

INTRODUCTION

Mexico has produced an abundance of Pleistocene vertebrates over the years, but many sites have yet to be well documented. El Tajo Quarry is one of those sites. Situated approximately 48 km north of Mexico City near the town of Tequixquiac is a limestone quarry that in the early 1920s produced fossils from fissure fill deposits (Furlong, 1925). The fauna consists of *Capromeryx mexicana*, *Platygonus*, *Equus*, *Microtus meadensis*, *Canis latrans*, and *Canis dirus*. What is unique about this sparse fauna? First of all, it is the type locality of *Capromeryx mexicana*, which is represented by a couple of partial skeletons. As with the antelope, the dire wolf and coyote also occur as partial skeletons. In fact it is one of the few dire wolf localities that contain so much of one individual animal in association. Additionally, the age of the site, typically inferred to be Rancholabrean (Repenning, 1983), could in fact be much older; late Irvingtonian based on the occurrence of *Microtus meadensis* and possibly the *Platygonus* found at this site.

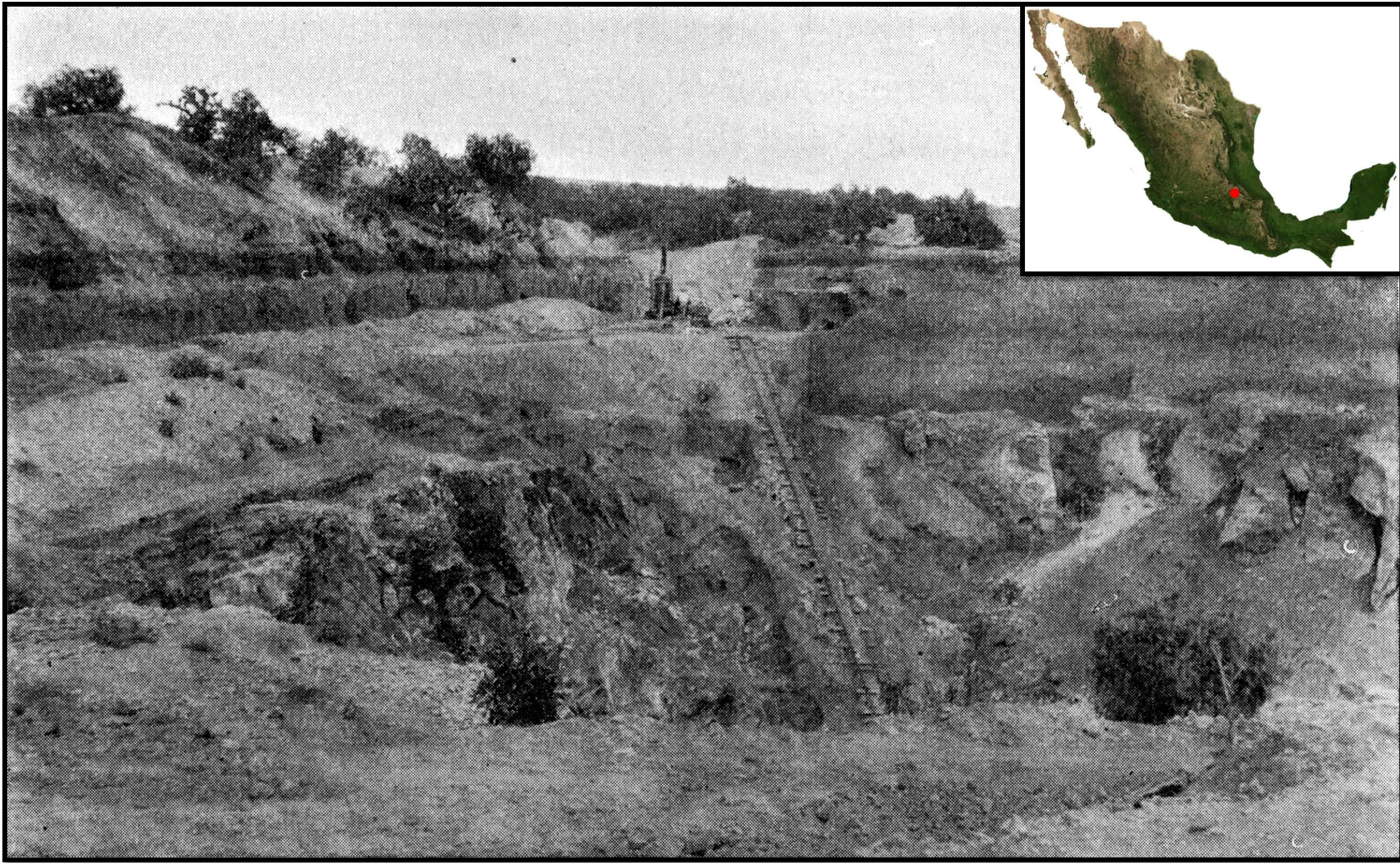


Figure 1. Limestone quarry located between Tequixquiac and El Tajo. Within the limestone are Pleistocene fissure deposits that are unconformably overlain by horizontal fluvial beds of Pleistocene age. Location of Tequixquiac (red dot) in the inset map, is approximately 48 km north of Mexico City, Mexico. (top right).

PLATYGONUS

Length and width of the dentition of UCMP 27651 (left dentary) was measured. These data were then compared to tooth measurements of *P. cumberlandensis*, *P. vetus*, and *P. compressus* to determine with which taxon the El Tajo Quarry specimen best compares.

