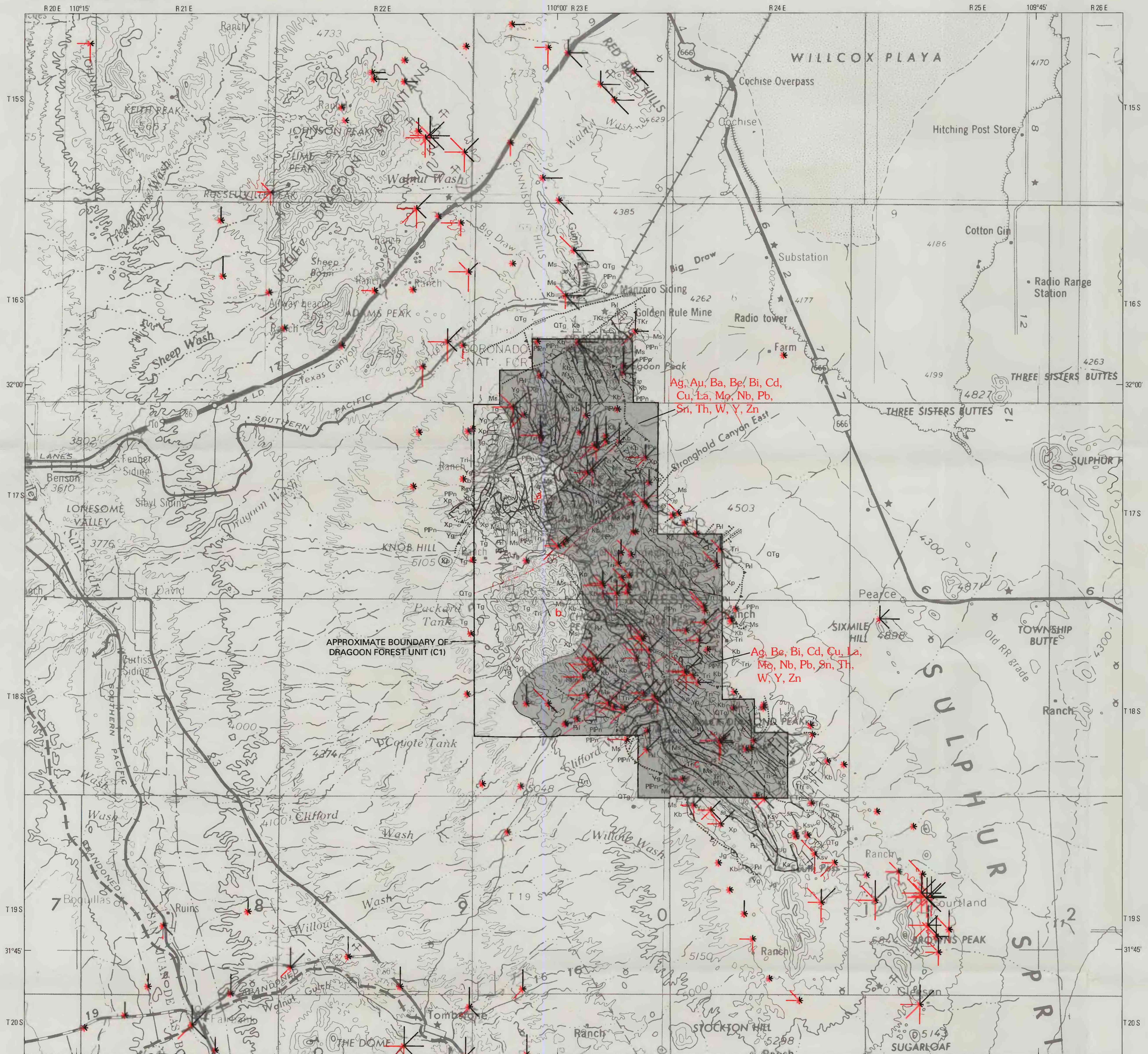
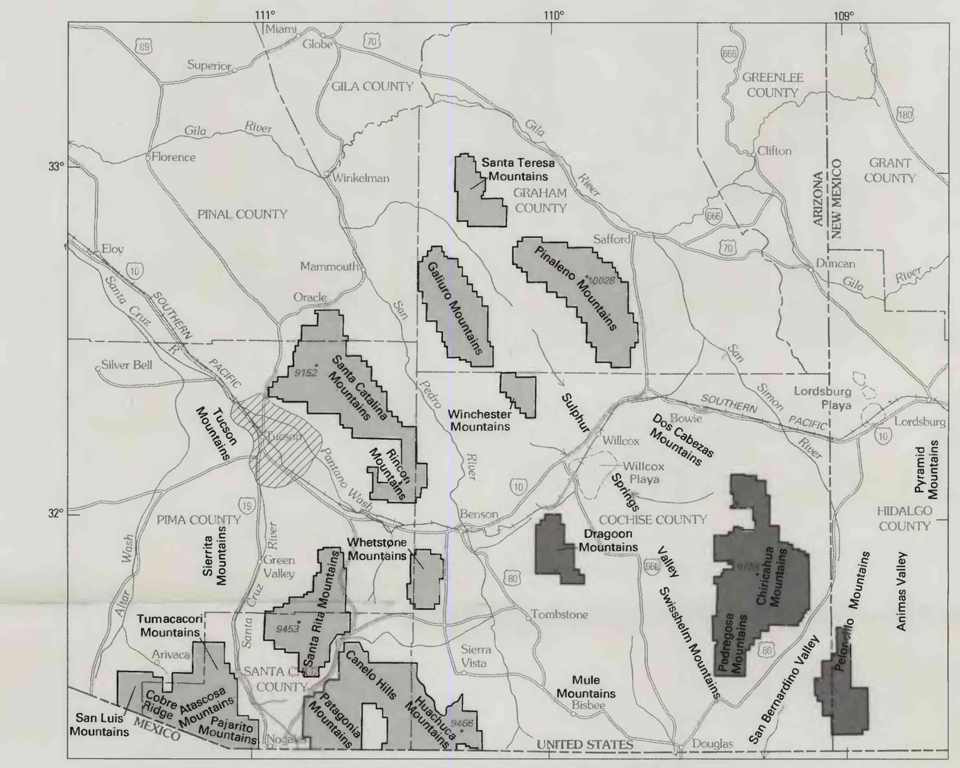


