



United States Department of the Interior

NATIONAL PARK SERVICE

Water Resources Division
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To: Kristen Hase, Chief of Natural Resources, Tallgrass Prairie National Preserve, Kansas
From: (Carl) Nicolas Medley, Aquatic Ecologist/Fisheries Biologist, Aquatic Systems Branch, WRD-WASO-NPS, Fort Collins, Colorado
Re: Summary of issues and recommendations regarding conservation of the Topeka shiner at Tallgrass Prairie National Preserve (TAPR) and initial thoughts on a long-term strategy and planning effort to secure shiner populations within the Preserve
Date: August 5, 2013

Recommendation

With the possible decline of the federally endangered Topeka shiner within Tallgrass Prairie National Preserve (TAPR), and the continued loss of shiner populations across their range, there is an urgent need for the initiation of a comprehensive recovery strategy for the fish and its habitat within TAPR that addresses potentially conflicting management objectives in the park. The Fisheries Program of NPS Water Resources Division (WRD), Washington Office (WASO) recommends that as soon as possible, TAPR meets with representatives of The Nature Conservancy (TNC), U. S. Fish and Wildlife Service (FWS), and the Kansas Department of Wildlife, Parks and Tourism (KDWPT) to develop and implement such a recovery planning process that will ensure the conservation and protection of the fish consistent with the NPS's statutory obligation to protect native species, and its legal obligation to recover federally listed species.

Background

The Tallgrass Prairie National Preserve (TAPR) was created in 1996 by the Tallgrass Prairie National Preserve Act of 1996 (16 U.S.C. 698u.) to “(i) conserve the scenery, natural historic objects, and wildlife of the [Spring Hill] ranch; and (ii) to provide for the enjoyment of the ranch in such manner and by such means as will leave such scenery, natural and historic objects, and wildlife unimpaired for the enjoyment of future generations”. The specific purposes of the Act are; “(1) To preserve protect and interpret for the public and example of the tallgrass prairie ecosystem on the Spring Hill Ranch, located in the Flint Hills of Kansas. (2) To preserve and interpret for the public the historic and cultural values represented on the Spring Hill Ranch.”

The Preserve is a unique unit of the National Park Service that is managed cooperatively by the NPS who owns 32 acres of land containing the buildings of the Spring Hill Ranch, and the private land owner (TNC) which now owns the remaining 10,862 acres of ranch land within the Preserve (10,894 acres total). A General Management Plan (GMP) was adopted by the Preserve in 2000. The preferred management alternative adopted through this planning process stated that the Preserve “would focus on the integrated management of the natural and cultural resources of the preserve. This alternative is based on the ideas that the Preserve was established to preserve, protect, and interpret a remnant of the tallgrass prairie ecosystem and that the remnant prairie exists today because of a complex history of interaction between people and the land”.

The small, spring fed, headwater streams within Tallgrass Prairie National Preserve, in the Flint Hills region of eastern Kansas, are home to the federally endangered Topeka shiner. The shiner was listed in 1998 (63 FR 69008) under the federal Endangered Species Act (ESA) due to continued threats from “habitat destruction, degradation, modification, and fragmentation resulting from siltation, reduced water quality, tributary impoundment, stream channelization, and stream dewatering. The species is also impacted by introduced predaceous fish” The ESA requires agencies to insure that any actions authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species, or its habitat, and must, when appropriate, consult with the Secretary of Interior. While not specifically identified in the listing rule, many of these threats are a direct result of historic and continuing cattle grazing operations that are a traditional use of the Flint Hills grasslands.

Historically, the grasslands of the Flint Hills region has been intensively managed to maximize cattle production through a combination of fire management, pasture fencing, and spring capture and impoundment to create stock tanks. When the preserve was first established, the traditional practices of cattle management were preserved, and continue today. However, the listing of the Topeka shiner, and the recognition that many of the traditional grazing management practices are the primary causes for the shiners decline, have greatly complicated the integrated management of natural and cultural resources of the Preserve. When the Preserve first consulted with the U. S, Fish and Wildlife Service on the GMP, the USFWS’s Biological Assessment (March 2000) determined that the “GMP/EIS preferred alternative may, but is not likely to adversely affect the Topeka shiner”. However, they commented that “because the GMP/EIS is a conceptual programmatic planning document it does not allow for site or project specific assessments” and that “the NPS would consult with the FWS on specific projects that may affect listed species”, including a Resource Management Plan, Visitor Experience and Resource Protection Plan, Water Resource Management Plan, Vegetation Management Plan including a Bottomland and Riparian Restoration Plan, Bison Management Plan, and Fire Management Plan. At this time, while the Preserve has implemented an intensive grazing and fire management strategy, consistent with the direction of the GMP, it appears not to have completed many of the resource management plans and has not consulted with FWS on the potential effects of specific management practices on the Topeka shiner and its habitat.

