

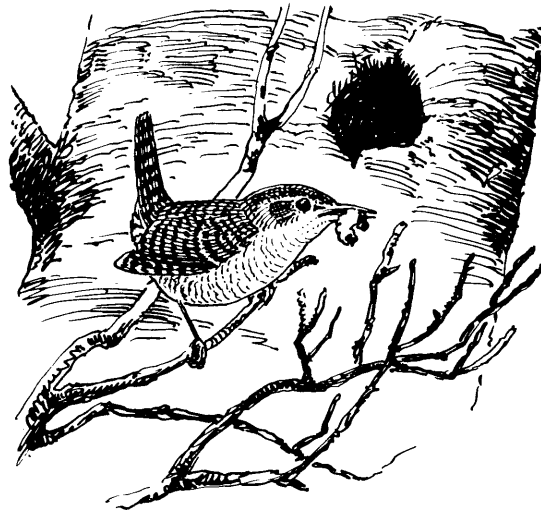
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**Birds and Mammals of
Manitou Experimental Forest, Colorado**

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Abstract

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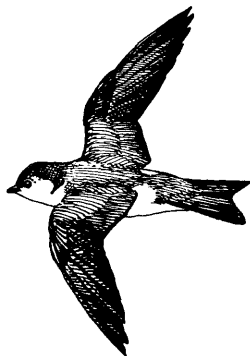
Seasonal occurrence, relative abundance, and habitat preference are listed for 90 bird and 41 mammal species that can be found at Manitou Experimental Forest. An annotated list is given also for an additional 70 casual or accidental bird species. Manitou Experimental Forest is located near Colorado Springs in the montane zone of the Colorado Front Range.

Keywords: Birds, mammals, wildlife habitat.



**Birds and Mammals of
Manitou Experimental Forest, Colorado**

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Birds and Mammals of Manitou Experimental Forest, Colorado

Meredith J. Morris, Vincent H. Reid,
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The Manitou Experimental Forest is located about 28 mi northwest of Colorado Springs, Colorado, on State Highway 67, north of Woodland Park (fig. 1). The Experimental Forest is in a valley known as Manitou Park which is paralleled by two north-south mountain ranges, the Rampart Range on the east and West Creek Range on the west. The valley is drained by Trout Creek, a tributary of the South Platte River. Elevations vary from about 7,600 ft (2,320 m) to 9,400 ft (2,860 m). The Forest contains about 26 mi² (6,730 ha) with some interspersed non-Federal lands.

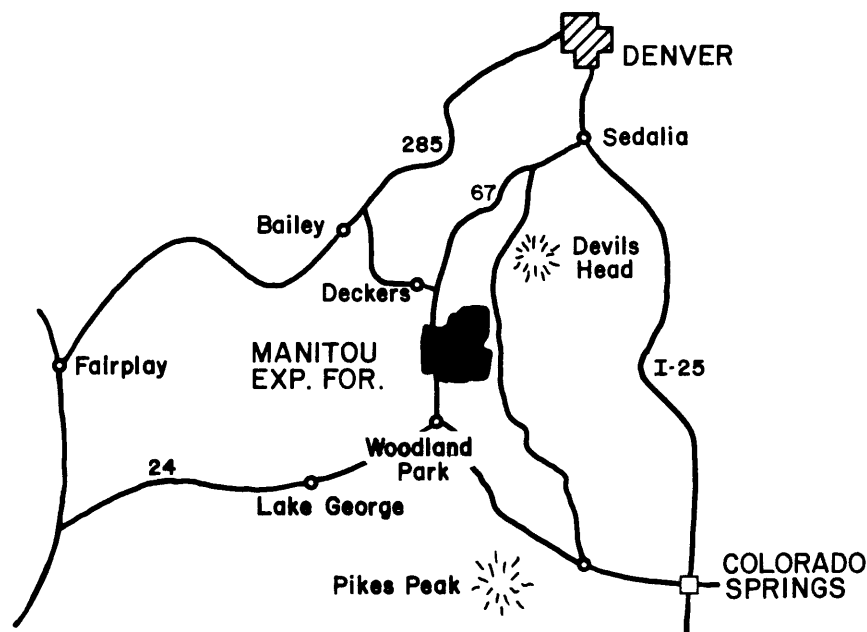
Several steep-walled canyons occur in the rough eastern part. From south to north, these drainages are Johns Gulch, Hotel Gulch, White Spruce Gulch, and Missouri Gulch. Some recreational areas have been established in the southwest part of the Experimental Forest. Painted Rocks Campground and Camp Elim, a church camp, are located on the West Creek Road. Manitou Picnic Ground and Colorado Campground are situated beside Manitou Lake, a reservoir on Trout Creek.

In the West Creek drainages, southwest of and adjacent to the Experimental Forest, bird cen-

suses were conducted from 1968 through 1972 by the Denver Wildlife Research Center, U.S. Fish and Wildlife Service, in cooperation with the Pacific Southwest Forest and Range Experiment Station in an experimental study of forest insecticides. Information from these censuses is applicable to comparable areas on the Manitou Experimental Forest. The West Creek drainages include Manchester, Phantom, and Trail Creeks, and Long, Stone, and Spruce Gulches.

Manitou Park's long and interesting history indicates fur trapping and trading in the early 1800's as the white man's first activity in the area. By the late 1800's, mining had become the main reason for occupancy and use of the pine lands. Commercial logging of ponderosa pine⁴ began about 1860. Pine timber furnished mine props, railroad ties, building lumber, fuel, and charcoal. No large merchantable stands of pine remained in the area after 1900.

⁴Common and scientific names of plants (Nickerson, Brink, and Feddema 1976) are listed at the end of this report.



Livestock grazing was quite heavy in the early days and reached a peak in the 1880-90 period. Cultivated crops, including hay and potatoes, were in high demand. After 1900, farming and ranching activities began to decline, and by the midthirties, all the farmlands had been abandoned. Although ranching is still being practiced, cattle numbers are far below what they once were.

Manitou Park was once a well-known resort. Dr. William A. Bell from London, England, built the first hotel about 1875 near the present Experimental Forest headquarters. Fire destroyed this hotel in 1886. A second hotel opened in 1894, and burned in 1899. Some cottages were built later as well as the third hotel which burned in 1925.

In 1905, about 12,000 acres (4,860 ha) of land were given to Colorado College by Dr. Bell and General William J. Palmer, the founder of Colorado Springs. This tract, known as the Reserve of the School of Forestry, was used as an outdoor campus by the first forestry school established west of the Mississippi River. Colorado College operated its Forestry School until 1934. In 1937, the Colorado College tract, plus several thousand acres of croplands purchased by the Resettlement Administration were transferred to the Forest Service to form the Manitou Experimental Forest.

Vegetation

The region in which the Experimental Forest is located has been so disturbed by fires, insect and disease attacks, and past land use that one would be hard pressed to find a single acre of primeval forest. These impacts, plus highly variable site conditions, have resulted in a complex mosaic of plant communities, all of which are in some successional stage below the climax. These communities will be briefly described because most of them provide unique habitats for certain species of birds and mammals.

Ponderosa Pine

Several silvicultural treatments have been or are being applied to improve the ponderosa pine stands at Manitou. These treatments include thinning, improvement cutting, clearcutting for dwarf mistletoe control, and shelterwood and

group selection cutting (Myers 1974). All snags were removed in the first timber harvest, but in later harvests snags were marked with metal signs prior to cutting to reserve them as wildlife trees.

