



U.S. Fish & Wildlife Service

# Native Pollinators

## *Kofa National Wildlife Refuge*

When the desert ironwood tree blooms in the spring, it begins to buzz with life. Bees bustle around the tree, attracted to its pink and white flowers. Bees, as well as birds, bats, butterflies, beetles, flies, wasps, and other insects, are important pollinators. These animals facilitate fertilization in plants like the desert ironwood by transferring pollen between flowers of the same species, allowing the plant to produce successful seeds. Pollinators are crucial to all national wildlife refuges as between 75 and 95 percent of all flowering plants in the world cannot self-pollinate.

### Birds

Globally, over 2,000 species of birds feed on nectar and eat the insects and spiders associated with nectar-bearing flowers. Birds have little or no sense of smell and thus the flowers they visit are usually odorless. These flowers tend to be rich in nectar and have large, sticky pollen that cling to the birds' feathers.

When hiking on Kofa National Wildlife Refuge, you might be startled by a loud humming noise. The culprit is likely a hummingbird (family Trochilidae), a small and colorful pollinator with a long, tapered bill and bristled tongue. The noise results from the flapping of its wings which beat up to 80 times per second. This adaptation, as well as the hummingbird's ability to fly in any direction (including upside down and backward), makes it an excellent pollinator as it can hover in front of flowers when feeding.

The hummingbird is generally attracted to long, tubular, and brightly colored flowers, though it will visit nearly any nectar-producing flower. When the hummingbird feeds on the flowers' nectar, sticky pollen attach to the bird's bill or feathers. As the hummingbird flies from flower to flower, it spreads the pollen and fertilizes the plant.

There are five species of hummingbirds found on Kofa National Wildlife Refuge: Costa's hummingbird, black-chinned hummingbird, Anna's hummingbird, broad-tailed hummingbird, and rufous hummingbird.



*Pollinators at Kofa National Wildlife Refuge.* / Katrina Krebs, USFWS

The white-winged dove (*Zenaida asiatica*), named for the white stripe at the edge of its wing, is another common bird pollinator on the refuge. In the desert southwest, the white-winged dove is considered a saguaro specialist. It is almost exclusively dependent on saguaros for nutrients and water during the breeding season, eating the nectar, pollen, fruits, and seeds of saguaros.

When visiting saguaro flowers, the white-winged dove inadvertently pollinates the cactus. It also helps disperse seeds contained within the saguaro fruit it eats, either through its feces or regurgitation to its young. The white-winged dove is so reliant on saguaros that its migration and breeding season matches the flowering of the saguaro.

### Bees

Bees are the most diverse group of pollinators with more than 1,000 species in the southwestern United States and over 4,000 species in North America. Bees are generally attracted to flowers that are blue or yellow, or a mixture of

these colors. They are unable to see the color red, but can see ultraviolet light unlike humans. Many flowers that attract bees have ultraviolet patterns on the petals. These patterns, called nectar guides, help bees locate the center of the flower so they can quickly find the nectar.

On Kofa National Wildlife Refuge, cactus bees (*Diadasia spp.*) are an incredibly important type of bee as they favor the flowers of, unsurprisingly, cacti. The cactus bee is fuzzy, brown and about the size of a honey bee. It is a solitary ground nester and is active primarily between April and June when many of the cacti are blooming on the Refuge.

The cactus bee crawls inside the flowers of saguaros, prickly pears, barrel cacti, teddybear chollas, and other cacti to feed on their nectar, gathering pollen on its hairy body all the while. As the bee flies from flower to flower, the pollen is spread and the flowers are fertilized. The cactus bee also mixes some of the pollen with nectar and stores it in its nest as food for its young.



*White-winged dove.* / Katrina Krebs, USFWS

### Wasps

A number of wasps that pollinate plants resemble bees. However, they can generally be distinguished from bees by their narrow abdomens. Wasps often have smooth, shiny bodies with simple, unbranched hairs. Bees, on the other hand, have branched hairs to help them carry pollen more efficiently. As a result, wasps are less effective pollinators than bees.

One of the most interesting insect pollinators on Kofa National Wildlife Refuge is the tarantula hawk (family Pompilidae), a large blue-black wasp with bright orange wings. While the tarantula hawk pollinates plants as it feeds on nectar from flowers, it is primarily known for its unique relationship to tarantulas.

When a female tarantula hawk is ready to lay eggs, she searches for a tarantula burrow. By touching and strumming the silk web at the entrance, she entices the tarantula to leave the safety of its burrow. A battle then ensues, most often ending with the tarantula receiving a paralyzing sting to its underside. The tarantula hawk drags the tarantula into a pre-dug burrow, lays her eggs on the still living spider, and leaves. When the tarantula hawk eggs hatch, the larvae turn the tarantula into their first meal.

### Butterflies

Butterflies are valuable pollinators on the refuge, especially of brightly colored flowers with sweet scents. Yet with their longer legs, butterflies prove to be less effective pollinators than bees as they do not collect as much pollen on their bodies while searching for nectar. They do serve another purpose on the refuge though: butterflies are an important food source for other animals, particularly birds.

The marine blue (*Leptotes marina*) is found year-round in the Sonoran Desert. The upperside of its body is blue, while the undersides of its wings are striped brown and white. Host plants of this butterfly species include legumes, such as fairydusters, mesquite and acacias.

The marine blue, as well as other species of butterflies, can sometimes be observed in large numbers on shallow puddles or muddy patches, a behavior termed puddling. The butterflies gather around the damp area to drink water and take in dissolved salts and minerals.

### Be Observant

Next time you visit Kofa National Wildlife Refuge, look for plants that are blooming and observe what types of pollinators are visiting the flowers. Watch the animals that are attracted to the plants in the pollinator garden outside of the refuge headquarters in Yuma. You may see a hummingbird, a tarantula hawk, a cactus bee, or one of the many other insects, bats, or birds that play a role in pollination.

To learn more about pollinators and how you can help encourage pollinator abundance and diversity, visit [www.fws.gov/pollinators/Index.html](http://www.fws.gov/pollinators/Index.html).

### For Further Information Contact:

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*Tarantula hawk.* / Mara Wiesenberger, USFWS