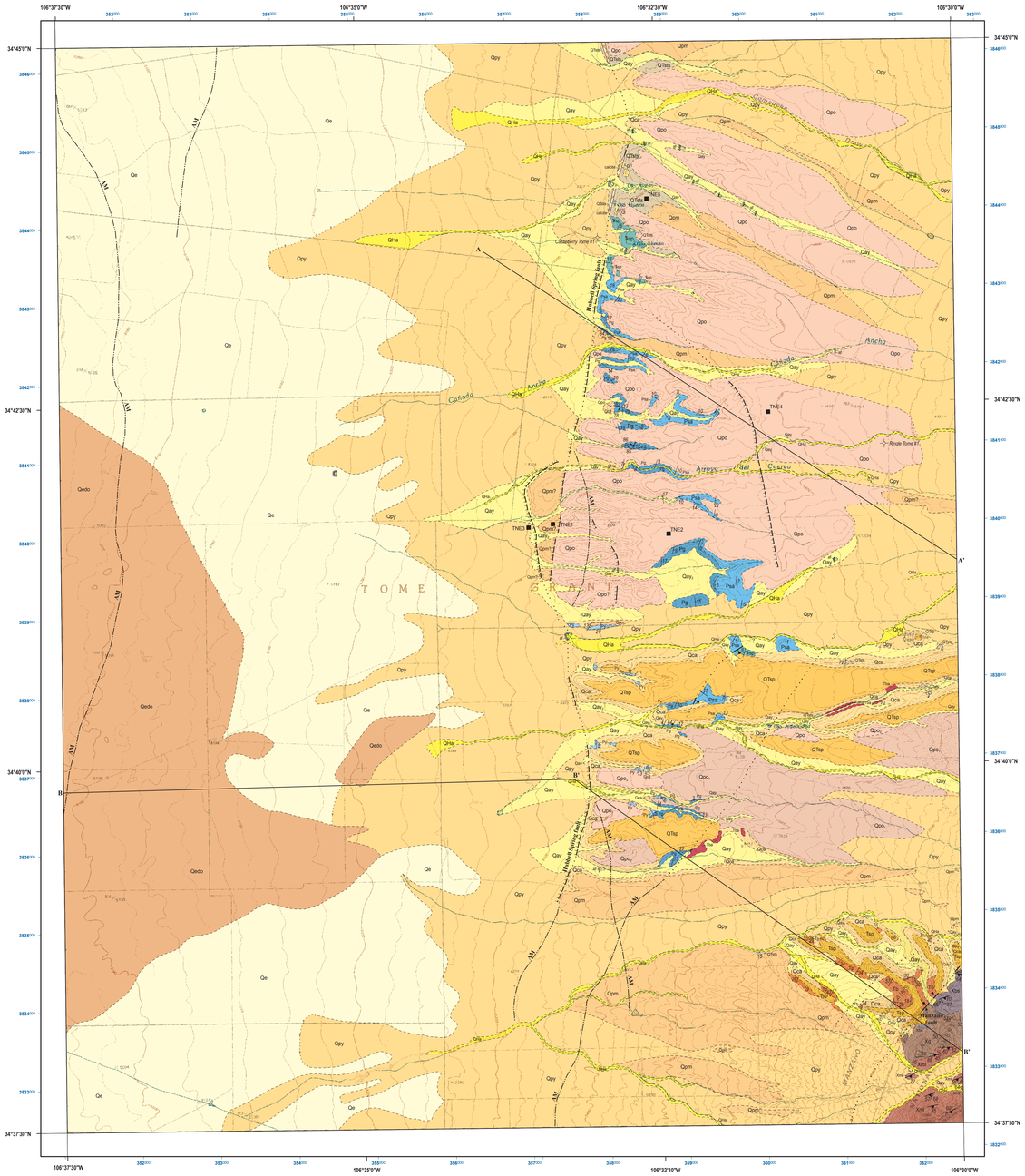
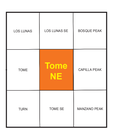
NMBGMR Open-file Geologic Map 91
Last Modified May 2006