Base from U.S. Geological Survey 1:250,000
Douglas, 1959 (revised 1970); Nogales, 1956 (revised 1969);
Silver City, 1954 (revised 1970); Tucson, 1956 (revised 1969)
Transverse Mercator projection

Geology compiled by Harald Drewes 1991

12°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1996

Dragoon Forest unit



INDEX MAP SHOWING LOCATION OF CORONADO NATIONAL FOREST (GRAY AREAS). Forest units shown on this plate are dark gray.

SCALE 1:126 720
0 1 2 3 4 5 6 7 8 9 10 MILES
0 1 2 3 4 5 6 7 8 9 10 11 12 KILOMETERS
CONTOUR INTERVAL 200 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAPS SHOWING GEOCHEMICAL ANOMALIES AND DISTRIBUTION OF STREAM-SEDIMENT AND SOIL SAMPLES CONTAINING HIGH AND ANOMALOUS ABUNDANCES OF Au, Ag, As, Sb, Cu, Pb, Zn, AND Mo IN THE SOUTHEASTERN PART OF CORONADO NATIONAL FOREST AND ADJACENT AREAS, SOUTHEASTERN ARIZONA AND SOUTHWESTERN NEW MEXICO

Compiled by
Gary A. Nowlan
1996

EXPLANATION OF GEOCHEMICAL DATA

Mo Au Ag Zn As Pb Sb Cu — **Vector diagram showing range of abundances for eight elements**—Shortest vector indicates an abundance equivalent to background; medium vector indicates an abundance at or near threshold; longest vector indicates an anomalous abundance. Ranges given in table below; see chapter C, table 2, this volume, for threshold values. N, not detected at abundance shown; L, detected below abundance shown; G, greater than abundance shown

Ba — b/a — **Geochemically anomalous area discussed in text**—Areas labeled a-e (boundaries in red) are subareas of Forest unit discussed in text as C1, D2e, and so on

(C1) **Forest unit discussed in text**

CONCENTRATION (PARTS PER MILLION)