Much of the pine forest, particularly in the harvested areas and drier sites, presents an open, parklike appearance. Depending on the soil and tree density, the understory vegetation is quite variable in composition. Where grasses are dominant, the main species are Arizona fescue and mountain muhly and, to a lesser degree, blue grama and little bluestem. If shrubs are present, the dominants are true mountainmahogany, common juniper, bearberry, and, in some areas, skunkbush sumac. Forbs such as stemless hymenoxys, hairy goldaster, and Fremont geranium may be present.

Douglas-fir

Stands of Douglas-fir are found on north slopes in moderately steep parts of the Experimental Forest. Site conditions are more mesic or wetter than on the south slopes where ponderosa pine usually occurs. The understory in the Douglas-fir stands may include Rocky Mountain maple and mountain ninebark in substantial amounts, or the two species may be completely absent. Other shrubs occurring in the stands are Rocky Mountain clematis and, on very steep slopes, cliff jamesia. Associated forb species are European strawberry and yellowdot saxifrage.

Lodgepole Pine

Lodgepole pine stands are found in the upper drainages and along the Rampart Range in the northeast part of the Experimental Forest. Some stands contain very little understory vegetation except for a few scattered plants of bearberry and common juniper. Other stands have a good understory of Rocky Mountain whortleberry plus a variety of herbaceous species.

Mixed Conifer

Interspersed throughout the Experimental Forest are mixed stands of coniferous species in vary-

ing combinations and proportions. Included in these mixtures are ponderosa pine, Douglas-fir, lodgepole pine, and Engelmann spruce. A few blue spruce can also be found, as well as quaking aspen, a deciduous species. These mixed stands probably represent ecotones between the main types, or successional stages due to some kind of disturbance. Examples of some of the species combinations are ponderosa pine-Douglas-fir, Engelmann spruce-Douglas-fir, lodgepole pine-Douglas-fir, and ponderosa pine-lodgepole pine-Douglas-fir. The understory vegetation is extremely variable. Wax currant, shrubby cinquefoil, and a considerable number of other shrub and herbaceous species may be present.

Quaking Aspen

Although aspen is usually associated with other tree species on the Experimental Forest, there are a few areas where it is the dominant. The aspen in these stands is usually of rather poor quality, but the understory is highly diverse and very luxuriant. Some of the more common plants include bearberry, common juniper, rose, geranium, northern bedstraw, fleabane, aster, brome, and sedge.

Open Grassland and Meadow

On the valley floor and scattered over the Forest are open grassland and meadow areas that vary from one to many acres in size. Some of these communities are natural, but some are obviously the product of clearing and cultivation. Of the four species, Arizona fescue, mountain muhly, blue grama, or Kentucky bluegrass, one is usually the dominant in the grasslands, but sleepygrass, pussytoes, butter-and-eggs toadflax, or fringed sagebrush may be locally dominant. The Forest Service has seeded introduced species on several areas at Manitou that had formerly been cultivated. These included big bluegrass, Russian wildrye, smooth brome, and wheatgrasses. Native plant species are invading the seeded areas, however, and may eventually replace the introduced species.

Meadows are most extensive along Trout Creek, but some small ones may also be found in the upper drainages. Meadows, because of a higher water table, are much more productive than the grasslands. The dominant plants are mostly sedges and rushes (mainly Baltic rush) with some

wheatgrasses, northern reedgrass, Kentucky bluegrass, and other species present.

Riparian

The most conspicuous example of a riparian community at Manitou is the discontinuous band of willows along Trout Creek. The ground cover is mainly sedges, rushes, and some Kentucky bluegrass with smooth horsetail being locally abundant. This community is regularly being modified by beaver activity, and irregularly by intense summer storms.




Narrow belts of riparian vegetation run generally eastward up through the drainages to the Rampart Range. The plant communities are shrub or mixed tree-shrub types; the trees are the same species as found elsewhere on the Experimental Forest. Shrubs occurring in these communities are thinleaf alder, water birch, common chokecherry, and willow. The vegetation in this type is generally very luxuriant and highly diverse.

Aquatic habitats include Manitou Lake and the perennial streams in Hotel Gulch, Missouri Gulch, and Trout Creek. Numerous beaver ponds are present on the Experimental Forest as well as in the West Creek drainages.

Birds

The list of bird species occurring at Manitou Experimental Forest is divided into two sections (table 1). All common and scientific names of birds follow the Check-list of North American Birds, fifth edition (American Ornithologists' Union 1957) as amended by the Thirty-second Supplement to the Check-list (American Ornithologists' Union 1973). The first part shows the seasonal occurrence and relative abundance of those species that are found on a more or less regular basis. Periodic variations in food supplies, regional or global climatic disturbances, or possibly other factors may cause marked fluctuations in occurrence and abundance of some species, however. If applicable, preferred habitats or plant communities are given for each species as well as some other helpful notes. The second part lists casual or accidental species, that is, those that have been observed only once to a few times. Sighting dates and initials of observers are given as well as citations for those reported in the literature.

Table 1.—Birds observed at the Manitou Experimental Forest, Colorado, separated into (1) yearlong and seasonal occurrences with relative abundance; and (2) casual or accidental occurrences with notes on date observed and observer's initials. In suitable habitat, one may expect to find this bird:

 at least 75% of the time;
  between 25% and 75% of the time;
  less than 25% of the time.

(Length of line indicates average arrival and departure dates)

Initials of observers:

A.A.S.— Aiken Audubon Society
 AC— Alene Catlett
 BK— Beverly Knott
 CAM— Clifford A. Myers
 DAB— Dominic A. Bartol, Jr. (Mr. and Mrs.)
 FGH— Frank G. Hawksworth
 FJH— Frederick J. Hermann
 FLH— Frederick L. Hammer
 GRS— George R. Shier
 GWH— George W. Hudler
 HAW— Howard A. Winkler
 HEM— Harley E. Metz
 HLG— Howard L. Gary

JVKW— J. V. K. Wagar
 MCH— Mary C. Hammer
 MJM— Meredith J. Morris
 MS— Marie Shier
 MSs— Mahlon Speers
 POC— Pat O. Currie
 REP— Richard E. Pillmore
 RGB— Richard G. Beidleman
 SM— Sadie Morrison
 ST— Steve Taliferro
 SWG— Samuel W. Gadd
 WAD— William A. Davis
 WRM— Walter R. Mark

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
Yearlong or Seasonal:													
Waterfowl (Anseriformes):													
Mallard <i>Anas platyrhynchos</i> Linnaeus													Manitou Lake and beaver ponds.
Green-winged teal <i>Anas crecca</i> Linnaeus													Manitou Lake and beaver ponds. Breeding records from West Creek drainages only.
Blue-winged teal <i>Anas discors</i> Linnaeus													Manitou Lake and beaver ponds. Two families observed on Trout Creek from June 1–July 20, 1976.
Cinnamon teal <i>Anas cyanoptera</i> Vieillot													Manitou Lake and beaver ponds. Irregular in occurrence.
Vultures, Hawks, and Falcons (Falconiformes):													
Turkey vulture <i>Cathartes aura</i> (Linnaeus)													Frequently seen soaring overhead.
Goshawk <i>Accipiter gentilis</i> (Linnaeus)													Ponderosa pine.
Sharp-shinned hawk <i>Accipiter striatus</i> Vieillot													Dense pine-fir.
Cooper's hawk <i>Accipiter cooperii</i> (Bonaparte)													Ponderosa pine, Douglas-fir.
Red-tailed hawk <i>Buteo jamaicensis</i> (Gmelin)													Ponderosa pine and pine-fir near open grassland.
Marsh hawk <i>Circus cyaneus</i> (Linnaeus)													Meadow and open grassland near Trout Creek.
American kestrel <i>Falco sparverius</i> (Linnaeus)													Open grassland, often seen along highway. Nest in tree cavities. More numerous in late summer.
Gallinaceous Birds (Galliformes):													
Blue grouse <i>Dendragapus obscurus</i> (Say)													Ponderosa pine, Douglas-fir.
Turkey <i>Meleagris gallopavo</i> Linnaeus													Aspen-mixed conifer, ponderosa pine.