Base from U.S.Geological Survey 1984, from photographs taken 1976 and field checked in 1976.
Map edited in 1984
1927 North American datum, UTM projection -- zone 13N
1000- meter Universal Transverse Mercator grid, zone 13, shown in red



QUADRANGLE LOCATION

Magnetic Declination
April 2004
10° 12' 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

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 available for free download in both PDF and ArcGIS formats at:

http://geoinfo.nmt.edu

New Mexico Bureau of Geology and Mineral Resources
Open-file Geologic Map 91

Geologic map of the Tome NE quadrangle, Valencia County, New Mexico.

May 2004

by

Geoffrey Rawling and David J. McCraw

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

DESCRIPTION OF MAP UNITS

Rock colors are by comparison with the Munsell soil color chart. Mapping of surficial deposits west of the Hubbell Spring fault scarp was based largely on air photo interpretation and geomorphic position, and locally field checked.

CENOZOIC ERA
QUATERNARY/NEOGENE/PALEOGENE

Anthropogenic and Quaternary surficial deposits

af — **Artificial fill** — Dumped fill for stock tanks.

QHa — **Arroyo alluvium, undivided (Holocene to Historic)** — Gravel and poorly to moderately sorted fine- to coarse-grained sand in active drainages. Bar and swale topography is well developed. Soils are very weakly developed. Thickness <1 to 4 m.

Qay, Qay$_2$, Qay$_1$ — **Arroyo and valley alluvium (Holocene)** — Consists of variably bedded and stratified cobbles, pebbles, sand and silt. Pale brown (10YR 6/3) to brown (10YR 5/3). Incised up to 2 – 3 m by modern arroyos floored with unit *QHa*. Locally has pipes. Includes local areas of eolian sand sheets less than 1m thick, and areas of undifferentiated *QHa* too small to map. Locally subdivided into two subunits based on inset relations ships and elevation (*Qay$_1$*, older, and *Qay$_2$*, younger). Thickness <1 to 4 m (?).

Qca — **Colluvium and alluvium (Pleistocene to Holocene)** — Poorly lithified and stratified bouldery to sandy colluvium and alluvium on flanks and noses of flat-topped hills east of the Hubbell Spring fault. Deposited by mass movement processes on hillslopes, such as debris flow, slump, and creep. Thickness <1 to 5 m.

Qe — **Eolian sand sheets with subdued or no dune forms (Holocene)** — Dominantly sand sheets. Deposit consists of light brown (7.5YR 6/4) to light reddish brown (5YR 6/4), fine to very fine-grained, rounded to subrounded sand composed largely of quartz. Locally pebbly due to bioturbation (?). Forms a broad undulating surface with little or no development of drainage incision or dune microtopography around shrubs. Unit typically has one or more episodes of soil development beneath the surface. Thickness ≤ 2 m (?).

Qedo — **Eolian deposits with stabilized and subdued dune forms (early (?) Holocene)** — Deposits are composed of pink (7.5 YR 7/4), light brown (7.5YR 6/4) to very pale brown (10YR 7/4) to brownish yellow (10YR 6/6), unconsolidated, very fine- to medium-grained, moderately well-rounded to well-rounded dominantly quartz sand. Contains scattered pebbles. Dunes are less than one meter to several meters in height. Lateral contacts with Qe are often gradational and difficult to distinguish, and are locally queried. Thickness < 1 to 5 m (?).

Quaternary(?) Travertine

Qt — **Travertine (middle to upper Pleistocene (?))** — Scattered outcrops of platy, fine-grained carbonate with a wavy, laminar structure. Probably spring deposits related to the Hubbell Spring fault.

Quaternary and Tertiary piedmont deposits

Sequence of piedmont-slope alluvial deposits marking local base level for mountain front drainages. Piedmont units and surfaces diverge in elevation westward towards the Hubbell Spring fault due to multiple movements on the fault. Deposits differentiated by topographic position, soil development (see appendix for descriptions of soil pits) and degree of constructional surface preservation. Deposits are dominated by sandy gravel with variable sorting and imbrication.

