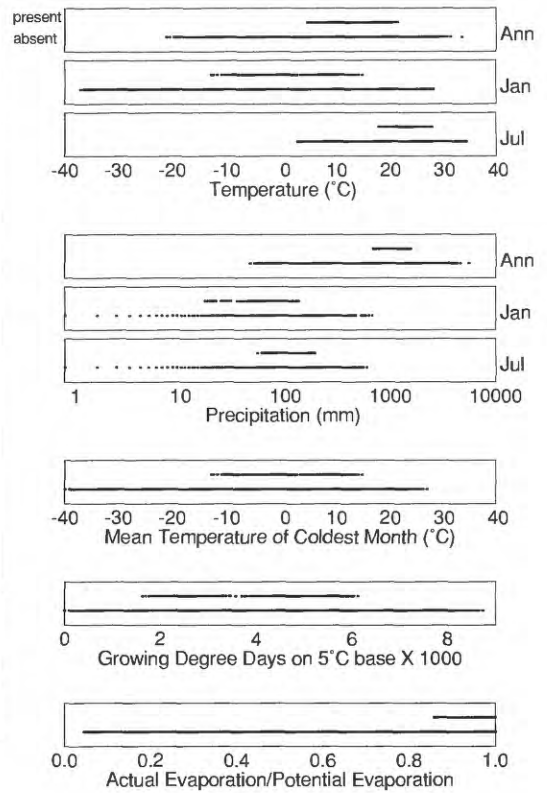


Growing Degree Days on 5°C Base X 1000

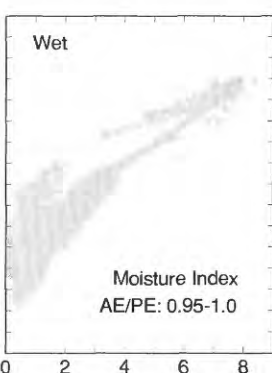
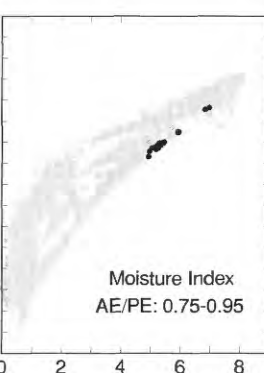
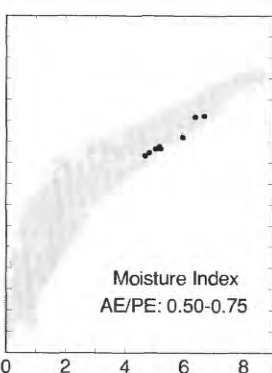
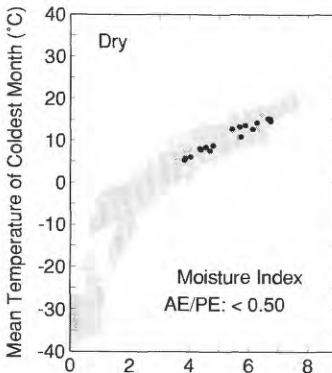
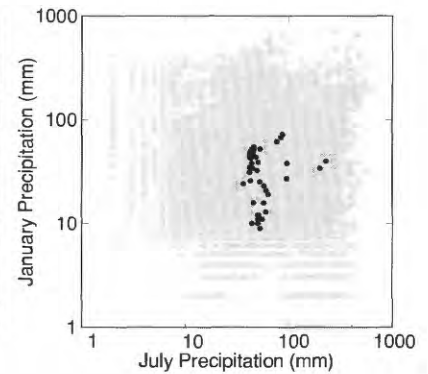
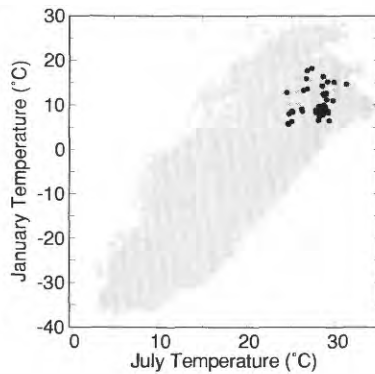
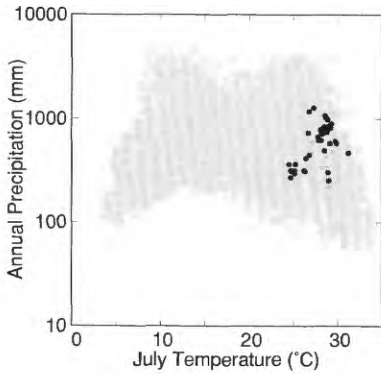
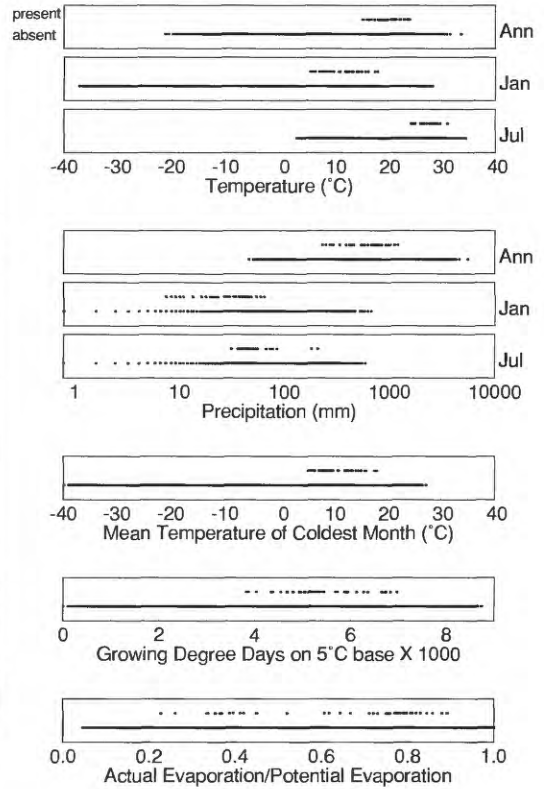
Tilia caroliniana



Toxicodendron vernix

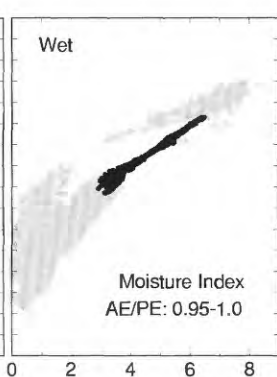
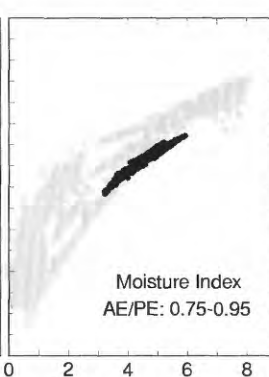
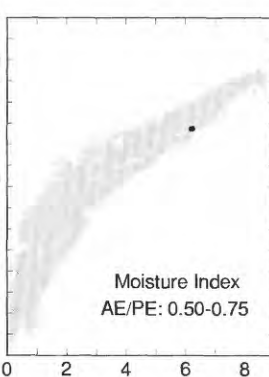
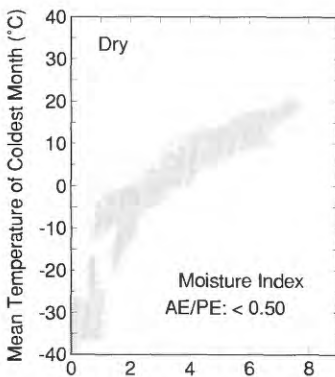
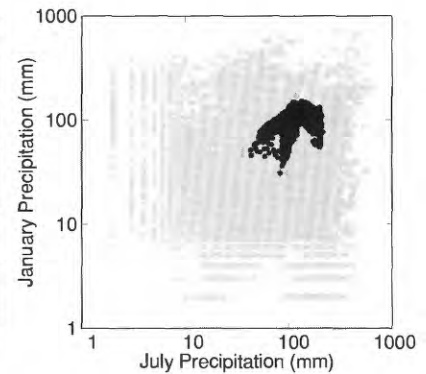
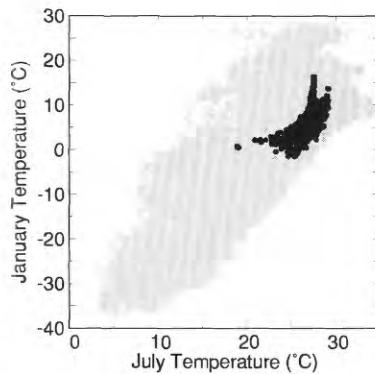
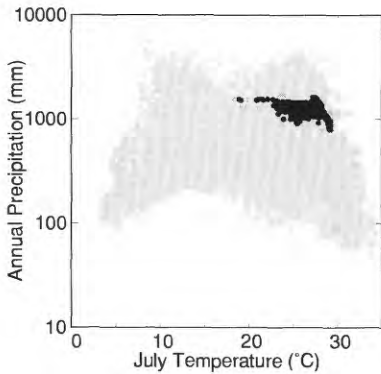
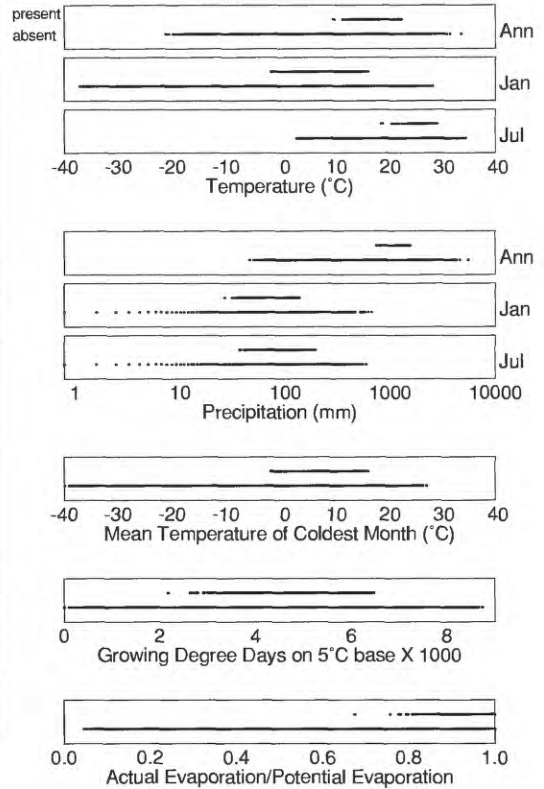


Ungnadia speciosa



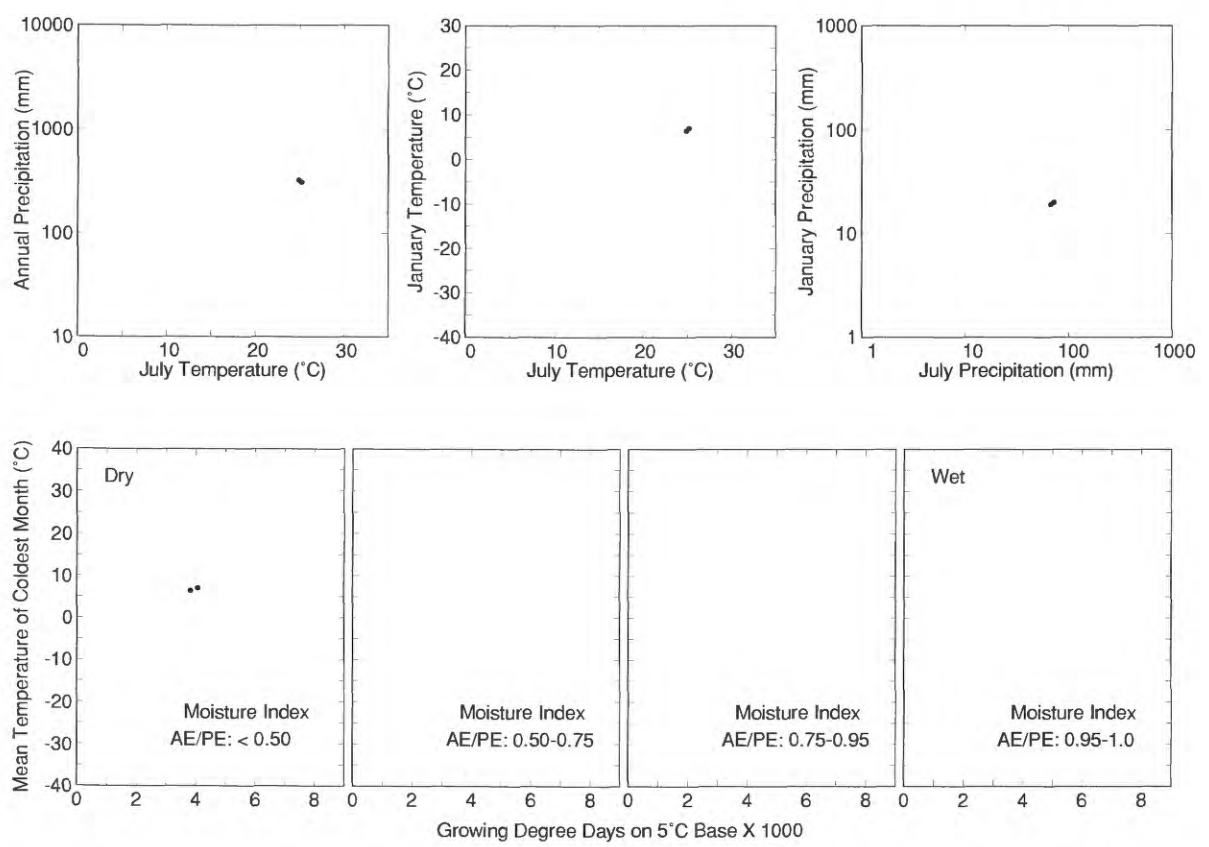
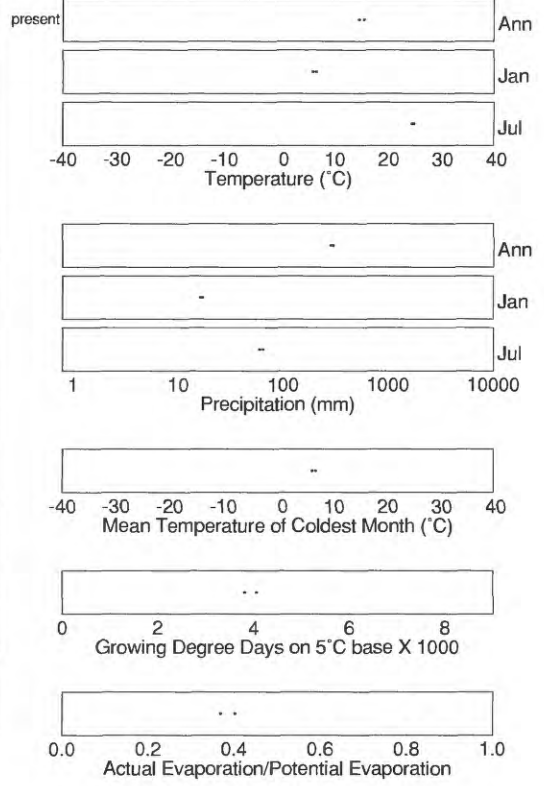
Growing Degree Days on 5°C Base X 1000

Vaccinium arboreum

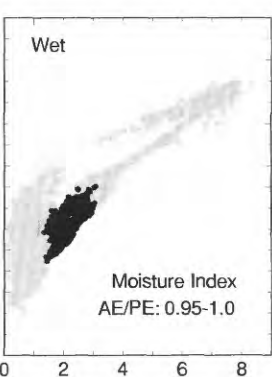
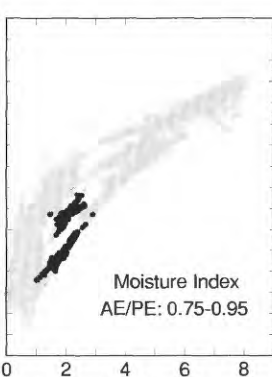
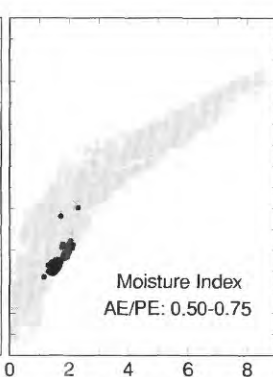
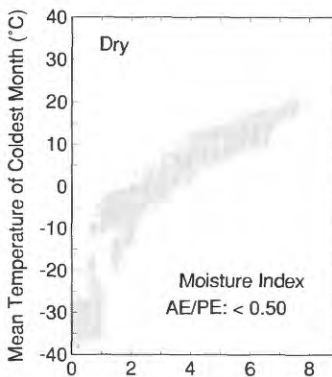
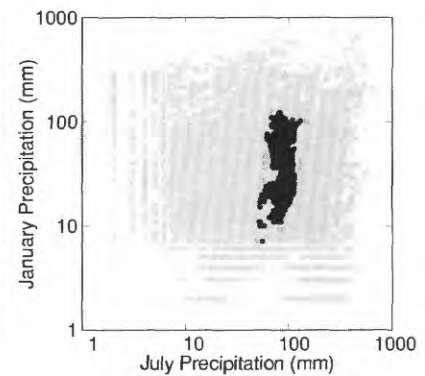
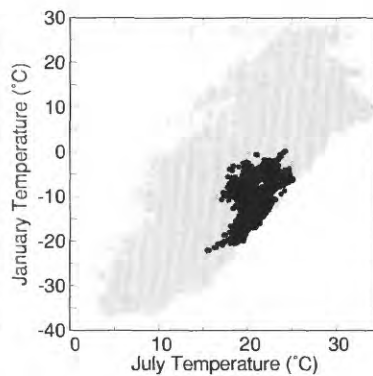
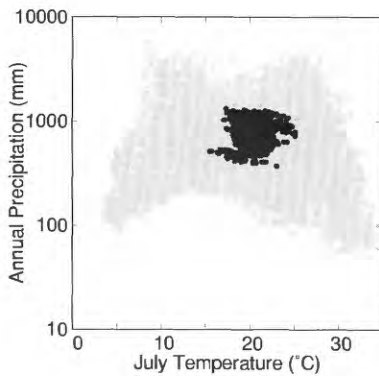
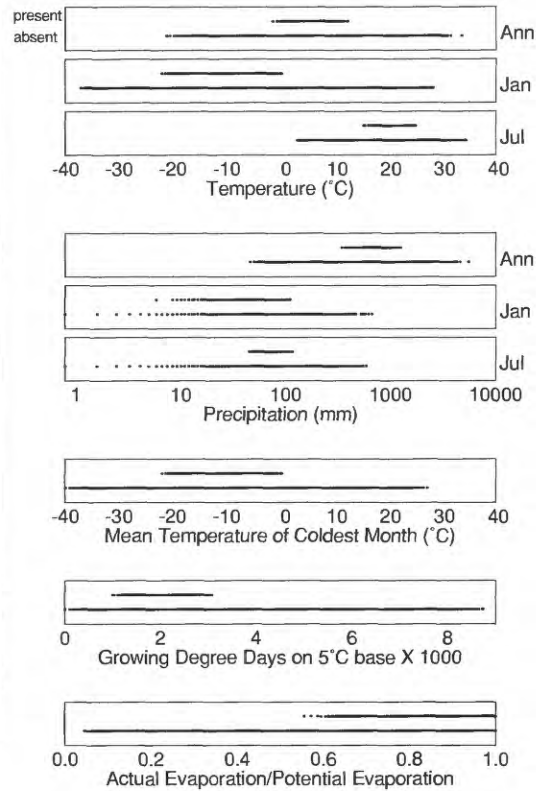
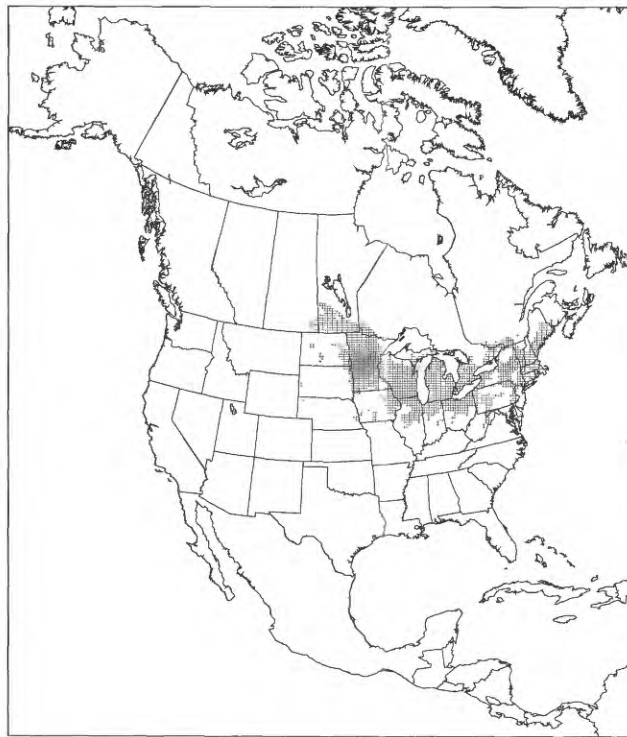


Growing Degree Days on 5°C Base X 1000

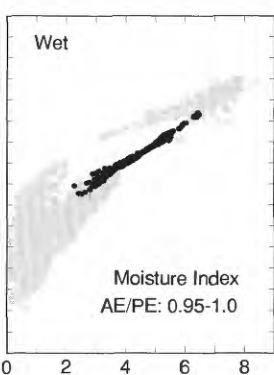
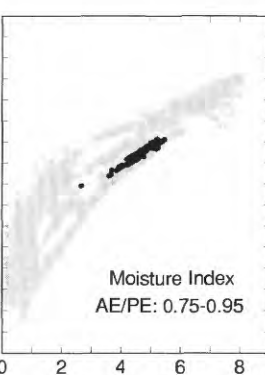
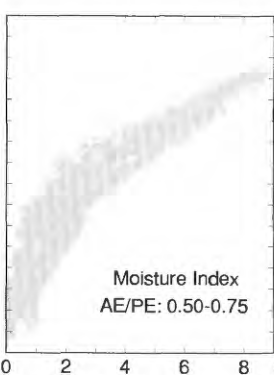
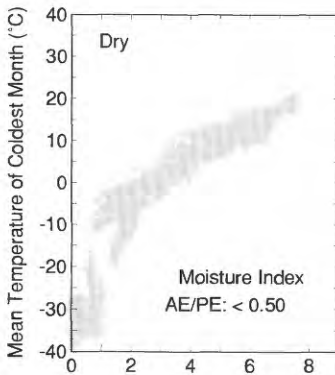
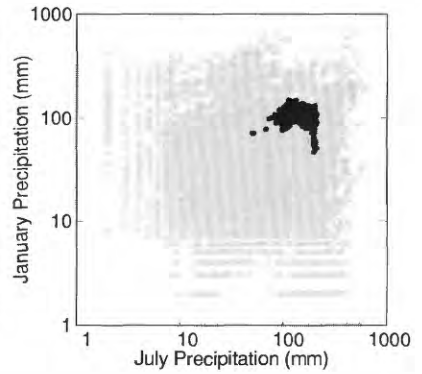
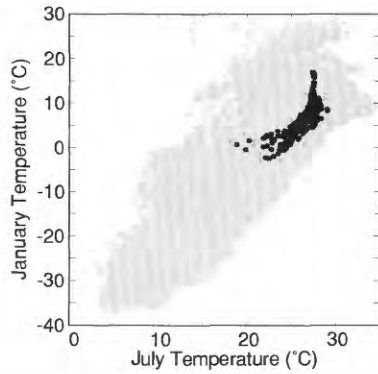
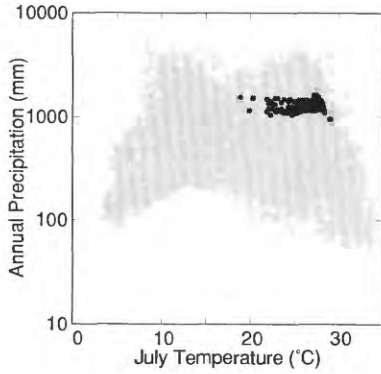
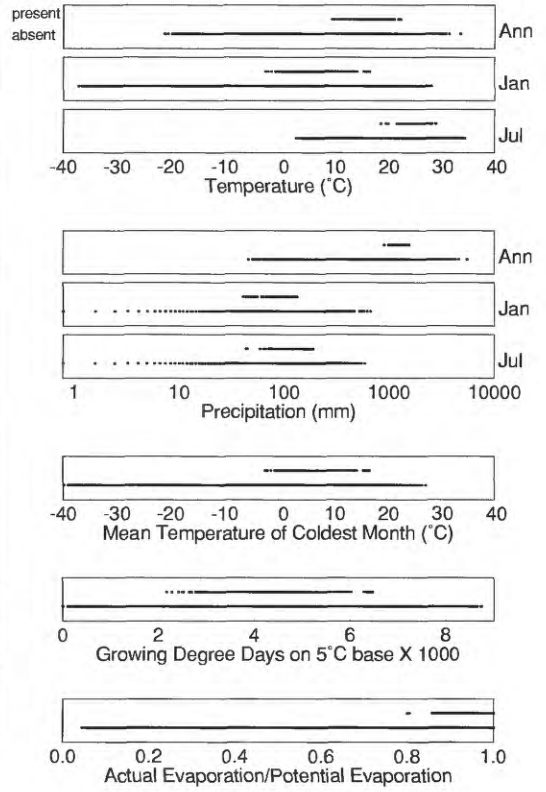
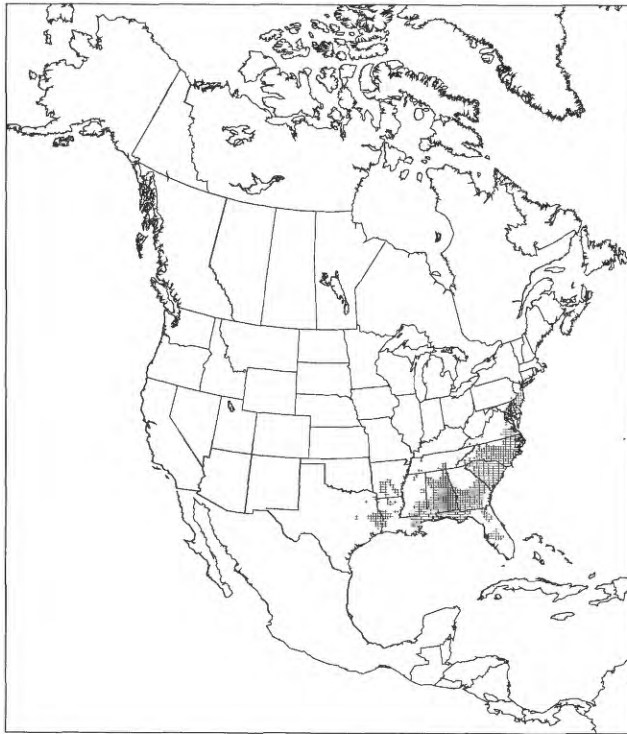
Vauquelinia pauciflora (minimal data - nearest grid points used with environmental parameters)



Viburnum lentago

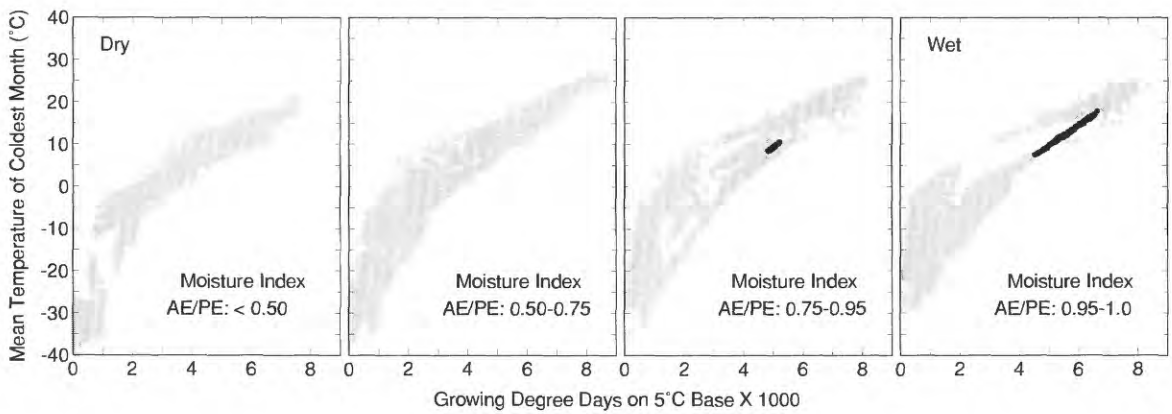
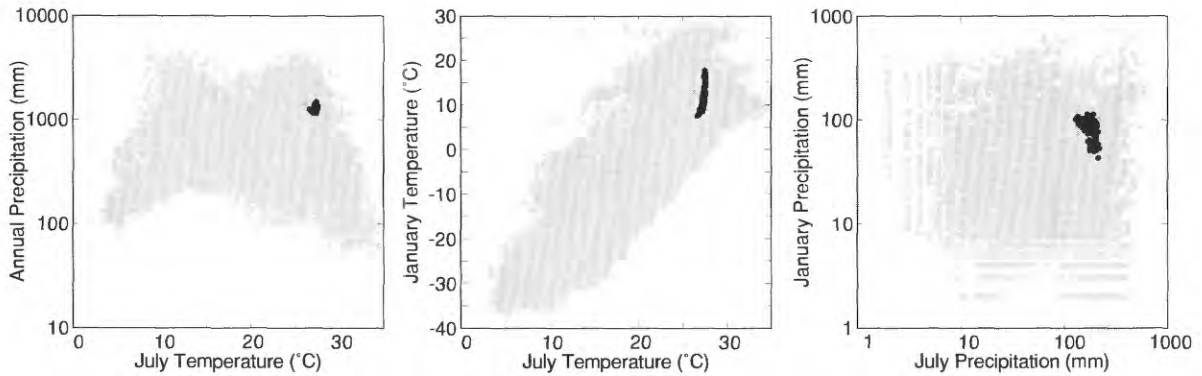
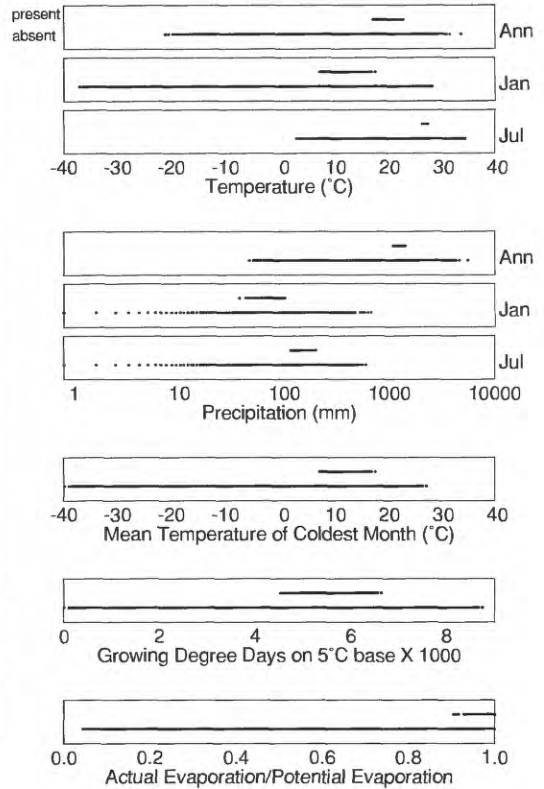


Viburnum nudum

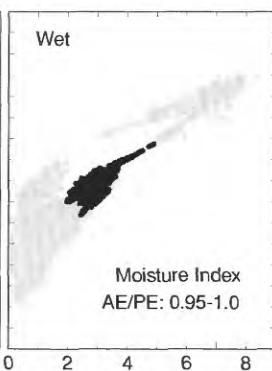
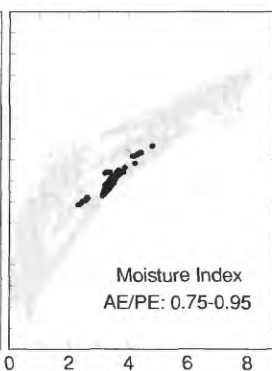
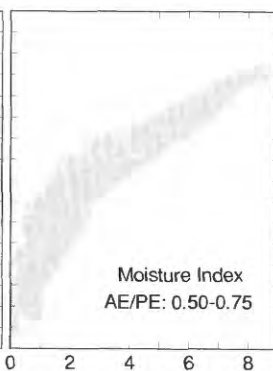
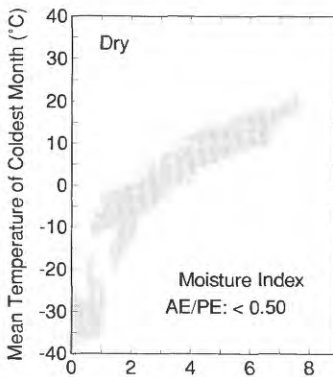
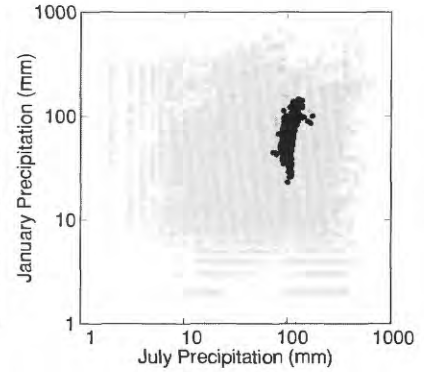
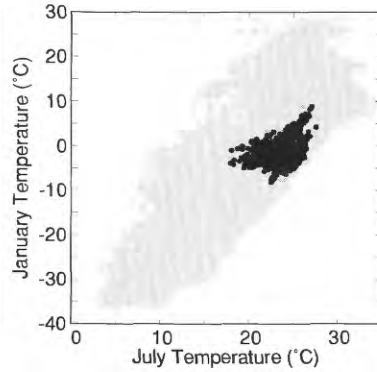
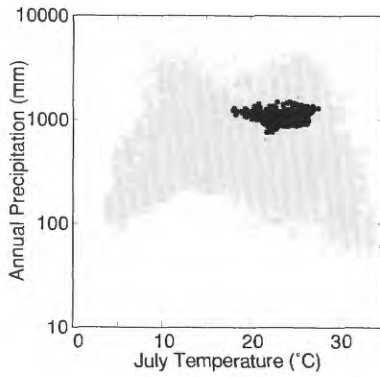
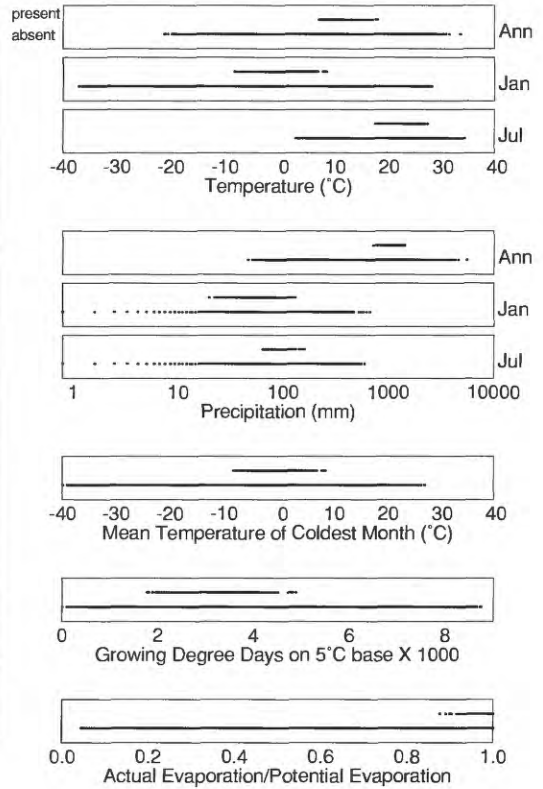
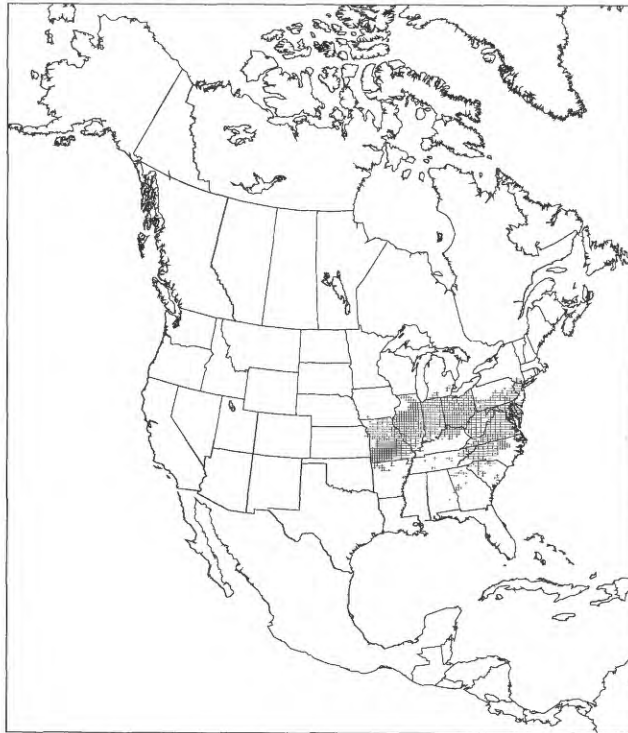


Growing Degree Days on 5°C Base X 1000

Viburnum obovatum

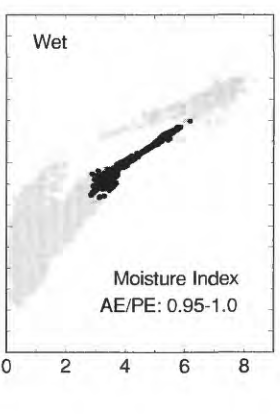
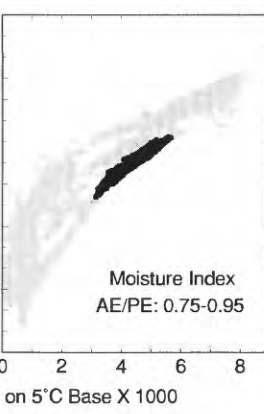
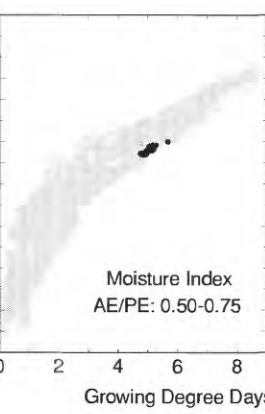
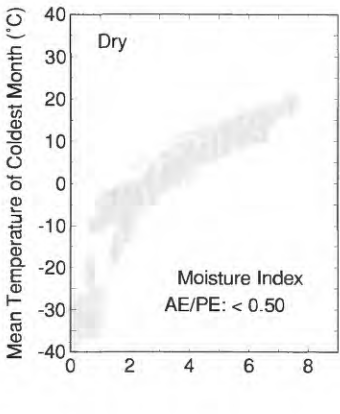
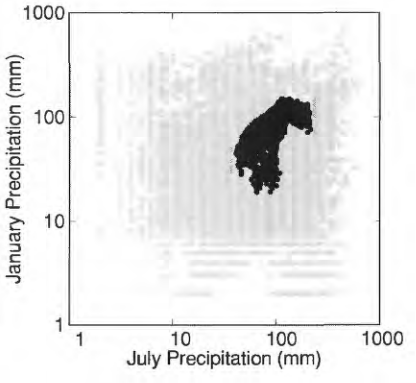
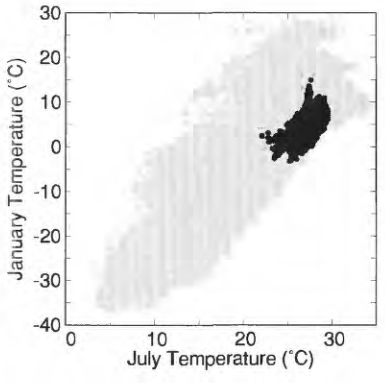
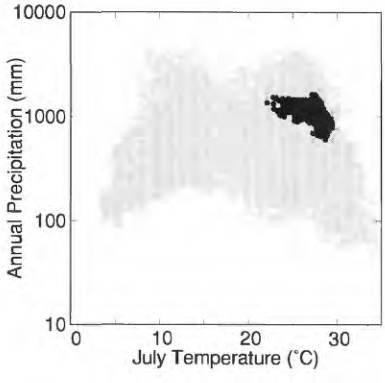
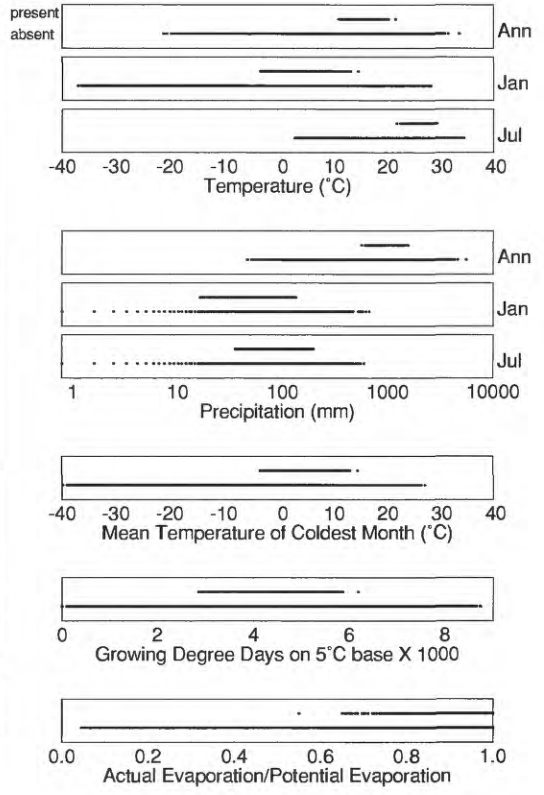
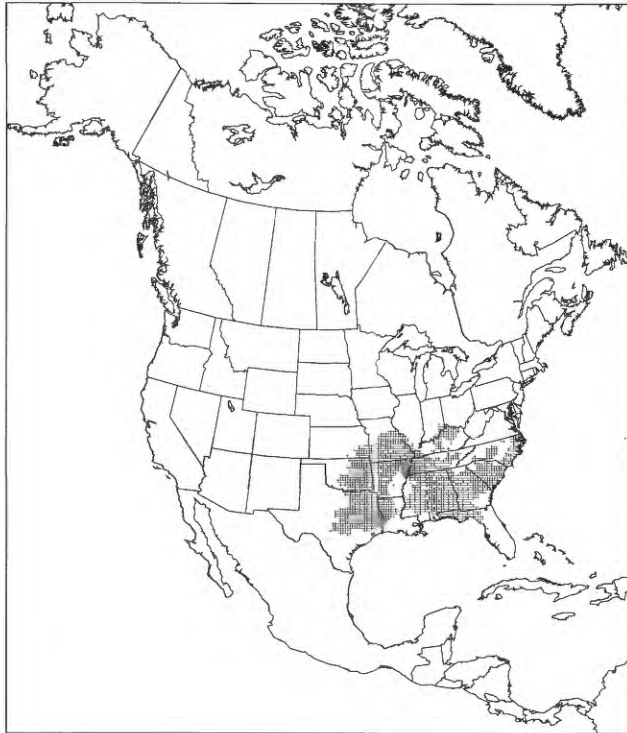


Viburnum prunifolium

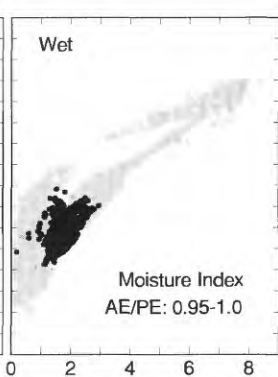
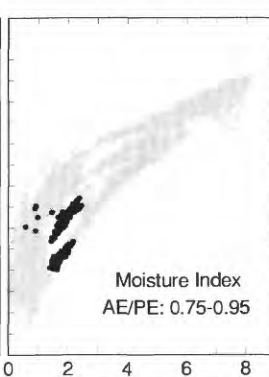
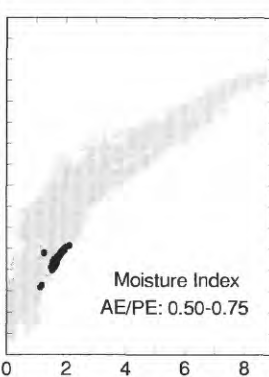
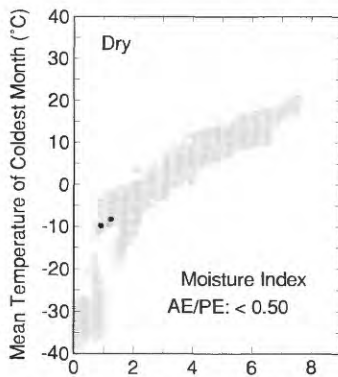
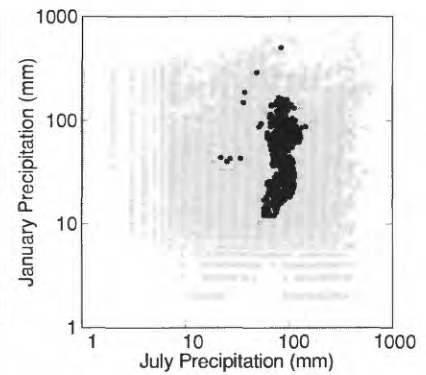
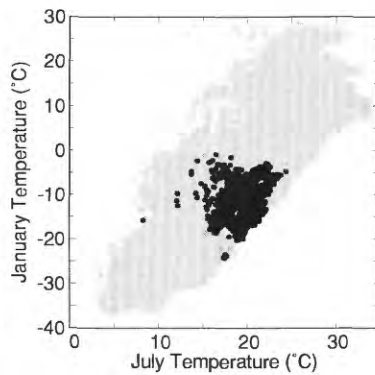
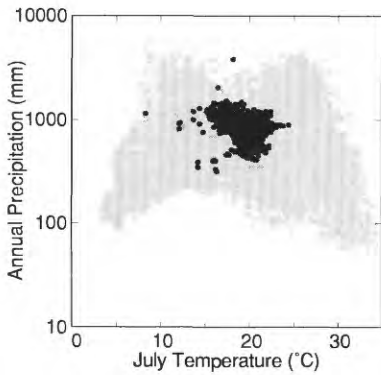
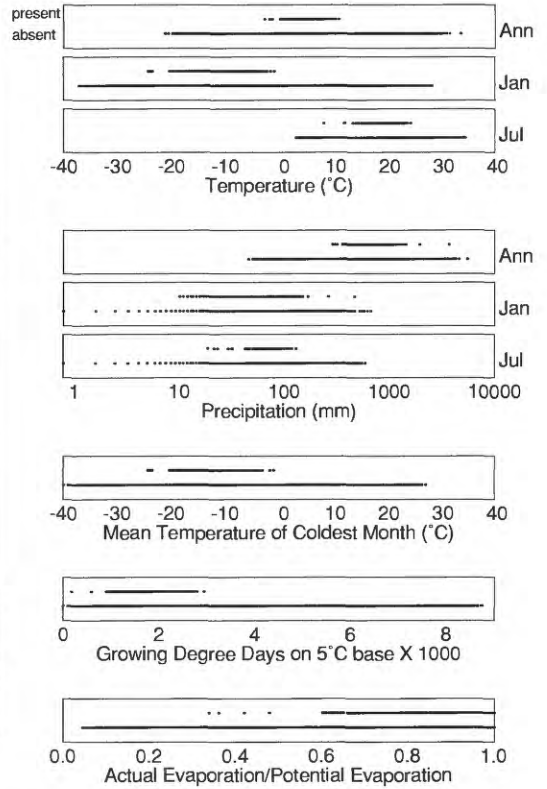
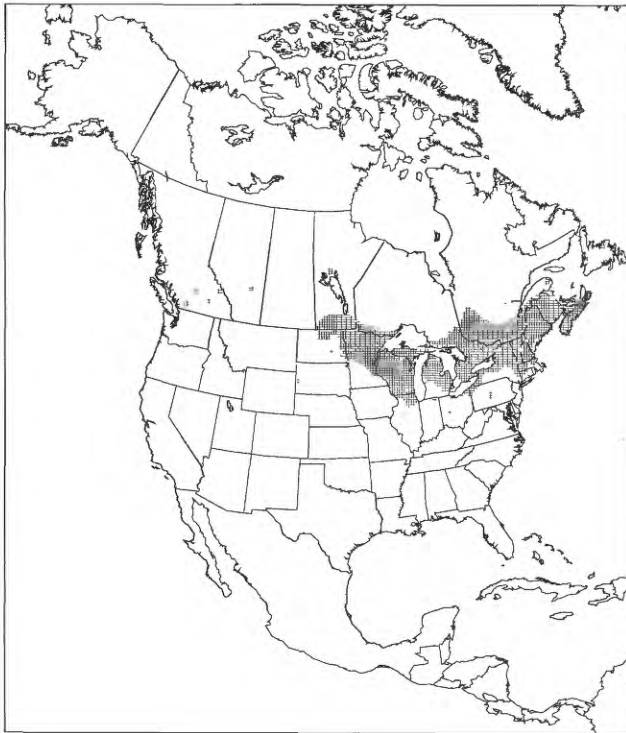


Growing Degree Days on 5°C Base X 1000

Viburnum rufidulum

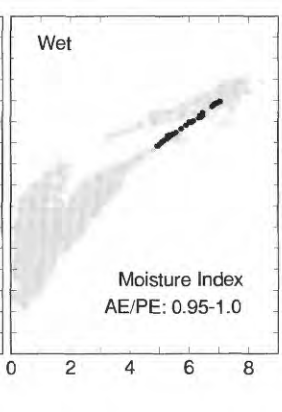
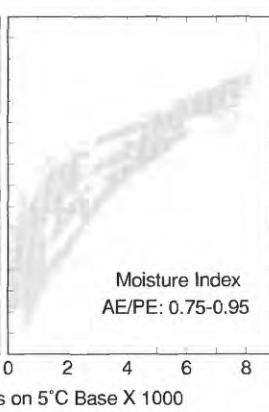
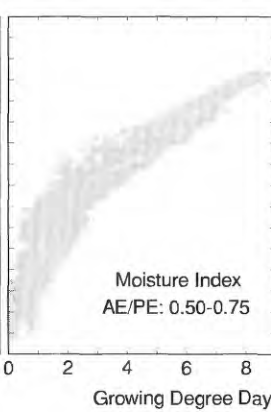
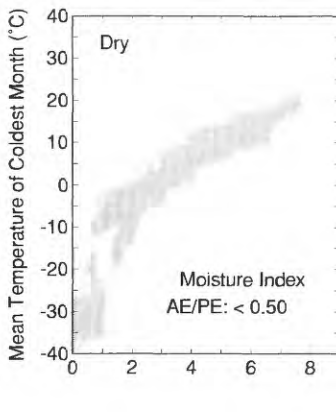
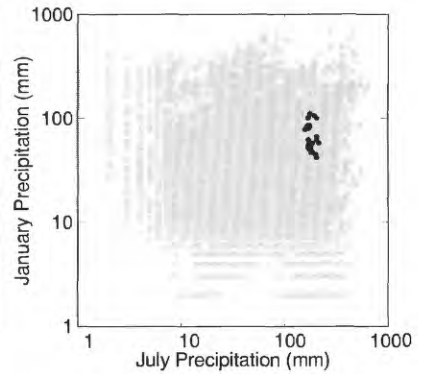
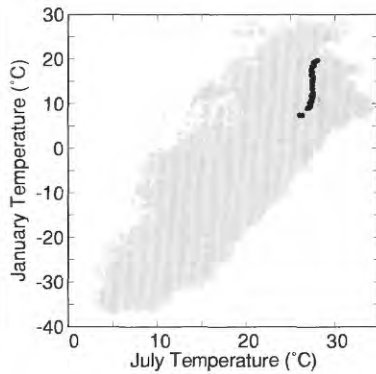
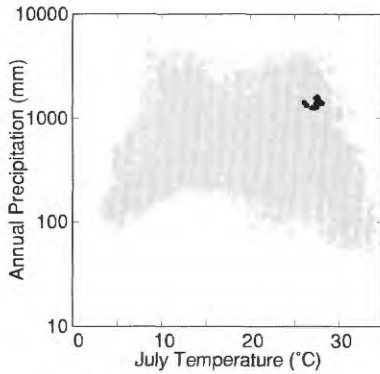
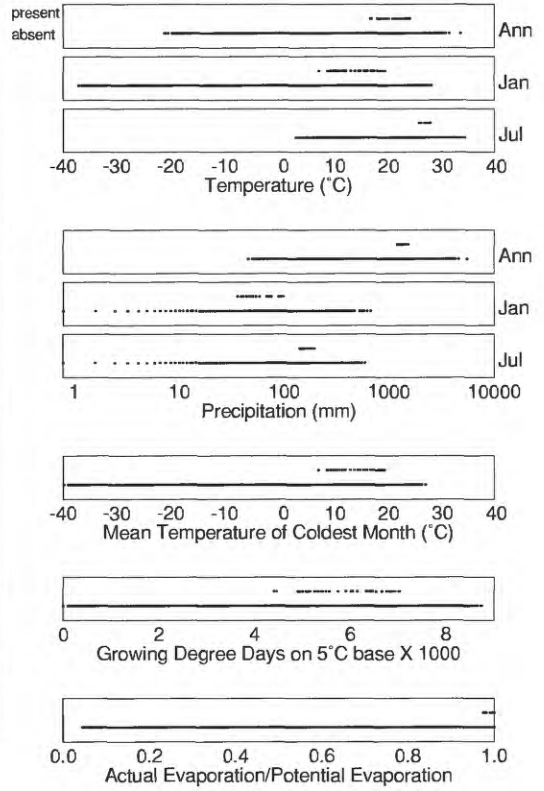


Viburnum trilobum

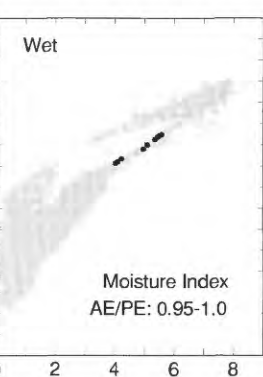
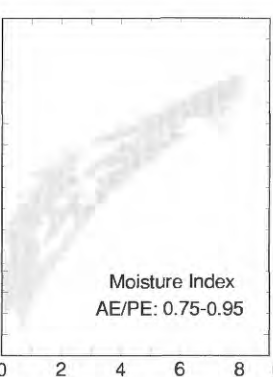
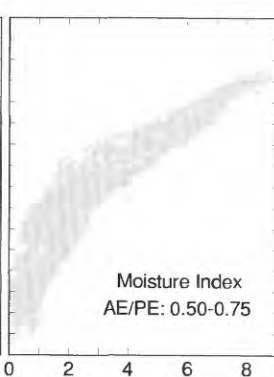
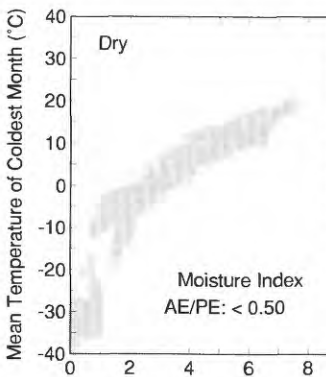
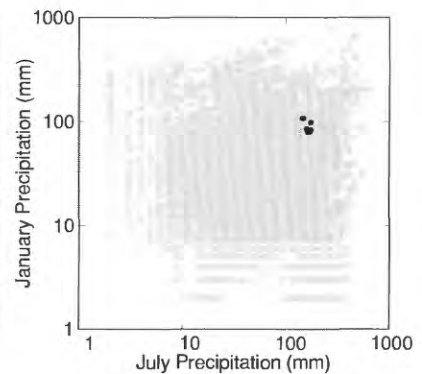
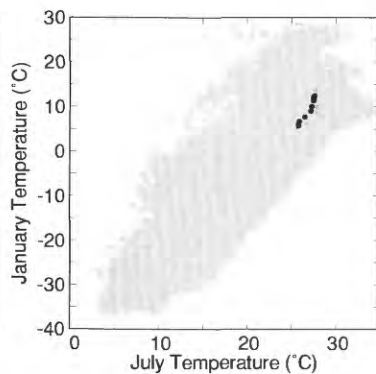
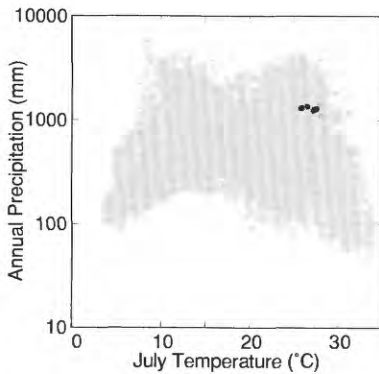
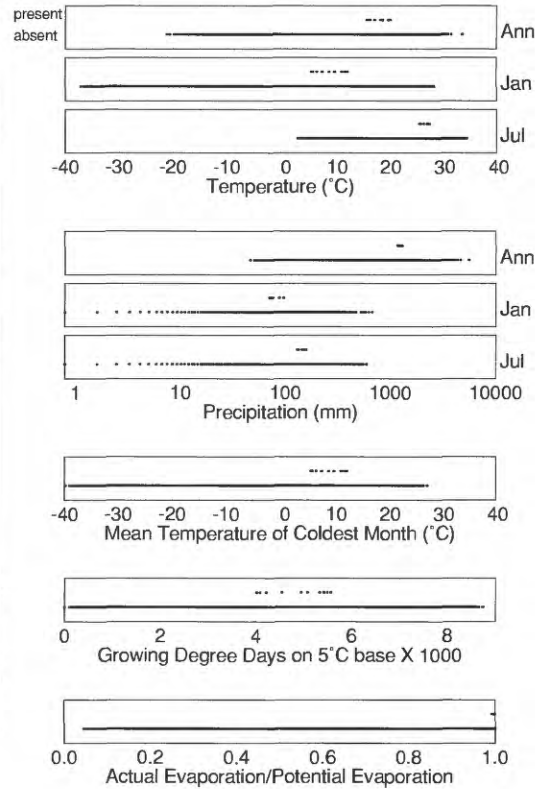


Growing Degree Days on 5°C Base X 1000

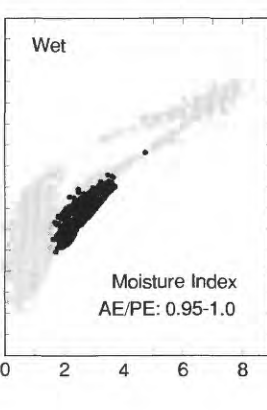
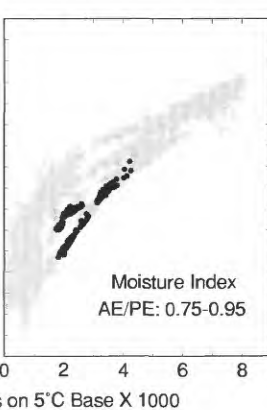
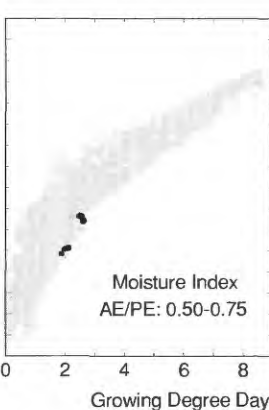
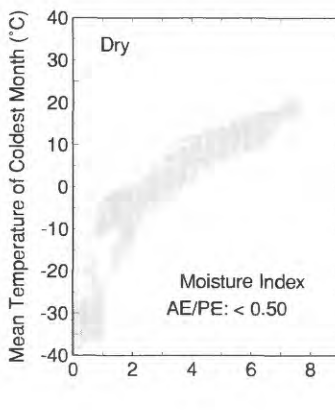
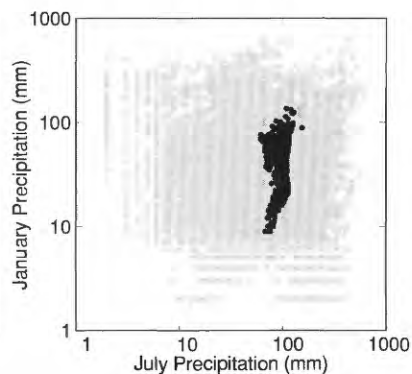
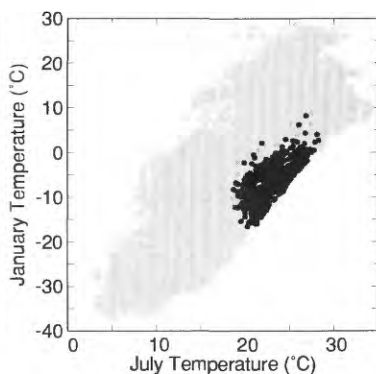
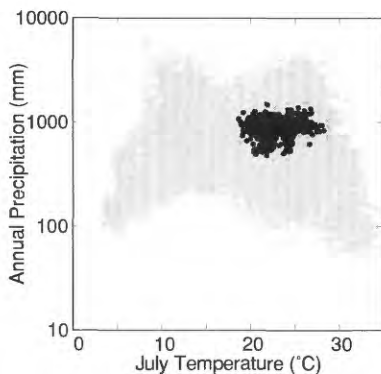
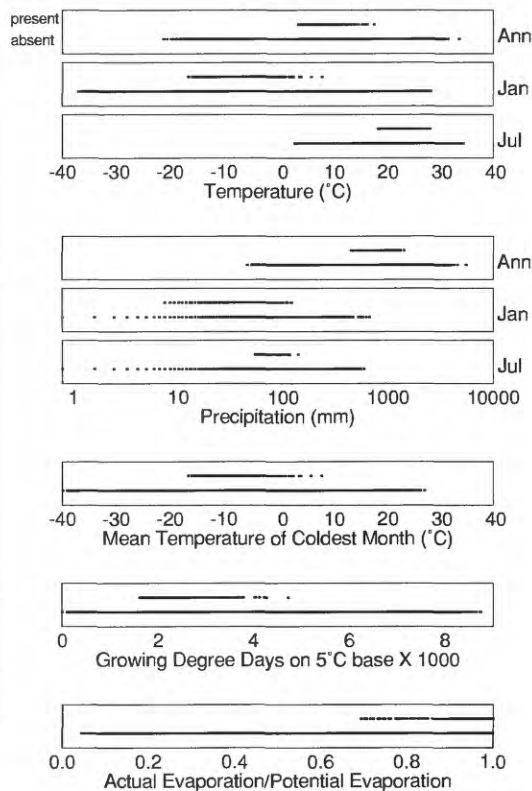
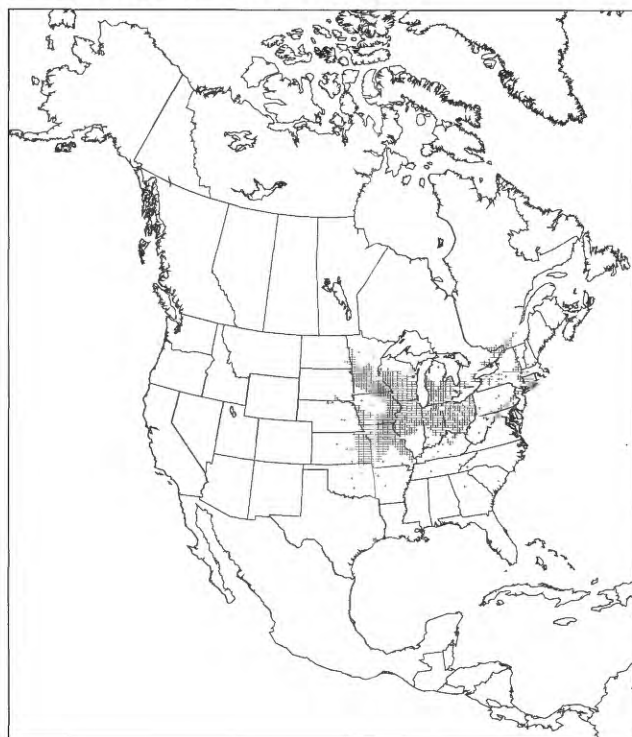
Yucca aloifolia



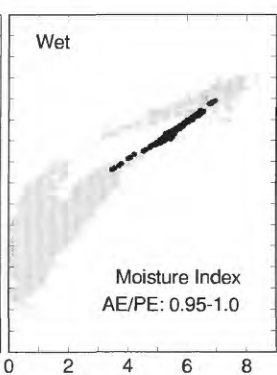
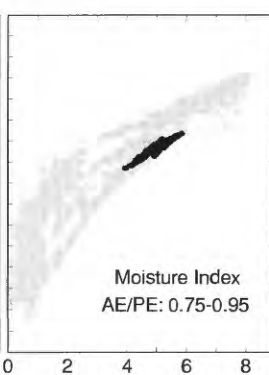
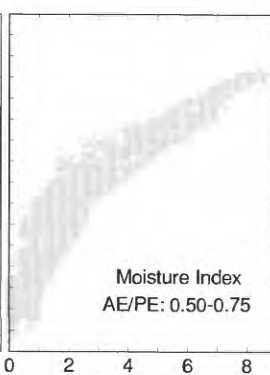
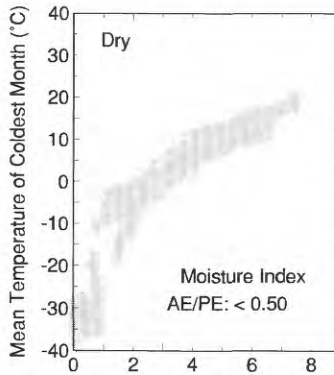
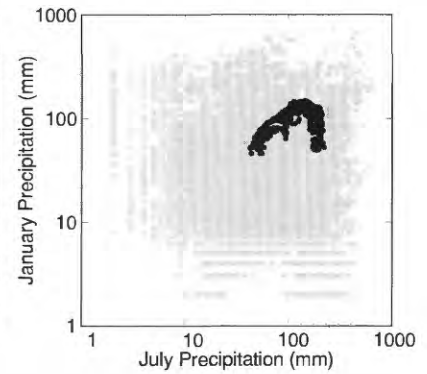
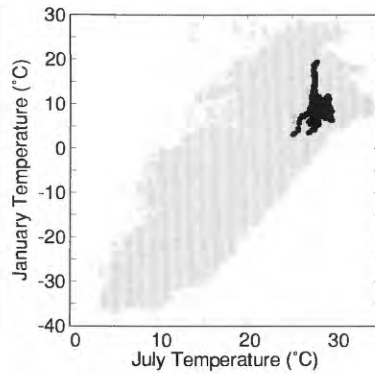
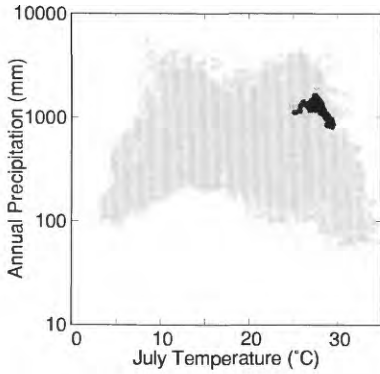
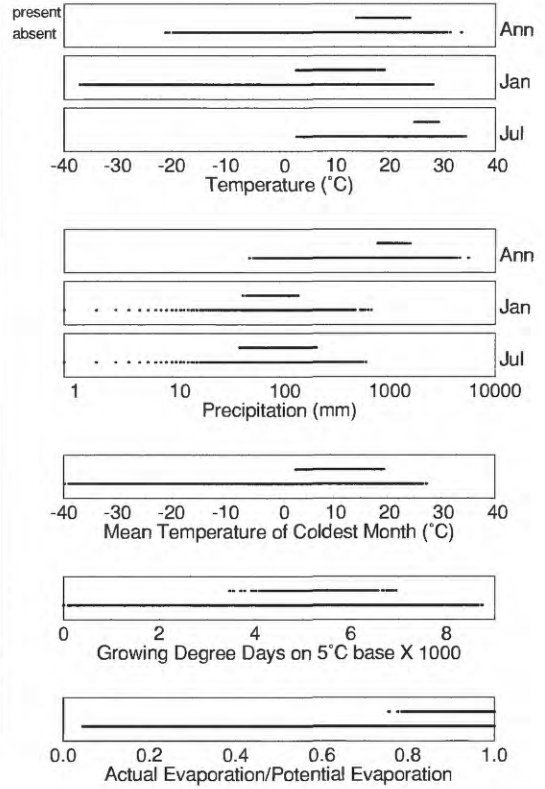
Yucca gloriosa



Zanthoxylum americanum

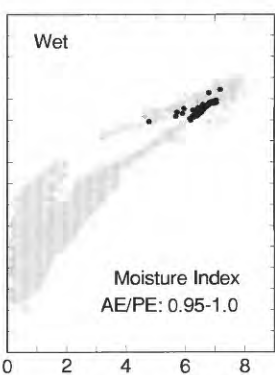
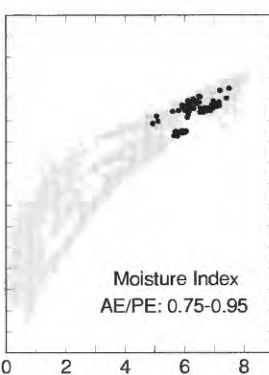
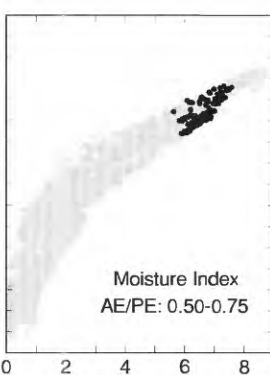
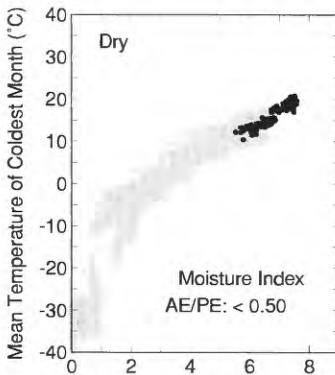
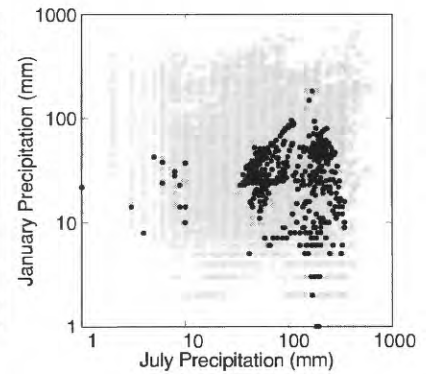
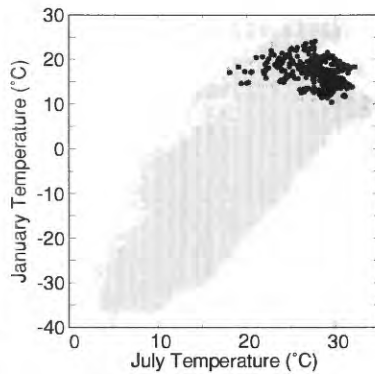
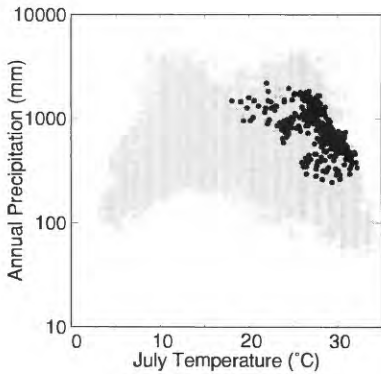
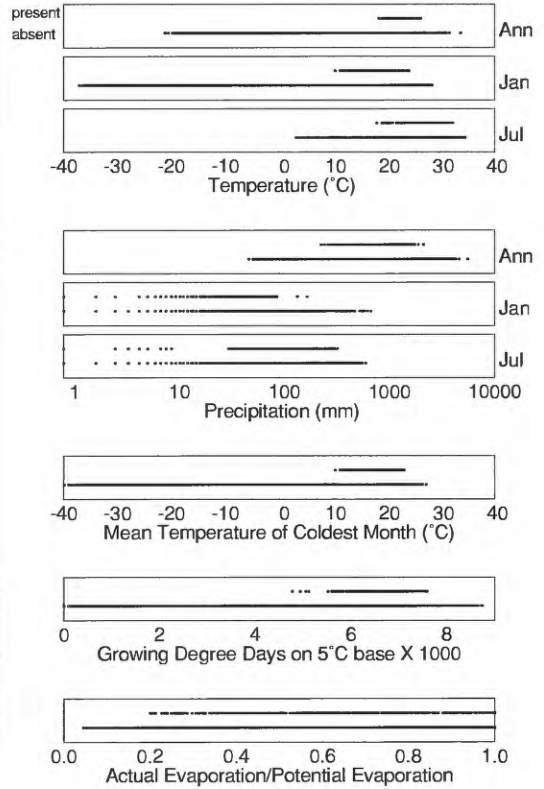


Zanthoxylum clava-herculis

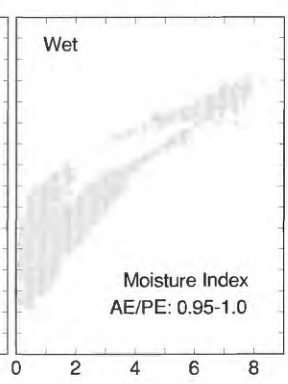
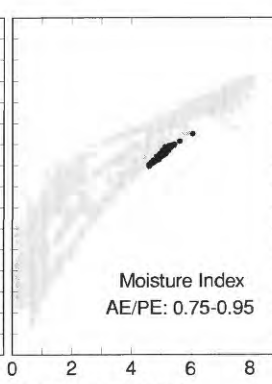
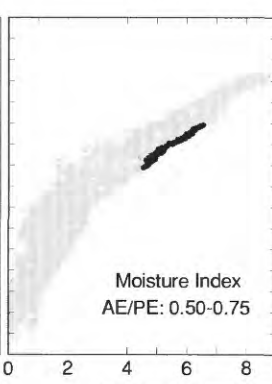
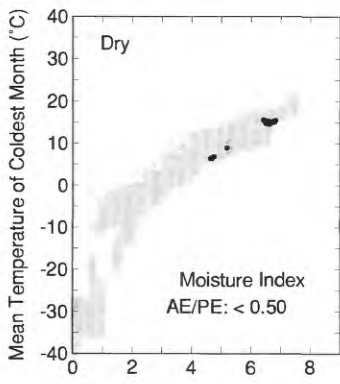
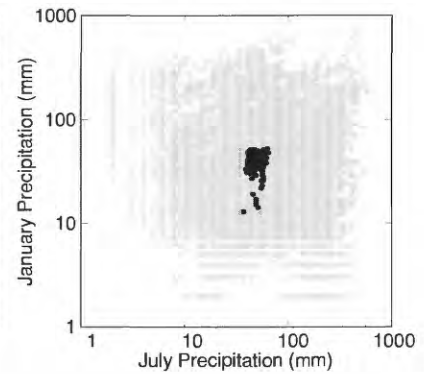
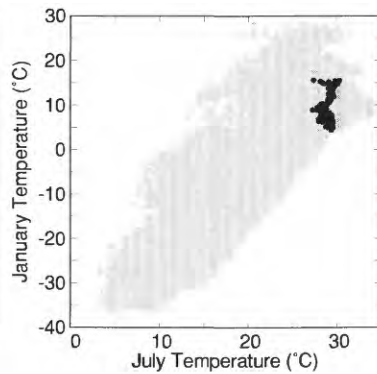
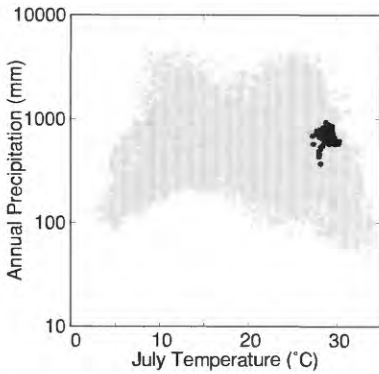
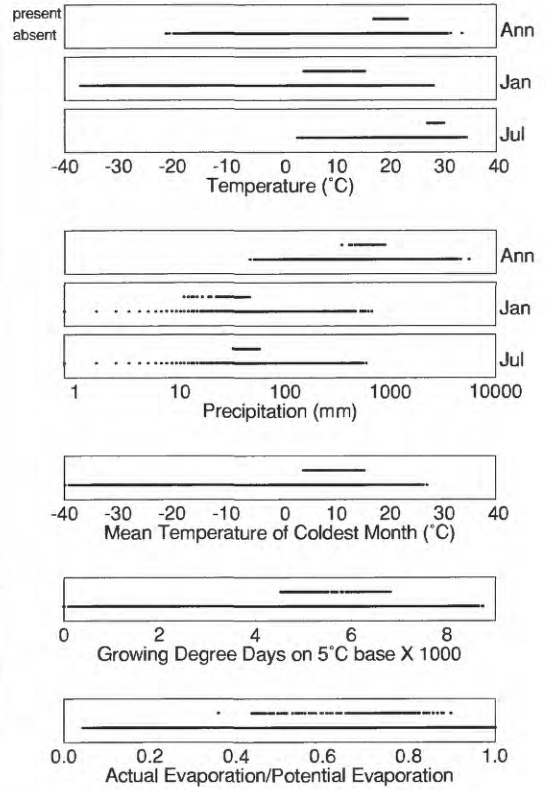


Growing Degree Days on 5°C Base X 1000

Zanthoxylum fagara

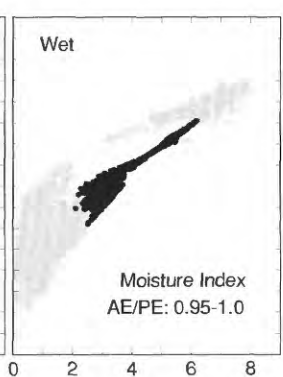
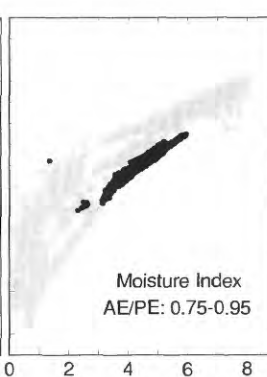
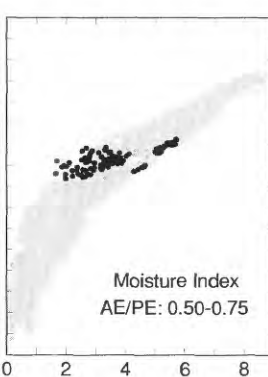
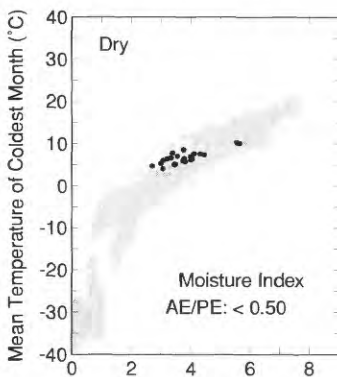
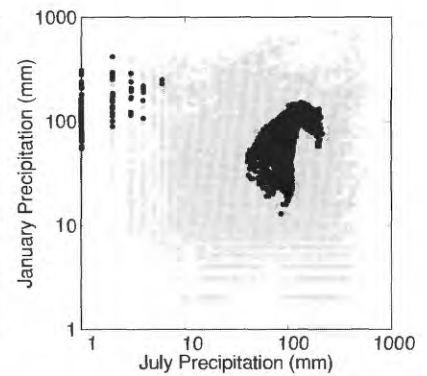
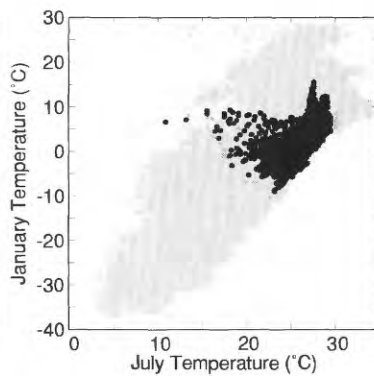
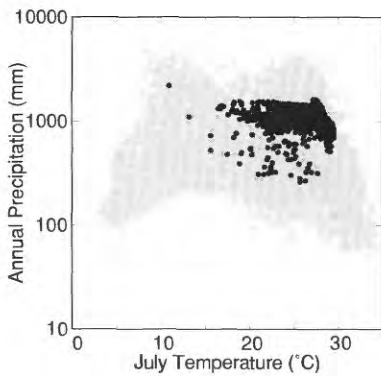
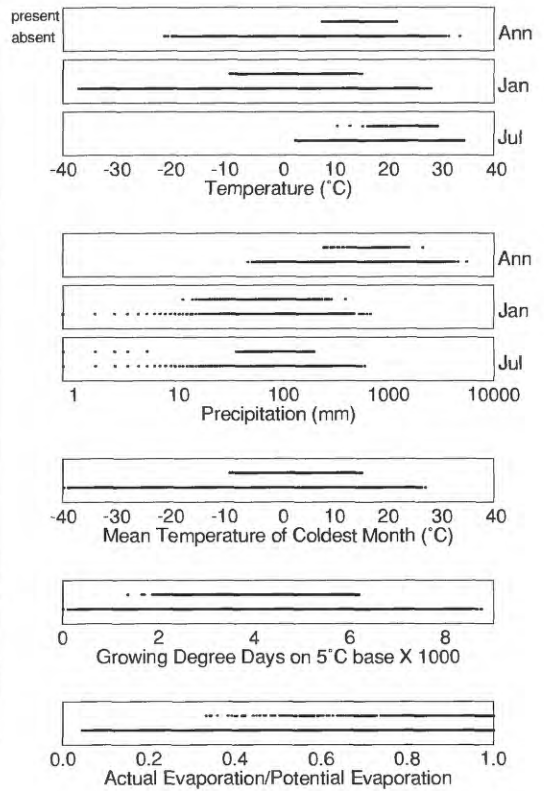


