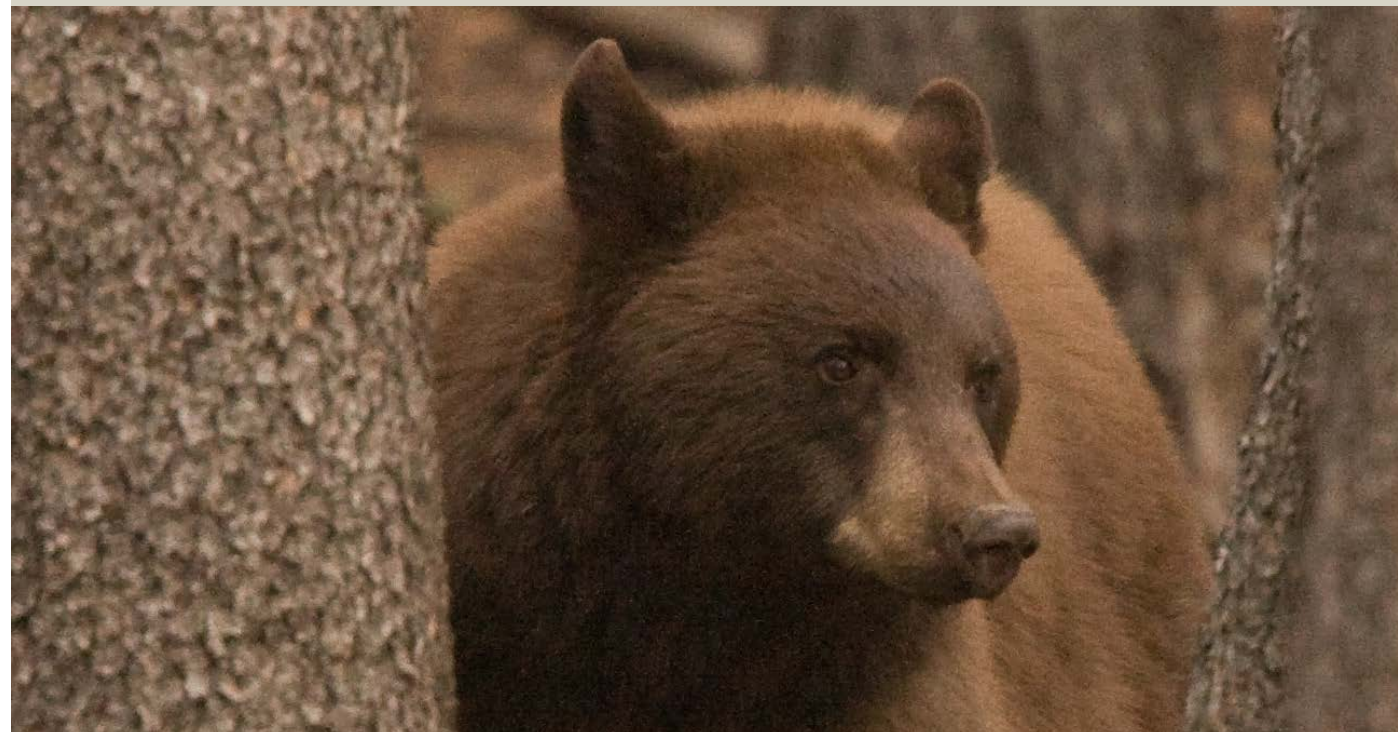




UTAH Master Naturalist

Mountain Wildlife Field Book

Mark Larese-Casanova



UtahStateUniversity
COOPERATIVE EXTENSION



Revised 2014- Minor corrections and additions were made to this edition.

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How to Use this Field Book:

The Utah Master Naturalist Mountain Wildlife Field Book is meant to provide you with an annotated look at some of the common and rare animal inhabitants of Utah's mountain ecosystems. This book provides photographic examples of each species along with useful information on the species' life history and ecology. When used along side a detailed field guide, this book will help you learn about wildlife during your mountain explorations. Have fun!

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All wildlife maps are courtesy of Utah Conservation Data Center at the Utah Department of Natural Resources. Color-coded maps indicate habitat value for each species. Red=Critical, Yellow=High, Green=Substantial, and Blue=Limited

Mountain pine beetle

Dendroctonus ponderosae



- Native bark beetle that feeds on conifers
- Outbreaks are more frequent where trees are stressed
- Warmer winters do not help control pine beetles
- Introduce a blue-stain fungus that affects water transport

The mountain pine beetle is the most destructive bark beetle in pine forests of the western United States. It attacks and kills a variety of conifer species such as lodgepole pine, ponderosa pine, limber pine, bristlecone pine, pinyon pine, white fir, Douglas fir, subalpine fir, Engelmann spruce, and blue spruce. Adult bark beetles are brown to black in color, and about ¼ inch long. Larvae are legless grubs, yellowish-white in color with a black head. Individuals generally attack trees greater than or equal to 6 inches in diameter at chest height.

Although mountain pine beetles are a natural part of an ecosystem, usually attacking weak or dying trees, extensive outbreaks can occur in extremely dense stands where vegetation has accumulated as a result of fire suppression or lack of disturbance. This results in high levels of competition between individual trees and increased stress and susceptibility to attacks. Healthy trees are generally resistant. Recent warmer winters have not been sufficient in reducing bark beetle populations.

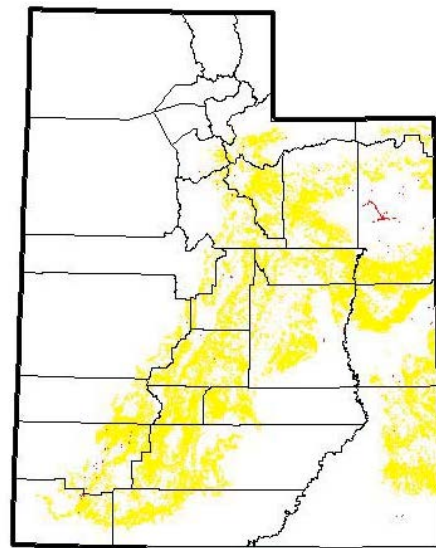
During a short, early-summer dispersal period, adult beetles burrow into the phloem tissue, carving a hole called a gallery, where they lay eggs alternately along the gallery walls. Galleries are straight and vertical, with a distinctive J-shaped crook at the bottom, and can reach over 3 ft in length. If a beetle attack is unsuccessful, whitish clumps of pitch (pitch tubes) will fill the holes on the trunk. If an attack is successful, pitch tubes will be turned red due to the presence of boring dust under the bark. Bark beetles often introduce a blue-stain fungus into the tree, which will prevent water transportation through the tree, contributing to its death.

Milksnake

Lampropeltis triangulum taylori



- Widely distributed species
- Habitat generalist
- Mimics venomous coral snakes
- Constrictor that mostly feeds on small mammals
- May live up to 20 years



The milksnake is considered one of the most widely distributed of all snake species. Although there are 25 recognized subspecies, *L. triangulum taylori* is the only one found in Utah. The Utah milksnake occurs in the central, eastern, and southwest portions of the state up to about 6,000-7,000 feet in elevation. It can be found in many habitat types from farmlands and desert lowlands to rocky canyons and forests. The red, black, and pale coloration of this snake is likely mimicry of the venomous coral snake, which does not occur in Utah.

The milksnake's diet consists primarily of small mammals, but birds and reptiles, including the eggs and young, are also taken. Prey items are usually killed by constriction, but some smaller prey items are swallowed without being constricted. It is a primarily nocturnal species, and very secretive in nature, which results in limited knowledge about its behaviors.

Milksnakes are active from April to October, laying a clutch of two to fifteen eggs mid-summer, and hatch after about two months. Growth is rapid for juveniles, but will slow dramatically once they reach maturity. Hibernation occurs during the cold winter months. Hatchlings are about 6-8 inches long, and adults reach 18-36 inches long. It is considered a hearty species with a potentially long life span of about 20 years, although most wild individuals are not thought to live much over 10 years.

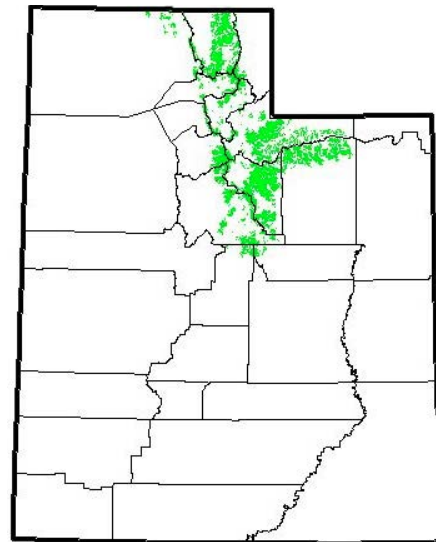
The milksnake seldom bites unless provoked sufficiently, after which it may coil up and strike.

Rubber boa

Charina bottae



- Occurs in northern Utah mountains
- Relatively small boa
- Generally a secretive species
- Blunt tail mimics its head during confrontations with predators



Rubber boas occur throughout northern portions of Utah, specifically in the Wasatch Mountains, but rare sightings in some southern and central mountains have occurred. Habitats are commonly forests, meadows, or riparian areas near rock outcrops up to 10,000 feet in elevation.

The rubber boa is one of the smallest boa species, mostly uniform olive green, tan, reddish brown, or dark chocolate brown in color. Young are more colorful than adults, often ranging from orange-brown to salmon. The rubber boa has a short, blunt tail capped by a rounded plate, which is often mistaken for the head, and this tail is thought to aid in predator defense due to higher number of scars found in this area. Adults range between 15 to 25 inches long, with young ranging between 7 to 9 inches. Similar to other boa species, it kills its prey by constriction. Prey items include shrews, mice, amphibians, lizards, other snakes, and small birds. Because of its secretive behaviors, the rubber boa is considered uncommon.

The rubber boa gives birth to live young, usually 2 to 8 per year. Young snakes are born in the late summer or early fall. Clutches are usually slightly female-biased, which might be compensate for greater mortality among females than males. Rubber boas have reverse sexual dimorphism, allowing females to bear larger young size and have adequate fat reserves while fasting during gestation.

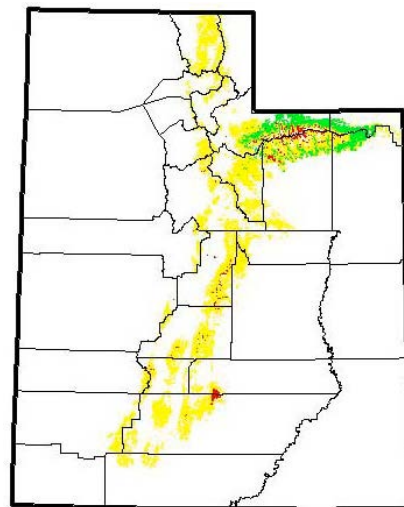
Predators of the rubber boa include the common raven, red-tailed hawk, and raccoons. It defends itself by wrapping its tail around the predator's neck or by holding its tail up acting as its head.

Sonoran mountain kingsnake

Lampropeltis pyromelana infralabialis



- Found throughout Utah's mountains
- Distinguished by its white snout and rings on the body
- Mostly eats lizards



The Sonoran mountain kingsnake is native to parts of Utah, Arizona, New Mexico, Nevada, and Mexico, with four recognized subspecies. *L. pyromelana infralabialis* subspecies is found in the mountainous regions of southern and central Utah, usually in woodland or rocky areas near a water source. It is distinguished from similar species by its white snout and large number of white rings on the body.

Similarly to many other Utah snakes species, the Sonoran mountain kingsnake is active from late spring to early fall, becoming inactive during the cold winter months. Its primary diet consists of lizards, but snakes and small mammals are also consumed.

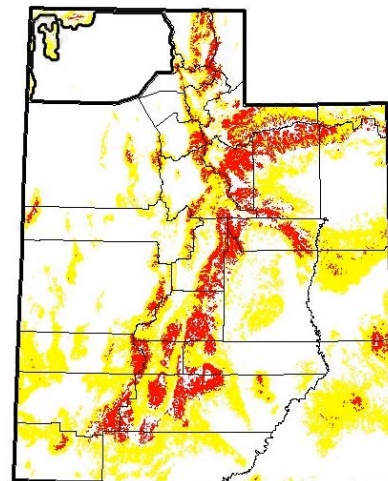
Females lay a clutch of three to six eggs during the mid-summer. Its name *pyromelana* is from the Greek pyr, meaning flame-colored, and mela, meaning black. The word *infralabialis* refers to a diagnostic scale character located below the lower lip of some reptiles and amphibians.