QTspu — **Santa Fe Group and younger piedmont deposits, undifferentiated (Pliocene (?) to Holocene)** — Poorly to moderately sorted, moderately to well lithified pebble and cobble gravel and pebbly sand. Cross section only. Thickness ranges from 4 to 20 m (?).

Qpy — **Piedmont alluvium (upper Pleistocene to Holocene)** — Poorly to moderately sorted, poorly to moderately lithified pebble and cobble gravel and pebbly sand. Consist of pebbles to cobbles of limestone and Precambrian metamorphic and igneous rocks such as granite, quartzite, and metarhyolite. Constructional surface is present and has bar and swale topography. West of Hubbell Spring fault the unit is locally mantled by eolian sand sheets. Unit is not offset by the Hubbell Spring fault. Thickness 4 to 5 m (?).

Qpm — **Piedmont alluvium (middle Pleistocene)** — Poorly to moderately sorted, moderately lithified pebble and cobble gravel and pebbly sand. Consist of pebbles to cobbles of limestone and Precambrian metamorphic and igneous rocks such as granite, quartzite, and metarhyolite. Soil development is variable and multiple buried soils with stage II to III calcium-carbonate morphology are present. Unit is offset by the Hubbell Spring fault. Thickness 4 to 5 m (?).

Qpo, Qpo$_2$, Qpo$_1$ — **Piedmont alluvium (lower Pleistocene)** — Poorly to moderately sorted, moderately lithified pebble and cobble gravel and pebbly sand. Consists of pebbles to cobbles of limestone and Precambrian metamorphic and igneous rocks such as granite, quartzite, and metarhyolite. Soil development is variable and multiple buried soils with stage II to III+ calcium-carbonate morphology are present. Unit is offset by the Hubbell Spring fault. Locally subdivided into two subunits based on inset relationships and elevation (*Qpo$_1$*, older, and *Qpo$_2$*, younger). Thickness 4 to 20 m (?).

QTsp — **Piedmont alluvium (Upper Santa Fe Group, upper Pliocene (?) to lower Pleistocene)** — Poorly to moderately sorted, well-lithified pebble and cobble gravel and pebbly sand. Consists of pebbles to cobbles of limestone and Precambrian metamorphic and igneous rocks such as granite, quartzite, and metarhyolite. Clasts are typically split and weathered. Deposit surface is moderately dissected and locally exposes partially stripped soils with stage III to IV carbonate morphology. Thickness 4 to 20 m (?).

Tsp — **Piedmont alluvium (Upper Santa Fe Group, Miocene to upper Pliocene)** — Poorly to moderately sorted, well-lithified, calcium-carbonate cemented conglomerate and sandstone. Consists of pebbles to cobbles of limestone and Precambrian metamorphic and igneous rocks such as granite, quartzite, and metarhyolite. Caps dissected mesas in the southeast corner of the quadrangle. Thickness ≤ 20 m.

Quaternary and Tertiary Sedimentary rocks

QTsts — **Sierra Ladrones Formation (Upper Santa Fe Group, lower Pleistocene to Pliocene)** — Poorly lithified sandy deposits transitional between axial fluvial and piedmont slope. Northernmost exposures are poorly lithified yellowish red (5YR 5/6) pebbly sand and silty sand and contain buried calcic soils. Discontinuous southern exposures around Ojo Jediondilla are light brown to pinkish brown silty sand, and poorly lithified sparsely crossbedded gray and light pinkish gray pebble conglomerate with coarse sandy matrix. Clasts are gray, purple, and lavender intermediate volcanic rocks. Nomenclature after Cather (1997). Thickness unknown; base and top not exposed.