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
Shorebirds, Gulls, and Alcids (Charadriiformes):													
Killdeer <i>Charadrius vociferus</i> Linnaeus						—	—	—					Lake and stream margins, meadows.
Common snipe <i>Capella gallinago</i> (Linnaeus)						—	—	—					Marsh at upper end of lake.
Spotted sandpiper <i>Actitis macularia</i> (Linnaeus)					—	—	—	—					Along Trout Creek.
Pigeons and Doves (Columbiformes):													
Band-tailed pigeon <i>Columba fasciata</i> Say						—	—	—					Ponderosa pine, pine-fir.
Mourning dove <i>Zenaida macroura</i> (Linnaeus)					—	—	—	—					Ponderosa pine.
Owls (Strigiformes):													
Flammulated owl <i>Otus flammeolus</i> (Kaup)						—	—	—					Aspen-mixed conifer, ponderosa pine. Nest in tree cavities.
Great horned owl <i>Bubo virginianus</i> (Gmelin)													Ponderosa pine, Douglas-fir.
Goatsuckers (Caprimulgiformes):													
Common nighthawk <i>Chordeiles minor</i> (Forster)							—	—	—				Mostly seen flying over open areas in evening.
Swifts and Hummingbirds (Apodiformes):													
Broad-tailed hummingbird <i>Selasphorus platycercus</i> (Swainson)						—	—	—					Aspen-willow and open willow riparian.
Rufous hummingbird <i>Selasphorus rufus</i> (Gmelin)							—	—					Aspen-willow and open willow riparian. Irregular in abundance.
Kingfishers (Coraciiformes):													
Belted kingfisher <i>Megaceryle alcyon</i> (Linnaeus)						—	—	—	—				Along Trout Creek.
Woodpeckers (Piciformes):													
Common flicker <i>Colaptes auratus</i> (Linnaeus)						—	—	—	—				Ponderosa pine, aspen. Nest in tree cavities.
Yellow-bellied sapsucker <i>Sphyrapicus varius</i> (Linnaeus)							—	—	—				Aspen-conifer, ponderosa pine. Nest in tree cavities.
Williamson's sapsucker <i>Sphyrapicus thyroideus</i> (Cassin)							—	—	—				Douglas-fir, aspen-conifer. Nest in tree cavities.
Hairy woodpecker <i>Dendrocopos villosus</i> (Linnaeus)													Aspen-mixed conifer with openings. Nest in tree cavities.
Downy woodpecker <i>Dendrocopos pubescens</i> (Linnaeus)													Aspen-conifer, ponderosa pine. Nest in tree cavities.
Northern three-toed woodpecker <i>Picoides tridactylus</i> (Linnaeus)													Lodgepole pine, mixed conifer, ponderosa pine with openings. Nest in tree cavities.
Perching Birds (Passeriformes):													
Western kingbird <i>Tyrannus verticalis</i> Say						—			—				Open grassland. Usually seen on pasture fences.
Dusky flycatcher <i>Empidonax oberholseri</i> Phillips							—	—	—				Open willow riparian.
Western flycatcher <i>Empidonax difficilis</i> Baird							—	—	—				Douglas-fir, aspen-conifer-willow.

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
Western wood pewee <i>Contopus sordidulus</i> Sclater						—	—	—	—				Aspen-conifer-willow riparian, open pine.
Olive-sided flycatcher <i>Nuttallornis borealis</i> (Swainson)						—	—	—	—				Ponderosa pine, pine-fir.
Horned lark <i>Eremophila alpestris</i> (Linnaeus)										—	—		Open grassland and meadow.
Violet-green swallow <i>Tachycineta thalassina</i> (Swainson)						—	—	—	—				Aspen-conifer-willow and open willow riparian. Nest in tree cavities.
Tree swallow <i>Iridoprocne bicolor</i> (Vieillot)						—	—	—	—				Aspen-conifer-willow and open willow riparian. Nest in tree cavities.
Rough-winged swallow <i>Stelgidopteryx ruficollis</i> (Vieillot)						—	—	—	—				Along Trout Creek.
Barn swallow <i>Hirundo rustica</i> Linnaeus						—	—	—	—				Along Trout Creek and around headquarters area.
Gray jay <i>Perisoreus canadensis</i> (Linnaeus)	—	—	—	—	—	—	—	—	—	—	—	—	Cosmopolitan at higher elevations. More common in West Creek area than at Manitou.
Steller's jay <i>Cyanocitta stelleri</i> (Gmelin)	—	—	—	—	—	—	—	—	—	—	—	—	Cosmopolitan, slight preference for aspen.
Black-billed magpie <i>Pica pica</i> (Linnaeus)	—	—	—	—	—	—	—	—	—	—	—	—	Cosmopolitan but usually can be seen in open areas along Trout Creek.
Common raven <i>Corvus corax</i> Linnaeus	—	—	—	—	—	—	—	—	—	—	—	—	Cosmopolitan.
Common crow <i>Corvus brachyrhynchos</i> Brehm	—	—	—	—	—	—	—	—	—	—	—	—	Meadow and open grassland. Occasionally do not winter.
Clark's nutcracker <i>Nucifraga columbiana</i> (Wilson)													Ponderosa pine. Irregular in occurrence and abundance.
Black-capped chickadee <i>Parus atricapillus</i> Linnaeus						—	—	—	—				Aspen groves and riparian. Nest in tree cavities at lower elevations.
Mountain chickadee <i>Parus gambeli</i> Ridgway	—	—	—	—	—	—	—	—	—	—	—	—	Cosmopolitan, slight preference for aspen. Nest in tree cavities.
White-breasted nuthatch <i>Sitta carolinensis</i> Latham	—	—	—	—	—	—	—	—	—	—	—	—	Ponderosa pine, Douglas-fir. Nest in tree cavities.
Red-breasted nuthatch <i>Sitta canadensis</i> Linnaeus	—	—	—	—	—	—	—	—	—	—	—	—	Douglas-fir. Nest in tree cavities. Irregular in occurrence and abundance.
Pygmy nuthatch <i>Sitta pygmaea</i> Vigors	—	—	—	—	—	—	—	—	—	—	—	—	Ponderosa pine, aspen. Nest in tree cavities.
Brown creeper <i>Certhia familiaris</i> Linnaeus	—	—	—	—	—	—	—	—	—	—	—	—	Douglas-fir. Nest in tree cavities.
House wren <i>Troglodytes aedon</i> Vieillot						—	—	—	—				Aspen conifer-willow riparian. Nest in tree cavities.
Mockingbird <i>Mimus polyglottos</i> (Linnaeus)						—	—	—	—				Open grassland and roadsides.
Gray catbird <i>Dumetella carolinensis</i> (Linnaeus)						—	—	—	—				Open willow riparian.
American robin <i>Turdus migratorius</i> Linnaeus				—	—	—	—	—	—	—	—	—	Cosmopolitan, slight preference for aspen. Occasionally winter.
Hermit thrush <i>Catharus guttatus</i> (Pallas)						—	—	—	—				Mixed spruce-fir-pine forest. More common in West Creek area than at Manitou.
Western bluebird <i>Sialia mexicana</i> Swainson						—	—	—	—				Aspen-conifer-willow near open grassland. Nest in tree cavities.
Mountain bluebird <i>Sialia currucoides</i> (Bechstein)						—	—	—	—				Ponderosa pine and aspen near open grassland. Nest in tree cavities.
Townsend's solitaire <i>Myadestes townsendi</i> (Audubon)						—	—	—	—				Ponderosa pine, aspen-conifer-willow.

