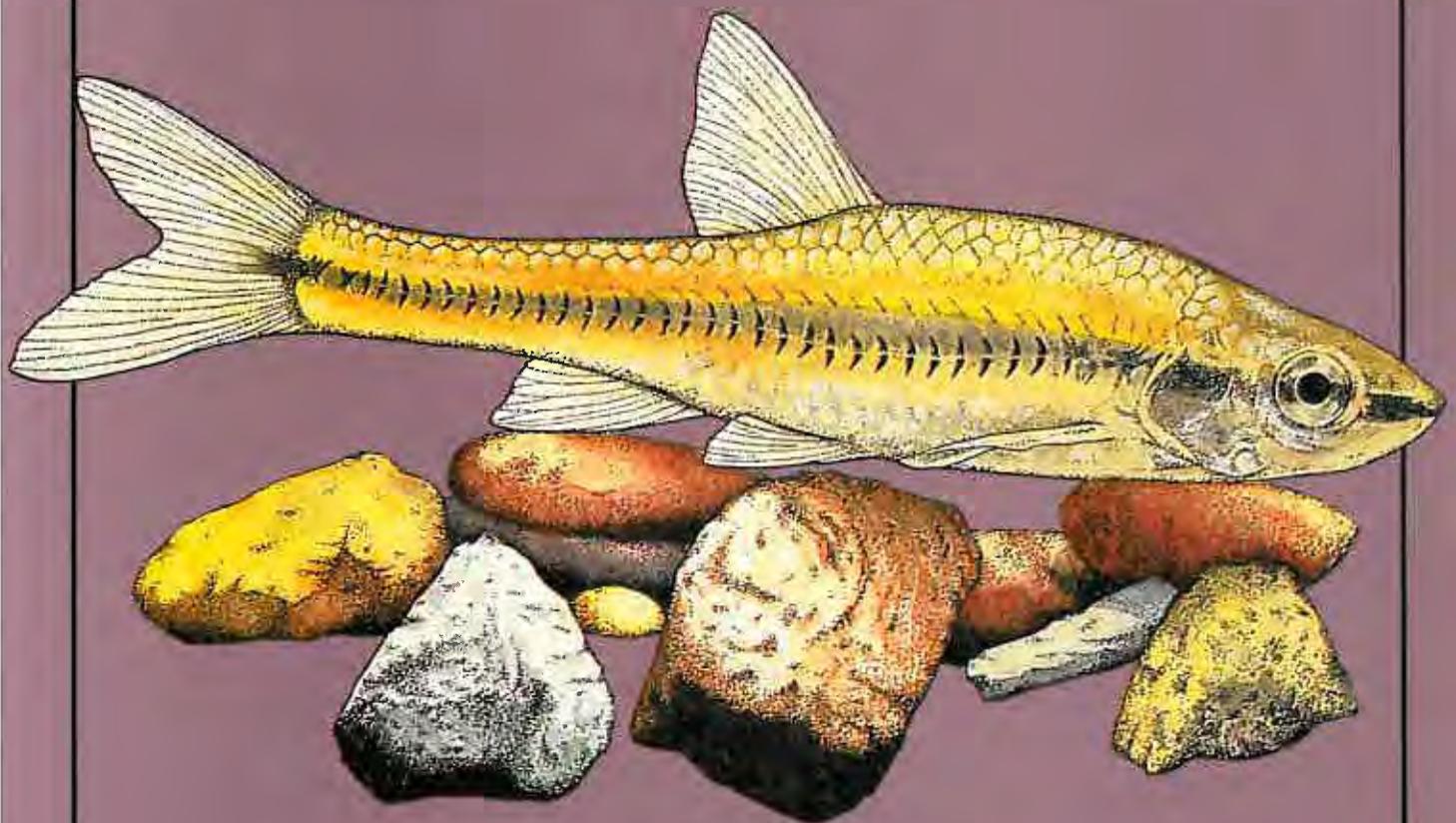


# NEBRASKA'S

## *Threatened and Endangered Species*



### *Blacknose Shiner*



NEBRASKA GAME AND PARKS COMMISSION

# Blacknose Shiner — A threatened species

## Status

Historically, the blacknose shiner (*Notropis heterolepis*) was widely distributed in cool, clear streams across the northeastern and north-central United States and southeastern Canada. In Canada it ranged from the Hudson Bay drainage and Saskatchewan east to Nova Scotia, and in the United States from Maine west to Nebraska and south to central Kansas, Missouri, Tennessee and Ohio.

