

Appendix D

Photographic Log



Photograph 1. PFO (Wetland W01), facing east (5/31/2022 by H. Preston).



Photograph 2. PFO (Wetland W02), facing south (5/31/2022 by H. Preston).



Photograph 3. PEM (Wetland W03), facing north (5/31/2022 by H. Preston).



Photograph 4. PFO (Wetland W04), facing south (5/31/2022 by H. Preston).



Photograph 5. PFO (Wetland W05), facing west (5/31/2022 by H. Preston).



Photograph 6. PFO (Wetland W06), facing north (5/31/2022 by H. Preston).



Photograph 7. Perennial stream (S01), facing upstream (5/31/2022 by H. Preston).



Photograph 8. Perennial stream (S02), facing downstream (5/31/2022 by H. Preston).



Photograph 9. Forested upland (DP02), facing northwest (5/31/2022 by H. Preston).



Photograph 10. Herbaceous upland (DP05), facing west (5/31/2022 by H. Preston).

Appendix E

Crystal River Stream Profiles

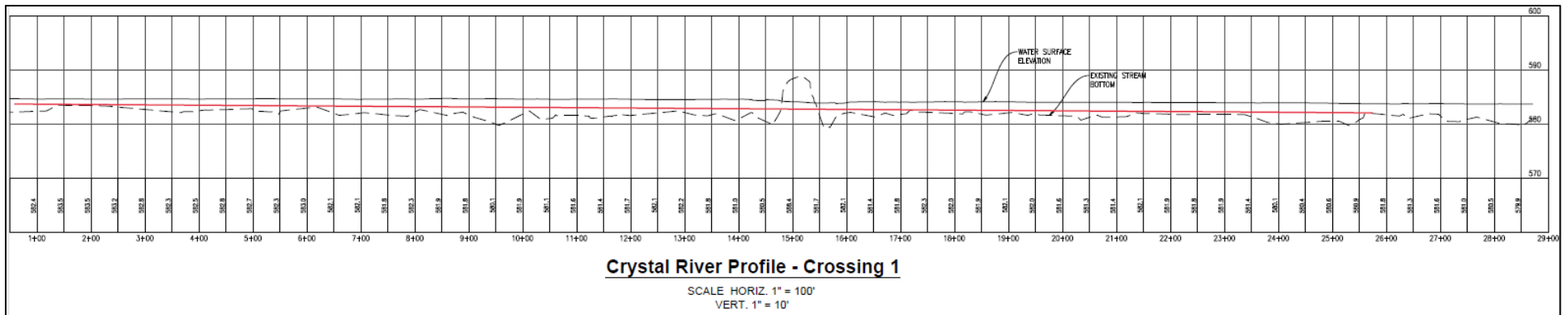


Figure E1. Crystal River Profile, Crossing #1. Dashed line shows existing stream bottom, single dark line shows water surface elevation and red line illustrates the continuity of streambed elevations from downstream to upstream of the crossing.

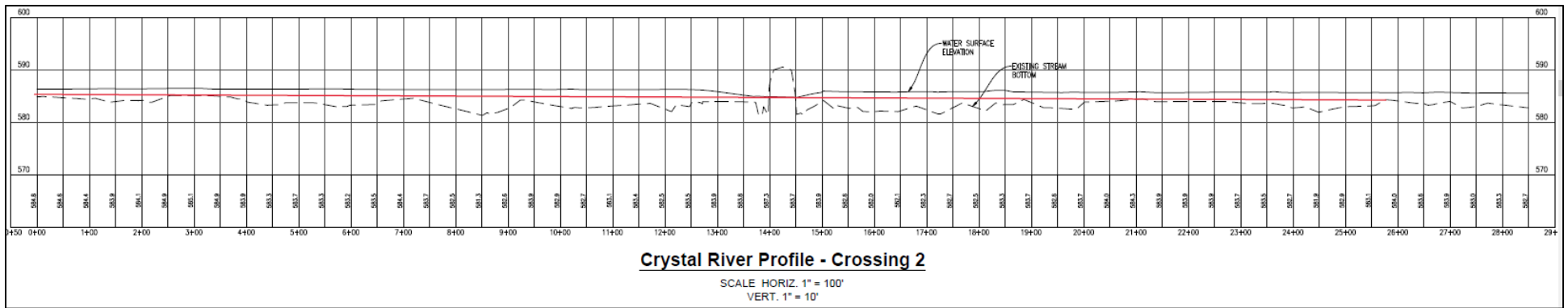


Figure E2. Crystal River Profile, Crossing #2. Dashed line shows existing stream bottom, single dark line shows water surface elevation and red line illustrates the continuity of streambed elevations from downstream to upstream of the crossing.

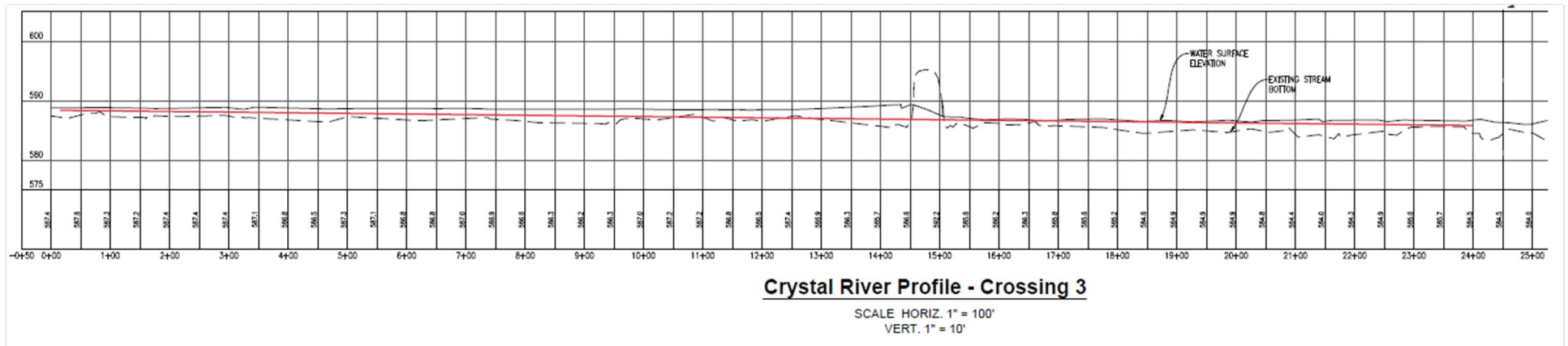


Figure E3. Crystal River Profile, Crossing #3. Dashed line shows existing stream bottom, single dark line shows water surface elevation and red line illustrates the continuity of streambed elevations from downstream to upstream of the crossing.

