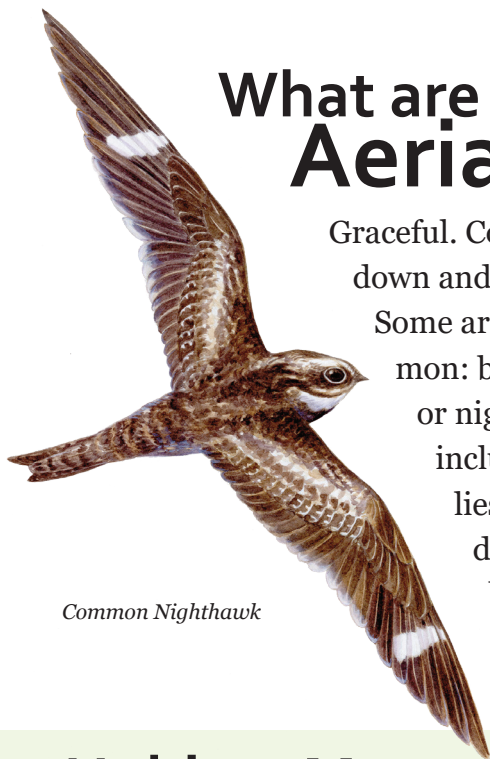


Create an Insect Buffet for Birds



What are Aerial Insectivores?



Common Nighthawk



Graceful. Colorful. Helpful. You may have seen them in flight, swooping up and down and all around, on the hunt for their insect prey. Then again, maybe not. Some are nocturnal. Camouflaged. Elusive. But they all have one thing in common: birds which gulp down insects while flying—whether it's dawn, dusk, day or night—are known as “aerial insectivores.” In North America, this group includes species in the swallow, swift, martin, nightjar, and flycatcher families. Unfortunately, many aerial insectivore populations have been steeply declining since the 1980s—as have insect populations. How can we help bring these agile fliers back to our yards, farms, cities, and wild spaces? This guide outlines actions we can collectively take to improve habitat for nature's bug-zappers.

Habitat Means Food, Places to Nest, and Safety

Aerial insectivores eat flying insects as their primary food source year-round. If you have a yard, patio, or outdoor space that you manage, the choices you make matter for birds. Here's how to get started:

Bird-friendly mowing

Grasses and wildflowers can provide excellent habitat. If you have a piece of your property that you can control the mowing schedule for, first try to reduce the frequency of mowing and leave the blades three inches tall or higher. This can ensure plants such as clovers retain their flowers, thus continuing to support pollinators.

If you have a large meadow or grassy area that you mow annually, make sure you avoid mowing during nesting season. [This United States map](#) will give you a sense of the duration of nesting season in your region. Meadows

provide important habitat for insects and safe cover for ground-nesting birds. Finally, try to reduce the overall size of your lawn and leave buffer strips or areas with longer grass along the edges.

