



Illinois Department of Natural Resources

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Bruce Rauner, Governor
Wayne A. Rosenthal, 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 City of Belvidere for the incidental take of the State-threatened black sandshell mussel (*Ligumia recta*) and American brook lamprey (*Lethenteron appendix*). The Illinois Department of Natural Resources (hereinafter referred to as Department) has determined that the taking is incidental to activities associated with the rehabilitation of the Newburg Road bridge over the Kishwaukee River in the City of Belvidere in Boone County, Illinois. The project is located within the Kishwaukee River Natural Areas Inventory Site (INAI #0720). The site is included on the Illinois Natural Areas Inventory due to unusual concentrations of fauna and specific suitable habitat for listed species.

Procedural History

The Department received a conservation plan prepared by Hampton, Lenzini and Renwick, Inc., on behalf of the City of Belvidere on February 18, 2016, as a request for authorization for the incidental take of black sandshell. The Department requested additional information on March 18, 2016, to make the conservation plan complete as prescribed by Ill. Adm. Code 1080.10. That additional information was received by the Department on July 18, 2016. Subsequently, based on new information, the Department requested that American brook lamprey be added to the conservation plan on August 18, 2016. The revised conservation plan was received by the Department on September 8, 2016. The Department requested additional information regarding the lamprey on September 12, 2016 and the final conservation plan was received on September 19, 2016. 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 that 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 the rehabilitation of the Newburg Road bridge over the Kishwaukee River in Belvidere, Illinois, in Boone County. Bridge rehabilitation activities include cleaning and painting of the existing steel beams, replacement of guardrails, and the placement of stone riprap for scour control. A temporary stone causeway extending from both banks and cofferdams will be employed to facilitate the rehabilitation activities. Temporary

stockpiles and staging of materials will be in upland areas on the banks. Cofferdams will be dewatered to aid in riprap installation. The area of temporary impact for the causeway and cofferdams is estimated to be 0.14 acre. The area of permanent impact is estimated to be 0.08 acres. The total area of suitable habitat impacted is estimated to be **0.22 acre**.

Take of the black sandshell mussel and American brook lamprey could occur as a result of being crushed or smothered during installation of the temporary rock causeway and riprap, from being caught in dewatered cofferdams, sedimentation within and downstream from the project site, and temporary turbidity increases during construction. Disturbance from noise and vibration within the river could have an adverse effect on some life history stage of the mussels, their associated host fishes, or the American brook lamprey. The take of black sandshell and American brook lamprey that could result from this project is not the purpose of the City of Belvidere'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:

Proposed minimization and mitigation measures were included in the City of Belvidere's conservation plan.

To meet the "maximum extent practicable" standard, additional minimization and/or mitigation measures may be required beyond those proposed by the City of Belvidere, based on the life history needs of the black sandshell and the American brook lamprey. **All required minimization and mitigation measures are presented under the Authorization section below.**

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

The City of Belvidere states that they will fund the bridge rehabilitation and the conservation plan using Motor Fuel Tax funds dedicated by City Resolution. The estimated costs include funding for implementation of erosion and sediment control measures and all mitigation activities described in 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 are a part, or the habitat essential to the species' existence in Illinois:

The **black sandshell** mussel is an Illinois State-threatened mussel species. It is found in medium to large rivers in areas with strong currents. The species is known to prefer substrates of coarse sand, gravel, cobble, or silt.

Black sandshell mussels are long-term brooders, with females retaining developing glochidia in their gills from August until the following July, after which glochidia are released. Gravid female black sandshells are known to display their marginal papillae, moving them in a way that attracts fish hosts before releasing the parasitic glochidia. Black sandshell host fish include walleye (*Sander vitreus*), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), sauger (*Sander canadensis*), white crappie (*Pomoxis annularis*), and many others that have been suggested as possible hosts.

Black sandshell populations have declined due to habitat degradation. In Illinois, black sandshells have been found in the Mississippi, Kaskaskia, Vermilion, Ohio, Kankakee, Rock, Iroquois, and Little Wabash River basins. There are currently 97 extant Element Occurrence Records for black sandshell mussels in the Illinois Natural Heritage Database in 30 of 102 Illinois counties. The Department has 26 pending or issued Incidental Take Authorizations for black sandshell. Types of projects included dredging, bridge removal and replacement, boat dock construction, railroad construction, pier removal, dam removal, piling installation, riprap installation, oil pipeline construction, and diffuser installation. This is the first authorization for potential take of black sandshell in the Kishwaukee River in Boone County, but a take authorization was executed for black sandshell approximately one mile downstream in Winnebago County.