Appendix F

U.S. Fish and Wildlife Service Information for Planning and Consultation Information



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To:

June 03, 2022

Project Code: 2022-0049903

Project Name: County Road 675 Stream Crossing Project - Crossings 1 and 2

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Official Species List

The attached species list identifies any Federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement section 7 of the Endangered Species Act), the accuracy of this species list should be verified after 90 days. You may verify the list by visiting the IPaC website (<https://ipac.ecosphere.fws.gov/>) at regular intervals during project planning and implementation. To update an Official Species List in IPaC: from the My Projects page, find the project, expand the row, and click Project Home. In the What's Next box on the Project Home page, there is a Request Updated List button to update your species list. Be sure to select an "official" species list for all projects.

Consultation requirements and next steps

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize Federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-Federal representative) must consult with the Fish and Wildlife Service if they determine their project may affect listed species or critical habitat.

There are two approaches to evaluating the effects of a project on listed species.

Approach 1. Use the All-species Michigan determination key in IPaC. This tool can assist you in making determinations for listed species for some projects. In many cases, the determination key

will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit https://www.fws.gov/midwest/EastLansing/te/pdf/MIFO_IPAC_instructions_v1_Jan2021.pdf. Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: <http://www.fws.gov/midwest/endangered/section7/s7process/index.html>. If you evaluate the details of your project and conclude “no effect,” document your findings, and your listed species review is complete; you do not need our concurrence on “no effect” determinations. If you cannot conclude “no effect,” you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to EastLansing@fws.gov. Please include a copy of this official species list with your request.

For all **wind energy projects** and **projects that include installing communications towers that use guy wires**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

Migratory Birds

Please see the “Migratory Birds” section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at <https://www.fws.gov/midwest/eagle/permits/index.html> to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/administrative-orders/executive-orders.php>.

We appreciate your consideration of threatened and endangered species during your project planning. Please include a copy of this letter with any request for consultation or correspondence

about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Michigan Ecological Services Field Office

2651 Coolidge Road Suite 101

East Lansing, MI 48823-6360

(517) 351-2555

Project Summary

Project Code: 2022-0049903

Event Code: None

Project Name: County Road 675 Stream Crossing Project - Crossings 1 and 2

Project Type: Culvert Repair/Replacement/Maintenance

Project Description: Remove and upgrade the existing culverts along CR675 at four crossings of the Crystal River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.903176450000004,-85.97495950094452,14z>



Counties: Leelanau County, Michigan

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/N2ACEXJWAJHMZKWD2QUSPVXDEE/documents/generated/5663.pdf	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/N2ACEXJWAJHMZKWD2QUSPVXDEE/documents/generated/5664.pdf	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Only actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> For all Projects: Project is within EMR Range Species profile: https://ecos.fws.gov/ecp/species/2202 General project design guidelines: https://ipac.ecosphere.fws.gov/project/N2ACEXJWAJHMZKWD2QUSPVXDEE/documents/generated/5280.pdf	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Michigan Monkey-flower <i>Mimulus michiganensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5295	Endangered
Pitcher's Thistle <i>Cirsium pitcheri</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8153	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> https://ecos.fws.gov/ecp/species/6039#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

NAME	BREEDING SEASON
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 20 to Jul 20
Common Tern <i>Sterna hirundo hirundo</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Aug 31
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Golden-winged Warbler <i>Vermivora chrysoptera</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

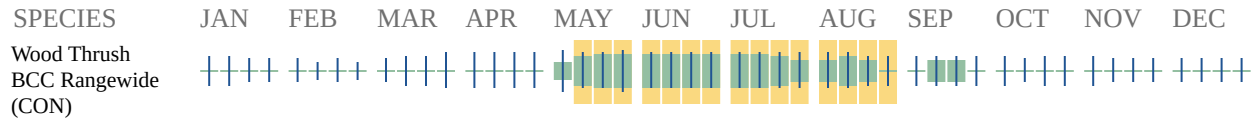
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- [Palustrine](#)

RIVERINE

- [Riverine](#)
-

IPaC User Contact Information

Agency: County of Leelanau
Name: Hailey Preston
Address: 200 West 22nd Street
Address Line 2: Suite 220
City: Lombard
State: IL
Zip: 60148
Email: hailey.preston@swca.com
Phone: 6305993010

Lead Agency Contact Information

Lead Agency: Bureau of Indian Affairs



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To:

June 03, 2022

Project Code: 2022-0049907

Project Name: County Road 675 Stream Crossing Project - Crossing 3

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

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There are two approaches to evaluating the effects of a project on listed species.

Approach 1. Use the All-species Michigan determination key in IPaC. This tool can assist you in making determinations for listed species for some projects. In many cases, the determination key

will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit https://www.fws.gov/midwest/EastLansing/te/pdf/MIFO_IPAC_instructions_v1_Jan2021.pdf. Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: <http://www.fws.gov/midwest/endangered/section7/s7process/index.html>. If you evaluate the details of your project and conclude “no effect,” document your findings, and your listed species review is complete; you do not need our concurrence on “no effect” determinations. If you cannot conclude “no effect,” you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to EastLansing@fws.gov. Please include a copy of this official species list with your request.

For all **wind energy projects** and **projects that include installing communications towers that use guy wires**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

Migratory Birds

Please see the “Migratory Birds” section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at <https://www.fws.gov/midwest/eagle/permits/index.html> to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/administrative-orders/executive-orders.php>.