NPS Natural Resource Management Policies (Chapter 4, NPS Management Policies, 2006) mandate that “the Service will successfully maintain native animals by; preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native ...animal populations and the communities and ecosystems in which they occur; restoring native... animal populations in parks when they have been extirpated by past human-caused actions; and minimizing human impacts on native animals, populations, communities, and ecosystems, and the processes that sustain them (NPS MP 4.4.1). The NPS is also mandated by law and policy (MP 4.4.2.3) to “survey for, protect, and strive to recover all species native to national park system units that are listed under the ESA” and “will fully meet its obligations under the NPS Organic Act and the ESA to both proactively conserve listed species and prevent detrimental effects on these species. To meet these obligations, the Service will

- Cooperate with FWS to ensure that the NPS actions comply with both the written requirements and the spirit of the Endangered Species Act
- Undertake active management programs to inventory, monitor, restore and maintain listed species habitats; control detrimental nonnative species; reestablish extirpated populations as necessary to maintaining the species and the habitats upon which they depend;
- Manage designated critical habitats, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species.

When the final listing rule was published, citing potential benefits to the shiner, federal critical habitat was not designated. While critical habitat was not identified this does not diminish the Preserves responsibility to protect all and any habitat that contains listed species. Additionally, the KDWPT has declared critical habitat for the shiner which includes all streams in TAPR. The NPS is mandated by

policy “to manage state listed species in a manner similar to its treatment of federally listed species to the greatest extent possible”.

Past monitoring by the NPS Heartland Inventory and Monitoring Program within TAPR has identified four tributary streams where the shiner is known to exist; Schoolhouse Creek, Gashouse Creek, Gannon Creek, and an unnamed tributary stream just south of Schoolhouse Creek (Table 1.). Their data suggest a potential decline in the status of the shiner within TAPR. However, other monitoring efforts by Kansas State University may suggest that the status of the shiner in Schoolhouse Creek, while perhaps tenuous, is stable. While the status of the shiner is uncertain in TAPR, it continues to disappear within much of its remaining native range and is apparently now extirpated within the neighboring state of Missouri.

While the park is statutorily mandated to “preserve and interpret the historic and cultural *values*” of the ranch, including the values of grazing, management to this end cannot cause any impacts to remaining Topeka shiner populations or their habitat. Additionally the Preserve has the obligation to restore the shiner and its habitat within its historic range, which includes *all* historically occupied streams within TAPR. Managing for two potentially conflicting goals will be a difficult challenge. However, the unique status of the Preserve as a unit of the NPS, and the responsibility of parks to meet the statutory obligations of both the NPS Organic Act and the legal obligations of the Endangered Species Act to protect and conserve native and listed species unimpaired, requires that the any grazing operation within the Preserve be fully consistent with the need to protect, conserve and recover the endangered Topeka shiner. While the Topeka shiner has been the focus of some discussion and has generated several NPS PMIS (Project Management Information System) proposals and Technical Assistance Requests, there is no coordinated effort to inventory, monitor, or recover the fish. Consequently, many of the potential threats to the species remain, and no concrete management actions have been initiated to stabilize and recover shiner populations at TAPR. Conservation of remaining shiner populations is critical, and the protection of the remaining population(s?) within TAPR must be considered an urgent Preserve priority if further extirpation and possible extinction of the species is to be avoided.

What needs to be done?

- Immediate initiation of a comprehensive and integrated planning effort, involving NPS, TNC, FWS, and the State of Kansas that will result in the recovery and restoration of Topeka shiner within TAPR including; Topeka Shiner Management and Recovery Plan for TAPR, Watershed/Water Resources Management and Protection Plan, Grazing Plan, Fire Management Plan.
- Consultation with FWS on specific effects of current grazing operations and management, even if they have not yet been considered in an approved resource management plan
- Identification of what constitutes, and what is needed to preserve, the specific historic and cultural values contemplated in the Tallgrass Prairie National Preserve Act of 1996 and what constitutes an unacceptable impact and/or impairment to Topeka shiner.
- Development and implementation of a Topeka shiner population monitoring plan
- Immediate identification and removal of threats to remaining populations of Topeka shiners in TAPR
- Develop information and education strategy ...

