

Geologic Map of the Dusty Quadrangle, Catron and Socorro Counties, New Mexico

By

Charles A. Ferguson and G. Robert Osburn

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Open-file Digital Geologic Map OF-GM 066

Scale 1:24,000

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New Mexico Bureau of Geology and Mineral Resources
801 Leroy Place, Socorro, New Mexico, 87801-4796

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Unit Descriptions, Dusty 7.5' quadrangle, Catron and Socorro Counties, New Mexico

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af Man-made deposits (Holocene) – Earthen dams for man-made tanks.

Qv Valley alluvium (Holocene) – Active alluvium in valleys, gulleys, and along active stream beds, generally incised <3m.

Qc Talus and colluvium (Holocene - Quaternary) – Talus and colluvium. Thickness: 0-10 meters.

Qta Aggradational terrace deposits (Holocene - Quaternary) – Low terraces composed of relatively young sand and gravel deposited near the bottom of major canyons and recently incised by active streams along the bottoms of the same canyons. The deposits are rarely incised more than 5 meters above the active streams and commonly merge with active fans emanating from the mouth of tributary gullies and side canyons.

Qls Landslide (Quaternary) – Landslides along Wahoo Canyon consist almost entirely of blocks of Vicks Peak Tuff ranging in size up to several 10s of meters. Some intact blocks over 100 meters are present in the largest landslide in the northwest ¼ of section 12, R. 9W, T. 8S. The blocks in this landslide are gently to moderately tilted towards the landslide scarp. Smaller landslides are composed mostly of < 5 meter blocks.

Qt Inset terrace deposits (Quaternary) – Inset terrace deposits composed of thin (<3 m) deposits of soil-modified alluvium inset into deeply incised deposits of piedmont gravel (QTp).

Qpy Younger Piedmont surfaces (Quaternary) – Piedmont surfaces and terraces developed on poorly to partially consolidated sand and gravel deposits (QTp). The surfaces consist of thin soil modified deposits generally < 3 meters thick. The younger surfaces generally post-date the most recent faults in the map area.

Qpm Middle Piedmont surfaces (Quaternary) – Piedmont surfaces and terraces developed on poorly to partially consolidated sand and gravel deposits (QTp). Middle surfaces appear to slightly postdate the most recent motion on the major down-to-the east normal fault along the east flank of the Black Range (west of Alamosa Creek). The surfaces consist of thin soil modified deposits generally < 3 meters thick.

Qpo Older Piedmont surfaces (Quaternary) – Piedmont surfaces developed on poorly to partially consolidated sand and gravel deposits (QTp). The surfaces consist of thin soil modified deposits generally < 3 meters thick.

QTp Piedmont deposits (Quaternary - Miocene) – Poorly to partially consolidated sand and gravel deposits, sandstone, pebbly sandstone and pebble-cobble, locally boulder conglomerate that make up the bulk of the piedmont deposits flanking Alamosa Creek. The deposits are locally very thick and locally are moderately to strongly tilted. The older age limit is based on probable correlation of the deposits with piedmont gravels in the Winston area (about 20 km to the south) capped by ~ 5 million year old basalt lava (Konig, 2012). Thickness: 0-100 meters.

Tri Rhyolitic intrusion (Oligocene) – Dark gray matrix, rhyolitic intrusion containing ~10% 3-10 mm feldspar, and 3-5% <2mm quartz phenocrysts. The intrusion is poorly exposed, strongly brecciated, and occurs along the south wall of Wahoo Canyon in the northwest ¼ of section 7, T. 8 S., R. 9 W.

Tsc South Canyon Tuff (Oligocene) – Rhyolitic ash-flow tuff containing 4-30% phenocrysts of plagioclase, sanidine, quartz, and biotite. Lithic-lapilli are generally <5%, and pumice lapilli 5-25%. Thickness: 0 – 50 meters.

Tba Basaltic andesite lava (Oligocene) – Mafic lava containing up to 10% 1-3mm plagioclase phenocrysts and sparse pyroxene and/or olivine. Lavas are locally interbedded with volcanoclastic and nonwelded pyroclastic deposits (**Tst**), and occur at the base of The South Canyon, Vicks Peak, and La Jencia tuffs. Thickness: 0-75 meters.

Tst Volcanoclastic and nonwelded pyroclastic rocks (Oligocene) – Volcanoclastic sandstone, pebbly sandstone and sparse conglomerate interbedded with variable amounts of nonwelded, felsic tuff. Deposits occur at several stratigraphic intervals in the map area. Commonly, sandstone intervals occur in thick-bedded sets with high-angle cross-stratification suggestive of eolian deposition. Thickness: 0-75 meters.

Tru Rhyolite of Wahoo Canyon (Oligocene) – Phenocryst-poor rhyolite lava containing 5-10% phenocrysts of 0.5-5.0 mm feldspar, and sparse <2mm biotite. Thickness: 0-150 meters.