Mountain chickadee

Poecile gambeli



- Looks similar to black-capped chickadees, but with white stripe above the eyes
- Found in higher elevation coniferous forests
- May move to lower elevations in winter
- Eats mostly insects and seeds



Mountain chickadees look similar to black-capped chickadees, with a grayish body, black throat, and black head cap. The most notable characteristic, which is used to tell the two similar species apart, is a white stripe above the eye. As an adult, it reaches 5.5 inches in length, with an 8.5 inch wingspan, and weighs 11 grams. The mountain chickadee is a very active insect gleaner located throughout Utah in high-elevation coniferous or mixed forests. Habitat and elevation are often helpful in distinguishing the mountain chickadee from the black-capped chickadee. In the winter time, during severe weather or when food is scarce, it can be found in alternative habitats or in lowland coniferous areas. The mountain chickadee eats mainly insects and seeds, commonly caching seeds in the fall as a winter food source. It has also been known to snatch insects mid-air, but usually picks them off of vegetation.

During the breeding season, mountain chickadees are monogamous and territorial, and lay from 7 to 9 eggs in a tree cavity. Eggs are incubated for two weeks by the female before hatching, and young remain in the nest for an additional three weeks. A breeding pair can sometime have two clutches per year. Breeding pairs can also occur in groups, with up to 3 breeding pairs including their offspring. Although some species within the family occasionally excavate their own tree cavities, the mountain chickadee does not. It has been known to infrequently hybridize with black-capped chickadees.

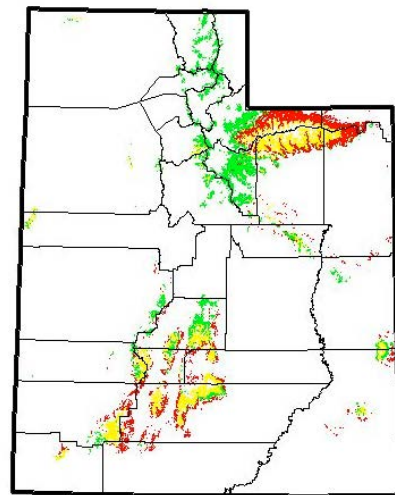
Primary predators include the northern pygmy-owl, northern saw-whet owl, and the sharp-shinned hawk, but eggs and hatchlings are also preyed upon by chipmunks, deer mice, rubber boas, weasels, and raccoons.

Cassin's finch

Haemorhous cassinii



- Common year-round in Utah's high elevation forests
- Forages with other mountain bird species
- Adapted to eating seeds
- Tends to roam, but not migrate regularly



Cassin's finch is the largest of the North American rosefinches (genus *Haemorhous*), and is part of the Fringillidae family. It is locally common, and found year-round in Utah's high-elevation coniferous forests. Cassin's finch moves southward or to lower elevations only during times of harsh winter weather or food shortages. Outside of the breeding season, starting in the late summer, it is usually found in small flocks, often foraging with crossbills and other mountain birds. During this time, the Cassin's finch often visits mineral deposits on the ground to satisfy a salt craving that is shared by other members of the finch family.

Like all finches, males and females are dissimilar in color. Females and juveniles are streaked brown, with a boldly streaked whitish breast. Males older than 1 year have a reddish-pink crown, throat, breast, and rump. The red-pink color pigments are obtained from its diet, and if resources are scarce, deficient birds can occasionally turn yellowish instead of red. Like other finches, the Cassin's finch has a conical bill adapted to cracking seeds. A finch usually obtains seeds straight from the tree or shrub, rather than from the ground. It also may eat fruits, buds, and insects.

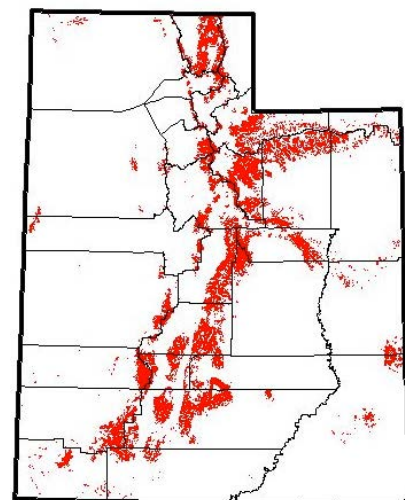
During the breeding season, cup nests are constructed in high conifer branches (usually near the top of the crown) where the female lays 4 or 5 bluish-green eggs, with dark brown spots. Eggs are incubated by the female while the male brings her food, and chicks leave the nest about two weeks after hatching. Finches are known to roam, and do not have regular migration patterns, leading to some variations in local populations.

Dark-eyed junco

Junco hyemalis



- Common ground-dwelling birds in Utah
- Different variants found at different times of the year in Utah
- Commonly migrates at night
- Highly territorial with dominance hierarchies



Dark-eyed juncos are territorial ground-dwelling birds. Four of six subspecies groups of the dark-eyed junco can be found seasonally in Utah; the slate-colored, Oregon, pink-sided, and gray-headed (pictured at left). All subspecies have similar habits, including ground feeding on seeds and small fruits in open habitats; flying into brush or trees when alarmed; nesting in relatively open, coniferous or mixed forests; and wintering in small flocks in patchy wooded areas. In Utah, the slate-colored variant is found only during the winter, and is considered uncommon to rare. The Oregon variant is common and widespread, found mostly during the winter in Utah. The pink-sided variant commonly breeds in northern Utah, and sometimes overwinters there and further south. The gray-headed variant is considered common within its range, and is found during the summer in central Utah and year-round in southern Utah. During migrations, juncos commonly feed during the day and migrate at night.

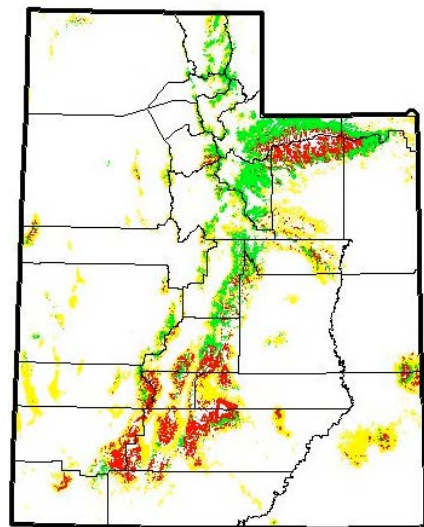
Males are highly territorial only during the breeding season. Nest predation is mostly from weasels, and adult predation is usually by owls, hawks, and shrikes. Juncos form a hierarchical order outside of the breeding season where dominant birds have greater access to food than subordinate birds. This order results in wintering flocks that band together based on age and gender to reduce competition. Males winter farther north in order to get to the breeding ground first to establish a territory, but females winter farther south where food is more available and the winter is milder. Unlike many sparrows that are declining from habitat loss, juncos seem to benefit from the early successional forests that are created from timber cutting.

Red-breasted nuthatch

Sitta canadensis



- Year-round resident of Utah
- Prefers spruce/fir forests
- Uses its pointed bills to crack open seeds
- Able to forage upside down on tree trunks
- Males and females excavate tree cavities together



The red-breasted nuthatch, previously known as the red-bellied or Canada nuthatch, is a year-round resident bird in Utah. It is considered uncommon, usually found within coniferous and mixed forests, but it can also be found in other habitats during harsh winter elevational migrations. Unlike the three other North American nuthatch species, the red-breasted nuthatch has a strong preference for spruce and fir habitats. They are usually solitary during the breeding season, but are otherwise found within flocks of other small songbirds.

Red-breasted nuthatches have a strong, straight, pointed bill that is used to tap or pry away bark to get food. They regularly feed on seeds and insects, hoarding and storing excess seeds when plentiful, or migrating when food is scarce. Individuals crack open seeds by inserting them into crevices in tree bark, and then hacking them open with their strong bills. Their excellent maneuverability allows nuthatches to fly around within tree branches, gleaning or excavating insects from the bark. Unlike woodpeckers and creepers that can only move up a trunk, nuthatches can walk and feed in both directions on the trunk, facing either right-side-up or up-side-down.

During the breeding season, monogamous breeding pairs work together to find a nesting site, usually excavating their own tree cavity. Males are extremely aggressive and territorial during this time, and chase away any bird species that trespasses. Females lay 5 or 6 white eggs, and incubate the eggs for 12 days before hatching. Adult predators include the sharp-shinned hawk, Cooper's hawk, northern pygmy-owl, and weasels, and nest predators include the Steller's jay and various small mammals.

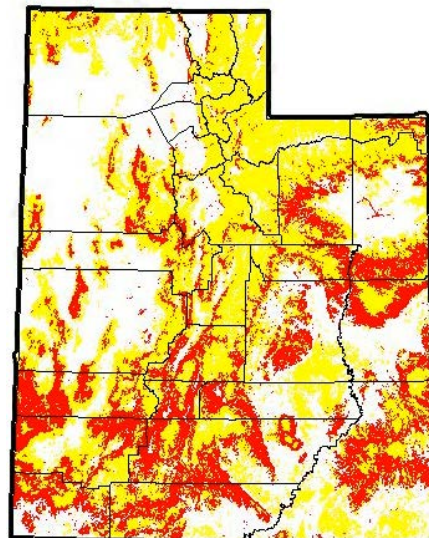
Western tanager

Piranga ludoviciana



© Joe Ford

- Summer residents of mid-elevation forests in Utah
- Generally secretive birds
- Often seen at lower elevations before and after the breeding season
- Victim of brood parasitism by cowbirds



Western tanagers are commonly found in both coniferous and deciduous, mid-elevation, mountain forests during the summer in Utah. During the migration, they can be found in even more open woodlands, shrublands, or human-made environments such as parks, orchards, or gardens. Females are pale yellow to yellow with a dusky back. Males are brighter with a red head and black back during the breeding season. Their red color comes from red pigment that is obtained from their diet.

Although western tanagers are brightly colored, their habits are sometimes secretive, causing them to be more commonly heard than seen. Starting in August, birds migrate south primarily at night, and are frequently spotted in Utah's valleys during this fall migration. They feed similarly to a flycatcher during the breeding season, by gleaning insects and larvae from leaves, but eat mainly fruits and berries during the remainder of the year. Western tanagers are usually highly territorial and solitary, and are usually found in the upper levels of trees.

During the spring, the female makes a cup nest at the end of a horizontal, conifer branch where she incubates 3 to 5 eggs for 13 days. After hatching, chicks leave the nest after 2 weeks, but they will not permanently leave for an additional 2 weeks. Like many songbird species, brood parasitism by brown-headed cowbirds can be common.

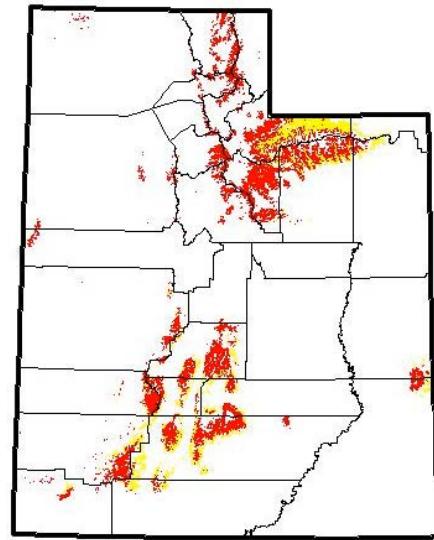
Common predators of the western tanager include hawks, jays, and owls. Interestingly, the western tanager was first recorded during the Lewis and Clark expedition of 1803 to 1806.

Golden-crowned kinglet

Regulus satrapa



- Uncommon year-round resident of Utah
- Prefers high alpine coniferous forests
- Often hangs upside down to glean insects from branches
- Female often lays a second clutch while the male feeds the first



The golden-crowned kinglet, one of only two North American kinglets, is an uncommon, year-round resident in Utah. During the breeding season, it is found in high-elevation, subalpine, coniferous forests, usually nesting high in mature spruces or other conifers. During the winter, golden-crowned kinglets migrate to lower-elevation valley woodlands throughout the state. They are almost always found in small groups of 3 to 8 birds, often mixing in with chickadees, creepers, and other small songbirds. In order to deal with cold, night-time, winter temperatures, kinglets will often roost in abandoned squirrel nests or in groups to conserve heat.