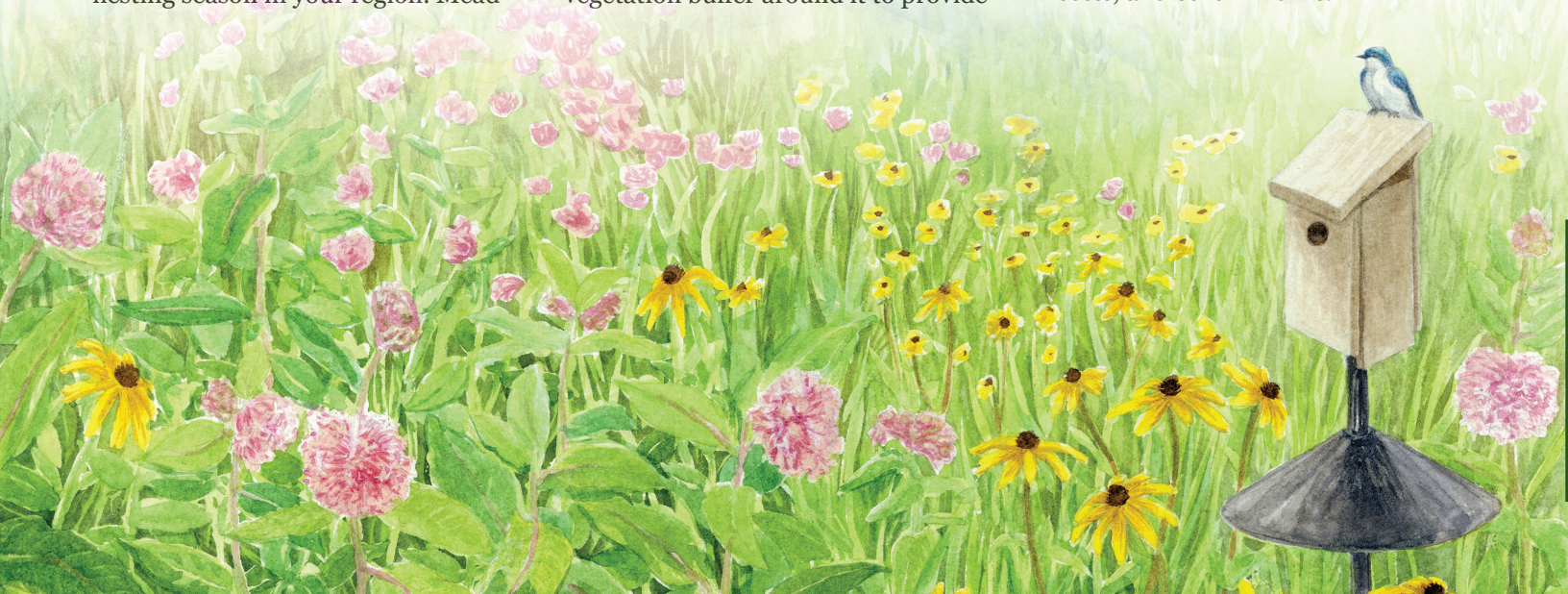
Water resources

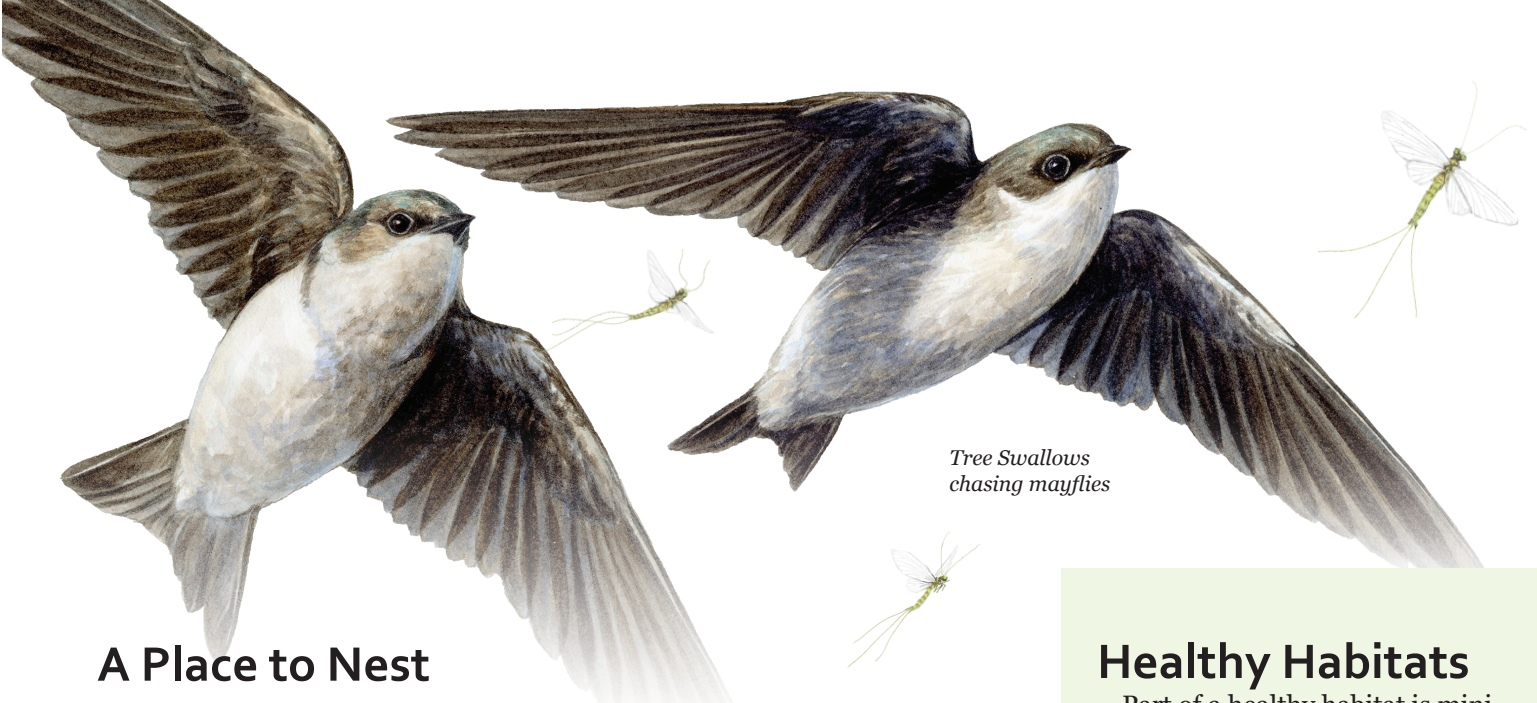
Insects tend to congregate over bodies of water. These irreplaceable “nutrient hotspots” need protection from disturbances like urbanization, agricultural pesticides, and fertilizers. If you have a backyard or farm pond, don't mow right up to the edge; leave a vegetation buffer around it to provide

