

Bat article for Master Gardening by Jerre Reichley

To observe one of the true wonders of nature, look to the sky after sundown and check for a “bird” that does not soar but will always be flapping its’ wings. This is one of the few times that the bat can be observed and if you have them, count your blessings. This is because bats are extremely beneficial and have been declining in numbers.

The word bat is from the Latin blatta, meaning nocturnal insect. They belong to the separate order of mammals, Chiroptera, or “hand wing” from Ancient Greek. Chiroptera, which includes 1390 types of bats accounts for 20% of all mammals and is the only one that can fly. Mammals by definition have some of the following characteristics: offspring are born alive, females have mammary glands, presence of hair or fur, three middle ear bones, a neocortex area of the brain which allows brain functions of a higher order including language skills and sensory perception and last but not least a belly button. Bats are found on every continent except Antarctica, with 9 species residing in Pennsylvania. The smallest variety, Kitty’s Hog-nosed bat weighs just 0.07 lbs. with a wing span of 1.14” and the largest variety the Giant Golden-Crowned Flying Fox weighs 4 lbs. with a wing span of 5’7”!

I would like to debunk some of the myths about bats because your appreciation will increase with knowledge. No bat is blind and I guess that this myth arose from the discovery of their echolocation ability. They will never attack humans, but could get close if an insect they were hunting happened to be flying close to you. Getting caught in your hair will never happen because bats can see or sense detail as fine as a single hair. Bats are not dirty animals, they are actually very clean which is necessary for their flight agility. Bats are no more prone to rabies infection than any other animal with the exception of the Vampire Bat, *Desmodus Rotundus*. (yes, they really do exist). Not to worry because the Vampire Bat is only found in Central and South America and they rarely thirst for human blood, mostly just livestock. On the plus side, their saliva has an anticoagulant quality that is used to genetically engineer the drug Desmoteplase which improves stroke patient blood flow.

Why discuss bats at all? Well their importance to mankind, agriculture and the environment cannot be overstated. In agriculture bats save an estimated 23 billion dollars a year in crop damage and pesticide use. They eat the most insects active at night with a consumption of up to 500 insects per hour or 3000 per night. At this rate bats can eat one third of their body weight in insects every 30 minutes.

Perhaps the most interesting behavior about bats is their use of echolocation or sonar for their nocturnal activities. So why do they hunt at night anyway? It’s due to the fact that they are very small and the cover of the night gives them better protection from predators. For the same reason many insects such as moths are also out at night because the only thing hunting them is bats. While bats can see just fine during the day they use echolocation to take advantage of their nocturnal prey. They will actually yell a high frequency chirp between 18,000 and 120,000 hertz (human range is from 20 to 20,000 hertz) with enough volume to echo off of their prey and back to their ears. Because the echolocation is so loud, they are able to disconnect their very sensitive ears when the call goes out to prevent hearing loss! Scientific studies have determined that the chirps emitted by bats are slightly different and unique to each species of bats. If you are really interested there is an app for your phone that allows you to go out at

night and actually identify which types of bats populate your location. It is said that some children have claimed to hear bats chirping sounds to the disbelief of their parents. However children have better hearing than adults because they have not yet had any hearing loss due to the aging process.

Many species of bats are carnivorous with diets ranging from insects as small as the mosquito for smaller bats to frogs and even other bats for the larger types. However some bats feed on only nectar or fruit. Bats offer very unique pollination due to both their physiology and their nocturnal behavior. Since their exterior is mostly covered with fur this allows much more pollen to be picked up and because of their range they can take it to plants that are found in smaller groups that might not be pollinated otherwise. Due to the process of natural selection some plants have evolved to attract pollinators with the most efficient use of energy. They accomplish this by blooming at night to attract nocturnal pollinators such as moths and bats. To make this unique form of pollinating more successful, these types of plants have also evolved to grow white flowers to be more visible at night. This is a good thing given that bats are color blind. My favorite fact about nectar eating bats involves the use of echolocation. Some plants have an acoustic feature by way of their flowers shape which reflects a unique ultrasonic sound that the bats can hear.

Bats pollinate over 300 species of food-producing and flowering plants worldwide. These include: Figs, Mangoes, Cocoa (Coco), Bananas, Guavas, Night-Blooming Phlox, Evening Primrose, Fleabane, Moonflowers, Goldenrod, Nicotiana, Honeysuckle, Datura, and Yuca. Oh, by the way for anyone who drinks Margaritas, you should really love the bat. It seems that the Agave plant which is used to make tequila is pollinated by bats alone.

Bats tend to be generalists when hunting which means they will catch and eat anything that matches their jaw strength and body size. The faster flying bats will catch insects in the open, while those that are more agile will hunt in forests. Most bats do not catch flying insects with their teeth, instead they maneuver them between their wings and tilt their heads back to eat them. This aerial ballet happens at speeds up to 60 MPH and their young are flying by the age of 3 weeks.

In conclusion, whether you are into gardening, horticulture or farming, bats are a beneficial gift of nature. If you want to help bats and help yourself there are bat boxes that can be purchased or built to increase their habitat.

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