Golden-crowned kinglets eat mainly insects, which are continuously gleaned from leaves and branches or chased down on foot. They also commonly hang upside-down from twigs while feeding. Food is always eaten immediately after capture, and is never cached.

During the breeding season, males are territorial, while females construct hanging cup nests suspended up to 60 feet above the ground between several twigs, and placed near the trunk to protect it from the elements. The female usually lays and incubates 8 or 9 eggs, and chicks are able to leave the nest after 18 days, but are still continually fed by the parents for two additional weeks. Even with the short growing seasons at higher elevations, females usually lay a second clutch while males feeds the first.

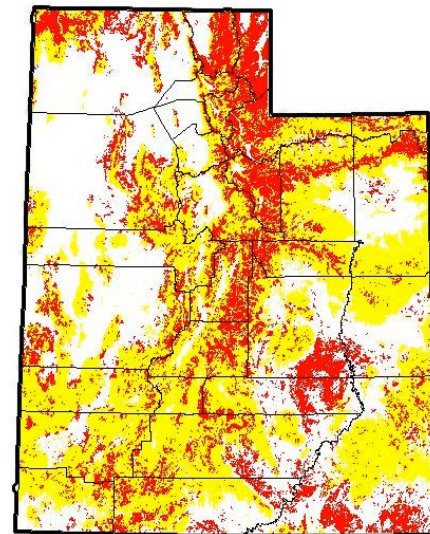
Similarly to most songbird species, predators include hawks, jays, owls, and small mammals such as squirrels.

Mountain bluebird

Sialia cirrucoides



- Most migratory of all bluebirds
- Common in meadows in summer
- Year-round in southern Utah
- Males and females care for young
- Competes for nest sites with non-native house sparrows



Mountain bluebirds are considered the most migratory of all bluebirds. They are found in northern and central Utah during the summer breeding season, and in southern Utah year-round. During the breeding season, mountain bluebirds occur above 5,000 feet in elevation in meadows with scattered trees and bushes, or along forest edges. Wintering flocks form while migrating south or to lower elevation grasslands and agricultural fields.

Unlike most bluebird species, which glean insects from vegetation, mountain bluebirds usually feed on ground insects either by hovering low above the ground and dropping down on insects or by darting out from surrounding vegetation like a flycatcher. If insects are not available, they may also eat fruits or seeds.

Mountain bluebirds are considered monogamous, forming breeding pairs that work together to take care of the young. Males acquire large territories for their size; often over 100 yards wide, with some territories that do not even have a clear boundary. Females lay 4 to 6 eggs in tree cavities that are often made by woodpeckers, or in artificial nest boxes. Unlike many wildlife species, mountain bluebird populations usually increase after human disturbances such as forest-cutting, livestock grazing, or burning.

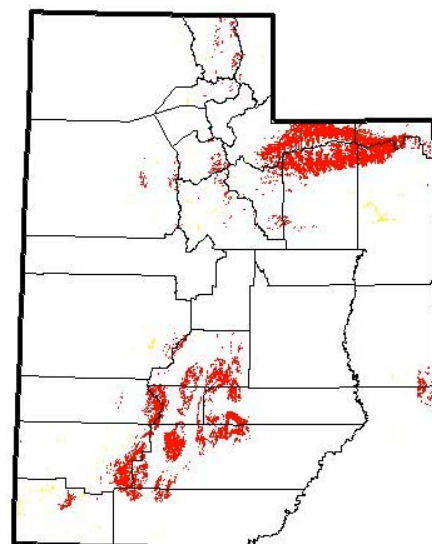
Common adult predators include several raptors and American crows. Nest predators include chipmunks and squirrels. Mountain bluebirds compete with the introduced house sparrow for nesting sites.

Pine grosbeak

Pinicola enucleator



- Uncommon year-round resident of high elevation coniferous forests
- Eats almost entirely seeds, nuts, and fruit
- May migrate to lower elevations to find food
- Males and females care for hatchlings



The pine grosbeak is a year-round resident throughout the high-elevation coniferous forests of Utah, but it is considered uncommon and found somewhat irregularly around openings in the forest canopy. Winter habitats can differ from summer habitats primarily based on food choice. Pine grosbeaks may form small flocks, but are often seen in singles or pairs. The pine grosbeak's diet consists of 99% vegetative matter including seeds, buds, and fruits, and occasionally insects. It feeds both on the ground and on the vegetation, and winter flocks are known to feed on a specific food source until it is exhausted.

Although the pine grosbeak does not generally migrate, harsh winters with scarce food can push individuals south or to lower elevations. During the breeding season, males are strongly territorial, defending a territory of about 400 meters in diameter by singing from treetops. The females lay 2 to 5 eggs in a bulky cup-like nest that is usually located from 2 to 10 feet high in a conifer. The female incubates the eggs for two weeks while the male feeds her. Once the eggs hatch, both parents work together to provide for the hatchlings, which will leave the nest after 2 weeks. Unlike most species in this family, where hatchlings molt in the fall and obtain their adult plumage after the first year, the male pine grosbeaks will not fully resemble adults until the second year.

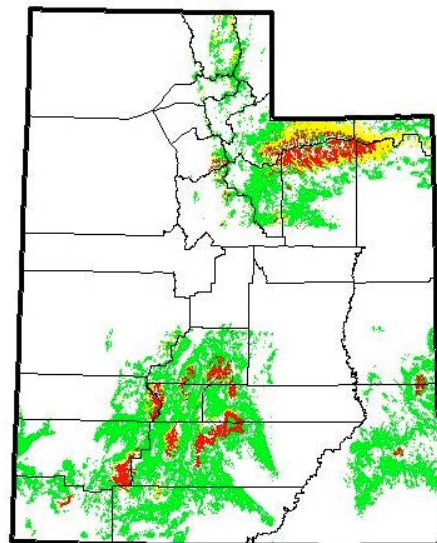
Predation is caused mostly by hawks and falcons, with nest predation from small mammals such as squirrels. Interestingly, pine grosbeaks are capable of hovering flight for a short period to catch insects or to sip melting water from an icicle.

Gray jay

Perisoreus canadensis



- Year-round resident of subalpine forests in the Uinta and La Sal Mountains
- Habitat generalist
- Opportunistic feeders
- Caches food by gluing it into balls with its saliva
- Dominant hatchling remains with parents for a full year



The gray jay is a common, year-round, permanent resident of sub-alpine coniferous forests throughout the Uinta Mountains and higher elevations of the La Sal Mountains. Otherwise, scattered records exist for northern and south-central Utah.

The gray jay is an opportunistic feeder, eating a variety of foods including seeds, fruit, insects, and especially carrion. It is commonly seen in mountain campgrounds, where it steals food that is left out, giving it the nickname “Camp Robber”. The gray jay is able to survive throughout the winter in such a harsh habitat because of its unique food storage technique. It has enlarged salivary glands that produce sticky saliva, which is used to glue food into balls that can then be fastened to trees. It caches thousands of food items every day throughout the summer to be eaten during the winter.

Gray jays start breeding at 2 years of age, forming long-term breeding pairs that maintain and defend a territory for multiple years. Breeding starts and ends very early in the spring, with the first eggs usually laid in March before many migratory birds have even returned. They construct cup nests by weaving dead twigs, bark, and grasses together. Gray jays lay 3 to 5 eggs, and hatchlings leave the nest after 2 to 3 weeks. They remain as a family group until they are about 2 months old, when the dominant sibling excludes the other siblings. The dominant sibling remains with the parents until they push it out of the nest at the beginning of the next breeding season.

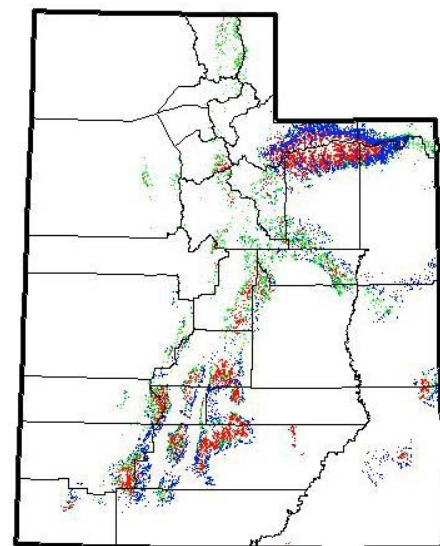
Their predators include fishers, martens, squirrels, and a variety of owls, hawks, and falcons.

American three-toed woodpecker

Picoides dorsalis



- Found year-round in most high elevation Utah forests
- Eats mostly wood-boring insects
- Usually solitary, except when paired for breeding
- Has three toes, unlike most other woodpecker species



The American three-toed woodpecker is found year-round in most mountain forest communities in Utah above 8,000 feet in elevation. The American three-toed woodpecker maintains its territory year-round, not just during the breeding season like many species. Its diet consists of over 75% wood boring insects, especially bark beetle larvae, but it also eats fruits and sap. In one instance, spruce beetles and larvae alone made up 99% of the winter diet, and over 65% of the annual diet. Therefore, it often requires insect epidemics to survive. The American three-toed woodpecker relies heavily on both dead and live trees for nesting and foraging. Stand-replacing fires create good insect habitat, which provides a plentiful food source and creates snags that are highly preferred for nesting sites.

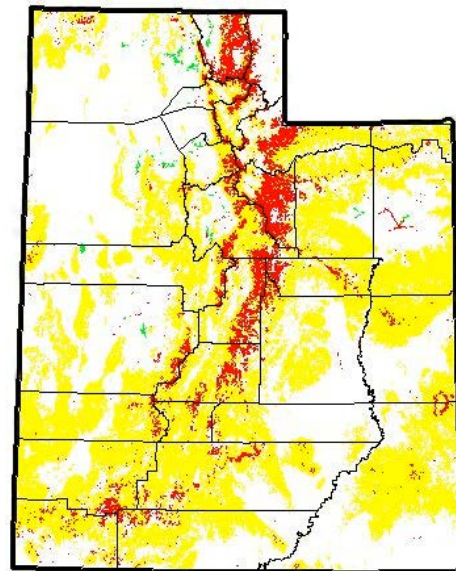
During the breeding season from May to July, males attract females with drumming, head swaying, and calling displays. The breeding pair incubates an average of 4 eggs in a tree cavity excavated in a softwood tree species such as aspen, spruce, or fir. Breeding pairs may remain with each other year-round or become solitary outside of the breeding season. Unlike most woodpeckers, the three-toed woodpecker has only three toes, two pointed forward and one pointed backward. Almost all other woodpeckers have four-toed zygodactyl feet, with two toes forward and two backwards. This configuration makes it easier to cling to vertical tree trunks. Without these four toes, American three-toed woodpeckers are only able to grip trees that have scaly bark. Woodpeckers also use their tails to provide support and propel up trees.

Northern flicker

Colaptes auratus



- Found year-round throughout Utah
- Habitat generalist, but prefers open forests
- Usually feeds on the ground
- Important to forest communities by creating nesting cavities for many other species



The northern flicker is split into two subspecies groups, the red-shafted (western variety) and yellow-shafted (eastern variety). Historically, they were separated during the last ice age, forming two distinct subspecies, but recently their ranges have overlapped and hybrids can be found in some areas. The red-shafted northern flicker is found year-round throughout Utah, and is common and widespread throughout open forested areas. It is also commonly seen in some residential areas, parks, and gardens throughout the state and is considered somewhat of a habitat generalist.

Unlike most woodpeckers, the northern flicker feeds on the ground, eating mostly ants and other insects by probing and hammering its powerful bill into the ground. It also has a remarkably long tongue, which can extend up to 2 inches past the end of the bill and is used to lap up ants. Northern flickers also eat berries and seeds during the winter.

During the breeding season, males and females vigorously defend the area directly surrounding their nest site. However, they may share a nest tree with other cavity nesting species, but will attack any bird that comes near the nest entrance. Females lay 6-8 eggs that hatch after 12 days and young can leave the nest after another month.