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
Golden-crowned kinglet <i>Regulus satrapa</i> Lichtenstein													Aspen-conifer-willow with openings. Usually nest in Engelmann spruce. Slightly erratic.
Ruby-crowned kinglet <i>Regulus calendula</i> (Linnaeus)													Aspen-conifer-willow and mixed conifer-aspen with openings.
Northern shrike <i>Lanius excubitor</i> Linnaeus													Open grassland. Usually seen on pasture fences.
Loggerhead shrike <i>Lanius ludovicianus</i> Linnaeus													Open grassland. Usually seen on pasture fences.
Starling <i>Sturnus vulgaris</i> Linnaeus													Meadow and open grassland near water. Irregular in occurrence.
Warbling vireo <i>Vireo gilvus</i> (Vieillot)													Aspen-conifer-willow riparian.
Yellow warbler <i>Dendroica petechia</i> (Linnaeus)													Open willow riparian. Irregular in occurrence.
Yellow-rumped warbler <i>Dendroica coronata</i> (Linnaeus)													Aspen-conifer-willow riparian, pine-fir forests.
MacGillivray's warbler <i>Oporornis tolmiei</i> (Townsend)													Aspen-conifer-willow riparian.
Common yellowthroat <i>Geothlypis trichas</i> (Linnaeus)													Open willow riparian.
Wilson's warbler <i>Wilsonia pusilla</i> (Wilson)													Open willow and aspen-conifer-willow riparian.
Western meadowlark <i>Sturnella neglecta</i> Audubon													Open grassland and meadow.
Red-winged blackbird <i>Agelaius phoeniceus</i> (Linnaeus)													Marshes and open willow riparian.
Brewer's blackbird <i>Euphagus cyanocephalus</i> (Wagler)													Open ponderosa pine and grassland.
Brown-headed cowbird <i>Molothrus ater</i> (Boddaert)													Open grassland and meadow. Irregular in occurrence and abundance.
Western tanager <i>Piranga ludoviciana</i> (Wilson)													Open ridges in pine-fir forest.
Black-headed grosbeak <i>Pheucticus melanocephalus</i> (Swainson)													Pine-fir-aspen. Irregular.
Cassin's finch <i>Carpodacus cassinii</i> Baird													Open ponderosa pine. Irregular in occurrence and abundance.
Pine siskin <i>Spinus pinus</i> (Wilson)													Douglas-fir, mixed conifer-aspen. Irregular in occurrence and abundance.
Red crossbill <i>Loxia curvirostra</i> Linnaeus													Mixed conifer-aspen, ponderosa pine. Irregular in occurrence and abundance.
Green-tailed towhee <i>Chlorura chlorura</i> (Audubon)													Open willow and aspen-conifer-willow riparian.
Lark bunting <i>Calamospiza melanocorys</i> Stejneger													Open grassland and meadow. Not present until July in some years.
Savannah sparrow <i>Passerculus sandwichensis</i> (Gmelin)													Open willow riparian and meadow.
Vesper sparrow <i>Pooecetes gramineus</i> (Gmelin)													Open grassland.
Lark sparrow <i>Chondestes grammacus</i> (Say)													Open grassland with scattered shrubs. Irregular.

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
Dark-eyed junco <i>Junco hyemalis</i> (Linnaeus)													Pine-shrub and riparian, usually in protected sites.
Gray-headed junco <i>Junco caniceps</i> (Woodhouse)													Aspen-conifer-willow, widespread near edges. Often nest in Arizona fescue clumps (Winter-nitz 1973).
Chipping sparrow <i>Spizella passerina</i> (Bechstein)													Ponderosa pine and pine-fir around forest openings. Occasionally winter.
Lincoln's sparrow <i>Melospiza lincolni</i> (Audubon)													Open willow and aspen-conifer-willow riparian. Nest in willow thickets.
Song sparrow <i>Melospiza melodia</i> (Wilson)													Open willow and aspen-conifer-willow riparian. Nest in willow thickets.

Casual or Accidental:

Grebes (Podicipediformes):

- Western grebe
*Aechmophorus occiden-
talis* (Lawrence)
Pied-billed grebe
Podilymbus podiceps
(Linnaeus)

Observed at Manitou Lake on May 22, 1971, by FJH. Four were seen at the lake on Apr. 29, 1974, by POC, FGH, and CAM.
One was seen on Manitou Lake on Oct. 13, 1971, by POC and MJM. Observed at the lake during the period of Apr. 25 through May 13, 1974, by POC, FGH, MJM, and CAM. One was seen on a beaver pond on Oct. 21, 1975, by MJM.

Herons and Allies (Ciconiiformes):

- Great blue heron
Ardea herodias Linnaeus

White-faced ibis
Plegadis chihi (Vieillot)

One was observed at Manitou Lake on Sept. 10, 1971, by MJM and CAM. Seen at the lake during the period of Sept. 6-10, 1975, by FGH, GWH, and MJM. Two were observed by HLG and GWH at Manitou Lake on July 23-26, 1976. One was seen at the upper end of Manitou Lake on Sept. 9, 1975, by FGH, GWH, and MJM; another was seen in the same area on Apr. 29, 1976, by MJM.

Waterfowl (Anseriformes):

- Canada goose
Branta canadensis
(Linnaeus)
Gadwall
Anas strepera Linnaeus

Pintail
Anas acuta Linnaeus
American wigeon
Anas americana (Gmelin)

Northern shoveler
Anas clypeata (Linnaeus)

Redhead
Aythya americana (Eyton)
Lesser scaup
Aythya affinis (Eyton)

Bufflehead
Bucephala albeola
(Linnaeus)

Seen on one or two occasions during fall migration by POC. Observed on May 22, 1971, by FJH.
Observed on Trout Creek on May 22, 1971, by FJH and on June 9, 1971, by MJM and CAM. Seen on Aug. 30, 1973, by POC and HEM.
Several were seen on Manitou Lake on Sept. 9, 1975, by FGH and MJM.
One was seen on Trail Creek on May 16, 1969, by REP. Observed at Manitou Lake on May 15, 1973, by POC and CAM.
Two were seen on a beaver pond on Sept. 7, 1971, by HEM. On Apr. 29, 1974, at Manitou Lake, 12 were observed by POC, FGH, and CAM. A male was observed at the lake June 5-12, 1976, by GWH.
Two were seen on Manitou Lake on Oct. 13, 1971, by POC and MJM.
Observed at Manitou Lake on Apr. 29, 1974, by POC, FGH, and CAM. A pair were observed at the lake June 5-12, 1976, by GWH.
Four pairs were seen on Manitou Lake on Apr. 29, 1974, by POC, FGH, and CAM, and two were observed on May 13, 1974, by CAM.

Vultures, Hawks, and Falcons (Falconiformes):

- Swallow-tailed kite
Elanoides forficatus
(Linnaeus)

One was killed in Manitou Park and taken to Charles E. Aiken in Aug. 1877 (Sclater 1912).

