



- ROCK UNITS COMMON TO ENTIRE MAP AREA**
- Qal**
Alluvium
Unconsolidated to poorly consolidated gravel, sand, and silt. Includes some pebbles of granite.
 - QTC**
Conglomerate and basalt
Weakly to moderately consolidated gravels and sands, in places monolithic, composed of detritus from adjacent mountain areas. Maximum exposed thickness at least 150 feet.
QTb, Olivine basalt flows as much as 75 feet thick. May not all be of the same age.
 - Tab**
Andesite and basalt
Principally black, dark-gray, and dark purplish-gray flows and flow breccias, locally vesicular. Some flows may be as flat as latices, especially along latitude 32°. Probably as much as 400 feet thick.
 - Ta**
Sandstone
White tuffaceous sandstones and conglomeratic sandstone, thin bedded. Probably as much as 100 feet thick.
 - Tr**
Dikes
Dark grayish-red to dark-gray mafic dikes as much as 10 feet wide. Intrusive into rocks as young as Trp.
 - Trp**
Rhyolite pyroclastics
Principally rhyolite welded tuff and tuff breccias with minor amounts of obsidian and thinly laminated welded tuff. Locally contains spherulites as much as 1 inch in diameter, especially 1 to 2 miles north of Hermans and in Carrizillo Hills. Weathers to shades of red, brown, gray, and white. Beds unconformably on Paleozoic rocks and many of the volcanic units. As much as 400 feet thick.
 - Ta**
Andesite
Light-gray flows with conspicuous hornblende phenocrysts. In this section, andesite and hornblende phenocrysts are set in a trachytic matrix of andesite microlites and cryptocrystalline material that has refractive index below balsam. Some flows contain a clinopyroxene. Unit is 100 to 300 feet thick.
 - Tsc**
Sandstone and conglomerate
White to red, thin to medium-bedded, fine to medium-grained, poorly sorted sandstone, tuffaceous in part, and conglomerates containing numerous cobbles and boulders from underlying Ta unit. Deposited on a surface of considerable relief. As much as 200 feet thick.
- ROCK UNITS FOUND ONLY IN AREA A**
- Ta**
Andesite and basalt
Principally dark-gray andesite but locally contains thin flows of black basalt. At least 200 feet thick.
 - Trt**
Rhyolite welded tuff
Pale reddish-purple to pale reddish-brown well-indurated welded tuff; composed of sandstone, quartz, and biotite crystals 1-2 mm in diameter and numerous pumice fragments in a very fine grained matrix of desiccated ash and partially flattened desiccated ash and pumice fragments. May be related genetically to underlying rhyolite welded tuff, Tr. About 50 feet thick.
 - Trw**
Rhyolite welded tuff
Grayish-pink to reddish-brown well-indurated welded tuff; contains abundant sandstone, quartz, and biotite crystals 1-2 mm in diameter and numerous pumice fragments 2-3 mm long. Matrix consists of desiccated ash and partially flattened desiccated ash and pumice fragments. May be related genetically to overlying welded tuff, Trt. At least 100 feet thick.
 - Tl**
Lattice
Grayish-reddish-purple to very dark grayish-reddish-purple flows. Some flows have andesite phenocrysts with trachytic groundmass composed of andesite microlites and abundant cryptocrystalline material that has refractive index below balsam; other flows have andesite phenocrysts and cryptocrystalline groundmass that has index below balsam. From 20 to 70 feet thick.
 - Tr(?)**
Rhyolite welded (?) tuff
Light-gray to pale reddish-purple welded (?) crystal tuff. Moderately indurated. Contains abundant quartz and sandstone crystals less than 1 mm in diameter and subordinate oligoclase and biotite in a very fine grained matrix of desiccated ash. Forms gentle rubble-stream slopes with few outcrops. Base not exposed. At least 150 feet thick.
- ROCK UNITS COMMON TO ENTIRE MAP AREA**
- Tb**
Basalt, andesite, and latite
