



Illinois Department of Natural Resources

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Pat Quinn, Governor
Marc Miller, Director

Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (Act) (520 ILCS 10/5.5) and the regulations adopted to implement the Act (17 Ill. Adm. Code 1080), authorization is hereby granted to the Illinois Department of Transportation (hereinafter referred to as IDOT) for the incidental take of the snuffbox (*Epioblasma triquetra*) and kidneyshell (*Ptychobranthus fasciolaris*) mussels. The Illinois Department of Natural Resources (hereinafter referred to as the Department) has determined that this taking is incidental to activities associated with the replacement of the bridge that carries Illinois Route 133 over the Embarras River 1.5 miles west of Oakland in Coles and Douglas Counties, Illinois.

Procedural History

The Department received a conservation plan from IDOT on February 21, 2014. On March 20, 2014, the Department requested additional information from IDOT to make the conservation plan complete as prescribed by 17 Ill. Adm. Code 1080.10. That additional information was received by the Department on March 24, 2014. The public notice period will be detailed under #6 of the Compliance section below.

Compliance with the Illinois Endangered Species Protection Act

The Act includes six criteria which must be satisfied for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each are listed below.

1. The taking will not be the purpose of, but will only be incidental to, the carrying out of an otherwise lawful activity:

The stated and apparent purpose of this proposed action is to replace the existing Illinois Route 133 bridge over the Embarras River located approximately 1.5 miles west of Oakland, Illinois. The new bridge will be located on the existing alignment located in Coles and Douglas Counties. Removal of the existing five-span bridge and placement of riprap for the new bridge will require instream work from a temporary pad or from the riverbank. Demolition and construction may involve the use of a causeway, haul road, temporary construction bridge, explosives, and/or cranes. The existing bridge has four piers including one at the edge of the water and one at the top of each bank. The new bridge will have two spans with a Steel Girder supported by a single pier that will not be in the water, but 30 feet east of the river. Riprap will be placed on both banks to protect

from erosion. The total area of impact within the river is 0.35 acres. The take of the snuffbox and kidneyshell that could result from this project is not the purpose of IDOT's activities, but is incidental to the carrying out of an otherwise lawful activity.

2. The parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking:

The current design for the replacement bridge with two spans and a single pier was selected to minimize environmental impact. Early planning for this project identified the construction of a five-span bridge as the preferred alternative, which would have placed two piers at the water's edge and two piers in the deepest part of the Embarras River channel.

The conservation plan prepared by IDOT describes additional measures that will be taken to minimize the potential adverse effects of the project on the snuffbox and kidneyshell. The primary measure is the relocation of all freshwater mussels from that portion of the river that will be affected by the bridge replacement project to an upstream area that provides suitable habitat, has a similar unionid mussel assemblage, and shows low to no zebra mussel infestation. Relocation will be done before construction begins and under suitable flow and temperature conditions.

IDOT will also implement erosion and sediment control measures per the U.S. Army Corps of Engineers Section 404 permit, the water quality certification policies of the Illinois Environmental Protection Agency (IEPA), and the requirements within the National Pollutant Discharge Elimination System (NPDES) construction permit. Areas disturbed by access pads will be restored to their original condition.

In addition, IDOT proposes to conduct post-construction surveys of freshwater mussels at the construction site and the relocation site. These surveys will be done two years and four years after construction is complete.

It is the opinion of the Department that these measures, along with any additional terms and conditions listed in the Authorization section of this document will, to the maximum extent practicable, minimize and mitigate the impact caused by the potential taking.

3. The parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided:

IDOT maintains a contractual agreement with the Illinois Natural History Survey (INHS) to perform biological surveys and other work with Illinois wildlife and plants. INHS scientists will conduct the pre-construction relocation of mussels and post-construction monitoring of the construction area and relocation site.

Based on knowledge of the relationship between IDOT and INHS and the abilities of INHS scientists to conduct the proposed relocation and monitoring, it is the Department's

conclusion that adequate funding will be available to carry out the provisions of the conservation plan.

4. Based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of survival or recovery of the endangered species or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois:

The snuffbox is listed as an endangered species at both the State and federal levels due to extreme reduction of its range. Historically, the snuffbox was widespread in Illinois in the Mississippi, Wabash, Ohio, Kaskaskia, Sangamon, Embarras, Fox and other rivers. Currently, all extant populations of the species in Illinois are within a short stretch of the Embarras River. It lives in medium to large rivers with swift current in clear, sand, gravel, and cobble riffles. It is a small (roughly 2 inch) mussel that burrows deep into the sediment, except when spawning or attracting host fish. Log perch and banded sculpin are known host fish, which carry mussel larvae. The decline in numbers and reduction in range are likely the result of siltation, chemical pollution, and modification or destruction of suitable habitat. The Illinois Natural Heritage Database includes two element occurrence records for the snuffbox that are classified as extant, one at the project site and the other approximately 5 miles downstream in Coles County. In addition, there are three historical populations with individuals not observed in over 10 years, all on the Embarras River within 20 miles of the project site in Douglas and Coles Counties. The Department has issued no previous incidental take authorizations for the snuffbox.

