

2019

Ravine 10 Ecosystem Restoration

Appendix G – Planning Information

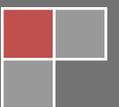


Table of Contents

| | |
|--|-----------|
| G1. AGENCY COORDINATION | 4 |
| G2. DRAFT FONSI..... | 19 |
| G3. HABITAT BENEFITS ANALYSIS | 23 |
| G4. USFWS IPaC Letter | 34 |

G1. Agency Coordination

Kenneth Westlake, Chief
Environmental Review Branch
U.S. EPA; ME-19J
77 West Jackson
Chicago, IL 60604

Illinois DNR - Realty Planning
One Natural Resource Way
Springfield, IL 62702-1271

Water Pollution Division
Illinois EPA
1001 N. Grand
Springfield, IL 62794

Kickapoo Tribe of Oklahoma
P.O. Box 70
McCloud, OK 74851

Kickapoo Tribe of Texas
Box HC 1 9700
Eagle Pass, TX 78853

Miami Tribe of Oklahoma
P.O. Box 1326
Miami, OK 74355

Forest County Potawatomi Exec. Council
P. O. Box 340
Crandon, WI 54520

Hannahville Potawatomi Comm. Council
N 14911 Hannahville Road
Wilson, MI 49896-9728

Pokagon Band of Band of Potawatomi Indians
P.O. Box 180
Dowagiac, MI 49047

Director Colleen Callahan
Illinois DNR
One Natural Resource Way
Springfield, IL 62702-1271

Office of Resource Review
Illinois DNR
One Natural Resource Way
Springfield, IL 62702-1271

Illinois DNR/OWR
36 S. Wabash Ave
Room 1415
Chicago, IL 60603

Illinois Hist. Pres. Agency
1 Old State Capitol Plaza
Springfield, IL 62701

Kickapoo of Kansas
1107 Goldfinch Rd
Horton, KS 66434

Miami Nation in Indiana
P.O. Box 41
Peru, IN 46970

Citizen Potawatomi Nation
1901 S. Gordon Cooper Dr.
Shawnee, OK 74801

Nottawaseppi Huron Potawatomi Tribal Office
2221 One-and-a-half Mile Rd.
Fulton, MI 49052

Prairie Band Potawatomi Tribal Council
16281 Q RD
Mayetta, KS 66509

Pat Malone
Illinois DNR – Realty/Planning
One Natural Resource Way
Springfield, IL 62702-1271

Senator Tammy Duckworth
230 S. Dearborn Street
Suite 3900
Chicago, IL 60604

Senator Dick Durbin
230 S Dearborn St
Suite 3892
Chicago, IL 60604

Stormwater Management Commission
Lake County
18 N County St
Waukegan, IL 60085

Senator Dick Durbin
711 Hart Senate Office Building
Washington, DC 20510

Executive Office, MSO-Chicago
U.S. Coast Guard
215 W. 83rd St. Suite D
Burr Ridge, IL 60521

Senator Tammy Duckworth
524 Hart Senate Office Building
Washington, DC 20510

Louise Clemency
U.S. Fish and Wildlife Service
1250 South Grove Ave. Suite 103
Barrington, IL 60010

Congressman Brad Schneider
1432 Longworth House Office Building
Washington, DC 20515

Congressman Brad Schneider
111 Barclay Blvd Suite 200
Lincolnshire, IL 60069

Illinois State Water Survey
2204 Griffith Dr
MC-674
Champaign, IL 61820-7463

Illinois Natural History Survey
Illinois Natural Areas Inventory
1816 South Oak St
MC 652
Champaign, IL 61820

Ann Hanson
Federal Aviation Administration Chicago Airports
District Office, CHI-ADO-600 2300 East Devon Avenue
Des Plaines, Illinois 60018

Illinois DNR
Illinois Coastal Management Program
160 N. LaSalle St, Suite S-700
Chicago, Illinois 60601

Health Department & Community Health Center
Lake County
18 N County St
Waukegan, IL 60085

Barry Cooper
Federal Aviation Administration Chicago Airports District
Office, CHI-ADO-600 2300 East Devon Avenue Des Plaines,
Illinois 60018



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET, SUITE 1500
CHICAGO IL 60604

Planning Branch
Environmental Formulation and Analysis Section

Dear Recipient:

The Chicago District is preparing a National Environmental Policy Act (NEPA) to document the effects of an ecosystem restoration project at Ravine 10 located in the City of Highland Park, Lake County, Illinois. A map of the study area is enclosed.

The Ravine 10 study seeks to naturalize the ravine stream by removing man-made debris and utilizing small boulder/cobble structures to induce improved stream morphology and substrates. The project would also include the removal of non-native invasive plants and the reestablishment of native ravine and bluff plant communities. Work will follow Highland Park's steep slope ordinance and will be primarily limited to the stream channel easement and publicly owned properties of Moraine and Clinton Parks; avoiding private properties.

We are interested in any concerns you may have including impacts to physical, ecological, social, cultural and archaeological resources. Please provide comments within 30 days, marking your reply to the attention of Mr. Robbie Sliwinski, U.S. Army Corps of Engineers, 231 S. LaSalle St, Suite 1500 Chicago, Illinois 60604 or email at (Robbie.Sliwinski@usace.army.mil).

Sincerely,

JS

Susanne J. Davis, P.E.
Chief of Planning Branch

Enclosure

PMD-EP - Fleming *J* 2 Apr 2019

PM-PM - Perez *[Signature]* 2 April 2019

PMD-PB - Davis *[Signature]* 4/2/19



Port Clinton Park

Lake Michigan

Moraine Park

— Study Area Stream

▭ Study Area

0 250 500 1,000 Feet

North Arrow

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Illinois Department of Natural Resources

www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

Lake County
Highland Park
Port Clinton Park & Moraine Park
COEC
Ecosystem restoration - Ravine 10

PLEASE REFER TO: SHPO LOG #001040819

April 24, 2019

Susanne Davis
U.S. Army Corps of Engineers, Chicago District
231 S. LaSalle St., Suite 1500
Chicago, IL 60604

Dear Ms. Davis:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance. If further assistance is needed contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or Jeffery.kruchten@illinois.gov.

Sincerely,

Robert F. Appleman
Deputy State Historic
Preservation Officer

From: [Cirton, Shawn](#)
To: [Sliwinski, Robert \(Robbie\) CIV USARMY CELRC \(US\)](#)
Cc: [Louise_Clemency@fws.gov](#); [Peloso, Elizabeth](#); [Veraldi, Frank M CIV \(USA\)](#); [Grider, Nathan](#)
Subject: [Non-DoD Source] Re: [EXTERNAL] Ravine 10 Ecosystem Restoration NEPA Scoping
Date: Thursday, April 25, 2019 2:26:49 PM

Robbie,

We received your letter, dated April 2019, indicating that the Chicago District is preparing a National Environmental Policy Act (NEPA) document for a proposed ecosystem restoration project at Ravine 10 in Highland Park, IL. We are not aware of any particular issues that should be addressed during the scoping process regarding this project. We will plan to respond to your request to review the NEPA documents when they are complete.

Sincerely,

Shawn Cirton
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Chicago Illinois Field Office
230 South Dearborn Street, Suite 2938
Chicago, IL 60604
(847)366-2345

On Thu, Apr 4, 2019 at 3:23 PM Sliwinski, Robert (Robbie) CIV USARMY CELRC (US) <Robbie.Sliwinski@usace.army.mil> <<mailto:Robbie.Sliwinski@usace.army.mil>> wrote:

Dear Recipient:

The Chicago District is preparing a National Environmental Policy Act (NEPA) to document the effects of an ecosystem restoration project at Ravine 10 located in the City of Highland Park, Lake County, Illinois. A map of the study area is enclosed.

The Ravine 10 study seeks to naturalize the ravine stream by removing man-made debris and utilizing small boulder/cobble structures to induce improved stream morphology and substrates. The project would also include the removal of non-native invasive plants and the reestablishment of native ravine and bluff plant communities. Work will follow Highland Park's steep slope ordinance and will be primarily limited to the stream channel easement and publicly owned properties of Moraine and Clinton Parks; avoiding private properties.

We are interested in any concerns you may have including impacts to physical, ecological, social, cultural and archaeological resources. Please provide comments within 30 days, marking your reply to the attention of Mr. Robbie Sliwinski, U.S. Army Corps of Engineers, 231 S. LaSalle St, Suite 1500 Chicago, Illinois 60604 or email at (Robbie.Sliwinski@usace.army.mil <<mailto:Robbie.Sliwinski@usace.army.mil>>).

