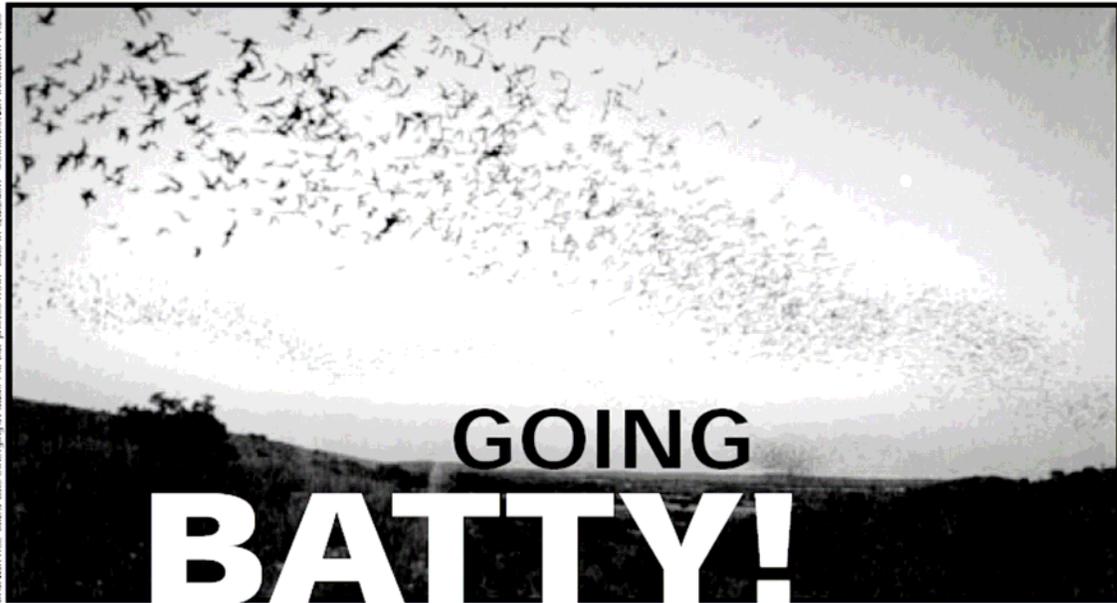


Bat files: jared bats converging at dusk. All bat photos from "Bats in Cuckoo" ©Smithsonian Institution Press



GOING BATTY!

Bats as Pollinators and All-Natural Pest Controllers

With more than 1,100 different species of bats in the world, living on every continent except Antarctica, these furry fliers account for almost a quarter of all mammalian species. 70% of all the bats in the world eat insects and many of them use echolocation in order to find food and move around in the dark. These small insectivorous (insect-eating) bats can eat up to 1,200 mosquito-sized insects in one hour. But not all bats eat insects. Frugivorous (fruit-eating) bats living in tropical climates have very good eyesight and sense of smell for finding ripe fruit. The nectar-feeding bats of the desert have long noses and tongues for harvesting nectar from flowers, as well as special enzymes for digesting the high-protein pollen that accumulates on their faces. Carnivorous (meat-eating) bats have sharp claws and teeth for catching small vertebrates such as fish, frogs, birds, or rodents. A few Latin American bats eat only blood, hence the name "vampire" bat.

Interesting Facts about Bats

- Bat droppings in caves support whole ecosystems of unique organisms, including bacteria useful in detoxifying wastes, improving detergents, and producing gasohol and antibiotics.
- An anticoagulant from vampire bat saliva may soon be used to treat human heart patients.
- The common little brown bat of North America is the world's longest-lived mammal for its size, with life-spans sometimes exceeding 32 years.
- Desert ecosystems rely on nectar-feeding bats as primary pollinators of giant cacti, including the organ pipe and saguaro of Arizona.
- Tropical bats are key elements in rain forest ecosystems which rely on them to pollinate flowers and disperse seeds for countless trees and shrubs, including bananas, breadfruit, mangoes, cashews, dates, and figs.
- Fishing bats have echolocation so sophisticated that they can detect a minnow's fin as fine as a human hair, protruding only two millimeters above a pond's surface.
- African heart-nosed bats can hear the footsteps of a beetle walking on sand from a distance of more than six feet.

- The infamous durian fruit of Southeast Asia has a strong scent, which is repellent to humans but appealing to fruit bats, the durian's main pollinator.
- Tiny woolly bats in West Africa live in the large webs of colonial spiders
- The world's smallest mammal is the bumblebee bat of Thailand, weighing less than a penny. Giant flying foxes that live in Indonesia have wingspans of nearly six feet.

