

## BATS

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With Halloween approaching we thought some information would be in order about a much misunderstood and maligned animal – the bat. Bats as a group play an important role in the environment, and make our lives much better in many ways. The bat is the major predator of night flying insects. The bat eats an enormous amount of food to power its rapid energy consuming metabolism. A single small bat can eat 500-600 insects in a single night. A colony of 150 big brown bats can protect farmers from as many as 18 million root worms each summer. These are staggering figures. Bats are fabulously valuable in non toxic biological control by reducing huge numbers of grubs, moths, mosquitoes, beetles, and other night flying insects that are pests to us or to agricultural crops. Their guano is even mined and used for fertilizers in organic gardens.

There are over 1000 species of bats in the world, 28 of them in the U.S., and 15 of those species reside in the state of Washington. They are quite tiny ranging from 5-40 grams in bodyweight. There may be many non competing species of bat that hunt in the same area, but they split up the food and space by flying at different altitudes (low to high) and at different times of the night, all catching different types of insects. They are very specialized with lightweight, fragile long bones, big ears for acute hearing, velvety soft fur to keep warm, and to reduce air resistance. Their eyes are small and beady, and their night vision is not very useful in the dark. Instead they hunt by echolocation or a type of sonar radar. They send out a series of high pitched (supersonic) sounds which bounce off their prey and other solid objects, and are detected by their large leaf like ears. This enables them to fly in complete darkness, and sense where things are, and how far away they are just like we do in the daylight.

Most of the world's bats are insect eaters, but about a third of them consume flower nectar, fruits, fish, frogs, other bats, and one species, the vampire eats blood. The flower and fruit eaters are major night pollinators, and seed dispersers of many plants of the desert and tropics, including bananas, cashew nuts, medicinal plants, and the succulent agave which provides us with tequila.

Bats are mammals; they are not in the bird, or the mouse family. In fact they are the only mammal that flies, but they have no feathers. Their wings are specialized front legs, with a very thin, two layered membrane of skin stretched between their fingers, elbow and shoulder. This wing web extends down across the rear legs and envelopes the tail, so that they have a built -in scoop basket to help catch insects on the wing. The membrane acts like a windfoil, and enables the bat to fly. Generally bats live about 30 years. It is difficult for bats to increase their populations quickly, as pregnant females usually only have one to two pups. Bats are dedicated mothers, as they nurse and nurture their infants with tender loving care. The pup hangs onto the mother's fur until old enough to be left behind at the roost, while she goes out to hunt for food. Some pups even tag along, getting the

wildest ride of their life. Bats are found in variable habitats all over the world, except the coldest parts of both poles, and the driest, hottest parts of deserts.

Bats are very shy, and not aggressive. Contrary to an old wives tale, they do not try to attack your head, and get into your hair. When a bat is trapped in a building they will either land, or try to escape by flying. Any flighted animal, whether bird or bat will attempt to catch air under the wings to get more altitude. The best way to do this is to glide downwards slightly from the corner to the center of the room. This act of dropping down is usually toward where we frightened, surprised humans reside in the middle of the room. It seems to us that they are attacking us and trying to get into our hair, but this is simply not true, as they are more afraid of us than we are of them.

More than any other factor, the movie industry has put fear of bats into the human psyche. There have been over 130 movies made about Dracula and the vampire bat. Coupled with the mystery that bats are creatures of the night, and may carry Rabies has definitely given the bat a much undeserved bad name. In actuality, there are only three species of vampire bats living in Mexico, central, and northern South America. These bats do indeed feed on the blood they obtain from small bite wounds they create in the host animal. They do not kill their victims, although some animals may become anemic if fed on multiple times by many bats. The vampire has been useful in research, as an important drug has been made from an enzyme in their saliva called (desmoteplase). The drug is used in combating blood clotting in heart disease and stroke.

There are no vampires around here, only useful and friendly bats that mind their own business, and eat a lot of bugs. They can be seen just at dusk as they begin to fly about looking for insects to eat. The best place to see bats is around bodies of water. Ponds, rivers and lakes provide the habitat where the insects congregate. The bats fly out from their colonies or hiding places where they have slept all day hanging upside down. They first look for water to get a big drink before they begin to hunt. Colonial bats will live in caves, tunnels, mineshafts, between the cracks and crevices amongst old buildings and cliffs, or under bridges. Solitary bats rest amongst the foliage of dense trees, under layers of bark or in a hollow in a tree, in woodpiles, and even inside our homes. One of their favorite places is to rest in between the framing inside roof attics, or in walls next to the chimney [BATS IN THE BELFRY]. They like to be in these cramped tight places, and seek the southeast side of the building where the morning and midday sun can warm them up. Although bats are warm-blooded they do have the ability like hummingbirds and bears to go into a type of hibernation, or torpor for up to six months a year, where their metabolism becomes very low, and their activity level almost nonexistent. This enables them to avoid migration, and survive in cold weather, when food is not available. Occasionally a bat will come into the house by mistake, or you may find it on the outside of the building exposed to the sun, or under the siding. Just appreciate this gift from afar, leave it alone, open up the doors or windows, and it will just find its way out, or fly away that evening. If bats are in the attic or walls, and they are not wanted there you can screen off all entry points at night after they have gone out for the hunt, so that they can not get back inside. Just make sure that there is no nursery there with pups that will starve without their moms.

About the only negative issue we can think of, is that bats are one of the wildlife species that can carry the rabies virus. In fact it is the only wild mammal in the state of Washington that carries the rabies virus. Other states have their carrier skunks, foxes, and

raccoons, and we have our bats. A rabid bat does not usually go around biting people or animals. Most sick rabid bats get the (dumb) form in which they are found on the ground still alive, are picked up by a human or a pet, and then may bite the handler. There is a very low incidence of rabies in our bats, but the potential is still there so they should be handled with extreme caution, or not at all. If you find a downed bat the vast majority have sustained an injury to a wing, and cannot fly. Do not kill them, simply wear some gloves (their teeth are sharp, but the mouth is very tiny), carefully surround the bat with a small towel to secure it, and scoop the bat into a sealable box. Transport it to your local wildlife clinic, or call them first for someone who can possibly come to get it for you. Some wildlife clinics do not work with bats, but most do. Public health agencies will tell you not to handle any bat at any time.

Be that as it may, the experiences with various bat species we have encountered in the wild, and in working with injured or sick bats has been rewarding, enlightening, and has enriched our lives, beyond measure.