Natural History of Vertebrates of
SAGEHEN CREEK BASIN,
Nevada County, California

Agricultural Experiment Station
UNIVERSITY OF CALIFORNIA
Division of Agriculture and Natural Resources
Natural History of Vertebrates of Sagehen Creek Basin, Nevada County, California

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Introduction
A. Starker Leopold and Michael L. Morrison

Summary information on the status of vertebrates that occur in the vicinity of the Sagehen Creek Field Station, Nevada County, California is provided in this report. The field station, operated by the University of California, Berkeley, is in the Sagehen Creek Basin of the Truckee Ranger District, Tahoe National Forest. On the east side of the Sierra Nevada, the 3500 ha basin is about 13 km north of Truckee, California. The basin, in this report, refers to areas within the Sagehen Creek drainage west of Highway 89.

Original observations from field notes of station personnel, literature sources, and information from researchers familiar with the basin, have been used to compile this report.

We wish to thank those individuals who, through their writings and attention to field notes, are responsible for much of this information. For reviewing one or more drafts of the report, we also thank N.K. Johnson, S.K. Martin, M.G. Raphael, and W.D. Spencer.

Readers are requested to report any factual errors to the senior author or to the field station manager. Summaries of new information are also requested; such reports will be included and properly cited in future publications.

Sagehen Creek Field Station History
A. Starker Leopold

A program of teaching and research in freshwater fisheries was initiated in 1949, when the California state legislature appropriated support funds to the University of California, Berkeley.

Responsibility for the undertaking was vested in the U.C. Department of Zoology. Paul R. Needham joined the staff to teach ichthyology and fisheries management and to establish a field station for the study of trout populations.

Sagehen Creek was selected as the site for the field base. It was a suitable stream for trout studies and the area was well adapted for other ecologic investigations of interest to the Berkeley faculty. Initial impetus stressed fisheries work; however, from the outset the facility intended to serve a broad spectrum of ecologic interests. The field station was established in 1951 with Needham as director. For several years it served solely as a research base for Berkeley staff and graduate students. Subsequently the station was used by faculty and students from numerous universities and government agencies. Since 1954 on-site courses in field biology have been offered.

In the summer of 1964, after Needham's death, A. Starker Leopold of the Museum of Vertebrate Zoology was appointed the second project director. Budgetary and administrative responsibility shifted to the Museum of Vertebrate Zoology. The director was made a professor in the School of Forestry and Conservation in 1968 (now the Department of Forestry and Resource Management, College of Natural Resources). Leopold retired in 1978 and Don Erman replaced him. Reginald Barrett replaced Erman as director in 1985. Tahoe National Forest administers most of the basin and a cooperative agreement between the UC Regents and the U.S. Forest Service in 1951 enabled development of the field station facility. The agreement granted the University a Special Use Permit for approximately 150 acres (60 ha) of land and 1.5 miles (2.4 km) of stream. Outside this Special Use Area, the basin is managed by the Forest Service for multiple use, including sale of timber, sheep grazing, and camping. Anglers, hunters, hikers, and skiers are attracted to the basin.

Living and laboratory facilities have been constructed at the Sagehen Creek Station, beginning in 1951, so that today year-round occupancy is available. A 24-foot underwater glass window on the stream bank offers excellent research viewing of stream activities. The physical facility is funded primarily by the University with substantial supplemental grants in the past from the Max C. Fleischmann Foundation of Nevada. The National Science Foundation has assisted by providing utility facility grants.

Publications and theses on vertebrates at the Sagehen Creek Field Station are listed in the bibliography. The bibliography contains those reports to which the Sagehen Creek Field Station made some significant contribution; a complete list of all research completed at the station is available from the station manager.

Vegetation
Michael P. Yoder-Williams

The Sagehen Creek Basin, on the eastern slope of the northern Sierra Nevada, is in the orographic rainshadow of this range. As a result, Great Basin vegetation is found in the most xeric portions of the lower elevation where stands of Great Basin sagebrush (Artemisia tridentata ssp. wyomingensis) occur with scattered patches of bitterbrush (Purshia tridentata). This shrubland merges into an open Jeffrey pine
(Pinus jeffreyi) forest, especially along the dry ridgelines. Ponderosa pine (P. ponderosa) and Washoe pine (P. washoensis) are found scattered in association with Jeffrey pine. Sierran mule-ears (Wyethia mollis) and greenleaf manzanita (Arctostaphylos patula) are frequently encountered in the understory or open areas between stands.

Following the more mesic boundaries of riparian areas, lodgepole pine (Pinus contorta var. murrayana) forms stands of considerable density with understory species including squaw carpet (Ceanothus prostratus), Wood’s rose (Rosa woodsii), mountain pennyroyal (Monardella odoratissima), and sagebrush. Recently burned-over areas at low to mid elevations are dominated by a montane chaparral of greenleaf manzanita, tobacco brush (Ceanothus velutinus), bitter cherry (Prunus emarginata), and, less so, wax currant (Ribes cereum). White fir (Abies concolor) assumes a codominant status with Jeffrey pine as soils become less xeric, with white fir increasing in dominance with elevation. Sugar pine (Pinus lambertiana) is a scattered associate with the two previous trees, as is red fir (Abies magnifica).

Characteristic understory species include tobacco brush, squaw carpet, snowberry (Symphoricarpos spp.), huckleberry oak (Quercus vaccinifolia), and Sierran bush chinquapin (Chrysolepis sempervirens). Common herbaceous perennials include mule-ears, pennyroyal, lupines (Lupinus spp.), pinewoods lousewort (Pedicularis semibarbata), and snowplant (Sarcodes sanguinea). Diminutive stands of tobacco brush can be found lingering under recently closed canopies. Incense cedar (Calocedrus decurrens) is uncommon in distribution in the basin and appears principally in minor association with the white fir-Jeffrey pine stands. Western juniper (Juniperus occidentalis) occurs very sporadically on rocky barrens at mid elevation extending to the crest of Carpenter Ridge.

At mid to high elevations red fir becomes quite common, especially on north-facing slopes where nearly monospecific stands have developed. Western white pine (Pinus monticola) is codominant with red fir throughout much of the middle to high elevations and represents the principal krummholz tree at timberline on Carpenter Ridge. Mountain hemlock (Tsuga heterophylla) extends down on north-facing slopes to 7,400 feet (2500 m) elevation around wet meadows, but is more common at higher elevations and on the summit of Carpenter Ridge at 8,700 feet (2900 m) with western white pine. Monospecific stands of mountain hemlock can be found on the north-facing, steep slopes of Carpenter Ridge, especially in the vicinity of a small glacial cirque there. These stands tend to be relatively even-aged, with older trees exceeding 420 years in age (N. Benedict, pers. com.). Pinemat manzanita (Arctostaphylos nevadensis) is a common understory species at high elevations with western white pine and red fir. Mountain mahogany (Cercocarpus ledifolius) occupies the most rocky portions of Carpenter Ridge, forming impenetrable stands with seemingly little regeneration in the understory.

Grazing in past years has resulted in large areas that are dominated by mule-ears on xeric sites, where recovery of vegetation is slow. Small patches of montane chaparral are common on the basin xeric sites as a result of fires. Fens are situated in the basin at lower elevations along Sagehen Creek. These nonacidic peatlands are dominated by mosses, especially Drepanocladus aduncus and Cratoneuron filicinum, sedges (Carex spp.), and other hydrophytes in the saturated portions. Mesophytes, such as western blueberry (Vaccinium occidentale), Eastwood’s willow (Salix eastwoodiana), Columbia monkshood (Aconitum columbianum), and others, frequent the margins of the wet areas. Varying-aged individuals of lodgepole pine occur along the fen margins and follow the dynamic boundaries of saturated soils.

Drier meadows occur throughout the basin with grass-dominated associations occupying the driest locations. Camas lily (Camassia quamash ssp. breviflora), spiked mallow (Sidalcea oregana), yampahs (Perideridia spp.), and other perennial herbs are often codominants with the grasses.

The only standing water in the basin is a small vernal pool, located in the glacial cirque on Carpenter Ridge. It is occupied by vernal quillwort (Isoetes bolanderi).