Zanthoxylum hirsutum



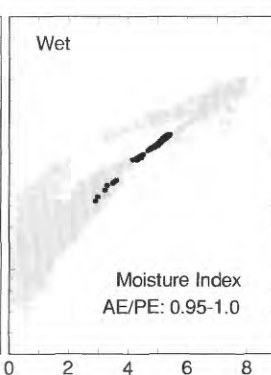
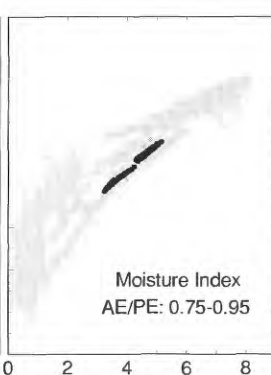
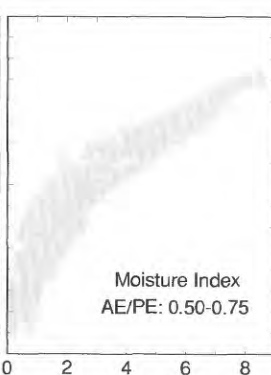
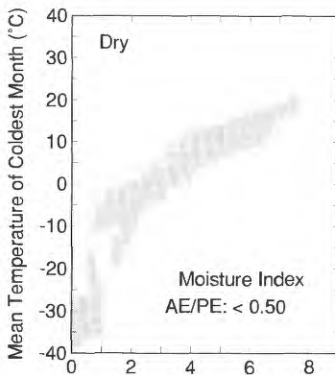
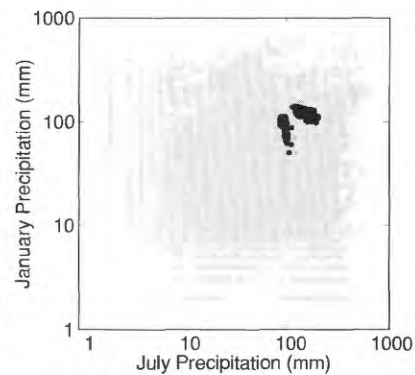
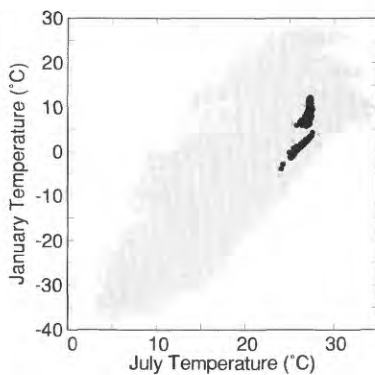
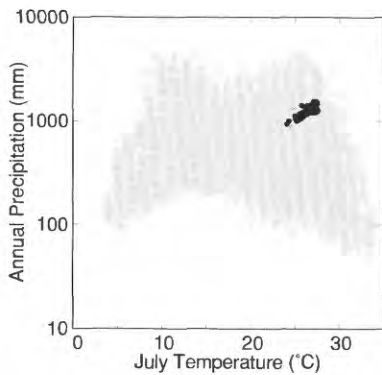
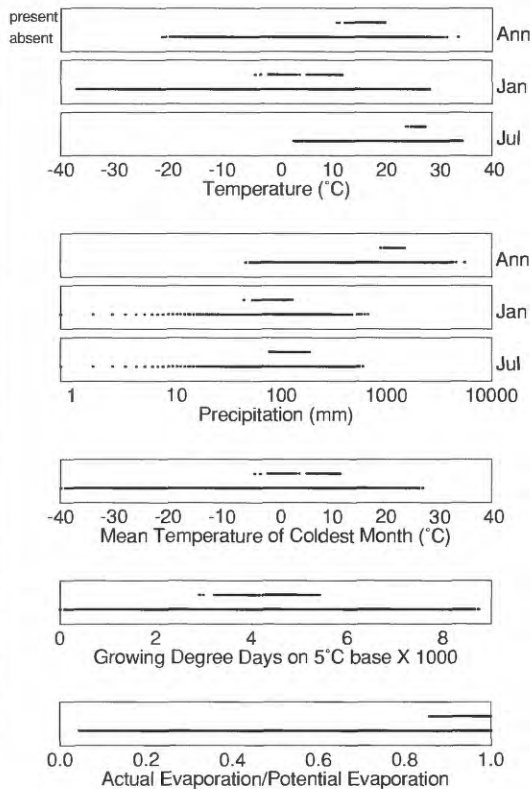
Growing Degree Days on 5°C Base X 1000

AESCULUS

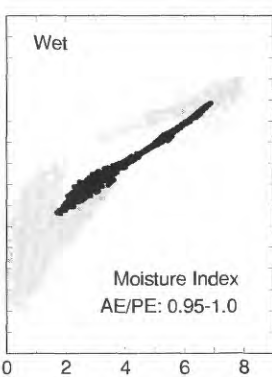
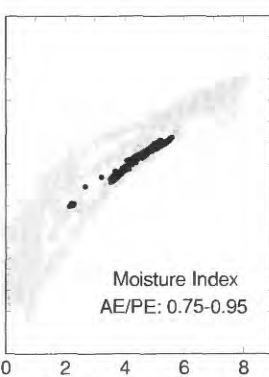
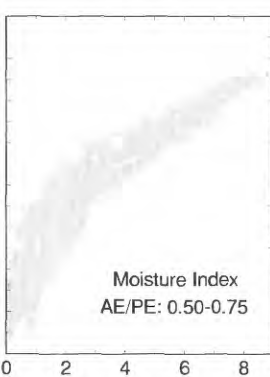
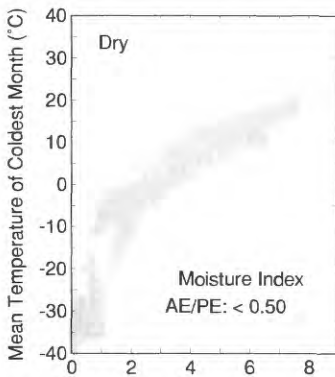
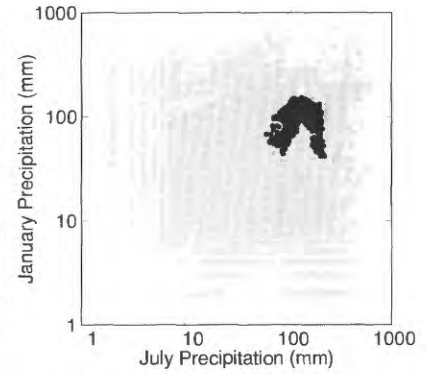
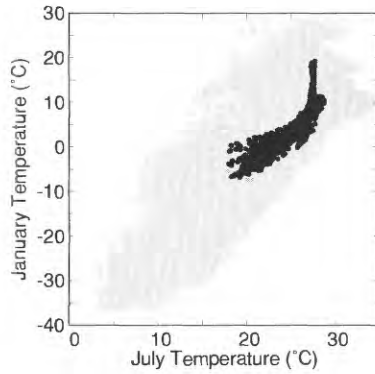
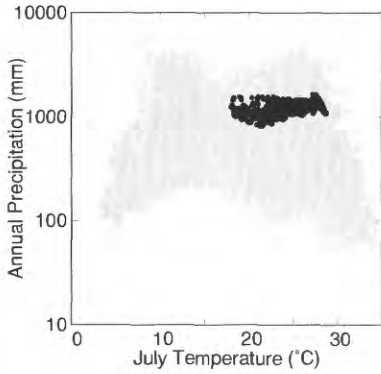
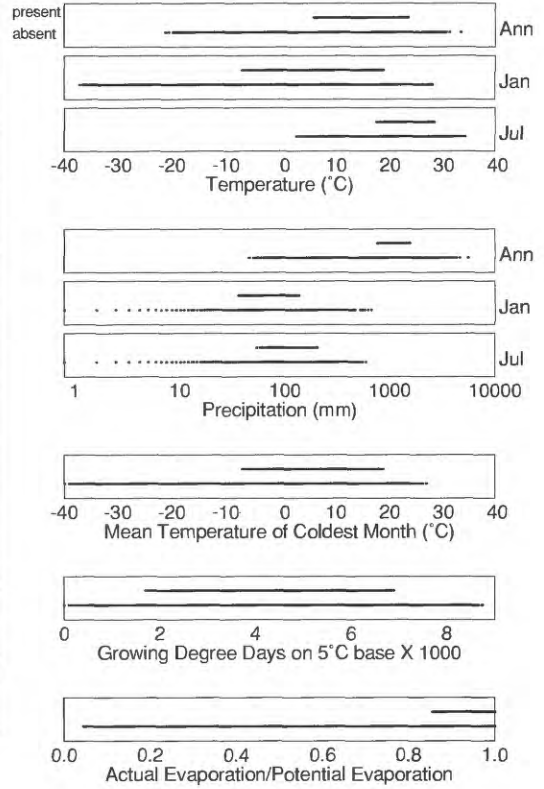


Growing Degree Days on 5°C Base X 1000

CATALPA

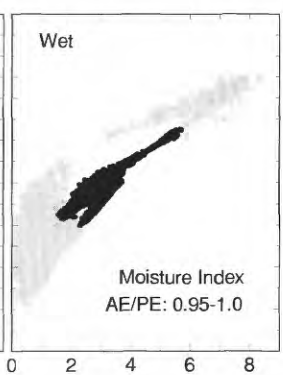
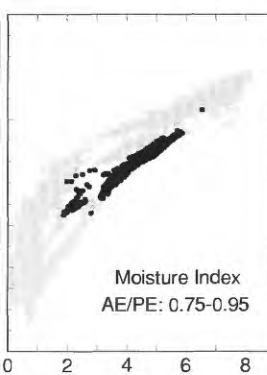
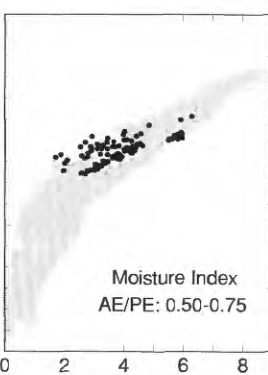
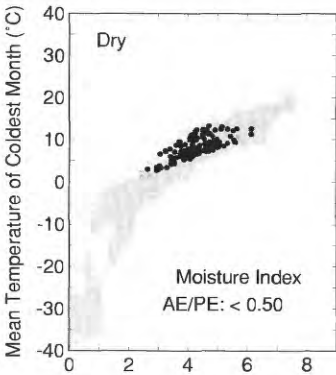
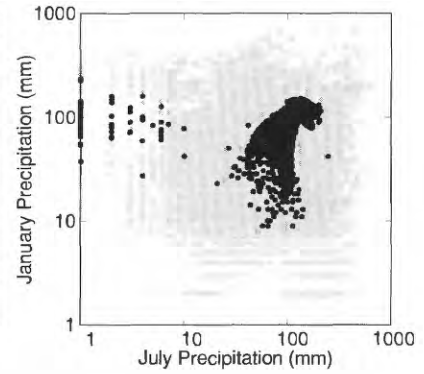
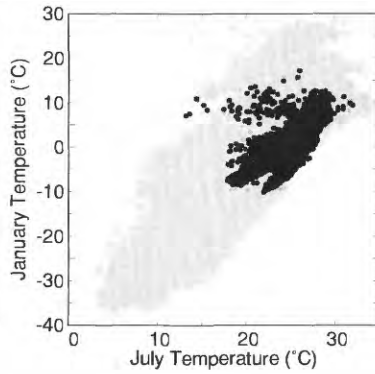
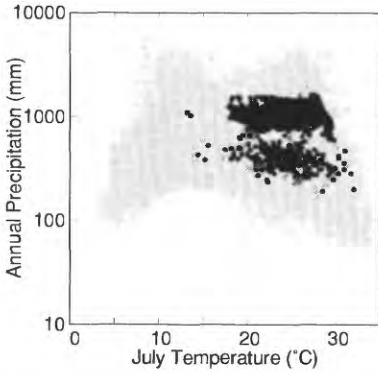
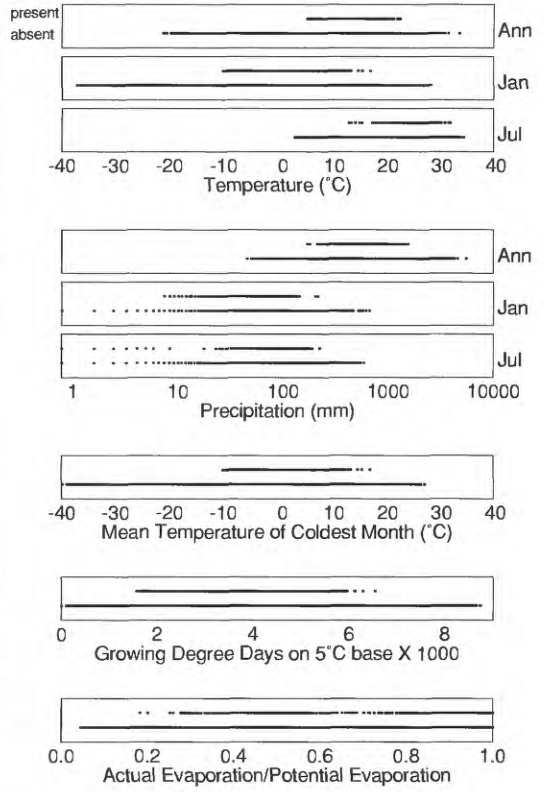
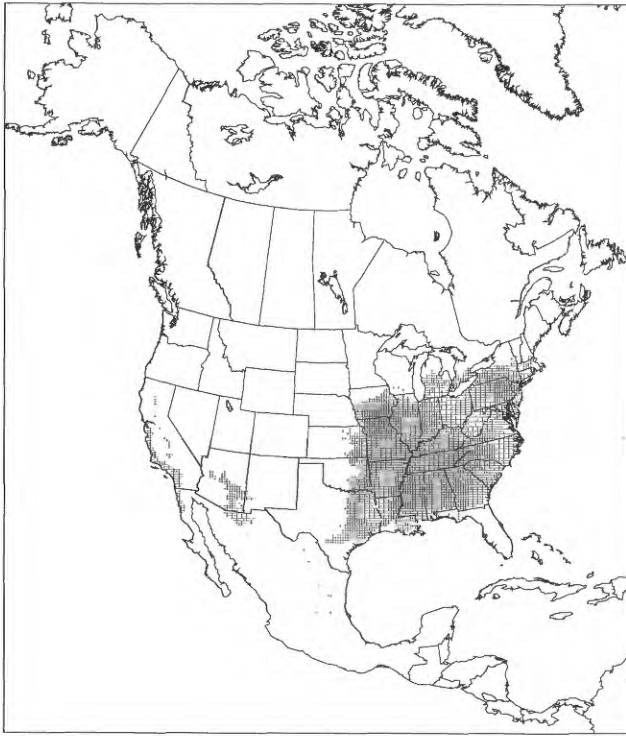


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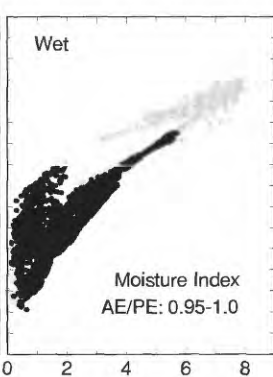
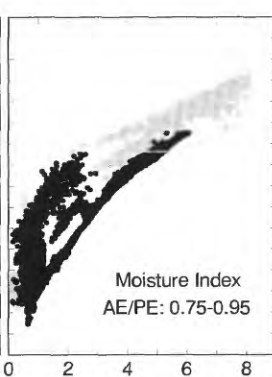
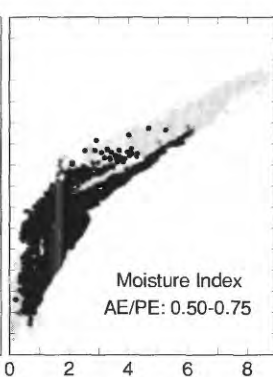
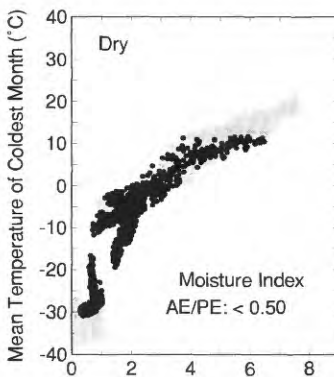
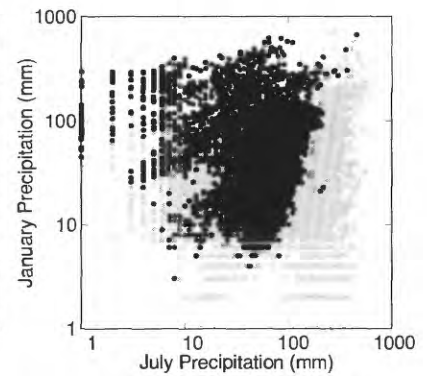
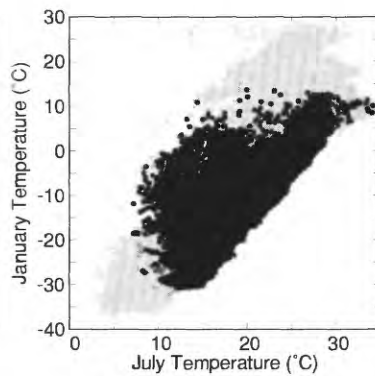
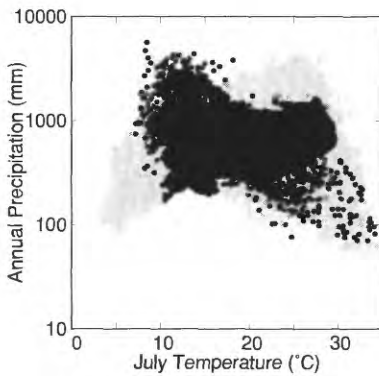
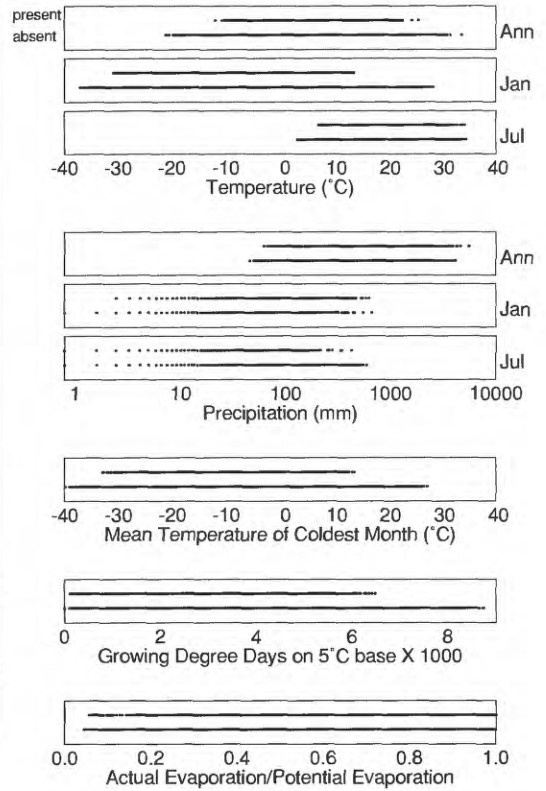
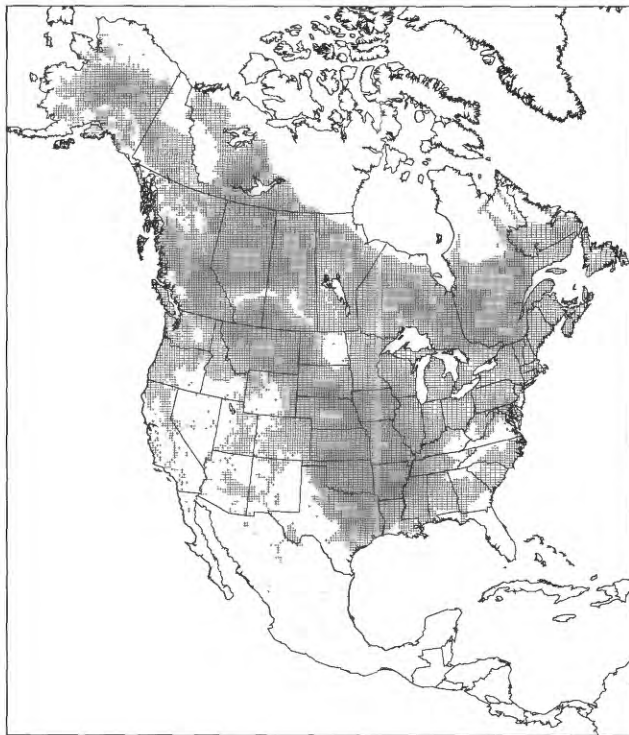


Growing Degree Days on 5°C Base X 1000

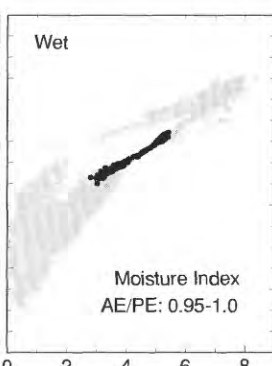
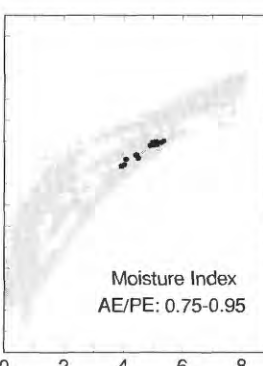
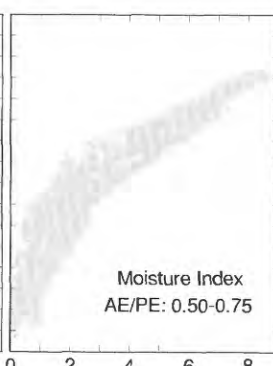
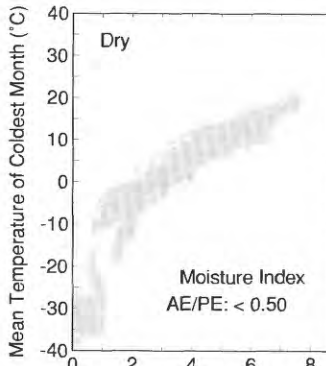
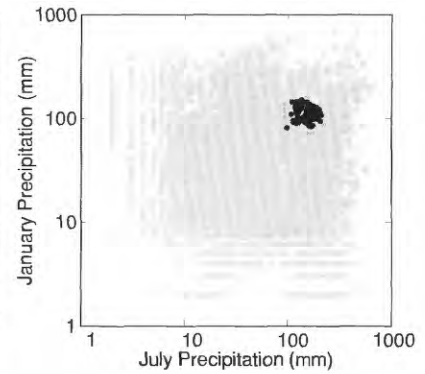
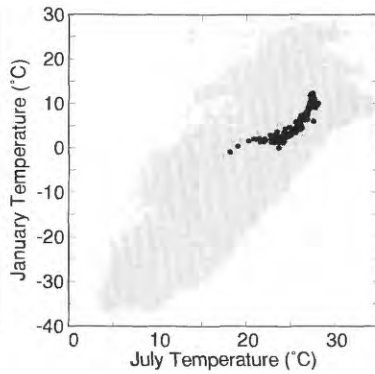
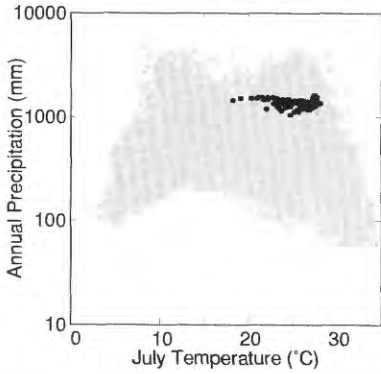
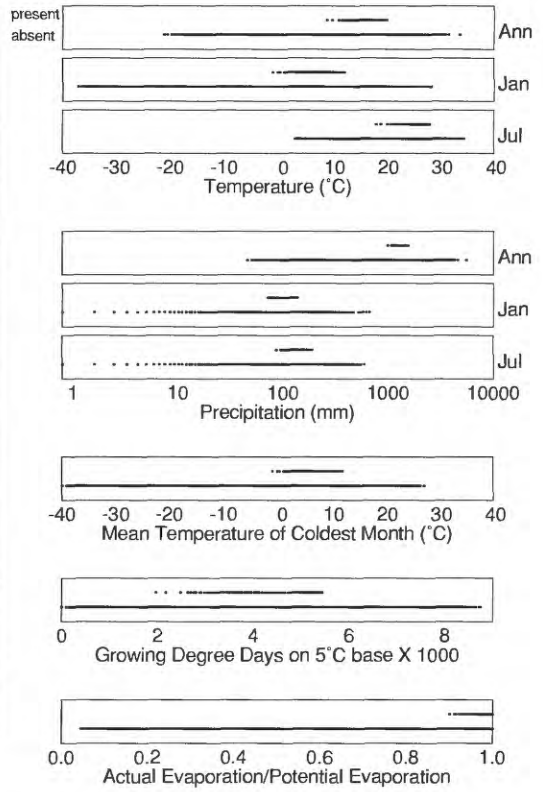
PLATANUS



POPULUS

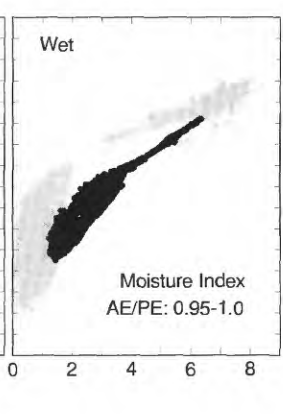
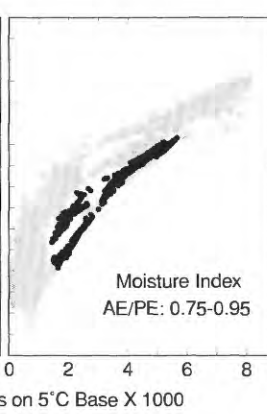
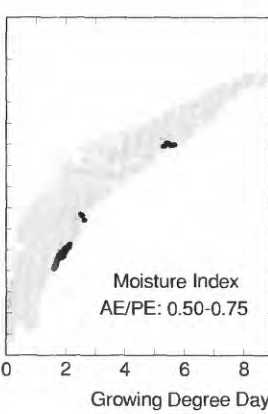
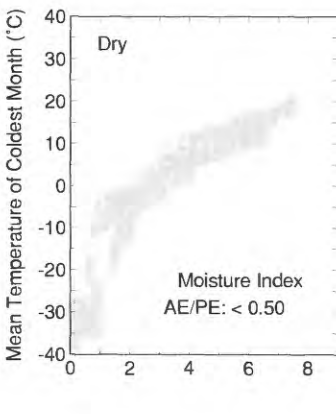
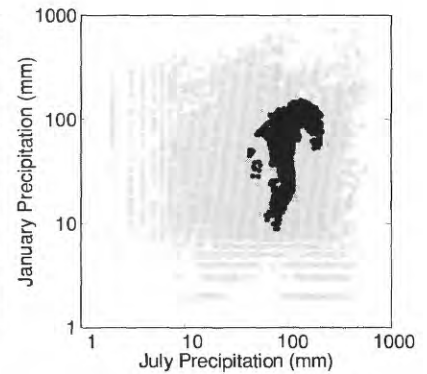
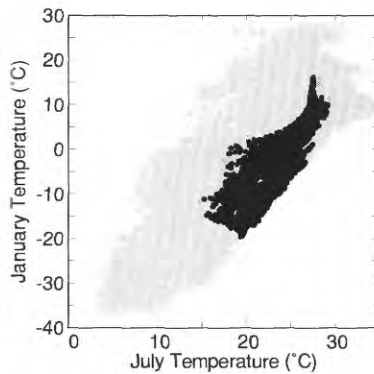
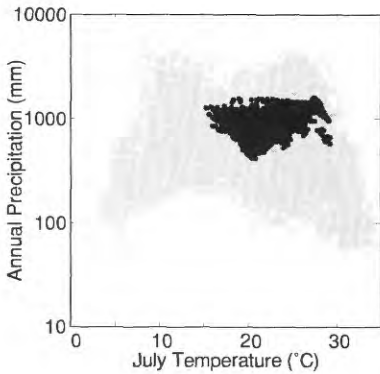
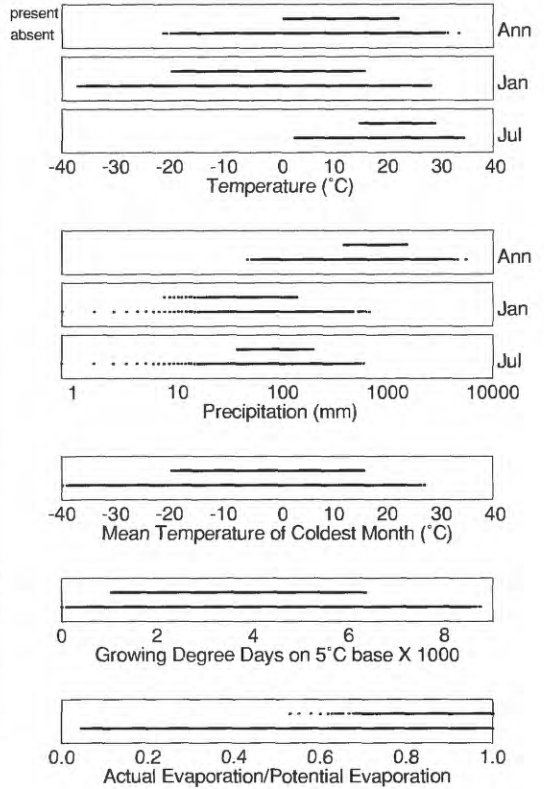
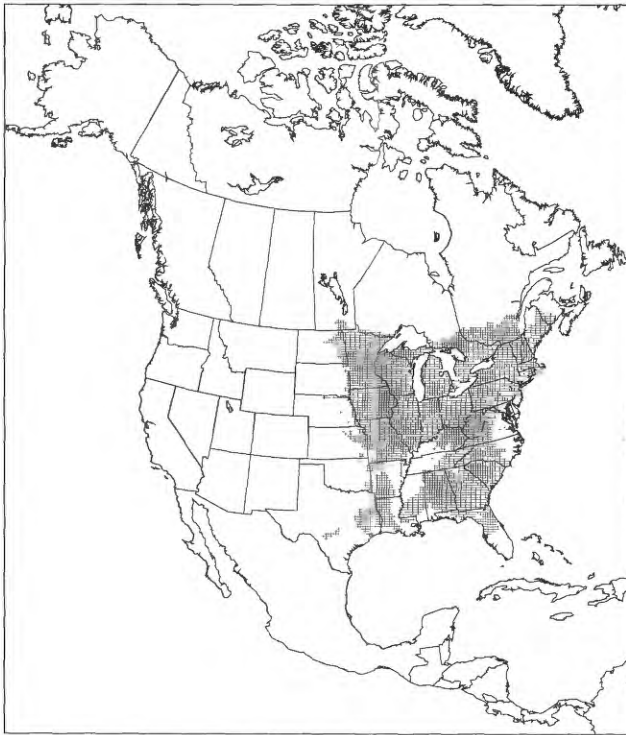


STEWARTIA



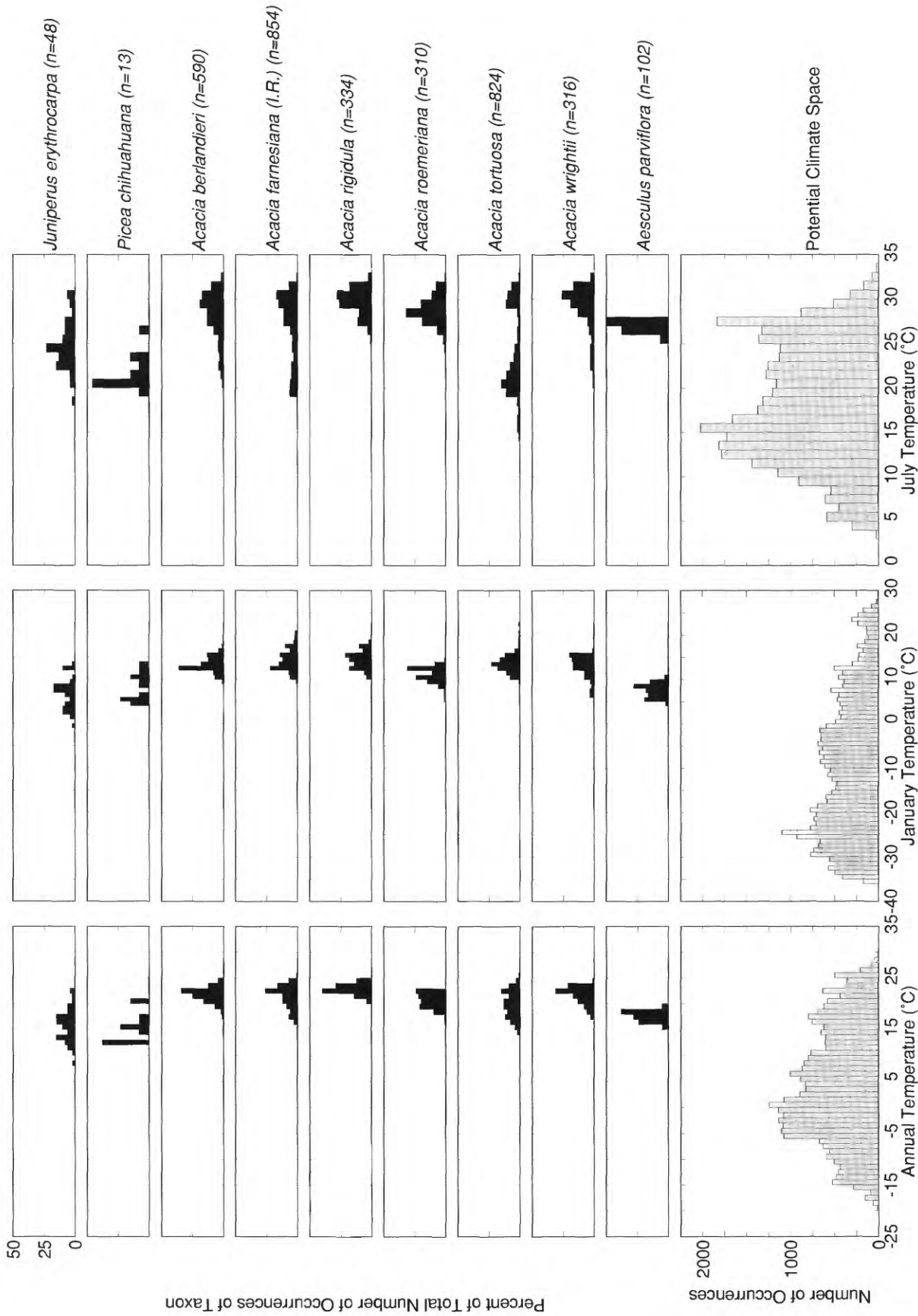
Growing Degree Days on 5°C Base X 1000

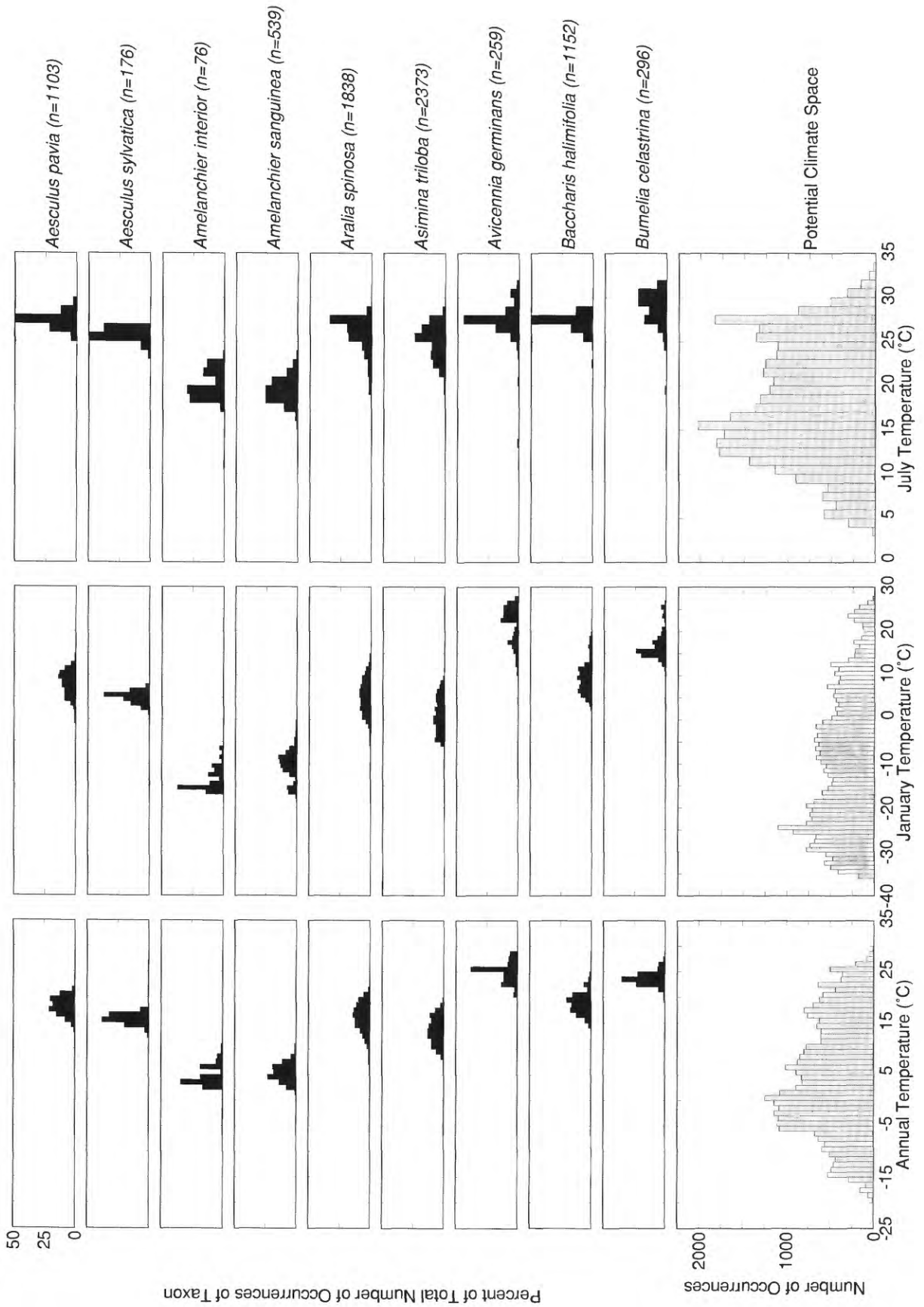
TILIA (revised from Thompson and others, 1999b)

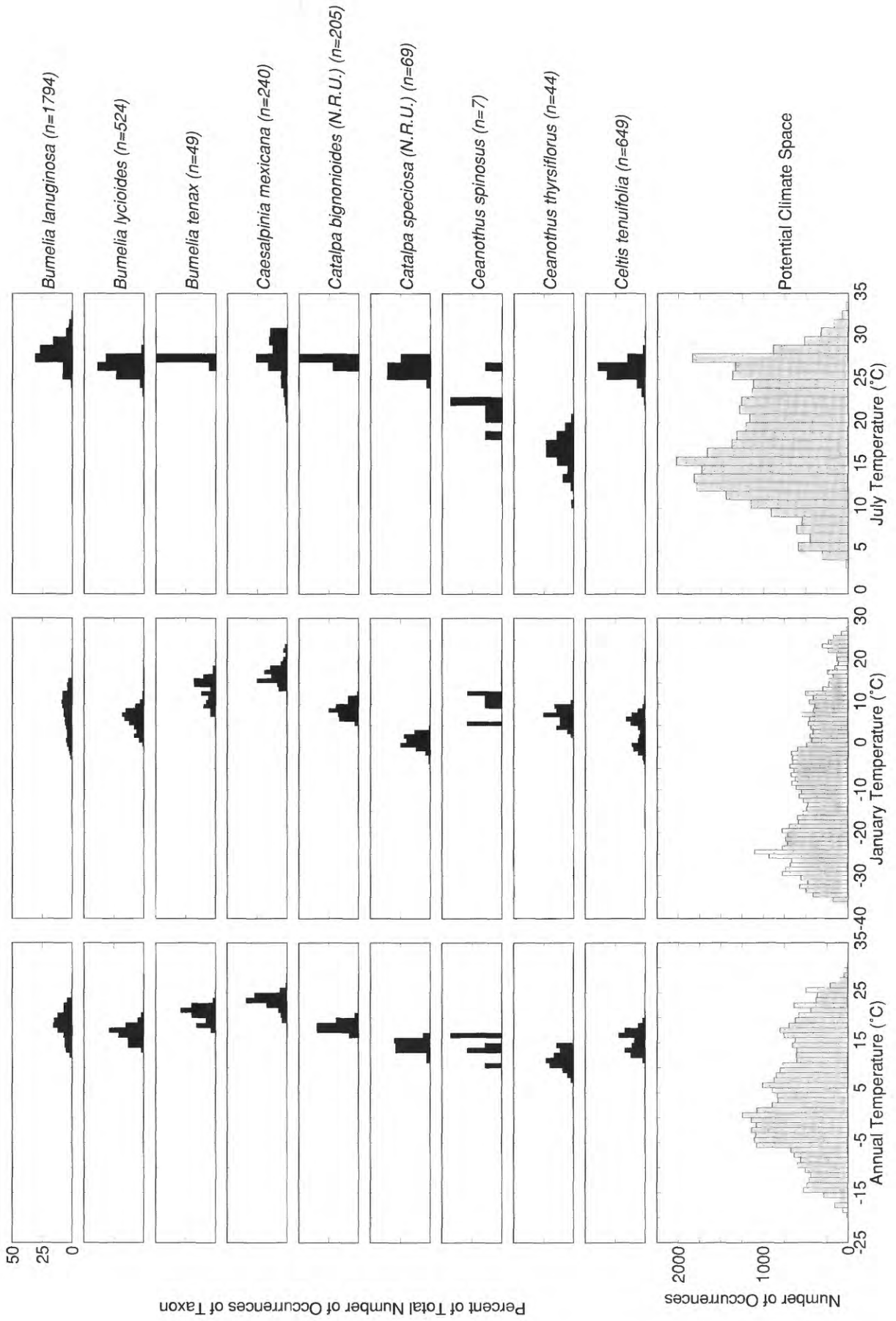


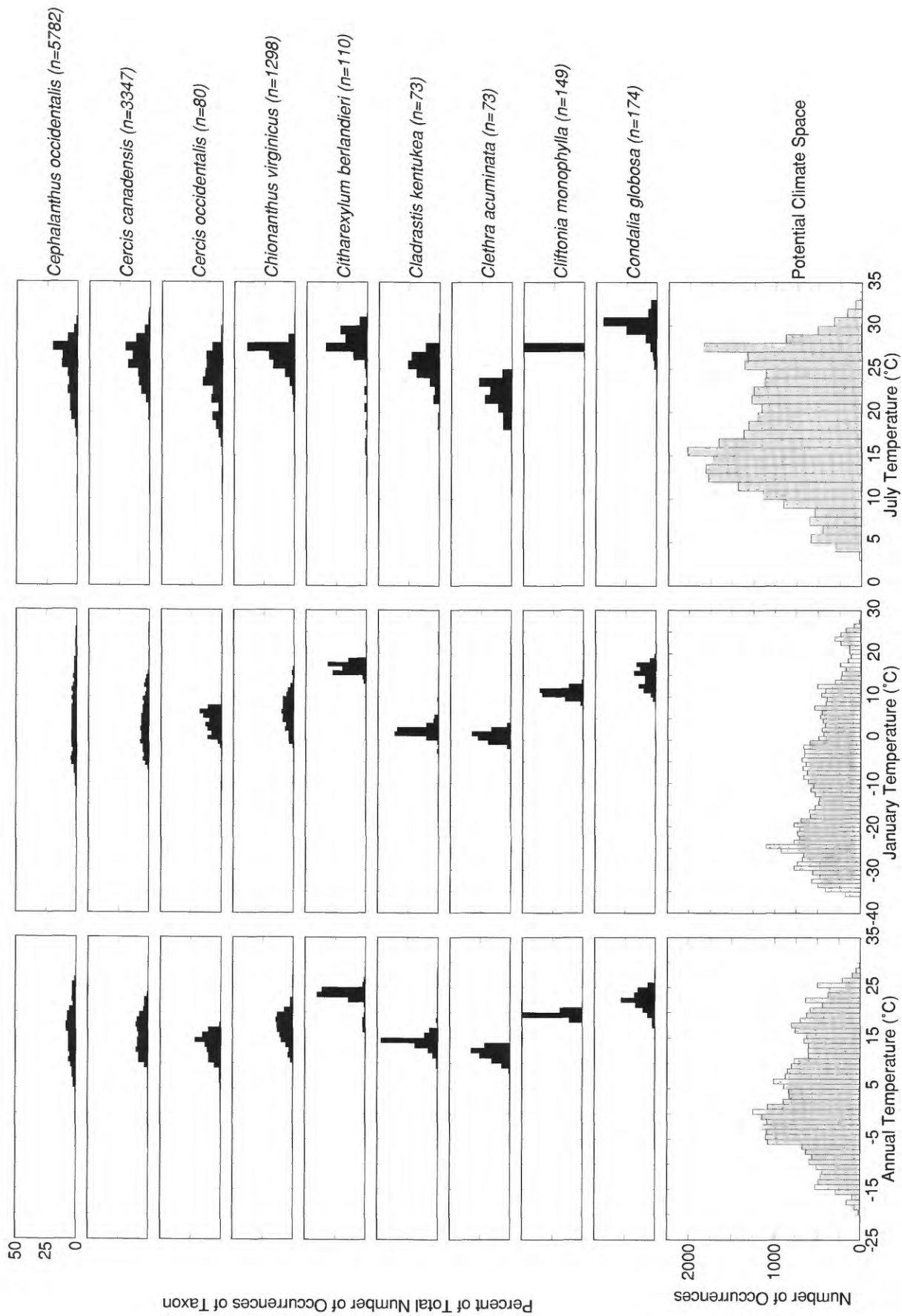
Additional Hardwoods, Conifers, and Monocots— Histograms

