

## National Elk Refuge Mammal Notes

ARTHUR F. HALLOBAN

Wichita Mts. Wildlife Refuge, Cache, Oklahoma

Murie (1951), Craighead (1952), and Anderson (1958) have summarized much of the information written of the elk that winter on the National Elk Refuge in Jackson Hole in northwestern Wyoming. However, during the more than fifty years that this refuge has been in existence (Gabrielson, 1943), information has been accumulated on the occurrence of other mammals. Also, during this half century, the land use of the area has changed from a series of small ranch holdings to a consolidated Federal refuge of 23,791 acres. The impact of the annual wintering of up to 11,000 elk (Anderson, 1958: 173) has affected the vegetation. For instance, the extensive willow growth along Flat Creek bottomlands has largely disappeared. Work on the refuge during the past five years has included a review of refuge mammal records. These records are abstracted for those interested in the ecology of this heavily-used elk wintering ground. Smith (1960) studied vegetation communities of Jackson Hole, listed the major botanical studies of the region, and cited precipitation records. Because of this and other detailed papers, no attempt has been made to describe the National Elk Refuge, which lies within Jackson Hole, just north of the town of Jackson, at elevations between 6,200 and 7,200 feet above sea level. The refuge is under the administration of the Bureau of Sport Fisheries and Wildlife, U. S. Department of the Interior. The encouragement and aid of Refuge Manager Robert L. Means and his assistant, Willard E. Blanchard, is gratefully acknowledged. Drs. Norman C. Negus and Margaret Altmann both have read the manuscript and made valuable suggestions. A memorandum from Stanley P. Young, 26 May 1958, on refuge records found in the U. S. Biological Survey Collection (USBSC), is cited many times. Many of these specimens were taken by O. J. and Adolph Murie. Nomenclature with exceptions noted, follows Hall and Kelson (1959). The following accounts include only those mammals for which there are specimens of record, or specific sightings of easily-identified species. Further collections on the refuge will doubtless reveal other species which are common on adjacent areas. These include *Microtus montanus* and *Mustela frenata*. All locations mentioned, unless otherwise noted, are on the National Elk Refuge.

### Accounts of Species

*Sorex cinereus cinereus* Kerr. W. E. Blanchard found a masked shrew in the basement of his home at refuge headquarters 9 November 1954. This unsexed specimen, which was identified by Viola Schantz, measured total length 82 mm., tail 33 mm., and hind foot 11 mm. (USBSC No. 287767). A female taken in 1961 by Student Trainee Leslie Beaty is in the Oklahoma State University collection at Stillwater, Oklahoma.

*Myotis lucifugus carissima* Thomas. Student Assistant William A. Kennedy found a dead specimen of this species in the refuge shop area 7/13/61. It was identified by Dr. Norman C. Negus and has been deposited in the Tulane University Collection (TU).

*Myotis s. evotis* (H. Allen). Refuge Mechanic Doyle Day found a freshly-dead long-eared myotis 20 July 1961 in the refuge shop area. Identification was made by Dr. Norman C. Negus, and this locally scarce *Myotis* has been deposited in Tulane University collection. Only three other specimens are known from Jackson Hole.

*Lepus townsendi campanius* Hollister. The white-tailed jackrabbit is not numerous. It is reported to turn white in winter at this location. In 1955, numbers were reported as "stable and very low". O. J. Murie collected a male 18 June 1929 (No. 249313 USBSC).

*Lepus americanus bairdi* Hayden. Snowshoe rabbits are scarce and have rarely been seen during the late 1950's and 1960. O. J. Murie collected two during the fall of 1933 (USBSC Nos. 251120 and 251121).

*Eutamias minimus consobrinus* (J. A. Allen). The USBSC contains a refuge-taken female of this species (No. 250731). During cold winters, chipmunks have entered refuge quarters.

*Marmota flaviventris nosophora* A. H. Howell. Early refuge records refer to the marmot as "woodchuck" or "rockchuck". A 1944 notation tells of large numbers that burrowed homes in stored hay and had to be controlled. Three 1929 specimens taken by O. J. Murie are in USESC. Melanistic individuals occur.

*Citellus armatus* Kennicott. During spring, 1920 when "many hundreds" were reported, 300 pounds of poisoned oats were placed to reduce numbers. In the spring of 1940 Uinta ground squirrels and marmots were reported as increasing. Again in 1957 and 1958, squirrels were numerous. Since that time there has been a moderate decline of "Wyoming ground squirrels" or "chiselers" as they are known locally. Three specimens, including two skeletons, are in USBSC.