In August 2015, personnel from the Illinois Natural History Survey performed a survey for freshwater mussels in the project area. There were 13 black sandshell mussels found as a result of the survey.

The **American brook lamprey** is an eel-like, jawless, cartilaginous fish with no scales that grows to be 5-7 inches long. Adult American brook lampreys inhabit clear brooks with fast-flowing water and either sand or gravel bottoms. Juveniles can be found buried in soft substrates of medium to large streams with slow-moving water. Unlike some other lamprey species, the American brook lamprey is non-parasitic to other fish, and instead feeds on organic matter and microscopic organisms while in its larval form. Adult American brook lampreys do not feed.

American brook lampreys spawn from late April to early May in shallow pits they excavate near the upper ends of gravel riffles. Several individuals communally construct one spawning pit, and the females each deposit over one thousand eggs into the pit. The eggs hatch after 20-22 days, and the larva, called ammocoetes, float downstream to larger, slower-moving streams and burrow in the substrate. After five or more years, ammocoetes transform into adults in the late summer or fall. Once transformed, the adults migrate to smaller, faster-moving streams. The adults spawn the following spring and die shortly after.

In Illinois, the American brook lamprey has been found in the Kankakee, Mackinaw, Kishwaukee, Embarras, Rock, and Little Vermilion Rivers, along with

several smaller creeks and tributaries through the northeastern quarter of the state. The American brook lamprey populations have declined in Illinois due to increased sedimentation of creeks and rivers, declining water quality, and pollution. There are currently 12 extant Element Occurrence Records for American brook lamprey in the Illinois Natural Heritage Database in 6 of 102 Illinois counties. This is the first incidental take authorization granted by the Department for American brook lamprey in Illinois.

In August 2015, personnel from the Illinois Natural History Survey conducted a survey for fish species in the project area. No American brook lampreys were found, but the survey methods used were not suitable for detection of this species. American brook lampreys have been observed in recent years at nearby sites within the Kishwaukee River, and suitable lamprey habitat is present within the project area.

Based on the amount of habitat impacted by this project, the number of known occurrences of the black sandshell mussel and American brook lamprey in Illinois, an assessment of the potential effect of this project on individual mussels and fish in the project footprint, the conservation measures included in this authorization for incidental take, and the understanding that vulnerability and recovery information on the species remains limited; the Department has concluded that the taking proposed herein will not reduce the likelihood of survival or recovery of the black sandshell or American brook lamprey in the wild within the State of Illinois, the biotic community of which the species are a part, or the habitat essential to the species' existence in Illinois.

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

These measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and the signature of a representative of the City of Belvidere indicates their 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 City of Belvidere's request for authorization of incidental take was published in the *Breeze Courier* (official state newspaper) on September 27, 2016 and in *The Belvidere Daily Republican* on September 27, October 4, and October 11, 2016. A copy of the conservation plan was deposited at the Ida Public Library, where it was available for public review. The deadline for public comment was November 10, 2016. No comments were received from the public.

Authorization

It is the determination of the Department that the measures that will be implemented by the City of Belvidere will adequately minimize and mitigate the anticipated taking of black sandshell and American brook lamprey incidental to activities associated with the rehabilitation of the Newburg Road bridge over the Kishwaukee River in Boone County, Illinois. Further, the Department has concluded that the take authorized herein will not reduce the likelihood of survival or recovery of the black sandshell or American brook lamprey in the wild within the State of Illinois, the biotic community of which the species are a part, or the habitat essential to the species' existence in Illinois. Additional listed mussel and fish species are known to inhabit the Kishwaukee River, **this agreement does not authorize take of any species except the black sandshell and American brook lamprey.**

All terms and conditions included in the aforementioned conservation plan submitted by the City of Belvidere 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 the City of Belvidere in the conservation plan:

1. This authorization is effective upon the signature of the Department and shall remain in effect for a period of **five (5) years** from the date of the Department signature, unless terminated by written agreement of both parties.

This authorization may be revoked pursuant to the Act and Ill. Adm. Code 1080.80(b) if the Department finds that the City of Belvidere has failed to comply with any of these terms and conditions or has been responsible for the taking of black sandshell or American brook lamprey beyond that which is incidental to activities associated with the rehabilitation of the Newburg Road bridge over the Kishwaukee River in Boone County, Illinois.

2. The effective period of this authorization may be altered by mutual written agreement between the City of Belvidere 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 State-listed 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. This authorization is non-transferable.