Species	Notes
Swainson's hawk <i>Buteo swainsoni</i> Bonaparte	One was observed near West Creek on June 4, 1969, by REP.
Golden eagle <i>Aquila chrysaetos</i> (Linnaeus)	One was seen at Manitou on Sept. 19, 1969, by POC. One was also seen in the West Creek area on Sept. 20, 1969, by REP. One observed on July 22, 1975, by POC.
Merlin <i>Falco columbarius</i> Linnaeus	Reported near Manitou Lake on July 27, 1972, by FGH and WRM. Two were seen near Trout Creek on Apr. 17, 1974, by POC and CAM, and one was seen in the same area on May 13, 1974, by CAM. Two were observed near the highway on Sept. 10, 1975, by FGH and MJM.
Cranes and Allies (Gruiformes):	
Sandhill crane <i>Grus canadensis</i> (Linnaeus)	About 200 were seen by JVKW in the fall of 1930 in meadow west of Colorado Camp-ground.
Virginia Rail <i>Rallus limicola</i> Vieillot	One was observed on July 25, 1972, by FGH at the upper end of Manitou Lake. Two were seen on June 16, 1973, by members of A.A.S. One was seen near the lake on May 22, 1974, by RGB and MJM.
Sora <i>Porzana carolina</i> (Linnaeus)	Reported on May 22, 1971, by FJH, on May 23, 1974, by MJM, and July 16, 1974, by CAM. All observations were at upper end of Manitou Lake.
American coot <i>Fulica americana</i> Gmelin	Observed on Apr. 29, 1974, by POC, FGH, and CAM
Shorebirds, Gulls, and Alcids (Charadriiformes):	
Semipalmated sandpiper <i>Calidris pusilla</i> (Linnaeus)	Observed on Trout Creek on June 9, 1971, by POC and CAM.
Stilt sandpiper <i>Micropalama himantopus</i> (Bonaparte)	Reported at Manitou Lake on Apr. 29, 1974, by POC, FGH, and CAM.
American avocet <i>Recurvirostra americana</i> Gmelin	One was seen on a beaver pond on Trout Creek on May 14, 1970, by MJM.
Owls (Strigiformes):	
Long-eared owl <i>Asio otus</i> (Linnaeus)	One was seen near Phantom Creek on June 19, 1969, by REP, and another in Missouri Gulch on Sept. 29, 1971, by MJM.
Saw-whet owl <i>Aegolius acadicus</i> (Gmelin)	One was caught in a mist net in Johns Gulch on Aug. 26, 1974, by GWH.
Swifts and Hummingbirds (Apodiformes):	
Black-chinned hummingbird <i>Archilochus alexandri</i> (Bourcier and Mulsant)	One was observed at the head of Spruce Gulch on June 20, 1970, by REP.
Calliope hummingbird <i>Stellula calliope</i> (Gould)	One was seen in the headquarters area in July 1968 by MCH, and one was caught in a mist net near West Creek on July 16, 1968, by REP.
Perching Birds (Passeriformes):	
Eastern kingbird <i>Tyrannus tyrannus</i> (Linnaeus)	Large group observed by MCH on May 18, 1967, in open grassland north of headquarters. Seen along highway on July 25, 1972, by FGH, and on Sept. 10, 1975, by FGH and MJM.
Cassin's kingbird <i>Tyrannus vociferans</i> Swainson	One observed near Painted Rocks Camp-ground on Sept. 10, 1971, by MJM and REP.

Species	Notes
Scissor-tailed flycatcher <i>Muscivora forficata</i> (Gmelin) Say's phoebe <i>Sayornis saya</i> (Bonaparte)	One was seen on June 3, 1969, by FLH and ST on a pasture fence east of Manitou Lake.
Willow flycatcher <i>Empidonax traillii</i> (Audubon)	One was seen near Phantom Creek in 1969 by REP. One was observed in a pasture on Aug. 24, 1971, by CAM and another near Manitou Lake on Apr. 30, 1974, by POC, FGH, and CAM. One was observed in Long Gulch on May 26, 1969, by REP. One was caught in a mist net on July 16, 1969, in Long Gulch and another on June 16, 1970. One was captured near Phantom Creek on June 2, 1971, and another near West Creek on June 13, 1972. Observed near Trout Creek on June 5, 1973, by MJM and on June 16, 1973, by members of A.A.S. Probably nest in the area.
Least flycatcher <i>Empidonax minimus</i> (Baird and Baird)	Reported on May 22, 1971, by WAD and HAW, on June 7, 1971, by CAM, on May 30, 1972, by FGH, and on June 1, 1972, by CAM. All observations were in Hotel Gulch.
Hammond's flycatcher <i>Empidonax hammondii</i> (Xantus)	One was observed in Spruce Gulch on June 2, 1971, by REP. Observed in headquarters area by MJM and in Hotel Gulch by members of A.A.S. on June 16, 1973. Probably more common than these records indicate.
Cliff swallow <i>Petrochelidon pyrrhonota</i> (Vieillot)	Seen near Manitou Lake on May 22, 1971, by FJH, and on June 10, 1971, by CAM.
Blue jay <i>Cyanocitta cristata</i> (Linnaeus)	One was seen in the headquarters area on June 6, 1967, and another on Sept. 3, 1968, by MCH. One was observed at Camp Elim on Oct. 20, 1971, by POC and MJM; BK saw one at headquarters on Oct. 17, 1975.
Scrub jay <i>Aphelocoma coerulescens</i> (Bosc)	One was observed in the headquarters area on Sept. 15, 1968, by MCH.
Bushit <i>Psaltriparus minimus</i> (Townsend)	One was reported at Painted Rocks Campground on May 22, 1971, by GRS.
Canon wren <i>Catherpes mexicanus</i> (Swainson)	One was collected near West Creek on July 24, 1969, by REP.
Rock wren <i>Salpinctes obsoletus</i> (Say)	One was seen by MJM and CAM on June 3, 1973, at Colorado Campground.
Swainson's thrush <i>Catharus ustulatus</i> (Nuttall)	Reported by FGH on June 25, 1972.
Veery <i>Catharus fuscescens</i> (Stephens)	Two were observed at Manitou Lake by DAB during the period June 15-30, 1972. Photographs were obtained (Colo. Field Ornithol. No. 16, p. 24. June 1973). One was heard and seen in lower Hotel Gulch on June 16, 1973, by MJM.
Bohemian waxwing <i>Bombycilla garrulus</i> (Linnaeus)	Two flocks were seen in Long Gulch on Apr. 30, 1968, by REP.
Solitary vireo <i>Vireo solitarius</i> (Wilson)	One was mist netted in Stone Gulch on June 10, 1969; another was seen by REP in the same area on June 18, 1969. Reported by FJH on May 22, 1971. A female was observed on a nest in a small ponderosa pine from June 10-23, 1976, by MJM.
Virginia's warbler <i>Vermivora virginiae</i> (Baird)	One was seen near Phantom Creek on Aug. 14, 1969, by REP. Three were observed near Trout Creek on June 16, 1973, by members of A.A.S.

