



BAT HABITAT

1. Learn
2. Plant native vegetation
3. Create roosting sites
4. Provide water source
5. Reduce hazards
6. Spread the word
7. Certify

1. LEARN

Arizona is home to 28 species of bats, representing four families and occupying all of Arizona's unique habitat types. Of these 28 species, only two feed on nectar and pollen: the lesser long-nosed bat (*Leptonycteris yerbabuenae*) and the Mexican long-tongued bat (*Choeronycteris mexicana*). These two bats are among only three species of nectarivorous bats whose northern ranges extend into the United States.

Both nectarivorous and insectivorous bats are incredibly important to ecosystem function and health, playing a critical role in the pollination of saguaro and agave, as well as in controlling populations of night-flying insects like mosquitoes. They are fascinating animals that are often misunderstood and face major threats. Human disturbance of the caves they roost in and habitat destruction are their main threats. Sadly, bat species are also being threatened by harmful myths and misplaced fears, which simple education can help to resolve.

2. PLANT NATIVE VEGETATION

Lesser long-nosed bats embark on an incredible 1,000-mile journey from Central Mexico to the Sonoran Desert. The majority of these migrants are pregnant females who follow the path of blooming columnar cacti that sustain them on their migration. Drastic population declines in flowering agave, caused by climate change, the Tequila industry, and poaching, have severely threatened this migration. Revegetating this migratory corridor is the top conservation priority for the lesser long-nosed bat and the Mexican long-tongued bat. Urban yards within this corridor can support conservation efforts by adding agave and columnar cacti to their outdoor spaces.

WHAT TO PLANT FOR NECTAR-FEEDING BATS:

- Parry's agave (*Agave parryi*)
- Palmer's agave (*Agave palmeri*)
- Organ pipe cactus (*Stenocereus thurberi*)
- Saguaro (*Carnegiea gigantea*)

WHAT TO PLANT FOR INSECT-EATING BATS:

- Showy evening primrose (*Oenothera speciosa*)
- Tufted evening primrose (*Oenothera caespitosa*)
- Hartweg's sundrops (*Calylophus hartwegii*)
- Gaura (*Gaura lindheimeri*)
- Dwarf four o'clock (*Mirabilis pumila*)
- Sacred datura (*Datura wrightii*)*
- Night blooming cereus (*Peniocereus greggii*)
- Night blooming hesperaloe (*Hesperaloe nocturna*)
- Chaparral yucca (*Hesperoyucca whipplei*)



lesser long-nosed bat feeding on agave flowers, James Capo

3. PROTECT AND CREATE ROOSTING SITES

PROTECT NATURAL ROOSTING SITES:

Bats use trees, caves, rock crevices, bridges, and old buildings as roosting sites. If safe to do so, keep dead trees and snags on your property. Narrow crevices between peeling bark and the wood provide the ideal space for a bat (or two) like the Hoary bat to roost as it gives a nice tight squeeze.

BUILD OR BUY A BAT BOX

Bats spend more than half of their lives in roosts, which are usually close to a food source. Most commercially available bat boxes are too small for our climate's wildly fluctuating temperatures and are not safe for bats to use. Boxes must be at least 3 feet tall to provide a suitable range of internal temperatures and are best placed on a solid surface (like the side of a building) to reduce temperature fluctuations. Suitable bat boxes for southern Arizona include the four-chambered nursery boxes, which are designed for females to raise their pups, or rocket boxes, which mimic the way bats naturally move within hollowed-out trees as the weather changes.



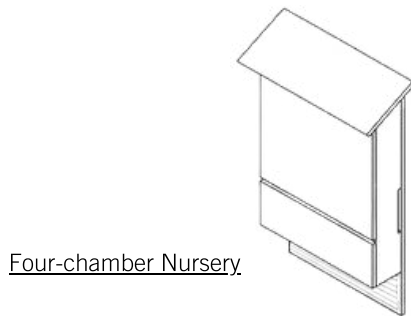


BAT HABITAT

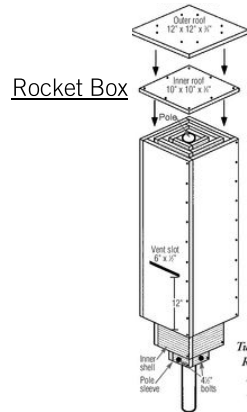
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BUILD YOUR OWN!

