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## RECORDS OF MAMMALS FROM THE EAST TAVAPUTS PLATEAU, UTAH

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*Key words:* East Tavaputs Plateau, Book Cliffs, small mammals, Utah range extensions.

The East Tavaputs Plateau, or Book Cliffs, comprises an area of approximately 300,000 ha in central eastern Utah. Bounded to the north and west by the White and Green rivers, respectively, to the south by the Roan and Book Cliffs proper, the Book Cliffs region is continuous with the Roan Plateau of western Colorado. Previous records of mammals from this region of Utah were reported by Kelson (1949, 1951), Durrant (1952), Ranck (1961), and Hasenyager (1980). Based on collecting during the summers of 1994–1996, we report 7 species new to the mammalian fauna of central eastern Utah. Usage of scientific and common names follows that of Hall (1981). Localities were plotted by latitude and longitude to the nearest 5" using U.S. Geological Survey 7.5-minute series (topographic) quadrangle maps. These maps also were used to estimate range extensions to within 5 km. Elevation was estimated to the nearest 10 m. General vegetation type(s) inhabited by each species are presented. All specimens reported are represented by museum vouchers and are deposited in the Mammal Collection, Monte L. Bean Museum, Brigham Young University (BYU). When available, reproductive data are reported.

*Sorex cinereus*.—The masked shrew was previously known from scattered localities in the Uintah, Wasatch, and High Plateau provinces in Utah (Durrant 1952, Hall 1981, Junge and Hoffman 1981). We collected 3 in pitfall traps from 2 localities in Rat Hole Canyon, Uintah Co., as follows: 39°34'30"N, 109°05'30"W, 2330 m (1 male and 1 female; BYU 16265 and 16263, respectively), and a male (BYU 16270) from 39°35'50"N, 109°05'45"W, 2130 m. These records document a range extension of

ca 120 km east and south of previous localities in Utah. The westernmost record for Colorado is from Collbran in Mesa Co. (Armstrong 1972). This locality is ca 90 km east of Rat Hole Canyon records documented here.

*Sorex cinereus* were taken in pitfall traps placed in riparian habitat. Vegetation at capture sites consisted primarily of various grasses and sedges (*Carex*), sagebrush (*Artemisia tridentata*), chokecherry (*Prunus virginiana*), rabbitbrush (*Chrysothamnus nauseosus*), and willows (*Salix*). BYU 16265 collected on 3 July had testes measuring 4 mm. BYU 16263 taken on 19 June had 6 embryos, 3 in each uterine horn, measuring 7 mm from crown to rump. Although *S. cinereus* has one of the broadest distributions of any shrew in North America (Junge and Hoffman 1981), it appears to be less abundant in the Book Cliffs than *S. monticolus*. In the same habitat types and equivalent trapping effort, we collected 18 *S. monticolus*.

*Sorex palustris*.—Previous records of the water shrew in Utah include the La Sal and Uinta Mountains and the Manti National Forest (Durrant 1952, Hall 1981). Seven were taken in Rat Hole Canyon, Uintah Co., as follows: 30°35'20"N, 109°05'30"W, 2160 m (2 males, BYU 13402 and BYU 16273, and 5 females, BYU 16272 and 16274–16277). These specimens were collected in Sherman live-traps baited with "scratch grain." An adult female (BYU 17387) was collected in a pitfall trap located in Willow Creek Canyon, 39°36'50"N, 109°34'10"W, 1775 m, Uintah Co. These sites are ca 100 km north of the most proximal locality in Utah (Manti La Sal National Forest; Hall 1981). However, the water shrew is known from ca 40 km to the east near Mack, Garfield Co., Colorado (Armstrong 1972).

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Specimens from Rat Hole Canyon were collected in riparian habitat like that described for *S. cinereus*. The habitat in Willow Creek Canyon was similar but included cottonwood trees (*Populus fremontii*) and was adjacent to an alfalfa field (*Medicago sativa*). BYU 16273 collected on 1 July had testes measuring 2 mm.