places for insects to feed, rest, and lay eggs. This will also attract aerial insectivores who may nest nearby.

Native plants

Native plants are those that have been growing in your region for thousands of years. Evidence shows that native plants support more insects than non-native, exotic species. Online tools such as [Pollinator Partnership](#) or [Lady Bird Johnson Wildflower Center](#) will help you determine which plants are native to your region and which increase your property's value to birds, insects, and other wildlife.





*Tree Swallows
chasing mayflies*

A Place to Nest

Aerial insectivores nest in remarkably diverse locations—in tree hollows and nest boxes, on homes and buildings, on the ground, high on gravel rooftops, in sandy burrows, under bridges, in chimneys, inside caves, and even behind waterfalls! Human tolerance of their sometimes-inconvenient nesting sites is a big factor in helping populations recover. For instance, Chimney Swifts nest in urban masonry chimneys, creating noise that prompts some homeowners to block chimney access. With fewer natural nest sites available, they have come to rely on our chimneys as a replacement for large, hollow trees. Similarly, as many old rural barns fall into disrepair, Barn Swallows are making the switch to nesting on homes and businesses, sometimes leaving a mess below their nest. Simply placing a sheet of newspaper weighted with stones on the ground below the nest, or attaching a small wicker basket to the wall below the nest can make the temporary guests more welcome.

For some aerial insectivores, tolerance may be enough. But for others, actively creating new nest sites is

needed. You can provide nest boxes for Tree Swallows and Violet-green Swallows in open areas like yards and fields. Be sure to attach [predator guards](#) to free-standing poles. It's also a great idea to leave dead trees standing when possible, as these make desirable natural nest sites. Barn Swallows can be attracted by a nesting shelf placed just underneath the eaves of a home, garage, school, or other building. Purple Martins rely almost entirely upon human-provided nesting sites and active management by those willing to become landlords. To download nest box plans for swallows, martins, and other species, check out NestWatch's [Right Bird, Right House](#) tool.

For urban Common Nighthawks, a flat gravel rooftop is a satisfactory place to nest. However, the conversion of gravel rooftops to smooth surfacing makes potential nesting sites unsuitable. Maintaining stone rooftops with pea gravel can support more urban Common Nighthawks. Identifying and protecting existing nest sites is important because the females will return to the same sites year after year.

In order to understand why aerial insectivores are declining, scientists need more data on their nesting biology. You can monitor the nests of any species you find (nest boxes are especially easy to visit) and report on the outcome to NestWatch, a citizen-science nest monitoring program. It's free to participate; [learn more and get certified as a NestWatcher on NestWatch.org](#).