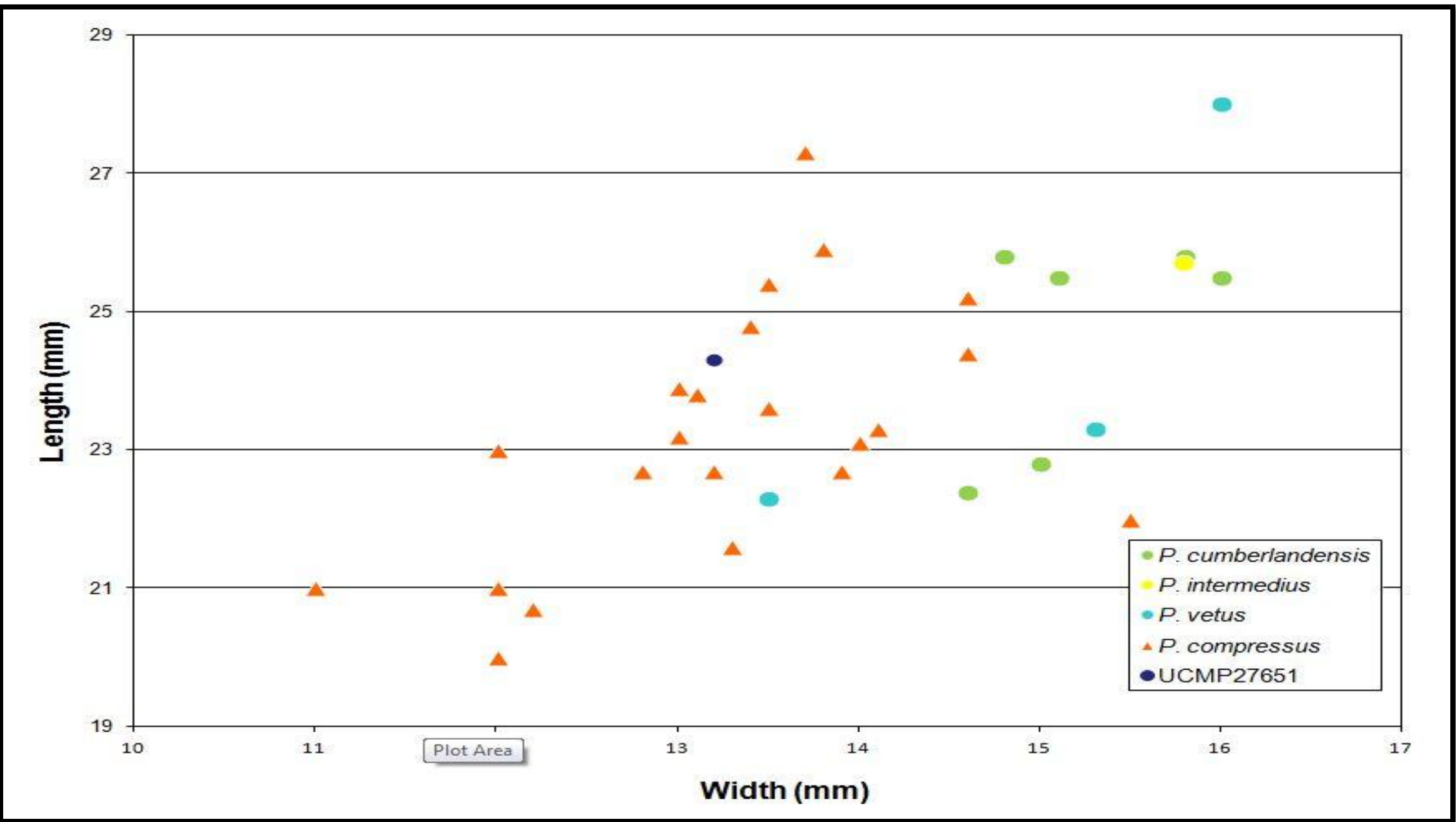


Figure 2. Length vs width measurements (m3) for UCMP 27651, *P. cumberlandensis* (measured at the University of Florida and from Gidley, 1920), *P. intermedius* (Gidley, 1920), *P. vetus* (measured at the University of Florida and from Leidy, 1882), and *P. compressus* (Williston, 1894; Slaughter, 1966; Ray et al. 1970; and Finch et al. 1972).

GEOLOGY

The quarry's Cretaceous limestone and Pleistocene fissure deposits are unconformably overlain by horizontal fluvial beds of the fossiliferous late Pleistocene Becerra Formation. The valley in which the Upper Becerra was deposited is presumed to have filled during the closing phase of the Sangamon and Wisconsin time (Hibbard, 1955). The deposits are characterized by a light gray color, with angular limestone rock fragments and occasional gravel in a "limy earth matrix" (Furlong, 1925). The Pleistocene deposits have a total thickness which varies from 6 to 15 m (Furlong, 1925). Horizontally stratified sand and clay are deposited over a lower portion which consists of light and dark brown sands with gravel lenses (Furlong, 1925). The El Tajo Quarry vertebrate remains occur only in the limestone fissure deposits while the Upper Becerra Formation has produced fossils nearby in the region.

LOCALITY AGE

