

WILDLIFE WATCHING GUIDE
TO
IDAHO'S BATS





Long-eared Myotis

This booklet gives basic information about bats and specific details about bats in Idaho. It offers tips on how and where to find bats on your own. You'll also learn what to do if a bat finds its way into your house and how to help protect them by providing new homes.

While there's still a lot to learn about bats, we are discovering more about their diet, life cycle, and habits. Use this booklet to bust myths and find interesting facts, so you can appreciate one of Idaho's most mysterious and important animal groups.

Bat Bit: Bracken Cave Preserve, just outside of San Antonio, Texas, is the largest known bat colony in the world. It is home to over 15 million Brazilian Free-tailed Bats and their nightly emergence is an amazing wildlife viewing experience!

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BAT BASICS



Big Brown Bat

Photo: Rita Dixon

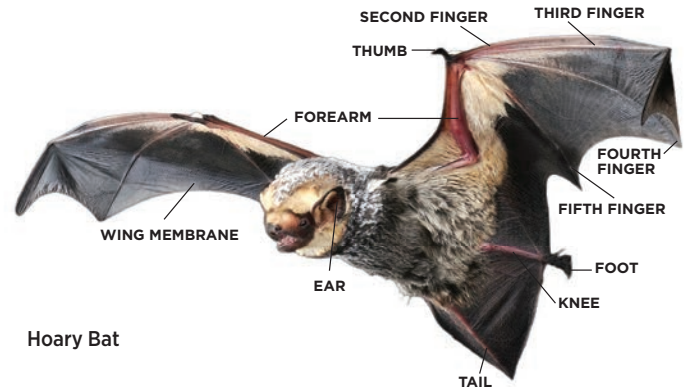
Like humans, bats are **mammals**. They are warm-blooded, covered in fur, give birth to live young, and nurse their young (called pups). Their arms and hands are modified as wings, allowing bats to fly.

Worldwide, there are approximately 1,460 bat species, accounting for nearly one-fourth of all mammal species. North America's 154 bat species are primarily nocturnal, using various roosts (resting sites) such as rock crevices and caves. **In Idaho, there are 14 species of bats, each contributing to the state's rich biodiversity.**

Helping Humans

Bats have unique abilities like flying and echolocation, which help them play diverse roles in ecosystems around the world. Different kinds of bats also have behaviors that are helpful to humans:

- Most bats, including those that live in Idaho, eat large amounts of insects, including those annoying mosquitoes. They provide free pest control by consuming the insects that damage crops, saving US farmers over 3 billion dollars annually. **All Idaho bats are insect-eaters.**
- Some bats disperse fruit seeds; most tropical trees depend entirely on bats to spread their seeds.
- Many bats pollinate flowers, like the agave plant used for making tequila.



Hoary Bat

Photo: Randy Babb

FLIGHT & ECHOLOCATION



Hoary Bat

Photo: Randy Babb

Flight

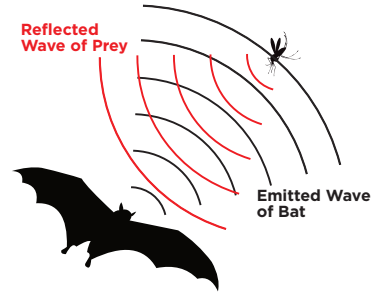
Bats are the only mammals that are capable of true powered flight. Even though flying squirrels are thought to fly, they actually glide. A bat's wing is a thin membrane of skin stretched between bones. It is very much like a human arm and hand. Bats can move the wing like a hand, essentially "swimming" through the air. The "thumb" extends out of the wing as a small claw, which bats use to climb up trees and other structures. This helps them reach a high "launching point" for flight takeoff.

Nocturnal Behavior

Most bats are **nocturnal**, which means they are more active at night. This behavior gives them a unique role in nature as nighttime insect eaters. Riparian areas, wetlands, and other water sources often host large insect populations, making these environments crucial feeding grounds for bats. Additionally, bats frequently visit these areas to drink water, often while in flight.

Echolocation

Bats navigate and find insect prey using **echolocation**. Because they fly in darkness and eat small insects, bats rely much more on their ears than their eyes. **Many bats echolocate using sounds emitted through their mouths** (and others use their nose!) when flying in the dark. That is why you see photos of bats with their mouths open. It's never a sign of aggression. They emit high-frequency sound waves and interpret the returning echoes to create a mental map of their surroundings. Echolocation is crucial for hunting in low-light conditions.



Bat detector station in the mountains

Photo: Colleen Tesse

Most echolocation calls are at such a high frequency humans can't hear them. Scientists use a machine that converts bat calls to a sound humans can hear. These "bat detectors" help us locate bats in the dark of night and to listen to bats communicating within their roost.

Echolocation is used to find objects and to perceive their surroundings. Bats make other sounds to communicate with one another. Bats are social animals and communicating is an important part of their lives.

In this recording, a Pallid Bat makes both echolocation and social calls. The audio is slowed down 10 times so the human ear can hear it.



Bat Bit: A bat's hearing allows them to locate objects as fine as a human hair. They can find food as far away as the length of a football field!

REPRODUCTION



Yuma Myotis

Despite their small size, bats exhibit a life history strategy similar to that of Grizzly Bears. They are long-lived and reproduce slowly, which helps maintain relatively stable populations. Most bat species give birth to just one pup annually, but can survive for 20 to 30 years. In contrast, animals like mice and shrews, similar in size, produce numerous offspring each year, but typically live only one to two years.

Bat Bit: Most species of bats only have one pup per year. Some species, like the Hoary Bat, have twins. However, this slow reproduction rate emphasizes why bat populations are so vulnerable.

Photo: Merlin Tuttle.org, Science Source

A YEAR IN THE LIFE OF A BAT

Mating occurs in fall and winter (between September and March). Females store sperm, and ovulation and fertilization are delayed until after awakening from hibernation in spring. The Idaho Department of Fish and Game receives reports of bats well into October, though most have migrated to their out-of-territory hibernating areas by then. Bats leave their territory for one of two reasons: a seasonal lack of food or lack of appropriate winter living quarters.

FALL & WINTER

Fall is a critical time of year for bats as they migrate or prepare for hibernation. All 14 species of Idaho bats migrate either short distances, up to about 60 miles, between their breeding and hibernating roosts seasonally. However, bats like the Hoary Bat and Silver-haired Bat, can travel up to about 600 miles to winter in the southern third of the United States, including California, Arizona, or even farther south.