During the 1900s, the number of blacknose shiners in North America began to decline, and the species disappeared from much of its southern range. It is seldom found from Ohio west to Iowa and is extremely rare in Missouri, Kansas, Tennessee and Nebraska. It is still considered common and widespread in Ontario, Minnesota and Wisconsin.

In Nebraska this fish is found only in clear, well-oxygenated portions of streams that are relatively undisturbed by humans, and in the late 1800s, the blacknose shiner was said to be one of the most abundant fish species in Nebraska. It was recorded as far west as Chadron Creek in Dawes County and east to Bazile Creek in Knox County. The blacknose shiner began to decline in abundance and distribution in Nebraska in the early 1900s, when it was collected only three times: from Bazile Creek in Knox County, Gordon Creek in Cherry County and the Blue River in Saline County. Since the 1930s, the number of blacknose shiners in Nebraska has declined even more. It is now an extremely rare inhabitant of certain relatively pristine streams along Nebraska's

northern border. It is gone from most other places and has been collected in only four streams since 1939. Recent collections include one fish from the Niobrara River in Dawes County in 1983, and four from Gordon Creek in Cherry County in 1989. It is thought to be common in only two Nebraska streams, Brush Creek in Cherry County and Holt Creek in Keya Paha County.

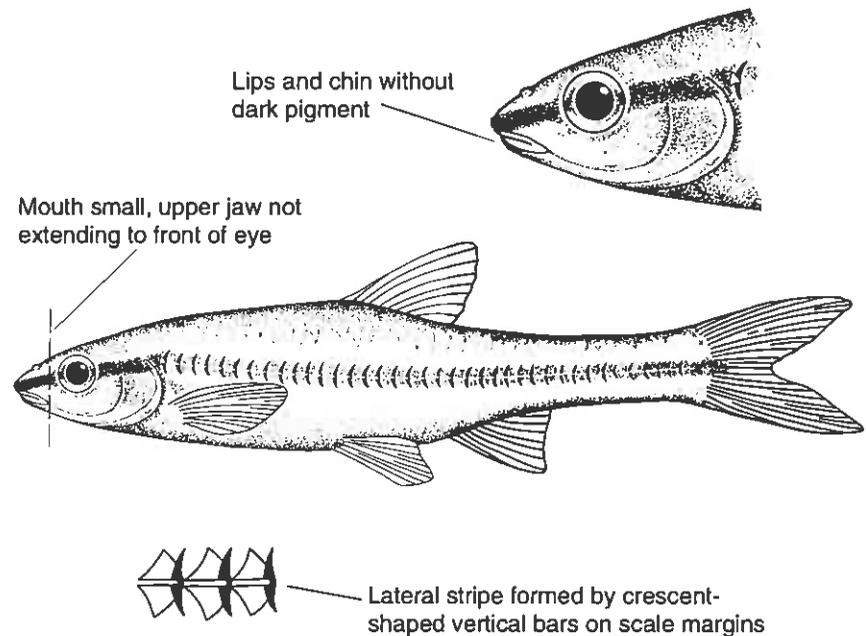
## Description

The blacknose shiner is a member of the minnow family, Cyprinidae. To most people, any small fish which can be used for bait is a minnow, but to biologists, minnows share several features that distinguish them as a group. Our native minnows are usually small, the adults ranging in length from about 2 inches to about 12 inches. However, some minnows from other parts of the world, including the carp and grass carp, can grow much larger.

Native minnows have short dorsal fins with 10 or fewer rays. Their fins have no sharp spines. The most distinct characteristic of minnows is the unique set of teeth in their throats called pharyngeal teeth. Minnows have no teeth in their mouths, but arches behind the gills carry bony projections used to mince food into small particles before it is swallowed. Biologists can determine the species of a minnow by looking at its pharyngeal teeth.

There are more than 100 species of shiners in North America. Shiners appear to have metallic silver or gold sides and are usually placed in the genus *Notropis*. The blacknose shiner, one of the rarest fish species in Nebraska, belongs to this group.

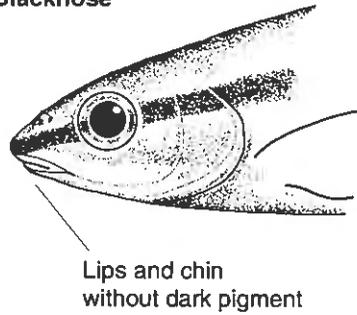
The blacknose shiner, a slender, silvery minnow with rather large eyes and a small mouth, can be distinguished from other minnows in Nebraska without looking at the pharyngeal teeth. Its back is a pale olive-yel-



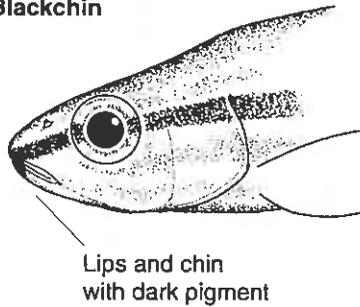
low, its sides silvery with a prominent dusky stripe. The belly is white. Adults range in length from about 1.5 to 3 inches. Their most distinguishing characteristic is the black stripe along the side extending from the tail fin through the eye and around the tip of the snout. It does not extend downward onto the lip and chin. The stripe is formed by prominent, crescent-shaped, black vertical bars on the scale margins.

