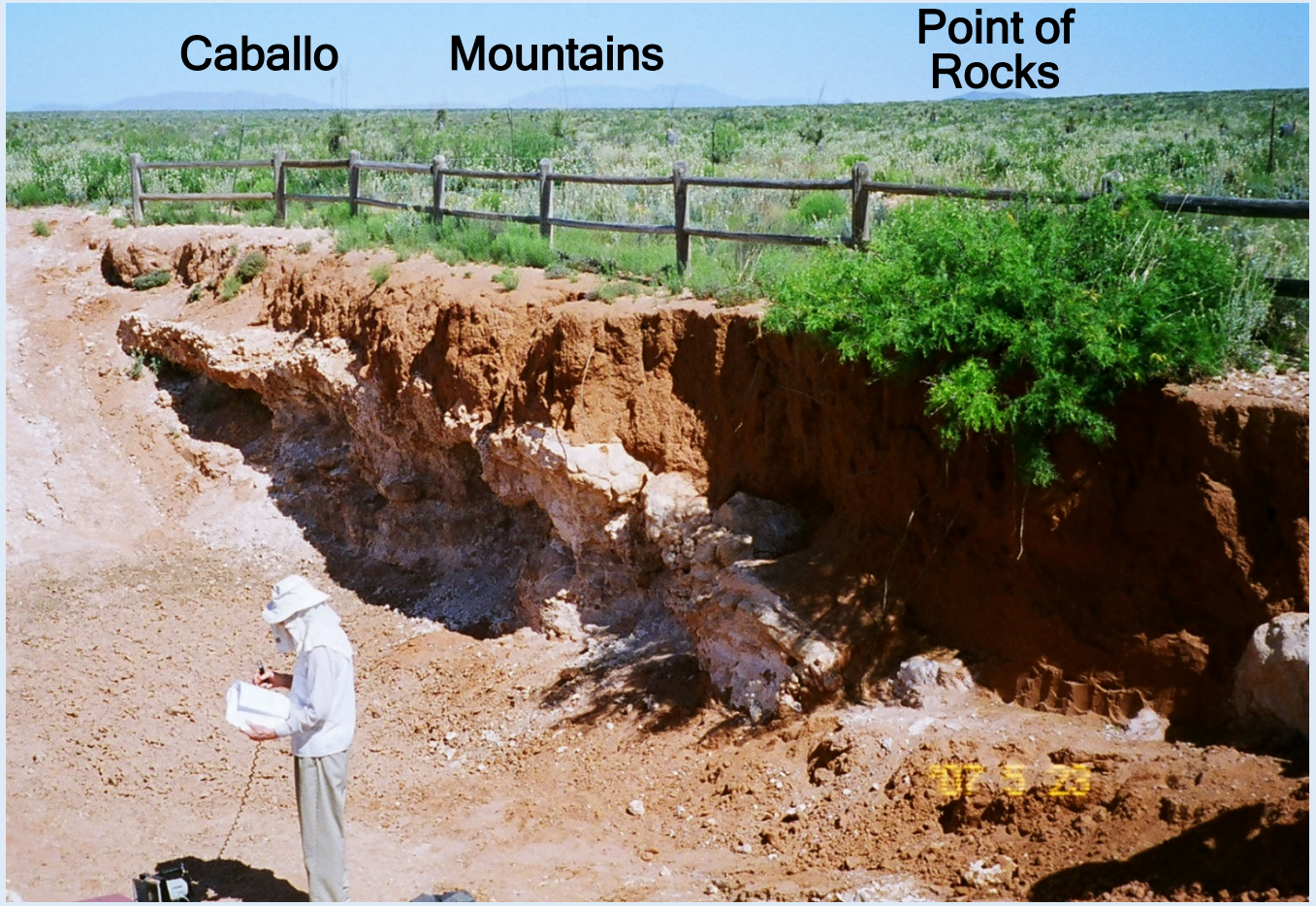
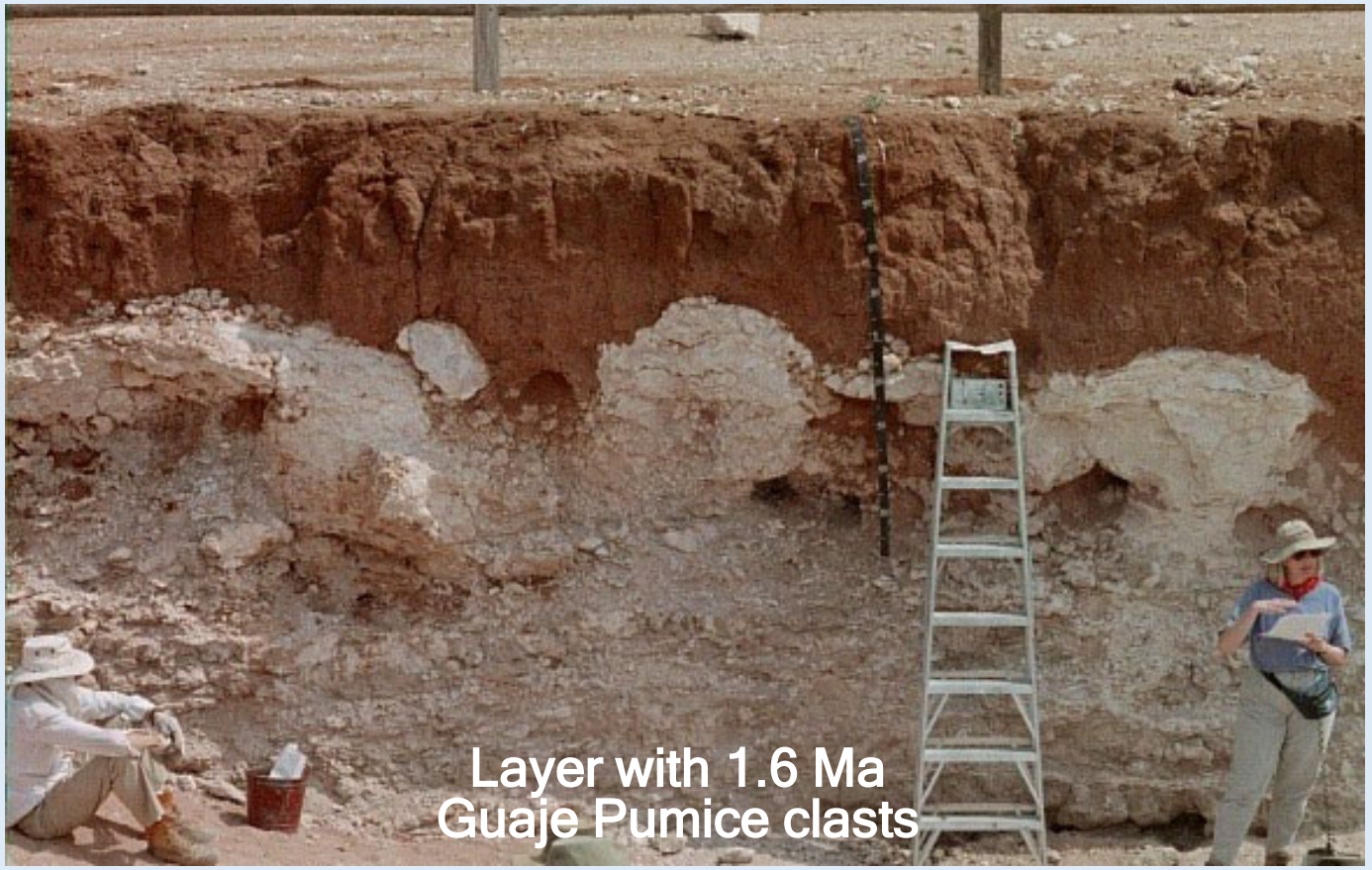
Part F7—Plates 7-1 to 7-4 Series. Land-Surface Photographs of Quaternary-Age Petrocalcic Soils, Volcanic-Ash Deposits, Volcanic-Eruptive Features, and Fault Zones

