

❖Standard 9: Conduct an analysis of the severity and geographic scope of threats to conservation targets/biodiversity elements, and analyze the root causes of priority threats.

Case Study: The Use of Experts to Assess Threats to Aquatic Targets in the Central Tallgrass Prairie

Excerpt from: The Central Tallgrass Prairie Aquatic Conservation Planning Workshop Meeting Manual.

Purpose and region of analysis

The following worksheet and appendix were presented to a group of 30 experts assembled at the Central Tallgrass Prairie Aquatic Conservation Planning Workshop, February 2004. Experts were asked to propose candidate systems for our aquatic portfolio. For each candidate system the expert filled in information about targets present, viability of the system as a whole, viability of each target, major stresses and sources of stress and suggested conservation management strategies.

Criteria/Methods

The solicitation of threats information from experts came after a series of presentations and exercises that provided the experts with background and context for TNC's ecoregional assessment process. With an understanding of the purpose and role of TNC's portfolio of areas, experts were asked to identify the best remaining examples of target occurrences. For each proposed system, experts were asked to identify major threats to the system and the target species it contained. We listed 14 categories of stresses for them to choose from. Experts identified ranked the top three stresses. For each identified stress, the experts identified and ranked the top three sources of that stress from a list of sources provided in an appendix. A space on the worksheet was set aside to allow experts to relay details pertaining to stresses and sources of stress. Also, a simple question was posed to quantify urgency: Without changes to current management and conservation intervention or protection, how soon will the targets become extirpated? A multiple choice answer was provided helping us identify which sites needed urgent action versus those needing attention in the future. Finally, experts were asked to suggest strategies to abate threats to the proposed systems.

Products/Outcomes

The result of this effort was a rapid but informed assessment of major threats to many of our candidate portfolio sites. The worksheet provides us with specific information pertaining to the threats, sources, urgency and potential management strategies from the people most qualified to provide this information. The experts live in and near the watersheds of the CTP and most have spent time sampling the rivers and considering the local and pervasive threats to these species. Many of these threats could not have been identified from spatial data alone. Additionally, we

can now to identify threats that are broad in scope that need to be addressed throughout the portfolio.

Tools

The tools we used were simply the worksheet attached below (also see example of completed form), and a list of stresses and sources of stress particular to aquatic systems. At the workshop we provided maps of the aquatic system classification allowing experts to choose an appropriate sub-basin for which to provide information. This was helpful in reminding experts of the context of particular sites. Also, we had Natural Heritage species target occurrence data available within a GIS for experts to use as a reference when they were unsure if certain targets occurred within a particular system.

Central Tallgrass Prairie Ecoregion System Assessment Form

System Name		<i>System ID/ Map ID</i>	
Name (s) of person (s) providing assessment			

Overall System Assessment:

Viability Rating			General Description or comments about the system:
Size	Condition/ Quality	Landscape Context	

Species/Assemblage Target Assessments:

Occ #	Target Name	Last Observed Date	Heritage EO Numbers, if applicable	Heritage EORANK, if applicable	Viability Rating			Comments
					Size	Condition	Landscape Context	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Major stresses:**Major sources of stress:**

Rank the top three stresses to the targets at this site.	List the source(s) of stress contributing to the top three stresses (See Appendix 6 for codes).
___ A. Habitat destruction or conversion	
___ B. Habitat fragmentation	
___ C. Habitat disturbance	
___ D. Altered biological composition/structure	
___ E. Nutrient loading	
___ F. Sedimentation/Sediment loading	
___ G. Extraordinary predation/parasitism/disease	
___ H. Modification of water levels; changes in flow	
___ I. Thermal alteration	
___ J. Groundwater depletion	
___ K. Resource depletion	
___ L. Extraordinary competition for resources	
___ M. Toxins/contaminants	
___ N. Other	
Stress comments:	Sources of stress comments:

Urgency:

Without changes to current management and conservation intervention or protection, how soon will the targets become extirpated?
A. 1-2 years D. 10+ years B. 3-5 years E. Fully protected over the long term C. 6-10 years

Recommended Conservation Strategies:

Describe conservation strategies you would recommend for this site (i.e., BMPs, dam removal, TNC role, role of partners...).