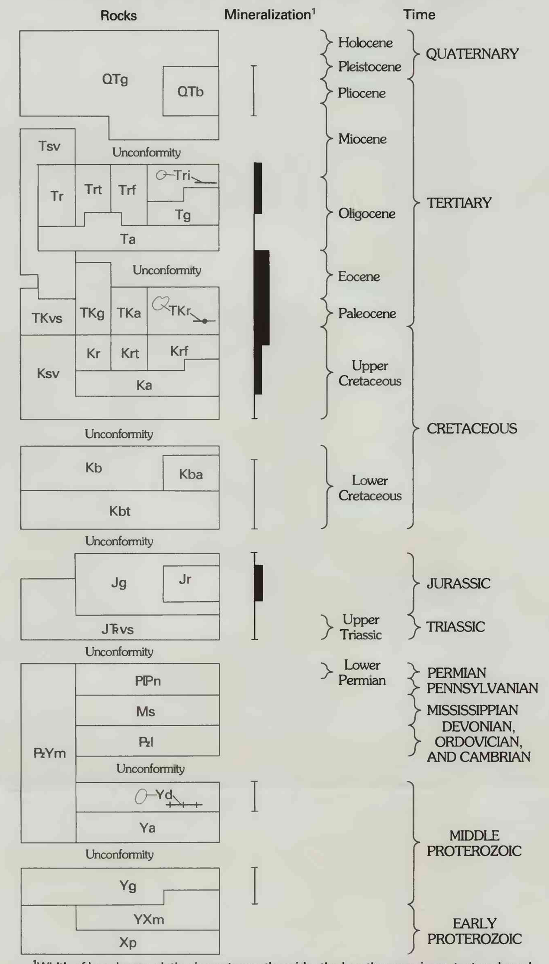
	Background values	High background values at or near threshold	Anomalous value
Au	N(0.002)–L(0.002)	0.002	0.003–4.6
Ag	N(0.045)–0.11	0.12–0.16	0.17–24
As	N(0.6)–5.9	6.0–7.9	8.0–400
Sb	N(0.6)–1.1	1.2–1.6	1.7–250
Cu	1.7–39	40–59	60–G(1,000)
Pb	4.3–59	60–79	80–10,000
Zn	4.3–59	60–79	80–G(1,100)
Mo	N(0.09)–1.6	1.7–2.6	2.7–130

INTRODUCTION

These maps show the distribution of sample localities for abundances (determined by inductively coupled plasma spectroscopy, except Au, determined by flameless atomic-absorption spectrophotometry) of Au, Ag, As, Cu, Mo, Pb, Sb, and Zn in RASS and NURE stream-sediment and soil samples from the Dragoon Forest unit (area C) and the Peloncillo and Chiricahua-Pedregosa Forest units (area B) of Coronado National Forest and adjacent areas, southeastern Arizona and southwestern New Mexico.

Areas outlined (along drainage divides, in most cases) on the map indicate regions in which elements having anomalous (or, in some cases, high) abundances form patterns (geochemical signatures). Anomalous regions outlined on the map are based largely on data for the elements and sample media described above but may have been modified in light of emission-spectrographic data for stream-sediment and panned-concentrate samples (see plate 5); the elements that characterize the geochemical signature in each region are indicated. Some elements, such as chromium, nickel, and yttrium, whose abundances are lithologically controlled, are not included with the data shown on the map unless they appear to be part of a signature related to mineralized rock.

CORRELATION OF MAP UNITS AND MINERALIZATION



[1]Width of bar shows relative importance; the wider the bar, the more important, as based on a balance between total production and frequency of occurrence

DESCRIPTION OF MAP UNITS

[All units may not appear on all maps]

QTg **Gravel, sand and conglomerate (Holocene to Miocene)**—Alluvium filling intermontane basins, on pediments, in alluvial aprons and stream terraces, and along watercourses

QTb **Basalt (Pleistocene to Miocene)**—Lava flows and cinder deposits

Tsv **Sedimentary and volcanic rocks, undivided (Miocene to Eocene)**—Rhyolitic to andesitic lava and tuff, and some interbedded conglomerate, sandstone, and shale

Tr **Rhyolitic rocks (Miocene and Oligocene)**—Includes lava flows, tuffs, and tuffaceous sandstone

Trt **Rhyolitic tuffs (Miocene and Oligocene)**—Airfall tuff, ash-flow tuff, tuff breccia, welded tuff, and some sedimentary rocks

Trf **Rhyolitic lava flows (Miocene and Oligocene)**—May include some intrusive bodies

Intrusive rocks (Miocene and Oligocene)

Tri **Rhyolite (Miocene and Oligocene)**—Dikes and plugs

Tg **Granite (Oligocene)**—Stocks

Ta **Andesitic rocks (Oligocene)**—Lava flows, breccia deposits, and interbedded sedimentary rocks

TKg **Intrusive rocks (Eocene to Late Cretaceous)**—Mainly Eocene to Late Cretaceous granite, monzonite, granodiorite, and diorite; some Oligocene to Late Cretaceous peraluminous (two-mica and garnet-bearing) granite. Includes Copper Creek Granodiorite

