

Plains Topminnow

The “Minnow” That Isn’t a Minnow

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South Dakota Game, Fish, and Parks

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*One fish, Two fish, Red fish, Blue fish,
Black fish, Blue fish, Old fish, New fish.*

This one has a little star.

This one has a little car.

Say! What a lot of fish there are.

-Dr. Seuss

Hovering just below the water’s surface, feeding on plankton and small insects, the Plains Topminnow (*Fundulus sciadicus*) is easily identified by their prominent gold stripe found along the midline of their back.

Commonly misconstrued as a minnow, the Plains Topminnow isn’t really a minnow, but rather a small fish of a completely different family. Topminnows and killifish are members of the family Fundulidae, a group of small fish characterized by having protruding lower jaws adapted for surface feeding. Three species of Fundulidae are found in South Dakota: Banded Killifish (*Fundulus diaphanus*) (state endangered), Northern Plains Killifish (*Fundulus kansae*), and the Plains Topminnow (rare) [See page 14].

DESCRIPTION

Plains Topminnows are greenish-olive in color, with a light underside. The sides have blue-green cross hatchings and lack bars or streaks. It can grow up to 3 inches in length. The head is broad and flat. The caudal (tail) fin is rounded without a fork and the dorsal fin and anal fin are situated above one another. The identifying characteristic, however, is the gold stripe on its back.

There are few differences between the male and female topminnow except during spawning season when males display red-orange fins.

HABITAT

Topminnows are commonly found in backwater areas, sloughs and spring-fed pools of small to medium sized streams. They favor dense aquatic vegetation with clear to moderately turbid water and sand or rock bottoms.

REPRODUCTIVE BIOLOGY

With a maximum life span of four years, topminnows reach sexual maturity during their second summer. Spawning consists of one reproduction event per year between late April and early July when water temperatures reach 65° to 75° F. Eggs are laid on aquatic plants, and the eggs hatch in approximately 14 days.

DISTRIBUTION

The Plains Topminnow is native to the central US with two isolated populations. The largest is centered in Nebraska and extends to northeastern Colorado, southwestern Wyoming, southern South Dakota, southwestern Minnesota and Iowa. The second population is centered in Missouri which extends from Kansas south to Oklahoma. In South Dakota, topminnows are found in the southern portion of the state in tributaries to the Cheyenne, Keya Paha, Little White, Big Sioux, Niobrara, Vermillion and James River basins.