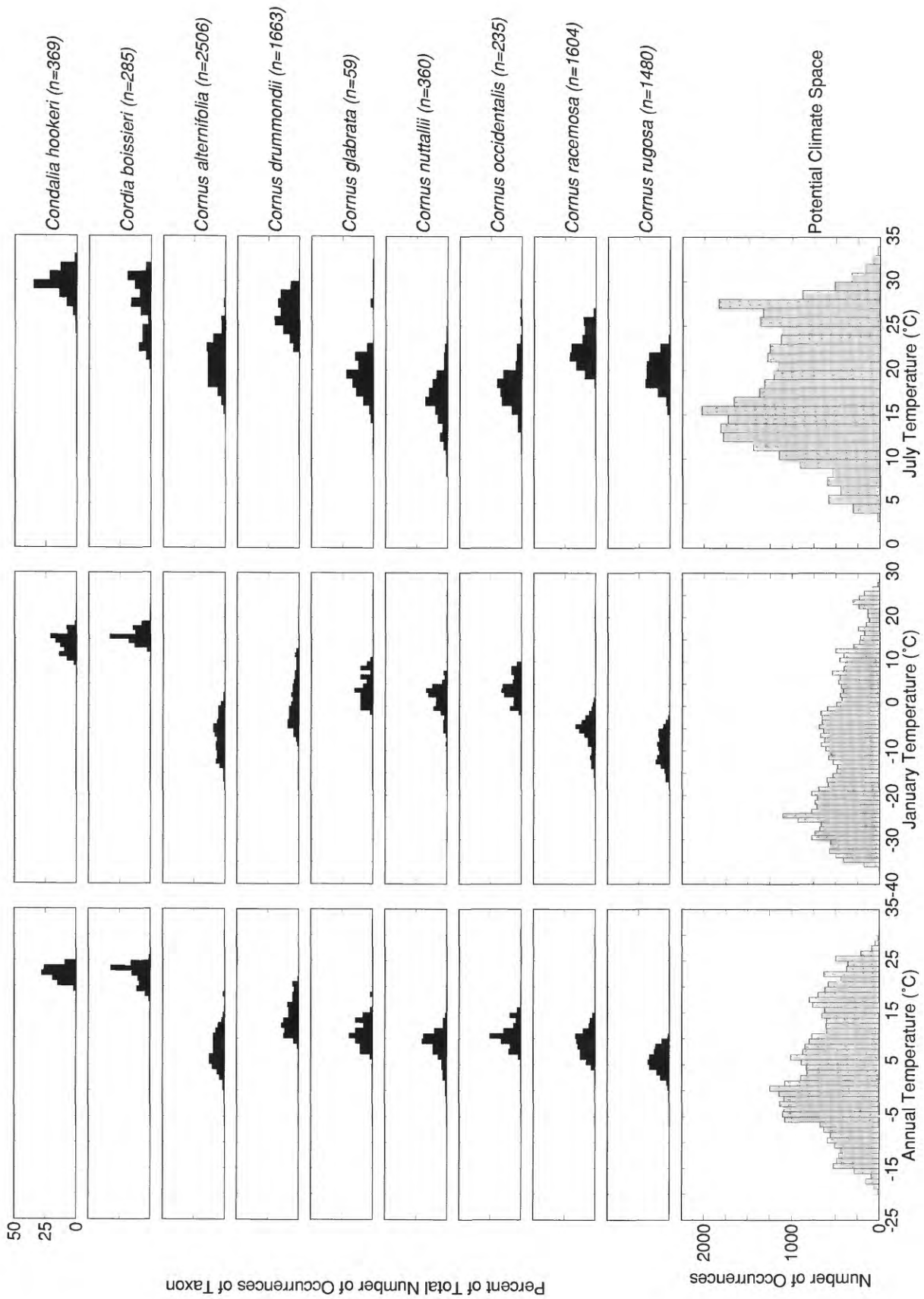


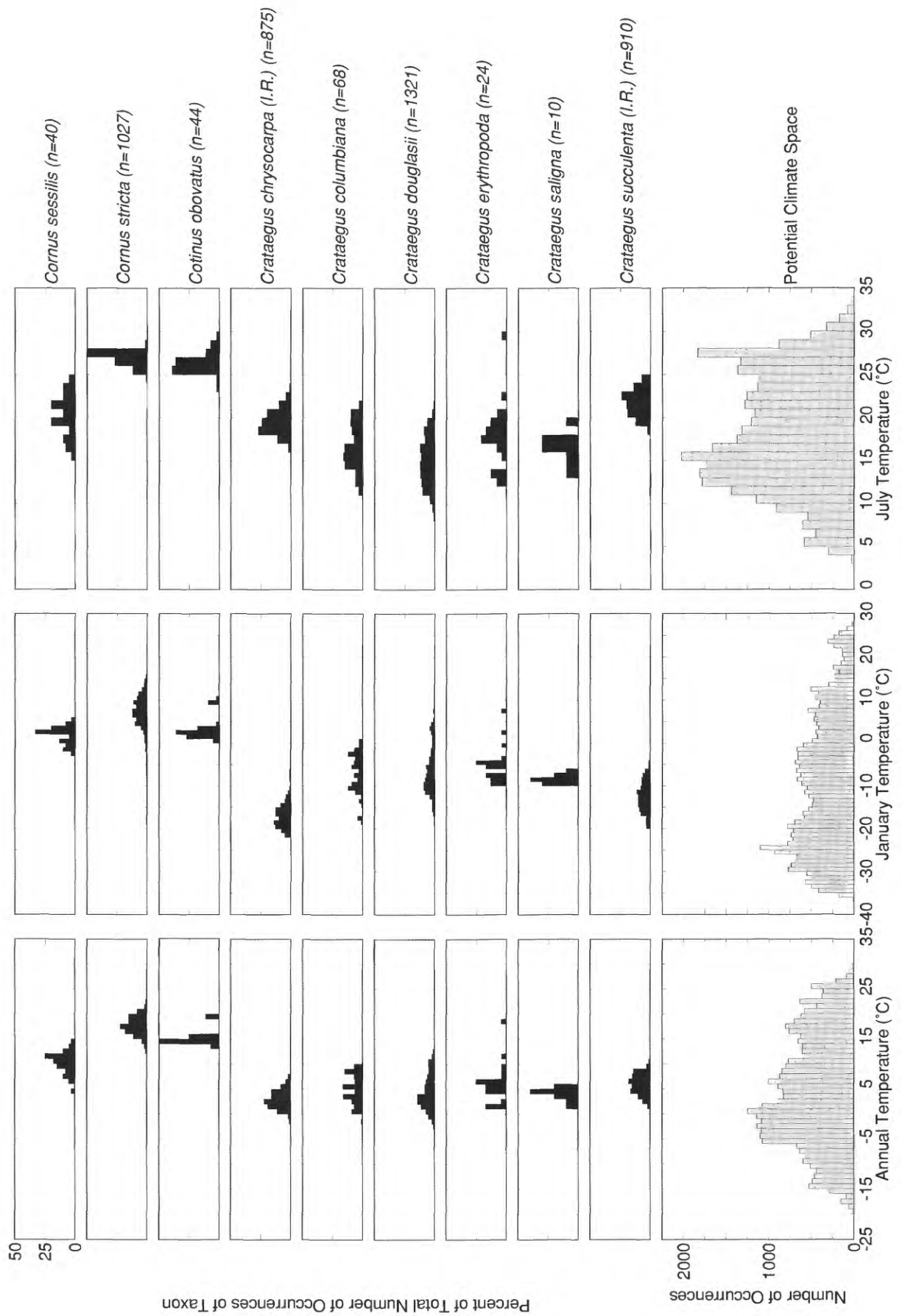


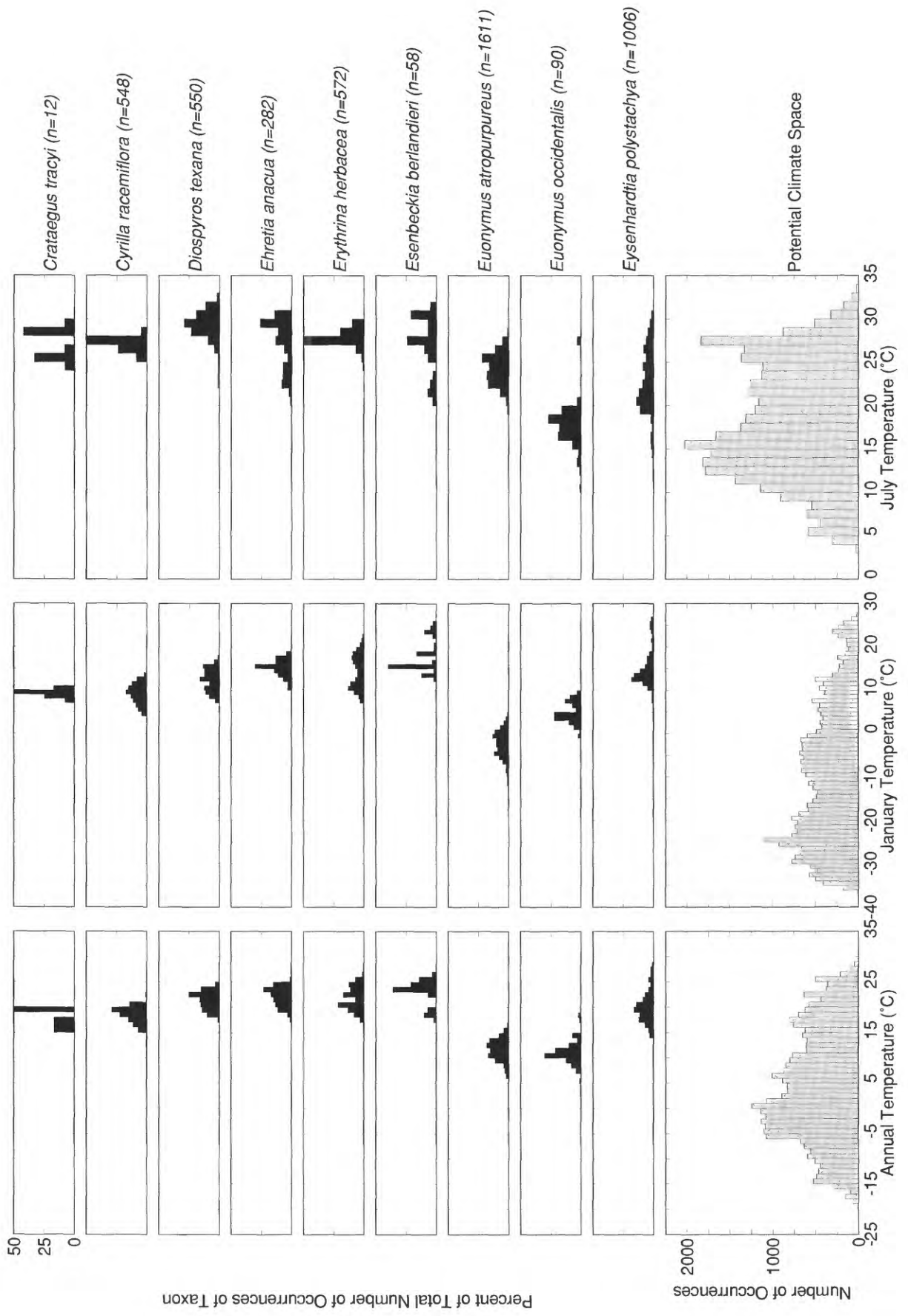


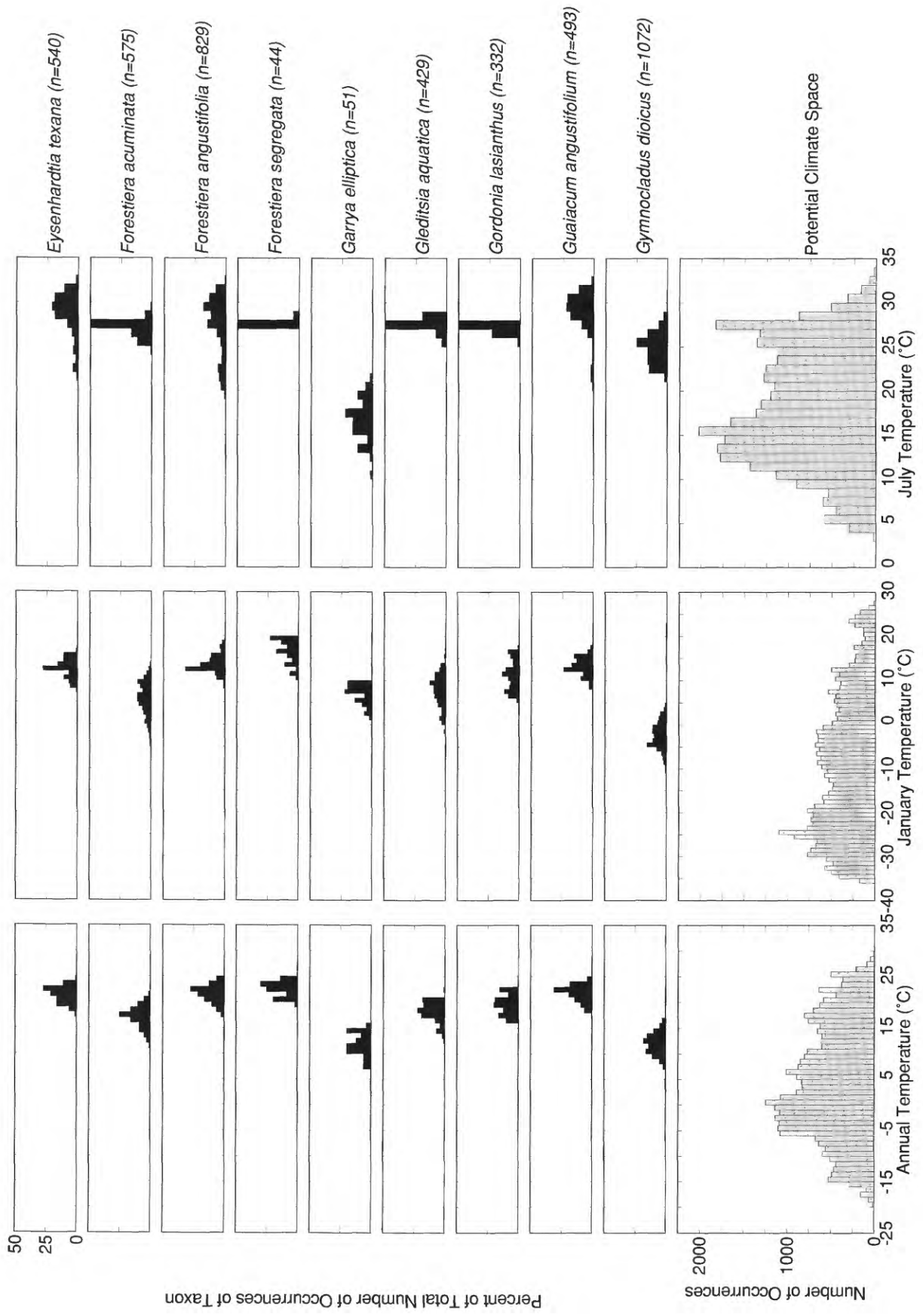


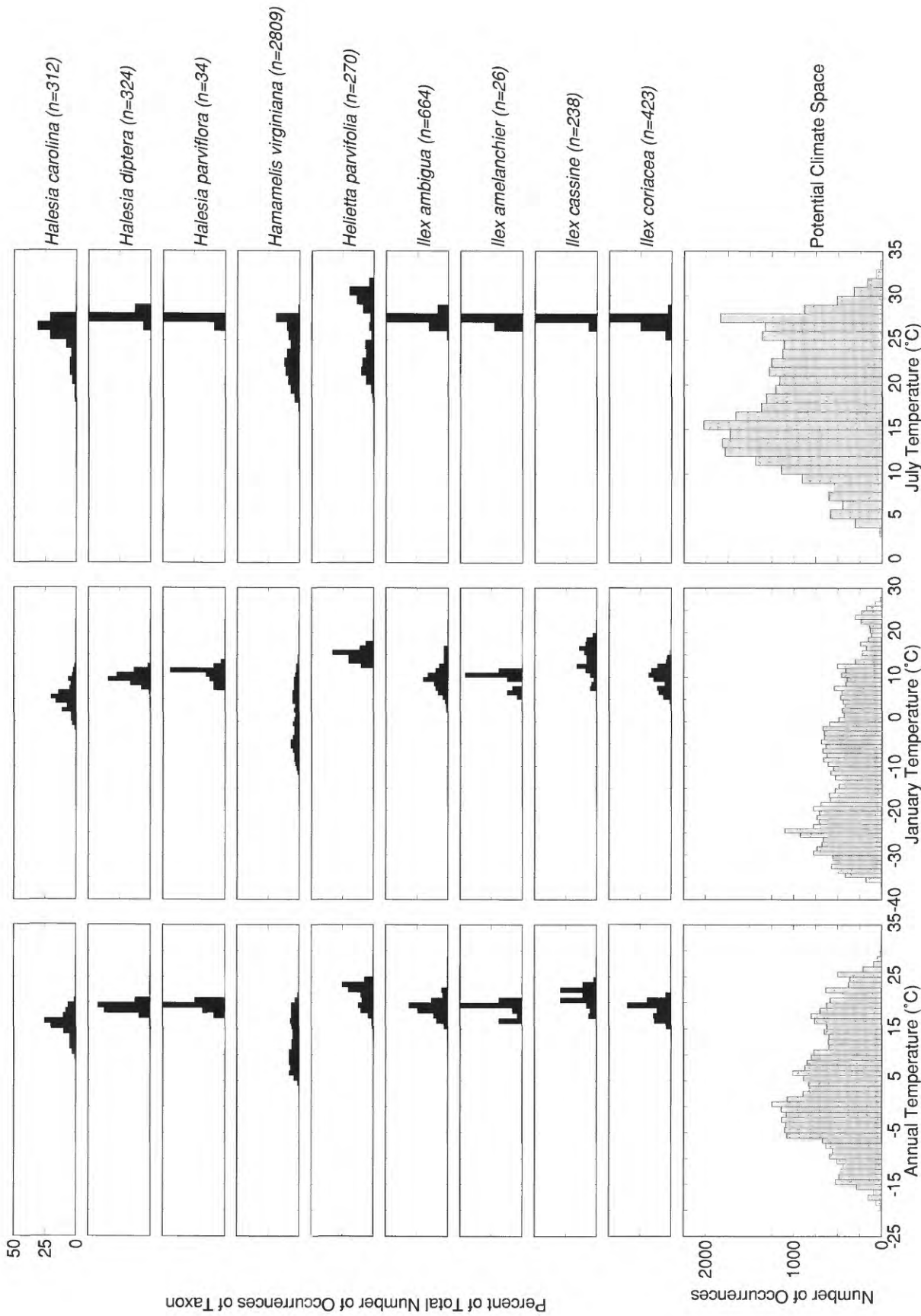


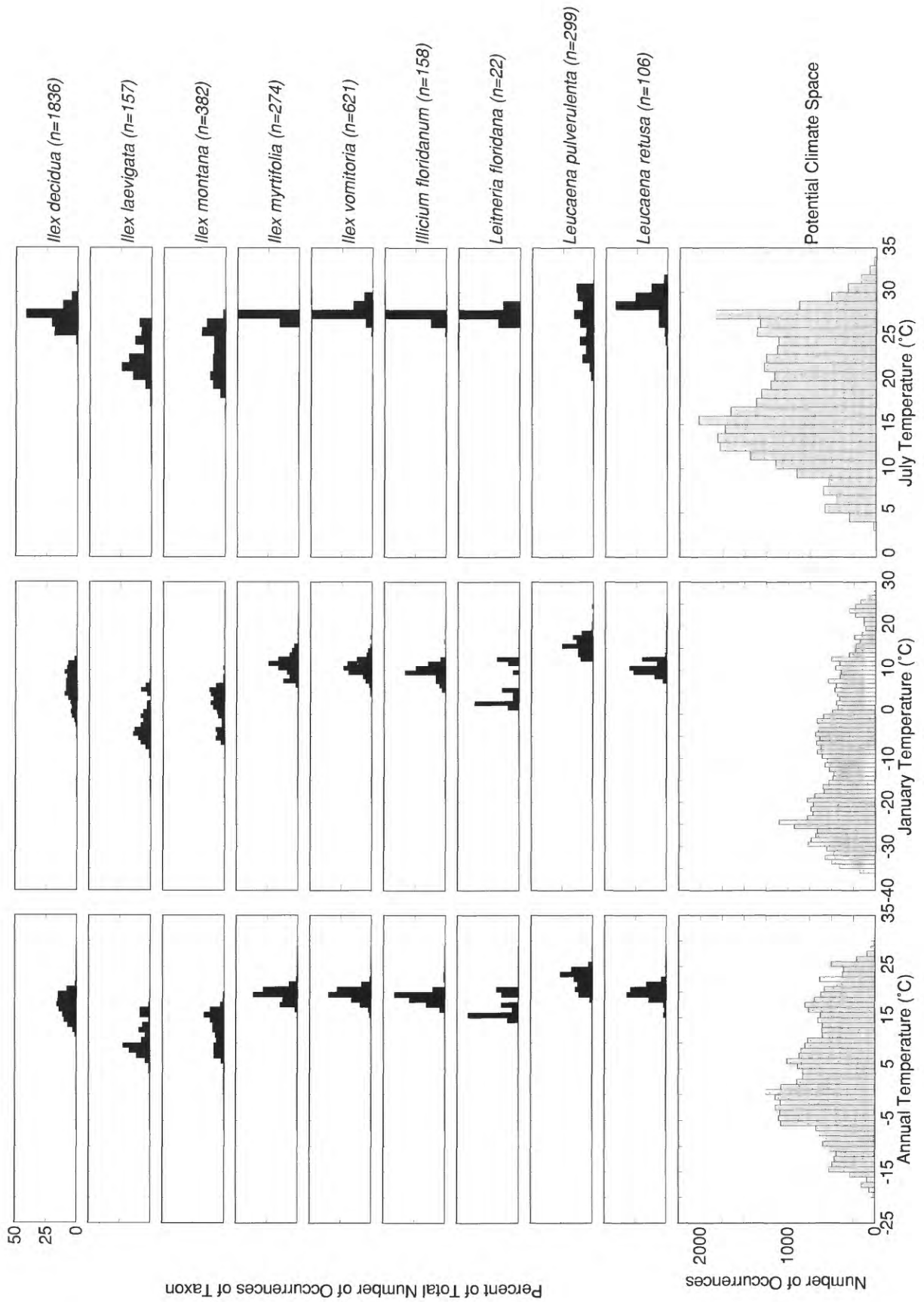


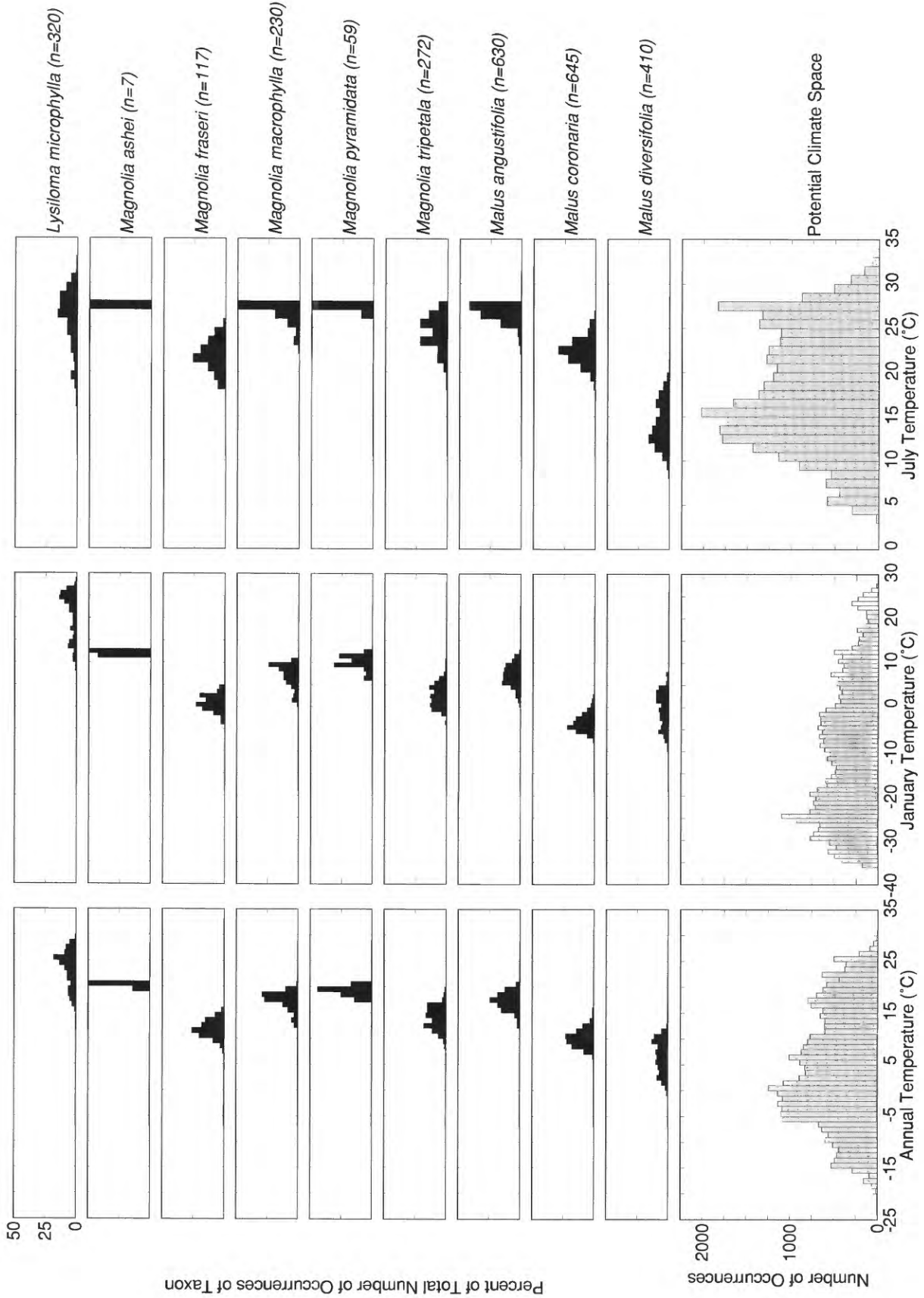


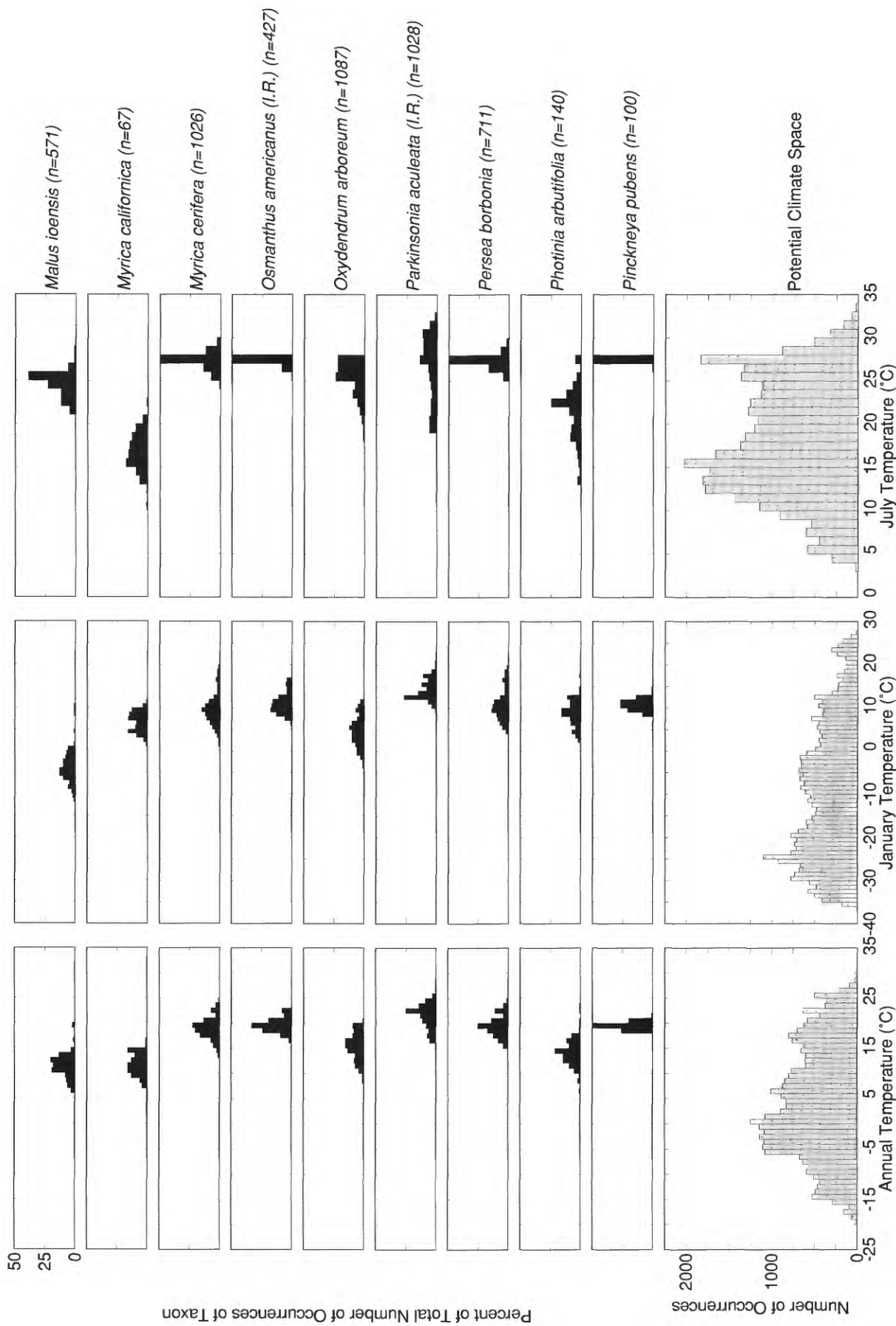


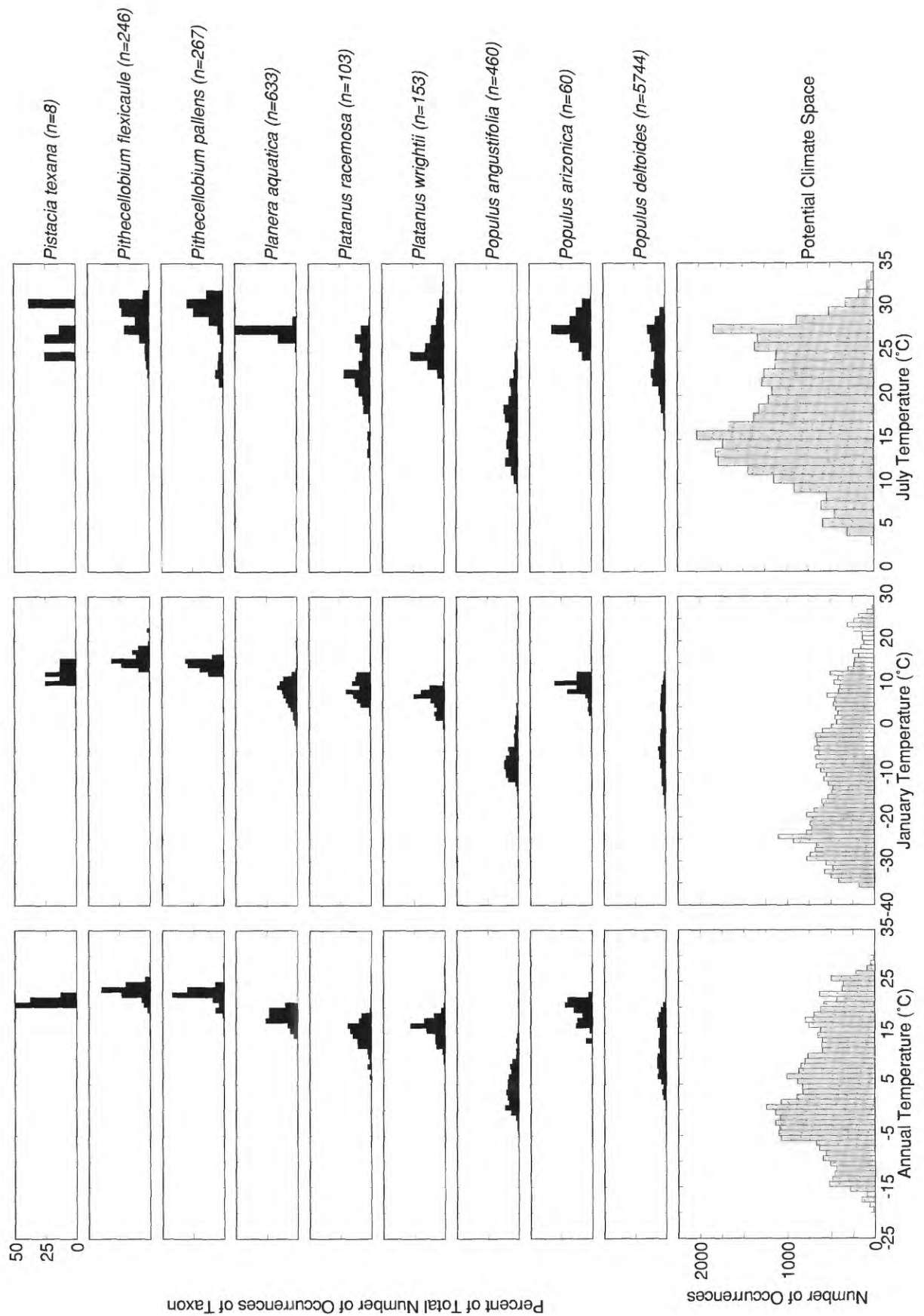


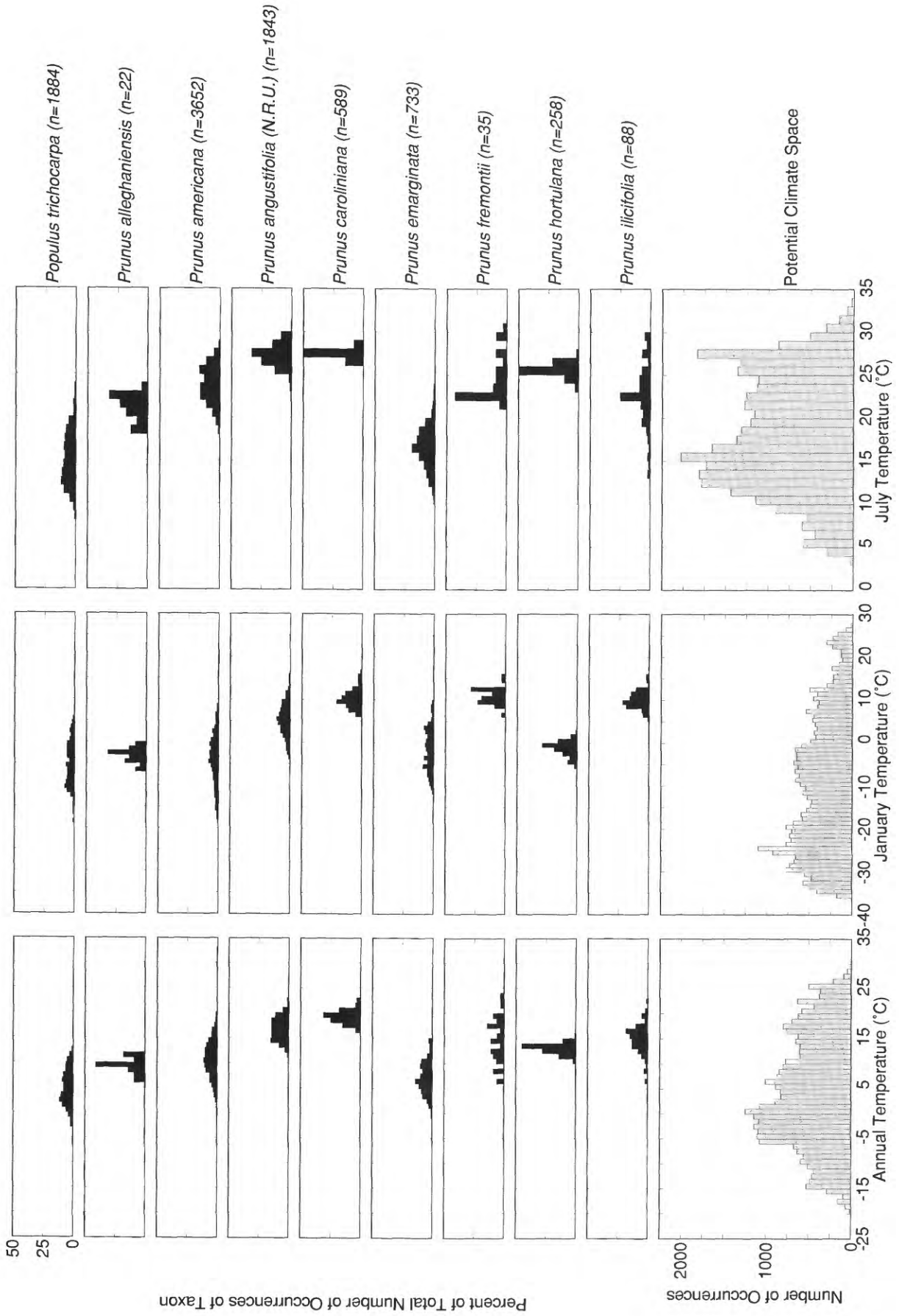


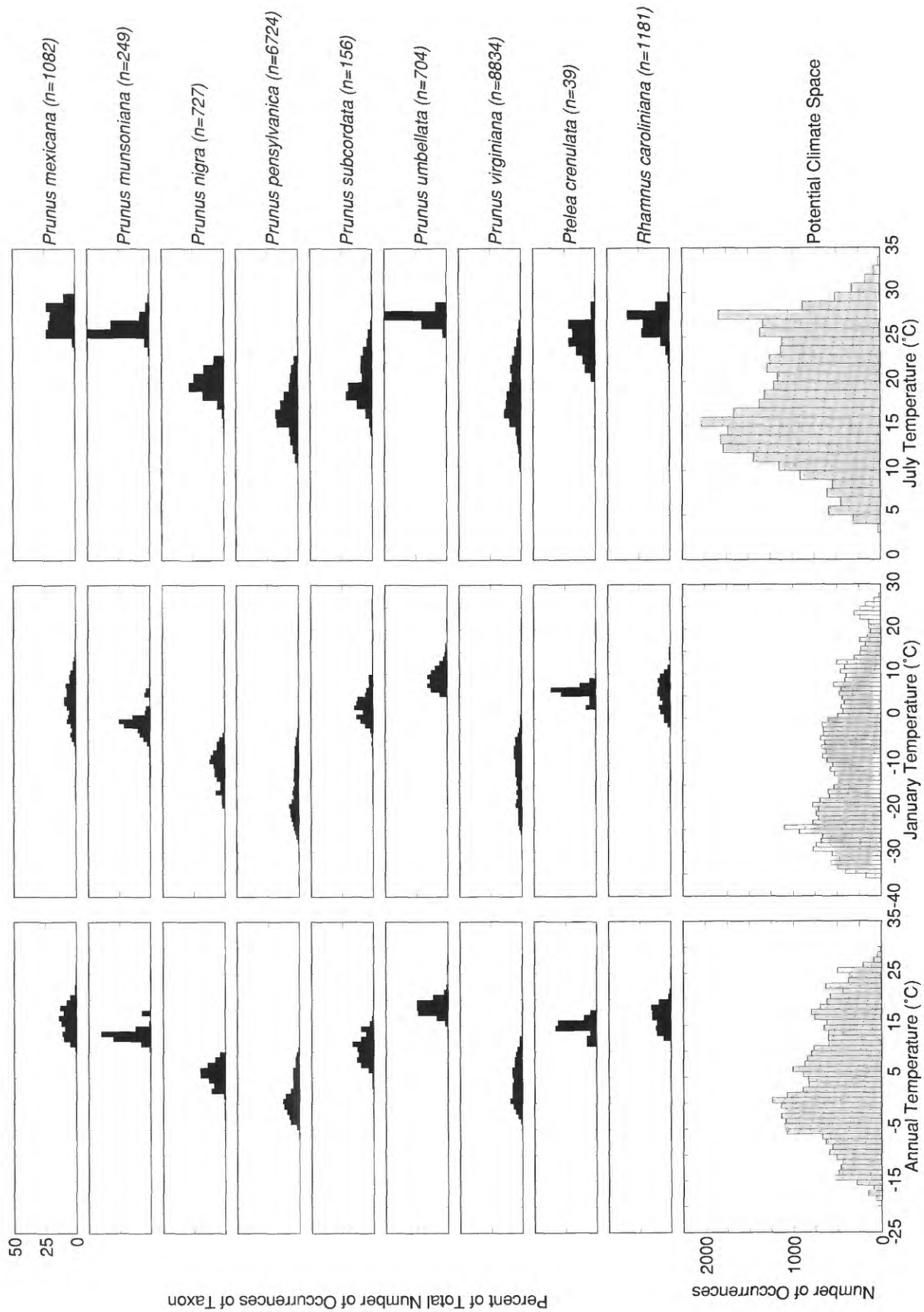


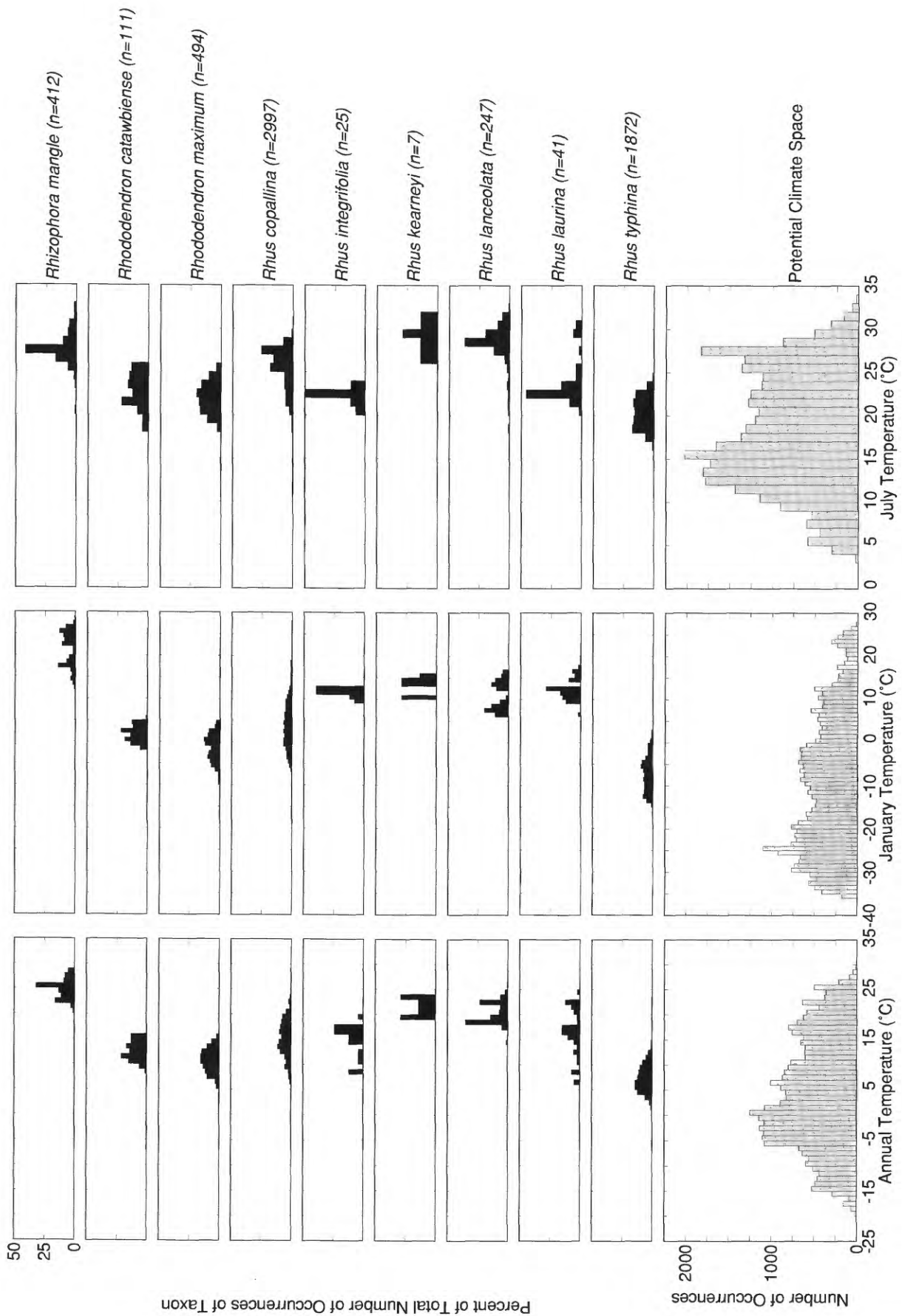


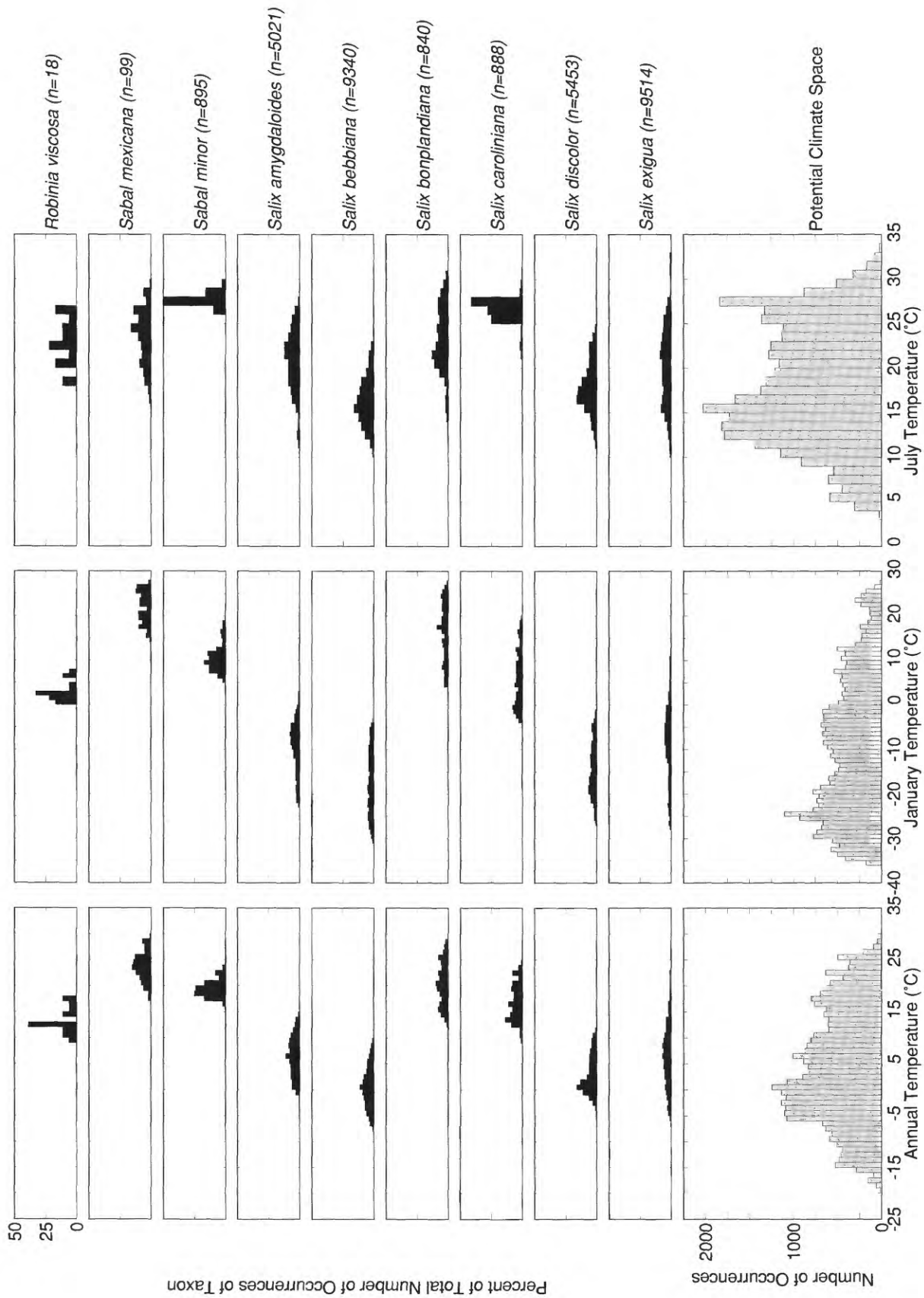


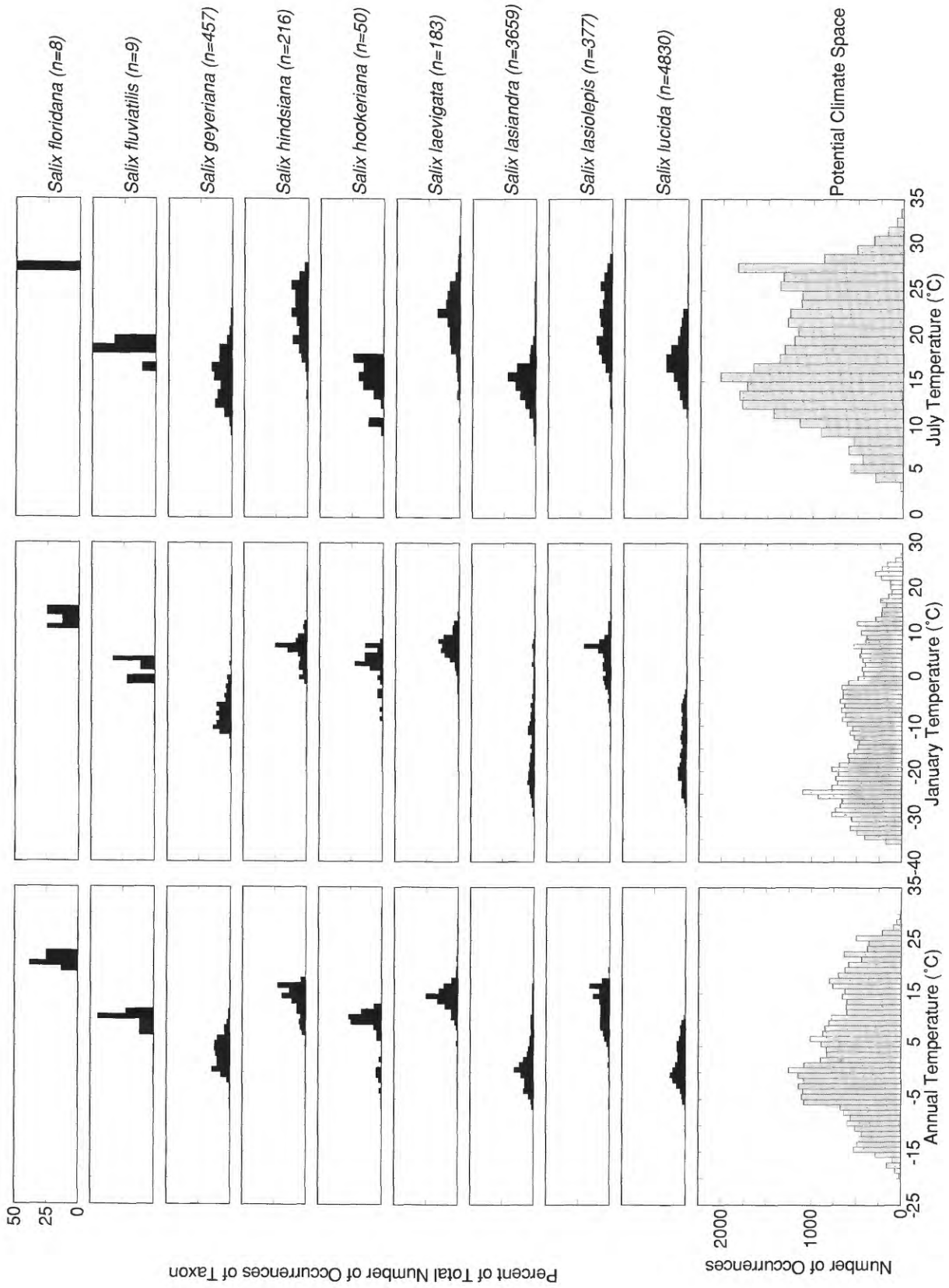


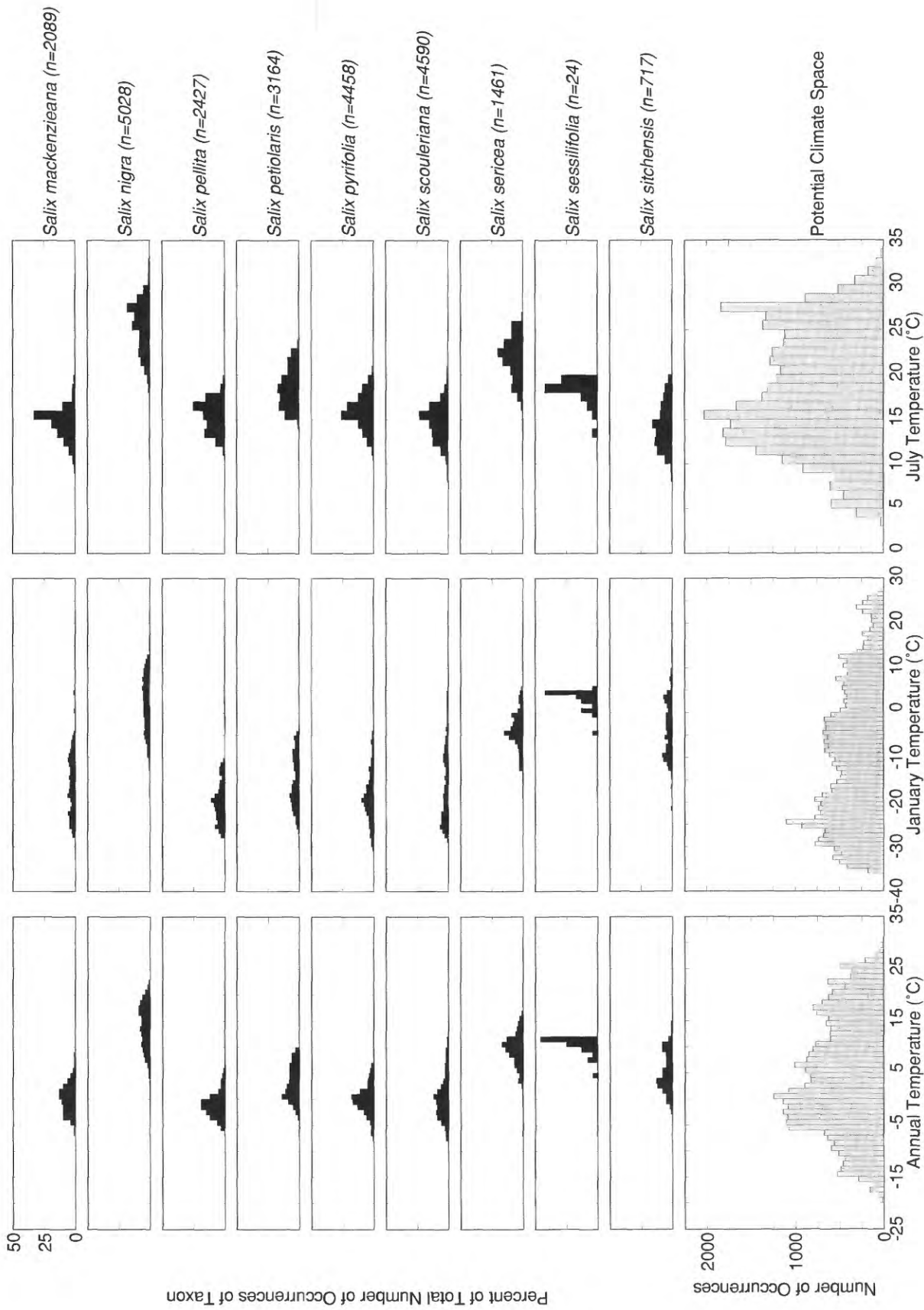


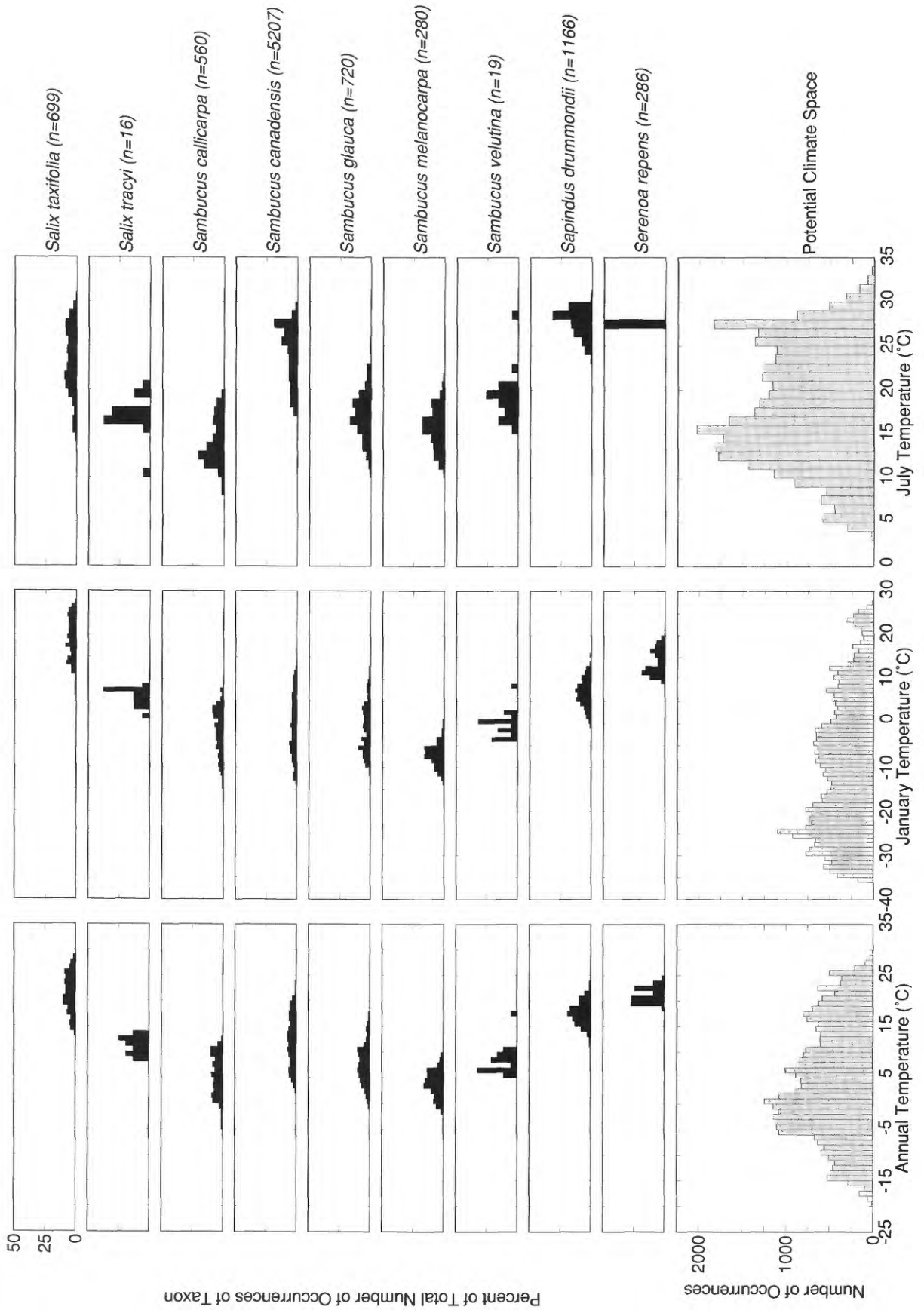


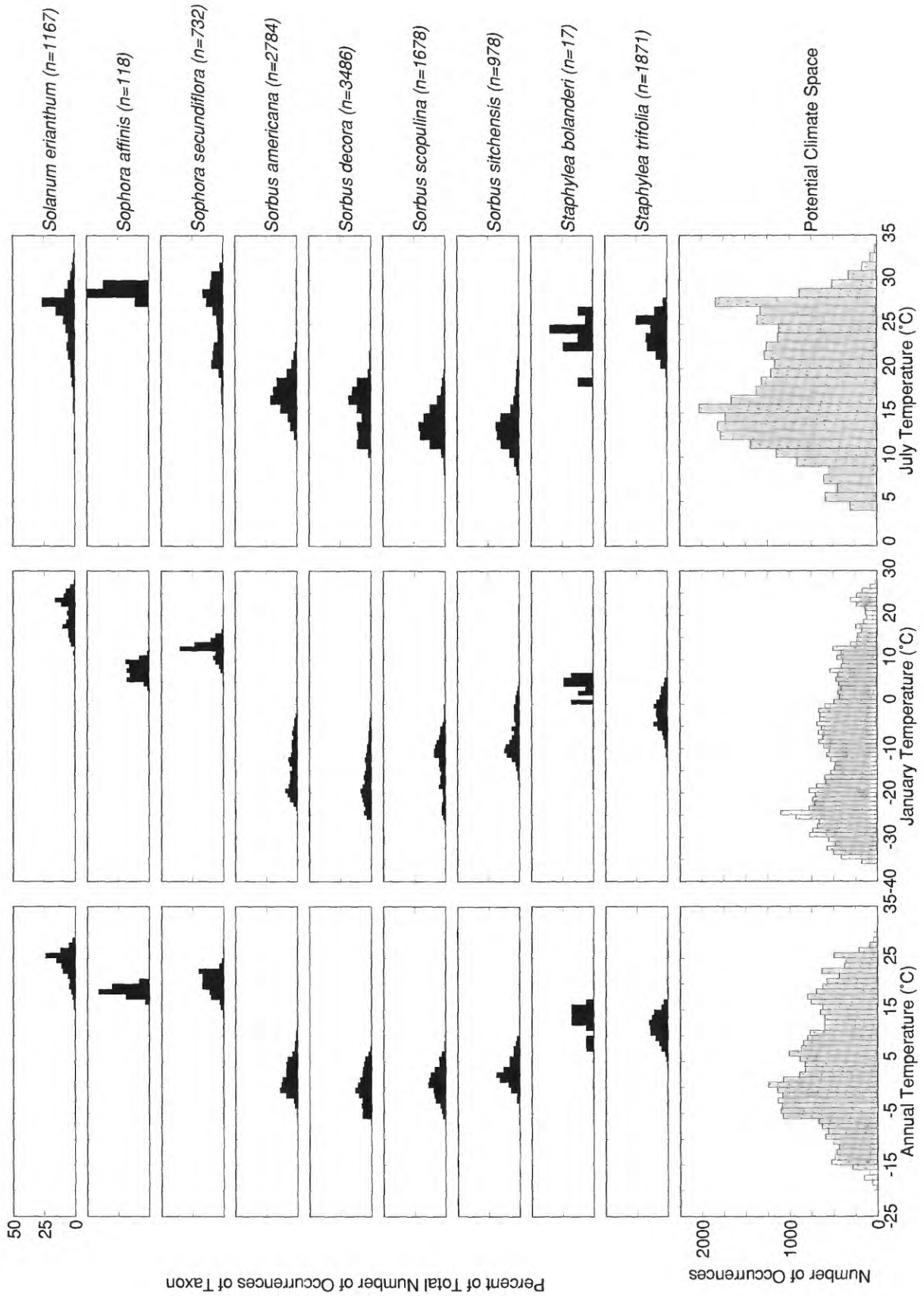


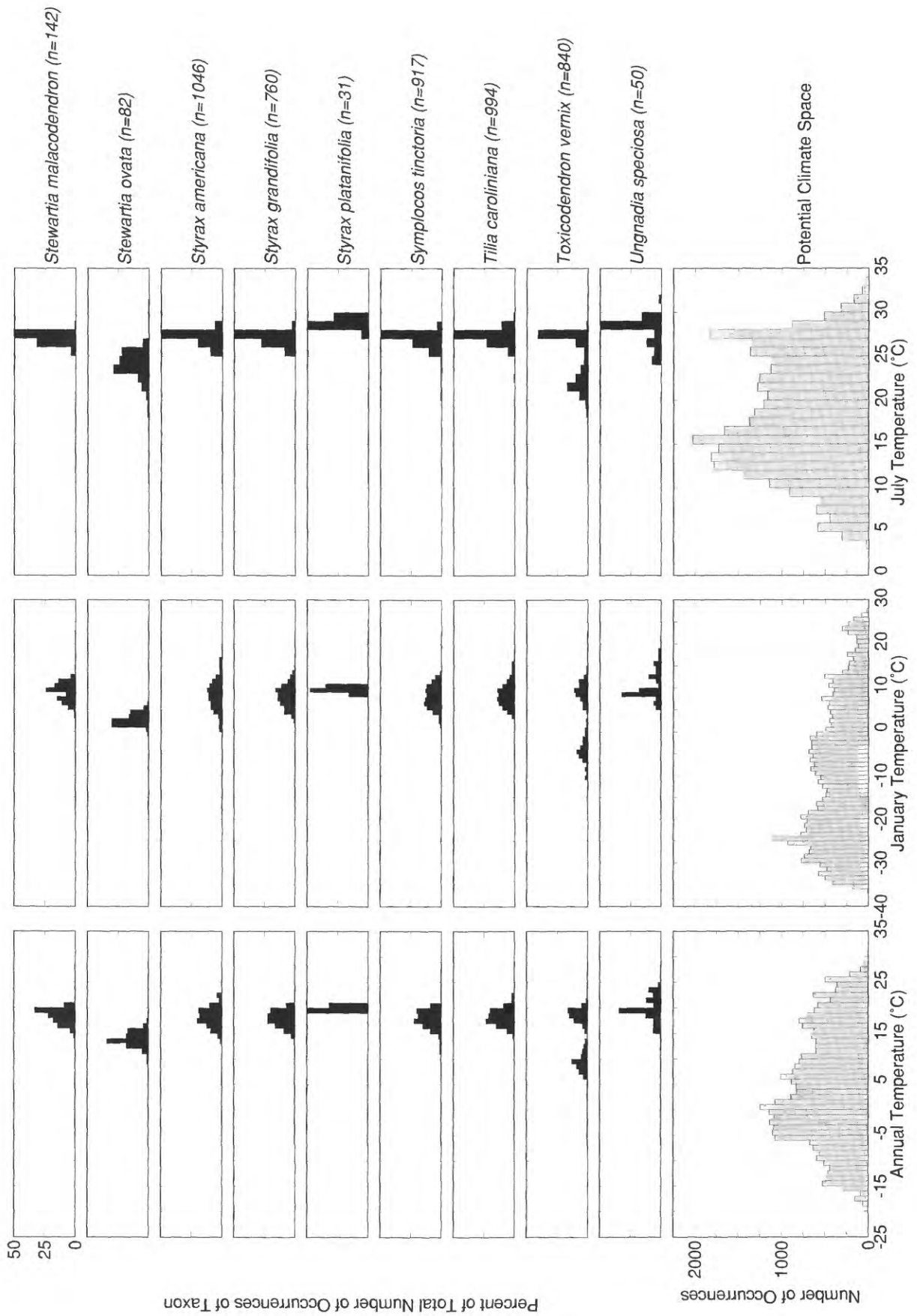


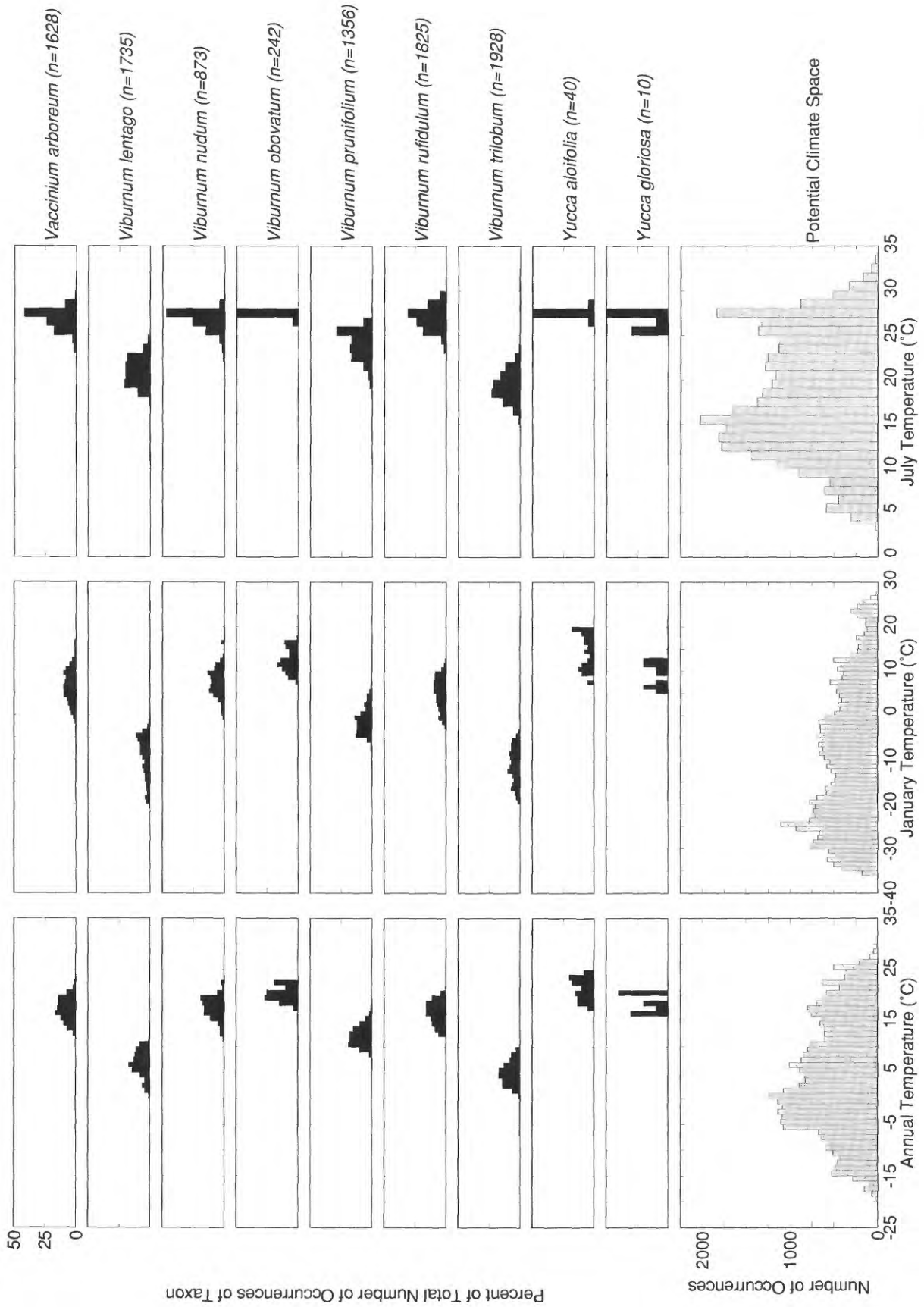


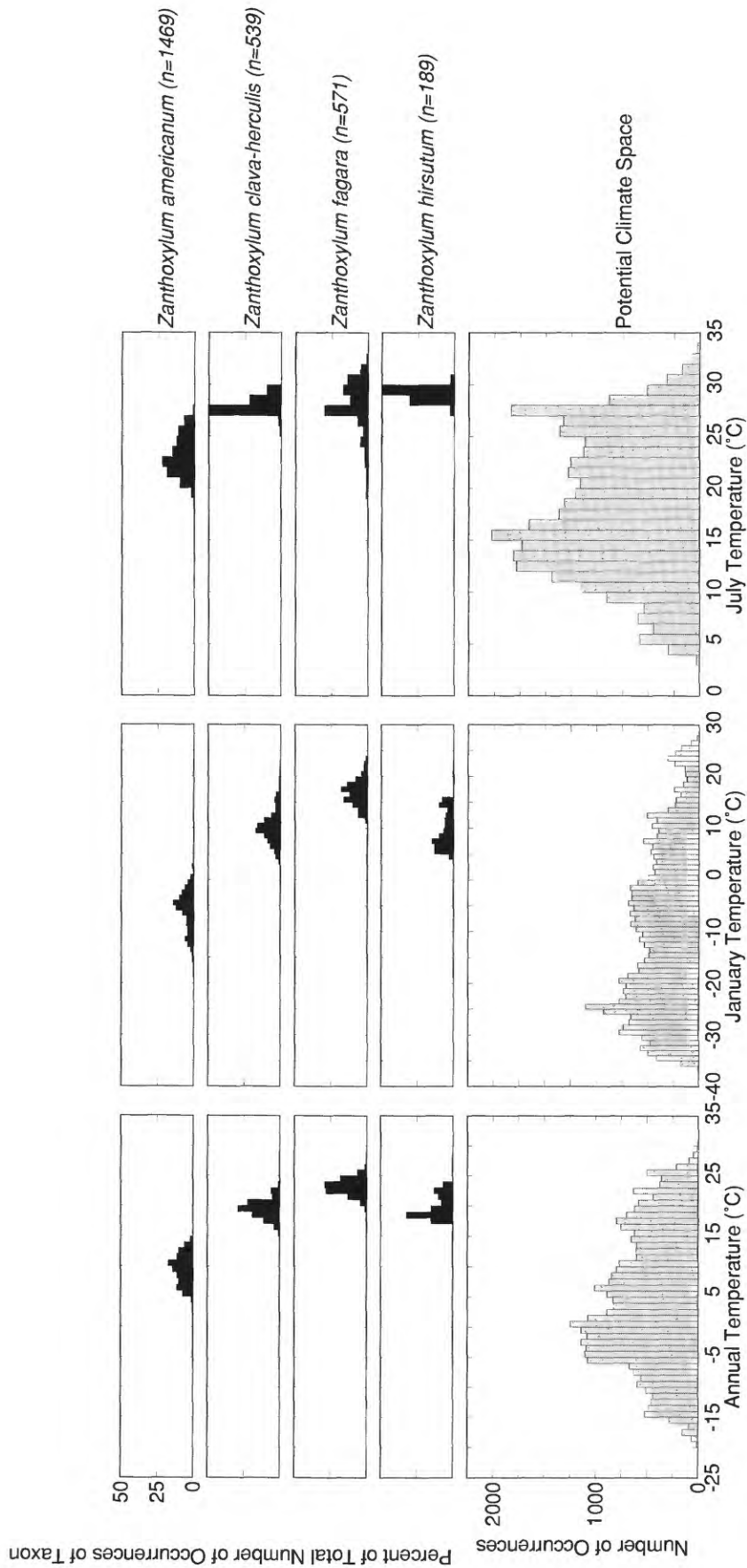


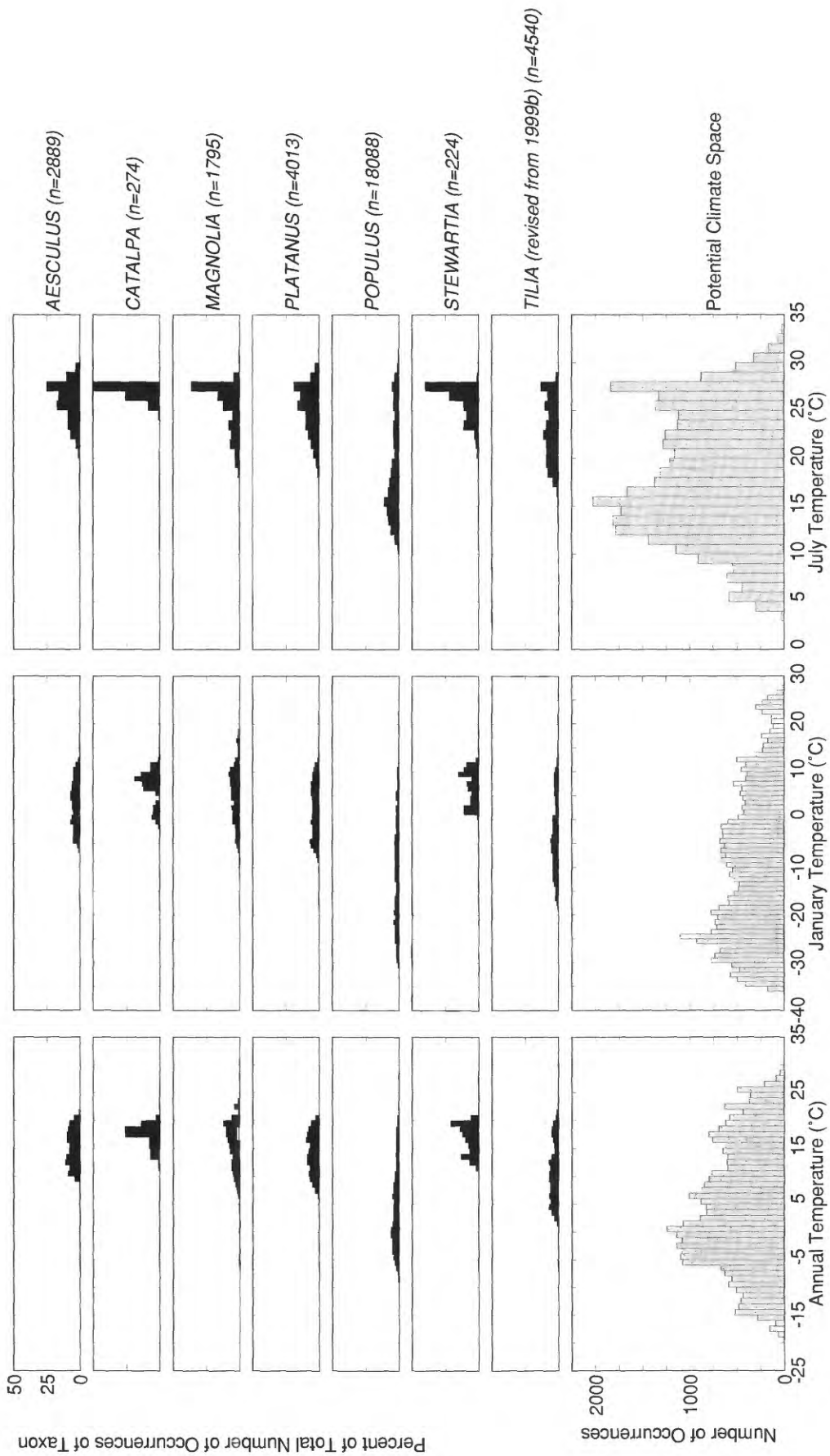


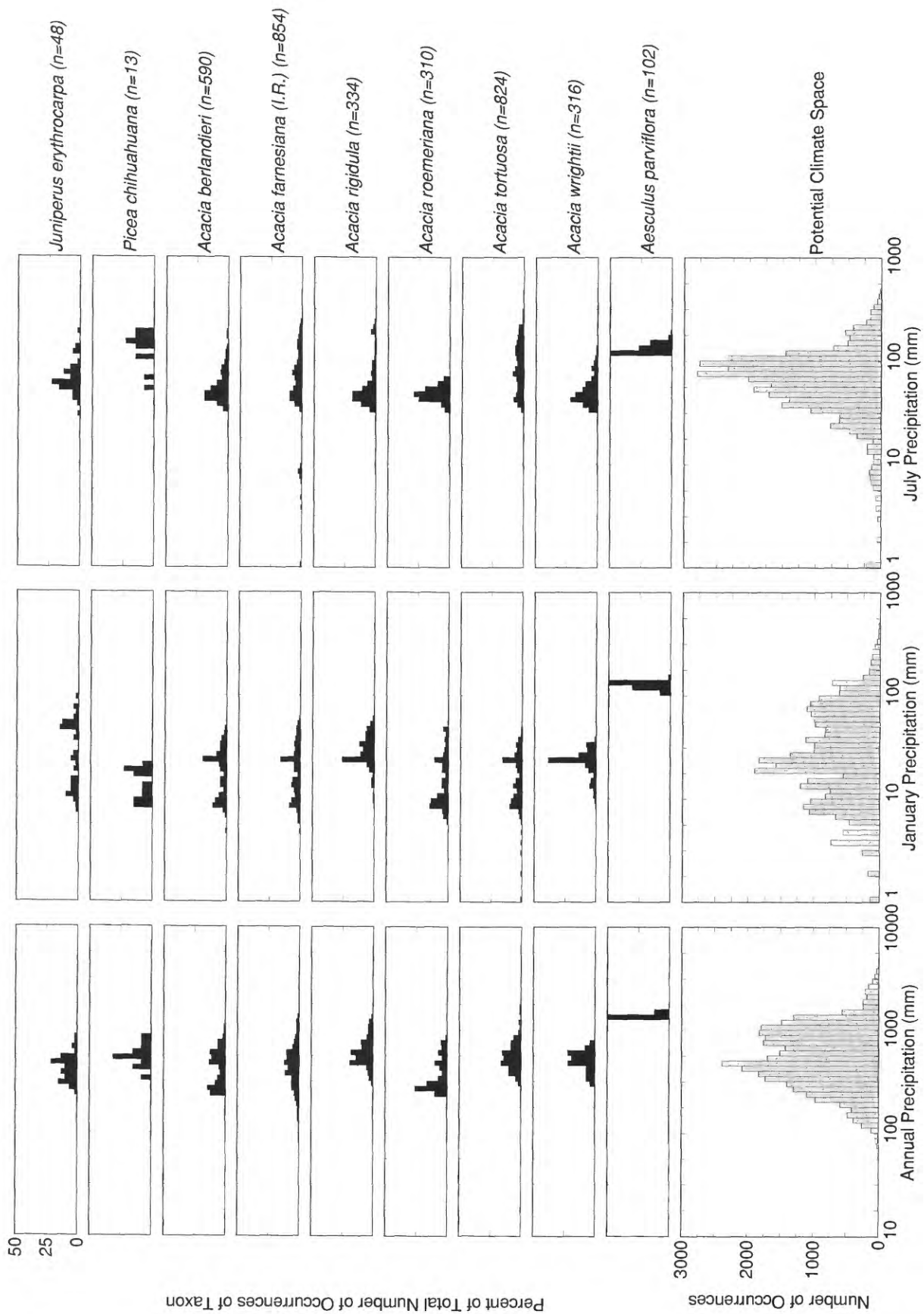


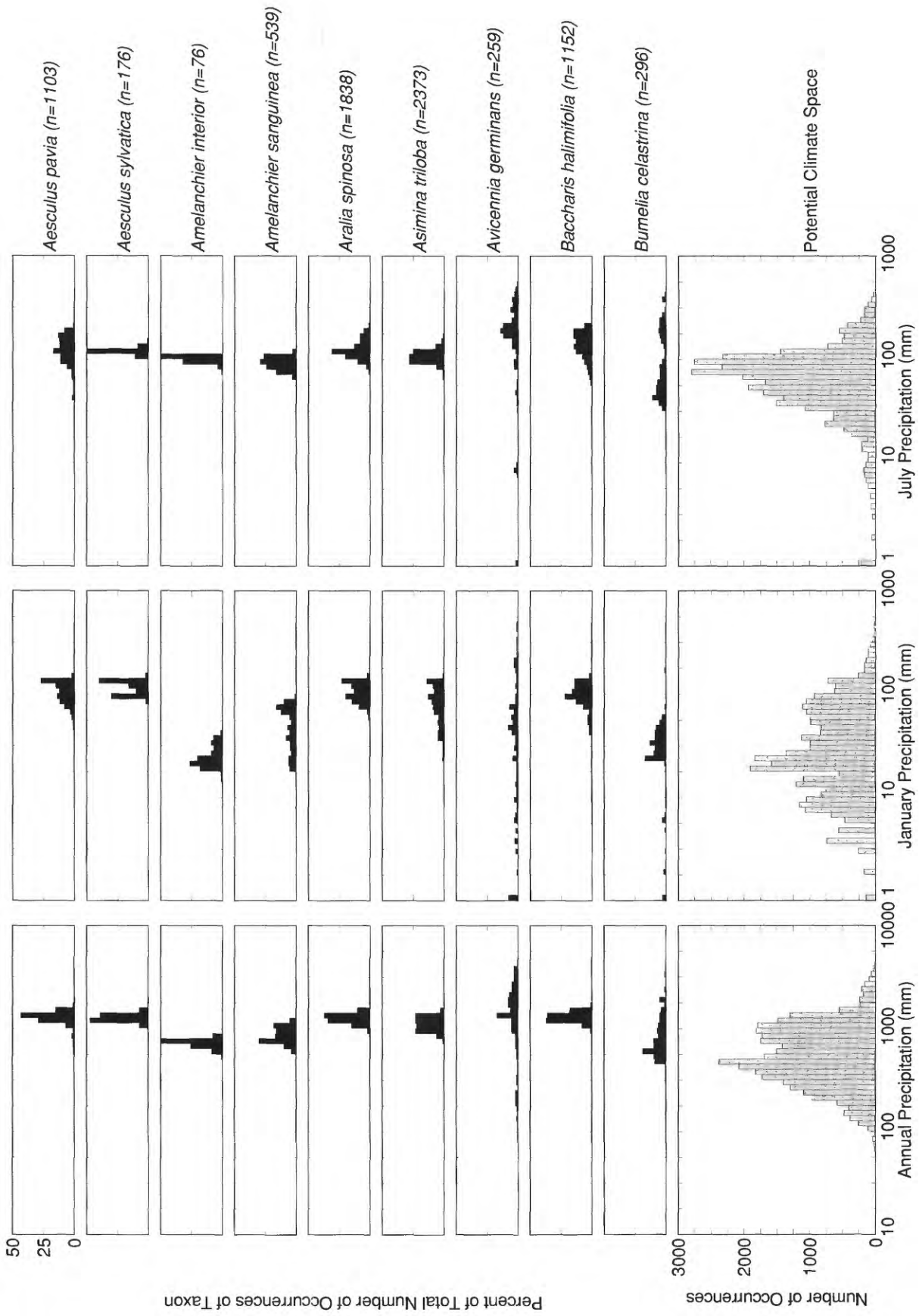


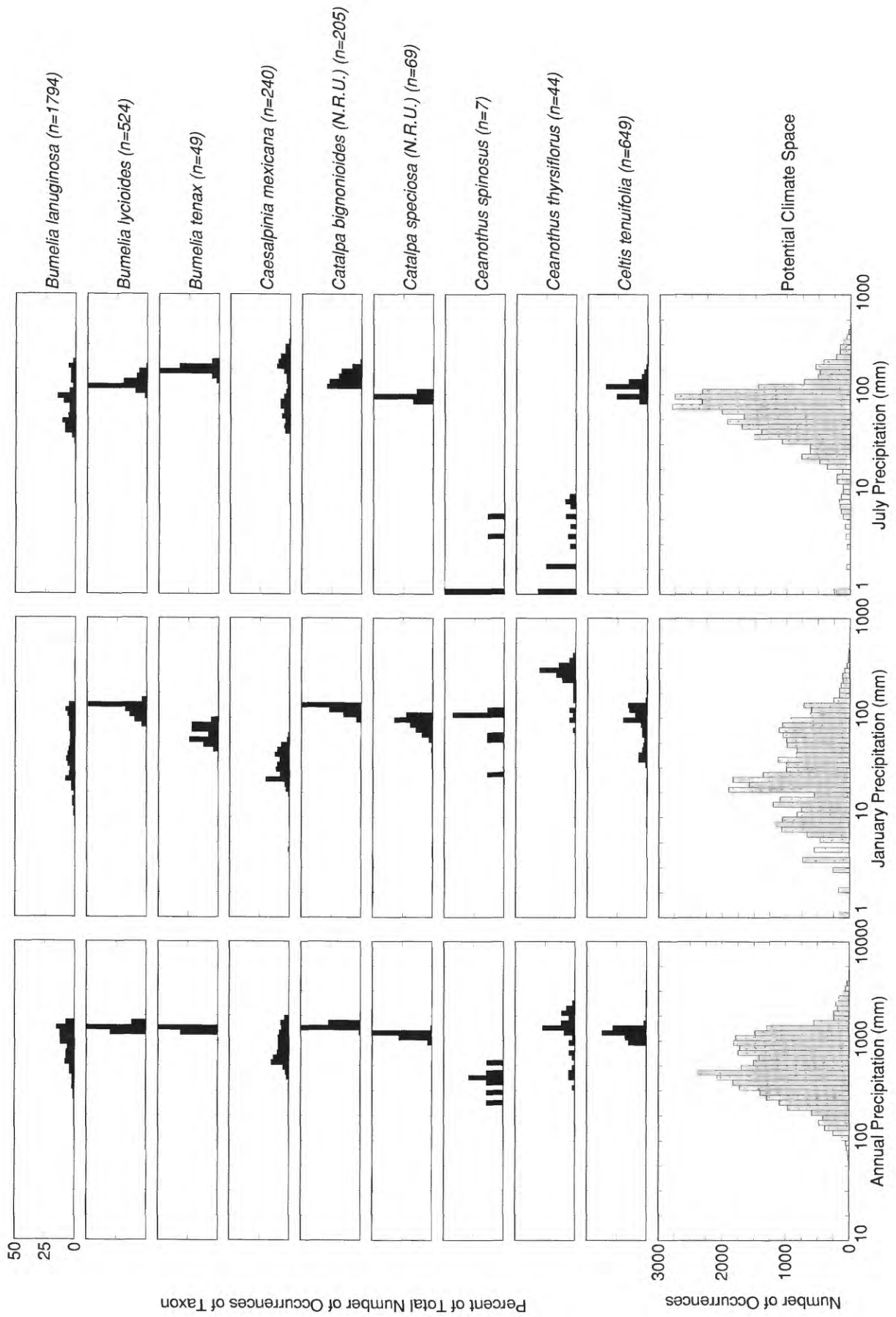


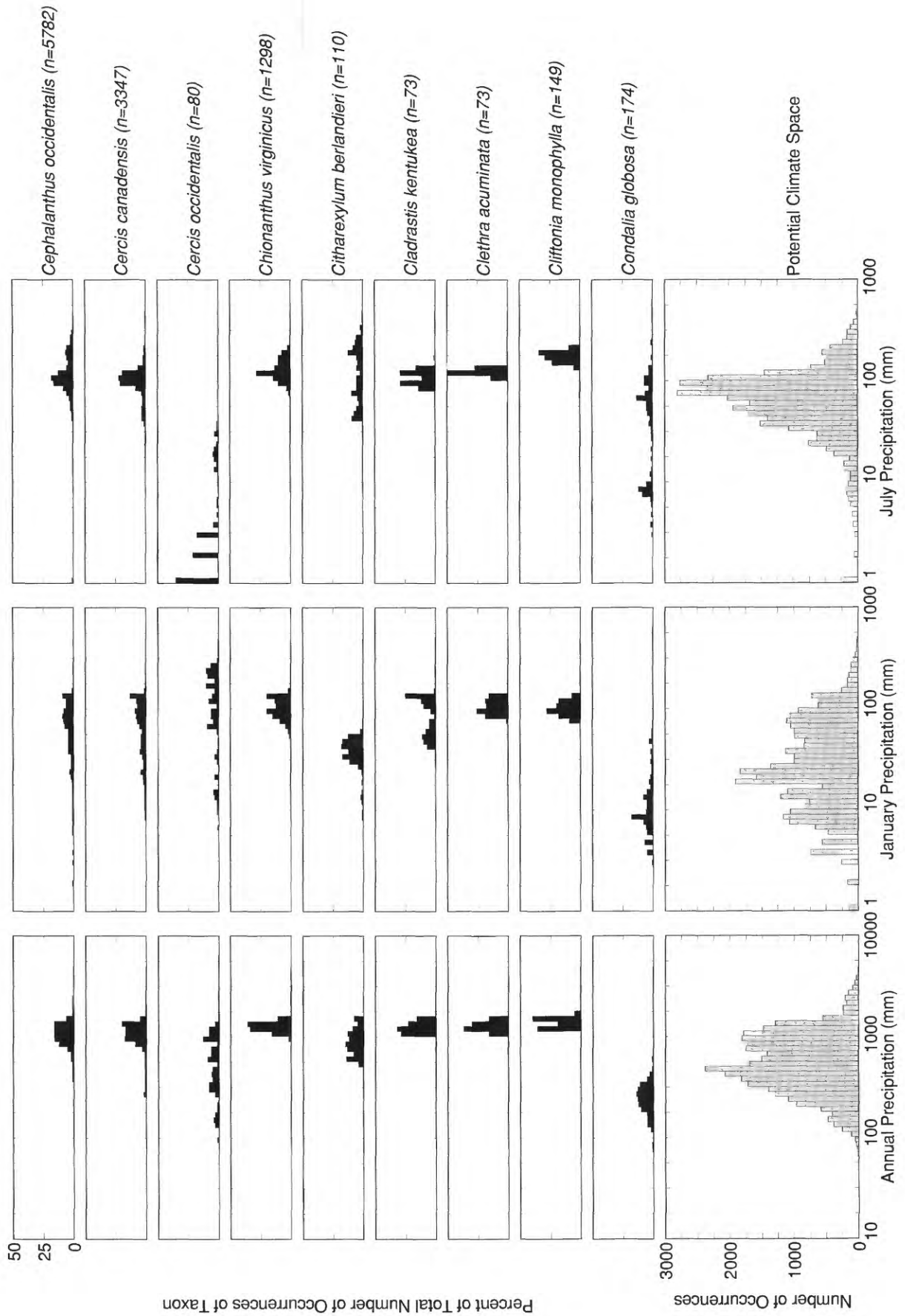


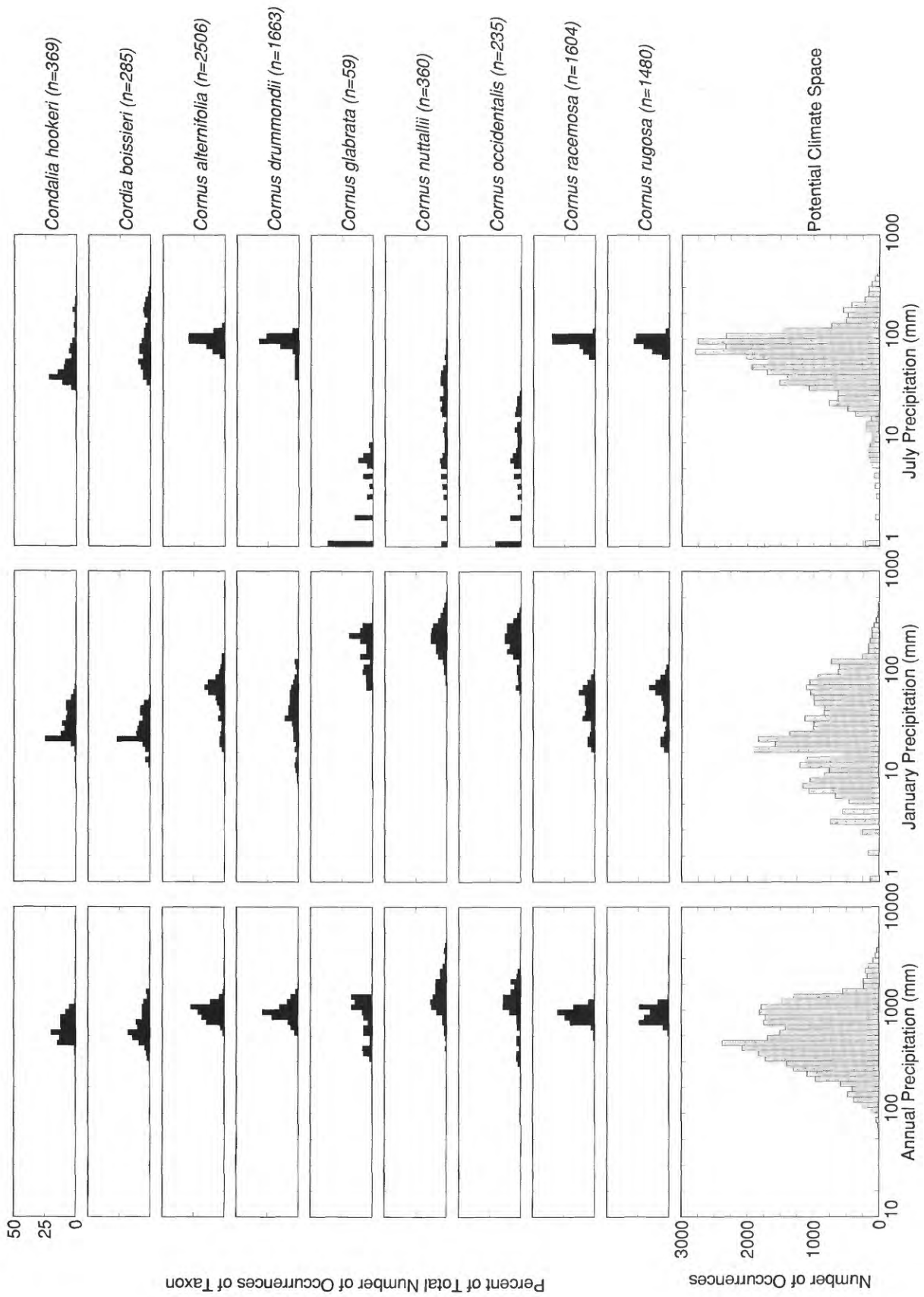


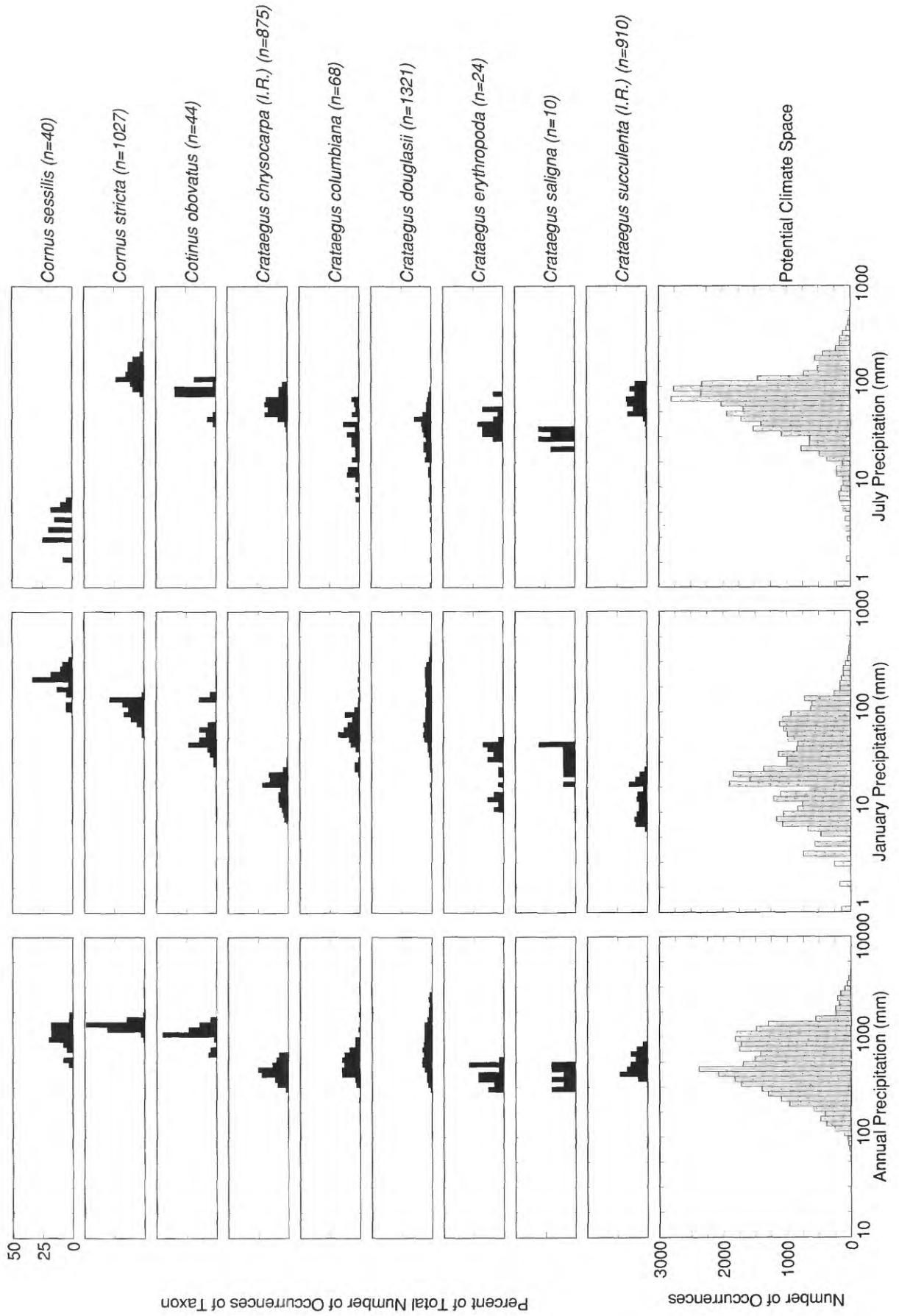


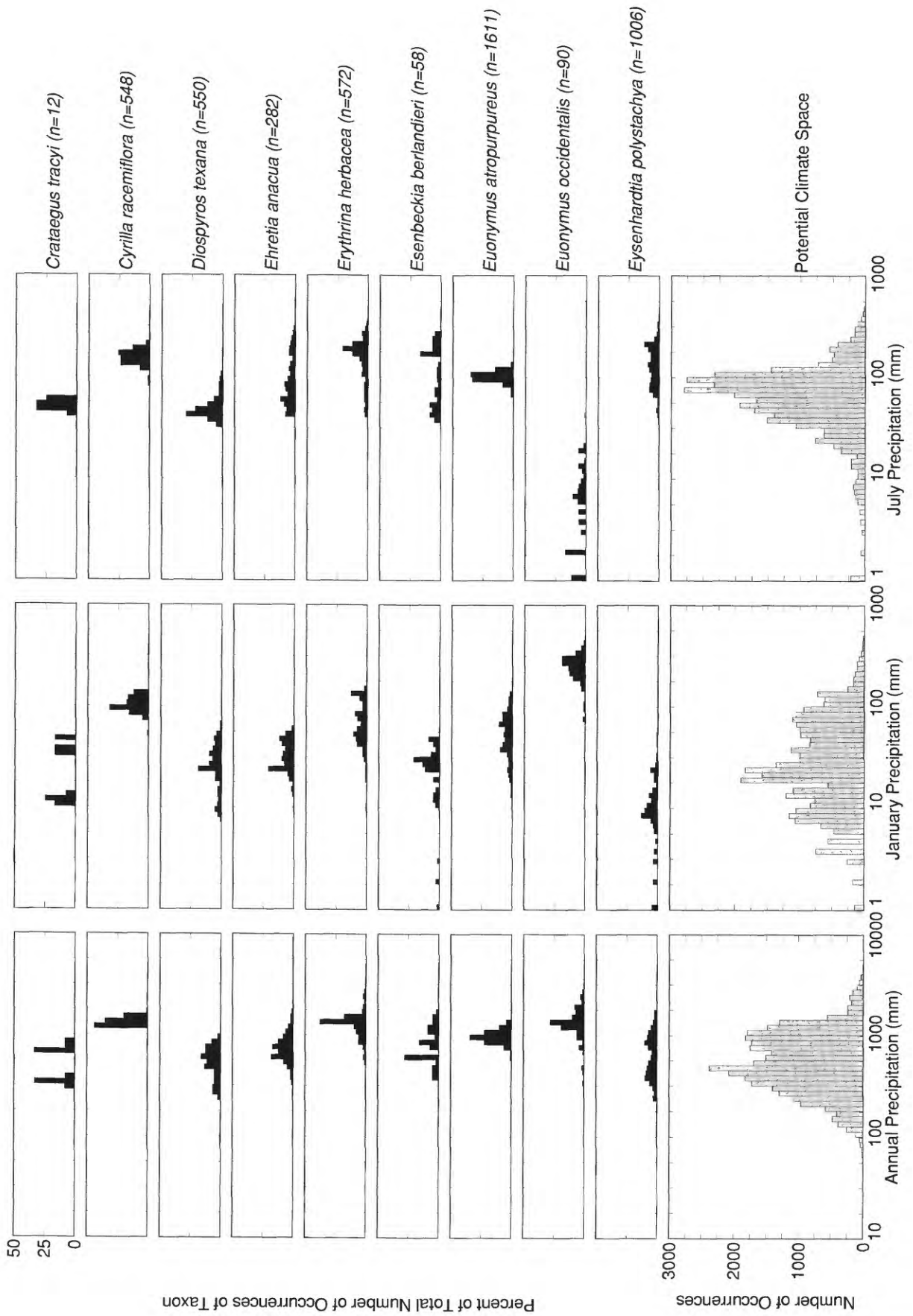


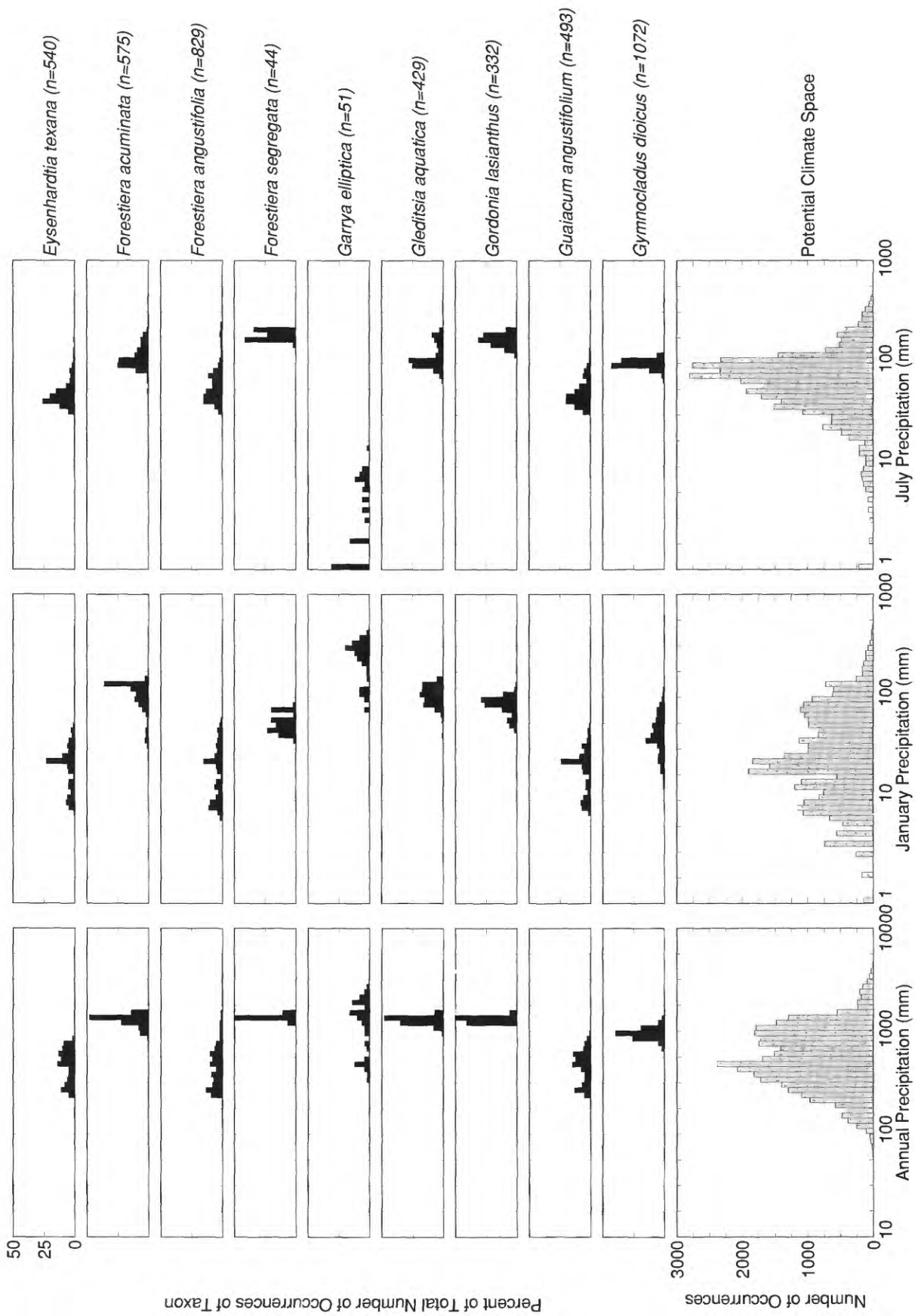


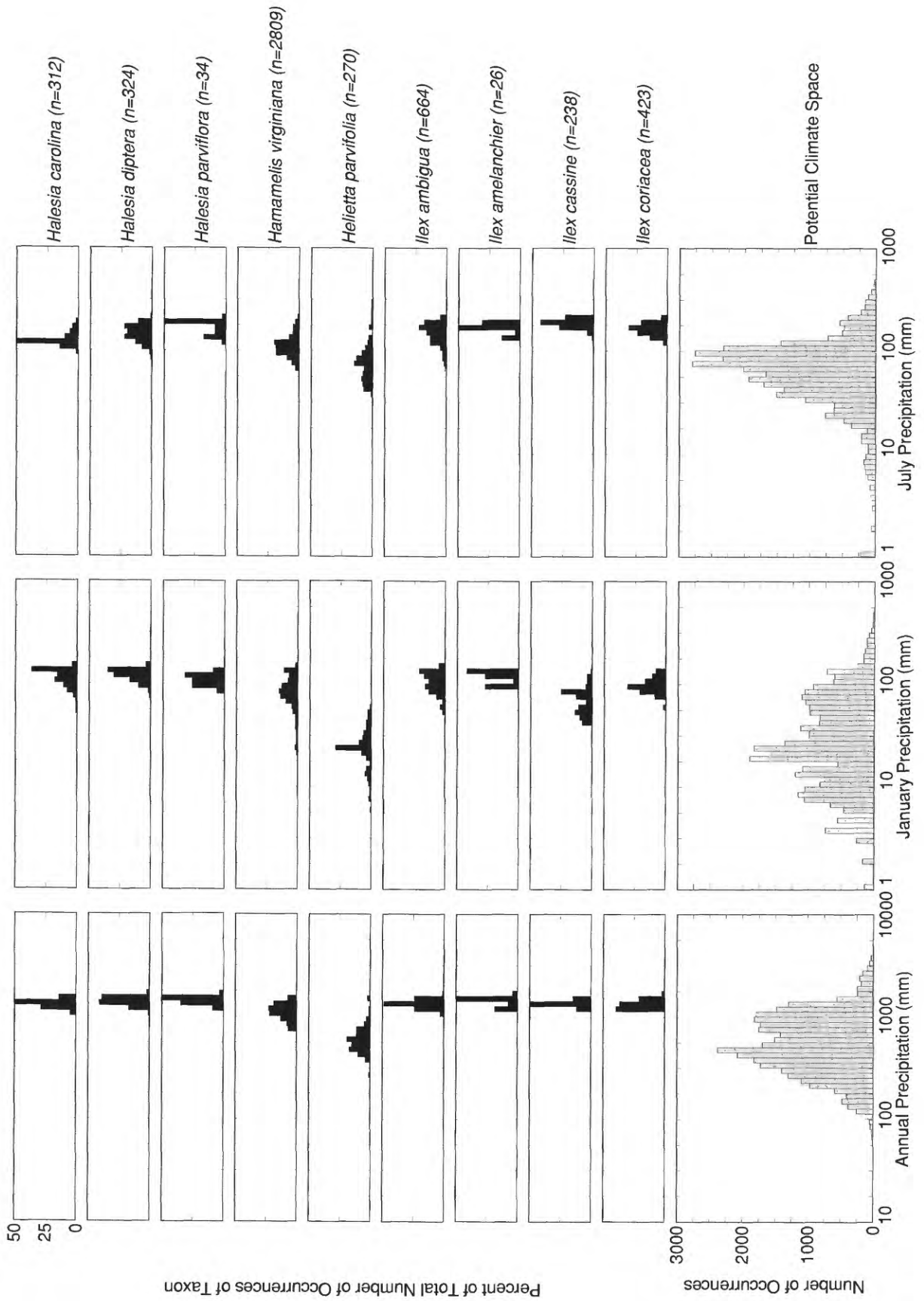


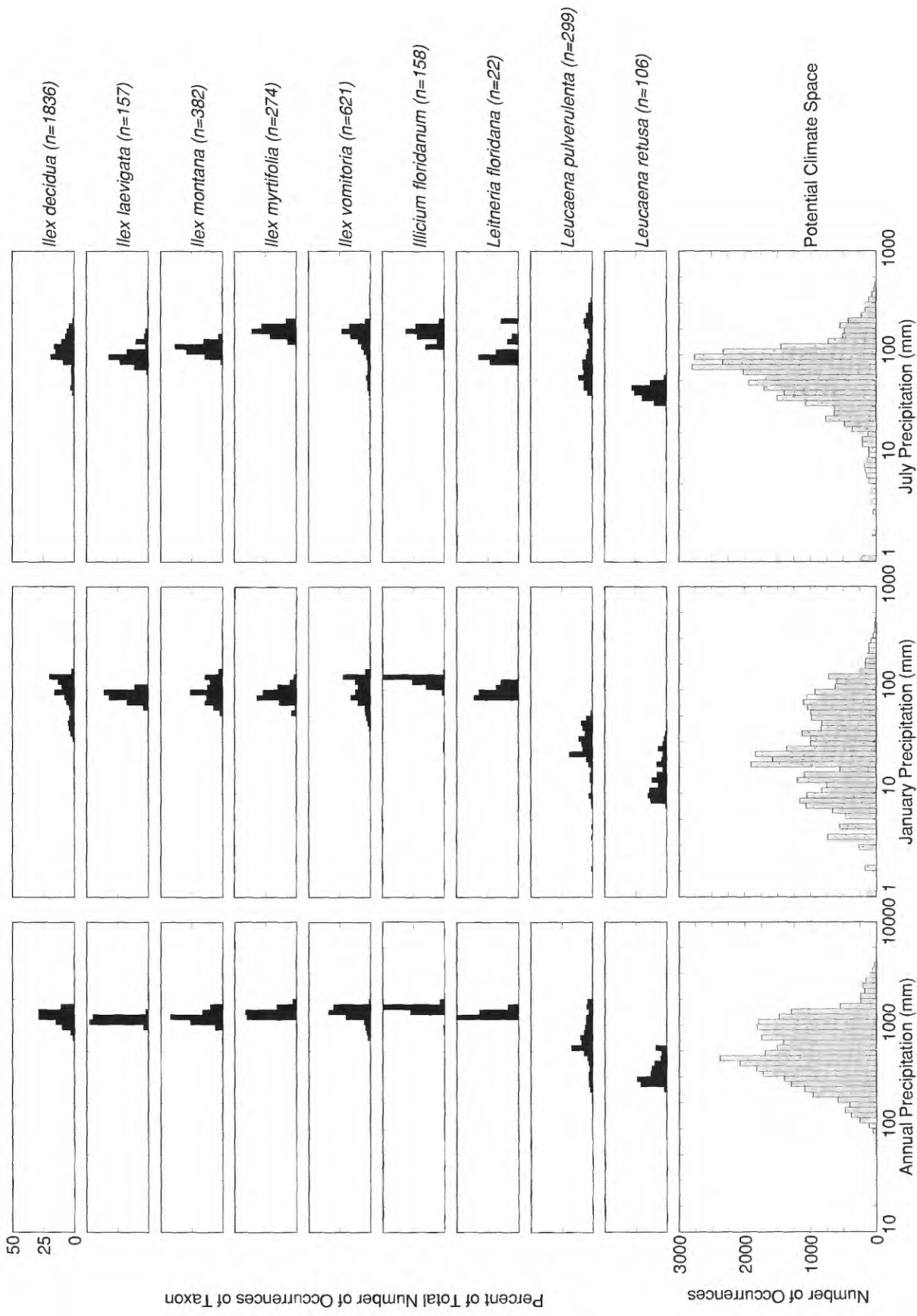


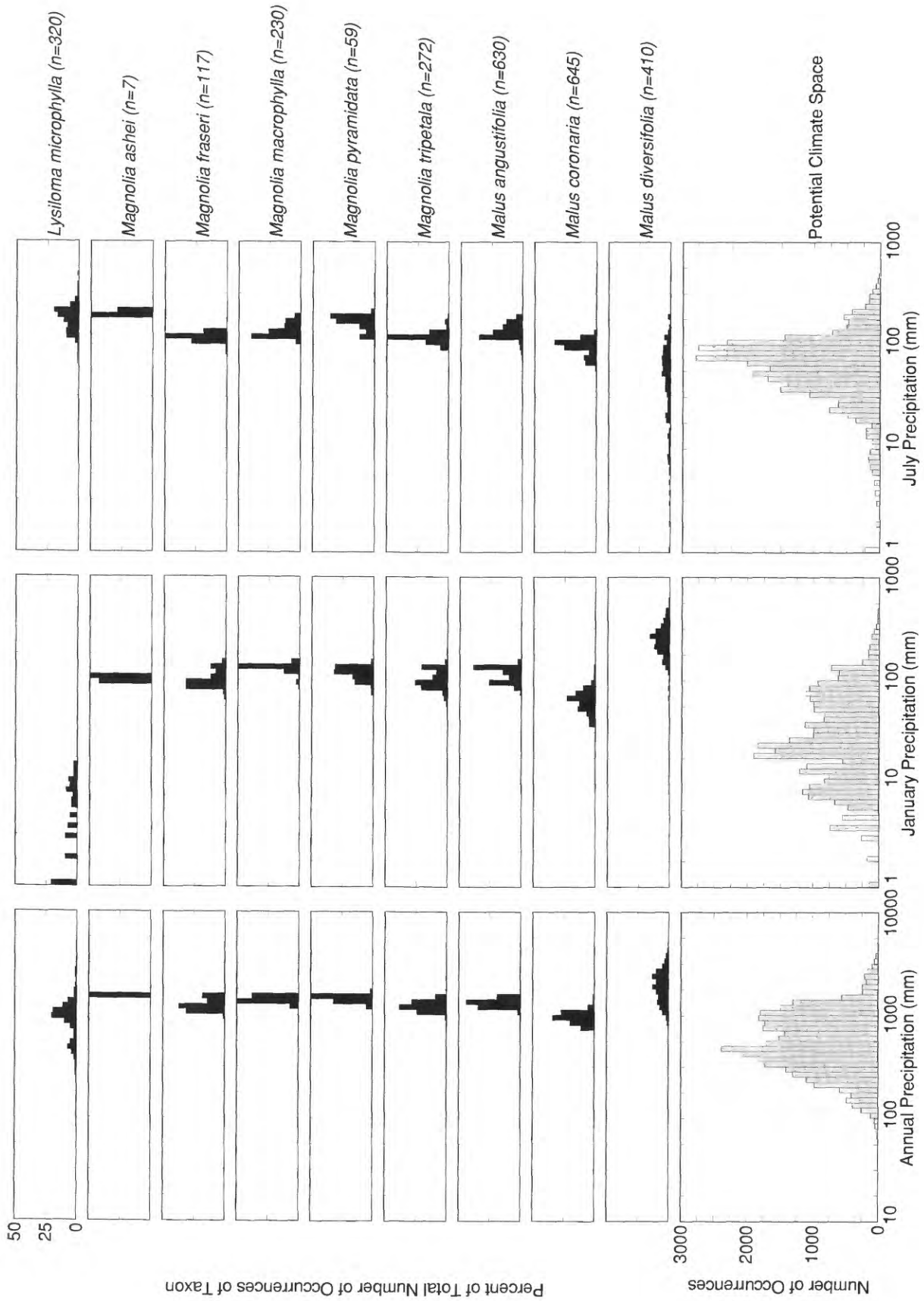


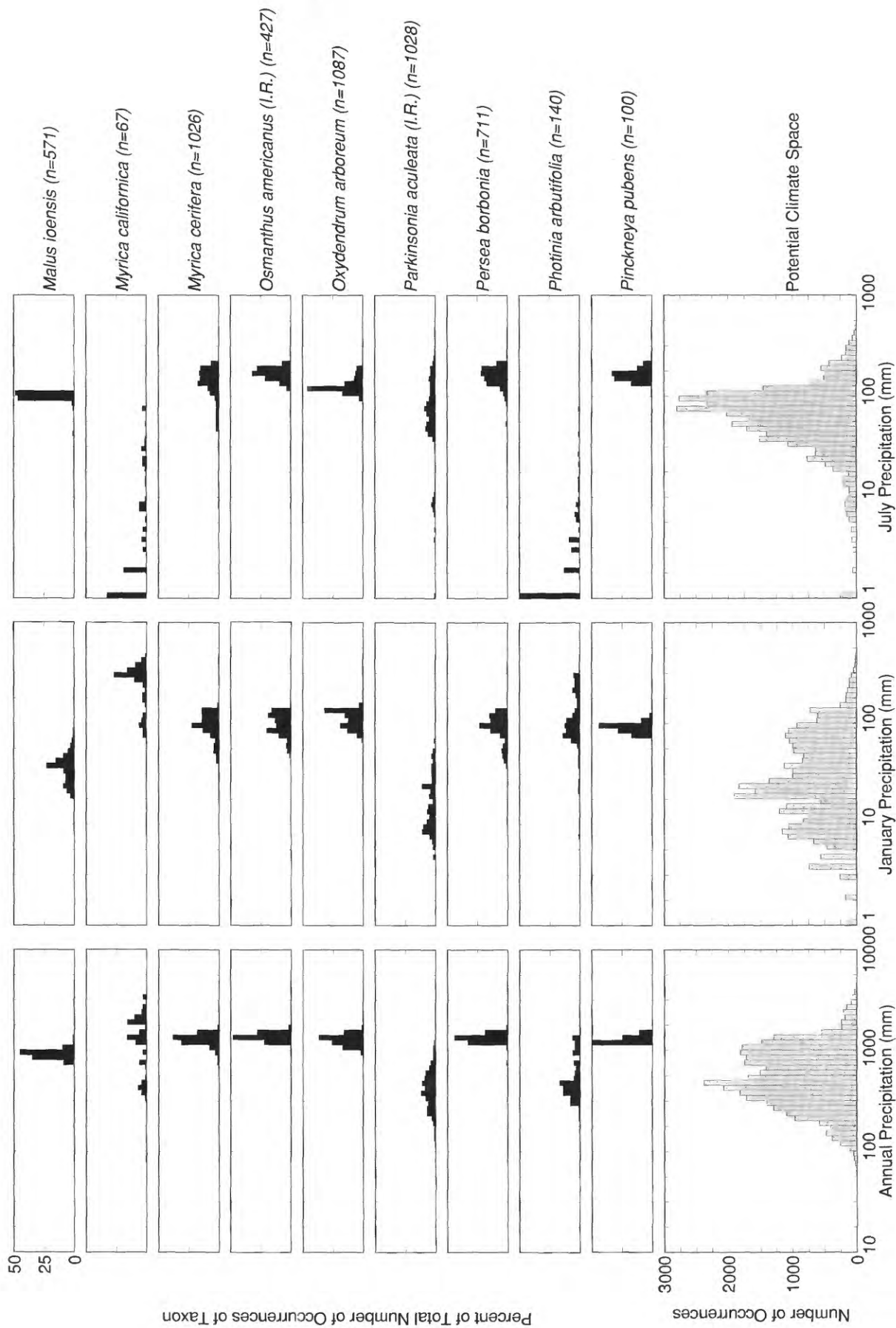


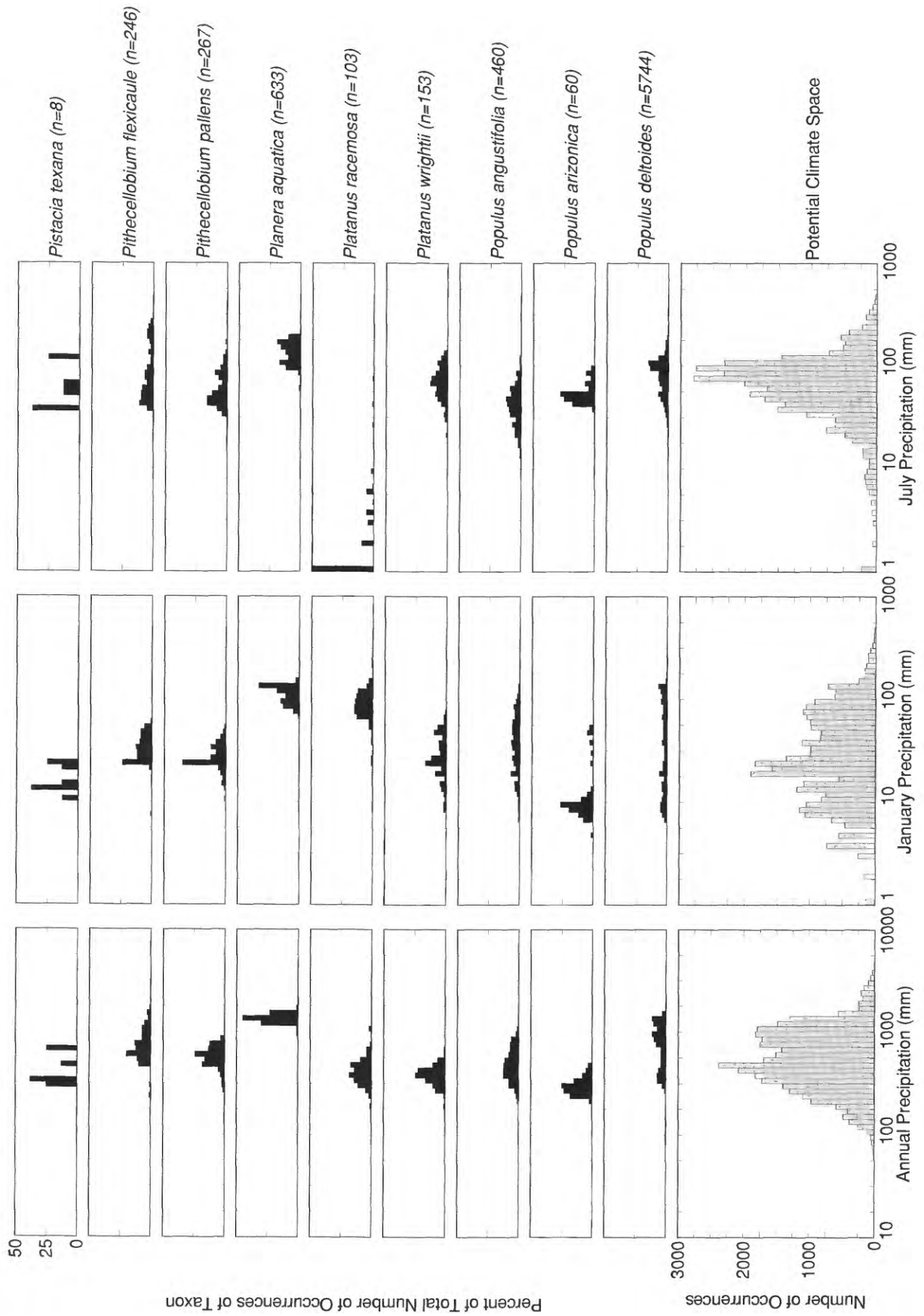


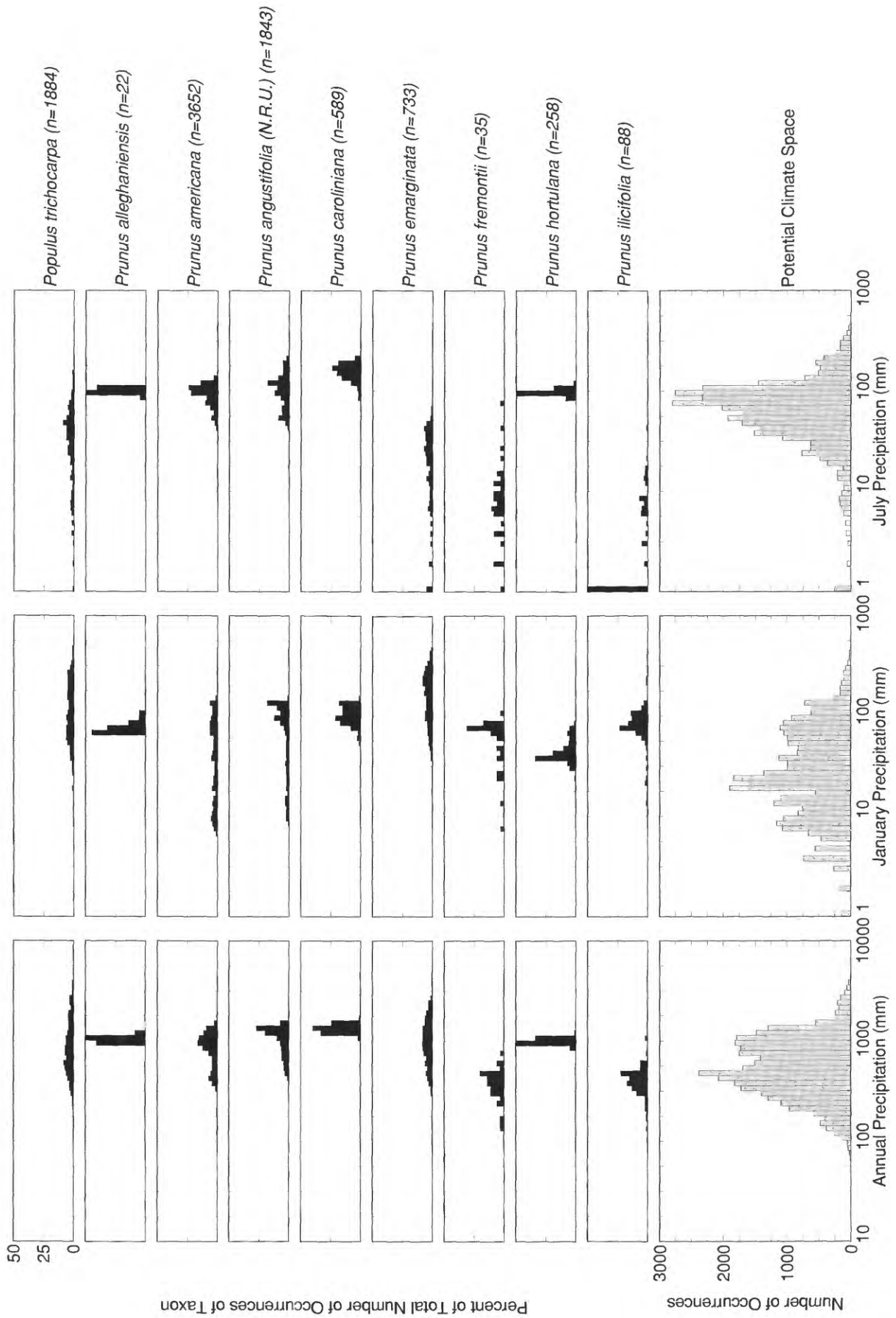


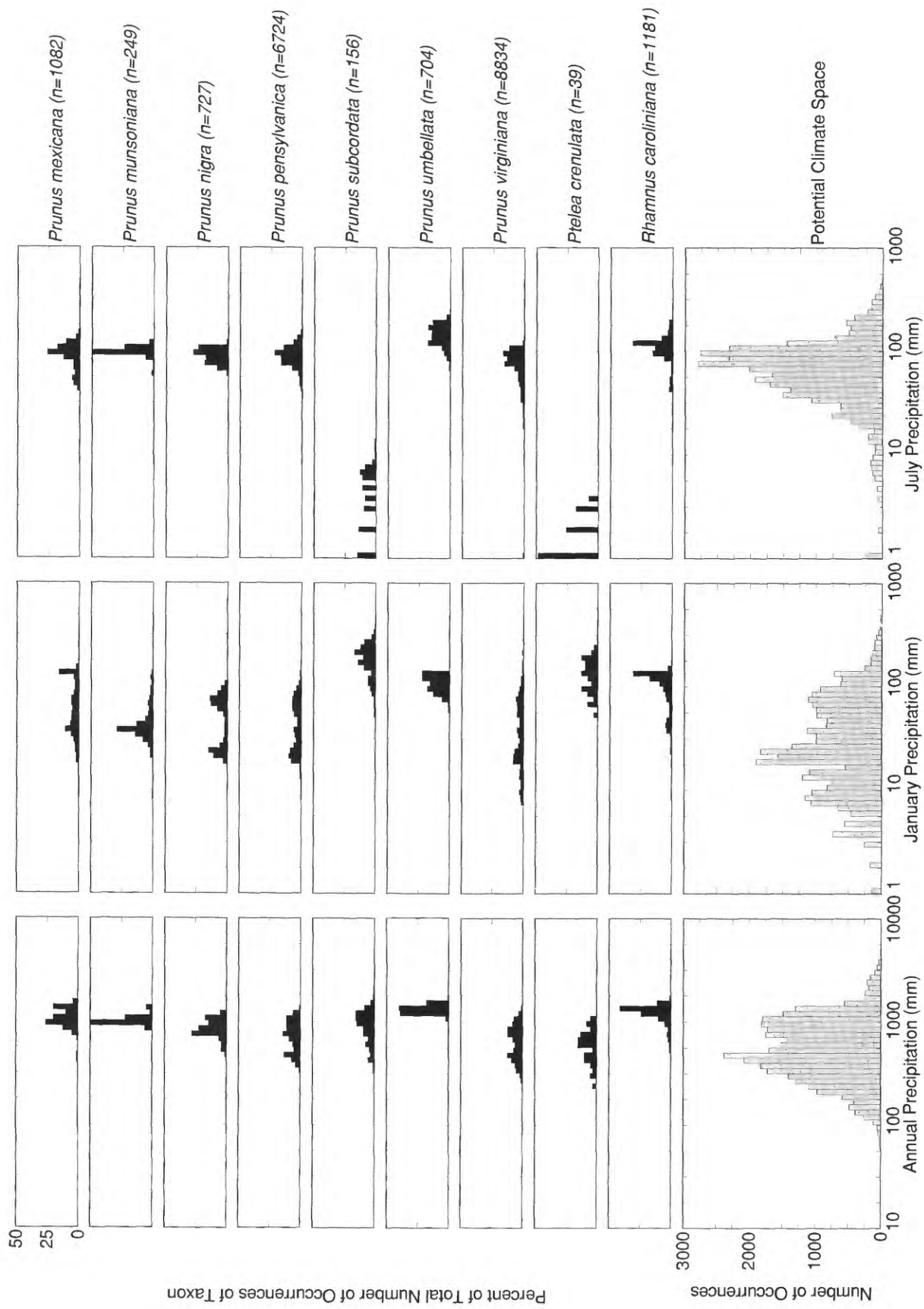


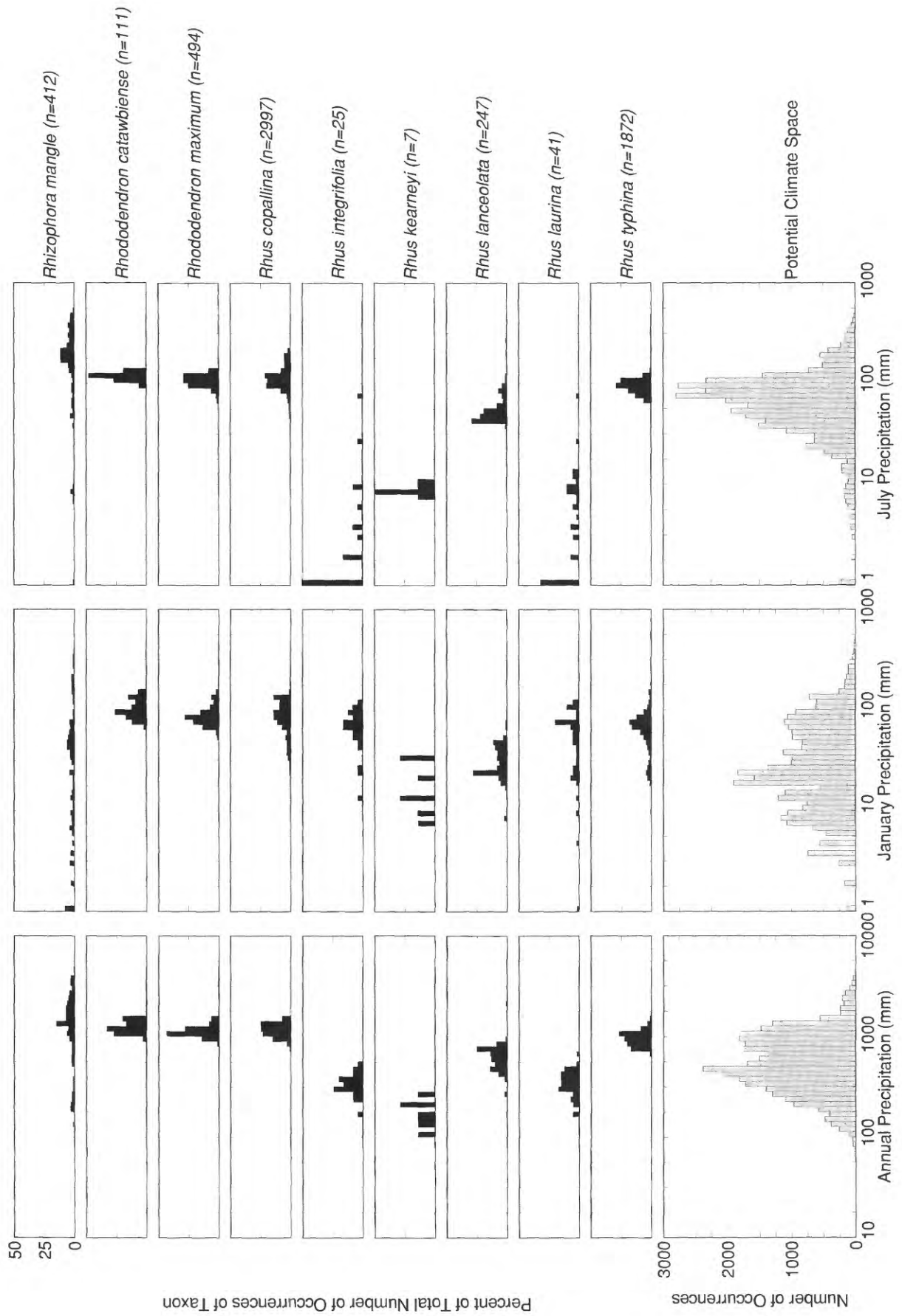


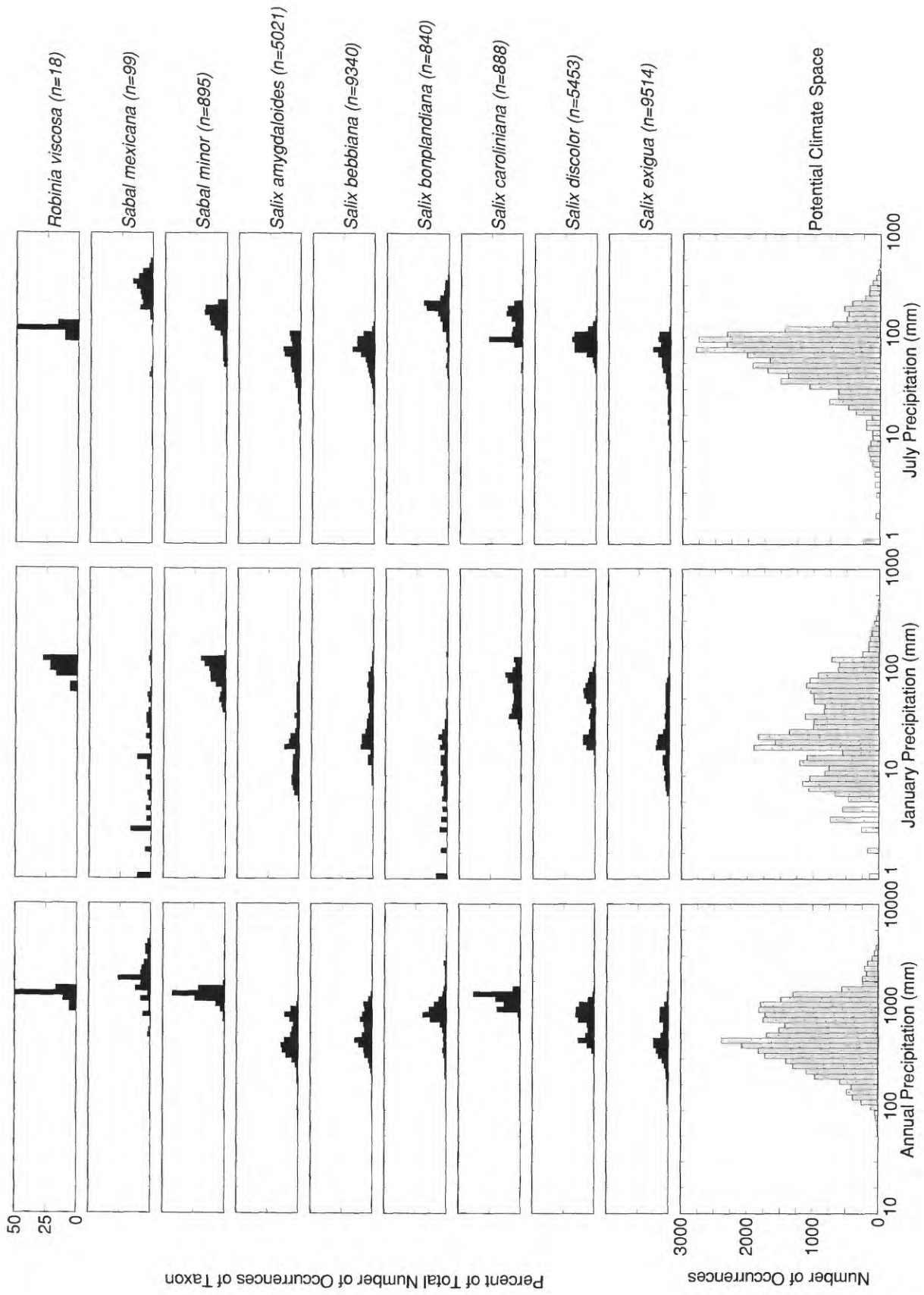


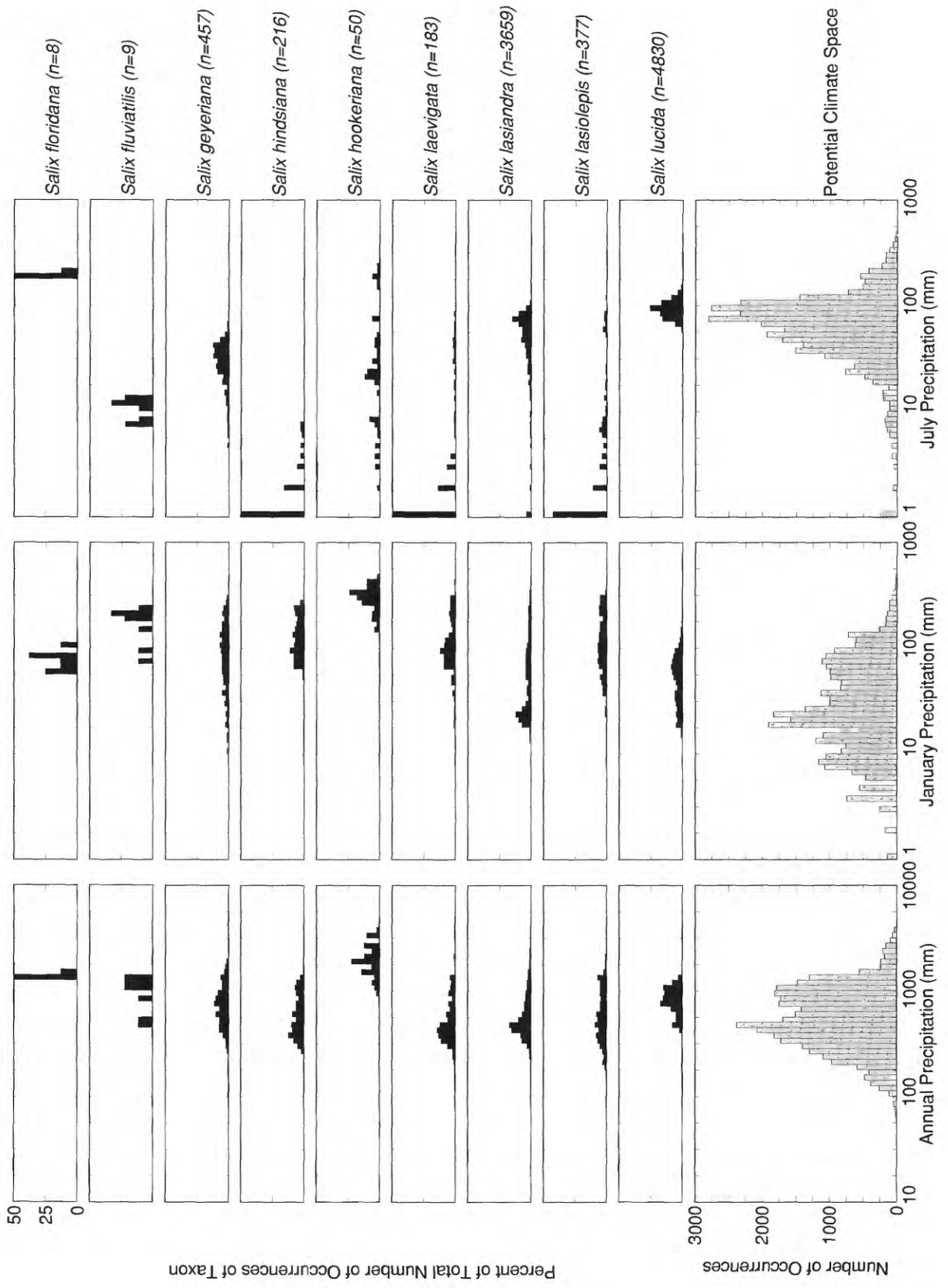


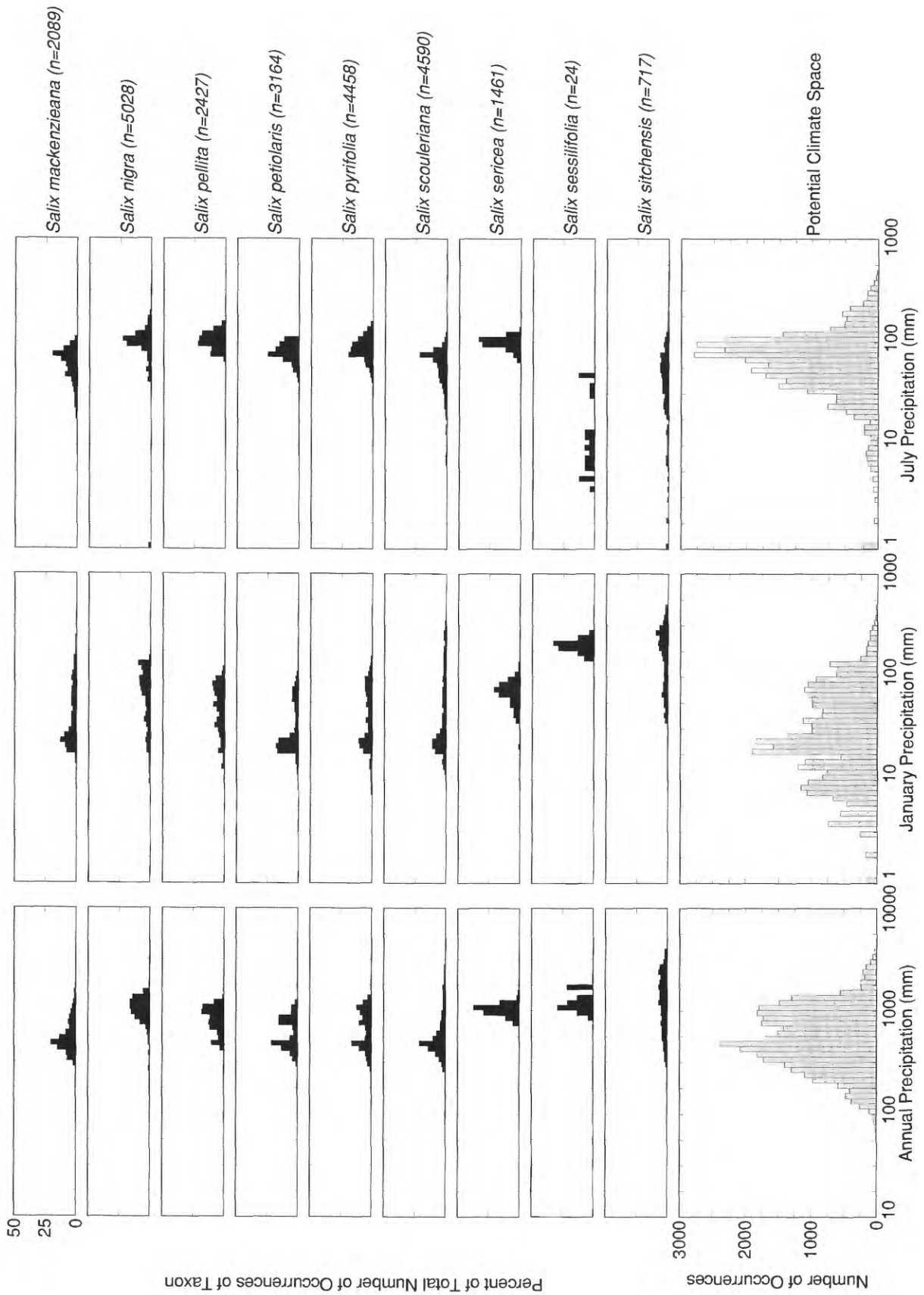


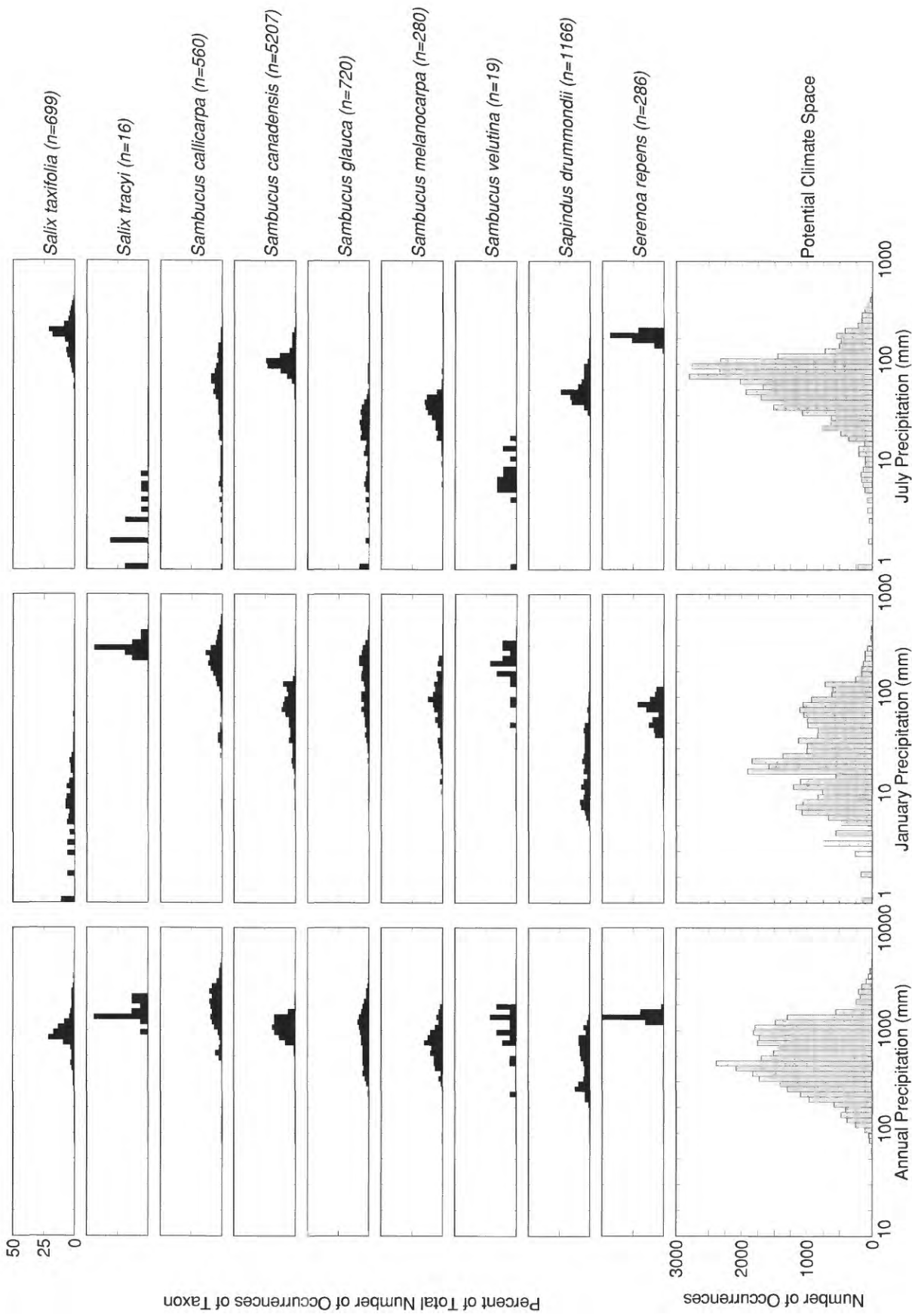


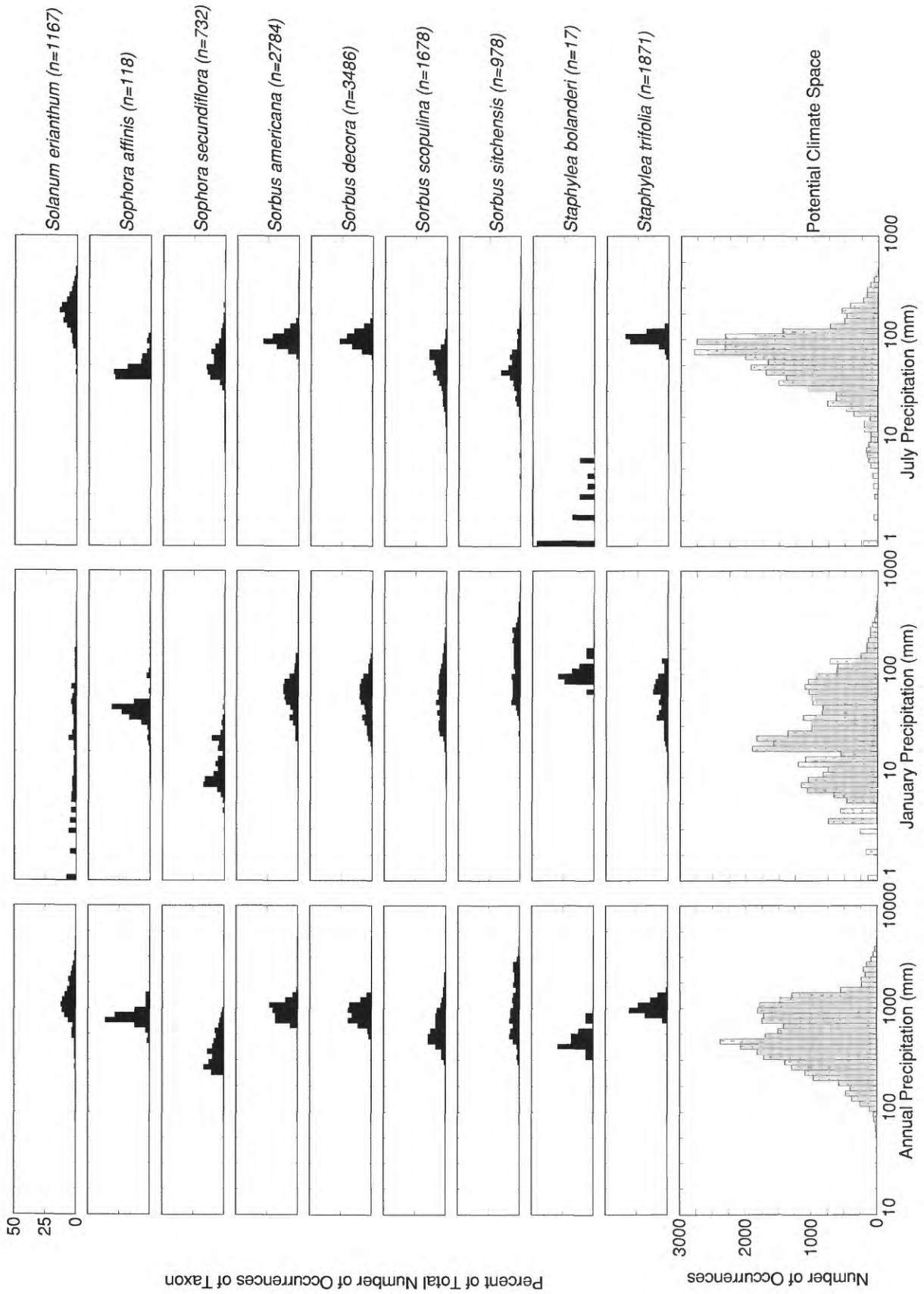


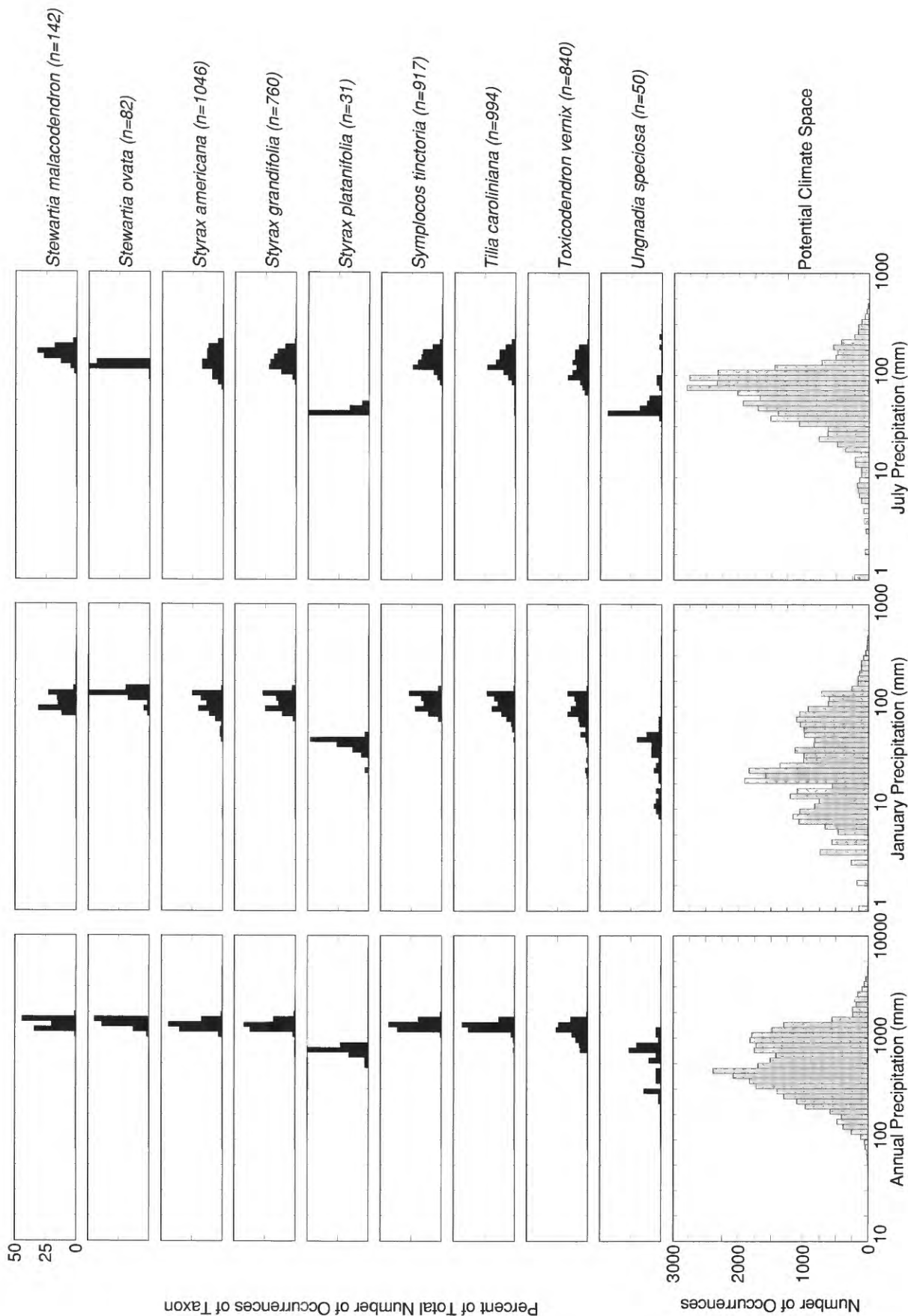


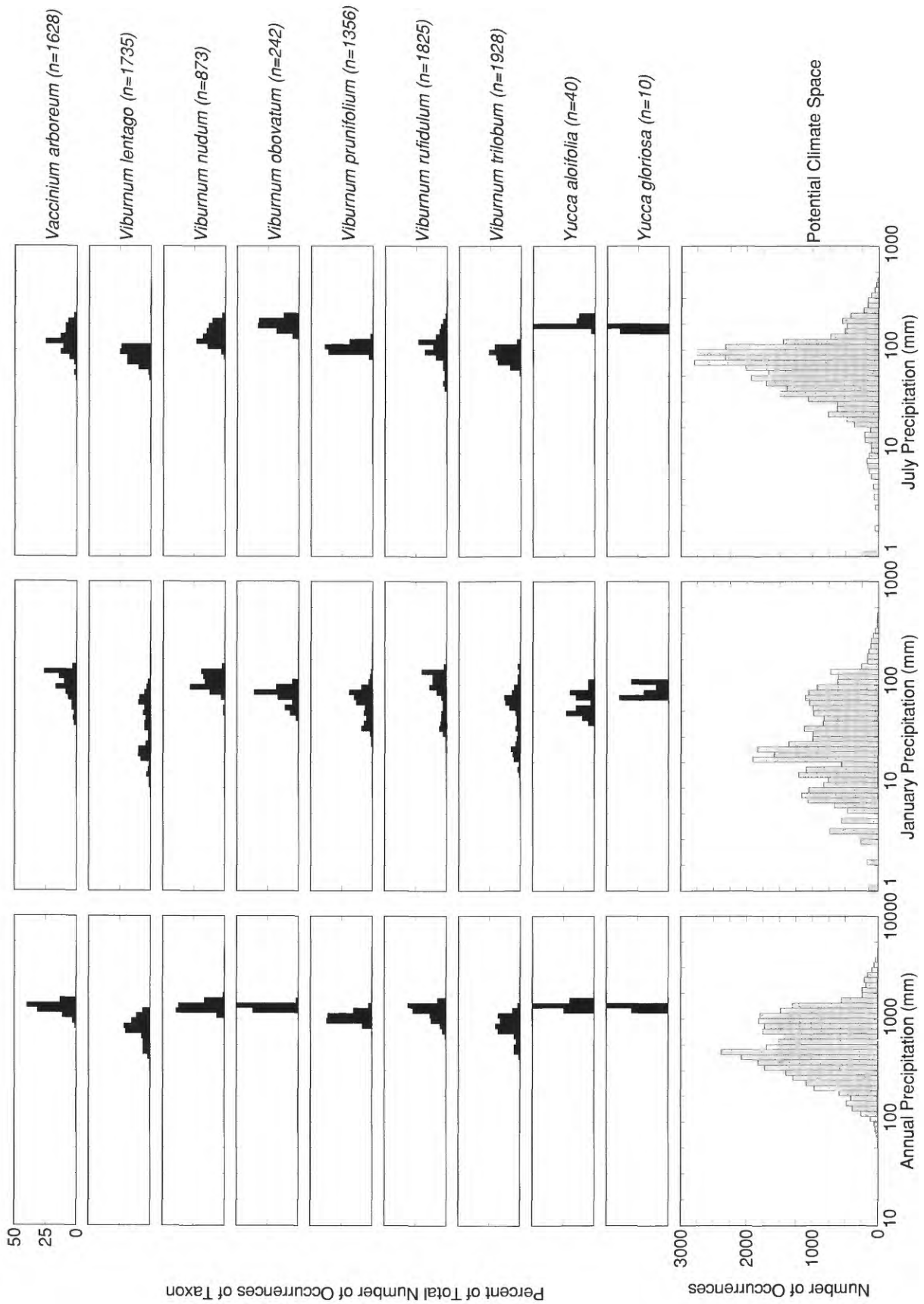


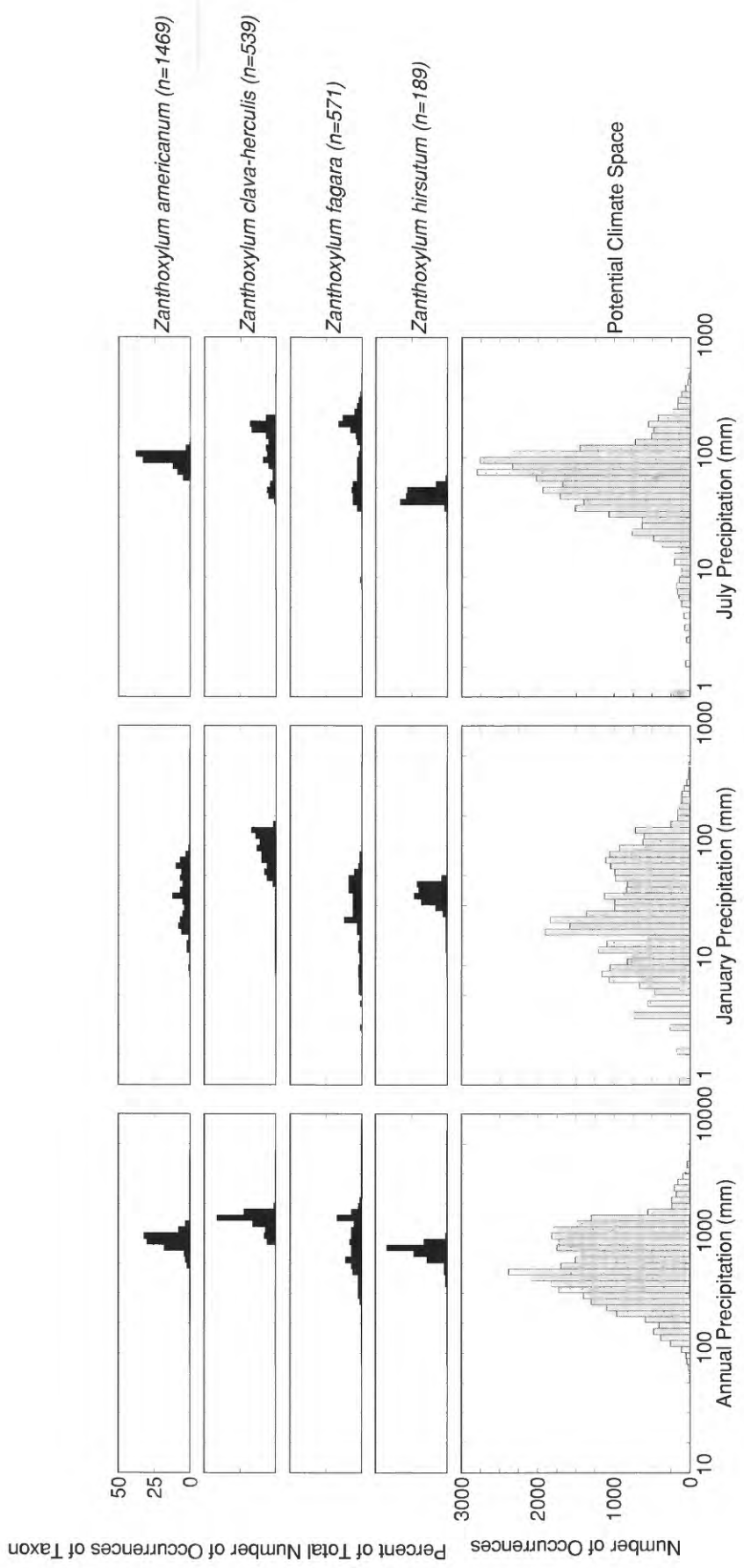


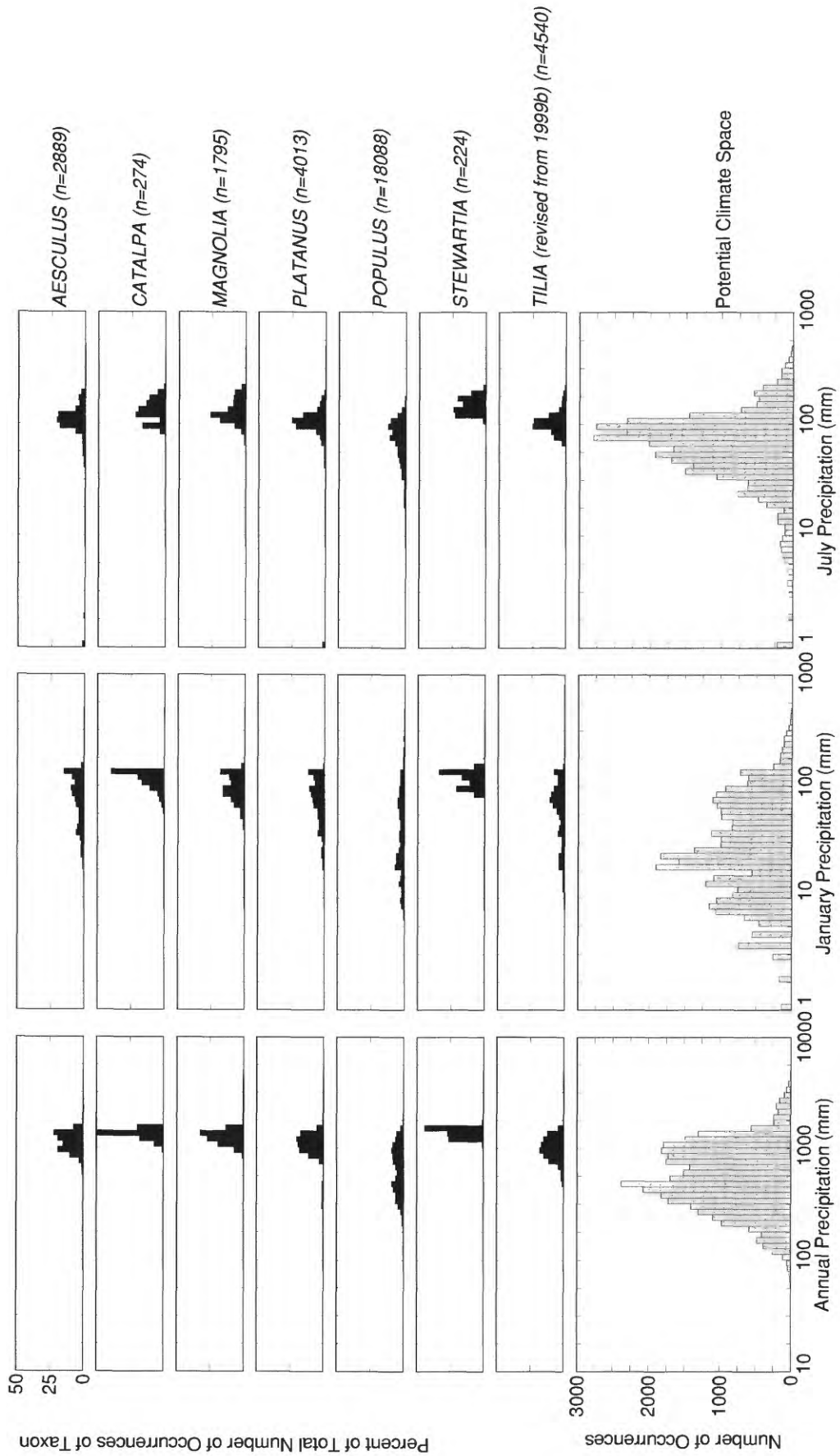


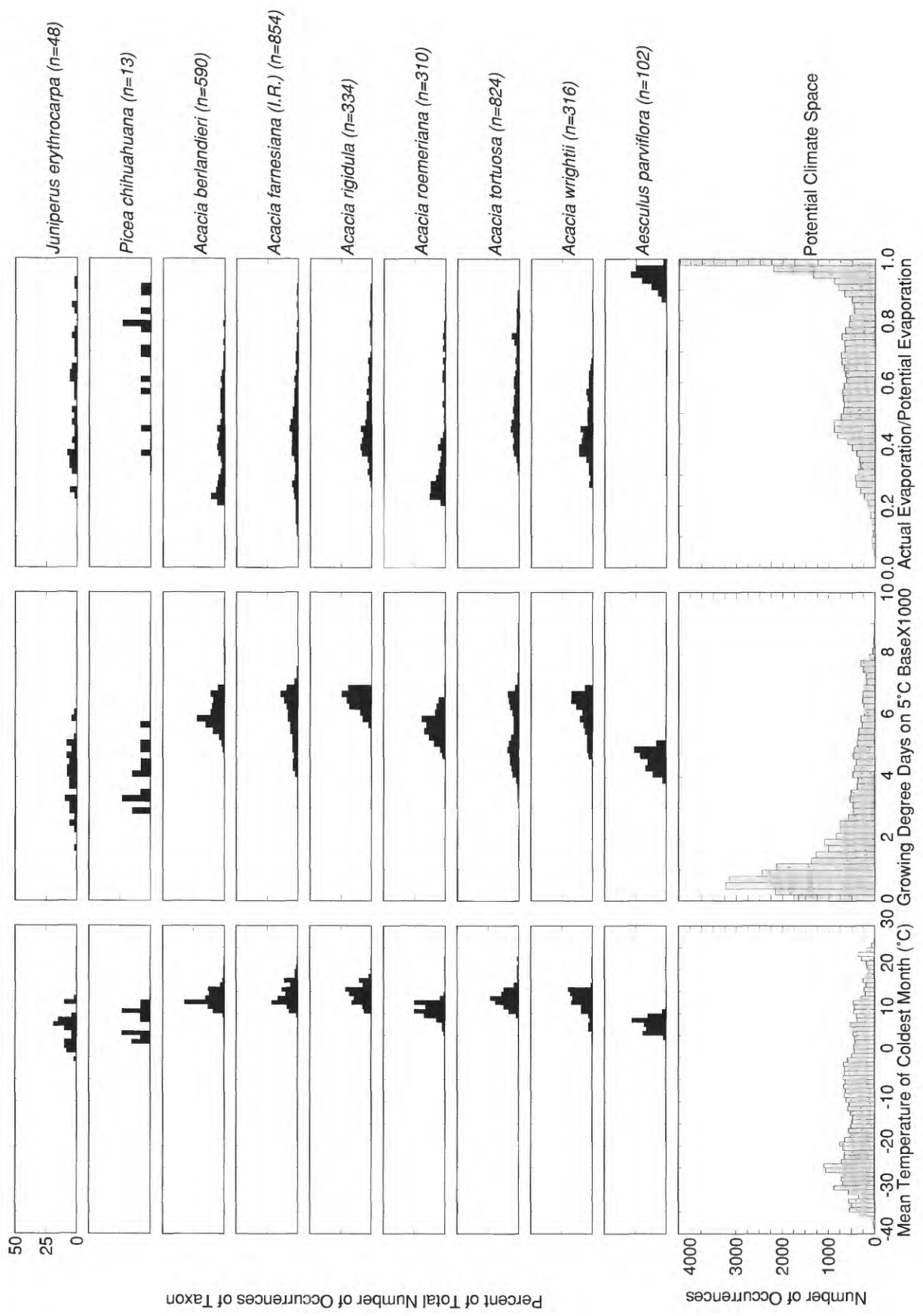


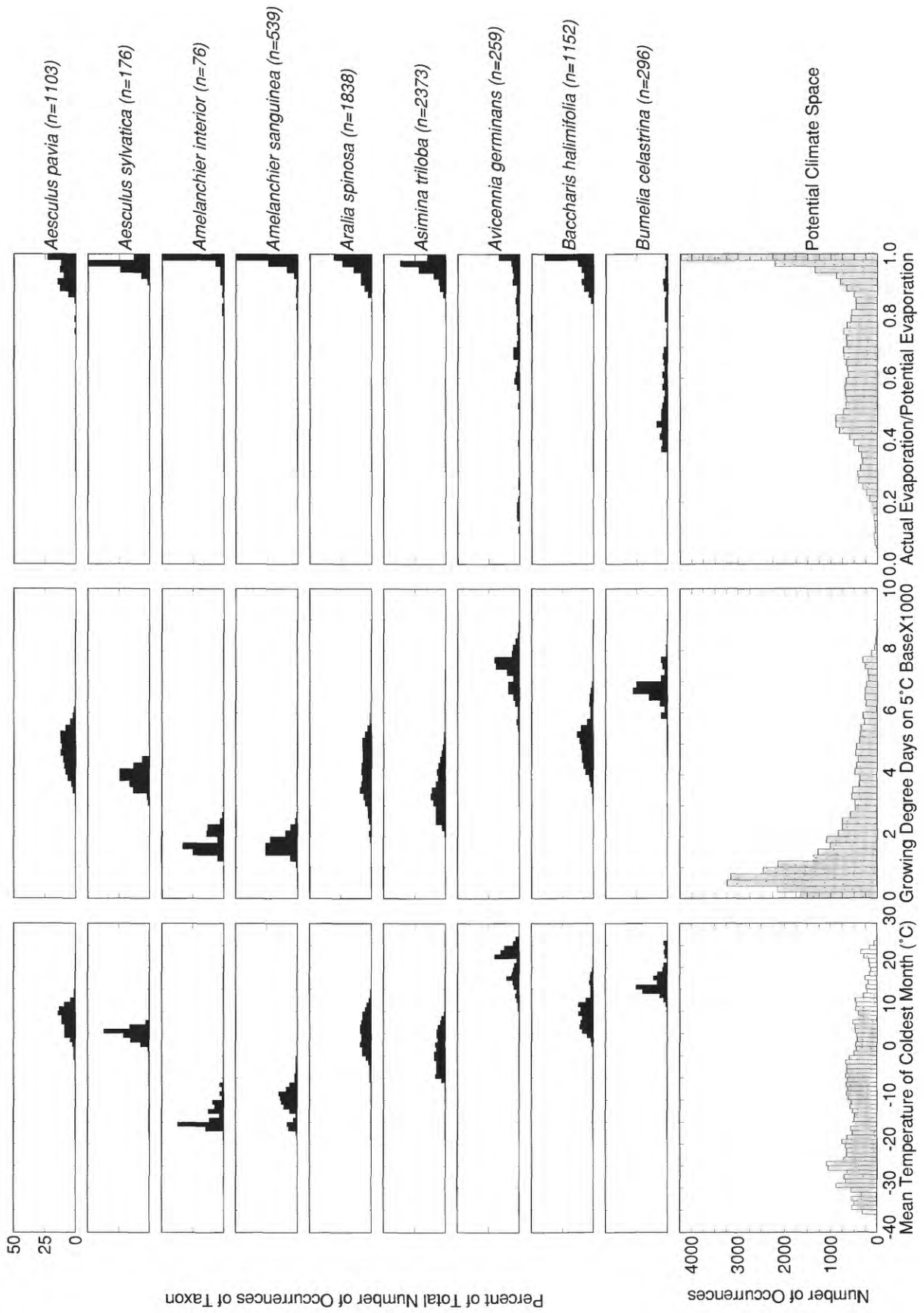


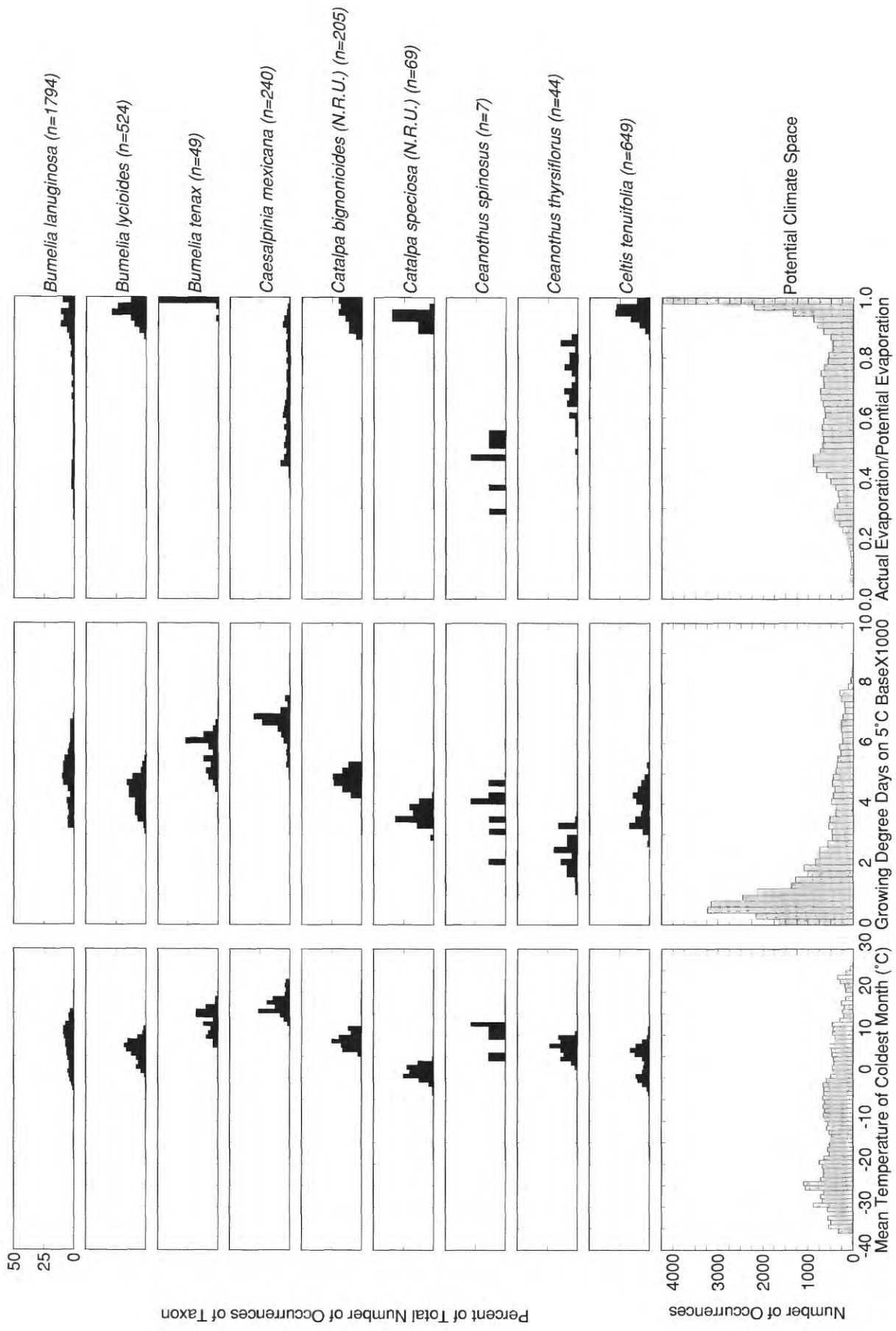


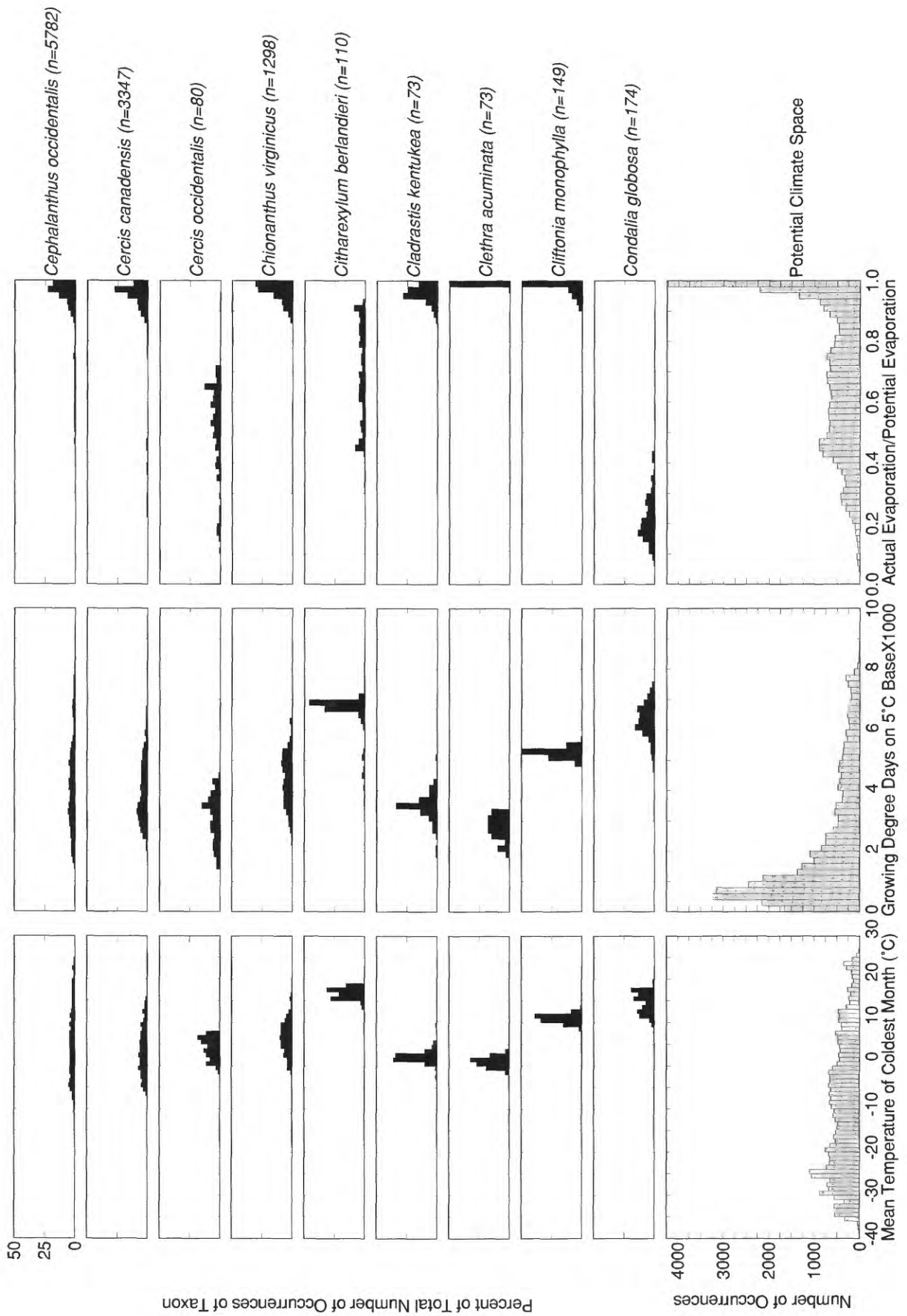


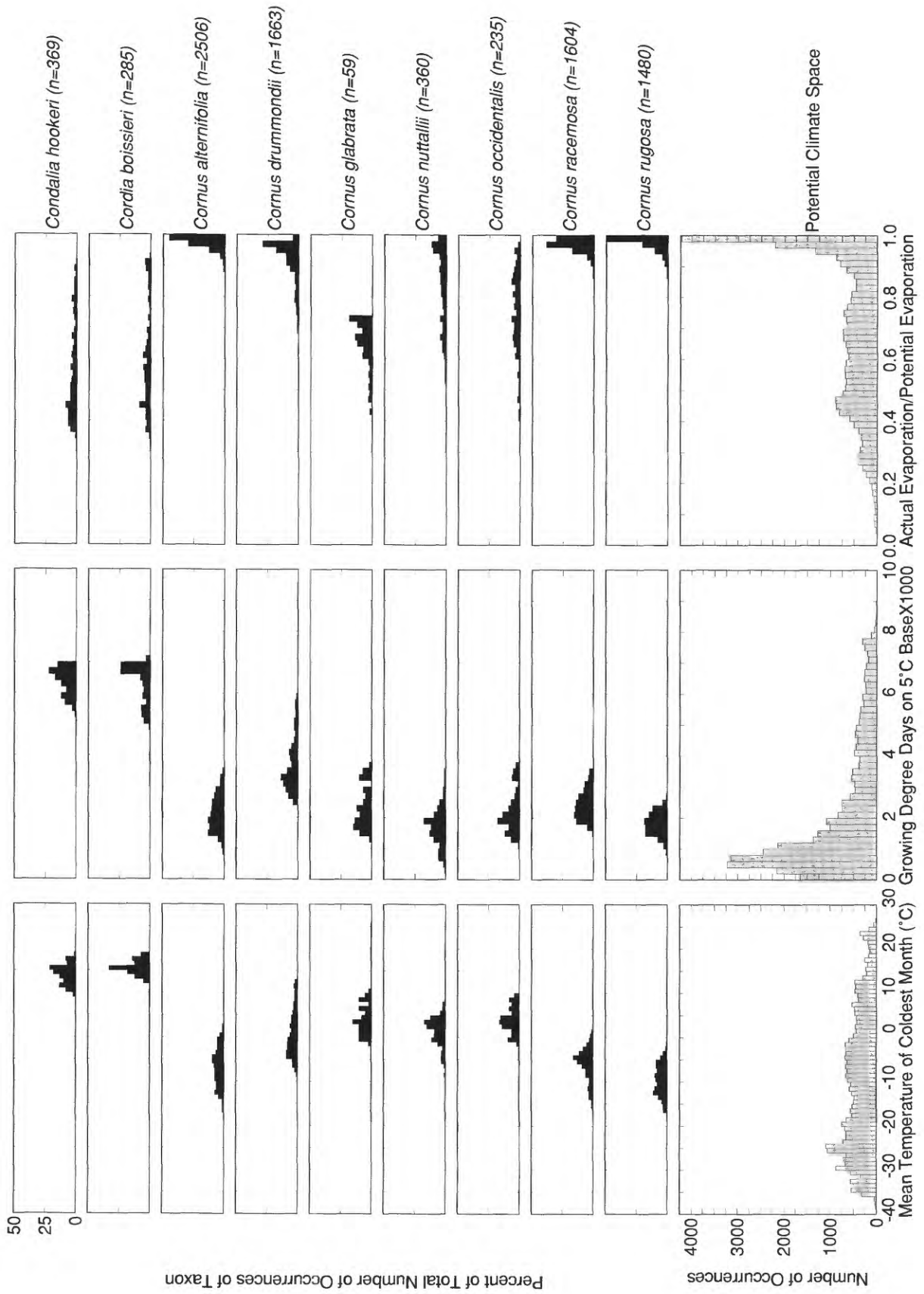


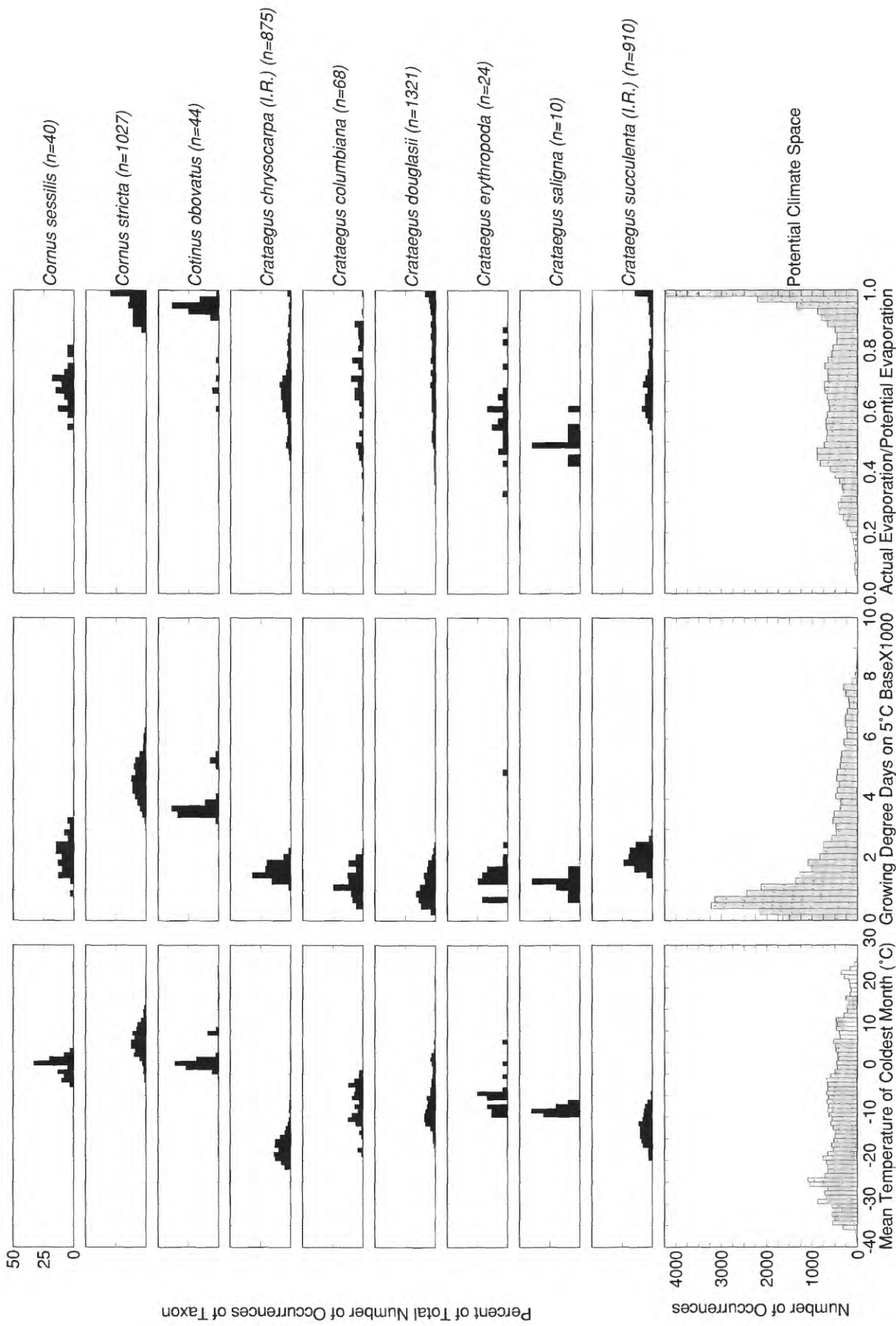


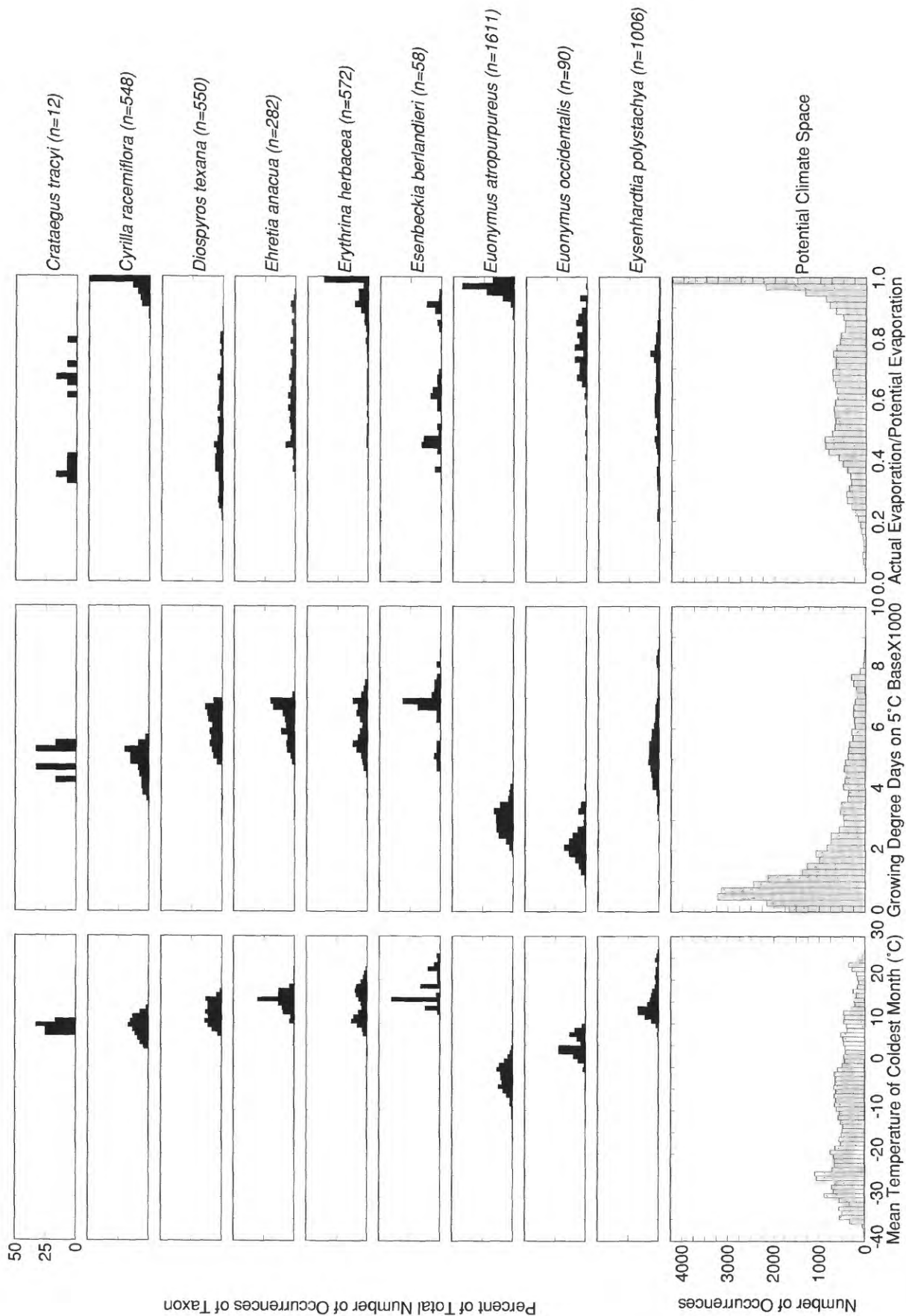


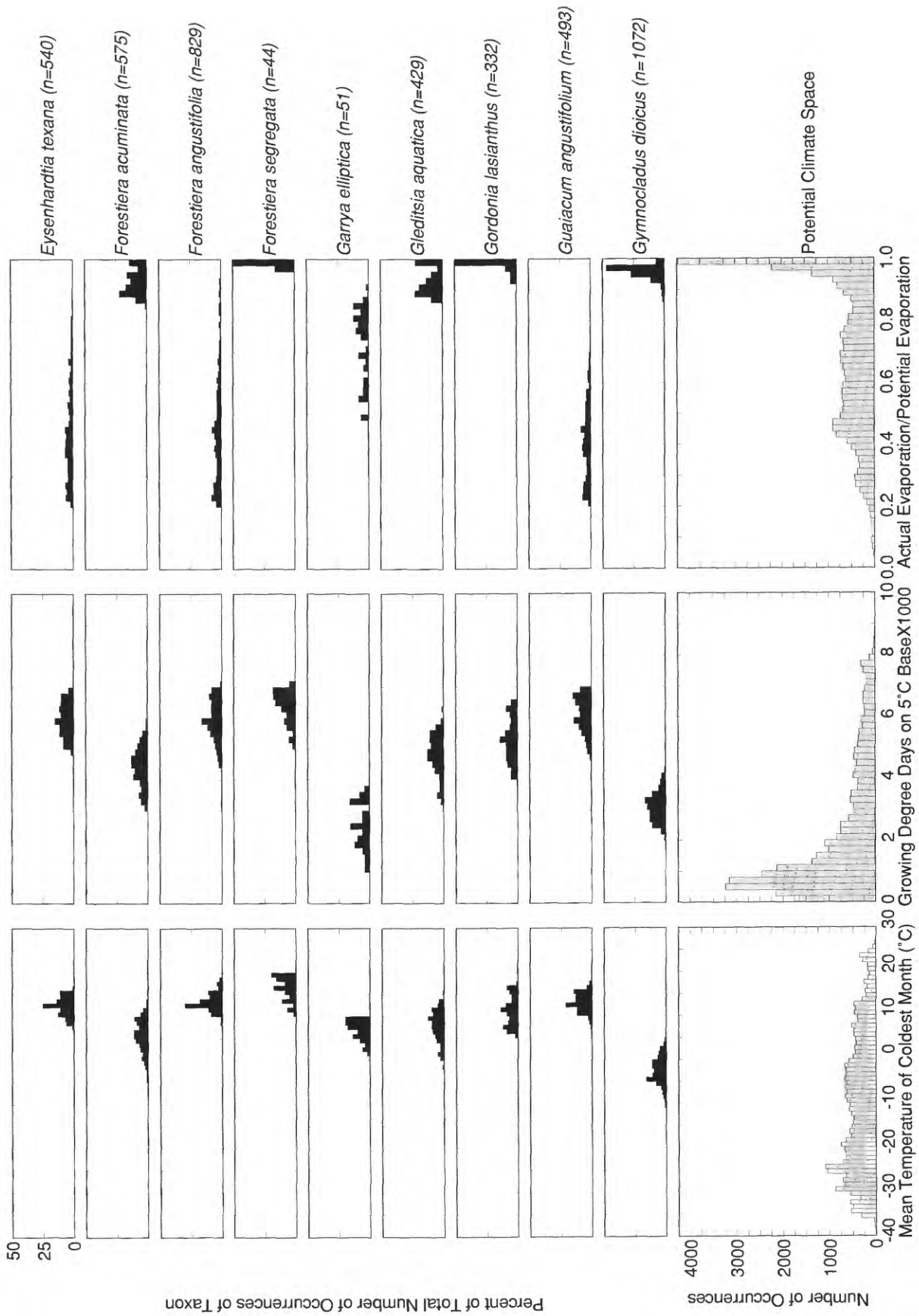


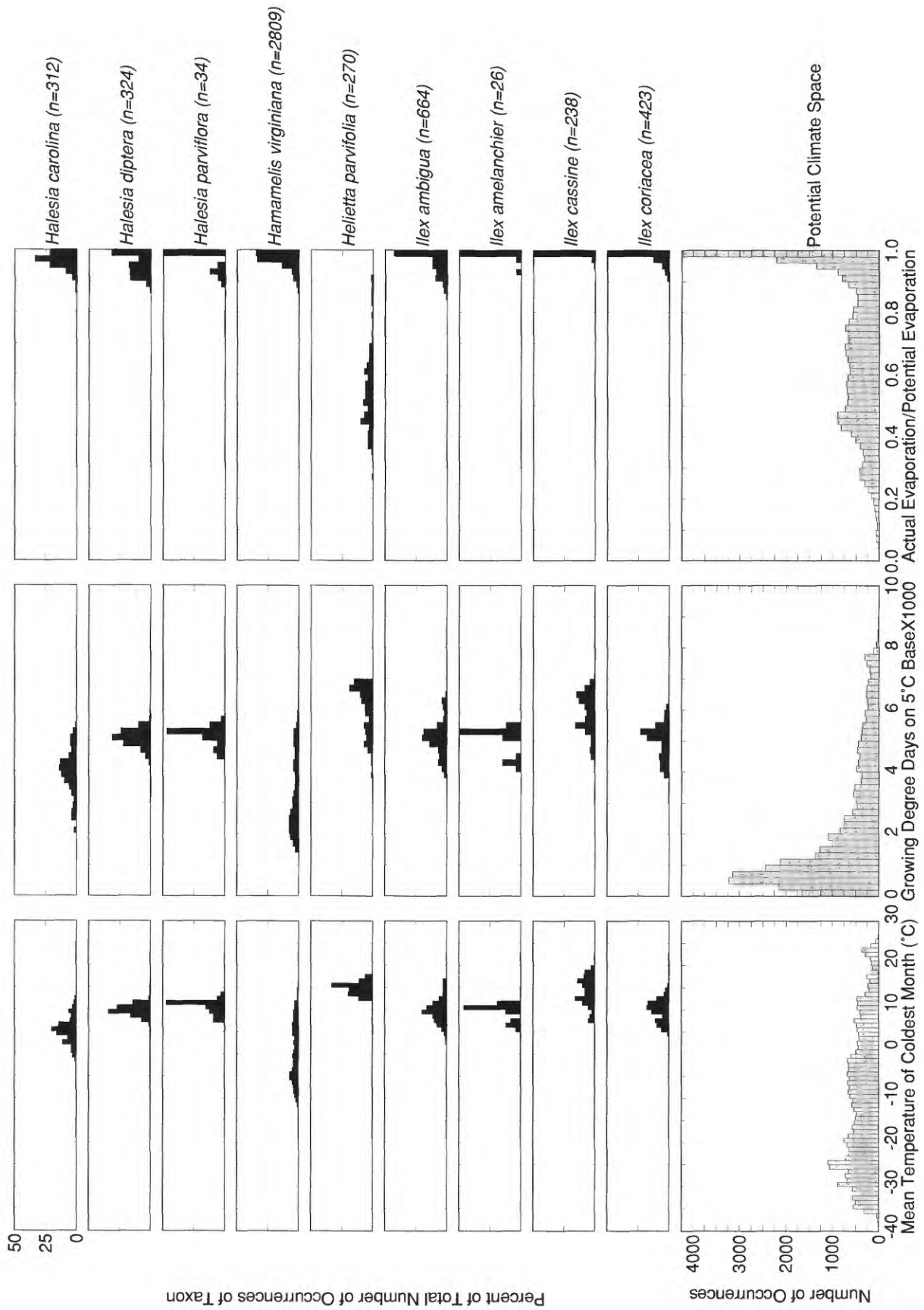


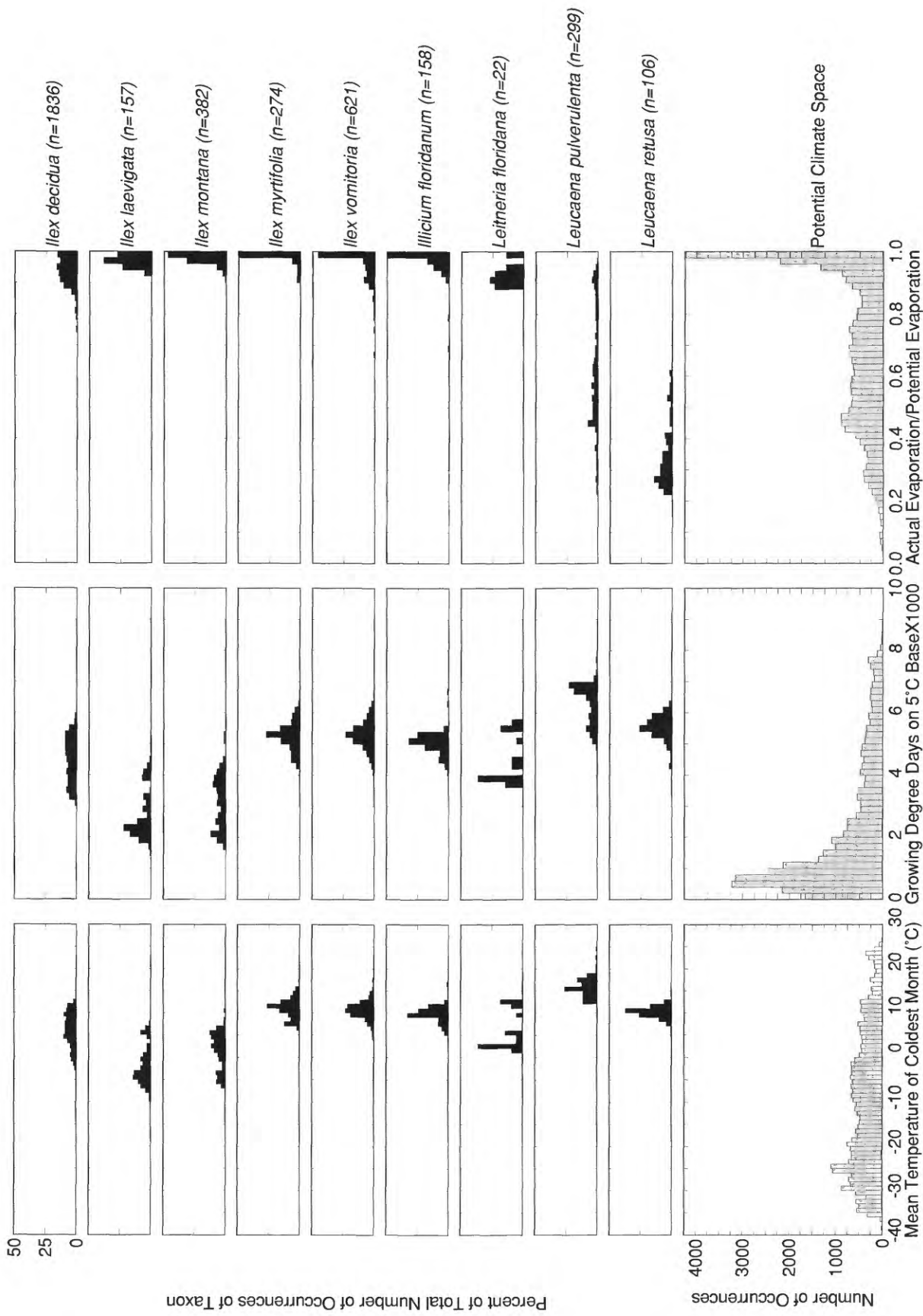


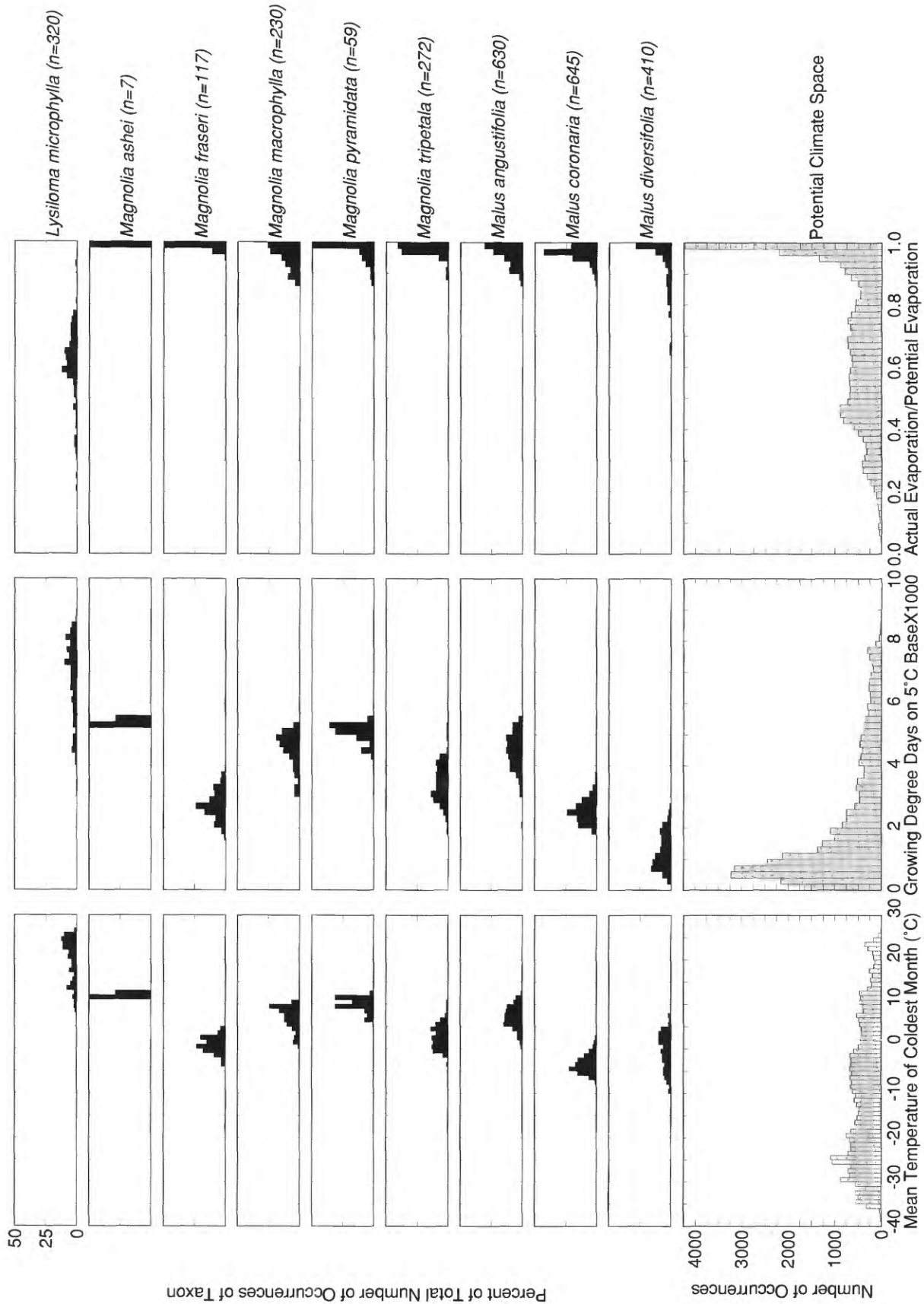


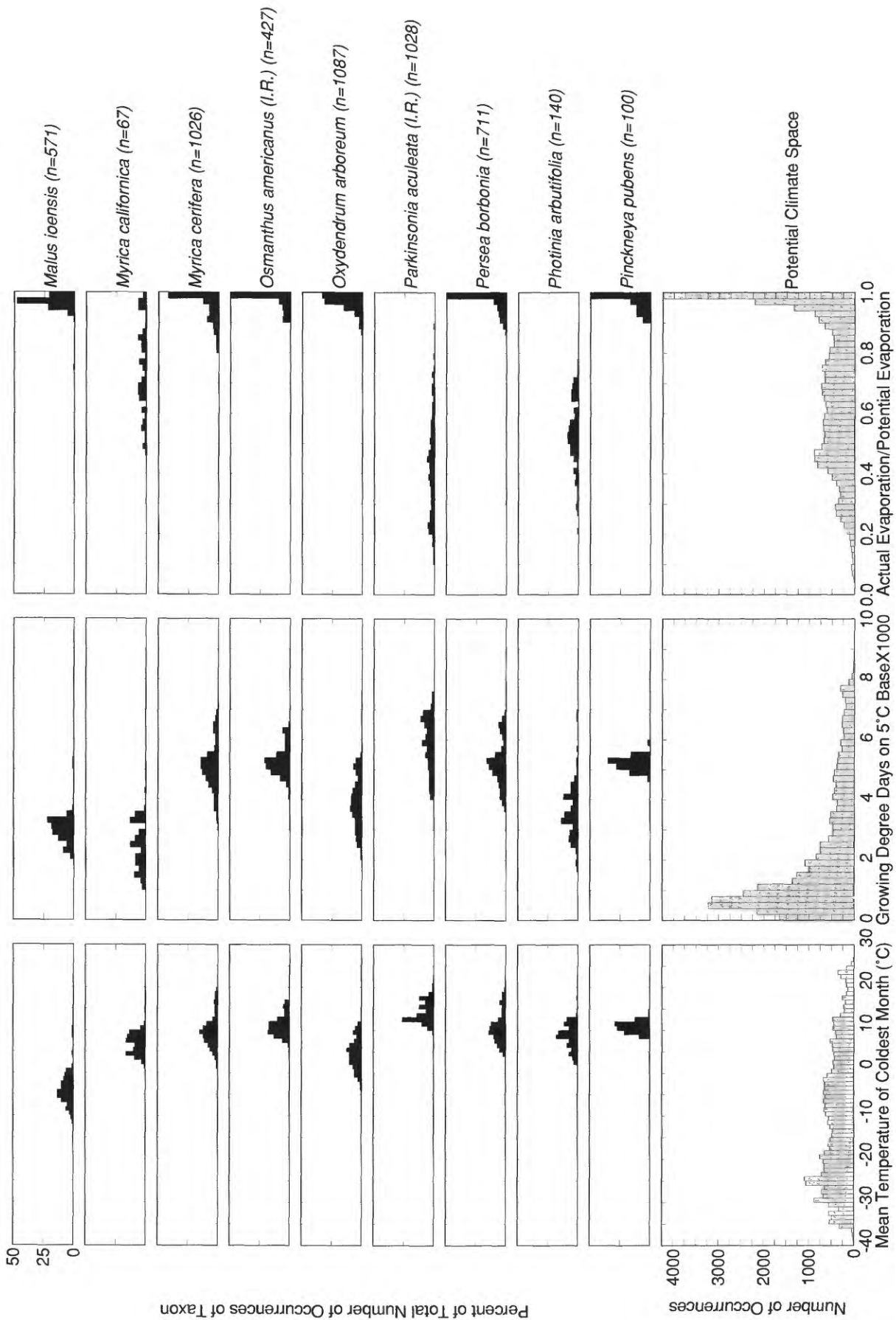


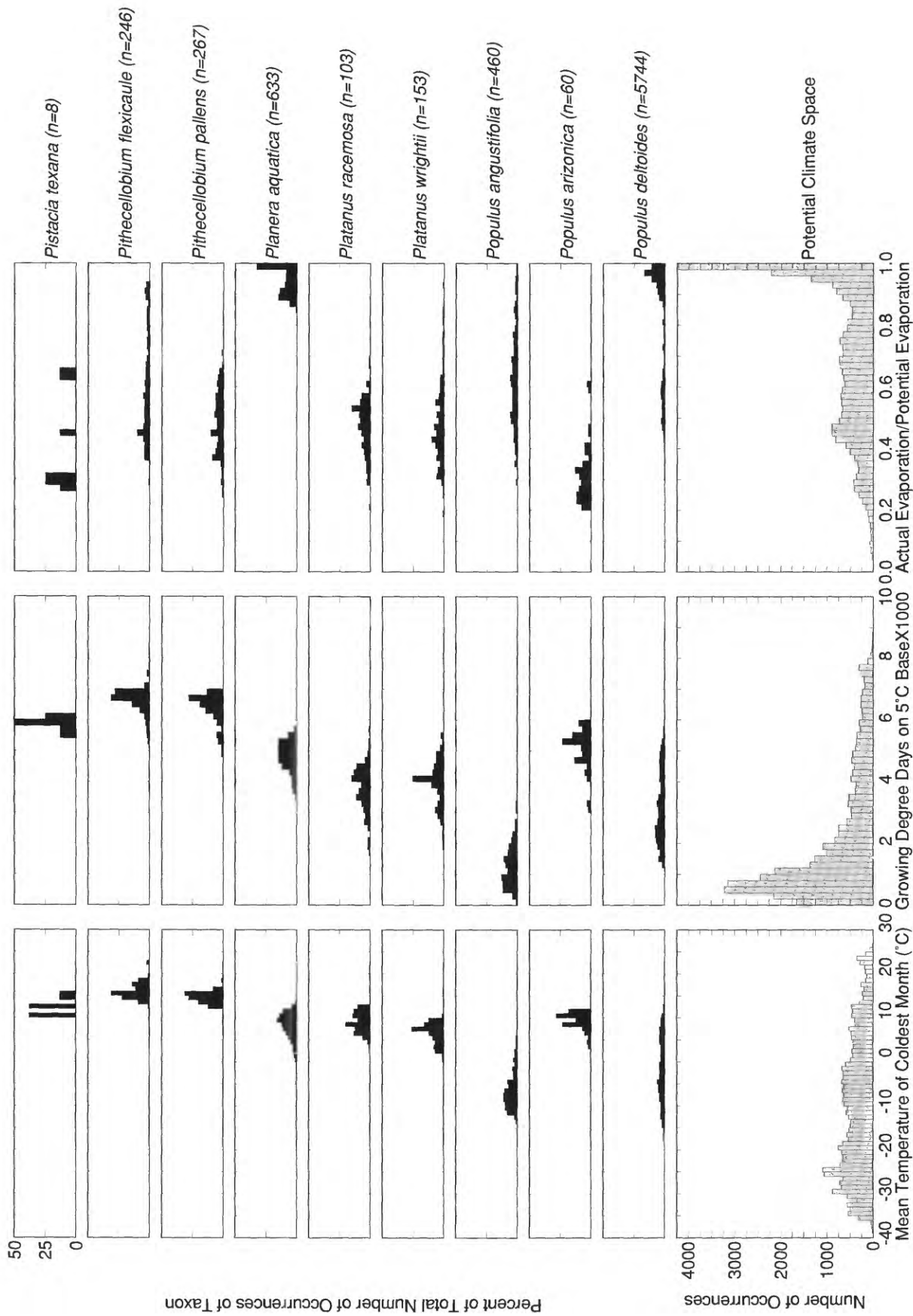


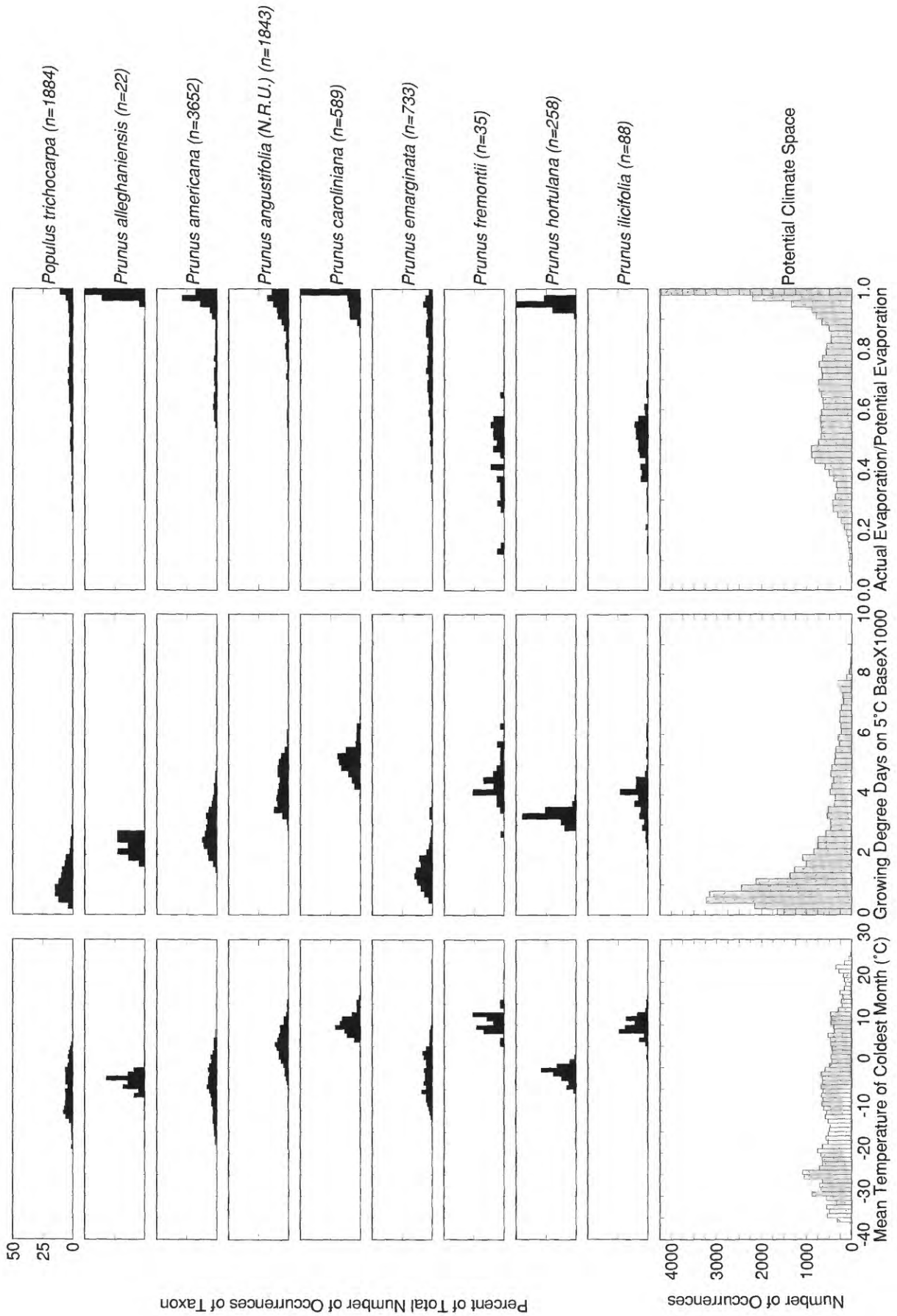


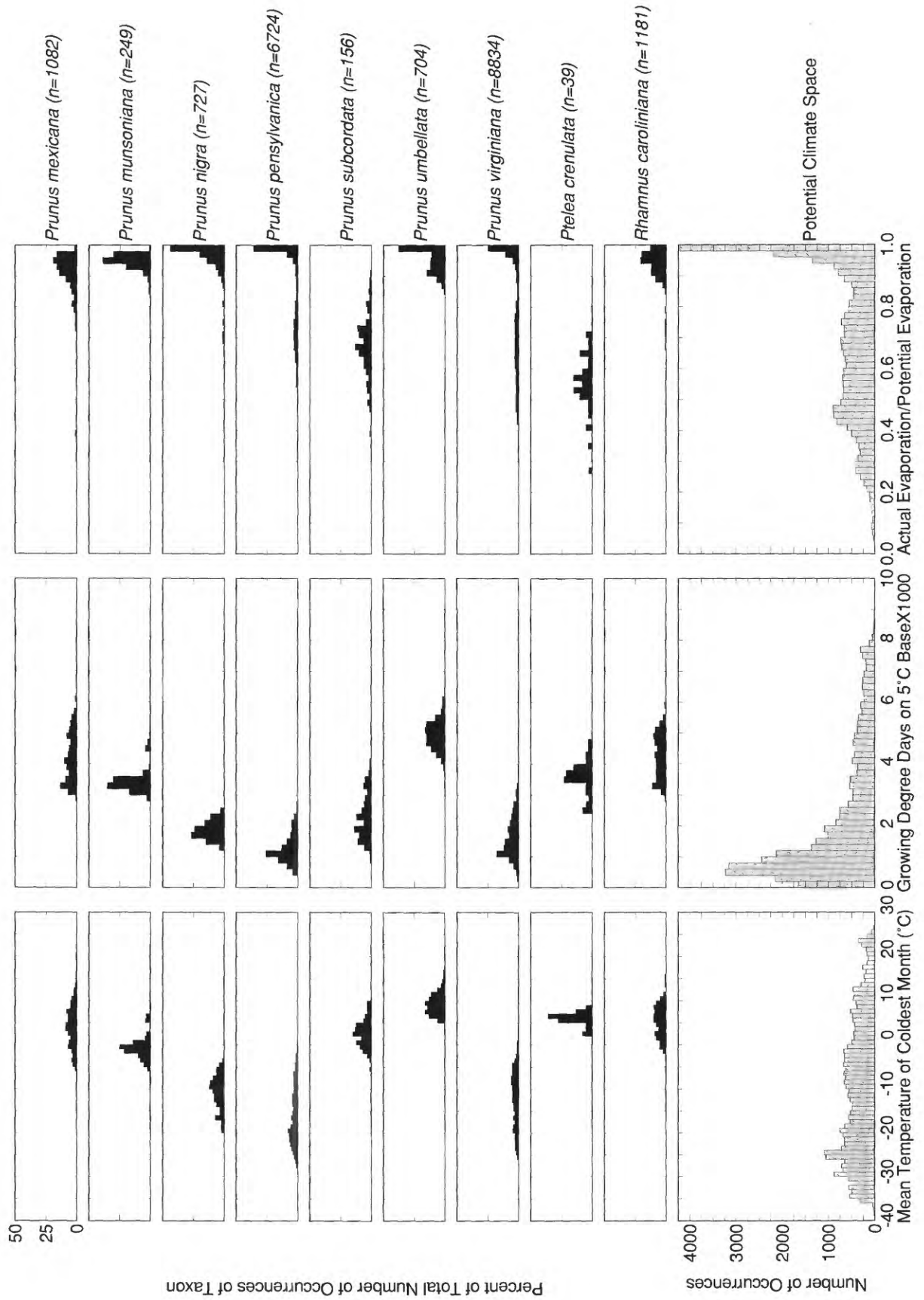


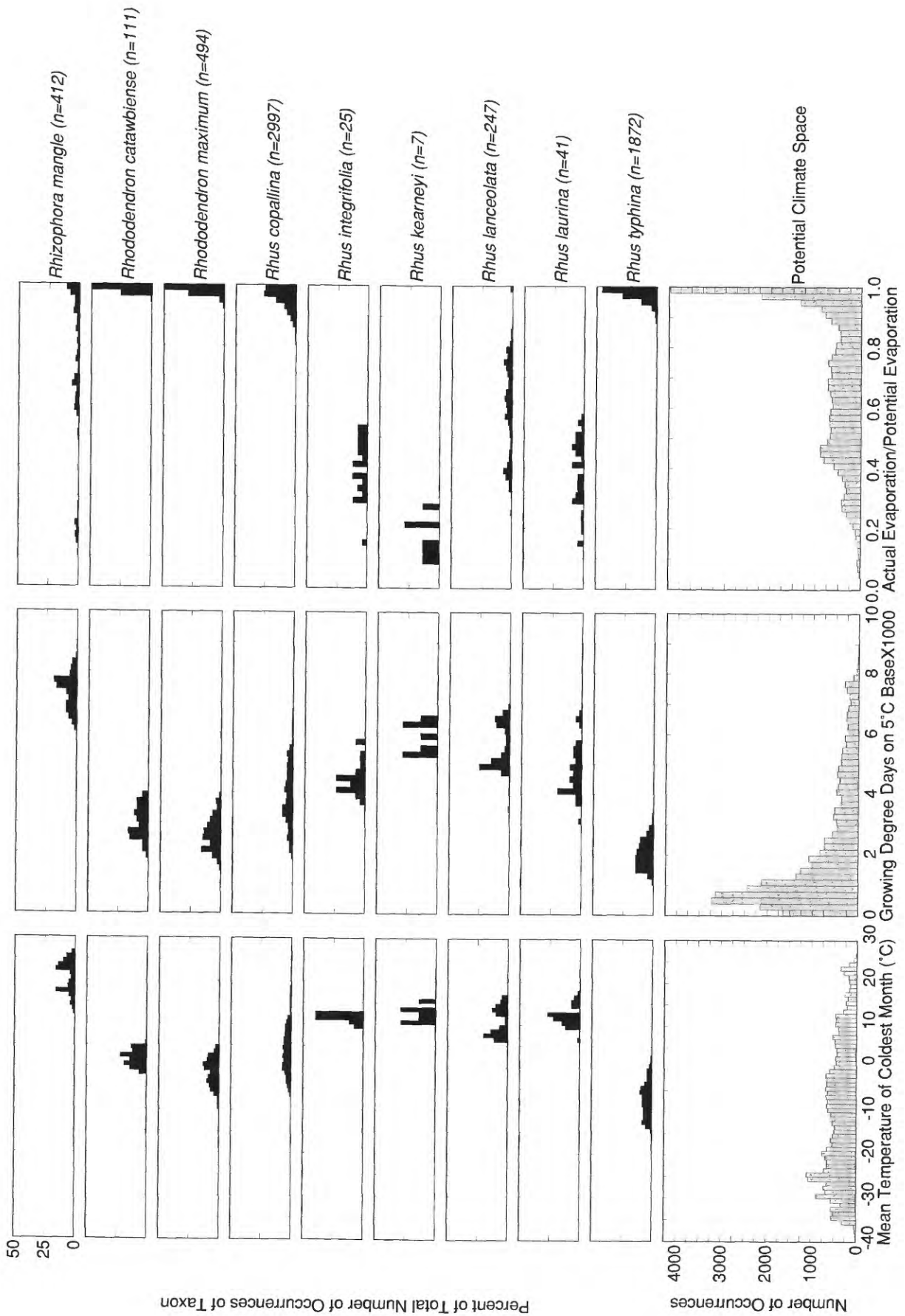


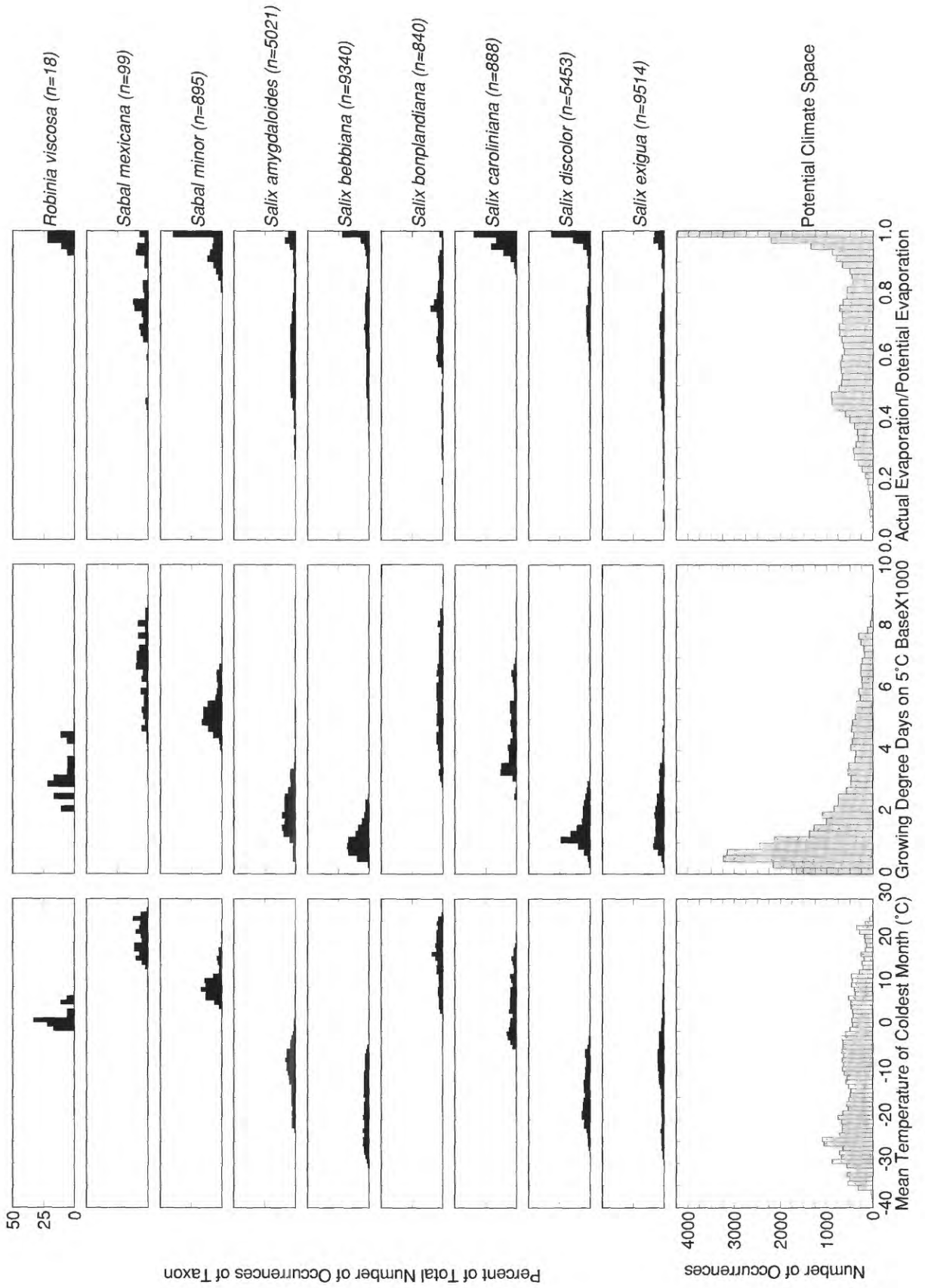


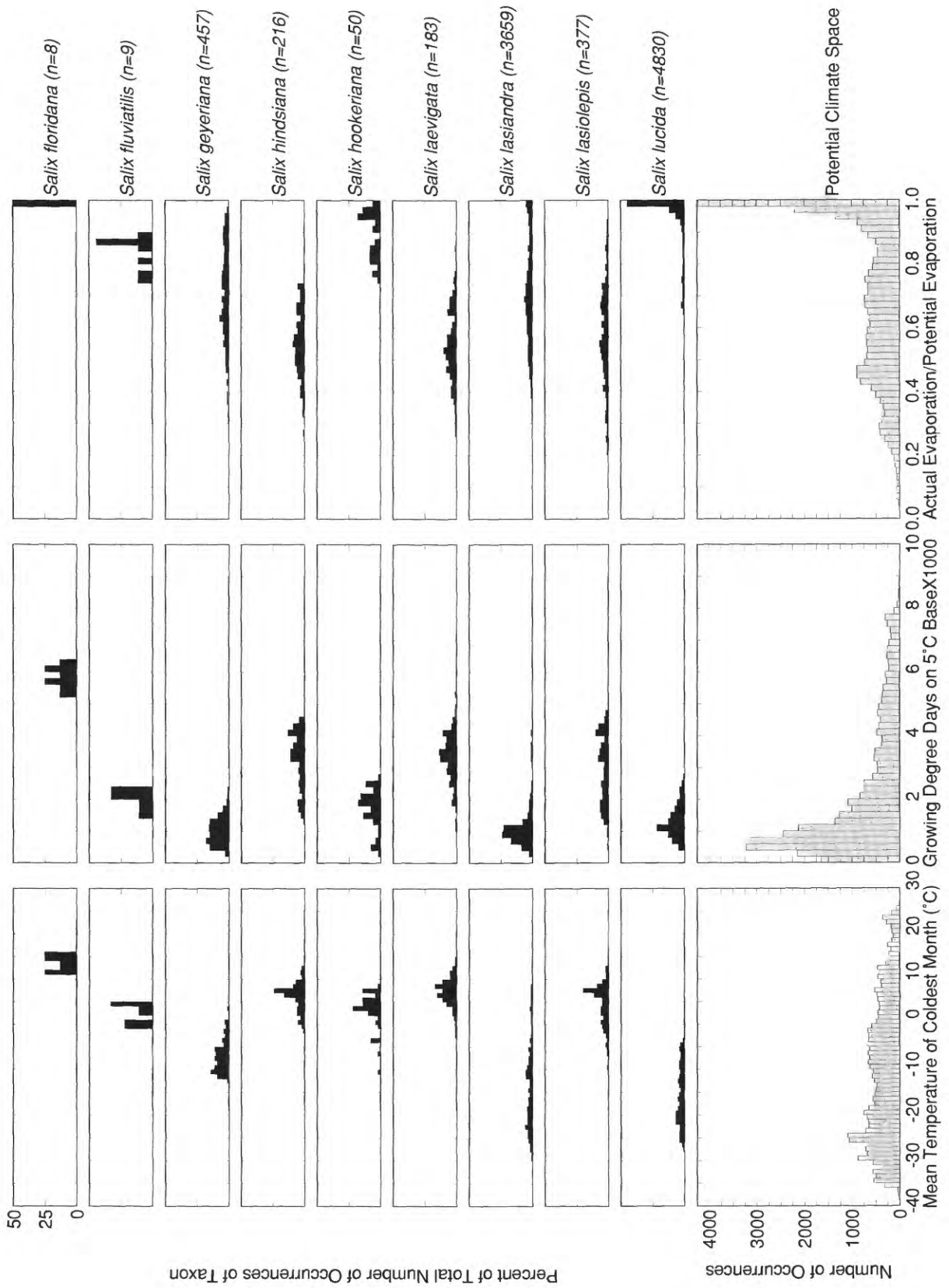


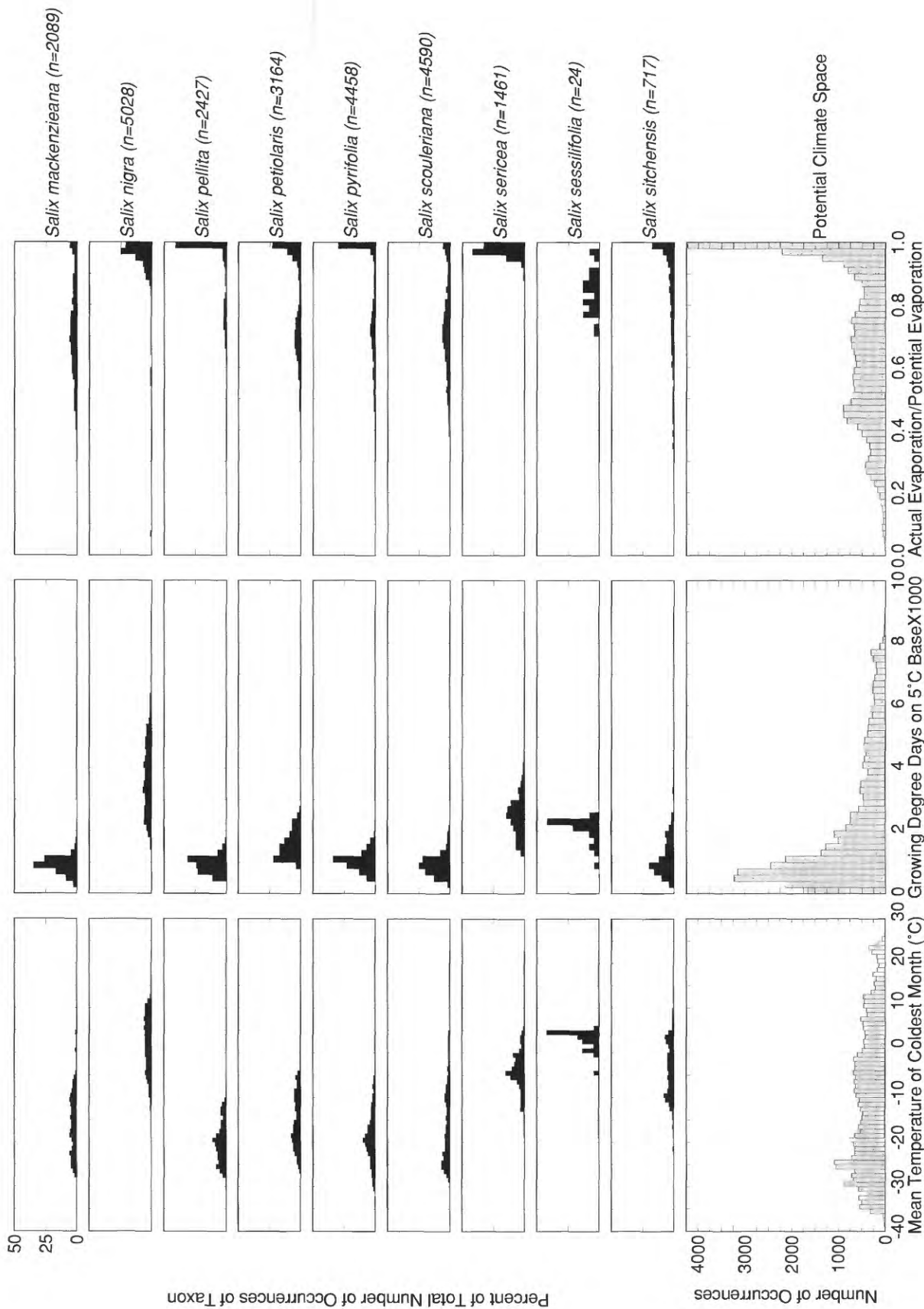


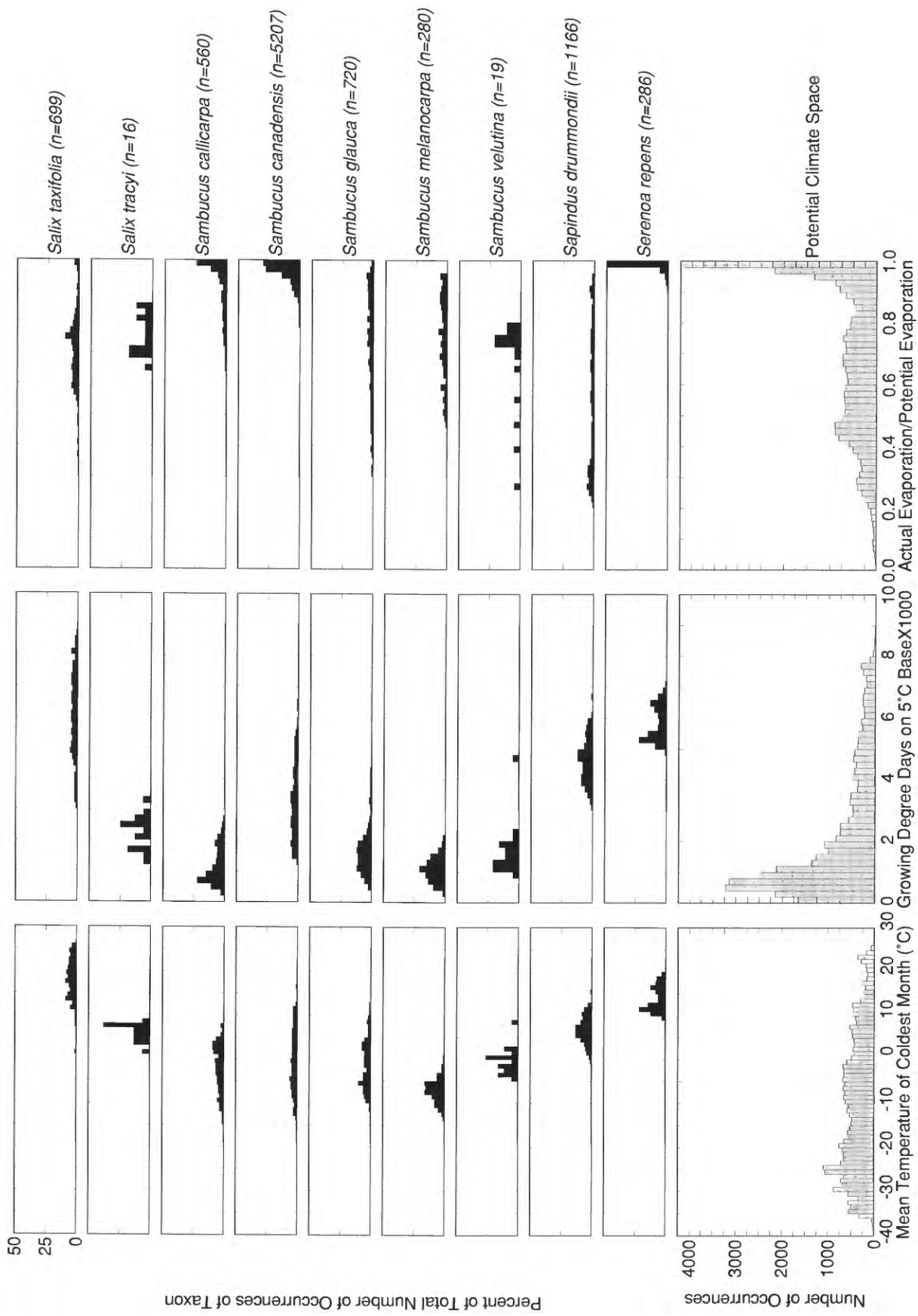


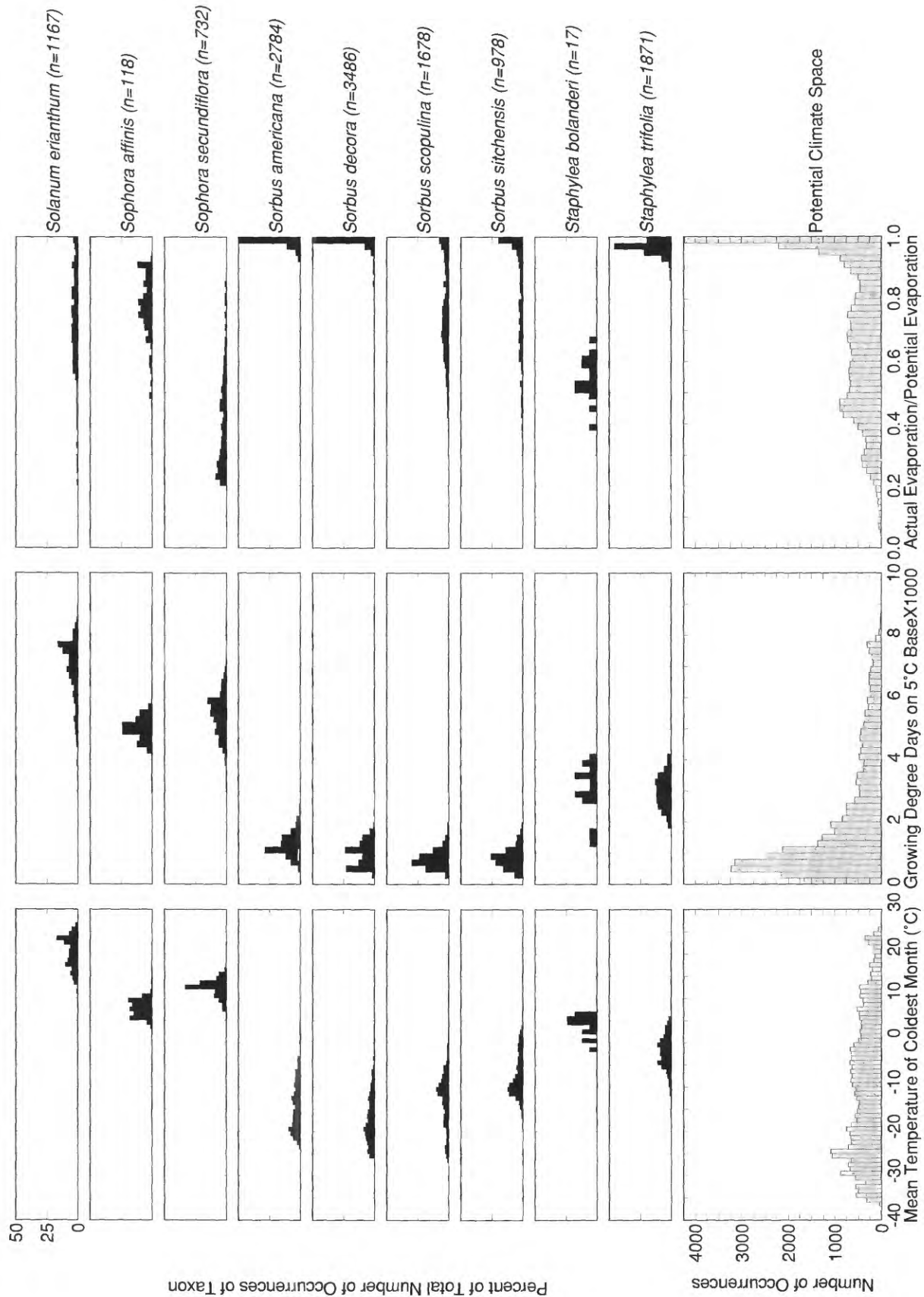


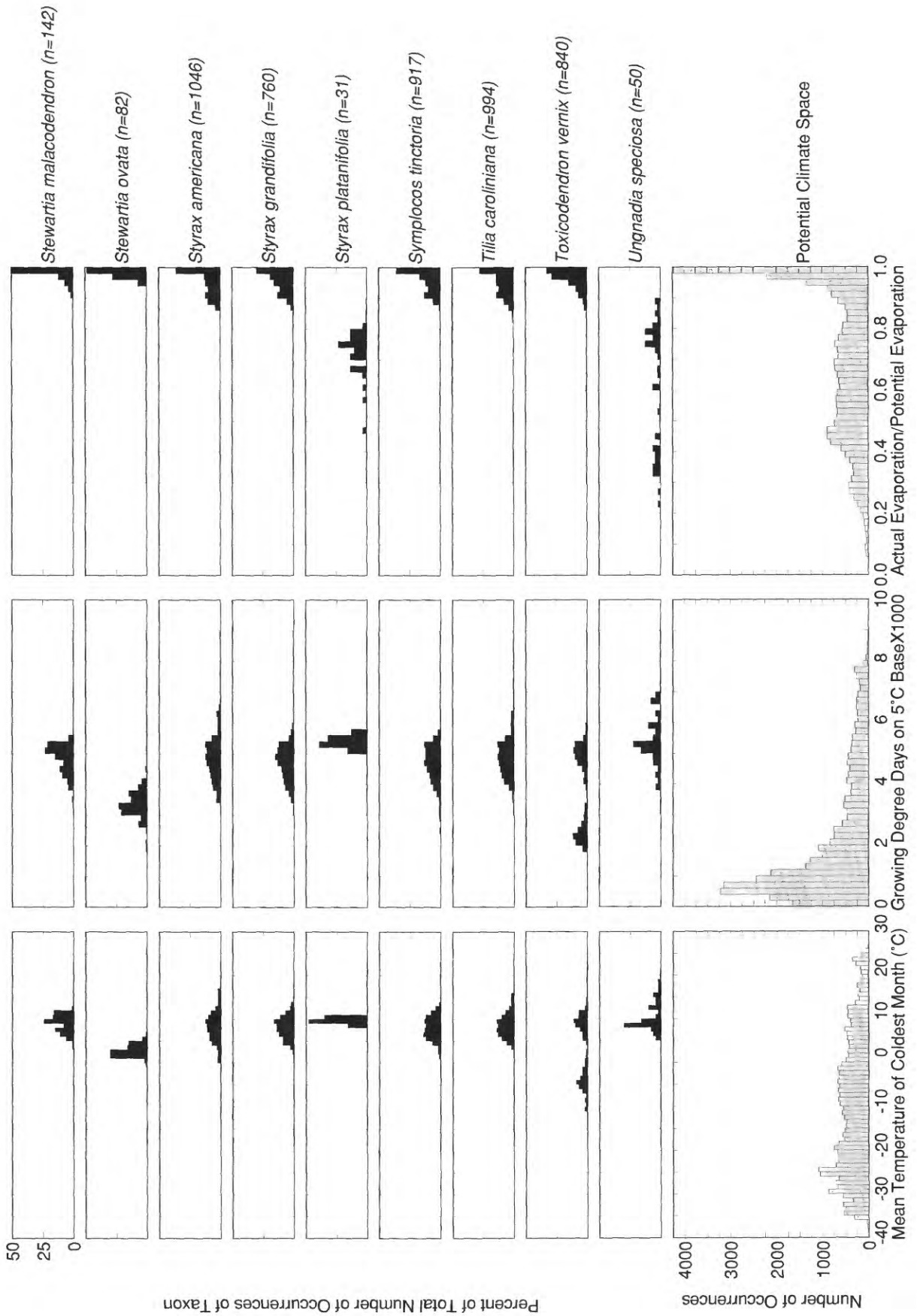


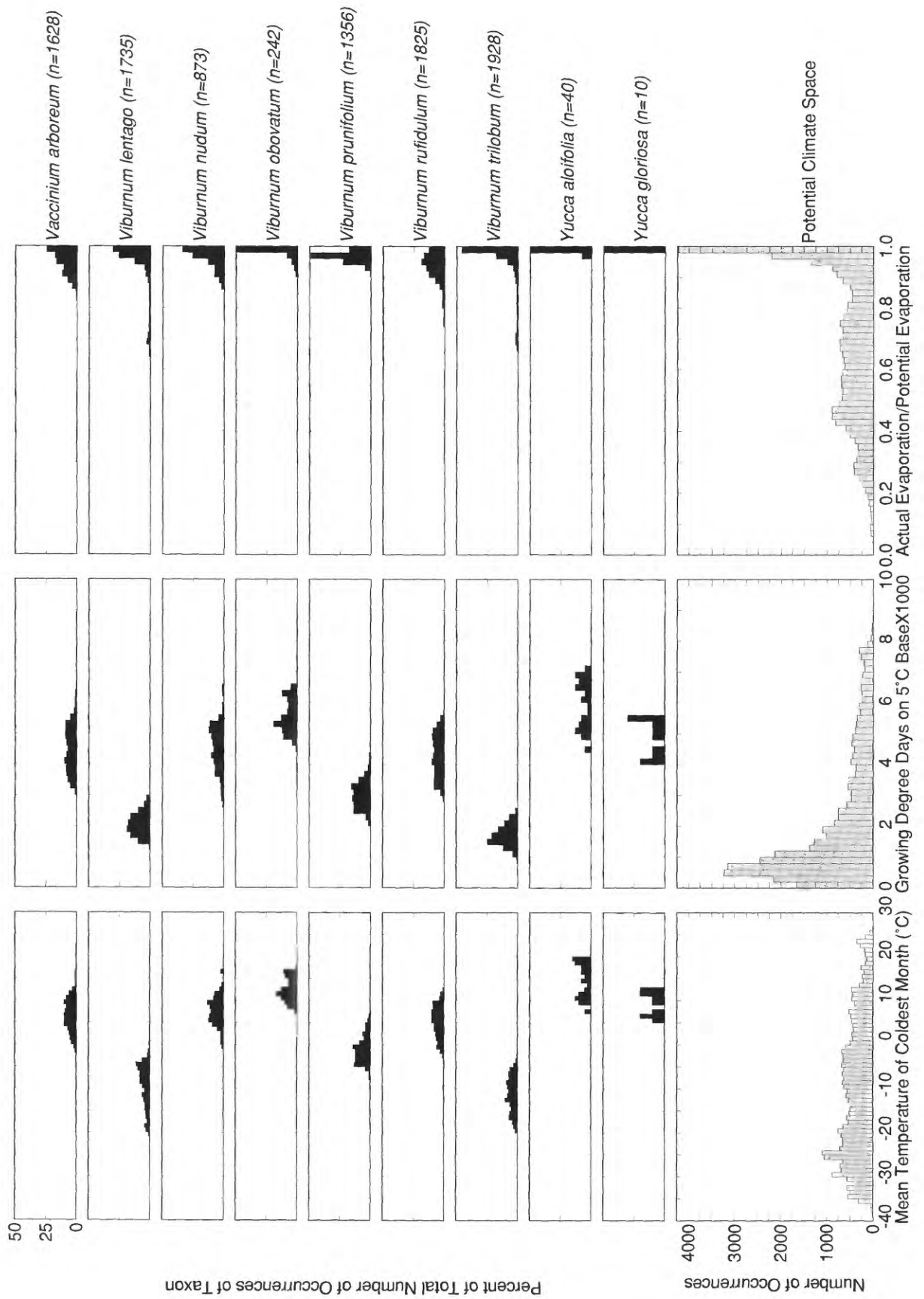


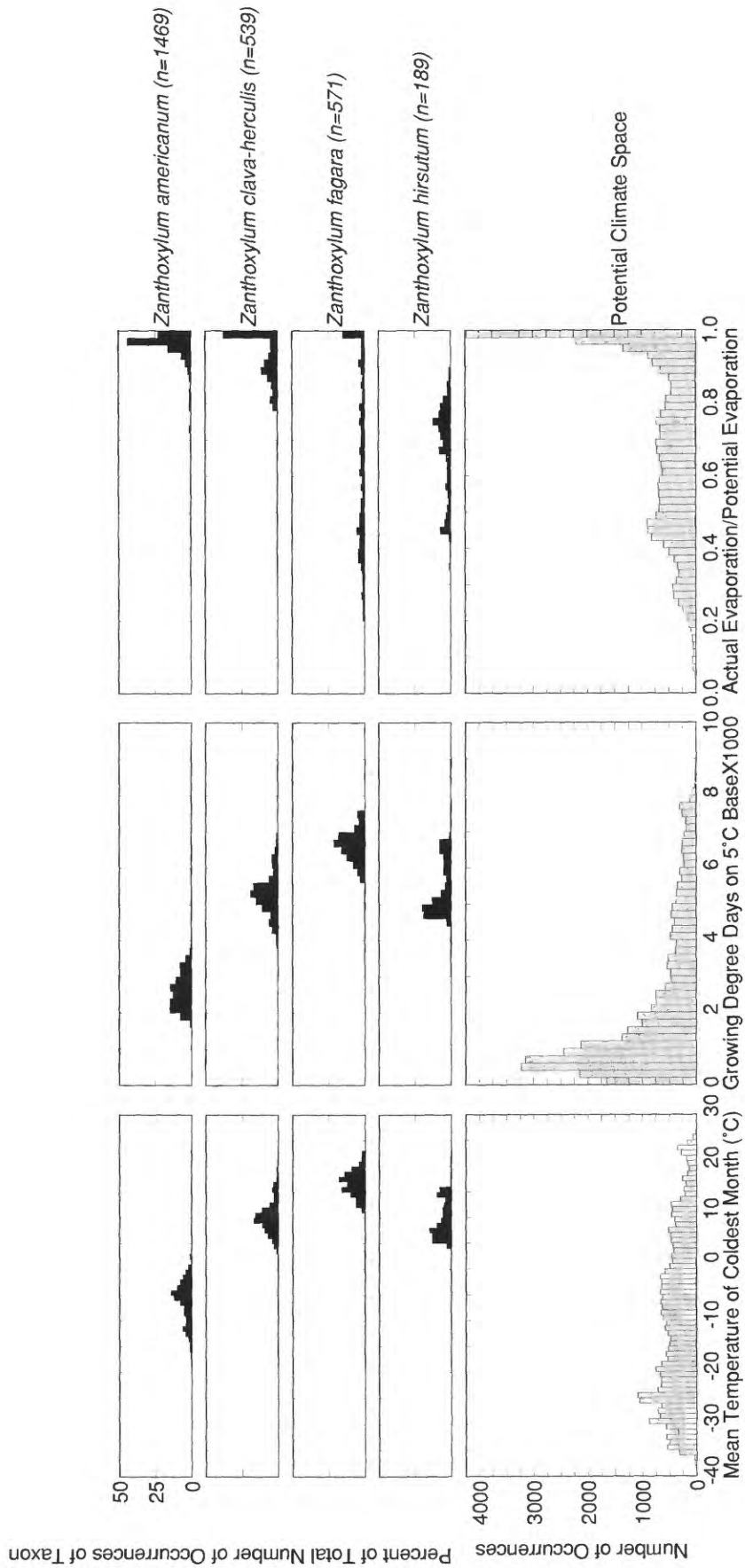


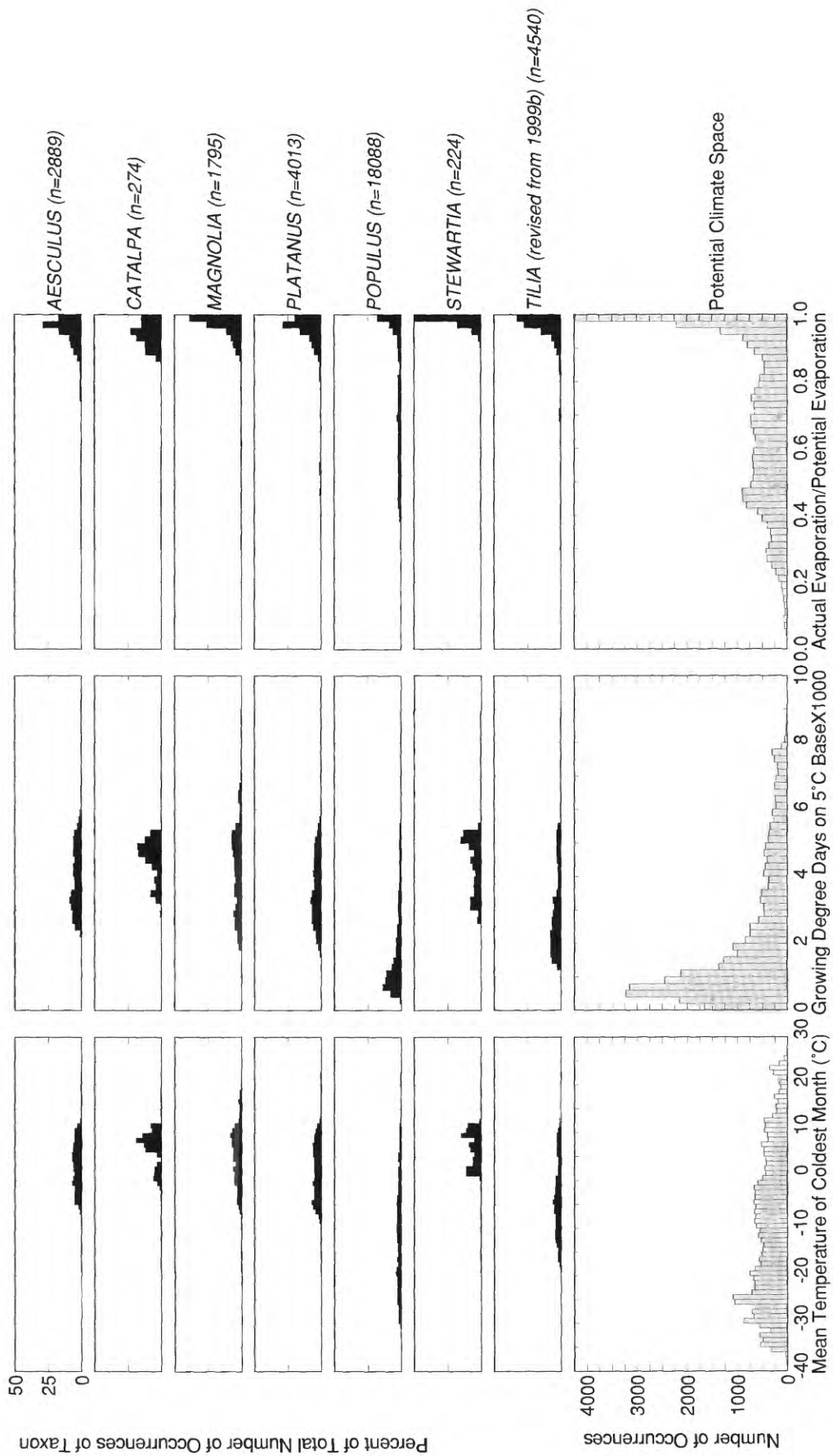












Additional Hardwoods, Conifers, and Monocots— Tables



Distributions of species in relation to mean annual temperature in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean annual temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	8.3	11.4	13.3	15.5	17.5	19.6	22.5
<i>Picea chihuahuana</i>	13	11.9	11.9	12.5	15.2	16.8	19.9	20.6
<i>Acacia berlandieri</i>	590	16.8	19.9	20.8	21.8	22.5	23.1	24.4
<i>Acacia farnesiana</i> (I.R.)	854	12.0	17.8	19.8	21.9	22.8	23.7	26.2
<i>Acacia rigidula</i>	334	19.9	21.4	22.1	22.7	23.2	23.9	24.8
<i>Acacia roemeriana</i>	310	14.8	18.7	19.5	20.7	21.8	22.4	22.8
<i>Acacia tortuosa</i>	824	14.0	16.4	17.8	19.9	22.1	23.0	26.0
<i>Acacia wrightii</i>	316	16.6	19.1	20.6	22.0	22.8	23.1	24.4
<i>Aesculus parviflora</i>	102	15.4	16.1	16.7	17.6	18.1	18.5	19.2
<i>Aesculus pavia</i>	1103	11.9	15.6	16.7	18.0	19.4	20.0	21.9
<i>Aesculus sylvatica</i>	176	12.8	14.4	15.0	15.7	16.1	16.7	17.4
<i>Amelanchier interior</i>	76	1.9	2.6	3.2	3.8	6.2	6.9	9.9
<i>Amelanchier sanguinea</i>	539	0.7	2.9	4.0	5.1	6.5	7.5	11.4
<i>Aralia spinosa</i>	1838	6.4	11.9	14.0	16.1	17.9	19.5	22.1
<i>Asimina triloba</i>	2373	7.4	10.0	11.6	13.5	15.7	17.1	20.0