Robbie Sliwinski
UNITED STATES ARMY CORPS OF ENGINEERS
Botanist/Ecosystem Restoration, Chicago District
231 S. LaSalle St., Suite 1500
Chicago, Illinois 60604

Office: (312) 846-5486
CHICAGO USACE WEB SITE: [Blockedhttp://www.lrc.usace.army.mil](http://www.lrc.usace.army.mil)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 03 2019

REPLY TO THE ATTENTION OF:

Mail Code E-19J

Robbie Sliwinski
U.S. Army Corps of Engineers – Chicago District
231 N. LaSalle St.
Suite 1500
Chicago, Illinois 60604

**RE: Scoping: Forthcoming NEPA documentation for Ravine 10 Ecosystem Restoration
Project: City of Highland Park, Lake County, Illinois**

Dear Mr. Sliwinski:

The U.S. Environmental Protection Agency has reviewed a scoping request from the U.S. Army Corps of Engineers (USACE) regarding the forthcoming release of a Draft NEPA document proposing ecosystem restoration in “Ravine 10” within Port Clinton Park and Moraine Park in Highland Park, Illinois. Additionally, EPA has reviewed USACE’s 2016 Federal Interest Determination document, provided electronically to EPA from USACE on April 5, 2019. Non-federal project sponsors are the City of Highland Park, the Park District of Highland Park, and the North Shore Water Reclamation District. This letter provides our comments on the scoping request, pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality’s NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

The scoping document states that the Ravine 10 study seeks to naturalize the ravine streams by *“removing man-made debris and utilizing small boulder/cobble structures to induce improved stream morphology and substrates. The project would also include the removal of non-native invasive plants and the reestablishment of native ravine and bluff plant communities.”* The two focus areas of the proposed study are Port Clinton Park and Moraine Park, which possess various natural features, including multiple ravines. All the ravines within the study area appear to be natural stream channels; it is not known if these are ephemeral or intermittent channels.

Work will follow Highland Park's Steep Slope Ordinance and will be primarily limited to the stream channel easements on publicly-owned properties (Moraine Park and Port Clinton Park). USACE plans to avoid any proposed ravine work on private properties.

EPA concurs with USACE that this is a beneficial project and, as a project funded under the Great Lakes Restoration Initiative, will assist with federal goals focusing on restoring the Great Lakes. Based on our review of the scoping document and Federal Interest Determination document, EPA offers the following comments as USACE develops the NEPA document for this project. Our comments focus on purpose and need, site information, staging/construction, and inter-agency coordination, and are as follows.

PURPOSE AND NEED

- The forthcoming NEPA document should clearly articulate the project purpose and the project need. The purpose and need of a project is essential in establishing a basis for the development of the range of reasonable alternatives required in an environmental review and assists with the identification and eventual selection of a preferred alternative.

SITE INFORMATION AND BACKGROUND/CURRENT CONDITIONS

- Originally formed by the erosive forces of water runoff interacting with the bluffs, the ravines within the project area are the natural pathways by which watershed rainfall reaches Lake Michigan. The scoping document was silent as to the stage of the ravines (e.g., mature ravines, forming ravines, etc.) and the presence and condition of features such as adjacent bluffs, foredunes, beaches, and forests. Historic alterations to the hydrologic system due to urbanization may have resulted in accelerated erosion and degradation of the ravine systems. Anthropogenic modifications, along with the effects of more frequent and intense storm events, may have caused increased volume and velocity of the discharges to the ravines.

The Federal Interest Document notes that there are areas of stream bank within the ravines that have been armored with riprap, preventing stream development, channel evolution, and sinuosity modifications. Photos also provided to EPA from USACE on April 5, 2019, show gabion baskets installed within portions of ravine. These modifications were not discussed in the scoping document. It is unclear if these manmade modifications (gabions, riprap installation) will be removed as part of the proposed ecosystem restoration. The forthcoming NEPA document should discuss the full condition of the ravines, including manmade modifications and any resulting habitat fragmentation, alteration, and degradation. Please discuss the historic condition, and current conditions, of all natural features within the project area.

The scoping document states that the Ravine 10 study seeks to “*naturalize the ravine stream by removing man-made debris...*” The term “man-made debris” was not defined in the scoping document. The forthcoming NEPA document should discuss existing hard armament and “man-made debris” installed in the ravines and should clarify if action alternatives will propose to remove such armoring and/or “man-made debris.” Clarification should also be provided on stabilization measures that will be undertaken post-removal.

- The Federal Interest Determination document states that obsolete infrastructure near the base of the ravine (near its confluence with Lake Michigan) has formed a dam at the mouth of the ravine channel, prohibiting hydrologic connectivity with Lake Michigan and preventing native littoral fish species from accessing the ravine stream habitat needed for spawning and

nursery requirements. This information was not provided in the scoping document. The forthcoming NEPA document should discuss baseline conditions and what alternatives exist to remedy the current hydrologic fragmentation with Lake Michigan.

INTERAGENCY COORDINATION

- The forthcoming EA should include all correspondence sent to, or received from, any agencies with which coordination under NEPA is required. This includes the State Historic Preservation Offices (SHPO), the Illinois Department of Natural Resources (IDNR), the U.S. Fish and Wildlife Service (USFWS) and others. Please provide copies of both your letters to those agencies, as well as the responses from those agencies, in the forthcoming NEPA document.
- Please provide background information on coordination with the City of Highland Park, including how USACE plans to comply with the City's Steep Slope Ordinance.

STAGING AND CONSTRUCTION

- Due to the delicate nature of the project ravines, and the City's Steep Slope Ordinances, locations sited for staging and construction access will be critical. Please discuss staging areas in the forthcoming NEPA document, including how the ravines will be accessed and with what equipment (if applicable). Include maps showing these areas.

Thank you for the opportunity to review and comment on this scoping document. We are available to discuss our comments with you in further detail if requested. We look forward to reviewing the NEPA document when it is released; please send us one paper copy or an electronic copy to review. If you have any questions about this letter, please contact the lead NEPA reviewer, Ms. Liz Pelloso, PWS, at 312-886-7425 or via email at pelloso.elizabeth@epa.gov.

Sincerely,



Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

cc: Shawn Cirton, USFWS
Anthony Rubano, IL SHPO
Nathan Grider, IDNR

From: [Veraldi, Frank M CIV \(USA\)](#)
To: [Peloso, Elizabeth](#)
Cc: [Sliwinski, Robert \(Robbie\) CIV USARMY CELRC \(US\)](#); [Davis, Susanne J CIV USARMY CELRC \(US\)](#)
Subject: RE: Ravine 10 Ecosystem Restoration NEPA Scoping
Date: Friday, April 5, 2019 10:47:50 AM
Attachments: [02_Ravine10_FID_2016_09_06.pdf](#)
[RavineAlliance_2016_05_25_Presentation.pdf](#)

Hi Liz,

As you know, the scoping letter is indication that our full report will be distributed to the agencies for review. In that report will be the full description of measures and benefits.

However, the ravine stream is in good health aside from being impacted by a sanitary sewer and failed attempts to stop natural erosion and channel evolution of the ravine. In short, the cobble riffles and Jhooks would be used to back up natural alluvium to cover up the exposed pipe, in turn creating fish passage and naturalizing channel morphology and sediment transport. Attached are the approved FID for Ravine 10 and a presentation on the natural functionality of ravines.

The stream is semi-ephemeral, but is necessary for spring spawning fishes such as suckers, longnose dace, and hopefully some other critters.

I'll follow up with a few updated photos of the pipe and infrastructure blocking fish passage and disrupting sediment transport.

Cheers,

Frank Veraldi, PM-PL-E
Ecosystem Restoration Formulation,
LRD Regional Technical Specialist USACE
231 S. LaSalle St, Suite 1500
Chicago, Illinois 60604

Office: 312-846-5589
<http://www.lrd.usace.army.mil>
<http://www.lrc.usace.army.mil>
FACEBOOK: <http://www.facebook.com/usacechicago>

-----Original Message-----

From: Sliwinski, Robert (Robbie) CIV USARMY CELRC (US)
Sent: Friday, April 5, 2019 10:07 AM
To: Veraldi, Frank M CIV (USA) <Frank.M.Veraldi@usace.army.mil>
Subject: FW: Ravine 10 Ecosystem Restoration NEPA Scoping

Frank,

See below, could you send me a short description on how the proposed small boulder/cobble structures will improve stream morphology?

-robbie

-----Original Message-----

From: Peloso, Elizabeth [<mailto:Peloso.Elizabeth@epa.gov>]
Sent: Friday, April 5, 2019 8:16 AM
To: Sliwinski, Robert (Robbie) CIV USARMY CELRC (US) <Robbie.Sliwinski@usace.army.mil>
Subject: [Non-DoD Source] RE: Ravine 10 Ecosystem Restoration NEPA Scoping

Hi Robbie,

Can you share some site photos so I can get an idea of the current site conditions? Also, I assume these are ephemeral channels - can you give me more info on how the proposed small boulder/cobble structures will improve stream morphology?

