

## Capilla Peak Quad Rock Units (5/23/00)

The following lithologies (oldest-to-youngest) are proposed:

<b>Xsr</b>	Sevilleta metarhyolite
<b>Xa</b>	Amphibolite
<b>Xps</b>	Pelitic schist
<b>Xla</b>	Lithic arenite
<b>Xwr</b>	White Ridge quartzite
<b>Xq</b>	Sais quartzite
<b>Xbs</b>	Blue Springs schist
<b>Xr</b>	Metarhyolite
<b>Xmc</b>	Metachert
<b>Xog</b>	Ojito granite
<b>Xml</b>	Monte Largo granite
<b>Ps</b>	Sandia Formation
<b>Pml</b>	Madera Group, lower cherty fossiliferous limestone unit
<b>Pmu</b>	Madera Group, upper arkosic unit

### Xsr – Sevilleta Metarhyolite:

Mainly felsic metaigneous rocks (metarhyolite) with abundant, but volumetrically minor, amphibolite dikes and sills (a) and scattered quartzite and schist. Metarhyolites are generally red, pink or gray blocky-fracturing porphyritic aphanites with quartz and feldspar clasts typically about 1 mm across. In some rocks, quartz clasts macroscopically evidence east-side-up shearing. Texture ranges from thin, well-developed compositional banding to massive. Planar features, which may be flow bands or shear bands, are common and range considerably in thickness. Quartz veins, quartz lenticles and pegmatite are present locally and generally parallel foliation

### Xa – Amphibolite:

Mainly black to dark green, fine- to coarse-grained amphibolites with varying amounts of macroscopic white plagioclase which range in texture from salt-and-pepper to smeared-out shear banding. Coarse-grained metadiorites are present locally. Mafic units have apparent widths up to 150+ m and may thicken, thin, fork and pinch out along strike. Equivalent to the pCb “basic schist” unit of Myers and McKay (1972).

### Xps – Pelitic Schist:

Mainly schistose metasediments intruded by, or interlayered with, mafic metaigneous dikes and flows. The metasediments are mostly quartz-muscovite schists that are often strikingly colored in shiny reds, silvers and golds. Staurolite and amphibolite porphyroblasts are sometimes present in the schists. Protoliths were probably siltstones. Equivalent to the pCmf “mixed flow” unit of Myers and McKay (1972).

### Xla - Lithic Arenite:

This unit consists of a variety of metasedimentary rocks including metawacke, metaarkose and impure metaquartzite. For the most part, this unit consists of equal volumes of brown weathered arkosic phyllites and impure arkosic quartzite with light green to gray fresh surfaces. The phyllites and some quartzites are thinly bedded; more massive, quartzite facies are dominant locally. Schistosity is variably developed

throughout the unit. The phyllites show excellent cleavage and a silvery sericitic sheen on smooth cleavage surfaces. Chloritoid and andalusite porphyroblasts are common on phyllitic cleavage surfaces in the northwest corner of the quadrangle, probably due to its proximity of the Ojito pluton to the north. Compositional layering (So) is commonly preserved and is generally at low angle to the dominant schistosity (S1). Includes the Bosque and Moyas metasedimentary units of Edwards (1978), the lower metaclastic series of Reiche (1949) and the flaggy schist zone of Myers and McKay (1972).

**Xwr – White Ridge Quartzite:**

Mainly brownish-white, massive to well-bedded quartzite. Gray, pink, red and purple facies occur locally. Bedding planes commonly show sericitic reflecting surfaces. Grain size ranges from very fine to coarse sand; larger grains often evidence shearing. Thinner beds of sericite-quartz schist are found within the quartzite; quartz dikes (q) intrude it; and an arkosic, conglomeritic facies containing mm-sized blue quartz and plagioclase crystals lies along the west margin of the unit. The unit grades into lithic arenite on both its east and west margins.

**Xq - Sais Quartzite:**

Mainly bluish-gray to milky-white, massive to bedded to highly mylonitic quartzite. Greenish-gray, pink, lavender and purple facies occur locally. In hand sample, it generally appears to be a purer quartzite than that found in the Xla and Xwr units. Cross bedding is locally preserved. Correlates with the Cerro Pelon and Coyote quartzites of Cavin (1985) and the Sais and pCmq quartzite units of Myers and McKay (1972).