The El Tajo Quarry fauna has been regarded as Rancholabrean in age (Furlong, 1925; Hibbard, 1955; Repenning, 1983). Furlong (1925) recognized two different aged deposits at the quarry, an older fissure fill deposit, from which the El Tajo Quarry fauna was collected, and a younger deposit of unconformably overlying, horizontally layered fluvial deposits. Furlong (1925) inferred that the fissure fill deposits were possibly equivalent in age to Rancho La Brea. The younger fluvial deposits at the site are regarded as part of the Upper Becerra Formation (Repenning, 1983). Hibbard (1955) considered the Upper Becerra Formation as late Pleistocene in age, equivalent with the close of the Sangamonian and Wisconsinan. Repenning (1983) considered the fissure fill deposits as Rancholabrean in age as well, which is perplexing given the presence of *Microtus meadensis*, a mid to late Irvingtonian indicator taxon. Repenning (1983) postulated that the presence of the vole *Microtus meadensis* represents a relict population of this otherwise Irvingtonian restricted taxon. We question that interpretation and raise the question as to whether the fissure-fill deposits are older, perhaps Irvingtonian in age, because of *Microtus meadensis*, and suggest that perhaps the vole does not represent a relict population as Repenning (1983) postulates. Rather *Microtus meadensis* may indeed indicate a late Irvingtonian age for the fissure fill deposits.

