



Illinois DNR

2009 SWG Grant Application System

Project Title: Status revision and update for Illinois' fish Species in Greatest Need of Conservation.

Applicant Information			
Applicant (Grantee if awarded)			
Prefix	Dr.		
First Name	Leon		
Last Name	Hinz		
Organization	INHS		
Address1			
Address2			
City	Springfield		
State	IL		
ZIP Code			
Telephone			
Fax			
Email			
Project Information			
Project Title:	Status revision and update for Illinois' fish Species in Greatest Need of Conservation.		
Project Description	<p>This project will reevaluate Illinois' fish as Species in Greatest Need of Conservation (SGNC) using the eight criteria specified in the Wildlife Action Plan (Appendix I). We will revise and update the status, objectives, and stresses to fish populations (Appendix II) by providing a quantitative analysis of rarity, changes in abundance, and examining other evidence suggesting conservation concern for identified SGNC using existing and new information obtained since the initial Plan development.</p>		
Type of Project	<input checked="" type="checkbox"/> Implementation <input type="checkbox"/> Planning		
(Match Rates Implementation: 50% Federal : 50% Non-Federal 75% Federal : 25% Non-Federal)			
Dollars Requested			
Dollars Requested	Total Federal	Total Non-Federal	Total Cost of Project
1st Year Funding	\$76,652	\$25,560	\$102,213
2nd Year Funding			
3rd Year Funding			

Totals:			
---------	--	--	--

Need: (3000 characters)

The focus of the Illinois Wildlife Action Plan (IWAP) is to link people and resources to meet identified wildlife and habitat goals. Activities to meet these goals are informed by the distribution of certain species, and their habitats, that are deemed important by the public and resource managers. These Species in Greatest Need of Conservation (SGNC) were selected for the IWAP to be indicative of the diversity and health of Illinois' Wildlife and to assist with guiding management activities to reach conservation goals. Illinois' SGNC were selected using eight criteria that were evaluated using a combination of objective information (e.g., T&E listing) and professional judgment. However, much of the information and analysis used for these decisions has been updated since the list was developed. For example, fish were evaluated using data from the IDNR Fisheries Analysis System (through 2004), BIOTICS database (2004) and distribution maps from the INHS fisheries collections (1999). Several factors including the distribution of these species were used to identify Conservation Opportunity Areas (COAs) that incorporate the places with the greatest need for conservation and highest potential for success. Biologically Significant Stream (BSS) designation was used as an attribute to define both "High Quality Aquatic Resources" (p. 92) and the "Inventory of Resource Rich Areas" (p. 94). These products were used to assist with determining priority areas for SGNC (Figure 11, p. 287) during IWAP development that informed the designation of Conservation Opportunity Areas. Since the IWAP was accepted by the USFWS the Illinois BSS has been updated (T-20, Bol et al. 2007) effectively making these products and the analyses associated with them out of date. Similarly, sport fish analysis in IWAP was based on "Strategic Plan for Illinois Fisheries FY02-FY06" that has yet to be updated since IWAP development. While the Fisheries Plan set goals concerning the supply of angling days it did not directly address population viability for any species. This project will provide a timely update of the status of fish SGNC and additional information useful for updating The Streams Campaign, Natural Division Assessments, and Conservation Opportunity Area development. A quantitative evaluation of the status of fish SGNC will provide an assessment of statewide and site based trends that will allow managers to better identify at risk populations and the habitats that support them.

Objectives: (3000 characters)

The primary objective of this project is to provide information for the direct refinement and revision of the status, objectives, and stresses for fish Species in Greatest Need of Conservation listed in Appendix I and Appendix II of Illinois' Wildlife Action Plan. Each fish species in Illinois will be reviewed using the criteria developed for SGNC listing in the existing Action Plan (**Job 1**). Particular attention will be paid to the most recently available listed conservation status (criteria 1 and 2), species rarity (population size, density, and range) and declines in abundance or distribution from historical levels (criteria 3), current species distribution and abundance data (criteria 5 and 6), as well as other factors that may provide evidence of conservation concern for poorly known species (criteria 8). We will update and revise the Status, Objectives, and Stresses listed in Appendix II for each SGNC fish (**Job 2**) by combining an opinion survey of Wildlife Action Team Members and Agency and Academic experts on fish and aquatic habitats, with a quantitative analysis of trends in population size, species distribution, and potential isolation due to fragmentation of habitats based on available data. This update will include the identification of knowledge gaps in assessment information for these species. Survey participants will be asked to rate the applicability of SGNC selection criteria for Illinois fish species focusing on population status (criteria 3), dependence on rare or vulnerable habitat (criteria 4), and representativeness of the species assemblage in specific habitat types (criteria 7). In addition they will evaluate the current status of populations and potential stresses (habitat, community, population, direct human) with the same 1-3 scale (little or no effect, moderate effect, severe effect) used in the initial Plan development. However, unlike the initial evaluation legacy (historic), current (existing) and potential (landuse or climate change) effects of stressors will be rated separately in the survey. Maps of known historic and current (<10 years) distributions will be developed for all fish species using the latest information from IDNR fisheries databases and the INHS fish collections database. Fish collections data, including intensive basin survey data, will be used to estimate population parameters (relative abundance, numerical and proportional abundance) and evaluate changes in these statistics as a measure of population status over time. We will also develop a state-wide georeferenced database of water control structures (e.g., dams, levies, lake level control structures) to perform a GIS based assessment of connectivity between populations of fish SGNC. A draft update of the fish Species in Greatest Need of Conservation and their Status, Objectives, and Stresses with documentation of these efforts will be provided as a report for approval by the IDNR and the Wildlife Action Plan Team (**Job 3**).