Potential Strategies for Recovery

The general strategy proposed is to recover shiner populations by removing the causes of the threats that were identified in the FWS Final Listing Rule; habitat destruction, degradation, modification, and fragmentation resulting from siltation, reduced water quality, tributary impoundment, stream channelization, and stream dewatering, and presence of predaceous non-native fish. Since most of these threats are a consequence of the current and historic land use for intensive grazing operations and their

effects on watershed/riparian condition, it will be necessary to identify and prioritize the parks management objectives.

Planning

- Write an Aquatic Resource/Topeka shiner Management Plan for Preserve that is sufficient to remove the threats to the species, recover the fish within TAPR, and is integrated with fire and grazing management plans.
- Consult with FWS on activities that they will approve for recovery
- Develop and implement a detailed population monitoring plan for Topeka shiner on Preserve
- Create PMIS proposal for funding of activities based upon resource plans

Create Additional Topeka Shiner Populations

- Implement NPS PMIS 133454 to create refugial populations in stock tanks in drainages not in current TS populated drainages that are connected to upstream spring habitats
- Restore Topeka shiner populations to historically occupied habitat on Preserve. Create through Section 10j (non-essential experimental populations) if necessary

Remove non-native predatory fish

- Actively remove non-native fish species from stock tanks, tributary streams, and creeks where necessary to protect Topeka shiner
- Remove stock tanks in drainages with shiner populations to remove source of non-native predators
- Review fishing regulations and the current “catch and release” of non-native predaceous fish in stock tanks on TAPR

Restore Natural hydrology and geomorphology through watershed and riparian restoration

- Reduce stocking rates dependent upon forage availability and range condition necessary to protect natural hydrologic and geomorphic function
- Remove stock tanks in drainages with shiner populations to restore natural stream flow and geomorphology
- Manage preserve by watershed, not pastures and roads. Priority watersheds; Gas House Creek, School House Creek, Tributary of Gannon Creek, 24 Middle
- Remove/modify culverts that are an impediment to movement and prevent natural hydrologic and geomorphic function
- Create small off channel habitats for Topeka shiner
- Create temporary fencing to exclude cattle from sensitive riparian areas adjacent to occupied stream reaches

Protect Springs

- Protect all spring sources with fences
- Remove cattails and/or non-native vegetation
- Replant with native wet meadow if appropriate

Cattle Management

- Restructure pastures based upon watersheds rather than current pasture system. Reuse fencing material
- If necessary, consider permanent fencing to exclude cattle in spring sources and streams with known TS populations

- Reduce stocking rates dependent upon forage availability and range condition (drought) necessary to protect natural hydrologic and geomorphic function
- Employ rider to move cattle around and away from riparian areas
- Consider need to reduce stocking duration or go to fast rotation to reduce impact
- Construction of alternative water sources other than stock tanks on ridgelines and divides to disperse and move cattle away from riparian areas

Fire Management

- Implement fire management on watershed scale, not defined by pasture fencing or roads
- Manage fire frequency based upon natural cycle and timing to promote habitat restoration, and not based upon intensive grazing strategy, but may need to burn some areas earlier in the year in order to manage cattle grazing patterns

Create Reference Watershed

Agency	Waterbody	Site	1997	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Heartland I&M NPS	Schoolhouse	1 Middle + 1 Lower (NPS)		0	10	0	0	16		1	0	0	2	?	?
KSU	Schoolhouse	All sites									15	16	15	21	25
KPWD	Schoolhouse	1 Middle (NPS)	17												
Watershed Inst.	Schoolhouse	All sites								12					
NPS (Hase and McCullough)	Schoolhouse	S13 (NPS)													3
Heartland I&M NPS	? South of Schoolhouse	2 Middle		0	0	0	3	0	0	0	0	0	0		
Heartland I&M NPS	Gas House Creek	22 Left Upper		0	0	0	1	0	0	0	0	0	0		
Heartland I&M NPS	Gannon	23 Middle		7	62	15	20	3	10	8	1	0	0		

Table 1. Summary of Topeka shiner (*Notropis Topeka*) captures at sites samples within Tallgrass Prairie National Preserve, Kansas between 1997 and 2012.