



Bats

The World's Tropical Pollinators

Prepared by the Bat Task Force of the North American Pollinator Protection Campaign (NAPPC)



Bats are the world's tropical pollinators

Nectar-feeding bats are found in every continent with tropical ecosystems. Worldwide, over 500 species of flowers in at least 67 plant families rely on bats as their pollinators. Thirty-six species of American leaf-nosed bats (Phyllostomidae) and twelve species of Old World flying foxes (Pteropodidae) are nectar bats with bodies specialized for visiting and pollinating flowers.

Economics and Ecology

Ecologically and economically important bat-pollinated plants include columnar cacti (Cactaceae) used for fruit; and paniculate agaves (Agavaceae) that produce sources of fiber and tequila. Both are found in arid regions of North, Central, and South America. Tropical forest trees of the Malvaceae (subfamily Bombacoideae) also need bat pollination, and produce economically important fruits, fibers, and timber.

Flying foxes are important pollinators of eucalypts (Myrtaceae) in Australian dry forests. Old World bat-pollinated plants include members of Fabaceae (fruit and timber) and Musaceae (bananas) plant families.

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Glossophaga commissarisi, brown long-tongued nectar bat. Photo © Jose Gabriel Martinez Fonseca, Bat Conservation International, www.batcon.org. Below: *Glossophaga soricina*, Pallas' long-tongued nectar bat, feeding on nectar of *Pseudobombax* sp. flower. Smithsonian Tropical Research Station, Barro Colorado Island, Panama. Photo © Christian Ziegler



Macroglossus minimus pygmaeus, small long-tongued fruit bat, Northern Blossom Bat, feeding on *Banksia* sp. flower, North Queensland, Australia. Photo © Jean-Paul Ferrero/Auscape/Minden Pictures, Bat Conservation International

The diversity of South American bats is as impressive and varied as its landscape. In lowland forests, there are greater numbers of bats and more bat species than in any other part of the world. The range of some of the more "interesting" species overlies roughly with maps of the cultures who attained the highest achievements in the New World before the arrival of Columbus.

Additional Bat Facts

Old World fruit bats live in a range of habitats and are found in tropical and subtropical regions of Africa, southern and central Asia to Australia, and a number of islands of the Indian and Pacific Oceans. While some species feed primarily on pollen and nectar, others also eat fruit or add leaves and flower parts to their diet and are often viewed as crop pests.



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American nectar-feeding bats range from northern Argentina to the southwestern U.S. states of California, Arizona, New Mexico, and Texas.

POLLINATOR PARTNERSHIP

Food

Nectar bats have elongated snouts, long, brush-tipped tongues, and teeth that are reduced in size and number. All nectar bats have a keen sense of smell, and flowers often produce a musky scent to attract them.

American leaf-nosed bats are generally much smaller than their Old World counterparts, and they can echolocate and hover at flowers. New World bat-pollinated flowers are generally small, white, and have special floral parts that act as sound reflectors to help echolocating bats locate them amongst foliage at night. Flying foxes cannot echolocate, and they must land on or near a flower before feeding.

Most nectar bats are solitary eaters with wide ranges for foraging. Individuals may fly tens of kilometers from their day roosts to feeding areas each night, transferring pollen on the fur of their faces and shoulders for long distances between plants. They routinely forage both in continuous and fragmented habitats, making them vitally important to maintaining gene flow among isolated plant populations.



Above: *Glossophaga soricina*, Pallas' long-tongued nectar bat, pollinates a wild banana flower.

Below: *Leptonycteris yerbabuena*, lesser long-nosed bat pollinates a cardon cactus. Photos © Merlin D. Tuttle, Bat Conservation International, www.batcon.org.

Family Life

Most New World nectar bats are highly gregarious and live in colonies of a few hundred to tens of thousands of individuals. Their roost sites include caves, mines, hollow trees, and abandoned buildings. Some Old World nectar bats group in caves, while others live solitary lives in trees.