Thanks,
Liz

Liz Pellosso, PWS
NEPA Implementation Section
USEPA - Region 5
Phone: 312-886-7425
Email: pellosso.elizabeth@epa.gov

-----Original Message-----

From: Westlake, Kenneth
Sent: Thursday, April 04, 2019 3:31 PM
To: Pellosso, Elizabeth <Pellosso.Elizabeth@epa.gov>
Subject: ASSIGNMENT: Ravine 10 Ecosystem Restoration NEPA Scoping

Liz, I am assigning this ecosystem restoration EA scoping to you. Thanks.
Ken

-----Original Message-----

From: Sliwinski, Robert (Robbie) CIV USARMY CELRC (US) <Robbie.Sliwinski@usace.army.mil>
Sent: Thursday, April 04, 2019 3:23 PM
To: Westlake, Kenneth <westlake.kenneth@epa.gov>
Subject: Ravine 10 Ecosystem Restoration NEPA Scoping

Dear Recipient:

The Chicago District is preparing a National Environmental Policy Act (NEPA) to document the effects of an ecosystem restoration project at Ravine 10 located in the City of Highland Park, Lake County, Illinois. A map of the study area is enclosed.

The Ravine 10 study seeks to naturalize the ravine stream by removing man-made debris and utilizing small boulder/cobble structures to induce improved stream morphology and substrates. The project would also include the removal of non-native invasive plants and the reestablishment of native ravine and bluff plant communities. Work will follow Highland Park's steep slope ordinance and will be primarily limited to the stream channel easement and publicly owned properties of Moraine and Clinton Parks; avoiding private properties.

We are interested in any concerns you may have including impacts to physical, ecological, social, cultural and archaeological resources. Please provide comments within 30 days, marking your reply to the attention of Mr. Robbie Sliwinski, U.S. Army Corps of Engineers, 231 S. LaSalle St, Suite 1500 Chicago, Illinois 60604 or email at (Robbie.Sliwinski@usace.army.mil).

Robbie Sliwinski
UNITED STATES ARMY CORPS OF ENGINEERS
Botanist/Ecosystem Restoration, Chicago District
231 S. LaSalle St., Suite 1500
Chicago, Illinois 60604

Office: (312) 846-5486
CHICAGO USACE WEB SITE: Blocked<http://www.lrc.usace.army.mil>



Miami Tribe of Oklahoma

3410 P St. NW, Miami, OK 74354 • P.O. Box 1326, Miami, OK 74355
Ph: (918) 541-1300 • Fax: (918) 542-7260
www.miamination.com



May 3, 2019

Mr. Robbie Sliwinski
U.S. Army Corps of Engineers
231 S. LaSalle St., Suite 1500
Chicago, IL 60604

Re: Ravine 10 Study, City of Highland Park, Illinois – Comments of the Miami Tribe of Oklahoma

Dear Mr. Sliwinski:

Aya, kikwehsitoole – I show you respect. My name is Diane Hunter, and I am the Tribal Historic Preservation Officer for the Federally Recognized Miami Tribe of Oklahoma. In this capacity, I am the Miami Tribe's point of contact for all Section 106 issues.

The Miami Tribe offers no objection to the above-mentioned project at this time, as we are not currently aware of existing documentation directly linking a specific Miami cultural or historic site to the project site. However, as this site is within the aboriginal homelands of the Miami Tribe, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project, the Miami Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery. In such a case, please contact me at 918-541-8966 or by email at dhunter@miamination.com to initiate consultation.

The Miami Tribe accepts the invitation to serve as a consulting party to the proposed project. In my capacity as Tribal Historic Preservation Officer I am the point of contact for consultation.

Respectfully,

Diane Hunter
Tribal Historic Preservation Officer

From: [Sliwinski, Robert \(Robbie\) CIV USARMY CELRC \(US\)](#)
To: [Michael LaRonge](#)
Subject: RE: Re: NEPA Statement for the Ravine 10 Study, City of Highland Park, Lake County, Illinois.
Date: Wednesday, May 8, 2019 4:06:00 PM
Attachments: [SHPO Ravine10.pdf](#)
[Ravine10_ScopingMap.pdf](#)
[DSC_1404.JPG](#)
[DSC_1407.JPG](#)

Mr. LaRonge,

I've attached the IDNR SHPO letter we received. At this time during the scoping process, we do not have a SHPO commentary finalized in the report; however, we will send out a draft report with NEPA documents out for public review where you will have the opportunity to submit any further comments.

I've also attached an aerial of the proposed project area. The areas immediately adjacent to the project area are developed with private housing and the proposed project will not be excavating land beyond the channel bottom and lower banks within areas having been already heavily disturbed in the past with manmade structures. The last two attachments are photos of where most of the proposed land disturbing activities would occur near the mouth of the ravine. The following ecosystem restoration measures are proposed within the proposed project areas:

(1) We seek to naturalize sediment transport and provide a connected stream within the study area. Small boulder/cobble riffles, J-hooks and other small stone structures would be placed at strategic points in the ravine stream channel as the primary method to address problems. These small stone structures would slow down channel down-cutting by backing up alluvial materials of silt, sand, gravel and small cobble; i.e. cover up pipes with natural alluvium. These structures are not intended to halt bank erosion, which is currently in a natural state and beneficial to stream habitat and substrate sequestration. At the same time, these stone structures would also provide stream connectivity in terms of flowing water and fish passage. To also naturalize sediment transport and restore stream habitat, foreign debris would be removed under this measure; foreign debris includes broken clay pipe and concrete, wire mesh from broken gabions, riprap from broken gabions and failed erosion measures, filter fabric and large pieces of plastic and construction material.

(2) We seek to restore ravine banks and floodplain terraces where impacted by large manmade infrastructure and failed erosion measures. These include removing steel sheet pile, metal retaining walls, concrete slabs, concrete boxes, gabion baskets and angular riprap. Once removed, these structures would be replaced with stone structures on the stream floor and planted with native plant species adapted to the lower banks. Steep areas supporting infrastructure could be protected with glacial/fluvial stone or limestone flags if necessary.

Please let us know if you have any other questions or concerns during this scoping process. Please feel free to send any further comments you may have during the public review period when the draft report with NEPA documents will be released. Thank you.

[Robbie Sliwinski](#)

UNITED STATES ARMY CORPS OF ENGINEERS
Botanist/Ecosystem Restoration, Chicago District
231 S. LaSalle St., Suite 1500
Chicago, Illinois 60604

Office: (312) 846-5486

CHICAGO USACE WEB SITE: <http://www.lrc.usace.army.mil>

FACEBOOK: <http://www.facebook.com/usacechicago>

CHICAGO REGION FQA CALCULATOR: <http://www.lrc.usace.army.mil/Missions/Regulatory/FQA.aspx>

From: Michael LaRonge [mailto:Michael.LaRonge@fcpotawatomi-nsn.gov]

Sent: Wednesday, May 8, 2019 12:54 PM

To: Sliwinski, Robert (Robbie) CIV USARMY CELRC (US) <Robbie.Sliwinski@usace.army.mil>

Subject: [Non-DoD Source] Re: NEPA Statement for the Ravine 10 Study, City of Highland Park, Lake County, Illinois.

Re: NEPA Statement for the Ravine 10 Study, City of Highland Park, Lake County, Illinois.

Dear Mr. Sliwinski,

Pursuant to consultation under Section 106 of the National Historic Preservation Act (1966 as amended) the Forest County Potawatomi Community (FCPC), a Federally Recognized Native American Tribe, reserves the right to comment on Federal undertakings, as defined under the act.

This project is located in close proximity to a known Potawatomi habitation site. Therefore, the Tribal Historic Preservation Office requests a copy of the archaeological survey report and SHPO commentary associated with the project.

Your interest in protecting cultural and historic properties is appreciated. If you have any questions or concerns, please contact me at phone number or email listed below.

Respectfully,

Michael LaRonge
Tribal Historic Preservation Officer
Natural Resources Department
Forest County Potawatomi Community
5320 Wensaut Lane
P.O. Box 340
Crandon, Wisconsin 54520
Phone: 715-478-7354
Fax: 715-478-7225
Email: Michael.LaRonge@FCPotawatomi-nsn.gov

DRAFT FINDING OF NO SIGNIFICANT IMPACT

Ravine 10 Ecosystem Restoration Section 506 Great Lakes Fishery & Ecosystem Restoration (GLFER) Draft Integrated Detailed Project Report & Environmental Assessment

The U.S. Army Corps of Engineers, Chicago District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The final Integrated Detailed Progress Report and Environmental Assessment (IDPR/EA) dated **18 September 2019**, for the **Ravine 10 Ecosystem Restoration** addresses altered stream hydrology and hydraulics, native plant community degradation, habitat connectivity, rare wetland communities and native species richness opportunities and feasibility in **Highland Park, Cook County, IL**.

The Final IFR/EA, incorporated herein by reference, evaluated various alternatives that would restore coastal Lake Michigan habitat which include the stream, ravine, and bluff habitats within the study area for flora, fish and wildlife in the study area. The recommended plan is the **National Ecosystem Restoration (NER) Plan** and includes:

- Minor grading and debris removal to prepare the new stream channel and banks for riffle placement;
- No piping or water diversion structures would be used to divert higher flows. The riffles are designed to specifically handle the larger urban derived flood pulses; and
- Once the stream channel is in place, opportunistic trees and invasive species would be removed by the USACE, all areas will be planted with native species, and establishment activities would commence.



