

Geologic Map of the Luera Mountains East Quadrangle, Catron County, New Mexico

By

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*Open-file Digital Geologic Map OF-GM 222***

Scale 1:24,000

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Geologic mapping by C. A. Ferguson and G. R. Osburn, 2010-2011
C-N Lake beach ridges from unpublished mapping of R. Weber, 1978
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H Man-made deposits (Holocene) – Earthen dams for tanks along active gulleys or valleys.

Qy Active alluvium (Holocene) - Active and recently active alluvium, typically incised <1m.

Qc Colluvium and other slope deposits (Quaternary)

Qf1 Alluvial fan and piedmont deposits (Quaternary) - Deposits are typically incised <5m. Clasts are derived from a local source.

Qfo Older alluvial fan and piedmont deposits (Quaternary) – Deposits typically incised >5m. Clasts are derived from a local source.

Older alluvium and piedmont deposits (Miocene – Quaternary) – Gravel and conglomerate containing clasts of rhyolitic ignimbrite, felsic, intermediate, and mafic lava derived from the Luera Mts. Thickness: 0-100m.

Tvs Volcaniclastic sandstone and conglomerate (Oligocene – Miocene) – Sandstone and conglomerate containing clasts mostly of felsic to intermediate lava, but also variable amounts of rhyolitic ignimbrite. The unit occurs at many stratigraphic intervals throughout the map area. Thickness: 0-50m.

Txa Porphyritic andesite (Oligocene) – Mafic lava containing 2-15%, 2-20mm plagioclase phenocrysts and lesser <2.5mm pyroxene, and sparse olivine <1mm. Thickness: 0-150m.

Txas Porphyritic andesite scoria (Oligocene) – Porphyritic andesite scoria, deposited adjacent to intrusive complex of the lava unit Txa. Thickness: 0-30m.

Ttu Rhyolite ignimbrite, undifferentiated (Oligocene) – Isolated exposures of nonwelded rhyolite ignimbrite that are probably South Canyon or Turkey Springs Tuff, but whose correlation with either unit is poorly constrained due to limited or poor exposure in areas where stratigraphic relationships with other ignimbrites is poorly known. The rhyolitic ignimbrite(s) contain 2-10%, <2.5mm phenocrysts of plagioclase, sanidine, quartz, and sparse bitotite. Thickness: 0-20m.

Tb Basalt (Oligocene) – Phenocryst-poor basaltic lava containing <5%, <2.5mm phenocrysts of olivine (typically altered to iddingsite), pyroxene, and sparse plagioclase. Matrix ranges from vitric to strongly crystalline with abundant plagioclase microlites <0.2mm. Thickness: up to 350m.

Tab Aphyric basalt (Oligocene) – Aphyric mafic lava. The flow(s) occur at the base of a thick pile of basaltic lava (Tb), and may represent an initial eruptive phase of that sequence in the southwestern part of the map area. Thickness: 0-30m.

Tts Turkey Springs Tuff (Oligocene) – Rhyolite ignimbrite containing 2-15%, <2.5mm phenocrysts of sanidine, plagioclase, quartz, and biotite. Typically nonwelded, and light-colored, the ignimbrite locally grades upward into a pinkish gray welded zone. Phenocryst content increases gradually up-section. Thickness: 0-100m

Tsc South Canyon Tuff (Oligocene) – Rhyolite ignimbrite containing 4-15%, 1-2mm phenocrysts of plagioclase, sanidine, quartz, and biotite. The unit is typically nonwelded, and the phenocryst content increases up-section gradually. Lithic-lapilli are generally <5%, and pumice lapilli 5-25%. Thickness: 0 - 50m.

Tr Rhyolite lava (Oligocene) – Rhyolite lava containing ~5-7%, 1-3mm phenocrysts of plagioclase, possibly sanidine, and sparse biotite. Thickness: 0-100m.