Plates F7-1a to F1-1f (Slides 129-135): Petrocalcic Soils and Associated Soil-Geomorphic Features

Pl. F7-1a (NMSU; 5/23/2007). View to the NW across SJB-Experimental Range Subbasin and Early Pleistocene fluvial plain of the ARG (La Mesa geomorphic surface). Retired soil scientist Lee Gile in USDA-ARS soil-test pit that exposes a stage-V petrocalcic horizon. *See* Pl. F7-1b for exposure details



Pl. F7-1b (NM WRRI; 5/24/2000). Degraded, stage-V petrocalcic soil exposed in 12-ft (3.7-m) deep USDA-ARS test-pit (Pl. F7-1a). The soil caps Upper SFG Camp Rice Fm ARG deposits that include Jemez Mtn.-derived clasts of 1.6 Ma Pumice. NRCS Soil Scientist Carolyn Olsen is at right.



Pl. F7-1c (NM BMMR; 10/1981). Stage V petrocalcic soil capping Upper SFG-ARG deposits on Upper La Mesa Surface west of the East Robledo fault zone. Organ Mountains on skyline east of the Mesilla Valley. SCS soil scientist Lee Gile in drainage trench at Las Cruces Airport

Pl. F7-2d (NM WRRI; 5/17/2007). Mid-Pleistocene solution-pipe in stage-V petrocalcic soil exposed in south face of the airport-drainage trench shown in Pl. F7-2c

Pl. F7-1e (NMSU; 7/18/1988). NMSU calcic-soil research trench at NE edge of Lower La Mesa surface, with East Robledo fz and Upper La Mesa surface on western horizon. John Hawley stands below a stage-IV petrocalcic soil (Pl. F7-1e) that overlies the Camp Rice Fm ARG facies (USF2, *LFA 2*). *See* Pls. F5-3h and F7-1f)

Pl. F7-1f (NM WRRI; 5/22/2007). Lower La Mesa surface exposure of Stage-IV petrocalcic soil in upper part of 1988 NMSU calcic-soil research trench shown in Pl. F7-1e.