We appreciate your consideration of threatened and endangered species during your project planning. Please include a copy of this letter with any request for consultation or correspondence

about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Michigan Ecological Services Field Office

2651 Coolidge Road Suite 101

East Lansing, MI 48823-6360

(517) 351-2555

Project Summary

Project Code: 2022-0049907
Event Code: None
Project Name: County Road 675 Stream Crossing Project - Crossing 3
Project Type: Culvert Repair/Replacement/Maintenance
Project Description: Remove and upgrade the existing culverts along CR675 at four crossings of the Crystal River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.903071,-85.96268796586799,14z>



Counties: Leelanau County, Michigan

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/CK4TB3FI65HGBFEUQ6RBAQPIVE/documents/generated/5663.pdf	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/CK4TB3FI65HGBFEUQ6RBAQPIVE/documents/generated/5664.pdf	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Only actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> For all Projects: Project is within EMR Range Species profile: https://ecos.fws.gov/ecp/species/2202 General project design guidelines: https://ipac.ecosphere.fws.gov/project/CK4TB3FI65HGBFEUQ6RBAQPIVE/documents/generated/5280.pdf	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Michigan Monkey-flower <i>Mimulus michiganensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5295	Endangered
Pitcher's Thistle <i>Cirsium pitcheri</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8153	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

NAME	BREEDING SEASON
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 20 to Jul 20
Common Tern <i>Sterna hirundo hirundo</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Aug 31
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Golden-winged Warbler <i>Vermivora chrysoptera</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

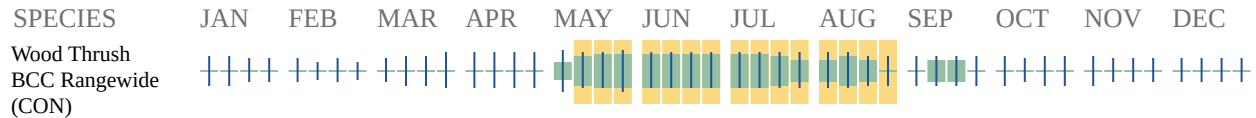
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [Riverine](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [Palustrine](#)
-

IPaC User Contact Information

Agency: County of Leelanau
Name: Hailey Preston
Address: 200 West 22nd Street
Address Line 2: Suite 220
City: Lombard
State: IL
Zip: 60148
Email: hailey.preston@swca.com
Phone: 6305993010

Lead Agency Contact Information

Lead Agency: Bureau of Indian Affairs



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To:

June 03, 2022

Project Code: 2022-0049910

Project Name: County Road 675 Stream Crossing Project - Crossing 4

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Official Species List

The attached species list identifies any Federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement section 7 of the Endangered Species Act), the accuracy of this species list should be verified after 90 days. You may verify the list by visiting the IPaC website (<https://ipac.ecosphere.fws.gov/>) at regular intervals during project planning and implementation. To update an Official Species List in IPaC: from the My Projects page, find the project, expand the row, and click Project Home. In the What's Next box on the Project Home page, there is a Request Updated List button to update your species list. Be sure to select an "official" species list for all projects.

Consultation requirements and next steps

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize Federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-Federal representative) must consult with the Fish and Wildlife Service if they determine their project may affect listed species or critical habitat.

There are two approaches to evaluating the effects of a project on listed species.

Approach 1. Use the All-species Michigan determination key in IPaC. This tool can assist you in making determinations for listed species for some projects. In many cases, the determination key

will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit https://www.fws.gov/midwest/EastLansing/te/pdf/MIFO_IPAC_instructions_v1_Jan2021.pdf. Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: <http://www.fws.gov/midwest/endangered/section7/s7process/index.html>. If you evaluate the details of your project and conclude “no effect,” document your findings, and your listed species review is complete; you do not need our concurrence on “no effect” determinations. If you cannot conclude “no effect,” you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to EastLansing@fws.gov. Please include a copy of this official species list with your request.

For all **wind energy projects** and **projects that include installing communications towers that use guy wires**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

Migratory Birds

Please see the “Migratory Birds” section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at <https://www.fws.gov/midwest/eagle/permits/index.html> to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/administrative-orders/executive-orders.php>.

We appreciate your consideration of threatened and endangered species during your project planning. Please include a copy of this letter with any request for consultation or correspondence

about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Michigan Ecological Services Field Office

2651 Coolidge Road Suite 101

East Lansing, MI 48823-6360

(517) 351-2555

Project Summary

Project Code: 2022-0049910

Event Code: None

Project Name: County Road 675 Stream Crossing Project - Crossing 4

Project Type: Culvert Repair/Replacement/Maintenance

Project Description: Remove and upgrade the existing culverts along CR675 at four crossings of the Crystal River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.900047349999994,-85.95145710960392,14z>



Counties: Leelanau County, Michigan

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/JYHYXNDKP5DRFP52VCP7GIJMGU/documents/generated/5663.pdf	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/JYHYXNDKP5DRFP52VCP7GIJMGU/documents/generated/5664.pdf	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Only actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> For all Projects: Project is within EMR Range Species profile: https://ecos.fws.gov/ecp/species/2202 General project design guidelines: https://ipac.ecosphere.fws.gov/project/JYHYXNDKP5DRFP52VCP7GIJMGU/documents/generated/5280.pdf	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Michigan Monkey-flower <i>Mimulus michiganensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5295	Endangered
Pitcher's Thistle <i>Cirsium pitcheri</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8153	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

NAME	BREEDING SEASON
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 20 to Jul 20
Common Tern <i>Sterna hirundo hirundo</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Aug 31
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Golden-winged Warbler <i>Vermivora chrysoptera</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

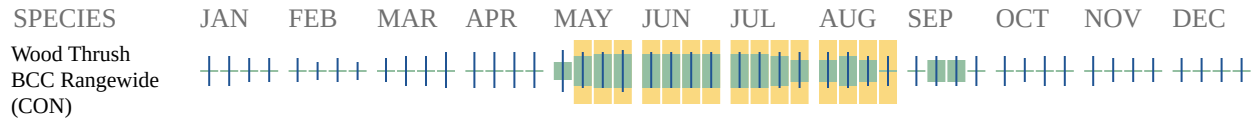
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [Riverine](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [Palustrine](#)
-

IPaC User Contact Information

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Name: Hailey Preston
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Address Line 2: Suite 220
City: Lombard
State: IL
Zip: 60148
Email: hailey.preston@swca.com
Phone: 6305993010

Lead Agency Contact Information

Lead Agency: Bureau of Indian Affairs

Hailey Preston
SWCA Environmental Consultants
200 W 2nd Street
Suite 220
Lombard, IL 60148

June 5, 2022

Re: Rare Species Review #3165 – GTED - County Road 675 Stream Crossing Project, Leelanau County, MI.

Hello Hailey:

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan's endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, ...fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.



MSU EXTENSION

Michigan Natural Features Inventory

PO Box 13036
Lansing MI 48901

(517) 284-6200
Fax (517) 373-9566

mnfi.anr.msu.edu

MSU is an affirmative-
action, equal-opportunity
employer.

At-risk species have been documented within 1.5 miles of the proposed activity and **it is possible that negative impacts will occur**. This response reflects a desktop review of the database and MNFI cannot fully evaluate this project without visiting the area. MNFI offers several levels of [Rare Species Reviews](#), including field surveys which I would be happy to discuss with you.