Tp — **Popatosa Formation (Lower Santa Fe Group, middle to upper Miocene)** — Pink to white sandstone, white sandy conglomerate, and minor red mudstone. Sandstones are moderately lithified, poorly sorted, medium- to very fine-grained, with subequal amounts of subangular to subrounded quartz grains and lithic fragments. Lithic fragments are intermediate volcanic rocks and red and black chert. Broad, probably eolian crossbeds are locally present. Mudstones are thin with carbonate concretions. Conglomerates are moderately to strongly lithified with rounded to angular pebbles and cobbles of limestone, metasedimentary rocks, pink to red granite, rhyolite, plagioclase-phyric andesite, and brown quartz sandstone in a matrix of white coarse sand. Thickness unknown; at least 2600 m in the Socorro basin (Cather, *et al.*, 1994), and probably hundreds of m in the Grober-Fuqua #1 well to the west (Hudson and Grauch, 2003; B. Brister, personal communication 2004).

QTsu — **Santa Fe Group deposits, undivided (Miocene (?) to Pleistocene (?))** — piedmont and axial river (?) deposits, undivided, west of the Hubbell Spring fault. Cross section only. Thickness unknown, but at least several hundred meters.

EXPLANATION OF MAP SYMBOLS

- A — A' — Location of geologic cross section.
- Geologic contact. Solid where exposed or known, dashed where approximately known, dotted where concealed or inferred, queried where uncertain.
- Normal fault, bar and ball on downthrown side. Solid where exposed, dotted where concealed or inferred.
- Topographic trace of fault scarp.
- AM — Trace of aeromagnetic lineament inferred to represent trace of buried fault; data from Sweeney, *et al.* (2002).
- Strike and dip of bedding.
- Inclined S1 foliation, showing dip, in metamorphic rocks.
- Inclined S2 foliation, showing dip, in metamorphic rocks.
- *Ringle Tome #1* — Oil & gas exploration well.

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.

Tb — **Baca Formation (lower to middle Eocene)** — Dark red conglomerate and sandstone. Conglomerate is composed of 60% clasts to 0.4 m of brick red, crossbedded and ripple-marked fine- to medium-grained sandstone, 25% gray limestone, and 15% metamorphic and volcanic rocks. Reduction spots are common on the sandstone clasts. Flattened clasts are strongly imbricated, indicating a paleocurrent direction to the west. Medium to thick beds of conglomerate beds are interbedded with ~10% sandstone beds. Sandstone is well lithified, medium- to thick-bedded, and coarse. The complete section is not exposed, but it is up to 425 m thick in the Albuquerque Basin (Lozinsky, 1994).

Tertiary Igneous rocks

Tba — **Basaltic andesite (upper Oligocene or middle Miocene)** — Dark gray to dark purple basaltic andesite. Contains 1 – 2 % phenocrysts of plagioclase to 0.5 cm, and locally 5% altered phenocrysts of olivine and biotite. Zeolite-filled vesicles and Cu mineralization are common. Locally red to purplish-red. Forms widely separated outcrops in footwall of Hubbell Spring fault. Northern outcrops have basaltic andesite overlying white ash deposits. May be correlated to La Jara Peak basaltic andesite (27.0 ± 1.1 Ma) or Silver Creek andesite (16.2 ± 1.5 Ma) based on stratigraphic position and general appearance. Ages from Cather, *et al.* (1994). Thickness unknown.

MESOZOIC ERA

Triassic Sedimentary rocks

Tsp — **San Pedro Arroyo Formation, Ojo Huelos member (upper Triassic)** — Dark purplish-red sandstone, siltstone, and mudstone, and gray limestone. Outcrops are poor. Sandstones are arkosic, medium-bedded, with planar cross beds. Mudstones and siltstones are medium-bedded, generally structureless, with scattered green reduction spots. Limestone is medium bedded and ranges from gray micrite to yellow pisolite, and is probably a lacustrine deposit (Lucas, 1991). Thickness unknown as the complete section is not exposed; Ringle Tome #1 well encountered at least 100 m.

PALEOZOIC ERA

Permian Sedimentary rocks

Psa — **San Andres Limestone (middle to upper Permian)** — Medium to dark gray, medium-bedded limestone and subordinate dolomite. Rocks are carbonate mudstone and rarely wackestone, often silty or sandy, and irregular dark brown to black chert nodules are common. Dissolution breccias and/or collapse features are present as areas of red to yellow soil and subcrop of irregular limestone blocks. Contact with underlying Glorieta sandstone interfingers over 15-20 meters. It was 95 m thick in the Ringle Tome #1 well.