<i>Avicennia germinans</i>	258	20.0	22.4	23.5	25.0	25.7	27.3	33.6
<i>Baccharis halimifolia</i>	1152	9.3	16.0	17.1	18.6	19.9	21.3	24.2
<i>Bumelia celastrina</i>	296	19.0	22.1	22.7	23.3	24.2	25.3	28.1
<i>Bumelia lanuginosa</i>	1794	12.1	14.3	16.4	18.5	20.0	22.0	24.4
<i>Bumelia lycioides</i>	524	12.8	14.5	15.6	16.9	17.7	18.4	20.1
<i>Bumelia tenax</i>	49	17.3	18.3	19.3	21.1	21.7	22.3	23.2
<i>Caesalpinia mexicana</i>	240	19.1	21.1	22.6	23.4	24.0	24.6	26.0
<i>Catalpa bignonioides</i> (N.R.U.)	205	16.2	16.9	17.4	18.0	18.7	19.5	20.0
<i>Catalpa speciosa</i> (N.R.U.)	69	11.1	12.9	13.7	14.3	15.3	15.7	16.4
<i>Ceanothus spinosus</i>	7	10.3	10.3	12.9	14.5	15.9	16.0	16.5
<i>Ceanothus thyrsiflorus</i>	44	7.7	9.3	10.3	11.8	12.6	14.0	14.2
<i>Celtis tenuifolia</i>	649	7.4	12.7	13.5	15.7	16.9	17.7	20.5
<i>Cephalanthus occidentalis</i>	5782	2.1	8.8	11.8	15.9	19.1	22.7	29.6
<i>Cercis canadensis</i>	3347	7.4	10.7	12.5	15.2	17.9	19.8	23.5
<i>Cercis occidentalis</i>	80	6.8	9.9	11.4	13.6	15.0	15.9	17.0
<i>Chionanthus virginicus</i>	1298	9.4	13.1	14.9	16.9	18.8	19.9	22.4
<i>Citharexylum berlandieri</i>	110	16.3	22.1	23.0	23.5	24.0	24.4	26.0
<i>Cladrastis kentukea</i>	73	8.9	12.0	13.4	14.1	14.6	15.8	18.7
<i>Clethra acuminata</i>	73	8.8	9.9	10.9	11.9	12.7	13.3	13.8
<i>Cliftonia monophylla</i>	149	18.2	18.8	19.2	19.6	19.8	20.0	20.5
<i>Condalia globosa</i>	174	17.2	19.8	21.2	22.4	23.6	24.6	25.4
<i>Condalia hookeri</i>	369	19.0	20.5	21.2	22.5	23.1	23.7	24.8
<i>Cordia boissieri</i>	285	16.8	19.5	20.8	22.9	23.5	24.2	26.0
<i>Cornus alternifolia</i>	2506	-0.1	3.6	5.1	7.3	9.9	11.8	19.9
<i>Cornus drummondii</i>	1663	7.5	10.1	11.5	13.4	16.2	18.7	21.6
<i>Cornus glabrata</i>	59	6.8	7.6	9.0	10.6	12.5	13.9	18.8
<i>Cornus nuttallii</i>	360	-0.8	4.4	7.1	9.1	10.3	11.5	18.8
<i>Cornus occidentalis</i>	235	4.6	7.7	9.1	10.3	11.8	14.1	18.9
<i>Cornus racemosa</i>	1604	2.2	5.7	7.0	9.0	10.5	11.9	14.7
<i>Cornus rugosa</i>	1480	-0.1	2.8	4.2	5.7	7.3	8.6	11.2
<i>Cornus sessilis</i>	40	4.6	6.9	8.8	10.3	11.4	12.6	14.0

Distributions of species in relation to mean annual temperature in North America—Continued.

Taxon name	N	Mean annual temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	11.6	15.2	16.3	17.5	19.0	19.9	22.4
<i>Cotinus obovatus</i>	44	13.6	14.0	14.2	14.6	15.1	19.1	19.8
<i>Crataegus chrysoarpa</i> (I.R.)	875	-1.7	0.6	1.6	2.6	4.2	5.3	8.9
<i>Crataegus columbiana</i>	68	-1.7	0.8	2.8	5.0	7.3	8.7	9.8
<i>Crataegus douglasii</i>	1321	-4.8	0.2	1.8	3.6	6.7	9.5	14.4
<i>Crataegus erythropoda</i>	24	1.1	1.6	3.9	5.4	6.7	9.5	18.0
<i>Crataegus saligna</i>	10	1.6	1.6	3.1	3.9	4.5	5.3	5.4
<i>Crataegus succulenta</i> (I.R.)	910	-1.4	3.1	4.3	5.9	7.3	8.5	13.8
<i>Crataegus tracyi</i>	12	15.4	15.4	16.7	17.5	19.5	19.8	19.8
<i>Cyrilla racemiflora</i>	548	14.5	16.0	17.3	18.6	19.6	19.9	22.4
<i>Diospyros texana</i>	550	17.7	18.8	19.9	21.5	22.6	23.2	24.4
<i>Ehretia anacua</i>	282	16.8	19.6	20.6	22.3	23.5	24.1	25.7
<i>Erythrina herbacea</i>	572	14.3	18.6	19.9	21.3	23.4	24.6	26.2
<i>Esenbeckia berlandieri</i>	58	17.8	18.6	22.8	23.4	24.6	25.2	26.6
<i>Euonymus atropurpureus</i>	1611	5.4	9.0	10.1	11.7	13.1	14.2	18.3
<i>Euonymus occidentalis</i>	90	5.4	8.4	9.8	10.7	11.8	13.7	18.8
<i>Eysenhardtia polystachya</i>	1006	12.2	16.3	17.8	19.7	21.7	24.6	29.6
<i>Eysenhardtia texana</i>	540	17.7	19.1	20.0	21.3	22.4	23.0	24.4
<i>Forestiera acuminata</i>	575	11.1	13.8	15.7	17.1	18.2	19.4	21.3
<i>Forestiera angustifolia</i>	829	17.1	19.1	20.4	21.6	22.6	23.4	26.0
<i>Forestiera segregata</i>	44	19.0	19.9	21.1	22.4	23.5	24.0	24.2
<i>Garrya elliptica</i>	51	7.6	8.6	10.0	11.8	13.7	14.2	15.1
<i>Gleditsia aquatica</i>	429	12.5	14.8	17.0	18.2	19.7	20.1	22.3
<i>Gordonia lasianthus</i>	332	15.6	16.8	17.8	19.6	20.5	22.1	22.6
<i>Guaiacum angustifolium</i>	493	17.8	19.4	20.7	22.0	22.8	23.3	24.4
<i>Gymnocladus dioicus</i>	1072	6.2	9.2	10.2	11.9	13.3	14.6	17.3
<i>Halesia carolina</i>	312	8.9	11.9	14.3	15.8	16.8	18.5	20.1
<i>Halesia diptera</i>	324	16.7	17.9	18.3	19.0	19.6	19.9	20.2
<i>Halesia parviflora</i>	34	17.2	17.5	18.8	19.6	19.8	19.9	20.3
<i>Hamamelis virginiana</i>	2809	2.2	6.5	8.5	11.9	16.5	18.9	22.4
<i>Helietta parvifolia</i>	270	15.8	18.3	19.5	22.1	23.1	23.6	25.0
<i>Ilex ambigua</i>	664	14.8	16.7	17.9	19.0	19.8	20.5	22.5
<i>Ilex amelanchar</i>	26	16.2	16.6	18.7	19.5	19.7	19.9	20.0