Species

Notes

Magnolia warbler <i>Dendroica magnolia</i> (Wilson)	One reported on May 22, 1971, by AC and MSs.
Townsend's warbler <i>Dendroica townsendi</i> (Townsend)	Observed near Phantom Creek on Aug. 15, 1969, and in Spruce Gulch on Aug. 20, 1969, by REP. Several flocks were seen in the West Creek area on Aug. 28, 1969, by REP.
Northern waterthrush <i>Seiurus noveboracensis</i> (Gmelin)	Two were seen below Manitou Lake dam on Sept. 9, 1971, by MJM.
Yellow-breasted chat <i>Icteria virens</i> (Linnaeus)	One was seen near the highway at the north end of the Experimental Forest on July 25, 1972, by FGH.
Bobolink <i>Dolichonyx oryzivorus</i> (Linnaeus)	A female reported at Manitou Lake on May 22, 1971, by SWG (Colo. Field Ornithol. No. 9, p. 39. July 1971).
Yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i> (Bonaparte)	Observed by MCH for a 10-day period beginning Apr. 24, 1969, and on May 22, 1971, by FJH.
Northern oriole <i>Icterus galbula</i> (Linnaeus)	One was seen by MCH at headquarters on May 18-19, 1969. One was seen at headquarters on May 19, 1970, and another on May 20, 1970, by FLH and MCH.
Rusty blackbird <i>Euphagus carolinus</i> (Muller)	Eight were reported by MCH on Aug. 8, 1967.
Common grackle <i>Quiscalus quiscula</i> (Linnaeus)	Seen in headquarters area by CAM on May 31, 1972. Observed on July 21, 1972, by FGH, and on Apr. 29, 1974, by FGH and CAM.
Scarlet tanager <i>Piranga olivacea</i> (Gmelin)	One was observed by SM and MS at Painted Rocks Campground on May 22, 1971.
Rose-breasted grosbeak <i>Pheucticus ludovicianus</i> (Linnaeus)	Two were seen in the headquarters area on June 16-17, 1967, by FLH, MCH, and MJM. One was seen at headquarters by FLH and MCH on May 29-30, 1970.
Lazuli bunting <i>Passerina amoena</i> (Say)	Two were observed on July 6, 1967, at headquarters by MCH. One was seen near Trout Creek by CAM on Aug. 25, 1971, and by MJM on Sept. 10, 1971.
Evening grosbeak <i>Hesperiphona vespertina</i> (Cooper)	A female was observed at headquarters on June 2, 1970, by MCH. REP saw one pair near Manchester Creek on July 8, 1971.
House finch <i>Carpodacus mexicanus</i> (Muller)	Formerly fairly common around headquarters area from early June until late summer during the years, 1966 through 1970, probably because of feeders maintained by MCH. Only other observation was by FGH on July 21, 1972.
Pine grosbeak <i>Pinicola enucleator</i> (Linnaeus)	Two males were seen near White Spruce Gulch on Dec. 12, 1967, by MCH.
Gray-crowned rosy finch <i>Leucosticte tephrocotis</i> (Swainson)	Seven were seen at headquarters on Feb. 14, 1973, by CAM.
American goldfinch <i>Spinus tristis</i> (Linnaeus)	Observed on May 22, 1971, by FJH.
Lesser goldfinch <i>Spinus psaltria</i> (Say)	One was seen on June 16, 1973, by members of A.A.S.
White-winged crossbill <i>Loxia leucoptera</i> Gmelin	Four males were observed at headquarters on Apr. 2, 1970, by MCH.
Rufous-sided towhee <i>Pipilo erythrophthalmus</i> (Linnaeus)	One was seen near Trout Creek on May 22, 1974, by RGB and MJM.
Tree sparrow <i>Spizella arborea</i> (Wilson)	One was reported on Apr. 17, 1974, by CAM.

Species	Notes
Clay-colored sparrow <i>Spizella pallida</i> (Swainson)	Observed near Trail Creek on May 11, 1969, by REP. Several were seen near Trout Creek on Aug. 28, 1972, by MJM and CAM. Seen in Long Gulch on Apr. 30, 1968, by REP. Observed on Sept. 10, 1971, by MJM and on May 13, 1974, by CAM near Trout Creek.
Brewer's sparrow <i>Spizella breweri</i> Cassin	
White-crowned sparrow <i>Zonotrichia leucophrys</i> (Forster)	
Fox sparrow <i>Passerella iliaca</i> (Merrem)	Seen in Long Gulch on May 26, 1969, and on June 13, 1970, by REP. Observed at Manitou on Sept. 29, 1971, by MJM; near Phantom Creek, on May 23, 1972, by REP; and at Manitou on Apr. 30, 1974, by FG and CAM. Two were seen below the dam at Manitou Lake on Sept. 7, 1971, by MJM.

Mammals

Mammal investigations at Manitou Experimental Forest have been directed mostly toward the smaller herbivorous mammals, primarily because of their potential impact on forest, range, and recreational resources. From 1957 through 1963, small mammal populations were sampled on ponderosa pine-bunchgrass ranges where light, moderate, heavy, and no-cattle grazing treatments were in effect. In 1974, populations on a campground site and on a nearby grazed area in the ponderosa pine-bunchgrass type were studied. Live- and snap-trap methods were used in sampling.

Records of mammals resulting from trapping and from field observations on the Experimental



Forest (table 2) were found to closely agree with distributional records for mammals in Teller and Douglas Counties (Armstrong 1972). For most species, nomenclature follows Blair and others (1957). A few species, particularly golden-mantled and thirteen-lined ground squirrels, and prairie dogs, follow Armstrong (1972).

Relative abundance is expressed in five categories. Comments on abundance of each species apply to areas of suitable habitat. Also in comments about mammalian habitats, the open grassland type discussed in the section on vegetation is referred to as a grass-forb type, and the higher elevation forest east of Highway 67 is called mixed conifer. This is a composite of the coniferous types discussed previously.

Table 2.—Mammals recorded at Manitou Experimental Forest, Colorado, as a result of trapping or of field observations, with relative abundance in five categories, and whether study skins are on deposit at field station of National Fish and Wildlife Laboratory, Fort Collins, Colorado

Species	Relative abundance ¹				Abun- dant	Study skin on deposit	Notes
	Uncer- tain	Casual visitor	Rare	Common			
Shrews and Moles (Insectivora):							
Masked shrew <i>Sorex cinereus</i> Kerr			X				Grass-forb habitat. Locally distributed. Caught by traps only in enclosures constructed to exclude grazing and located in open grassland where herbaceous vegetation was most abundant. Fluctuations in population levels between years apparent. Sampling with traps indicated that 1958 and 1962 were high population years. Habitat and population status similar to that of the masked shrew.
Vagrant shrew <i>Sorex vagrans</i> Baird			X				Habitat and population status similar to that of the masked shrew.
Water shrew <i>Sorex palustris</i> Richardson			X				Near aquatic habitats, particularly where herbaceous ground cover is abundant.
Bats (Chiroptera):							
Little brown bat <i>Myotis lucifugus</i> (Le Conte)	X					X	One was caught on July 24, 1975, over a water pool in Missouri Gulch.
Silver-haired bat <i>Lasionycteris noctivagans</i> (Le Conte)	X					X	Five were caught between July 22 and July 25, 1975, over water in Trout Creek immediately west of headquarters.
Hoary bat <i>Lasiurus cinereus</i> (Beauvois)	X					X	Eight were caught between July 22 and 25, 1975, over water in Trout Creek immediately west of headquarters.
Pikas, Rabbits, and Hares (Lagomorpha):							
Mountain cottontail <i>Sylvilagus nuttalli</i> (Bachman)				X		X	Edges in uplands and brushy and riparian areas. Populations tend to fluctuate between years.
White-tailed jackrabbit <i>Lepus townsendi</i> Bachman			X				Grass-forb and open ponderosa pine habitats.
Squirrels, Mice, and Rats (Rodentia):							
Least chipmunk <i>Eutamias minimus</i> (Bachman)				X		X	Primarily ponderosa pine, mixed conifer, and, to a lesser extent, grass-forb habitats. Populations tend to fluctuate annually. Highest population estimate, two per acre, occurred in 1962 in ungrazed, open ponderosa pine.
Colorado chipmunk <i>Eutamias quadrivittatus</i> (Say)			X				Rocky outcrops, open ponderosa pine, and mixed coniferous forest. Populations tend to fluctuate annually.
Yellow-bellied marmot <i>Marmota flaviventris</i> (Audubon and Bachman)			X				Rocky areas, particularly where succulent green forage is available.
Thirteen-lined ground squirrel <i>Spermophilus tridecemlineatus</i> (Mitchill)			X			X	Grass forb and open ponderosa pine habitats. Population locally distributed. Found in pastures west of Highway 67. Population largest on ungrazed grass-forb range. There were about three per acre on ungrazed range in 1959 and 1961. On grazed range, there was less than one per acre in all 7 years of sampling.
Golden-mantled ground squirrel <i>Spermophilus lateralis</i> Cuvier				X		X	Rocky areas, ponderosa pine, mixed conifer, and adjacent grass-forb openings.
Gunnison's prairie dog <i>Cynomys gunnisoni</i> (Baird)				X		X	Grass-forb habitat. Population locally distributed. Currently, one large town occurs immediately east of Manitou Lake.

