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ANNOTATED CHECKLIST OF THE RECENT MAMMALS OF COLORADO

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Several significant works on the Recent mammals of Colorado have been published. Mammals of Colorado (Warren, 1910), Wild Mammals of Colorado (Lechleitner, 1969), Distribution of Mammals in Colorado (Armstrong, 1972), and Mammals of Colorado (Fitzgerald et al., 1994 [1995]) are major references on the mammals of the state. Armstrong et al. (1994) summarized information on distribution and ecology of bats. All species of mammals known to occur in the state at the time were treated by Hall (1981). Jones (1994) listed seven holotypes of Coloradoan mammals housed in the Denver Museum of Natural History. There are also several books for the general public, including Armstrong (1987, 1993) and Murray (1987).

The aforementioned works were used as points of departure in the development of this list of mammals. Some information about known distributions of mammals that occur in the state and some nomenclatural changes have become available since publication of these works, and we cite some additional sources of information. Because compilations of the sort presented here

facilitate the work of many biologists, especially students, as well as the general public, and are convenient to carry in the field, we compiled the present list of the Recent mammals of Colorado, with annotations.

Taxa are presented in conventional phylogenetic sequence and alphabetically listed through genera. Names of species and subspecies are arranged alphabetically under each genus. This checklist contains 134 species, including six carnivores currently listed as endangered by the state of Colorado (the state listings currently are under review). The Colorado Natural Heritage Program (CNHP) (1997) provided additional information regarding federal and Natural Heritage Program listings. Seven taxa (marked with asterisks) have been introduced and occur in sufficient numbers in the wild to be included here. Fitzgerald et al. (1995) noted the possible occurrence of seven species (*Myotis velifer*, *Idionycteris phyllotis*, *Spermophilus franklinii*, *Glaucomys sabrinus*, *Dipodomys spectabilis*, *Synaptomys cooperi*, *Martes pennanti*) in the state, which are not included herein. We followed Jones et al. (1997) for the use of scientific and vernacular names.

ORDER DIDELPHIMORPHIA— OPOSSUMS

Family Didelphidae
(Opossums)

Didelphis virginiana (Virginia Opossum)— Occurs in riparian habitats adjacent to agricultural areas in

parts of the eastern half of the state; apparently introduced into several places in western Colorado. The subspecies is *D. v. virginiana* Kerr, 1792.

ORDER INSECTIVORA— INSECTIVORES

Family Soricidae
(Shrews)

Sorex cinereus (Cinereus or Masked Shrew)— Ranges in moist habitats of mountainous areas in the central part of the state, as far west as Moffat County (Finley and Bogan, 1995). The subspecies is *S. c. cinereus* Kerr, 1792.

Sorex hoyi (Pygmy Shrew)— Known only from a few localities in north-central Colorado. This species should be looked for in montane areas of the central part of the state. The subspecies is *S. h. montanus* Brown, 1966.

Sorex merriami (Merriam's Shrew)— Distribution is disjunct in the central portion, northwestern, and southwestern corners of the state. This shrew might be more widespread in Colorado than known at this time. The subspecies is *S. m. leucogenys* Osgood, 1909.

Sorex monticolus (Dusky or Montane Shrew)— Known from foothills and montane areas in central and western portions of the state, as well as western Moffat County. A specimen from the James John State Wildlife Area extends the known range eastward in Las Animas County (Jones, in press). The subspecies is *S. m. obscurus* Merriam, 1890.

Sorex nanus (Dwarf Shrew)— Occurs throughout much of the central and western uplands of the state. *Sorex nanus* Merriam, 1895, is a monotypic species.

Sorex palustris (Common Water Shrew)— Found in suitable habitats in montane areas throughout much of the western half of the state. Finley and Bogan (1995)

recently documented its presence in Moffat County. The subspecies is *S. p. navigator* (Baird, 1858).

Sorex preblei (Preble's Shrew)— Known from one specimen from Montrose County (Long and Hoffmann, 1992). This shrew might be more widespread than thought at this time. *Sorex preblei* Jackson, 1922, is a monotypic species.

Blarina hylophaga (Elliot's Short-tailed Shrew)— Recorded only from a restricted area in Yuma County. *Blarina hylophaga* Elliot, 1899, is a monotypic species.

Cryptotis parva (Least Shrew)— Found in river drainage systems in the northeastern portion of the state to the northern Front Range and from Baca County (Choate and Reed, 1988). This record was cited by Fitzgerald et al. (1995) but omitted from their distribution map. The subspecies is *C. p. parva* (Say, 1823).

Notiosorex crawfordi (Desert Shrew)— Disjunct distribution in the southeastern and west-central parts of the state; known also from the southwest in Montezuma County. A specimen collected by K. M. Canestorp (USFWS) extends the known range of this species into central Las Animas County. The subspecies is *N. c. crawfordi* (Coues, 1877).

Family Talpidae
(Moles)

Scalopus aquaticus (Eastern Mole)— Known from localities in six counties in northeastern Colorado, as well as from one record in Baca County in the southeast. The subspecies are *S. a. caryi* Jackson, 1914, in the north-east and *S. a. intermedius* Elliot, 1899, in the southeast.

ORDER CHIROPTERA— BATS

Family Vespertilionidae
(Vespertilionid Bats)

Myotis californicus (California Myotis)— Occurs in most counties along the western border as far east as central Moffat and Garfield counties in the north and south-central La Plata County in the south (Armstrong et al., 1994). The subspecies is *M. c. stephensi* Dalquest, 1946.