<i>Ilex cassine</i>	238	17.1	18.4	19.9	21.1	22.4	23.0	24.1
<i>Ilex coriacea</i>	423	15.2	16.3	17.4	19.2	19.8	20.2	21.9
<i>Ilex decidua</i>	1836	11.1	13.8	15.3	17.2	18.7	19.8	22.1
<i>Ilex laevigata</i>	157	4.4	7.1	8.3	9.5	12.5	15.6	17.2
<i>Ilex montana</i>	382	6.3	7.8	9.6	13.1	15.3	16.2	19.9
<i>Ilex myrtifolia</i>	274	16.5	17.4	18.6	19.6	20.0	20.5	22.0
<i>Ilex vomitoria</i>	621	14.4	17.6	18.7	19.6	20.0	20.8	22.3
<i>Illicium floridanum</i>	158	16.1	17.4	18.2	18.9	19.6	19.9	22.9
<i>Leitneria floridana</i>	22	14.4	14.5	15.3	15.6	19.7	20.1	20.5
<i>Leucaena pulverulenta</i>	299	18.4	19.6	20.7	22.7	23.6	24.4	26.0
<i>Leucaena retusa</i>	106	15.4	18.6	19.1	19.8	20.7	21.2	22.3
<i>Lysiloma microphylla</i>	320	15.1	18.1	20.9	24.1	25.7	27.2	29.6
<i>Magnolia ashei</i>	7	19.7	19.7	19.9	20.0	20.0	20.0	20.0
<i>Magnolia fraseri</i>	117	7.4	9.5	10.6	11.5	12.7	13.7	15.1
<i>Magnolia macrophylla</i>	230	8.9	14.1	16.4	17.6	18.4	19.0	19.9

Distributions of species in relation to mean annual temperature in North America—*Continued.*

Taxon name	N	Mean annual temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	16.9	17.4	18.7	19.3	19.7	19.9	20.0
<i>Magnolia tripetala</i>	272	8.0	11.1	12.2	14.0	15.6	16.5	19.9
<i>Malus angustifolia</i>	630	8.0	14.9	15.9	17.1	18.2	19.4	20.5
<i>Malus coronaria</i>	645	6.4	7.9	8.7	9.9	11.0	12.1	15.4
<i>Malus diversifolia</i>	410	-1.1	2.0	3.9	6.6	9.3	10.5	13.7
<i>Malus ioensis</i>	571	6.4	8.0	9.9	11.3	12.6	13.4	19.8
<i>Myrica californica</i>	67	7.6	8.8	10.0	11.8	13.1	14.2	16.5
<i>Myrica cerifera</i>	1026	12.5	16.1	17.5	18.7	19.9	21.9	24.2
<i>Osmanthus americanus</i> (I.R.)	427	15.9	17.8	18.4	19.4	20.0	21.4	22.4
<i>Oxydendrum arboreum</i>	1087	8.0	11.5	13.4	15.4	17.1	18.9	20.3
<i>Parkinsonia aculeata</i> (I.R.)	1028	14.8	17.6	19.7	21.9	22.9	24.0	26.2
<i>Persea borbonia</i>	711	13.1	16.5	17.9	19.3	20.1	22.4	24.2
<i>Photinia arbutifolia</i>	140	6.1	11.2	12.5	13.9	15.5	16.9	23.8
<i>Pinckneya pubens</i>	100	17.9	18.4	18.8	19.4	19.8	20.0	21.2
<i>Pistacia texana</i>	8	20.4	20.4	20.6	20.8	21.2	21.8	22.4
<i>Pithecellobium flexicaule</i>	246	19.3	21.5	22.6	23.1	23.7	24.4	26.0
<i>Pithecellobium pallens</i>	267	18.6	20.2	22.1	22.6	23.1	23.5	24.6
<i>Planera aquatica</i>	633	13.6	16.0	17.1	18.1	19.3	19.9	20.5
<i>Platanus racemosa</i>	103	6.4	11.8	13.2	15.2	16.5	17.7	19.3
<i>Platanus wrightii</i>	153	9.1	12.7	14.5	16.1	17.2	18.0	20.0
<i>Populus angustifolia</i>	460	-3.9	-0.2	1.5	4.2	7.1	9.5	18.1
<i>Populus arizonica</i>	60	13.1	16.0	17.5	19.6	20.6	21.4	22.1
<i>Populus deltoides</i>	5744	0.3	5.3	7.7	11.4	16.0	18.2	21.6
<i>Populus trichocarpa</i>	1885	-6.5	0.1	1.9	4.4	7.4	9.7	17.2
<i>Prunus alleghaniensis</i>	22	6.7	6.8	8.2	9.1	9.9	11.1	11.4
<i>Prunus americana</i>	3652	0.3	5.9	8.2	10.6	13.1	15.2	21.7
<i>Prunus angustifolia</i> (N.R.U.)	1843	10.2	13.8	14.8	16.5	18.2	19.5	22.3
<i>Prunus caroliniana</i>	589	16.2	17.3	18.1	19.1	19.9	20.5	22.3
<i>Prunus emarginata</i>	733	-1.3	2.8	4.7	6.8	9.5	11.2	17.5
<i>Prunus fremontii</i>	35	6.1	8.3	11.7	14.7	17.4	19.3	23.8
<i>Prunus hortulana</i>	258	10.2	11.3	12.4	12.9	13.5	13.9	15.4
<i>Prunus ilicifolia</i>	88	6.1	11.5	13.2	15.2	16.5	17.4	22.3
<i>Prunus mexicana</i>	1082	8.8	12.4	13.7	16.0	18.1	19.5	22.5
<i>Prunus munsoniana</i>	249	10.6	11.9	12.5	13.1	13.8	14.6	21.2
<i>Prunus nigra</i>	727	1.2	2.6	4.2	5.7	6.9	8.1	11.7
<i>Prunus pensylvanica</i>	6724	-6.2	-3.0	-1.3	0.7	3.8	6.8	14.3
<i>Prunus subcordata</i>	156	3.7	7.2	8.5	10.6	12.1	14.0	15.9
<i>Prunus umbellata</i>	704	15.3	16.8	17.5	18.4	19.6	20.0	22.6
<i>Prunus virginiana</i>	8834	-5.5	-0.9	0.8	3.9	7.2	9.8	18.7
<i>Ptelea crenulata</i>	39	11.4	12.0	13.9	14.7	15.4	15.9	17.8
<i>Rhamnus caroliniana</i>	1181	10.8	13.1	14.5	16.5	18.1	19.1	24.0
<i>Rhizophora mangle</i>	412	20.3	22.4	23.4	25.0	25.8	27.4	33.6
<i>Rhododendron catawbiense</i>	111	8.8	9.9	11.1	12.3	13.8	15.0	15.5
<i>Rhododendron maximum</i>	494	3.1	7.4	8.7	10.6	12.3	13.6	15.6
<i>Rhus copallina</i>	2997	3.6	9.8	12.5	15.0	17.6	19.6	24.2
<i>Rhus integrifolia</i>	25	8.2	8.5	12.0	15.9	16.9	17.4	19.3
<i>Rhus kearneyi</i>	7	18.9	18.9	19.8	21.6	21.9	22.9	23.8
<i>Rhus lanceolata</i>	247	14.2	18.1	18.3	19.4	22.2	22.7	24.4

Distributions of species in relation to mean annual temperature in North America—Continued.