Sincerely,

Michael A. Sanders

Michael A. Sanders
Environmental Review Specialist/Zoologist
Michigan Natural Features Inventory

Comments for Rare Species Review #3165:

It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: Casey Reitz, DNR-Wildlife Division, 517-284-6210, or ReitzC@michigan.gov. If a federally listed species is involved and, you think a permit is needed, please contact Jessica Pruden, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8316, or Jessica.Pruden@fws.gov.

NOTE: special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Please consult MNFI's [Rare Species Explorer](#) for additional information on Michigan's rare plants and animals.

NOTE: Michigan rivers and streams have been grouped according to existing information of mussel distribution and individual species conservation status. **This stretch of the Crystal River is a Group 2 Mussel Stream** which means that state threatened or state endangered mussel species occur or are expected to occur and that certain surveys and possibly relocation procedures apply. I encourage you to review the **Michigan Freshwater Mussel Survey Protocols and Relocation Procedures** publication if in-stream work and/or land clearing activities occur that result in streambed disturbance and erosion and sedimentation into the river. A copy of the publication can be found at: <https://mnfi.anr.msu.edu/resources/michigan-mussels>.

Table 1: Occurrences of threatened and endangered species within 1.5 miles of project site

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	<i>Acris blanchardi</i>	Blanchard's cricket frog		T	G5	S2S3	1985	1985
Animal	<i>Lampsilis fasciola</i>	Wavyrayed lampmussel		T	G5	S2	2000-Sum	2000-2003
Animal	<i>Buteo lineatus</i>	Red-shouldered hawk		T	G5	S4	2015-05	2015-09
Animal	<i>Coregonus artedi</i>	Lake herring or Cisco		T	GNR	S3	1997	2009
Animal	<i>Coregonus artedi</i>	Lake herring or Cisco		T	GNR	S3	2009	2009
Plant	<i>Pterospora andromedea</i>	Pine-drops		T	G5	S2	1954	1954-07-23
Plant	<i>Cirsium pitcheri</i>	Pitcher's thistle	LT	T	G3	S3	1996-10-17	2002-11-18

Comments from Table 1

Blanchard's cricket frog - The state threatened Blanchard's cricket frog (*Acris crepitans blanchardi*) has been known to occur in the area. Blanchard's cricket frogs inhabit the more open edges of permanent ponds, bogs, lakes, and slow-moving streams or rivers. Where aquatic vegetation is abundant, the frogs are often seen on floating algae mats and water lily leaves; sparsely vegetated mud flats and muddy or sandy shorelines are also favored habitats. Cricket frogs prefer warmer temperatures and breed mid- to late May through July. They eat a wide variety of small terrestrial and aquatic insects and other invertebrates. They will feed on the shore, at the water's surface, or while submerged.

Management and Conservation: since cricket frogs are highly restricted to aquatic habitats, they may be especially susceptible to aquatic pollutants. Hence, the use of chemicals should be avoided or limited in areas in which the runoff would impact cricket frog sites. Maintaining buffers of natural vegetation between water bodies and agricultural fields or developed areas also would help reduce the input of chemical runoff into cricket frog habitat.

Wavyrayed lampmussel - the state threatened wavyrayed lampmussel (*Lampsilis fasciola*) has been known to occur in the Crystal River. The wavy-rayed lamp-mussel occurs in and near riffles in small to medium sized

rivers with good current and gravel and/or sand bottoms. One of the most significant differences between the freshwater mussels in the Unionidae family and other freshwater bivalves is their unique life cycle. Unionid mussels require a fish host to complete their life cycle, whereas other bivalve families produce free-swimming larvae that develop into the adult form without a host. Eggs from female mussels are fertilized and develop into larvae, called glochidia, within the gills of the female mussel. The glochidia larvae are released into the water and must attach to a suitable fish host to survive and transform into the adult mussel. The single known host fish of the wavy-rayed lampmussel is the smallmouth bass (*Micropterus dolomieu*).

Management and Conservation round- like other mussels, threats include: natural flow alterations, siltation, channel disturbance, point and non-point source pollution, and exotic species. Maintenance or establishment of vegetated riparian buffers can help protect mussel habitats from many of their threats. Control of zebra mussels is critical to preserving native mussels. Smallmouth bass are hosts to this species and so must be considered when managing for the wavy-rayed lampmussel.

Table 2: Occurrences of special concern species/natural features within 1.5 miles of project site

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	<i>Venustaconcha ellipsiformis</i>	Ellipse		SC	G4	S3	2000	2000-2003
Animal	<i>Lasmigona costata</i>	Flutedshell		SC	G5	SNR	1927	1928-07-04
Animal	<i>Lithobates palustris</i>	Pickerel frog		SC	G5	S3S4	2002-06-13	2002-06-13
Animal	<i>Haliaeetus leucocephalus</i>	Bald eagle		SC	G5	S4	2013	2013
Animal	<i>Lasmigona compressa</i>	Creek heelsplitter		SC	G5	S3	2019-09-09	2019-09-09
Community	Bog				G3G5	S4	1970	2012-06-28
Community	Wooded Dune and Swale Complex				G3	S3	1989-02-05	2012-08-08
Community	Mesic Northern Forest				G4	S3	2009-07-22	2009-07-22

Comments for Table 2

Ellipse – the state special concern ellipse mussel (*Venustaconcha ellipsiformis*) has been known to occur in the Crystal River near the project site. The ellipse mussel inhabits small to medium streams and can be found in firm sand and gravel where moderate currents prevail. The host fish is unknown. The ellipse is known only from the Midwest United States and has declined considerably in its historic distribution and abundance due to habitat alterations, modification in river flows, and pollution.

Management and Conservation - like other mussels, threats to the ellipse include: natural flow alterations, siltation, channel disturbance, point and non-point source pollution, and exotic species. Maintenance or establishment of vegetated riparian buffers can help protect mussel habitats from many of their threats. Control of zebra mussels is critical to preserving native mussels. And as with all mussels, protection of their hosts habitat is also crucial.

Pickerel frog – the state special concern pickerel frog (*Lithobates palustris*) has been known to occur in the area. This species can be differentiated from the Northern Leopard frog by the two rows of squarish brown spots that run down its back, and by the bright yellow or orange color present on the groin and undersides of its hind legs (leopard frogs are white in the same area).

Pickerel Frogs occur in a variety of freshwater aquatic and wetland habitats, including fens, bogs, marshes, shrubby/open wet meadows, forested wetlands, ponds, slow-moving streams, springs, and backwater sloughs or swamps. The species has been reported to prefer habitats with cool, clear water and avoid areas with

polluted or stagnant water. These frogs also seem to prefer the margins of aquatic habitats with dense herbaceous vegetation, such as grassy stream banks and where streams or springs flow into bogs, marshes, or weedy ponds.

