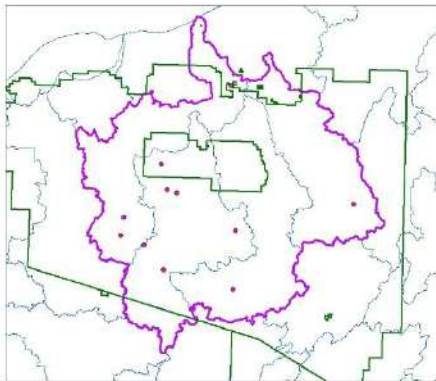


**PROJECT DESCRIPTION:** The Ontonagon River watershed and the Ottawa National Forest overlap extensively. Native freshwater unionid mussels are known to occur in some of the streams



The Ontonagon River watershed overlaps the Ottawa National Forest. Pink dots denote confirmed native freshwater mussel occurrences.

within the watershed. There are records at some specific locations (see map of study area), but no systematic mussel surveys of these streams has occurred. Therefore, information about the mussel species that occur there and their distribution in the watershed is spotty. The lack of information makes it difficult to ensure the conservation of these rare species and to include them for consideration in local land management planning and decisions. This project will begin to fill some of the information gaps in mussel distribution within the watershed.

This project will include field surveys at up to 20 stream sites within the Ontonagon River watershed on the Ottawa National Forest. Locations of survey sites will be chosen with guidance from Ottawa

National Forest staff. Surveys will take place in wadeable habitats and utilize visual and tactile (i.e. hands inserted into the substrate) methods of detection. The number of individuals, both live and shells, will be determined for each unionid mussel species at each site.

A measured search area will be used to standardize sampling effort among sites and allow mussel density estimates to be made. The size of the search area will generally be consistent with other mussel surveys that have been conducted in Michigan. In some cases, more or less area will be searched based on the amount of suitable habitat. When possible, sites will be searched from bank to bank so that the full range of microhabitats will be sampled. At sites where visual detection is difficult (e.g. pebble sized substrate with silt), tactile searches will occur across the entire search area. Where visual detection is effective, occasional tactile searches may occur to help ensure that buried mussels are not overlooked. Glass bottom buckets or other viewing equipment may be used to facilitate visual searches.

Live individuals and shells will be identified to species. Live specimens will be returned to the streambed where they were found. The geographic coordinates of sites will be recorded with handheld GPS units. The stream substrate will be characterized by estimating the percent composition of different particle size classes (diameter). Percent pool/riffle/run habitat within each survey area will be visually estimated. The presence of aquatic vegetation and/or woody debris will be noted, and current velocity will be roughly estimated at each survey site.

A final assessment will include the compilation and summary of the collected data and include a list of the sites sampled, their geographic coordinates, the species and number found at each site, and whether the samples were live mussels or shells. It will include a discussion of the density and species richness found at each site and describe how these values compare to previous surveys in the western Upper Peninsula or in other areas of Michigan. It will also include a summary of the substrate composition, habitat types, aquatic vegetation, woody debris, and current velocity at

each site. In addition, the final report will include photos of some of the sites sampled and mussels collected.

**PROJECT GOAL OR OBJECTIVES:** The goal of this project is to document the species, locations, and distribution of freshwater mussels within Ontonagon River watershed streams within the Ottawa National Forest in order to help conserve these species and to include their consideration in land management decisions in the watershed.

**GEOGRAPHICAL LOCATION:** Ontonagon River tributaries located in the Ottawa National Forest.

**PROJECT SCHEDULE:** Surveys would be conducted in summer 2017.

**PROPOSED SCHEDULE FOR PROGRESS AND FINAL REPORTS:** The surveys would be completed by the end of summer 2017. The written assessment of the results would be completed no later than February 2018.

<b>Year</b>	<b>Summer</b>	<b>Fall</b>	<b>Winter</b>
<b>2017</b>	Survey for mussels in up to 20 stream sites in the Ontonagon River Watershed	Draft of final report for review due no later than Dec. 31	Final Report due no later than Feb. 28

**PROJECT BUDGET:** \$25,405 (see attached table)

**REQUESTED FUNDING FROM MEF:** \$18,900

**ADDITIONAL SOURCES OF FUNDING OR IN-KIND SERVICES:**  
Superior Watershed Partnership, Ottawa NF – In-kind (see attached table)

**PERFORMANCE MEASURES:**

The measurement of performance of this project would be the completed written analysis, summary and assessment of the collected data.

**IDENTIFIED IN MDNR’S ONTONAGON RIVER ASSESSMENT:**

The Ontonagon River Assessment states that “a comprehensive inventory of mussel distributions within the watershed is needed” (Mussels section, p. 47). The management option identified in the Assessment that pertains to the work proposed is listed below.

**Biological Communities**

- Option: Conduct surveys to determine the abundance and distribution of native mussels in the Ontonagon River system (p. 80).

## PROJECT BUDGET

Revised budget - awarded

<b>Cost Elements</b>	<b>Superior</b>	<b>Ottawa</b>	<b>UPPCO</b>	<b>Total</b>
	<b>Watershed</b>	<b>National</b>		
	<b>Partnership</b>	<b>Forest</b>		
	In-Kind	In-Kind	Cash	
<b>Personnel (Project design, logistics, surveys)</b>	\$1,200	\$3,179	\$12,230	\$16,609
<b>Equipment/Supplies</b>	\$0	\$150	\$900	\$1,050
<b>Vehicles</b>	\$0	\$282	\$700	\$982
<b>Travel</b>	\$0	\$0	\$3,800	\$3,800
<b>Administration costs</b>	\$0	\$1,694	\$1,270	\$2,964
<b>Total</b>	\$1,200	\$5,305	\$18,900	\$25,405

UPPCO MEF grant \$18,900 (74.4%)

Matching contribution \$6,505 (25.6%)