4. All personnel working in the vicinity of the project shall receive educational materials including species identification information, protected status of the species, and response protocol in place when mussels or American brook lamprey are encountered, living or dead. A copy of the educational flyer shall be provided to the Department.
5. The Department reserves the right of entry by its staff or representatives to inspect species, potential habitat, and species management practices.
6. The City of Belvidere plans to use the Illinois Natural History Survey Biological Surveys and Assessment Program to conduct all necessary relocation and post-construction monitoring efforts through an existing contract with the Illinois Department of Transportation (IDOT) on behalf of and at no additional costs to the City. It is the responsibility of the City of Belvidere to notify IDOT Bureau of Design and Environment prior to commencement of the project and upon completion of the project in order for the above efforts to be conducted. Biological consultants shall hold the necessary permits for work with non-listed and listed species; these include an Illinois Department of Natural Resources Scientific Collection Permit and an Illinois Department of Natural Resources Endangered Species Permit.
7. The City of Belvidere shall notify the Department of the commencement and completion of the rehabilitation of the Newburg Road bridge over the Kishwaukee River. The Department shall be informed of any State-listed species sighting and provided location information (photograph and GPS coordinates) within 48 hours of such sighting. The Department shall be notified immediately of the discovery of dead specimens and will provide guidance on preservation and disposition.
8. **Within 90 days of construction completion (open to public)**, the City of Belvidere shall provide the Department with a project status report summarizing the implementation of minimization, mitigation, and restoration measures and evaluating the effectiveness of those measures and shall include a project photo log.
9. The City of Belvidere shall conduct, or cause to be conducted, the following pre-construction or construction efforts:
 - a. In-stream work shall be conducted during seasonal low flow conditions and outside the lamprey spawning season of April 15 through May 15.
 - b. Erosion and sediment control measures shall be implemented in all areas affected by riparian activities. Disturbance of vegetation shall be minimized to prevent erosion and sedimentation. All disturbed areas shall be seeded or otherwise stabilized upon completion of construction activities.
 - c. No equipment shall be placed in the water during the course of construction.
 - d. Temporary material not reused in the permanent riprap aprons shall be removed from the site and disposed in an upland location.
 - e. All fish, mussels, and other aquatic species shall be removed from cofferdams after dewatering. If substrate allows, excavation to 10-15 centimeters within the cofferdam to salvage mussels shall be performed. If, after removal of all mussels,

suitable habitat for American brook lamprey ammocoetes remains, backpack electro-shocking of the habitat to allow netting of ammocoetes shall occur. Any ammocoetes found shall be relocated to suitable sand and gravel substrate upstream of the area of direct impact (ADI).

- f. All cleaning and paint residues shall be collected and disposed in an off-site location. No construction debris shall be deposited into the stream channel.

10. The City of Belvidere shall conduct, or cause to be conducted, a thorough relocation of freshwater mussels in the project area and buffer during biologically suitable mussel relocation periods. This search shall be conducted no more than 90 days prior to project initiation. Mussels will not be relocated when air temperatures are below 32° or above 95° Fahrenheit (F), nor when water temperatures are below 50° F. All mussels will be held in mesh bags suspended in the river or in containers of water that is changed every hour (every half-hour when air temperatures are at or above 87° F). Water in containers shall be taken from the river where the mussels were collected. No mussels shall be held for more than three (3) hours before being returned to suitable habitat in the river.

- a. All freshwater mussels shall be relocated from the ADI, plus 10 meters (m) upstream and 10m downstream of the ADI, utilizing the moving transect method. Moving transect is a relocation method whereby a defined section is cleared, and then the line is moved to define a new area of clearing. For example, a 1m area upstream of an established transect line is searched and mussels salvaged. A minimum effort of 1.0 minute/m² is required per pass. Successive passes are to be made through the area until two or few mussels are collected per 100m² area or less than 5 percent of the original number observed in the first pass are recovered on the last pass. Once the area is cleared, the transect is moved upstream in 1m increments, and the new areas are cleared sequentially. The process is repeated until the entire salvage area, including the ADI and buffer described above, is cleared of mussels.
- b. All freshwater mussels found shall be identified to species and enumerated. All black sandshell mussels shall receive Passive Integrated Transponder tags to aid in identification of these individuals during monitoring. In addition, half of the non-listed mussels relocated (including a sampling representative of the diversity found) shall be etched or glitter-glued, such that they can be useful to the collection of relocation survivability data. Those conducting the search must be qualified at accurate identification of freshwater mussel species. All native freshwater mussels found during this search shall have zebra mussels removed from their shells and be relocated upstream to suitable habitat where landowner permission has been received. **A report including, but not limited to, the survey methodology utilized, water temperature, species and numbers of mussels located (noting juveniles), age class (0-3, 4-10, 11+) of each marked individual sampled indicating whether recruitment is evident, an accounting of marked individuals, and maps of the area searched and the relocation site shall be provided to the Department within 90 days of completion of the survey and relocation effort.**

