



Supplemental road log 2: Lobo Canyon, from Grants to San Mateo to Milan

Patricia B. Jackson Paul and Virginia T. McLemore
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SUPPLEMENTAL ROAD LOG 2: LOBO CANYON, FROM GRANTS TO SAN MATEO TO MILAN

PATRICIA B. JACKSON PAUL AND VIRGINIA T. MCLEMORE

Assembly point: Traffic light at Santa Fe and First Street, Grants, New Mexico.

Distance: 54.5

Stops: 2

SUMMARY

This supplemental road log describes a route up the popular Lobo Canyon (State Road 547), northeast of Grants, New Mexico and ends in Milan, NM (Fig. S2.1). The trip traverses Jurassic and Cretaceous sedimentary rocks as well as Cenozoic volcanic rocks and passes East Grants Ridge, where limestone, uranium, pumice, and perlite have been mined (see McLemore and Barker, this guidebook). The road log also includes a popular mineral collecting locality where micro-

mounts of topaz and garnet are found along with larger Apache tears (obsidian). This road log is an updated and expanded version of the road log that appeared in the 1989 guidebook (McLemore et al., 1989).

0.0 Santa Fe and First Street. **Turn north onto First Street.** Black Mesa and West Grants Ridge at 9:00 to 11:00. East Grants Ridge at 12:00. All three ridges are capped by Cenozoic basalt flows overlying Triassic and Jurassic sedimentary rocks (Thaden et

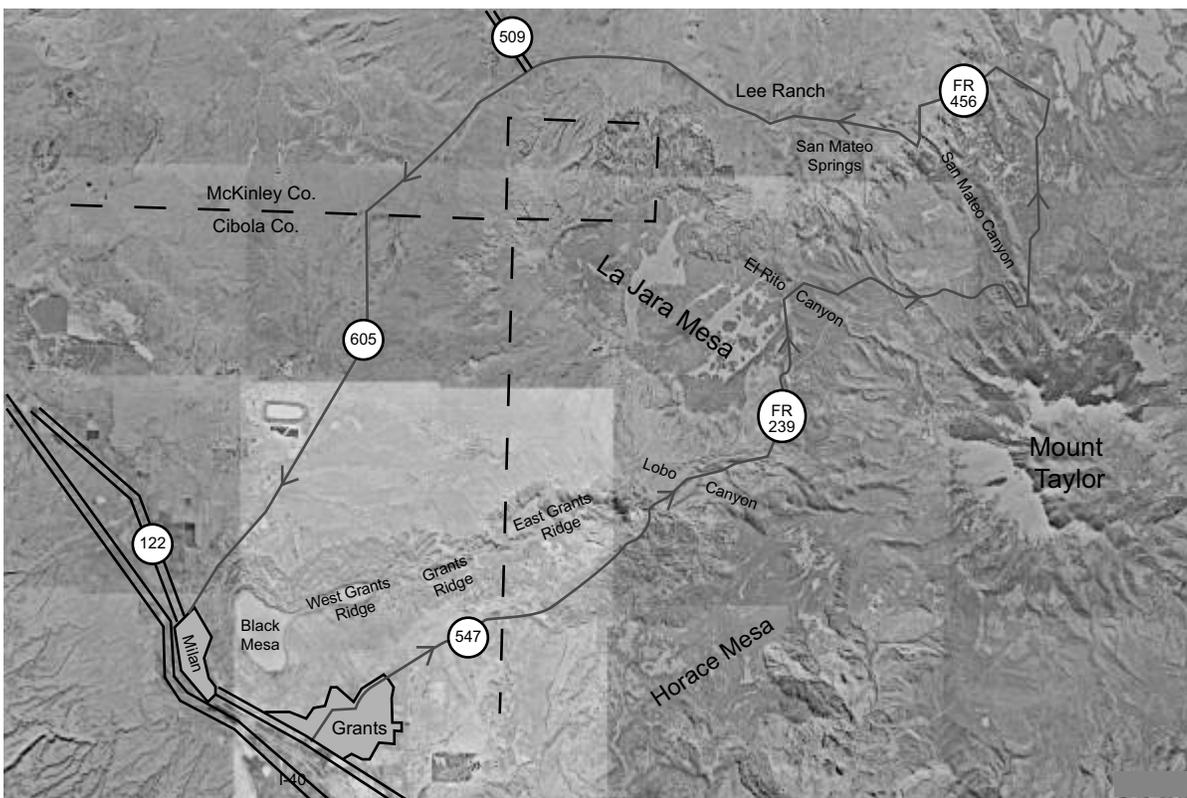


FIGURE S2.1. Map of route of supplemental log 2.