Myotis ciliolabrum (Western Small-footed Myotis)— Distributed along the western third of the state, as well as across the south and along the eastern edge of the Front Range. The subspecies are *M. c. ciliolabrum* (Merriam, 1886) to the east, and *M. c. melanorhinus* (Merriam, 1890) in the west

Myotis evotis (Long-eared Myotis)— Known from numerous localities throughout the western two-thirds of Colorado. The subspecies is *M. e. evotis* (H. Allen, 1864).

Myotis lucifugus (Little Brown Myotis)— Recorded from suitable habitats in the western two-thirds of the state. The subspecies is *M. l. carissima* Thomas, 1904.

Myotis thysanodes (Fringed Myotis)— Reported from scattered localities both west and east of the Continental Divide. The subspecies is *M. t. thysanodes* Miller, 1897.

Myotis volans (Long-legged Myotis)— Distributed in upland areas throughout the western two-thirds of the state and as far as Las Animas County in the southeast. The subspecies is *M. v. interior* Miller, 1914.

Myotis yumanensis (Yuma Myotis)— Known from lowlands of southern and western Colorado. The subspecies is *M. y. yumanensis* (H. Allen, 1864).

Lasiurus borealis (Eastern Red Bat)— Reported from scattered localities in the northeastern and southeastern parts of the state. *Lasiurus borealis* (Muller, 1776) is a monotypic species (Baker et al., 1988).

Lasiurus cinereus (Hoary Bat)— Recorded from throughout most of the state; not yet reported from the plains of east-central Colorado. The subspecies is *L. c. cinereus* (Palisot de Beauvois, 1796).

Lasionycteris noctivagans (Silver-haired Bat)— Known from throughout most of the state, but not yet reported from the eastern plains. *Lasionycteris noctivagans* (Le Conte, 1831) is a monotypic species.

Pipistrellus hesperus (Western Pipistrelle)— Known from most of the counties along the western border, as well as from Bent and Las Animas counties in the southeast. The subspecies are *P. h. hesperus* (H. Allen, 1864) in the west and *P. h. maximus* Hatfield, 1936, in the southeast.

Pipistrellus subflavus (Eastern Pipistrelle)— Recorded from a single specimen obtained in Weld County. The subspecies is *P. s. subflavus* (F. Cuvier, 1832).

Eptesicus fuscus (Big Brown Bat)— Except for a few counties, widespread throughout most of the state. The subspecies is *E. f. pallidus* Young, 1908.

Euderma maculatum (Spotted Bat)— Specimens are from Moffat, Montezuma, and Montrose counties (Bogan and Finley, 1996; K. W. Navo, in litt., 1998). This species might be more common in the state than known now. *Euderma maculatum* (J. A. Allen, 1891) is a monotypic species.

Plecotus townsendii (Townsend's Big-eared Bat)— Ranges over most of the western two-thirds and into the southeastern corner of the state. The subspecies is *P. t. pallescens* (Miller, 1897).

Antrozous pallidus (Pallid Bat)— Distributed in the western one-fourth of the state, as well as in the southeast. The subspecies is *A. p. pallidus* (Le Conte, 1856).

Family Molossidae
(Molossid Bats)

Tadarida brasiliensis (Brazilian Free-tailed Bat)—Known from scattered localities in eleven counties in the southern half of Colorado (Armstrong et al., 1994). It is likely that this species is more widespread. The subspecies is *T. b. mexicana* (Saussure, 1860).

Nyctinomops macrotis (Big Free-tailed Bat)—Recorded only from five localities in the state. This species should be looked for throughout Colorado, particularly in areas of high cliffs in western Colorado (M. A. Bogan, in litt., 1998). *Nyctinomops macrotis* (Gray, 1839) is a monotypic species.

ORDER XENARTHRA—XENARTHTRANS

Family Dasypodidae
(Armadillos)

Dasypus novemcinctus (Nine-banded Armadillo)—Single records reported from Yuma, Prowers,

and Baca counties along the eastern edge of the state. The subspecies is *D. n. mexicanus* Peters, 1864.

ORDER LAGOMORPHA—LAGOMORPHS

Family Ochotonidae
(Pikas)

Ochotona princeps (American Pika)—Occurs mostly on rocky areas at higher elevations in the montane areas through the central part of the state. The subspecies are *O. p. figginsi* J. A. Allen, 1912, in the Elk Mountains and Park Range, *O. p. incana* A. H. Howell, 1919, in the Sangre de Cristo and Culebra mountains, and *O. p. saxatilis* Bangs, 1899, in the San Juan and Sawatch mountains, as well as the Front Range.

Sylvilagus nuttallii (Mountain Cottontail)—Inhabits montane areas in the western half of Colorado. The subspecies are *S. n. grangeri* (J. A. Allen, 1895) in the extreme northwest and *S. n. pinetis* (J. A. Allen, 1894) in the remainder of the state.

Family Leporidae
(Hares and Rabbits)

Sylvilagus audubonii (Desert Cottontail)—Found mostly throughout the state, but absent from the high elevations of the central montane area. The subspecies are *S. a. baileyi* (Merriam, 1897) in the northern and eastern portions of the state and *S. a. warreni* Nelson, 1907, from the west and from the San Luis Valley.

Lepus americanus (Snowshoe Hare)—Ranges throughout the upper montane areas of central Colorado. The subspecies is *L. a. bairdii* Hayden, 1869.

Lepus californicus (Black-tailed Jackrabbit)—Occurs on the plains of the eastern third of the state, as well as along the western border. *L. c. melanotis* Mearns, 1890, on the eastern plains, and *L. c. texianus* Waterhouse, 1848, in the west.

Sylvilagus floridanus (Eastern Cottontail)—Distributed in lowlands of the eastern one-fourth of the state. The subspecies are *S. f. llanensis* Blair, 1938, in the extreme Southeastern corner of the state, and *S. f. similis* Nelson, 1907, in the northeast.