**Xbs - Blue Springs Schist:**

Mainly muscovite-chlorite schists and phyllites ranging in color from blueish-green to reddish-gray. They range in composition from sericite schist to chlorite-quartz schist. Compositional layering (So) has been transposed into S1 that is sometimes preserved within, and is occasionally at high angle to, an S2 crenulation cleavage, the dominant foliation. Outcrops of schist are characterized by numerous lenticular and fish-hook shaped quartz veins, lenses, and pods that are oriented subparallel to S2, range from mm to cm in width and tens of cm in length, and make up as much as 50% of the rock. Quartzose pegmatites containing pink feldspar are common locally. Relatively small, isolated outcrops of brown quartzite and laminated metachert are found throughout the unit. The protolith may have been an iron-rich impure shale which accumulated in a fairly deep-water, low-energy basin and was thereafter intruded by silica-rich fluids and indurated in an accretionary wedge environment.

**Xmc - Metachert:**

Dominantly a distinctive fine-grained, silicious, well-laminated micaceous quartzite that is often colorfully striped (pink, green, gray) and complexly folded. Laminae range from 1 mm to 10 cm thick and probably represent S0 or S1 layering. Folds (F2) are generally small, open to tight, and disharmonic. The protolith may have been an impure chert.

**Xr – Metarhyolite:**

Pink, blocky-fracturing, aphanitic metarhyolite. Quartz veins and lenticles are present locally. Textures range from massive to crudely laminated. Macroscopic quartz and

feldspar clasts, common in the Sevilleta metarhyolite, are absent, but white stretching lineations are macroscopically present locally.

**Xog - Ojito Granite:**

Medium grained massive quartz monzonite composed of quartz, sodic andesine, microcline, biotite, and accessory hornblende, sphene, epidote, apatite, and tourmaline; U-Pb zircon date of  $1659 \pm 5$  Ma.

**Xml - Monte Largo Granite:**

Variably deformed granodiorite, quartz monzonite, and granitic rock. The granodiorite is medium grained and consists mainly of altered feldspar (30-40%, much is now sericite), quartz (20-25%), chloritized biotite, rare hornblende (altered to chlorite and biotite), and epidote. Minor phases include calcite, apatite, zircon, tourmaline, and altered sphene. Mafic enclaves are common in the granodiorite; pegmatites are rare. U-Pb zircon date of  $1656 \pm 10$  Ma.

**Ps – Sandia Formation:**

Mostly slope-forming yellowish-brown, gray and greenish-gray sandstones and micaceous siltstones interbedded with yellowish-brown, gray and black shales or carbonaceous shales, grading down to basal quartz pebble conglomerates and up to thin-bedded limestone. Approximate thickness 75 m.

**Pml – Madera Group, lower cherty fossiliferous limestone unit:**

Mostly cliff-forming, gray fossiliferous limestone with minor interbedded shales and quartzose to feldspathic sandstones and conglomeritic sandstones. Individual massive to nodular limestone beds are commonly 20-30 ft thick and may reach 60 ft. Irregular masses of black to reddish-orange chert are common in massive limestone beds. Nodular limestone often weathers to mottled gray and brown surfaces. Limestones are interbedded with light to dark gray and yellowish brown to greenish gray siltstones that are often micaceous. Siltstones locally grade up into lenticular to tabular quartz arenites and quartz pebble conglomerates of light gray to yellowish brown color. Clastic units locally contain silicified wood. Includes Pml and Pmub units of Myers and McKay (1972). Approximate thickness 150-250 m.

**Pmu – Madera Group, upper arkosic unit:**

Interbedded arkosic conglomeratic sandstone, sandstone, siltstone, mudstone and limestone; mostly slope to ledge-forming. Yellowish to reddish brown and light gray arkosic to feldspathic sandstone and conglomeratic sandstone are lenticular and grade into pale yellow brown, gray and purplish gray mudstones and micaceous siltstones. Clastic units locally contain silicified wood. Tabular, ledge-forming, light to dark gray, fossiliferous limestones are commonly interbedded with mudstones and may locally contain feldspathic detritus. Red muddy soils are common on the upper arkosic member. Generally equivalent to Pmuc and Pmud of Myers and McKay (1972).