



## Dakota Skipper *Hesperia dacotae*

The Dakota skipper is a small butterfly with a 1-inch wingspan. Like other skippers, they have a thick body and a faster and more powerful flight than most butterflies. The upper side of the male's wings range from tawny-orange to brown with a prominent mark on the forewing; the lower surface is dusty yellow-orange. The upper side of the female's wing is darker brown with tawny-orange spots and a few white spots on the margin of the forewing; the lower side is gray-brown with a faint white spot band across the middle of the wing. Dakota skipper pupae are reddish-brown and the larvae (caterpillars) are light brown with a black collar and dark brown head.

### Official Status

The Dakota skipper is a candidate for listing under the Endangered Species Act. Candidate species are those for which the U.S. Fish and Wildlife Service (Service) has sufficient information to list as threatened or endangered. To determine the order in which it proposes species for listing, the Service assigns listing priority numbers to candidate species based on the magnitude and immediacy of threats and the species' taxonomic distinctiveness. Listing priority numbers range from 1 (high priority) to 12 (low priority). Dakota skipper has a listing priority number of 11. Candidate species receive no legal protection under the Endangered Species Act (Act) - that is, there are no legal prohibitions under the federal Endangered Species Act against taking candidate species. The Fish and Wildlife Service works to implement conservation actions for candidate species that may eliminate the need to list the species as threatened or endangered.

### Range

Scientists have recorded Dakota skippers from northeast Illinois to southern Saskatchewan. Their historical range is not known precisely because



Photo by ©Robert Dana

*Dakota skippers are found only in high quality prairies.*

extensive destruction of native prairie preceded widespread biological surveys in central North America. Dakota skippers now occur no further east than western Minnesota and scientists presume that the species no longer exists in Illinois and Iowa. Although it likely occurred throughout a relatively unbroken and vast area of grassland in the north-central U.S. and south-central Canada, it now occurs only in scattered remnants of high-quality native prairie. Its current distribution straddles the border between tallgrass and mixed grass prairie ecoregions. The most significant remaining populations of Dakota skippers occur in western Minnesota, northeastern South Dakota, north-central North Dakota, and southern Manitoba.

### Habitat

Dakota skipper occurs in two types of habitat. The first is relatively flat and moist native bluestem prairie in which three species of wildflowers are usually present and in flower when Dakota skippers are in their adult (flight) stage - wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), and smooth camas (*Zygadenus elegans*). The second habitat

type is upland (dry) prairie that is often on ridges and hillsides. Bluestem grasses and needlegrasses dominate these habitats and three wildflowers are typically present in high quality sites that are suitable for Dakota skipper: pale purple (*Echinacea pallida*) and upright (*E. angustifolia*) coneflowers and blanketflower (*Gaillardia* sp.).

### Ecology and Life History

Dakota skippers have four basic life stages - egg, larva, pupa, and adult. During the brief adult (flight) period in June and July, female Dakota skippers lay eggs on the underside of leaves approximately 1-2 inches above the ground. These eggs take about 10 days to hatch into larvae. After hatching, the pale-brown larvae build shelters at or below the ground surface and emerge at night to feed on grass leaves until late summer or early fall when they become dormant. They overwinter as mid-stage larvae in shelters at or just below ground level, typically in the bases of native bunchgrasses. The larvae emerge to continue development the following spring. Pupation takes about 10 days and occurs primarily in June. Males emerge as adults about five days before females. Maximum life span as adults is about

three weeks. This brief period is the only time during which Dakota skippers can reproduce.

If they attain maximum longevity of about three weeks and if adequate sources of nectar are available, females may lay up to about 250 eggs. Nectar provides Dakota skipper with both water and food and is crucial for the survival of both sexes during the flight period. Dakota skippers appear to prefer plants, such as purple coneflowers (*Echinacea spp.*), whose nectar cannot be obtained by insect species that do not have a relatively long, slender feeding tube (proboscis). In the absence of preferred plants, Dakota skippers attempt to obtain sufficient nectar from less preferred species.