Lepus townsendii (White-tailed Jackrabbit)—Except for the southwestern and southeastern corners, widely distributed throughout Colorado, but possibly declining in many areas. The subspecies are *L. t. campanius* Hollister, 1837, in eastern Colorado and *L. t. townsendii* Bachman, 1839, west of the Continental Divide.

ORDER RODENTIA—RODENTS

Family Sciuridae
(Squirrels)

Tamias dorsalis (Cliff Chipmunk)—Known only from northwestern Moffat County north of the Yampa River. The subspecies is *T. d. utahensis* Merriam, 1897.

Tamias minimus (Least Chipmunk)—Occurs at upper elevations throughout the western two-thirds of Colorado. The subspecies are *T. m. caryi* Merriam, 1908, in the San Luis Valley, *T. m. consobrinus* (J. A. Allen, 1890) in much of the northwest, *T. m. minimus* (Bachman, 1839) in northern Moffat County, and *T. m. operarius* Merriam, 1905, in the central and southwestern portions of the state.

Tamias quadrivittatus (Colorado Chipmunk)—Distributed across southern Colorado and northward on the foothills of the Front Range. The subspecies is *T. q. quadrivittatus* (Say, 1823).

Tamias rufus (Hopi Chipmunk)—Confined to the western portion of the state from the Yampa River southward. *Tamias rufus* (Hoffmeister and Ellis, 1979) is a monotypic species.

Tamias umbrinus (Uinta Chipmunk)—Distributed along the Front Range south to Gunnison County and west to Routt and Rio Blanco counties. The subspecies is *T. u. montanus* White, 1953.

Marmota flaviventris (Yellow-bellied Marmot)—Occurs at upper elevations over most of the western two-thirds of the state. The subspecies are *M. f. luteola* A. H. Howell, 1914, in the western part of the range, *M. f. notioros* Warren, 1934, in the Wet Mountains, and *M. f. obscura* A. H. Howell, 1914, in the Sangre de Cristo Mountains.

Ammospermophilus leucurus (White-tailed Antelope Squirrel)—Known from the tier of counties along the western border of the state south of Moffat County. The subspecies are *A. l. cinnamomeus* (Merriam, 1890) south of the Colorado River, and *A. l. pennipes* A. H. Howell, 1931, in the north.

Spermophilus elegans (Wyoming Ground Squirrel)—Found in northwestern and central Colorado as far south as Fremont County. The subspecies is *S. e. elegans* Kennicott, 1863.

Spermophilus lateralis (Golden-mantled Ground Squirrel)—Distributed at higher elevations over much of the western two-thirds of the state. The subspecies is *S. l. lateralis* (Say, 1823), except for a restricted area in Moffat County from which *S. l. wortmani* (J. A. Allen, 1895) is known.

Spermophilus spilosoma (Spotted Ground Squirrel)—Occurs in suitable habitats east of the Front Range on the plains, as well as in a restricted area of Montezuma County in the southwestern corner of the state. The subspecies are *S. s. cryptospilotus* Merriam, 1890, in the southwest, *S. s. marginatus* V. Bailey, 1890, in the southeast, and *S. s. obsoletus* Kennicott, 1863, in northeastern Colorado.

Spermophilus tridecemlineatus (Thirteen-lined Ground Squirrel)—Occurs throughout most of the eastern two-thirds of the state and in a few counties in the northwestern corner. The subspecies are *S. t. arenicola* (A. H. Howell, 1928) in the southeast, *S. t. blanca* Armstrong, 1971, in the San Luis Valley, *S. t. pallidus* J. A. Allen, 1874, in the northeastern quarter of the state, and *S. t. parvus* J. A. Allen, 1895, in the northwest.

Spermophilus variegatus (Rock Squirrel)—Distributed on foothills along the eastern side of the Front Range as far north as Larimer County and less commonly in southwestern and northwestern Colorado (Finley and Bogan, 1995). The subspecies is *S. v. grammurus* (Say, 1823).

Cynomys gunnisoni (Gunnison's Prairie Dog)—Ranges in south-central and southwestern Colorado. The subspecies are *C. g. gunnisoni* (Baird, 1855) in the south-central part of the state, and *C. g. zuniensis* Hollister, 1916, from Archuleta County westward.

Cynomys leucurus (White-tailed Prairie Dog)—Confined to areas in northwestern and west-central Colorado. *Cynomys leucurus* Merriam, 1890, is a monotypic species.

Cynomys ludovicianus (Black-tailed Prairie Dog)— Occurs or once occurred throughout much of the plains east of the Front Range; still subject to extermination programs. The subspecies is *C. l. ludovicianus* (Ord, 1815).

Sciurus aberti (Abert's Squirrel)— Occurs in the southwestern part of the state, as well as on the Front Range and adjacent mountains. The subspecies are *S. a. ferreus* True, 1894, in the central montane areas and *S. a. mimus* Merriam, 1904, in the southwest.

Sciurus niger (Eastern Fox Squirrel)— Occurs in riparian and urban areas from the foothills of the Front Range eastward, as a result of both introduction and natural range expansion. The subspecies is *S. n. rufiventer* E. Geoffroy St.-Hilaire, 1803.

Tamiasciurus hudsonicus (Pine Squirrel)— Occurs in suitable forested habitats in the central montane areas, as well as in the northwestern corner of the state. The subspecies is *T. h. fremonti* (Audubon and Bachman, 1853).