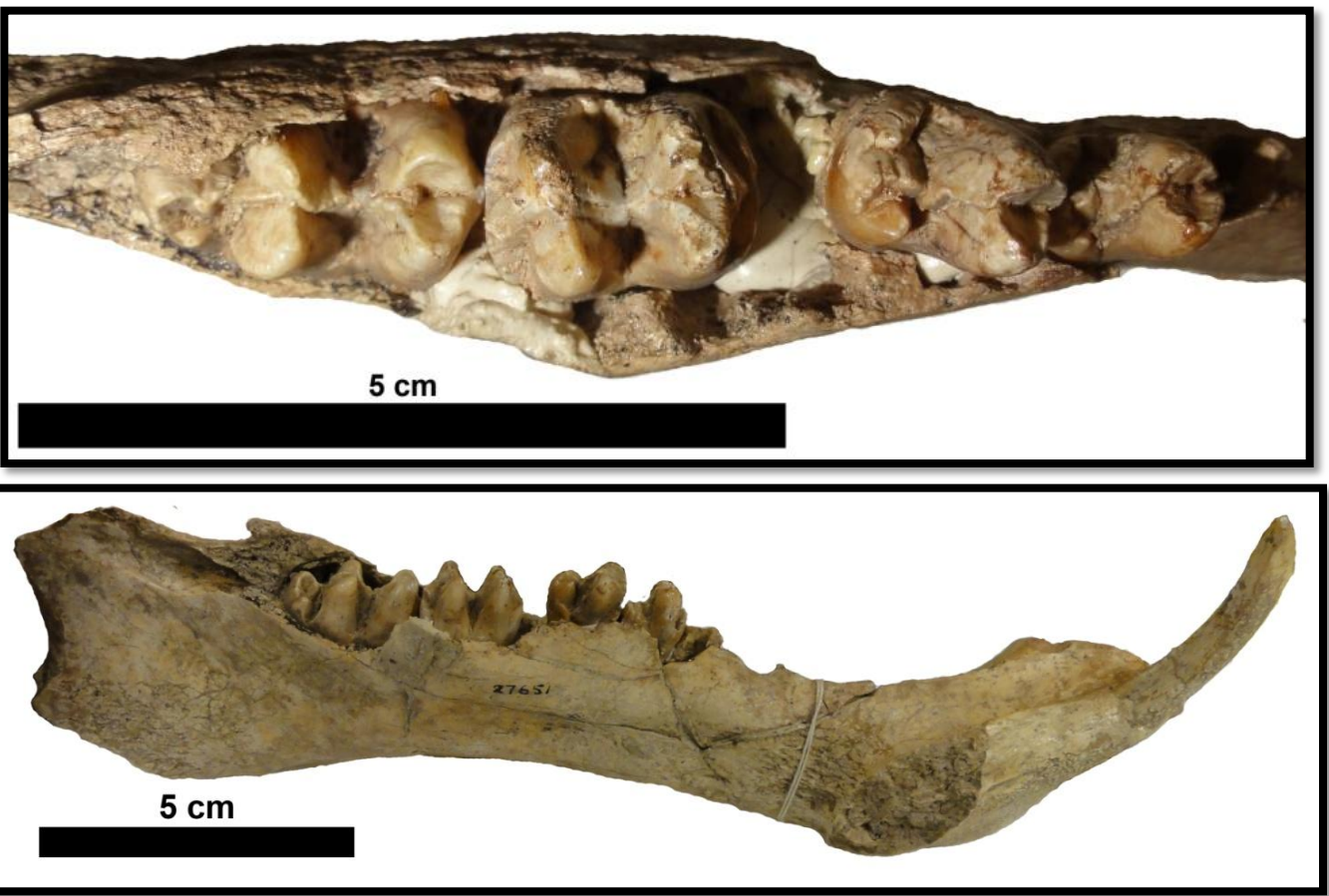


Figure 3. *Platygonus* sp. mandible (UCMP 27651), occlusal view (top) & lateral view (bottom).