Pl. F7-1g (UACJ; 1/14/2003). John Hawley at SW Hueco Bolson exposure of stage-III/IV petrocalcic soil that caps the Upper SFG-Camp Rice Fm deposits of mixed fluvial and eolian origin shown in Pl. F5-4a.

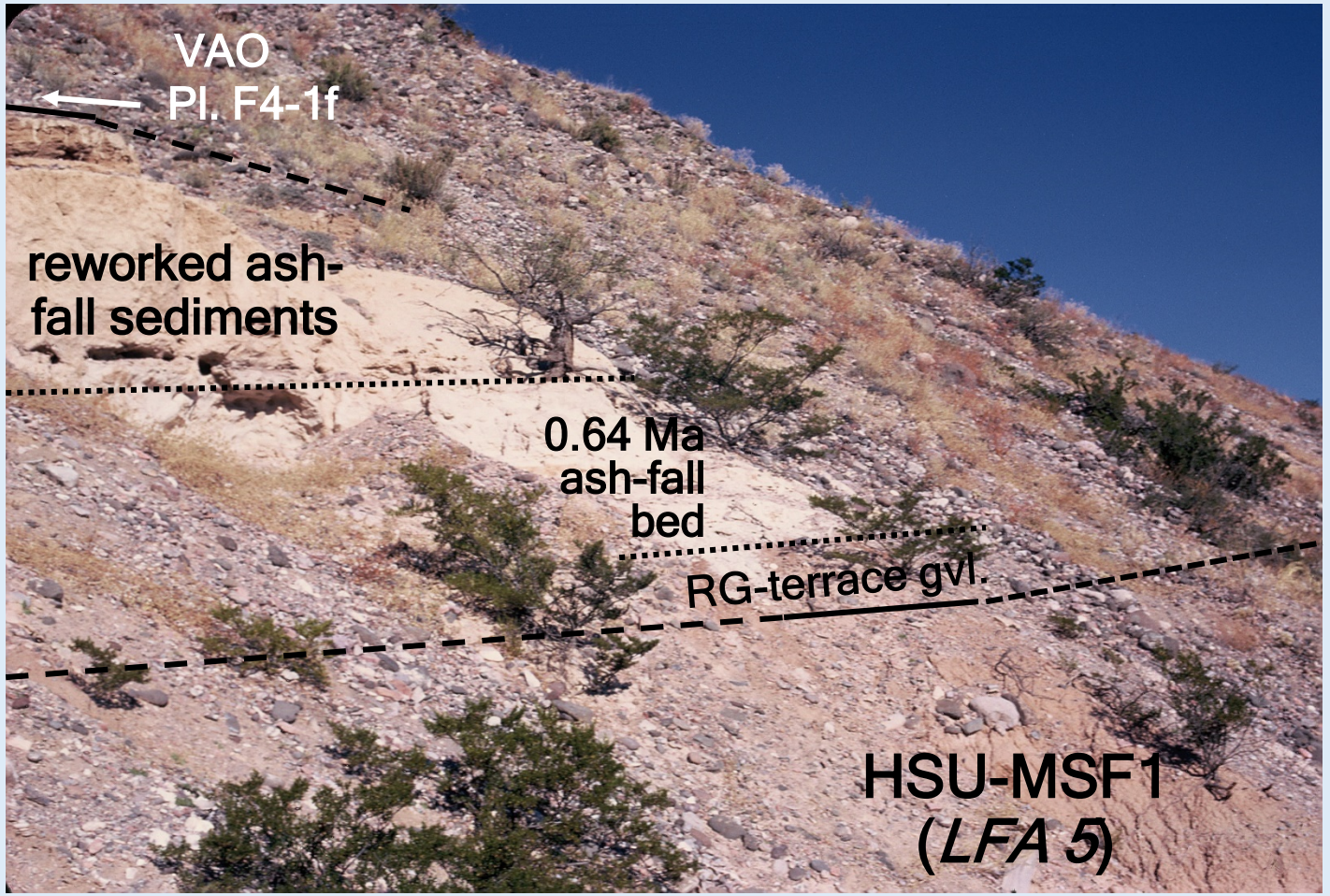
Plates F7-2a to F7-2d (Slides 137-140). Pleistocene Volcanic Ash-Fall Deposits that are Interbedded with or Cap Upper Santa Fe Gp Basin Fill

Pl. F7-2a (USDA-SCS; 3/1975). UTEP Biostratigrapher, W. S. (Bill) Strain at exposure of 2.1 Ma Huckleberry Ridge Ash-fall bed in SP[UP]RR-cut. Madden Siding site in SE Hueco Bolson near McNary (Pl. F3-3a). Ash bed is in the basal part of the Camp Rice Fm. near its erosional contact with the Fort Hancock Fm