Floristically, the Sagehen Creek Basin is relatively depauperate with approximately 600 species of vascular plants (Savage 1973, Trowbridge 1975, Yoder-Williams, unpublished data). Three percent of the flora is of Great Basin affinity and approximately eight percent of subalpine-alpine origin. The remainder is typical of montane-boreal vegetation (Trowbridge 1975).

Geology of the Upper Sagehen Creek Basin

Michael P. Yoder-Williams

Granitic outcrops so characteristic of the plutons of the Sierra Nevada batholith are not found in the upper Sagehen Basin. Rather, Cenozoic volcanic activity covered much of this area with rhyolitic ash and mud flow emissions early in the Eocene epoch, becoming andesite in the Pliocene (Bateman 1961; Hill 1975). Depths of the andesite mantle reached 4,000 feet (1300 m) on the crests of the northern Sierra Nevada (Bateman 1961). Most of the surface deposits now found in the Sagehen Basin are of volcanic material, either andesite or olivine-laitte (Trowbridge 1975). Major mud flows in the general area came from vents located on Mt. Lola, Castle Peak, Mt. Lincoln, and Carpenter Ridge (Hill 1975).

Major uplift in the early Pleistocene as a result of faulting along the eastern base of the Sierra Nevada increased the severity of the eastern slopes (USDA 1975). Subsequent Pleistocene glaciation of Tahoe and, later, Tioga Age (Trowbridge 1975) altered these volcanic deposits, carving the small cirque and tarp on the northeast flank of Carpenter Ridge, and rounding out the drainage courses. Numerous deposits of Pleistocene moraines can be found throughout the basin with those above 6,400 feet (2100 m) being more recent origin (Tioga Age, maximum ca. 20,000 years B.P.). Deposits below this elevation suggest an older origin (Tahoe Age, maximum ice ca. 60,000-70,000 years B.P.) based on soil and weathering characteristics (Trowbridge 1975). Modern, post-Pleistocene glaciation likely has been restricted to the previously carved glacial cirque of Carpenter Ridge and has not exhibited major reformation of the landscape, although it has added further till to the upper basin. Alluvium continues to be deposited in the basin, especially following fires where erosion is considerable.

Presentation of Species Annotations

Species are listed in taxonomic order within each of the five classes of vertebrates included herein: Osteichthyes (bony fishes); Amphibia (amphibians); Reptilia (reptiles); Aves (birds); and Mammalia (mammals). Species known to occur in the basin through sight observations or physical evidence of occurrence, and those thought to occur through examination of general range and habitat use, are listed. For common
and scientific names of fishes we follow the American Fisheries Society (1970); for amphibians, reptiles, and mammals, Laudenslayer and Grenfell (1983); and for birds, the American Ornithologists’ Union (1983).

For all species we have given common and scientific names, season of occurrence, relative abundance, habitats used, and occasional notes. Much of the information on the life history of the terrestrial species was taken from information presented in the USDA Forest Service Region 5’s California Wildlife Habitat Relationships Program: Northeast Interior Zone (Airola 1981; Laudenslayer 1982). It is hoped that inclusion of these general descriptions of occurrence and habitat will stimulate confirmation from researchers familiar with these species.

In this report the lower basin refers to the open brushfields near Highway 89 (i.e., east end of basin near Donner Burn and surrounding areas). The upper basin refers to upper slopes and ridges above the basin floor. The relative abundance of animals is described by rather general and overlapping categories: common to very common or abundant; numerous individuals likely to be observed on any visit to the basin in the proper season; fairly common; likely to observe at least several individuals on any visit; uncommon; not surprising if a visit results in only one or two observations; rare; seldom seen; irregular; numbers and occurrence vary widely, especially in the same season between years; accidental; occurrence unpredictable and probably based on unusual circumstances.

**Taxonomic Order of Vertebrate Species**

**Osteichthyes: Bony Fishes**

**Lahontan Cutthroat Trout (Salmo clarki henshawi)**
Rare in Sagehen; threatened status. Only native trout in creek until late 1800s, thought extinct in twentieth century but specimens (or rainbow cutthroat hybrids) taken in 1982 in fish traps and angling. Spring spawner, migrates to upstream areas (above 1950 m) and tributaries in April-May. Stocked in nearby Martis Creek/Reservoir and hybrids in Stampede Reservoir. Remnant pure strain in Independence Lake.

**Rainbow Trout (Salmo gairdneri)**
Common. Introduced into basin in late 1800s. Stocked until 1951; self-sustaining now. Second most abundant trout in creek. Distribution from mouth to about 2000 m elevation. Maximum abundance near Kiln Meadow. Spring spawner, migrates to small tributaries, especially Kiln Meadow tributary and Sagehen Creek above Kiln Meadow in April-May.

**Brown Trout (Salmo trutta)**
Common. Distribution from mouth to about 1960 m. Introduced about turn of century. Maximum abundance and individual size in lowest 2 km. Prefers deep pools and beaver ponds, undercut banks, and willow clumps. Stocked until 1951; self-sustaining now.

**Brook Trout (Salvelinus fontinalis)**
Common. Most abundant trout in creek except in years following exceptionally high (>200-300 ft²/s) discharge in winter. Distributed throughout Sagehen Creek after introductions in the late 1800s or early 1900s. Stocked until 1951; self-sustaining now. Fall spawner (October-November). Occupies small tributaries up to 2000 m elevation. Transplanted into reaches above 2000m in 1957 after stream habitat improvement, but absent in 1982. Primarily found in beaver ponds and pools.

**Mountain Whitefish (Prosopium williamsoni)**
Uncommon. Formerly restricted to deep runs in lowest km of Sagehen Creek. Occasional individuals collected near Highway 89 in recent years and specimens less common near reservoir. Only other native salmonid in basin and restricted (in California) to Lahontan system. Population in Stampede Reservoir may use Sagehen Creek during fall spawning (October-December).

**Lahontan Speckled Dace (Rhinichthys osculus robustus)**
Fairly common. Restricted in Sagehen Creek to about 2 km above reservoir. Occurs in small groups in shallow rocky riffles; may migrate up from reservoir during summer spawning. Populations in Sagehen Creek declined after reservoir construction (1969).

**Lahontan Redside (Richardsonius egregius)**
Common. Restricted to lowest 2 km of creek. Abundant during summer breeding in schools over rocky riffles and in quiet water. Migrates from reservoir during spawning; less common in creek at other seasons since reservoir constructed. Formerly (prior 1970) most abundant fish in lower Sagehen Creek.
**Tahoe Sucker (Catostomus tahoensis)**
Common. Formerly restricted in Sagehen Creek to below Highway 89. Populations expanded upstream since 1975, individuals captured at the Field Station and at the mouth of Klin Meadow tributary (1982). Prefers deeper pools under snags or willow clumps. Spawns in late spring, probably migratory from reservoir. Most abundant species in lowest stream reaches since reservoir construction.

**Mountain Sucker (Catostomus platyrhynchus)**
Uncommon. Restricted to lower 2 km of creek. Prior to reservoir was more abundant than Tahoe sucker. Probably breeds in late summer and may migrate from reservoir.

**Plute Sculpin (Cottus beldingi)**
Common. Most abundant fish in Sagehen Creek. Distributed throughout basin, up to elevations of about 2000 m, including small tributaries. Spawns in late spring (May-June), emerging fry drift downstream. Prefers gravel-cobble stream bottom. Maximum abundance at about 1900 m. Some migration between Sagehen Creek and small tributaries in spring.

**Amphibia: Amphibians**

**Long-toed Salamander (Ambystoma macrodactylum)**
Status uncertain. Uses all stages of forest types, mainly near ponds in areas with rotten logs.

**Western Toad (Bufo boreas)**
Status uncertain. Prefers riparian deciduous and wet meadow types, but found through most forest and woodland types, especially in grass/forb stage.

**Pacific Tree Frog (Hyla regilla)**
Fairly common. Not present in high density except very common in the cirque, breeding after snow melt (May-June). Open water required for breeding. A ground dweller of open areas, not arboreal as name implies.

**Foothill Yellow-legged Frog (Rana boyleri)**
Status uncertain. Occurs along streams and pine-fir forests. Collected in basin.