*Lasiurus cinereus*.—Published records of the hoary bat in Utah list 1 or more localities from Carbon, Davis, Garfield, Grand, Salt Lake, San Juan, Utah, Washington, and Weber counties (Hardy 1941, Shuster 1957, Hasenyager 1980, Mollhagen and Bogan 1997). Five male hoary bats were collected as follows: Kelly Canyon, 39°27'30"N, 109°06'45"W, 2000 m, Grand Co. (BYU 13418); Augusi Canyon, 39°37'35"N, 109°07'45"W, 2090 m, Uintah Co. (BYU 16307 and 16308); and Tent Canyon, 39°35'50"N, 109°05'45"W, 2130 m, Uintah Co. (BYU 16309 and 16310). For Utah, these records represent a range extension of ca 250 km to the north from near Blanding, San Juan Co., and ca 220 km to the west from Thistle Valley, Utah Co. (Hall 1981). This bat is known from various locations throughout Colorado, the closest record from ca 100 km to the southeast near Grand Junction, Mesa Co. (Armstrong 1972). All were taken in mist nets over water in areas predominated by *Artemisia tridentata*. BYU 16307 collected 14 July had testes measuring 5 mm, whereas BYU 16308 taken 19 June had testes measuring 3 mm.

*Nyctinomops macrotus*.—This bat occurs in western and central United States (Hall 1981), Mexico and Central America, the Greater Antilles, and the northern 2/3 of South America east of the Andes (summarized by Milner et al. 1990). In Utah, *N. macrotus* had been recorded from the southern 1/3 of the state in Millard, San Juan, and Washington counties (Hasenyager 1980).

On the evenings of 23–25 August 1994, one of us (DJS) observed large, fast-flying bats at ca 2000 h in Kelly Canyon, Grand Co. Two mist nets were placed over a small 6 × 4-m pond near the location where these bats were sighted. Several *Myotis evotis*, *M. ciliolabrum*, and *Pipistrellus hesperus* were captured the first 2 evenings. On the 3rd night, 2 adult female *N. macrotus* (BYU 13437 and 13438) were collected between 0100 h and dawn (Kelly Canyon, 39°27'30"N, 109°32'35"W, 1990 m,

Grand Co., Utah). This site is ca 180 km north of the locality near Blanding, San Juan Co., Utah. This species also occurs in western Colorado, where it is known from ca 100 km to the southeast near Grand Junction, Mesa Co. (Armstrong 1972). Vegetation surrounding the pond was dominated by *A. tridentata* intermixed with cheatgrass (*Bromus tectorum*), juniper (*Juniperus osteosperma*), and pinyon pine (*Pinus edulis*).

*Glaucomys sabrinus*.—Prior to this report, the northern flying squirrel was known in Utah from throughout the northern and central portions of the state (Hall 1981) in the Uintah, Wasatch, and High Plateau provinces as defined by Durrant (1952). A single sub-adult female (BYU 13334) was taken in South Canyon, 39°27'40"N, 109°15'30"W, 2350 m, Uintah Co., in a stand of quaking aspen (*Populus tremuloides*) and Douglas-fir (*Pseudotsuga menziesii*). The understory was composed of snowberry (*Symphoricarpos albus*), chokecherry (*Prunus virginiana*), and Oregon grape (*Berberis repens*). This locality is ca 190 km west of the nearest site previously recorded (near Ephraim, Sanpete Co.) in Utah (Hall 1981). Although *G. sabrinus* is not known from Colorado (Armstrong 1972, Fitzgerald et al. 1994), this new record is only ca 25 km from the Colorado border. Given the existence of similar habitat in the extreme western portion of that state, we consider it likely that flying squirrels also occur in westernmost Colorado.