Usually by April, bats emerge from hibernation and make short migrations to their summer areas in Idaho, arriving by May. Adult bats form separate roost colonies for males and females. Pregnant and nursing females seek warm roosts, where hundreds gather to maintain steady temperatures. This warmth is crucial for fast fetal development and ample milk production. Male bat colonies are cooler and typically have fewer members, sometimes just one or two bats sharing a roost.

SPRING

Bats use a variety of roosts for maternity colonies, such as rock crevices, the underside of bark, standing dead tree cavities, caves, mines, buildings, and bridges. Roosts are always within a few miles of water for drinking and foraging for insects. Bats are loyal to their roosts and may return to the same place year after year.

SUMMER

Most bat species give birth to a single pup in June to early July. Females will spend most of their energy raising the pup over the summer. Remarkably, pups can fly at approximately two or three weeks, and are weaned and self-sufficient within a month. Nursery colonies start to break up by August, with the females and their quickly maturing pups moving to other feeding areas.

CONSERVING ENERGY



Yuma Myotis

Photo: Sandy Amdor

Bats have evolved strategies to conserve energy, especially during times when food is scarce or when environmental conditions are challenging.

Torpor is a short-term state of reduced metabolic activity and lowered body temperature. Many bat species enter torpor during periods of inactivity or when food is scarce. This helps them conserve energy by slowing down their physiological processes. It can last for a couple of hours to 15 hours, depending on the species and environmental conditions.

Hibernation is a prolonged state of torpor, where the bat's metabolic rate drops significantly, enabling it to survive for extended periods without food. Most bat species undergo hibernation during the winter months when insect prey is scarce.

Bats strategically choose roosting sites such as caves, tree hollows, or buildings to optimize energy conservation, avoiding exposure to harsh weather conditions and minimizing the need for additional energy to regulate body temperature.

TORPOR VS. HIBERNATION

TORPOR

- Short-term controlled reductions in body temperature and metabolism in response to lower ambient temperature, temporary food scarcity, or reproductive condition.
- Can adjust how often they enter daily torpor to manage their energy use throughout the day.
- While inactive, will enter a deep sleep where body temperature and metabolic rate will slow.

HIBERNATION

- Seasonal state of inactivity that commonly occurs in the winter.
- Can last for days, weeks, or months, depending on the species.
- Triggered by bat's own body processes, prolonged cold weather, and changes in quantity and quality of available food.
- Decreased body temperature and reduced breathing, heart rate, and metabolic rate.



Big Brown Bats

Photo: Alamy Stock Photo

BENEFICIAL BATS



Photo: Renay Baur

Supporting Cave Communities

Caves are complex and unique ecosystems. They provide homes for a diversity of creatures—many of which can only survive within the cave, relying on nutrients carried into the cave by water or other animals. Bats play a crucial role in caves because their guano (droppings) serves as a powerful fertilizer, supporting the growth of diverse communities of organisms that live within caves. Bat guano is more effective as a fertilizer than cow manure!

Insect Control

Bats that eat insects are called "insectivorous." They feast on insects each night, adding up to more than \$3.7 billion worth of pest control each year in the US. When bats are around to eat insects, there are fewer insect pests causing damage to crops, and farmers don't have to invest as much in pesticides. To put this in perspective, imagine a teenage boy eating 200 quarter-pound burgers a day. This is equivalent to what a bat eats in insects each night!

Pollinators

Several species of bats in the Desert Southwest and the tropics and subtropics of the Americas, eat nectar. Many types of plants in these regions rely on bats for pollination and seed dispersal, such as the blue agave. Long-nosed Bats and Long-tongued Bats are perfectly adapted to pollinate these plants and they provide extensive value to the agricultural industry. Thank a bat next time you use agave nectar or sweeten your food!

Seed Dispersal

Fruit-eating bats play important roles in distributing seeds to maintain plants and forests. These bats have larger bodies, big eyes, and live in tropical and subtropical areas such as Africa, Asia, and Australia as well as some Pacific islands, Latin America, and the Caribbean.

Prey

Just as some bats rely on thousands of insects each night for survival, other animals in the ecosystem rely on bats for their calories. Hawks, falcons, and owls eat bats. Mammals like weasels, ringtails, and raccoons sometimes attack bats while they roost.

Inspiration

Some of bats' unique features, like membranous wings and echolocation, have inspired technological innovations in engineering such as drone advancements and more effective sonar systems for navigation. The wingsuits used by basejumpers are heavily influenced by the aerodynamic design of bats' bodies.



Pallid Bat

Photo: Renay Baur



BIG BROWN BAT

Eptesicus fuscus

Species of Greatest
Information
Need



Photo: Jesse G. Ramirez, Fotoseca

Bat Beats:
Scan to Listen



©Sheri Amsel, exploringnature.org

Wingspan: 13–16 inches

Nose to tail length: 3.4–6.1 inches

Weight: 0.4–0.8 ounces

Lifespan: up to 19 years

Predators: American Kestrels, domestic cats, owls, Long-tailed Weasels, and American Bullfrogs

Identification: A medium-sized and heavy-bodied bat with a large head, broad nose, short, broad wings, and short, rounded ears. Brown to copper-colored glossy fur with blackish membranes that lack hair.

Range: Found from southern Canada through southern North America into northwestern South America, including many islands in the Caribbean. In Idaho, they occur statewide.

Habitat: Most summer roosts are located in attics, barns, bridges, or other human-made structures, where colonies of a few to several hundred individuals gather to form maternity colonies. Adult males are most often solitary in summer, but they may roost with the females or in all-male colonies. They can be found in a range of habitats from urban areas, grasslands and shrublands, forests, alpine tundra, cliffs, scree, and rock, aquatic and riverine, and subterranean habitats. Also roost in cavities of live and dead trees.

Diet: Mostly a beetle specialist but also eats moths, ants, flies, mayflies, mosquitoes, stoneflies, and other insects, including agricultural insect pests.

Behavior: First to leave their roost sites to forage in the evenings, they are fast flying, open-area foragers, often using the same feeding ground each night. Also normally flies in late afternoon. Commonly use night roosts in between foraging bouts, favoring garages, breezeways, and covered porches.

Breeding: Mating occurs in fall and winter (between September and March). In the western US, they give birth to only one pup each year, typically from May to early July.