Approach: (3000 characters)

This study will be completed by staff of the Illinois Natural History Survey in cooperation with the IDNR Watershed Protection Section located in Springfield and Champaign. We will assemble information from existing databases and use a survey of experts to revise and update the list of Species in Greatest Need of Conservation and associated status, objectives, and

stresses for Illinois' fish species. **Job 1:** Reevaluate fish species using the eight criteria established in the IWAP (Appendix I). Threatened and endangered species status (T&E) and global conservation rank (G1, G2, G3) will be updated using current information from IDNR BIOTICS database and NatureServe Explorer. INHS Fish Collections and IDNR fisheries data will be georeferenced within an existing GIS framework and used to describe historic and recent distributions. We will create maps for each species at multiple time and spatial scales to address shifts in distribution. Existing monitoring program data will be compiled and used to estimate Relative Abundance at specific sites to describe historic conditions and recent changes in abundance at multiple spatial scales (Presence/Absence, relative abundance [#/100m sampled], percent occurrence in samples). These data will also be used to estimate statewide and basin specific changes in the frequency of occurrence of individual species in samples as a measure of conservation concern. **Job 2:** Update the Status, Objectives, and Stresses to Illinois' Wildlife and Habitat Resources for fish and aquatic habitats (Appendix II: Fish and Lakes and Streams) using a combination of quantitative data analysis and expert review (survey of Action Team Members and state authorities on fish and aquatic resources). We will use quantitative methods to provide information on population status, habitat and population stresses where appropriate data are available. The status (N, Trend, Listing) of each species will be based on the distributions and relative abundances derived in Job 1. We will develop a statewide georeferenced database of dams and water control structures to examine the extent of fragmentation and isolation on populations of SGNC. An opinion survey of Wildlife Action Team Members and Academic and Agency experts will be conducted targeting SGNC criteria (Appendix I) and status (Appendix II) of fish and aquatic habitats. Participants will be given detailed instructions and asked to provide feedback on how their opinions were informed. These surveys will inform the update of the Stresses (Habitat, Community, Population, Direct Human) and IWAP Objectives for each species. **Job 3:** Provide a final report that includes documentation and draft updates of the fish Species in Greatest Need of Conservation (Appendix I) and their Status, Objectives, and Stresses (Appendix II) for approval by the IDNR and the Wildlife Action Plan Team.

Relationship to the Plan (3000 characters)

The IWAP (2005) calls for periodic revisions and updates to measure progress and to include new and emerging issues. Evaluations of the status, distribution, and stresses to Species in Greatest Need of Conservation are expected to occur at 2- to 5-year intervals (Table 9, p. 272, IWAP). To date, no systematic evaluation of the fish SGNC has been undertaken although a large amount of additional information has been collected throughout the state. We will provide the first statewide evaluation and update of fish SGNC since The Plan was developed. The major evaluation method for stream fish assemblage condition in Illinois is the Index of Biotic Integrity which combines summaries of fish abundance and diversity from site specific samples (p. 101, IWAP). However, this method does not evaluate the status or trends of individual species or their populations. This project will examine trends in spatial and temporal distribution and relative abundance for individual fish species throughout Illinois and identify where appropriate data are currently lacking for these assessments. The IWAP identifies fragmentation of habitats as a major factor limiting aquatic species by increasing stresses on small isolated populations (p. 53, IWAP). We will map population distributions and develop a statewide database of dams and water control structures to evaluate the relative magnitude of isolation and fragmentation between these populations. Sport fish populations in many lakes and rivers are maintained by stocking (p. 54, IWAP) since recruitment is not considered adequate to meet the needs of the fishery (black bass, channel catfish, lake trout, sauger). This project will examine monitoring data for evidence of population structures that indicate significant recruitment of sport fish and identify areas where self-sustaining fisheries may exist.

Anticipated Outcomes and Benefits: (3000 characters)

This project will reevaluate fish species for listing as SGNC (Appendix I) and provide an update and revision of the status, distribution, and stresses to fish SGNC (Appendix II) appropriate for a revision of the Illinois Wildlife Action Plan. We will develop updated distribution maps, estimate relative abundance at historic and recently sampled locations (last 10 years), and quantify statewide trends in status (population size and/or distribution) for each fish species. Distribution maps and estimates of relative abundance can assist with revisions or updates to fish management (sport fish) or recovery plans (T&E species). Distribution maps will be made available through the INHS Fisheries Collection Website. We will also develop a statewide georeferenced database of dams and water-control structures that will be used to evaluate the extent of habitat fragmentation and isolation identified as a major stressor to aquatic species in Illinois. The combination of opinion survey and quantitative evaluation of status and trends in fish populations can provide a check on even informed opinions concerning SGNC allowing data analysis to be incorporated in developing realistic objectives for conservation activities. Separating legacy effects from current and potential future stressors on SGNC will allow managers to assess where conservation actions may be most appropriate and have the greatest chance for success. This project will also highlight existing knowledge gaps in species information and monitoring programs.

Signature of Applicant:

Date:

Signature of department or unit head (if required):

Date:



[Print Application](#) | [Return to Main Menu](#)