Healthy Habitats

Part of a healthy habitat is minimizing everyday threats that birds face. For aerial insectivores, that means ensuring a plentiful supply of insects and a stable climate for both birds and their insect prey. Consider these best practices:

Avoid pesticides

Applying broad-spectrum pesticides can harm birds that eat insects. A less harmful practice to control garden pests is applying soapy water directly to the affected plant. Encourage insects in your spheres of influence: turn off the bug zapper, put down the insecticide sprayer, and use protective clothing and bug spray to keep yourself protected.

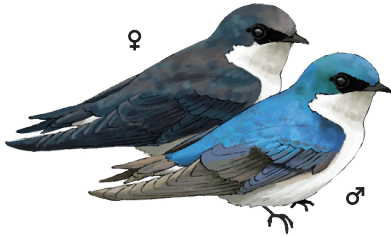
Be climate smart

Heat and drought can impair hatching and fledging success of nesting birds. Research shows that aquatic and terrestrial insects are emerging earlier as early spring temperatures get warmer. Some bird species are trying to keep up—that is, nesting earlier to keep pace with the insects—but they can only do so up to a point. Constraints on the other parts of their life cycle (e.g., migration, replenishing energy reserves) limit just how much they can “match” the changing pace of insect activity. Using clean energy, lowering your carbon footprint, and supporting policies that help reduce greenhouse gas emissions may delay climate warming.

Attract an Aerial Insectivore

Tree Swallow

Tachycineta bicolor



Habitat: grassland, lake, marsh, shore

Breeding Range: N. North America

Diet: dragonflies, damselflies, flies, mayflies, caddisflies, true bugs, bees, ants, wasps, beetles, butterflies, moths, spiders.

Nesting period: mid-May to Jul

[Download a nest box plan](#)

Violet-green Swallow

Tachycineta thalassina



Habitat: grassland, lake, marsh, shore, mountain, open woodland

Breeding Range: W. North America

Diet: flies, leafhoppers, leafbugs, aphids, flying ants.

Nesting period: mid-May to Aug

[Download a nest box plan](#)

Barn Swallow

Hirundo rustica



Habitat: grassland, lake, shore, town

Breeding Range: near-global distribution

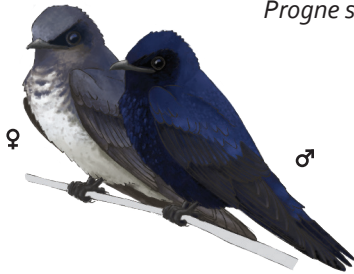
Diet: mainly flies, also beetles, bees, wasps, ants, butterflies, moths.

Nesting period: early May to Aug

[Download a nest box plan](#)

Purple Martin

Progne subis



Habitat: desert, town, lake

Breeding Range: North America

Diet: beetles, flies, dragonflies, leafhoppers, grasshoppers, crickets, butterflies, moths, wasps, bees, caddisflies, spiders, cicadas, termites, mayflies.

Nesting period: early Apr to Aug

[Download a nest box plan](#)

Common Nighthawk

Chordeiles minor



Habitat: grassland, forest, open woodland, town, lake, shore

Breeding Range: North America, parts of Central America

Diet: queen ants, wasps, beetles, caddisflies, moths, mosquitoes, bugs, mayflies, flies, crickets, grasshoppers.

Nesting period: late May to Aug

May nest on the ground or gravel rooftops

Lesser Nighthawk

Chordeiles acutipennis



Habitat: desert, grassland, open woodland, town, lake, shore

Breeding Range: SW North America, parts of Central and South America

Diet: flies, mosquitoes, moths, June bugs, leafhoppers.

Nesting period: mid-Apr to Aug

May nest on the ground or gravel rooftops

TheCornellLab
NestWatch

©Cornell Lab of Ornithology, 2023
Text by Robyn Bailey, Becca Rodomsky-Bish, and Holly Grant. Illustrations by Vera Ting, 2023 Bartels Science Illustrator; and Holly Grant. Graphic design by Holly Grant.

NestWatch is a citizen science program that tracks status and trends in the reproductive biology of birds, including when nesting occurs, number of eggs laid, how many eggs hatch, and how many hatchlings survive. To learn how you can help, visit [NestWatch.org](https://nestwatch.org).

The Cornell Lab of Ornithology is a nonprofit membership institution whose mission is to interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.

This document includes accessibility features for those with visual impairments.