Family Geomyidae (Pocket Gophers)

Thomomys bottae (Botta's Pocket Gopher)— Range includes mostly valley areas of the southern and southwestern parts of the state. The subspecies are *T. b. aureus* J. A. Allen, 1893, in the southwestern corner, *T. b. cultellus* Kelson, 1951, in southern Las Animas County, *T. b. howelli* Goldman, 1936, in Mesa County, *T. b. internatus* Goldman, 1936, in the Arkansas River drainage as far east as Pueblo, *T. b. pervagus* Merriam, 1901, west of the Rio Grande in the San Luis Valley, and *T. b. rubidus* Youngman, 1958, in the Arkansas River drainage in Fremont County.

Thomomys talpoides (Northern Pocket Gopher)— Occurs in various habitats on upland areas of the central, western, and northern portions of the state. Jones (in press) documented the presence of *T. talpoides* in southern Las Animas County. The subspecies include *T. t. agrestis* Merriam, 1908, in the San Luis Valley, *T. t. attenuatus* Hall and Montague, 1951, on the high plains of Larimer, Weld, and Logan counties, *T. t. durranti* Kelson, 1949, in Rio Blanco, Garfield, and Mesa coun-

ties, *T. t. fossor* J. A. Allen, 1893, in the mountains of the southwest, *T. t. macrotis* F. W. Miller, 1930, in Douglas County, *T. t. meritus* Hall, 1951, in north-central parts west of the Front Range, *T. t. ocius* Merriam, 1901, in Moffat County, *T. t. retrorsus* Hall, 1951, on the eastern plains, and *T. t. rostralis* Hall and Montague, 1951, on the Front Range.

Geomys bursarius (Plains Pocket Gopher)— Distributed throughout the eastern plains. The subspecies are *G. b. jugossicularis* Hooper, 1940, in the southern portion of the plains and *G. b. lutescens* Merriam, 1890, in the north.

Cratogeomys castanops (Yellow-faced Pocket Gopher)— Ranges in the Arkansas Valley area in southeastern Colorado. The subspecies is *C. c. castanops* (Baird, 1852).

Family Heteromyidae (Heteromyids)

Perognathus fasciatus (Olive-backed Pocket Mouse)— Known from Moffat County north of the White River and from along the eastern base of most of the Front Range. The subspecies are *P. f. callistus* Osgood, 1900, from Moffat County, and *P. f. infraluteus* Thomas, 1893, along the Front Range.

Perognathus flavescens (Plains Pocket Mouse)— Recorded from the eastern plains, the San Luis Valley, and some areas along the western border of the state. Apparently replaces *P. fasciatus callistus* south of the White River in Rio Blanco County (Finley and Bogan, 1995). The subspecies are *P. f. apache* Merriam, 1889, in western lowlands, *P. f. caryi* Goldman, 1918, in the west-central area of the state, *P. f. flavescens* Merriam, 1889, on the eastern plains, and *P. f. relictus* Goldman, 1938, in the San Luis Valley.

Perognathus flavus (Silky Pocket Mouse)— Distributed throughout the eastern plains, as well as in the San Luis Valley and in southwestern Montezuma County. The subspecies are *P. f. bunkerii* Cockrum, 1951, on the prairie, *P. f. hopiensis* Goldman, 1932, in Montezuma County, and *P. f. sanluisi* Hill, 1942, in the San Luis Valley.

Perognathus parvus (Great Basin Pocket Mouse)—Recorded only from extreme northwestern Moffat County (Finley and Bogan, 1995). The subspecies is *P. p. clarus* Goldman, 1917.

Chaetodipus hispidus (Hispid Pocket Mouse)—Occurs throughout most of the eastern plains region. The subspecies is *C. h. paradoxus* Merriam, 1889.

Dipodomys ordii (Ord's Kangaroo Rat)—Distributed throughout most of the eastern plains, in the San Luis Valley, the western portions of northern Rio Blanco and Moffat counties, as well as in some isolated areas of the southwestern part of the state. The subspecies are *D. o. evexus* Goldman, 1933, in parts of Chaffee and Fremont counties, *D. o. longipes* (Merriam, 1890) of southwestern Montezuma County, *D. o. luteolus* (Goldman, 1917) on the northeastern plains, *D. o. montanus* Baird, 1855, in the San Luis Valley, *D. o. nexilis* Goldman, 1933, in valleys of the San Miguel and Dolores rivers of the southwest, *D. o. priscus* Hoffmeister, 1942, in the Yampa Valley of Moffat County, *D. o. richardsoni* (J. A. Allen, 1891) on the southeastern plains, and *D. o. sanrafaeli* Durrant and Setzer, 1945, in the drainage of the Colorado River in the west.

Family Castoridae (Beavers)

Castor canadensis (American Beaver)—Statewide in both lowlands and uplands in water-supported habitats. The subspecies is *C. c. concisor* Warren and Hall, 1939.

Family Muridae (Mice, Rats, and Voles)

Reithrodontomys megalotis (Western Harvest Mouse)—Occupies lowlands of the eastern plains, the San Luis Valley, and valleys along the western border of the state. The subspecies are *R. m. aztecus* J. A. Allen, 1893, across the southern portion of the state, *R. m. dychei* J. A. Allen, 1895, in the northeastern and east-central plains, and *R. m. megalotis* (Baird, 1858) in the northwestern corner of the state.

Reithrodontomys montanus (Plains Harvest Mouse)—Represented by the subspecies *R. m. albescens* Cary, 1903, throughout the eastern plains. A

single specimen representing *R. m. montanus* (Baird, 1855) was collected from Saguache County in 1853.

Peromyscus boylii (Brush Mouse)—Occurs in southeastern part of the state, over to and including the San Luis Valley, as well as in the southwestern corner. The subspecies is *P. b. rowleyi* (J. A. Allen, 1893).