Taxon name	N	Mean annual temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	6.1	8.3	13.2	16.5	19.9	22.3	24.6
<i>Rhus typhina</i>	1872	0.1	3.9	5.1	6.9	9.1	10.7	14.6
<i>Robinia viscosa</i>	18	9.5	10.0	11.4	12.5	14.0	16.7	17.1
<i>Sabal mexicana</i>	99	17.3	19.6	21.5	23.7	25.2	27.1	28.9
<i>Sabal minor</i>	895	15.8	17.4	18.1	19.2	20.0	21.9	23.7
<i>Salix amygdaloides</i>	5021	-3.9	0.9	3.2	6.5	9.2	11.5	18.0
<i>Salix bebbiana</i>	9340	-11.8	-5.0	-2.7	0.3	3.2	6.1	11.3
<i>Salix bonplandiana</i>	840	12.2	14.8	16.8	20.1	23.4	25.7	29.6
<i>Salix caroliniana</i>	888	9.1	12.7	13.7	16.2	19.6	22.0	24.2
<i>Salix discolor</i>	5453	-5.0	-1.4	0.0	1.7	5.5	8.6	14.2
<i>Salix exigua</i>	9514	-10.0	-2.0	1.8	6.3	10.2	13.8	25.0
<i>Salix floridana</i>	8	19.8	19.8	19.9	20.3	21.5	21.9	22.0
<i>Salix fluviatilis</i>	9	7.8	7.8	8.6	10.7	10.7	11.0	11.1
<i>Salix geyeriana</i>	457	-3.6	-0.1	1.0	3.5	5.4	6.9	11.4
<i>Salix hindsiana</i>	216	6.9	9.5	12.1	14.2	15.9	16.4	18.1
<i>Salix hookeriana</i>	50	-4.1	0.6	8.5	9.7	10.7	11.7	12.3
<i>Salix laevigata</i>	183	5.6	11.3	12.9	14.2	15.3	16.5	21.6
<i>Salix lasiandra</i>	3659	-7.8	-3.7	-1.6	0.6	3.5	8.9	17.7
<i>Salix lasiolepis</i>	377	1.0	7.3	9.6	13.1	15.4	16.7	21.6
<i>Salix lucida</i>	4830	-6.3	-2.9	-1.3	1.0	4.6	7.2	12.4
<i>Salix mackenzieana</i>	2089	-6.9	-3.8	-2.3	0.1	2.0	4.0	14.0
<i>Salix nigra</i>	5028	2.2	8.2	10.7	14.4	17.5	19.4	25.5
<i>Salix pellita</i>	2427	-5.9	-4.1	-2.9	-1.4	-0.1	1.7	6.9
<i>Salix petiolaris</i>	3164	-6.2	-1.1	0.2	2.4	5.6	7.7	12.1
<i>Salix pyrifolia</i>	4458	-8.9	-3.9	-1.9	-0.3	1.2	3.6	9.0
<i>Salix scouleriana</i>	4590	-8.9	-4.6	-2.9	-0.2	2.3	6.4	18.8
<i>Salix sericea</i>	1461	1.3	5.0	7.5	9.7	11.3	13.2	17.8
<i>Salix sessilifolia</i>	24	4.3	7.4	9.2	10.7	11.2	11.4	11.6
<i>Salix sitchensis</i>	717	-3.5	0.4	2.3	4.2	8.5	10.3	15.2
<i>Salix taxifolia</i>	699	9.8	15.9	18.5	21.2	24.3	26.0	29.6
<i>Salix tracyi</i>	16	8.2	8.6	9.4	11.3	12.3	12.6	13.7
<i>Sambucus callicarpa</i>	560	-5.0	0.5	2.2	5.4	9.0	10.3	13.7
<i>Sambucus canadensis</i>	5207	1.3	5.5	8.5	12.6	16.5	19.2	24.2
<i>Sambucus glauca</i>	720	-1.9	2.6	4.7	7.4	10.0	12.5	18.7
<i>Sambucus melanocarpa</i>	280	-2.1	0.0	2.0	3.9	5.6	6.8	10.7
<i>Sambucus velutina</i>	19	5.1	5.6	6.0	7.9	8.9	10.2	17.8
<i>Sapindus drummondii</i>	1166	9.7	14.6	15.8	17.4	18.7	20.4	23.2
<i>Serenoa repens</i>	286	18.2	19.4	19.8	20.3	22.4	23.0	24.2
<i>Solanum erianthum</i>	1167	12.2	19.5	22.3	24.4	25.6	26.5	29.6
<i>Sophora affinis</i>	118	16.5	17.3	17.9	18.5	19.1	19.8	20.5
<i>Sophora secundiflora</i>	732	14.3	17.5	18.8	20.3	21.7	22.4	24.4
<i>Sorbus americana</i>	2784	-5.1	-1.6	-0.5	1.5	4.2	6.0	15.7
<i>Sorbus decora</i>	3486	-6.2	-4.8	-2.7	-0.4	2.1	4.3	9.8
<i>Sorbus scopulina</i>	1678	-7.0	-3.1	-1.4	0.8	2.8	4.9	11.9
<i>Sorbus sitchensis</i>	978	-3.6	-0.4	1.1	2.6	4.5	6.9	14.5
<i>Staphylea bolanderi</i>	17	7.6	8.1	11.8	13.3	14.4	15.3	15.9
<i>Staphylea trifolia</i>	1871	4.2	8.2	9.9	11.7	13.4	14.7	19.9
<i>Stewartia malacodendron</i>	142	14.4	16.4	17.3	18.5	19.4	19.8	20.0

Distributions of species in relation to mean annual temperature in North America—*Continued.*

Taxon name	N	Mean annual temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	8.9	12.0	12.8	13.4	14.6	15.3	16.9
<i>Styrax americana</i>	1046	9.8	15.5	16.7	18.0	19.5	20.1	22.7
<i>Styrax grandifolia</i>	760	11.2	15.6	16.6	17.8	19.0	19.8	21.1
<i>Styrax platanifolia</i>	31	18.9	19.0	19.3	19.6	19.9	20.3	20.4
<i>Symplocos tinctoria</i>	917	9.5	15.5	16.6	17.8	19.1	19.8	22.1
<i>Tilia caroliniana</i>	994	9.5	16.1	16.9	18.0	19.3	19.9	22.3
<i>Toxicodendron vernix</i>	840	5.0	7.8	9.4	16.2	18.7	19.7	21.7
<i>Ungnadia speciosa</i>	50	15.3	16.4	18.6	19.3	21.0	23.0	24.0
<i>Vaccinium arboreum</i>	1628	9.9	14.1	15.5	17.1	18.8	19.9	22.5
<i>Viburnum lentago</i>	1735	-1.5	2.6	5.0	6.6	8.5	9.8	12.4
<i>Viburnum nudum</i>	873	9.8	14.6	16.0	17.5	19.0	19.8	22.5
<i>Viburnum obovatum</i>	242	17.3	18.3	19.2	19.9	21.3	22.3	22.9
<i>Viburnum prunifolium</i>	1356	7.4	9.6	10.5	11.8	13.3	14.6	18.2
<i>Viburnum rufidulum</i>	1825	11.2	13.3	14.8	16.6	18.2	19.2	21.8
<i>Viburnum trilobum</i>	1928	-2.8	2.0	3.1	4.7	6.3	7.8	10.9
<i>Yucca aloifolia</i>	40	16.9	18.3	19.3	21.4	23.0	23.8	24.2
<i>Yucca gloriosa</i>	10	15.9	15.9	16.4	18.4	19.9	20.0	20.2
<i>Zanthoxylum americanum</i>	1469	3.7	6.0	7.4	9.6	11.2	12.7	17.8
<i>Zanthoxylum clava-herculis</i>	539	14.1	17.2	18.3	19.4	20.0	21.4	24.0
<i>Zanthoxylum fagara</i>	571	18.4	21.3	22.2	23.0	23.8	24.6	26.2
<i>Zanthoxylum hirsutum</i>	189	17.2	17.6	18.1	19.0	21.4	22.7	23.5

Distributions of genera and groups in relation to mean annual temperature in North America.

[N, number]

Taxon name	N	Mean annual temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	8.0	10.5	12.3	15.0	17.6	19.3	21.9
<i>CATALPA</i>	274	11.1	13.9	16.2	17.6	18.4	19.4	20.0
<i>MAGNOLIA</i>	1795	6.3	10.0	12.5	16.2	18.7	20.0	23.8
<i>PLATANUS</i>	4013	5.4	8.9	11.0	14.0	16.9	18.7	22.6
<i>POPULUS</i>	18088	-12.2	-4.7	-1.8	2.8	9.1	15.4	25.5
<i>STEWARTIA</i>	224	8.9	12.9	14.3	17.1	19.0	19.7	20.0
<i>TILIA</i> *	4540	1.1	4.1	6.4	10.0	14.4	18.2	22.3

* Revised from Thompson and others (1999b).

Distributions of species in relation to mean January temperature in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean January temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	-0.6	2.1	3.4	7.0	8.3	12.0	13.5
<i>Picea chihuahuana</i>	13	4.2	4.2	5.2	8.8	10.1	12.2	13.5
<i>Acacia berlandieri</i>	590	8.4	11.1	12.3	12.8	14.2	15.2	17.5
<i>Acacia farnesiana</i> (I.R.)	854	9.0	11.1	12.5	13.6	15.5	17.4	21.5
<i>Acacia rigidula</i>	334	9.9	11.8	12.7	14.4	15.4	17.1	18.4
<i>Acacia roemeriana</i>	310	5.3	9.0	9.9	11.0	12.5	12.8	13.9
<i>Acacia tortuosa</i>	824	6.8	10.8	12.2	13.3	14.6	15.8	24.8
<i>Acacia wrightii</i>	316	6.0	9.6	11.6	13.1	14.7	15.1	16.0
<i>Aesculus parviflora</i>	102	4.0	5.4	6.3	7.4	8.5	9.2	10.1
<i>Aesculus pavia</i>	1103	-0.8	3.9	5.5	8.1	10.0	11.3	15.4
<i>Aesculus sylvatica</i>	176	1.7	3.2	4.0	5.0	5.7	6.3	7.4
<i>Amelanchier interior</i>	76	-16.7	-16.2	-16.0	-15.2	-12.2	-10.7	-6.5
<i>Amelanchier sanguinea</i>	539	-18.1	-16.0	-12.3	-10.1	-8.5	-6.9	-0.6
<i>Aralia spinosa</i>	1838	-7.3	-0.1	2.1	5.1	8.1	10.4	15.8
<i>Asimina triloba</i>	2373	-7.8	-4.2	-2.1	0.9	4.3	6.7	12.1
<i>Avicennia germinans</i>	258	10.6	15.7	17.8	22.7	24.8	25.9	27.8
<i>Baccharis halimifolia</i>	1152	-3.4	5.0	6.5	9.0	11.3	14.4	19.6
<i>Bumelia celastrina</i>	296	11.2	13.8	14.6	15.5	17.9	22.7	27.7
<i>Bumelia lanuginosa</i>	1794	-2.8	0.8	4.2	8.2	11.2	13.2	15.8
<i>Bumelia lycioides</i>	524	-1.2	2.6	4.7	6.6	8.0	9.1	12.2
<i>Bumelia tenax</i>	49	7.4	8.9	10.4	14.0	15.1	16.1	18.0
<i>Caesalpinia mexicana</i>	240	12.2	14.2	15.1	16.6	18.0	19.7	24.0
<i>Catalpa bignonioides</i> (N.R.U.)	205	5.6	6.3	7.2	8.4	9.6	11.0	12.1
<i>Catalpa speciosa</i> (N.R.U.)	69	-4.0	-1.0	0.2	1.1	2.4	3.1	4.2
<i>Ceanothus spinosus</i>	7	5.1	5.1	5.5	10.4	11.6	12.0	12.3
<i>Ceanothus thyrsiflorus</i>	44	2.8	4.3	5.4	7.0	8.2	9.2	10.8
<i>Celtis tenuifolia</i>	649	-5.3	-1.1	0.2	4.7	6.6	7.8	13.1
<i>Cephalanthus occidentalis</i>	5782	-16.5	-5.6	-1.7	4.8	11.4	17.4	27.6
<i>Cercis canadensis</i>	3347	-8.2	-3.8	-0.7	3.3	7.6	12.0	17.7
<i>Cercis occidentalis</i>	80	-1.7	0.6	2.1	3.9	6.1	6.9	7.6
<i>Chionanthus virginicus</i>	1298	-3.1	1.3	3.8	6.6	9.3	11.6	16.4
<i>Citharexylum berlandieri</i>	110	13.2	15.0	15.6	16.7	17.5	18.1	18.4
<i>Cladrastis kentukea</i>	73	-2.4	0.7	1.3	1.9	2.6	3.7	9.7
<i>Clethra acuminata</i>	73	-1.7	-0.8	-0.1	0.9	1.6	2.5	3.6
<i>Cliftonia monophylla</i>	149	8.6	9.4	10.0	10.8	11.5	11.9	13.1
<i>Condalia globosa</i>	174	9.6	11.5	12.5	14.9	16.5	17.4	19.3
<i>Condalia hookeri</i>	369	8.9	10.8	12.0	14.1	15.2	16.6	18.4
<i>Cordia boissieri</i>	285	12.2	13.4	14.3	15.2	16.4	17.5	19.0
<i>Cornus alternifolia</i>	2506	-20.7	-12.9	-10.6	-6.7	-3.8	-0.7	12.0
<i>Cornus drummondii</i>	1663	-10.5	-5.3	-3.5	-0.6	3.9	8.1	12.6
<i>Cornus glabrata</i>	59	-1.9	-0.2	1.4	3.5	6.2	8.4	10.8
<i>Cornus nuttallii</i>	360	-10.3	-3.3	-0.4	2.1	3.6	4.7	8.1
<i>Cornus occidentalis</i>	235	-3.1	-0.2	2.1	3.7	6.2	8.1	10.4
<i>Cornus racemosa</i>	1604	-18.9	-11.8	-8.3	-5.4	-3.7	-1.8	3.6
<i>Cornus rugosa</i>	1480	-20.3	-14.1	-12.4	-9.6	-6.9	-5.3	-0.6
<i>Cornus sessilis</i>	40	-3.1	-1.5	0.2	2.2	2.9	3.8	5.5

Distributions of species in relation to mean January temperature in North America—Continued.

Taxon name	N	Mean January temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	-2.3	3.3	5.1	7.3	9.7	11.7	16.3
<i>Cotinus obovatus</i>	44	0.6	1.2	1.6	2.3	3.2	9.3	10.2
<i>Crataegus chrysoarpa</i> (I.R.)	875	-22.3	-20.5	-19.2	-17.2	-15.4	-13.3	-3.5
<i>Crataegus columbiana</i>	68	-18.3	-13.2	-10.8	-7.2	-3.4	-2.1	0.6
<i>Crataegus douglasii</i>	1321	-18.7	-12.6	-10.7	-7.6	-3.2	2.7	9.6
<i>Crataegus erythropoda</i>	24	-10.0	-9.9	-8.4	-5.5	-4.6	-1.1	7.4
<i>Crataegus saligna</i>	10	-10.0	-10.0	-9.5	-8.7	-8.0	-7.9	-6.7
<i>Crataegus succulenta</i> (I.R.)	910	-20.3	-17.0	-15.4	-12.7	-10.1	-8.0	0.8
<i>Crataegus tracyi</i>	12	7.6	7.6	8.3	9.0	9.5	9.9	10.2
<i>Cyrilla racemiflora</i>	548	3.2	5.6	7.3	9.2	10.7	11.9	17.2
<i>Diospyros texana</i>	550	7.1	8.7	10.1	12.4	14.3	15.3	17.3
<i>Ehretia anacua</i>	282	7.8	12.3	13.9	15.2	16.4	17.3	21.1
<i>Erythrina herbacea</i>	572	7.1	9.3	10.6	13.9	17.3	19.1	22.5
<i>Esenbeckia berlandieri</i>	58	12.7	13.7	15.1	15.4	19.5	23.7	25.6
<i>Euonymus atropurpureus</i>	1611	-14.6	-6.5	-4.7	-2.3	-0.1	1.5	8.1
<i>Euonymus occidentalis</i>	90	-0.9	2.1	3.2	4.1	6.9	8.1	9.6
<i>Eysenhardtia polystachya</i>	1006	6.9	11.0	12.3	13.6	16.8	22.9	28.1
<i>Eysenhardtia texana</i>	540	7.2	9.2	10.7	12.6	13.8	14.9	16.4
<i>Forestiera acuminata</i>	575	-4.6	0.3	3.3	5.8	8.6	10.1	13.8
<i>Forestiera angustifolia</i>	829	8.3	11.0	12.3	12.9	14.5	15.8	19.0
<i>Forestiera segregata</i>	44	10.1	11.7	14.0	16.3	18.6	19.2	19.6
<i>Garrya elliptica</i>	51	1.7	3.4	5.2	7.3	8.5	9.2	9.6
<i>Gleditsia aquatica</i>	429	-2.2	1.7	5.5	8.2	10.3	11.9	15.9
<i>Gordonia lasianthus</i>	332	5.0	6.7	8.0	11.0	13.1	15.8	17.2
<i>Guaiacum angustifolium</i>	493	7.2	10.2	11.9	12.9	14.6	15.4	17.4
<i>Gymnocladus dioicus</i>	1072	-12.5	-6.6	-4.8	-2.8	-0.5	1.6	4.9
<i>Halesia carolina</i>	312	-1.7	1.3	3.3	5.1	6.5	9.2	12.4
<i>Halesia diptera</i>	324	5.9	8.1	8.9	9.7	10.4	11.0	12.1
<i>Halesia parviflora</i>	34	7.1	7.5	9.6	11.2	11.7	12.0	13.0
<i>Hamamelis virginiana</i>	2809	-13.4	-8.2	-5.2	-0.2	5.9	9.7	16.3
<i>Helietta parvifolia</i>	270	12.0	12.8	13.6	14.8	15.5	16.4	17.9
<i>Ilex ambigua</i>	664	2.2	6.3	7.9	9.6	11.2	13.2	17.2
<i>Ilex amelanchier</i>	26	5.7	6.4	9.2	10.0	10.5	10.9	11.5
<i>Ilex cassine</i>	238	7.1	9.1	11.9	14.1	16.6	18.0	19.5
<i>Ilex coriacea</i>	423	4.4	6.0	7.5	10.0	11.5	12.5	15.4
<i>Ilex decidua</i>	1836	-4.9	0.4	3.5	6.2	9.1	10.8	15.9
<i>Ilex laevigata</i>	157	-9.3	-6.4	-5.1	-3.2	0.4	5.1	7.4
<i>Ilex montana</i>	382	-7.3	-5.2	-2.4	2.0	4.5	5.8	12.0
<i>Ilex myrtifolia</i>	274	6.4	7.6	9.2	11.0	12.0	13.3	15.5
<i>Ilex vomitoria</i>	621	3.3	7.9	9.3	10.4	11.6	12.7	20.0
<i>Illicium floridanum</i>	158	4.9	7.2	8.9	9.7	10.5	11.5	16.8
<i>Leitneria floridana</i>	22	1.3	1.4	2.4	3.0	11.2	11.9	12.3
<i>Leucaena pulverulenta</i>	299	12.2	12.8	14.2	15.4	17.1	18.0	24.6
<i>Leucaena retusa</i>	106	7.6	8.7	9.5	10.0	11.3	12.3	12.9
<i>Lysiloma microphylla</i>	320	8.5	12.9	15.6	22.4	24.7	25.9	28.1
<i>Magnolia ashei</i>	7	11.3	11.3	11.5	12.0	12.0	12.1	12.1
<i>Magnolia fraseri</i>	117	-4.0	-1.6	-0.7	0.5	2.1	2.8	4.6
<i>Magnolia macrophylla</i>	230	-1.0	2.5	5.6	7.5	9.1	9.7	10.9

Distributions of species in relation to mean January temperature in North America—*Continued.*

Taxon name	N	Mean January temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	6.7	7.2	9.3	9.9	11.0	11.7	12.1
<i>Magnolia tripetala</i>	272	-3.8	-0.7	0.4	2.6	4.5	6.1	10.5
<i>Malus angustifolia</i>	630	-3.5	3.5	5.3	7.0	8.8	10.2	13.1
<i>Malus coronaria</i>	645	-8.0	-5.9	-5.0	-3.9	-2.4	-0.7	4.2
<i>Malus diversifolia</i>	410	-10.1	-6.1	-3.6	-0.2	2.8	4.2	9.6
<i>Malus ioensis</i>	571	-12.3	-8.8	-6.4	-4.5	-2.1	-0.2	10.7
<i>Myrica californica</i>	67	1.1	3.4	4.7	6.9	8.5	9.3	11.6
<i>Myrica cerifera</i>	1026	0.7	5.4	7.3	9.2	11.2	15.2	19.6
<i>Osmanthus americanus</i> (I.R.)	427	5.6	8.1	9.1	10.4	12.0	14.6	17.2
<i>Oxydendrum arboreum</i>	1087	-4.4	-0.3	2.0	4.5	6.8	9.7	12.1
<i>Parkinsonia aculeata</i> (I.R.)	1028	7.6	11.5	12.4	13.4	15.8	17.5	21.5
<i>Persea borbonia</i>	711	1.6	6.3	8.2	10.0	12.2	16.3	19.6
<i>Photinia arbutifolia</i>	140	2.1	4.4	6.7	8.8	10.4	12.0	17.8
<i>Pinckneya pubens</i>	100	8.0	8.9	9.5	10.6	11.4	12.0	14.2
<i>Pistacia texana</i>	8	10.6	10.6	10.7	12.6	13.5	14.8	15.2
<i>Pithecellobium flexicaule</i>	246	12.3	13.9	14.6	15.2	16.9	17.9	22.5
<i>Pithecellobium pallens</i>	267	12.1	12.7	13.6	14.5	15.1	15.8	19.1
<i>Planera aquatica</i>	633	0.3	3.8	6.1	8.5	10.1	11.3	13.4
<i>Platanus racemosa</i>	103	2.9	5.7	7.2	8.6	10.4	11.9	12.4
<i>Platanus wrightii</i>	153	0.2	2.9	5.3	7.2	8.2	9.1	10.7
<i>Populus angustifolia</i>	460	-14.3	-11.2	-9.8	-7.4	-4.6	-0.3	8.7
<i>Populus arizonica</i>	60	3.8	6.7	8.3	10.1	10.8	11.9	12.5
<i>Populus deltoides</i>	5744	-19.7	-12.3	-7.8	-2.8	4.1	8.0	12.6
<i>Populus trichocarpa</i>	1885	-20.6	-11.8	-9.8	-5.9	-1.3	2.1	11.2
<i>Prunus alleghaniensis</i>	22	-6.2	-6.2	-4.4	-3.1	-2.4	-1.3	-0.7
<i>Prunus americana</i>	3652	-19.7	-12.6	-7.9	-3.8	0.1	3.6	14.6
<i>Prunus angustifolia</i> (N.R.U.)	1843	-5.3	0.1	2.5	5.3	8.1	10.2	15.9
<i>Prunus caroliniana</i>	589	5.8	7.3	8.5	9.8	11.4	13.0	16.1
<i>Prunus emarginata</i>	733	-14.4	-8.3	-5.8	-1.9	2.5	4.8	10.8
<i>Prunus fremontii</i>	35	6.2	8.8	9.2	10.5	12.3	12.4	15.5
<i>Prunus hortulana</i>	258	-5.6	-4.2	-2.3	-1.1	-0.3	0.5	2.6
<i>Prunus ilicifolia</i>	88	5.5	7.4	8.6	9.7	11.2	12.2	14.9
<i>Prunus mexicana</i>	1082	-8.9	-2.8	0.1	3.8	7.1	9.6	13.9
<i>Prunus munsoniana</i>	249	-5.7	-3.7	-2.2	-1.1	0.0	2.3	12.2
<i>Prunus nigra</i>	727	-20.4	-16.5	-13.2	-10.2	-8.0	-5.9	-3.1
<i>Prunus pensylvanica</i>	6724	-29.2	-24.2	-21.6	-18.1	-12.0	-7.1	3.1
<i>Prunus subcordata</i>	156	-5.4	-1.1	0.5	2.6	4.2	6.3	9.4
<i>Prunus umbellata</i>	704	4.6	6.2	7.3	8.9	10.6	12.1	16.8
<i>Prunus virginiana</i>	8834	-28.2	-21.8	-17.9	-11.6	-6.9	-4.0	12.9
<i>Ptelea crenulata</i>	39	2.1	3.7	5.3	6.0	6.5	7.3	8.5
<i>Rhamnus caroliniana</i>	1181	-2.7	0.4	2.5	5.5	8.1	9.7	17.1
<i>Rhizophora mangle</i>	412	12.1	15.9	17.6	22.5	24.8	25.9	28.3
<i>Rhododendron catawbiense</i>	111	-2.1	-1.0	0.0	1.5	2.8	4.2	4.9
<i>Rhododendron maximum</i>	494	-11.1	-5.9	-4.0	-1.1	1.0	2.6	5.1
<i>Rhus copallina</i>	2997	-11.0	-3.5	-0.6	3.2	7.2	10.5	19.6
<i>Rhus integrifolia</i>	25	9.6	10.0	10.9	11.5	12.3	12.4	12.4
<i>Rhus kearneyi</i>	7	9.9	9.9	10.5	13.2	13.9	13.9	15.5
<i>Rhus lanceolata</i>	247	2.1	6.7	7.4	9.4	13.5	14.9	16.9

Distributions of species in relation to mean January temperature in North America—Continued.

Taxon name	N	Mean January temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	6.5	9.5	10.1	12.3	12.4	14.9	17.3
<i>Rhus typhina</i>	1872	-18.3	-12.7	-10.7	-7.2	-4.5	-1.7	3.8
<i>Robinia viscosa</i>	18	0.2	0.6	1.0	2.1	3.4	6.2	7.0
<i>Sabal mexicana</i>	99	14.5	17.0	18.7	22.1	24.7	25.9	27.2
<i>Sabal minor</i>	895	5.2	7.0	8.2	9.8	11.6	15.2	19.0
<i>Salix amygdaloides</i>	5021	-23.2	-18.9	-13.7	-8.5	-5.2	-2.4	8.8
<i>Salix bebbiana</i>	9340	-30.5	-27.0	-23.6	-18.3	-11.8	-7.5	1.5
<i>Salix bonplandiana</i>	840	3.1	7.0	11.2	17.0	21.8	24.7	28.1
<i>Salix caroliniana</i>	888	-4.7	-1.8	0.2	5.4	10.8	15.7	19.6
<i>Salix discolor</i>	5453	-27.5	-22.1	-19.5	-15.4	-10.0	-5.6	2.8
<i>Salix exigua</i>	9514	-30.4	-22.9	-15.7	-8.2	-3.0	1.4	15.1
<i>Salix floridana</i>	8	11.6	11.6	11.7	12.9	14.3	15.3	15.5
<i>Salix fluviatilis</i>	9	-0.6	-0.6	-0.3	2.7	3.9	4.0	4.1
<i>Salix geyeriana</i>	457	-13.6	-11.2	-10.2	-7.7	-5.4	-2.1	3.9
<i>Salix hindsiana</i>	216	-1.4	1.5	4.1	6.8	7.8	9.4	12.9
<i>Salix hookeriana</i>	50	-8.4	-3.1	2.5	3.6	5.4	7.3	8.1
<i>Salix laevigata</i>	183	-2.7	3.4	5.5	7.3	9.0	10.8	14.1
<i>Salix lasiandra</i>	3659	-30.1	-24.8	-21.6	-15.0	-7.9	0.8	12.9
<i>Salix lasiolepis</i>	377	-9.5	-1.6	1.4	6.0	7.7	9.1	12.9
<i>Salix lucida</i>	4830	-27.8	-24.5	-21.2	-16.8	-10.6	-6.2	-0.2
<i>Salix mackenziana</i>	2089	-28.9	-25.3	-22.5	-16.9	-11.0	-7.6	5.5
<i>Salix nigra</i>	5028	-13.7	-6.6	-3.3	2.2	6.9	9.8	18.1
<i>Salix pellita</i>	2427	-28.5	-25.9	-23.7	-20.4	-17.5	-13.2	-4.6
<i>Salix petiolaris</i>	3164	-29.6	-23.0	-20.4	-16.6	-10.6	-7.2	0.5
<i>Salix pyrifolia</i>	4458	-31.4	-26.5	-22.7	-19.5	-16.0	-11.5	-2.4
<i>Salix scouleriana</i>	4590	-30.2	-26.1	-23.7	-18.3	-9.6	-3.1	9.6
<i>Salix sericea</i>	1461	-13.8	-9.7	-6.2	-4.2	-1.3	1.2	8.0
<i>Salix sessilifolia</i>	24	-4.9	-0.3	1.1	3.5	4.1	4.6	4.9
<i>Salix sitchensis</i>	717	-22.0	-11.4	-9.3	-3.8	1.6	3.8	9.6
<i>Salix taxifolia</i>	699	1.5	12.2	14.4	18.4	22.5	25.0	28.1
<i>Salix tracyi</i>	16	1.2	2.9	4.5	6.5	7.3	7.5	8.1
<i>Sambucus callicarpa</i>	560	-21.9	-9.5	-5.9	-1.5	2.4	3.9	9.6
<i>Sambucus canadensis</i>	5207	-18.2	-9.8	-6.0	-0.7	5.4	9.7	19.6
<i>Sambucus glauca</i>	720	-13.5	-8.6	-6.0	-1.7	2.9	6.9	12.9
<i>Sambucus melanocarpa</i>	280	-14.4	-11.0	-8.9	-7.2	-5.6	-3.8	3.6
<i>Sambucus velutina</i>	19	-3.8	-3.6	-2.7	-0.1	0.4	2.1	7.9
<i>Sapindus drummondii</i>	1166	-3.5	2.2	4.6	6.7	8.9	11.0	15.5
<i>Serenoa repens</i>	286	8.6	10.4	11.4	12.8	16.2	17.8	19.6
<i>Solanum erianthum</i>	1167	10.1	15.1	17.5	21.5	23.7	25.1	28.1
<i>Sophora affinis</i>	118	3.8	5.2	6.0	7.4	9.1	9.8	10.9
<i>Sophora secundiflora</i>	732	5.5	9.7	11.7	12.6	13.3	14.4	16.5
<i>Sorbus americana</i>	2784	-24.4	-21.1	-19.4	-15.6	-10.8	-6.6	5.1
<i>Sorbus decora</i>	3486	-26.1	-24.1	-21.6	-18.6	-13.7	-9.7	-2.4
<i>Sorbus scopulina</i>	1678	-30.2	-22.8	-17.4	-11.8	-9.0	-6.0	2.2
<i>Sorbus sitchensis</i>	978	-20.0	-12.8	-11.1	-8.8	-4.0	-0.4	8.5
<i>Staphylea bolanderi</i>	17	0.0	0.7	2.3	4.3	5.6	6.3	6.7
<i>Staphylea trifolia</i>	1871	-13.2	-6.9	-4.8	-2.1	0.4	3.1	12.0
<i>Stewartia malacodendron</i>	142	3.3	6.1	7.3	9.2	10.3	11.5	12.2

Distributions of species in relation to mean January temperature in North America—*Continued*.

Taxon name	N	Mean January temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	-1.0	1.2	1.5	2.5	3.6	4.2	6.7
<i>Styrax americana</i>	1046	-5.2	4.1	5.9	8.2	10.3	12.3	17.0
<i>Styrax grandifolia</i>	760	0.3	4.3	6.1	8.0	9.7	11.1	14.1
<i>Styrax platanifolia</i>	31	8.2	8.4	9.1	9.6	10.1	10.3	10.6
<i>Symplocos tinctoria</i>	917	0.2	4.7	5.9	7.8	9.9	11.3	15.9
<i>Tilia caroliniana</i>	994	0.2	5.1	6.3	8.2	10.0	11.9	16.0
<i>Toxicodendron vernix</i>	840	-12.9	-6.0	-4.2	5.7	9.2	11.0	15.1
<i>Ungnadia speciosa</i>	50	5.6	6.5	8.3	9.0	12.4	15.0	18.1
<i>Vaccinium arboreum</i>	1628	-1.7	1.7	4.0	6.6	9.3	11.2	16.3
<i>Viburnum lentago</i>	1735	-22.1	-17.7	-13.2	-8.7	-5.7	-4.3	0.1
<i>Viburnum nudum</i>	873	-2.5	3.5	5.2	7.4	9.6	11.3	16.8
<i>Viburnum obovatum</i>	242	7.4	8.9	10.2	11.8	14.4	15.9	17.7
<i>Viburnum prunifolium</i>	1356	-8.3	-4.7	-3.6	-1.5	0.6	3.3	8.7
<i>Viburnum rufidulum</i>	1825	-3.3	-0.1	2.5	5.5	8.0	9.6	14.8
<i>Viburnum trilobum</i>	1928	-24.4	-17.2	-14.7	-11.5	-8.3	-6.0	-1.0
<i>Yucca aloifolia</i>	40	7.3	9.1	10.4	14.6	18.1	19.1	19.6
<i>Yucca gloriosa</i>	10	5.6	5.6	6.6	8.9	11.7	12.0	12.3
<i>Zanthoxylum americanum</i>	1469	-16.7	-11.9	-8.9	-5.4	-3.5	-1.6	8.1
<i>Zanthoxylum clava-herculis</i>	539	3.0	6.2	8.0	9.8	11.6	14.6	19.3
<i>Zanthoxylum fagara</i>	571	10.3	13.3	14.9	16.8	18.2	19.7	24.0
<i>Zanthoxylum hirsutum</i>	189	4.3	5.4	6.5	8.5	12.4	14.7	15.5

Distributions of genera and groups in relation to mean January temperature in North America.

[N, number]

Taxon name	N	Mean January temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	-9.1	-4.0	-1.0	3.4	7.1	9.9	15.4
<i>CATALPA</i>	274	-4.0	0.7	4.2	7.6	9.0	10.7	12.1
<i>MAGNOLIA</i>	1795	-7.0	-2.6	0.8	5.6	9.3	11.8	19.1
<i>PLATANUS</i>	4013	-10.2	-5.5	-3.0	2.0	6.6	9.4	17.1
<i>POPULUS</i>	18088	-31.0	-25.8	-21.0	-12.2	-3.8	3.8	13.6
<i>STEWARTIA</i>	224	-1.0	1.6	3.3	7.0	9.7	11.0	12.2
<i>TILIA</i> *	4540	-19.7	-13.3	-9.5	-4.2	2.8	8.5	16.0

* Revised from Thompson and others (1999b).

Distributions of species in relation to mean July temperature in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean July temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	18.2	21.0	22.5	24.7	26.1	28.4	30.8
<i>Picea chihuahuana</i>	13	19.8	19.8	20.0	20.4	21.9	23.3	26.1
<i>Acacia berlandieri</i>	590	18.7	23.9	26.8	28.8	30.1	30.9	32.3
<i>Acacia farnesiana</i> (I.R.)	854	18.5	20.4	24.2	28.0	29.9	30.7	32.3
<i>Acacia rigidula</i>	334	24.2	27.4	28.9	29.8	30.7	31.4	32.3
<i>Acacia roemeriana</i>	310	24.2	26.9	27.7	28.6	29.5	30.7	32.3
<i>Acacia tortuosa</i>	824	14.1	19.3	20.3	22.6	29.3	30.6	32.3
<i>Acacia wrightii</i>	316	18.7	24.2	28.0	29.7	30.6	31.4	32.3
<i>Aesculus parviflora</i>	102	25.3	26.0	26.4	26.9	27.2	27.3	27.4
<i>Aesculus pavia</i>	1103	23.2	26.2	26.8	27.2	27.5	28.1	29.1
<i>Aesculus sylvatica</i>	176	22.9	24.8	25.2	25.6	26.1	26.4	26.8
<i>Amelanchier interior</i>	76	17.6	18.2	18.7	19.5	21.4	22.0	23.8
<i>Amelanchier sanguinea</i>	539	15.2	17.6	18.3	19.2	20.2	21.1	23.4
<i>Aralia spinosa</i>	1838	18.0	22.7	25.0	26.3	27.2	27.5	28.4
<i>Asimina triloba</i>	2373	17.9	22.1	23.5	25.3	26.3	27.2	28.6
<i>Avicennia germinans</i>	258	13.6	25.6	26.4	27.3	27.7	29.5	31.3
<i>Baccharis halimifolia</i>	1152	22.0	25.9	26.8	27.3	27.6	28.0	28.9
<i>Bumelia celastrina</i>	296	18.8	26.5	27.5	29.0	30.1	30.7	31.8
<i>Bumelia lanuginosa</i>	1794	21.3	25.9	27.2	27.9	28.9	29.7	32.3
<i>Bumelia lycioides</i>	524	22.7	25.3	25.8	26.6	27.0	27.3	28.1
<i>Bumelia tenax</i>	49	26.5	27.0	27.2	27.4	27.5	27.5	27.6
<i>Caesalpinia mexicana</i>	240	18.7	24.6	26.4	27.5	29.0	30.0	30.8
<i>Catalpa bignonioides</i> (N.R.U.)	205	25.7	26.6	26.9	27.1	27.2	27.3	27.5
<i>Catalpa speciosa</i> (N.R.U.)	69	24.0	25.2	25.5	26.1	26.8	27.2	27.5
<i>Ceanothus spinosus</i>	7	18.1	18.1	20.0	21.9	22.2	22.5	26.4
<i>Ceanothus thyrsiflorus</i>	44	10.8	13.4	15.5	16.6	17.5	18.5	20.3
<i>Celtis tenuifolia</i>	649	18.2	24.6	25.4	26.0	26.6	27.0	28.3
<i>Cephalanthus occidentalis</i>	5782	14.1	20.2	22.5	25.5	27.3	28.1	32.7
<i>Cercis canadensis</i>	3347	16.7	22.6	24.3	25.9	27.4	28.4	32.3
<i>Cercis occidentalis</i>	80	16.8	19.2	21.3	23.5	25.6	26.7	29.3
<i>Chionanthus virginicus</i>	1298	18.8	24.0	25.4	26.6	27.3	27.6	28.8
<i>Citharexylum berlandieri</i>	110	15.2	26.1	27.1	27.7	29.0	29.6	30.3
<i>Cladrastis kentukea</i>	73	18.1	22.1	23.9	25.6	25.9	26.9	27.4
<i>Clethra acuminata</i>	73	18.0	19.0	20.8	22.1	23.3	23.8	24.2
<i>Cliftonia monophylla</i>	149	26.9	27.1	27.2	27.3	27.3	27.4	27.6
<i>Condalia globosa</i>	174	24.9	27.8	29.3	29.9	30.4	30.9	32.8
<i>Condalia hookeri</i>	369	21.5	27.5	28.8	29.4	30.4	31.2	32.3
<i>Cordia boissieri</i>	285	18.7	22.4	24.2	27.5	29.6	30.5	31.5
<i>Cornus alternifolia</i>	2506	14.1	17.8	18.8	20.6	22.3	23.6	27.4
<i>Cornus drummondii</i>	1663	20.6	23.5	24.7	26.1	27.7	28.7	29.5
<i>Cornus glabrata</i>	59	14.3	16.7	17.8	19.2	20.5	21.4	27.8
<i>Cornus nuttallii</i>	360	8.5	12.6	14.8	16.7	18.4	20.2	27.8
<i>Cornus occidentalis</i>	235	10.8	15.2	16.4	17.9	19.2	21.1	27.6
<i>Cornus racemosa</i>	1604	17.2	19.8	20.7	21.9	23.5	25.0	26.5
<i>Cornus rugosa</i>	1480	14.3	17.4	18.4	19.6	21.0	21.8	24.2
<i>Cornus sessilis</i>	40	14.9	16.8	18.6	20.1	21.7	23.0	24.3

Distributions of species in relation to mean July temperature in North America—Continued.

Taxon name	N	Mean July temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	21.4	25.7	26.4	27.0	27.3	27.5	28.1
<i>Cotinus obovatus</i>	44	23.7	25.0	25.6	25.9	26.3	27.7	29.1
<i>Crataegus chrysocarpa</i> (I.R.)	875	10.5	17.6	18.3	19.2	20.4	21.2	23.8
<i>Crataegus columbiana</i>	68	11.2	13.2	14.6	16.1	18.4	19.9	21.6
<i>Crataegus douglasii</i>	1321	7.1	11.1	12.6	14.7	17.0	18.8	23.0
<i>Crataegus erythropoda</i>	24	12.6	12.8	15.6	17.4	18.9	20.8	29.8
<i>Crataegus saligna</i>	10	13.5	13.5	15.1	16.2	17.5	17.5	19.0
<i>Crataegus succulenta</i> (I.R.)	910	9.9	19.6	20.5	21.7	22.7	23.7	26.4
<i>Crataegus tracyi</i>	12	24.0	24.0	25.1	26.1	28.3	28.8	29.1
<i>Cyrilla racemiflora</i>	548	25.3	25.9	26.7	27.1	27.3	27.4	28.4
<i>Diospyros texana</i>	550	18.7	27.4	28.3	29.1	30.1	31.0	32.3
<i>Ehretia anacua</i>	282	18.7	22.7	24.7	28.0	29.1	30.1	30.8
<i>Erythrina herbacea</i>	572	15.7	26.8	27.3	27.5	28.1	28.9	31.9
<i>Esenbeckia berlandieri</i>	58	20.7	21.8	25.7	27.4	29.9	30.3	31.8
<i>Euonymus atropurpureus</i>	1611	19.1	21.8	22.8	24.2	25.5	26.4	29.4
<i>Euonymus occidentalis</i>	90	10.8	15.1	16.6	17.8	18.8	19.4	27.8
<i>Eysenhardtia polystachya</i>	1006	14.1	19.1	20.2	22.3	25.6	27.9	31.3
<i>Eysenhardtia texana</i>	540	18.7	24.2	27.6	29.0	30.1	31.0	32.3
<i>Forestiera acuminata</i>	575	24.0	25.6	26.7	27.3	27.6	27.8	29.4
<i>Forestiera angustifolia</i>	829	18.7	21.8	25.6	28.0	29.6	30.7	32.3
<i>Forestiera segregata</i>	44	27.1	27.3	27.4	27.5	27.6	27.7	28.0
<i>Garrya elliptica</i>	51	10.8	13.5	15.2	16.7	18.1	19.4	21.4
<i>Gleditsia aquatica</i>	429	25.0	26.6	27.2	27.6	27.8	28.1	28.8
<i>Gordonia lasianthus</i>	332	25.7	26.3	26.8	27.2	27.4	27.5	27.5
<i>Guaiaacum angustifolium</i>	493	18.7	25.9	27.9	29.1	30.3	31.1	32.3
<i>Gymnocladus dioicus</i>	1072	19.9	22.5	23.4	24.9	25.9	26.8	28.7
<i>Halesia carolina</i>	312	18.1	21.9	24.6	25.9	26.6	27.2	27.6
<i>Halesia diptera</i>	324	25.9	26.9	27.1	27.3	27.6	27.9	28.5
<i>Halesia parviflora</i>	34	26.3	26.8	27.1	27.2	27.3	27.3	27.4
<i>Hamamelis virginiana</i>	2809	15.2	19.6	21.2	23.4	26.4	27.3	29.1
<i>Helietta parvifolia</i>	270	17.4	20.9	22.5	27.4	29.8	30.5	31.9
<i>Ilex ambigua</i>	664	25.2	26.4	27.0	27.3	27.4	27.8	28.4
<i>Ilex amelanchier</i>	26	26.1	26.3	27.2	27.3	27.5	27.5	27.6
<i>Ilex cassine</i>	238	26.3	27.1	27.3	27.4	27.5	27.5	27.9
<i>Ilex coriacea</i>	423	25.6	26.0	26.7	27.2	27.3	27.4	28.2
<i>Ilex decidua</i>	1836	22.1	25.5	26.2	27.1	27.6	28.4	29.4
<i>Ilex laevigata</i>	157	17.6	20.1	21.0	21.9	24.3	25.8	26.4
<i>Ilex montana</i>	382	17.9	19.6	20.8	23.4	25.5	26.3	27.8
<i>Ilex myrtifolia</i>	274	26.0	26.7	27.1	27.3	27.3	27.4	27.6
<i>Ilex vomitoria</i>	621	19.7	26.9	27.2	27.3	27.8	28.7	29.4
<i>Illicium floridanum</i>	158	25.2	26.8	27.1	27.2	27.3	27.4	27.6
<i>Leitneria floridana</i>	22	26.3	26.5	26.9	27.2	27.6	28.0	28.1
<i>Leucaena pulverulenta</i>	299	18.7	22.5	24.2	27.0	29.0	30.0	30.8
<i>Leucaena retusa</i>	106	24.0	27.1	28.2	28.7	29.4	30.1	31.0
<i>Lysiloma microphylla</i>	320	16.5	20.2	24.0	26.6	28.3	29.5	32.4
<i>Magnolia ashei</i>	7	27.2	27.2	27.3	27.3	27.3	27.3	27.4
<i>Magnolia fraseri</i>	117	17.9	19.2	20.8	21.7	22.8	23.9	25.2
<i>Magnolia macrophylla</i>	230	18.1	24.6	26.3	27.0	27.3	27.4	27.8

Distributions of species in relation to mean July temperature in North America—Continued.

Taxon name	N	Mean July temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	26.1	26.8	27.1	27.2	27.3	27.4	27.5
<i>Magnolia tripetala</i>	272	18.1	21.6	23.0	24.4	25.7	26.5	27.6
<i>Malus angustifolia</i>	630	18.2	25.2	25.9	26.7	27.1	27.3	28.4
<i>Malus coronaria</i>	645	17.9	20.3	21.3	22.2	23.1	24.1	27.0
<i>Malus diversifolia</i>	410	7.8	10.8	12.1	13.6	16.1	17.4	20.3
<i>Malus ioensis</i>	571	21.0	22.2	23.6	24.8	25.4	25.8	28.5
<i>Myrica californica</i>	67	10.8	13.8	15.0	16.4	18.0	19.3	21.9
<i>Myrica cerifera</i>	1026	24.0	25.9	26.9	27.3	27.5	28.2	29.4
<i>Osmanthus americanus</i> (I.R.)	427	25.7	26.8	27.1	27.3	27.4	27.5	27.6
<i>Oxydendrum arboreum</i>	1087	18.0	22.1	24.0	25.7	26.7	27.3	28.0
<i>Parkinsonia aculeata</i> (I.R.)	1028	18.5	20.5	23.7	27.4	29.4	30.6	32.8
<i>Persea borbonia</i>	711	24.3	26.1	26.9	27.3	27.4	27.8	29.7
<i>Photinia arbutifolia</i>	140	13.1	17.0	19.1	22.0	23.2	24.7	27.8
<i>Pinckneya pubens</i>	100	26.8	27.0	27.1	27.2	27.3	27.4	27.5
<i>Pistacia texana</i>	8	24.1	24.1	24.2	26.4	30.0	30.0	30.2
<i>Pithecellobium flexicaule</i>	246	20.5	25.9	27.4	28.9	30.0	30.6	31.5
<i>Pithecellobium pallens</i>	267	20.5	23.1	28.2	29.6	30.4	31.0	31.9
<i>Planera aquatica</i>	633	25.6	26.7	27.0	27.3	27.5	27.7	28.9
<i>Platanus racemosa</i>	103	13.1	18.3	20.8	22.4	25.1	26.7	28.4
<i>Platanus wrightii</i>	153	19.4	23.0	24.1	25.1	26.9	28.4	31.9
<i>Populus angustifolia</i>	460	7.1	11.8	13.3	16.5	19.1	21.7	28.3
<i>Populus arizonica</i>	60	24.2	25.1	26.1	27.4	28.1	29.3	30.8
<i>Populus deltoides</i>	5744	11.6	20.0	22.0	24.6	26.9	28.0	29.6
<i>Populus trichocarpa</i>	1885	7.7	11.1	12.4	14.7	17.4	19.3	30.1
<i>Prunus alleghaniensis</i>	22	18.2	18.7	20.0	21.1	22.0	22.7	23.0
<i>Prunus americana</i>	3652	12.6	20.8	22.0	23.7	25.4	26.4	28.5
<i>Prunus angustifolia</i> (N.R.U.)	1843	21.9	25.5	26.2	27.1	27.8	28.8	29.6
<i>Prunus caroliniana</i>	589	25.9	26.7	27.0	27.3	27.4	27.6	29.0
<i>Prunus emarginata</i>	733	8.5	13.0	14.9	16.5	18.0	19.5	27.9
<i>Prunus fremontii</i>	35	21.7	22.0	22.3	22.9	25.7	27.8	30.5
<i>Prunus hortulana</i>	258	22.8	24.6	25.2	25.5	25.8	26.3	27.4
<i>Prunus ilicifolia</i>	88	13.1	18.0	20.8	22.3	24.7	27.6	29.5
<i>Prunus mexicana</i>	1082	21.3	25.3	25.8	26.9	28.2	28.8	31.2
<i>Prunus munsoniana</i>	249	23.5	25.1	25.3	25.7	26.4	26.9	28.9
<i>Prunus nigra</i>	727	15.2	18.2	18.9	19.8	20.8	21.7	24.9
<i>Prunus pensylvanica</i>	6724	8.6	13.6	15.3	16.5	18.4	20.5	24.8
<i>Prunus subcordata</i>	156	14.7	17.0	18.1	19.3	21.6	23.2	26.3
<i>Prunus umbellata</i>	704	25.0	26.4	26.9	27.2	27.4	27.8	28.5
<i>Prunus virginiana</i>	8834	7.1	14.6	16.2	18.2	21.1	23.2	27.6
<i>Ptelea crenulata</i>	39	20.2	21.7	23.0	24.5	25.5	26.4	28.4
<i>Rhamnus caroliniana</i>	1181	20.2	24.7	25.5	26.7	27.3	28.0	30.4
<i>Rhizophora mangle</i>	412	13.7	25.8	26.6	27.4	28.1	29.9	32.8
<i>Rhododendron catawbiense</i>	111	18.0	20.2	21.0	22.3	24.1	25.2	25.8
<i>Rhododendron maximum</i>	494	16.1	19.5	20.4	21.9	23.3	24.1	25.8
<i>Rhus copallina</i>	2997	17.0	21.8	24.0	25.9	27.2	27.7	29.2
<i>Rhus integrifolia</i>	25	20.0	21.1	22.0	22.3	22.5	22.8	23.4
<i>Rhus kearneyi</i>	7	26.7	26.7	27.8	29.6	29.8	30.5	30.9
<i>Rhus lanceolata</i>	247	17.9	26.0	27.8	28.6	29.2	30.5	32.0

Distributions of species in relation to mean July temperature in North America—*Continued.*

Taxon name	N	Mean July temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	20.0	21.5	22.2	22.5	23.8	28.9	30.0
<i>Rhus typhina</i>	1872	14.4	18.0	18.8	20.2	21.8	22.7	25.7
<i>Robinia viscosa</i>	18	18.2	18.8	20.8	22.3	24.6	26.3	26.5
<i>Sabal mexicana</i>	99	16.0	19.0	21.0	24.0	25.8	27.1	29.0
<i>Sabal minor</i>	895	25.7	26.8	27.1	27.3	27.7	28.3	29.3
<i>Salix amygdaloides</i>	5021	7.8	16.2	18.3	21.0	23.1	25.0	28.6
<i>Salix bebbiana</i>	9340	7.1	12.6	14.1	15.9	18.0	20.0	24.3
<i>Salix bonplandiana</i>	840	14.1	19.1	20.7	23.0	26.2	28.2	31.3
<i>Salix caroliniana</i>	888	20.8	25.3	25.7	26.6	27.3	27.5	29.3
<i>Salix discolor</i>	5453	7.1	14.2	15.9	17.5	19.6	21.9	25.6
<i>Salix exigua</i>	9514	7.7	14.6	16.5	20.5	23.6	26.3	34.4
<i>Salix floridana</i>	8	27.2	27.2	27.2	27.3	27.4	27.5	27.5
<i>Salix fluviatilis</i>	9	16.6	16.6	17.9	18.6	18.9	19.0	19.6
<i>Salix geyeriana</i>	457	8.0	11.9	13.0	15.2	17.0	18.4	22.8
<i>Salix hindsiana</i>	216	13.1	17.9	19.5	22.3	24.7	25.8	27.6
<i>Salix hookeriana</i>	50	9.5	10.3	14.0	15.4	16.8	17.2	17.6
<i>Salix laevigata</i>	183	10.8	17.4	19.7	22.2	24.1	25.6	30.2
<i>Salix lasiandra</i>	3659	7.1	11.9	13.5	15.1	16.2	18.2	27.2
<i>Salix lasiolepis</i>	377	10.8	16.9	18.4	21.3	24.4	26.3	28.9
<i>Salix lucida</i>	4830	10.1	13.7	15.5	17.1	18.7	20.7	24.4
<i>Salix mackenzieana</i>	2089	7.1	12.0	13.4	14.8	15.5	16.3	24.6
<i>Salix nigra</i>	5028	15.2	21.4	23.2	25.7	27.4	28.7	34.1
<i>Salix pellita</i>	2427	10.1	13.0	13.9	15.5	16.6	17.4	20.2
<i>Salix petiolaris</i>	3164	9.9	15.7	16.6	18.2	19.9	21.6	24.0
<i>Salix pyrifolia</i>	4458	10.1	13.3	14.7	15.7	16.9	18.2	22.1
<i>Salix scouleriana</i>	4590	7.1	11.8	13.1	14.8	15.9	17.1	28.3
<i>Salix sericea</i>	1461	15.2	18.4	20.1	21.9	23.3	24.8	26.9
<i>Salix sessilifolia</i>	24	13.6	15.6	17.1	18.5	18.9	19.1	19.5
<i>Salix sitchensis</i>	717	7.8	11.0	12.1	14.0	15.9	17.6	22.7
<i>Salix taxifolia</i>	699	14.1	17.9	20.2	23.0	26.4	28.0	31.3
<i>Salix tracyi</i>	16	10.8	15.0	16.6	16.8	17.3	19.4	20.3
<i>Sambucus callicarpa</i>	560	7.6	10.9	11.8	13.1	15.7	17.5	21.2
<i>Sambucus canadensis</i>	5207	15.2	19.0	21.4	24.8	26.9	27.6	29.4
<i>Sambucus glauca</i>	720	9.8	13.4	15.3	17.0	18.8	20.6	30.1
<i>Sambucus melanocarpa</i>	280	9.7	12.2	13.8	15.6	17.3	18.5	21.5
<i>Sambucus velutina</i>	19	15.7	16.1	17.5	19.0	19.4	20.3	28.4
<i>Sapindus drummondii</i>	1166	20.4	25.2	26.4	27.9	28.7	29.1	31.2
<i>Serenoa repens</i>	286	26.9	27.2	27.3	27.3	27.4	27.5	28.0
<i>Solanum erianthum</i>	1167	14.1	21.0	23.9	26.6	27.5	29.0	32.8
<i>Sophora affinis</i>	118	27.2	27.8	28.3	28.7	29.0	29.2	29.4
<i>Sophora secundiflora</i>	732	15.7	20.3	22.1	26.8	28.6	30.0	31.7
<i>Sorbus americana</i>	2784	10.3	14.2	15.6	16.9	18.2	19.5	25.8
<i>Sorbus decora</i>	3486	8.8	11.6	13.0	15.7	17.2	18.2	22.8
<i>Sorbus scopulina</i>	1678	7.3	11.3	12.3	13.5	14.9	16.3	24.2
<i>Sorbus sitchensis</i>	978	7.7	10.4	11.6	13.0	14.4	16.2	21.2
<i>Staphylea bolanderi</i>	17	17.9	18.0	22.6	24.0	24.6	25.0	26.7
<i>Staphylea trifolia</i>	1871	17.8	21.4	22.5	24.0	25.4	26.1	27.8
<i>Stewartia malacodendron</i>	142	25.0	26.0	26.7	27.1	27.3	27.4	28.0

Distributions of species in relation to mean July temperature in North America—*Continued*.

Taxon name	N	Mean July temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	18.1	21.5	23.0	23.9	25.0	25.5	26.4
<i>Styrax americana</i>	1046	22.7	25.8	26.7	27.2	27.4	27.7	28.3
<i>Styrax grandifolia</i>	760	21.5	25.8	26.5	27.1	27.3	27.5	28.2
<i>Styrax platanifolia</i>	31	27.7	27.9	28.3	28.6	28.9	29.0	29.3
<i>Symplocos tinctoria</i>	917	18.2	25.6	26.4	27.1	27.3	27.7	28.4
<i>Tilia caroliniana</i>	994	18.2	26.1	26.7	27.2	27.5	27.9	29.1
<i>Toxicodendron vernix</i>	840	18.2	21.0	21.8	26.1	27.2	27.3	28.1
<i>Ungnadia speciosa</i>	50	24.4	25.0	26.7	28.4	28.8	29.1	31.1
<i>Vaccinium arboreum</i>	1628	18.8	25.3	25.9	26.9	27.4	27.9	29.1
<i>Viburnum lentago</i>	1735	15.4	18.8	19.5	20.7	21.9	22.7	25.0
<i>Viburnum nudum</i>	873	18.8	25.1	25.9	26.9	27.3	27.5	29.0
<i>Viburnum obovatum</i>	242	26.5	27.0	27.2	27.3	27.4	27.5	27.5
<i>Viburnum prunifolium</i>	1356	17.9	21.7	22.7	24.0	25.3	25.7	27.5
<i>Viburnum rufidulum</i>	1825	22.0	25.3	25.9	26.9	27.6	28.4	29.4
<i>Viburnum trilobum</i>	1928	8.2	17.1	18.0	19.1	20.3	21.4	24.3
<i>Yucca aloifolia</i>	40	26.0	27.0	27.3	27.4	27.5	27.6	28.0
<i>Yucca gloriosa</i>	10	25.7	25.7	25.8	27.1	27.4	27.4	27.5
<i>Zanthoxylum americanum</i>	1469	18.6	20.6	21.6	22.7	24.4	25.7	28.2
<i>Zanthoxylum clava-herculis</i>	539	25.0	27.2	27.3	27.5	28.0	28.8	29.4
<i>Zanthoxylum fagara</i>	571	18.0	24.7	27.3	27.8	29.5	30.5	32.1
<i>Zanthoxylum hirsutum</i>	189	27.2	28.1	28.7	29.1	29.3	29.5	30.2

Distributions of genera and groups in relation to mean July temperature in North America.

[N, number]

Taxon name	N	Mean July temperature (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	10.8	22.7	24.4	26.1	27.3	28.1	29.4
<i>CATALPA</i>	274	24.0	25.8	26.6	27.0	27.2	27.3	27.5
<i>MAGNOLIA</i>	1795	17.9	21.4	23.5	26.2	27.3	27.5	28.6
<i>PLATANUS</i>	4013	13.1	21.4	23.1	25.4	27.0	27.8	31.9
<i>POPULUS</i>	18088	7.1	12.7	14.4	17.2	22.4	26.5	34.1
<i>STEWARTIA</i>	224	18.1	23.1	24.6	26.6	27.2	27.3	28.0
<i>TILIA</i> *	4540	15.2	18.6	20.2	22.8	25.7	27.3	29.1

* Revised from Thompson and others (1999b).

Distributions of species in relation to mean annual precipitation in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean annual precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	240	290	320	420	495	550	830
<i>Picea chihuahuana</i>	13	330	330	435	550	605	765	815
<i>Acacia berlandieri</i>	590	220	250	280	460	575	705	1095
<i>Acacia farnesiana</i> (I.R.)	854	115	240	330	455	580	770	1405
<i>Acacia rigidula</i>	334	250	405	480	570	725	920	1365
<i>Acacia roemeriana</i>	310	230	250	265	315	485	635	830
<i>Acacia tortuosa</i>	824	160	370	440	530	665	835	2290
<i>Acacia wrightii</i>	316	280	350	450	515	585	640	805
<i>Aesculus parviflora</i>	102	1270	1320	1345	1365	1400	1435	1565
<i>Aesculus pavia</i>	1103	510	1105	1200	1305	1390	1475	1630
<i>Aesculus sylvatica</i>	176	1075	1145	1170	1245	1365	1415	1470
<i>Amelanchier interior</i>	76	565	630	690	740	775	790	870
<i>Amelanchier sanguinea</i>	539	565	685	755	825	1000	1085	1330
<i>Aralia spinosa</i>	1838	925	1080	1165	1260	1365	1435	1630
<i>Asimina triloba</i>	2373	720	910	980	1125	1275	1380	1570
<i>Avicennia germinans</i>	258	119	305	1025	1415	2050	2815	4305
<i>Baccharis halimifolia</i>	1152	965	1145	1190	1290	1390	1500	1610
<i>Bumelia celastrina</i>	296	445	510	575	720	1065	1480	3345
<i>Bumelia lanuginosa</i>	1794	245	495	660	970	1230	1380	1630
<i>Bumelia lycioides</i>	524	950	1190	1245	1350	1395	1435	1590
<i>Bumelia tenax</i>	49	1175	1250	1265	1300	1310	1320	1340
<i>Caesalpinia mexicana</i>	240	330	560	635	815	1135	1475	1830
<i>Catalpa bignonioides</i> (N.R.U.)	205	1260	1325	1355	1390	1430	1495	1555
<i>Catalpa speciosa</i> (N.R.U.)	69	940	1035	1110	1190	1225	1250	1280
<i>Ceanothus spinosus</i>	7	230	230	295	415	435	485	585
<i>Ceanothus thyrsiflorus</i>	44	345	495	980	1335	1585	1965	2505
<i>Celtis tenuifolia</i>	649	890	970	1075	1190	1300	1375	1525
<i>Cephalanthus occidentalis</i>	5782	170	740	890	1065	1280	1425	3345
<i>Cercis canadensis</i>	3347	240	665	910	1075	1270	1385	1590
<i>Cercis occidentalis</i>	80	95	175	320	570	930	1105	1425
<i>Chionanthus virginicus</i>	1298	950	1085	1165	1255	1360	1435	1595
<i>Citharexylum berlandieri</i>	110	520	575	695	865	1115	1325	1580
<i>Cladrastis kentukea</i>	73	1020	1060	1100	1240	1355	1470	1550
<i>Clethra acuminata</i>	73	1045	1105	1150	1260	1360	1470	1560
<i>Cliftonia monophylla</i>	149	1145	1200	1235	1380	1550	1590	1630
<i>Condalia globosa</i>	174	75	145	190	245	300	350	590
<i>Condalia hookeri</i>	369	390	480	540	640	805	960	1260
<i>Cordia boissieri</i>	285	325	465	530	640	850	1135	1595
<i>Cornus alternifolia</i>	2506	505	765	840	980	1080	1180	1560
<i>Cornus drummondii</i>	1663	500	725	845	925	1050	1225	1570
<i>Cornus glabrata</i>	59	335	420	630	980	1170	1350	1425
<i>Cornus nuttallii</i>	360	320	855	1085	1370	1820	2350	4285
<i>Cornus occidentalis</i>	235	295	485	910	1165	1430	1870	2555
<i>Cornus racemosa</i>	1604	480	750	805	905	995	1075	1330
<i>Cornus rugosa</i>	1480	505	735	785	895	1050	1130	1410
<i>Cornus sessilis</i>	40	550	630	930	1050	1250	1405	1750

Distributions of species in relation to mean annual precipitation in North America—*Continued.*

Taxon name	N	Mean annual precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	955	1170	1230	1320	1390	1470	1630
<i>Cotinus obovatus</i>	44	660	730	1035	1095	1200	1410	1485
<i>Crataegus chrysocarpa</i> (I.R.)	875	295	350	405	465	525	625	985
<i>Crataegus columbiana</i>	68	230	405	460	560	700	805	1620
<i>Crataegus douglasii</i>	1321	195	405	550	795	1260	1890	4370
<i>Crataegus erythropoda</i>	24	305	310	360	405	515	535	575
<i>Crataegus saligna</i>	10	290	290	350	390	490	515	515
<i>Crataegus succulenta</i> (I.R.)	910	335	400	430	505	650	735	1025
<i>Crataegus tracyi</i>	12	310	310	320	360	690	730	820
<i>Cyrilla racemiflora</i>	548	1135	1175	1210	1295	1400	1525	1630
<i>Diospyros texana</i>	550	235	300	425	550	680	790	995
<i>Ehretia anacua</i>	282	330	505	585	725	880	1120	1745
<i>Erythrina herbacea</i>	572	465	865	1130	1320	1435	1575	2685
<i>Esenbeckia berlandieri</i>	58	390	445	570	775	1090	1315	1710
<i>Euonymus atropurpureus</i>	1611	495	820	890	955	1065	1175	1545
<i>Euonymus occidentalis</i>	90	335	765	1160	1330	1520	1860	2555
<i>Eysenhardtia polystachya</i>	1006	220	330	405	595	925	1175	2195
<i>Eysenhardtia texana</i>	540	225	265	320	480	610	720	930
<i>Forestiera acuminata</i>	575	805	1050	1195	1310	1385	1465	1605
<i>Forestiera angustifolia</i>	829	220	255	295	435	595	790	1615
<i>Forestiera segregata</i>	44	1255	1280	1310	1335	1355	1435	1500
<i>Garrya elliptica</i>	51	345	480	680	1350	1805	2135	2555
<i>Gleditsia aquatica</i>	429	905	1135	1205	1285	1335	1400	1535
<i>Gordonia lasianthus</i>	332	1145	1185	1225	1295	1330	1380	1610
<i>Guaiacum angustifolium</i>	493	230	260	315	475	580	695	965
<i>Gymnocladus dioicus</i>	1072	565	815	880	925	1015	1105	1350
<i>Halesia carolina</i>	312	1035	1180	1225	1335	1390	1440	1560
<i>Halesia diptera</i>	324	1105	1215	1300	1395	1480	1535	1630
<i>Halesia parviflora</i>	34	1175	1255	1370	1435	1525	1580	1610
<i>Hamamelis virginiana</i>	2809	625	835	985	1130	1285	1405	1630
<i>Helietta parvifolia</i>	270	245	430	475	570	695	815	1595
<i>Ilex ambigua</i>	664	1080	1190	1265	1335	1425	1525	1630
<i>Ilex amelanchar</i>	26	1155	1185	1340	1545	1585	1590	1610
<i>Ilex cassine</i>	238	1215	1265	1305	1330	1370	1460	1590
<i>Ilex coriacea</i>	423	1145	1190	1230	1300	1395	1550	1630
<i>Ilex decidua</i>	1836	700	970	1100	1220	1355	1445	1630
<i>Ilex laevigata</i>	157	960	1050	1090	1120	1185	1205	1315
<i>Ilex montana</i>	382	920	1035	1100	1180	1285	1425	1560
<i>Ilex myrtifolia</i>	274	1145	1200	1235	1305	1380	1530	1630
<i>Ilex vomitoria</i>	621	720	1025	1225	1335	1460	1530	1630
<i>Illicium floridanum</i>	158	805	1375	1415	1480	1535	1575	1630
<i>Leitneria floridana</i>	22	1155	1170	1200	1220	1300	1395	1485
<i>Leucaena pulverulenta</i>	299	230	345	550	680	965	1440	2220
<i>Leucaena retusa</i>	106	250	265	295	330	415	530	635
<i>Lysiloma microphylla</i>	320	250	455	750	970	1100	1290	2660
<i>Magnolia ashei</i>	7	1435	1435	1435	1525	1540	1545	1585
<i>Magnolia fraseri</i>	117	940	1085	1120	1175	1345	1475	1560
<i>Magnolia macrophylla</i>	230	1140	1335	1370	1405	1460	1525	1605

Distributions of species in relation to mean annual precipitation in North America—*Continued.*

Taxon name	N	Mean annual precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	1225	1315	1385	1460	1540	1585	1610
<i>Magnolia tripetala</i>	272	980	1065	1130	1220	1345	1420	1595
<i>Malus angustifolia</i>	630	990	1170	1220	1335	1410	1480	1605
<i>Malus coronaria</i>	645	710	795	875	970	1040	1115	1560
<i>Malus diversifolia</i>	410	600	1160	1415	1900	2485	2890	4370
<i>Malus ioensis</i>	571	610	805	865	905	940	1020	1495
<i>Myrica californica</i>	67	345	425	745	1370	1885	2245	3575
<i>Myrica cerifera</i>	1026	720	1115	1185	1295	1390	1495	1630
<i>Osmanthus americanus</i> (I.R.)	427	1150	1230	1285	1335	1460	1550	1630
<i>Oxydendrum arboreum</i>	1087	955	1070	1160	1305	1395	1480	1630
<i>Parkinsonia aculeata</i> (I.R.)	1028	115	235	305	410	550	730	1365
<i>Persea borbonia</i>	711	665	1180	1230	1315	1390	1510	1630
<i>Photinia arbutifolia</i>	140	210	310	380	465	680	1090	1370
<i>Pinckneya pubens</i>	100	1145	1165	1200	1245	1305	1430	1540
<i>Pistacia texana</i>	8	295	295	310	350	465	660	685
<i>Pithecellobium flexicaule</i>	246	240	485	570	665	905	1180	1740
<i>Pithecellobium pallens</i>	267	260	430	480	570	655	740	1535
<i>Planera aquatica</i>	633	945	1190	1250	1325	1415	1515	1630
<i>Platanus racemosa</i>	103	190	290	330	395	485	570	1085
<i>Platanus wrightii</i>	153	200	280	330	380	440	475	655
<i>Populus angustifolia</i>	460	145	295	365	465	625	790	1175
<i>Populus arizonica</i>	60	215	250	255	295	325	365	460
<i>Populus deltoides</i>	5744	185	350	465	830	1115	1325	1605
<i>Populus trichocarpa</i>	1884	95	385	530	810	1350	2135	4685
<i>Prunus alleghaniensis</i>	22	955	955	985	1020	1080	1130	1215
<i>Prunus americana</i>	3652	280	435	635	905	1090	1280	1560
<i>Prunus angustifolia</i> (N.R.U.)	1843	365	620	830	1165	1340	1410	1630
<i>Prunus caroliniana</i>	589	880	1175	1230	1320	1430	1530	1630
<i>Prunus emarginata</i>	733	235	465	655	995	1415	1900	4370
<i>Prunus fremontii</i>	35	130	230	310	370	460	490	755
<i>Prunus hortulana</i>	258	885	905	935	975	1030	1060	1160
<i>Prunus ilicifolia</i>	88	135	275	335	405	480	520	1085
<i>Prunus mexicana</i>	1082	250	810	910	1030	1245	1390	1540
<i>Prunus munsoniana</i>	249	845	905	920	960	1025	1105	1360
<i>Prunus nigra</i>	727	490	665	765	825	985	1095	1330
<i>Prunus pensylvanica</i>	6724	300	435	500	740	955	1100	1650
<i>Prunus subcordata</i>	156	320	490	680	940	1140	1280	1750
<i>Prunus umbellata</i>	704	1075	1170	1215	1300	1380	1525	1630
<i>Prunus virginiana</i>	8834	155	370	455	660	860	1045	4370
<i>Ptelea crenulata</i>	39	250	350	445	615	770	920	1085
<i>Rhamnus caroliniana</i>	1181	445	940	1145	1280	1380	1440	1630
<i>Rhizophora mangle</i>	412	115	250	870	1345	2000	2775	4305
<i>Rhododendron catawbiense</i>	111	970	1045	1120	1190	1395	1470	1560
<i>Rhododendron maximum</i>	494	830	990	1045	1105	1190	1360	1560
<i>Rhus copallina</i>	2997	625	945	1045	1170	1315	1400	1630
<i>Rhus integrifolia</i>	25	160	245	285	330	385	415	515
<i>Rhus kearneyi</i>	7	105	105	140	160	210	220	265
<i>Rhus lanceolata</i>	247	255	435	500	640	750	805	2195

Distributions of species in relation to mean annual precipitation in North America—Continued.

Taxon name	N	Mean annual precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	175	215	285	350	415	480	705
<i>Rhus typhina</i>	1872	615	775	835	965	1070	1160	1525
<i>Robinia viscosa</i>	18	980	1050	1290	1355	1405	1465	1560
<i>Sabal mexicana</i>	99	540	965	1480	1875	2220	3005	4120
<i>Sabal minor</i>	895	770	1105	1210	1320	1405	1505	1630
<i>Salix amygdaloides</i>	5021	120	315	370	455	720	880	2520
<i>Salix bebbiana</i>	9340	125	345	435	550	800	1030	2520
<i>Salix bonplandiana</i>	840	190	415	725	865	1055	1445	3345
<i>Salix caroliniana</i>	888	515	935	1020	1235	1335	1395	1545
<i>Salix discolor</i>	5453	330	455	530	790	965	1080	1650
<i>Salix exigua</i>	9514	50	260	355	460	750	935	3820
<i>Salix floridana</i>	8	1310	1310	1315	1340	1375	1385	1475
<i>Salix fluviatilis</i>	9	475	475	535	1125	1230	1320	1345
<i>Salix geyeriana</i>	457	100	395	505	730	970	1315	2785
<i>Salix hindsiana</i>	216	155	325	390	530	810	1100	1425
<i>Salix hookeriana</i>	50	960	1225	1520	1890	2400	3225	3615
<i>Salix laevigata</i>	183	210	315	375	475	680	1050	2175
<i>Salix lasiandra</i>	3659	155	345	420	500	755	1180	4370
<i>Salix lasiolepis</i>	377	105	290	375	560	920	1280	2175
<i>Salix lucida</i>	4830	340	505	690	825	1010	1140	1650
<i>Salix mackenzieana</i>	2089	250	360	430	500	670	940	3270
<i>Salix nigra</i>	5028	55	605	835	1020	1210	1370	1630
<i>Salix pellita</i>	2427	415	470	660	830	1010	1125	1650
<i>Salix petiolaris</i>	3164	300	395	450	555	815	960	1330
<i>Salix pyrifolia</i>	4458	255	375	455	695	990	1135	1650
<i>Salix scouleriana</i>	4590	220	355	430	490	720	1265	4370
<i>Salix sericea</i>	1461	710	860	940	1025	1105	1180	1560
<i>Salix sessilifolia</i>	24	885	910	1075	1140	1320	1675	1680
<i>Salix sitchensis</i>	717	190	485	735	1275	2000	2655	4370
<i>Salix taxifolia</i>	699	290	585	810	925	1135	1585	3810
<i>Salix tracyi</i>	16	995	1265	1335	1400	1605	1810	2175
<i>Sambucus callicarpa</i>	560	485	765	1225	1705	2335	2795	4685
<i>Sambucus canadensis</i>	5207	420	800	905	1070	1250	1385	1630
<i>Sambucus glauca</i>	720	95	380	550	920	1325	1705	3270
<i>Sambucus melanocarpa</i>	280	90	430	545	740	930	1235	2520
<i>Sambucus velutina</i>	19	250	470	800	1045	1410	1615	1795
<i>Sapindus drummondii</i>	1166	175	255	295	510	745	915	1560
<i>Serenoa repens</i>	286	1145	1250	1300	1335	1400	1525	1610
<i>Solanum erianthum</i>	1167	250	595	855	1110	1480	2010	4120
<i>Sophora affinis</i>	118	500	685	735	795	865	965	1285
<i>Sophora secundiflora</i>	732	220	250	280	365	480	635	1345
<i>Sorbus americana</i>	2784	620	730	805	950	1070	1180	1650
<i>Sorbus decora</i>	3486	470	685	745	900	1040	1165	1650
<i>Sorbus scopulina</i>	1678	220	420	490	605	845	1125	4370
<i>Sorbus sitchensis</i>	978	310	500	620	930	1675	2530	4685
<i>Staphylea bolanderi</i>	17	320	390	425	490	550	580	850
<i>Staphylea trifolia</i>	1871	705	850	905	995	1120	1245	1520
<i>Stewartia malacodendron</i>	142	1120	1205	1245	1390	1525	1550	1610

Distributions of species in relation to mean annual precipitation in North America—*Continued*.

Taxon name	N	Mean annual precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	1045	1225	1350	1415	1470	1510	1550
<i>Styrax americana</i>	1046	905	1170	1220	1310	1390	1495	1630
<i>Styrax grandifolia</i>	760	1020	1170	1215	1315	1400	1500	1630
<i>Styrax platanifolia</i>	31	525	660	715	765	790	820	845
<i>Symplocos tinctoria</i>	917	1095	1175	1230	1315	1405	1510	1630
<i>Tilia caroliniana</i>	994	575	1160	1200	1290	1370	1455	1570
<i>Toxicodendron vernix</i>	840	720	870	1055	1200	1370	1480	1630
<i>Ungnadia speciosa</i>	50	250	305	445	740	820	890	1260
<i>Vaccinium arboreum</i>	1628	790	1080	1175	1285	1380	1455	1630
<i>Viburnum lentago</i>	1735	370	515	690	815	940	1085	1330
<i>Viburnum nudum</i>	873	950	1150	1190	1290	1390	1490	1630
<i>Viburnum obovatum</i>	242	1145	1200	1245	1305	1335	1375	1480
<i>Viburnum prunifolium</i>	1356	755	905	940	1025	1110	1185	1485
<i>Viburnum rufidulum</i>	1825	605	905	1045	1205	1345	1410	1630
<i>Viburnum trilobum</i>	1928	315	555	755	865	1020	1120	3820
<i>Yucca aloifolia</i>	40	1245	1250	1270	1325	1405	1465	1565
<i>Yucca gloriosa</i>	10	1220	1220	1260	1280	1295	1310	1335
<i>Zanthoxylum americanum</i>	1469	480	715	795	885	940	1020	1465
<i>Zanthoxylum clava-herculis</i>	539	820	955	1175	1315	1405	1495	1605
<i>Zanthoxylum fagara</i>	571	245	465	585	835	1295	1405	2170
<i>Zanthoxylum hirsutum</i>	189	365	580	675	730	785	820	940

Distributions of genera and groups in relation to mean annual precipitation in North America.

[N, number]

Taxon name	N	Mean annual precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
AESCULUS	2889	265	855	940	1125	1305	1400	2175
CATALPA	274	940	1155	1265	1365	1410	1475	1555
MAGNOLIA	1795	800	1025	1120	1245	1365	1455	1630
PLATANUS	4013	190	810	920	1085	1250	1385	1620
POPULUS	18087	70	330	430	660	975	1215	4685
STEWARTIA	224	1045	1205	1260	1410	1495	1540	1610
TILIA *	4540	415	730	845	995	1185	1355	1570

Revised from Thompson and others (1999b).

Distributions of species in relation to mean January precipitation in North America.

[N. number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean January precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	8	11	12	25	49	59	98
<i>Picea chihuahuana</i>	13	9	9	10	14	19	20	22
<i>Acacia berlandieri</i>	590	5	9	10	21	26	32	78
<i>Acacia farnesiana</i> (I.R.)	854	0	9	11	19	27	40	67
<i>Acacia rigidula</i>	334	10	19	23	27	35	44	60
<i>Acacia roemeriana</i>	310	5	8	10	13	24	32	50
<i>Acacia tortuosa</i>	824	0	8	10	15	24	32	126
<i>Acacia wrightii</i>	316	10	14	21	24	26	31	39
<i>Aesculus parviflora</i>	102	110	114	125	129	135	140	145
<i>Aesculus pavia</i>	1103	25	72	87	109	130	139	147
<i>Aesculus sylvatica</i>	176	85	94	98	122	135	139	145
<i>Amelanchier interior</i>	76	16	19	21	23	27	34	42
<i>Amelanchier sanguinea</i>	539	11	22	31	49	72	81	104
<i>Aralia spinosa</i>	1838	49	79	89	104	127	137	150
<i>Asimina triloba</i>	2373	16	41	60	85	112	135	150
<i>Avicennia germinans</i>	258	0	3	10	47	77	190	715
<i>Baccharis halimifolia</i>	1152	40	66	86	100	118	135	149
<i>Bumelia celastrina</i>	296	0	6	25	32	43	52	211
<i>Bumelia lanuginosa</i>	1794	6	21	28	47	90	120	147
<i>Bumelia lycioides</i>	524	49	97	111	129	137	140	147
<i>Bumelia tenax</i>	49	48	52	58	72	82	86	98
<i>Caesalpinia mexicana</i>	240	5	22	25	32	44	51	74
<i>Catalpa bignonioides</i> (N.R.U.)	205	97	109	116	128	135	138	142
<i>Catalpa speciosa</i> (N.R.U.)	69	50	68	78	91	100	106	113
<i>Ceanothus spinosus</i>	7	27	27	60	107	112	112	122
<i>Ceanothus thyrsiflorus</i>	44	77	112	228	284	296	343	420
<i>Celtis tenuifolia</i>	649	25	41	62	96	120	135	144
<i>Cephalanthus occidentalis</i>	5782	1	15	37	70	99	130	290
<i>Cercis canadensis</i>	3347	7	23	40	76	109	132	150
<i>Cercis occidentalis</i>	80	7	15	65	118	203	239	286
<i>Chionanthus virginicus</i>	1298	45	73	85	99	125	136	147
<i>Citharexylum berlandieri</i>	110	9	28	32	40	48	52	60
<i>Cladrastis kentukea</i>	73	44	46	55	97	129	138	144
<i>Clethra acuminata</i>	73	78	85	92	103	121	131	141
<i>Cliftonia monophylla</i>	149	77	81	89	100	114	127	132
<i>Condalia globosa</i>	174	3	5	8	9	14	26	58
<i>Condalia hookeri</i>	369	15	23	25	31	44	52	76
<i>Cordia boissieri</i>	285	9	19	24	27	36	47	60
<i>Cornus alternifolia</i>	2506	16	25	45	69	84	102	166
<i>Cornus drummondii</i>	1663	9	18	30	44	66	90	146
<i>Cornus glabrata</i>	59	75	89	116	189	244	280	296
<i>Cornus nuttallii</i>	360	68	149	184	237	295	364	616
<i>Cornus occidentalis</i>	235	60	105	163	217	276	318	420
<i>Cornus racemosa</i>	1604	10	22	34	49	68	80	109
<i>Cornus rugosa</i>	1480	17	22	33	64	79	93	154
<i>Cornus sessilis</i>	40	106	119	174	213	251	279	358

Distributions of species in relation to mean January precipitation in North America—Continued.