Pl. F7-2b (USDA-SCS; 10/1969). Bishop Ash-fall bed (~0.77 Ma) exposed in El Paso Natural-Gas pipeline cut W of Anthony Gap in the northern Franklin Mtns. The bed caps an eolian-sand unit in Camp Rice Fm piedmont-slope facies (USF1). Photo site shown in Pl. F3-2h

Pl. F7-2c (USDA-SCS; 9/1969). Lee Gile points to base of Bishop Ash-fall bed (~0.77 Ma) exposed in Rincon Arroyo W of Grama Siding on the BNSFRR (~6 mi/10 km NNE of Rincon, NM. The bed overlies Upper SFG-Camp Rice Fm piedmont facies (USF1-*LFA 5*)

Pl. F7-2d (USDA-SCS; 1972). Lava Creek Ash-fall bed (~0.64 Ma) exposed in E face of Ash Mine Mesa in upper Selden Cyn. It caps the highest RG-terrace gravel here. *See* Pl. F4-1d



Plates F7-3a to F7-3f (Slides 142-147). Pleistocene Basalt Flows and Mafic Eruptive Material that Cap Upper Santa Fe Gp (SFG) Basin Fill in the Western Mesilla Basin Area

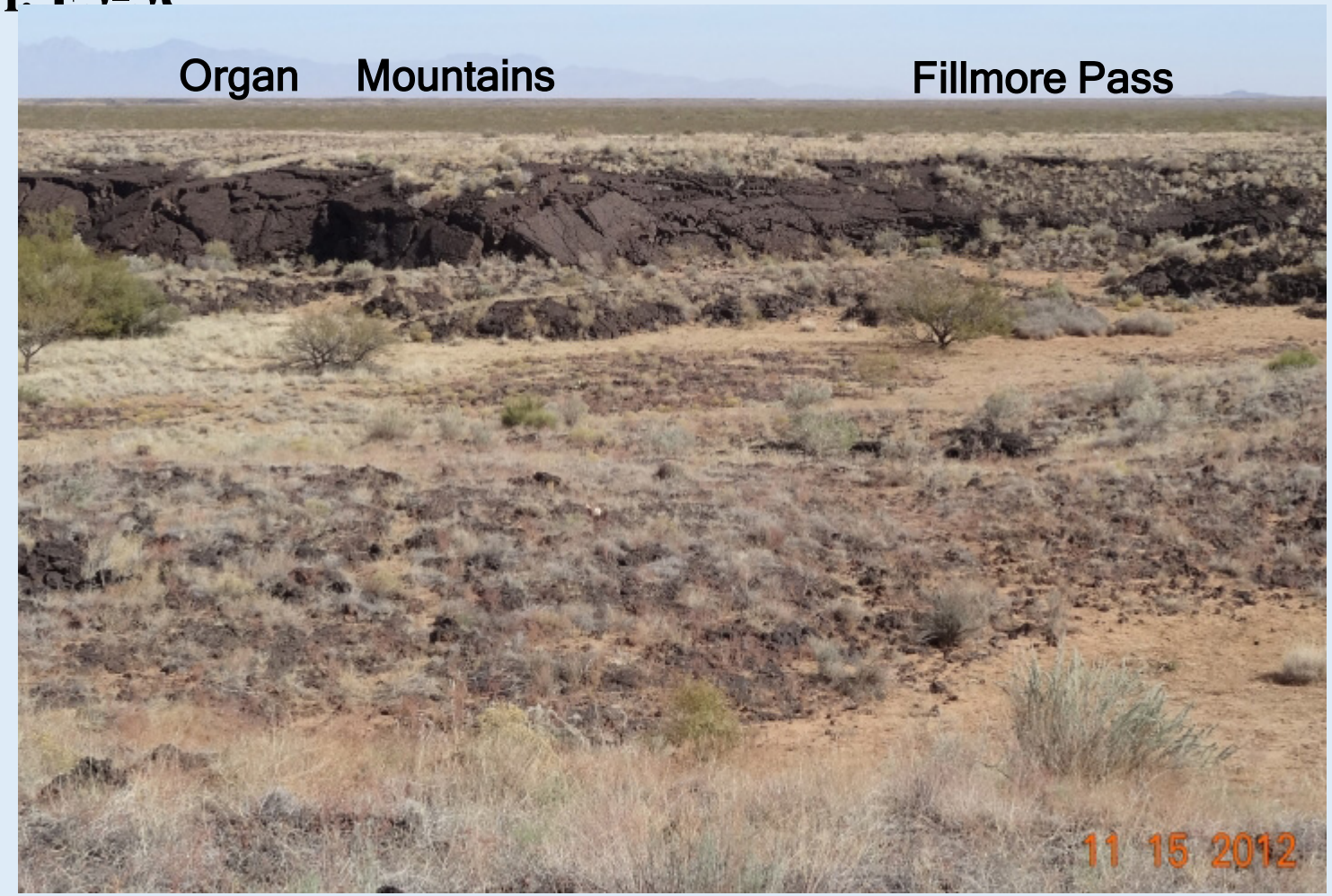
Pl. F7-3a (USDA-SCS; 3/1965). East rim of Kilbourne Hole maar, with exposures of a Mid-Pleistocene basalt flow, and capping Late-Pleistocene vent-material and tuff-ring deposits, all of which disconformably overlie Camp Rice Fm-ARG fluvial-deltaic facies (USF2). *See* Pls. F3-3b, and F7-3b to 3d

