

FY 2004 to 2005 State Wildlife Grant (SWG) Program
State of Illinois
Annual Report (08/01/05 to 07/31/06)

GRANT NO.: T-14

GRANT TITLE: Evaluation and genetic screening of Illinois populations of the state threatened redspotted sunfish (*Lepomis miniatus*) to determine feasibility for reintroduction efforts

OBJECTIVES:

1. Survey the status of known Illinois populations of redspotted sunfish.
2. Collect tissue samples for DNA analyses from individuals of redspotted sunfish from all located Illinois populations.
3. Perform DNA analyses of redspotted sunfish to determine genetic variability among Illinois populations and out-of-state reference populations.

JOB 1. Population assessment and collection of tissue samples of redspotted sunfish

Twelve (12) sites of historical redspotted sunfish occurrence in southeast Illinois were surveyed during the first year of the grant. Collections of redspotted sunfish at these historical locations were scarce. It appeared that aquatic vegetation had been eliminated from the majority of these locations, and conditions have become less favorable for the diminutive redspotted sunfish. Redspotted sunfish have become nearly completely displaced from these locations by other sunfish species, most notably by bluegill. Cypress Ditch of the Little Wabash River Basin still possesses a large amount of aquatic vegetation (coontail) and appears to be the most stable stronghold of the redspotted sunfish in southeast Illinois. The following table summarizes these sampling efforts:

Site	Date	Sampling Method	No.
Big Lake (Gallatin County)	8/25/05	AC boat electrofishing	0
Long Pond or Fish Lake (Gallatin County)	8/25/05	AC boat electrofishing	2
Unnamed Wetland (Gallatin County)	8/25/05	AC boat electrofishing	1
AB Lake or Hulda Lake (Gallatin County)	8/26/05	AC boat electrofishing	0
Beaver Pond (Gallatin County)	8/26/05	AC boat electrofishing	5

Site	Date	Sampling Method	No.
Wabash River - Old Channel (White County)	11/3/05	AC boat electrofishing	0
Brushy Slough (White County)	11/3/05	DC backpack electrofishing	0
Yellow Bank Slough (Gallatin County)	11/3/05	DC backpack electrofishing	0
Cypress Ditch (Gallatin County)	11/3/05	DC backpack electrofishing	8
Beaver Dam Lake (Massac County)	11/4/05	AC boat electrofishing	0
Loon Lake (Massac County)	11/4/05	DC backpack electrofishing	0
Long Reach & Cypress Pond (Pulaski Co.)	11/4/05	AC boat electrofishing	0

Following low numbers of collected specimens in southeast Illinois, it was realized that broodstock for reintroduction efforts may be dependent on out-of-state sources. Furthermore, the additional data from extant and stable populations throughout the species distribution would add greatly to the DNA analyses portion of this study. A collection trip into Missouri was conducted to collect this additional data and determine broodstock potential of an out-of-state source. This trip proved to be successful as we collected several adult redspotted sunfish. The results of this trip are summarized in the following table:

Site	Date	Sampling Method	No.
Jacks Fork, Missouri	5/9/06	DC boat electrofishing	28
Black River, Missouri (flood conditions)	5/10/06	seine hauls	0

Plans for sampling during the second year of the grant include the following:

Site	No.	Date Last Observed
Myers Lake (Cass County)	3	1965
Small Lake (Cass County)	2	1899
Crane Creek (Mason County) - recent unconfirmed sightings	4	1965
Jordan Creek (Mason County)	1	1969
Illinois River (Mason County)	15	1894-1898

Site	No.	Date Last Observed
Quiver Lake (Mason County)	1	1895
Illinois River (Morgan County)	14	1900
Pine Hills Swamp (Union County)	2	1971, 1973
Indian Creek (Lawrence County)	4	1996
Indiana, multiple sites		
Kentucky, multiple sites		

In the first year of the grant, the following amounts of time have been dedicated to this job:

- Trent Thomas (Illinois Department of Natural Resources, Streams Specialist) - 86.5 hours
- Jana Hirst (Illinois Department of Natural Resources, Streams Specialist) - 20.5 hours
- Les Frankland (Illinois Department of Natural Resources, Rivers Specialist) - 20.5 hours
- Jeremy Tiemann (Illinois Natural History Survey, Field Biologist) - 48 hours
- John Epifanio (Illinois Natural History Survey, Dir. of Center for Aquatic Ecology) - 25.5 hours

JOB 2. DNA analysis of redspotted sunfish populations

No DNA analyses were conducted in the first year of the grant. Analyses should be initiated early in the second year of the grant. The following fin-clip tissue samples have been delivered to the Illinois Natural History Survey for analysis:

Site	No.	Comments
Crane Creek (Mason County)	5	possible juveniles, collected prior to grant
Winters Pond (Union County)	18	juveniles, believed to be redspotted or bantam sunfish, collected prior to grant
Haney Creek (Hardin County)	1	collected during Cache River Basin Survey, collected prior to grant
Long Pond or Fish Lake (Gallatin County)	2	
Unnamed Wetland (Gallatin County)	1	
Beaver Pond (Gallatin County)	5	

Site	No.	Comments
Cypress Ditch (Gallatin County)	8	
Jacks Fork (Missouri)	28	
11-Points Creek (Missouri)	32	collected by MO Dept. of Conservation
Little Black River (Missouri)	4	collected by MO Dept. of Conservation
Duck Creek (Missouri)	21	collected by MO Dept. of Conservation

JOB 3. Feasibility analysis for reintroduction efforts of the redspotted sunfish

The feasibility analysis and report will be completed at the conclusion of the grant, taking into account the results of the surveys and the DNA analyses, as part of the Final Grant Report.