Tbg Bloodgood Canyon Tuff (Oligocene) – Poorly to nonwelded rhyolite ignimbrite containing 2-10% phenocrysts of sanidine, plagioclase, quartz, and biotite. Quartz phenocrysts are conspicuously large (up to 3mm) and commonly strongly embayed. Biotite is characteristically more abundant (1-2%) than in any of the other quartz-phyric ignimbrites in the area, and the rock has a slight pinkish color. Identification of this unit as Bloodgood Canyon is tentative. Thickness: 0-15m.

Tvpu Vicks Peak Tuff (Oligocene) – Pumice-rich upper zonation of Vicks Peak Tuff. Thickness: 0-10m.

Tvp Vicks Peak Tuff (Oligocene) – Densely welded rhyolite ignimbrite containing 1-15% phenocrysts, chiefly sanidine up to 4mm, lesser plagioclase up to 2mm, and sparse pyroxene, hornblende, and biotite <2mm. The ignimbrite contains 2-25% strongly flattened pumice lapilli up to 1m long, and sparse <10cm lithic lapilli. The ignimbrite is typically light gray and the pumice lapilli are commonly recessive on weathered surfaces. Thickness: up to 90m.

Tj La Jencia Tuff (Oligocene) – Densely welded rhyolitic ignimbrite containing 2-10% phenocrysts of sanidine (1-4mm) and plagioclase (1-2mm), and minor biotite, pyroxene, hornblende, and quartz. Quartz is most abundant in the lower part, and essentially absent higher in the section. The ignimbrite is generally light to dark gray and contains 5-15% strongly flattened pumice lapilli up to 1m long, and up to 5% lithic lapilli. Thickness: up to 120m.

Td Dacitic lava (Oligocene) – Dacitic lava containing 15-30% 1-10mm plagioclase, and <5% <3mm biotite and hornblende phenocrysts. The unit occurs as lava flows and intrusive masses mostly intruding the basaltic andesite map unit (Tba). Thickness: 0-200m.

Tdi Dacite porphyry (Oligocene) – Phenocryst-rich dacite porphyry containing 15-35% phenocrysts of plagioclase, 1-5% <3mm biotite, hornblende +/- pyroxene.

Tmz Monzodiorite (Oligocene) – Fine-grained equigranular monzodiorite to diorite containing up to 35% biotite. The unit occurs as a small pluton intruding the basaltic andesite (Tba) north of Luera Spring in the northwest part of the map area.

Tdh Hornblende dacite (Oligocene) – Dacitic lava containing 20-30% <2mm plagioclase, and 5% <3mm hornblende. Thickness: 0-150m.

Tai Andesite porphyry (Oligocene) – Fine-grained matrix, plagioclase phenocryst-poor andesitic porphyry dikes.

Tba Basaltic andesite lava (Oligocene) – A variety of mafic lavas containing less than 5% <3mm plagioclase with pyroxene and/or hornblende phenocrysts. Unit is interbedded with the Hells Mesa, Blue Canyon, and Rock House Canyon tuffs, and underlies dacitic lavas (Td, Tdh), and La Jencia Tuff (Tj). Several different flow units are recognized whose petrographic differences are too slight and subtle to consistently differentiate. Thickness: 0->200m.

Thm Hells Mesa Tuff (Oligocene) – Densely welded phenocryst-rich rhyolitic to trachytic ignimbrite containing 20-35% phenocrysts of plagioclase (<3mm), sanidine (<3mm), quartz (<4mm), hornblende (<2mm), and biotite (<2mm). The ignimbrite is reddish brown to orange in color and contains sparse lithic lapilli and generally <10% pumice lapilli <10cm long. Thickness: 0-100m.

Tbc Blue Canyon Tuff (Oligocene) – Moderately phenocryst-rich ignimbrite containing 10-20% 1-4mm plagioclase, and abundant 1-3mm biotite. The ignimbrite is typically strongly altered, commonly weathering to light orange, and forming slabby, crumbly outcrops. Thickness: 0-50m.

Trh Rock House Canyon Tuff (Oligocene) – Phenocryst-poor densely welded, light gray ignimbrite containing less than 5% < 3mm feldspar phenocrysts, and a trace of mafics. Thickness: 0-50m.