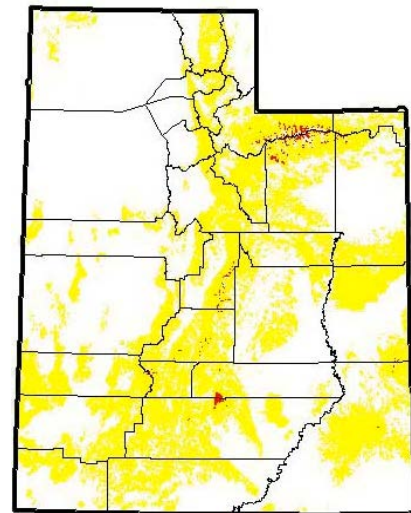
Flickers are important to forest communities where they create nest cavities that many cavity-nesting birds can use afterward. Interestingly, it sleeps by clinging to a vertical surface (trees, buildings, etc.) with its head tucked under its scapula feathers.

White-throated swift

Aeronautes saxatalis



- Nests on rocky cliffs and canyons
- Migrates south in winter
- Agile, accomplished flyer
- May nest colonially
- Little is known about the species due to inaccessibility of nesting sites



The white-throated swift is among the most agile fliers of all North American birds. It can fly forward at high speeds and suddenly change direction with quick wing and tail adjustments. Although little is known about the migration habits of the white-throated swift, northern populations do migrate south for the winter. In Utah, the white-throated swift commonly breeds within the state, but is migratory. It prefers rocky cliffs and mountainous canyon habitats. Its diet is primarily flying insects that are captured during flight. The white-throated swift is a highly social species that often forages and interacts vocally as a group.

Breeding occurs in the spring, when many individuals migrate north to take advantage of more abundant nesting sites and summer insects. Simple cup nests are constructed, using a glue-like saliva, in rock crevices on cliffs and canyon walls, or even on structures such as bridges or buildings. Nests are placed either singly or in semi-colonial groups; winter roosts are more colonial with as many as 500 individuals. In the evening, individuals belonging to a roost gather, swirl around in front of the roost, and fly in several at a time.

Little information is known about nesting habits of the white-throated swift because sites are often difficult to access. Average clutch size is four to five pale white eggs.

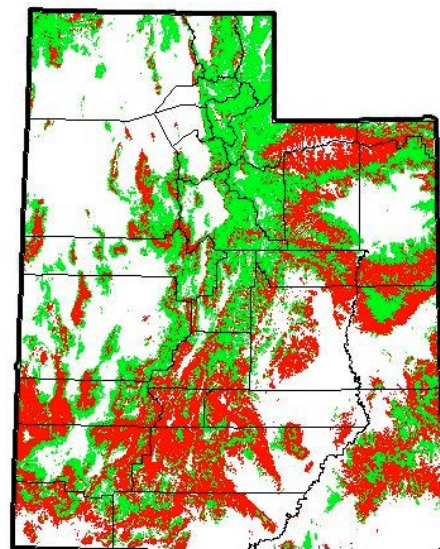
Predators include peregrine falcons, prairie falcons, American kestrels, and other raptor species. But, the significance of predation is unknown.

Clark's nutcracker

Nucifraga columbiana



- Found year-round in high-elevation coniferous forests in Utah
- Chisel-shaped bill is adapted to open pinecones
- Important in dispersing conifer seeds while caching them
- Delayed incubation of earlier eggs promotes synchronous hatching



Clark's nutcracker is found year-round in mountainous areas throughout Utah, and breeds mainly in coniferous forests. It often migrates to lower elevations, especially pinyon-juniper woodlands, during the winter. Clark's nutcrackers are commonly seen around picnic areas or campsites where they steal food. They feed mainly on conifer seeds, but may also eat insects, small vertebrates, bird eggs, and carrion. Clark's nutcrackers have a chisel-like bill that is adapted to breaking open pine cones and extract seeds. Similarly to jays, the Clark's nutcracker stores thousands of nuts and seeds annually in winter caches, usually beginning in mid-August until seeds are covered by snow. It has a particularly good spatial memory, remembering an exceptionally high proportion of its caching sites and regularly digging them up and burying them again- most likely to check their condition and remember the sites. Some pine species, such as limber pine or pinyon pine, rely heavily on Clark's nutcrackers to disperse its seeds in order for seedling establishment to occur, resulting in a mutualistic relationship that benefits both species. Occasionally, inadequate seed crops force large numbers to migrate outside of their normal habitat.

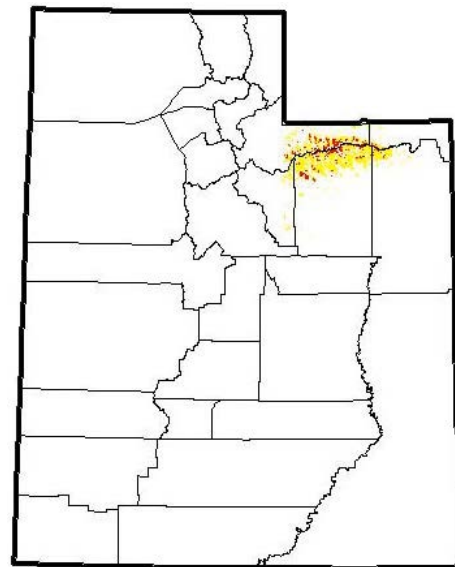
Nests are constructed by both the male and female, usually placed on the leeward side of a tree to avoid wind damage. Even though eggs are not laid at the same time, delayed incubation until after the last egg is laid allows for synchronous hatching of all nestlings. This allows an equal chance of survival for all hatchlings. The Clark's nutcracker was first collected during the Lewis and Clark expedition, and was named after Captain William Clark.

White-tailed ptarmigan

Lagopus leucura



- Smallest grouse in N. Am.
- Permanent resident of alpine tundra
- Plumage turns white in winter
- Relies heavily on willow buds, especially in winter
- Hatchlings leave the nest 12 hours after hatching



The white-tailed ptarmigan, also known as the snow quail, is the smallest grouse species in North America. It is a permanent resident in alpine areas at or above treeline in western North America. There is no proof that the white-tailed ptarmigan was ever native to Utah, but it was intentionally introduced in 1976 into the Uinta Mountains from Colorado, and is sporadically found above 10,000 feet in elevation.

The white-tailed ptarmigan camouflages itself by changing its plumage to match its surroundings. During the summer, it is mottled brown to cinnamon in color, but during the winter it becomes completely white to match the snow. It is the only ptarmigan species that has a completely white tail. The white-tailed ptarmigan relies heavily on willow buds as a food source, especially during the harsh winter months, and insects and forbs in summer. Sheep grazing in alpine areas reduces the abundance of alpine willows, which can lead to population declines in ptarmigan. Similarly to other forest grouse species, the white-tailed ptarmigan actually gains body weight during the winter rather than loses it.

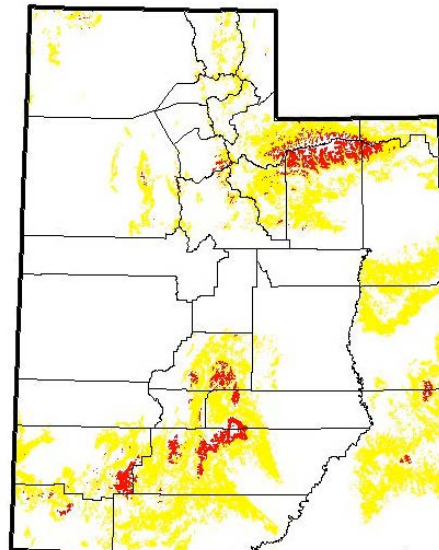
In the spring, the male is the first to arrive at the breeding grounds to establish territories. Females arrive in May to form pair bonds and lay 4 to 8 eggs in a lined nest that is constructed on the ground. Hatchlings are considered precocial, leaving the nest with the female within 12 hours of hatching, never to return. During the winter, it digs roosts under the snow for insulation. Predators include prairie falcons, golden eagles, Common ravens, red foxes, coyotes, weasels, and mountain lions.

Northern saw-whet owl

Aegolius acadicus



- One of the smallest owl species
- Found at high elevations in summer, but migrates lower or south in winter
- Primarily nocturnal, feeding on small mammals
- Secretive, with irregular movement patterns



The northern saw-whet owl is one of the smallest northern owl species. It is found at higher elevations and latitudes during the breeding season, migrating to lower elevations or latitudes during the winter. Migrations mostly occur during the night, and owl densities are an important mechanism in driving these migrations. The northern saw-whet owl is moderately abundant year-round throughout most mountainous areas in Utah. It prefers dense forests, riparian areas, marshes, and brushy habitats. Increased conifer use may provide more thermoregulation benefits and concealment from predators.

Like most owl species, the northern saw-whet owl is primarily nocturnal, but is also active at dawn and dusk. It has special feather adaptations to muffle sound produced during flight. Individuals usually hunt from a perch at forest edges or in clearings. Because its skull is asymmetrical, the northern saw-whet owl is able to discriminate prey position both vertically and horizontally by using slight sound delays created by the uneven positioning of their ears. The northern saw-whet owl primarily feeds on a variety of small mammals, such as mice, voles, and shrews, but also eats some birds and invertebrates. After prey digestion, prey remains are discarded in owl pellets, which can be dissected to determine food habits.

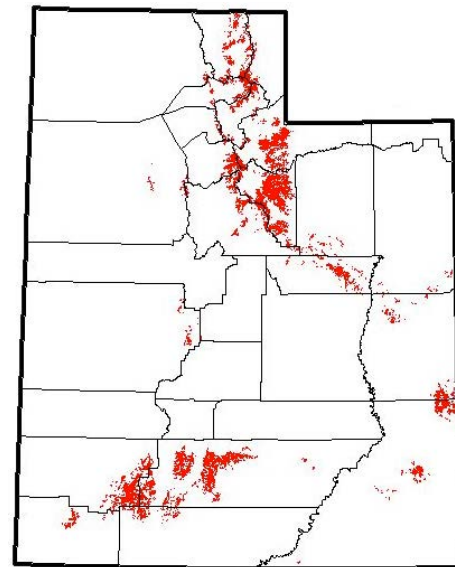
The northern saw-whet owl is a secondary cavity nesting species that nests in woodpecker holes, hollow logs, or nest boxes. Large raptors and other owl species are its primary predators. Much is still unknown about this species because it is very secretive, nocturnal, and has irregular movement patterns.

Flammulated owl

Otus flammeolus



- Common in mid-elevation pine forests
- More common in southern and central mountain ranges
- Secondary cavity nesters
- Relatively low reproductive rate



The flammulated owl is a common raptor in mid-elevation, montane pine forests. It is most often found in ponderosa pine forests, or forests with similar features (e.g. dry conifer or aspen forests with dense understories). In Utah, they are found in most mountain ranges throughout the state, but are most common in the southwestern and north-central ranges. Individuals are relatively small, approximately 6 inches, and are more often heard than seen due to their small size and elusive nature.

Flammulated owls eat a variety of flying insects that are taken while flying. But, they also eat terrestrial invertebrates taken from trees or on the ground. Because they feed mostly on insects, flammulated owls migrate south in winter to find food. Similar to most owls, the flammulated owl is nocturnal, spending the day concealed in vegetation or in cavities, perched in a cryptic posture with their eyes closed and ear-tufts raised to blend in with the tree bark.

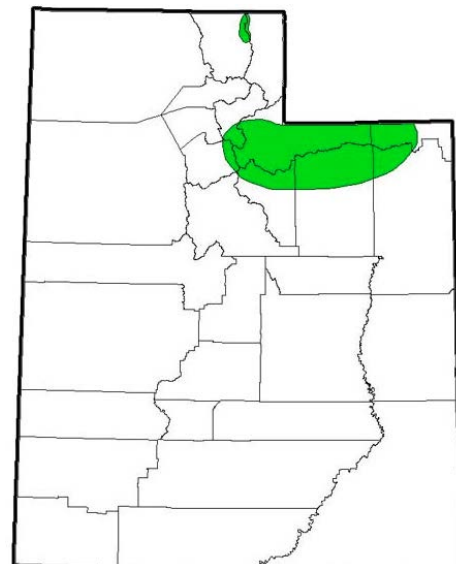
The flammulated owl is a cavity nesting species, often using abandoned woodpecker nest holes. Males show females a variety of abandoned woodpecker holes, leading her to each site through singing courtship displays, and the female then selects the nest site. Clutch sizes range from 2 to 4 eggs, which are incubated for a three week period before hatching. The female remains with her blind and immobile hatchlings for an additional 12 days, after which she leaves to help the father hunt. Despite its small size, broad geographic range, and abundance, the flammulated owl has a low reproductive rate.

