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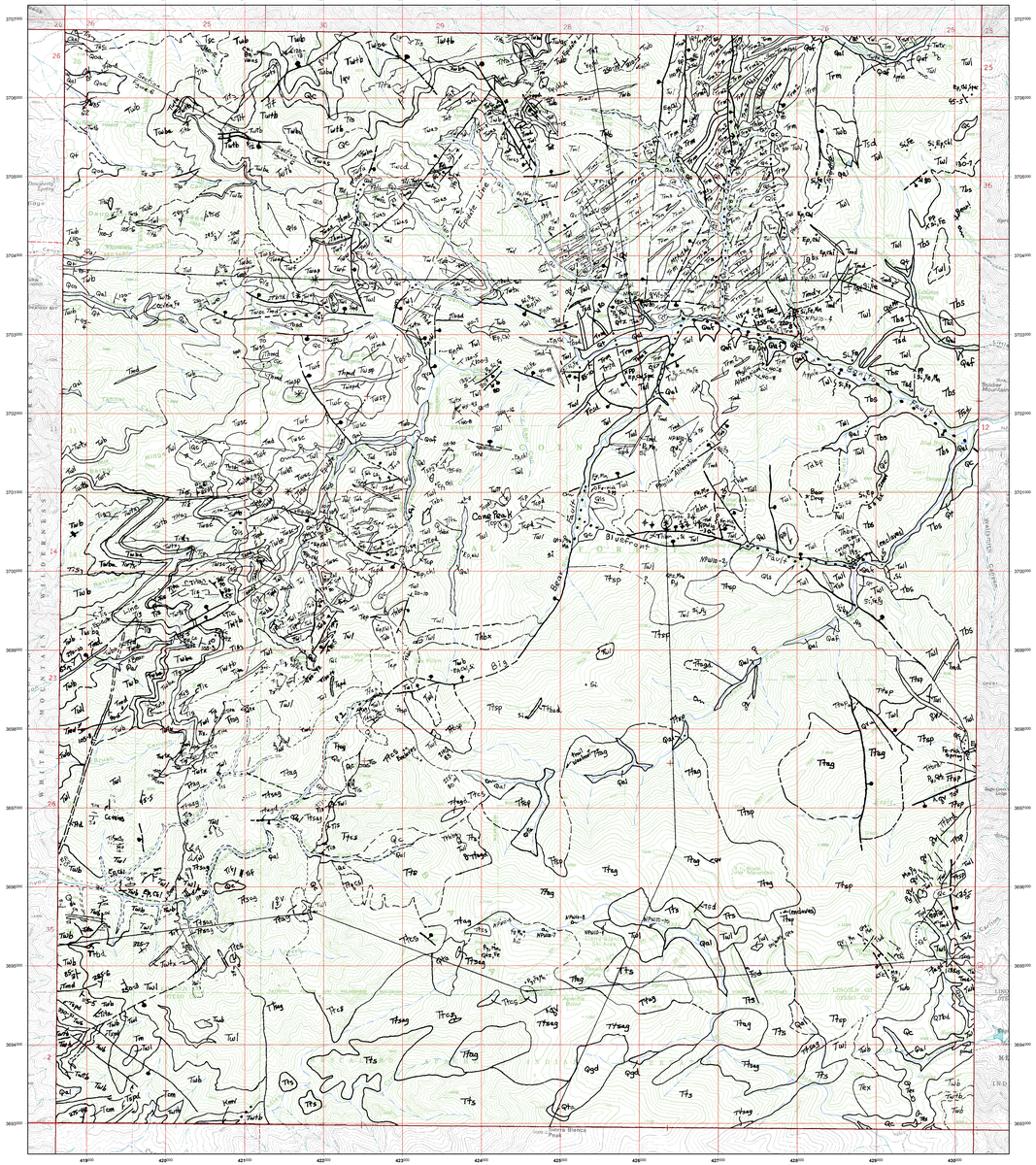