Pl. F7-3b (USDA-SCS; 3/1965). East-rim of Kilbourne Hole (Pl. F7-3a detail). Tuff-ring deposits partly cover a Mid-Pleistocene basalt flow that caps Camp Rice Fm-ARG fluvial-deltaic facies (USF2, *LFA 3*). See Pls. F7-3c and 3d

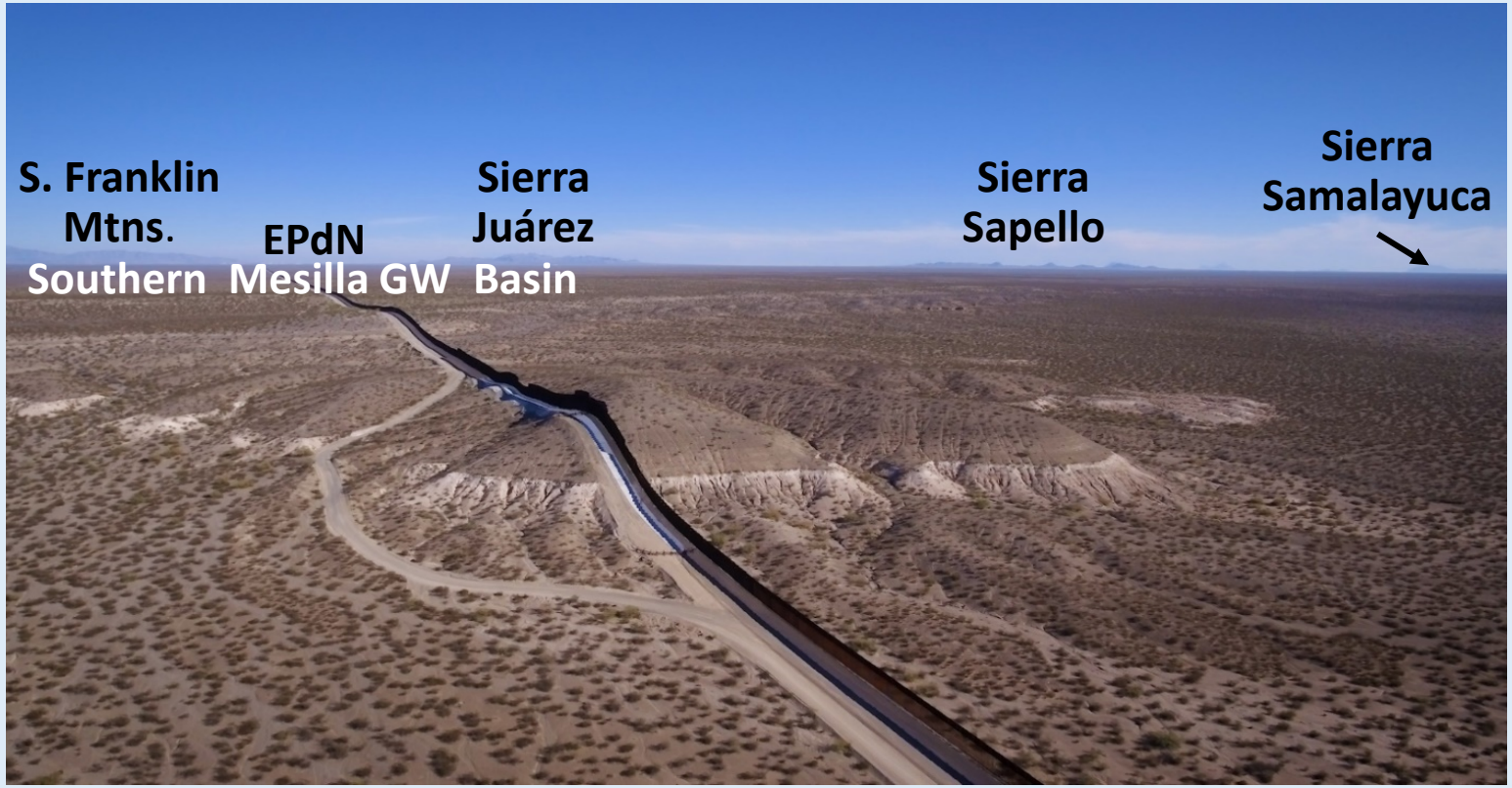
Pl. F7-3c (USDA-SCS; 3/1965). Kilbourne Hole SE rim detail-1 (with 7-ft/2-m tape). Basalt flow with Late Pleistocene tuff-ring cover partly buries Camp Rice Fm fluvial deltaic facies (USF2, LFA 3). *See* Pl. F7-3d

