COLORADO GEOLOGICAL SURVEY
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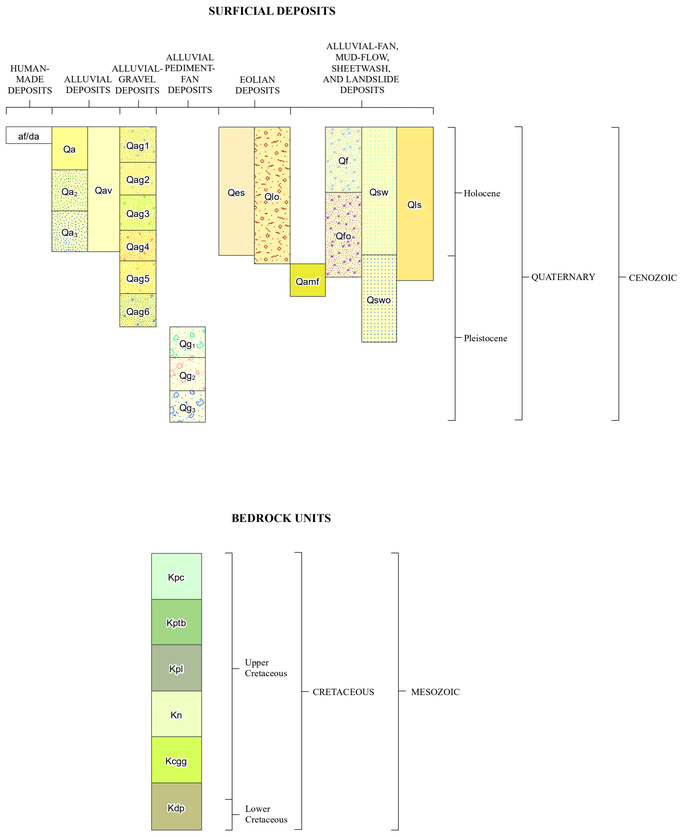
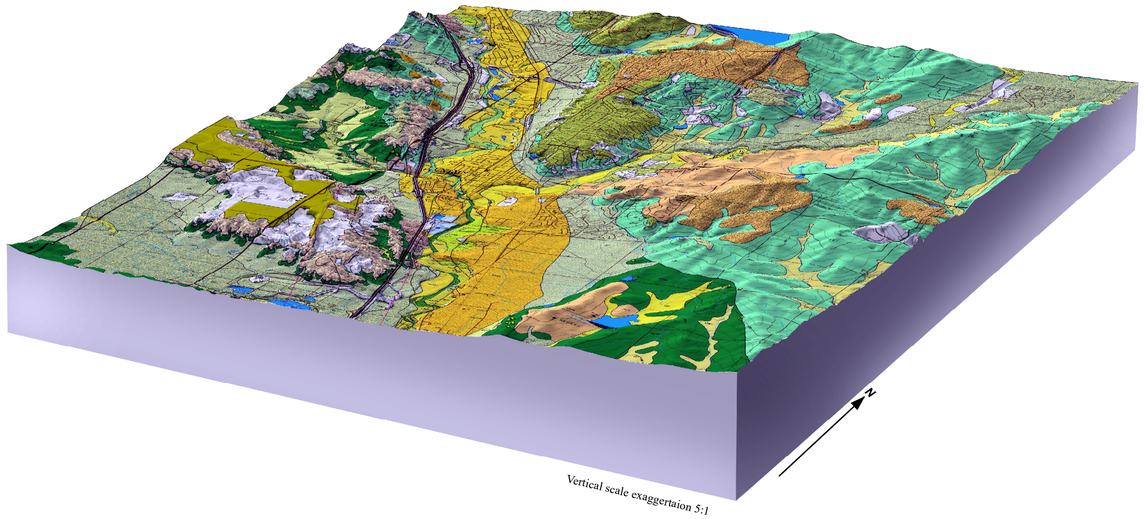
GEOLOGIC MAP OF THE FOUNTAIN QUADRANGLE
EL PASO COUNTY, COLORADO
CORRELATION OF MAP UNITS, 3-D OBLIQUE,
CROSS SECTION, AND GEOLOGIC SETTING
OPEN-FILE REPORT 17-05
PLATE 2 OF 2