**Mountain Yellow-legged Frog (Rana muscosa)**
Status uncertain. Occurs in middle and upper elevation coniferous forest. Restricted to immediate vicinity of streams, isolated pools, and wet meadows.

**Bullfrog (Rana catesbeiana)**
Status uncertain. Probably does not occur in the basin.

**Reptilia: Lizards and Snakes**

**Western Fence Lizard (Sceloporus occidentalis)**
Common. Most common reptile in the basin. Prefers lower successional stages and forests with low or moderate canopy coverage. Rock outcrops used for cover.

**Sagebrush Lizard (Sceloporus graciosus)**
Fairly common. Less abundant than *S. occidentalis*. Occurs in open stages of conifer forest (uncommon above pine-fir zone), and in all shrub types. For cover uses rocks, wood, brushpiles, and shrubs.

**Western Skink (Eumeces skiltonianus)**

**Northern Alligator Lizard (Gerrhonotus coeruleus)**
Uncommon. Present in pine-fir, red fir, and lodgepole forest. Preference for vegetation unknown.

**Rubber Boa (Charina bottae)**
Fairly common. Present in forest up to red fir zone, with preferences for dense and larger tree stages. Also found in wet meadow and chaparral types. Makes use of rotting logs, rocks, and loose bark or snags for cover.

**Racer (Coluber constrictor)**
Status uncertain. Primarily associated with grasslands and lower seral stages of pine and pine-fir forests.

**Gopher Snake (Pituophis melanoleucus)**
Rare. Historic records list this species in the basin. inhabits open stages of pine. Perhaps marginal in pine-fir.

**Common Kingsnake (Lampropeltis getulus)**
Uncommon. Most common in riparian and *Ceanothus*, but also occurs in pine-fir forests. Rock outcrops, vegetation, rotting logs, old lumber, and down wood used for cover.

**California Mountain Kingsnake (Lampropeltis zonata)**
Uncommon. Occurs in pine-fir, riparian woodland, and wet meadow types. Rotten logs used for cover.

**Common Garter Snake (Thamnophis sirtalis)**
Common. Most common snake in basin; seen in large numbers. Most abundant in wet meadow and riparian types in the basin.

**Western Terrestrial Garter Snake (Thamnophis elegans)**
Uncommon. Not nearly so common as *T. sirtalis*. Occurs in all vegetation types, showing preference for wet meadow and riparian types.

**Western Aquatic Garter Snake (Thamnophis couchi)**
Status uncertain. Associated with water in wet meadow and riparian vegetation, as well as shrub, woodland, and coniferous forest. Requires a permanent water source.

**Aves: Birds**

**Great Blue Heron (Ardea herodias)**
Irregular. Nonbreeding visitor in basin, noted most frequently during late fall, winter, and early spring. Occurs primarily along streams in lower basin.

**Snow Goose (Chen caerulescens)**
Irregular. Present as migrating flocks.

**Canada Goose (Branta canadensis)**
Uncommon. Passes through basin during migration; winter records available. Nests in marshes near basin.

**Green-winged Teal (Anas crecca)**
Irregular visitor. Occasional sightings along Sagehen Creek near field station (April). Nests in marshes near basin.
Mallard (*Anas platyrhynchos*)
Uncommon breeding species. Numerous spring-summer records (adults with young). Occurs year-round, except at higher elevations. Breeds at ponds, streams, and in fens and wet meadows.

Common Merganser (*Mergus merganser*)
Uncommon breeding species; winter resident and migrant. A female with young was seen in Sagleheen Creek near field station on 28 June 1974. Requires nesting cavities in snags near water.

Turkey Vulture (*Cathartes aura*)
Irregular. Probably nests in basin but records are lacking. Feeds in lower successional stages and open areas. Requires large open canopy trees or snags for roost trees.

Osprey (*Pandion haliaetus*)
Irregular visitor (probably from lakes outside of basin). One record for basin in June.

Bald Eagle (*Haliaeetus leucocephalus*)
Rare migrant. Most observations made in winter (December and January), but occasional spring (April) and summer (July) records are available. Requires large water bodies with fish and adjacent snags or other perches for feeding; this habitat available in reservoirs below Sagleheen Creek.

Sharp-shinned Hawk (*Accipiter striatus*)
Fairly common migrant. Not recorded breeding in basin, although one record for late May.

Cooper’s Hawk (*Accipiter cooperi*)
Rare breeder but common migrant. Recorded as late as October in basin. Breeds up to red fir zone. During breeding season, often found foraging in riparian areas and in other forests near water.

Northern Goshawk (*Accipiter gentilis*)
Uncommon permanent resident. At least one pair breeds yearly in basin. Prefers old, dense stands for nesting: large pines or firs with large branches required for nest support.

Red-tailed Hawk (*Buteo jamaicensis*)
Common breeder and migrant; sporadic winter records (February). Prefers mature stands for breeding, grasslands and other open habitats for foraging.

Golden Eagle (*Aquila chrysaetos*)
Uncommon breeder and migrant; occasional winter visitor (based on January records). Feeds in lower successional stages of forests and shrub habitats. Prefers cliffs and large emergent trees for nesting.

American Kestrel (*Falco sparverius*)
Common breeder. Occurs in a variety of shrub and forest types, preferring open lower successional stages in forest types, or forest edges. For breeding requires trees, snags with cavities. Uses snags, rock outcrops, and power poles for perching in hunting.

Blue Grouse (*Dendragapus obscurus*)
Common resident. In summer, prefers a mixture of brush stands for breeding and feeding, and heavy-foliaged conifers for roosting and hooting. In winter the birds live in trees (usually white fir), feeding on needles until spring, when tender leaves and berries are again available.

Mountain Quail (*Oreortyx pictus*)
Common summer resident. Partial to dense brushy ground cover. Nests on ground, often near streams. Feeds on tender green leaves, seeds, and fruits such as manzanita berries.

Virginia Rail (*Rallus limicola*)
Status uncertain. Several sight records from late summers along Sagleheen Creek.

Sora (*Porzana carolina*)
Status uncertain. Sight record from late summer along Sagleheen Creek.

Sandhill Crane (*Grus canadensis*)
Fairly common migrant. Flocks regularly seen flying over basin during spring (7 or 8 March last 5 years) and fall migrations.

Kildeer (*Charadrius vociferus*)
Common breeder and migrant. Forages in meadows and along streams. Usually nests close to water. Eggs are laid on gravel without nesting material.

Spotted Sandpiper (*Actitis macularia*)
Common breeding resident and migrant. Feeds along streams, creeks, and high meadows. Nests on gravel bars beside water, often hiding nest in sparse grass or beside driftwood.

Common Snipe (*Gallinago gallinago*)
Common summer resident and migrant. December through February records indicate presence in winter and possible residency. Breeds in wet meadows.

Ring-billed Gull (*Larus delawarensis*)
Transient.

California Gull (*Larus californicus*)
Transient (especially during fall migration). Most commonly seen gull in the basin.

Band-tailed Pigeon (*Columbia fasciata*)
Rare transient. Some movement occurs upslope in summer, and downslope in winter. Feeds on manzanita berries in autumn. Not known to breed in basin.

Mourning Dove (*Zenaida macroura*)
Fairly common breeding species and migrant. Low numbers scattered throughout basin. Prefers open areas with a few trees for nesting. Often feeds in disturbed weedy areas.

Flammulated Owl (*Otus flammeolus*)
Status uncertain. Occurs in a variety of coniferous habitats but especially associated with yellow pines. Nests in cavities in snags.
Western Screech-Owl (Otus kenicottii)
Status uncertain. Possibly rare permanent resident. Occurs in open riparian woodlands. Nests in woodpecker or natural cavities in snags or other trees.

Great Horned Owl (Bubo virginianus)
Uncommon permanent resident. Several winter (December) sightings. Occurs in all forest types and forages in meadows, grasslands, or open forest. Nesting has been noted.

Northern Pygmy-Owl (Glaucidium gnoma)
Uncommon resident. Has been sighted in winter (December-January). However, is most common owl in the basin. Occurs in pine-fir and pine forests. Woodpecker holes, usually in snags, are preferred nesting sites. Usually nests near meadows or openings.