Peromyscus crinitus (Canyon Mouse)—Ranges along the western border of the state from about the Green and Yampa rivers in Moffat County southward. The subspecies east of the Green River is *P. c. auripectus* (J. A. Allen, 1893), with *P. c. doulti* Goin 1944 from the west side of the Green River in Moffat County (M. A. Bogan, in litt., 1997).

Peromyscus leucopus (White-footed Mouse)—Occurs throughout the lower drainage system of the Arkansas River in southeastern Colorado. The subspecies is *P. l. tornillo* Mearns, 1896.

Peromyscus maniculatus (Deer Mouse)—Present in most ecosystems statewide. The subspecies are *P. m. luteus* Osgood, 1905, along the extreme eastern border, *P. m. nebrascensis* (Coues, 1877) in the northwest and on most of the eastern plains, and *P. m. rufinus* (Merriam, 1890) in the central montane region and across the south.

Peromyscus nasutus (Northern Rock Mouse)—Occurs along the Front Range from the northern to the southern borders of the state, as well as eastward into Las Animas and Baca counties. The subspecies is *P. n. nasutus* (J. A. Allen, 1891).

Peromyscus truei (Piñon Mouse)—Distributed along most of the western border of the state, as well as in the southeastern corner and up the Arkansas River drainage into the central part of Colorado. The subspecies is *P. t. truei* (Shufeldt, 1885).

Onychomys leucogaster (Northern Grasshopper Mouse)—Occurs in the lowlands of the eastern plains, San Luis Valley, southwestern and west-central areas, as well as in the northwestern corner of the state. The subspecies are *O. l. arcticeps* Rhoads, 1898, in the northwest and on the eastern plains and *O. l. pallescens* Merriam, 1890, in the west-central, southwestern, and San Luis Valley areas.

Sigmodon hispidus (Hispid Cotton Rat)— Found in suitable habitats adjacent to the Arkansas River and tributaries in the southeastern part of the state; expanding to the north and east. The subspecies is *S. h. alfredi* Goldman and Gardner, 1947; however, Armstrong (1972) questioned the subspecific affinities of the population in Colorado.

Neotoma albigula (White-throated Woodrat)— Ranges in the southeast south of the Arkansas River and on escarpments adjacent to the major drainages in southwestern Colorado. The subspecies are *N. a. brevicauda* Durrant, 1934, in the drainages of the Dolores and San Miguel rivers, *N. a. laplataensis* F. W. Miller, 1933, in the San Juan River area, and *N. a. warreni* Merriam, 1908, in the southeast. Interesting discussions of relationships between *N. albigula* and *N. micropus* in southeastern Colorado were presented by Finley (1958) and Huheey (1972).

Neotoma cinerea (Bushy-tailed Woodrat)— Occurs mostly in uplands of more than half of the western portion of the state, as well as in the northeast. The subspecies are *N. c. arizonae* Merriam, 1893, throughout the western slope of the Rocky Mountains, *N. c. orolestes* Merriam, 1894, in the central montane region, and *N. c. rupicola* J. A. Allen, 1894, in Weld and Logan counties.

Neotoma floridana (Eastern Woodrat)— Known from suitable habitats on the eastern plains region of east-central Colorado. The subspecies is *N. f. campestris* J. A. Allen, 1894.

Neotoma lepida (Desert Woodrat)— Confined to west-central areas along the Colorado and White river drainages. The subspecies is *N. l. sanrafaeli* Kelson, 1950.

Neotoma mexicana (Mexican Woodrat)— Distributed along most of the eastern edge of the Front Range, into the southeastern region, adjacent to the San Luis Valley, and in the southwestern corner of the state. The subspecies are *N. m. fallax* Merriam, 1894, on the Front Range north of the Arkansas River, *N. m. inopinata* Goldman, 1933, in the southwest, and *N. m. scopulorum* Finley, 1953, in the southeast south of the Arkansas River and in the San Luis Valley.

Neotoma micropus (Southern Plains Woodrat)— Restricted to the southeastern corner, mostly adjacent to the Arkansas River and southward. The subspecies is *N. m. canescens* J. A. Allen, 1891.

**Rattus norvegicus* (Norway Rat)— Widespread in some urban areas, especially on the eastern plains.

**Mus musculus* (House Mouse)— Probably statewide in distribution, especially in association with human settlements and agricultural areas. Critical review is needed of the systematic affinities of these introduced mammals (Fitzgerald et al., 1995).

Clethrionomys gapperi (Southern Red-backed Vole)— Occurs throughout much of the mountainous regions of Colorado including Moffat and Routt counties (Finley and Bogan, 1995). The subspecies are *C. g. galei* (Merriam, 1890) in the northern two-thirds of the range and *C. g. gauti* Cockrum and Fitch, 1952, in the southern third of the state.

Phenacomys intermedius (Western Heather Vole)— Known from higher elevations in the montane areas of the central part of the state. The subspecies is *P. i. intermedius* Merriam, 1889.

Microtus longicaudus (Long-tailed Vole)— Distributed throughout the upland areas of the western two-thirds of the state. The subspecies is *M. l. longicaudus* (Merriam, 1888).

Microtus mexicanus (Mexican Vole)— Recorded only from Montezuma and Las Animas counties in southern Colorado. The subspecies is *M. m. mogollonensis* (Mearns, 1890).

Microtus montanus (Montane Vole)— Occurs in montane regions of much of the western half of the state. The subspecies are *M. m. fusus* Hall, 1935, in the southern portion of the range and *M. m. nanus* (Merriam, 1891) in the north.

Microtus ochrogaster (Prairie Vole)— Found mostly adjacent to river drainages in northeastern and southeastern Colorado. The subspecies is *M. o. haydenii* (Baird, 1858).