In addition to a “no action” plan, **7** additional alternatives were evaluated. The alternatives were evaluated by an iterative screening process. The process identified several plans for ravine restoration that were incrementally justified by their cost per habitat benefit. After taking into considerations costs, habitat benefits, USACE policy, risk and uncertainty along with plan acceptability, completeness, efficiency, and effectiveness, the NER plan was selected.

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

| | Insignificant effects | Insignificant effects as a result of mitigation* | Resource unaffected by action |
|--------------------------------------|-------------------------------------|--|-------------------------------------|
| Aesthetics | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Air quality | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Historic properties | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other cultural resources | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Floodplains | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hazardous, toxic & radioactive waste | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hydrology | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Land use | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Navigation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Noise levels | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public infrastructure | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Socio-economics | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental justice | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Soils | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tribal trust resources | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water quality | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Best management practices (BMPs) as detailed in the IDPR/EA will be implemented to minimize impacts. The proposed project would result in beneficial effects to the ecosystem. Restoration of the stream channel morphology will aid in the restoration of sediment transport and critical hydraulic parameters within the ravines. Implementation of the proposed project would not affect littoral processes since there are no measures planned for Lake Michigan under this study. Implementation of the plan could include compatible recreation opportunities (e.g. Walking Trails). Any impacts to adjacent recreational opportunities from construction of the proposed project would be short term and temporary in nature.

No compensatory mitigation is required as part of the recommended plan.

Public review of the draft IDPR/EA and FONSI was completed on **DATE DRAFT EA AND FONSI REVIEW PERIOD ENDED**. All comments submitted during the public review period will



be responded to in the Final IDPR/EA and FONSI. A 30-day state and agency review of the Final IDPR/EA was completed on **DATE SAR PERIOD ENDED. PICK OPTION BASED ON RESULTS OF STATE AND AGENCY REVIEW.**

ENDANGERED SPECIES ACT

NO EFFECT:

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the recommended plan will have no effect on federally listed species or their designated critical habitat.

NATIONAL HISTORIC PRESERVATION ACT

HISTORIC PROPERTIES NOT ADVERSELY AFFECTED:

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that historic properties would not be adversely affected by the recommended plan. The **Illinois Historic Preservation Agency** concurred with the determination on **24 April 2019**.

CLEAN WATER ACT SECTION 404(B)(1) COMPLIANCE

Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material associated with the recommended plan has been found to be compliant with section 404(b)(1) Guidelines (40 CFR 230). The Clean Water Act Section 404(b)(1) Guidelines evaluation is found in **Appendix H** of the IFR/EA.

CLEAN WATER ACT SECTION 401 COMPLIANCE:

401 WQC OBTAINED:

A water quality certification pursuant to section 401 of the Clean Water Act is consistent with the **U.S. Army Corps of Engineers, Chicago District Regulatory Branch Regional Permit 5, Wetland & Stream Restoration and Enhancement**. All conditions of the water quality certification shall be implemented in order to minimize adverse impacts to water quality.

COASTAL ZONE MANAGEMENT ACT

A determination of consistency with the **Illinois** Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 will be obtained from the Illinois Coastal Management Program prior to construction. In a letter dated **31 July 2019**, the **Illinois** Coastal Zone Management program stated that the recommended plan appears to be consistent with state Coastal Zone Management plans, pending confirmation based on information to be developed during the pre-construction engineering and design phase. All conditions of the consistency determination shall be implemented in order to minimize adverse impacts to the coastal zone.

OTHER SIGNIFICANT ENVIRONMENTAL COMPLIANCE:

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.



This project is in compliance with the Highland Park's Steep Slope Ordinance (Ord. 38-01, J.27, p. 146-167, passed 6/25/01; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08), which was passed to protect the natural conditions of these rare natural ravine landforms. Regulating the intensity of development according to the natural characteristics of steep slope terrain, such as degree of sloping, significant vegetation, and soil stability and existing drainage patterns, will allow for suitable development while minimizing the physical impact of such development on sensitive ravine and bluff steep slope areas. This project would restore and maintain natural ravine features, which is in support of this ordinance.

FINDING

Technical, environmental, and cost effectiveness criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date

Aaron W. Reisinger
Colonel, U.S. Army
District Commander

G3. Habitat Benefits Analysis

Stream & Location: Ravine 10 Stream EX + FWOP

RM: Date: 03/07/18 2019

Scorers Full Name & Affiliation: FM Veraldi

River Code: STORET #: Lat./ Long.: 18 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

Substrate assessment table with categories: BEST TYPES, OTHER TYPES, ORIGIN, QUALITY. Includes checkboxes for BLDR/SLABS, BOULDER, COBBLE, GRAVEL, SAND, BEDROCK, etc.

NUMBER OF BEST TYPES: 4 or more [2] 3 or less [0] Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts

AMOUNT

Check ONE (Or 2 & average)

Instream Cover assessment table with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS.

Comments

Cover Maximum 20

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

Channel Morphology assessment table with categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY.

Comments

Channel Maximum 20

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

Bank Erosion and Riparian Zone assessment table with categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY, CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION.

Comments

Riparian Maximum 10

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Maximum Depth assessment table with checkboxes for > 1m, 0.7-1m, 0.4-0.7m, 0.2-0.4m, < 0.2m.

CHANNEL WIDTH

Channel Width assessment table with checkboxes for POOL WIDTH > RIFFLE WIDTH, POOL WIDTH = RIFFLE WIDTH, POOL WIDTH < RIFFLE WIDTH.

CURRENT VELOCITY

Current Velocity assessment table with checkboxes for TORRENTIAL, VERY FAST, FAST, MODERATE, SLOW, INTERSTITIAL, INTERMITTENT, EDDIES.

Recreation Potential Primary Contact Secondary Contact

Comments

Pool / Current Maximum 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

NO RIFFLE [metric=0]

Riffle and Run Quality assessment table with categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS.

Comments

Riffle / Run Maximum 8

6) GRADIENT (ft/mi) DRAINAGE AREA (mi^2) VERY LOW - LOW, MODERATE, HIGH - VERY HIGH.

% POOL: 30 % GLIDE: 10 % RUN: 30 % RIFFLE: 30

Gradient Maximum 10

Stream & Location: Ravine 10 Stream RM: _____ Date: 04/22/06 2019

FWP

Scorers Full Name & Affiliation: _____

River Code: _____ STORET #: _____ Lat./ Long.: _____ / 18 Office verified location

1) SUBSTRATE Check **ONLY Two** substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

| | | | | | | | | | |
|--|--|--|---|--|-------------------------------------|--|--|--|--|
| BEST TYPES | | POOL RIFFLE | OTHER TYPES | | POOL RIFFLE | ORIGIN | | QUALITY | |
| <input type="checkbox"/> BLDR /SLABS [10] | <input type="checkbox"/> BOULDER [9] | <input type="checkbox"/> | <input type="checkbox"/> HARDPAN [4] | <input type="checkbox"/> DETRITUS [3] | <input type="checkbox"/> | <input type="checkbox"/> LIMESTONE [1] | <input type="checkbox"/> TILLS [1] | <input type="checkbox"/> HEAVY [-2] | <input type="checkbox"/> MODERATE [-1] |
| <input checked="" type="checkbox"/> COBBLE [8] | <input checked="" type="checkbox"/> GRAVEL [7] | <input checked="" type="checkbox"/> | <input type="checkbox"/> MUCK [2] | <input type="checkbox"/> SILT [2] | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> SILT [1] | <input type="checkbox"/> WETLANDS [0] | <input type="checkbox"/> NORMAL [0] | <input type="checkbox"/> MODERATE [-1] |
| <input type="checkbox"/> SAND [6] | <input type="checkbox"/> BEDROCK [5] | <input checked="" type="checkbox"/> | <input type="checkbox"/> ARTIFICIAL [0] | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> HARDPAN [0] | <input type="checkbox"/> SANDSTONE [0] | <input checked="" type="checkbox"/> FREE [1] | <input type="checkbox"/> EXTENSIVE [-2] |
| NUMBER OF BEST TYPES: <input checked="" type="checkbox"/> 4 or more [2] | | <input type="checkbox"/> 3 or less [0] | | (Score natural substrates; ignore sludge from point-sources) | | <input type="checkbox"/> RIP/RAP [0] | <input type="checkbox"/> SANDSTONE [0] | <input type="checkbox"/> MODERATE [-1] | <input type="checkbox"/> MODERATE [-1] |
| Comments | | | | | | <input type="checkbox"/> LACUSTURINE [0] | <input type="checkbox"/> SHALE [-1] | <input type="checkbox"/> NORMAL [0] | <input type="checkbox"/> NONE [1] |
| | | | | | | <input type="checkbox"/> COAL FINES [-2] | | | Substrate 19 ⁺¹ Maximum 20 |

