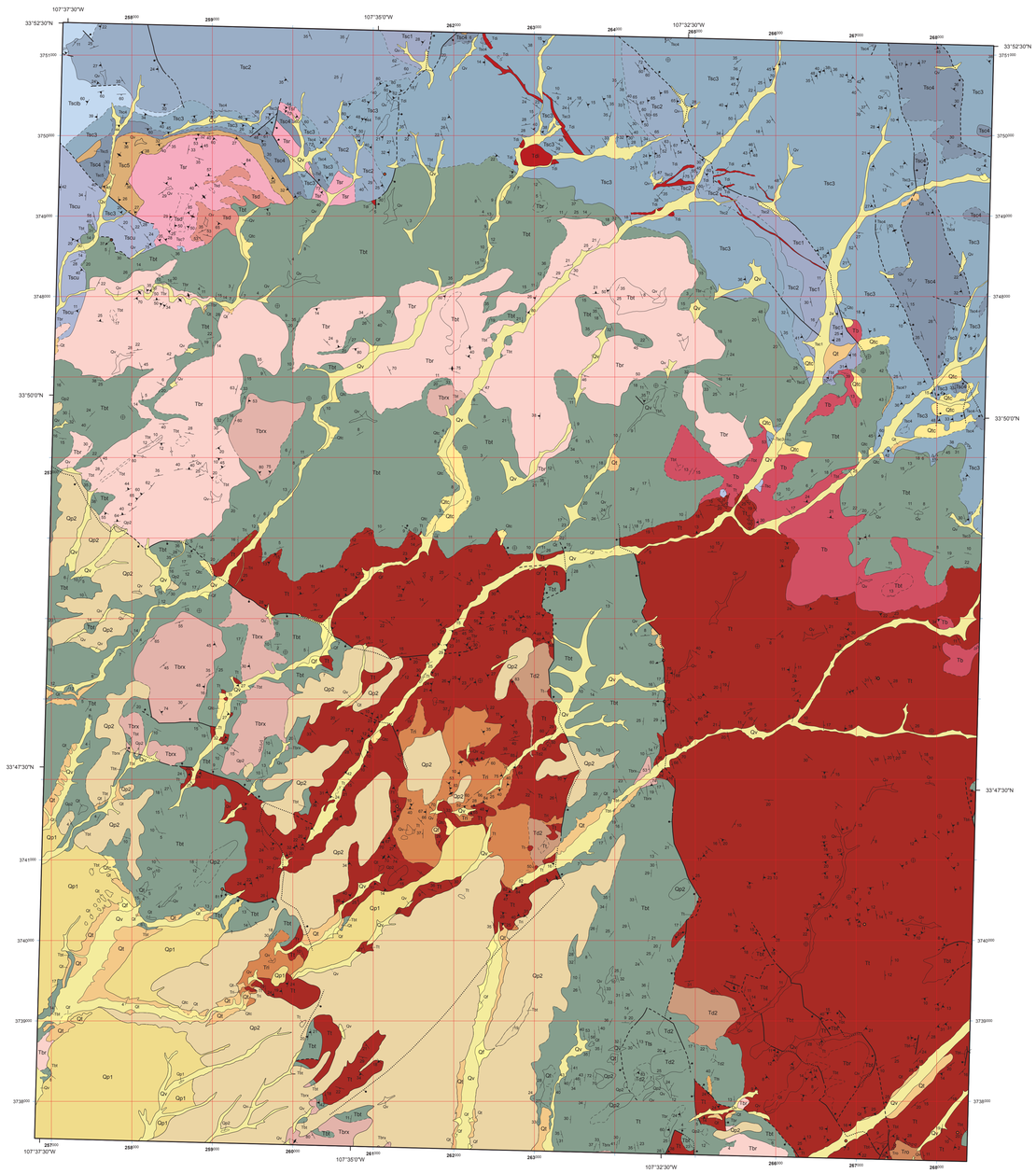
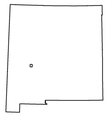


Base map from U.S. Geological Survey 1995, from photographs taken 1992, field checked by U.S. Forest Service in 1995.
1927 North American datum, UTM projection -- zone 13. 1000-meter Universal Transverse Mercator grid, zone 13, shown in red.

QUADRANGLE LOCATION



Magnetic Declination
March, 2006
10° 2' East
At Map Center

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 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

New Mexico Bureau of Geology and Mineral Resources
Open-file Geologic Map **147**

Mapping of this quadrangle was funded by a matching-funds grant from the STATEMAP program of the National Cooperative Geologic Mapping Act, administered by the U. S. Geological Survey, and by the New Mexico Bureau of Geology and Mineral Resources, (Dr. Peter A. Scholle, *Director and State Geologist*, Dr. J. Michael Timmons, *Geologic Mapping Program Manager*).

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This and other STATEMAP quadrangles are (or soon will be) available for free download in both PDF and ArcGIS formats at:

http://geoinfo.nmt.edu/publications/maps/geologic/ofgm/home.html

Geologic Map of the Bay Buck Peaks 7.5-Minute Quadrangle, Socorro County, New Mexico

May 2007

by
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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map may be based on any of the following: reconnaissance field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation.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.

Qv — Valley Alluvium (Holocene – Late Pleistocene) – Valley bottom alluvium including active alluvium and low terraces incised less than 3m.

Qf — Alluvial fans (Holocene – Late Pleistocene) – Discrete fans and coalesced fans which overlap and merge locally with valley (Qv) and terraced alluvium (Qt).