- al., 1967). Rough topography is a result of landslides caused by erosion of sedimentary rocks of the Chinle Group and resulting collapse of the overlying basalt. The houses along the hillslopes below the ridges are built on landslide and talus deposits. East Grants Ridge at 12:00-1:00 consists of Cenozoic rhyolite and basaltic pyroclastic rocks overlying Jurassic and Cretaceous sedimentary rocks. The white scar below the crest of the ridge is pumice, which was quarried from 1938 to 1952. **0.4**
- 0.4 Stop sign. Go straight. **0.4**
- 0.8 Stop sign. Intersection with Roosevelt (NM-547). **Turn right** onto NM-547. Horace Mesa at 12:00. Todilto Formation exposed at the base of Horace Mesa. **0.5**
- 1.3 Traffic light. **Turn left** onto Lobo Canyon Road (NM-547), pass Lobo Canyon shopping center. Ascend gentle slope of Quaternary alluvial fan deposits derived from the Grants Canyon area to the east. East Grants Ridge forms western skyline. Ridges are capped with basalt. **0.1**
- 1.4 Entrada-Todilto bench at 3:00. **2.2**
- 3.6 Road intersects hogback on right. Hogback controlled by south-side-down normal fault. Dumps of white pumice on left. Basalt capped mesa on left. Mount Taylor at 12:00. **0.2**
- 3.8 Grants Correctional Facility on right. Roadcuts ahead and hills behind the correctional facility are Quaternary talus and landslide deposits on top of Cretaceous sedimentary rocks (Thaden et al., 1967). Bedding is gently tilted to the north. **1.1**
- 4.9 Cibola National Forrest boundary at cattleguard. Cretaceous Mancos Shale and Mesaverde Group outcrops in road cuts. Begin Forest Road 239. **0.6**
- 5.5 US Forest Service trailhead on right. **0.5**
- 6.0 Milepost 6. At 10:00, below the ridge crest, pumice is overlain by basalt scoria and intruded by a basalt plug. Pumice is a lightweight, porous igneous rock that forms during explosive volcanic events. Pumice is used mainly as an aggregate in lightweight building blocks and assorted building products; other uses include industrial abrasive, absorbent, concrete aggregate and admixture, filter aid, filler, soap, horticulture (including landscaping), and the stonewashing of denim (Bolen, 2001). The East Grants Ridge pumice deposit was mined during World War II and from 1946 to 1952 (Barker et al., 1989). Pumice Corporation of America (PCA) produced 59,473 short tons of pumice from open pits from 1946 to 1952 (Weber, 1965); production during World War II is unknown. **1.8**
- 7.8 Bend in road at head of Lobo Canyon. **STOP 1.** Boulders of Tertiary flow-banded rhyolite are found on both sides of the road. This is a well known mineral collecting locality for excellent micromounts of clear to amber topaz (6 mm or more long) and red-brown to red spessartine garnets (less than 1 cm in diameter) found in cavities and lithophysae in the rhyolite flow (De Mark, 1989; Barker et al., 1989; McLemore et al., 1989). In addition, quartz (less than 1 mm long), Apache tears (obsidian, 3 cm in diameter), and cassiterite (less than 4 mm in diameter) are found. The topaz and garnets are found in vugs and cavities within the rhyolite; the largest crystals are 10 mm. Apache tears have been weathered out of the rhyolite and can be found by sifting the soil. Samples of the obsidian were dated at 3.3 Ma by K/Ar methods (Bassett et al., 1963a, b). **0.1**
- 7.9 U.S. Gypsum perlite mine on left. **STOP 2.** Permission is required to enter the quarry. The U. S. Gypsum (USG) perlite deposit is mainly in sections 35, 36 T12N, R9W and sections 1, 2 T11N, R9W, comprising 1144 acres. Perlite is a weathered, high-silica rhyolitic volcanic glass with 2-5% water. When sized, perlite is rapidly softened in a commercial furnace, and the water converts to steam bubbles that produce lightweight cellular foam when the perlite is cooled. This rock foam has many uses in construction, filtering, and horticulture. The deposit is related to a local vent/plug in the Mount