Migration/Hibernation: Makes short-distance movements into caves, mines, inconspicuous rock crevices, and other underground structures to hibernate only during the coldest weather. Apparently hibernate alone or in small clusters of less than 20 individuals. Where most of these bats spend the winter remains unknown.

Conservation Concerns: Vulnerable in Idaho. They are a species of greatest information need. Primary threats include white-nose syndrome, collisions with wind turbines, and improper management practices for bat control activities in human structures.



CALIFORNIAN MYOTIS

Myotis californicus



Bat Bit: Soaring through the air with the greatest of ease, Californian Myotis are slow, acrobatic fliers that can detect prey at close range by using echolocation during approach.

Bat Beats:
Scan to Listen



Photo: Jose G. Martinez-Fonseca



©Sheri Amsel, exploringnature.org

Wingspan: 9-10 inches

Nose to tail length: 2.9-3.7 inches

Weight: 0.1-0.2 ounces

Lifespan: about 15 years

Predators: Owls, snakes, raccoons, small mammals, and domestic cats

Identification: Fur color ranges from dark brown to pale reddish-yellow and blonde. Their ears and wing membranes are dark brown to black.

Range: Found only in North America, from southern Alaska through the western US, south into Mexico. In Idaho, they can be found throughout most of the state.

Habitat: Found in a variety of habitats from forest to desert conditions. It appears to be more common in areas close to water.

Diet: Small flying insects like moths, beetles, and flies.

Behavior: Emerge just after dusk and just before dawn to forage. Will continue to hunt until dawn, usually near trees, over water, and over open country.

Breeding: Mating occurs in fall. One pup born usually in July.

Migration/Hibernation: Hibernates in caves, mines, tunnels, or buildings from late October through March or April. Males and females hibernate together.

Conservation Concerns: Common throughout its range.



CANYON BAT

Parastrellus hesperus

Species of Greatest
Information
Need



Photo: Jose M. Ramirez

Bat Bit: Canyon Bats are Idaho's smallest bat!

Bat Beats: Scan to Listen



©Sheri Amsel, exploringnature.org

Wingspan: 7–9 inches

Nose to tail length: 2.6–3.1 inches

Weight: 0.1–0.2 ounces

Lifespan: Unknown

Predators: Owls and larger species of bats

Identification: Fur is buffy brown to pale smoky gray. Membranes of wings, ears, and tail are dark black and contrast well with the fur.

Range: Found from southern Washington across the southwestern US to southern Mexico. In Idaho, found in the western part of the state.

Habitat: They are commonly found in arid and semiarid regions and can be found in a variety of habitats, including deserts, canyons, open woodlands, and shrublands. The name "Canyon Bat" reflects their presence in such environments.

Diet: Feeds mostly on swarming insects such as moths, mosquitoes, and small flies.

Behavior: They start to forage early, sometimes before sunset and may remain active until after dawn. Their flight is fluttery as they are slow and weak fliers—even a slight breeze can ground them and bring them to a standstill. Roosts include rock crevices, burrows, mines, or buildings.

Breeding: Mating occurs between October and February. Maternity colonies form in May or June with twins born 40 days later. The pups are capable of flight at about one month of age.

Migration/Hibernation: Has been found hibernating in rocks, caves, and mines.

Conservation Concerns: Canyon Bat is one of Idaho's most little-known species. Listed as a species of greatest information need, the primary conservation need for this species is to learn more about its ecology and potential threats.



FRINGED MYOTIS

Myotis thysanodes

Species of Greatest
Information
Need



Bat Bit: Named after the distinct fringe of short, wire-like hairs that extend off the trailing edge of the uropatagium (the stretch of skin between its legs).



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Wingspan: 11–13 inches

Nose to tail length: 3.1–3.6 inches

Weight: 0.2–0.3 ounces

Lifespan: 18 years

Predators: Hawks, owls, snakes, raccoons, and domestic cats

Identification: Fur color is buff brown/yellowish. Blackish long ears and flight membranes. Outer edge of tail membrane is lined with small stiff hairs that are visible to the eye.

Range: Found across much of western North America from southern British Columbia through the western US to most of Mexico. In Idaho, they occur statewide.

Habitat: Found in a variety of habitats, including forests, woodlands, and desert areas. Pinyon woodlands are commonly used areas.

Diet: Gleans insects, like beetles and moths.

Behavior: Emerges early to forage, sometimes before sundown, and again before dawn. Found in a variety of roosting locations including snags, hollows in trees, buildings, mines, rock crevices, and bridges. Can roost with other bat species including Long-eared Myotis, Long-legged Myotis, and Californian Myotis.

Breeding: Mating takes place in the fall. One pup is born in late June or early July. Females and males separate during pup rearing.

Migration/Hibernation: Little is known about their migration.

Conservation Concerns: Vulnerable in Idaho. Primary threats include white-nose syndrome, improper forest management practices, abandoned mine land closures, and loss of watering areas.



HOARY BAT

Lasiurus cinereus

Species of Greatest
Conservation
Need



Photo: Jose G. May Jr./iStock.com

Bat Bit: Hoary Bats eat 40% of their weight in insects every meal. This is the equivalent of a 150-pound person consuming 60 pounds of food.

Bat Beats:
Scan to Listen



©Sheri Amiel, exploringnature.org

Wingspan: 13–16 inches
Nose to tail length: 5–6 inches
Weight: 0.7–1.2 ounces
Lifespan: 6–7 years
Predators: Owls, hawks

Identification: Can be distinguished from all other Idaho bat species by a combination of their relatively large size, frosted fur with a “hoary” appearance, golden coloration around the face, rounded ears, and furred interfemoral membrane.

Range: Found throughout the US to southern Canada and south through Mexico to Guatemala. In Idaho, they occur throughout the state.

Habitat: Hoary bats roost solitarily in foliage of both coniferous and deciduous trees, near the ends of branches, 10–16 feet above the ground.

Diet: Prefers moths, but also eats grasshoppers, dragonflies, wasps, beetles, termites, and flies.

Behavior: Emerges late in the evening. Also flies in late afternoon. Usually roosts in tree foliage 10–16 feet above ground with dense foliage above roost and open flying room below, often at edge of clearing. Females do not form nursery colonies. They sometimes carry young on feeding flights, but usually leave them hanging from twigs.