Long-eared Owl (Asio otus)
Status uncertain (has been recorded in August). Nests in arid pinelands not far to the east of the basin (N.K. Johnson, pers. com.).

Northern Saw-whet Owl (Aegolius acadicus)
Status uncertain (has been recorded in June). Apparently prefers open woodlands. Woodpecker cavities (usually in a snag) in broken woodlands used for breeding and roosting.

Common Nighthawk (Chordeiles minor)
Fairly common breeder and migrant. Preference for open sites and early successional stages. Most common in areas with high insect populations for feeding, often over open water.

Common Poorwill (Phalaenoptilus nuttallii)
Fairly common breeding resident. Occurs throughout the lower basin in shrub stages of forests and woodlands; often uses roads and other openings.

Vaux’s Swift (Chaetura vauxi)
Uncommon migrant and possible breeder (no records). Nests and roosts in hollow trees in mature forests. Forages over streams and high above the canopy in many vegetation types.

White-throated Swift (Aeronautes saxatalis)
Status unclear (possibly uncommon migrant). Occurs especially in lower, drier areas.

Black-chinned Hummingbird (Archilochus alexandri)
Rare summer transient. Single July specimen taken in basin.

Calliope Hummingbird (Stellula calliope)
Common breeding resident and migrant. Occurs in successional brushfields, chaparral, open-canopied forest, and riparian areas. Requires nectar producing flowers for feeding; also commonly “hawks” small insects over water.

Rufous Hummingbird (Selasphorus rufus)
Common migrant. Adult and immature specimens have been taken in late June and early July in the basin, although these probably represent migrants. Frequents nectar producing flowers in meadows and riparian vegetation.

Belted Kingfisher (Ceryle alcyon)
Breeding resident and occasional winter visitor. Forages along stream in all habitat types. Uses snags or live trees as hunting perches. Excavates nest cavities in vertical banks near water.

Lewis’ Woodpecker (Melanerpes lewis)
Uncommon. Rarely seen in basin although common breeder below Highway 89. Breeds in grass/orch/brush stages and low canopy forest stages where tall emergent snags are present for nesting and foraging.

Red-breasted Sapsucker (Sphyrapicus ruber)
Fairly common permanent resident and migrant. Breeds in all forest types; occurs in highest densities in riparian woodland near coniferous forests. Nest is excavated in dead trees or live trees with rotten heartwood. Prefers hardwoods for feeding.

Williamson’s Sapsucker (Sphyrapicus thyroideus)
Common permanent resident. Numerous nesting records. Occurs in coniferous types. Snags or live trees with rotten heartwood required for nesting.

Downy Woodpecker (Picoides pubescens)
Rare resident. Breeds mainly in lower elevation riparian and aspen forests with some breeding in conifer forests. Excavates nest cavities in dead tree or dead parts of live trees.

Hairy Woodpecker (Picoides villosus)
Fairly common permanent resident. Occurs in all forest types. Prefers open stands of large conifers, especially pine. Requires snags and dead parts of live trees for foraging and nesting.

White-headed Woodpecker (Picoides albolarvatus)
Uncommon permanent resident. Occurs in the lodgepole pine type, but most abundant in semi-open, mature stands of pines and fir. Nests are usually excavated near the ground in large soft snags or stumps, often located at edges of roads, natural openings, or in small clearcuts.

Black-backed Woodpecker (Picoides arcticus)
Uncommon permanent resident. Occurs in lodgepole, especially meadows, and in higher elevation forests; tends to prefer larger trees, especially fir. Requires dying and dead trees infested with wood-boring insects for feeding and nesting.

Northern (Red-shafted) Flicker (Colaptes auratus)
Common permanent resident; sporadic in winter. Occurs throughout all forested areas, with preference for areas of low canopy coverage, large scattered trees, and soft snags. Nests in snags in the forest and forages in trees, shrubs, and on the ground.

Pileated Woodpecker (Dryocopus pileatus)
Irregular visitor. Most records in fall. Bird collected in July and June sightings indicates that breeding may occur in or near basin. Occurs mainly in the pine-fir forest with large numbers of snags, stumps, and down logs. Nests in large snags.
Olive-sided Flycatcher (Contopus borealis)
Uncommon breeding resident and migrant. Occurs in all forest types in basin. Forages over forest from perches on tips of tall trees and snags.

Western Wood-Pewee (Contopus sordidulus)
Common breeding resident and migrant. Occurs in all forest types in basin. Forages in the lower layer of broken forest with low canopy coverage.

Willow Flycatcher (Empidonax traillii)
Rare breeding resident and migrant. Occurs in willow thickets along streams or in wet meadows.

Hammoud’s Flycatcher (Empidonax hammondi)
Fairly common breeding resident and migrant. Major habitats are shady, heavily-timbered ravines, and mature forests of lodgepole pine, mature pine, and fir.

Dusky Flycatcher (Empidonax oberholseri)
Common breeding resident and migrant. Occurs mainly in shrub stages of timber adjacent to forest, woodland, or riparian. Nests in brush; forages over brush from lower tree canopy.

Gray Flycatcher (Empidonax wrightii)
Uncommon migrant. Probably does not breed in basin. Occurs in lower open canopy stages of pine forest east of the basin.

Western Flycatcher (Empidonax difficilis)
Status uncertain. No specific records are available although several observers reported possible presence based on vocalizations (N.K. Johnson, pers. com.).

Ash-throated Flycatcher (Myiarchus cinerascens)
Transient. Single female observed 17 August 1971 in basin. Occurs primarily at lower elevations to the east of the basin.

Western Kingbird (Tyrannus verticalis)
Migrant. Has been observed during July in basin. Uses open stages of shrub lands.

Horned Lark (Eremophila alpestris)
Uncommon breeder. More common in open brushfields to the east of the basin. Migrates downslope to the east in winter. Occurs in bare and rocky areas, including grasslands and alpine areas, and to a lesser extent in lower successional stages of shrub and forest types.

Tree Swallow (Tachycineta bicolor)
Uncommon breeding resident and migrant. Occurs especially near water. Nests in woodpecker-excavated or natural cavity in snags (especially aspen).

Violet-green Swallow (Tachycineta thalassina)
Uncommon migrant and possible breeder (no records). Occurs mainly in open lower elevation forest and shrub types with suitable nest sites. Nests in woodpecker holes or in cliff crevices.

Cliff Swallow (Hirundo pyrrhonota)
Uncommon breeding resident and migrant. Breeds in mixed conifer type and below. Nest sites are cliff faces, buildings, and bridges.

Barn Swallow (Hirundo rustica)

Steller’s Jay (Cyanocitta stelleri)
Common permanent resident. Occurs in all forest types, with greatest abundance in pine-fir forests. Often attracted to campgrounds and other human-use areas.

Scrub Jay (Aphelocoma coerulescens)
Irregular visitor. A few individuals reported from basin; probably transients from lower elevations.

Clark’s Nutcracker (Nucifraga columbiana)
Irregular (apparently transient in basin). Occurs at higher elevations along ridges.

Black-billed Magpie (Pica pica)
Irregular fall visitor. Seen primarily at lower elevations in basin (near Highway 89).

American Crow (Corvus brachyrhynchos)

Common Raven (Corvus corax)
Uncommon permanent resident. Occasionally seen in alpine areas. Nests mainly on cliff ledges.

Mountain Chickadee (Parus gambeli)
Very common permanent resident. Breeds in coniferous forests and woodlands. Prefers moderate to low canopy coverage. Snags or stumps with woodpecker or natural cavities used for breeding.

Bushtit (Psaltriparus minimus)
Status uncertain. Probably a transient in the basin.

Red-breasted Nuthatch (Sitta canadensis)
Common permanent resident. Occurs in coniferous forests throughout the basin, preferring denser forest stages with fir.

White-breasted Nuthatch (Sitta carolinensis)
Fairly common permanent resident. Occurs in open woodlands and forests with large-diameter trees; nests in cavities in large-diameter trees, especially pine.

Pygmy Nuthatch (Sitta pygmaea)
Fairly common permanent resident in lower basin. Occurs in pine-fir forests and open shrublands of burns. Snags used for nesting.

