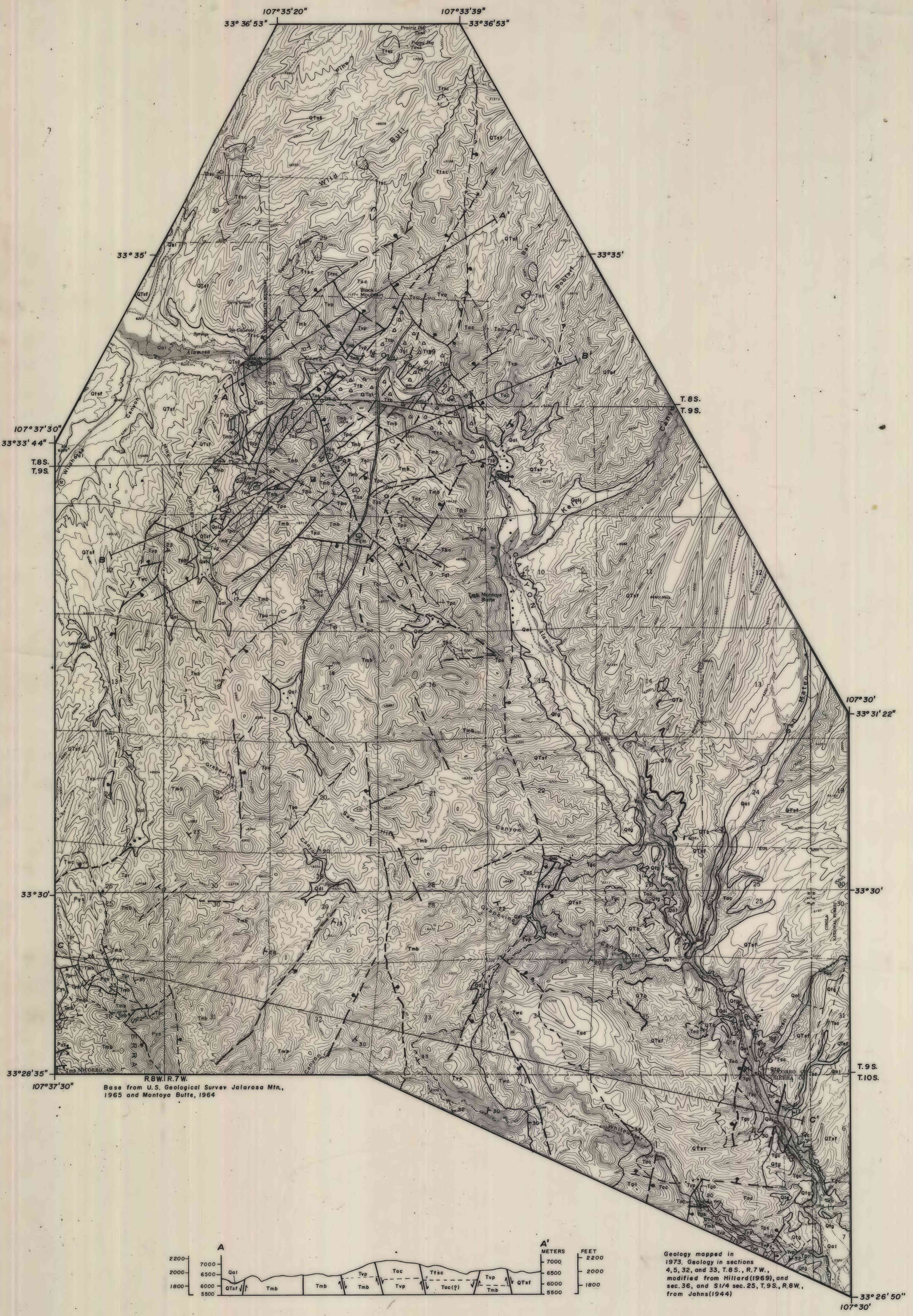
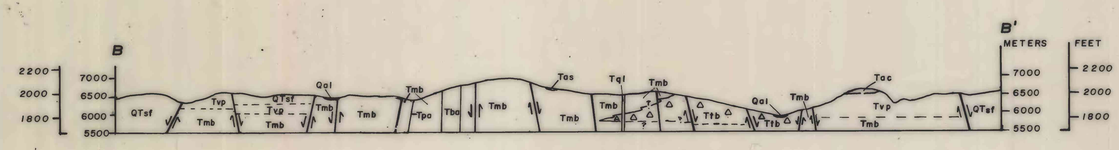
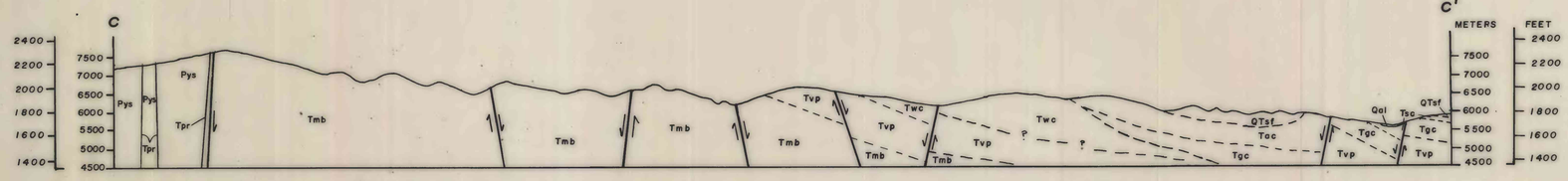