An example of a completed system assessment form

**Central Tallgrass Prairie Ecoregion
System Assessment Form**

System Name	Mill Creek	System ID/ Map ID	BB 3- 5338
Name (s) of person (s) providing assessment	Jo Smith		

Overall System Assessment:

Viability Rating			General Description or comments about the system: Primarily native uplands with bottomland crop. Impoundment construction, gravel extraction, intensive grazing and eroding banks throughout the watershed. State "Highest-valued Fishery Resource". Contains Flint Hills Tallgrass Prairie and federally endangered species.
Size	Condition/ Quality	Landscape Context	
B	B	B	

Species/Assemblage Target Assessments:

Occ #	Target Name	Last Observed Date	Heritage EO Numbers, if applicable	Heritage EORANK, if applicable	Viability Rating			Comments
					Size	Condition	Landscape Context	
1	Topeka shiner	2004			B	B	B	Shiner: Hydrologic alteration, suburbanization continue to degrade system. Populations within basin still interacting. KS recovery plan has been approved
2	Blackside darter	1994			D	C	B	
3								Darter: Not many records. Little information available Historic records indicate mussel species. Not current survey data to determine presence/absence of target species.
4								
5								
6								

7							
8							
9							
10							

However, individuals may still occur.

Major stresses:**Major sources of stress:**

Rank the top three stresses to the targets at this site.	List the source(s) of stress contributing to the top three stresses (See Appendix 6 for codes).
<u> 2 </u> A. Habitat destruction or conversion	D1 (gravel extraction)
<u> </u> B. Habitat fragmentation	
<u> </u> C. Habitat disturbance	
<u> </u> D. Altered biological composition/structure	
<u> </u> E. Nutrient loading	
<u> 3 </u> F. Sedimentation/Sediment loading	A1, A2, D1
<u> </u> G. Extraordinary predation/parasitism/disease	
<u> 1 </u> H. Modification of water levels; changes in flow	A2, C1 (extensive upland grazing and dam construction)
<u> </u> I. Thermal alteration	
<u> </u> J. Groundwater depletion	
<u> </u> K. Resource depletion	
<u> </u> L. Extraordinary competition for resources	
<u> </u> M. Toxins/contaminants	
<u> </u> N. Other	
Stress comments:	Sources of stress comments: Suburbanizing area Introduction of predatory species from impoundment stocking (large mouth bass, white crappie)

Urgency:

Without changes to current management and conservation intervention or protection, how soon will the targets become extirpated?	
A. 1-2 years	D. 10+ years
B. 3-5 years	E. Fully protected over the long term
C. 6-10 years	

Recommended Conservation Strategies:

Describe conservation strategies you would recommend for this site (i.e., BMPs, dam removal, TNC role, role of partners...).
Eliminate existing dams, slow dam construction, remove winter cattle feeding from riparian areas, conservation easements, eliminate gravel extraction, update waste water treatment systems.

Recommended Conservation Strategies: Appendix 6: Sources of Stress

Source of Stress	Code	Examples
Non-point Source Pollution (Ag, Forestry, Urban)		
Crop production practices	A1	Insufficient buffer between stream and field
Grazing/Livestock production practices	A2	Livestock pastured in streams
Forestry practices	A3	Unmaintained logging road crosses stream
Urban stormwater runoff	A4	
Home/resort development	A5	
Commercial/industrial development	A6	
Road/utility development	A7	
Conversion to agriculture or silviculture	A8	Drainage of wetlands for agriculture
Other	A9	
Point Source Pollution (Ag, Forestry, Urban)		
Industrial facility discharge	B1	
Wastewater treatment plant discharge	B2	
Landfill	B3	
Confined feedlot discharge	B4	
Other	B5	
Incompatible Water Management		
Dam construction	C1	
Construction of ditches, dikes, drainage or diversion systems	C2	
Channelization of rivers or streams	C3	
Operation of dams or reservoirs	C4	No minimum flow requirements
Operation of drainage or diversion systems	C5	
Excessive groundwater withdrawal	C6	
Bank stabilization	C7	Jetties, riprap, etc.
Large woody debris removal	C8	
Other	C9	
Resource Extraction		
Mining	D1	Instream or upland sand, gravel, or mineral mining
Wind Energy	D2	
Oil or gas drilling	D3	
Commercial harvesting	D4	Mussel shell harvesting; overfishing
Poaching or collecting	D5	
Other	D6	
Incompatible Recreation		
Recreational vehicles	E1	
Overfishing, collecting or hunting	E2	
Other	E3	
Land/Resource Management		
Fire suppression	F1	
Incompatible management of/for select species	F2	Management for game species at the expense of threatened or sensitive taxa
Other	F3	
Biological		
Parasites/Pathogens	G1	
Invasive/Alien species	G2	