Boreal owl

Aegolius funereus



- Breeds in boreal forests throughout the northern hemisphere
- Rare in Utah, but found in some coniferous forests
- Nocturnal, feeding mostly on small mammals
- Secondary cavity nesters



The boreal owl is a small owl that breeds in boreal and subalpine forests in both North America and northern Eurasia. It is usually a year-round resident in its range, but may migrate during the winter or when prey is scarce. Females are more likely to migrate or engage in nomadic movement than males. There are only three validated sightings in Utah, and the boreal owl is rumored to breed in small numbers in the Uinta Mountains. In the past, the species was not known to breed in Utah, but a nest was recently found in Wasatch County.

The boreal owl is nocturnal, with well developed feathers to muffle the sound during flight to better catch its prey. Its diet is comprised primarily of small mammals, although some birds and insects are also consumed. Individuals have been known to plummet from the air into snow covered fields, using their excellent hearing to pinpoint prey beneath the snow. Prey caching on branches may occur, most commonly during the nesting period or winter, and is defended from other birds. The boreal owl shows the most extreme reverse sexual dimorphism of any North American owl, where the females are noticeably larger than the males. The boreal owl is a secondary cavity nesting species, using abandoned woodpecker nests or nest boxes when natural cavities are unavailable. Eggs are incubated by the female for about one month, and hatchlings leave the nest after another month. Males provide food for incubating females and their young.

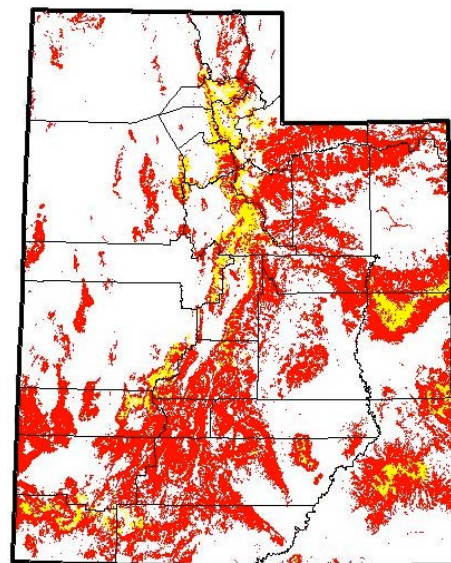
Predators include other birds of prey, such as northern goshawks, great horned owls, and Cooper's hawks, as well as martens.

Sharp-shinned hawk

Accipiter striatus



- Year-round resident of Utah's mountain forests
- Mostly eats small birds
- Uses abandoned bird and squirrel nests
- Affected by DDT use in the '70's



The sharp-shinned hawk is found in almost any forest type, with 10 different subspecies throughout its range. It is commonly found year-round in Utah's forest and woodland habitats, and most often nests in conifer forests. Winter migrations to lower elevations or southern latitudes may occur in some areas, where single individuals or small groups are seen migrating together. Its diet consists almost entirely of small bird species, but small mammals, lizards, and some insects may occasionally be eaten. The sharp-shinned hawk hunts with swift, maneuvering flight through wooded habitats, using its long tail as a rudder. The smallest bird known to have been taken was an Anna's hummingbird, and the largest bird was a ruffed grouse.

Nests are usually built from 10 to 60 feet high in dense conifers. Although new nests can be constructed, abandoned bird and squirrel nests are often modified and re-used. Clutches are usually 4 to 5 eggs, and are incubated for a month by the female while the male brings her food. Young can fly by 4 weeks of age, and are completely independent at about 7 weeks. Males are highly territorial during the breeding season, commonly darting at or chasing away intruders.

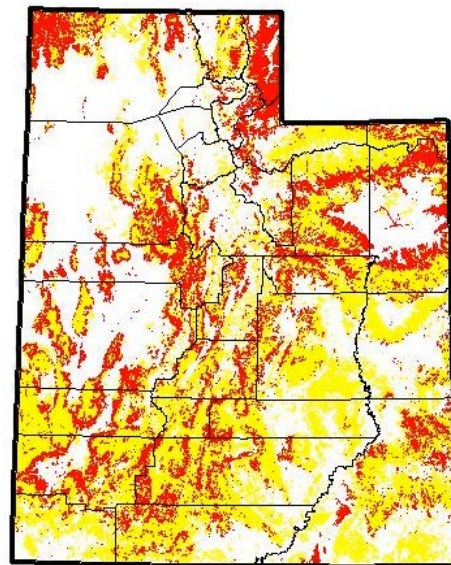
Major causes of death include road kill and predation from other raptors such as northern goshawks, peregrine falcons, owls, and Cooper's hawks. DDT usage in the 1970's, which caused thin eggshells in many bird species, led to declines in sharp-shinned hawk populations during the 70's and 80's. Since it was banned, populations have recovered and seem to be stable in most areas. Because the sharp-shinned hawk specializes in hunting at forest edges in open habitats, patchy timber harvests can be beneficial.

Golden eagle

Aquila chrysaetos



- Common year-round in Utah
- Habitat and elevation generalist
- Eats primarily small mammals
- Generally solitary
- Nesting occurs with peaks in ground squirrel abundance



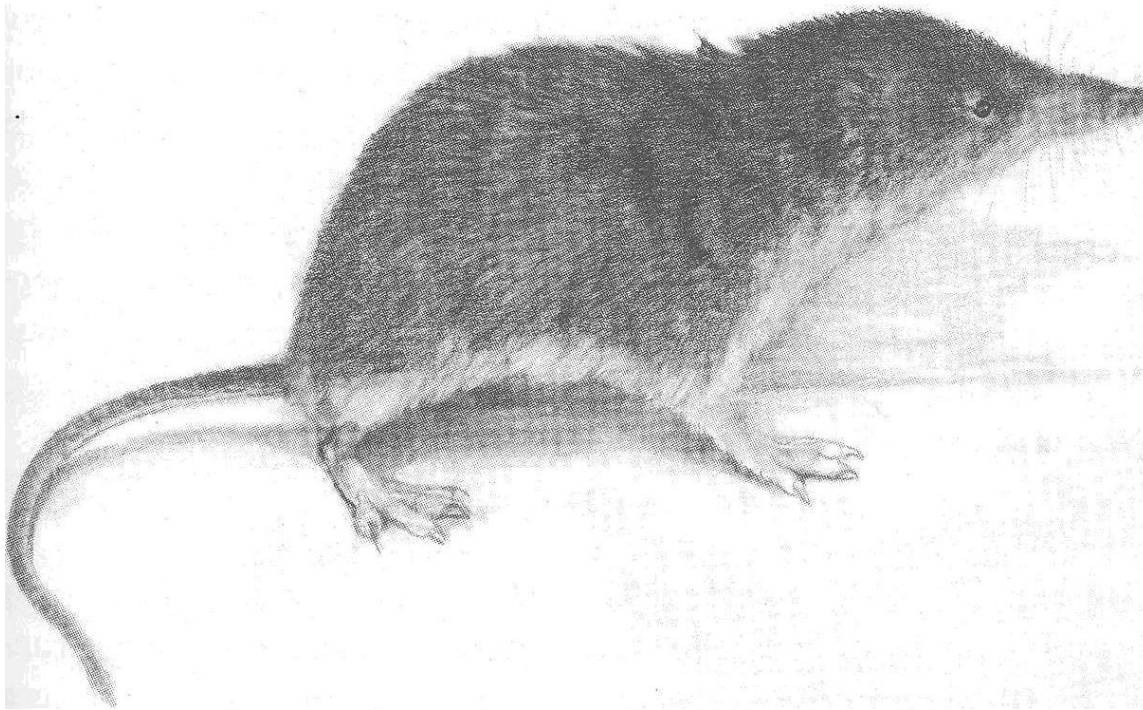
Golden eagles are common year-round in Utah, and are usually found in open habitats of mountainous areas, as well as in grasslands, sagebrush steppe, oak woodlands, riparian areas, or even semi-desert canyons. Golden eagles breed in higher elevations of Utah during the summer, from 4,000 to 10,000 feet, and migrate to lower elevation habitats during the winter. Unlike the bald eagle, which is more specialized for capturing fish, the golden eagle is particularly strong, allowing it to prey on larger mammals. Its diet consists mainly of small mammals, especially rabbits, marmots, rodents, and ground squirrels, but it also eats birds, snakes, carrion, and juvenile ungulates. Hunting is most efficient in open habitats where winds and thermal updrafts aid in flight, and prey cover is also limited. Golden eagles will readily defend a food item, but golden and bald eagles have been known to feed together without any aggression.

Golden eagles are usually solitary or found in pairs, but small family groups have been known to occur. Territorial defense commonly consists of undulating flights and occasional chases, but sexually immature individuals are often tolerated because they do not pose a threat. Nests are constructed on cliffs or in large trees. Eggs are laid from late February to early March in Utah, with an average clutch size of 2 eggs. Laying a second clutch does not normally occur, but individual pairs have been known to nest again if the first clutch fails. Brood rearing usually coincides with the peak of ground squirrel abundance.

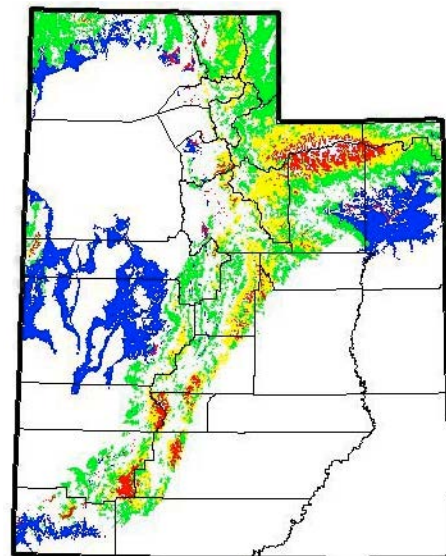
Threats include habitat alterations, poisoning, trapping and shooting, power line collisions, pesticides, and nest abandonment due to repeated disturbance.

Montane shrew

Sorex monticolus



- Widespread in Utah mountains
- Feeds on a variety of insects, seeds, fungi
- High metabolism means it needs to eat more than its body weight in food each day
- Male grows 50% larger during the breeding season



The montane shrew is widespread and abundant in mountainous areas throughout Utah. It is found primarily in boreal forests and alpine habitats, especially near riparian areas with dense ground cover, shrubs, and deadwood debris. Adults are about 4 inches long, with rusty-brown fur, and a bicolored tail. A distinctive characteristic of shrew species, such as the montane shrew, is the presence of reddish-brown pigments on the teeth. It feeds on conifer seeds, fungi, lichen, and especially a variety of invertebrates, including insects, worms, and sow bugs that are found under leaf litter or among dense vegetation. Similar to other shrews, the montane shrew has a high metabolism, and may eat more than its body weight daily to survive.

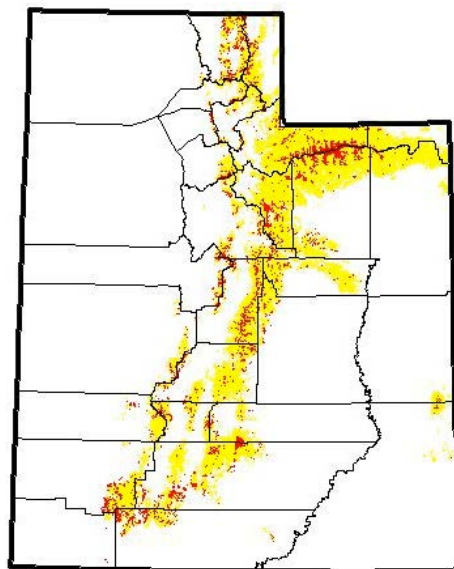
Montane shrews breed from early spring until late summer, sometimes breeding twice per year. Litters range in size from 2-9 young, with an average of 5. Males begin mating with females during mid-winter, when they become 50% larger in body size. Instead of establishing territories, montane shrews have a home range that is used to acquire food and resources, but is not defended. Home ranges vary by individual, sex, and time of year. Male home ranges in general average over 5,500 square meters, while female home ranges average 2,200 square meters; both sexes have larger home ranges during the breeding season than the non-breeding season. Although echolocation has not been studied in this shrew, it may occur because a closely related shrew, *Sorex vagrans*, uses echolocation to locate suitable cover in unfamiliar areas.

