

Conservation Plan for the Slippershell Mussel (*Alasmidonta viridis*)

1. Description of the impact likely to result from the proposed taking of the species that would be covered by the authorization including:

A. Legal description or detailed description of area:

The proposed action, to be carried out by the Grundy County Highway Department (County), involves the removal and replacement of the structure which carries County Highway C16/Sherrill Road over Valley Run Creek in Grundy County (Figure 1). County Highway C16/Sherrill Road is also the Grundy/Kendall County line. The project area is surrounded by predominantly agricultural land with some residential properties. Legal locality information for the project site, taken from the Lisbon, Illinois (7.5' series, 1991 edition, Photo Revised 1993) USGS topographic quadrangle map is as follows: Section 4, Township 34 North, Range 7 East and Section 33, Township 35 North, Range 7 East.

B. Biological data on the slippershell mussel:

The state-listed slippershell mussel (*Alasmidonta viridis*) is known to inhabit creeks in the project area. The slippershell mussel tends to occur in permanent streams in heterogeneous substrate. They tend to prefer areas with some current velocity even during low discharge conditions and most often are found in shaded areas of stream. Slippershells are likely to occur in sandier substrate behind boulders. In a document dated April 2, 2012, the Illinois Department of Natural Resources (IDNR) requested a mussel survey be conducted to determine the possible impacts to this species.

This project poses a high probability that slippershell mussels could be directly impacted during the construction of the proposed action. Any in-stream work activities during bridge removal and construction would affect the mussels and their habitat. Rip rap is proposed for placement under the bridge, which would likely also have a detrimental effect to the mussels.

After construction is complete, additional impacts are not anticipated. Habitat for the slippershell mussel in the location of rip rap placement would likely be impaired, but sufficient, appropriate habitat may still exist upstream, and possibly downstream, of the bridge. Cumulative impacts to the slippershell mussel are not anticipated.

C. Description of the activities that may result in taking:

It appears from the plans that the bridge will be replaced in its existing location and that no piling or bridge support structures will be placed in the creek. Aspects of proposed construction that will affect slippershell mussels include:

- excavation of the existing channel,
- changes in channel grade within the excavation area,
- alteration of substrate within the excavation area, and
- potential clearing of woody riparian vegetation upstream of the bridge.

Excavation of the existing channel will remove and kill any freshwater unionid mussels within the excavation area. Additionally, the regrading and armoring of the channel as proposed will likely create unsuitable habitat for unionids and prevent recolonization of the area. Changes in channel morphology could also affect hydraulic characteristics upstream and downstream of the excavated area.

D. Explanation of anticipated adverse effects on the species/quantification of take:

It is impossible to predict the number of individuals that may be “taken” by this project, as the size of the species is so small and the population remains underground during the vast majority of the year. During a survey in July 2012, one deceased individual was found in the area of the bridge replacement. Temporary habitat modification or degradation may lead to the death or injury to the listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Even though relocation of mussels prior to the removal and replacement of the bridge will occur, some individuals may be taken by the project, as not all may be identified during the relocation survey that is proposed as a part of this plan.

2. Measures to be taken to minimize and mitigate the impact on the species, and the funding that will be available to undertake these measures

A. Plans to minimize the area affected by the proposed action, the estimated number of endangered individuals to be taken, and the amount of habitat to be affected:

The slippershell is known to exist within the project area, and due to the mussels’ habitat and small size, an Incidental Take Authorization is requested. The number of individuals that may be taken cannot be estimated. Construction limits for the proposed project have been reduced to the smallest area possible, in an effort to minimize impacts to the mussels and their habitat. Construction activity will be limited to approximately 25 feet downstream and upstream of the centerline of the bridge in an effort to minimize impacts to the mussels. Before construction begins, certified individuals will relocate any slippershell mussels located in the immediate vicinity of the structure (existing and proposed right-of-way) to a suitable habitat elsewhere in Valley Run, if possible. An undetermined number of slippershell mussels may possibly remain and could be affected by the construction.

B. Plans for management of the area affected by the proposed action that will enable continued use of the area by the species:

If measures are taken to minimize substrate disturbance in the area around the bridge, mussels may move back into the area over time. The slippershell was found directly under the existing bridge in July 2012. However, the amount of creek bed that will be disturbed due to this project is minimal, and there should be adequate suitable slippershell habitat nearby.

C. Description of all measures to be implemented to minimize and mitigate the effects of the proposed action on the species:

A relocation survey will be conducted to identify and relocate mussels to another appropriate area of the stream. The goal of the relocation will be to remove the majority of slippershells present within the impact area to a suitable location within the same stream or system.

A relocation area containing similar habitat and live unionids, preferably slippershells, will be established prior to mussel collection. A cursory survey of the impact area will be used to evaluate habitat conditions and informally estimate density and species composition. Using this information and starting at least 50 meters (m) upstream of the existing bridge, a suitable relocation area will be searched for within Valley Run. A location at least 200 m downstream will also be searched if one upstream is not found. Aux Sable Creek or Collins Run may also be considered if no other area in Valley Run appears suitable. Once located, the relocation area will be marked with flagging tape, and GPS coordinates will be recorded. Collection will then commence within the impact area. GPS

coordinates will be recorded around the perimeter of the collection area. Collection efforts will entail visually and tactually searching the substrate for slippershells while wading or snorkeling. If depths increase beyond arm-length, SCUBA will be used. Typically, in small stream relocations, 1m wide corridors are created and searched downstream to upstream by one individual first and the process is then followed by a second field team member. This will continue until at least less than 10 percent of the number of live unionids in the first pass is collected. A minimum of one person-minute per square meter will be spent searching and collecting unionids. Unionids will be retained in mesh bags within the stream until processing.

