

New Records of Occurrence and Notes on the Muskrat (*Ondatra zibethicus*) in Western Oklahoma

Brandon K. McDonald¹

Department of Biology, Midwestern State University, Wichita Falls, TX 76308

Between late summer of 2005 and spring of 2006, I trapped five muskrats (*Ondatra zibethicus*) in Blaine County, Oklahoma. These voucher specimens represent an additional county of occurrence for western Oklahoma, where 10 of 23 western counties currently have verified accounts. While Caire et al (1989) reported that muskrat abundance is highest in the northeast portion of the state and declines towards the west, the viability of western populations and connectiveness of suitable habitats remains speculative. Given that only 3% of western Oklahoma's historic riparian habitats remain (Farley et al 2002), the value of any new insight on current status of such a specialized riparian animal seems intuitive. The above specimens were trapped from four sites, representing four different habitat types, along the North Canadian River drainage system (Fig 1). In addition to new voucher localities, I observed noteworthy foraging habits as indicated through plant remains found in muskrat middens (commonly referred to as "feed beds" by trappers). Specimens were placed in the Midwestern State University

(MWSU) and Cameron University (CUMZ) vertebrate collections.

An adult pair of muskrats (MWSU 22461, 22462) was trapped on the north side of Canton Lake on July 7, 2005. The collection site is within a designated Wetland Development Unit (WDU), managed as an inclusion of the Canton Wildlife Management Area. The WDU includes approximately 2000 m of lake shoreline and 80 hectares of relatively shallow water (0.1 m - 2.0 m). The open water is interrupted only by a series of small islands, each primarily dominated by common reed (*Phragmites australis*) with sparsely distributed patches of bulrush (*Schoenoplectus* sp.) and cattails (*Typha* spp.). The specimens were collected at the same feed bed approximately eight hours apart. Measuring 20 cm x 20 cm and afloat in 0.5 m of water, the feed bed was located at the edge of the smallest island. Closer examination revealed middens exclusively containing leaf remains of common reed. Lynch et al (1947) suggested that muskrats often use common reed habitats for emergency food and cover during periods of drought and overpopulation. Although other forage plants were present in the habitat, they were unrepresented in the feed bed, indicating that muskrats were utilizing the most available forage.

On September 9, 2005, one juvenile male (MWSU 22468) was trapped at the edge of a marsh located 2.4 km (1.5 mi) S of Watonga, OK, and within the northern floodplain of the North Canadian River. I used total body length/age curves established by Errington (1939) and Erickson (1963) to estimate the animal's age at 26-32 d, indicating a late summer and fall reproduction and dispersal cycle in western Oklahoma. The collection

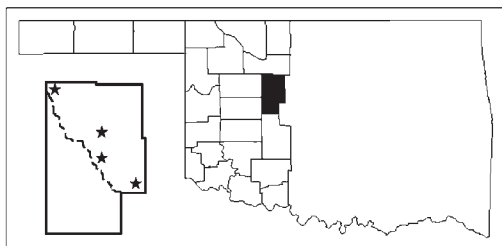


Figure 1. Approximate locations of four muskrat collection sites in Blaine County, OK (dashed line represents the North Canadian River).

¹Current address: 10093 N.W. Chibitty Road, Lawton, OK 73507

site was a very shallow over-flow from an extensive marsh lake lying adjacent to and extending into the county section line. Water depth at the immediate collection site varied from 0.1 m - 0.2 m. The aquatic plant community included spike rush (*Eleocharis* sp.), smartweeds (*Polygonum* spp.), sedges (*Cyperus* spp.), Johnsongrass (*Sorghum halapense*), arrowhead (*Sagittaria* sp.), buttonbush (*Cephalanthis occidentalis*), and black willow (*Salix nigra*). Emergent vegetation was densely abundant covering approximately 85% of the water surface and the many visible muskrat runways indicated active use of the habitat. Over 10 feed beds were located within an area of approximately 750 m². The feed beds were almost exclusively comprised of discarded portions of spike rush, which accounted for approximately 70% of emergent vegetation cover. Individual smartweeds were abundantly scattered around the water's edge and minimally represented in muskrat feed beds. Also present within feed beds were young shoots of mature buttonbush, a previously unreported forage in Oklahoma. Snail shells represented the only non-plant material found in feed beds; muskrats are known to prey upon a variety of animal matter including crayfish, fish, mollusks, and small turtles (Wilner et al 1980).

One adult female (MWSU 22469) was trapped in a small spring-fed stream within Roman Nose State Park on September 9, 2005. The animal was collected at an underwater burrow entrance located approximately 300 m upstream from where the stream reaches Watonga Lake. The stream measured 1.0 m - 1.6 m wide and was 0.6 m deep at the site of collection. Three burrow entrances were discovered along a 30 m length of the stream. The vegetation community at this section of the stream consisted exclusively of bankside Bermudagrass (*Cynodon dactylon*) mowed to a height of less than 7 cm. Due to recent mowing, discretion could not be made between mowed grass clippings and muskrat middens. However, there were muskrat foraging signs in a cat-

tail (*Typha* sp.) dominated marsh community approximately 40 m downstream. Although not verifiable at the collection site, muskrats commonly utilize the leaves, stolons, and roots of Bermudagrass as a food source (Glass 1952), especially in human modified habitats, such as agricultural lands, public parks, golf courses, and housing developments where it provides food and a stable burrowing substrate (Shannon Sheffert Oklahoma Department of Transportation pers comm 2006). Bank-side root biomass has been shown to influence muskrat burrowing success, a limiting factor in areas of course soil texture (Allen and Hoffman 1984).

On March 29, 2006, an adult female (CUMZ 1306) was trapped in a farm pond located 9.6 km (6 mi) southwest of Omega, OK. Bermudagrass and cattail were observed as the only forage plants utilized by muskrats at the site. Bermudagrass dominated the surrounding vegetation community around the pond, whereas cattails were present in densities of less than 15% cover of the water surface and extended no further than one meter from the bank's edge into the pond. Associated vegetation included red cedar (*Juniperus virginiana*), black willow (*Salix nigra*), blackjack oak (*Quercus marilandica*), and unidentified cool-season grasses.

These specimens verify the occurrence of muskrats across the breadth of Blaine County, in proximity to the North Canadian River (Fig 1). These four collection sites represent four very different riparian habitat types utilized by muskrats. It can be assumed that given stable water conditions, suitable vegetation, and access from dispersal corridors, muskrats are likely to be found in an array of habitats.

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