*Citellus lateralis castanurus* (Merriam). The only records found for the golden-mantled ground squirrel are as follows: one, a female (USBSC No. 24845), was taken by O. J. Murie 21 August 1927 and the second, a male (USBSC No. 24899), was taken by Adolph Murie in 1928.

*Tamiasciurus hudsonicus ventorum* (J. A. Allen). Red squirrels are found in the Gros Ventre River bottomlands, as well as in hillside aspen-fir locations. "Pine squirrels", as they are known locally, are not abundant. Negus and Findley (1959) are followed in assigning this squirrel to subspecies.

*Thomomys talpoides fuscus* Merriam. Northern pocket gopher workings were found to be common in 1957 on slopes with heavy ground cover and aspens where snowbanks have protected vegetative growth. The O. J. Murie specimen (USBSC No. 250745) is a female, taken 19 June 1931.

*Castor canadensis ssp.* Beaver are common in suitable habitat such as the timbered bottomlands of the Gros Ventre River. On 10 June 1953, two adults with two kits the size of muskrats were sighted by W. E. Blanchard.

*Peromyscus maniculatus artemestae* (Rhoads). A female taken 25 June 1961 in the refuge shop area by Student Assistant William A. Kennedy is the first recorded specimen from the refuge. Measurements are 167-69-21-19 (mm). Negus and Findley (1959) are followed in assigning subspecies. The deer mouse is listed as abundant on adjacent Grand Teton National Park in the check list prepared for public distribution; doubtless it is more common on the refuge than this one record suggests.

*Neotoma cinerea orolestes* Merriam. Two female bushy-tailed woodrats were secured 27 July 1961 in the rocks of the eastern boundary above the Chambers Place hayshed by refuge employee, Gordon H. Hansen. The measurements of the largest of the two are 338-148-45-34 (mm). The specimens were made into study skins by Student Assistant William A. Kennedy.

*Microtus pennsylvanicus modestus* (Baird). Adolph Murie secured a meadow vole 18 June 1928 (USBSC).

*Microtus longicaudus mordax* (Merriam). On 15 June 1928 Adolph Murie secured a male long-tailed vole (USBSC).

*Lagurus curtatus pauperrimus* (Cooper). O. J. Murie secured a male sagebrush vole 3 December 1928 (USBSC). This is the only known record for the Jackson Hole area.

*Mus musculus* ssp. A few have been found in refuge quarters and, as far as known, are exclusively edificarian.

*Erethizon dorsatum epixanthum* Brandt. Occasionally seen. During the spring of 1961 one was found gnawing on latticework at the McBride place. Negus and Findley are followed in assigning subspecies.

*Ochotona princeps ventorum* Howell. A male pika was secured 28 July 1961 in the rocks of the eastern boundary above the Chambers place hayshed by refuge employee, Gordon H. Hansen. A study skin was made by Student Assistant William Kennedy. Measurements, 173-31-23 (mm).

*Canis latrans lestes* Merriam. The coyote is resident and is the most conspicuous carnivore on the refuge. On 29 July 1959, a badger and coyote were seen hunting together. Several other recent occurrences of this relationship have been recorded. According to refuge personnel, winter elk carcasses are eaten completely in one night by large coyote packs.

*Ursus americanus cinnamomum* Audubon and Bachman. S. N. Leek collected two bears 23 April 1914 (USBSC Nos. 205980 and 205981). Bears are irregular wanderers through the area. Summer and fall sight records are found for 1932, 1939, 1943, 1944, 1945, 1959 and 1960. Negus and Findley (1959) are followed as to subspecies.

*Mustela erminea muricus* (Bangs). A skull found in the headquarters area by W. E. Blanchard in July, 1957 was identified as this race by Dr. Reed W. Fautin of the University of Wyoming. Sightings by refuge personnel of ermine in the white winter coat include the following dates: 5 January 1954, 21 December 1954 and 21 December 1956.

*Taxidea t. taxus* (Schreber). O. J. Murie collected a male 14 August 1938 (USBSC No. 264140). A road-killed female was collected 18 July 1961 and preserved as a specimen. In the 1940 fall narrative report, Refuge Manager Almer Nelson wrote, "Four years ago, before the enlargement of the refuge, these beautiful furbearers were almost extinct on and in the vicinity of the refuge. Many new badger diggings are now seen. . ." During the 1957-61 period, badgers and their diggings were frequently seen. Badgers continue to dig out rodents after the latter have gone into hibernation. In 1957 W. E. Blanchard reported fresh badger diggings a few days after 28 March when the first Uinta ground squirrels were seen above ground. Negus and Findley (1959) are followed as to subspecies.