Species	Relative abundance ¹				Study skin on deposit	Notes
	Uncer- tain	Casual visitor	Rare	Common		
Abert's squirrel <i>Sciurus aberti</i> Woodhouse				X	X	Ponderosa pine habitat. Size of population tends to vary in time, dependent upon quality and quantity of food sources (seeds and inner bark of ponderosa pine) and by condition of the pine stand (Keith 1965, Patton 1975).
Red squirrel <i>Tamiasciurus hudsonicus</i> (Erleben)				X	X	Found in mixed conifer and ponderosa pine habitats.
Northern pocket gopher <i>Thomomys talpoides</i> (Richardson)				X	X	Grass-forb and open pine habitats. Populations smaller on grazed (1 to 6 per acre) than on ungrazed ranges (4 to 12 per acre).
Beaver <i>Castor canadensis</i> Kuhl				X	X	Aquatic habitat. Currently found along Trout Creek and Hotel Gulch water-courses.
Deer mouse <i>Peromyscus maniculatus</i> (Wagner)				X	X	Cosmopolitan. Generally distributed throughout the Experimental Forest. Sampling suggests that populations are largest in ungrazed, open ponderosa pine habitat. Late summer populations varied from half to three per acre, 1957-63. Populations tend to fluctuate from year to year.
Mexican woodrat <i>Neotoma mexicana</i> (Baird)			X		X	Open woodland, shrub, and rocky areas (Finley 1958).
Bushy-tailed woodrat <i>Neotoma cinerea</i> (Ord)			X		X	Cosmopolitan. Rocky areas (Finley 1958).
Red-backed vole <i>Clethrionomys gapperi</i> (Vigors)				X	X	Mixed conifer habitat.
Meadow vole <i>Microtus pennsylvanicus</i> (Ord)				X	X	Grass-forb habitat. Prefer undisturbed herbaceous stands. Populations vary from year to year. Most abundant in open grass-forb exclosures (0 to 31 per acre). Population highs occurred in 1958 and 1962 (31 and 12 per acre, respectively). Mostly absent from grazed ranges, even in years of high populations.
Long-tailed vole <i>Microtus longicaudus</i> (Merriam)				X	X	Mesic meadows, brushy streamsides, and upland hillsides.
Muskrat <i>Ondatra zibethicus</i> (Linnaeus)				X	X	Aquatic habitats. Presently found along Trout Creek and in Manitou Lake.
Western jumping mouse <i>Zapus princeps</i> Allen			X		X	Grass-forb and mesic meadow habitats. Populations vary from year to year.
Porcupine <i>Erethizon dorsatum</i> (Linnaeus)				X	X	Ponderosa pine and mixed conifer habitats.
Flesh-Eaters (Carnivora):						
Coyote <i>Canis latrans</i> Say					X	Cosmopolitan. Sight and sound records especially common in last 10 years.
Red fox <i>Vulpes vulpes</i> Linnaeus		X				Cosmopolitan.
Gray fox <i>Urocyon cinereoargenteus</i> (Schreber)		X				Cosmopolitan
Raccoon <i>Procyon lotor</i> (Linnaeus)				X		Near aquatic habitats.
Black bear <i>Ursus americanus</i> Pallas				X		Cosmopolitan. Population increasing in last 10 years.

Species	Relative abundance ¹				Study skin on deposit	Notes
	Uncertain	Casual visitor	Rare	Common		
Long-tailed weasel <i>Mustela frenata</i> Lichtenstein				X		Cosmopolitan. One was caught on Aug. 2, 1963, in a live trap set in an enclosure in grass-forb habitat.
Mink <i>Mustela vison</i> Schreber			X			Near aquatic habitats.
Badger <i>Taxidea taxus</i> (Schreber)			X			Grass-forb and ponderosa pine habitats.
Striped skunk <i>Mephitis mephitis</i> (Schreber)				X		Cosmopolitan.
Mountain lion <i>Felis concolor</i> Linnaeus		X				Cosmopolitan. Tracks were sighted as recently as winter, 1975-76.
Bobcat <i>Lynx rufus</i> (Schreber)				X		Cosmopolitan.
Even-Toed Ungulates (Artiodactyla):						
Elk <i>Cervus canadensis</i> Erxleben		X				Cosmopolitan. A few animals frequent the Experimental Forest in winter.
Mule deer <i>Odocoileus hemionus</i> (Rafinesque)				X		Cosmopolitan.
Pronghorn <i>Antilocapra americana</i> (Ord)		X				Open grass-forb habitat.

¹Relative abundance is expressed in five categories. Comments on abundance of each species apply to areas of suitable habitat.

Uncertain—Known to be present, but relative abundance not known.

Casual visitor—May venture on Experimental Forest occasionally.

Rare—Seldom observed.

Common—Regularly observed by sight, sound, or sign, or caught by traps in suitable habitat.

Abundant—Frequently observed by sight, sound, or sign, or caught in traps in suitable habitat.



Literature Cited

- American Ornithologists' Union. 1957. Check-list of North American birds. 5th ed. 691 p. Am. Ornithol. Union, Baltimore.
- American Ornithologists' Union. 1973. Thirty-second supplement to the American Ornithologists' Union check-list of North American birds. *Auk* 90(2):411-419.
- Armstrong, David M. 1972. Distribution of mammals in Colorado. Monogr. Mus. Nat. Hist., Univ. Kans., No. 3. 415 p. Univ. Kans. Printing Serv., Lawrence.
- Blair, W. Frank, Albert P. Blair, Pierce Brod-korb, Fred R. Cagle, and George A. Moore. 1957. *Vertebrates of the United States*. 819 p. McGraw-Hill Book Co.: New York, Toronto, London.
- Finley, Robert B., Jr. 1958. The wood rats of Colorado: Distribution and ecology. *Univ. Kans. Publ., Mus. Nat. Hist.* 10(6):213-552.
- Keith, James O. 1965. The Abert squirrel and its dependence on ponderosa pine. *Ecology* 46(1,2):150-163.
- Myers, Clifford A. 1974. Multipurpose silviculture in ponderosa pine stands of the montane zone of central Colorado. USDA For. Serv. Res. Pap. RM-132, 15 p. Rocky Mt. For. and Range Exp. Stn., Fort Collins, Colo.
- Nickerson, Mona F., Glen E. Brink, and Charles Feddema. 1976. Principal range plants of the central and southern Rocky Mountains: Names and symbols. USDA For. Serv. Gen. Tech. Rep. RM-20, 121 p. Rocky Mt. For. and Range Exp. Stn., Fort Collins, Colo.
- Patton, David R. 1975. Abert squirrel cover requirements in southwestern ponderosa pine. USDA For. Serv. Res. Pap. RM-145, 12 p. Rocky Mt. For. and Range Exp. Stn., Fort Collins, Colo.
- Sclater, William L. 1912. *A history of the birds of Colorado*. 576 p. Witherby and Co., London.
- Winternitz, Barbara L. 1973. Ecological patterns in a montane breeding bird community. Ph.D. thesis. Univ. Colo., Boulder. 126 p.