Pl. F7-3d (USDA-SCS; June 1969). Kilbourne Hole SE rim detail-2 (with 6-ft, 2-in man). Late Pleistocene base-surge tuff-ring facies and Mid-Pleistocene basalt-flow tongue are unconformable on Camp Rice Fm-ARG fluvial-deltaic facies (USF2, LFA 3) that has a La Mesa surface, stage- III calcic soil cap

Pl. F7-3e (Chester Callahan; 11/15/2012). Basalt-flow collapse feature in Late-Pleistocene Aden volcanic field at the western edge of the central Mesilla GW Basin. *See* Pl. F3-3c

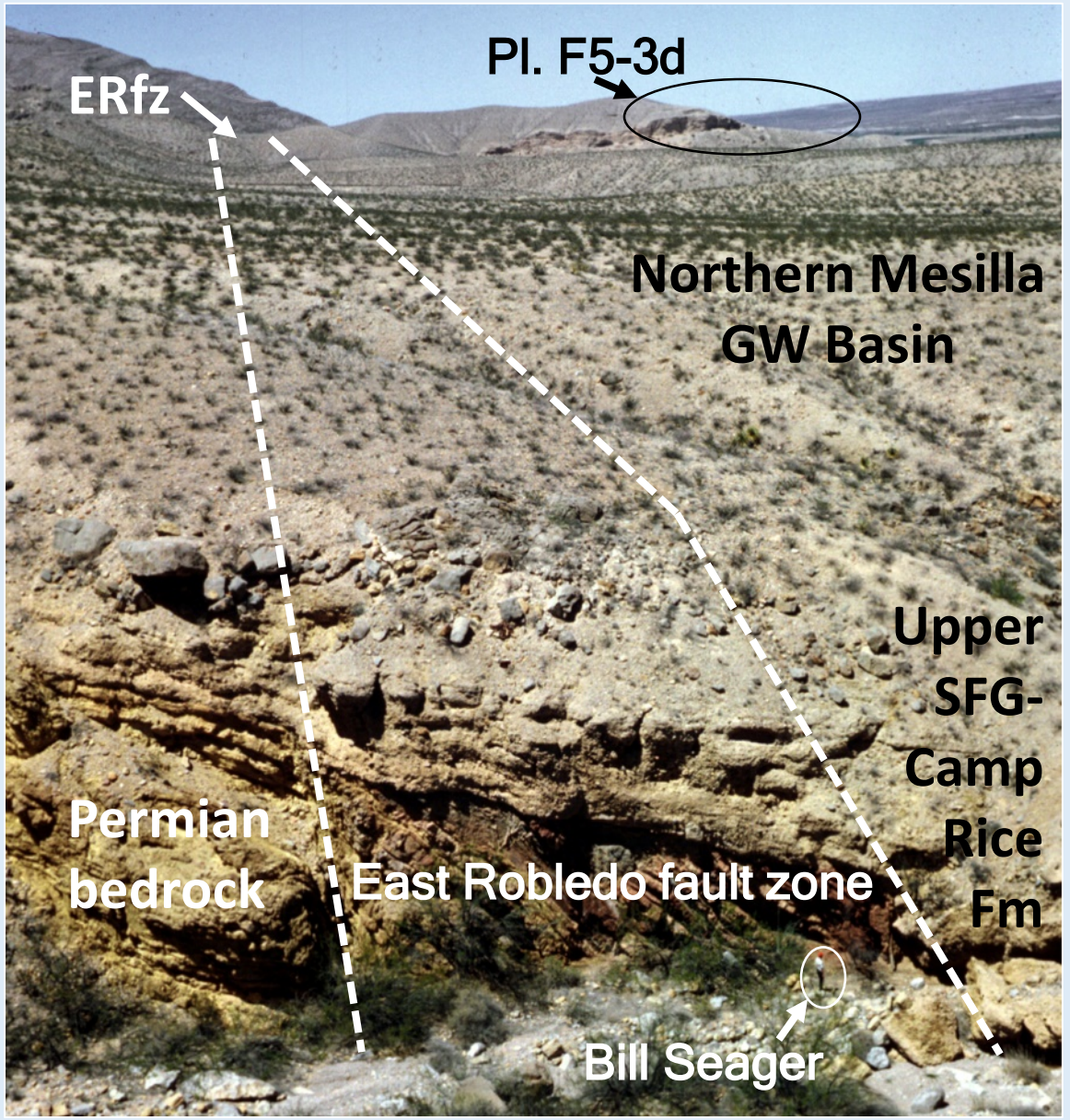


Pl. F7-3f (PBS-Our Land: New Mexico's Environmental Past, Present and Future; Fall 2019). Northern rim of Potrillo Maar at Border Wall crossing (*see* Pl. F3-4a). Late Pleistocene base-surge tuff deposits disconformably overlie Camp Rice Fm-ARG fluvial-deltaic facies (USF2-*LFA 3*), with capping La Mesa Surface petrocalcic soil (white band)