*Lynx rufus pallescens* Merriam. Bobcats are rare. A female (USBSC No. 287769) was found by W. E. Blanchard in a duck trap 31 January 1956.

*Cervus canadensis nelsoni* V. Bailey. A series of elk were collected between 1928 and 1935 by O. J. Murie (USBSC). One of these (USBSC No. 251054, male) is a skeleton specimen. Murie (1951) and Anderson (1958) have recorded the local history and status of this species. Cooperative studies are in progress. A current problem is the presence of several hundred that stay on the refuge during summer months.

*Odocoileus h. hemionus* (Rafinesque). Two male mule deer specimens (skeletonized) were collected in 1941 by O. J. Murie (USBSC). Mule deer winter on the area with Miller Butte as a population center. Refuge records from 1932 to date reveal midwinter counts of from three (1932) to ninety-three (1959). Although there has been variation in the winter counts, the general numbers trend has been upward. Negus and Findley are followed on nomenclature.

*Odocoileus virginianus ochrourus* (Bailey). The white-tailed deer is not now found on the area. The last report found was in the July-Sept., 1937 narrative report: "An irrigator, Charles Wilson, reported three white-tailed deer staying on lands along the Gros Ventre River. . . ." Bailey (1930) reported on some of the last seen in Yellowstone National Park. He spoke of eight being counted in 1924. Negus and Findley (1959) tell of a recent introduction in Jackson Hole Wildlife Park, which is located in adjacent Grand Teton National Park.

*Alces alces shirasi* Nelson. Two specimens taken by O. J. Murie, including a male skeleton (USBSC No. 272846) are known. Moose are most numerous in and adjacent to the refuge between January and April. Refuge winter counts from 1938 to date range from zero (1939) to forty in December, 1957. In late June, 1949 a cow with twin calves was seen in the central part of the refuge.

*Antilocapra a. americana* (Ord). Pronghorns were not present on the refuge for many years. In conversation, former Refuge Manager Almer Nelson stated that the "last" antelope was said to have left Jackson Hole in 1908. Two pet pronghorns from the White Grass Ranch about 18 miles northwest of the refuge drifted into the area in November, 1938, were fed and stayed until April, 1939. Two pronghorns of unknown origin were seen during the summer and early fall of 1953. During the summer of 1959, three pronghorns drifted onto the refuge. It is understood that they came into Jackson Hole from the east. A single pronghorn that stayed on the refuge through the following winter was killed by coyotes. Again, during the summer of 1961, two pronghorns were sighted in mid-July.

*Bison b. bison* (Linnaeus). No bison are now found. A bison skull was dug out of the mud of the Petersen Springs area in 1957. This specimen is in the Jackson Hole Museum. Another skull found in Flat Creek marsh during the summer of 1960 had a hole in the skull, which is understood to denote an Indian kill. Jackson Hole Museum officials state that Indians removed the brains thus for tanning purposes. The skulls are not fossilized. Negus and Findley are followed as to subspecies.

*Ovis c. canadensis* Shaw. Mountain sheep drift onto the refuge during midwinter months. A fall 1934 report relates that the State Game Department seeking transplanting stock, corralled twenty sheep adjacent to the refuge. Wintering records include a 1937 count of thirteen (ewes and lambs), and annual tallies from 1950 to 1961. The highest count was sixty in 1959. Miller Butte and eastern boundary areas are preferred refuge winter habitats.

#### LITERATURE CITED

- Anderson, Chester C. 1958. The elk of Jackson Hole, Wyo. G & F Comm. Bull. 10, 184 p.
- Bailey, Vernon. 1930. Animal life of the Yellowstone National Park. C. C. Thomas, Maryland. 241 p.
- Craighead, John J. 1952. A biological and economic appraisal of the Jackson Hole elk herd. N. Y. Zool. Soc. 82 p.

- Gabrielson, Ira N. 1943. Wildlife Refuges. The MacMillan Co., N. Y. VII+257 p.
- Hall, E. R. and Keith R. Kelson. 1959. The mammals of North America. Ronald Press Co., N. Y. 2 vols.
- Murie, O. J. 1951. The elk of North America. Wildl. Mgmt. Institute, Wash., D. C. 376 p.
- Negus, Norman C. and James S. Findley. 1959. Mammals of Jackson Hole, Wyoming. *J. Mammal.*, 40:371-381.
- Smith, Dixie R. 1960. Description and response to elk use of two mesic grassland and shrub communities in the Jackson Hole region of Wyoming. *Northwest Science*, 34(1):25-36.
-