In Nebraska, the blacknose shiner cannot be confused easily with any other minnow. The species it most resembles is the blackchin shiner which is not found in Nebraska, but occurs east and south in Iowa, Minnesota, southern Kansas and Missouri. Unlike the blacknose shiner, the dark side-stripe of the blackchin shiner extends onto the lips and chin.

**Blacknose**



**Blackchin**



## Habitat and Habits

Although it is a wide-ranging species, at times occurring in considerable numbers, a detailed description of the blacknose shiner's biology apparently has never been made. However, throughout its range, this small shiner has been found to prefer quiet, clean, weedy, shallow streams of a low gradient with bottoms composed of sand, gravel, muck, mud or peat. In

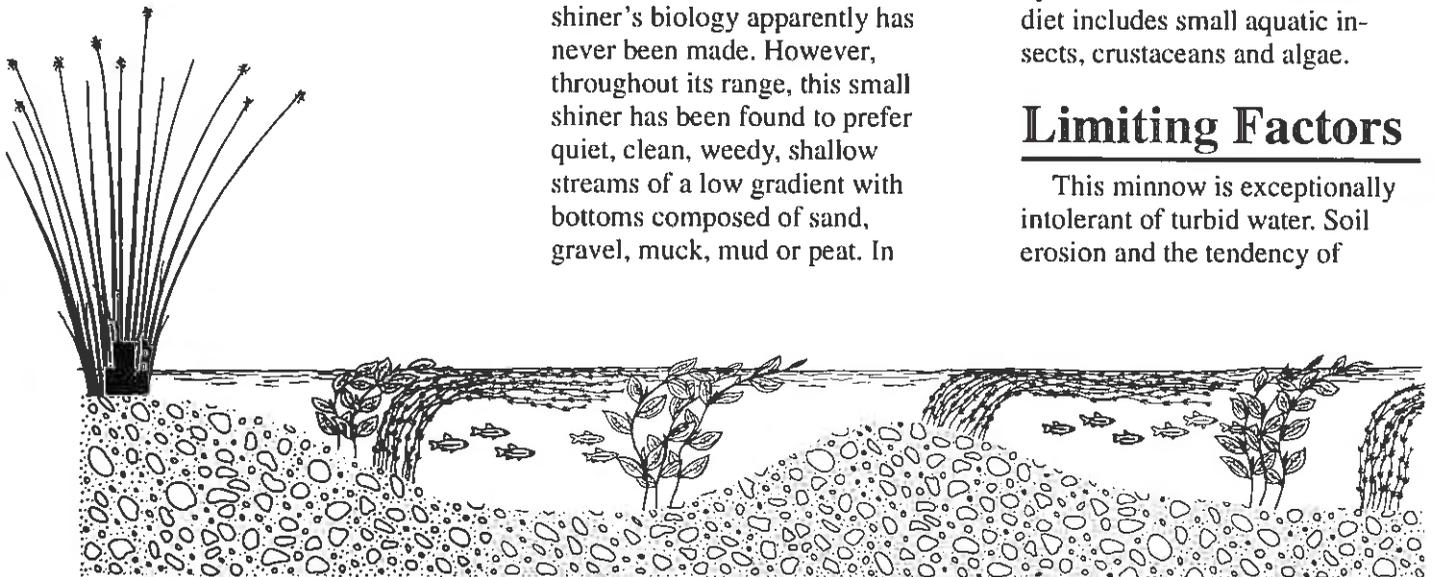
Nebraska it prefers cool, weedy pools in undisturbed small prairie streams with sand bottoms. Aquatic vegetation, in the form of pondweed and muskgrass (*Potamogeton* and *Chara*) and various forms of algae, is usually abundant. The banks of the streams are usually dominated by dense, overhanging vegetation, such as willows, that shade the stream and help to maintain its cool temperature.

The blacknose shiner cannot tolerate pollution, particularly in the form of continuous turbidity, and it is quickly eliminated by silt. Thus, the presence of this minnow can indicate a relatively pristine stream habitat.