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

| | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> UNDERCUT BANKS [1] | <input checked="" type="checkbox"/> POOLS > 70cm [2] | <input type="checkbox"/> OXBOWS, BACKWATERS [1] | <input checked="" type="checkbox"/> EXTENSIVE >75% [11] |
| <input checked="" type="checkbox"/> OVERHANGING VEGETATION [1] | <input type="checkbox"/> ROOTWADS [1] | <input type="checkbox"/> AQUATIC MACROPHYTES [1] | <input type="checkbox"/> MODERATE 25-75% [7] |
| <input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) [1] | <input type="checkbox"/> BOULDERS [1] | <input type="checkbox"/> LOGS OR WOODY DEBRIS [1] | <input type="checkbox"/> SPARSE 5-<25% [3] |
| <input checked="" type="checkbox"/> ROOTMATS [1] | | | <input type="checkbox"/> NEARLY ABSENT <5% [1] |
| Comments | | | Cover Maximum 20 ⁰ |

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

| | | | |
|--|---|--|--|
| SINUOSITY | DEVELOPMENT | CHANNELIZATION | STABILITY |
| <input checked="" type="checkbox"/> HIGH [4] | <input checked="" type="checkbox"/> EXCELLENT [7] | <input type="checkbox"/> NONE [6] | <input type="checkbox"/> HIGH [3] |
| <input type="checkbox"/> MODERATE [3] | <input type="checkbox"/> GOOD [5] | <input checked="" type="checkbox"/> RECOVERED [4] | <input checked="" type="checkbox"/> MODERATE [2] |
| <input type="checkbox"/> LOW [2] | <input type="checkbox"/> FAIR [3] | <input type="checkbox"/> RECOVERING [3] | <input type="checkbox"/> LOW [1] |
| <input type="checkbox"/> NONE [1] | <input type="checkbox"/> POOR [1] | <input type="checkbox"/> RECENT OR NO RECOVERY [1] | |
| Comments | | | Channel Maximum 17 ⁺⁴ |

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

| | | | | | | | |
|---|---------------------------------------|--|---|---|---|---|--|
| EROSION | | RIPARIAN WIDTH | | FLOOD PLAIN QUALITY | | CONSERVATION TILLAGE | |
| <input checked="" type="checkbox"/> NONE / LITTLE [3] | <input type="checkbox"/> MODERATE [2] | <input checked="" type="checkbox"/> WIDE > 50m [4] | <input checked="" type="checkbox"/> MODERATE 10-50m [3] | <input checked="" type="checkbox"/> FOREST, SWAMP [3] | <input type="checkbox"/> SHRUB OR OLD FIELD [2] | <input checked="" type="checkbox"/> URBAN OR INDUSTRIAL [0] | <input type="checkbox"/> MINING / CONSTRUCTION [0] |
| <input type="checkbox"/> HEAVY / SEVERE [1] | | <input type="checkbox"/> NARROW 5-10m [2] | <input type="checkbox"/> VERY NARROW < 5m [1] | <input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] | <input type="checkbox"/> FENCED PASTURE [1] | Indicate predominant land use(s) past 100m riparian. | |
| Comments | | <input type="checkbox"/> NONE [0] | | <input type="checkbox"/> OPEN PASTURE, ROWCROP [0] | Riparian Maximum 9 ⁰ | | |

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

| | | | |
|---|---|--|--|
| MAXIMUM DEPTH | CHANNEL WIDTH | CURRENT VELOCITY | Recreation Potential Primary Contact Secondary Contact (circle one and comment on back) |
| Check ONE (ONLY!) | Check ONE (Or 2 & average) | Check ALL that apply | |
| <input type="checkbox"/> > 1m [6] | <input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2] | <input type="checkbox"/> TORRENTIAL [-1] | Pool / Current Maximum 9 ⁺⁴ |
| <input checked="" type="checkbox"/> 0.7-<1m [4] | <input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1] | <input checked="" type="checkbox"/> SLOW [1] | |
| <input checked="" type="checkbox"/> 0.4-<0.7m [2] | <input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [0] | <input type="checkbox"/> VERY FAST [1] | |
| <input type="checkbox"/> 0.2-<0.4m [1] | | <input type="checkbox"/> FAST [1] | |
| <input type="checkbox"/> < 0.2m [0] | | <input checked="" type="checkbox"/> MODERATE [1] | |
| Comments | | | <input type="checkbox"/> INTERSTITIAL [-1] |
| | | | <input type="checkbox"/> INTERMITTENT [-2] |
| | | | <input type="checkbox"/> EDDIES [1] |

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average).

NO RIFFLE [metric=0]

| | | | |
|---|--|---|--|
| RIFFLE DEPTH | RUN DEPTH | RIFFLE / RUN SUBSTRATE | RIFFLE / RUN EMBEDDEDNESS |
| <input checked="" type="checkbox"/> BEST AREAS > 10cm [2] | <input checked="" type="checkbox"/> MAXIMUM > 50cm [2] | <input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2] | <input type="checkbox"/> NONE [2] |
| <input type="checkbox"/> BEST AREAS 5-10cm [1] | <input type="checkbox"/> MAXIMUM < 50cm [1] | <input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] | <input checked="" type="checkbox"/> LOW [1] |
| <input type="checkbox"/> BEST AREAS < 5cm [metric=0] | | <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0] | <input type="checkbox"/> MODERATE [0] |
| Comments | | | <input type="checkbox"/> EXTENSIVE [-1] |
| | | | Riffle / Run Maximum 6 ⁺¹ |

6) GRADIENT

| | | | | |
|---------------------|---|--|--|---|
| (ft/mi) | <input type="checkbox"/> VERY LOW - LOW [2-4] | % POOL: 30 | % GLIDE: 10 | Gradient Maximum 6 ⁰ |
| (mi ²) | <input checked="" type="checkbox"/> MODERATE [6-10] | % RUN: 30 | % RIFFLE: 30 | |

SITE: Ravine 10
LOCALE: Ravine and Bluff
BY: Robbie Sliwinski
NOTES: Existing Conditions

| CONSERVATISM-BASED METRICS | | SPECIES RICHNESS | ADDITIONAL METRICS |
|----------------------------|-------|----------------------------------|--------------------|
| MEAN C (NATIVE SPECIES) | 3.98 | (ALL) | 75 |
| MEAN C (ALL SPECIES) | 2.65 | (NATIVE) | 50 |
| MEAN C (NATIVE TREES) | 2.90 | % NON-NATIVE WET INDICATOR (ALL) | 0.33 |
| MEAN C (NATIVE SHRUBS) | 3.20 | | 0.72 |
| MEAN C (NATIVE HERBACEOUS) | 4.48 | WET INDICATOR (NATIVE) | 0.62 |
| FQAI (NATIVE SPECIES) | 28.14 | % HYDROPHYTE (MIDWEST) | 0.36 |
| FQAI (ALL SPECIES) | 22.98 | % NATIVE PERENNIAL | 0.64 |
| ADJUSTED FQAI | 32.50 | % NATIVE ANNUAL | 0.03 |
| % C VALUE 0 | 0.40 | % ANNUAL | 0.03 |
| % C VALUE 1-3 | 0.20 | % PERENNIAL | 0.93 |
| % C VALUE 4-6 | 0.29 | | |
| % C VALUE 7-10 | 0.11 | | |