Brown Creeper (Certhia americana)
Common permanent resident. Occurs throughout dense coniferous and deciduous forests with large trees. Places nest in trees behind loose, peeling bark.

Rock Wren (Salpinctes obsoletus)
Uncommon breeding species. Occurs on rock outcrops, talus slopes, and broken cliffs.

House Wren (Troglodytes aedon)
Fairly common breeding resident and migrant. Main preference is for riparian deciduous habitats, but also breeds in open stands of conifer forests.
Winter Wren (*Troglodytes troglodytes*)
Rare winter visitor. Frequent dense understory of coniferous forest.

**American Dipper** (*Cinclus mexicanus*)
Common permanent resident. Occurs mainly along riparian areas. Nests usually on a rock ledge, vertical wall over water, or among roots on stream bank. Nest boxes have been successfully used at the field station. Breeds in late winter or very early spring.

**Golden-crowned Kinglet** (*Regulus satrapa*)
Common permanent resident (although numbers vary widely in winter). Occurs in greatest numbers in dense fir.

**Ruby-crowned Kinglet** (*Regulus calendula*)
Uncommon breeding resident. Occurs in coniferous, aspen, and riparian forest. Prefers somewhat more open stands than the golden-crowned kinglet.

**Western Bluebird** (*Sialia mexicana*)
Uncommon breeding resident and migrant in lower basin. Prefers open forests in grass-forb stages. Requires nesting cavities, usually woodpecker holes in snags.

**Mountain Bluebird** (*Sialia currucoides*)

**Townsend’s Solitaire** (*Myadestes townsendi*)
Fairly common permanent resident; has been sighted in winter (January). Breeds in lower coniferous forests, especially in open canopies.

**Swainson’s Thrush** (*Catharus ustulatus*)
Status uncertain (possibly uncommon breeding resident). Occurs in deciduous and riparian woodlands and adjacent forest. Prefers dense thickets near streams or wet meadows.

**Hermit Thrush** (*Catharus guttatus*)
Common breeding resident and migrant. May be locally common. Occurs in coniferous and riparian forest, favoring denser stands with high canopy closure.

**American Robin** (*Turdus migratorius*)
Common breeding resident; occasional winter records (December). Mud is required for nest construction. Feeds in moist meadows.

**Varied Thrush** (*Ixoreus naevius*)
Rare migrant. Numbers vary considerably from year to year. Has been sighted in November-December.

**Water Pipit** (*Anthus spinolaeta*)
Fairly common migrant. Open areas are used for feeding.

**Cedar Waxwing** (*Bombycilla cedrorum*)
Status uncertain (probably irregular transient in fall). Found in riparian woodlands and lower conifer forests.

**Loggerhead Shrike** (*Lanius ludovicianus*)
Status uncertain. Probably a late summer transient; several sight records.

**European Starling** (*Sturnus vulgaris*)
Uncommon breeding resident. Occurs at lower elevations in coniferous forests; rare in upper basin. Nesting cavities in buildings, snags, natural tree cavities, and other areas are required. Numbers may be increasing in the basin.

**Solitary Vireo** (*Vireo solitarius*)
Fairly common breeding resident and migrant. Occurs mainly in mixtures of conifers and hardwoods with a shrub understory. Usually nests in a deciduous tree or shrub.

**Warbling Vireo** (*Vireo gilvus*)
Fairly common breeding resident and migrant. Occurs in riparian woodlands, but also occurs in coniferous forests, especially where hardwoods are present.

**Orange-crowned Warbler** (*Vermivora celata*)
Uncommon breeding resident and migrant. Breeding habitats include *Ceanothus* and brushy stages of pine.

**Nashville Warbler** (*Vermivora ruficapilla*)
Common breeding resident and migrant. Prefers open forest and woodland stands with a brushy understory.

**Yellow Warbler** (*Dendroica petechia*)
Fairly common resident and migrant. Breeds in riparian deciduous and shrub/meadow types. Also breeds and forages in brushy stages of lower coniferous forests.

**Yellow-rumped (Audubon’s) Warbler** (*Dendroica coronata auduboni*)
Common breeding resident and migrant. Breeds in coniferous forest. "Myrtle" warbler (*D. c. coronata*) may occur sporadically as migrant.

**Black-throated Gray Warbler** (*Dendroica nigrescens*)
Rare migrant and transient. Generally present in drier sites with mixtures of conifer, deciduous, and brush species.

**Townsend’s Warbler** (*Dendroica townsendi*)
Uncommon migrant. Occurs in coniferous forests and all riparian types.

**Hermit Warbler** (*Dendroica occidentalis*)
Uncommon migrant. Breeds locally on east slope of Sierra Nevada but apparently in small numbers if at all in the basin. Occurs in pine-fir forest; usually associated with tall trees.

**MacGillivray’s Warbler** (*Oporornis tolmiei*)
Uncommon breeding resident and migrant. Occurs primarily in moist riparian scrub and successional brushfields near water.

**Wilson’s Warbler** (*Wilsonia pusilla*)
Common breeding resident and migrant. Occurs mainly in riparian vegetation around streams.

**Western Tanager** (*Piranga ludoviciana*)
Fairly common breeding resident and migrant. Apparently common in pine-fir forests in the basin. Favors forests with intermediate canopy coverage.

**Black-headed Grosbeak** (*Pheucticus melanocephalus*)
Uncommon breeding resident and migrant. Occurs in riparian woodlands, but also in lower elevation conifer forests.
Lazuli Bunting (*Passerina amoena*)  
Migrant. Breeding status uncertain. Breeds primarily in riparian shrub, woodlands, and brushfields.

Painted Bunting (*Passerina ciris*)  

Green-tailed Towhee (*Pipilo chlorurus*)  
Fairly common breeding resident. Nests in brushfield stage of coniferous forests, primarily in drier, open brush stands. Apparently favors Ribes in the basin.

Rufous-sided Towhee (*Pipilo erythrophthalmus*)  
Irregular visitor in fall. Prefers lower elevations, riparian shrubland.

Chipping Sparrow (*Spizella passerina*)  
Very common breeding resident and migrant. Prefers open stands or forest edges near dry, sparsely vegetated clearings or openings, and brushfields.

Brewer’s Sparrow (*Spizella breweri*)  
Fairly common breeding resident and migrant. Occurs primarily in sagebrush shrub type and post-fire brushfields.

Vesper Sparrow (*Poecetes gramineus*)  
Uncommon migrant (may breed; no records). Breeds at Kyburz Flats outside basin. Preferred habitat is shrubs with low canopy cover and substantial amounts of grass in understory.

Fox Sparrow (*Passerella iliaca*)  
Very common breeding resident and migrant. Prefers brushfields with *Ceanothus* and *Arctostaphylos* shrubs; less commonly use riparian shrub.

Song Sparrow (*Melospiza melodia*)  
Uncommon breeding resident and migrant; several nesting records from along Sagehen Creek. Uses dense thickets of riparian vegetation and wet meadows with shrubs and some successional brushfields. Usually associated with water.

Lincoln’s Sparrow (*Melospiza lincolnii*)  
Uncommon breeding resident and migrant. Occurs in meadows along creeks with tall grasses, willows, other shrubs, or small trees.

Golden-crowned Sparrow (*Zonotrichia atricapilla*)  
Uncommon migrant. Occurs in coniferous and woodland types in shrub stages; edges of brushy areas and open grassy or herbaceous ground are favored.

White-crowned Sparrow (*Zonotrichia leucophrys*)  
Fairly common breeding resident and migrant. Breeds in young conifers, shrubs, and willows near forest openings.

Dark-eyed Junco (*Junco hyemalis*)  
Very common breeding resident. Breeds in conifer forest, riparian woodlands, brushfields, and meadows. Prefers open forests or forest edges.

Red-winged Blackbird (*Agelaius phoeniceus*)  
Uncommon permanent resident. Frequent riparian grasslands and adjoining deciduous woodlands.

Western Meadowlark (*Sturnella neglecta*)  
Uncommon breeding resident and migrant. Uses open grasslands and meadows of lower basin. Less commonly breeds in open stages of forest stands and open shrub types.

Brewer’s Blackbird (*Euphagus cyanocephalus*)  
Common breeding resident. Occurs in meadow habitats. Also uses lower successional brush stages of forest types.