Taxon name	N	Mean January precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	50	80	93	113	130	138	146
<i>Cotinus obovatus</i>	44	31	39	47	54	70	138	144
<i>Crataegus chrysoarpa</i> (I.R.)	875	7	11	14	19	22	24	76
<i>Crataegus columbiana</i>	68	25	30	51	64	84	101	215
<i>Crataegus douglasii</i>	1321	11	43	61	100	193	282	616
<i>Crataegus erythropoda</i>	24	11	11	14	32	45	49	53
<i>Crataegus saligna</i>	10	19	19	26	33	48	49	49
<i>Crataegus succulenta</i> (I.R.)	910	7	8	10	13	19	22	73
<i>Crataegus tracyi</i>	12	11	11	12	13	38	48	49
<i>Cyrilla racemiflora</i>	548	52	83	92	100	117	128	137
<i>Diospyros texana</i>	550	8	11	19	25	35	47	72
<i>Ehretia anacua</i>	282	12	21	25	31	44	50	62
<i>Erythrina herbacea</i>	572	6	35	48	65	102	133	171
<i>Esenbeckia berlandieri</i>	58	1	11	19	27	31	44	48
<i>Euonymus atropurpureus</i>	1611	10	23	37	53	75	93	146
<i>Euonymus occidentalis</i>	90	72	163	207	252	290	323	420
<i>Eysenhardtia polystachya</i>	1006	0	3	8	10	14	24	70
<i>Eysenhardtia texana</i>	540	5	10	14	23	28	37	54
<i>Forestiera acuminata</i>	575	30	63	89	118	134	139	149
<i>Forestiera angustifolia</i>	829	5	9	10	19	28	40	95
<i>Forestiera segregata</i>	44	40	42	47	54	63	79	83
<i>Garrya elliptica</i>	51	77	105	156	269	299	345	420
<i>Gleditsia aquatica</i>	429	42	80	89	106	125	137	149
<i>Gordonia lasianthus</i>	332	47	58	79	87	97	105	130
<i>Guaiacum angustifolium</i>	493	8	10	13	23	27	35	60
<i>Gymnocladus dioicus</i>	1072	11	23	33	43	57	78	131
<i>Halesia carolina</i>	312	52	86	102	121	136	140	150
<i>Halesia diptera</i>	324	78	99	111	125	131	139	147
<i>Halesia parviflora</i>	34	83	93	100	110	120	125	140
<i>Hamamelis virginiana</i>	2809	21	49	68	85	107	132	166
<i>Helietta parvifolia</i>	270	6	12	21	24	30	42	60
<i>Ilex ambigua</i>	664	50	76	87	108	128	138	149
<i>Ilex amelanchier</i>	26	93	94	100	127	129	129	130
<i>Ilex cassine</i>	238	40	47	52	73	86	98	129
<i>Ilex coriacea</i>	423	57	80	87	96	109	126	140
<i>Ilex decidua</i>	1836	25	47	72	98	126	137	149
<i>Ilex laevigata</i>	157	65	76	83	89	96	102	109
<i>Ilex montana</i>	382	57	72	82	97	116	136	150
<i>Ilex myrtifolia</i>	274	52	78	82	90	100	110	132
<i>Ilex vomitoria</i>	621	1	63	81	99	128	136	149
<i>Illicium floridanum</i>	158	26	109	118	129	132	136	144
<i>Leitneria floridana</i>	22	82	85	88	95	104	114	119
<i>Leucaena pulverulenta</i>	299	2	13	23	29	39	48	135
<i>Leucaena retusa</i>	106	8	9	10	12	18	26	36
<i>Lysiloma microphylla</i>	320	0	1	2	5	9	11	22
<i>Magnolia ashei</i>	7	93	93	97	106	106	109	113
<i>Magnolia fraseri</i>	117	64	83	87	95	109	135	147
<i>Magnolia macrophylla</i>	230	86	124	129	134	138	141	147

Distributions of species in relation to mean January precipitation in North America—Continued.

Taxon name	N	Mean January precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	79	99	111	124	129	132	144
<i>Magnolia tripetala</i>	272	52	82	88	98	126	137	148
<i>Malus angustifolia</i>	630	63	92	97	120	134	139	150
<i>Malus coronaria</i>	645	29	46	53	66	75	85	145
<i>Malus diversifolia</i>	410	64	150	194	247	301	387	616
<i>Malus ioensis</i>	571	11	23	29	38	44	54	145
<i>Myrica californica</i>	67	77	95	181	290	330	387	475
<i>Myrica cerifera</i>	1026	40	58	83	97	117	131	147
<i>Osmanthus americanus</i> (I.R.)	427	50	68	83	100	122	130	136
<i>Oxydendrum arboreum</i>	1087	70	84	95	115	132	139	150
<i>Parkinsonia aculeata</i> (I.R.)	1028	0	8	10	14	24	38	81
<i>Persea borbonia</i>	711	37	52	81	97	114	128	143
<i>Photinia arbutifolia</i>	140	8	64	77	96	156	237	308
<i>Pinckneya pubens</i>	100	77	80	83	92	99	103	115
<i>Pistacia texana</i>	8	11	11	13	13	22	25	25
<i>Pithecellobium flexicaule</i>	246	8	24	25	31	42	49	60
<i>Pithecellobium pallens</i>	267	11	19	23	25	32	38	53
<i>Planera aquatica</i>	633	49	83	94	117	132	138	149
<i>Platanus racemosa</i>	103	25	60	72	89	110	127	234
<i>Platanus wrightii</i>	153	9	13	20	26	40	51	78
<i>Populus angustifolia</i>	460	5	14	21	36	59	87	151
<i>Populus arizonica</i>	60	5	7	9	10	11	37	52
<i>Populus deltoides</i>	5744	4	9	14	33	80	123	149
<i>Populus trichocarpa</i>	1885	8	42	62	105	193	274	667
<i>Prunus alleghaniensis</i>	22	66	67	70	72	76	85	102
<i>Prunus americana</i>	3652	6	10	15	41	82	116	150
<i>Prunus angustifolia</i> (N.R.U.)	1843	8	15	33	88	120	136	150
<i>Prunus caroliniana</i>	589	50	79	87	101	124	131	147
<i>Prunus emarginata</i>	733	11	61	93	162	241	312	616
<i>Prunus fremontii</i>	35	8	25	42	72	77	84	103
<i>Prunus hortulana</i>	258	24	34	38	41	49	67	89
<i>Prunus ilicifolia</i>	88	13	55	71	83	99	112	234
<i>Prunus mexicana</i>	1082	8	27	37	54	99	138	146
<i>Prunus munsoniana</i>	249	21	29	34	39	47	75	139
<i>Prunus nigra</i>	727	18	22	24	56	75	85	111
<i>Prunus pensylvanica</i>	6724	7	20	23	39	68	89	160
<i>Prunus subcordata</i>	156	54	98	134	181	225	263	358
<i>Prunus umbellata</i>	704	47	81	92	110	127	132	144
<i>Prunus virginiana</i>	8834	6	12	20	32	65	94	570
<i>Ptelea crenulata</i>	39	51	70	97	138	166	192	239
<i>Rhamnus caroliniana</i>	1181	20	43	77	115	132	139	147
<i>Rhizophora mangle</i>	412	0	2	7	32	62	162	715
<i>Rhododendron catawbiense</i>	111	71	78	85	96	123	139	150
<i>Rhododendron maximum</i>	494	54	69	76	85	97	122	150
<i>Rhus copallina</i>	2997	20	42	67	87	112	133	150
<i>Rhus integrifolia</i>	25	13	27	54	71	90	101	117
<i>Rhus kearneyi</i>	7	8	8	10	13	22	34	35
<i>Rhus lanceolata</i>	247	9	21	24	28	41	48	74

Distributions of species in relation to mean January precipitation in North America—*Continued.*

Taxon name	N	Mean January precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	0	14	25	59	78	103	117
<i>Rhus typhina</i>	1872	18	28	52	70	82	97	166
<i>Robinia viscosa</i>	18	71	78	98	113	132	135	139
<i>Sabal mexicana</i>	99	0	1	3	10	24	41	158
<i>Sabal minor</i>	895	42	57	81	103	126	135	147
<i>Salix amygdaloides</i>	5021	4	9	11	19	29	57	415
<i>Salix bebbiana</i>	9340	4	15	21	29	59	88	415
<i>Salix bonplandiana</i>	840	0	2	4	11	21	31	167
<i>Salix caroliniana</i>	888	20	37	46	71	96	115	144
<i>Salix discolor</i>	5453	9	21	24	46	69	86	196
<i>Salix exigua</i>	9514	5	10	15	22	40	72	501
<i>Salix floridana</i>	8	61	61	62	78	86	89	112
<i>Salix fluviatilis</i>	9	79	79	91	189	212	225	231
<i>Salix geeyeriana</i>	457	7	28	48	89	139	210	437
<i>Salix hindsiana</i>	216	28	69	86	117	172	234	286
<i>Salix hookeriana</i>	50	147	196	269	305	345	407	475
<i>Salix laevigata</i>	183	20	54	75	99	156	237	420
<i>Salix lasiandra</i>	3659	7	20	23	40	93	184	616
<i>Salix lasiolepis</i>	377	5	46	68	108	182	263	420
<i>Salix lucida</i>	4830	6	22	31	53	75	95	166
<i>Salix mackenziana</i>	2089	11	21	24	33	69	116	425
<i>Salix nigra</i>	5028	6	21	37	71	100	130	239
<i>Salix pellita</i>	2427	12	21	32	52	75	90	146
<i>Salix petiolaris</i>	3164	7	18	21	24	47	72	125
<i>Salix pyrifolia</i>	4458	7	17	22	35	71	95	166
<i>Salix scouleriana</i>	4590	4	18	22	29	79	175	616
<i>Salix sericea</i>	1461	21	46	59	73	84	96	158
<i>Salix sessilifolia</i>	24	147	158	186	194	223	231	278
<i>Salix sitchensis</i>	717	26	53	81	178	267	332	616
<i>Salix taxifolia</i>	699	0	1	4	9	14	25	151
<i>Salix tracyi</i>	16	237	244	276	289	299	331	420
<i>Sambucus callicarpa</i>	560	27	64	157	218	284	349	616
<i>Sambucus canadensis</i>	5207	9	28	48	76	101	130	166
<i>Sambucus glauca</i>	720	7	47	79	143	225	288	470
<i>Sambucus melanocarpa</i>	280	12	32	57	91	126	175	415
<i>Sambucus velutina</i>	19	51	89	145	217	248	299	358
<i>Sapindus drummondii</i>	1166	6	9	11	19	36	52	147
<i>Serenoa repens</i>	286	40	48	55	80	90	107	128
<i>Solanum erianthum</i>	1167	0	2	5	12	41	72	290
<i>Sophora affinis</i>	118	22	35	40	45	49	52	102
<i>Sophora secundiflora</i>	732	4	8	9	11	19	25	61
<i>Sorbus americana</i>	2784	20	36	50	65	84	103	166
<i>Sorbus decora</i>	3486	18	30	40	60	81	99	166
<i>Sorbus scopulina</i>	1678	8	28	39	60	94	147	612
<i>Sorbus sitchensis</i>	978	27	53	70	114	205	279	616
<i>Staphylea bolanderi</i>	17	68	81	87	99	106	119	164
<i>Staphylea trifolia</i>	1871	17	31	41	65	85	106	147
<i>Stewartia malacodendron</i>	142	84	90	95	108	128	136	144

Distributions of species in relation to mean January precipitation in North America—*Continued.*

Taxon name	N	Mean January precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	82	113	127	136	141	144	150
<i>Styrax americana</i>	1046	47	80	92	109	128	137	147
<i>Styrax grandifolia</i>	760	56	87	96	110	130	138	147
<i>Styrax platanifolia</i>	31	25	33	41	46	48	49	51
<i>Symplocos tinctoria</i>	917	63	86	96	112	130	138	148
<i>Tilia caroliniana</i>	994	28	78	91	107	127	136	147
<i>Toxicodendron vernix</i>	840	20	53	75	93	119	132	147
<i>Ungnadia speciosa</i>	50	9	11	21	38	48	52	72
<i>Vaccinium arboreum</i>	1628	31	62	85	106	130	138	150
<i>Viburnum lentago</i>	1735	7	18	22	40	67	82	123
<i>Viburnum nudum</i>	873	47	85	94	105	126	134	147
<i>Viburnum obovatum</i>	242	43	57	71	83	90	98	112
<i>Viburnum prunifolium</i>	1356	23	39	49	71	85	96	144
<i>Viburnum rufidulum</i>	1825	19	39	57	97	124	137	147
<i>Viburnum trilobum</i>	1928	12	21	26	59	76	93	501
<i>Yucca aloifolia</i>	40	42	47	52	62	83	86	109
<i>Yucca gloriosa</i>	10	79	79	79	83	106	107	108
<i>Zanthoxylum americanum</i>	1469	9	19	24	39	59	73	134
<i>Zanthoxylum clava-herculis</i>	539	46	57	73	98	125	132	147
<i>Zanthoxylum fagara</i>	571	1	9	23	32	48	56	180
<i>Zanthoxylum hirsutum</i>	189	13	30	34	39	45	49	52

Distributions of genera and groups in relation to mean January precipitation in North America.

[N, number]

Taxon name	N	Mean January precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	13	35	50	84	116	136	420
<i>CATALPA</i>	274	50	86	104	122	132	138	142
<i>MAGNOLIA</i>	1795	42	66	80	96	124	136	150
<i>PLATANUS</i>	4013	9	33	52	80	107	132	234
<i>POPULUS</i>	18088	3	12	20	35	73	115	667
<i>STEWARTIA</i>	224	82	91	99	120	136	141	150
<i>TILIA</i> *	4540	9	21	38	69	92	124	150

Revised from Thompson and others (1999b).

Distributions of species in relation to mean July precipitation in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean July precipitation (mm)							
		0%	10%	25%	50%	75%	90%	100%	
<i>Juniperus erythrocarpa</i>	48	29	45	53	61	78	121	180	
<i>Picea chihuahuana</i>	13	55	55	104	143	171	181	195	
<i>Acacia berlandieri</i>	590	32	39	44	50	66	89	204	
<i>Acacia farnesiana</i> (I.R.)	854	0	10	44	61	97	159	328	
<i>Acacia rigidula</i>	334	32	37	43	48	66	138	263	
<i>Acacia roemeriana</i>	310	32	40	44	47	53	60	72	
<i>Acacia tortuosa</i>	824	6	42	54	85	135	185	348	
<i>Acacia wrightii</i>	316	32	37	42	47	59	82	139	
<i>Aesculus parviflora</i>	102	115	120	123	126	140	154	189	
<i>Aesculus pavia</i>	1103	41	83	99	124	155	177	214	
<i>Aesculus sylvatica</i>	176	102	113	115	118	123	127	154	
<i>Amelanchier interior</i>	76	80	95	100	103	105	108	111	
<i>Amelanchier sanguinea</i>	539	69	77	83	94	103	108	125	
<i>Aralia spinosa</i>	1838	66	98	108	120	137	170	214	
<i>Asimina triloba</i>	2373	61	91	97	107	119	128	203	
<i>Avicennia germinans</i>	258	0	44	132	190	239	366	630	
<i>Baccharis halimifolia</i>	1152	56	91	114	140	173	198	222	
<i>Bumelia celastrina</i>	296	32	41	47	74	177	238	415	
<i>Bumelia lanuginosa</i>	1794	32	44	53	82	105	167	214	
<i>Bumelia lycioides</i>	524	90	112	117	123	134	158	209	
<i>Bumelia tenax</i>	49	142	161	166	172	198	200	204	
<i>Caesalpinia mexicana</i>	240	42	52	72	117	203	241	349	
<i>Catalpa bignonioides</i> (N.R.U.)	205	115	123	126	138	161	178	204	
<i>Catalpa speciosa</i> (N.R.U.)	69	87	89	92	98	100	102	112	
<i>Ceanothus spinosus</i>	7	0	0	0	1	1	4	6	
<i>Ceanothus thyrsiflorus</i>	44	0	1	1	2	6	9	10	
<i>Celtis tenuifolia</i>	649	68	92	97	117	127	142	196	
<i>Cephalanthus occidentalis</i>	5782	0	71	92	108	144	203	548	
<i>Cercis canadensis</i>	3347	32	57	90	104	118	132	292	
<i>Cercis occidentalis</i>	80	0	1	1	2	4	19	37	
<i>Chionanthus virginicus</i>	1298	60	98	110	124	150	178	214	
<i>Citharexylum berlandieri</i>	110	42	46	65	106	196	235	348	
<i>Cladrastis kentukea</i>	73	85	89	93	107	124	132	170	
<i>Clethra acuminata</i>	73	106	112	118	124	128	132	136	
<i>Cliftonia monophylla</i>	149	132	145	156	175	192	200	211	
<i>Condalia globosa</i>	174	3	8	9	54	79	108	248	
<i>Condalia hookeri</i>	369	32	38	43	49	69	102	238	
<i>Cordia boissieri</i>	285	36	46	58	83	134	203	292	
<i>Cornus alternifolia</i>	2506	59	76	87	98	106	115	204	
<i>Cornus drummondii</i>	1663	41	58	84	95	104	110	207	
<i>Cornus glabrata</i>	59	0	0	1	2	6	8	10	
<i>Cornus nuttallii</i>	360	0	2	6	16	32	48	97	
<i>Cornus occidentalis</i>	235	0	1	2	7	12	21	31	
<i>Cornus racemosa</i>	1604	61	75	88	97	104	109	125	
<i>Cornus rugosa</i>	1480	61	74	83	94	103	108	157	
<i>Cornus sessilis</i>	40	2	3	3	4	6	7	8	

Distributions of species in relation to mean July precipitation in North America—*Continued.*

Taxon name	N	Mean July precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	76	99	115	131	161	186	215
<i>Cotinus obovatus</i>	44	44	48	88	92	99	119	126
<i>Crataegus chrysoarpa</i> (I.R.)	875	22	50	55	65	76	91	110
<i>Crataegus columbiana</i>	68	8	13	16	30	45	61	75
<i>Crataegus douglasii</i>	1321	1	11	22	36	49	64	230
<i>Crataegus erythropoda</i>	24	29	30	35	41	52	62	87
<i>Crataegus saligna</i>	10	24	24	29	31	36	38	40
<i>Crataegus succulenta</i> (I.R.)	910	21	52	59	72	90	102	111
<i>Crataegus tracyi</i>	12	44	44	47	52	56	58	60
<i>Cyrilla racemiflora</i>	548	83	128	137	155	172	192	214
<i>Diospyros texana</i>	550	32	37	42	46	53	68	117
<i>Ehretia anacua</i>	282	41	46	58	80	129	198	327
<i>Erythrina herbacea</i>	572	32	63	110	171	201	228	348
<i>Esenbeckia berlandieri</i>	58	36	43	53	105	181	228	284
<i>Euonymus atropurpureus</i>	1611	54	88	94	102	109	118	138
<i>Euonymus occidentalis</i>	90	1	1	2	6	10	14	45
<i>Eysenhardtia polystachya</i>	1006	36	70	89	133	192	223	555
<i>Eysenhardtia texana</i>	540	32	37	42	47	55	76	184
<i>Forestiera acuminata</i>	575	44	89	96	108	128	162	207
<i>Forestiera angustifolia</i>	829	32	41	46	55	76	105	284
<i>Forestiera segregata</i>	44	160	168	172	183	203	207	218
<i>Garrya elliptica</i>	51	0	1	1	3	8	9	16
<i>Gleditsia aquatica</i>	429	61	89	96	108	140	185	214
<i>Gordonia lasianthus</i>	332	114	139	155	169	195	201	214
<i>Guaiacum angustifolium</i>	493	32	37	43	47	60	82	141
<i>Gymnocladus dioica</i>	1072	59	87	93	99	106	110	125
<i>Halesia carolina</i>	312	93	108	115	120	127	150	195
<i>Halesia diptera</i>	324	81	113	128	145	166	184	204
<i>Halesia parviflora</i>	34	125	132	147	186	194	199	203
<i>Hamamelis virginiana</i>	2809	47	82	94	109	125	158	214
<i>Helietta parvifolia</i>	270	32	46	56	77	97	134	292
<i>Ilex ambigua</i>	664	61	104	126	155	176	198	214
<i>Ilex amelanchier</i>	26	139	140	169	173	182	186	198
<i>Ilex cassine</i>	238	131	164	173	192	201	207	222
<i>Ilex coriacea</i>	423	90	135	147	164	183	198	214
<i>Ilex decidua</i>	1836	41	72	93	109	132	164	214
<i>Ilex laevigata</i>	157	71	79	85	95	106	135	172
<i>Ilex montana</i>	382	88	98	108	115	124	133	194
<i>Ilex myrtifolia</i>	274	121	145	159	171	191	200	214
<i>Ilex vomitoria</i>	621	41	70	118	155	176	196	249
<i>Illicium floridanum</i>	158	120	123	147	165	182	194	211
<i>Leitneria floridana</i>	22	87	87	91	92	140	204	209
<i>Leucaena pulverulenta</i>	299	39	48	60	87	173	234	327
<i>Leucaena retusa</i>	106	32	35	39	44	48	51	60
<i>Lysiloma microphylla</i>	320	60	118	140	183	214	235	555
<i>Magnolia ashei</i>	7	194	194	194	199	201	205	207
<i>Magnolia fraseri</i>	117	88	106	112	118	125	132	136
<i>Magnolia macrophylla</i>	230	91	118	123	129	148	170	199

Distributions of species in relation to mean July precipitation in North America—Continued.

Taxon name	N	Mean July precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	122	124	153	173	186	194	204
<i>Magnolia tripetala</i>	272	85	103	112	120	126	134	188
<i>Malus angustifolia</i>	630	77	116	121	132	151	171	209
<i>Malus coronaria</i>	645	61	72	89	101	110	116	136
<i>Malus diversifolia</i>	410	1	9	23	53	82	118	283
<i>Malus ioensis</i>	571	43	94	96	101	105	107	163
<i>Myrica californica</i>	67	0	1	1	2	9	29	80
<i>Myrica cerifera</i>	1026	44	81	120	145	175	198	222
<i>Osmanthus americanus</i> (I.R.)	427	121	140	154	170	189	200	214
<i>Oxydendrum arboreum</i>	1087	73	108	115	122	133	164	205
<i>Parkinsonia aculeata</i> (I.R.)	1028	0	10	47	72	115	166	302
<i>Persea borbonia</i>	711	45	124	139	163	186	200	222
<i>Photinia arbutifolia</i>	140	0	0	0	1	4	8	72
<i>Pinckneya pubens</i>	100	128	138	145	161	172	196	211
<i>Pistacia texana</i>	8	38	38	39	52	69	118	123
<i>Pithecellobium flexicaule</i>	246	36	43	49	69	128	206	292
<i>Pithecellobium pallens</i>	267	32	39	45	53	80	97	215
<i>Planera aquatica</i>	633	52	96	108	136	164	180	209
<i>Platanus racemosa</i>	103	0	0	0	1	2	6	72
<i>Platanus wrightii</i>	153	21	45	54	68	88	111	140
<i>Populus angustifolia</i>	460	5	23	31	42	55	70	126
<i>Populus arizonica</i>	60	40	44	46	51	57	79	95
<i>Populus deltoides</i>	5744	13	45	56	87	106	123	207
<i>Populus trichocarpa</i>	1885	0	7	17	34	53	76	452
<i>Prunus alleghaniensis</i>	22	81	91	95	98	106	111	111
<i>Prunus americana</i>	3652	22	60	79	98	109	121	209
<i>Prunus angustifolia</i> (N.R.U.)	1843	42	55	73	106	127	163	214
<i>Prunus caroliniana</i>	589	47	120	136	159	178	198	214
<i>Prunus emarginata</i>	733	0	3	9	21	34	46	109
<i>Prunus fremontii</i>	35	1	2	5	8	12	16	72
<i>Prunus hortulana</i>	258	87	91	93	97	100	106	118
<i>Prunus ilicifolia</i>	88	0	0	0	1	7	12	42
<i>Prunus mexicana</i>	1082	43	53	76	94	107	120	168
<i>Prunus munsoniana</i>	249	58	90	93	97	102	107	127
<i>Prunus nigra</i>	727	61	72	78	93	101	105	132
<i>Prunus pensylvanica</i>	6724	22	65	76	90	103	118	212
<i>Prunus subcordata</i>	156	0	1	2	5	7	8	14
<i>Prunus umbellata</i>	704	62	101	121	142	170	192	214
<i>Prunus virginiana</i>	8834	0	33	53	78	94	104	143
<i>Ptelea crenulata</i>	39	0	0	1	2	2	3	4
<i>Rhamnus caroliniana</i>	1181	42	83	95	115	125	149	207
<i>Rhizophora mangle</i>	412	0	11	103	189	252	370	630
<i>Rhododendron catawbiense</i>	111	94	103	111	119	125	133	136
<i>Rhododendron maximum</i>	494	69	91	98	108	119	126	136
<i>Rhus copallina</i>	2997	45	85	96	111	128	169	222
<i>Rhus integrifolia</i>	25	0	0	0	1	4	10	72
<i>Rhus kearneyi</i>	7	8	8	9	9	9	10	11
<i>Rhus lanceolata</i>	247	40	44	45	50	60	88	286

Distributions of species in relation to mean July precipitation in North America—*Continued.*

Taxon name	N	Mean July precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	0	0	1	4	10	12	72
<i>Rhus typhina</i>	1872	61	74	83	95	104	111	145
<i>Robinia viscosa</i>	18	95	97	117	119	123	130	136
<i>Sabal mexicana</i>	99	42	181	224	300	355	410	566
<i>Sabal minor</i>	895	44	77	118	149	177	199	222
<i>Salix amygdaloides</i>	5021	3	28	45	65	80	100	116
<i>Salix bebbiana</i>	9340	9	42	58	76	91	103	169
<i>Salix bonplandiana</i>	840	4	79	139	190	217	270	555
<i>Salix caroliniana</i>	888	43	91	96	122	170	199	222
<i>Salix discolor</i>	5453	26	68	76	90	103	114	212
<i>Salix exigua</i>	9514	1	20	39	64	83	101	180
<i>Salix floridana</i>	8	189	189	191	200	201	201	203
<i>Salix fluviatilis</i>	9	8	8	8	12	12	13	14
<i>Salix geyeriana</i>	457	4	14	23	31	40	47	92
<i>Salix hindsiana</i>	216	0	0	1	1	2	5	10
<i>Salix hookeriana</i>	50	2	4	9	23	46	167	234
<i>Salix laevigata</i>	183	0	0	1	1	3	25	84
<i>Salix lasiandra</i>	3659	0	12	34	55	75	85	202
<i>Salix lasiolepis</i>	377	0	0	1	2	7	27	126
<i>Salix lucida</i>	4830	51	73	81	94	105	120	212
<i>Salix mackenziana</i>	2089	2	32	47	65	77	88	136
<i>Salix nigra</i>	5028	0	47	84	101	114	133	211
<i>Salix pellita</i>	2427	64	78	91	103	119	131	212
<i>Salix petiolaris</i>	3164	34	59	71	79	93	103	136
<i>Salix pyrifolia</i>	4458	37	61	75	86	102	121	212
<i>Salix scouleriana</i>	4590	0	25	44	64	77	86	191
<i>Salix sericea</i>	1461	66	81	92	101	109	116	172
<i>Salix sessilifolia</i>	24	4	5	6	10	14	46	50
<i>Salix sitchensis</i>	717	0	8	24	46	69	99	283
<i>Salix taxifolia</i>	699	5	110	146	195	224	284	555
<i>Salix tracyi</i>	16	1	1	2	2	4	6	9
<i>Sambucus callicarpa</i>	560	1	8	26	57	83	121	364
<i>Sambucus canadensis</i>	5207	41	77	91	103	117	147	222
<i>Sambucus glauca</i>	720	0	2	8	21	31	42	119
<i>Sambucus melanocarpa</i>	280	5	19	27	36	44	50	87
<i>Sambucus velutina</i>	19	0	5	6	8	10	15	18
<i>Sapindus drummondii</i>	1166	32	42	46	53	65	90	171
<i>Serenoa repens</i>	286	135	162	173	191	200	206	222
<i>Solanum erianthum</i>	1167	42	99	138	183	227	295	566
<i>Sophora affinis</i>	118	41	43	45	49	55	67	102
<i>Sophora secundiflora</i>	732	32	43	48	59	79	103	247
<i>Sorbus americana</i>	2784	60	80	89	98	110	126	212
<i>Sorbus decora</i>	3486	60	80	89	100	113	127	212
<i>Sorbus scopulina</i>	1678	5	26	40	54	70	78	154
<i>Sorbus sitchensis</i>	978	1	27	39	50	69	100	364
<i>Staphylea bolanderi</i>	17	0	0	1	2	3	5	7
<i>Staphylea trifolia</i>	1871	61	88	95	103	111	120	194
<i>Stewartia malacodendron</i>	142	106	132	146	162	175	193	210

Distributions of species in relation to mean July precipitation in North America—*Continued.*

Taxon name	N	Mean July precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	97	118	122	125	131	134	138
<i>Styrax americana</i>	1046	68	98	115	136	166	195	218
<i>Styrax grandifolia</i>	760	63	109	120	136	160	178	211
<i>Styrax platanifolia</i>	31	41	41	42	44	44	48	52
<i>Symplocos tinctoria</i>	917	80	109	121	136	162	181	214
<i>Tilia caroliniana</i>	994	43	93	113	129	157	184	214
<i>Toxicodendron vernix</i>	840	61	82	97	123	152	176	209
<i>Ungnadia speciosa</i>	50	36	42	44	46	55	84	231
<i>Vaccinium arboreum</i>	1628	43	89	103	121	145	175	214
<i>Viburnum lentago</i>	1735	51	71	77	90	101	106	129
<i>Viburnum nudum</i>	873	50	106	118	133	160	186	211
<i>Viburnum obovatum</i>	242	130	149	162	175	198	203	218
<i>Viburnum prunifolium</i>	1356	72	93	97	105	112	119	172
<i>Viburnum rufidulum</i>	1825	41	64	91	111	127	156	214
<i>Viburnum trilobum</i>	1928	22	71	78	91	101	107	143
<i>Yucca aloifolia</i>	40	160	164	169	173	182	203	215
<i>Yucca gloriosa</i>	10	143	143	147	164	168	173	173
<i>Zanthoxylum americanum</i>	1469	61	76	90	99	105	109	154
<i>Zanthoxylum clava-herculis</i>	539	43	54	90	136	179	199	218
<i>Zanthoxylum fagara</i>	571	0	44	56	149	201	229	350
<i>Zanthoxylum hirsutum</i>	189	37	42	44	48	54	56	65

Distributions of genera and groups in relation to mean July precipitation in North America.

[N, number]

Taxon name	N	Mean July precipitation (mm)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	0	65	94	107	123	153	214
<i>CATALPA</i>	274	87	97	112	129	153	175	204
<i>MAGNOLIA</i>	1795	61	99	110	123	150	185	222
<i>PLATANUS</i>	4013	0	71	92	104	118	136	247
<i>POPULUS</i>	18088	0	35	53	77	99	115	452
<i>STEWARTIA</i>	224	97	120	127	143	167	188	210
<i>TILIA</i> *	4540	43	77	91	102	115	134	214

* Revised from Thompson and others (1999b).

Distributions of species in relation to mean temperature of the coldest month in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Mean temperature of the coldest month (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	-0.6	1.7	3.1	6.8	8.2	12.0	13.1
<i>Picea chihuahuana</i>	13	2.9	2.9	4.4	8.8	10.1	11.3	12.8
<i>Acacia berlandieri</i>	590	8.4	10.8	12.0	12.7	14.2	15.2	17.5
<i>Acacia farnesiana</i> (I.R.)	854	8.4	11.0	12.3	13.4	15.5	17.4	20.8
<i>Acacia rigidula</i>	334	9.9	11.5	12.7	14.4	15.4	17.1	18.2
<i>Acacia roemeriana</i>	310	5.1	8.7	9.6	10.7	12.1	12.6	13.9
<i>Acacia tortuosa</i>	824	6.8	10.8	12.0	13.1	14.6	15.6	24.8
<i>Acacia wrightii</i>	316	6.0	9.6	11.5	13.0	14.7	15.1	16.0
<i>Aesculus parviflora</i>	102	4.0	5.4	6.3	7.4	8.5	9.2	10.1
<i>Aesculus pavia</i>	1103	-0.8	3.9	5.5	8.1	10.0	11.3	15.4
<i>Aesculus sylvatica</i>	176	1.7	3.2	4.0	5.0	5.7	6.3	7.4
<i>Amelanchier interior</i>	76	-16.7	-16.2	-16.0	-15.2	-12.2	-10.7	-6.5
<i>Amelanchier sanguinea</i>	539	-18.1	-16.0	-12.3	-10.1	-8.5	-6.9	-0.6
<i>Aralia spinosa</i>	1838	-7.3	-0.1	2.1	5.1	8.1	10.4	15.8
<i>Asimina triloba</i>	2373	-7.8	-4.2	-2.1	0.9	4.3	6.7	12.0
<i>Avicennia germinans</i>	258	10.6	15.3	17.4	22.2	23.5	24.6	27.2
<i>Baccharis halimifolia</i>	1152	-3.4	5.0	6.5	9.0	11.3	14.4	19.6
<i>Bumelia celastrina</i>	296	11.2	13.8	14.6	15.5	17.9	21.4	25.6
<i>Bumelia lanuginosa</i>	1794	-2.8	0.8	4.2	8.2	11.2	13.2	15.8
<i>Bumelia lycioides</i>	524	-1.2	2.6	4.7	6.6	8.0	9.1	12.2
<i>Bumelia tenax</i>	49	7.4	8.9	10.4	14.0	15.1	16.1	18.0
<i>Caesalpinia mexicana</i>	240	10.7	14.2	15.1	16.6	17.9	19.7	23.1
<i>Catalpa bignonioides</i> (N.R.U.)	205	5.6	6.3	7.2	8.4	9.6	10.9	11.8
<i>Catalpa speciosa</i> (N.R.U.)	69	-4.0	-1.0	0.2	1.1	2.4	3.1	4.2
<i>Ceanothus spinosus</i>	7	4.4	4.4	5.5	10.4	11.6	12.0	12.3
<i>Ceanothus thyrsiflorus</i>	44	2.8	4.3	5.4	7.0	8.2	9.2	10.8
<i>Celtis tenuifolia</i>	649	-5.3	-1.1	0.2	4.7	6.6	7.8	13.1
<i>Cephalanthus occidentalis</i>	5782	-16.5	-5.6	-1.7	4.8	11.3	17.4	26.4
<i>Cercis canadensis</i>	3347	-8.2	-3.8	-0.7	3.3	7.6	11.7	17.7
<i>Cercis occidentalis</i>	80	-1.7	0.6	2.1	3.9	6.1	6.9	7.6
<i>Chionanthus virginicus</i>	1298	-3.1	1.3	3.8	6.6	9.3	11.6	16.4
<i>Citharexylum berlandieri</i>	110	13.2	15.0	15.6	16.7	17.5	18.0	18.4
<i>Cladrastis kentukea</i>	73	-2.4	0.7	1.3	1.9	2.6	3.7	9.7
<i>Clethra acuminata</i>	73	-1.7	-0.8	-0.1	0.9	1.6	2.5	3.6
<i>Cliftonia monophylla</i>	149	8.6	9.4	10.0	10.8	11.4	11.8	13.1
<i>Condalia globosa</i>	174	8.9	11.4	12.4	14.9	16.5	17.3	19.3
<i>Condalia hookeri</i>	369	8.9	10.7	12.0	14.1	15.2	16.6	18.0
<i>Cordia boissieri</i>	285	10.7	13.1	14.3	15.2	16.4	17.5	19.0
<i>Cornus alternifolia</i>	2506	-20.7	-12.9	-10.6	-6.8	-3.8	-0.7	11.8
<i>Cornus drummondii</i>	1663	-10.5	-5.3	-3.5	-0.6	3.9	8.1	12.6
<i>Cornus glabrata</i>	59	-1.9	-0.2	1.4	3.5	6.0	8.4	10.8
<i>Cornus nuttallii</i>	360	-10.3	-3.3	-0.4	2.1	3.6	4.7	8.1
<i>Cornus occidentalis</i>	235	-3.1	-0.2	2.1	3.6	6.0	8.1	10.4
<i>Cornus racemosa</i>	1604	-18.9	-11.8	-8.3	-5.4	-3.7	-1.8	3.6
<i>Cornus rugosa</i>	1480	-20.3	-14.1	-12.4	-9.6	-7.0	-5.3	-0.6
<i>Cornus sessilis</i>	40	-3.1	-1.5	0.2	2.2	2.9	3.8	5.5

Distributions of species in relation to mean temperature of the coldest month in North America—Continued.

Taxon name	N	Mean temperature of the coldest month (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	-2.3	3.3	5.1	7.3	9.7	11.7	16.3
<i>Cotinus obovatus</i>	44	0.6	1.2	1.6	2.3	3.2	9.3	10.2
<i>Crataegus chrysoarpa</i> (I.R.)	875	-22.3	-20.5	-19.2	-17.2	-15.4	-13.3	-3.5
<i>Crataegus columbiana</i>	68	-18.3	-13.2	-10.8	-7.2	-3.4	-2.1	0.6
<i>Crataegus douglasii</i>	1321	-18.7	-12.6	-10.7	-7.7	-3.2	2.7	9.6
<i>Crataegus erythropoda</i>	24	-10.0	-9.9	-8.4	-5.5	-4.6	-1.1	7.4
<i>Crataegus saligna</i>	10	-10.0	-10.0	-9.5	-8.7	-8.0	-7.9	-6.7
<i>Crataegus succulenta</i> (I.R.)	910	-20.3	-17.0	-15.4	-12.7	-10.1	-8.0	0.8
<i>Crataegus tracyi</i>	12	7.0	7.0	7.7	8.7	9.5	9.9	10.2
<i>Cyrilla racemiflora</i>	548	3.2	5.6	7.3	9.2	10.7	11.9	17.0
<i>Diospyros texana</i>	550	7.1	8.7	10.1	12.2	14.3	15.3	17.3
<i>Ehretia anacua</i>	282	7.8	12.3	13.8	15.1	16.3	17.3	21.1
<i>Erythrina herbacea</i>	572	7.1	9.3	10.6	13.9	17.3	19.1	22.5
<i>Esenbeckia berlandieri</i>	58	12.7	13.7	15.1	15.4	19.5	22.8	25.6
<i>Euonymus atropurpureus</i>	1611	-14.6	-6.5	-4.7	-2.3	-0.1	1.5	8.1
<i>Euonymus occidentalis</i>	90	-0.9	2.1	3.2	4.1	6.9	8.1	9.6
<i>Eysenhardtia polystachya</i>	1006	6.5	10.9	12.2	13.5	16.5	21.3	26.4
<i>Eysenhardtia texana</i>	540	7.2	9.2	10.7	12.5	13.7	14.9	16.3
<i>Forestiera acuminata</i>	575	-4.6	0.3	3.3	5.8	8.6	10.1	13.8
<i>Forestiera angustifolia</i>	829	7.4	10.7	12.1	12.8	14.5	15.7	19.0
<i>Forestiera segregata</i>	44	10.1	11.7	14.0	16.3	18.5	19.2	19.6
<i>Garrya elliptica</i>	51	1.7	3.4	5.2	7.3	8.5	9.2	9.6
<i>Gleditsia aquatica</i>	429	-2.2	1.7	5.5	8.2	10.3	11.8	15.9
<i>Gordonia lasianthus</i>	332	5.0	6.7	8.0	11.0	13.1	15.8	17.1
<i>Guaiacum angustifolium</i>	493	7.2	10.2	11.4	12.7	14.6	15.4	17.4
<i>Gymnocladus dioicus</i>	1072	-12.5	-6.6	-4.8	-2.8	-0.5	1.6	4.9
<i>Halesia carolina</i>	312	-1.7	1.3	3.3	5.1	6.5	9.2	12.4
<i>Halesia diptera</i>	324	5.9	8.1	8.9	9.7	10.4	11.0	12.0
<i>Halesia parviflora</i>	34	7.1	7.5	9.6	11.2	11.6	11.8	13.0
<i>Hamamelis virginiana</i>	2809	-13.4	-8.2	-5.2	-0.2	5.9	9.7	16.3
<i>Helietta parvifolia</i>	270	12.0	12.8	13.5	14.8	15.5	16.4	17.9
<i>Ilex ambigua</i>	664	2.2	6.3	7.9	9.6	11.2	13.2	17.0
<i>Ilex amelanchar</i>	26	5.7	6.4	9.2	10.0	10.5	10.9	11.4
<i>Ilex cassine</i>	238	7.1	9.1	11.8	14.1	16.6	18.0	19.5
<i>Ilex coriacea</i>	423	4.4	6.0	7.5	10.0	11.4	12.5	15.4
<i>Ilex decidua</i>	1836	-4.9	0.4	3.5	6.2	9.1	10.8	15.9
<i>Ilex laevigata</i>	157	-9.3	-6.4	-5.1	-3.2	0.4	5.1	7.4
<i>Ilex montana</i>	382	-7.3	-5.2	-2.4	2.0	4.5	5.8	11.8
<i>Ilex myrtifolia</i>	274	6.4	7.6	9.2	11.0	12.0	13.3	15.5
<i>Ilex vomitoria</i>	621	3.3	7.9	9.3	10.4	11.6	12.7	20.0
<i>Illicium floridanum</i>	158	4.9	7.2	8.9	9.7	10.5	11.4	16.8
<i>Leitneria floridana</i>	22	1.3	1.4	2.4	3.0	11.2	11.9	12.3
<i>Leucaena pulverulenta</i>	299	10.7	12.8	14.1	15.4	17.1	17.9	24.3
<i>Leucaena retusa</i>	106	7.0	8.7	9.5	10.0	10.8	11.5	12.4
<i>Lysiloma microphylla</i>	320	8.1	12.9	15.6	21.0	23.7	25.0	26.4
<i>Magnolia ashei</i>	7	11.3	11.3	11.5	11.8	11.8	11.9	12.1
<i>Magnolia fraseri</i>	117	-4.0	-1.6	-0.7	0.5	2.1	2.8	4.6
<i>Magnolia macrophylla</i>	230	-1.0	2.5	5.6	7.5	9.1	9.7	10.9

Distributions of species in relation to mean temperature of the coldest month in North America—*Continued.*

Taxon name	N	Mean temperature of the coldest month (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	6.7	7.2	9.3	9.9	11.0	11.6	12.0
<i>Magnolia tripetala</i>	272	-3.8	-0.7	0.4	2.6	4.5	6.1	10.5
<i>Malus angustifolia</i>	630	-3.5	3.5	5.3	7.0	8.8	10.2	13.1
<i>Malus coronaria</i>	645	-8.0	-5.9	-5.0	-3.9	-2.4	-0.7	4.2
<i>Malus diversifolia</i>	410	-10.1	-6.4	-3.8	-0.2	2.8	4.2	9.6
<i>Malus ioensis</i>	571	-12.3	-8.8	-6.4	-4.5	-2.1	-0.2	10.7
<i>Myrica californica</i>	67	1.1	3.4	4.7	6.9	8.5	9.3	11.6
<i>Myrica cerifera</i>	1026	0.7	5.4	7.3	9.2	11.2	15.2	19.6
<i>Osmanthus americanus</i> (I.R.)	427	5.6	8.1	9.1	10.4	11.9	14.6	17.0
<i>Oxydendrum arboreum</i>	1087	-4.4	-0.3	2.0	4.5	6.8	9.7	12.1
<i>Parkinsonia aculeata</i> (I.R.)	1028	5.7	11.2	12.3	13.1	15.8	17.4	20.8
<i>Persea borbonia</i>	711	1.6	6.3	8.2	10.0	12.1	16.3	19.6
<i>Photinia arbutifolia</i>	140	2.1	4.3	6.3	8.6	10.4	12.0	17.8
<i>Pinckneya pubens</i>	100	8.0	8.9	9.5	10.6	11.4	12.0	14.2
<i>Pistacia texana</i>	8	10.5	10.5	10.5	12.1	12.8	14.8	15.2
<i>Pithecellobium flexicaule</i>	246	12.3	13.8	14.6	15.2	16.9	17.9	22.5
<i>Pithecellobium pallens</i>	267	11.9	12.7	13.6	14.5	15.1	15.8	18.6
<i>Planera aquatica</i>	633	0.3	3.8	6.1	8.5	10.1	11.3	13.4
<i>Platanus racemosa</i>	103	2.7	5.7	7.1	8.6	10.4	11.8	12.4
<i>Platanus wrightii</i>	153	0.2	2.9	5.0	7.1	8.0	9.0	10.7
<i>Populus angustifolia</i>	460	-14.3	-11.2	-9.8	-7.5	-4.6	-0.5	8.7
<i>Populus arizonica</i>	60	3.8	6.5	8.1	9.6	10.7	11.2	11.6
<i>Populus deltoides</i>	5744	-19.7	-12.3	-7.8	-2.8	4.1	8.0	12.6
<i>Populus trichocarpa</i>	1885	-20.6	-11.8	-9.8	-5.9	-1.4	2.1	11.2
<i>Prunus alleghaniensis</i>	22	-6.2	-6.2	-4.4	-3.1	-2.4	-1.3	-0.7
<i>Prunus americana</i>	3652	-19.7	-12.6	-7.9	-3.8	0.1	3.6	14.6
<i>Prunus angustifolia</i> (N.R.U.)	1843	-5.3	0.1	2.5	5.3	8.1	10.2	15.9
<i>Prunus caroliniana</i>	589	5.8	7.3	8.5	9.8	11.4	13.0	16.1
<i>Prunus emarginata</i>	733	-14.4	-8.3	-5.8	-1.9	2.5	4.8	10.8
<i>Prunus fremontii</i>	35	5.4	8.3	8.9	10.4	12.3	12.4	15.5
<i>Prunus hortulana</i>	258	-5.6	-4.2	-2.3	-1.1	-0.3	0.5	2.6
<i>Prunus ilicifolia</i>	88	2.4	6.7	8.4	9.5	11.2	12.0	14.9
<i>Prunus mexicana</i>	1082	-8.9	-2.8	0.1	3.8	7.1	9.6	13.9
<i>Prunus munsoniana</i>	249	-5.7	-3.7	-2.2	-1.1	0.0	2.3	12.2
<i>Prunus nigra</i>	727	-20.4	-16.5	-13.2	-10.2	-8.0	-5.9	-3.1
<i>Prunus pennsylvanica</i>	6724	-29.2	-24.2	-21.6	-18.1	-12.0	-7.2	3.1
<i>Prunus subcordata</i>	156	-5.4	-1.4	0.2	2.6	4.2	6.3	9.4
<i>Prunus umbellata</i>	704	4.6	6.2	7.3	8.9	10.6	12.0	16.8
<i>Prunus virginiana</i>	8834	-28.2	-21.8	-17.9	-11.6	-7.0	-4.1	12.9
<i>Ptelea crenulata</i>	39	2.1	3.7	5.3	6.0	6.5	7.3	8.5
<i>Rhamnus caroliniana</i>	1181	-2.7	0.4	2.5	5.5	8.1	9.7	17.1
<i>Rhizophora mangle</i>	412	12.1	15.9	17.4	21.9	23.5	24.9	27.2
<i>Rhododendron catawbiense</i>	111	-2.1	-1.0	0.0	1.5	2.8	4.2	4.9
<i>Rhododendron maximum</i>	494	-11.1	-5.9	-4.0	-1.1	1.0	2.6	5.1
<i>Rhus copallina</i>	2997	-11.0	-3.5	-0.6	3.2	7.2	10.5	19.6
<i>Rhus integrifolia</i>	25	9.6	10.0	10.9	11.5	12.3	12.4	12.4
<i>Rhus kearneyi</i>	7	9.9	9.9	10.5	12.1	13.1	13.2	15.5
<i>Rhus lanceolata</i>	247	2.1	6.7	7.4	9.4	13.4	14.9	16.9

Distributions of species in relation to mean temperature of the coldest month in North America—*Continued*.

Taxon name	N	Mean temperature of the coldest month (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	6.5	9.5	10.1	11.8	12.4	14.9	17.3
<i>Rhus typhina</i>	1872	-18.3	-12.7	-10.7	-7.3	-4.6	-1.7	3.8
<i>Robinia viscosa</i>	18	0.2	0.6	1.0	2.1	3.4	6.2	7.0
<i>Sabal mexicana</i>	99	14.2	16.1	17.9	20.5	23.6	25.4	27.2
<i>Sabal minor</i>	895	5.2	7.0	8.2	9.8	11.6	15.2	19.0
<i>Salix amygdaloides</i>	5021	-23.2	-18.9	-13.7	-8.5	-5.2	-2.4	8.8
<i>Salix bebbiana</i>	9340	-30.5	-27.1	-23.8	-18.3	-11.8	-7.5	1.5
<i>Salix bonplandiana</i>	840	1.7	6.9	11.2	16.8	20.8	23.8	26.4
<i>Salix caroliniana</i>	888	-4.7	-1.8	0.2	5.4	10.8	15.7	19.6
<i>Salix discolor</i>	5453	-27.5	-22.1	-19.5	-15.4	-10.0	-5.6	2.8
<i>Salix exigua</i>	9514	-30.4	-23.1	-15.7	-8.2	-3.0	1.4	15.1
<i>Salix floridana</i>	8	11.5	11.5	11.7	12.9	14.3	15.3	15.5
<i>Salix fluviatilis</i>	9	-0.6	-0.6	-0.3	2.7	3.9	4.0	4.1
<i>Salix geyeriana</i>	457	-13.6	-11.2	-10.2	-7.7	-5.4	-2.1	3.9
<i>Salix hindsiana</i>	216	-1.4	1.5	4.1	6.7	7.8	9.4	12.9
<i>Salix hookeriana</i>	50	-10.4	-3.2	2.5	3.6	5.4	7.3	8.1
<i>Salix laevigata</i>	183	-2.7	3.4	5.5	7.2	8.9	10.8	14.1
<i>Salix lasiandra</i>	3659	-30.1	-24.9	-21.7	-15.0	-8.0	0.8	12.9
<i>Salix lasiolepis</i>	377	-9.5	-1.7	1.4	6.0	7.7	9.1	12.9
<i>Salix lucida</i>	4830	-27.8	-24.5	-21.2	-16.8	-10.6	-6.3	-0.2
<i>Salix mackenzieana</i>	2089	-28.9	-25.3	-22.5	-16.9	-11.0	-7.6	5.5
<i>Salix nigra</i>	5028	-13.7	-6.6	-3.3	2.2	6.9	9.8	18.1
<i>Salix pellita</i>	2427	-28.5	-25.9	-23.7	-20.4	-17.5	-13.2	-5.6
<i>Salix petiolaris</i>	3164	-29.6	-23.0	-20.4	-16.6	-10.6	-7.2	0.5
<i>Salix pyrifolia</i>	4458	-31.4	-26.5	-22.7	-19.5	-16.0	-11.5	-3.1
<i>Salix scouleriana</i>	4590	-30.2	-26.2	-24.0	-18.4	-9.6	-3.2	9.6
<i>Salix sericea</i>	1461	-13.8	-9.7	-6.2	-4.2	-1.3	1.2	8.0
<i>Salix sessilifolia</i>	24	-4.9	-0.3	1.1	3.5	4.1	4.6	4.9
<i>Salix sitchensis</i>	717	-22.0	-11.4	-9.4	-3.8	1.6	3.8	9.6
<i>Salix taxifolia</i>	699	1.0	11.8	14.3	18.0	21.5	24.1	26.4
<i>Salix tracyi</i>	16	1.2	2.9	4.5	6.0	7.3	7.5	8.1
<i>Sambucus callicarpa</i>	560	-21.9	-10.0	-6.0	-1.5	2.4	3.9	9.6
<i>Sambucus canadensis</i>	5207	-18.2	-9.8	-6.1	-0.7	5.4	9.7	19.6
<i>Sambucus glauca</i>	720	-13.5	-8.6	-6.0	-1.7	2.9	6.8	12.9
<i>Sambucus melanocarpa</i>	280	-14.4	-11.0	-8.9	-7.2	-5.6	-3.8	3.6
<i>Sambucus velutina</i>	19	-5.0	-3.8	-2.7	-0.2	0.4	2.1	7.9
<i>Sapindus drummondii</i>	1166	-3.5	2.2	4.6	6.6	8.8	10.8	15.5
<i>Serenoa repens</i>	286	8.6	10.4	11.4	12.8	16.2	17.8	19.6
<i>Solanum erianthum</i>	1167	9.6	15.0	17.3	20.6	23.2	24.3	27.2
<i>Sophora affinis</i>	118	3.8	5.2	6.0	7.4	9.1	9.8	10.9
<i>Sophora secundiflora</i>	732	5.5	9.6	11.2	12.5	13.1	14.3	16.5
<i>Sorbus americana</i>	2784	-24.4	-21.1	-19.4	-15.6	-10.8	-6.9	5.1
<i>Sorbus decora</i>	3486	-26.1	-24.1	-21.6	-18.6	-13.8	-9.8	-3.1
<i>Sorbus scopulina</i>	1678	-30.2	-22.9	-17.4	-11.8	-9.0	-6.0	2.2
<i>Sorbus sitchensis</i>	978	-20.0	-12.8	-11.2	-8.8	-4.1	-0.4	8.5
<i>Staphylea bolanderi</i>	17	-1.2	0.0	2.3	4.3	5.6	6.3	6.7
<i>Staphylea trifolia</i>	1871	-13.2	-6.9	-4.8	-2.1	0.4	3.1	11.8
<i>Stewartia malacodendron</i>	142	3.3	6.1	7.3	9.2	10.3	11.4	12.0

Distributions of species in relation to mean temperature of the coldest month in North America—*Continued.*

Taxon name	N	Mean temperature of the coldest month (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	-1.0	1.2	1.5	2.5	3.6	4.2	6.7
<i>Styrax americana</i>	1046	-5.2	4.1	5.9	8.2	10.3	12.3	17.0
<i>Styrax grandifolia</i>	760	0.3	4.3	6.1	8.0	9.7	11.1	14.1
<i>Styrax platanifolia</i>	31	8.2	8.4	9.1	9.6	10.1	10.3	10.6
<i>Symplocos tinctoria</i>	917	0.2	4.7	5.9	7.8	9.9	11.3	15.9
<i>Tilia caroliniana</i>	994	0.2	5.1	6.3	8.2	10.0	11.8	16.0
<i>Toxicodendron vernix</i>	840	-12.9	-6.0	-4.2	5.7	9.2	11.0	15.1
<i>Ungnadia speciosa</i>	50	5.3	6.5	8.2	8.9	12.4	15.0	18.0
<i>Vaccinium arboreum</i>	1628	-1.7	1.7	4.0	6.6	9.3	11.2	16.3
<i>Viburnum lentago</i>	1735	-22.1	-17.7	-13.2	-8.7	-5.7	-4.3	0.1
<i>Viburnum nudum</i>	873	-2.5	3.5	5.2	7.4	9.6	11.3	16.8
<i>Viburnum obovatum</i>	242	7.4	8.9	10.2	11.8	14.4	15.9	17.7
<i>Viburnum prunifolium</i>	1356	-8.3	-4.7	-3.6	-1.5	0.6	3.3	8.7
<i>Viburnum rufidulum</i>	1825	-3.3	-0.1	2.5	5.5	8.0	9.6	14.8
<i>Viburnum trilobum</i>	1928	-24.4	-17.2	-14.7	-11.5	-8.3	-6.1	-1.0
<i>Yucca aloifolia</i>	40	7.3	9.1	10.4	14.6	18.0	19.1	19.6
<i>Yucca gloriosa</i>	10	5.6	5.6	6.6	8.9	11.7	12.0	12.3
<i>Zanthoxylum americanum</i>	1469	-16.7	-11.9	-8.9	-5.4	-3.5	-1.6	8.1
<i>Zanthoxylum clava-herculis</i>	539	3.0	6.2	8.0	9.8	11.6	14.6	19.3
<i>Zanthoxylum fagara</i>	571	10.3	13.3	14.9	16.8	18.1	19.5	23.1
<i>Zanthoxylum hirsutum</i>	189	4.3	5.4	6.5	8.5	12.4	14.7	15.5

Distributions of genera and groups in relation to mean temperature of the coldest month in North America.

[N, number]

Taxon name	N	Mean temperature of the coldest month (°C)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	-9.1	-4.0	-1.0	3.4	7.1	9.9	15.4
<i>CATALPA</i>	274	-4.0	0.7	4.2	7.6	9.0	10.7	11.8
<i>MAGNOLIA</i>	1795	-7.0	-2.6	0.8	5.6	9.3	11.7	19.1
<i>PLATANUS</i>	4013	-10.2	-5.5	-3.0	2.0	6.5	9.3	17.1
<i>POPULUS</i>	18088	-33.0	-26.1	-21.3	-12.2	-3.8	3.8	13.6
<i>STEWARTIA</i>	224	-1.0	1.6	3.3	7.0	9.7	10.9	12.0
<i>TILIA</i> *	4540	-19.7	-13.3	-9.5	-4.2	2.8	8.5	16.0

* Revised from Thompson and others (1999b).

Distributions of species in relation to growing degree days in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Growing degree days (on 5° C base × 1,000)						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	1.7	2.6	3.1	4.0	4.7	5.1	6.1
<i>Picea chihuahuana</i>	13	3.0	3.0	3.3	4.1	4.5	5.1	5.6
<i>Acacia berlandieri</i>	590	4.2	5.5	5.7	6.0	6.4	6.7	6.9
<i>Acacia farnesiana</i> (I.R.)	854	4.0	4.6	5.4	6.1	6.6	6.8	7.5
<i>Acacia rigidula</i>	334	5.5	6.0	6.3	6.5	6.8	6.8	7.0
<i>Acacia roemeriana</i>	310	3.6	5.0	5.3	5.7	5.9	6.2	6.7
<i>Acacia tortuosa</i>	824	3.1	4.2	4.6	5.3	6.3	6.7	7.8
<i>Acacia wrightii</i>	316	4.5	5.2	5.7	6.2	6.6	6.8	6.9
<i>Aesculus parviflora</i>	102	3.9	4.1	4.3	4.7	4.8	4.9	5.2
<i>Aesculus pavia</i>	1103	2.9	4.0	4.3	4.8	5.2	5.5	6.2
<i>Aesculus sylvatica</i>	176	3.1	3.5	3.7	3.9	4.1	4.3	4.6
<i>Amelanchier interior</i>	76	1.4	1.4	1.6	1.7	2.1	2.2	2.8
<i>Amelanchier sanguinea</i>	539	1.0	1.4	1.5	1.7	1.9	2.2	2.8
<i>Aralia spinosa</i>	1838	1.8	2.9	3.5	4.1	4.8	5.2	6.3
<i>Asimina triloba</i>	2373	1.8	2.5	2.9	3.4	4.0	4.5	5.5
<i>Avicennia germinans</i>	258	5.4	6.5	6.9	7.4	7.7	7.9	8.5
<i>Baccharis halimifolia</i>	1152	2.4	4.0	4.5	5.0	5.4	6.0	7.0
<i>Bumelia celastrina</i>	296	5.1	6.3	6.5	6.8	6.9	7.4	8.1
<i>Bumelia lanuginosa</i>	1794	3.1	3.6	4.2	5.0	5.6	6.2	6.9
<i>Bumelia lycioides</i>	524	3.0	3.6	3.9	4.4	4.7	4.9	5.5
<i>Bumelia tenax</i>	49	4.5	4.9	5.2	5.9	6.2	6.3	6.7
<i>Caesalpinia mexicana</i>	240	4.8	5.9	6.5	6.8	6.9	7.1	7.6
<i>Catalpa bignonioides</i> (N.R.U.)	205	4.2	4.4	4.6	4.8	5.0	5.2	5.4
<i>Catalpa speciosa</i> (N.R.U.)	69	2.9	3.3	3.5	3.6	3.9	4.0	4.2
<i>Ceanothus spinosus</i>	7	2.0	2.0	3.1	4.0	4.1	4.2	4.6
<i>Ceanothus thyrsiflorus</i>	44	1.1	1.6	2.0	2.4	2.8	3.3	3.4
<i>Celtis tenuifolia</i>	649	1.8	3.2	3.4	4.0	4.4	4.7	5.8
<i>Cephalanthus occidentalis</i>	5782	1.0	2.3	3.0	4.0	5.2	6.5	8.7
<i>Cercis canadensis</i>	3347	1.8	2.8	3.2	3.8	4.8	5.4	6.8
<i>Cercis occidentalis</i>	80	1.5	2.0	2.5	3.2	3.7	4.0	4.5
<i>Chionanthus virginicus</i>	1298	2.2	3.2	3.7	4.4	5.0	5.4	6.4
<i>Citharexylum berlandieri</i>	110	4.0	6.4	6.7	6.8	6.9	7.0	7.1
<i>Cladrastis kentukea</i>	73	2.0	2.9	3.2	3.5	3.6	4.0	5.0
<i>Clethra acuminata</i>	73	2.0	2.2	2.5	2.8	3.0	3.2	3.3
<i>Cliftonia monophylla</i>	149	4.9	5.0	5.2	5.3	5.3	5.4	5.8
<i>Condalia globosa</i>	174	4.6	5.6	6.0	6.3	6.7	7.1	7.5
<i>Condalia hookeri</i>	369	5.2	5.7	6.0	6.5	6.7	6.8	7.0
<i>Cordia boissieri</i>	285	4.5	5.3	5.8	6.6	6.8	6.9	7.2
<i>Cornus alternifolia</i>	2506	0.8	1.4	1.7	2.1	2.5	2.9	5.3
<i>Cornus drummondii</i>	1663	2.1	2.7	3.0	3.4	4.2	5.1	6.1
<i>Cornus glabrata</i>	59	1.4	1.6	1.7	2.2	2.8	3.3	3.8
<i>Cornus nuttallii</i>	360	0.2	0.8	1.3	1.7	2.1	2.5	3.8
<i>Cornus occidentalis</i>	235	1.0	1.4	1.7	2.0	2.5	3.3	4.1
<i>Cornus racemosa</i>	1604	1.4	1.9	2.1	2.4	2.8	3.1	3.7
<i>Cornus rugosa</i>	1480	0.8	1.4	1.5	1.8	2.1	2.3	2.8
<i>Cornus sessilis</i>	40	1.0	1.4	1.7	2.2	2.5	2.8	3.3

Distributions of species in relation to growing degree days in North America—Continued.

Taxon name	N	Growing degree days (on 5° C base × 1,000)						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	2.8	3.8	4.2	4.6	5.1	5.4	6.5
<i>Cotinus obovatus</i>	44	3.3	3.5	3.5	3.6	3.8	5.1	5.5
<i>Crataegus chrysoarpa</i> (I.R.)	875	0.4	1.3	1.4	1.6	1.8	2.0	2.5
<i>Crataegus columbiana</i>	68	0.5	0.7	1.0	1.2	1.6	1.9	2.2
<i>Crataegus douglasii</i>	1321	0.1	0.5	0.7	1.0	1.5	1.9	3.5
<i>Crataegus erythropoda</i>	24	0.7	0.7	1.2	1.4	1.7	2.2	4.8
<i>Crataegus saligna</i>	10	0.8	0.8	1.0	1.2	1.4	1.4	1.6
<i>Crataegus succulenta</i> (I.R.)	910	0.3	1.7	1.9	2.1	2.3	2.5	3.5
<i>Crataegus tracyi</i>	12	4.3	4.3	4.6	4.8	5.3	5.5	5.5
<i>Cyrilla racemiflora</i>	548	3.6	4.1	4.5	5.0	5.3	5.5	6.5
<i>Diospyros texana</i>	550	4.7	5.1	5.5	6.0	6.5	6.8	7.0
<i>Ehretia anacua</i>	282	4.6	5.4	5.8	6.4	6.8	6.9	7.3
<i>Erythrina herbacea</i>	572	3.4	5.0	5.4	6.0	6.7	7.0	7.6
<i>Esenbeckia berlandieri</i>	58	4.7	5.1	6.6	6.8	7.0	7.4	8.2
<i>Euonymus atropurpureus</i>	1611	1.8	2.4	2.6	3.0	3.3	3.6	4.9
<i>Euonymus occidentalis</i>	90	0.9	1.5	1.9	2.2	2.5	3.2	4.1
<i>Eysenhardtia polystachya</i>	1006	3.0	4.2	4.7	5.3	6.0	7.1	8.7
<i>Eysenhardtia texana</i>	540	4.7	5.2	5.5	5.9	6.4	6.7	6.9
<i>Forestiera acuminata</i>	575	3.0	3.5	4.0	4.5	4.9	5.2	6.0
<i>Forestiera angustifolia</i>	829	4.2	5.0	5.5	5.9	6.5	6.8	7.2
<i>Forestiera segregata</i>	44	5.1	5.4	5.9	6.5	6.8	6.9	7.0
<i>Garrya elliptica</i>	51	1.1	1.4	1.9	2.4	3.2	3.4	3.7
<i>Gleditsia aquatica</i>	429	3.2	3.7	4.5	4.9	5.3	5.6	6.4
<i>Gordonia lasianthus</i>	332	3.9	4.4	4.7	5.3	5.8	6.3	6.5
<i>Guaiacum angustifolium</i>	493	4.7	5.3	5.7	6.1	6.6	6.8	7.0
<i>Gymnocladus dioicus</i>	1072	2.0	2.5	2.7	3.1	3.4	3.7	4.6
<i>Halesia carolina</i>	312	2.0	2.8	3.5	4.0	4.4	4.9	5.6
<i>Halesia diptera</i>	324	4.4	4.8	4.9	5.1	5.3	5.4	5.7
<i>Halesia parviflora</i>	34	4.5	4.6	5.1	5.2	5.3	5.4	5.7
<i>Hamamelis virginiana</i>	2809	1.0	1.9	2.3	2.9	4.3	5.1	6.4
<i>Helietta parvifolia</i>	270	3.9	4.8	5.4	6.2	6.7	6.8	7.0
<i>Ilex ambigua</i>	664	3.7	4.3	4.8	5.1	5.3	5.8	6.5
<i>Ilex amelanchier</i>	26	4.1	4.3	5.0	5.2	5.3	5.4	5.5
<i>Ilex cassine</i>	238	4.5	4.9	5.5	5.9	6.4	6.6	7.0
<i>Ilex coriacea</i>	423	3.8	4.2	4.6	5.1	5.4	5.6	6.2
<i>Ilex decidua</i>	1836	2.8	3.5	3.9	4.5	5.0	5.4	6.3
<i>Ilex laevigata</i>	157	1.4	1.9	2.1	2.4	3.0	3.9	4.5
<i>Ilex montana</i>	382	1.7	2.0	2.4	3.1	3.8	4.2	5.4
<i>Ilex myrtifolia</i>	274	4.2	4.6	5.0	5.3	5.5	5.8	6.2
<i>Ilex vomitoria</i>	621	3.5	4.7	5.0	5.3	5.5	5.9	6.4
<i>Illicium floridanum</i>	158	4.1	4.6	4.9	5.1	5.2	5.3	6.6
<i>Leitneria floridana</i>	22	3.6	3.7	3.9	4.0	5.5	5.6	5.8
<i>Leucaena pulverulenta</i>	299	4.8	5.3	5.7	6.5	6.8	6.9	7.7
<i>Leucaena retusa</i>	106	4.3	5.1	5.3	5.5	5.8	5.9	6.3
<i>Lysiloma microphylla</i>	320	3.9	4.9	6.0	7.1	7.8	8.2	8.7
<i>Magnolia ashei</i>	7	5.3	5.3	5.3	5.4	5.4	5.4	5.5
<i>Magnolia fraseri</i>	117	1.8	2.2	2.4	2.7	3.0	3.3	3.7
<i>Magnolia macrophylla</i>	230	2.0	3.5	4.2	4.7	4.9	5.1	5.4

Distributions of species in relation to growing degree days in North America—*Continued.*

Taxon name	N	Growing degree days (on 5° C base × 1,000)						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	4.4	4.6	5.0	5.2	5.3	5.4	5.5
<i>Magnolia tripetala</i>	272	1.9	2.6	3.0	3.4	3.9	4.3	5.4
<i>Malus angustifolia</i>	630	1.9	3.7	4.0	4.5	4.9	5.2	5.8
<i>Malus coronaria</i>	645	1.8	2.1	2.3	2.5	2.8	3.0	3.9
<i>Malus diversifolia</i>	410	0.2	0.6	0.8	1.1	1.7	2.1	3.2
<i>Malus ioensis</i>	571	2.1	2.4	2.7	3.0	3.3	3.4	5.4
<i>Myrica californica</i>	67	1.1	1.5	1.9	2.4	3.0	3.4	4.2
<i>Myrica cerifera</i>	1026	3.0	4.1	4.6	5.0	5.4	6.2	7.0
<i>Osmanthus americanus</i> (I.R.)	427	4.0	4.7	4.9	5.2	5.5	6.0	6.5
<i>Oxydendrum arboreum</i>	1087	1.9	2.8	3.3	3.9	4.5	5.1	5.6
<i>Parkinsonia aculeata</i> (I.R.)	1028	3.6	4.5	5.3	6.0	6.7	6.9	7.6
<i>Persea borbonia</i>	711	3.2	4.3	4.8	5.2	5.6	6.4	7.0
<i>Photinia arbutifolia</i>	140	1.7	2.5	2.9	3.4	4.1	4.5	6.8
<i>Pinckneya pubens</i>	100	4.7	4.9	5.0	5.2	5.3	5.4	5.9
<i>Pistacia texana</i>	8	5.5	5.5	5.6	5.9	5.9	6.0	6.0
<i>Pithecellobium flexicaule</i>	246	4.8	6.0	6.5	6.7	6.8	6.9	7.5
<i>Pithecellobium pallens</i>	267	4.8	5.6	6.2	6.5	6.7	6.8	6.9
<i>Planera aquatica</i>	633	3.4	4.1	4.5	4.8	5.2	5.4	5.8
<i>Platanus racemosa</i>	103	1.7	2.7	3.3	3.9	4.3	4.6	5.6
<i>Platanus wrightii</i>	153	2.0	3.0	3.5	4.1	4.4	4.8	5.6
<i>Populus angustifolia</i>	460	0.1	0.5	0.7	1.2	1.7	2.3	4.8
<i>Populus arizonica</i>	60	3.0	4.3	4.7	5.2	5.5	5.7	6.0
<i>Populus deltoides</i>	5744	0.5	1.8	2.2	3.0	4.1	4.9	6.1
<i>Populus trichocarpa</i>	1885	0.2	0.5	0.7	1.1	1.5	2.0	4.3
<i>Prunus alleghaniensis</i>	22	1.8	1.8	2.1	2.3	2.5	2.7	2.8
<i>Prunus americana</i>	3652	0.6	2.0	2.3	2.8	3.3	3.8	6.1
<i>Prunus angustifolia</i> (N.R.U.)	1843	2.7	3.5	3.7	4.3	4.9	5.3	6.4
<i>Prunus caroliniana</i>	589	4.1	4.5	4.8	5.1	5.4	5.8	6.4
<i>Prunus emarginata</i>	733	0.3	0.8	1.1	1.4	1.9	2.4	4.6
<i>Prunus fremontii</i>	35	2.8	3.8	4.1	4.3	4.6	5.3	6.3
<i>Prunus hortulana</i>	258	2.6	3.0	3.2	3.3	3.4	3.5	3.9
<i>Prunus ilicifolia</i>	88	1.7	2.9	3.4	4.0	4.2	4.6	6.2
<i>Prunus mexicana</i>	1082	2.6	3.2	3.5	4.1	4.8	5.3	6.5
<i>Prunus munsoniana</i>	249	2.9	3.1	3.2	3.4	3.5	3.7	6.0
<i>Prunus nigra</i>	727	1.0	1.5	1.6	1.8	2.0	2.3	3.1
<i>Prunus pensylvanica</i>	6724	0.2	0.7	0.9	1.1	1.5	2.0	3.5
<i>Prunus subcordata</i>	156	0.9	1.4	1.7	2.2	2.7	3.3	4.0
<i>Prunus umbellata</i>	704	3.8	4.4	4.6	5.0	5.3	5.5	6.5
<i>Prunus virginiana</i>	8834	0.1	0.9	1.1	1.5	2.0	2.6	4.8
<i>Ptelea crenulata</i>	39	2.5	2.6	3.3	3.6	3.8	4.0	4.7
<i>Rhamnus caroliniana</i>	1181	2.5	3.3	3.6	4.3	4.9	5.2	6.8
<i>Rhizophora mangle</i>	412	5.9	6.5	6.9	7.4	7.7	7.9	8.5
<i>Rhododendron catawbiense</i>	111	2.0	2.3	2.6	2.9	3.4	3.7	3.9
<i>Rhododendron maximum</i>	494	1.2	2.0	2.2	2.6	3.0	3.3	3.9
<i>Rhus copallina</i>	2997	1.3	2.5	3.1	3.7	4.7	5.3	7.0
<i>Rhus integrifolia</i>	25	3.6	4.0	4.1	4.4	4.6	5.1	5.6
<i>Rhus kearneyi</i>	7	5.4	5.4	5.4	5.8	6.3	6.3	6.6
<i>Rhus lanceolata</i>	247	3.5	4.8	4.9	5.2	6.3	6.5	6.8

Distributions of species in relation to growing degree days in North America—Continued.

Taxon name	N	Growing degree days (on 5° C base × 1,000)						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	3.0	3.9	4.1	4.6	5.3	5.8	6.8
<i>Rhus typhina</i>	1872	0.9	1.5	1.7	2.0	2.4	2.7	3.7
<i>Robinia viscosa</i>	18	2.0	2.2	2.6	3.0	3.4	4.3	4.5
<i>Sabal mexicana</i>	99	4.3	5.1	5.8	6.8	7.4	8.0	8.5
<i>Sabal minor</i>	895	4.0	4.6	4.8	5.2	5.5	6.2	6.8
<i>Salix amygdaloides</i>	5021	0.1	1.1	1.5	1.9	2.5	3.0	5.0
<i>Salix bebbiana</i>	9340	0.1	0.6	0.8	1.1	1.4	1.9	2.8
<i>Salix bonplandiana</i>	840	2.9	3.8	4.5	5.6	6.8	7.8	8.7
<i>Salix caroliniana</i>	888	2.3	3.2	3.5	4.2	5.3	6.3	7.0
<i>Salix discolor</i>	5453	0.1	0.9	1.1	1.3	1.8	2.3	3.5
<i>Salix exigua</i>	9514	0.1	0.9	1.2	1.9	2.6	3.5	6.8
<i>Salix floridana</i>	8	5.3	5.3	5.5	5.7	6.0	6.2	6.2
<i>Salix fluviatilis</i>	9	1.5	1.5	1.8	2.1	2.2	2.2	2.3
<i>Salix geyeriana</i>	457	0.1	0.5	0.7	1.0	1.3	1.6	2.5
<i>Salix hindsiana</i>	216	1.4	1.9	2.6	3.4	4.0	4.2	4.8
<i>Salix hookeriana</i>	50	0.3	0.6	1.4	1.8	2.1	2.4	2.6
<i>Salix laevigata</i>	183	1.2	2.4	2.9	3.4	3.9	4.2	5.3
<i>Salix lasiandra</i>	3659	0.1	0.6	0.8	1.0	1.2	1.8	4.7
<i>Salix lasiolepis</i>	377	0.6	1.5	2.0	3.0	3.9	4.2	5.9
<i>Salix lucida</i>	4830	0.3	0.7	1.0	1.2	1.6	2.0	3.1
<i>Salix mackenzieana</i>	2089	0.1	0.6	0.8	0.9	1.1	1.2	3.3
<i>Salix nigra</i>	5028	1.0	2.3	2.8	3.6	4.6	5.2	7.4
<i>Salix pellita</i>	2427	0.3	0.6	0.7	0.9	1.1	1.2	1.9
<i>Salix petiolaris</i>	3164	0.3	1.1	1.2	1.5	1.8	2.2	3.0
<i>Salix pyrifolia</i>	4458	0.3	0.6	0.9	1.1	1.2	1.5	2.4
<i>Salix scouleriana</i>	4590	0.1	0.5	0.7	0.9	1.1	1.4	4.8
<i>Salix sericea</i>	1461	1.0	1.6	2.0	2.5	2.8	3.3	4.7
<i>Salix sessilifolia</i>	24	0.9	1.4	1.9	2.2	2.3	2.4	2.5
<i>Salix sitchensis</i>	717	0.2	0.5	0.7	1.0	1.5	2.0	3.8
<i>Salix taxifolia</i>	699	2.1	4.0	5.0	6.1	7.2	7.9	8.7
<i>Salix tracyi</i>	16	1.4	1.5	1.7	2.4	2.6	2.8	3.2
<i>Sambucus callicarpa</i>	560	0.2	0.6	0.7	1.0	1.6	2.0	3.2
<i>Sambucus canadensis</i>	5207	1.0	1.7	2.3	3.2	4.3	5.2	7.0
<i>Sambucus glauca</i>	720	0.3	0.8	1.1	1.6	2.0	2.7	4.9
<i>Sambucus melanocarpa</i>	280	0.3	0.6	0.8	1.1	1.3	1.6	2.2
<i>Sambucus velutina</i>	19	0.8	1.1	1.2	1.5	1.8	2.1	4.7
<i>Sapindus drummondii</i>	1166	2.4	3.7	4.0	4.6	5.1	5.6	6.8
<i>Serenoa repens</i>	286	4.9	5.2	5.3	5.7	6.4	6.6	7.0
<i>Solanum erianthum</i>	1167	3.0	5.4	6.4	7.1	7.6	7.8	8.7
<i>Sophora affinis</i>	118	4.3	4.5	4.8	5.0	5.2	5.4	5.7
<i>Sophora secundiflora</i>	732	3.4	4.6	5.0	5.5	5.9	6.3	6.9
<i>Sorbus americana</i>	2784	0.3	0.8	1.0	1.2	1.5	1.8	4.0
<i>Sorbus decora</i>	3486	0.2	0.5	0.6	1.0	1.2	1.5	2.6
<i>Sorbus scopulina</i>	1678	0.1	0.5	0.6	0.8	1.0	1.2	2.8
<i>Sorbus sitchensis</i>	978	0.1	0.5	0.6	0.8	1.0	1.3	3.5
<i>Staphylea bolanderi</i>	17	1.4	1.5	2.6	3.1	3.5	3.8	4.0
<i>Staphylea trifolia</i>	1871	1.5	2.3	2.6	3.0	3.4	3.7	5.4
<i>Stewartia malacodendron</i>	142	3.5	4.2	4.5	5.0	5.2	5.3	5.4

Distributions of species in relation to growing degree days in North America—*Continued.*

Taxon name	N	Growing degree days (on 5° C base × 1,000)						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	2.0	2.8	3.1	3.3	3.6	3.8	4.4
<i>Styrax americana</i>	1046	2.6	3.9	4.3	4.8	5.3	5.6	6.5
<i>Styrax grandifolia</i>	760	2.6	3.9	4.3	4.8	5.1	5.3	5.9
<i>Styrax platanifolia</i>	31	5.1	5.1	5.2	5.3	5.5	5.6	5.8
<i>Symplocos tinctoria</i>	917	2.0	3.9	4.3	4.7	5.2	5.4	6.3
<i>Tilia caroliniana</i>	994	2.0	4.1	4.4	4.8	5.2	5.5	6.3
<i>Toxicodendron vernix</i>	840	1.6	2.1	2.4	4.2	5.0	5.3	6.1
<i>Ungnadia speciosa</i>	50	3.8	4.4	5.0	5.2	5.9	6.6	7.0
<i>Vaccinium arboreum</i>	1628	2.2	3.5	3.9	4.5	5.1	5.4	6.5
<i>Viburnum lentago</i>	1735	1.0	1.6	1.8	2.0	2.3	2.6	3.1
<i>Viburnum nudum</i>	873	2.2	3.6	4.0	4.6	5.1	5.3	6.5
<i>Viburnum obovatum</i>	242	4.5	4.9	5.1	5.4	6.0	6.3	6.6
<i>Viburnum prunifolium</i>	1356	1.8	2.5	2.6	3.0	3.3	3.6	4.9
<i>Viburnum rufidulum</i>	1825	2.9	3.3	3.7	4.3	4.9	5.2	6.2
<i>Viburnum trilobum</i>	1928	0.2	1.3	1.5	1.7	1.9	2.2	2.9
<i>Yucca aloifolia</i>	40	4.4	4.9	5.2	6.0	6.7	6.9	7.0
<i>Yucca gloriosa</i>	10	4.0	4.0	4.2	4.9	5.4	5.5	5.6
<i>Zanthoxylum americanum</i>	1469	1.6	2.0	2.2	2.6	2.9	3.3	4.7
<i>Zanthoxylum clava-herculis</i>	539	3.5	4.5	4.9	5.3	5.5	6.0	6.9
<i>Zanthoxylum fagara</i>	571	4.8	6.0	6.3	6.7	6.9	7.2	7.6
<i>Zanthoxylum hirsutum</i>	189	4.5	4.7	4.9	5.1	6.1	6.5	6.8

Distributions of genera and groups in relation to growing degree days in North America.