Breeding: Breeds from September–November, during migration. A litter of one to four pups (usually two) is born mid-May to early July in Idaho. They can fly at four weeks.

Migration/Hibernation: A long-distance migrant. Some individuals migrate more than 1,200 miles. Individuals overwinter in warmer, more southern climates, although wintering sites have not been well documented and no specific migration routes have been identified. Hoary Bats are often found flying in waves of large groups during fall migration, whereas spring migration is apparently less organized.

Conservation Concerns: Vulnerable to emerging threats such as wind energy development, loss of forest roosting habitat, and climate change.



LITTLE BROWN MYOTIS

Myotis lucifugus

Species of Greatest
Conservation
Need



Bat Bit: A single Little Brown Myotis can eat up to 1,200 insects in an hour!

Bat Beats:
Scan to Listen



Jason Corbett, Bat Conservation International



@Sheri Amsel, exploringnature.org

Wingspan: 9-11 inches

Nose to tail length: 2.6-3.8 inches

Weight: 0.2-0.5 ounces

Lifespan: 2-9.5 years

Predators: Owls, hawks, ravens, small carnivores, mice, snakes, and domestic cats

Identification: Fur on back has a glossy appearance and ranges in color from dark sooty brown through paler golden brown and pallid, to yellowish or olive brown.

Range: Found throughout most of Canada and US, being absent or, at best, rare in Arizona, southern California, Florida, Louisiana, New Mexico, Texas, and north of the treeline across Canada and Alaska.

Habitat: Many habitats used including forests and woodlands, open water, riparian areas, shrublands, and urban environments.

Diet: Consists of flies, moths, beetles, wasps, caddisflies, mayflies, leafhoppers, planthoppers, waterboatmen, spiders, and mosquitoes.

Behavior: Emerge from roost at dusk and most active two to three hours after sunset. Highly maneuverable, prefer to forage over water, but also forage among trees or in open clearings. They glean prey from leaves and bark or off the ground or water. Sexes segregate in summer with females forming maternity colonies of hundreds to thousands of individuals.

Breeding: Usually mates from September to October before hibernation. Maternity colonies form and one pup is born late-spring to early summer.

Migration/Hibernation: In Idaho, typically hibernates from October until late March to early May, depending on local weather conditions.

Conservation Concerns: Primary threats include white-nose syndrome, fatalities from wind turbine strikes, improper bat eviction and exclusion methods, and changing climate such as extreme temperatures and drought.



LONG-EARED MYOTIS

Myotis evotis

Species of Greatest
Information
Need



Bat Bit: Pregnant Long-eared Myotis often roost at ground level in rock crevices, fallen logs, and cracks in stumps.



©Sheri Amsel, exploringnature.org

Wingspan: 10–12 inches

Nose to tail length: 3.5–4.0 inches

Weight: 0.2–0.3 ounces

Lifespan: 22 years or more

Predators: Snakes, raccoons, hawks, owls, and domestic cats

Identification: Fur dull or pale brownish to straw-colored overall, with individual hairs black at the base. The dark to blackish long glossy ears extend past the tip of nose when laid forward.

Range: Resident of the West. They are widespread from southwestern Canada, the western US, and Baja California. In Idaho, they may be found throughout the state.

Habitat: Found in a wide range of habitats often associated with forests—under loose bark, cavities in trees, and in stumps resulting from logging. May be found in shrub communities, crevices in cliffs and rocks on the ground, in lava-tube caves, and abandoned mines. It has also been found occasionally in buildings and under bridges.

Diet: Moths and beetles. Other insects include lacewings, true bugs, wasps, flies, and spiders.

Behavior: Emerge from their roost site at dusk to feed. Roost sites are located usually in rocky areas, but hollow trees, mines, caves, and loose bark are also used. They glean prey from leaves and bark, locating them by listening for the sound of their fluttering wings. These bats are adapted to forage in cluttered environments, relying on echolocation to navigate and locate their insect prey. Sexes segregated in summer with females in small maternity colonies.

Breeding: Mating takes place before hibernation. A single pup is born, as late as mid-July in northern Idaho.

Migration/Hibernation: Winter hibernation probably occurs in caves, mines, and deep rock crevices.

Conservation Concerns: Forest management practices that remove actual and potential roost sites, white-nose syndrome, abandoned mine closures, and snag removal.

IDAHO'S BATS



BIG BROWN BAT
Eptesicus fuscus



CALIFORNIAN MYOTIS
Myotis californicus



LONG-LEGGED MYOTIS
Myotis volans



PALLID BAT
Antrozous pallidus



CANYON BAT
Parastrellus hesperus



FRINGED MYOTIS
Myotis thysanodes



SILVER-HAIRED BAT
Lasiorycteris noctivagans



SPOTTED BAT
Euderma maculatum



HOARY BAT
Lasiurus cinereus



LITTLE BROWN MYOTIS
Myotis lucifugus



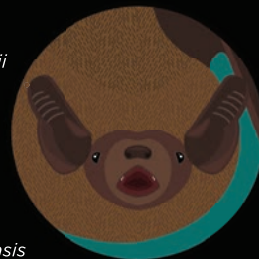
**TOWNSEND'S
BIG-EARED BAT**
Corynorhinus townsendii



**WESTERN
SMALL-FOOTED MYOTIS**
Myotis ciliolabrum



LONG-EARED MYOTIS
Myotis evotis



YUMA MYOTIS
Myotis yumanensis



LONG-LEGGED MYOTIS

Myotis volans

Species of Greatest
Information
Need



Bat Bit: Most maternity colonies of Long-legged Myotis live in trees at least 100 years old.

Bat Beats:
Scan to Listen



Photo: Jose G. Martinez-Fonseca



©Sheri Amsel, exploringnature.org

Wingspan: 10–12 inches

Nose to tail length: 3.4–4.4 inches

Weight: 0.2–0.4 ounces

Lifespan: up to 21 years

Predators: Hawks, owls, and snakes

Identification: Upper fur is usually cinnamon to chocolate brown. Dense fur on the underside of the wing membrane extends from the body to a line joining the elbow and knee, the only Idaho species with this characteristic. The ears are short, rounded at the margin and barely reach the end of the nose when laid forward.

Range: Found across much of western North America from southeastern Alaska to central Mexico. In Idaho, they may occur statewide.

Habitat: Occurs in a variety of habitats from desert to mountainous coniferous forests, where it appears to be most common, especially if open water occurs in the area.