	Length	Width
p4	12.35	8.8
m1	13.6	10.6
m1	13.9	10.57
m2	18.12	13.75
m3	24.3	13.20

Table 2. UCMP 27651 dentary measurements in millimeters.

CANIS DIRUS

UCMP 26650 represents an individual intermediate in limb length between the means of the two dire wolf subspecies recognized by Kurten (1984); *Canis dirus dirus* and *Canis dirus guildayi*. The dire wolf remains at El Tajo Quarry consist of the skull, partial vertebral column, ribs, partial scapulae, humeri, ulnae, radii, pelvis, femora, tibiae, and various foot elements (metacarpals, carpals, metatarsals, tarsals, phalanges), and proximal half of the baculum.

	El Tajo Quarry	<i>C. dirus dirus</i> Obs. Range	<i>C. dirus dirus</i> Mean	<i>C. dirus guildayi</i> Rancho La Brea Mean
Humerus	230	224-254	243.7	217
Radius	220	222-259	243.0	209.4
Femur	247	256-278	266.3	241.8
Tibia	245	230-267	250.0	231.6
MC 2	74.8	80-98	91.1	77.2
MC 3	83.7	94-111	102.4	88.1
MC 4	83.3	95-110	103.6	97.1
MT 2	82.9	88-112	99.8	83.3
MT 3	92.2	96-116	106.3	94.0
MT 4	95.6	102-127	112.9	96.2
MT 5	90.6	88-111	100.6	88.1

Table 1. Limb bone lengths of *Canis dirus* from El Tajo Quarry compared with *Canis dirus dirus* and the Rancho La Brea sample of *Canis dirus guildayi* (Data from Kurten (1984) from Stock & Lance (1948) and Nigra & Lance (1947). Measurements are in millimeters.

