

Pallid Bat



Photo credit: Earthlink

One of the rarest mammals of British Columbia, this large-eared species of vesper bat hunts its prey using echolocation and gets its name from the ivory colour of its stomach fur.

Scientific name: *Antrozous pallidus*

Family: Vespertilionidae (evening and vesper bats)

Nick name: Sometimes described as a “ghost” bat

Characteristics

The average pallid bat measures between 9.2 and 13.5 cm (3.5 - 5 in) from head to tail, and has a wingspan of approximately 35 cm (13in). Its weight ranges from 17 to 28 grams. Its body is covered by a fine woolly fur, usually a light brown or cream-yellow colour on the back and a pale white or ivory colour on its underside. They have a blunt snout with scroll shaped nostrils. Male and female individuals are typically similar in appearance.

The pallid bat has highly prominent ears, a specialized adaption for superior auditory perception. Their ears have serrated outer edges, pointed tips and are distinguished by an elongated tragus – a tissue covering the ear opening. The tragus is believed to help the bat perceive sound through echolocation. The pallid bat also has large eyes and sharp vision to help them locate prey.

The pallid bat can be distinguished from other bats by its larger body, ears and eyes as well as its pale colouring. Unlike big-eared bats, the ears of the pallid bat are not joined at the base. They also lack the prominent nose leaf found on *Macrotus* bats.

Life Cycle

The pallid bat begins breeding in early October and through the winter, but fertilization is delayed until the spring. After mating, the female bat retains her mate's sperm in her reproductive tract until she ovulates the following spring.

Following a gestation period between 53 and 71 days, the female bat will give birth to her young, typically between May and July. While they can give birth to as many as three offspring, they most commonly have twins, weighing around 3 grams. The young are born blind, naked and helpless, entirely dependant on their mother. They do not open their eyes until five days after their birth. During this time the mother will carry her young as she forages for food. After 4 - 5 weeks they are able to fly on their own. During this period of juvenile learning, pallid bats will live in families of 2 to 3 individuals, where they learn to recognize each other through vocalizations. After one year, they are sufficiently developed to begin mating.

The average lifespan of a wild pallid bat ranges from 9 to 11 years. In captivity however, they may live up to 15 years.

Habitat

The pallid bat prefers a dry, hot climate and inhabits arid regions of south-western Canada, the western United States and parts of central Mexico. There is also a sub-population located in Cuba. Their northernmost range in Canada is restricted to the Okanagan Valley and Similkameen region of British Columbia. In America, they can be found across the western states of Washington, Oregon, California and eastwards into Texas, Oklahoma, Kansas, Wyoming and Idaho.

The pallid bat dwells mainly in arid desert landscapes with rocky outcrops. They can also be found in mountainous terrain, open grasslands, farmland and open woodlands. In British Columbia, they inhabit hot, dry regions of ponderosa pine forest.

They make roosting sites in caves, cliff faces, rock piles and crevices, hollowed out trees, mine shafts, abandoned buildings and under bridges. They use separate roosts for day and night. During the day, they roost in sites that offer shelter from the sunlight, heat, rain and wind.

Their night roosts are located near foraging areas, not too far from their day roosts. The bats begin foraging shortly after sunset, making use of their night roosts to feed and rest in between their hunting activities.

They feed primarily on invertebrates. They forage for desert insects and other ground dwelling prey including spiders, crickets, beetles, katydids, grasshoppers, centipedes and scorpions. Occasionally they will hunt larger prey, such as mice and small lizards. When searching for insects on the ground or in bushes of grasslands, forests and agricultural fields, they are exposed to nocturnal predators. They will also catch airborne prey, such as moths and cicadas, using echolocation. Once it has seized its prey, the bat will return to its night roost to feed.

Behaviour

Pallid bats make a range of vocalizations to locate members of their group, space their roosting locations, during hostile encounters, and to communicate navigational details. They use echolocation by producing high-pitched vocal signals to generate vibrations or "echoes" that in turn help them to detect their surroundings.

While they are relatively slow in flying, they are quite agile when crawling, climbing and moving on the ground. Their exceptional hearing helps to guide their nocturnal flight and detect the slightest movements of prey up to 16 feet away.