Diet: Mostly moths, but will also eat leafhoppers, lacewings, termites, flies, and small beetles.

Behavior: Emerge early, during twilight. Hunts all night, with peak foraging three to four hours after sunset, around tree canopies and over water. Will hunt over long distances. Summer day roosts include cliff crevices, cracks in the ground, hollows in snags, or hollow areas under loose bark and in living trees, and old buildings.

Breeding: Mating takes place during the fall. Females form small maternity colonies in crevices in rocks, trees, and stream banks. A single pup is born mid-summer.

Migration/Hibernation: Hibernates in caves and mines.

Conservation Concerns: Forest management practices that remove actual and potential roost sites, impacts of abandoned mine land reclamation, and white-nose syndrome.



PALLID BAT

Antrozous pallidus

Species of Greatest
Information
Need



Bat Bit: To protect themselves from predators, Pallid Bats produce a skunk-like odor from wart-like bumps on their face as a defense mechanism.

Bat Beats:
Scan to Listen



Photo: Jose G. Martinez-Fonseca



©Sheri Amiel, exploringnature.org

Wingspan: 15–16 inches
Nose to tail length: 4–4.9 inches

Weight: 0.5–1.2 ounces

Lifespan: 10 years in the wild

Predators: Cats, fox, raccoons, owls, snakes, and hawks

Identification: Fur is yellowish to pale-creamish brownish. The ears are large, up to five-eighths of an inch across at the base and broadly rounded along the margin.

Range: Occurs from south-central British Columbia to central Mexico and throughout much of the arid regions of the American West. In Idaho, occurs primarily in the arid portions of the state.

Habitat: Frequent semiarid and shrub-steppe grasslands and to a lesser extent, montane shrublands and dry coniferous forests.

Diet: Feeds on ground-dwelling arthropods, such as scorpions, crickets, grasshoppers, beetles, and gleans prey from vegetation, such as cicadas, katydids, and praying mantises.

Behavior: Emerge from their roosts rather late, in comparison to other bats. They are very social and mothers and offspring may feed together at sites containing abundant prey. Roosts include rock crevices, tree hollows, mines, caves, and a variety of artificial structures, including vacant and occupied buildings. Use their large ears to listen for the sounds of prey moving on the ground. Pregnant females gather in summer maternity colonies within warm rock crevices, abandoned mines, caves, hollow trees and in cavern-like building features (e.g., attics). Can handle and eat scorpions on the ground and appear to be resistant to scorpion venom.

Breeding: Breeding typically occurs between October through December, but as late as February. One to two pups are born in late spring to mid-summer, typically from May to July, depending on local climate.

Migration/Hibernation: They are largely inactive in winter and believed to hibernate as solitary individuals or in small numbers.

Conservation Concerns: Sensitive to noise pollution. Conservation challenges include the conversion of native foraging habitats to other land uses, pesticide poisoning from consuming contaminated prey, human disturbance, and persecution.



SILVER-HAIRED BAT

Lasionycteris noctivagans

Species of Greatest
Conservation
Need



Bat Bit: Silver-haired Bats occasionally fly during the day. They seek out sunny locations (like a side of a building) to sunbathe.

Bat Beats:
Scan to Listen



Photo: Jose G. Martinez-Fonseca



©Sheri Amsel, exploringnature.org

Wingspan: 11–13 inches

Nose to tail length: 3.1–4.5 inches

Weight: 0.3–0.4 ounces

Lifespan: up to 12 years

Predators: Crows and magpies, skunks, owls, and domestic cats

Identification:

Medium-sized bat with short, rounded, black ears and dark brown to black fur with silvery-white tips giving them a frosted or silvery appearance.

Range: Found throughout most of North America, ranging as far north as southeastern Alaska and southern Canada south to northern Mexico. In Idaho, they occur throughout the state in a variety of habitats.

Habitat: Although commonly regarded as a solitary tree-roosting bat, they can be found in a variety of habitats including forests, woodland ponds and streams, and shrub-steppe.

Diet: Variety of small swarming insects such as moths, mosquitoes, and small flies.

Behavior: Usually solitary except when found in small maternity colonies and during courtship/mating in the fall. Roosts under tree bark or in cavities. They may also be found in buildings, using open air structures like garages and barns. Feeds mid-flight but will occasionally go to the ground to get their food. Pregnant females gather in summer maternity colonies. Just before giving birth, females will roost with their heads facing upwards and hold their tail membranes forward to form a cup-shaped basket to catch their pups as they are born.

Breeding: Breeding occurs primarily in the fall. Females give birth to two pups in June or early July.

Migration/Hibernation: Some populations migrate long distances, while others are short-distance migrants, and some hibernate.

Conservation Concerns: Population size in Idaho is unknown. Wind energy is the biggest problem for these bats as they are one of the most common bat species killed by turbines at wind energy facilities. Forest management practices can impact both the number of available roosts and alter the habitat surrounding roosts.



SPOTTED BAT

Euderma maculatum

Species of Greatest
Information
Need



Bat Bit: The Spotted Bat is one of only two Idaho bat species with an echolocation call that is audible to humans. It resembles insect-like high-pitched metallic clicks.

Bat Beats:
Scan to Listen



Photo: Jose G. Lopez-Fernandez



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Wingspan: 13–15 inches

Nose to tail length: 4.2–5 inches

Weight: 0.6–0.7 ounces

Lifespan: unknown

Predators: American Kestrels

Identification: One of the most distinctive bats in the world, the Spotted Bat is a larger-sized bat with long, pinkish ears, and black and white markings on its fur.

Range: Found in western North America from south-central British Columbia to central Mexico. In Idaho, they occur in the west-central, central, and southwestern parts of the state.

Habitat: Found mainly in arid and semiarid regions with rocky landscapes and open habitats. In Idaho, they have been documented in the canyons of Owyhee County and along the Middle Fork of the Salmon River.

Diet: Primarily moths and other flying insects.

Behavior: Foraging begins about one hour after sunset and continues until just before sunrise. They prefer to use the same areas each night to hunt. Their echolocation sounds can be heard by humans. Day roosts are located in sheer, high cliffs. Night roosts are seldom used. Forage over a variety of habitats adjacent to cliffs, including ponderosa pine forests, rivers, open water, and dry, rough desert terrain.