Use these plans from Bat Conservation International to build your own Four-chamber nursery or rocket box



Four-chamber Nursery



Rocket Box

4. PROVIDE A WATER SOURCE

Bats require a runway-esque long body of water and clear flightpath that they can drink from while in flight such as water troughs and ponds. To ensure their safety, install an escape ramp (we recommend the FrogLog) for bats and other wildlife to prevent drownings.

5. REDUCE HAZARDS

ELIMINATE INSECTICIDE USE

Insects are the backbone of a healthy ecosystem. They are responsible for pollination and are the major food source for the majority of bat species. Systemic insecticides efficiently eliminate all types of insects and poison the animals eating them.

Eliminate the risk of damaging your ecosystem by inviting bats into your outdoor spaces (a large colony of bats can eat a million pounds of insects each night!) and by using healthier, more sustainable options such as mosquito dunks and integrated pest management.

KEEP CATS INDOORS

Cats are the leading direct, anthropogenic threat to birds in the United States and Canada and are one of the most common causes of bat casualties. Free-roaming domestic and feral cats are a recognized threat to global diversity, contributing to the extinction of 63 species of birds, mammals, and reptiles around the world. They are instinctive and indiscriminate predators that hunt and kill even if not for consumption. To protect bats, keep your cat inside at night, beginning at least a half hour before and after sunset. This is when bats are most active.

REDUCE ARTIFICIAL LIGHTING

Fast-flying bats, like the canyon bat, have adapted to artificial light, learning to feed on insects attracted to streetlights. However, slow-flying bats like the silver-haired bat are more vulnerable to birds of prey than fast-flying bats, so they leave their roosts later in the evening when the light fades and predators sleep. The artificial lighting of bat roosting sites, roost access points, and foraging pathways can be extremely disturbing to bats and should be avoided.





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HOW TO REDUCE ARTIFICIAL LIGHT:

- Start with natural darkness and only add light for specific purposes
- Use adaptive light controls to manage light timing, intensity, and color.
- Light only the object or area intended. Keep lights close to the ground, directed and shielded to avoid light spill.
- Use the lowest intensity lighting appropriate for the task
- Use non-reflective, dark-colored surfaces

HUMANE REMOVAL

If bats need to be removed from your property, have them removed and relocated humanely rather than exterminating.

TUCSON BAT REHABILITATORS AND RESCUERS:

- Tucson Wildlife Center 520-290-9453
- Renée Corso 520-244-8735
- Arizona Wildlife Support 862-432-5192

6. SPREAD THE WORD

Bats have a bad reputation due to misunderstandings and common misconceptions. Because of the negative connotation surrounding bats, people fear them and eliminate them. We must be stewards of bats, informing the misinformed, and putting to rest the myths and misconceptions unjustly put upon them.

BAT MYTHS

- ALL BATS HAVE RABIES
 - FALSE- The proportion of bats infected by rabies is estimated to be around 5% in bat samples submitted for testing. Bats that are submitted for testing are primarily those that are behaving atypically and/or could have been in contact with humans or pets. This value of 5% is higher than the estimated value for free-ranging bats, which is less than 0.1%. Bats that are infected with rabies will demonstrate strange behavior and are often found lying on the ground.
- BATS ARE FLYING MICE
 - FALSE- Bats are mammals, but they are not rodents. In fact, they are more closely related to humans than to rats and mice. Bats are such unique animals that scientists have placed them in a group all their own, called 'Chiroptera', which means hand-wing.
- BATS ARE BLIND
 - FALSE- Bats can see just as well as any other mammal, plus they have echolocation. With sound alone, bats can see everything except color and can detect obstacles as fine as a strand of hair.
- ALL BATS ARE BLOOD FEEDERS
 - FALSE- Only three species of bats feed on blood of birds or livestock and those that do, live in tropical regions of North, Central and South America (e.g. Mexico, Chile, Brazil and Argentina). The majority of bats feed on insects, fruit or nectar.