American pika

Ochotona princeps



- Most closely related to rabbits and hares
- Found in talus slopes at high elevations in Utah
- Continually gathers and stores plants for winter
- Highly antisocial
- Sensitive to overheating
- Warming climate has reduced its range



The American pika is a small, short-legged, rabbit-like mammal with rounded ears and no visible tail. It is often considered tail-less, however, its hidden tail is longer, relative to body size, than any other lagomorph species. The pika is found in some of Utah's highest mountain ranges, ranging from 8,000 to 13,500 feet in elevation, specifically above timberline on rocky, talus slopes near alpine meadows. The talus habitats where pika live are often distributed in patches, creating a localized island-like population structure. They are active year-round during the day, even through the harsh alpine winters, and must remain under cover during hot summer days to avoid overheating. Pika spend 30% of the day, on average, above ground, engaging in surveillance, haying, feeding, vocalizing, and territory maintenance. Its summer fur is short, but it grows nearly twice as long during the winter to protect it from the harsh conditions.

Pika are herbivores, eating a variety of grasses, sedges, and other plant species that are somewhat locally distinct. Starting after the breeding season, pika stockpile extra food, especially forbs and tall grasses, in haypile-structures inside their burrows to be used as a winter food source. Before stockpiled, vegetation is laid out to dry in the sun, curing similarly to farmers' hay. Pika are solitary, and notoriously unsocial.

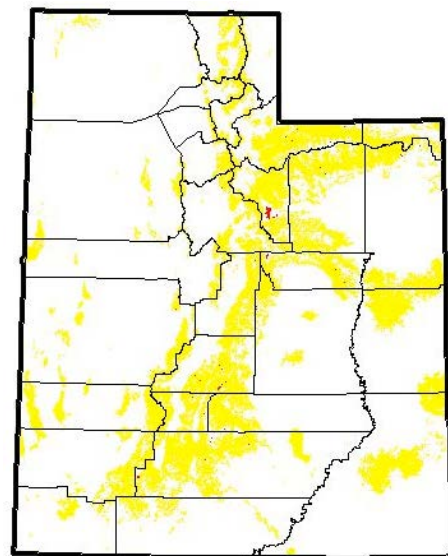
Major predators include coyotes, weasels, and the American marten. Because pika are adapted to living at colder elevations, climate change has caused this obligate alpine species to disappear in much of its southern range, including Utah. It has already disappeared from 30% of its known range during the 1900's.

Silver-haired bat

Lasionycteris noctivagans



- Common summer resident up to 9,000 feet in Utah
- Nocturnal opportunistic omnivore
- Mates on wintering grounds
- Female delays implantation and migrate north in summer
- Male remains on wintering grounds



The silver-haired bat is 4 inches long, with brown to black fur that is tipped silvery-white, giving it a frosted appearance. Common throughout most of the United States and into Canada, the silver-haired bat migrates south in winter. In Utah, it is both a summer resident and a winter migrant that can generally be found up to 9,000 feet in elevation. It prefers a woodland habitat, consisting of either deciduous or coniferous forests near water.

Like most bat species, the silver-haired bat is a nocturnal forager, emerging early in the evening to feed throughout the night. It is an opportunistic insectivore, with a characteristic slow flight pattern that it uses while feeding on a variety of insects including moths and flies. It is generally considered a solitary, tree-roosting species that is found roosting under slabs of bark during the daytime. Winter hibernation does occur, but little is known. Silver-haired bats mate after the fall migration, but they delay implantation until the spring, when the females migrate north and congregate in small maternal colonies. Females then give birth to 1 or 2 young each summer, which cling to the female for several days following birth. Young remain at the roost site for about 3 to 4 weeks before they are able to fly. Unlike the migrating females, males commonly remain near their wintering grounds year-round since mating has already occurred and they do not obtain sufficient benefits from a spring migration.

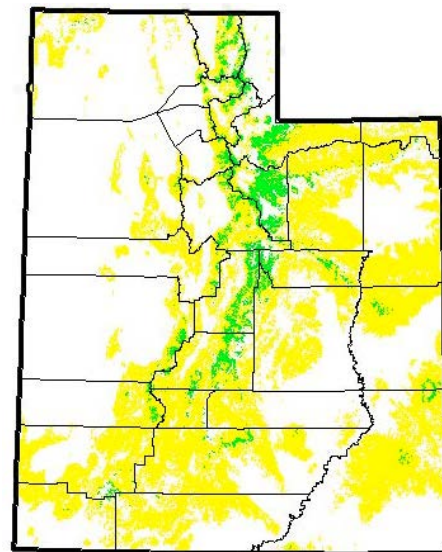
Known predators include skunks and great horned owls. Rabies occurs in about 10% of silver-haired bats, with the highest proportion recorded in juveniles during August and September.

Bushy-tailed woodrat

Neotoma cinerea



- Common in Utah up to 14,000 feet
- Active year-round, but nocturnal
- Builds dens in rock crevices
- Dense fur aids in surviving winter
- Scent glands aid in marking territories

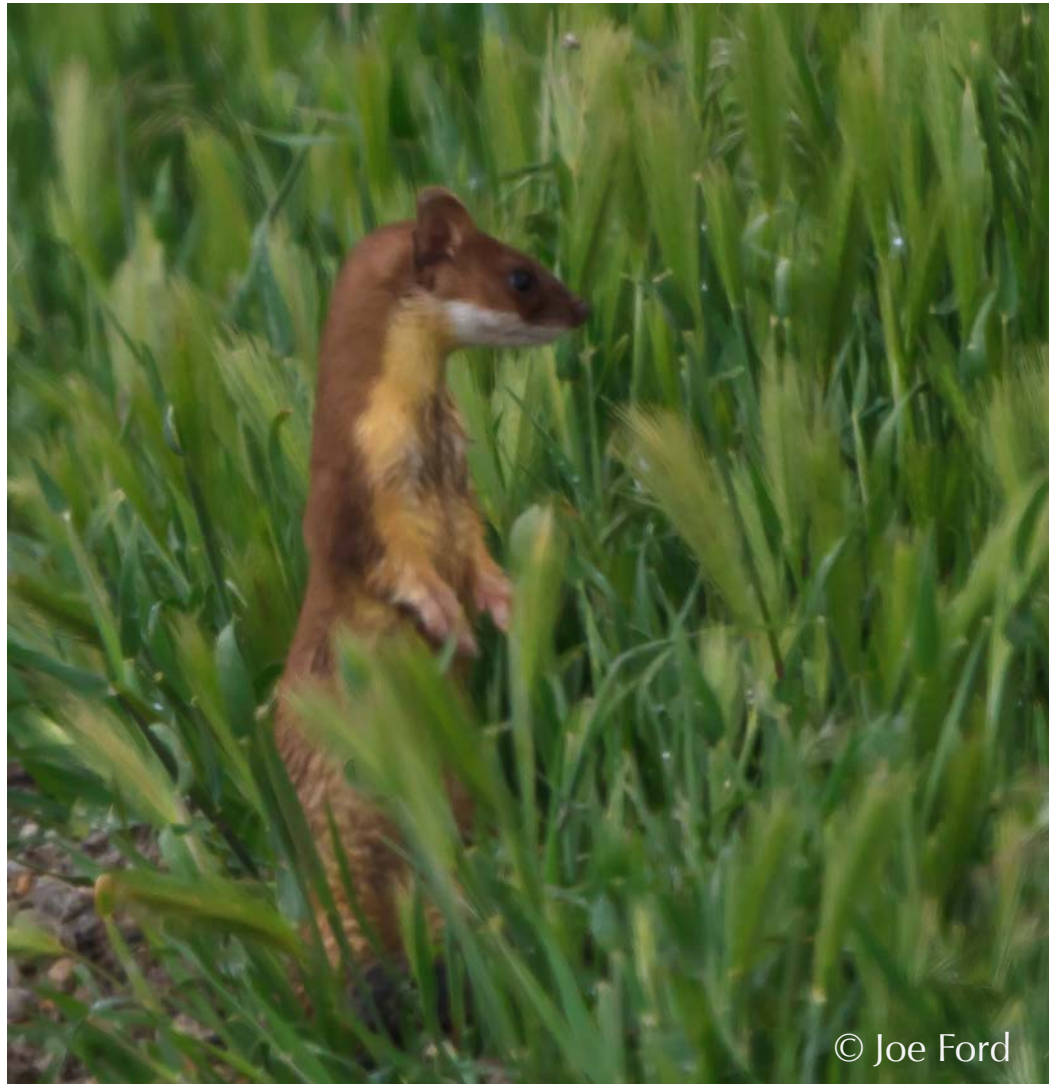


Throughout western North America, bushy-tailed woodrats are excellent climbers that are found in a variety of rocky, mountain habitats up to 14,000 feet. The bushy-tailed woodrat collects sticks and debris to build dens in rock crevices. It is a primarily nocturnal species that is active year-round, and therefore does not hibernate. It feeds primarily on plant material such as leaves, twigs, seeds and fruits, and may store food in its den for winter. Because of its plant-based diet, the bushy-tailed woodrat has a large, well-developed cecum for plant fermentation and digestion. Its body color is linked to climate types, ranging from pale gray in arid climates to dark brownish-black in humid climates. Because of its long, dense fur, woodrats can survive through harsh winter conditions, but like the American pika, it cannot tolerate high ambient temperatures. As a result, their dens are important in maintaining thermal regulation during the daylight hours. Temperatures within their dens may only change a couple of degrees per day, while outside air temperatures may change 15° to 20° C.

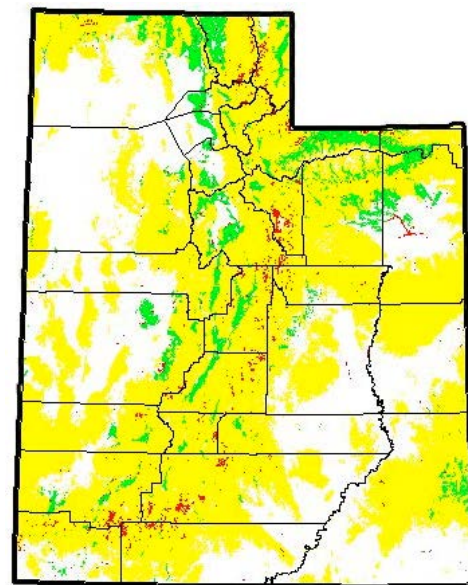
Like many other woodrats, the bushy-tailed woodrat has well developed scent glands that produce a persistent musky odor used in mating and marking territory boundaries. The mating system is considered a harem polygyny, where the male's territory encompasses the range of multiple females. The bushy-tailed woodrat is susceptible to a variety of ectoparasites, and common predators include weasels, martens, coyotes, bobcats, owls, hawks, and some snake species.

Long-tailed weasel

Mustela frenata



- Common throughout Utah
- Habitat generalist, but lives where prey is abundant
- Primarily nocturnal carnivore
- Turns white in winter, except for the black tip of its tail
- Uses an extensive burrow system



The long-tailed weasel is common throughout Utah, and is recognized as a habitat generalist that lives in forests, meadows, marshes, and fields. Preferred habitats are usually controlled more by abundance of prey items, the number of abandoned burrows to be used as dens, and proximity to a standing water source. Although it is primarily considered a nocturnal carnivore, the long-tailed weasel can be active at any time. Above ground, it forages in a zig-zag pattern, covering more area, but it also forages underground in rodent burrows. Its diet primarily includes small rodents and rabbits, but insects, birds, and other small animals are also eaten.

The long-tailed weasel's coloration is very unique, with two molting periods that are hormonally controlled—one where it turns mostly brown above with a light belly during the spring, and the other when it turns completely white, except for the black tip of its tail, during late autumn. These coloration molts help the weasel camouflage itself partly to increase survival and hunting success.