**Common and Scientific Names of
Plants Mentioned**

Grasses and Grasslike Plants

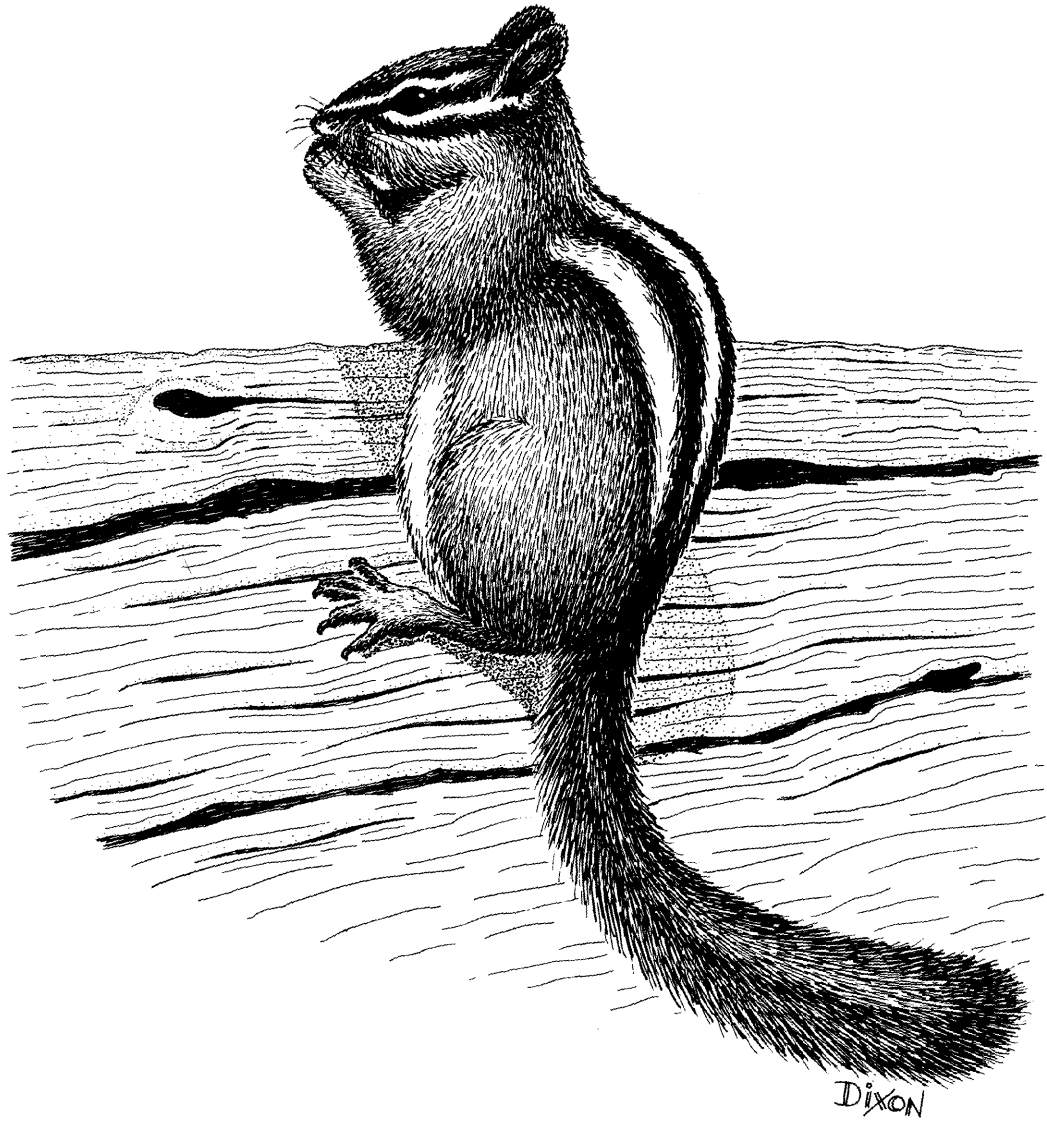
Arizona fescue	<i>Festuca arizonica</i> Vasey
Baltic rush	<i>Juncus balticus</i> Willd.
Big bluegrass	<i>Poa ampla</i> Merr.
Blue grama	<i>Bouteloua gracilis</i> (H.B.K.) Steud.
Brome	<i>Bromus</i> spp.
Kentucky bluegrass	<i>Poa pratensis</i> L.
Little bluestem	<i>Andropogon scoparius</i> Michx.
Mountain muhly	<i>Muhlenbergia montana</i> (Nutt.) Hitchc.
Northern reedgrass	<i>Calamagrostis inexpansa</i> Gray
Rush	<i>Juncus</i> spp.
Russian wildrye	<i>Elymus junceus</i> Fisch.
Sedge	<i>Carex</i> spp.
Sleepygrass	<i>Stipa robusta</i> (Vasey) Scribn.
Smooth brome	<i>Bromus inermis</i> Leyss.
Wheatgrass	<i>Agropyron</i> spp.

Forbs

Aster	<i>Aster</i> spp.
Butter-and-eggs toadflax	<i>Linaria vulgaris</i> Mill.
European strawberry	<i>Fragaria vesca</i> L.
Fleabane	<i>Erigeron</i> spp.
Fremont geranium	<i>Geranium fremontii</i> Torr.
Geranium	<i>Geranium</i> spp.
Hairy goldaster	<i>Chrysopsis villosa</i> (Pursh) DC.
Northern bedstraw	<i>Galium boreale</i> L.
Pussytoes	<i>Antennaria</i> spp.
Smooth horsetail	<i>Equisetum laevigatum</i> A. Br.
Stemless hymenoxys	<i>Hymenoxys acaulis</i> (Pursh) Parker
Yellowdot saxifrage	<i>Saxifraga bronchialis</i> L.

Trees and Shrubs

Bearberry	<i>Arctostaphylos uva-ursi</i> (L.) Spreng.
Blue spruce	<i>Picea pungens</i> Engelm.
Cliff jamesia	<i>Jamesia americana</i> T. + G.
Common chokecherry	<i>Prunus virginiana</i> L.
Common juniper	<i>Juniperus communis</i> L.
Douglas-fir	<i>Pseudotsuga menziesii</i> (Mirb.) Franco
Engelmann spruce	<i>Picea engelmannii</i> Parry
Fringed sagebrush	<i>Artemisia frigida</i> (Willd.)
Lodgepole pine	<i>Pinus contorta</i> Dougl.
Mountain ninebark	<i>Physocarpus monogynus</i> (Torr.) Coult.
Ponderosa pine	<i>Pinus ponderosa</i> Laws.
Quaking aspen	<i>Populus tremuloides</i> Michx.
RockyMountain clematis	<i>Clematis pseudoalpina</i> (Kuntze) A. Nels.
RockyMountain maple	<i>Acer glabrum</i> Torr.
RockyMountain whortleberry	<i>Vaccinium myrtillus</i> L.
Rose	<i>Rosa</i> spp.
Shubby cinquefoil	<i>Potentilla fruticosa</i> L.
Skunkbush sumac	<i>Rhus trilobata</i> Nutt.
Southwestern dwarf mistletoe	<i>Arceuthobium vagina-</i> <i>tum</i> (Willd.) Presl.
Thinleaf alder	<i>Alnus tenuifolia</i> Nutt.
True mountain- mahogany	<i>Cercocarpus montanus</i> Raf.
Water birch	<i>Betula occidentalis</i> Hook.
Wax currant	<i>Ribes cereum</i> Dougl.
Willow	<i>Salix</i> spp.



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Seasonal occurrence, relative abundance, and habitat preference are listed for 90 bird and 41 mammal species that can be found at Manitou Experimental Forest. An annotated list is given also for an additional 70 casual or accidental bird species. Manitou Experimental Forest is located near Colorado Springs in the montane zone of the Colorado Front Range.

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