7. CERTIFY YOUR BAT-APPROVED HABITAT

Once you have completed your habitat, email habitat@tucsonaudubon.org to receive your certification sticker.





BAT BOXES

WHAT TO KNOW BEFORE PUTTING UP A BAT BOX

Bat boxes are tricky especially in southern Arizona. With our highly fluctuating temperatures, it's hard to create an ideal environment for them. If you do decide to install a bat house, please don't be discouraged if it doesn't get used. Having a bat-approved habitat (with or without a bat box) is the best way to support bats.

WHO USES BAT BOXES?

- Only insect-eating bats use bat houses

HOW LARGE SHOULD MY BAT BOX BE?

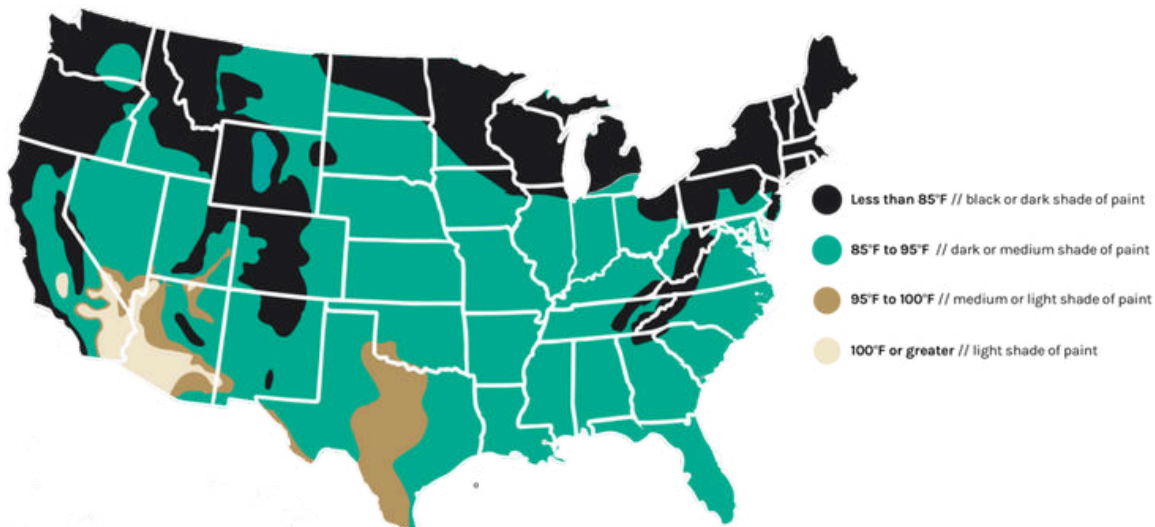
- In southern Arizona, they must be at least 24" tall and 16" wide to allow for proper thermal stability in our regions highly fluctuating temperatures.

SHOULD I LINE THE INSIDE OF MY BAT BOX WITH MESH?

- No. Please do not use fabric or mesh inside the bat house. Bats can get caught in the fabric.

CAN I PAINT MY BATBOX?

- Sure! Just make sure to paint it a light shade of color in Arizona. this map will help you identify what color to paint your bat box depending on where you live -



BAT BOXES

WHAT DO I ATTACH THE BOX TO?

There are a couple of options. The best is to mount the box to a building or structure. This will make the bat box more thermally stable, lessening fluctuating temperatures.

If mounting to a structure is not possible, you can mount the box to a pole.

We do not recommend tree mounting for bat boxes. When placed in a tree they are open to predation from snakes, raccoons and other animals that are able to climb into the tree. If you do tree mount, please use a predator baffle.

HOW HIGH SHOULD MY BAT BOX BE?

The bottom of the bat box should be at least 10' off the ground, though 12-20' is preferred.

WHERE SHOULD I PUT MY BAT BOX?

Place your bat box where it will get 6hrs of sun per day facing North (so they don't get too hot). Bats need a clear flight path in and out of the box, so making sure they have room to exit and enter is imperative. If you have a large water source nearby - place the box less than a quarter mile from it.