It is a highly social animal that often dwells in groups or colonies of anywhere between 12 to 100 individuals. Female pallid bats gather into maternity colonies, where they rear their offspring. There is an absence of adult males in these colonies, as they do not take part in raising the young.

In its northern range, the pallid bat is believed to hibernate during the winter, when there are fewer insects available. While it is not certain if the pallid bat migrates significant distances in the winter, they are known to roost at higher elevations, often in narrow rock crevices that provide stable temperatures (above freezing) and sufficient humidity for hibernation. Throughout the year, pallid bats regularly enter a state of torpor after feeding. They will gather together in their night roost and spend 2 to 5 hours resting at a lower body temperature and metabolic rate, to conserve energy during the cooler evening temperatures.

Threats

The pallid bat is designated as a species of “least concern” or at low risk of extinction, on the International Union for Conservation of Nature (IUCN) Red List. This is due to its relatively large, wide-ranging population.

However, the COSEWIC (Committee on the Status of Endangered Wildlife in Canada) lists the Canadian population of pallid bat as “threatened,” or at high risk of endangerment. It is also listed as an endangered species under British Columbia’s provincial Red List. The pallid bat is included under the *Species at Risk Act* (SARA), which seeks measure to prevent potential endangerment and extirpation.

The main threats to this fragile Canadian population are urbanization, extensive land development and habitat degradation – particularly in low elevation ponderosa pine forests of the Okanagan. Approximately 60% of their habitat in B.C. has been converted for agricultural activities, vineyards and urban development.

There is some concern that previous use of DDT and ongoing use of pesticides and fertilizers contaminate the insects that pallid bat feeds upon. Other threats include the reclamation and closure of mines as well as forestry practices and timber harvests.

Because the pallid bat tends to gather in large roosting colonies, a disruptive event can have a potentially devastating impact. Human encroachments, even in recreational activities such as hiking, can be very disruptive to the bats, who may abandon their roosting sites if they feel threatened.

The pallid bat's natural predators include foxes, snakes, owls, hawks and coyotes. They are particularly vulnerable to nocturnal raptors (owls) when feeding on ground insects at night.

What We Can Do To Help

Some helpful measures to protect the pallid bat:

- Refrain from using pesticides and fertilizers, which can be indirectly ingested by pallid bats when they feed on insects.
- Land acquisitions that allow for environmental stewardship and conservation.
- Keeping household pets, such as domestic cats, indoors.
- Protect areas known to be used as bat roosting sites

In 2008, the BC Ministry of Environment published a recovery strategy for pallid bats, creating the Pallid Bat Recovery Team. They team identified critical research areas, habitat conservation objectives in cooperation with landowners, and a multi-species recovery approach, to be completed by 2013.

Other Interesting Facts

- When foraging for insects amongst vegetation and flowers pallid bats help in transporting pollen, and play an important role in indirectly pollinating cactus plants.
- During their nocturnal foraging, the pallid bat can consume up to 100% of its body weight in food.
- Pallid bats have a musky odour – similar to that of a skunk – produced by their paracymbal glands. This odour functions as a defence mechanism to repel predators.

Where & When to view the Pallid bat?

Because the pallid bat hunts nocturnally, they are most likely to be spotted at night, near their preferred foraging areas. Keep in mind that roosting sites are extremely sensitive to human disruptions and allow for a generous distance when passing by these sites.

Written by Julie Whittet

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Web Resources:

Batcon.org

The Bat Conservation International website offers a comprehensive list of bat species found across the globe, and provides a short profile for each, highlighting their scientific names, distinctive qualities and maps of their habitat range.

<http://www.hww.ca/en/species/mammals/bats.html>

Hinterland's Who's Who offers a comprehensive summary of the bats of Canada.

<http://maps.iucnredlist.org/map.html?id=1790>

The IUNC Red List of Threatened Species website provides interactive maps indicating the range, distribution and observation of various species.

http://www.sararegistry.gc.ca/default_e.cfm

The SARA (Species at Risk Act) Public Registry website provides updates and news on the status of Canada's species at risk