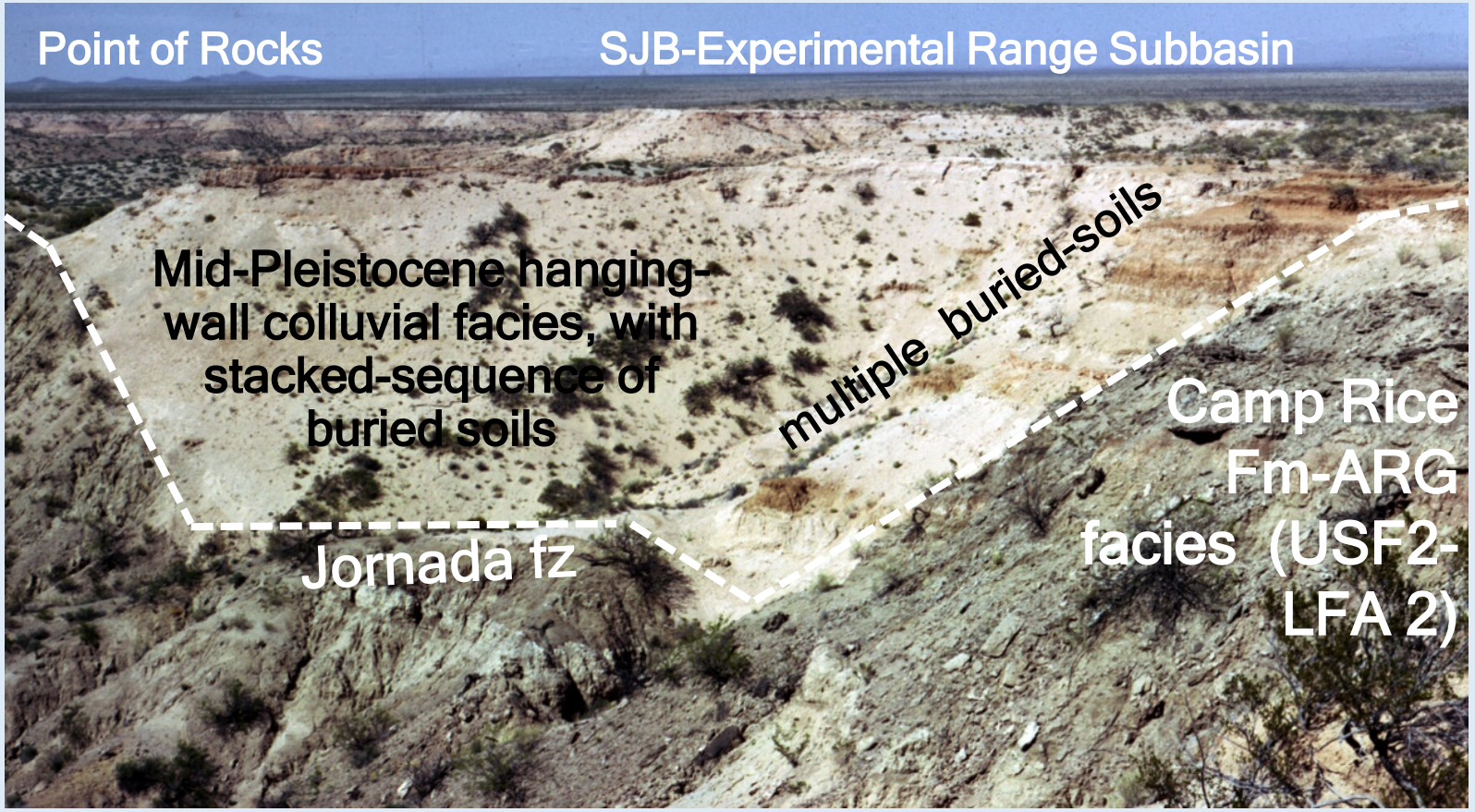
Plates F7-4a to F7-4e Slides 149-153.
Quaternary Faults and Fault Scarps

Pl. F7-4a (USDA-SCS; Spring 1968). Canyon-wall exposure of the East Robledo fz (ERfz) at the base of the Robledo Mtn. Uplift (RMU) and the W edge of the northern MeB. The youngest fault displacements involve Middle Pleistocene basin fill. *See* Pls. F3-1d and F5-3d