Qtc — Talus and Colluvium (Holocene – Late Pleistocene) – Slope colluvium and talus shown only in areas of extensive cover or in areas where critical bedrock relationships are concealed.

Qt — Terrace surfaces (Holocene – Late Pleistocene) – The upper, soil-modified surface of alluvial terraces incised more than 3m above active alluvial deposits.

Qtc — Piedmont alluvium younger (Pleistocene - Pliocene) - Poorly to moderately consolidated sandstone and conglomerate comprising the main mass of piedmont alluvium throughout the map area. Two main levels of piedmont surfaces exist in the area. Qp1 the younger is inset against the older.

Qp1 — Piedmont alluvium older and higher (Pleistocene - Pliocene) - Poorly to moderately consolidated sandstone and conglomerate comprising the main mass of piedmont alluvium throughout the map area. This, the highest piedmont level in the area often caps higher ridges. A few areas consist of beveled bedrock surfaces which were mapped as bedrock.

Qp2 — Beartrap Canyon Formation (Miocene) – Fill of the Bear Trap Canyon Cauldron. Volcaniclastic sandstone, conglomerate with abundant, complexly interleaved, mostly poorly welded felsic pyroclastic rocks. Medium- to thick-bedded sandstone, pebbly sandstone, and pebble-cobble-boulder conglomerate is locally matrix-supported and/or clast-supported. Some sandstone intervals that display moderate to high-angle, thick-bedded cross-stratified sets suggestive of eolian deposition. Unwelded tuffs dominate near rhyolite domes and flows and grade laterally to more sediment-rich intervals. Beartrap Canyon Formation is lithologically very similar to the Miocene – Oligocene unit of East Red Canyon as exposed to the south and east.

Tbt — Beartrap Canyon Formation, phenocryst-poor rhyolite lava and lava domes (Miocene) – Rhyolite lava and hypabyssal rhyolite containing less than ~10% phenocrysts of feldspar, biotite, + quartz.

Tbr — Beartrap Canyon Formation phenocryst-rich rhyolite lava and lava domes (Miocene) – Rhyolite lava and hypabyssal rhyolite containing greater than ~10% phenocrysts of quartz, feldspar, and biotite.

Tbrx — Beartrap Canyon Formation dacitic to andesitic dikes and intrusions (Miocene) – Andesite to dacite lavas and intrusions containing 5 to 25% large phenocrysts of plagioclase, biotite and hornblend.

Tts — Turkey Springs Tuff (Miocene) – Welded to non-welded rhyolite ash-flow tuff containing 2-30% quartz-feldspar phenocrysts with biotite. Phenocryst content increases up-section. The tuff is typically light gray to pink. Erupted from Bear Trap Canyon Cauldron. Base not seen within the quadrangle.

Ttb — Turkey Springs Breccia (Miocene) – Mostly non-welded rhyolite ash-flow tuff with abundant zones of mesobreccia and megabreccia (blocks South Canyon Tuff and minor rhyolite lava). In these exposures blocks (mostly South Canyon Tuff) so dominate that the tuff matrix is hard to identify. Turkey Springs Tuff often forms vitrophyric margin against the breccia exposures. Confined in this quadrangle to east central part of quadrangle adjacent the Northeastern caldera margin. Believed to represent rockfall and landslides which cascaded into cauldron during the eruption. Difficult to delineate accurately since most blocks are South Canyon which is "very" difficult to distinguish from Turkey Springs.

Te — Unit of East Red Canyon (Miocene - Oligocene) – Unit of East Red Canyon represents the caldera fill of the Mount Withington Cauldron (cross sections only). It is represented in this quadrangle only by a rhyolite and dacite intrusive complex near Baney Park in the Northwest quadrant of the map. Other lithologies are presumed to underly Tuff of Turkey at depth within the cauldron.

Ter — East Red rhyolite intrusion (Miocene - Oligocene) - Rhyolite lava and hypabyssal rhyolite containing less than ~10% phenocrysts of feldspar, biotite, + quartz. Intrusive into and interlayered with upper members of South Canyon Tuff. Also complexly intermixed with East Red dacite lavas (Ted).

Ted — East Red dacite (Miocene – Oligocene) – dark purple dacite lavas and intrusions containing 5 to 20 percent large plagioclase phenocrysts. Occurs as complex intermixed zones within Ter and as discrete dikes and small stocks throughout the South Canyon Tuff exposures in northern third of the quadrangle

Trm — Rhyolite (Oligocene) – Feldspar phenocryst-poor rhyolite that intrudes South Canyon Tuff and is overlain by Turkey Springs Tuff.

Tsc — South Canyon Tuff (Oligocene) – Phenocryst-poor to phenocryst-rich quartz-feldspar-biotite, mostly welded ash-flow tuff. Phenocryst content increases up-section. Subdivided into lower (Tsc1 (<15% phenocrysts) and upper Tscu > 15% phenocrysts) where thickness allows. In thicker exposures 5 units are mapped. From bottom to top these are Tsc1 - base to ~8% phenocryst, Tsc2 - eight to 15% phenocryst, Tsc3 - 15% until first occurence of deep red quartz-poor pumice, Tsc4 - from first deep red quartz-poor pumice to base of Tsc5 which remains phenocryst rich but no longer contains quartz. Some intervals are virtually identical to the Turkey Springs Tuff, such that it is sometimes impossible to determine which unit is which without stratigraphic context or high-precision geochronology.

Unit Correlations
Bay buck Peaks Quadrangle