Brown-headed Cowbird (*Molothrus ater*)  
Fairly common breeding resident. Lays eggs parasitically in other birds’ nests. Has increased in numbers in recent years.

Pine Grosbeak (*Pinicola enucleator*)  
Rare resident (irregular in numbers). Breeds in red fir, lodgepole, and high elevation riparian woodlands. Prefers open forests with large trees, usually near streams or meadows.

Purple Finch (*Carpodacus purpureus*)  
Uncommon summer resident (possibly breeding in small numbers). Generally favors cool, moist, broken forests (primarily pine-fir).

Cassin’s Finch (*Carpodacus cassinii*)  
Very common breeding resident. Breeds in coniferous forests throughout area. Prefers open stands and forest edges.

House Finch (*Carpodacus mexicanus*)  
Irregular visitor. Specimen collected 12 July 1970 in lower basin.

Red Crossbill (*Loxia curvirostra*)  
Uncommon resident and vagrant. Breeds in upper elevation conifer forests. Distribution and abundance varies considerably from year to year, depending on cone crops. Prefers areas with low canopy cover and large seed-producing conifers.

Pine Siskin (*Carduelis pinus*)  
Fairly common breeding resident. Numbers fluctuate widely. Prefers forests with low canopy cover.

Evening Grosbeak (*Coccothraustes vespertinus*)  
Uncommon permanent resident. Birds present in non-breeding period may be vagrants. Occurrence is unpredictable from year to year. Shows preference for fir stands with intermediate canopy coverage.

**Mammalia: Mammals**

Vagrant Shrew (*Sorex vagrans*)  
Common resident. Prefers wet meadow and riparian types, and open stages of coniferous forests. Has been trapped in Jeffrey pine and red fir zones in basin. Requires logs, stumps, and litter for cover and breeding.

Water Shrew (*Sorex palustris*)  
Uncommon resident. Occurs in riparian habitats, especially near shrubs.

Trowbridge’s Shrew (*Sorex trowbridgii*)  
Fairly common resident. Found in drier meadows, forest floor, and brushland with dense litter accumulations.
Broad-footed Mole (Scapanus latimanus)
Fairly common resident. Ridges from its shallow tunnels are a common sight in moist soil. Optimal habitats are grass/forb stages of woodland riparian and lowland conifer types; uses wet meadow.

Little Brown Myotis (Myotis lucifugus)
Status uncertain. Probably the most abundant bat in the basin.

Yuma Myotis (Myotis yumanensis)
Status uncertain. Apparently occurs along Sagehen Creek.

Long-eared Myotis (Myotis evotis)
Status uncertain. Apparently occur along Sagehen Creek

Fringed Myotis (Myotis thysanodes)
Status uncertain.

Long-legged Myotis (Myotis volans)
Status uncertain.

California Myotis (Myotis californicus)
Status uncertain.

Small-footed Myotis (Myotis leibii)
Status uncertain.

Silver-haired Bat (Lasionycteris noctivagans)
Status uncertain.

Big Brown Bat (Epotesicus fuscus)
Status uncertain.

Hoary Bat (Lasiurus cinereus)
Status uncertain.

Pika (Ochotona princeps)
Uncommon resident. Occurs in the basin on Carpenter Ridge. Restricted to talus and rocky areas adjacent to meadows that provide grasses and forbs.

Nuttall's Cottontail (Sylvilagus nuttallii)
Status uncertain. Rare at elevation of basin; status based on unconfirmed sightings. Apparently occurs south of Highway 89. Habitat is dense stands of Great Basin shrubs.

Snowshoe Hare (Lepus americanus)
Common resident. Habitat is riparian and aspen shrub, dense shrub, and brushy stages of conifer types. Less common in heavily forested areas and open shrub types. Pelage turns white in winter.

Mountain Beaver (Aplodontia rufa)
Rare resident. Few sight records for basin. Also noted near basin (Independence Lake). Habitat is high elevation riparian. Prefers open and intermediate canopy coverage with a dense understory. Requires deep friable soils for burrowing, and a moist, cool microclimate.

Yellow-pine Chipmunk (Tamias amoenus)
Common resident. Uses all coniferous forest types, but prefers intermediate and low canopy cover stages in pine forest, and intermediate and dense shrub stages. The most common chipmunk in brush-covered, disturbed areas. Extensive overlap in habitat with E. speciosus. Requires rocks, stumps, logs or other surface cover for breeding and resting.

Allen's Chipmunk (Tamias senex)
Status uncertain. This species was recently elevated to full species status (formerly a subspecies of the Townsend's chipmunk); has been collected in basin. The predominant chipmunk in closed canopy forest. Apparently found in all coniferous forests and in riparian woodland. In forests prefers open, large tree stages.

Long-eared Chipmunk (Tamias quadrimaculatus)
Rare resident. Specimens have been taken in the basin. Occurs in low and mid-elevation forests, shrub, and riparian types. Prefers moderate and low canopy coverage, where shrubs and forbs are available for feeding.

Lodgepole Chipmunk (Tamias speciosus)
Common resident. Preference for red fir zone in basin. Also occurs in lower numbers in riparian woodlands and shrub type. This species is more arboreal than other western chipmunks. It is seldom found far from trees, but prefers open canopy forests.

Yellow-bellied Marmot (Marmota flaviventris)
Fairly common resident. Associated with rocky areas, especially in alpine areas, but also in open stages of nearly all vegetation types (resident around station). Forages in meadow edges and in openings among rocks.

Belding’s Ground Squirrel (Spermophilus beldingi)
Uncommon resident. Habitats are meadows and open grassy stages of pine types. There has been a colony in Kiim Meadow for many years.

California Ground Squirrel (Spermophilus beecheyi)
Uncommon resident. Habitats are grass/forb stages of low and middle elevation pine forests, especially in disturbed sites (roads, campgrounds). Uses fence posts, shrubs, mounds, and other perches as lookouts.

Golden-mantled Ground Squirrel (Spermophilus lateralis)
Common resident. Found throughout basin but most abundant in brush and pine. Requires rocks, logs, stumps, or other cover to burrow under for breeding and resting.

Western Gray Squirrel (Sciurus griseus)

Douglas’ Squirrel (Tamiasciurus douglasii)
Common resident. Habitat is dense, large-tree stages of coniferous types, especially lodgepole in basin. Usually uses a cavity in snags for nesting. Its resonant, scolding voice is a characteristic sound in the basin.
Northern Flying Squirrel (Glaucomys sabrinus)
Common resident. Habitat is dense large-tree stages of pine-fir, red fir, lodgepole, and riparian woodlands. Cavities and "witches broom" (mistletoe) are used for nesting; have used nest boxes in basin. In winter feeds on cambium layer of lodgepole pine. In summer fungi and lichen are important foods.

Mountain Pocket Gopher (Thomomys monticola)
Fairly common resident. Habitat is grass/forb stage of coniferous forest; often seen in wet and dry meadows in the basin. Less common in older successional stages and open shrub types. Prefers areas with soft, deep soil for burrowing.

Great Basin Pocket Mouse (Perognathus parvus)
Fairly common resident. Habitats are intermediate stages of low shrub types in pine.

Beaver (Castor canadensis)
Uncommon resident. Introduced into the basin during 1940s by Department of Fish and Game. Builds dams in stream to assure a permanent water source. Almost always associated with aspen or willow which constitute principal foods. Since 1954, most beaver in the basin have been individually tagged to monitor population. Permanent colony below Highway 89; periodic dams above highway on Sagehen Creek.

Western Harvest Mouse (Reithrodontomys megalotis)
Uncommon resident. Habitats are wet meadow and aspen woodlands. Requires grassy or weedy areas for all activities. Somewhat arboreal.

Deer Mouse (Peromyscus maniculatus)
Very common resident. Habitats are open and moderate canopy classes of coniferous and woodland types, and moderate and dense classes of shrub types. Highest numbers are in shrub stages of pine zone; less common in red fir.

Pinyon Mouse (Peromyscus truei)
Uncommon resident. Habitats are open stages of pine, open Ceanothus shrub types. For cover, requires brush thickets, rocks, logs, slash, and litter.