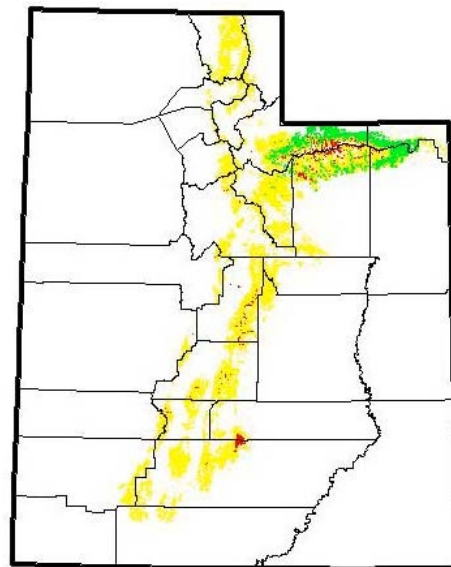
Mating occurs during the middle of the summer, but the female delays implantation of the embryo until the following spring. The young are born 27 days later. Nests are usually located within the burrows of another animal, but can also occur under rocks or brush piles. Several other burrows usually radiate from the nest site, and are used for food caches or latrines. The long-tailed weasel is susceptible to many parasites, including fleas, lice, and mites, many of which are transferred from their prey species.

Snowshoe hare

Lepus americanus



- Common in high montane forests in Utah
- Usually nocturnal
- Breeding success is related to winter snowpack levels
- Populations fluctuate in cycles every 1 to 17 years
- Keystone prey species



The snowshoe hare is found throughout most of northern North America. In Utah, the snowshoe hare is mostly limited to high-mountain, coniferous and aspen forests, thickets of willow and alder, and sometimes Gambel oak scrublands. It is a crepuscular to nocturnal species, meaning that it is active near dusk, throughout the night, and into the early morning. The snowshoe hare feeds on a variety of plant materials, including buds, twigs, evergreen needles, bark, and green vegetation when available. Snowshoe hares are active year-round, and the onset of spring breeding is stimulated by new vegetative growth. Reproductive success is positively correlated with winter snow depth; the deeper the snow pack, the greater the amount of upper-branch browse that can be eaten throughout the winter and into the breeding season.

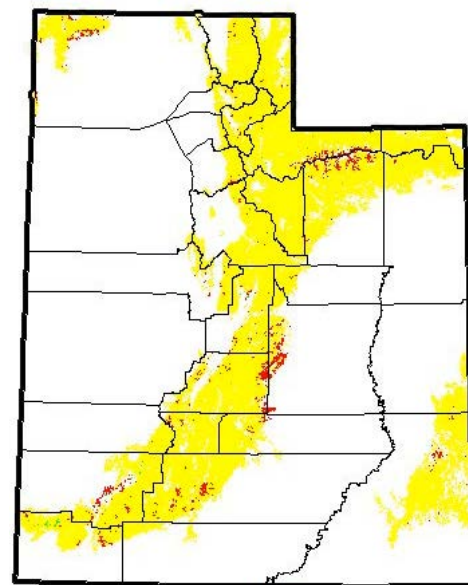
The snowshoe hare grows long white guard hairs that cover its brown fur during the winter, creating camouflage to avoid predation. Many northern populations of snowshoe hares undergo cycles ranging from 7 to 17 years, where abundance will steadily increase, peak, and then decrease dramatically before repeating the cycle again. Scientists have linked these cycles, in some way, to a variety of causes such as solar activity affecting plant productivity, disease epidemics, stress from high densities that reduces fitness, habitat quality due to climate variations, and over-browsing or food-shortages caused by high densities. These cycles are mirrored by predator populations, specifically the Canada lynx, but a lag-time occurs, separating the two cycles by a few years. The snowshoe hare is a major prey item for many mammalian and avian predators. As such, the snowshoe hare is a keystone species in many forests.

Yellow-bellied marmot

Marmota flaviventris



- Large rodent common in forest meadows in Utah
- Eats plant matter in summer
- Hibernates in winter
- Highly social behavior



The yellow-bellied marmot is a large rodent that is usually most active during the early morning and late afternoon. It occurs throughout most of the western United States and parts of southwestern Canada, ranging from the semi-deserts to the alpine zone. In Utah, it is considered common, most often found in forest meadows from 6,500 to 11,000 feet in elevation, but has also been considered a pest in some areas where it inflicts damage upon agricultural crops.

The yellow-bellied marmot feeds on a variety of plants, especially grasses and forbs. It has a relatively low metabolism that allows it to divert more energy into fat production, which is required during its winter hibernation period (usually from around September to March). Marmots hibernate, give birth, and seek shelter in burrows that are dug under rocks or logs. Mating occurs soon after waking from hibernation, resulting in litter sizes of between 3 and 8 young. After young are born, they remain in the burrow for about a month, before emerging during the early summer.

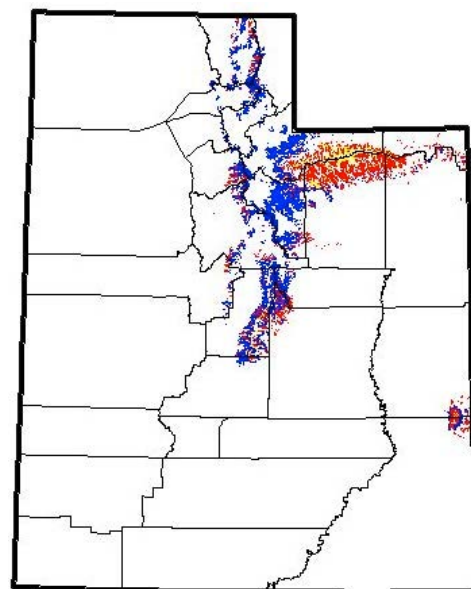
The yellow-bellied marmot is generally considered a social mammal, regularly engaging in play, greeting behavior, alert behaviors, chases and flights, and some grooming behaviors. During the day between feeding times, marmots engage in various activities such as sunning or grooming. After the mating period, a summer molt occurs in order to replace worn fur with new fur for insulation during the cold winter ahead. The yellow-bellied marmot is also considered a host for ticks that carry the Rocky Mountain spotted fever.

American marten

Martes americana



- Occurs in higher mountain forests in northern Utah
- Usually solitary
- Primarily eats small mammals
- Often enters daily torpor in winter
- Usually rests in trees high above ground



The American marten is a member of the weasel family and generally occurs in Alaska and Canada, but extends into some of the mountainous areas within the contiguous United States. In Utah, marten can be found in the northern two-thirds of the state, mainly in remote, high-elevation mountain ranges that are generally over 7,000 feet in elevation. Marten prefer forested habitats where dens can be made in logs, hollow trees, stumps, or rock crevices. It is a relatively solitary mammal, except for the breeding season. It continually travels in order to forage, maintain territories, and find protected resting sites.

The marten's diet generally consists of small mammals, but birds, insects, and occasionally fruit are consumed. Martens have a limited body-fat reserve and cannot go without food for extended periods of time. As a result, they may regularly go into a shallow torpor (daily hibernation) during winter to avoid heat loss and to conserve energy.

Male home ranges are scent marked, and are commonly maintained through aggressive interactions with other males. From March to April, females give birth to litters of 1 to 5 kits. Litter size is highly dependent upon the mother's age and the availability of food.

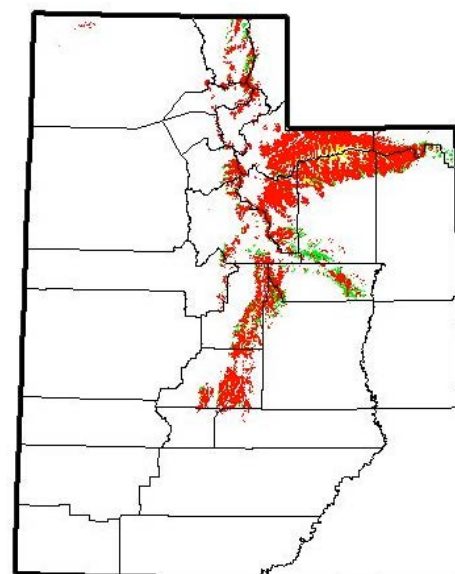
American martens are hosts to several diseases and parasites. Some of its predators are owls, eagles, foxes, coyotes, bears, and other carnivores. For protection, martens choose resting sites that provide the most protection, usually in a large tree high off the ground. Habitat loss due to timber harvesting is a major cause of population declines in many areas. Marten were historically important in the early fur-trade industry.

Wolverine

Gulo gulo



- Rare, high elevation species in Utah
- First sighting in Utah since 1979 occurred in 2014
- Generally solitary
- Active year-round
- Opportunistic feeders
- Large home ranges with low population densities



In Utah, the wolverine is considered rare, and may exist only in high-elevation mountains and alpine areas of the state. Prior to 2014, the last known sighting was in 1979. It prefers areas with snags and downed logs, with numerous den sites, abundant prey, and remote habitat that is undisturbed by humans. As such, the wolverine's range has been significantly reduced during the last century. Individuals are primarily nocturnal, generally solitary, and active year-round. They are considered opportunistic feeders, eating a variety of foods when available, such as eggs, roots, carrion, and almost any animal that it is able to kill. The wolverine is a ferocious animal that has been known to drive larger predators from their kills, and is one of the few predators that can effectively eat porcupines.

In Utah, the wolverine's home range is most likely large and densities low. Home ranges commonly overlap with those of other wolverines, but since no territory is maintained, their scent markings are suspected to relay their current position to other individuals. Wolverines are polygamous during the late spring mating season, and females delay implantation until the following January. Dens are made in snow drifts near fallen trees and talus boulders, and are used mostly for raising young. Litters average 2 to 3 young every 2 to 3 years. The young kits are weaned after 10 weeks, but remain with their mothers until they are 1 to 2 years old. Disturbance at the den site may result in den abandonment.

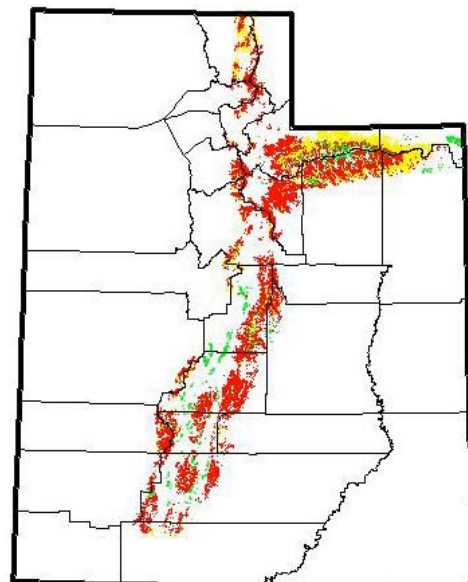
Predators of the wolverine include mountain lions, black bears, and golden eagles, but predation occurs most commonly on the young kits. Habitat loss and over-trapping are more common threats to the wolverine.

Canada lynx

Lynx canadensis



- Uncommon and rarely seen in Utah, the southern end of its range
- Prefers high mountain coniferous forests
- Generally solitary
- Preys almost exclusively on snowshoe hares
- Populations fluctuate with those of snowshoe hares



Utah is considered the southernmost boundary of the range of Canada lynx, and it is listed as a sensitive species that is rarely seen. Canada lynx have been sighted in Utah less than five times in the past 20 years. Its elusive nature is most likely because it is primarily nocturnal. Canada lynx prefer high mountain coniferous forests, using a variety of forest-successional types. Early- to mid-successional forests are used for hunting, and late-successional forests are used for raising young. However, its distribution, habitat choice, population density, foraging behaviors, and reproductive capacity are largely dependent upon its primary food item, the snowshoe hare. Canada lynx populations follow the same 7-17 year cyclical pattern as the snowshoe hare. As snowshoe hares become abundant, the lynx population follows the increase of the hares. Increased predation from high lynx densities then force the hare population to plummet, after which the lynx population follows. Although the lynx cycle mimics the hare cycle, there is a lag time, where lynx densities do not change until a few years after the snowshoe hare population has changed. Although its primary food source is the snowshoe hare, Canada lynx also eat a variety of other animals such as squirrels, grouse, foxes, or ungulate calves when available.

Canada lynx are solitary, and breed from late winter to early spring with an average litter size of 3 to 4 kittens. Females may remain in contact with their offspring for life.

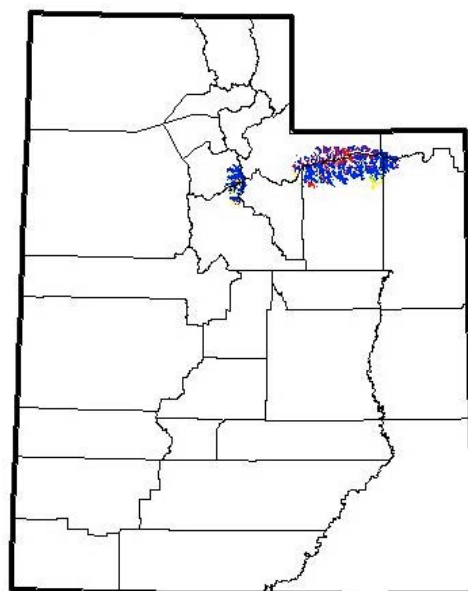
Predators include mountain lions, wolverines, and wolves. Mortality is commonly caused by starvation under periods of low snowshoe hare densities, but habitat alterations due to logging, clearing, and road construction are considered to be the most significant threats to this species.

