

The Bats in Our Lives

Many of us have difficulties relating “bats” to our every-day lives. Below are some tangible products to help facilitate the connection between an appreciation for bats and their contributions to our modern human existence.

Tangible Product and Bat Connection

ALLSPICE

The Jamaican fruit-eating bat (*Artibeus jamaicensis*) feeds on the fruits of allspice trees, in so doing, disperses its seeds, allowing additional generations of plants to grow in new areas. Allspice is one of Jamaica’s important export crops. The popular spice is used in traditional American dishes, such as apple butter, gingerbread, and pumpkin pie.

BANANA

Bananas, originally from Southeast Asia, are one of the best known tropical fruits. The 20 plus species of wild bananas are pollinated almost exclusively by bats. Only a few kinds are cultivated, and these do not need to be pollinated to produce fruit. Nevertheless, wild plant species provide important genetic reservoirs for cultivar improvements and for combating disease, such as fungal root rot. Flying foxes also feed on wild bananas, thus helping to spread their seeds. Without seed dispersal and pollination, wild bananas would cease to exist, seriously threatening the future of commercial banana production. Can you imagine a breakfast without them?

BALSA

In Latin America, balsa trees produce showy white flowers that open at night and are pollinated by nectar-feeding bats. Without bats, these trees would not produce seeds, ensuring the next generation of balsa trees. Balsa trees produce an especially light-weight wood used for making crafts and fishing lures as well as other products worldwide.

CAROB

The carob tree, a Mediterranean legume, produces seed pods that contain a sweet chocolate-flavored pulp, used in many health food products. Fruit bats feed on the fleshy seeds of the carob tree, thus aiding in seed dispersal and ensuring future generations of trees.

CASHEWS

Cashew trees are important cash crops in many tropical areas. The fruit is often made into a refreshing juice and the nut is a popular cocktail snack. Bats also are attracted to the fruits, and while feeding they help in spreading the nut (or seed) of the tree to new locations.

CHEWING GUM

The latex (sap) from the sapote tree is the source of chicle for chewing gum. Bats feed on the fruits and aid in its dispersal. This crop is very economically important in many tropical areas, not to mention the pleasure it brings many kids around the world.

CORN

Certain bats, like Mexican free-tailed bats (*Tadarida brasiliensis*), are important consumers of moths, especially corn borer moths. The 100-million free-tailed bats from just three caves near San Antonio, TX, eat a million pounds of insects nightly, up to 96% of which are pesky corn borers. Every year billions of moths emerge from an agricultural region in Mexico. Successive generations continue a northward “hopscotch,” infesting agriculture through much of central North America all the way to Canada. In terms of damage caused, corn borers are the number-one agricultural pest in America. In terms of the pounds of pesticides to control them, they rank behind only boll weevils. By consuming such huge quantities of moths, Mexican free-tails are contributing mightily to agricultural production, pesticide free environments, and healthy human economies.



COTTON T-SHIRT

Cotton boll-worm moths are serious crop pests. Just a single red bat (*Lasiurus borealis*), common throughout North America, can eat over 100 moths in only one night, preventing egg-laying resulting in 25,000 new caterpillars that could attack cotton bolls. Often just a handful of larvae scattered throughout a cotton field can force a farmer to apply pesticides. So even this solitary bat is of great economic and environmental importance.

DATES

The 2,500 species of palm trees worldwide produce many economically important products from betel-nuts and palm hearts to coconuts and ratan. Dates, popular fruits in numerous countries, are also harvested from certain species of palms. Bats too enjoy ripe dates, and contribute to the seed dispersal of date palms, and the continuation of the species.

FIG NEWTONS

About 800 species of fig trees are found world wide. Most are pollinated by tiny wasps, but the fruits of these trees are vital to many other animals, including bats and people! Without figs we would not have Fig Newtons, and without fig trees in tropical areas, brought to us by fig-eating seed-dispersing bats (and other animals like parrots and monkeys) we would not have predators like jaguars and harpy eagles. Loss of keystone plants, like fig-trees, threatens all organisms in an ecosystem.

GUANO

Bats, especially insect-eating varieties, produce nitrogen-rich feces called guano. Bat guano has been used in agriculture in many regions for hundreds of years. In the 1600s in Peru, the Incas valued guano so highly that the punishment for harming the animals that produced it was death. During the late 19th century, it had become important enough to American farmers that the government offered free land to those who discovered guano deposits, provided the harvest was made available to U.S. citizens. Today it is still popular, especially with organic gardeners. Bat guano can be safely used as a fertilizer, both indoors and outdoors, and will benefit vegetables, herbs, flowers, all ornamentals, and fruit and nut trees. Its primary ingredients are roughly 10% nitrogen, 3% phosphorous, and 1% potassium. Besides these three major nutrients, guano contains all of the minor and trace elements necessary for a plant's overall health. Unlike artificial gardening products, guano contains no fillers. And, while most chemical fertilizers leach out of the soil soon after being applied, guano remains much longer, enhancing the soil and slowly continuing to feed the plant.

INSECT REPELLENT

Bats are primary predators of vast numbers of insects that fly at night, and some species consume large numbers of mosquitoes. A single bat can capture from 500 to 1,000 mosquitoes in just one hour and large colonies can consume tremendous quantities. For example, a Florida colony of 30,000 southeastern myotis (*Myotis austroriparius*) consumes 50 tons of insects annually, including over 15 tons of mosquitoes, and 75 to 85% of little brown myotis (*Myotis lucifugus*) living in the northern U.S. and Canada eat mosquitoes. Often, just the high-frequency echolocation calls of bats are enough to scare mosquitoes and other insect pests away from an area, and because little brown myotis are the most common "house bats" they can make excellent neighbors, keeping night-time activities pest-free.

SAGUARO CANDY and SAGUARO RIBS

Endangered lesser long-nosed bats (*Leptonycteris curasoae*) pollinate the flowers of one of the most ubiquitous symbols of the Sonoran Desert: the giant saguaro cactus. Pollination allows the cacti to set fruit, upon which the bats and a host of other animals rely at a time when the desert offers little other moisture. Without bats, the reproduction and even seed dispersal of this keystone cactus would be severely compromised. Native peoples of the Sonoran Desert have also used saguaro and saguaro products. The woody ribs of dead saguaro are fashioned into light-weight fruit-pickers allowing the humans to beat their animal competitors to the sweet fruit harvest. Saguaro fruits are used in making jams, jellies, and syrups, and distilled into a traditional liquor.



TEQUILA

Lesser long-nosed bats also pollinate the flowers of the agave. They are such effective pollinators, that in some areas of the agave's range, without bats, seed set falls to 1/3000th of normal. Agave are harvested before they flower, slow roasted in special kilns, and fermented into bacanora which is then distilled into tequila liquor. Bats are essential to maintaining healthy stands of agave and those allowed to flower are essential to maintaining migratory routes for bats.

