Best Management Practices for Construction and Development Projects
Elephantear
Elliptio crassidens

Common name • Elephantear mussel
Scientific name • *Elliptio crassidens*
Federal status • None
State status • Endangered

Purpose and Use
The information in this document is to be used to help avoid and minimize species impacts due to construction practices. It is not intended to be used as a guide to manage habitat for a given species. If that is the goal, please contact the Department of Conservation for habitat management information. Because every project and location differs, following the recommendations within this document does not ensure that impacts will not occur to the species and additional information might be required in certain instances. Following the recommendations within this document does not complete Endangered Species Act consultation that may be necessary for species listed under the federal Endangered Species Act; please contact the U.S. Fish and Wildlife Service for more information.

Ecology
The Elephantear is a freshwater mussel species that is widespread but relatively rare in the Midwest. In Missouri, it occurs in the Meramec and Gasconade rivers. It inhabits large rivers with swift current over a stone and coarse gravel bottom. Mussels are filter feeders that pump water through their siphons to collect food particles from the water. They gather necessary nutrients and remove unwanted toxins from the water through this process. Almost all mussel species depend on a fish host to complete their life cycle. Mature adult mussels release glochidia (the immature stage), which must attach to the gills or fins of fish to complete their development. After an average of 2-4 weeks, the newly metamorphosed juveniles drop from the fish; and if they land in suitable habitat, they will burrow into the substrate and grow to repeat the cycle. Fish are an important link in the reproductive cycle of mussels and, typically, only certain species of fish are suitable hosts. The skipjack herring is the only known fish host for the Elephantear. Female Elephantears likely spawn in mid-May and release glochidia from June to July.

Reasons for Decline
The Elephantear was historically considered uncommon in rivers west of the Mississippi River and abundant east of this great river. However, it is now considered threatened or endangered throughout much of its range. Alteration and degradation of habitat as a result of rural and urban development have adversely impacted this species. Practices such as dam construction, gravel mining, removal of trees and undergrowth along the streambank, and non-point source pollution from agriculture and urban areas have contributed to the decline of this species. These practices have reduced available habitat, increased stagnation of bottom waters, increased siltation and possibly eliminated or reduced fish hosts.

Specific Recommendations
The Elephantear is limited primarily by habitat. It requires shallow swift-flowing rivers with stone and gravel substrates, and unpolluted, silt-free water.

- A survey of the waterways in the project area must be conducted by a trained biologist in order to identify occurring populations of this species.
- Dams and other water impoundment structures that alter substrate composition or water depth should be avoided in creeks and rivers that contain possible habitat for the Elephantear.
- No work should be allowed below the high bank of the stream between May 1 and July 31 to allow for successful reproduction and recruitment.
- Avoid gravel and stone dredging in creeks and rivers that contain habitat for the Elephantear.
- All equipment that enters the waterway should be washed and checked for juvenile zebra mussels before entering another body of water. This will help prevent the spread of this exotic European mussel species that can negatively affect native aquatic organisms and kill mussel species like the Elephantear.
- Freshwater mussels are relatively very immobile animals. If mussels are present in the substrate within the project area or present nearby downstream, they can be negatively impacted at any time of the year by direct substrate disturbance, destabilization of the stream bank, sedimentation following substrate or bank disturbance, introduction of chemical or organic pollutants, or indirectly through impacts to the fish host; every effort practicable should be made to avoid or minimize activities that alter or destabilize stream bottoms or banks, or introduce pollutants.
- Following these recommendations does not ensure there will be no negative impacts on this species or its habitat, because every site and project differs. However, these recommendations identify

practices that will help avoid and minimize some project impacts.

General Recommendations

Refer to Management Recommendations for Construction Projects Affecting Missouri Streams and Rivers.

If your project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or www.modot.mo.gov/ehp/index.htm for additional information on recommendations.

Information Contacts

For species information:

Missouri Department of Conservation
Resource Science Division
P.O. Box 180
2901 W. Truman Blvd
Jefferson City, MO 65102-0180
Telephone: 573/751-4115

For species information and Endangered Species Act Coordination:

U.S. Fish and Wildlife Service
Ecological Services
101 Park Deville Drive, Suite A
Columbia, Missouri 65203-0007
Telephone: 573-234-2132

For Clean Water Act Coordination:

Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102-0176
Telephone: 573/751-1300, 800/361-4827

U.S. Army Corps of Engineers
Regulatory Branch
700 Federal Building
Kansas City, MO 64106-2896
Telephone: 816/983-3990

U.S. Environmental Protection Agency
Water, Wetlands, and Pesticides Division
901 North 5th Street
Kansas City, KS 66101
Telephone: 913/551-7307

Disclaimer

These Best Management Practices were prepared by the Missouri Department of Conservation with assistance from state and federal agencies, contractors and others to provide guidance to those people who wish to voluntarily act to protect wildlife and habitat.

Compliance with these Best Management Practices is not required by the Missouri wildlife and forestry law nor by any regulation of the Missouri Conservation Commission. Other federal laws such as the Clean Water Act and the Endangered Species Act, and state or local laws need to be considered for construction and development projects, and require permits and/or consultation with the appropriate agency. Following the recommendations provided in this document will help reduce and avoid project impacts to the species, but impacts may still occur. Please contact the appropriate agency for further coordination and to complete compliance requirements.