Pg — **Glorieta Sandstone (middle Permian)** — White, tan, and pink, medium- to thick- bedded, medium-grained, very well-sorted quartz sandstone with subrounded grains. Bedding is generally very even with local crossbeds. Thickness unknown as the complete section is not exposed. It is estimated to be 60 m, based on outcrops east of Socorro (Smith, 1983).

Py — **Yeso Formation (middle Permian)** — Red, orange, and yellow sandstone and siltstone and gray to grayish yellow limestone and dolomite. Siltstones and fine-grained sandstones are mottled shades of red, yellow and orange, thin- to very thin- bedded, friable, and generally poorly exposed. Limestones and dolomites are thin-bedded to laminated, silty to sandy, locally with contorted and nodular bedding. Thickness unknown as the base is not exposed; estimated to be 120 m based on exposures in the Sandia Mountains area (Kelley and Northrop, 1975) and the Scholle quadrangle to the southeast (Myers, 1977).

Pa — **Abo Formation (lower Permian)** — Sandstone and mudstone. Cross section only. Thickness ~ 275 m in the Scholle quadrangle to the southeast (Myers, 1977).

Pb — **Bursum Formation (lower Permian)** — Sandstone, shale, and limestone. Cross section only. Thickness ~ 75 m in the Scholle quadrangle to the southeast (Myers, 1977).

Pennsylvanian Sedimentary rocks

IPm — **Madera Group (upper and middle Pennsylvanian)** — Limestone. Cross section only. Thickness ~385 m in the Scholle quadrangle to the southeast.

IPs — **Sandia Formation (middle Pennsylvanian)** — Sandstone. Cross section only. Thickness ~ 65 m in the Capilla Peak (Karlstrom, *et al.*, 2000) and Scholle (Myers, 1977) quadrangles to the east and southeast.

PROTEROZOIC EON

Paleoproterozoic Igneous and Metamorphic rocks

Xq — **Sais Quartzite** — Massive white to gray metamorphic quartzite, locally purplish to dark gray. Stratigraphic up indicators include trough crossbeds defined by concentrations of heavy minerals and local fining-upward graded bedding.

Xbs — **Blue Springs Schist** — Rusty red to brown quartz-chlorite-garnet schist. Within a few meters of the range front fault, the rock is a purplish-green chlorite-sericite (?)-quartz schist. Fishhook-shaped and lenticular lenses and pods of deformed vein quartz, from mm to cm in width, and up to 10s of cm in length, are abundant and locally may comprise up to 50% of the rock. Contains two well developed foliations. S1 is a transposition layering defined by quartz lenses, and S2 is the dominant, northeast trending schistosity. A third cleavage, S3 is variably developed and crenulates S2.

Xmt — **Monte Largo Pluton** — Brown to dark buish-gray, moderately to strongly foliated granitic rock (granodiorite to quartz monzonite). Development of foliations S1 and S2 (see above) is stronger near contact with *Xq*. Age is 1656 ± 10 Ma (Bauer, *et al.*, 1993).

Xu — **Proterozoic rocks, undivided** — Igneous (?) and metamorphic rocks. Cross section only.

ACKOWLEDGEMENTS

We thank Ron and Josh Chavez and Odelio Baca of Tome for granting access to their property.