| SPECIES ACRONYM | SPECIES NAME (NWPL/MOHLENBROCK) | SPECIES (SYNONYM) | COMMON NAME | C VALUE | MIDWEST WET INDICATOR | NC-NE WET INDICATOR | WET INDICATOR (NUMERIC) | HABIT | DURATION | NATIVITY |
|-----------------|---------------------------------|------------------------------|-----------------------------------|---------|-----------------------|---------------------|-------------------------|---------|-----------|-----------|
| aceneg | Acer negundo | Acer negundo var. violaceum | Ash-Leaf Maple | 0 | FAC | FAC | | 0 Tree | Perennial | Native |
| acepla | Acer platanoides | PLATANOIDES | Norway Maple | 0 | UPL | UPL | | 2 Tree | Perennial | Adventive |
| acesau | Acer saccharum | Acer saccharum | Sugar Maple | 5 | FACU | FACU | | 1 Tree | Perennial | Native |
| actpac | Actaea pachypoda | Actaea pachypoda | White Baneberry | 8 | FACU | UPL | | 1 Forb | Perennial | Native |
| aegpod | Aegopodium podagraria | AEGOPODIUM PODAGRARIA | Bishop's Goutweed | 0 | FAC | FAC | | 0 Forb | Perennial | Adventive |
| euprug | Ageratina altissima | Eupatorium rugosum | White Snakeroot | 3 | FACU | FACU | | 1 Forb | Perennial | Native |
| ailalt | Ailanthus altissima | AILANTHUS ALTISSIMA | Tree-of-Heaven | 0 | FACU | UPL | | 1 Tree | Perennial | Adventive |
| allpet | Alliaria petiolata | ALLIARIA PETIOLATA | Garlic-Mustard | 0 | FAC | FACU | | 0 Forb | Biennial | Adventive |
| allcan | Allium canadense | Allium canadense | Meadow Garlic | 3 | FACU | FACU | | 1 Forb | Perennial | Native |
| aranud | Aralia nudicaulis | Aralia nudicaulis | Wild Sarsaparilla | 8 | FACU | FACU | | 1 Forb | Perennial | Native |
| arcmn | Arctium minus | ARCTIUM MINUS | Lesser Burdock | 0 | FACU | FACU | | 1 Forb | Biennial | Adventive |
| aritr | Arisaema triphyllum | triphylum ssp. pusillum; | Jack-In-The-Pulpit | 5 | FACW | FAC | | -1 Forb | Perennial | Native |
| berthu | Berberis thunbergii | BERBERIS THUNBERGII | Japanese Barberry | 0 | FACU | FACU | | 1 Shrub | Perennial | Adventive |
| cxblan | Carex blanda | Carex blanda | Eastern Woodland Sedge | 1 | FAC | FAC | | 0 Sedge | Perennial | Native |
| cxceph | Carex cephalophora | Carex cephalophora | Oval-Leaf Sedge | 5 | FACU | FACU | | 1 Sedge | Perennial | Native |
| cxpens | Carex pensylvanica | Carex pensylvanica | Pennsylvania Sedge | 5 | UPL | UPL | | 2 Sedge | Perennial | Native |
| celorb | Celastrus orbiculatus | CELASTRUS ORBICULATUS | Asian Bittersweet | 0 | UPL | UPL | | 2 Vine | Perennial | Adventive |
| celocc | Celtis occidentalis | Celtis occidentalis | Common Hackberry | 2 | FAC | FAC | | 0 Tree | Perennial | Native |
| cirlut | Circaea canadensis | Circaea lutetiana canadensis | Broad-Leaf Enchanter's-Nightshade | 3 | FACU | FACU | | 1 Forb | Perennial | Native |
| clavir | Claytonia virginica | Claytonia virginica | Virginia Springbeauty | 4 | FACU | FACU | | 1 Forb | Perennial | Native |
| conmaj | Convallaria majalis | CONVALLARIA MAJALIS | Lily-of-the-Valley | 0 | UPL | UPL | | 2 Forb | Perennial | Adventive |
| crycan | Cryptotaenia canadensis | Cryptotaenia canadensis | Canadian Honewort | 4 | FAC | FAC | | 0 Forb | Perennial | Native |
| daucar | Daucus carota | DAUCUS CAROTA | Queen Anne's Lace | 0 | UPL | UPL | | 2 Forb | Biennial | Adventive |
| epihel | Epipactis helleborine | EPIPACTIS HELLEBORINE | Helleborine | 0 | FACU | UPL | | 1 Forb | Perennial | Adventive |

| | | | | | | | | |
|--------|-----------------------------|-------------------------------|------------------------------|--------|------|---------|-----------|-----------|
| eryalb | Erythronium albidum | Erythronium albidum | Small White Fawn-Lily | 5 FACU | FACU | 1 Forb | Perennial | Native |
| euoala | Euonymus alatus | EUONYMUS ALATUS | Winged Euonymus | 0 UPL | UPL | 2 Shrub | Perennial | Adventive |
| euofor | Euonymus hederaceus | EUONYMUS FORTUNEI | Climbing Euonymus | 0 UPL | UPL | 2 Shrub | Perennial | Adventive |
| astmac | Eurybia macrophylla | Aster macrophyllum | Large-Leaf Wood-Aster | 9 FACU | UPL | 1 Forb | Perennial | Native |
| ranfic | Ficaria verna | RANUNCULUS FICARIA | Lesser Celandine | 0 FAC | FACW | 0 Forb | Perennial | Adventive |
| fralan | Fraxinus pennsylvanica | pennsylvanica subintegerrima; | Green Ash | 4 FACW | FACW | -1 Tree | Perennial | Native |
| geucan | Geum canadense | Geum canadense | White Avens | 1 FAC | FAC | 0 Forb | Perennial | Native |
| hamvir | Hamamelis virginiana | Hamamelis virginiana | American Witch-Hazel | 8 FACU | FACU | 1 Shrub | Perennial | Native |
| helstr | Helianthus strumosus | Helianthus strumosus | Pale-Leaf Woodland Sunflower | 5 UPL | UPL | 2 Forb | Perennial | Native |
| hermax | Heracleum maximum | Heracleum maximum | American Cow-Parsnip | 5 FACW | FACW | -1 Forb | Perennial | Native |
| hesmat | Hesperis matronalis | HESPERIS MATRONALIS | Mother-of-the-Evening | 0 FACU | FACU | 1 Forb | Perennial | Adventive |
| impcap | Impatiens capensis | Impatiens capensis | Spotted Touch-Me-Not | 3 FACW | FACW | -1 Forb | Annual | Native |
| junvir | Juniperus virginiana | Juniperus virginiana crebra | Eastern Red-Cedar | 0 FACU | FACU | 1 Tree | Perennial | Native |
| lonpro | Lonicera reticulata | Lonicera prolifera | Yellow Honeysuckle | 8 UPL | UPL | 2 Vine | Perennial | Native |
| lonbel | Lonicera X bella | LONICERA X BELLA | Showy Fly Honeysuckle | 0 FACU | FACU | 1 Shrub | Perennial | Adventive |
| monfis | Monarda fistulosa | Monarda fistulosa | Oswego-Tea | 4 FACU | FACU | 1 Forb | Perennial | Native |
| moralb | Morus alba | MORUS ALBA VAR. TATARICA | White Mulberry | 0 FAC | FACU | 0 Tree | Perennial | Adventive |
| osmlon | Osmorhiza longistylis | Osmorhiza longistylis | Aniseroot | 5 FACU | FACU | 1 Forb | Perennial | Native |
| ostvir | Ostrya virginiana | Ostrya virginiana | Eastern Hop-Hornbeam | 5 FACU | FACU | 1 Tree | Perennial | Native |
| parqui | Parthenocissus quinquefolia | Parthenocissus quinquefolia | Virginia-Creeper | 4 FACU | FACU | 1 Vine | Perennial | Native |
| polvir | Persicaria virginiana | Polygonum virginianum | Jumpseed | 4 FAC | FAC | 0 Forb | Perennial | Native |
| poanem | Poa nemoralis | POA NEMORALIS | Forest Blue Grass | 0 FACU | FACU | 1 Grass | Perennial | Adventive |
| poapra | Poa pratensis | POA PRATENSIS | Kentucky Blue Grass | 0 FAC | FACU | 0 Grass | Perennial | Adventive |
| podpel | Podophyllum peltatum | Podophyllum peltatum | May-Apple | 4 FACU | FACU | 1 Forb | Perennial | Native |
| popdel | Populus deltoides | Populus deltoides | Eastern Cottonwood | 0 FAC | FAC | 0 Tree | Perennial | Native |
| pruser | Prunus serotina | Prunus serotina | Black Cherry | 0 FACU | FACU | 1 Shrub | Perennial | Native |
| pruvir | Prunus virginiana | Prunus virginiana | Choke Cherry | 3 FACU | FACU | 1 Shrub | Perennial | Native |
| querub | Quercus rubra | Quercus rubra | Northern Red Oak | 5 FACU | FACU | 1 Tree | Perennial | Native |
| ranabo | Ranunculus abortivus | Ranunculus abortivus | Kidney-Leaf Buttercup | 1 FACW | FAC | -1 Forb | Annual | Native |
| rhacat | Rhamnus cathartica | RHAMNUS CATHARTICA | European Buckthorn | 0 FAC | FAC | 0 Shrub | Perennial | Adventive |
| robpse | Robinia pseudoacacia | ROBINIA PSEUDOACACIA | Black Locust | 0 FACU | FACU | 1 Tree | Perennial | Adventive |
| rubocc | Rubus occidentalis | Rubus occidentalis | Black Raspberry | 0 UPL | UPL | 2 Shrub | Perennial | Native |
| sangre | Sanicula odorata | Sanicula gregaria | Clustered Black-Snakeroot | 3 FAC | FAC | 0 Forb | Perennial | Native |
| soldul | Solanum dulcamara | DULCAMARA | Climbing Nightshade | 0 FAC | FAC | 0 Vine | Perennial | Adventive |
| solffe | Solidago flexicaulis | Solidago flexicaulis | Zigzag Goldenrod | 7 FACU | FACU | 1 Forb | Perennial | Native |
| solulm | Solidago ulmifolia | Solidago ulmifolia | Elm-Leaf Goldenrod | 5 UPL | UPL | 2 Forb | Perennial | Native |
| symdru | Symphotrichum drummondii | Symphotrichum drummondii | Drummond's Aster | 3 UPL | UPL | 2 Forb | Perennial | Native |
| astlat | Symphotrichum lateriflorum | Aster lateriflorus | Farewell-Summer | 4 FACW | FAC | -1 Forb | Perennial | Native |
| taroff | Taraxacum officinale | TARAXACUM OFFICINALE | Common Dandelion | 0 FACU | FACU | 1 Forb | Perennial | Adventive |
| thadio | Thalictrum dioicum | Thalictrum dioicum | Early Meadow-Rue | 7 FACU | FACU | 1 Forb | Perennial | Native |
| tilame | Tilia americana | Tilia americana | American Basswood | 5 FACU | FACU | 1 Tree | Perennial | Native |
| rhurad | Toxicodendron radicans | Rhus radicans | Eastern Poison-Ivy | 2 FAC | FAC | 0 Vine | Perennial | Native |
| trirec | Trillium recurvatum | Trillium recurvatum | Bloody-Butcher | 5 FACU | FACU | 1 Forb | Perennial | Native |
| ulmame | Ulmus americana | Ulmus americana | American Elm | 3 FACW | FACW | -1 Tree | Perennial | Native |
| uvugra | Uvularia grandiflora | Uvularia grandiflora | Yellow Bellwort | 7 UPL | UPL | 2 Forb | Perennial | Native |
| vibopu | Viburnum opulus var. opulus | VIBURNUM OPULUS | Highbush-Cranberry | 0 FAC | FACW | 0 Shrub | Perennial | Adventive |
| vibpru | Viburnum prunifolium | Viburnum prunifolium | Smooth Blackhaw | 5 FACU | FACU | 1 Shrub | Perennial | Native |
| vibrec | Viburnum recognitum | VIBURNUM RECOGNITUM | Smooth Arrow-Wood | 0 FAC | FAC | 0 Shrub | Perennial | Adventive |
| vinmin | Vinca minor | VINCA MINOR | Common Periwinkle | 0 UPL | UPL | 2 Shrub | Perennial | Adventive |
| viosor | Viola sororia | Viola priceana | Hooded Blue Violet | 3 FAC | FAC | 0 Forb | Perennial | Native |
| vitrip | Vitis riparia | Vitis riparia var. sycitcola | River-Bank Grape | 1 FACW | FAC | -1 Vine | Perennial | Native |