Breeding: Breeding occurs primarily in the fall. Females give birth to one pup usually in mid-June to early July.

Migration/Hibernation: Wintering behavior is poorly understood, but they presumably hibernate near their summer range.

Conservation Concerns: One of the rarest bats in North America, population size in Idaho is unknown. They have low reproductive rates. Loss of shrub-steppe habitat may further reduce abundance. Like other bats, Spotted Bats are sensitive to disturbance at roosts.



TOWNSEND'S BIG-EARED BAT

Corynorhinus townsendii

Species of Greatest
Conservation
Need



Bat Bit: When roosting or hibernating, Townsend's big-eared Bats curl up their long ears. They have been given the nickname "ram-eared bat" because their curled-up ears look like ram horns!

Bat Beats:
Scan to Listen



Photo: Jose G. Martinez-Fonseca



©Sheri Amsel, exploringnature.org

Wingspan: 12–13 inches

Nose to tail length: 3.1–4.6 inches

Weight: 0.2–0.5 ounces

Lifespan:

16 years or more

Predators:

Snakes, raptors, cats, and skunks

Identification: Fur color is brown to grayish brown. The ears are brown and long, usually around 1.5 to 2 times the length of the head. Glandular lumps occur on the face between the nostrils and eyes.

Range: Found across much of western North America from southern Canada to southern Mexico. Two isolated subspecies occur in the eastern and central US. In Idaho, they occur statewide. Roost sites are most commonly in caves, cliffs, and rock ledges, but have been found in abandoned mines and other human-made/artificial structures. Prefer places that are almost completely dark.

Habitat: Variety of xeric (dry) to mesic (moderately moist) habitats, including desert scrub, sagebrush, and deciduous and coniferous forest.

Diet: Moths and other insects such as beetles, flies, and wasps. They will forage along the edge of vegetation and open areas.

Behavior: Although sometimes emerges during twilight, with foraging activity peaks one to two hours after sunset, generally appears to be a late flyer. Pregnant females form maternity colonies that consist of one or more densely-packed clusters. Large ears funnel sound into ear canal and may also provide lift during flight and assist with temperature regulation. Males and females hibernate together both singly and in small clusters of both sexes.

Breeding: Mating takes place during the fall. Females form maternity colonies in the summer in mines, caves, or buildings. One pup is usually born in June.

Migration/Hibernation: Hibernates in mines and caves, and occasionally in buildings.

Conservation Concerns: Sensitive to light and human disturbance at roost sites. Abandoned mine closures, pesticides, and conversion of native shrub-steppe to other land uses.



WESTERN SMALL-FOOTED MYOTIS

Myotis ciliolabrum

Species of Greatest
Conservation
Need



©Sheri Amsel, exploringnature.org

Wingspan: 8–10 inches
Nose to tail length: 2.9–3.5 inches

Weight: 0.1–0.2 ounces

Lifespan: 12 years

Predators: Birds, especially raptors

Identification: Upper fur is brownish and tends to have a yellowish-orange cast. Rounded black ears and a distinct black mask across the muzzle and face to the ears.

Range: Widespread and common, distributed across the western half of North America from southern British Columbia, Alberta, and Saskatchewan in Canada, throughout most of the western US and into southern Mexico. They occur throughout most of Idaho.

Habitat: This bat has been found in a range of habitats in Idaho and is likely one of the more common bats. Summer roost sites are in rock crevices, under boulders, beneath loose bark, or in buildings.

Diet: Small insects including moths, flies, true bugs, and ants.

Behavior: Leaves daytime roost shortly after sunset. Forages along cliffs and rocky slopes with peak activity between 10:00–11:00 pm and 1:00–2:00 am. Summer roost sites are in rock crevices, under boulders, beneath loose bark, or in buildings.

Breeding: Mating takes place prior to and potentially after hibernation. A single pup is born in late May to July. Nursery colonies are likely small, but little is known about group size for this species in Idaho.

Migration/Hibernation: Hibernates in caves and mines in winter (one of the last bats to begin hibernation). They are known to winter in lava-tube caves in southern Idaho.

Conservation Concerns: It is possible that this species could be affected by white-nose syndrome because of their hibernation habits. Abandoned mine land closures and human disturbance at roosts also impact this species.

Bat Bit: Western Small-footed Myotis are one of the smallest bats in North America, weighing slightly less than a quarter!

Bat Beats:
Sean to Listen



Photo: José G. Martínez-Fonseca



YUMA MYOTIS

Myotis yumanensis

Species of Greatest
Conservation
Need



Photo: Michael Durham/Minden Pictures

Bat Bit: Yuma Myotis either catch insects in their mouths or use their tail membranes as a pouch to snare larger prey.

Bat Beats:
Scan To Listen



©Sheri Amstel, exploringnature.org

Wingspan: 9–10 inches

Nose to tail length: 3.0–3.5 inches

Weight: 0.1–0.3 ounces

Lifespan: 8 years

Predators: Owls, snakes, raccoons, bobcats, and domestic cats

Identification: Similar to Little Brown Myotis. Upper fur is pale brown lacking the goldish sheen usually seen in Little Brown Myotis. Ears are rounded and are pale brown.

Range: Found throughout western North America from British Columbia south to Washington, Idaho, western Montana, southern Wyoming, Colorado, New Mexico, west Texas, and into Mexico. In Idaho, they occur throughout the state.

Habitat: Occur in a variety of western lowland habitats near water where it forages for insects just above the water surface. It is an important riparian species and likely been eliminated along many streams in western states. Summer roosts include crevices in cliffs, buildings, mines, caves, bridges, trees, and abandoned cliff swallow nests.

Diet: Moths, flies (including mayflies, midges, caddisflies, craneflies), and beetles.

Behavior: Starts feeding at dusk and usually finishes two hours after sunset. Forage for insects above the surface of slow-moving water or in vegetation close to the water's edge.

Breeding: Mating likely takes place during the fall. Females form maternity colonies that may occur in some areas in mines with high humidity. One pup is born in May to mid-July, depending on local conditions.

Migration/Hibernation: No large winter concentrations of this species have been found in Idaho.

Conservation Concerns: Little is known about the distribution and abundance of this species in Idaho and whether it migrates to areas outside of summer locations. White-nose syndrome is an emerging threat. Human disturbance at roosts is also a threat as well as improper eviction and exclusion methods.