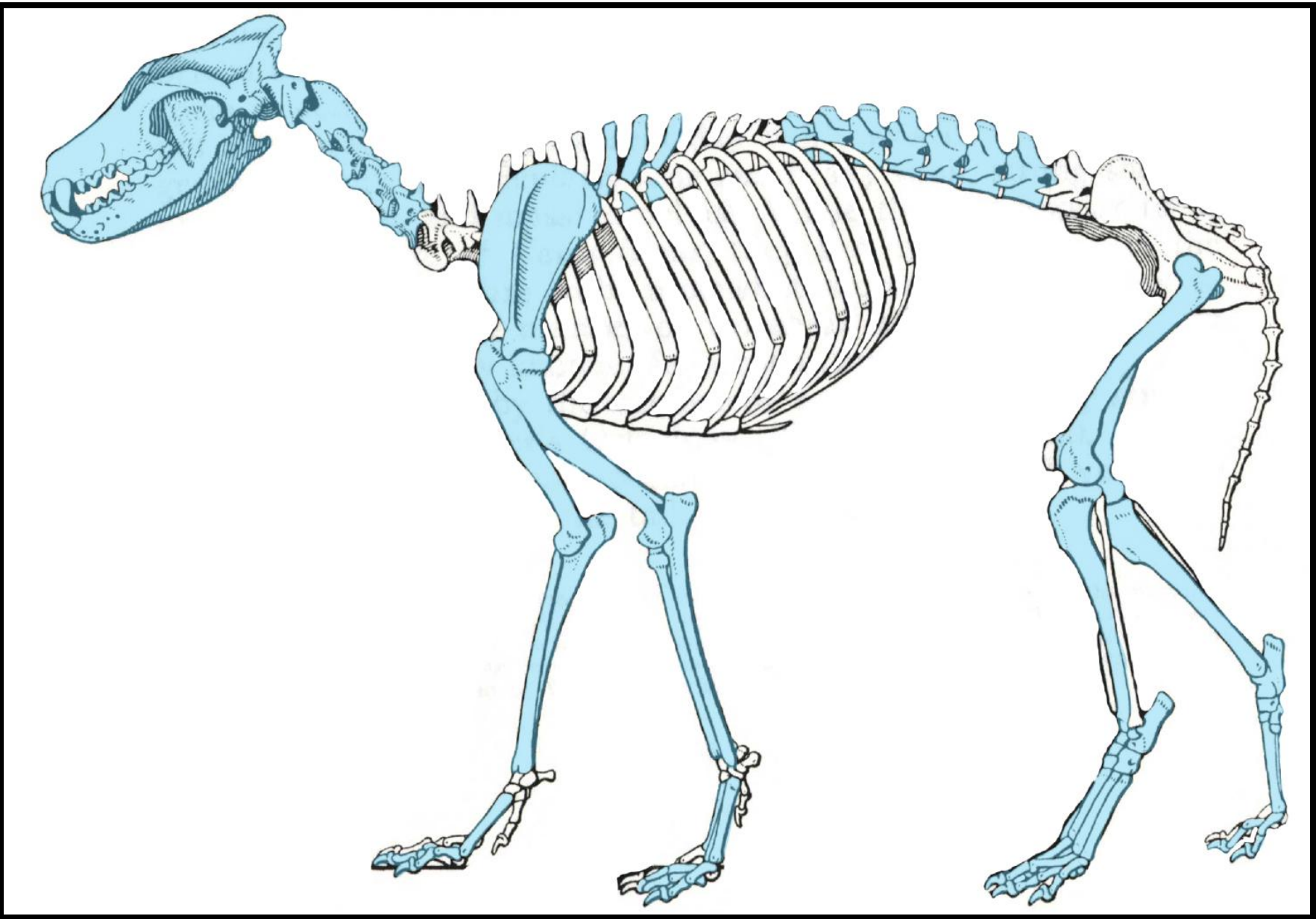


Figure 4. *Canis dirus* skeleton. The colored regions represent the elements that were discovered within the quarry.



Figure 5. *Canis dirus* cranium (UCMP 26650), lateral (top) & palatal view (bottom).

Figure 6. *Canis dirus* jaw (UCMP 26650), lateral (top) & occlusal view (bottom).

CAPROMERYX

Of the various fauna discovered within the quarry, the remains of a new species of antilocaprid, *Capromeryx mexicana* was obtained. The representative parts include the adult skull and postcrania (UCMP 26648 (holotype)), and the juvenile partial skull and limb elements (UCMP 26649 (paratype)). *Capromeryx mexicana* was found in the brecciated fissure deposits of the quarry.

