

**Upper Mississippi River/Tallgrass Prairie Ecosystem Team  
Native Mussel Subgroup**

**February 26, 2001**

**EXTINCTIONS ?                      NOT ON OUR WATCH !!!**

**A Call for Actions Needed to Help Prevent the Extinction of Mussels on the Upper Mississippi River System: Saving the Federally-Endangered Higgins' Eye Pearly Mussel (*Lampsilis higginsii*) and Endangered Winged Mapleleaf Mussel (*Quadrula fragosa*)**

**Background**

In North America, it is estimated that 43%, or approximately 125 of the 290 known species of freshwater mussels, are in danger of extinction. Historically, the Midwest (Minnesota, Wisconsin, Iowa, Missouri, Illinois, Indiana and Ohio), could boast the most diverse collection of freshwater mussels in the world. However, in the Midwest today, more than half of the 78 known mussel species are classified as endangered, threatened or requiring special concern by State natural resource management agencies (Mueller 1993).

The Nature Conservancy recognizes 55% of North America's mussel species as extinct or imperiled, compared to only 7% of the continent's mammal and bird species. **No other group of animals in Region 3 is in such grave danger of extinction !!**

Two federally endangered mussels living in the Upper Mississippi River are threatened with extinction. The Higgins' eye pearly mussel (*Lampsilis higginsii*) is found only in the Upper Mississippi River and a few large tributaries from Minnesota and Wisconsin south to Iowa and Illinois. The winged mapleleaf mussel (*Quadrula fragosa*) was historically found in 34 rivers across 12 states. Today, winged mapleleaf mussels are found at **only one location** along a 13-mile segment of the St. Croix River, a tributary of the Mississippi River just east of Minneapolis and St. Paul.

Commercial barge navigation has brought a pressing threat to all freshwater mussels on the Upper Mississippi River - the exotic zebra mussel. This European species originally came to the Great Lakes in the ballast tanks of ocean-going cargo vessels, and it has found its way into the Upper Mississippi River through the navigation connection between Lake Michigan and the

Illinois River. Zebra mussels are prolific and can spread quickly, smothering native mussels, changing water chemistry and competing for food. They attach themselves to barges and other vessels and are transported to uninfested waters.

Based on monitoring results from existing mussel beds, zebra mussels are considered a mortal threat to Higgins' eye, winged mapleleaf, and other native freshwater mussels of the Upper Mississippi River. In its May 15, 2000, Biological Opinion to the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service concluded that the Higgins' eye pearly mussel is jeopardized by the Federal 9-Foot Channel Project because it facilitates continued commercial barge transportation on the Upper Mississippi River with vessels and equipment infested with zebra mussels.

Zebra mussels have already infested most areas where Higgins' eye pearly mussels are found; only two of ten Essential Habitat Areas are currently free of zebra mussels. On the St. Croix River last summer, reproducing populations of zebra mussels were found approximately 25 miles downstream of the only known population of winged mapleleaf mussels. **Time is of the essence in averting extinction of both species !!**

#### **Action Items for the Native Mussel Subgroup**

- ' **Pam Thiel, La Crosse Fisheries Resources Office assisted by Russ Peterson, Twin Cities ES Field Office & Jim Fisher, Upper Mississippi River National Wildlife and Fish Refuge** = Conduct April, 2001, briefing for Regional Management Team (Regional Director and Assistant Regional Directors from Ecological Services, Refuges and Fisheries) on Need for Urgency in saving Higgins' eye and winged mapleleaf mussels from extinction.
- ' **Todd Turner & Roger Gordon, Genoa National Fish Hatchery** = By March 21, 2001, prepare a long-range plan for mussel culture activities at Genoa National Fish Hatchery.
- ' **Nick Rowse, Twin Cities ES Field Office** = Lead Section 7 reconsultation with U.S. Army Corps of Engineers on the 9-Foot Channel Project for Winged mapleleaf mussel. Zebra mussel densities in St. Croix River have exceeded the May 15, 2000, incidental take statement. The St. Paul District has sent a letter to the Service requesting reconsultation.
- ' **Phil Delphey, Twin Cities ES Field Office** = Complete the Biological Opinion for the National Park Service Lower St. Croix River Management Plan. A major issue is closure of all navigation upstream of the Arcola Bar to prevent upstream transport of zebra mussels for protection of winged mapleleaf mussels.
- ' **Todd Turner & Roger Gordon, Genoa National Fish Hatchery** = They will need help

for 3 days in early May with Higgins' eye mussel culture activities. Todd and Roger will send a notice out in April.

### **Mussel Research Needs**

- ' Identify host fish(es) for winged mapleleaf mussel. Identification of host species is critical should culture be necessary to save the species from extinction.
- ' Conduct a feasibility study and implement measures to stop the spread of invasive species from Lake Michigan to the Illinois River/Upper Mississippi River System.
- ' Identify freshwater mussels at risk of becoming threatened or endangered from zebra mussel infestation. Use the Upper Mississippi River Conservation Committee Mussel Ad hoc Group or other interagency field workgroups to discuss the status of mussels on Upper Mississippi River System, identify species at risk, and implement conservation measures.
- ' Conduct a Population and Habitat Viability Analysis study for *L. higginsii* (similar to the study done for winged mapleleaf mussels on the St. Croix River).

