

A New Microtine (*Microtus*) Record for Kiowa County, Oklahoma

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The collection and survey of recent small mammals in Oklahoma has been infrequent over the past several decades (1). In 1989, Caire et al. (2) sparked new interest for mammals within the state, with their book "Mammals of Oklahoma." The most recent and comprehensive survey, in particular of small mammals, in southwestern Oklahoma was by Stangl et al. (1). Because of immigration and fluctuating population levels of various mammalian species, sustained long-term collecting efforts are necessary to continually update the status of local populations.

Several kinds of small mammals, such as voles, are not easily collected. One plausible reason for the paucity of vole records is that their populations may decrease or increase markedly with the availability of preferred food and cover plants (3). Short-term surveys are sometimes conducted when vole populations are low, so that they are poorly sampled or go unnoticed altogether. When discovered in high numbers, voles are easily collected by using traditional methods of snap traps or Sherman live traps. For example, Choate (4) collected numerous specimens of *Microtus ochrogaster* on the East Firing Range of the U.S. Army's installation at Fort Sill in Comanche County, Oklahoma, extending the known geographic range of this species southward.

In 1990, I found *Microtus* to be the most abundant small mammal taxon of the remains excavated from a late Holocene site, of the Box Elder local fauna in Caddo County, Oklahoma (5). Great Horned Owl pellets from near the Box Elder local fauna revealed the presence of *Microtus* and prompted trapping of the immediate area. Though only two voucher specimens of *Microtus ochrogaster* were trapped, even after considerable effort, they represented a new species for the county (6).

I have periodically inspected owl pellets at this site in Caddo County since 1992; the pellets continue to reveal the remains of voles and other small mammals. To date, there are no visual signs (runways and grass clippings) that voles are there and trapping with snap traps has not produced additional specimens. This accentuates the fact that owl pellets provide an important supplement to traditional collecting techniques. The known hunting range of Great Horned Owls does not exceed 0.4 km (7,8); presumably, small mammal remains contained in their pellets are from local populations.

While searching for Permian reptiles in fissure-fills at an abandoned rock quarry in Kiowa County, located approximately 15 km south and 2 km west of Carnegie, I found several owl pellets containing recent skeletal, mandibular, and cranial elements of small mammals. The pellets were in such poor condition that identification of the owl responsible for regurgitating them was not possible. Furthermore, no owls were in the immediate area where the pellets were found. Therefore, the taxonomic identification of the owl that regurgitated these pellets remains unknown. Owls evidently roost on the vertical rock faces of the abandoned quarry. The small mammal remains identified included *Sylvilagus* sp., *Sigmodon hispidus*, and *Microtus* sp. The most significant find was a left lower jaw of a vole, identified as *Microtus* sp.

Caire et al. (2) indicate no record for microtines (*Microtus*) in Kiowa County, nor does a more recent mammal survey of southwestern Oklahoma by Stangl et al. (1). A collection site of Stangl et al. (1) was approximately 6 km south of where the *Microtus* mandible was discovered.

Caire et al. (2) indicated a habitat of Post Oak-Blackjack Uplands for the eastern part of Kiowa County. Specifically, the habitat near the quarry consists of partially exposed, tilted, limestone beds that form rolling hills covered by short prairie grasses.

Microtus ochrogaster and *M. pinetorum*

are difficult or impossible to distinguish from each other on the basis of jaws or cheek teeth (9). In certain circumstances, the known geographic range of *M. ochrogaster* and *M. pinetorum* may provide indirect evidence of occurrence. The specific identification of the present *Microtus* jaw is problematic: *M. ochrogaster* has been recorded about 30 km to the east (6), while *M. pinetorum* has been recorded about 24 km to the south (10) on the Wichita Mountains National Wildlife Refuge in Comanche County, so that this specimen could plausibly represent either species.

The recently discovered *Microtus* jaw possesses the incisor, m1, m2 and anterior part of the alveolus for the m3. The anterior loop of the m1 and the posterior loop of the m2 are broken below the occlusal surface. However, voles possess hypsodont teeth, so the outline-shapes of the lower molars are completely represented by the available material.

Lower mandibles of *Microtus ochrogaster* and *M. pinetorum* from Comanche County, housed in the Division of Mammals, Oklahoma Museum of Natural History (OMNH), were examined and yielded the following, relatively minor, differences: the lower jaw of *M. ochrogaster* appears to be slightly larger, with a less robust masseteric scar than that of *M. pinetorum*, and its mental foramen is placed farther in front of the anterior surface of the masseteric scar and is more anteriorly positioned with respect to m1. The occlusal pattern of the cheek teeth was not diagnostic in distinguishing whether the lower jaw of the vole from Kiowa County was that of *M. ochrogaster* or *M. pinetorum*.

Regardless of species identification, the specimen represents a range extension and the addition of a new genus (*Microtus*) to the list of known mammals for Kiowa County. In the context that Oklahoma's mammals are relatively well understood and have recently received comprehensive treatment (2), this range extension underscores the need for continued vigilance by mammalogists in order to monitor their dynamic distribution and diversity.

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