Tvp Vicks Peak Tuff (Oligocene) – Densely welded rhyolitic ash-flow tuff containing 1-15% phenocrysts, chiefly sanidine up to 4mm, lesser plagioclase up to 2mm, and sparse pyroxene, hornblende, and biotite <2 mm. The tuff contains 2-25% strongly flattened pumice lapilli up to 1m long, and sparse <10 cm lithic lapilli. The tuff is typically light gray and the pumice lapilli are commonly recessive on weathered surfaces. Thickness: 0-260 meters.

Tj La Jencia Tuff (Oligocene) – Rhyolitic ash-flow tuff containing 2-10% phenocrysts of sanidine (1-4mm) and plagioclase (1-2mm), and minor biotite, pyroxene, hornblende, and quartz. The tuff is phenocryst-poor and ranges from white to light orange at its base. In its upper part the tuff is light gray and densely welded with 5-15% strongly flattened pumice lapilli. Thickness: 0-60 meters.

Trl Rhyolite of Patterson Peak (Oligocene) – Phenocryst-poor rhyolite lava containing 5-10% phenocrysts of 0.5-2.0 mm feldspar and quartz, and up to 2%, <2mm biotite. The feldspar to quartz ratio ranges from 3:1 to 1:1. This lava is probably correlative with the rhyolite of Sullivan's Hole Canyon (**Trs**) on the northerly adjacent Oak Peak map area. Thickness: 0-300 meters.

Tdp Phenocryst-poor dacite (Oligocene) – Dacitic lava and welded ignimbrite containing 5-10% 2-4mm feldspar and sparse biotite phenocrysts occurs as a pair of apparent intrusions in the north-central part of the map area. Welded ignimbrite in this unit appears to merge with flow-foliated lava of the same composition.

Thm Hells Mesa Tuff (Oligocene) – Densely welded phenocryst-rich rhyolitic to trachytic ash-flow tuff containing 20-35% phenocrysts of plagioclase (≤ 3 mm), sanidine (≤ 3 mm), quartz (≤ 4 mm), hornblende (≤ 2 mm), and biotite (≤ 2 mm). The tuff is reddish brown to orange in color and contains sparse lithic lapilli and generally <10% pumice lapilli <10cm long. Thickness: 0 – 25 meters.

Tbc Blue Canyon Tuff (Oligocene) – Moderately phenocryst-rich, typically dark gray matrix ash-flow tuff containing 10-20% 1-4mm plagioclase, and abundant 1-3mm biotite. The ignimbrite is correlated with the Blue Canyon Tuff based on its stratigraphic position below the Hells Mesa Tuff and a phenocryst assemblage that matches the Blue Canyon at its type locality. The ignimbrite in this area has no preserved bottom and since it contains what appear to be megabreccia blocks in excess of 20 meters it is within are very close to its source caldera. Thickness: at least 50 meters.

Tbcp Phenocryst-poor phase of the Blue Canyon Tuff (Oligocene) – Moderately phenocryst-poor ash-flow tuff containing 5-10% 1-4mm plagioclase, and sparse biotite. This unit occurs as irregular, approximately strike parallel lenses within the main body of the Blue Canyon Tuff (**Tbc**) map unit. Thickness: 0-5 meters.

Tbcx Megabreccia within the Blue Canyon Tuff (Oligocene) – Zones of apparent megabreccia consisting of blocks of andesitic lava or quartz feldspar phenocryst-rich welded ignimbrite. The zones are surrounded by welded Blue Canyon Tuff (**Tbc**).

Tdt Dacitic ignimbrite (Oligocene) – Densely welded dacitic ignimbrite containing ~15% 2-4 mm plagioclase with up to 3% 1-3mm biotite. The ignimbrite is closely associated with the Dacitic lava (**Tdd**). Thickness: 0-15 meters.

Tdd Dacitic lava (Oligocene) – Dacitic lava with pink to purple matrix containing 15% 1-3mm plagioclase and ~2% <0.5mm opaque and/or altered mafic phenocrysts. Thickness: 0-70 meters.

Tda Andesitic lava (Oligocene) – Andesitic lava containing 15% <1mm feldspar, 3% 1mm green mafic phenocrysts. The lava occurs at the base of the volcanic section in Wahoo Canyon where it is probably correlative to Spears Formation andesitic lavas

which are abundant just to the south in the Wahoo Ranch map area. Thickness: 0-100 meters.

Map Symbols

└ Strike and dip of bedding

⊕ Horizontal bedding

└ Strike and dip of eutaxitic foliation in welded ash-flow tuff

↑ Lineation in welded ash-flow tuff


└ Strike and dip of flow-foliation in lava


↑ Dip of fault


↑ Trend and plunge of slickenline lineation


Basaltic dike 

Contacts (all faults in this map area are down to the east except for three east-west striking faults along the western edge of the map area. One of these is down to the south and it is the northernmost in the extreme northwest corner of the map area. The other two are down to the north. One is between Stone and Wahoo Canyon along the highest part of the map area, and the other is in the extreme northwest corner just south of the down to the south fault.)

Contact 

Approximately located contact 

Fault contact 

Approximately located fault contact 

Concealed fault contact 

Cross-section line 