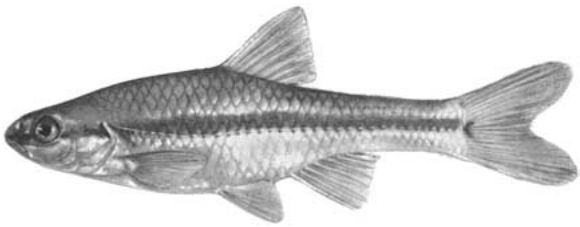
Environmental Biology of Fishes **70:** 246, 2004.

Threatened fishes of the world: *Notropis topeka* Gilbert, 1884 (Cyprinidae)

Steven S. Wall[a] & Charles R. Berry Jr.[b]
[a]*Department of Wildlife and Fisheries, South Dakota State University, Brookings, SD 57007, U.S.A. (e-mail: steven_wall@sdstate.edu)*
[b]*U.S. Geological Survey, Biological Resources Division, South Dakota Cooperative Research Unit, South Dakota State University, Brookings, SD 57007, U.S.A. (e-mail: charles_berry@sdstate.edu)*



Common name: Topeka shiner (E). **Conservation status:** Federally endangered in U.S.A. Listed as endangered in Missouri, threatened in Iowa and Kansas, and as a species of concern in South Dakota. **Identification:** The Topeka shiner is a stout minnow reaching a maximum length of about 75 mm TL. The Topeka shiner is similar in appearance to the sand shiner (*Notropis stramineus*), a sympatric species that is more abundant than *Notropis topeka*. Distinctive characteristics of the adult Topeka shiner include a dusky lateral band extending from the head to the caudal fin, a distinct chevron-like black spot at the base of the caudal fin, an olive-green to olive-yellow color above the lateral line and white to silver below, and a mid-dorsal stripe anterior to the dorsal fin. The scales above the lateral line are dark-edged and appear to be chiseled into the body. Scales below the lateral line lack pigment. Dorsal scales are crowded toward the front of the head. The front of the dorsal fin base is closer to the tip of the snout than to the base of the tail. Breeding males have orange to red colored fins, and the head has a golden hue. D 8, A 7, P 13, LL 32-37. Illustration by F.A. Carmichael (Cross & Collins 1995). **Distribution:** The Topeka shiner was historically distributed in small streams of the Missouri, Mississippi, and Arkansas River basins in the central prairie region of the U.S., specifically Kansas, Nebraska, Missouri, Iowa, South Dakota and Minnesota. Topeka shiner populations have become fragmented and now occur in about 20% of its range (Tabor 1998). Recent findings of Topeka shiner populations at both historic and new locations in Minnesota and South Dakota (Hatch 2001; Wall et al. 2004) show that the species is more persistent in the northern part of its range than the southern part. **Habitat and ecology:** Topeka shiners occur in pools of low order prairie streams with cool, clear water, low gradients, low velocities, and substrates ranging from silt-covered hardpan clay to clean gravel and cobble (Tabor 1998); in low to medium order streams with moderate turbidity and warm temperatures (Wall et al. 2004); and in floodplain pools (Clark 2000; Hatch 2001). In South Dakota Topeka shiners were associated with stream-sizes ranging from headwaters to small rivers, flow stability (although streams can be intermittent), low channel gradient, and groundwater input (Wall et al. 2004). Reach-scale habitat features associated with Topeka shiner presence included: grassland or pasture riparian zones, low bank height, low bank incision, submerged vegetation, overhanging vegetation of grasses and forbes, and substrates of fine gravel to cobble (Blausey 2001). Groundwater-fed pools are considered important to the species throughout its range. The Topeka shiner was associated with pioneer species (Blausey 2001), and is an omnivore, functioning as both a benthic and nektonic feeder (Hatch 2001). **Reproduction:** Topeka shiners spawn between late May and early August, when water temperatures reach 22°C, and are multiple-clutch nest associates of sunfish, but also utilize other silt free substrates (Hatch 2001). Sexual maturity is determined by size rather than age, and females can be mature at 40-mm TL, males at 48-mm TL. Males defend spawning sites. **Threats:** Altered stream hydrology and water quality caused by wetland drainage, tiling, stream channelization, impoundments, groundwater withdrawal, and intensive agriculture have probably caused Topeka shiner populations to decline. Schrank et al. (2001) associated impoundments stocked with largemouth bass (*Micropterus salmoides*) with the extirpation of local Topeka shiner populations. **Conservation actions:** A federal recovery plan and two state management plans (Missouri, South Dakota) are being developed. Critical habitat has been proposed. **Conservation recommendations:** Decision support tools such as gap analysis (Jennings 2000) offer innovative approaches to recovery and conservation for this species (Wall et al. 2004).

Blausey, C.M. 2001. The status and distribution of the Topeka shiner (*Notropis topeka*) in eastern South Dakota. M.S. Thesis, South Dakota State University, Brookings, SD. 113 pp.

Clark, S.J. 2000. Relationship of Topeka shiner distribution to geographical features of the Des Moines Lobe in Iowa. M.S. Thesis, Iowa State University, Ames, IA. 54 pp.

Cross, F.B. & J.T. Collins. 1995. Fishes in Kansas. 2nd edition, revised. Public Education Series No. 14, Collins J.D. (ed.) University Press of Kansas, Lawrence Kansas. 316 pp.

Hatch, J.T. 2001. What we know about Minnesota's first endangered fish species: The Topeka shiner. J. Minn. Acad. Sci. 65(1): 39–46.

Jennings, M.D. 2000. Gap analysis: Concepts, methods and recent results. Landscape Ecol. 15: 5–20.

Schrank, S.J., C.S. Guy, M.R. While & B.L. Brock. 2001. Influence of instream and landscape-level factors on the distribution of Topeka shiners (*Notropis topeka*) in Kansas streams. Copeia 2001(2): 413–421.

Tabor, V.M. 1998. Final rule to list the Topeka shiner as endangered. Federal Register 63 (240): 69008–69021. United States Department of Interior, United States Fish and Wildlife Service, Manhattan, Kansas. 26 pp.

Wall, S.S., C.R. Berry Jr., C.M. Blausey, J.A. Jenks & C.J. Kopplin. 2004. Fish-habitat modeling for gap analysis to conserve the endangered Topeka shiner (*Notropis topeka*). Can. J. Fish. Aquat. Sci. 61(X): in press.