TKvs **Volcanic and sedimentary rocks (Eocene to Upper Cretaceous)**—Andesitic lava flows and breccia sheets, rhyolitic tuff and welded tuff, and volcaniclastic sedimentary rocks

TKa **Andesite (Eocene to Late Cretaceous)**—Plugs, dikes, and stocks

TKr **Rhyolite (Eocene to Late Cretaceous)**—Plugs and dikes

Ksv **Sedimentary and volcanic rocks, undivided (Upper Cretaceous)**—Volcaniclastic conglomerate, sandstone, lacustrine shale, and some andesitic and rhyolitic tuff

Kr **Rhyolite (Upper Cretaceous)**—Lava flows, tuffs, and interbedded conglomerate and sandstone

Krt **Rhyolite tuff (Upper Cretaceous)**—Includes airfall and ash-flow tuffs, tuff breccia, welded tuff, and sedimentary rocks

Krf **Rhyolite lava flows (Upper Cretaceous)**—Includes some tuff and sedimentary rocks

Ka **Andesite (Upper Cretaceous)**—Lava flows, breccia sheets, and interbedded conglomerate and sandstone

Kb **Bisbee Group (Lower Cretaceous)**—Mainly gray shale and siltstone, and some sandstone, conglomerate, and limestone

Kba **Basaltic andesite and andesite (Lower Cretaceous)**—Lava flows, cinder deposits, and some dikes, sills, and plugs

Kbt **Bathtub and Temporal Formations, undivided (Lower Cretaceous)**— Andesitic to rhyolitic rocks, conglomerate, and sandstone

Intrusive rocks (Jurassic)

Jg **Granite stocks**

Jr **Rhyolite plugs**

JTrvs **Volcanic and sedimentary rocks (Jurassic to Upper Triassic)**—Rhyolitic welded tuff and lava flows, andesitic lava flows, eolian sandstone, and redbeds. Includes Walnut Gap Formation, Canelo Hills Volcanics, and Gardner Canyon and Mount Wrightson Formations

PzYm **Metamorphic rocks (Paleozoic or Middle Proterozoic)**—Metaquartzite, hornfels, and calc-silicate carbonate rocks

PIPn **Naco Group (Lower Permian and Pennsylvanian)**—Mainly limestone and dolomite; some siltstone, sandstone, and marlstone

Ms **Sedimentary rocks (Mississippian)**—Generally only Escabrosa Limestone; to the east unit also includes Paradise Formation, mostly shale

Pzl **Lower Paleozoic formations, undivided (Upper Devonian to Middle Cambrian)**—Mainly limestone and dolomite; some sandstone, shale, and conglomerate. Includes Percha Shale, Portal, Swisshelm, Martin, El Paso, and Abrigo Formations, Coronado Sandstone, and Bolsa Quartzite

Yd **Diabase (Middle Proterozoic)**—Includes some metadiorite; in sills, dikes, and plugs; line shows more acidic rock

Ya **Apache Group (Middle Proterozoic)**—Sandstone, shale, argillite, some conglomerate, and possibly some limestone

Yg **Intrusive rocks (Middle Proterozoic)**—Granite, granodiorite, and some alaskite, aplite, and lamprophyre

YXm **Gneissic rocks (Middle and Early Proterozoic)**—Metamorphosed granite and older schist or gneiss

Xp **Pinal Schist (Early Proterozoic)**—Schist, phyllite, metaquartzite, metagraywacke, and meta-igneous rocks

Contact—Dotted where concealed, queried where uncertain

60 **Fault**—Showing dip; dotted where concealed or intruded, queried where uncertain. Where solid line becomes dotted line within a map unit, that unit is a composite of several formations, of which a younger one conceals faulting in an older one

Normal fault—Ball and bar on downthrown side; dotted where concealed, queried where uncertain

Thrust fault—Sawteeth on upper plate

Glide fault—Open sawteeth on glide plate

Complex fault—Earlier thrust fault on which later glide (gravity) faulting took place

Strike-slip fault—Arrow-couple shows relative movement; queried where uncertain

Oblique-slip fault—Composite of strike-slip and normal movement likely, but either type of movement may have occurred without the other

Fold axis—Dotted where concealed; arrow shows direction of plunge

Anticline

Anticline in foliation

Overturned anticline—Side of closure of arrow ends is side of fold crest relative to fold axis

Syncline

Syncline in foliation

Overturned syncline—Side of closure of arrow ends is side of fold trough relative to fold axis