The kidneyshell is listed as an endangered species in Illinois due to population declines. Historically, kidneyshells were widespread in the Ohio River drainage in Illinois, including the Vermilion, Wabash and Embarras river systems. Although the species is extant in those drainages, occurrences are rare. Kidneyshells are found in small to medium rivers in riffle areas with hard packed sand and gravel with medium to swift flowing water. It is a medium-sized mussel growing to 6 inches with an elongate, elliptical shell that is yellowish-brown in color with wide, interrupted green rays that look like squarish spots. The most likely host fish are species of Percidae (darters) and Cottidae (sculpins). The decline in numbers is likely the result of siltation, chemical pollution, modification or destruction of suitable habitat, and exotic mussel invasion. The Illinois Natural Heritage Database includes eight element occurrence records for the kidneyshell that are classified as extant: one in the Vermilion River in Vermilion County, six in the Embarras River in Coles and Douglas Counties, and one in the Little Wabash River in Clay County. In addition there are three historical element occurrence records that have not been observed in 10 years: two in the Vermilion River in Vermilion County and one in the Embarras River in Coles County. The Department has issued no previous authorizations for incidental take of kidneyshells.

At the request of IDOT, INHS conducted a survey of freshwater mussels at the project site in July 2012. The surveyed area extended approximately 100 yards upstream and 50 yards downstream of the Illinois Route 133 bridge. Eighteen live kidneyshells and three live snuffbox were found during that survey. Fourteen of the kidneyshells and two of the

snuffbox were found upstream of the bridge; and four of the kidneyshells and one of the snuffbox were found downstream of the bridge. Between 1956 and 2012, the kidneyshell was found live at this location on nine occasions and the snuffbox was found on 11 occasions, nine times alive and twice freshly dead. IDOT estimates that this project has the potential to take between four and six kidneyshells and one to three snuffbox through crushing of mussels that are not found during relocation efforts and through disturbing those individuals that are relocated. Based on the densities of mussels found in the July 2012 survey, 13-14 kidneyshell and 2-3 snuffbox would be anticipated in the project area. That survey covered an area of approximately 2,250 square yards or 0.46 acre (1,881 m² or 0.19 hectare) and 444 live mussels of 19 species were found. Kidneyshell constituted approximately 4% of the live mussels collected and snuffbox made up 0.7% of the sample. While no search for mussels can find every individual in a stream reach, it is reasonable to expect that more than 50% of the mussels will be found and relocated before construction begins. This will reduce the estimated number of kidneyshell and snuffbox in the project area after the relocation effort to approximately 6 and 1, respectively.

Based on IDOT calculations 0.35 acres of habitat within the Embarras River will be impacted. The project area will be disturbed during construction and result in downstream siltation, but there will be no permanent loss of habitat that supports the kidneyshell and snuffbox. The use of a bridge design that has no piers in the Embarras River channel will assure that, under normal flow conditions, the presence of the bridge will not cause erosion and/or deposition of sediments that could negatively affect habitat. Recolonization is expected after construction is complete.

Based on the limited permanent loss of habitat, the minimization and mitigation measures described under #2 above and in the Authorization section below, and the understanding that vulnerability and recovery information on the species remains limited, it is the conclusion of the Department that the taking anticipated as a result of the project will not reduce the likelihood of survival or recovery of the endangered or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois.

5. Any measures required under Section 5.5(b)(6) will be performed:

These measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and the signature or a representative of IDOT indicates IDOT's commitment to performing those measures.

6. The public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application:

Public notice of the availability of IDOT's conservation plan for review and comment was published in the (Taylorville) Breeze-Courier on April 3, 2014, and in the Oakland Independent on April 3, April 10 and April 17, 2014. Copies of the conservation plan were deposited at the Charleston Carnegie Public Library and the Arcola Public Library,

where they were available for public review. The deadline for public comment was May 17, 2014. No comments were received from the public.

Authorization

It is the determination of the Department that the measures that will be implemented by IDOT will adequately minimize and mitigate the anticipated taking of kidneyshell and snuffbox related to replacement of the Illinois Route 133 bridge over the Embarras River 1.5 miles west of Oakland in Coles and Douglas Counties, Illinois. Further, it is the Department's opinion that the take authorized herein will not diminish the likelihood of the survival of the kidneyshell or snuffbox in the wild within the State of Illinois, the biotic community of which these species are a part, or the habitat essential to the species' existence in Illinois.