The blacknose shiner lives in schools in midstream and often occurs in association with the northern redbelly dace, common shiner and brassy minnow. It spawns in spring and summer over sandy bottoms and has been found spawning in Nebraska during the last week of June. It can reach a length of 1.5 inches by the end of its first summer. Its diet includes small aquatic insects, crustaceans and algae.

## Limiting Factors

This minnow is exceptionally intolerant of turbid water. Soil erosion and the tendency of



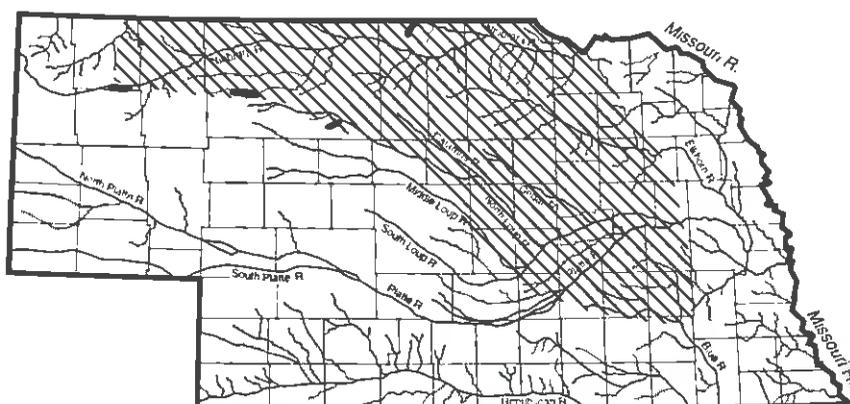
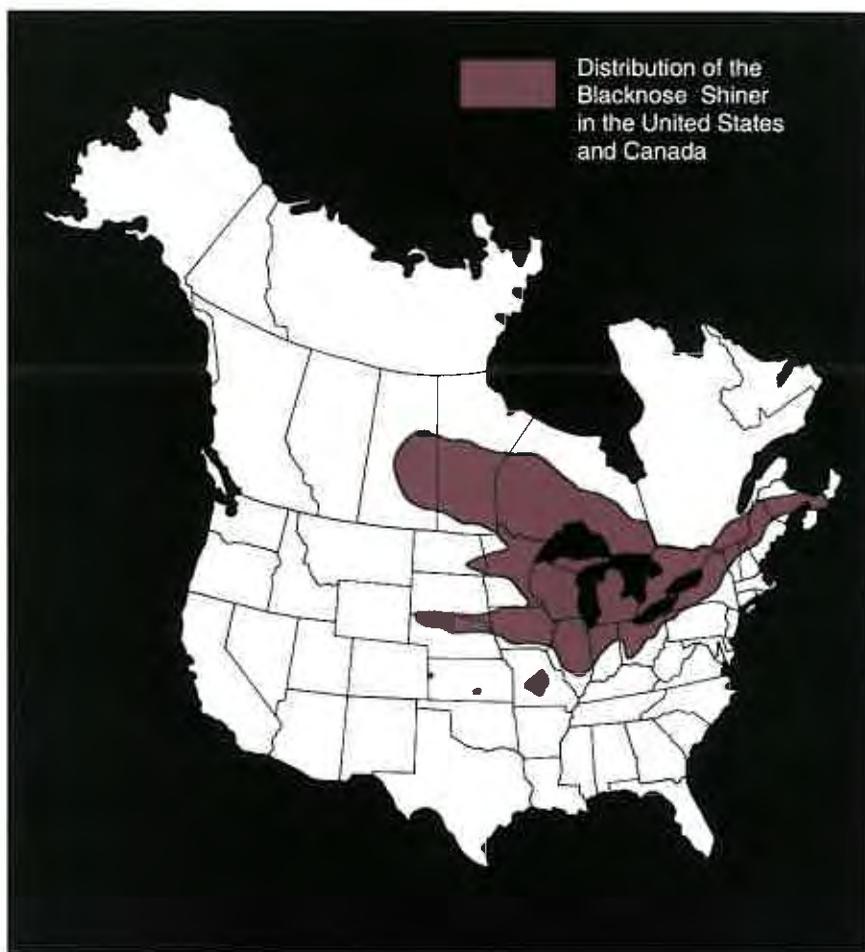
In Nebraska, the blacknose shiner prefers small prairie streams with abundant aquatic vegetation such as pondweed and muskgrass.

smaller streams to dry up as the result of intensive cultivation and cattle grazing seem to be the most important factors in its declining abundance. In Nebraska, the blacknose shiner has been eliminated from cultivated areas. The largest remaining populations are found in two Sandhills streams where soils are less conducive to intensive agriculture.