Microtus pennsylvanicus (Meadow Vole)— Occurs in moist habitats along the Front Range, in the San Luis Valley, and along the upper parts of the South Platte River. The subspecies are *M. p. finitis* S. Anderson, 1956, in Yuma County, *M. p. modestus* (Baird, 1858) in the San Luis Valley and adjacent south-central parts of the state, and *M. p. uligocola* S. Anderson, 1956, in the Front Range and along the headwaters of the South Platte River.

Lemmiscus curtatus (Sagebrush Vole)— Disjunct pattern of distribution in north-central and northwestern parts of the state. The subspecies is *L. c. levidensis* (Goldman, 1941).

Ondatra zibethicus (Common Muskrat)— Found throughout the state in suitable habitats supported by permanent bodies of water. The subspecies are *O. z. cinnamominus* (Hollister, 1910) on the eastern plains, and *O. z. osoyoosensis* (Lord, 1863) in the western two-thirds of Colorado.

Family Zapodidae (Jumping Mice)

Zapus hudsonius (Meadow Jumping Mouse)— Historic records of *Z. h. preblei* Krutzsch, 1954, are from Adams, Arapahoe, Denver, and Jefferson counties; pres-

ently known in Boulder, Douglas, Elbert, El Paso, Jefferson, Larimer, and Weld counties (C. A. Meaney in litt., 1998). Its distribution and status are currently under study, partly due to the proposal to list *Z. h. preblei* as endangered (e.g., Meaney et al., 1997; Riggs et al., 1997).

Zapus princeps (Western Jumping Mouse)— Occurs throughout much of the montane region in the central and western portions of the state. The subspecies is *Z. p. princeps* J. A. Allen, 1893. Animals from west of the Green River in northwestern Colorado might be referable to *Z. p. utahensis* Hall, 1934 (Fitzgerald et al., 1995).

Family Erethizontidae (New World Porcupines)

Erethizon dorsatum (Common Porcupine)— Can be found in all kinds of ecosystems throughout the state. The subspecies are *E. d. bruneri* Swenk, 1916, in the northeastern corner, *E. d. couesi* Mearns, 1897, in the southwestern corner, and *E. d. epixanthum* Brandt, 1835, in much of the western two-thirds of the state.

ORDER CARNIVORA— CARNIVORES

Family Canidae (Canids)

**Canis familiaris* (Feral Dog)— Free-ranging animals fairly common, especially adjacent to major urban areas.

Canis latrans (Coyote)— Occurs in most ecosystems throughout the state. The subspecies are *C. l. latrans* Say, 1823, on the eastern plains, *C. l. lestes* Merriam, 1897, in most of the west, and *C. l. mearnsi* Merriam, 1897, in the southwestern corner.

Canis lupus (Gray Wolf)— Once ranged throughout the state, but no residents are known to remain. The species is listed as endangered by the state of Colorado. The subspecies were *C. l. nubilus* Say, 1823, east of the Continental Divide, and *C. l. youngi* Goldman, 1937, west of the Continental Divide.

Vulpes macrotis (Kit Fox)— Kit foxes are relatively poorly known in Colorado. The subspecies are *V. v. arsipus* Elliot, 1904, from west-central Colorado and *V. v. neomexicana* Merriam, 1902, from Montezuma County.

Vulpes velox (Swift Fox)— The subspecies *V. v. velox* (Say, 1823) is known from the eastern prairies.

Vulpes vulpes (Red Fox)— Widespread throughout. The subspecies is *V. v. macroura* Baird, 1852. There is need for examination of the subspecific affinities of this taxon in Colorado.

Urocyon cinereoargenteus (Common Gray Fox)— Distributed along the eastern portion of the Front Range, throughout the southeast, and along the western border of the state. The subspecies is *U. c. scottii* Mearns, 1891.

Family Ursidae

(Bears)

Ursus americanus (Black Bear)—Once probably statewide, now present in the western two-thirds of the state. The subspecies is *U. a. amblyceps* Baird, 1859. *Ursus a. americanus* Pallas, 1780, may have occurred previously in northeastern Colorado.

Ursus arctos (Grizzly or Brown bear)—Probably ranged statewide in the past; now listed as an endangered species in Colorado. Information regarding the last documentation (in 1979) in the state can be found in Murray (1987) and Petersen (1995). The subspecies was *U. a. horribilis* Ord, 1815.

Family Procyonidae

(Procyonids)

Bassariscus astutus (Ringtail)—Distributed throughout most of the western two-thirds and the southeastern portions of the state. The subspecies is *B. a. flavus* Rhoads, 1894.

Procyon lotor (Common Raccoon)—Common in almost all ecosystems statewide. The subspecies are *P. l. hirtus* Nelson and Goldman, 1930, throughout most of Colorado and *P. l. pallidus* Merriam, 1900, in the San Juan and lower Colorado river drainages (Finley, 1995).

Family Mustelidae

(Mustelids)

Martes americana (American Marten)—Present at upper elevations in the mountains of the central portion of the state. The subspecies is *M. a. origenes* (Rhoads, 1902).

Mustela erminea (Ermine)—Occurs throughout the montane region of central Colorado. The subspecies is *M. e. muricus* (Bangs, 1899).

Mustela frenata (Long-tailed Weasel)—Statewide in distribution. The subspecies are *M. f. longicauda* Bonaparte, 1838, on the plains of northeastern and east-central Colorado, *M. f. neomexicana* (Barber and Cockerell, 1898) in the southeast, and *M. f. nevadensis* Hall, 1936, in the western two-thirds of the state.

Mustela nigripes (Black-footed Ferret)—Once occurred throughout much of the state in conjunction with the former distribution of prairie dogs; apparently extirpated now in Colorado. *Mustela nigripes* (Audubon and Bachman, 1851) is a monotypic species. It is listed as endangered by Colorado and as critically imperiled globally (G1) by the CNHP (1997).

