Downloaded from: https://nmgs.nmt.edu/publications/guidebooks/56



# Tierra Amarilla to El Vado Dam: Third-day supplemental road log

Spencer G. Lucas, Donald E. Owen, Kate E. Zeigler, Adrian P. Hunt, and Andrew B. Heckert 2005, pp. 69-70. https://doi.org/10.56577/FFC-56.69

in:

*Geology of the Chama Basin*, Lucas, Spencer G.; Zeigler, Kate E.; Lueth, Virgil W.; Owen, Donald E.; [eds.], New Mexico Geological Society 56<sup>th</sup> Annual Fall Field Conference Guidebook, 456 p. https://doi.org/10.56577/FFC-56

This is one of many related papers that were included in the 2005 NMGS Fall Field Conference Guidebook.

# **Annual NMGS Fall Field Conference Guidebooks**

Every fall since 1950, the New Mexico Geological Society (NMGS) has held an annual Fall Field Conference that explores some region of New Mexico (or surrounding states). Always well attended, these conferences provide a guidebook to participants. Besides detailed road logs, the guidebooks contain many well written, edited, and peer-reviewed geoscience papers. These books have set the national standard for geologic guidebooks and are an essential geologic reference for anyone working in or around New Mexico.

## **Free Downloads**

NMGS has decided to make peer-reviewed papers from our Fall Field Conference guidebooks available for free download. This is in keeping with our mission of promoting interest, research, and cooperation regarding geology in New Mexico. However, guidebook sales represent a significant proportion of our operating budget. Therefore, only *research papers* are available for download. *Road logs, mini-papers*, and other selected content are available only in print for recent guidebooks.

# **Copyright Information**

Publications of the New Mexico Geological Society, printed and electronic, are protected by the copyright laws of the United States. No material from the NMGS website, or printed and electronic publications, may be reprinted or redistributed without NMGS permission. Contact us for permission to reprint portions of any of our publications.

One printed copy of any materials from the NMGS website or our print and electronic publications may be made for individual use without our permission. Teachers and students may make unlimited copies for educational use. Any other use of these materials requires explicit permission.

This page is intentionally left blank to maintain order of facing pages.

# TIERRA AMARILLA TO EL VADO DAM THIRD-DAY SUPPLEMENTAL ROAD LOG

# SPENCER G. LUCAS, DONALD E. OWEN, KATE E. ZEIGLER, ADRIAN P. HUNT AND ANDREW B. HECKERT

Begin: Intersection of Highways 84 and 112 near Tierra Amarilla

Distance: 14.3 miles

One stop

#### **SUMMARY**

This supplemental log traverses the lower part of the Mancos Shale to end at El Vado Dam. Here, Cretaceous stratigraphy and depositional systems of the Dakota Sandstone and lower part of the Mancos Shale are discussed.

### 0.0 Begin Road Log at Intesection of US Highway 84 and New Mexico Highway 112.

Proceed on NM 112 to El Vado State Park. Road is on<br/>Pleistocene Brazos lava flow.1.81.8Junction with 531 to right. Continue straight on 112.<br/>0.5

- **2.3**At 9:00, note Upper Cretaceous Point Lookout<br/>Sandstone on point of mesa.1.7
- **4.0** Road descends through Pleistocene basalt to Cretaceous bedrock and will now drop through a section of the lower part of the Mancos Shale. 0.7
- **4.7** Rito de Tierra Amarilla to left. 0.3
- **5.0** Cross Rito de Tierra Amarilla 2.3
- **7.3** Roadcut on right is in calcareous shales and limestones of Greenhorn Limestone Member of Mancos Shale. *1.8*
- 9.1 Old military base to left. Greenhorn Limestone Member in roadcuts.
  10.3 Graneros to Greenhorn members on right.
  10.9 Roadcuts in Graneros Shale Member.
  1.7



**12.6** Paguate Sandstone Tongue of Dakota on right in road cuts. Note orange-yellow-weathered color characteristic of Paguate from here south to Ghost Ranch area, as it thins considerably 0.2

- 12.8 Road to left leads to Cooper Ranch and put-in point for Chama river trips. Good exposure of Dakota, Cubero
   Sandstone Tongue at suspension footbridge across Rio Chama with Dakota, Paguate Sandstone Tongue on canyon rim. A small parking fee is collected to park at Cooper Ranch. 0.5
- **13.3** El Vado dam ahead.
- **13.9** El Vado dam. **Turn left to cross dam.**
- 14.0 Cross El Vado dam.

#### 14.3 STOP 1 - El Vado Dam Stop at end of dam.

A complete section of the Graneros Shale and Greenhorn Limestone members of the Mancos Shale is well exposed in roadcuts (Figs. S.1-S.2). Below the dam on the west side of the river, the silty, more-resistant zone above the spillway is the silty equivalent of the Twowells Sandstone Tongue of the Dakota, underlain by the Whitewater Arroyo Shale Tongue of the Mancos. In the canyon below, the thin sandstone ledge at the rim of the canyon is the Dakota, Paguate Sandstone Tongue, underlain by the Clay Mesa Shale Tongue of the Mancos above the Dakota, and the Cubero Sandstone Tongue, the double sandstone ledges at

0.6

03

Kmgh

(42 ft

Kmg

(27 ft.)

Kdt eq.

(40 ft.)

Kmwa

(66 ft.)

Kdp

2



#### FIGURE S.2 Photograph of upper Dakota through Greenhorn stratigraphic section from Cooper Ranch to north near El Vado dam. Kdcu = Dakota, Cubero Sandstone Tongue, upper parasequence; Kdp = Dakota, Paguate Sandstone Tongue; Kgh = Mancos, Greenhorn Limestone Member. Suspension footbridge above Rio Chama in foreground.

the base of the canyon. The Paguate thins dramatically from El Vado dome on the east to the west side of the Rio Chama Canyon. The Oak Canyon Member of the Dakota and Burro Canyon Formation are exposed in the distance along the river downstream from Cooper Ranch.

### END OF SUPPLEMENTAL ROAD LOG

FIGURE S.1. Measured stratigraphic section at west side of El Vado Dam. Kdp = Dakota, Paguate Sandstone Tongue; Kmwa = Mancos, Whitewater Arroyo Shale Tongue; Kdt eq. = Dakota, Twowells Sandstone Tongue equivalent; Kmg = Mancos Graneros Shale Member; Kmgh = Mancos, Greenhorn Limestone Member. X, C, and D are prominent bentonites traceable throughout much of the San Juan Basin to the west.

X

t

20

y = burrow cast

x = bentonite

o = pebble



### THIRD-DAY SUPPLEMENTAL ROAD LOG

Kgh

<dp