Bushy-tailed Woodrat (Neotoma cinerea)
Uncommon resident. Habitats are open rock outcrops associated with coniferous forests, riparian woodlands, and shrubs. Less common habitat is Ceanothus.

Heather Vole (Phenacomys intermedius)
Uncommon resident. Habitat is grass/forb stages of all coniferous forest types in basin. Has been trapped in basin, though rarely. May be favored by disturbance that promotes herbaceous cover.

Montane Vole (Microtus montanus)
Fairly common resident. Prefers wet meadows and near streams. Less common in grass/forb stages of nearly all wet types. Numbers apparently vary widely in 3-4 year cycles in the basin.

Long-tailed Vole (Microtus longicaudus)
Fairly common resident. Prefers riparian and wet meadows. Less common in shrub and open canopy stages of forest types.

Muskrat (Ondatra zibethicus)
Rare resident. Restricted to aquatic habitats with marsh vegetation in or near Sagehen Creek. Requires permanent water and banks for burrowing. Associated with beaver ponds in Sagehen Creek.

Western Jumping Mouse (Zapus princeps)
Status uncertain. Probably fairly common in preferred habitats but overall is uncommon in basin (several trap records). Occurs in wet meadow and riparian habitats. Occurs marginally in open conifer stands and in vegetation near stream.

Porcupine (Erethizon dorsatum)
Fairly common resident. Prefers riparian areas and young pine stands, but is found in all vegetation types except alpine shrub. Requires caves, large rock crevices, hollow logs, or trees, or dense foliage for denning.

Coyote (Canis latrans)
Fairly common resident. Habitat is all vegetation types, although shows preference for meadows in the basin. Prefers lower canopy covers in forest and woodland, and areas of dense shrubs. Often uses rocks and trees for denning cover.

Red Fox (Vulpes vulpes)
Status uncertain. No records from the basin but has apparently been seen in general area.

Black Bear (Ursus americanus)
Uncommon resident. Frequents denser stages of forested types; seeks berries and tender greens in more open areas. For winter denning, requires coves, uprooted trees, boulder crevices, and log piles. Over 30 sightings recorded for the basin; seen active all months of year. Cinnamon color phase individual documented.

Raccoon (Procyon lotor)
Uncommon resident. Habitat is riparian deciduous and large-tree stages of forest and woodland types. Uses hollow trees, snags, and logs for denning. Forages in forest and along shores and in streams. Occurs near areas of human habitation.

Marten (Martes americana)
Uncommon resident. Habitat is dense, large and medium-tree stages of red fir and lodgepole pine, especially near streams or meadows. Less commonly breeds in late stages of pine-fir and pine types. For denning requires large snags, logs, rock outcrops, or talus. Summer dens consist of large diameter snags; winter dens are under snow near logs and tree trunks.

Ermine (Mustela erminea)
Uncommon resident. Occurs in meadows and riparian areas where it feeds on meadow mice; also in pine-fir, red fir, and lodgepole forests. For denning uses rocks, logs, slash piles, or burrows of rodents. Pelage turns white in winter.

Long-tailed Weasel (Mustela frenata)
Fairly common resident. Occurs in intermediate cover stages of most forest types, but prefers meadow edges and riparian areas. Feeds in lower successional stages and open forest, woodland, and shrub types. Pelage turns white in winter.
Wolverine (*Gulo gulo*)
Rare resident. Two recorded sightings for basin (25 July 1977 and 31 October 1980); also one sighting near Highway 89, 1.5 miles (2.4 km) north of Truckee (27 October 1980). Requires large areas with minimal human disturbance. Uses cavities in rocks, logs, for den sites. Solitary. Sightings should be reported to the field station manager and the California Department of Fish and Game.

Badger (*Taxidea taxus*)
Rare (seasonal status uncertain). Only three or four sight records for basin. Habitat is grass/forb stage of pine. Prefers dry, open areas, especially meadows.

Mountian Lion (*Felis concolor*)
Rare summer resident. Occurs in all habitats. Requires natural cavities, usually in rocky areas, for breeding.

Bobcat (*Lynx rufus*)
Uncommon resident. Sight records for all seasons. Occurs in all vegetation types and stages. Dens in cavities or crevices in rock outcrops or beneath logs.

Mule Deer (*Odocoileus hemionus*)
Common summer resident. Migrates into basin in late spring, and downslope in fall. Habitats are intermediate canopy stages of coniferous forest, riparian, and montane shrub types. Prefers edge habitats.

**Vertebrate Checklist for Sagehen Creek Basin**

**Bony Fishes**
- Lahontan Cutthroat Trout (*Salmo clarki henshawi*)
- Rainbow Trout (*Salmo gairdneri*)
- Brown Trout (*Salmo trutta*)
- Brook Trout (*Salvelinus fontinalis*)
- Mountain Whitefish (*Prosopium williamsoni*)
- Lahontan Speckled Dace (*Rhinichthys osculus robustus*)
- Lahontan Redside (*Richardsonius egregius*)
- Tahoe Sucker (*Catostomus tahoensis*)
- Mountain Sucker (*Catostomus platyrhynchus*)
- Piute Sculpin (*Cottus beldingi*)

**Amphibians**
- Long-toed Salamander (*Ambystoma maculatum*)
- Western Toad (*Bufo boreas*)
- Pacific Tree Frog (*Hyla regilla*)
- Foothill Yellow-legged Frog (*Rana boyleri*)
- Mountain Yellow-legged Frog (*Rana muscosa*)
- Bullfrog (*Rana catesbeiana*)

**Reptiles**
- Western Fence Lizard (*Sceloporus occidentalis*)
- Sagebrush Lizard (*Sceloporus graciosus*)
- Western Skink (*Eumeces skiltonianus*)
- Northern Alligator Lizard (*Gerrhonotus coeruleus*)
- Rubber Boa (*Charina bottae*)
- Racer (*Coluber constrictor*)
- Gopher Snake (*Pituophis melanoleucus*)
- Common Kingsnake (*Lampropeltis getulus*)
- California Mountain Kingsnake (*Lampropeltis zonata*)
- Common Garter Snake (*Thamnophis sirtalis*)
- Western Terrestrial Garter Snake (*Thamnophis elegans*)
- Western Aquatic Garter Snake (*Thamnophis couchi*)

**Birds**
- Great Blue Heron (*Ardea herodias*)
- Snow Goose (*Chen caerulescens*)
- Canada Goose (*Branta canadensis*)
- Green-winged Teal (*Anas crecca*)
- Mallard (*Anas platyrhynchos*)
- Common Merganser (*Mergus merganser*)
- Turkey Vulture (*Cathartes aura*)
- Osprey (*Pandion haliaetus*)
- Bald Eagle (*Haliaeetus leucocephalus*)
- Sharp-shinned Hawk (*Accipiter striatus*)
- Cooper's Hawk (*Accipiter cooperi*)
- Northern Goshawk (*Accipiter gentilis*)
- Red-tailed Hawk (*Buteo jamaicensis*)
- Golden Eagle (*Aquila chrysaetos*)
- American Kestrel (*Falco sparverius*)
- Blue Grouse (*Dendragapus obscurus*)
- Mountain Quail (*Oreortyx pictus*)
- Virginia Rail (*Rallus limicola*)
- Sora (*Porzana carolina*)
- Sandhill Crane (*Grus canadensis*)
- Killdeer (*Charadrius vociferus*)
- Spotted Sandpiper (*Actitis macularia*)
- Common Snipe (*Gallinago gallinago*)
- Ring-billed Gull (*Larus delawarensis*)
- California Gull (*Larus californicus*)
- Band-tailed Pigeon (*Columba fasciata*)
- Mourning Dove (*Zenaida macroura*)
- Flammulated Owl (*Otus flavescens*)
- Western Screech-Owl (*Otus asio*)
- Great Horned Owl (*Bubo virginianus*)
- Northern Pygmy-Owl (*Glaucidium gnoma*)
- Long-eared Owl (*Asio otus*)
- Northern Saw-whet Owl (*Aegolius acadicus*)
- Common Nighthawk (*Chordeiles minor*)
- Common Poorwill (*Phalaenoptilus nuttallii*)
- Vaux's Swift (*Chaetura vauxi*)
- White-throated Swift (*Aeronautes saxatalis*)
- Black-chinned Hummingbird (*Archilochus alicandri*)
- Calliope Hummingbird (*Stellula calliope*)
- Rufous Hummingbird (*Selasphorus rufus*)
- Belted Kingfisher (*Ceryle alcyon*)
- Lewis' Woodpecker (*Melanerpes lewis*)
- Red-breasted Sapsucker (*Sphyrapicus ruber*)
- Williamson's Sapsucker (*Sphyrapicus thyroideus*)
- Downy Woodpecker (*Picoides pubescens*)
- Hairy Woodpecker (*Picoides villosus*)
- White-headed Woodpecker (*Picoides albolarvus*)
- Black-backed Woodpecker (*Picoides arcticus*)
- Northern (Red-shafted) Flicker (*Colaptes auratus*)
- Pileated Woodpecker (*Dryocopus pileatus*)
- Olive-sided Flycatcher (*Contopus borealis*)
- Western Wood-Pewee (*Contopus sordidulus*)
- Willow Flycatcher (*Empidonax traillii*)
- Hammond's Flycatcher (*Empidonax hammondii*)
- Dusky Flycatcher (*Empidonax oberholseri*)
- Gray Flycatcher (*Empidonax traillii*)
- Western Flycatcher (*Empidonax difficilis*)
- Ash-throated Flycatcher (*Myiarchus cinerascens*)
- Western Kingbird (*Tyrannus verticalis*)
- Horned Lark (*Eremophila alpestris*)
- Tree Swallow (*Tachycineta bicolor*)
- Violet-green Swallow (*Tachycineta thalasina*)
- Cliff Swallow (*Hirundo pyrrhonota*)
- Barn Swallow (*Hirundo rustica*)
- Steller's Jay (*Cyanocitta stelleri*)
- Scrub Jay (*Aphelocoma coerulescens*)
- Clark's Nutcracker (*Nucifraga columbiana*)
Birds (continued)