Pickerel frogs are active from the first week of April to late October; breeding occurs from early April through May. Upon spring emergence, Pickerel Frogs move to shallow, quiet, warm water for breeding. Breeding habitat includes forested ponds, vernal pools, bog ponds, stream pools, impoundments, and flooded ditches. After breeding, they may migrate to nearby grassy meadows, fields, and open woods, but they tend to not move as far from water as Northern Leopard Frogs. Pickerel Frogs spend the winter buried in the mud or beneath submerged logs or rocks on the bottoms or in the deeper parts of streams, springs, ponds, and bogs.

Management and Conservation: Because this species appears to prefer cool, clear waters and may be intolerant of pollution, avoiding or minimizing activities that result in siltation and runoff of herbicides, insecticides and other chemicals and maintaining natural vegetative buffers around aquatic and wetland habitats would benefit this species. This species also has been found to be susceptible to ranaviruses, a disease that may cause mass mortality, and a “red-leg” disease/bacterial infection. Disinfecting or decontaminating footwear, supplies, and equipment before use in occupied sites can reduce the potential for introducing these and other diseases to populations. Road mortality may be a threat to some populations. Avoiding construction of new roads, closing existing roads, and installing barrier fencing along roads or ecopassages under roads can reduce road mortality where it is an issue.

Bald eagle - the state special concern (SC) bald eagle (*Haliaeetus leucocephalus*) has been known to nest near the project site. Bald eagle nests are usually located within ½ - mile of water and at the top of tall, established trees. These birds prefer forested habitats adjacent to the shorelines of lakes, large rivers, floodings, and other bodies of water where prey is available throughout the breeding season which runs from mid-March through the end of June. Live trees are generally preferred over dead ones. In Michigan, eagles arrive on nesting territories between mid-February and mid-March. Nesting pairs are usually faithful to previous nesting sites. By October and November, immature bald eagles and most adults move southward, with many remaining in Michigan throughout the winter. Bald eagles are extremely sensitive to human activity during the first 12 weeks of the breeding season. Maintain a ¼ - mile buffer zone around the nest from mid-March through the end of June. Any maintenance and construction activities within the buffer zone should take place between August and February.

Management and Conservation: effective August 8, 2007, the bald eagle in the lower 48 States was removed from the Federal List of Endangered and Threatened Wildlife (Federal Register Vol. 72, No. 130; July 9, 2007) but are still protected under the Migratory Bird Treaty Act, the Lacey Act and the [Bald and Golden Eagle Protection Act](#): which prohibits anyone from “taking” bald eagles, including their parts, eggs or nests.

To help provide clarity on the management of bald eagles after delisting, the U.S. Fish and Wildlife Service (USFWS) published National Bald Eagle Management Guidelines in May 2007. These guidelines as well as other information regarding bald eagles can be viewed at the USFWS [Midwest Bald Eagle page](#). The management guidelines were established to help people minimize harmful impacts, especially where they may constitute a “disturbance.” A variety of human activities can potentially interfere with bald eagles, affecting their ability to forage, nest, roost, breed or raise young. A [permit](#) from USFWS is recommended if you are unable to minimize or prevent disturbance, injury of potential mortality of bald or golden eagles as a result of an otherwise lawful activity. For permit information in Michigan, please contact Chris Mensing, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8316, or Chris.Mensing@fws.gov.

Creek heelsplitter – the state special concern creek heelsplitter (*Lasmigona compressa*) has been known to occur in the Crystal River. Creek heelsplitter are normally found in creeks and the headwaters of small to medium rivers in fine gravel or sand.

Management and Conservation – threats to the species include water pollution, industrial and residential discharge, siltation, increased water temperatures and non-native species. All projects should implement proper upland managements such as contour farming and other soil erosion control methods.

Codes to Accompany Occurrence Tables:

State Protection Status Code Definitions (SPROT)

E: Endangered
T: Threatened
SC: Special concern

Federal Protection Status Code Definitions (USESA)

LE = listed endangered
LT = listed threatened
LELT = partly listed endangered and partly listed threatened
PDL = proposed delist
E(S/A) = endangered based on similarities/appearance
PS = partial status (federally listed in only part of its range)
C = species being considered for federal status

Global Heritage Status Rank Definitions (GRANK)

The priority assigned by [NatureServe](#)'s national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.

G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

Q: Taxonomy uncertain

State Heritage Status Rank Definitions (SRANK)

The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.

S1: Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.