[N, number]

Taxon name	N	Growing degree days (on 5° C base × 1,000)						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	1.4	2.7	3.1	3.8	4.7	5.2	6.2
<i>CATALPA</i>	274	2.9	3.5	4.2	4.7	4.9	5.2	5.4
<i>MAGNOLIA</i>	1795	1.7	2.5	3.0	4.1	5.0	5.5	6.9
<i>PLATANUS</i>	4013	1.6	2.3	2.8	3.5	4.4	5.0	6.5
<i>POPULUS</i>	18088	0.1	0.6	0.8	1.3	2.4	3.9	6.5
<i>STEWARTIA</i>	224	2.0	3.1	3.5	4.5	5.1	5.3	5.4
<i>TILIA</i> *	4540	1.0	1.6	2.0	2.6	3.6	4.9	6.3

* Revised from Thompson and others (1999b).

Distributions of species in relation to moisture index (actual evaporation/potential evaporation) in North America.

[N, number; I.R., incomplete range; N.R.U., native range is uncertain]

Taxon name	N	Moisture index						
		0%	10%	25%	50%	75%	90%	100%
<i>Juniperus erythrocarpa</i>	48	0.23	0.31	0.35	0.49	0.64	0.77	0.92
<i>Picea chihuahuana</i>	13	0.37	0.37	0.56	0.77	0.79	0.89	0.91
<i>Acacia berlandieri</i>	590	0.20	0.22	0.26	0.38	0.50	0.61	0.91
<i>Acacia farnesiana</i> (I.R.)	854	0.09	0.21	0.30	0.43	0.53	0.67	0.91
<i>Acacia rigidula</i>	334	0.22	0.34	0.39	0.45	0.57	0.73	0.91
<i>Acacia roemeriana</i>	310	0.21	0.23	0.25	0.30	0.41	0.62	0.79
<i>Acacia tortuosa</i>	824	0.15	0.37	0.44	0.53	0.68	0.78	0.97
<i>Acacia wrightii</i>	316	0.26	0.33	0.37	0.42	0.50	0.59	0.70
<i>Aesculus parviflora</i>	102	0.87	0.89	0.92	0.94	0.96	0.96	0.99
<i>Aesculus pavia</i>	1103	0.47	0.87	0.90	0.94	0.98	0.99	1.00
<i>Aesculus sylvatica</i>	176	0.90	0.94	0.95	0.96	0.97	0.98	0.99
<i>Amelanchier interior</i>	76	0.81	0.93	0.98	0.99	0.99	0.99	0.99
<i>Amelanchier sanguinea</i>	539	0.81	0.95	0.96	0.98	0.99	0.99	1.00
<i>Aralia spinosa</i>	1838	0.85	0.90	0.93	0.96	0.98	0.99	1.00
<i>Asimina triloba</i>	2373	0.85	0.90	0.94	0.96	0.97	0.98	1.00
<i>Avicennia germinans</i>	258	0.10	0.24	0.61	0.85	0.97	0.99	1.00
<i>Baccharis halimifolia</i>	1152	0.82	0.88	0.91	0.97	0.99	0.99	1.00
<i>Bumelia celastrina</i>	296	0.36	0.40	0.45	0.57	0.74	0.90	1.00
<i>Bumelia lanuginosa</i>	1794	0.23	0.41	0.66	0.89	0.94	0.98	1.00
<i>Bumelia lycioides</i>	524	0.85	0.90	0.93	0.95	0.97	0.99	1.00
<i>Bumelia tenax</i>	49	0.92	0.99	0.99	0.99	0.99	0.99	1.00
<i>Caesalpinia mexicana</i>	240	0.37	0.45	0.53	0.64	0.83	0.92	0.99
<i>Catalpa bignonioides</i> (N.R.U.)	205	0.85	0.88	0.91	0.94	0.97	0.99	0.99
<i>Catalpa speciosa</i> (N.R.U.)	69	0.88	0.89	0.91	0.93	0.94	0.95	0.97
<i>Ceanothus spinosus</i>	7	0.28	0.28	0.37	0.47	0.50	0.52	0.54
<i>Ceanothus thyrsiflorus</i>	44	0.48	0.59	0.65	0.72	0.80	0.84	0.86
<i>Celtis tenuifolia</i>	649	0.85	0.91	0.93	0.95	0.97	0.98	1.00
<i>Cephalanthus occidentalis</i>	5782	0.16	0.67	0.88	0.95	0.97	0.99	1.00
<i>Cercis canadensis</i>	3347	0.21	0.66	0.89	0.95	0.97	0.98	1.00
<i>Cercis occidentalis</i>	80	0.11	0.22	0.45	0.54	0.62	0.65	0.71
<i>Chionanthus virginicus</i>	1298	0.83	0.91	0.94	0.96	0.98	0.99	1.00
<i>Citharexylum berlandieri</i>	110	0.43	0.46	0.57	0.69	0.83	0.90	0.92
<i>Cladrastis kentukea</i>	73	0.86	0.91	0.94	0.96	0.98	1.00	1.00
<i>Clethra acuminata</i>	73	0.97	0.98	0.98	0.99	1.00	1.00	1.00
<i>Cliftonia monophylla</i>	149	0.91	0.94	0.97	0.99	0.99	0.99	1.00
<i>Condalia globosa</i>	174	0.06	0.12	0.16	0.20	0.26	0.30	0.43
<i>Condalia hookeri</i>	369	0.34	0.39	0.43	0.53	0.67	0.80	0.92
<i>Cordia boissieri</i>	285	0.32	0.40	0.45	0.56	0.70	0.87	0.92
<i>Cornus alternifolia</i>	2506	0.71	0.94	0.96	0.97	0.99	0.99	1.00
<i>Cornus drummondii</i>	1663	0.59	0.79	0.88	0.94	0.96	0.97	1.00
<i>Cornus glabrata</i>	59	0.43	0.51	0.61	0.66	0.70	0.73	0.73
<i>Cornus nuttallii</i>	360	0.39	0.65	0.73	0.86	0.95	0.97	1.00
<i>Cornus occidentalis</i>	235	0.37	0.55	0.66	0.76	0.85	0.91	0.97
<i>Cornus racemosa</i>	1604	0.68	0.93	0.95	0.97	0.98	0.99	1.00
<i>Cornus rugosa</i>	1480	0.70	0.93	0.96	0.98	0.99	0.99	1.00
<i>Cornus sessilis</i>	40	0.55	0.59	0.62	0.67	0.71	0.75	0.81

Distributions of species in relation to moisture index (actual evaporation/potential evaporation) in North America—*Continued.*

Taxon name	N	Moisture index						
		0%	10%	25%	50%	75%	90%	100%
<i>Cornus stricta</i>	1027	0.85	0.88	0.91	0.95	0.99	0.99	1.00
<i>Cotinus obovatus</i>	44	0.61	0.71	0.92	0.94	0.95	0.96	0.98
<i>Crataegus chrysoarpa</i> (I.R.)	875	0.44	0.51	0.61	0.67	0.76	0.90	0.99
<i>Crataegus columbiana</i>	68	0.24	0.46	0.59	0.70	0.80	0.87	0.98
<i>Crataegus douglasii</i>	1321	0.24	0.49	0.62	0.77	0.92	0.98	1.00
<i>Crataegus erythropoda</i>	24	0.32	0.42	0.50	0.57	0.62	0.75	0.86
<i>Crataegus saligna</i>	10	0.42	0.42	0.48	0.49	0.52	0.54	0.60
<i>Crataegus succulenta</i> (I.R.)	910	0.49	0.59	0.63	0.71	0.92	0.98	0.99
<i>Crataegus tracyi</i>	12	0.33	0.33	0.35	0.41	0.66	0.71	0.79
<i>Cyrilla racemiflora</i>	548	0.87	0.92	0.95	0.98	0.99	0.99	1.00
<i>Diospyros texana</i>	550	0.21	0.28	0.36	0.45	0.59	0.71	0.84
<i>Ehretia anacua</i>	282	0.35	0.44	0.51	0.61	0.75	0.87	0.95
<i>Erythrina herbacea</i>	572	0.36	0.74	0.88	0.94	0.99	0.99	1.00
<i>Esenbeckia berlandieri</i>	58	0.36	0.44	0.46	0.59	0.82	0.90	0.94
<i>Euonymus atropurpureus</i>	1611	0.70	0.93	0.94	0.96	0.97	0.98	1.00
<i>Euonymus occidentalis</i>	90	0.40	0.64	0.69	0.76	0.84	0.88	0.96
<i>Eysenhardtia polystachya</i>	1006	0.20	0.33	0.46	0.61	0.74	0.83	0.99
<i>Eysenhardtia texana</i>	540	0.20	0.24	0.30	0.40	0.53	0.65	0.81
<i>Forestiera acuminata</i>	575	0.76	0.87	0.89	0.91	0.95	0.98	0.99
<i>Forestiera angustifolia</i>	829	0.20	0.23	0.27	0.41	0.53	0.67	0.93
<i>Forestiera segregata</i>	44	0.97	0.97	0.98	0.99	0.99	0.99	1.00
<i>Garrya elliptica</i>	51	0.48	0.55	0.61	0.76	0.81	0.84	0.90
<i>Gleditsia aquatica</i>	429	0.85	0.88	0.89	0.91	0.96	0.99	1.00
<i>Gordonia lasianthus</i>	332	0.91	0.96	0.98	0.99	0.99	0.99	1.00
<i>Guaiacum angustifolium</i>	493	0.21	0.24	0.29	0.40	0.48	0.57	0.74
<i>Gymnocladus dioicus</i>	1072	0.66	0.92	0.94	0.96	0.97	0.97	0.99
<i>Halesia carolina</i>	312	0.87	0.93	0.95	0.96	0.98	0.99	1.00
<i>Halesia diptera</i>	324	0.87	0.90	0.92	0.95	0.99	0.99	1.00
<i>Halesia parviflora</i>	34	0.89	0.91	0.95	0.99	0.99	0.99	1.00
<i>Hamamelis virginiana</i>	2809	0.57	0.92	0.95	0.97	0.98	0.99	1.00
<i>Helietta parvifolia</i>	270	0.23	0.39	0.45	0.53	0.61	0.69	0.92
<i>Ilex ambigua</i>	664	0.84	0.90	0.93	0.97	0.99	0.99	1.00
<i>Ilex amelanchier</i>	26	0.93	0.98	0.99	0.99	0.99	0.99	1.00
<i>Ilex cassine</i>	238	0.93	0.98	0.99	0.99	0.99	0.99	1.00
<i>Ilex coriacea</i>	423	0.91	0.95	0.98	0.99	0.99	0.99	1.00
<i>Ilex decidua</i>	1836	0.66	0.87	0.90	0.93	0.96	0.99	1.00
<i>Ilex laevigata</i>	157	0.92	0.94	0.95	0.97	0.98	0.99	1.00
<i>Ilex montana</i>	382	0.86	0.95	0.97	0.98	0.99	0.99	1.00
<i>Ilex myrtifolia</i>	274	0.90	0.96	0.98	0.99	0.99	0.99	1.00
<i>Ilex vomitoria</i>	621	0.59	0.87	0.92	0.97	0.99	0.99	1.00
<i>Illicium floridanum</i>	158	0.69	0.93	0.96	0.98	0.99	0.99	1.00
<i>Leitneria floridana</i>	22	0.88	0.88	0.90	0.91	0.94	0.98	0.99
<i>Leucaena pulverulenta</i>	299	0.21	0.36	0.46	0.57	0.78	0.90	0.97
<i>Leucaena retusa</i>	106	0.22	0.25	0.26	0.31	0.38	0.50	0.61
<i>Lysiloma microphylla</i>	320	0.19	0.42	0.56	0.61	0.67	0.74	0.97
<i>Magnolia ashei</i>	7	0.99	0.99	0.99	0.99	0.99	0.99	1.00
<i>Magnolia fraseri</i>	117	0.95	0.97	0.98	0.99	1.00	1.00	1.00
<i>Magnolia macrophylla</i>	230	0.85	0.89	0.92	0.96	0.98	0.99	1.00

Distributions of species in relation to moisture index (actual evaporation/potential evaporation) in North America—*Continued.*

Taxon name	N	Moisture index						
		0%	10%	25%	50%	75%	90%	100%
<i>Magnolia pyramidata</i>	59	0.87	0.92	0.95	0.99	0.99	0.99	0.99
<i>Magnolia tripetala</i>	272	0.88	0.95	0.96	0.97	0.98	0.99	1.00
<i>Malus angustifolia</i>	630	0.85	0.91	0.93	0.96	0.99	0.99	1.00
<i>Malus coronaria</i>	645	0.86	0.93	0.95	0.96	0.97	0.99	1.00
<i>Malus diversifolia</i>	410	0.64	0.82	0.90	0.97	0.99	1.00	1.00
<i>Malus ioensis</i>	571	0.71	0.94	0.95	0.97	0.97	0.98	0.99
<i>Myrica californica</i>	67	0.47	0.55	0.65	0.75	0.85	0.95	0.99
<i>Myrica cerifera</i>	1026	0.59	0.87	0.91	0.97	0.99	0.99	1.00
<i>Osmanthus americanus</i> (I.R.)	427	0.87	0.93	0.97	0.99	0.99	0.99	1.00
<i>Oxydendrum arboreum</i>	1087	0.85	0.93	0.95	0.97	0.98	0.99	1.00
<i>Parkinsonia aculeata</i> (I.R.)	1028	0.09	0.21	0.27	0.40	0.52	0.66	0.91
<i>Persea borbonia</i>	711	0.54	0.91	0.95	0.99	0.99	0.99	1.00
<i>Photinia arbutifolia</i>	140	0.21	0.37	0.47	0.53	0.61	0.68	0.76
<i>Pinckneya pubens</i>	100	0.90	0.92	0.94	0.98	0.99	0.99	0.99
<i>Pistacia texana</i>	8	0.27	0.27	0.28	0.30	0.45	0.63	0.64
<i>Pithecellobium flexicaule</i>	246	0.22	0.40	0.45	0.55	0.70	0.88	0.94
<i>Pithecellobium pallens</i>	267	0.23	0.36	0.39	0.47	0.56	0.61	0.94
<i>Planera aquatica</i>	633	0.81	0.88	0.90	0.94	0.99	0.99	1.00
<i>Platanus racemosa</i>	103	0.20	0.34	0.40	0.48	0.53	0.56	0.68
<i>Platanus wrightii</i>	153	0.18	0.31	0.38	0.45	0.54	0.62	0.92
<i>Populus angustifolia</i>	460	0.20	0.42	0.50	0.61	0.74	0.86	0.99
<i>Populus arizonica</i>	60	0.21	0.22	0.24	0.29	0.34	0.41	0.61
<i>Populus deltoides</i>	5744	0.28	0.51	0.63	0.90	0.96	0.98	1.00
<i>Populus trichocarpa</i>	1885	0.10	0.47	0.62	0.78	0.94	0.99	1.00
<i>Prunus alleghaniensis</i>	22	0.95	0.96	0.97	0.98	0.99	0.99	1.00
<i>Prunus americana</i>	3652	0.45	0.63	0.84	0.95	0.97	0.98	1.00
<i>Prunus angustifolia</i> (N.R.U.)	1843	0.43	0.68	0.84	0.93	0.96	0.99	1.00
<i>Prunus caroliniana</i>	589	0.81	0.91	0.94	0.98	0.99	0.99	1.00
<i>Prunus emarginata</i>	733	0.30	0.53	0.65	0.77	0.90	0.95	1.00
<i>Prunus fremontii</i>	35	0.12	0.27	0.35	0.46	0.53	0.55	0.64
<i>Prunus hortulana</i>	258	0.91	0.93	0.94	0.94	0.96	0.97	0.97
<i>Prunus ilicifolia</i>	88	0.12	0.33	0.41	0.49	0.54	0.57	0.68
<i>Prunus mexicana</i>	1082	0.21	0.80	0.88	0.92	0.95	0.97	0.99
<i>Prunus munsoniana</i>	249	0.85	0.92	0.93	0.94	0.96	0.97	0.99
<i>Prunus nigra</i>	727	0.68	0.91	0.94	0.97	0.99	0.99	1.00
<i>Prunus pensylvanica</i>	6724	0.33	0.65	0.77	0.97	0.99	1.00	1.00
<i>Prunus subcordata</i>	156	0.39	0.55	0.61	0.67	0.72	0.78	0.91
<i>Prunus umbellata</i>	704	0.84	0.89	0.91	0.96	0.99	0.99	1.00
<i>Prunus virginiana</i>	8834	0.22	0.53	0.66	0.85	0.98	0.99	1.00
<i>Ptelea crenulata</i>	39	0.26	0.40	0.51	0.55	0.59	0.65	0.71
<i>Rhamnus caroliniana</i>	1181	0.41	0.86	0.90	0.94	0.96	0.98	1.00
<i>Rhizophora mangle</i>	412	0.09	0.20	0.58	0.74	0.94	0.98	1.00
<i>Rhododendron catawbiense</i>	111	0.95	0.97	0.97	0.98	0.99	1.00	1.00
<i>Rhododendron maximum</i>	494	0.92	0.96	0.97	0.98	0.99	0.99	1.00
<i>Rhus copallina</i>	2997	0.64	0.90	0.93	0.96	0.98	0.99	1.00
<i>Rhus integrifolia</i>	25	0.15	0.28	0.32	0.41	0.47	0.50	0.53
<i>Rhus kearneyi</i>	7	0.08	0.08	0.11	0.15	0.21	0.21	0.27
<i>Rhus lanceolata</i>	247	0.23	0.37	0.44	0.61	0.73	0.78	0.99

Distributions of species in relation to moisture index (actual evaporation/potential evaporation) in North America—*Continued.*

Taxon name	N	Moisture index						
		0%	10%	25%	50%	75%	90%	100%
<i>Rhus laurina</i>	41	0.14	0.21	0.29	0.40	0.47	0.51	0.56
<i>Rhus typhina</i>	1872	0.86	0.94	0.96	0.97	0.99	0.99	1.00
<i>Robinia viscosa</i>	18	0.93	0.94	0.96	0.99	1.00	1.00	1.00
<i>Sabal mexicana</i>	99	0.43	0.67	0.71	0.77	0.92	0.95	0.99
<i>Sabal minor</i>	895	0.67	0.87	0.91	0.96	0.99	0.99	1.00
<i>Salix amygdaloides</i>	5021	0.14	0.46	0.53	0.66	0.88	0.97	0.99
<i>Salix bebbiana</i>	9340	0.24	0.51	0.64	0.79	0.98	0.99	1.00
<i>Salix bonplandiana</i>	840	0.15	0.47	0.62	0.73	0.81	0.91	1.00
<i>Salix caroliniana</i>	888	0.48	0.91	0.94	0.96	0.99	0.99	1.00
<i>Salix discolor</i>	5453	0.39	0.68	0.79	0.97	0.99	1.00	1.00
<i>Salix exigua</i>	9514	0.04	0.34	0.50	0.66	0.90	0.97	1.00
<i>Salix floridana</i>	8	0.99	0.99	0.99	0.99	0.99	0.99	0.99
<i>Salix fluviatilis</i>	9	0.74	0.74	0.77	0.86	0.86	0.86	0.88
<i>Salix geyeriana</i>	457	0.15	0.50	0.60	0.71	0.83	0.91	0.99
<i>Salix hindsiana</i>	216	0.21	0.40	0.48	0.54	0.62	0.68	0.74
<i>Salix hookeriana</i>	50	0.75	0.79	0.83	0.94	0.96	1.00	1.00
<i>Salix laevigata</i>	183	0.27	0.39	0.46	0.53	0.62	0.68	0.84
<i>Salix lasiandra</i>	3659	0.24	0.49	0.59	0.70	0.83	0.95	1.00
<i>Salix lasiolepis</i>	377	0.13	0.34	0.47	0.56	0.68	0.76	0.97
<i>Salix lucida</i>	4830	0.50	0.78	0.95	0.98	0.99	1.00	1.00
<i>Salix mackenzieana</i>	2089	0.33	0.52	0.62	0.72	0.84	0.95	1.00
<i>Salix nigra</i>	5028	0.04	0.60	0.89	0.95	0.97	0.99	1.00
<i>Salix pellita</i>	2427	0.62	0.77	0.97	0.99	1.00	1.00	1.00
<i>Salix petiolaris</i>	3164	0.40	0.59	0.68	0.84	0.97	0.99	1.00
<i>Salix pyrifolia</i>	4458	0.39	0.58	0.71	0.96	0.99	1.00	1.00
<i>Salix scouleriana</i>	4590	0.24	0.52	0.62	0.72	0.84	0.96	1.00
<i>Salix sericea</i>	1461	0.86	0.94	0.96	0.97	0.98	0.99	1.00
<i>Salix sessilifolia</i>	24	0.71	0.72	0.78	0.84	0.88	0.94	0.97
<i>Salix sitchensis</i>	717	0.27	0.57	0.76	0.91	0.98	1.00	1.00
<i>Salix taxifolia</i>	699	0.23	0.57	0.63	0.72	0.78	0.90	1.00
<i>Salix tracyi</i>	16	0.64	0.68	0.68	0.73	0.80	0.83	0.85
<i>Sambucus callicarpa</i>	560	0.63	0.78	0.88	0.96	0.99	1.00	1.00
<i>Sambucus canadensis</i>	5207	0.45	0.89	0.94	0.96	0.98	0.99	1.00
<i>Sambucus glauca</i>	720	0.10	0.46	0.59	0.75	0.88	0.94	0.99
<i>Sambucus melanocarpa</i>	280	0.13	0.53	0.64	0.76	0.86	0.92	0.99
<i>Sambucus velutina</i>	19	0.26	0.39	0.64	0.73	0.74	0.76	0.78
<i>Sapindus drummondii</i>	1166	0.21	0.26	0.32	0.55	0.75	0.89	0.99
<i>Serenoa repens</i>	286	0.91	0.97	0.99	0.99	0.99	0.99	1.00
<i>Solanum erianthum</i>	1167	0.17	0.51	0.62	0.73	0.84	0.94	1.00
<i>Sophora affinis</i>	118	0.49	0.66	0.73	0.78	0.85	0.90	0.92
<i>Sophora secundiflora</i>	732	0.20	0.23	0.26	0.36	0.50	0.61	0.96
<i>Sorbus americana</i>	2784	0.90	0.96	0.98	0.99	0.99	1.00	1.00
<i>Sorbus decora</i>	3486	0.74	0.96	0.98	0.99	1.00	1.00	1.00
<i>Sorbus scopulina</i>	1678	0.30	0.55	0.64	0.75	0.89	0.97	1.00
<i>Sorbus sitchensis</i>	978	0.33	0.58	0.70	0.91	0.98	1.00	1.00
<i>Staphylea bolanderi</i>	17	0.39	0.45	0.50	0.53	0.59	0.61	0.66
<i>Staphylea trifolia</i>	1871	0.85	0.93	0.95	0.96	0.97	0.98	1.00
<i>Stewartia malacodendron</i>	142	0.90	0.95	0.98	0.99	0.99	1.00	1.00

Distributions of species in relation to moisture index (actual evaporation/potential evaporation) in North America—*Continued.*

Taxon name	N	Moisture index						
		0%	10%	25%	50%	75%	90%	100%
<i>Stewartia ovata</i>	82	0.94	0.96	0.97	0.98	0.99	1.00	1.00
<i>Styrax americana</i>	1046	0.85	0.88	0.91	0.96	0.99	0.99	1.00
<i>Styrax grandifolia</i>	760	0.85	0.90	0.92	0.96	0.99	0.99	1.00
<i>Styrax platanifolia</i>	31	0.47	0.61	0.67	0.74	0.76	0.79	0.80
<i>Symplocos tinctoria</i>	917	0.85	0.90	0.92	0.97	0.99	0.99	1.00
<i>Tilia caroliniana</i>	994	0.53	0.88	0.91	0.95	0.98	0.99	1.00
<i>Toxicodendron vernix</i>	840	0.85	0.91	0.94	0.97	0.98	0.99	1.00
<i>Ungnadia speciosa</i>	50	0.22	0.33	0.41	0.72	0.79	0.82	0.89
<i>Vaccinium arboreum</i>	1628	0.67	0.88	0.91	0.95	0.98	0.99	1.00
<i>Viburnum lentago</i>	1735	0.55	0.74	0.92	0.96	0.98	0.99	1.00
<i>Viburnum nudum</i>	873	0.80	0.90	0.94	0.97	0.99	0.99	1.00
<i>Viburnum obovatum</i>	242	0.90	0.95	0.98	0.99	0.99	0.99	1.00
<i>Viburnum prunifolium</i>	1356	0.87	0.94	0.95	0.96	0.97	0.98	1.00
<i>Viburnum rufidulum</i>	1825	0.55	0.85	0.90	0.94	0.96	0.99	1.00
<i>Viburnum trilobum</i>	1928	0.33	0.79	0.95	0.98	0.99	0.99	1.00
<i>Yucca aloifolia</i>	40	0.97	0.98	0.99	0.99	0.99	1.00	1.00
<i>Yucca gloriosa</i>	10	0.99	0.99	0.99	0.99	0.99	0.99	1.00
<i>Zanthoxylum americanum</i>	1469	0.69	0.91	0.95	0.97	0.97	0.98	1.00
<i>Zanthoxylum clava-herculis</i>	539	0.75	0.83	0.88	0.94	0.99	0.99	1.00
<i>Zanthoxylum fagara</i>	571	0.20	0.37	0.45	0.67	0.90	0.99	1.00
<i>Zanthoxylum hirsutum</i>	189	0.35	0.46	0.59	0.71	0.76	0.80	0.89

Distributions of genera and groups in relation to moisture index (actual evaporation/potential evaporation) in North America.

[N, number]

Taxon name	N	Moisture index						
		0%	10%	25%	50%	75%	90%	100%
<i>AESCULUS</i>	2889	0.33	0.86	0.91	0.95	0.97	0.99	1.00
<i>CATALPA</i>	274	0.85	0.89	0.91	0.94	0.96	0.98	0.99
<i>MAGNOLIA</i>	1795	0.85	0.91	0.95	0.97	0.99	0.99	1.00
<i>PLATANUS</i>	4013	0.18	0.86	0.92	0.96	0.97	0.99	1.00
<i>POPULUS</i>	18088	0.05	0.48	0.63	0.86	0.97	0.99	1.00
<i>STEWARTIA</i>	224	0.90	0.95	0.97	0.99	0.99	1.00	1.00
<i>TILIA</i> *	4540	0.53	0.90	0.94	0.97	0.98	0.99	1.00

* Revised from Thompson and others (1999b).

**Additional Hardwoods, Conifers,
and Monocots—
Climatic Ranges of Species
within the Florida Subregion**



Florida area

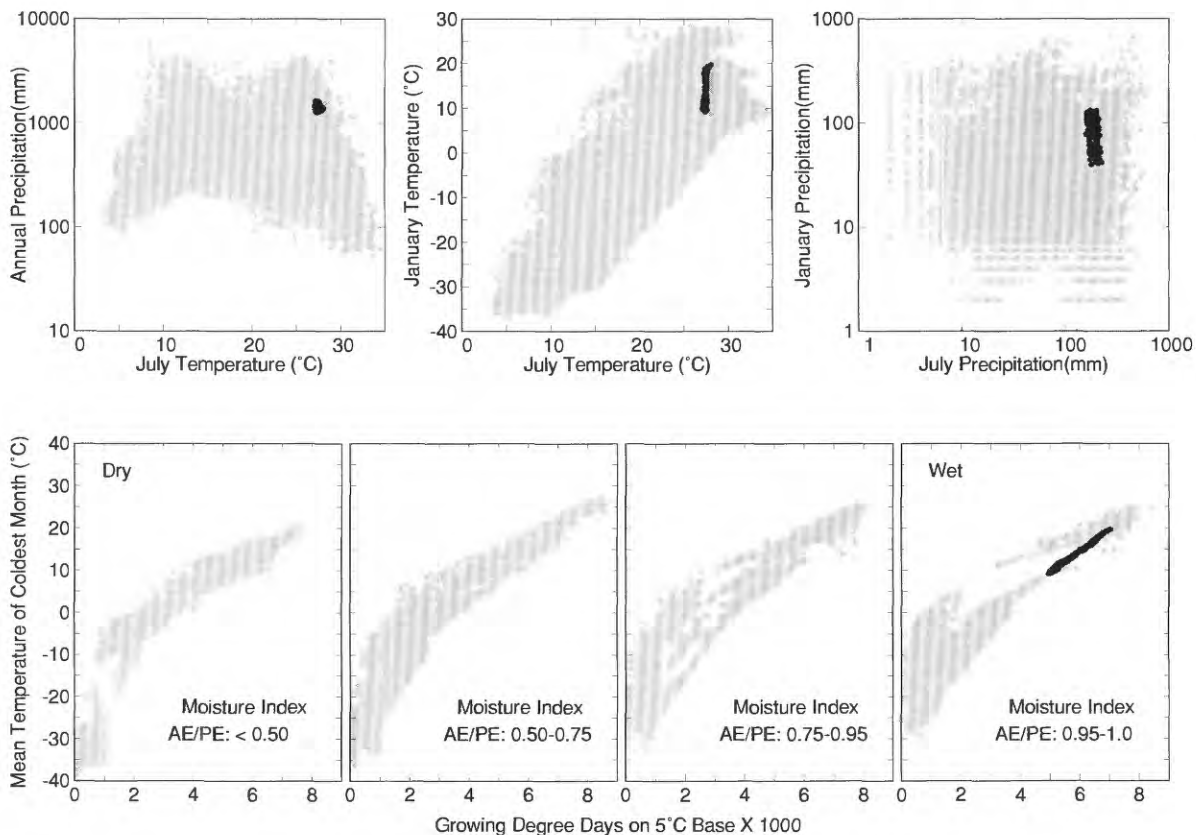
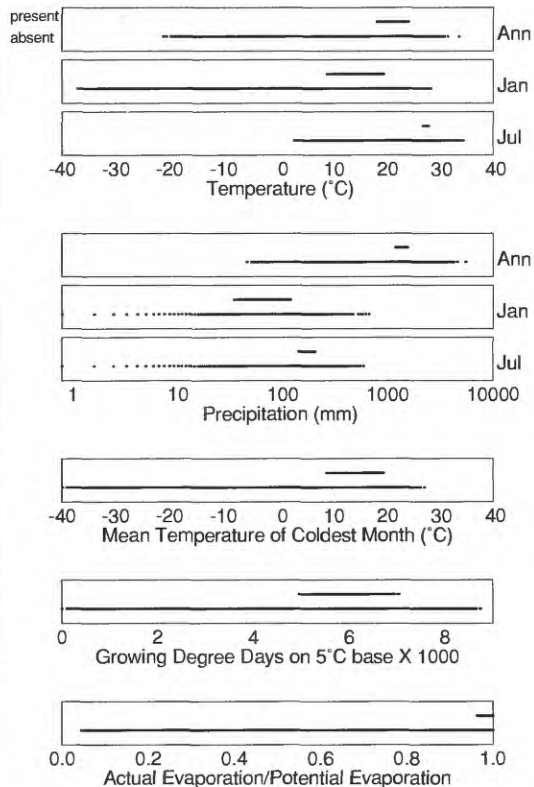


Figure 1. Graphical displays of the subset of the 25-km climate grid data used for the Florida analysis.

Climate of the Florida Area

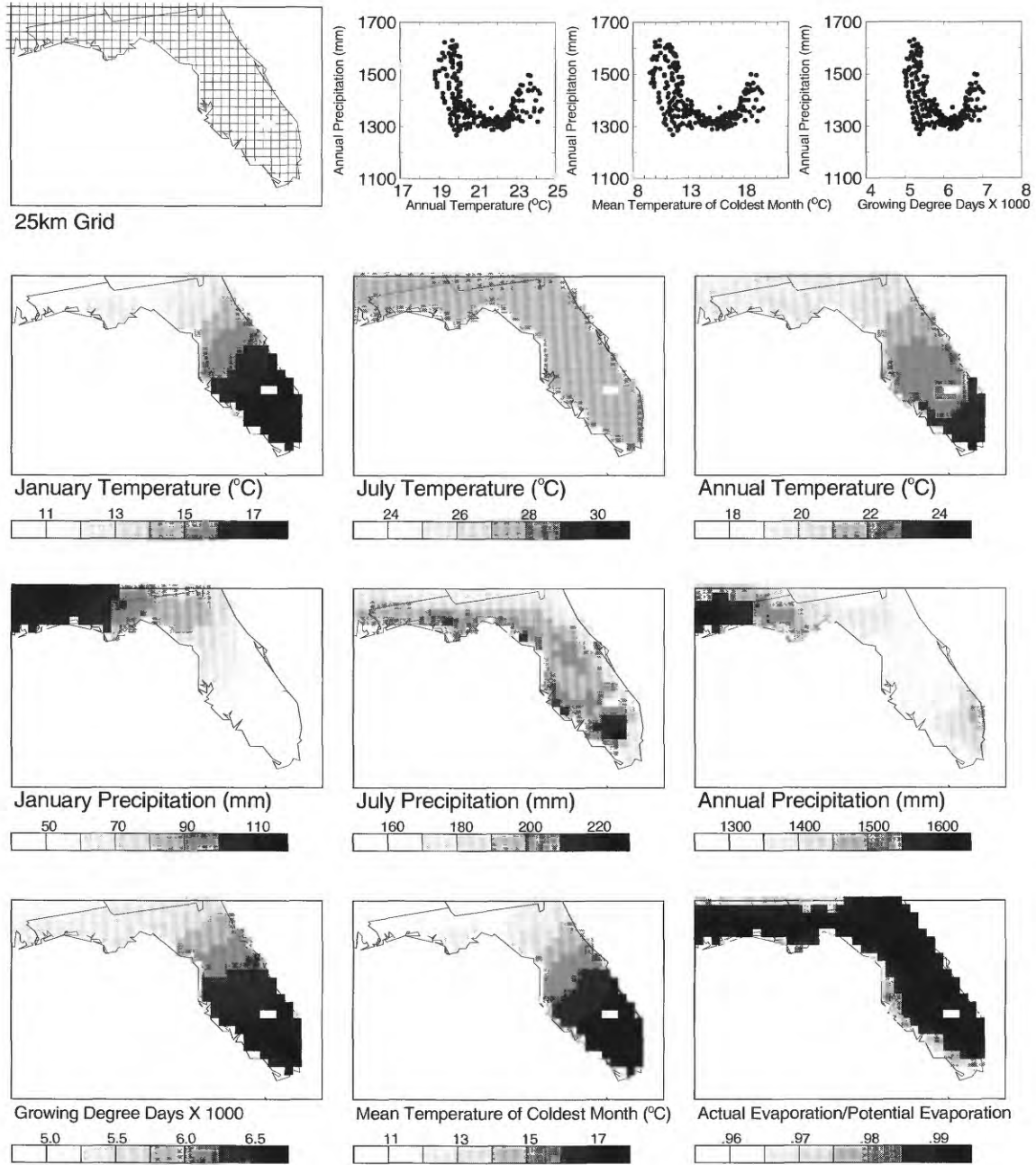
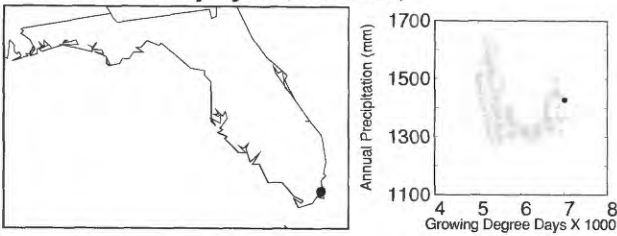
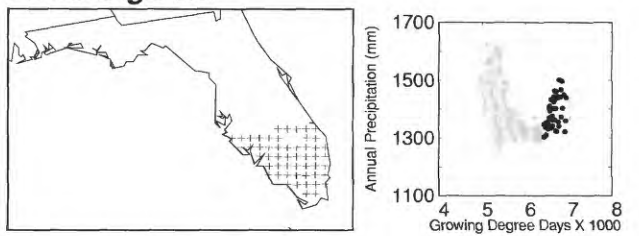


Figure 2. Bivariate plots and maps of climatic and bioclimatic data on the 25-km grid for the Florida region.

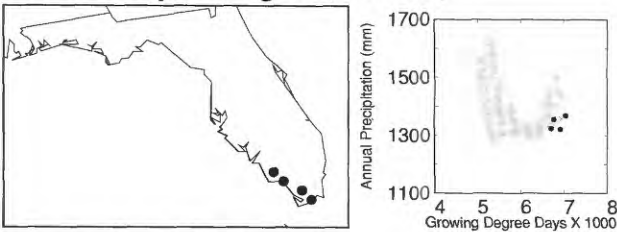
Acacia choriophylla (minimal data)



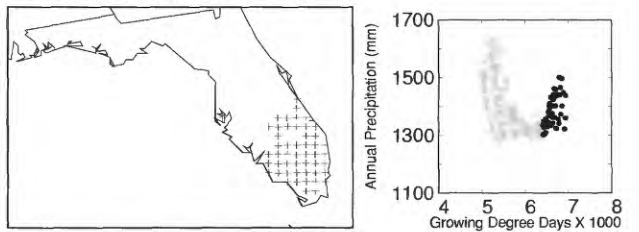
Annona glabra



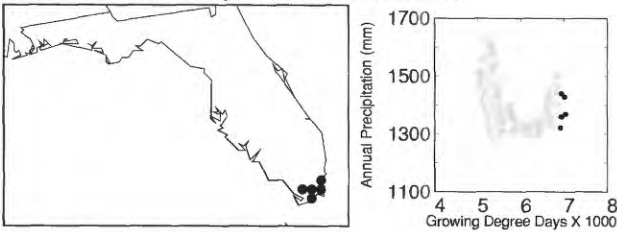
Acoelorrhapha wrightii (minimal data)



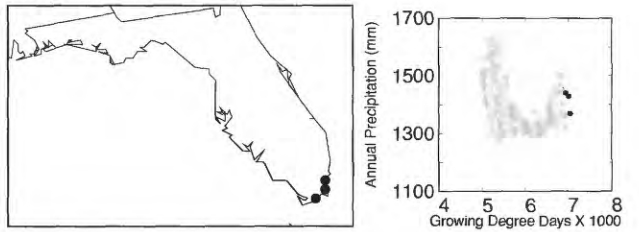
Ardisia escallonioides



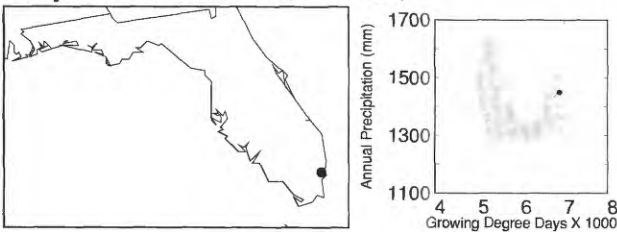
Alvaradoa amorphoides (minimal data)



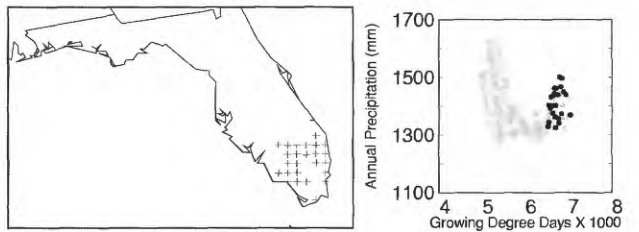
Bourreria ovata (minimal data)



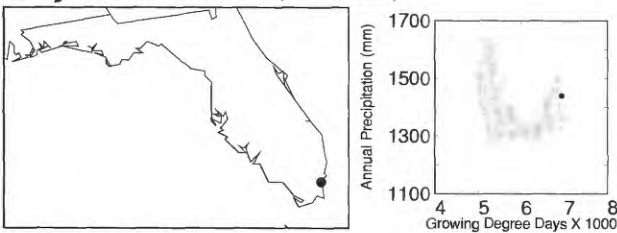
Amphitecna latifolia (minimal data)



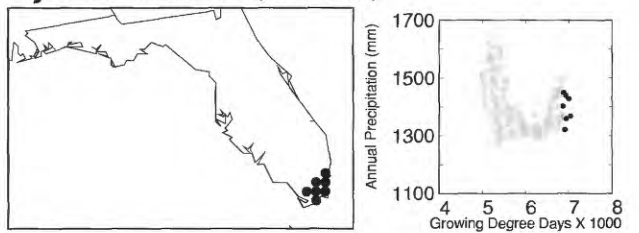
Bursera simaruba



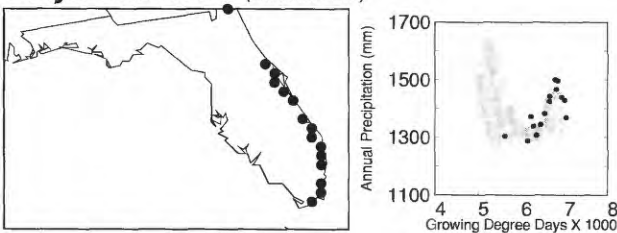
Amyris balsamifera (minimal data)



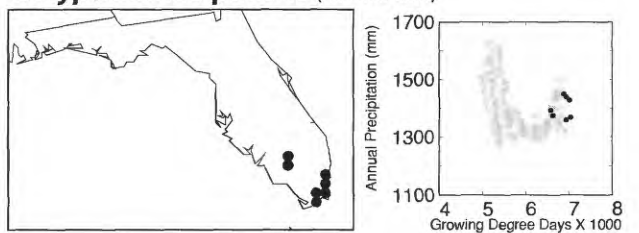
Byrsonima lucida (minimal data)



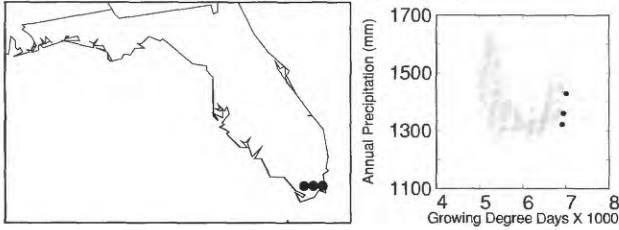
Amyris elemifera (minimal data)



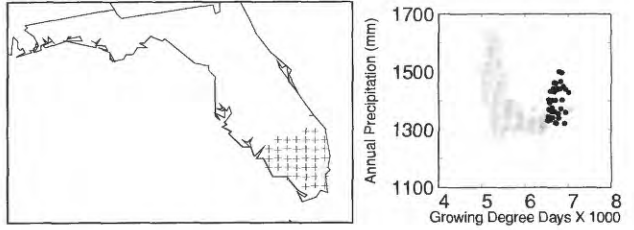
Calyptanthes pallens (minimal data)



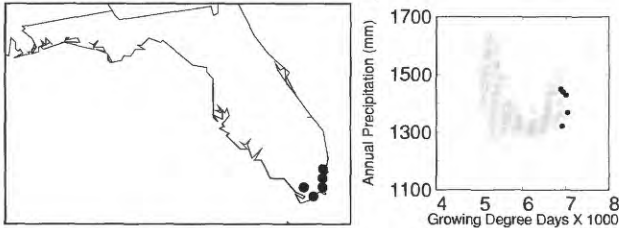
Calyptranthes zuzygium (minimal data)



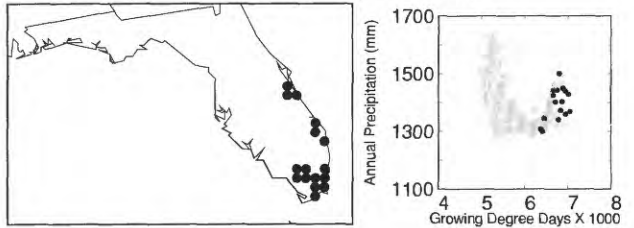
Chrysophyllum oliviforme



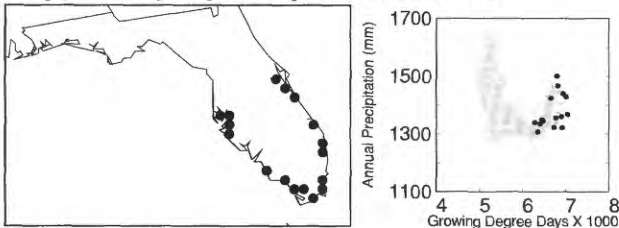
Canella winterana (minimal data)



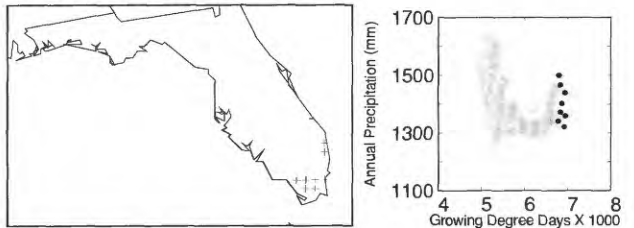
Citharexylum fruticosum (minimal data)



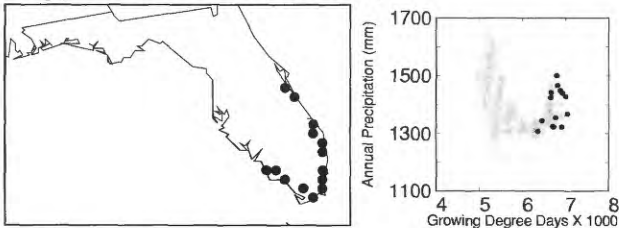
Capparis cynophallophora (minimal data)



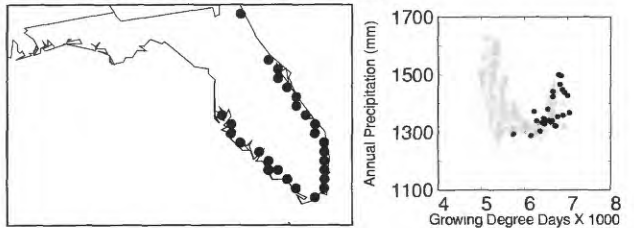
Coccoloba diversifolia



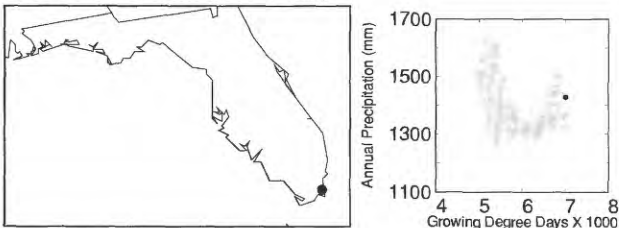
Capparis flexuosa (minimal data)



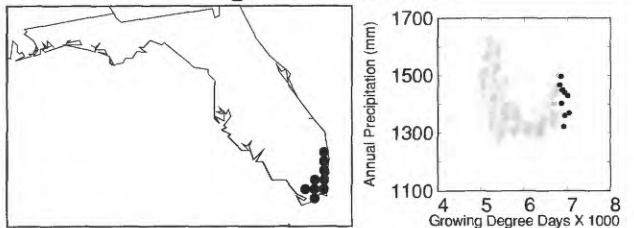
Coccoloba uvifera (minimal data)



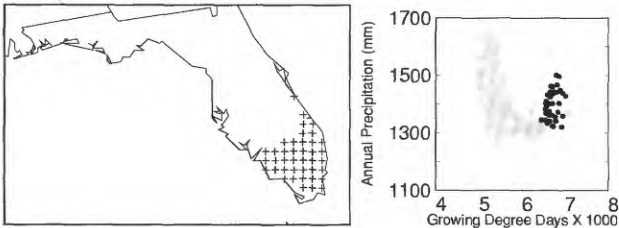
Cereus robinii (minimal data)



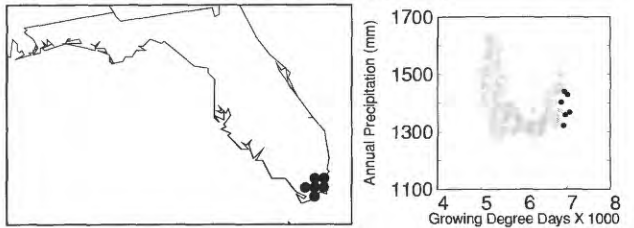
Coccothrinax argentata (minimal data)



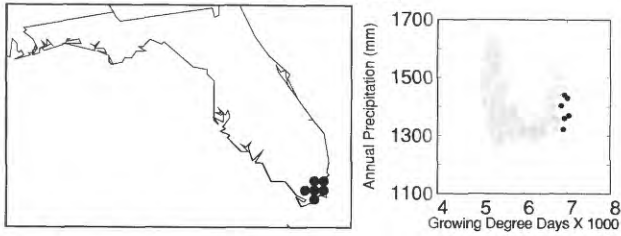
Chrysobalanus icaco



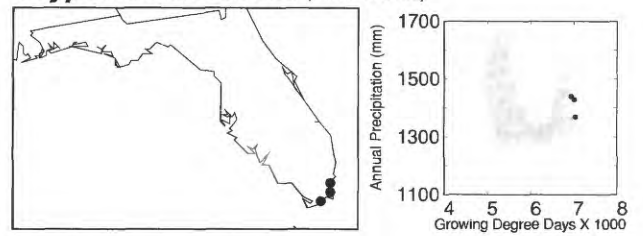
Colubrina arborescens (minimal data)



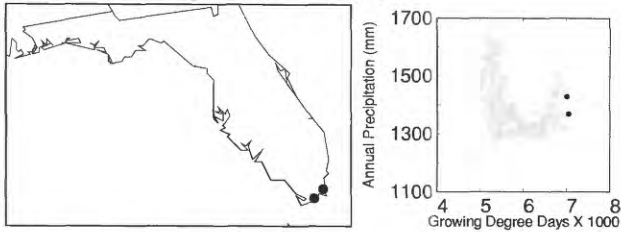
Colubrina cubensis (minimal data)



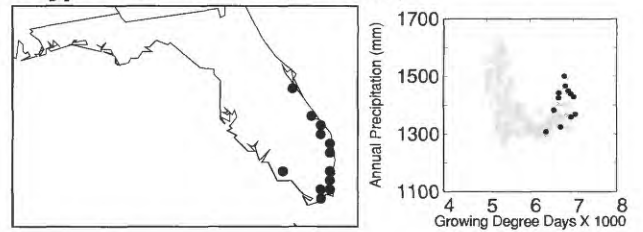
Drypetes diversifolia (minimal data)



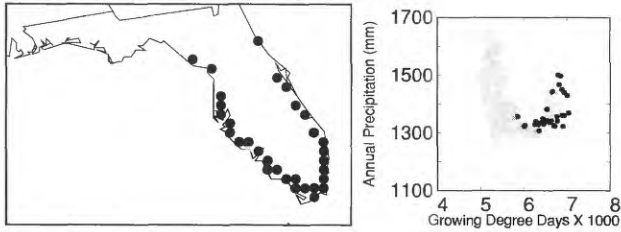
Colubrina elliptica (minimal data)



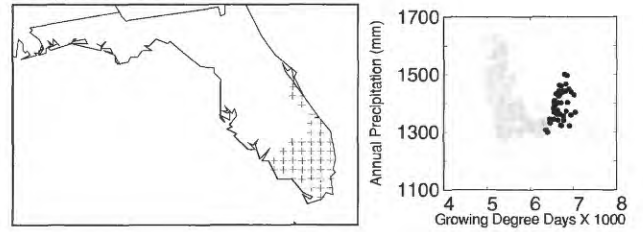
Drypetes lateriflora (minimal data)



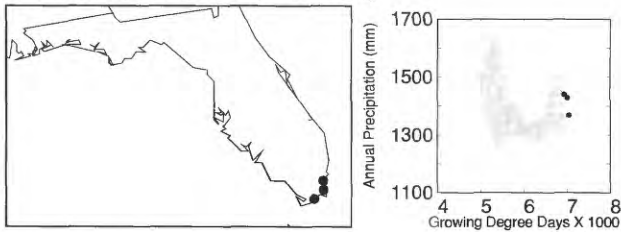
Conocarpus erectus (minimal data)



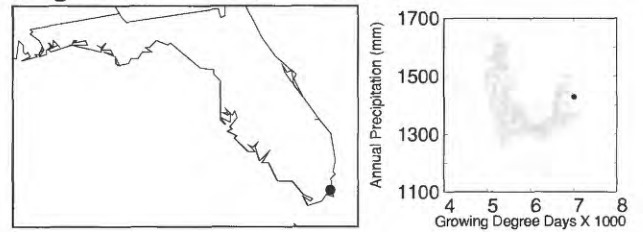
Eugenia axillaris



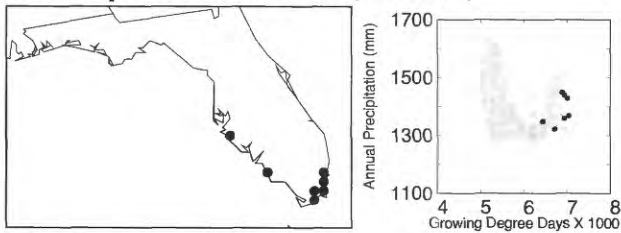
Cordia sebestena (minimal data)



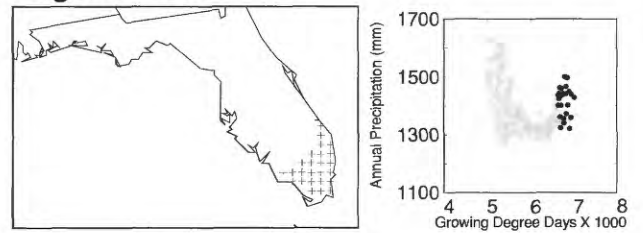
Eugenia confusa (minimal data)



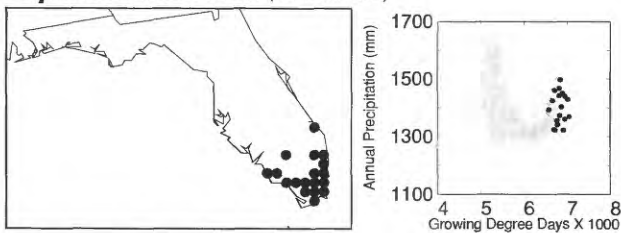
Crossopetalum rhacoma (minimal data)



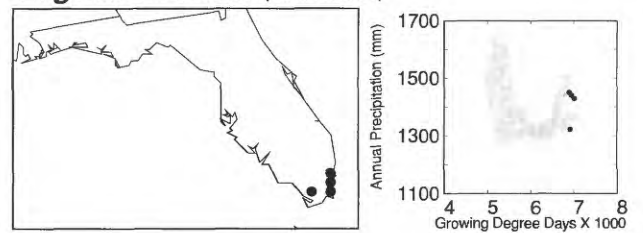
Eugenia foetida



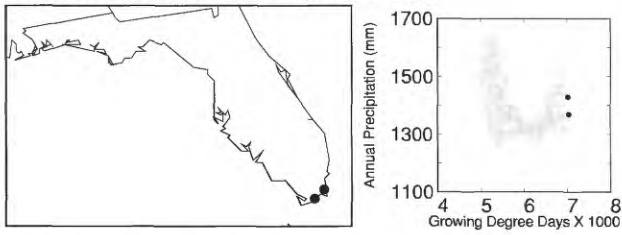
Dipholis salicifolia (minimal data)



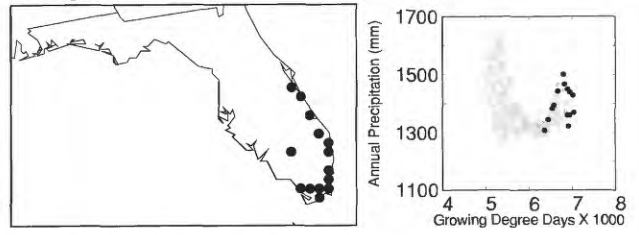
Eugenia rhombea (minimal data)



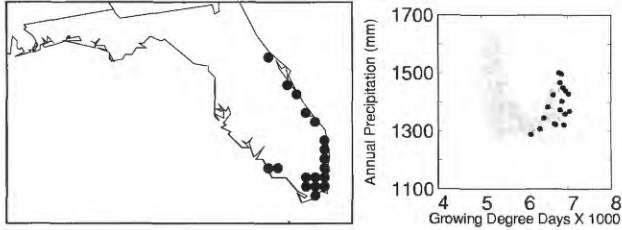
Exostema caribaeum (minimal data)



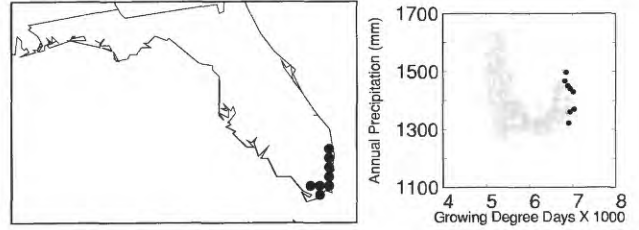
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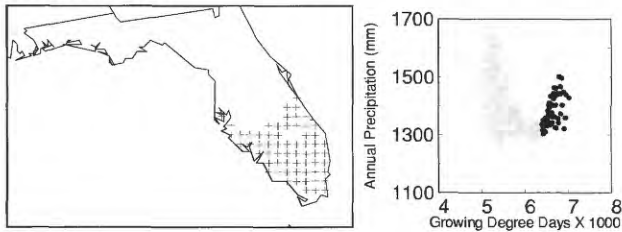
Exothea paniculata (minimal data)



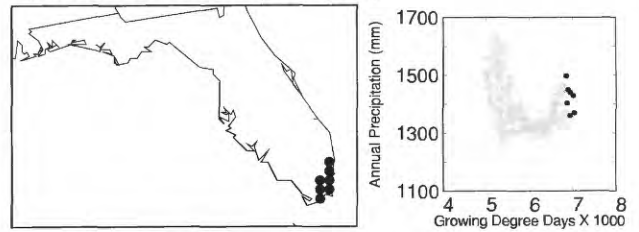
Guettarda elliptica (minimal data)



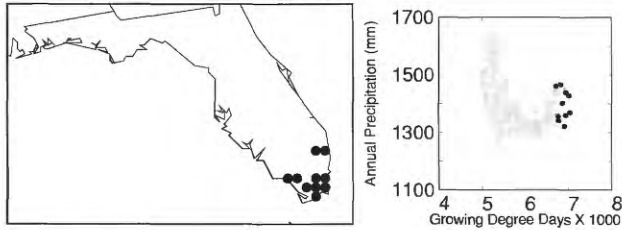
Ficus aurea



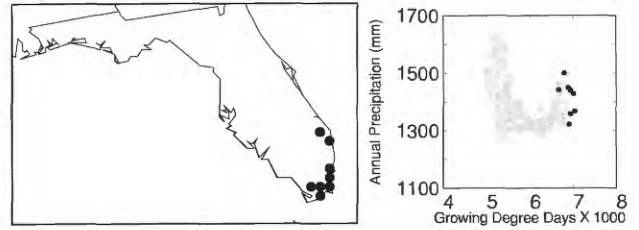
Guettarda scabra (minimal data)



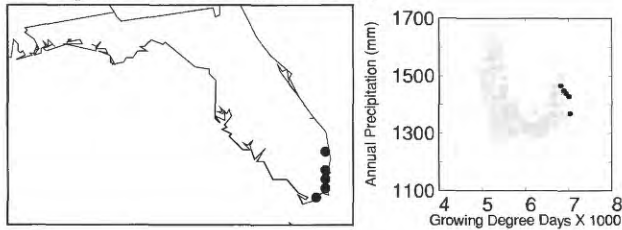
Ficus citrifolia (minimal data)



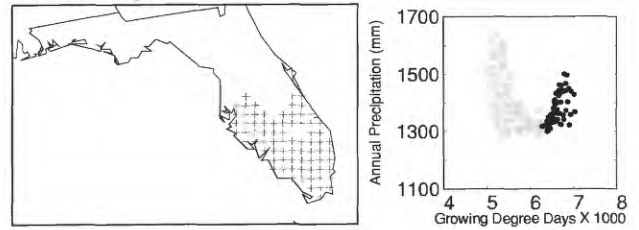
Gymnanthes lucida (minimal data)



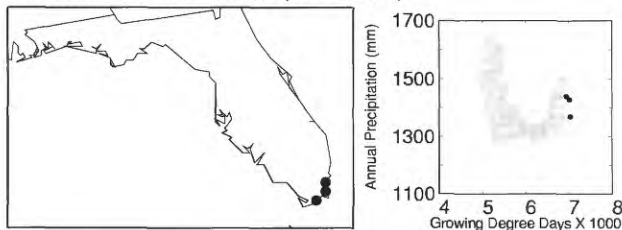
Genipa clusiifolia (minimal data)



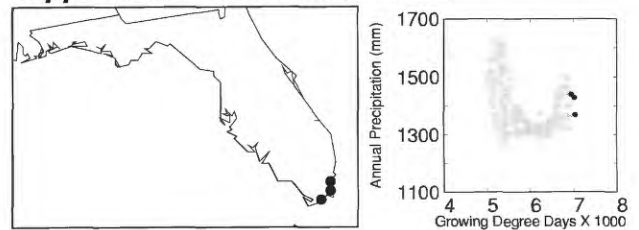
Hamelia patens



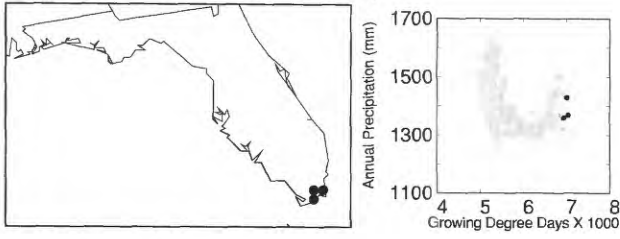
Guaiacum sanctum (minimal data)



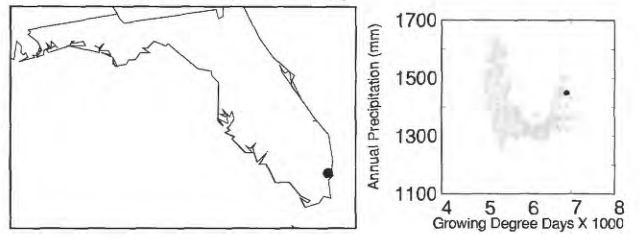
Hippomane mancinella (minimal data)



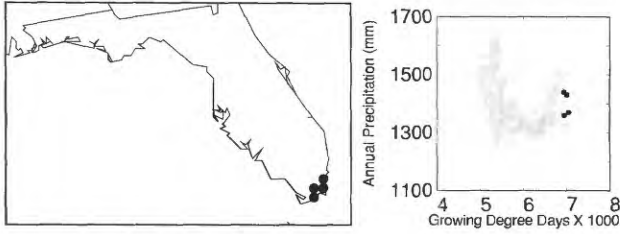
Hypelate trifoliata (minimal data)



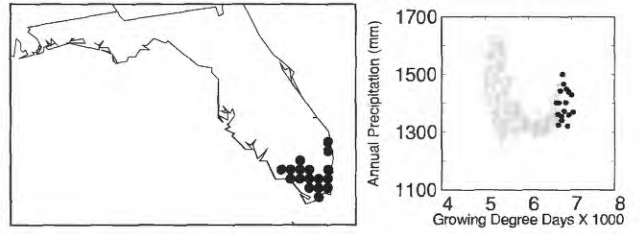
Licaria triandra (minimal data)



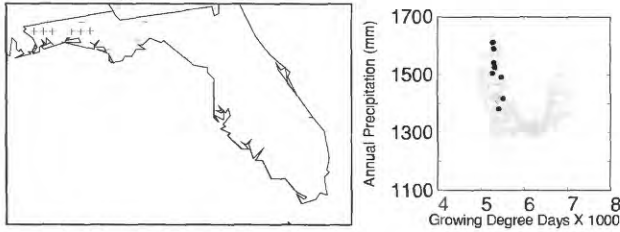
Ilex krugiana (minimal data)



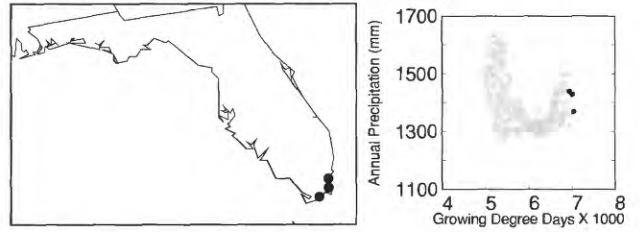
Lysiloma latisiliquum (minimal data)



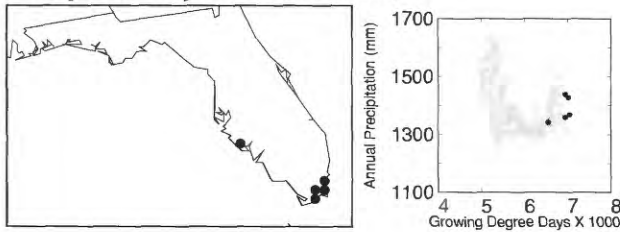
Ilex longipes



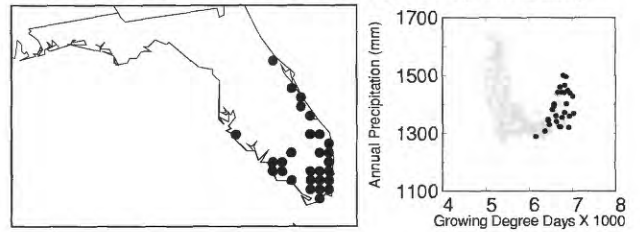
Manilkara bahamensis (minimal data)



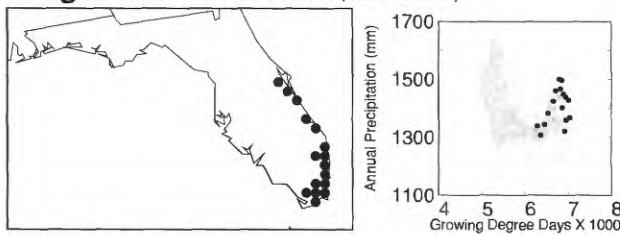
Jacquinia keyensis (minimal data)



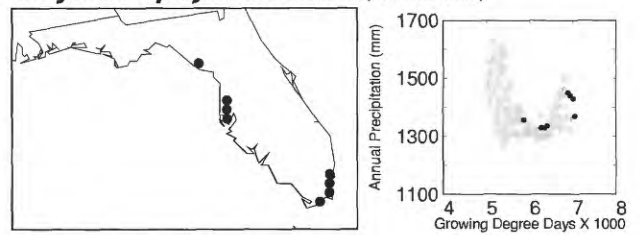
Mastichodendron foetidissimum (minimal data)



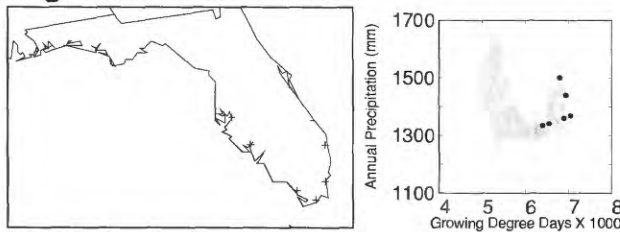
Krugiodendron ferreum (minimal data)



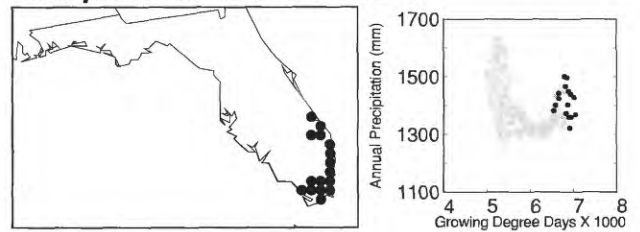
Maytenus phyllanthoides (minimal data)



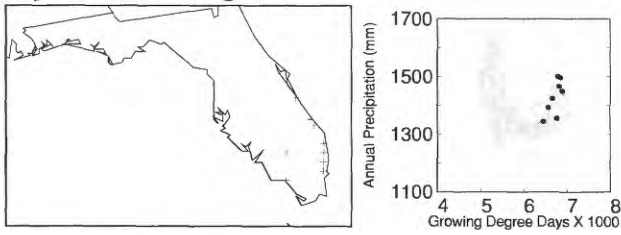
Laguncularia racemosa



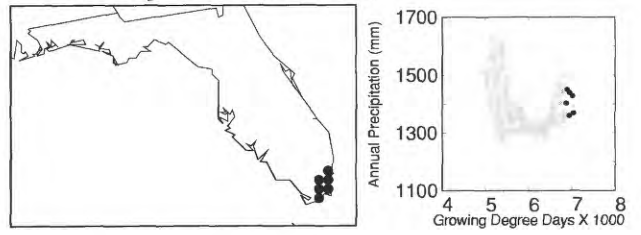
Metopium toxiferum (minimal data)



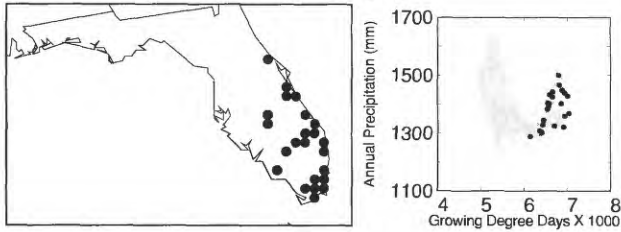
Myrcianthes fragrans



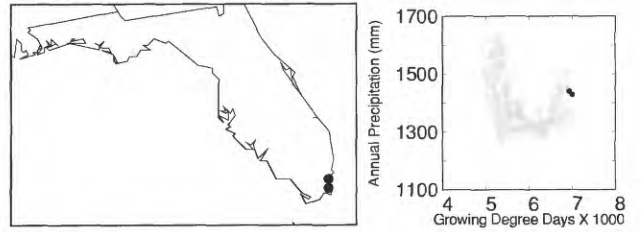
Prunus myrtifolia (minimal data)



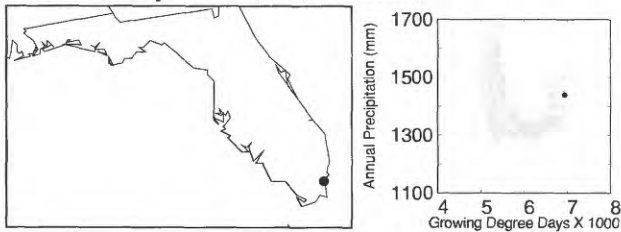
Nectandra coriacea (minimal data)



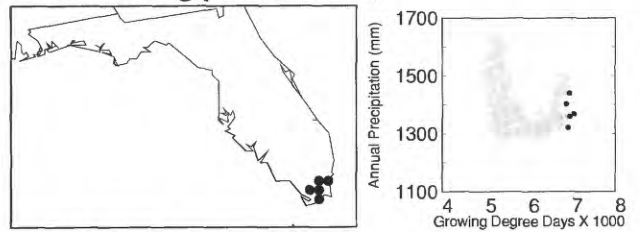
Pseudophoenix sargentii (minimal data)



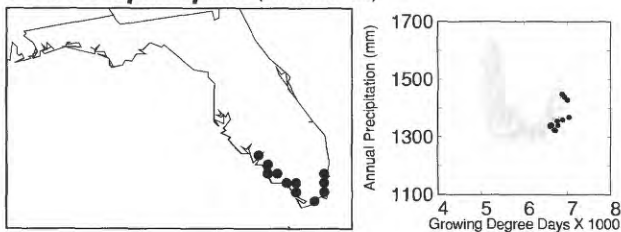
Picramnia pentandra (minimal data)



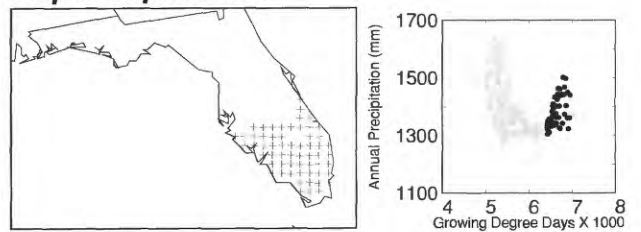
Psidium longipes (minimal data)



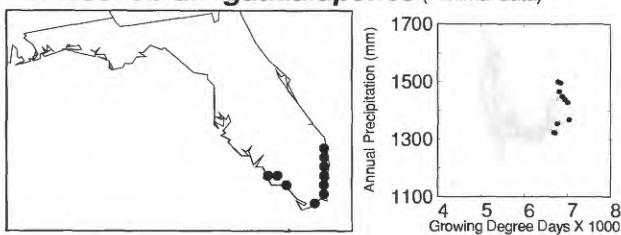
Piscidia piscipula (minimal data)



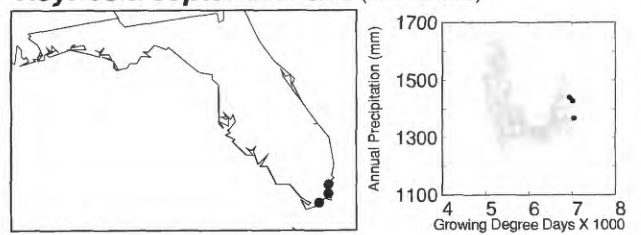
Rapanea punctata



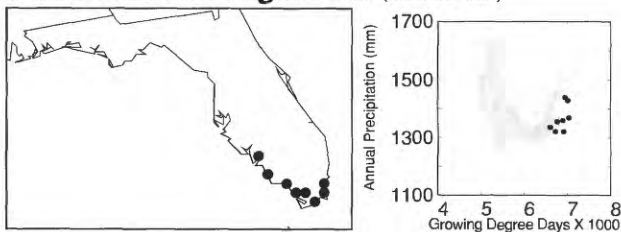
Pithecellobium guadalupense (minimal data)



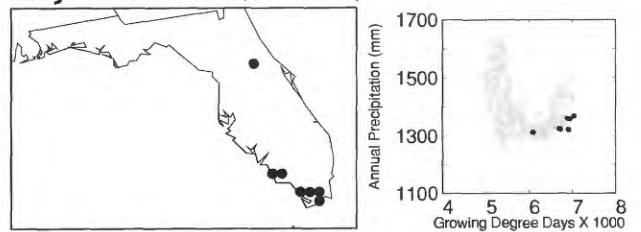
Reynosa septentrionalis (minimal data)



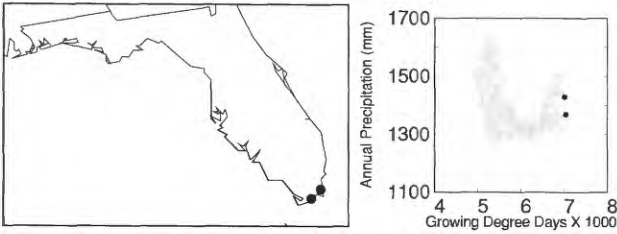
Pithecellobium unguis-cati (minimal data)



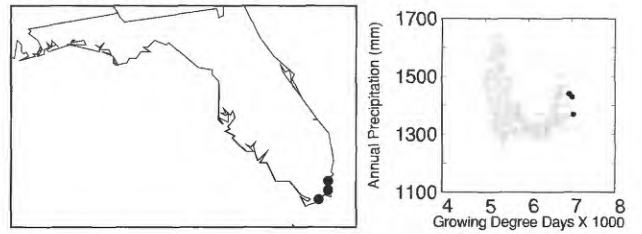
Roystonea elata (minimal data)



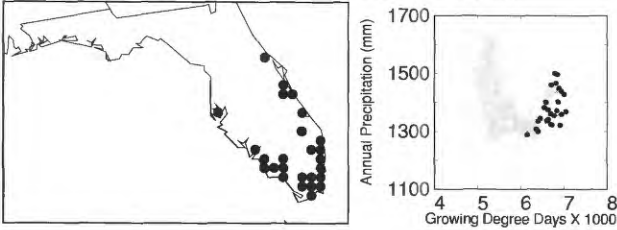
Schaefferia frutescens (minimal data)



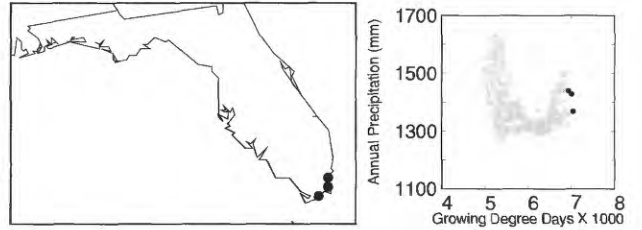
Thrinax morrisii (minimal data)



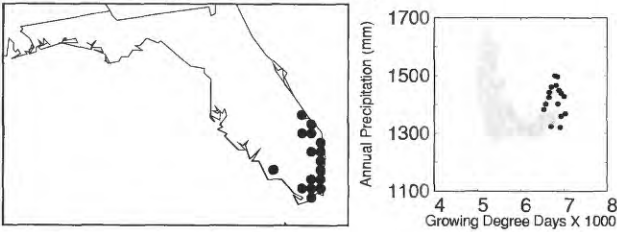
Schoepfia chrysophylloides (minimal data)



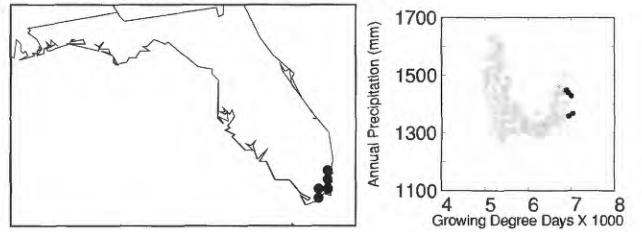
Thrinax radiata (minimal data)



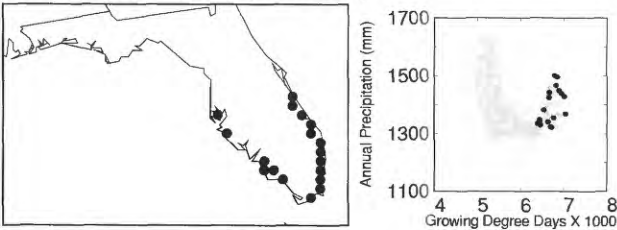
Simarouba glauca (minimal data)



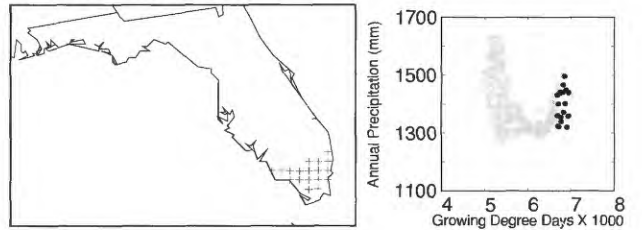
Trema lamarckiana (minimal data)



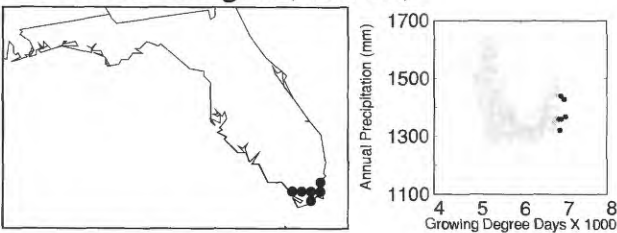
Suriana maritima (minimal data)



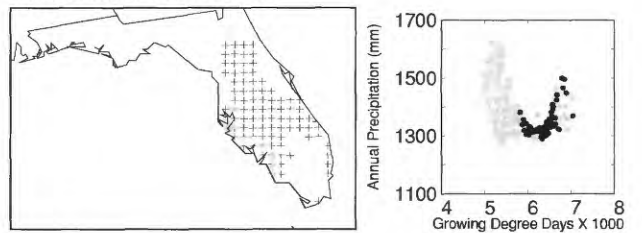
Trema micrantha



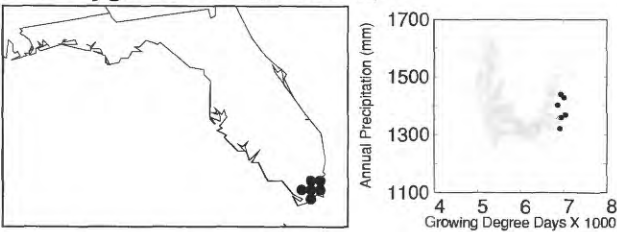
Swietenia mahagoni (minimal data)



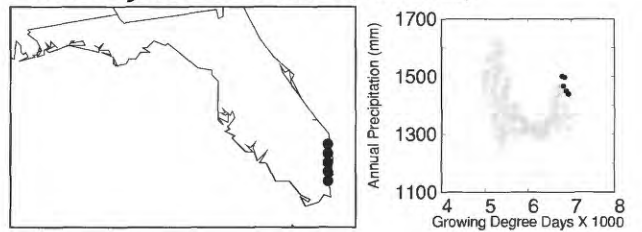
Ximenia americana



Tetrazygia bicolor (minimal data)



Zanthoxylum coriaceum (minimal data)



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