Base map from U.S. Geological Survey 1982, from photographs taken 1972, field checked in 1975, edited in 1982.
New Mexico coordinate system, central zone, 1927 North American datum. Reprojected to UTM projection -- zone 13N
1000-meter Universal Transverse Mercator grid, zone 13, shown in red

QUADRANGLE LOCATION

1:24,000

1 0.5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

CONTOUR INTERVAL 80 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

New Mexico Bureau of Geology and Mineral Resources
Open-file Map Series
OFGM 134

This draft geologic map is preliminary and will undergo revision. It was produced from either scans of hand-drafted originals or from digitally drafted original maps and figures using a wide variety of software, and is currently in cartographic production. It is being distributed in this draft form as part of the bureau's Open-file map series (OFGM), due to high demand for current geologic map data in these areas where STATEMAP quadrangles are located, and it is the bureau's policy to disseminate geologic data to the public as soon as possible.

After this map has undergone scientific peer review, editing, and final cartographic production adhering to bureau map standards, it will be released in our Geologic Map (GM) series. This final version will receive a new GM number and will supercede this preliminary open-file geologic map.

DRAFT

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Geologic map of the Nogal Peak quadrangle, Lincoln & Otero Counties, New Mexico

June 2011

by
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UNIT DESCRIPTIONS

Quaternary

Qal Alluvium
Qc (Qco) Colluvium
Qta Talus deposits
Qt Terrace deposits
Qls Landslides
Qaf Alluvial fans
Qgd Glacial deposits
Qbd Glacial boulder deposits
Qoa Older alluvium

Plio-Pleistocene

QTpg Palomas Gravel

Oligocene to Upper Eocene

Thbx Mineralized hydrothermal breccia

Bonito Lake Stock and Associated Dikes

Tfsd Fine-grained syenodiorite dikes
Tbs Bonito Lake syenite to syenodiorite

Three Rivers Stock and Associated Dikes, Plugs and Flows

Ttbrd Biotite rhyolite dikes
Tog Oak Grove rhyolite
Tcp/Tcpd Cone Peak rhyolite
Tep Elk Point rhyolite
Ttagd Alkali granite dikes
Tsp Syenite Porphyry Plugs
Ttag Alkali granite
Tthhs Hornblende-biotite syenite plug
Ttbsp/Ttbsd Biotite syenite porphyry
Ttcs/Ttqcs Coarse-grained syenite
Ttsag Quartz syenite to alkali granite
Tts Syenite and syenite porphyry
Ttsp Quartz syenite porphyry

Rialto Stock and Associated Dikes

Trm2 Monzonite to quartz diorite
Trsd Quartz syenite dike
Trm Syenite

Other Small Intrusions and Plugs

Tspg/Tsbx Syenite plugs
Tm Monzonite to diorite plugs
Tgd/Tgbx Grizzly Peak diorite
Tdbp Dark Betty diorite porphyry
Tex Feldspathoidal gabbro porphyry plug

Dikes

Tspd/Tbsd/Thsd Syenite porphyry dikes
Tsd Syenite dikes
Tmd/Thmd Monzonite to diorite dikes
Ttd Porphyritic hornblende trachydacite dikes
Tbtd/Thtd Biotite and hornblende trachydacite to alkali rhyolite dikes
Ttbd Clinopyroxene-phyric trachybasalt dikes
Tif Felsite
Tit Trachyte
Tita Porphyritic trachyandesite
Tig Alkali gabbro-syenogabbro
Tim Megacrystal trachyte porphyry
Tis/Tisp Syenite
Tic Mafic clot syenite
Titb Trachybasalt