All terms and conditions included in the aforementioned conservation plan submitted by IDOT to the Department are incorporated into this agreement by reference and are made a part thereof.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5] and the Administrative Rules for the Incidental Taking of Endangered and Threatened Species [Ill. Adm. Code 1080.40(b)], this authorization is issued subject to the following terms and conditions, which may include additions or modifications to the minimization and mitigation measures proposed by IDOT under #2 in the Compliance section above:

1. This authorization is effective upon the signature of the Department and shall remain in effect for a period of six (6) years from the date of the Department signature, unless terminated by written agreement of both parties.

The authorization may be revoked pursuant to the Act and Ill. Adm. Code 1080.80(b) if the Department finds that IDOT has failed to comply with any of these terms and conditions or has been responsible for the taking of kidneyshell or snuffbox beyond that which is incidental to replacement of the existing Illinois Route 133 bridge over the Embarras River located approximately 1.5 miles west of Oakland, Illinois in Coles and Douglas Counties.

2. The effective period of this authorization may be altered by mutual written agreement between IDOT and the Department. The Illinois Endangered Species Protection Board shall be notified of any such alteration.

Any substantive changes, including but not limited to a change in the project footprint or a change in the Illinois endangered or threatened species which could potentially be affected, will require that a new conservation plan be submitted to the Department to initiate the review and public notice process as required by the Act.

3. Incidental Take Authorizations are non-transferrable.
4. IDOT shall notify the Department upon commencement of the project.

5. IDOT shall clearly delineate the construction area for this project and ensure that all IDOT employees and contractors are aware of the construction area limits. All personnel working in the vicinity of the project shall receive educational materials regarding the sensitive ecological context of the project. Materials will include identification information on the potentially impacted State-listed species, protected status of the species, protocol for when the species is encountered, live or dead, and explanation of environmental restrictions. A copy of the educational materials shall be provided to the Department. The Department shall be informed of any sighting of State-listed species and provided location information within 48 hours.
6. IDOT shall install and maintain erosion and sediment control features at the construction site to minimize siltation impacts. These features shall be inspected daily during construction to ensure effectiveness and remedy any malfunctions. IDOT will comply with the U.S. Army Corps of Engineers Section 404 permit, water quality certification requirements of the IEPA, and the requirements of the NPDES construction permit. All cover vegetation and restoration shall utilize species native to Illinois.
7. Prior to the initiation of any construction activities, a qualified malacologist shall conduct a thorough mussel search and relocate all freshwater mussels in the construction area to suitable habitat upstream of the construction area. This search shall be conducted no more than 45 days prior to project initiation. The proposed relocation site shall be identified in advance and submitted to IDNR for approval. All kidneyshell and snuffbox to be relocated shall be identified to species, marked, measured, aged, sexed, and cleaned of zebra mussels, when possible. All freshwater mussels that are relocated shall be hand-placed in the substrate within the selected relocation site. Within 60 days of completion of the relocation of mussels, IDOT shall provide a report to the Department that includes data on all individual mussels that were relocated, and the locations and habitat descriptions of search and relocation sites.
8. IDOT shall conduct, or cause to be conducted, a post-monitoring survey for freshwater mussels around the project area and relocation site in year two and year four following completion of construction. Completion shall be defined as the date on which the bridge is opened for regular traffic. A report including, but not limited to, the survey methodology utilized, the species and numbers of mussels located, the age and size of each individual sampled, habitat descriptions, and a map of the species locations shall be provided to the Department within 60 days of completion of the survey.
9. All documentation, including maps, shall be submitted to:

Jenny Skufca, Endangered Species Project Manager
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
(217)557-8243
jenny.skufca@illinois.gov

The Department's Endangered Species Program shall provide all reports required under this agreement to the Illinois Endangered Species Protection Board and to the Illinois Natural Heritage Database.

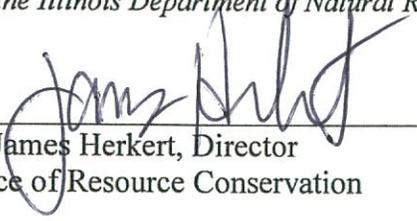
10. Mitigation settlement dollars submitted to the Department earmarked for the conservation benefit of State-listed species are non-refundable, including events of revocation or termination. It has been determined by the Department that applicable mitigation settlement dollars based on the cost of propagation, transportation, introduction, monitoring, and administration of mussel relocation activities are available, in lieu of the stated requirement that mussels will be propagated and introduced (see Authorization condition #11 below).
11. As mitigation for the taking of snuffbox and kidneyshell mussels, IDOT shall either propagate, introduce, and monitor snuffbox and kidneyshell mussels or pay an approved in-lieu fee to the Department to cover such expenses per Authorization condition #10 described above.