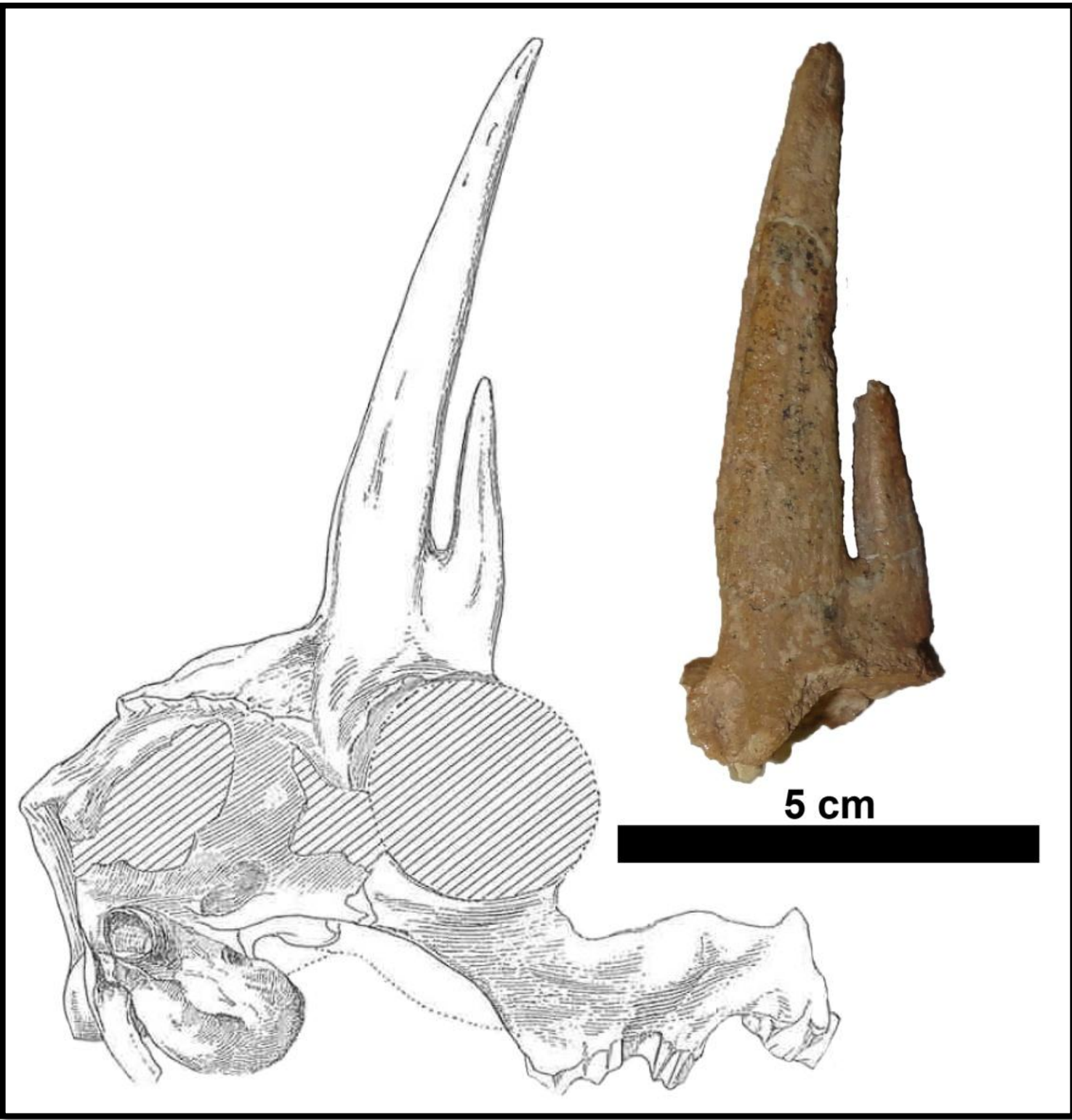


Figure 7. *Capromeryx mexicana* cranium (left) & horn (right) (UCMP 26648) (lateral view).



Figure 8. *Capromeryx mexicana* elements (UCMP 26648).

SUMMARY

The El Tajo Quarry fauna, while sparse, is represented by well preserved partial skeletons of *Capromeryxmexicana*, *Canis dirus* and *Canis latrans*. The *Capromeryx* remains are the type specimens for the species. The dire wolf is one of the most complete associated skeletons known for the species. The *Platygonus* may be assignable to *Platygonus compressus* based on tooth measurements, but further analysis is warranted. The specimen of *Microtus meadensis* is perplexing in that it either represents a relict population of this otherwise mid to late Irvingtonian taxon, as suggested by Repenning (1983), or it may indicate that the fissure fill deposits of El Tajo Quarry may be Irvingtonian in age.