Once collection is complete, unionids will be processed and moved to the relocation site. All collected unionids will be identified and counted. Slippershell species will be photographed, measured (length, width, and height, mm), and sexed (if sexually dimorphic). As during collection, unionids will be kept in mesh bags in river water while out of the substrate before and during processing and will be returned to the substrate within the relocation area as quickly as possible. All unionids will be hand-placed within the substrate in the relocation area. GPS coordinates will be recorded around the perimeter of the relocation area and where individuals of listed species are placed.

D. Plans for monitoring the effects of measures implemented to mitigate and minimize the effects of the proposed action on the species:

The slippershell mussel is extremely small as an adult (about 3 centimeters maximum). It is unknown at this time how many slippershells may be collected and therefore relocated; however, only one (deceased) individual was collected in the July 2012 survey. If a small number is collected and relocated, it will be virtually impossible to monitor this population. The effort needed to find the relocated specimens could possibly cause more damage to the habitat. A survey will be conducted at the subject site post construction to determine if slippershells have recolonized. Handling of mussels shall be in compliance with any and all conditions and/or protocols included in the State and/or Federal authorizations for this work. A report on the species, numbers, and sizes of mussels found shall be prepared within 60 days of the completion of the survey. The report shall include a qualitative evaluation of the habitat for freshwater mussels being provided by the construction right-of-way area and the manner in which that habitat has changed since the previous survey.

E. Projected cost of each measure that will minimize or mitigate the effects of proposed action on endangered or threatened species.

The estimated cost of the preferred bridge replacement alternative is \$241,753.50.

F. Adaptive management practices that will be used to deal with changed or unforeseen circumstances that affect the effectiveness of measures instituted to minimize or mitigate the effects of the proposed action on the species:

Due to the nature of the project, the County does not anticipate any changed or unforeseen circumstances. The bridge replacement will be completed and no additional work will likely be necessary afterwards.

G. Assurance of funding to support and implement all mitigation activities described in the conservation plan:

The County will assure all funding necessary for the implementation of the mitigation activities.

3. Description of alternative actions considered that would not result in a take of the species, and the reasons that the alternatives were not selected. A 'No Action' alternative is also described:

- *No Build:* One alternative that would not result in the take of listed freshwater mussels is the “no build” alternative. This means the bridge would not be replaced and would eventually deteriorate until it is unusable by the community. This alternative was dismissed due to the presently deteriorated condition of the bridge and the need for a safe structure in this location.
- *Relocation of Sherrill Road Bridge:* This alternative would consist of rerouting Sherrill Road. However, Valley Run Creek would still need to be crossed; therefore slippershell mussels could still be impacted. Moreover, the costs and impacts associated with a new roadway in addition to a new bridge would be significantly higher and not economically feasible for the County.
- *Preferred Alternative:* The preferred alternative consists of the removal and replacement of the existing bridge, SN 032-3000. The channel of Valley Run will be excavated with 2:1 side slopes. The channel will be excavated approximately 145 cubic yards. Approximately 285 square yards of stone riprap class A4 will be placed in the channel and on the embankment.

4. Information to indicate that the proposed taking will not reduce the likelihood of the survival of the species.

The slippershell is fairly widespread in Illinois. The reason for inclusion on the list of endangered species in Illinois is because of its severe reduction in range in the state.

5. The implemented agreement, which includes:

a. Names and signatures of all participants in the execution of the conservation plan

Mr. Craig Cassem, P. E.
Grundy County Highway Department

Hutchison Engineering, Inc.

SCI Engineering, Inc.

Illinois Department of Natural Resources

b. The obligations and responsibilities of the participants with schedules and deadlines for completion of activities included in the plan

The Illinois Department of Natural Resources is responsible for the review of this Conservation Plan and for subsequent issuance of the Incidental Take Authorization, if so required. The County is responsible for all biological clearance coordination and recommendations related to the project.

At this time, the deadline for completion of activities to complete removal and replacement of the bridge is August 2013.

Hutchison Engineering, Inc. is responsible for the creation of the engineering plans.

c. Certification that each participant in the execution of the conservation plan has the legal authority to carry out respective obligations

This project will be funded by both Kendall County and Grundy County. The funds used will be Non-MFT.

d. Assurance of compliance with federal, State and local regulations pertinent to the proposed action and to the execution of the plan

The County exclusively abides by the National Environmental Policy Act and all associated state and federal environmental laws in carrying out the mission of performing the most environmentally sensitive methods of planning and engineering.

e. Copies of any federal authorizations for taking already issued to the applicant.

No authorizations have been issued.

f. For projects that will result in the taking of endangered or threatened species of plants, copies of expressed written permission of the landowner.

Not applicable since the slippershell mussel (*Alasmidonta viridis*) is considered an animal under the Endangered Species Act