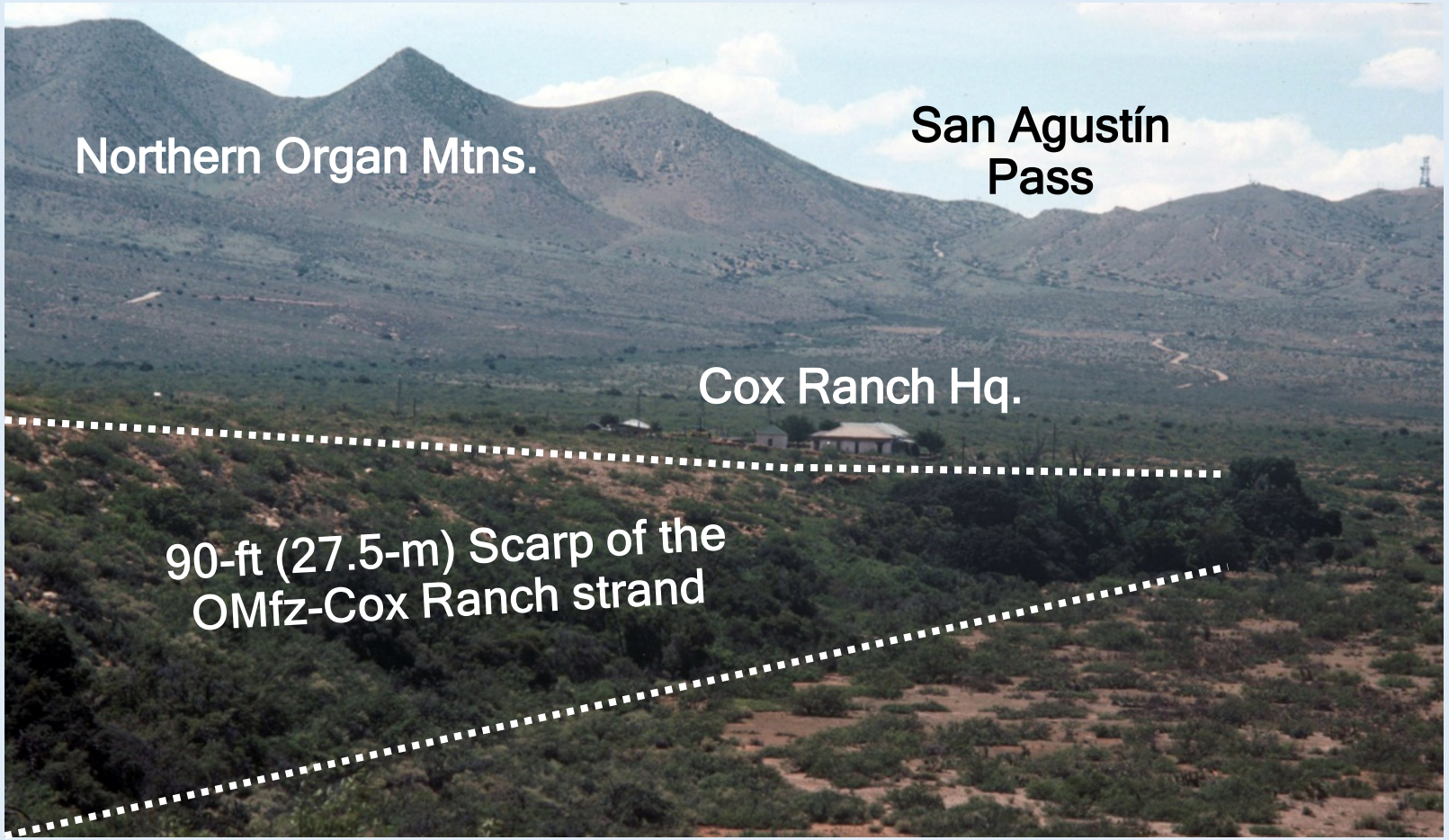


Pl. F7-4b (NM BMMR; 4/1981). East Potrillo fz (EPfz) at base of East Potrillo Mtn. Uplift (EPMU) and the SW edge of the southern Mesilla GW Basin. Youngest fault displacement involves Middle Pleistocene basin fill. See Pls. F3-1d and F5-3d

Pl. F7-4c (USDA-SCS; April 1968). Exposure of Camp Rice Fm-ARG facies in foot-wall block of the Jornada fz at western edge of the SJB-Experimental Range Subbasin. The stacked sequence of buried soils in hanging-wall colluvium documents the episodic nature of fault displacement



Pl. F7-4d (NM BMMR; 8/1987). Late Quaternary scarp of the Organ Mtns. fz (OMfz-Cox Ranch strand) at the SW edge of the Tularosa Basin. The northern Organ Mtns. and San Agustín Pass are on the western skyline. *See* Pl. F7-4e



Pl. F7-4e (NM BMMR; 8/1987). Cox Ranch strand of the OMfz exposed in trench about 0.5 mi (0.8 km) SE of the Pl. F7-4d photo site, and at the western edge of the WSMR HQ area of the Tularosa Basin. At least 32 ft (10 m) of Holocene fault displacement is observed