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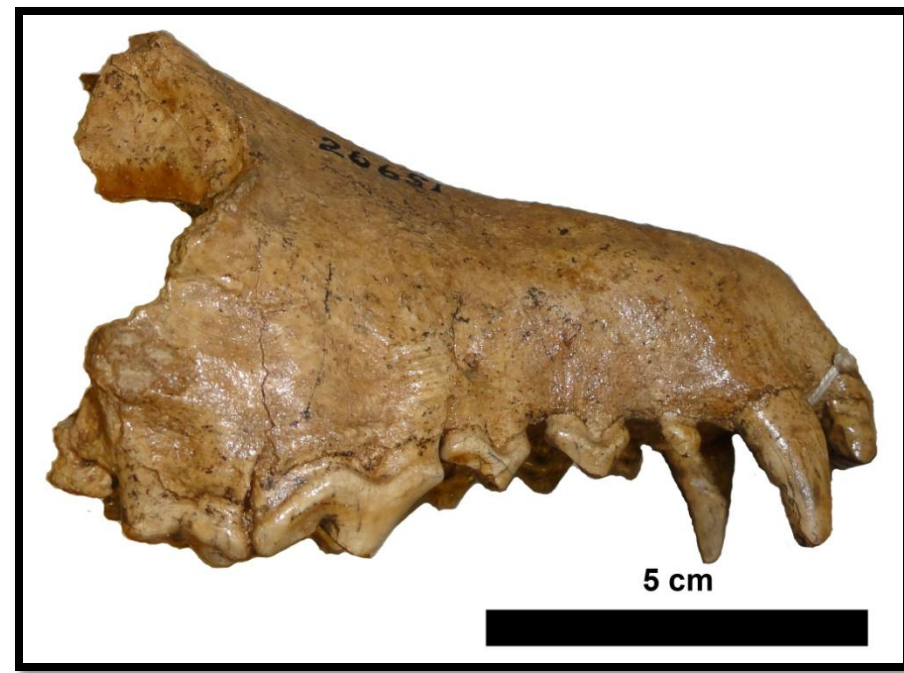


Figure 9. *Canis latrans* skull (UCMP 26651), lateral view (top) & palatal view (bottom).



Figure 10. *Canis latrans* jaw (UCMP 26651), occlusal view.

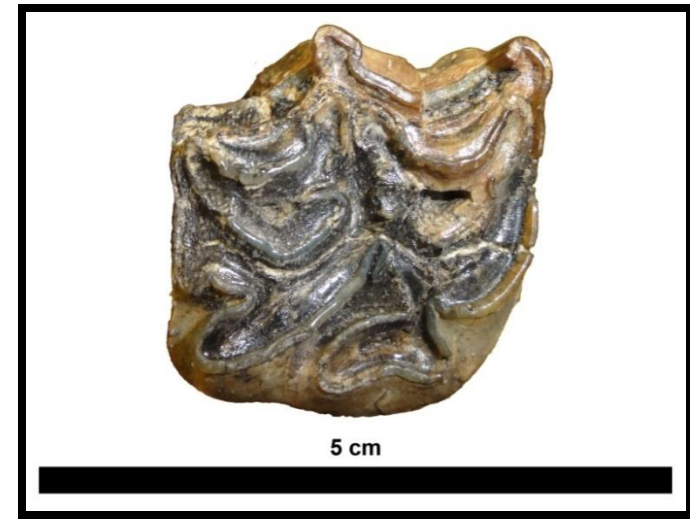


Figure 11. *Equus* tooth (UCMP 26658), occlusal view.

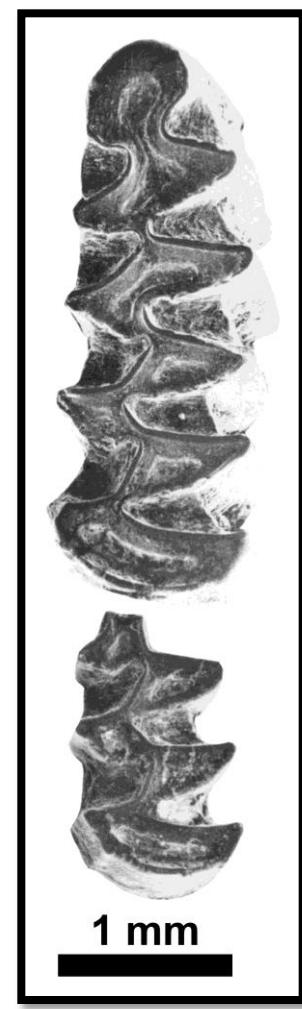


Figure 12. *Microtus meadensis* first (top) and second (bottom) left molars (UCMP 27656).