*Microtus montanus*.—The montane vole was known to occur at moderate- to high-elevation localities throughout the northern, central, and western portions of Utah (Hall 1981). A total of 20 montane voles were collected from the following localities: Kelly Canyon, 39°27'25"N, 109°32'30"W, 2000 m, Grand Co. (3 females, BYU 13556–13558); Bitter Creek, 39°35'05"N, 109°09'50"W, 1960 m, Uintah Co. (2 females, BYU 13559 and 13560); Bitter Creek Canyon, 39°40'05"N, 109°14'W, 1860 m, Uintah Co. (1 male, BYU 16596); Bull Canyon, 39°34'20"N, 109°31'45"W, 2100 m, Uintah Co. (1 male, BYU 17485, and 1 female, BYU 17486); Chipeta Canyon, 39°31'30"N, 109°08'10"W, 2060 m, Uintah Co. (1 female, BYU 13560); Rat Hole Canyon, 39°35'20"N, 109°05'30"W, 2160 m, Uintah Co. (2 males, BYU 16603 and 16612); Rat Hole Canyon, 39°34'40"N, 109°03'50"W, 2290 m, Uintah Co. (1 male, BYU 16599);

Taylor Canyon, 39°30'05"N, 109°07'35"W, 2110 m, Uintah Co. (2 males and 1 female, BYU 13561–13563, respectively); Willow Creek Canyon, 39°36'50"N, 109°34'10"W, 1775 m, Uintah Co. (2 females, BYU 17495 and 17501); Willow Creek Canyon, 39°36'55"N, 109°32'30"W, 1980 m, Uintah Co. (1 female, BYU 17503); Willow Creek Canyon, 39°37'10"N, 109°32'35"W, 2000 m, Uintah Co. (1 female, BYU 17505); Willow Creek Canyon, 39°37'15"N, 109°33'40"W, 1770 m, Uintah Co. (1 male, BYU 17507). In Utah these new records represent a range extension of ca 90 km to the south from the marginal record listed as "Vernal" by Hall (1981: 797). *Microtus montanus* are known from east of Grand Junction, Mesa Co., Colorado, a locality ca 110 km southeast of the Book Cliffs localities (Armstrong 1972).

*Microtus montanus* were taken in a variety of vegetation types at elevations ranging from 1700 to 2290 m. They were more common in riparian associations as described for *S. cinereus* and *S. palustris* as well as in aspen and coniferous forest stands. In addition, they were occasionally trapped in habitat consisting of *A. tridentata*, greasewood (*Sarcobatus vermiculatus*), *C. nauseosus*, and *B. tectorum*. BYU 17501 and 17505 collected 8 and 6 June had uteri that were not swollen. BYU 17507 collected 24 May had testes measuring 4 mm.

*Zapus princeps*.—The former distribution of the northern jumping mouse in Utah was the Uinta, Oquirrh and Wasatch Mountains, as well as the Beaver Mountains in the northern and central portions of the state (Durrant 1952, Krutzsch 1954, Hall 1981). In addition, they have been recorded from the La Sal Mountains (Lee and Durrant 1960). Fifteen specimens, all from Uintah Co., were collected in Sherman live-traps from the following localities: Bitter Creek, 39°35'05"N, 109°09'50"W, 1960 m (2 males and 5 females, BYU 13649–13655); Rat Hole Canyon, 39°35'20"N, 109°05'30"W, 2160 m (5 females, BYU 13656–13658, BYU 17204 and 17205) and 39°36'05"N, 109°03'30"W, 2300 m (1 male, BYU 17706); Tent Canyon, 39°35'50"N, 109°05'45"W, 2130 m (1 female), 39°35'50"N, 109°03'30"W, 2330 m. These localities are ca 100 km north of the nearest collecting site located near Beaver Creek, La Sal Mountains, San Juan Co., Utah (Lee and Durrant 1960). However, the western jumping mouse also is known from ca 50

km to the east, south of Rangely in Garfield Co., Colorado (Armstrong 1972).

*Zapus princeps* were collected in riparian habitats. Vegetation was the same as that described for *S. cinereus*. BYU 17204 collected 2 July had 4 embryos, 2 in each uterine horn, whereas BYU 17207 collected 4 July had 6 embryos, 3 in each uterine horn, and measured 10 mm crown to rump length. BYU 17269 collected on 14 July was lactating.

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