- Black-billed Magpie (Pica pica)
- American Crow (Corvus brachyrhynchos)
- Common Raven (Corvus corax)
- Mountain Chickadee (Poecile gambeli)
- Bushtit (Psaltriparus minimus)
- Red-breasted Nuthatch (Sitta canadensis)
- White-breasted Nuthatch (Sitta carolinensis)
- Pygmy Nuthatch (Sitta pygmaea)
- Brown Creeper (Certhia americana)
- Rock Wren (Salpinctes obsoletus)
- House Wren (Troglodytes aedon)
- Winter Wren (Troglodytes troglodytes)
- American Dipper (Cinclus mexicanus)
- Golden-crowned Kinglet (Regulus satrapa)
- Ruby-crowned Kinglet (Regulus calendula)
- Western Bluebird (Sialia mexicana)
- Mountain Bluebird (Sialia currucoides)
- Townsend's Solitaire (Myioptenes townsendi)
- Swainson's Thrush (Catharus ustulatus)
- Hermit Thrush (Catharus guttatus)
- American Robin (Turdus migratorius)
- Varied Thrush (Zoothera dauma)
- Water Pipit (Anthus spinolletta)
- Cedar Waxing (Bombbycilla cedrorum)
- Loggerhead Shrike (Lanius ludovicianus)
- European Starling (Sturnus vulgaris)
- Solitary Vireo (Vireo solitarius)
- Warbling Vireo (Vireo gilva)
- Orange-crowned Warbler (Vermivora celata)
- Nashville Warbler (Vermivora ruficapilla)
- Yellow Warbler (Dendroica petechia)
- Yellow-rumped (Audubon's) Warbler
  (Dendroica coronata auduboni)
- Black-throated Gray Warbler (Dendroica nigrescens)
- Townsend's Warbler (Dendroica townsendi)
- Hermit Warbler (Dendroica occidentalis)
- MacGillivray's Warbler (Oporornis tolmiei)
- Wilson's Warbler (Wilsonia pusilla)
- Western Tanager (Piranga ludovicianus)
- Black-headed Grosbeak (Pheucticus melanocephalus)
- Lazuli Bunting (Passerina amoena)
- Painted Bunting (Passerina ciris)
- Green-tailed Towhee ( Pipilo chlorurus)
- Rufous-sided Towhee ( Pipilo erythrophthalmus)
- Chipping Sparrow (Spizella passerina)
- Brewer's Sparrow (Spizella breweri)
- Vesper Sparrow (Poecetes gramineus)
- Fox Sparrow (Passerella iliaca)
- Song Sparrow (Melospiza melodia)
- Lincoln's Sparrow (Melospiza lincolnii)
- Golden-crowned Sparrow (Zonotrichia atricapilla)
- White-crowned Sparrow (Zonotrichia leucophrys)
- Dark-eyed Junco (Junco hyemalis)
- Red-winged Blackbird (Agelaius phoeniceus)
- Western Meadowlark (Sturnella neglecta)
- Brewer's Blackbird (Euphagus cyanocephalus)
- Brown-headed Cowbird (Molothrus ater)
- Pine Grosbeak (Pinicola enucleator)
- Purple Finch (Carpodacus purpureus)
- Cassin's Finch (Carpodacus cassinii)
- House Finch (Carpodacus mexicanus)
- Red Crossbill (Loxia curvirostra)
- Pine Siskin (Carduelis pinus)
- Evening Grosbeak (Coccothraustes vespertinus)

Mammals

- Vagrant Shrew (Sorex vagrans)
- Water Shrew (Sorex palustris)
- Trowbridge's Shrew (Sorex trowbridgii)
- Broad-footed Mole (Scapanus latimanus)
- Little Brown Myotis (Myotis lucifugus)
- Yuma Myotis (Myotis yumanensis)
- Long-eared Myotis (Myotis evotis)
- Fringed Myotis (Myotis thysanodes)
- Long-legged Myotis (Myotis volans)
- California Myotis (Myotis californicus)
- Small-footed Myotis (Myotis lembii)
- Silver-haired Bat (Lasionycteris noctivagans)
- Big Brown Bat (Eptesicus fuscus)
- Hoary Bat (Lasiurus cinereus)
- Pika (Ochotona princeps)
- Nuttall's Cottontail (Sylvilagus nuttalli)
- Snowshoe Hare (Lepus americanus)
- Mountain Beaver (Aplodontia rufa)
- Yellow-pine Chipmunk (Tamias amoenus)
- Allen's Chipmunk (Tamias senex)
- Long-eared Chipmunk (Tamias quadrivittatus)
- Lodgepole Chipmunk (Tamias speciosus)
- Yellow-bellied Marmot (Marmota flaviventris)
- Belding's Ground Squirrel (Spermophilus beldingi)
- California Ground Squirrel (Spermophilus beecheyi)
- Golden-mantled Ground Squirrel (Spermophilus lateralis)
- Western Gray Squirrel (Sciurus griseus)
- Douglas' Squirrel (Tamiasciurus douglasi)
- Northern Flying Squirrel (Glaucomys sabrinus)
- Mountain Pocket Gopher (Thomomys monticola)
- Great Basin Pocket Mouse (Perognathus parvus)
- Beaver (Castor canadensis)
- Western Harvest Mouse (Reithrodontomys megalotis)
- Deer Mouse (Peromyscus maniculatus)
- Playon Mouse (Peromyscus truei)
- Bushy-tailed Woodrat (Neotoma cinerea)
- Heath Vole (Phenacomys intermedius)
- Montane Vole (Microtus montanus)
- Long-tailed Vole (Microtus longicaudatus)
- Muskrat (Ondatra zibethicus)
- Western Jumping Mouse (Zapus princeps)
- Porcupine (Erethizon dorsatum)
- Coyote (Canis latrans)
- Red Fox (Vulpes vulpes)
- Black Bear (Ursus americanus)
- Raccoon (Procyon lotor)
- Marten (Martes americana)
- Ermine (Mustela erminea)
- Long-tailed Weasel (Mustela frenata)
- Wolverine (Gulo gulo)
- Badger (Taxidea taxus)
- Mountain Lion (Felis concolor)
- Bobcat (Lynx rufus)
- Mule Deer (Odocoileus hemionus)
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**Key to Numbered Citations in Bibliography:**


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