SITE: Ravine 10
LOCALE: Ravine and Bluff
BY: Robbie Sliwinski
NOTES: FWOP Conditions

| CONSERVATISM-BASED METRICS | | SPECIES RICHNESS (ALL) | ADDITIONAL METRICS |
|----------------------------|-------|----------------------------------|--------------------|
| MEAN C (NATIVE SPECIES) | 3.06 | | 60 |
| MEAN C (ALL SPECIES) | 1.78 | SPECIES RICHNESS (NATIVE) | 35 |
| MEAN C (NATIVE TREES) | 2.90 | % NON-NATIVE WET INDICATOR (ALL) | 0.42 |
| MEAN C (NATIVE SHRUBS) | 2.75 | | 0.57 |
| MEAN C (NATIVE HERBACEOUS) | 3.33 | WET INDICATOR (NATIVE) | 0.31 |
| FQAI (NATIVE SPECIES) | 18.09 | % HYDROPHYTE (MIDWEST) | 0.45 |
| FQAI (ALL SPECIES) | 13.81 | % NATIVE PERENNIAL | 0.55 |
| ADJUSTED FQAI | 23.35 | % NATIVE ANNUAL | 0.03 |
| % C VALUE 0 | 0.50 | % ANNUAL | 0.03 |
| % C VALUE 1-3 | 0.25 | % PERENNIAL | 0.92 |
| % C VALUE 4-6 | 0.23 | | |
| % C VALUE 7-10 | 0.02 | | |

| SPECIES ACRONYM | SPECIES NAME (NWPL/MOHLNBROCK) | SPECIES (SYNONYM) | COMMON NAME | C VALUE | MIDWEST WET INDICATOR | NC-NE WET INDICATOR | WET INDICATOR (NUMERIC) | HABIT | DURATION |
|-----------------|--------------------------------|--|-----------------------------------|---------|-----------------------|---------------------|-------------------------|---------|-----------|
| aceneg | Acer negundo | Acer negundo var. violaceum | Ash-Leaf Maple | | 0 FAC | FAC | | 0 Tree | Perennial |
| acepla | Acer platanoides | ACER PLATANOIDES | Norway Maple | | 0 UPL | UPL | | 2 Tree | Perennial |
| acesau | Acer saccharum | Acer saccharum | Sugar Maple | | 5 FACU | FACU | | 1 Tree | Perennial |
| aegpod | Aegopodium podagraria | AEGOPIDIUM PODAGRARIA | Bishop's Goutweed | | 0 FAC | FAC | | 0 Forb | Perennial |
| euprug | Ageratina altissima | Eupatorium rugosum | White Snakeroot | | 3 FACU | FACU | | 1 Forb | Perennial |
| ailalt | Ailanthus altissima | AILANTHUS ALTISSIMA | Tree-of-Heaven | | 0 FACU | UPL | | 1 Tree | Perennial |
| allpet | Alliaria petiolata | ALLIARIA PETIOLATA | Garlic-Mustard | | 0 FAC | FACU | | 0 Forb | Biennial |
| allcan | Allium canadense | Allium canadense | Meadow Garlic | | 3 FACU | FACU | | 1 Forb | Perennial |
| arcmin | Arctium minus | ARCTIUM MINUS pusillum; Arisaema triphyllum | Lesser Burdock | | 0 FACU | FACU | | 1 Forb | Biennial |
| aritri | Arisaema triphyllum | ssp. stewardsonii | Jack-in-The-Pulpit | | 5 FACW | FAC | | -1 Forb | Perennial |
| berthu | Berberis thunbergii | BERBERIS THUNBERGII | Japanese Barberry | | 0 FACU | FACU | | 1 Shrub | Perennial |
| cxblan | Carex blanda | Carex blanda | Eastern Woodland Sedge | | 1 FAC | FAC | | 0 Sedge | Perennial |
| cxceph | Carex cephalophora | Carex cephalophora | Oval-Leaf Sedge | | 5 FACU | FACU | | 1 Sedge | Perennial |
| celorb | Celastrus orbiculatus | CELASTRUS ORBICULATUS | Asian Bittersweet | | 0 UPL | UPL | | 2 Vine | Perennial |
| celocc | Celtis occidentalis | Celtis occidentalis | Common Hackberry | | 2 FAC | FAC | | 0 Tree | Perennial |
| cirlut | Circaea canadensis | Circaea lutetiana canadensis | Broad-Leaf Enchanter's-Nightshade | | 3 FACU | FACU | | 1 Forb | Perennial |
| conmaj | Convallaria majalis | CONVALLARIA MAJALIS | Lily-of-the-Valley | | 0 UPL | UPL | | 2 Forb | Perennial |
| crycan | Cryptotaenia canadensis | Cryptotaenia canadensis | Canadian Honewort | | 4 FAC | FAC | | 0 Forb | Perennial |
| daucar | Daucus carota | DAUCUS CAROTA | Queen Anne's Lace | | 0 UPL | UPL | | 2 Forb | Biennial |
| epihel | Epipactis helleborine | EPIPACTIS HELLEBORINE | Helleborine | | 0 FACU | UPL | | 1 Forb | Perennial |
| euoala | Euonymus alatus | EUONYMUS ALATUS | Winged Euonymus | | 0 UPL | UPL | | 2 Shrub | Perennial |
| euofor | Euonymus hederaceus | EUONYMUS FORTUNEI | Climbing Euonymus | | 0 UPL | UPL | | 2 Shrub | Perennial |
| ranfic | Ficaria verna | RANUNCULUS FICARIA subintegerrima; Fraxinus lanceolata | Lesser Celandine | | 0 FAC | FACW | | 0 Forb | Perennial |
| fralan | Fraxinus pennsylvanica | | Green Ash | | 4 FACW | FACW | | -1 Tree | Perennial |
| geucan | Geum canadense | Geum canadense | White Avens | | 1 FAC | FAC | | 0 Forb | Perennial |
| hamvir | Hamamelis virginiana | Hamamelis virginiana | American Witch-Hazel | | 8 FACU | FACU | | 1 Shrub | Perennial |
| hermax | Heracleum maximum | Heracleum maximum | American Cow-Parsnip | | 5 FACW | FACW | | -1 Forb | Perennial |

