



## U.S. Fish & Wildlife Service

### *Threatened and Endangered Species*

## Topeka Shiner in Minnesota

The Topeka shiner (*Notropis topeka*) is a small fish found in prairie streams in Iowa, Kansas, Minnesota, Missouri, and South Dakota. Under the Endangered Species Act it was federally listed as “endangered” in 1998.

The species has been extirpated from about 80 percent of its historical range due to degradation of stream habitats, stream channelization, construction of small impoundments, and introduction of predator fishes that are not native to its small stream habitat, like bass and northern pike. (See below for further details on the species’ life history.)

### **How does listing the Topeka shiner as “endangered” affect people who live within the range of the species?**

It is illegal for anyone to “take” (i.e., kill, harm, harass, capture, etc.) Topeka shiners without special permission (under Section 9 of the Endangered Species Act). This prohibition affects persons whose actions and projects may unintentionally or *incidentally* take Topeka shiners, even if that is not the purpose of their activity. Activities that may incidentally take Topeka shiners include bridge or culvert replacement projects and groundwater withdrawals near streams where Topeka shiners occur.

The U.S. Fish and Wildlife Service can issue permits to private landowners, corporations, state or local governments, or other non-federal landowners who want to conduct activities that might incidentally take Topeka shiners. To obtain a permit, the applicant must prepare a Habitat Conservation Plan (HCP) that offsets the harmful effects that the activity may have on the species. The HCP allows development to proceed while promoting listed species conservation.



Photo by ©Konrad Schmidt

*Topeka shiners were once found in prairie streams throughout the midwest.*

### **What would a typical Habitat Conservation Plan involve?**

The permit applicant would have to offset the take of Topeka shiners that is likely to occur as a result of their project. The applicant would work with the Service to ensure that the mitigation sufficiently offsets the impacts to Topeka shiners. In other words, small impacts would require relatively small mitigation projects and large impacts would require more substantial mitigation. Mitigation could include actions such as fencing to prevent or reverse livestock impacts to streams inhabited by Topeka shiners, streambank restoration, or other habitat practices.

### **Is critical habitat designated for the Topeka shiner in Minnesota?**

Yes. On July 27, 2004, the Service designated critical habitat on 57 stream segments totaling 605 stream miles in Minnesota. This included, more or less, all of the stream segments known to be occupied by the Topeka shiner at the time. Since then, Topeka shiners have been documented in additional stream segments. Therefore, the Topeka shiner is known to occur both within and

outside of stream segments designated as critical habitat.

### **Do I have to do anything different if my project is within Topeka shiner critical habitat?**

The Act only prohibits *federal agencies* from destroying or adversely modifying critical habitat. However, the Act’s prohibitions against “take” of Topeka shiners apply to everyone, not just federal agencies (see the first answer).

### **Where is Topeka shiner critical habitat?**

In Minnesota, Topeka shiner critical habitat is distributed throughout the Big Sioux River and Rock River watersheds. To determine whether a specific area is Topeka shiner critical habitat, contact the U.S. Fish and Wildlife Service.

### **Who do I contact in Minnesota to determine what is required under the Endangered Species Act?**

Contact the U.S. Fish and Wildlife Service by phone at (612) 725-3548 or by e-mail at [Richard\\_Davis@fws.gov](mailto:Richard_Davis@fws.gov). The Service will answer questions about your specific project and can provide technical assistance to help you

determine whether your action requires an incidental take permit.

### Natural History Information

The following information is reprinted, with permission, from the website *Natural Fishes of Minnesota* ([http://www.gen.umn.edu/research/fish/fishes/topeka\\_shiner.html](http://www.gen.umn.edu/research/fish/fishes/topeka_shiner.html)).

### Where do they live?

In Minnesota, Topeka shiners occur only in streams of the Missouri River drainage in the southwestern corner of the state. They inhabit the Rock River and many of its tributaries, as well as many of the streams that flow into Big Sioux drainage of South Dakota. These low-gradient, slow-moving streams are naturally winding, with bottoms made of sand, gravel, or rubble usually covered by a deep layer of silt. We have recently discovered that Topeka shiners prefer

pool-like areas that are outside the main channel courses. These pools are in contact with groundwater and usually contain vegetation and areas of exposed gravel. Topeka shiners almost always are found with sand shiners, orange-spotted or green sunfish, fathead minnows, white suckers, and black bullheads.

### How big do they get and how long do they live?

Topeka shiner size varies considerably by sex and location. The largest males reach 2.8 to 3 inches and a little over 0.18 oz. The largest females reach 2.4 to 2.6 inches and a little over 0.11 oz. They typically reach about 2 years of age, but a few live as long as 3 years.