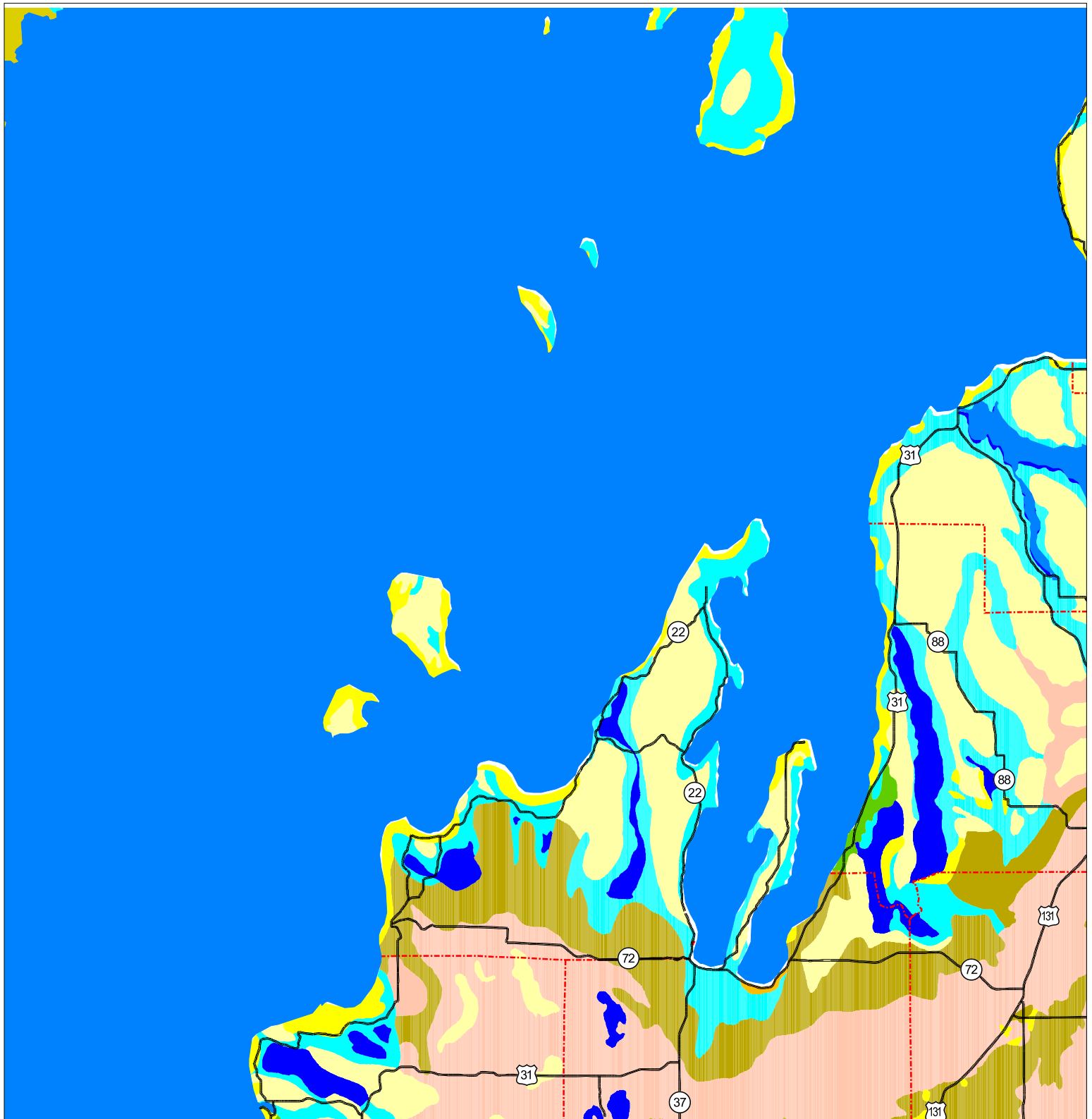
S2: Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3: Rare or uncommon in state (on the order of 21 to 100 occurrences).

S4 = apparently secure in state, with many occurrences.

S5 = demonstrably secure in state and essentially ineradicable under present conditions.

SX = apparently extirpated from state.



Quaternary Geology

Leelanau County



Legend

Major Roads

County Lines

Geology class

Water

Peat and muck

Postglacial alluvium

Dune Sand

Lacustrine clay and silt

Lacustrine sand and gravel

Glacial outwash sand and gravel and postglacial alluvium

Ice-contact outwash sand and gravel

Fine-textured glacial till

End moraines of fine-textured till

Medium-textured glacial till

End moraines of medium-textured till

Coarse-textured glacial till

End moraines of coarse-textured till

Thin to discontinuous glacial till over bedrock

Exposed bedrock surfaces

Artificial fill

Data Source: Quaternary Geology of Michigan. 1998. Michigan Natural Features Inventory (MNFI) and Michigan Department of Natural Resources (MDNR). Digital version of the Quaternary Geology maps of Northern and Southern Michigan, at a scale of 1:500,000, from W.R. Farrand and D.L. Bell, 1982.

MSU Extension programs and materials are open to all without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, marital status or family status.

Appendix G

Freshwater Mussel Survey



ENVIRONMENTAL CONSULTANTS

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September 21, 2022

Casey Reitz
Permit Specialist
DNR – Wildlife Division

Via Email: reitzc@michigan.gov

Re: DRAFT Interim Summary Report of Freshwater Mussel Survey at Route 675 Crossings of Crystal River, Glen Arbor, Michigan / SWCA Project No. 73781

SWCA Environmental Consultants (SWCA) is pleased to provide you with this report summarizing the results of our survey efforts for freshwater mussels associated with Route 675 crossings over the Crystal River in Glen Arbor, Michigan, including Crossing 3 which is located within a section of the Crystal River classified as a Group 2 stream by the Michigan Natural Features Inventory and the Michigan Department of Natural Resources (MDNR), indicating that it is a river “likely to support populations of State Threatened and Endangered mussels”. It is our understanding that all native freshwater mussel species are state protected in Michigan and that nine state listed species occur within the Glen Lake-Frontal Lake Michigan Hydrologic Unit Coad (HUC), within which the Project is located.

PROJECT BACKGROUND

As part of a stream crossing improvement project, RCA, LLC, d/b/a Grand Traverse Engineering and Construction (GTEC) is proposing to replace the four culvert crossings on Leelanau County Road 675 as it crosses the Crystal River (the Project), on behalf of the Grand Traverse Band of Ottawa and Chippewa Tribe. One of the proposed culvert crossings, CR-675 at the Tube (Crossing 3), located at 44.90313, - 85.96256, is in a section of the Crystal River classified by the Michigan Natural Features Inventory and the Michigan Department of Natural Resources (MDNR) as a Group 2 stream, indicating that it is a river “likely to support populations of State Threatened and Endangered mussels”. It is our understanding that all native freshwater mussel species are state protected in Michigan and that nine state listed species occur within the Glen Lake-Frontal Lake Michigan Hydrologic Unit Coad (HUC), within which the Project is located. These include two State-Endangered species, one State-Threatened species, and six species of Special Concern.

SWCA’s mussel biologists conducted an initial freshwater survey at Crossing 3 to determine species diversity and distribution of mussels within this portion of the river, as well as brief reconnaissance surveys at Crossing 1 and 2 to determine if freshwater mussels are likely to be present at these locations as well (Figure 1).

SURVEY AREAS

The Survey Area for Crossing 3 was designed to include the first 100 meters downstream of the crossing and the first 50 meters upstream of the crossing (Figure 2). The total Survey Area was 1,543.8 square meters (0.38 acres) in size, with 1,062.6 square meters (0.26 acres) surveyed north (downstream) of the crossing (Figure 3) and 481.2 square meters (0.12 acres) south (downstream) of the crossing (Figure 4). The reconnaissance surveys conducted at Crossings 1 and 2 were 15-minute timed meander surveys that focused on the river immediately upstream of each crossing. The distance covered during these reconnaissance surveys was not documented.

Prior to surveys, SWCA developed a survey protocol as part of the collection permit application process. The protocol followed the Michigan Freshwater Mussel Survey Protocols and Relocation Procedures for Rivers and Streams, May 2021, Version 3 (MFMSRP), and was approved by the Michigan Department of Natural Resources – Fisheries Division (Scientific Collector’s Permit) and the National Park Service - Sleeping Bear (Scientific Research and Collecting Permit).