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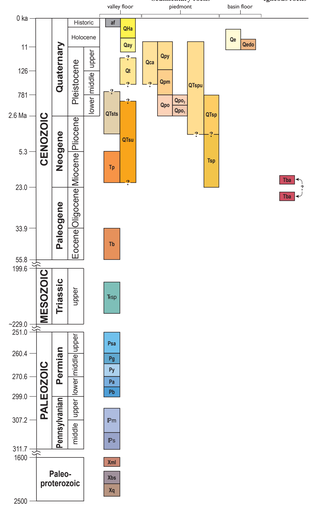
GEOLOGIC CROSS SECTIONS

CORRELATION OF MAP UNITS



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APPENDIX

Description of Soil Pits, Tome NE Quadrangle
David J. McCraw

Soil Pit TNE1

Location: First upthrown piedmont bench surface east of Hubbell Spring fault, 13N, 357476, 3840265. **Geomorphic Surface:** Qpm? **Parent Material:** piedmont sand and gravels **Elevation:** 5562' **Aspect:** W **Slope:** 2° **Vegetation:** high desert grassland

A Horizon (0-3 cm) – loamy sand; light brown 7.5YR6/4 dry, 7.5YR4/4 moist; massive structure; 30% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; many fine roots, pores common; gradual, smooth boundary.
Bk Horizon (3-12 cm) – loamy sand; light brown 7.5YR6/4 dry, 7.5YR4/4 moist; massive structure; 40% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage I-I+; fine roots common, pores common; clear, wavy boundary.
K Horizon (12-24 cm) – sandy loam; pink 7.5YR7/3 dry, 7.5YR6/4 moist; weak, very fine subangular blocky structure; 50-60% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage III+; few fine roots at top of horizon, few pores; gradual, smooth boundary.
Ck1 Horizon (24-35 cm) – sandy loam; pink 7.5YR7/3 dry, 7.5YR5/4 moist; massive structure; 50% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage II+/III; very few fine roots, few pores; gradual, smooth boundary.
Ck2 Horizon (35-68 cm) – sandy loam; light brown 7.5YR6/3 dry, 5YR5/3 moist; massive structure; 50-60% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage II+; few pores; diffuse boundary.
C Horizon (68-80 cm) – sandy loam; light brown 7.5YR6/4 dry, 7.5YR5/4 moist; massive structure; 50-60% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; few pores; boundary not excavated.

Soil Pit TNE2

Location: Second upthrown piedmont bench surface east of Hubbell Spring fault, 13N, 358902, 3840101. **Geomorphic Surface:** Qpo **Parent Material:** piedmont sand and gravels **Elevation:** 5525' **Aspect:** W **Slope:** <2° **Vegetation:** high desert grassland

A Horizon (0-6 cm) – loamy sand; light brown 7.5YR6/4 dry, 7.5YR5/4 moist; massive structure; 40% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; many fine roots, pores common; gradual, wavy boundary.
Bwk Horizon (6-18 cm) – sandy loam; brown 7.5YR5/4 dry, 7.5YR4/4 moist; weak, very fine subangular blocky structure; 60% gravel content; weakly coherent dry consistence, slightly sticky, non-plastic wet consistence; Stage II in lower part; fine roots common, pores common; gradual, irregular boundary.
Bk1 Horizon (18-36 cm) – sandy loam; pinkish gray 7.5YR7/2 dry, 7.5YR6/2 moist; weak, very fine subangular blocky structure; 40% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage III+; few fine roots, few pores; gradual, smooth boundary.
Bk2 Horizon (36-56 cm) – loamy sand; pink 7.5YR7/3 dry, 7.5YR6/3 moist; massive structure; 70-80% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage III-III+; few pores; diffuse boundary.
Ck Horizon (56-72 cm) – loamy sand; light brown 7.5YR6/3 dry, 5YR5/3 moist; massive structure; 80% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage I+; few pores; boundary not excavated.

Soil Pit TNE3

Location: Distal small fan surface immediately west of Hubbell Spring fault, created by a gully system dissecting uplifted piedmont surface east of the fault, 13N, 357350, 3840247. **Geomorphic Surface:** Qay-Qpy transition **Parent Material:** piedmont sands, pebbles, and eolian fine sand, silt, and clay **Elevation:** 5362' **Aspect:** W **Slope:** 2° **Vegetation:** high desert grassland