### **Reasons for current status**

Dakota skipper populations have declined historically due to widespread conversion of native prairie for agriculture and other uses. This has left remaining Dakota skipper populations isolated from one another in relatively small areas of remnant native prairie. States and Canadian provinces in the original range of Dakota skipper have each lost 85%-99% of their historical tallgrass prairie and 72%-99.9% of their historical mixed-grass prairie. This has left isolated fragments of native prairie, only some of which are suitable for Dakota skippers. Dakota skippers are sensitive to several types of artificial and natural disturbances and are almost always absent from remnant prairies that are overgrazed or otherwise degraded. Because of this sensitivity, the historical persistence of Dakota skippers may have depended on the vastness of the prairie and the availability of immigrants to repopulate areas in which the species had been eliminated by disturbances, such as fire or intensive bison grazing. Because the remaining populations of Dakota skipper are now largely isolated from one another, immigrating butterflies cannot reestablish populations made extinct by grazing, weed invasion, fire, or other causes. Even if they persist at such isolated sites, the lack of interaction with other populations reduces genetic diversity and may result in a reduced ability to adapt to environmental changes.

Although some species that depended on native prairie possessed adaptations that have allowed them to successfully occupy the types of habitat that occur in a modern agricultural landscape, Dakota skippers need high-quality native prairie habitats. In addition, many of the habitats where the species persists are threatened by over-grazing, conversion to cultivated agriculture, inappropriate fire management and herbicide use, woody plant invasion, road construction, gravel mining, invasive plant species, and, in some areas, historically high water levels. These factors threaten Dakota skipper populations on both public and private land. Although the threats are numerous, there are opportunities to address them and to effectively conserve the species. Dakota skippers and their native prairie habitat are dependent on some type of periodical disturbance; otherwise it would become shrubby or forested. Therefore, grazing, fire, or mowing, or a combination of these practices, are necessary for the species to persist. Because these practices may also eliminate populations, however, the methods by which they are implemented are crucial to the survival of the species.

### **What's being done to conserve Dakota skipper?**

The Service and the states have been working with private landowners and other partners in North Dakota, South Dakota, and Minnesota to conserve the Dakota skipper's native prairie habitat. With cooperation from landowners, we are able to survey for and study Dakota skippers and have entered into cooperative agreements to conserve the species. The conservation of Dakota skipper depends on private landowners. Excluding lands owned by conservation organizations, such as The Nature Conservancy, approximately 50 percent of all known populations are on private lands. Public agencies are actively seeking private landowners who are willing to sell easements or secure conservation agreements that would facilitate land management practices that are conducive to the conservation of Dakota skipper and other native prairie species. These easements often simply ensure the continued implementation of existing land uses that are compatible with prairie conservation.

On public lands and other conservation areas, land managers are using prescribed fire and other land management techniques to conserve Dakota skippers and their native prairie habitats. Fire is a natural component of prairie habitats, but Dakota skippers are vulnerable to fire at virtually all life stages and likely depended historically on repopulation from unburned areas to persist. Therefore, many land managers are ensuring that only a small proportion of Dakota skipper habitat is burned in any given year and are only burning as frequently as is necessary to achieve specific objectives, such as preventing succession from grassland to shrubs or trees. Finally, research is ongoing to better understand the effects of livestock grazing on Dakota skippers and surveys for the species are ongoing to locate populations that are yet undiscovered.

### **How can I find out more about Dakota skippers?**

For more information on Dakota skippers and ongoing conservation efforts, visit the Service's website at <http://midwest.fws.gov/endangered/> or contact one of the following offices:

#### **In Minnesota:**

U.S. Fish and Wildlife Service  
4101 E. 80<sup>th</sup> St.  
Bloomington, MN 55425  
Phone: (612) 725-3548 ext. 206  
Email: [Phil\\_Delphey@fws.gov](mailto:Phil_Delphey@fws.gov)

#### **In North Dakota:**

U.S. Fish and Wildlife Service  
3425 Miriam Avenue  
Bismarck, ND 58501  
Phone: (701) 250-4481  
Email: [Carol\\_Aron@fws.gov](mailto:Carol_Aron@fws.gov)

#### **In South Dakota:**

U.S. Fish and Wildlife Service  
420 South Garfield Ave., Suite 400  
Pierre, SD 57501  
Phone: (605) 224-8693  
Email: [Charlene\\_Bessken@fws.gov](mailto:Charlene_Bessken@fws.gov)

#### **References:**

U.S. Fish and Wildlife Service. 2002. *Status Assessment and Conservation Guidelines, Dakota skipper.*