### What do they eat?

Topeka shiners are omnivorous (eat plant and animal matter) opportunists

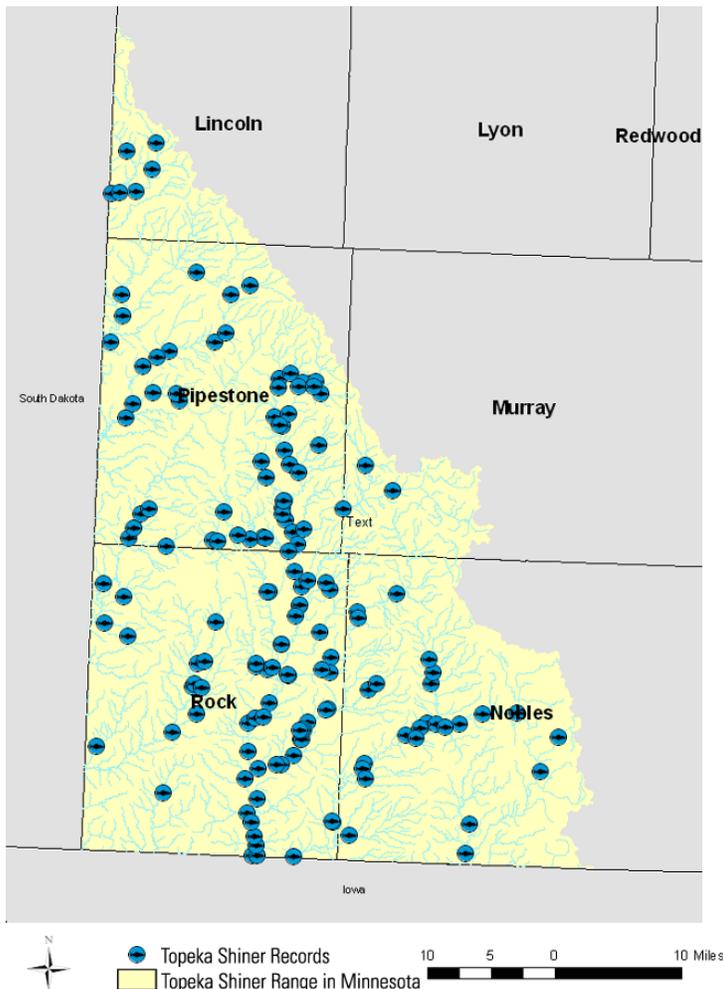
(they eat what's available). We have found over 25 different food groups in their stomachs in Minnesota. These groups include nine orders of insects, five kinds of waterfleas, snails, fingernail clams, water mites, worms, freshwater sponge, moss animals, sideswimmers, algae, plant stems and seeds, and fish larvae. If it is not too big, they eat it!

### What eats them?

Topeka shiners could be eaten by larger creek chubs, black bullheads, yellow perch, and the occasional northern pike. However, we have found their remains in only a few stomachs out of hundreds that we examined. However, in Kansas and Missouri, largemouth bass that have been stocked in ponds are a major predator and may be partly responsible for their decline in those states.

### How do they reproduce?

Most Topeka shiners mature sometime during the spring or summer of their second year (at 11-13 months of age). Their spawning season lasts for 8-10 weeks starting in mid-May to early June when water temperature reaches 22° C (71.6° F). They do not build their own nest, but share a nest with orange-spotted or green sunfish. Males establish small territories around the nest and aggressively defend it from all other Topeka shiners. Females may enter a territory only to be chased out repeatedly. If she is persistent she will finally be accepted by the male. The two spawn head to head above the nest. The female releases only a few eggs during each brief spawning episode. Topeka females produce clutches of eggs (groups of eggs that become ready for spawning at about the same time). A single clutch varies from 150-800 eggs depending on the size and condition of the female. We do not know how many clutches a female produces in a season, but we suspect it is several. At 22° C it takes about 5 days for the eggs to hatch and another 4 days before the larvae begin to feed.



*In Minnesota, the federally endangered Topeka shiner occurs only in the Big Sioux and Rock River watersheds, where they are widespread. Persons implementing actions in these areas should ensure that they are in compliance with the Endangered Species Act. Topeka shiners also occur in South Dakota and Iowa, but records for those states are not shown here. Data provided by Minnesota DNR, Natural Heritage and Nongame Research Program and are current as of June 23, 2006*

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