- Taylor volcanic complex and is up to 177 ft thick in drill holes. The perlite is tan to gray, with flow banded and pumiceous portions, and granular texture. Perlite is ripped and loaded onto trucks for transport to the Grants mill. USG operations began in 1953, after purchasing the property from PCA and local claim holders, and terminated in the early 1990s. For many years, less than 10,000 tons were produced yearly by open pit methods, and a significant portion of the 6-10-million-ton reserve remains in place. Total production was a few hundred thousand tons. The mill is on a rail siding in Grants and has a permitted capacity of 20 tons per hour (116,000 tpy), but rarely operated at that level and needs a major overhaul. The property is currently for sale by USG. **1.0**
- 8.9 Mancos Shale on the right. **0.1**
- 9.0 County Rd 18 on left. Stay on Forest Road 239. **0.3**
- 9.3 Mancos Shale in roadcut on right. **0.6**
- 9.9 Mancos Shale in roadcut on right. **0.1**
- 10.0 County Road 19 on left. **Stay on FR-239. 0.9**
- 10.9 Coal Mine Recreation Area. Basalt capping mesa, overlying Cretaceous sedimentary rocks. **0.4**
- 11.3 Mancos Shale in roadcut on right. **0.5**
- 11.8 Roadcut through Cretaceous sedimentary rocks. **1.2**
- 13.0 Basalt capping mesa, overlying Cretaceous sedimentary rocks. **0.2**
- 13.2 Junction with FR-544 on left and FR-193 to the right. **Continue on FR-239. 0.1**
- 13.3 Paved road ends. **1.9**
- 15.2 Crossing El Rito Canyon. **0.4**
- 15.6 Cattleguard. **0.9**
- 16.5 La Mosca road to right goes to top of Mt. Taylor. **Continue straight** on FR-239. **1.9**
- 18.4 **Veer right** to stay on FR-239. **2.0**
- 20.4 Outcrops to right are weathered rhyolitic ash/tuff deposits. **1.2**
- 21.6 Mud flow deposit exposed on right. **0.2**
- 21.8 Outcrop of rhyolite on right side of road. **0.1**
- 21.9 Junction with FR-451. **Turn left**, staying on FR-239. **2.5**
- 24.4 Junction with FR-230-E1 on left and FR-230-E2 on right. **Stay on FR-239. 1.4**
- 25.8 Cattleguard. **0.5**
- 26.3 Road junction. **Turn left** onto FR-456. Roadcuts expose mudflows inset in Cretaceous rocks. **0.9**
- 27.2 Basalt capped mesa on the left. **0.3**
- 27.5 FR-456D to the right just before the cattleguard. **Stay on FR-456. 0.1**
- 27.6 Outcrops of vesicular basalt on the right side of road. **0.6**
- 28.2 Roadcut of Cretaceous sedimentary deposits. View to the left is of the valley below with many mesas and hogbacks dotting the landscape. **0.1**
- 28.3 Fault contact of shale and sandstone in road cut. Fault doesn't cut through overlying mudflows and volcanic debris. **1.9**
- 30.4 Stop sign and cattleguard. **Keep left**. Lee Ranch to right. San Mateo to left. Mount Taylor uranium mine at 11:00. The pipeline that you see along the road was used to carry water from the Mount Taylor mine to Laguna Polvadera on the Lee Ranch. **0.6**
- 31.0 Dirt road to San Mateo Mesa. Continue straight. Cattleguard. **1.0**
- 32.0 **Bear right onto NM Highway 605. 4.1**
- 36.1 Milepost 18. San Mateo mine at 9:00. **1.7**
- 37.8 McKinley County line. Highway is on the Mancos Shale. The main body of the Cretaceous Gallup Sandstone can be seen to the right. **0.7**
- 38.5 Uranium mine at 9:00. **2.1**
- 40.6 Junction with NM-509, which takes you to Ambrosia Lake. **Keep left** and stay on NM-605. **4.5**
- 45.1 Cibola County line. The reddish Entrada Sandstone cliffs (Jurassic) off to the right are overlain by white Todilto Formation. **3.4**
- 48.5 Milepost 6. F33 mine at 9:00. Homestake mill on right. La Jara Mesa at 7:00-8:00. **6.0**
- 54.5 Junction with NM-122 and railroad tracks in Milan. Turn left to return to Grants.

End of Supplemental Road Log 2