METHODS

Crossing 3 Methods SWCA biologists established survey cells, starting at the downstream end of the Survey Area, using weighted lines to demarcate the boundaries of each cell (Figure 2 and Photos 1 and 2). Following the MFMSRP guidelines, SWCA dedicated two survey minutes per square meter in areas with heterogeneous substrates and at least one minute per square meter in areas with homogeneous substrates.

Two biologists used snorkel equipment to visually scan for mussels, while also using tactile methods to search for mussels below the substrate surface. During surveys in each survey cell, all live mussels and shells were collected and identified to species. Shell length and wear were recorded for all live mussels, as well as the survey cell it was found in, and representative photographs were taken of each species observed. All mussels were returned to their original location and placed into the substrate anterior end down.

During the reconnaissance surveys at Crossings 1 and 2, two biologist using snorkel equipment conducted 15-minute timed meander surveys involving visual and tactile searches for freshwater mussels.

SURVEY RESULTS

SWCA surveyed Crossing 3 August 9th through August 12th of 2022. Water temperatures were in the low 70’s Fahrenheit, with visibility over three meters. Over two days, a total of three live mussels were observed in the downstream 100 meters of the Survey Area. All three individuals were *Eurynia dilatata*. In contrast, a total of 104 live mussels were found over one survey day in the upper 50 meters of the survey area. The majority of these were *E. dilatata* (100), but four were *Lampsilis siliquoidea*.

Substrate downstream of the crossing was comprised primarily of gravel, while that of the upstream section of the Survey Area was comprised primarily of fine sand, with fine silt and muck along the river edges.

During the Crossing 1 15-minute reconnaissance survey, eight live *E. dilatata* were observed, as well as a recently dead shell of *Sagittunio* (formerly *Ligumia*) *nasuta*, a state endangered species in Michigan. The 15-minute survey at Crossing 2 produced seven live *E. dilatata* and one *L. siliquoidea*.

Table 1. Results of Crossing 3 Freshwater Mussel Survey

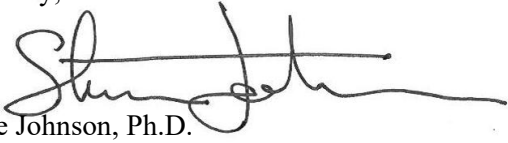
Cell Number	Size (m ²)	Cell Location	Total <i>E. dilatata</i>	Total <i>L. Siliquoidea</i>	Total live mussels
1	100	Downstream	0	0	0
2	94.1	Downstream	0	0	0
3	90.8	Downstream	1	0	1
4	77.9	Downstream	0	0	0
5	97.5	Downstream	0	0	0
6	93.4	Downstream	0	0	0
7	75.4	Downstream	0	0	0
8	86	Downstream	1	0	1
9	75	Downstream	0	0	0
10	91.3	Downstream	0	0	0
11	96.5	Downstream	0	0	0
12	64.5	Downstream	1	0	1
13	20.5	Downstream	1	0	1
14.	93.1	Upstream	3	0	3
15	81.2	Upstream	6	0	6
16	67.4	Upstream	21	1	22
17	71	Upstream	17	0	17
18	75.7	Upstream	30	1	31
19	92.8	Upstream	22	2	24
Totals	1,543.8		103	4	107

CONCLUSIONS

Based on the findings at Crossing 3, we suspect that the existing culverts have altered the hydrodynamics of the sections of river immediately above and below the crossing. Finer, more stable sediments appear to have built up behind the culverts, while the downstream portion appears to have higher flows and coarser, less stable sediments with far fewer mussels. Replacing the culverts is likely to alter the hydrodynamics once again but should allow the river to return to a natural flow regime. However, this may temporarily disturb mussels upstream of the crossing for an extended distance beyond the 50 meters surveyed. Zebra mussels (*Dreissena polymorpha*) were observed scattered throughout the Survey Area, some of which were attached to live native mussels. Over time, as zebra mussels increase in number, they may pose a threat to the population of native freshwater mussels within the Crystal River.

Because a recently dead shell of a state endangered mussel was found at Crossing 1, and relatively high numbers of live mussels were found in such a short time period at both Crossings 1 and 2, it is likely that full surveys and translocation of live mussels will be required for both of these crossings. In addition, a brief reconnaissance survey of Crossing 4 may be needed to determine if mussels are present at this crossing as well.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Johnson". The signature is fluid and cursive, with a horizontal line crossing through the middle of the letters.