Oligocene to Upper Eocene

Sierra Blanca Volcanics

Tnt/Tntd Nogal Peak Trachyte
Twl Lava-rich unit, undivided
Twpd Porphyritic trachydacite east of Highway 532
Twbn Alkali basalt of Hill 9500
Twcd Porphyritic trachydacite north of Argentina Spring
Twfa Fine-grained trachydacite north of Argentina Spring
Twap Basaltic trachyandesite of Argentina Peak
Twsp/Twspd Aphyric trachyandesite of Spring Point
Twbt Basaltic trachyandesite of Hill 9395
Twbb/Twal Basaltic trachyandesite flows, agglutinate and breccia
Twf Aphyric trachybasalt south of Argentina Spring
Twas Argentina Spring tuff
Twsc Spring Canyon trachydacite
Twtt Porphyritic trachydacite tuff east of Little Bear Canyon
Twpa Porphyritic trachyandesite
Twtx Plagioclase porphyritic trachybasalt to basaltic trachyandesite
Twba Porphyritic trachyandesite
Twtb Trachybasalt and tephrite
Twb/Twbc Breccia-rich unit, undivided

Late Eocene

Tsc Sanders Canyon Formation

Eocene

Tcm Cub Mountain Formation

Cretaceous

Kmv Mesa Verde Group
Ku Cretaceous rocks, undivided (cross sections only)

Triassic

TRsr Santa Rosa Formation (cross section B-B' only)

Permian

Pu Permian rocks, undivided (cross section B-B' only)

Additional Map Symbols

- Strike and dip of volcanic foliation
- Strike and dip of joint or joint set
- Volcanic vent, queried where uncertain
- Escarpes — Location where blobs of igneous rock in intrusive unit are pluvials
- Intrusive breccia
- Normal asymmetric anvil
- Landslide; arrow indicates direction of movement
- Cold spring
- NP400-1 to NP410-10 — Sample locations of cold springs (Appendix F)
- Spot — Obvious spotted texture in trachybasalt
- Prospect pit
- Local hydrothermal alteration
- Propylitic Alteration — Phyllic alteration zone; has orange color accent
- Epidote Line — Epidote alteration zone; has olive green colouracent

Alteration Minerals

- qv — Quartz vein
- Qtz — Visible quartz in veins or fractures
- Si — Silicification of host rock
- Fe, Mn — Ferric oxide manganese oxides
- Py — Visible pyrite or pseudomorphs of pyrite
- cc — Visible calcite in veins or fractures
- cc vein — Calcite vein
- Ep, Chl — Visible epidote and/or chlorite in fractures or rock matrix
- Mt — Visible secondary magnetite
- Ad — Visible secondary adularia
- Act — Visible secondary actinolite fibers or blades
- Spec — Visible specular hematite
- Ser — Visible, course sericite or muscovite alteration
- Co, Ru — Visible corundum and chloritoid
- Tor — Tourmaline mineralization, usually disseminated
- Ca, Ru — Upper and/or Jurassic materials in veins or fractures

COMMENTS TO MAP USERS

A geologic map displays information on the distribution, nature, orientation, and age relationships of rock and deposits and the occurrence of structural features. Geologic and fault contacts are irregular surfaces that form boundaries between different types or ages of units. Data depicted on this geologic quadrangle map may be based on any of the following: reconnaissance field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation. Locations of contacts are not surveyed, but are plotted by interpretation of the position of a given contact onto a topographic base map; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologist(s). Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. Site-specific conditions should be verified by detailed surface mapping or subsurface exploration. Topographic and cultural changes associated with recent development may not be shown.

Cross sections are constructed based upon the interpretations of the author made from geologic mapping, and available geophysical, and subsurface (drillhole) data. Cross-sections should be used as an aid to understanding the general geologic framework of the map area, and not be the sole source of information for use in locating or designing wells, buildings, roads, or other man-made structures.

The map has not been reviewed according to New Mexico Bureau of Geology and Mineral Resources standards. The contents of the report and map should not be considered final and complete until reviewed and published by the New Mexico Bureau of Geology and Mineral Resources. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the State of New Mexico, or the U.S. Government.