Base from U.S. Geological Survey Jalarosa Mtn., 1965 and Montoya Butte, 1964

Geology mapped in 1973. Geology in sections 4, 5, 32, and 33, T.8S., R.7W., modified from Hillard(1969), and sec. 36, and S1/4 sec. 25, T.9S., R.8W., from Jahns(1944)





Geologic map of the northern part of Sierra Cuchillo, Socorro and Sierra Counties, New Mexico

by

Florian Maldonado

1980

CORRELATIONS OF MAP UNITS

Qal	HOLOCENE	QUATERNARY
Qfg	PLEISTOCENE	
UNCONFORMITY		
QTsf ← QTb	PLEISTOCENE(?) PLIOCENE AND MIOCENE	QUATERNARY TERTIARY
DISCONFORMITY		
Ttsc, Tsc, Tac, Tgc, Twc, Tvp	OLIGOCENE	TERTIARY
AGE RELATIONSHIP UNKNOWN: Tql, Tpa, Tld, Tba, Tpr, Tqm, Tas; Tmb ← Ttb		
UNCONFORMITY		
K	UPPER CRETACEOUS	CRETACEOUS
Pys	PERMIAN	PERMIAN

DESCRIPTION OF MAP UNITS

Qal ALLUVIUM (HOLOCENE)--Unconsolidated clay, sand, and gravel found in the bottom of present-day canyons and arroyos in the area

Qtg TERRACE GRAVEL (PLEISTOCENE)--Unconsolidated terrace-gravel deposits consist of well-rounded and poorly sorted fragments ranging in size from sand to cobble

QTb OLIVINE BASALT (PLEISTOCENE, PLIOCENE, AND MIOCENE)--Basalt flow, dense, gray-black fine-grained, vesicular to massive, pillowlike structure; locally interbedded with the Santa Fe Group. Thickness 0-3± m

QTsf SANTA FE GROUP (PLEISTOCENE, PLIOCENE, AND MIOCENE)--Poorly sorted siltstone, sandstone, and conglomerate derived from local rocks. Thickness 0-300± m

Ttsc TUFF OF SPRING CANYON (OLIGOCENE)--Rhyolite, ash-flow tuff, welded, pink, white, red-brown crystal-rich, consisting of sanidine, plagioclase, and biotite; thin andesite lava flows, breccias, and thin siltstone beds locally interbedded with tuff. Thickness 0-75± m

Tsc TUFF OF SHIPMAN CANYON (OLIGOCENE)--Rhyolite ash-flow tuff, simple multiple-flow cooling unit, welded, locally densely welded lenses, brown to gray-blue; euhedral microperthite and quartz phenocrysts common; greenish-black vitrophyre at base of unit. Thickness 0-180± m

Tac RHYOLITE OF ALAMOSA CREEK (OLIGOCENE)--Rhyolite lava flow and local dome, flow-banded, white (quartz and sanidine phenocrysts common); rhyolite varies from vesicular phase to nonvesicular phase; vesicles filled with amethyst, psuedo-brookite, and alkali feldspar (anorthoclase) crystals. Thickness 0-200± m

Tgc LATITE OF GRAPEVINE CANYON (OLIGOCENE)--Latite lava flow, reddish-brown, porphyritic; subhedral to euhedral sanidine phenocrysts; air-fall tuff or greenish-black vitrophyre found locally at base of unit. Thickness 0-200± m

Twc QUARTZ LATITE PORPHYRY OF WHITEWATER CANYON (OLIGOCENE)--Lava flow, flow-banded, gray, crystal-rich, coarsely porphyritic; contains abundant microperthite phenocrysts; chilled glass margin found along contacts. Thickness 0-470± m

Tvp VICKS PEAK RHYOLITE OF ELSTON AND OTHERS (1973)(OLIGOCENE)--Rhyolite ash-flow tuff, pink, brownish-red, gray-white, densely welded, crystal poor; contains sparse euhedral sanidine; walnut-sized spherulites found locally; pyroclastic texture found at the base, but has been obliterated through devitrification higher in the unit; thin air-fall tuff found locally. First described by Farkas (1969) in an unpublished Ph.D. dissertation. Thickness 0-370± m