Steve Johnson, Ph.D.
Lead Biologist

DRAFT

APPENDIX A

Figures

2022 Crystal River Mussel Surveys

DRAFT

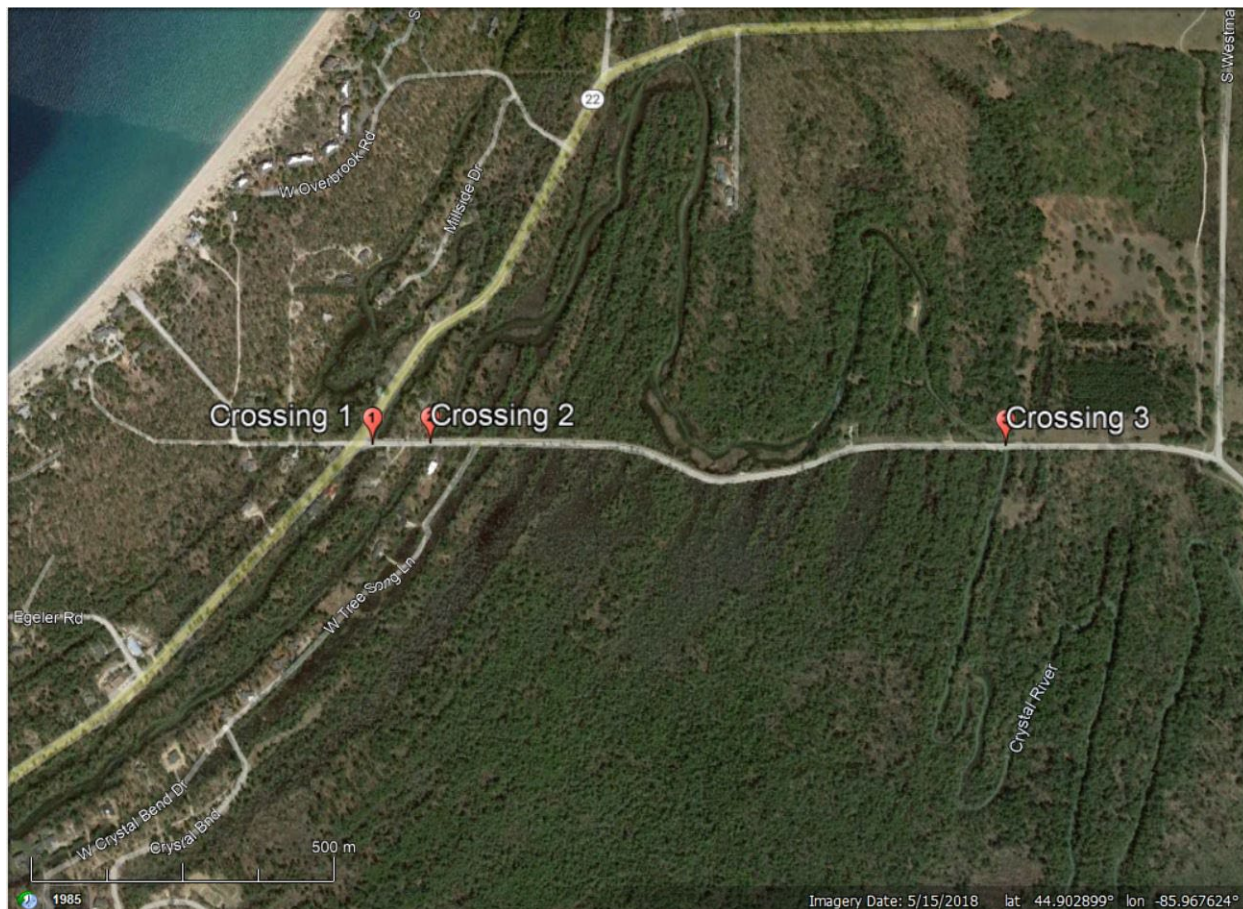


Figure 1. Three Route 675 crossings over the Crystal River surveyed for freshwater mussels in August of 2022.



Figure 2. Overview of Crossing 3 with survey cells. Cells are numbered 1 – 19, starting with the northernmost (downstream) cell at top of figure.



Figure 3. Close up view of the 13 survey cells downstream (north) of Crossing 3. Three live mussels were observed within these cells. Note: the gap between Cells 12 and 13 was not surveyed to due to the extremely high flows associated with the three culverts of the crossing.

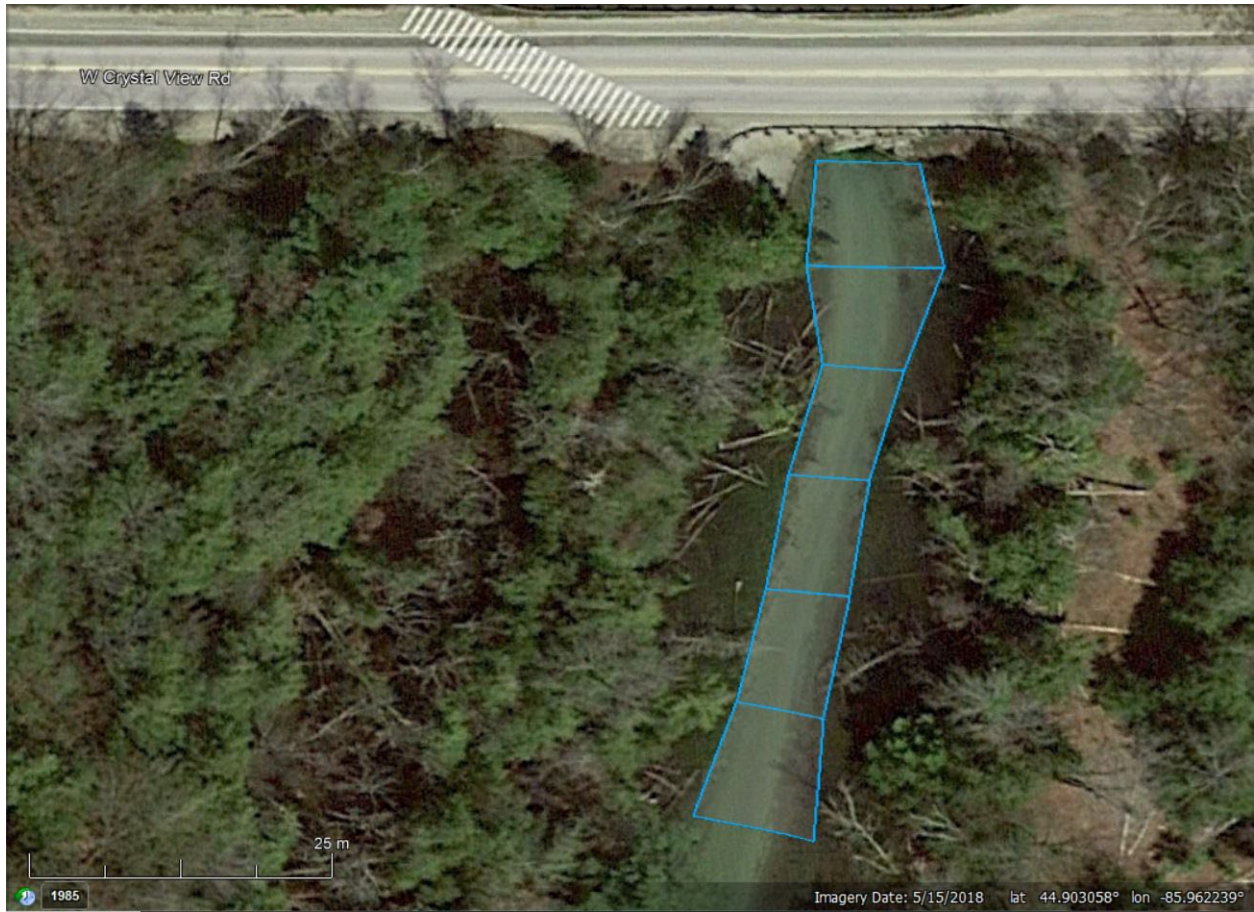


Figure 4. Close up view of the 6 survey cells upstream (south) of Crossing 3. 104 live mussels were observed within these cells.

APPENDIX A

Figures

2022 Crystal River Mussel Surveys

DRAFT



Photo 1. Example of weighted line demarcating the survey cell.



Photo 2. The first of 103 *Eurytnia dilatata* observed during survey.



Photo 3. One of four *Lampsilis siliquoidea* observed during the survey.



Photo 4. Filtering *E. dilatata* with attached zebra mussel, observed August 11, 2022.



Photo 5. Filtering *L. siliquoidea* observed August 11, 2022.