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Meet the Rare, Threatened and Endangered Insect Pollinators of North Dakota

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Why are some pollinators in decline?

Nectar, pollen and habitat are three major requirements of pollinators. When habitats (for example, natural areas) are lost to agriculture, residential homes or commercial spaces, some insect pollinators can undergo a rapid decline. Specialized pollinators are more susceptible to habitat or food losses because they often are dependent on a few specific host plants in a specialized habitat.

Environmental contamination from using herbicides that prevent flowers from blooming or insecticides that kill pollinators immediately or through time degrades otherwise suitable habitats.

One group of insecticides called neonicotinoids are applied as a seed coating to seeds before planting. Once planted, the chemical can move systemically throughout the plant and its flowers as it matures. Research suggests that insect pollinators can experience adverse effects, including reduced lifespan and disorientation, when gathering nectar or pollen from these neonicotinoid-treated plants.

Attracting species that live in a variety of conditions can be as simple as planting multiple types of flowering plants. However, rare pollinator species usually require specific conditions for success. These bees and butterflies are usually limited to undisturbed areas with the right host plants (Table 1). This tip sheet introduces a few of the rarer pollinators that are poorly known.

Rusty Patched Bumble Bee *(Bombus affinis)* and Yellow-banded Bumble Bee *(B. terricola)*

Gardeners frequently see and recognize bumble bees throughout the growing season, but some species have declined rapidly in the past few decades. Two declining bumble bee species are native to the northern U.S. from the Dakotas eastward.

Both feed on specific plants, compared with other bumble bees, which feed on a wider host plant list. In addition to habitat loss, their decline may be caused by a natural disadvantage in tolerating pathogens spread from commercially reared bumble bees.

Bumble bees have color patterns on their head, thorax and abdomen that are helpful field marks. Several illustrative guides aid in helping identify bumble bees, such as www.bumblebeeatlas.org/pages/id-resources/. Because there are many species of bumblebees, 46 in North America, and they are all to some degree variable, the following are guidelines for worker bees only.

The rusty patched bumble bee normally has a brownish yellow patch surrounded by yellow on the second abdominal segment and the complete dark band between the wings (Figure 1). The yellow-banded bumble bee is identified by the black base of the thorax and abdomen, a broad yellow abdominal band and yellow hairs near the tip of the abdomen. It lives in wooded areas and wetlands (Figure 2).

Table 1. List of threatened, rare and endangered pollinators and plants used by adults or larvae.

Pollinator	Host plants	Status
Rusty patched bumble bee *Bombus affinis*	Hydrangea, locust, goldenrod, spotted joe-pye weed, bee balm	Endangered
Yellow-banded bumble bee *Bombus terricola*	Sweet clover, goldenrod	Rare
Poweshiek skipperling *Oarisma poweshiek*	Prairie dropseed, mat muhly, big and little bluestem, black-eyed Susan	Endangered
Dakota skipper *Hesperia dacotae*	Little bluestem, prairie dropseed, purple coneflower, columnar coneflower, smooth camas, wood lily, hairbell	Threatened

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Figure 1. Rusty patched bumble bee visiting a bee-balm flower
(Johanna James-Heinze)

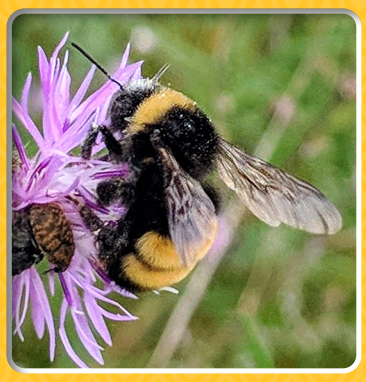

Figure 2: Yellow-banded bumble bee visiting a thistle flower
(Jeremy Hemberger)

Figure 3. Poweshiek skipperling
(David L. Cuthrell, Michigan State University)

Figure 4. Dakota skipper
(Erik Runquist, Minnesota Zoo)

Poweshiek Skipperling *(Oarisma poweshiek)* and Dakota Skipper *(Hesperia dacotae)*

In October of 2014, the U.S. Fish and Wildlife Service listed the Poweshiek skipperling as endangered and the Dakota skipper as threatened species. Both are habitat specialists requiring native prairies.

Poweshiek Skipperling

This small butterfly (Figure 3) was once common in native wet prairies of the eastern Great Plains and Upper Midwest. It has declined rapidly in the last 50 years due to habitat loss.

Poweshiek skipperlings were common in southeastern North Dakota in the 1970s, but were last found in the state in 2001. A few remaining populations are at isolated sites in Wisconsin, Michigan and Manitoba, Canada.

Poweshiek skipperling are a small butterfly with a 1-inch wingspan. Forewings are dark brown with orange along the top edge. Hind wings are pale brown with white veins and black on the outer edge.

Butterflies begin emerging in mid-June, with a flight period lasting through mid-July. However, individuals live for at most a week, visiting a variety of flowers and laying eggs in this short window. Eggs are laid on grasses, such as prairie dropseed and mat muhly, as well as big and little bluestems, the food source for hatched larvae.

Dakota Skipper

Dakota skipper (Figure 4) occurs only where isolated sites of native tallgrass prairies occur in North Dakota, South Dakota, Minnesota and southern Manitoba and Saskatchewan, Canada. They have disappeared from their range in Illinois and Iowa.

About 15% of the original tallgrass prairies still exist as scattered patches in isolated areas. Recent surveys in Minnesota and North Dakota also have confirmed that populations of Dakota skippers are continuing to decline.

This is a small, brownish orange butterfly with a 1-inch wingspan, thick body, narrow angular forewings, and smaller, rounded hind wings. A number of other skippers are so similar that, as a group, they are difficult to distinguish in the field.

Dakota skippers fly fast with a rapid wing beat. They have one generation per year. Adults are active during mid-June through July, and can live for three weeks. Females lay eggs on the underside of leaves of flowering plants next to their host plants. Larvae hatch from eggs and feed on grasses such as little bluestem and prairie dropseed.

Dakota skippers live in moist or dry upland little bluestem prairies. Adults feed on nectar from purple coneflower and other flowers, and prefer coneflowers for perching. These prairies need to have a diverse mix of native flowers and grasses to sustain Dakota skippers.

Protecting Rare, Threatened and Endangered Insect Pollinators

Larger, more connected habitats away from urban and agricultural disturbances offer places where insect pollinators can thrive and could increase populations. However, creating protected spaces alone cannot guarantee recovery of historically low population levels because rare and endangered pollinators are dependent on the right grouping of food plants in their special habitat.

Some rare species cling to isolated habitats, yet these pollinators can reappear in surprising places. In 2020, the rusty patched bumble bee was discovered in downtown Bloomington, Minnesota (https://ncipmhort.cfans.umn.edu/ipm-case-studies/ipm-case-study-rusty-patched-bumble-bee). This unusual record in an urban area suggests that endangered pollinators can survive when suitable habitat is planted.

Increased observations of threatened, endangered and rare pollinators through BioBlitzes and other scientist/citizen science efforts, and legislative advocacy, such as listing the rusty patched bumble bee, *Bombus affinis,* as the Minnesota state bee, will improve awareness. Planting the right host plants and preserving key habitats or urban parks can lead to unexpected discoveries.

For more information on this and other topics, see www.ndsu.edu/extension

USDA United States Department of Agriculture National Institute of Food and Agriculture

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