Nectar bats are long-lived, with lifespans of up to 12 years or more. Neotropical and smaller-sized Old World nectar bat females often undergo two pregnancies and produce two pups a year, whereas arid-zone species in the Neotropics and larger Old World species produce only one pup a year.

Young are nursed for a month or more before they are weaned. Because they are small, young New World nectar bats develop quickly and can fly and feed independently at about a month and a half of age. Young flying foxes do not fly until about three months of age, and stay with their mothers for several more months. Nectar bats living in tropical forests are usually non-migratory, while arid-zone species such as flower-visiting Australian flying foxes, are migratory.

In the New World, three species of nectar bats migrate from south-central Mexico into northern Mexico and southern Texas, New Mexico, and Arizona annually to give birth. The Lesser long-nosed bat (*Leptonycteris yerbabuena*) is a common visitor to hummingbird feeders in rural and urban yards in southern Arizona in the late summer and fall.

Nectar Bats at Risk?

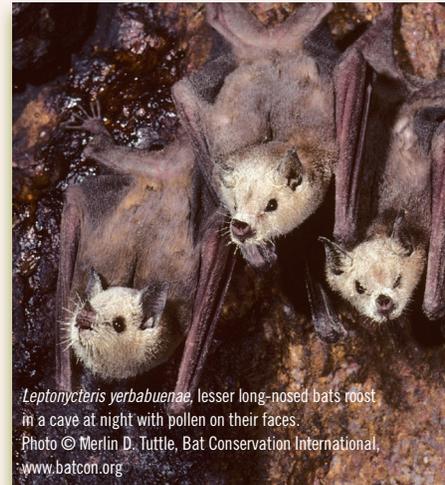
Bats are at risk globally because of unwarranted fear and superstition. Thanks to Dracula, bats are often considered to be 'vampires.' In Latin America, their roosts are destroyed, killing many beneficial bats that eat pest insects as well as nectar- and fruit-eating bats.

In the United States, two species of *Leptonycteris* nectar bats are officially listed as Endangered. Protecting feeding habitats and roosts is critical to their recovery.

Many species of the large-bodied flying foxes, including important pollinators and seed

dispersers, are at considerable risk from hunting pressure, particularly on South Pacific islands and the Asian mainland. In eastern Australia, fruit farmers consider flying foxes to be 'vermin' and have eliminated many large roosts.

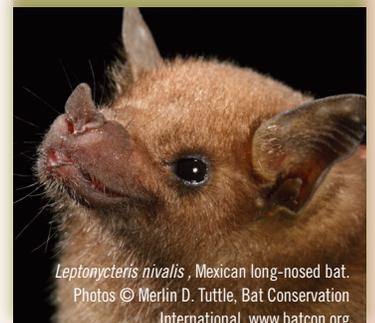
Nectar bats worldwide need our appreciation and protection, not only because they are critical to the reproductive success of many plants that contribute to our diets and economies, but also for their key role in ecosystems.



Leptonycteris yerbabuena, lesser long-nosed bats roost in a cave at night with pollen on their faces. Photo © Merlin D. Tuttle, Bat Conservation International, www.batcon.org.

Bat Resources and Links

- www.batcon.org
- www.batconservation.org
- www.lubee.org
- www.fs.fed.us/wildflowers/pollinators/animals/bats.shtml



Leptonycteris nivalis, Mexican long-nosed bat. Photos © Merlin D. Tuttle, Bat Conservation International, www.batcon.org.

The **North American Pollinator Protection Campaign (NAPPC)** is a collaborative body of over 140 organizations that work for the protection of pollinators across Mexico, Canada and the United States. The **NAPPC Bat Task Force** produced this brochure for your use and information. Feedback is welcome. For more information and to learn about the fascinating lifestyles of all polinators please contact info@pollinator.org or 415-362-1137 or visit www.pollinator.org.