Mustela vison (American Mink)—Occurs potentially in all suitable habitats throughout the state. The subspecies are *M. v. energumenos* (Bangs, 1896) in the central and western portions of the state and *M. v. letifera* Hollister, 1913, on the eastern plains.

Gulo gulo (Wolverine)—Historically known from the mountains in central Colorado. There is not strong evidence for a viable population and the species is listed as endangered by the state. The subspecies was *G. g. luscus* (Linnaeus, 1758).

Taxidea taxus (American badger)—Distributed throughout the state, especially in open areas inhabited also by ground squirrels, prairie dogs, and pocket gophers. We follow Long's (1973) distribution of subspecies: *T. t. berlandieri* Baird, 1858, in the extreme southwestern corner, *T. t. jeffersonii* (Harlan, 1825) in the western and central portions of the state, and *T. t. taxus* (Schreber, 1778) on the eastern plains.

Lontra canadensis (Northern River Otter)—Occurred previously in most of the major river systems. Listed as endangered by the Colorado Division of Wildlife, but due to restocking otters are now present in several drainages in the western half of the state. Precise identification of subspecies is not possible because of lack of specimens of previous populations and recent restocking of animals obtained from several places in the United States and Canada.

Family Mephitidae

(Mephitids)

Spilogale gracilis (Western Spotted Skunk)—Ranges along the western border of the state, as well as along the eastern edge of the Front Range and in southeastern Colorado. The subspecies is *S. g. gracilis* Merriam, 1890.

Spilogale putorius (Eastern Spotted Skunk)—Known only from northeastern Colorado, mostly along the South Platte River, as well as adjacent to the Arkansas River to the south. The subspecies is *S. p. interrupta* (Rafinesque, 1820).

Mephitis mephitis (Striped Skunk)—Common throughout the state. The subspecies are *M. m. estor* Merriam, 1890, in the southwestern corner, *M. m. hudsonica* Richardson, 1829, in northern, western, and central parts of the state, and *M. m. varians* Gray, 1837, in the San Luis Valley and in the southeast.

Conepatus mesoleucus (Common Hog-nosed Skunk)—Recorded only from El Paso, Fremont, and Baca counties. The subspecies are *C. m. figginsi* F. W. Miller, 1925, from Baca County, and *C. m. fremonti* F. W. Miller, 1933, from El Paso and Fremont counties.

Family Felidae (Cats)

**Felis catus* (Feral Cat)—Free-ranging animals fairly common in both urban and some rural areas.

Puma concolor (Mountain Lion)—Ranges throughout much of western Colorado; absent from the eastern plains. The subspecies is *F. c. hippolestes* Merriam, 1897.

Lynx canadensis (Lynx)—Apparently confined to isolated montane regions; listed as endangered by the state. The subspecies is *L. c. canadensis* Kerr, 1792.

Lynx rufus (Bobcat)—Probably occurs throughout most of Colorado. *Lynx r. baileyi* Merriam, 1890, occurs across the south (including the San Luis Valley), *L. r. pallescens* Merriam, 1899, in the central and west, and *L. r. rufus* (Schreber, 1777) in the northeastern corner.

*ORDER PERISSODACTYLA—ODD-TOED UNGULATES

*Family Equidae (Equids)

**Equus caballus* (Feral Horse)—Known from

Moffat, Rio Blanco, Garfield, Montrose, and Mesa counties.

ORDER ARTIODACTYLA—EVEN-TOED UNGULATES

Family Cervidae (Cervids)

Cervus elaphus (Wapiti or Elk)—Once ranged statewide, present now mostly on uplands of the western two-thirds of the state, with an introduced population in Baca County. The subspecies is *C. e. nelsoni* V. Bailey, 1935. *Cervus e. canadensis* Erxleben, 1777, might have ranged previously on the eastern plains.

Odocoileus hemionus (Mule or Black-tailed Deer)—Present in many ecosystems throughout Colorado. The subspecies is *O. h. hemionus* (Rafinesque, 1817).

Odocoileus virginianus (White-tailed Deer)—Distributed throughout the eastern plains, along some drainage systems extending into montane areas, as well as in some mountain parks at high elevations. The subspecies are *O. v. dacotensis* Goldman and Kellogg, 1940, in the northern plains region and *O. v. texanus* (Mearns, 1898) in the southern parts of the plains. Because of restocking and other factors, determinations of subspecies in Colorado are not certain.

**Alces alces* (Moose)—As a result of introductions beginning in 1978, several populations occur in the montane areas of central Colorado. The subspecies is *A. a. shirasi* Nelson, 1914.

Family Antilocapridae

(Pronghorn)

Antilocapra americana (Pronghorn)— Occurs presently throughout much of the eastern plains, in open areas of the central mountains, and in parts of western Colorado. The subspecies is *A. a. americana* (Ord, 1815).

Family Bovidae

(Bovids)

Bos bison (American Bison)— Prior to extirpation, ranged throughout the state except in the southwestern corner (Meaney and Van Vuren, 1993). Now present in Colorado only on some federal and state lands and in private herds on some ranches. The subspecies were *B.*

b. athabascae Rhoads, 1898, in western Colorado and *B. b. bison* (Linnaeus, 1758) in the east.

**Oreamnos americanus* (Mountain Goat)— Introductions since 1948 have resulted in the establishment of several populations in the mountains of the central and southwestern parts of the state. *Oreamnos americanus* (Blainville, 1816) is a monotypic species (Cowan and McCrory, 1970).