Principally dark-gray to black basalt and gray to dark purplish-gray andesite interlayered with red to black scoriaceous basalt. Pale-brown to reddish-brown latite common south of Williams Ranch and in upper part of west in vicinity of Farley W. Mountain. Andesites are pyroxene bearing and have trachytic groundmass containing andesite microlites and minor amount of crystalline material that has refractive index below balsam; latites are hornblende bearing and have trachytic groundmass with andesite microlites and about 20 percent crystalline material that has refractive index below balsam. Probably as much as 500 feet thick.
 - Tp**
Porphyritic quartz latite
Gray to brownish-red, rough-weathering porphyritic flows. Abundant conspicuous phenocrysts of andesite as much as 4 mm long, smaller biotite phenocrysts and sparse sandstone, quartz, and hornblende phenocrysts set in a glassy to cryptocrystalline matrix containing plagioclase microlites. Commonly forms massive ledges. May be as much as 500 feet thick.
 - Tr**
Rhyolite welded tuff
Light to dark brownish-red welded crystal tuff. Contains abundant quartz, sandstone, and biotite phenocrysts 1-2 mm in diameter and numerous pumice fragments 2-3 mm long. Matrix consists of desiccated ash and partially flattened desiccated ash and pumice fragments. May be related genetically to overlying welded tuff, Trt. At least 200 feet thick.
 - Tl**
Lattice
Dark grayish-purple to dark gray aphanitic flows and breccias containing numerous small (1 mm) andesite phenocrysts and lower biotite and hornblende crystals. Groundmass consists of cryptocrystalline material with numerous fine stably plagioclase phenocrysts; other flows have andesite phenocrysts and cryptocrystalline groundmass that has index below balsam. May contain flows as much as andesite. Base not exposed. At least 200 feet thick.
 - Klc**
Limestone conglomerate
Light to dark-gray rounded limestone pebbles and cobbles in a limestone matrix. Rests on unconformity with at least 75 feet of relief. At least 50 feet thick.
 - Pu**
Upper Paleozoic rocks, undifferentiated
Light to dark-gray, medium-bedded, cherty limestone, cherty in part. Probably composed entirely of rocks of Mississippian or younger age. No strata of Pennsylvanian formation of Stoyanow, 1926, recognized. Probably at least 1000 feet thick.
 - Pls**
Limestone
Light to dark-gray, medium-bedded, cherty limestone. Contains brown-weathering silicified oolites near base. At least 50 feet thick, but top is present erosion surface.
 - Sto**
Parasitic formation of Stoyanow, 1926
Principally limestone in beds 1 to 2 feet thick which typically weather gray to grayish orange. Some beds contain brown-weathering oolites. Quarzite bed 2 to 6 feet thick at top of the formation. At least 50 feet thick.
 - Me**
Deerborn limestone
Medium-gray, medium to thick-bedded limestone with white to dark-gray chert nodules commonly 6 to 12 inches long. Base not exposed. Probably more than 500 feet thick.
 - Om**
Montoya limestone
Principally dark gray weathering, thick-bedded to massive dolomite. Lower half has several units 10 to 20 feet thick that contain 20 percent chert in thin layers. Based 4 to 10 feet in quartzite and dolomitic sandstone. Top not exposed. Forms cliffs. Exposed thickness about 200 feet.
 - Dep**
El Paso limestone
Light to medium-gray, thin-bedded limestone, in places cherty; numerous closely spaced, crinkled, tan to brown-weathering argillaceous and silty layers a fraction of an inch to about an inch thick are typical. Probably at least 200 feet thick.
 - OCp**
Bliss sandstone
Dark-brown weathering cross-bedded sandstone, in part dolomitic. About 20 feet thick.
 - Gr**
Granite
Coarse-grained, gneissic in part. Poorly exposed.
 - S**
Siltified rock
 - C**
Contact
Alluvial contacts dashed
 - F**
Fault
Dashed where approximately located, dotted where concealed
 - SD**
Strike and dip of beds and layers

MAP SHOWING AREAS OF ROCK UNITS AS SUBDIVIDED IN EXPLANATION

RECONNAISSANCE GEOLOGIC MAP OF THE CEDAR MOUNTAINS, GRANT AND LUNA COUNTIES, NEW MEXICO

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SCALE 1:62,500
CONTOUR INTERVALS 10, 25, 100, 200 FEET
DATUM IS MEAN SEA LEVEL

1961