Other factors that may be affecting the blacknose shiner include pollution in the form of pesticide runoff, effluent from urban areas and cattle feeding operations, the presence of competitive or predaceous fish species and the taking of this species for bait. Pesticide runoff can deplete or contaminate invertebrates, a major food source for this small fish. Release of untreated sewage from urban areas can increase turbidity and contaminate streams. In some places, cattle feedlots are precariously close to small streams and during high production can drain into them, resulting in increased turbidity and possible contamination. Native fish species can be displaced or eliminated from areas by non-native fish species capable of out-competing them for food and space. The introduction of non-native, competitive or predaceous fish species should be avoided in areas known to be occupied by the blacknose shiner.

## Management and Outlook

It is possible that the blacknose shiner may still occur in other Nebraska streams. However, many Nebraska streams are



Historic Distribution



Present Distribution

badly degraded, and this species requires a relatively pristine habitat. For the blacknose shiner to survive in Nebraska, protection of its remaining populations and their habitat is critical. Current efforts focus on protecting the two known populations and finding additional populations. To protect the known populations, instream flow rights may need to be obtained to prevent dewatering. Additionally, bands of native vegetation may need to be established along stream banks to help control siltation and pesticide runoff. Potential effects from urban areas and cattle feeding operations should be investigated. Cattle may need to be fenced from critical habitat.

The Game and Parks Commission will continue to review its policies concerning the introduction of predaceous, competitive and non-native fish species into habitat occupied by the blacknose shiner and will review the need for additional legislation or regulations to prevent the introduction of non-native species by



Holt Creek, one of two Nebraska streams with blacknose shiners.

private citizens or organizations.

Currently, Game and Parks Commission regulations prohibit seining or trapping bait fish or minnows from streams known to be occupied by endangered or threatened fish. The list of streams in which collecting minnows for bait is restricted will continue to be updated as necessary to protect known populations of the blacknose shiner.

Future efforts may also require reintroduction of the blacknose shiner into streams with suitable unoccupied habitat. This would prevent the loss of the species to local catastrophic events.

The continued survival of the blacknose shiner in Nebraska depends heavily on the cooperation and participation of government agencies, local governments and private landowners. The blacknose shiner is currently protected as a threatened species in Nebraska, but to prevent its elimination it will be necessary to protect essential aquatic habitats. This will require the implementation of a habitat management program that may include acquisition of land, obtaining conservation easements or developing cooperative agreements with landowners.

Management programs will benefit not only the blacknose shiner but many other aquatic species as well, and will help to prevent the loss of a portion of Nebraska's native fauna.



Blacknose Shiner (*Notropis heterolepis*)



The blacknose shiner inhabits clean, weedy, shallow streams.

### Suggested Reading

- Johnson, R. E. 1942. *The Distribution of Nebraska Fishes*. Ph.D. dissertation. University of Michigan. Kalamazoo, MI. 132 pp.
- Madsen, T. I. 1985. *The Status and Distribution of the Uncommon Fishes of Nebraska*. M.S. thesis, University of Nebraska, Omaha, NE. 97 pp.
- Nebraska Game and Parks Commission. 1987. *The Fish Book*. NEBRASKALand Magazine, 65 (1). 130 pp.
- Pflieger, W. I. 1975. *The Fishes of Missouri*. Missouri Department of Conservation. 343 pp.
- Scott, W.B. and E. J. Crossman. 1973. *Freshwater Fishes of Canada*. Fisheries Research Board of Canada. Bulletin 184. 966 pp.

*Blacknose Shiner* is one in a series of *Nebraska's Threatened and Endangered Species* brochures published by NEBRASKALand Magazine and the Nebraska Game and Parks Commission with funds from Nebraska's Nongame Wildlife Tax Checkoff. Text by Heritage Zoologist Mary Clausen, Nebraska Game and Parks Commission. Photos: Page 5: Ken Bourc; Page 6: Mary Clausen. Illustration by Randall Bright. March 1992. Portions of the blacknose shiner description are based on Richard Stasiak's, *Mimnows and Killifish*. *The Fish Book*, Nebraska Game and Parks Commission, Jan/Feb 1987.

**Note:** New data on the occurrence and distribution of this species are being collected constantly and some of the information in this publication may be outdated. It should be used for a general understanding of the status of this species in Nebraska and not as the sole source of locational information for any report, project, regional/local planning or environmental impact assessment. For current information on this or other threatened and endangered species, or for additional copies of this publication, contact the Wildlife Division, Nebraska Game and Parks Commission, P.O. Box 30370, Lincoln, NE 68503.



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