Ovis canadensis (Mountain or Bighorn Sheep)— Occurs in widely scattered populations on upland areas throughout much of the state. The subspecies of native animals is *O. c. canadensis* Douglas, 1829. In 1979, a group of *O. c. nelsoni* Merriam, 1897, was introduced in the Colorado National Monument area.

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LITERATURE CITED

- Armstrong, D. M. 1972. Distribution of mammals in Colorado. Monograph of the Museum of Natural History, Univ. Kansas, No.3. x + 415 pp.
- _____. 1987. Rocky Mountain mammals: a handbook of mammals of Rocky Mountain National Park and vicinity, revised ed. Colorado Assoc. Univ. Press, Boulder, Colorado. 223 pp.
- _____. 1993. Lions, ferrets & bears: a guide to the mammals of Colorado. Colorado Division of Wildlife, Denver. 65 pp.
- Armstrong, D. M., R. A. Adams, and J. Freeman. 1994. Distribution and ecology of bats of Colorado. Natural History Inventory of Colorado 15:1-83.
- Baker, R. J., J. C. Patton, H. H. Genoways, and J. W. Bickham. 1988. Genic studies of *Lasiurus* (Chiroptera: Vespertilionidae). Occas. Papers Mus., Texas Tech Univ., 117:1-15.
- Bogan, M. A., and R. B. Finley, Jr. 1996. Mammals of Colorado, by J. P. Fitzgerald, C. A. Meaney, and D. M. Armstrong (book review). *J. Mamm.*, 77:901-904.
- Choate, J. R., and M. P. Reed. 1988. Least shrew, *Cryptotis parva*, in southwestern Kansas and southeastern Colorado. *Southwestern Nat.*, 33:361-362.
- Colorado Natural Heritage Program (CNHP). 1997. Colorado's natural heritage: rare and imperiled animals, plants, and plant communities. CNHP, 3(1):1-226.
- Cowan, I. McT., and W. McCrory. 1970. Variation in the mountain goat, *Oreamnos americanus* (Blainville). *J. Mamm.*, 51:60-73.
- Finley, R. B., Jr. 1958. The woodrats of Colorado: distribution and ecology. *Univ. Kansas Publ., Mus. Natural History* 10:213-552.

- _____. 1995. The spread of raccoons (*Procyon lotor hirtus*) into the Colorado Plateau from the northern Great Plains. Proc. Denver Mus. Natural History, Series 3, No. 11, 6 pp.
- Finley, R. B., Jr., and M. A. Bogan. 1995. New records of terrestrial mammals in northwestern Colorado. Proc. Denver Mus. Natural History, Series 3, No. 10, 6 pp.
- Fitzgerald, J. P., C. A. Meaney, and D. M. Armstrong. 1994 [1995]. Mammals of Colorado. Denver Mus. Natural History and Univ. Press of Colorado, Denver and Niwot. 467 pp.
- Hall, E. R. 1981. The mammals of North America. Second ed. John Wiley & Sons, New York. Vol. 1:1-600 + 90 pp. Vol. 2:vi + 601-1181 + 90 pp.
- Huheey, C. C. 1972. Sympatric hybridization of *Neotoma albigula* and *Neotoma micropus* in southeastern Colorado: a study of karyology, blood proteins, morphology, and ecology. Unpubl. Ph.D. dissertation, Univ. Illinois, Urbana. 66 pp.
- Jones, C., R. S. Hoffmann, D. W. Rice, M. D. Engstrom, R. D. Bradley, D. J. Schmidly, C. A. Jones, and R. J. Baker. 1997. Revised checklist of North American mammals north of Mexico, 1997. Occas. Papers Mus., Texas Tech Univ. 173:1-19.
- Jones, C. A. 1994. Type specimens of mammals in the Denver Museum of Natural History. Proc. Denver Mus. Natural History, Series 3, No. 6, 4 pp.
- _____. In press. An annotated list of mammals of the James M. John State Wildlife Area. Proceedings of the Colorado Natural Areas Symposium.
- Lechleitner, R. R. 1969. Wild mammals of Colorado: their appearance, habits, distribution, and abundance. Pruett Publishing Co., Boulder. 254 pp.
- Long, C. A. 1973. *Taxidea taxus*. Mammalian Species, 26:1-4.
- Long, C. A., and R. S. Hoffmann. 1992. *Sorex preblei* from the Black Canyon, first record for Colorado. Southwestern Nat., 37:318-319.
- Meaney, C. A., and D. Van Vuren. 1993. Recent distribution of bison in Colorado west of the Great Plains. Proc. Denver Mus. Natural History, Series 3, No. 4, 10 pp.
- Meaney, C. A., A. Deans, N. W. Clippinger, M. Rider, N. Daly, and M. O'Shea-Stone. 1997. Third year survey for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in Colorado. Submitted to the Colorado Division of Wildlife, 58 pp.
- Murray, J. A. 1987. Wildlife in peril: the endangered mammals of Colorado. Roberts Rinehart Inc., Publishers, Boulder, Colorado. 226 pp.
- Petersen, D. 1995. Ghost grizzlies. Henry Holt and Company, New York. xx + 296 pp.
- Riggs, L. A., J. M. Dempcy, and C. Orrego. 1997. Evaluating distinctness and evolutionary significance of Preble's Meadow Jumping Mouse: phylogeography of mitochondrial DNA non-coding region variation. Submitted to the Colorado Division of Wildlife, 13 pp. + pages A-1 to A-5.
- Warren, E. R. 1910. The mammals of Colorado. G. P. Putnam's Sons, New York. 300 pp.

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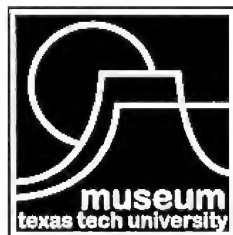
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