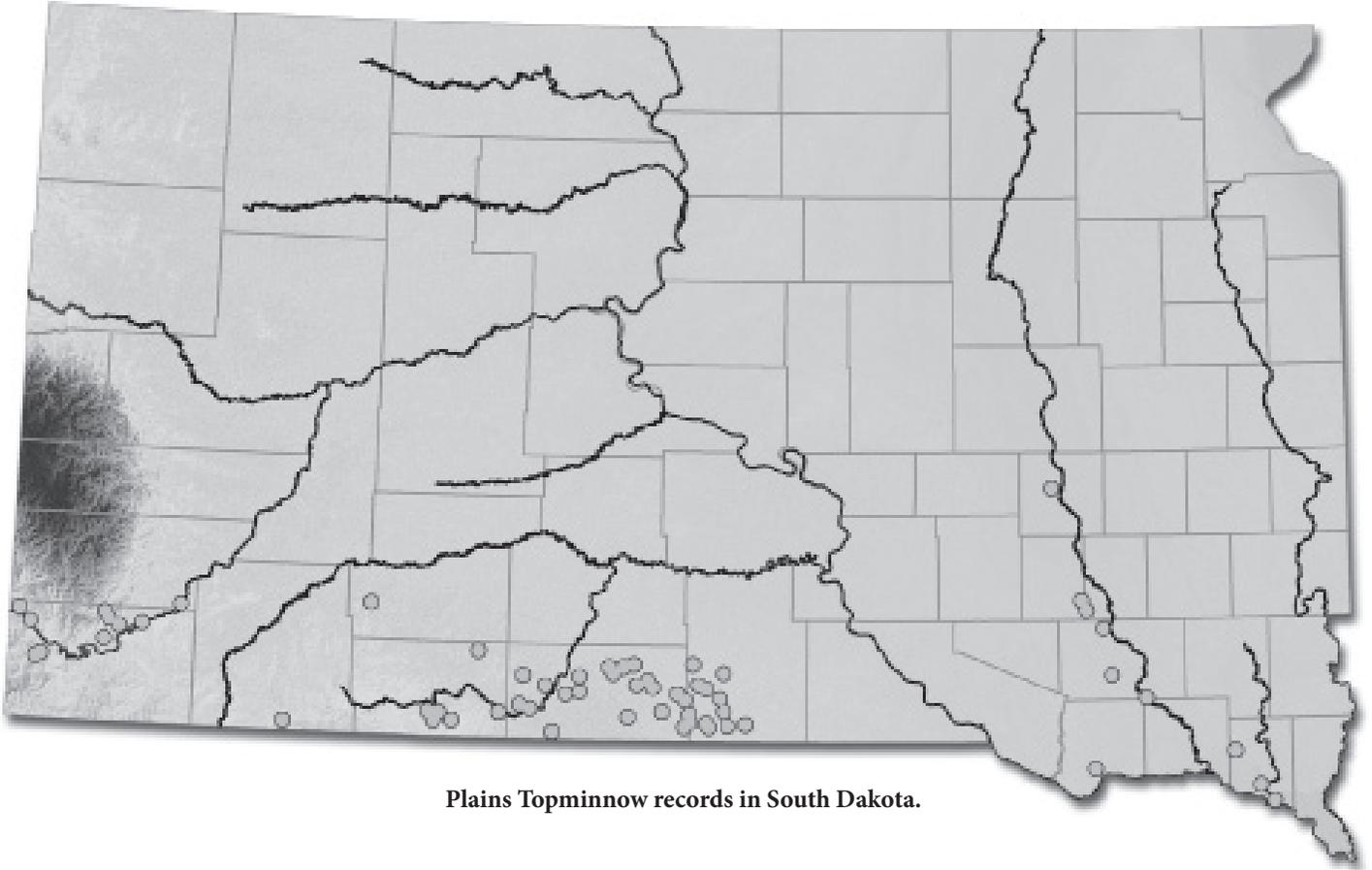
STATUS

Currently, topminnows do not have a federal conservation status; however, recent reports suggest their population is declining by as much as 70% with the largest declines in the southern portion of their range. In Iowa, it had been presumed extirpated, although recent sampling along the border of Minnesota found them within a single drainage. Kansas lists the Plains Topminnow as threatened and in Colorado, Minnesota, Missouri, Nebraska, Oklahoma, and Wyoming topminnows are listed as a species of greatest conservation need. In South Dakota, topminnows are rare and listed as a species at risk. Monitored by the Natural Heritage Program, rare species are those that are declining and restricted to limited habitat, peripheral to a jurisdiction, isolated or disjunct due to geographic or climatic factors or that are classified as such due to lack of survey data.

POTENTIAL THREATS

Recent declines in the Plains Topminnow’s range is paralleled with the loss of other riverine species, including the federally endangered Topeka Shiner (*Notropis topeka*) and Pallid Sturgeon (*Scaphirhynchus albus*). No singular cause seems to be responsible across the topminnow’s range; however, observed factors include stream alterations, degradation of habitat, loss of stream connectivity and the introduction and spread of non-native species.

Current surveys found that Plains Topminnow occur in relatively isolated populations across watersheds. These patchy dis-



Plains Topminnow records in South Dakota.

tributions most likely reflect the lack of suitable habitat connections among appropriate habitats. Because backwater areas historically would be created and lost in prairie streams, re-colonization of these depopulated areas was likely an important aspect in the evolutionary history of topminnows. However, lowered water tables, drought, and the construction of culverts and dams likely limit re-colonization by Plains Topminnow.

Another potential threat to topminnow populations is the introduction and spread of non-native species. Topminnows are seldom found in association with larger piscivorous (fish-eating) fishes. Historically, sport fish such as Largemouth Bass (*Micropterus salmoides*) and Green Sunfish (*Lepomis cyanellus*) were absent or rare in prairie streams. However, the construction of stock ponds and irrigation reservoirs has led to the widespread stocking of sport fish across the US. These fish are capable of escaping impoundments during flood events and persisting in small streams. The impact of sport fish stockings have not been studied for topminnow, but have the potential to be detrimental to a small species.

In addition to the introduction of non-native sport fish, riverine environments have experienced shifts in species assemblages towards non-native generalist species. One species that has been widely implicated in declines of native species, including the plains topminnow, is the Western Mosquitofish (*Gambusia affinis*). Introduced worldwide as a biological control agent of mosquito larvae, the Mosquitofish does not selectively feed on mosquito larvae but rather is an aggressive generalist feeder. Mosquitofish have led to the decline and loss of fish, aquatic invertebrates and amphibian species by predation, competition and harassment almost everywhere introduced.

WHY SHOULD WE CARE?

Why should the fate of this small fish concern us? After all, the topminnow is not a sport fish and most people have never seen one. But it's the message that the topminnow, and other "indicator" species, relay that's important. Eventually, all organisms (including people) are affected when a system becomes degraded; indicator species just respond to those changes sooner. The topminnow can tell a story of a watershed's past health and warn us of future problems.

Chelsey Pasbrig is an aquatic biologist with the South Dakota Department of Fish, Game and Parks. As a graduate student at the University of Nebraska Kearney, her thesis research studied the Plains Topminnow and she hosted a conference on the species in 2009. NANFA members Bob Hrabik and Konrad Schmidt attended as representatives from their respective states to provide presentations on the species' status. The U. S. Fish and Wildlife Service is currently reviewing the Plains Topminnow as a federal candidate species for endangered or threatened status. 🐟

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Non-credited photos on pages 14 and 17 by Konrad Schmidt



Male Plains Topminnow (*Fundulus sciadicus*)



09.12.2007

Collecting tip: scoop upwards through submerged and overhanging vegetation



Female Plains Topminnow



09.12.2007

And Voila! A net full of Plains Topminnows



The midline gold stripe in Plains Topminnow



Close-up of Plains Topminnow habitat