A Horizon (0-10 cm) – sandy loam; strong brown 7.5YR4/6 dry, 7.5YR3/3 moist; massive structure; <10% gravel content; loose dry consistence, slightly sticky, non-plastic wet consistence; many fine roots, pores common; clear, wavy boundary.
Bt Horizon (10-29 cm) – loam; brown 7.5YR5/4 dry, 7.5YR3/4 moist; moderate, medium to coarse subangular blocky structure; <10% gravel content, except for a thin (2-3 cm) stone line around 12-15cm depth; slightly hard dry consistence, slightly sticky, slightly plastic wet consistence; fine roots common, pores common; clear, smooth boundary.
Ck Horizon (29-127 cm) – silty clay loam; brown 7.5YR6/4 dry, 7.5YR4/4 moist; strong, coarse subangular blocky structure; <10% gravel content; hard dry consistence, sticky, plastic wet consistence; Stage I; few fine roots, few pores; boundary not excavated.

Soil Pit TNE4

Location: Upthrown piedmont bench surface east of small splay fault off of Hubbell Spring fault, 13N, 360249, 3841644. **Geomorphic Surface:** Qpo **Parent Material:** piedmont sand and gravels **Elevation:** 5585' **Aspect:** W **Slope:** 2° **Vegetation:** high desert grassland

A Horizon (0-7 cm) – loamy sand; light brown 7.5YR6/3 dry, 7.5YR5/3 moist; massive structure; 30% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; many fine roots, pores common; gradual, smooth boundary.
Bw Horizon (7-17 cm) – sandy loam; brown 7.5YR5/3 dry, 7.5YR4/3 moist; weak, very fine subangular blocky structure; 40% gravel content; weakly coherent dry consistence, slightly sticky, non-plastic wet consistence; fine roots common, pores common; clear, smooth boundary.
Bk1 Horizon (17-30 cm) – loamy sand; pinkish gray 7.5YR7/2 dry, 7.5YR6/2 moist; massive structure; 50-60% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage II+; few fine roots at top of horizon, few pores; diffuse boundary.
Bk2 Horizon (30-66 cm) – loamy sand; pinkish gray 7.5YR7/2 dry, 7.5YR6/2 moist; massive structure; 70% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage III-III+; few pores; diffuse boundary.
Ck Horizon (66-78 cm) – loamy sand; light brown 7.5YR6/3 dry, 7.5YR5/2 moist; massive structure; 70% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage II+; few pores; boundary not excavated.

Soil Pit TNE5

Location: First upthrown piedmont (?) bench surface east of Hubbell Spring fault, just east of Ojo Huelos spring and southeast of Ojo Alamo spring, 13N, 358761, 3844402. **Geomorphic Surface:** QTsp **Parent Material:** piedmont (?) sand and gravels **Elevation:** 5418' **Aspect:** NW **Slope:** 8° **Vegetation:** high desert grassland

A Horizon (0-4 cm) – loamy sand; reddish brown 7.5YR6/6 dry, 7.5YR5/4 moist; massive structure; <10% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; many fine roots, pores common; gradual, wavy boundary.
Bw Horizon (4-15 cm) – loamy sand; reddish brown 7.5YR6/6 dry, 7.5YR5/4 moist; weak, very fine subangular blocky structure; 10% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; fine roots common, pores common, clear, wavy boundary.
Bk Horizon (15-26 cm) – loamy sand; pinkish gray 7.5YR7/6 dry, 7.5YR6/4 moist; weak, very fine subangular blocky structure; 10% gravel content; loose dry consistence, slightly sticky, non-plastic wet consistence; Stage II+; few fine roots at top of horizon, few pores; abrupt boundary.
Kt1 Horizon (26-34 cm) – loamy sand; light pink 7.5YR7/3 dry, 7.5YR5/3 moist; massive structure; 30% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage III+/IV? – slight indication of weak platy structure); few pores; gradual, smooth boundary.
Kt2 Horizon (34-63 cm) – loamy sand; pink 7.5YR7/4 dry, 7.5YR6/4 moist; massive structure; 30% gravel content; loose dry consistence, non-sticky, non-plastic wet consistence; Stage III-III+; few pores; boundary not excavated.