IDOT shall mitigate their impact through propagation and introduction of 174 snuffbox and 347 kidneyshell mussels. This number is calculated based on IDOT's estimate of 3 snuffbox and 6 kidneyshell to be taken, a 0.095 mussel survival rate from juvenile to adult, and the Department's 5.5:1 mitigation ratio for listed species [(3 snuffbox taken x 5.5 mitigation ratio) / 0.095 mussel survival rate = 174 snuffbox mussels] [(6 kidneyshell taken x 5.5 mitigation ratio) / 0.095 mussel survival rate = 347 kidneyshell]. The 0.095 mussel survival rate utilized by the Department can be found in Investigation and Monetary Values of Fish and Freshwater Mussel Kills (American Fisheries Society Special Publication 30, Robert I. Southwick and Andrew J. Loftus, ed., 2003).

An applicable 3-year mussel propagation and introduction project through The Genoa National Fish Hatchery (a division of the US Fish and Wildlife Service) costs \$27,904. IDOT shall arrange with Genoa or another hatchery directly, or provide mitigation settlement dollars to the Department in lieu of the propagation and introduction requirement (see attached actual Illinois Toll Highway Project mussel propagation budget, Appendix B of the Intergovernmental Agreement Between The Illinois State Toll Highway Authority and The Genoa National Fish Hatchery).

12. The Department reserves the right of entry by its staff or representatives to inspect potential habitat and species management practices to assure compliance with these terms and conditions with 24-hour notice to IDOT.
13. The IDOT official identified below is authorized to execute this agreement. Execution by IDOT indicates acceptance of all terms and conditions described in this authorization.
14. The execution of this agreement does not waive or excuse the responsibilities of IDOT to comply with other Federal, State or local regulations, including but not limited to obtaining any required permits for the execution of this project.

For the Illinois Department of Natural Resources

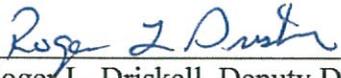


Dr. James Herkert, Director
Office of Resource Conservation

Date

8-26-14

For the Illinois Department of Transportation



Roger L. Driskell, Deputy Director of
Highways, District 7, Region 4 Engineer

ROGER L DRISKELL, REGION 4 ENGINEER
Printed Name and Title

Date

8-4-14

EXHIBIT B

Production of black sandshell (*Ligumia recta*) for the Kishwaukee River

Genoa National Fish Hatchery (NFH) has been actively involved in mussel propagation since 2000. Currently, Genoa NFH is producing four federally endangered species, one federal candidate and several more of interest on local state levels. These efforts have been successful in developing culture methods for multiple species resulting in the stocking of tens of thousands of sub-adult mussels in the rivers of the Upper Midwest. Using this expertise Genoa NFH proposes to propagate the black sandshell (*Ligumia recta*) and rear the juvenile mussels to a sub-adult size suitable for stocking (25mm – 50mm) in the Kishwaukee River near the Interstate 90 crossing. The black sandshell uses the walleye (*Sander vitreus*) as primary host, for this project walleye will be inoculated with black sandshell glochidia in late spring, and then placed in cages to contain the fish and concentrate drop-off of juvenile mussels onto a platform from which they can be recovered later. Mussel culture cages will be placed at a location known to support mussel growth to lower the risk of production losses. At the end of the growing season resulting juvenile mussels will be counted and removed from the cages. Mussels which have grown to a suitable size will be stocked, while smaller animals will be held for an additional summer of culture until they reach sufficient size for stocking. A minimum of 10 cages should be used for this effort to ensure that sufficient numbers of sub-adult mussels are recovered. In addition to rearing mussels in culture cages it is recommended that walleye be released directly into the target reach of the Kishwaukee River bearing black sandshell glochidia. Adding the free release infested host fish will ensure project goals are met, and mitigate against the risk of losses in culture cages.

As with any hatchery operation, the risk of culture losses exists. To protect against the chance of culture losses we recommend that multiple years of propagation effort are attempted along with multiple strategies of mussel culture. We recommend an approach that includes two attempts at cage culture with the addition of two releases of infested host fish. This scenario would spread over 3 years, and can begin as early as spring 2013. The budget scenario prepared here includes the assumption that gravid black sandshell for propagation will be collected and delivered to Genoa NFH by the project applicant. Three to five gravid females will provide enough glochidia to do at least a portion of the proposed work for a given year. It is recommended that seven to ten gravid females be collected to assure that available glochidia levels don't negatively affect project goals.