LIVING WITH BATS



Big Brown Bats

Photo: Mike Ferguson

One of the most common ways bats encounter humans is when they set up colonies in dwellings, usually in the roof, attic, eaves, or walls. Bats enter through tiny openings in windows, walls, doors, or chimneys, like this one →

Bats can use a hole this size to enter a building.

If a bat is flying around your house, don't panic—simply turn off the lights and open all the doors and windows. The bat will find its way out.

A bat roost in your house or cabin can be a challenge. While you might tolerate a few bats, a big nursery colony may mean noise (scratching and squeaking pups) and smell (bat droppings). Bats will return to the same roost every year so plan to properly evict and exclude the bats during the active season but not during maternity season, which runs from April through August.

Bat droppings (also known as **guano**) are made up of insect parts and crumble to the touch, unlike similar looking, but solid, mouse droppings. You may see guano below roost entrances or patio umbrellas, or on outside walls or furniture.

Acceptable Practices for Managing Bats in Human Structures:

- In the absence of a public health threat, wait until after the maternity season (April through August), when flightless young might be present, to evict and exclude bats.
- In the absence of a public health threat, do not evict bats during the winter months if there is a history or evidence of winter bat activity in the building.
- During the maternity season, or when bats are suspected to be hibernating in the building, bat-proof the living space by providing “interior seals.”
- Perform a humane eviction using one-way exit devices at the primary entries/exits that allow the bats to leave the structure but not reenter, leaving them in place for at least five nights, including at least three consecutive nights of warm weather conducive to bat flight.
- Ideally, watch the vented exits on the last night before the holes are permanently sealed to verify that no bats remain inside the roost.
- Once the bats have left, perform a complete exclusion by sealing up primary entries/exits and any secondary holes, cracks, or crevices in the structure that could serve as potential entry/exit points.
- Provide alternative roost structures (specially-designed bat houses) nearby for displaced bats (see the “Backyard Insect Control” section on page page 51).



Bats can squeeze through holes less than the size of a quarter. To keep them out of your house, carefully seal all windows, soffits, and eaves with foam or caulking, and fix places where joined materials have warped or shrunk.

IF YOU FIND A BAT



Pallid Bats

Photo: Alamy Stock Photo

Safety Around Bats:

- Remember that bats, like all mammals, can contract rabies. And, like all wildlife, they should not be handled.
- If you've had any type of direct contact with a bat (particularly if you've been bitten or scratched), or you find a bat in the same room with a person who might be unaware that a bite or direct contact had occurred (e.g., a deeply sleeping person awakens to find a bat in the room or an adult witnesses a bat in the room with an unattended child), contact your local Public Health District for a risk assessment.

- If you have a bat colony in your home (e.g., attic, garage, shop), contact the Idaho Department of Fish and Game on how to safely evict and exclude bats. Unless a public health threat exists (e.g., bats getting into living spaces), the best time to evict bats from structures is from early September through mid-October, after bat maternity season and before bats go into hibernation.
- If you find a bat outdoors roosting (i.e., hanging from its toes with its head below its feet) on a wall or any other surface, including tucked horizontally into a crevice at ground level, leave the bat alone! Keep people and pets away from it.
- If you find a bat outdoors on the ground that appears to be weak, sick, or injured, and unable to fly, do not handle the bat with bare hands. Make sure the bat is safe from people, pets, and natural predators then contact the Idaho Department of Fish and Game for guidance. Sometimes the energy demands of migration, and/or the inexperience of young bats, leave bats dehydrated, weak, or disoriented.
- If you find five or more dead/sick bats at the same time in the same place, contact the Idaho Department of Fish and Game for guidance.
- Know that all bat species in the state are legally protected under Idaho Code and classified as "Protected Nongame Species." **It is illegal to harm, harass, or kill bats.**
- And, please, vaccinate your pets for rabies.

If you find a bat inside your home and can be certain that you have not had a rabies exposure, call the Idaho Department of Fish and Game for guidance on how to safely capture and release the bat outside or scan the QR code to watch an instructional video.



BATS AT RISK



Little Brown Myotis with visible symptoms of white-nose syndrome.

Bats have a low reproduction rate. They are sensitive to threats like disease and habitat loss caused by the conversion of native habitats to other land uses. Bat populations take a long time to recover from declines since most females have one pup per year, and not all pups survive their first year. This is particularly important in the face of large-scale habitat conversion, a changing climate, wind energy development, and **white-nose syndrome (WNS)**, a devastating disease of hibernating bats.

White-Nose Syndrome

A recent threat to bats is white-nose syndrome, named for a distinctive white fuzzy growth on the wings, ears, face, and tail membranes of afflicted bats.

The disease is widespread in North America across most US states and Canadian provinces. The fungus that causes the disease was first detected in Idaho in October 2021, after a decade of testing. WNS was first confirmed in Washington State in 2016 and has since spread to both Montana and Wyoming. The Idaho Department of Fish and Game is conducting winter hibernacula surveys and responding to reports of bats with abnormal behavior or deaths. It is estimated that WNS has killed millions of bats in North America since 2007. However, some bats at study sites outside of Idaho are surviving, giving hope that they may one day recover.

There is no known human health risk from WNS, but people are advised not to handle dead bats and to report unusual behavior or mortality (five or more dead/sick bats at the same time in the same place) to the Idaho Department of Fish and Game. Take good quality pictures of affected sick or dead bats. Bats should not be handled with bare hands!

The 2023 North American State of the Bats Report indicated that 52% of bat species across the continent are at risk of severe population decline.

Climate-Related Stressors

Climate change harms bats. In North America, extreme temperatures and drought are the biggest threats to bats from climate change. Bats fail to reproduce or die without enough water. Heat waves and severe winter storms have already killed many bats, and these extreme conditions continue to threaten bats and other wildlife. Renewable energy, such as wind and solar power, emit little to no greenhouse gases and are helpful toward combating climate change. However, wind energy must be managed carefully to minimize unintended impacts to bat populations.

MYTH BUSTERS

Hoary Bat

Photo: Sara Flicht

Myth: Bats are just mice with wings.

Bats are not flying mice and are more closely related to humans than any other North American mammal. They belong to the order Chiroptera, which means “hand wing.” Smaller bats, like the Little Brown Myotis, are believed to be descendants of a shrew-like ancestor. Large bats may have evolved from lemurs.

Myth: ALL bats drink blood.