11. The City of Belvidere shall conduct, or cause to be conducted, a relocation of American brook lamprey ammocoetes within the causeway footprint if suitable sand and gravel substrate is present utilizing multiple pass backpack electroshocking and netting. Relocate individuals to suitable habitat upstream of the project area. **A report including, but not limited to, the relocation methodology utilized, water temperature, number of lampreys located, range of size differences observed, and a map of the species locations, as well as an area estimate of suitable ammocoete habitat, shall be provided to the Department within 90 days of completion of the relocation effort.** If suitable substrate was not present in the causeway footprint, please note this within the project's mussel relocation report required under condition 10.b.
12. The City of Belvidere shall conduct, or cause to be conducted, the following post-construction monitoring efforts:
 - a. A thorough search for freshwater mussels shall be conducted within the ADI, plus 10m upstream, 10m downstream, and the relocation site in Year two and Year five following completion of the project. For example, if the project is completed in 2016, this search for freshwater mussels shall be conducted in 2018 and 2021 when water levels and temperatures are suitable. **A report including, but not limited to, the survey methodology utilized, water temperature, species and numbers of mussels located (noting any marked individuals), age class (0-3, 4-10, 11+) of each marked individual sampled, an analysis of survival rates, and a map of the species locations shall be provided to the Department within 90 days of completion of the survey.**
 - b. A thorough survey for adult and juvenile American brook lamprey shall be conducted at the ADI, plus 50m upstream and 100m downstream, in Year two and Year five following construction completion when water levels and temperatures are suitable. Surveys shall be conducted for **adult** spawning American brook lamprey between April 15 and May 15, when water temperatures are between 51.8-59° F and shall utilize methodology designed for their detection (performed at the leading edge of any riffles above, within, and below the project area). Surveys for the detection of **juvenile** American brook lampreys shall be conducted outside of the spawning season (performed by multiple pass backpack electro-shocking gear within small areas of suitable substrates, such as sand, above, within, and below the project area). **A report including, but not limited to, the survey methodologies utilized, water temperature, number of lampreys located, range of size differences observed, and a map of the species locations, as well as any suitable ammocoete habitat, shall be provided to the Department within 90 days of completion of the survey.** Please note any other fish species incidentally sampled or observed.
13. The salvage and relocation of non-listed fish and mussels is hereby authorized by the Department with signature of this agreement per the Illinois Fish and Aquatic Life Code (515 ILCS 5/1-150).

14. Mitigation to the maximum extent practicable is required by the Act. As mitigation for the potential taking of black sandshell, the City of Belvidere shall provide compensatory mitigation to bring conservation benefit to the species potentially impacted by the project in the amount of \$550. Compensatory mitigation shall be directed to the Forest Preserve District of DuPage County's Urban Stream Research Center to support mussel propagation research.

As mitigation for the potential taking of the American brook lamprey, the City of Belvidere shall provide compensatory mitigation to bring conservation benefit to the species potentially impacted by the project in the amount of \$5,178. Compensatory mitigation shall be directed to the Illinois Natural History Survey to provide 1/3 of the project costs supporting the study entitled "Assessing Lamprey Distributions in Illinois: Developing a Framework via Rapid Environmental DNA Assay for American Brook Lamprey."

Mitigation settlement funds earmarked for the conservation benefit of State-listed species are due within 90 days of execution of this agreement and are non-refundable, including events of revocation or termination.

Mitigation valuations are based on the Department's best current understanding of the species life history needs and impact analysis relevant to the site's proposed conceptual design elements available at the time of review.

15. All reports, notifications, and other project documentation shall be submitted to:

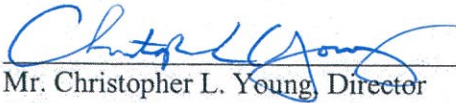
Illinois Department of Natural Resources
Office of Resource Conservation
Endangered Species Program – Incidental Take Authorization Coordinator
One Natural Resource Way
Springfield, IL 62702-1271

(217)557-8243
DNR.ITAcoordinator@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 Department's Natural Heritage Database.

16. The City of Belvidere official identified below is authorized to execute this agreement. Execution by the City of Belvidere indicates acceptance of all terms and conditions described in this authorization.
17. The execution of this agreement does not waive or excuse the responsibilities of the City of Belvidere 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:



Mr. Christopher L. Young, Director
Office of Resource Conservation

5-23-17

Date

For the City of Belvidere:



Mr. Brent Anderson, Director
Department of Public Works

5-4-2017

Date