



## Fish Community Monitoring in Prairie Park Streams

### Importance: *Emphasis on Topeka shiner*

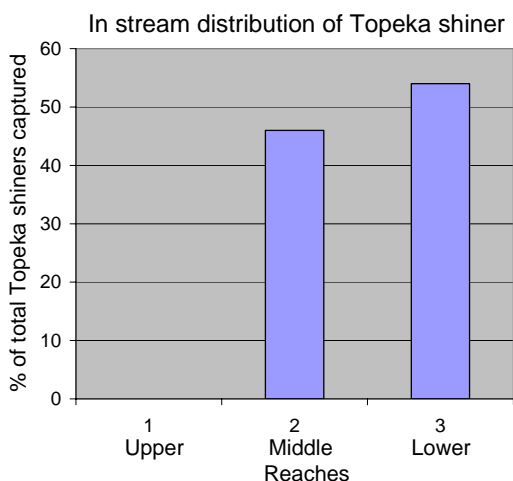
Federally endangered Topeka shiners (*Notropis topeka*) live in small prairie streams with good water quality. Competing uses for water, changes in water quality and stream modifications affect their once pristine habitat. Introduction of predacious fish to prairie streams coupled with the loss of Topeka shiner habitat have devastated the populations. National Park Service (NPS) lands may provide some of the most suitable Topeka shiner habitat remaining in the fish's historic range. The US Fish and Wildlife Service has designated Pipestone Creek in Pipestone National Monument and proposed designation of streams at Tallgrass Prairie National Preserve (Tallgrass) as critical habitat for species recovery.



### Long Term Monitoring: *Distribution, abundance and reproductive success*<sup>1</sup>

Heartland Network Inventory and Monitoring Program scientists focused fish surveys at 11 high quality prairie streams in Tallgrass and at Pipestone Creek from 2001 through 2004. They also sampled Cub Creek at Homestead National Monument of America, because this creek fit the criteria for potential habitat. The surveys would discover trends in distribution and abundance of shiner. Crews used two-person seines to capture fish from pools in the upper, middle, and lower reaches of the streams. Fish were identified and enumerated by species in the field. Measurements taken on Topeka shiners before release were used to calculate the ratio of juveniles to adults and evaluate reproductive success. Crews also assessed stream habitat through analysis of chemical and physical parameters to further their understanding of the relationships between Topeka shiner and in-stream habitat.

### Status and Trends: *Multiple factors in habitat selection*



Small prairie streams have rich fish communities, but species richness and community complexity change between upper, middle, and lower reaches. Park managers must protect habitat in middle and lower reaches on small prairie streams to foster the remaining Topeka shiner populations within their preferred habitat (Figure 1). Additionally, scientists observed:

1. Topeka shiners appear to use water temperature as an important factor determining their distribution, although temperature alone does not explain distribution.
2. Substrate composition may influence Topeka shiner distribution.

Figure 1: Topeka shiners select middle and lower reaches.

Heartland Network Inventory and Monitoring Program of the National Park Service. Visit [www1.nature.nps.gov/im/units/hln/index.htm](http://www1.nature.nps.gov/im/units/hln/index.htm).

... protecting the habitat  
of our heritage



<sup>1</sup> David G. Peitz and J. Tyler Cribbs. 2005. Summary Report: (2001-2004) Fish Community Monitoring in Prairie Park Streams with Emphasis on Topeka Shiner (*Notropis topeka*). Heartland I&M Network, Wilson's Creek National Battlefield, Missouri, National Park Service, unpublished