### **Action Items for Fish & Wildlife Service Management**

- ' Elevate the priority of mussel conservation within the Upper Mississippi River/Tallgrass Prairie Ecosystem.
- ' Obtain an opinion from the Department of Interior Solicitor on the responsible federal agency for the current connection between the Great Lakes and Mississippi River watersheds at Chicago.
- ' The Upper Mississippi River/Tallgrass Ecosystem Team should meet with the congressional Mississippi River Task Force to promote Upper Mississippi River mussel issues and needs (similar to activities taken by the Great Lakes Ecosystem Team for issues of their interest).
- ' Include conservation of freshwater mussels as a priority in the Refuge Operating Needs System (RONS).
- ' Include Upper Mississippi River/Tallgrass Ecosystem Team representation at the April, 2001, Regional Management Team briefing. Suggested representative is Mr. John Lindell, Team Leader Elect, District Manager, Upper Mississippi River National Wildlife and Fish Refuge, McGregor, Iowa.

- ' Increase involvement by the Assistant Regional Directors for Ecological Services, Fisheries and Refuges in activities of the Upper Mississippi River Ecosystem Team in general, and mussels in particular.
- ' Establish a “Kitty Fund” within the Upper Mississippi River Ecosystem Team for field activities. Similar accounts have been established by Ecosystem Teams whereby each field station would contribute \$500 - \$1,000 to a common account, the team would vote on a list of potential projects each year, and selected projects would be funded by the account. Establishing the fund should be an agenda topic for the summer team meeting.

### **Action Items for Partner Agencies**

- ' **U.S. Army Corps of Engineers** = Develop action items to implement the Service’s May 15, 2000, Biological Opinion Requirements for Higgins’ eye and winged mapleleaf mussels. The Higgins’ Eye Pearlymussel Relocation Action Plan is due April 30, 2001, with implementation by June 1, 2001. The Zebra Mussel Control Reconnaissance Report is due April 30, 2002.
- ' **U.S. Army Corps of Engineers** = Provide funding necessary to develop and implement the Higgins’ Eye Pearlymussel Conservation Plan (Includes requirements of the Biological Opinion).
- ' **U.S. Geological Survey** = Increase involvement in conservation of Federally-listed mussels in the Upper Mississippi River System.
- ' **U.S. Coast Guard** = Increase participation in Upper Mississippi River invasive species issues and conservation of Federally-listed mussels.
- ' **State Natural Resource Agencies** = Continue participation in development and implementation of the Higgins’ Eye Pearlymussel Conservation Plan, and actions necessary to protect winged mapleleaf mussels in the St. Croix River.

### **Fish & Wildlife Service Personnel Needs**

- ' Establish an **Aquatic Ecologist** position on the Upper Mississippi River to assist in the implementation of the Service’s Biological Opinion for the 9-Foot Channel Project in particular, and conservation of freshwater mussels in general. Ranking Factors for the position would focus on knowledge of malacology and status of native and listed mussels on the Upper Mississippi River, and experience in collection and relocation of mussels by diving. The position would be responsible for providing Service leadership in interagency workgroups such as the Upper Mississippi River Conservation Committee

Mussel Ad hoc Group and Corps of Engineers Mussel Coordination Team, and conducting mussel conservation activities.

- ' Establish a **Grants Coordinator** position through the Upper Mississippi River/Tallgrass Prairie Ecosystem Team. The coordinator would be responsible for preparation of internal and external grant proposals for conservation of freshwater mussels on the Upper Mississippi River System.
- ' Establish a **Public Outreach Specialist** position on the Upper Mississippi River responsible for public education and outreach efforts on the threat of invasive species (i.e. zebra mussels) and the ecological value of freshwater mussels. The position would also be responsible for preparation of relevant news materials, congressional and other briefings, and working with other agencies on outreach efforts associated with freshwater mussel conservation.

### **Fish & Wildlife Service Public Outreach Needs**

- ' Assign existing Public Affairs staff to lead media/outreach efforts on mussel activities this summer on the Upper Mississippi River including mussel culture at Genoa National Fish Hatchery, collection/relocation of mussels, mussel survey work on the St. Croix River, etc. Duties should also include congressional contacts and briefings. Suggested local news contact in the Twin Cities Metro Area is Mr. Dennis Lien, St. Paul Pioneer Press.
- ' Assign existing Computer Assistance staff to establish an Upper Mississippi River Freshwater Mussel Web Site (similar to the sturgeon web site established by the Great Lakes Ecosystem Team) as a source of information on freshwater mussels and conservation measures.
- ' Improve internal communication and outreach efforts on the urgency of saving mussels from extinction, and the spread of exotics on the Upper Mississippi River System by preparing news articles, inclusions in the Activities Reporting System, briefings for Service staff and management, etc.

### **Literature Cited**

Mueller, L. 1993. Winged Mapleleaf Mussel and Higgins' Eye Pearly Mussel: Freshwater Mussels Threatened with Extinction. Minnesota Department of Agriculture, St. Paul, Minnesota. 20pp.