There are three bat species that live off the blood of animals, primarily found in Central and South America. However, most bat species do not feed on blood. Some bats eat only pollen, while others only fruit. One bat species can even eat toxic frogs. *All bats in Idaho eat insects.*

Myth: ALL bats are rabid.

Less than 1% of bats are infected with rabies, but bats that are found grounded or have direct contact with humans deserve special assessment. Any potential contact with bat saliva, such as through a bite, scratch, or mucous membrane exposure, or even waking up in a room with a bat, should be reported to a public health professional for further evaluation. Rabies is almost always fatal, but is 100% preventable with timely and appropriate treatment following an exposure.

Myth: Bats are blind.

Bats smell, hear, taste, feel and see, just like humans. They are also able to use echolocation to navigate in darkness.

BACKYARD INSECT CONTROL

Bats are great to have near your home. By installing a bat house on your property, you can give bats a safe place to live while benefiting from their insect control services.

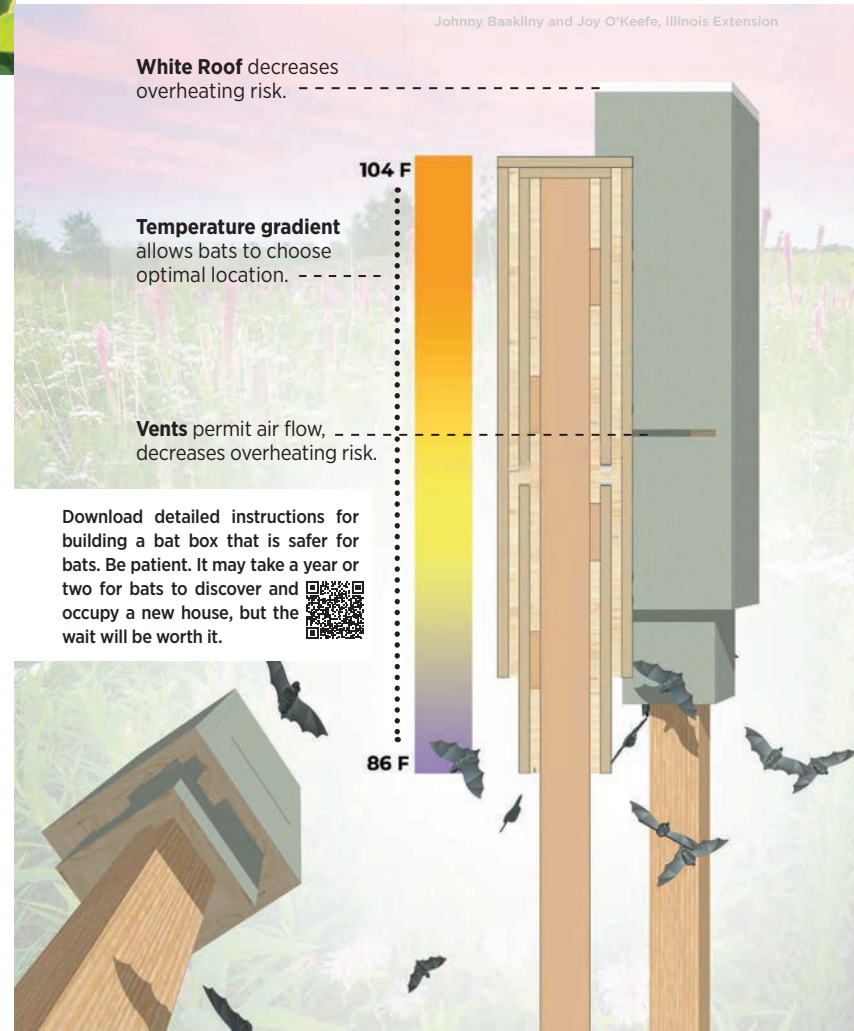
Johnny Baakflyn and Joy O'Keefe, Illinois Extension

White Roof decreases overheating risk.

Temperature gradient allows bats to choose optimal location.

Vents permit air flow, decreases overheating risk.

Download detailed instructions for building a bat box that is safer for bats. Be patient. It may take a year or two for bats to discover and occupy a new house, but the wait will be worth it.



HOW TO BE BAT FRIENDLY



Townsend's Big-eared Bat

Photo: Randy Babb

Just like us, bats need food, water, shelter, and space to survive. Some bats pollinate plants and disperse seeds, others eat insects, and many serve as prey to other animals. North American bats are experiencing unprecedented threats from white-nose syndrome, wind energy development, and conversion of their native habitat.

Here are some things you can do keep our environment healthy and **bat friendly**:

- Help feed bats by reducing the use of insecticides. Bats munch on hundreds of insects each night.
- Do not disturb roosting bats, especially in June and July when they are taking care of their pups.
- When cutting down trees, leave large snags (standing dead trees) with loose bark because these provide valuable roosting sites.
- Consider having a bat house so they'll have a safe place to live and you'll have fewer mosquitoes! Learn more about bat houses and tips for making bat boxes safer for bats on page 51.
- Share your knowledge of bats with friends to help dispel the harmful myths about bats.

BAT VIEWING



Bat house at Harriman State Park

In Idaho, bats commonly feed in areas that provide abundant insect populations and suitable water sources. Some preferred feeding locations for bats in Idaho include:

- **Riparian Areas:** these regions along rivers and streams offer a rich supply of insects, making them prime foraging grounds for bats.
- **Wetlands:** wetlands support diverse insect populations and are crucial habitats for bat foraging.
- **Forests and Woodlands:** these areas provide ample food sources and roosting sites for bats.
- **Agricultural Fields:** bats often hunt insects over fields, especially where irrigation creates temporary water sources that attract insects.
- **Lakes and Ponds:** open water bodies are important for both drinking and feeding, as they attract numerous insects.
- **Urban and Suburban Areas:** bats can also be found feeding around streetlights, parks, and gardens where insects are plentiful.

Places to view bats in Idaho:

- Idaho State Parks
- Rock cliffs near water
- Public golf courses



Photo: IDPR

A state park visitor uses a bat detector, connected to a smartphone, to record and analyze bat echolocation calls.



Western Small-footed Myotis

Photo: Rita Dixon

TO LEARN MORE

For more information on bats and other Idaho wildlife, contact:

Idaho Department of Fish and Game

PO Box 25, Boise, ID 83707

208-334-3700

idfg.idaho.gov/watch/wildlife

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