Bat Myths

Bats carry rabies and pose a risk to humans.

Like all mammals, bats can contract rabies, though very few do (less than half of one percent). Unlike many other animals, even rabid bats rarely become aggressive. They quickly die from the disease, and outbreaks in their colonies are extremely rare. The odds of being harmed by a rabid bat are remote if you simply do not attempt to handle bats. Any bat that can be easily caught should be assumed to be sick and left alone.

Insectivores vs. Fruit and Nectar Bats

Not all bats use echolocation to find food. Some species of bats depend on their keen sense of smell and eyesight to find ripe fruit or nectar-filled flowers. These bats possess long tongues and snouts for reaching into flowers, and have flattened molars, pronounced canines and powerful jaws for piercing the tough rinds of fruits. These bats have also been observed eating insects, which are thought to supplement the meager protein intake they receive from plant matter.

What are "flying foxes"? The name flying fox refers to a group of nearly 200 bat species living in the Old World tropics of Australia, Africa, and the South Pacific Islands, and have faces resembling those of little foxes, hence their common name. These bats are generally larger than the insectivorous "microbats," with wingspans of up to 5 ft. in some species. Flying foxes and other fruit and nectar-eating bats pollinate flowers and are seed dispersal agents, thus aiding in rainforest regeneration.

Where bats live

Some bat species roost in caves, while other species prefer trees, bridges or abandoned mines. Other bats may roost in shutters, eaves, or attics of houses or other buildings.

Build a Bat House!

Do you have trouble with mosquitoes?

You can encourage pest-eating bats by providing bat houses for these furry flying friends. Installing bat houses is not a guarantee that bats will come to your yard. Construction and location of bat houses, adequate sun exposure, sources for water, heavy pesticide use, adequate food supply and, of course, the presence of bats in your area will determine if bats will move in. For more information on building and installing bat houses, visit www.batcon.org/bhra/economyhouse.html

Do you have bats in your belfry?

Attics and other parts of buildings often provide ideal bat roosting sites. In most cases, bats will not voluntarily move from your house and into their own. In such cases, alternative roosts (bat houses) ideally should be provided several months or one season before the desired eviction. The bats should be evicted from the attic at a time in the early spring or late summer when flightless young are not present. Eviction is often easily accomplished. Watch to see where the bats emerge at dusk. Using bird netting or heavy plastic, hang a large piece over the emergence point, extending a foot below and to each side of the exit. Secure the net in place so that it hangs free an inch or so away

from the building. It will act as a one-way valve--permitting exit, but closing when bats land on it to return.

Bats in peril

Bats are exceptionally vulnerable to extinction, in part because they are the slowest reproducing mammals on earth for their size, most species producing only one young annually. More than 50% of American bat species are in severe decline or already listed as endangered. Losses are occurring at alarming rates worldwide. Loss of bats increases demand for chemical pesticides, can jeopardize whole ecosystems of other animal and plant species, and can harm human economies.

The decline of bat populations is of concern to agro-economy because bats are important consumers of many insect pests that cost farmers and foresters billions of dollars. For example, a colony of 150 big brown bats can protect local farmers from up to 33 million or more rootworms each summer.

Bats and Wind Turbines

Wind turbines produce renewable energy, which is beneficial to bats, birds and many other plant and animal species by reducing human dependence on non-renewable resources. These turbines, however, may also be a cause for danger to bats, with unexpectedly high numbers of bat fatalities. Though, the interaction of bats with wind turbines is not well understood. A number of research projects are currently underway to find out more on this topic.

Why you should like bats!

Economical and ecological benefits of bats

As primary predators of night-flying insects, bats play a key role in the balance of nature, consuming vast quantities of insects, many of which are costly agricultural and annoying or dangerous yard pests.

Many products that humans rely upon for food, drink, fodder, medicine, fiber, fuel and dye are derived from plants visited by frugivorous and nectar-feeding bats. Numerous wild and important agricultural plants like bananas, breadfruit, mangoes, cashews, dates, kapok and figs rely on bats for pollination and seed dispersal. Tequila is produced from agave plants whose seed production drops to 1/3,000th of normal without bat pollinators.

Thank you bats!

Thanks to Bat Conservation International (www.batcon.org) for much of the information used in this article.

For more information on bats, visit these websites: www.batcon.org, www.lubee.org, www.desertmuseum.org, www.nectar.ca/bats2.htm.