Tas RHYOLITE OF ALUM SPRING (OLIGOCENE)--Rhyolite lava flow, white with strong iron staining; sanidine and quartz phenocrysts set in a fine-grained matrix; a sedimentary unit composed of siltstone and sandstone beds as much as 14 m thick underlies the lava flow. Thickness 0-12± m

Tqm QUARTZ MONZONITE PLUG (OLIGOCENE)--Fine-grained quartz monzonite, light-brown to gray, composed of fine-grained granular potassium feldspar, plagioclase, quartz, and lesser amounts of biotite. Intrudes andesite-latite of Montoya Butte in northern half of sec. 8, T. 9 S., R. 7 W.

Tql QUARTZ LATITE DIKES (OLIGOCENE)--As much as 20 m wide; plagioclase phenocrysts as much as 20 mm long set in a fine-grained green groundmass

Tpa PORPHYRITIC ANDESITE DIKES (OLIGOCENE)--As much as 6 m wide, dark-gray to dark-green; contains plagioclase phenocrysts as much as 8 mm long in a fine-grained groundmass

Tld LATITE DIKES (OLIGOCENE)--As much as 130 m wide, light-brown; contains plagioclase phenocrysts as much as 6 mm long in a fine-grained groundmass; latite dike intruded by a porphyritic andesite dike

Tba BASALTIC ANDESITE DIKES (OLIGOCENE)--As much as 60 m wide, dark-gray to black, locally altered to greenish-gray, fine-grained groundmass

Tpr PORPHYRITIC RHYOLITE DIKES (OLIGOCENE)--Reddish-brown plagioclase, sanidine, and quartz phenocrysts set in a fine-grained groundmass; intrude andesite lava flows and Paleozoic sediments

Tmb/Ttb ANDESITE LATITE OF MONTOYA BUTTE (OLIGOCENE)--Basal tuff-breccia, andesite and latite lava flows interbedded with tuff breccia. The tuff breccias are poorly sorted, greenish- to purplish-gray; clasts of andesite and latite as much as 2 m long in a latitic matrix; the latite lava flows are coarse grained, light gray, and porphyritic, with an aphanitic matrix, and contain plagioclase, sanidine, and pyroxene phenocrysts; the andesite lava flows are purple, gray, greenish-brown to light or dark brown, and white when highly altered. Textures in the andesites range from aphanitic to coarsely porphyritic with an aphanitic matrix containing plagioclase, pyroxene, and minor hornblende phenocrysts. Ttb, basal tuff breccia is differentiated from the lava flows in Monticello Canyon

K UPPER CRETACEOUS ROCKS--Sandstone, interbedded shale and conglomerate. Thickness 0-10± m

Pys YESO FORMATION AND SAN ANDRES LIMESTONE, UNDIVIDED (PERMIAN)--Yeso Formation is a reddish-brown, thin- to medium-bedded sandstone and siltstone and medium- to dark-gray limestone; San Andres Limestone is a fine-grained, medium- to dark-gray limestone with interbedded silty limestone and reddish siltstone and sandstone. Thickness 0-640± m

CONTACT--Dashed where approximately located; dotted where concealed

FAULT--Bar and ball on downthrown side. Dashed where approximately located; dotted where concealed; queried where doubtful

25 STRIKE AND DIP OF BEDS

SHAFT

X PROSPECT PIT

DRILL HOLE

REFERENCES CITED

Elston, W. E., Damon, P. E., Coney, P. J., Rhodes, R. C., Smith, E. I., and Bikerman, M., 1973, Tertiary volcanic rocks, Mogollon-Datil Province, New Mexico, and surrounding region: K-Ar dates, patterns of eruption and periods of mineralization: Geological Society of America Bulletin, v. 84, no. 7, p. 2259-2274.

Farkas, S. E., 1969, Geology of the southern San Mateo Mountains, Socorro and Sierra Counties, New Mexico: Albuquerque, University of New Mexico, unpublished Ph.D. thesis, 137 p.

Hillard, P. D., 1969, Geology of beryllium mineralization near Apache Warm Springs, Socorro County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Circular 103, 16 p.

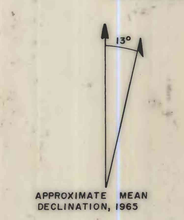
Jahns, R. H., 1944, Beryllium and tungsten deposit of the Iron Mountain district, Sierra and Socorro Counties, New Mexico, with a section on the beryllium minerals by Jewell J. Glass: U.S. Geological Survey Bulletin 945-C, p. 45-79.

SCALE 1:24 000

1 ½ 0 1 MILES

1 .5 0 1 2 3 KILOMETERS

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL



APPROXIMATE MEAN DECLINATION, 1965

Index showing location of area mapped