Mountain goat

Oreamnos americanus



- Re-introduced to Utah in the '60's
- Occurs in limited high elevation mountains
- Horns on males and females
- Polygynous breeding habits
- Golden eagles prey on mountain goats by knocking them off cliffs



Mountain goats occur throughout northern North America. Historically, mountain goats were likely native to Utah, but did not occur here recently until they were first re-introduced into Little Cottonwood Canyon the 1960's. Today, they occur in the Wasatch, Uinta, Tushar, and La Sal Mountains. Mountain goats are exceptional rock climbers that prefer steep and rugged habitats at or above timberline up to around 11,000 feet in elevation.

The mountain goat's horns are present on both males and females, have annual growth rings that can be used to age an individual, and are effective weapons against other mountain goats or predators. Their summer diet consists of grasses, forbs, and shrubs, with increased usage of lichens, mosses, and conifers during the winter. Salt is commonly a limited resource, and is regularly obtained by licking soils or rocks that have highly concentrated salts.

Mountain goats typically migrate in winter to southwest facing slopes at lower elevations where the snowpack is limited. They have a polygynous breeding system where a male breeds with multiple females. The breeding season occurs from October through December, and females give birth to 1 or 2 kids per year between May and June. Mountain goats have an interesting hierarchical order during the non-breeding season, when adult males are subordinate to both adult females and juveniles.

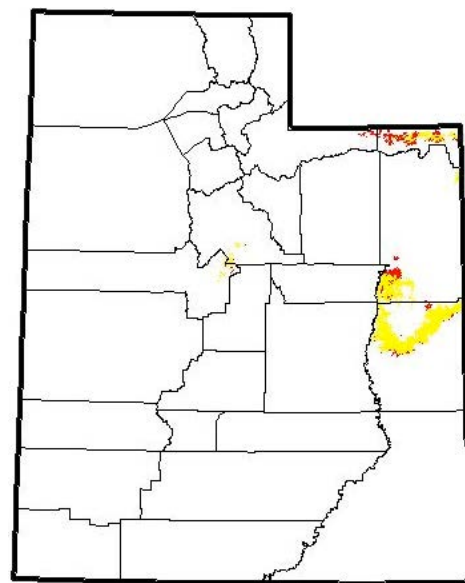
Mammalian predators include coyotes, mountain lions, and bobcats, but golden eagles are probably the most significant natural predator, frequently knocking goats off of cliffs or taking the young kids. Hunting also occurs, as the mountain goat is considered a trophy species.

Rocky Mountain bighorn sheep

Ovis canadensis canadensis



- Native to Utah, but have a limited range
- Prefers rocky, mountainous slopes
- Male competes for females by clashing heads
- Conservation efforts have resulted in more populations in the state



The Rocky Mountain bighorn sheep is native to rugged mountainous areas throughout western North America, but has been eliminated from a large portion of its historic range. A great effort has been put toward reintroducing the bighorn sheep in Utah, starting on Antelope Island where there were no predators. When mature animals were taken from Antelope Island to other mountains throughout the state, they had high mortality rate because they had no knowledge of predators. Younger animals were able to adapt to avoiding predators over time.

Rocky Mountain bighorn sheep prefer steep, rocky mountainous slopes during the summer, but may migrate to lower elevation valleys during the winter. Bighorn sheep usually live in groups, with mature male groups (bachelor groups) often separate from female groups and their young. Males and females both have horns, but male horns are significantly larger, and form a full curl as adults. Feeding on grasses and forbs commonly occurs in high mountain meadows and grasslands, near escape terrain such as cliffs and rocky outcrops.

A male bighorn sheep mates with multiple females during the rut, usually in November or December. Dominant males are established through extremely physical head clashing and displays.

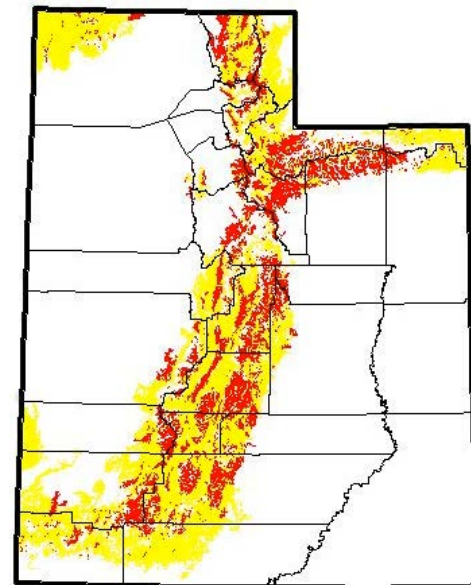
Wolves, coyotes, mountain lions, and bobcats are predators of bighorn sheep, but the number of bighorn lost to predation is usually minimal. Other impacts to bighorn sheep include hunting only mature rams, disease and parasites mostly from domestic livestock, habitat alteration, and competition from other large ungulates.

Elk

Cervus canadensis nelsoni



- Common in mountains throughout the state
- Migrates to lower elevations in winter
- Possibly contributes to sudden aspen decline
- Important game animal



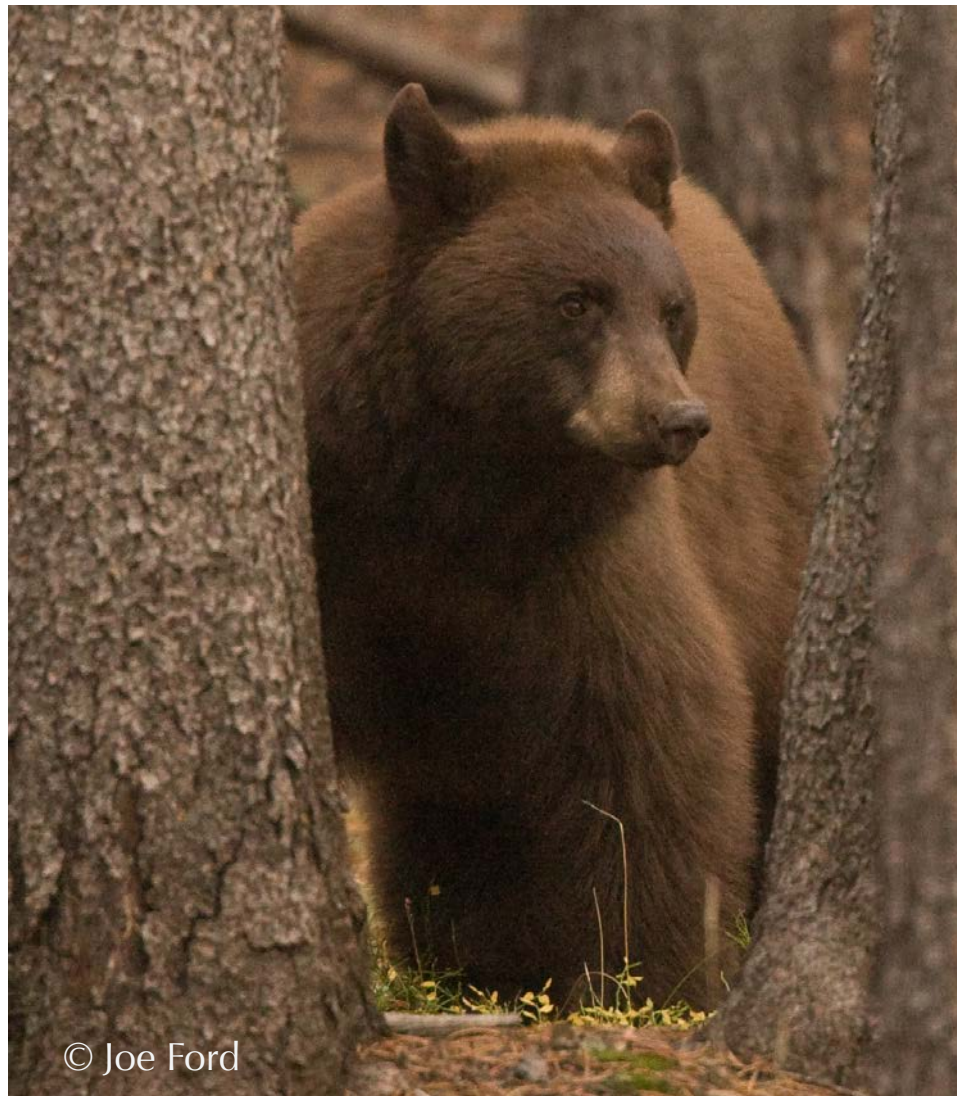
Elk are native throughout North America and eastern Asia, but have been introduced into other areas throughout the world, such as South America, because it is such a popular big game animal. In Utah, elk are commonly found throughout most of the mountainous regions within the state, where they live in mountain meadows and forests during the summer, and foothills and valley grasslands during the winter. Seasonal migration to lower elevations allows elk to avoid deep snow and find food year-round. The diet of elk is comprised primarily of grasses, but may also consist of forbs, shrubs, and browse species when necessary. Sudden Aspen Decline, which occurs when aspen forests do not regenerate and mature tree clones die-off, is suspected to be linked to over-browsing of young saplings by ungulate species, specifically elk. With recent increases in elk populations, overgrazing from elk has occurred in some areas.

During the autumn breeding season, known as the rut, dominant bulls gather harems of cows and protect them from other bulls. Females usually give birth to one calf, rarely two, during the late May to early June. Young become sexually mature at 1.5 years old, but males do not usually reproduce until they are older and strong enough to compete with other mature males.

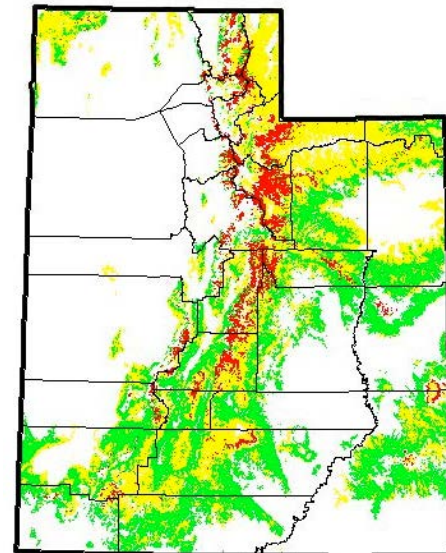
Predators may include humans, wolves, coyotes, black bears, and mountain lions. Hunting is very common for this species, with over 25,000 permits sold annually in Utah, but a large majority of these permit holders will never fill their tag.

Black bear

Ursus americanus



- Common throughout Utah's forests
- Opportunistic omnivore
- Requires a diverse array of habitats
- Generally solitary
- Sleeps in winter, but does not hibernate



The American black bear is native to most of Canada, Alaska, much of the continental United States, and even into Mexico. In Utah, black bears are common throughout many of the state's forested areas. They are omnivorous, eating fruits, green vegetation, nuts, insects, grubs, small vertebrates, and carrion. Black bears are usually diurnal, but they can be nocturnal at times when human-based food sources are available. Females are usually more nocturnal than males in order to improve their physical condition for breeding, denning, and lactation. Black bears require a diverse habitat consisting of forests, riparian areas, meadows, and edge habitats. Black bears are generally solitary, but a few exceptions to this rule include the breeding season, mothers and their young, or congregations around seasonally abundant food.

Den sites can be found in large tree cavities, hollow logs, open nests, rock crevices, or caves. Denning occurs from late fall to early spring when bears rest, but do not undergo true hibernation by dramatically lowering their metabolic rate and body temperature. By storing large amounts of body fat during the autumn months, bears are able to go through much of the winter without eating. Black bears breed every other year during June or July. Cubs will remain with their mother until their second autumn.

Black bears have been known to infrequently attack humans, commonly while defending a cub or as a result of habituation to human food sources. Starvation is the most significant natural cause of mortality in bears, but they can also die from competition, disease, and predation from mountain lions and wolves. Human-caused mortality usually results from hunting or killing nuisance bears.

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