Strike and dip of beds

Horizontal

45 **Inclined**

Vertical

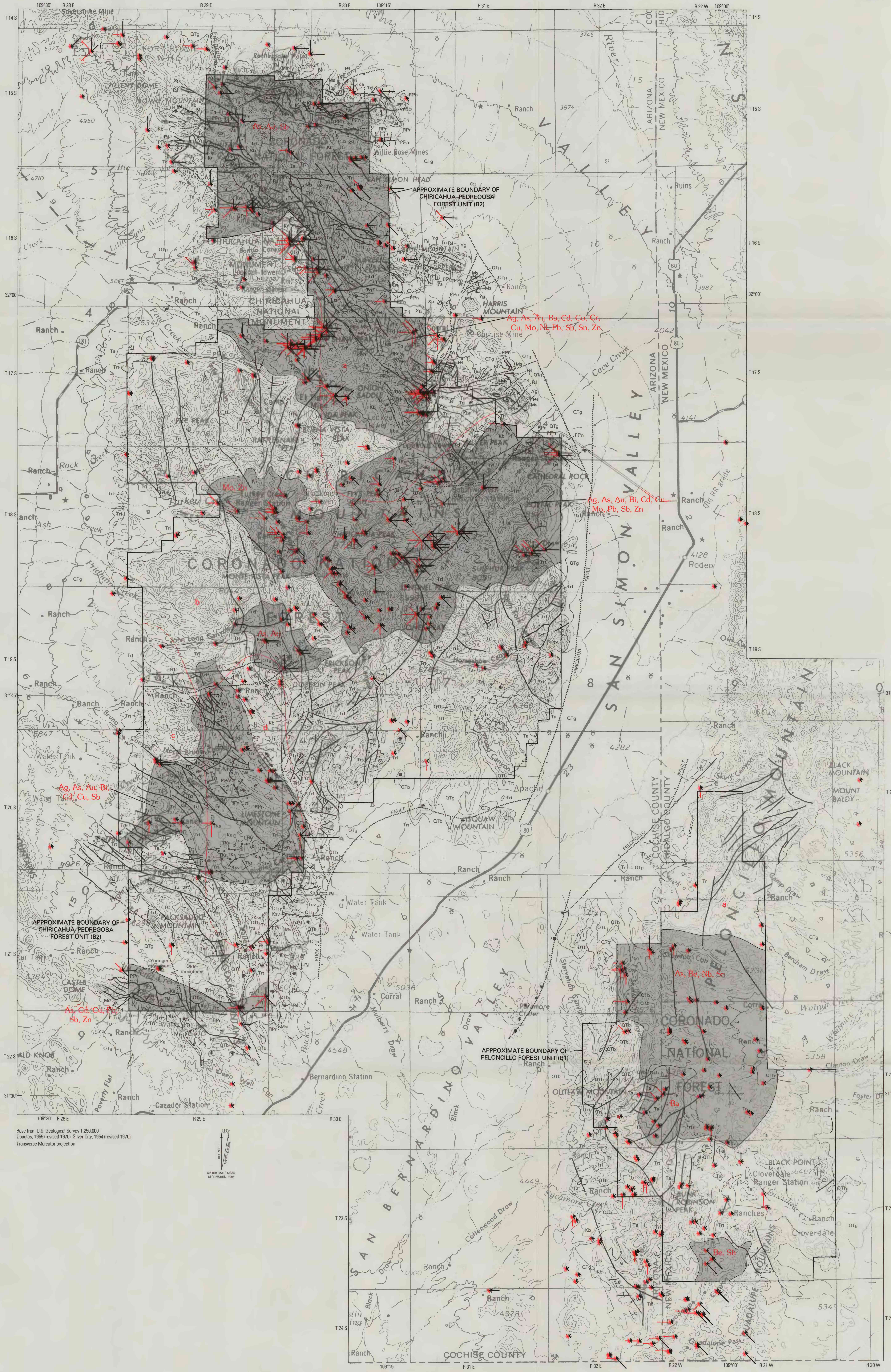
80 **Overturned**

Strike and dip of foliation

15 **Inclined**

Vertical

*? **Cinder cone**—Queried where uncertain



Base from U.S. Geological Survey 1:250,000
Douglas, 1959 (revised 1970); Silver City, 1954 (revised 1970);
Transverse Mercator projection

11½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1996

Geology compiled by Harald Drewes 1991

Peloncillo and Chiricahua-Pedregosa Forest units