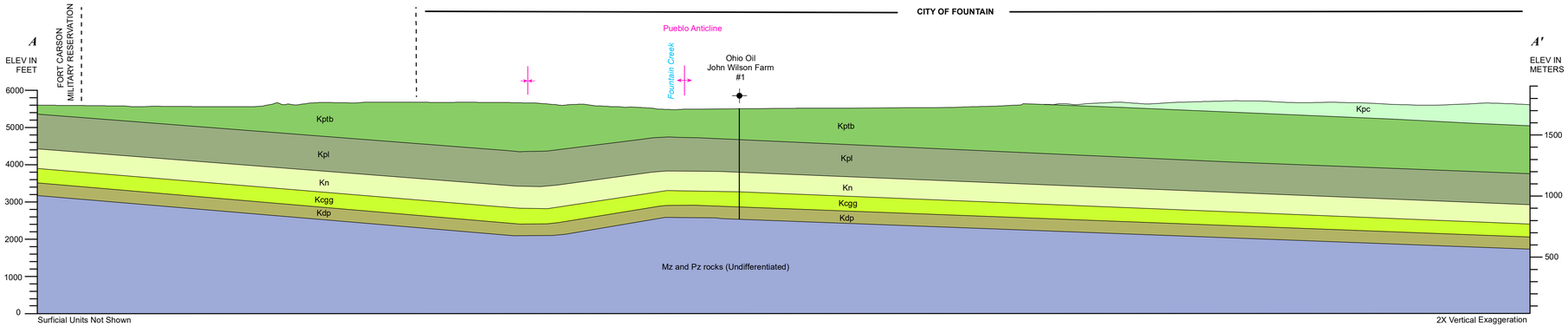
CORRELATION OF MAP UNITS



3-D OBLIQUE VIEW OF GEOLOGIC MAP



CROSS SECTION A-A'



GEOLOGIC MAP OF THE FOUNTAIN QUADRANGLE, EL PASO COUNTY, COLORADO
CORRELATION OF MAP UNITS, 3D MAP, CROSS SECTION, AND GEOLOGIC SETTING

By Jonathan L. White, Kassandra O. Lindsey, Matthew L. Morgan, and Shannon A. Mahan

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PHYSIOGRAPHIC AND GEOLOGIC SETTING

The Fountain quadrangle is located in El Paso County south of Colorado Springs, Colorado. Its boundaries straddle the north-to-south alignment of Interstate 25 that parallels the Fountain Creek valley corridor. The Fort Carson U.S. Army Installation lies along the western boundary of the quadrangle. The Fountain Valley communities in the middle of the map area include the City of Fountain and a portion of the unincorporated community of Widefield to the north. The city limits of Colorado Springs also extend down into the northeast corner of the quadrangle. The climate is semi-arid (annual rainfall – 15 in (38 cm)) where the upland ground cover is typically patchy grasses with common yucca and cactus. The vegetation is riparian with willow shrubs and cottonwood trees along the floor of Fountain Creek and larger tributaries.

The quadrangle lies along the flank of the southern Front Range within the Colorado Piedmont Physiographic Province, about 6 miles east of the mountain front. The map area contains impressive westward views of Pikes Peak and Cheyenne Mountain. The surface bedrock within the map area is the Upper Cretaceous marine Pierre Shale which now dips gently to the northeast towards the Denver Basin. This structural basin developed during the Laramide orogeny as the Front Range of the Southern Rocky Mountains were rising and a thick package of Cenozoic rocks were deposited as alluvial floodplain sediments that were shed from the rising mountains onto the Great Plains. The sole geologic structure on the quadrangle is the north-trending Pueblo anticline and paired syncline that appear to die out within the map area. Erosion has removed the Paleogene and Neogene sedimentary rocks that once covered the quadrangle and left the Pierre Shale as the underlying bedrock in the map area. During the Quaternary, incisement and lowering of the Fountain Creek watershed into the easily eroded shale, punctuated by Pleistocene glacial epoch aggradations of glaciofluvial gravel-laden sediments and deposition of windblown sand and loess has left the current landforms and topography today. Numerical age dating of Fountain Mesa gravel that was previously mapped as Middle Pleistocene (i.e., Verdos Alluvium ~631 ka) are much younger, between 35 and 142 ka. These absolute ages, and lack of appreciable calcic soil development, suggests that the chronology of the Fountain Mesa gravel, east of Fountain Creek, is not coeval with the Verdos Alluvium at its type section (Scott, 1963), or the Qg_2 unit that forms the extensive mesas on the west side of Fountain Creek (Scott and Wobus, 1973), even though elevations are similar. Jimmy Camp Creek and Little Fountain Creek are the major tributaries of Fountain Creek in the map area. West of Interstate 25 and Fountain Creek, the erosion into the earlier Pleistocene deposits left gravel- and sand-capped mesa remnants underlain by weathered shale. Landslides are prevalent along the gravel/shale contact of these mesa remnants. Within the map boundary there are 528 ft (161-m) of elevation change. The highest elevation is 5,919 ft (1,804 m) on a high Middle Pleistocene gravel mesa in Fort Carson. The lowest is 5,391 ft (1,643 m) where Fountain Creek exits the quadrangle at the southern map boundary.

The quadrangle was mapped by the Colorado Geological Survey (CGS) during the summer and fall of 2016 as part of the STATEMAP Front Range area mapping program. Adjacent 7.5-minute (1:24,000 scale) quadrangles that were mapped in this program include Colorado Springs (Carroll and Crawford, 2000) to the northwest, Elsmere (Madole and Thorson, 2003) to the north, and Cheyenne Mountain (Rowley and others, 2004) to the west. Previous 1:24,000 scale mapping by the U.S. Geological Survey was done at Corral Bluffs (Soister, 1968) northeast of Fountain quadrangle. Portions of the map were located in restricted areas on the Fort Carson Military Reservation and were not field verified. Those areas were mapped with aerial photography and a high resolution bare-earth hillshade model generated from LiDAR digital elevation data.

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