| | | | | | | | |
|--------|-----------------------------|--------------------------------|--|--------|------|---------|-----------|
| hesmat | Hesperis matronalis | HESPERIS MATRONALIS | Mother-of-the-Evening | 0 FACU | FACU | 1 Forb | Perennial |
| impcap | Impatiens capensis | Impatiens capensis | Spotted Touch-Me-Not | 3 FACW | FACW | -1 Forb | Annual |
| junvir | Juniperus virginiana | Juniperus virginiana crebra | Eastern Red-Cedar | 0 FACU | FACU | 1 Tree | Perennial |
| lonbel | Lonicera X bella | LONICERA X BELLA | Showy Fly Honeysuckle | 0 FACU | FACU | 1 Shrub | Perennial |
| monfis | Monarda fistulosa | Monarda fistulosa | Oswego-Tea | 4 FACU | FACU | 1 Forb | Perennial |
| moralb | Morus alba | MORUS ALBA VAR. TATARICA | White Mulberry | 0 FAC | FACU | 0 Tree | Perennial |
| osmlon | Osmorhiza longistylis | Osmorhiza longistylis | Aniseroot | 5 FACU | FACU | 1 Forb | Perennial |
| ostvir | Ostrya virginiana | Ostrya virginiana | Eastern Hop-Hornbeam | 5 FACU | FACU | 1 Tree | Perennial |
| parqui | Parthenocissus quinquefolia | Parthenocissus quinquefolia | Virginia-Creeper | 4 FACU | FACU | 1 Vine | Perennial |
| polvir | Persicaria virginiana | Polygonum virginianum | Jumpseed | 4 FAC | FAC | 0 Forb | Perennial |
| poanem | Poa nemoralis | POA NEMORALIS | Forest Blue Grass | 0 FACU | FACU | 1 Grass | Perennial |
| poapra | Poa pratensis | POA PRATENSIS | Kentucky Blue Grass | 0 FAC | FACU | 0 Grass | Perennial |
| popdel | Populus deltoides | Populus deltoides | Eastern Cottonwood | 0 FAC | FAC | 0 Tree | Perennial |
| pruser | Prunus serotina | Prunus serotina | Black Cherry | 0 FACU | FACU | 1 Shrub | Perennial |
| pruvir | Prunus virginiana | Prunus virginiana | Choke Cherry | 3 FACU | FACU | 1 Shrub | Perennial |
| querub | Quercus rubra | Quercus rubra | Northern Red Oak | 5 FACU | FACU | 1 Tree | Perennial |
| ranabo | Ranunculus abortivus | Ranunculus abortivus | Kidney-Leaf Buttercup | 1 FACW | FAC | -1 Forb | Annual |
| rhacat | Rhamnus cathartica | RHAMNUS CATHARTICA | European Buckthorn | 0 FAC | FAC | 0 Shrub | Perennial |
| robpse | Robinia pseudoacacia | ROBINIA PSEUDOACACIA | Black Locust | 0 FACU | FACU | 1 Tree | Perennial |
| rubocc | Rubus occidentalis | Rubus occidentalis | Black Raspberry Clustered Black- Snakeroot | 0 UPL | UPL | 2 Shrub | Perennial |
| sangre | Sanicula odorata | Sanicula gregaria | Snakeroot | 3 FAC | FAC | 0 Forb | Perennial |
| soldul | Solanum dulcamara | SOLANUM DULCAMARA | Climbing Nightshade | 0 FAC | FAC | 0 Vine | Perennial |
| symdru | Symphotrichum drummondii | Aster sagittifolius drummondii | Drummond's Aster | 3 UPL | UPL | 2 Forb | Perennial |
| astlat | Symphotrichum lateriflorum | Aster lateriflorus | Farewell-Summer | 4 FACW | FAC | -1 Forb | Perennial |
| taroff | Taraxacum officinale | TARAXACUM OFFICINALE | Common Dandelion | 0 FACU | FACU | 1 Forb | Perennial |
| tilame | Tilia americana | Tilia americana | American Basswood | 5 FACU | FACU | 1 Tree | Perennial |
| rhurad | Toxicodendron radicans | Rhus radicans | Eastern Poison-Ivy | 2 FAC | FAC | 0 Vine | Perennial |
| ulmame | Ulmus americana | Ulmus americana | American Elm | 3 FACW | FACW | -1 Tree | Perennial |
| vibopu | Viburnum opulus var. opulus | VIBURNUM OPULUS | Highbush-Cranberry | 0 FAC | FACW | 0 Shrub | Perennial |
| vibrec | Viburnum recognitum | VIBURNUM RECOGNITUM | Smooth Arrow-Wood | 0 FAC | FAC | 0 Shrub | Perennial |
| vinmin | Vinca minor | VINCA MINOR | Common Periwinkle | 0 UPL | UPL | 2 Shrub | Perennial |
| viosor | Viola sororia | Viola priceana | Hooded Blue Violet | 3 FAC | FAC | 0 Forb | Perennial |
| vitrip | Vitis riparia | Vitis riparia var. syrticola | River-Bank Grape | 1 FACW | FAC | -1 Vine | Perennial |

SITE: Ravine 10
LOCALE: Ravine and Bluff
BY: Robbie Sliwinski
NOTES: FWP Conditions

| CONSERVATISM-BASED METRICS | | ADDITIONAL METRICS |
|----------------------------|-------|---------------------------------------|
| MEAN C (NATIVE SPECIES) | 5.17 | SPECIES RICHNESS (ALL) 147 |
| MEAN C (ALL SPECIES) | 5.17 | SPECIES RICHNESS (NATIVE) 147 |
| MEAN C (NATIVE TREES) | 5.82 | % NON-NATIVE WET INDICATOR (ALL) 0.00 |
| MEAN C (NATIVE SHRUBS) | 5.06 | 0.49 |
| MEAN C (NATIVE HERBACEOUS) | 5.20 | WET INDICATOR (NATIVE) 0.49 |
| FQAI (NATIVE SPECIES) | 62.68 | % HYDROPHYTE (MIDWEST) 0.39 |
| FQAI (ALL SPECIES) | 62.68 | % NATIVE PERENNIAL 0.96 |
| ADJUSTED FQAI | 51.70 | % NATIVE ANNUAL 0.04 |
| % C VALUE 0 | 0.06 | % ANNUAL 0.04 |
| % C VALUE 1-3 | 0.15 | % PERENNIAL 0.96 |
| % C VALUE 4-6 | 0.50 | |
| % C VALUE 7-10 | 0.29 | |

| SPECIES ACRONYM | SPECIES NAME (NWPL/ MOHLENBROCK) | SPECIES (SYNONYM) | COMMON NAME | C VALUE | MIDWEST WET INDICATOR | HABIT | DURATION | NATIVITY |
|-----------------|----------------------------------|--|-------------------------|---------|-----------------------|-------|-----------|----------|
| acesau | Acer saccharum | Acer saccharum | Sugar Maple | 5 | FACU | Tree | Perennial | Native |
| actpac | Actaea pachypoda | Actaea pachypoda | White Baneberry | 8 | FACU | Forb | Perennial | Native |
| actrub | Actaea rubra | Actaea rubra | Red Baneberry | 10 | FACU | Forb | Perennial | Native |
| agealt | Ageratina altissima | Eupatorium rugosum | White Snakeroot | 3 | FACU | Forb | Perennial | Native |
| agrper | Agrostis perennans | Agrostis perennans | Upland Bent | 5 | FAC | Grass | Perennial | Native |
| albur | Allium burdickii | Allium tricoccum burdickii | Burdick's Leek | 7 | UPL | Forb | Perennial | Native |
| allcan | Allium canadense | Allium canadense | Meadow Garlic | 3 | FACU | Forb | Perennial | Native |
| amelae | Amelanchier laevis | Amelanchier laevis | Allegheny Service-Berry | 7 | UPL | Tree | Perennial | Native |
| anevir | Anemone virginiana | Anemone virginiana | Tall Thimbleweed | 5 | FACU | Forb | Perennial | Native |
| antpla | Antennaria plantaginifolia | Antennaria plantaginifolia | Pussy-Toes | 4 | UPL | Forb | Perennial | Native |
| aqucan | Aquilegia canadensis | Aquilegia canadensis | Red Columbine | 6 | FACU | Forb | Perennial | Native |
| aranud | Aralia nudicaulis | Aralia nudicaulis | Wild Sarsaparilla | 8 | FACU | Forb | Perennial | Native |
| ararac | Aralia racemosa | Aralia racemosa | American Spikenard | 10 | FACU | Forb | Perennial | Native |
| aritri | Arisaema triphyllum | Arisaema triphyllum ssp. stewardsonii | Jack-In-The-Pulpit | 5 | FACW | Forb | Perennial | Native |
| ascexa | Asclepias exaltata | Asclepias exaltata | Poke Milkweed | 10 | UPL | Forb | Perennial | Native |
| ascpur | Asclepias purpurascens | Asclepias purpurascens | Purple Milkweed | 8 | FACU | Forb | Perennial | Native |
| ascsy | Asclepias syriaca | Asclepias syriaca | Common Milkweed | 0 | FACU | Forb | Perennial | Native |
| ascver | Asclepias verticillata | Asclepias verticillata | Whorled Milkweed | 1 | FACU | Forb | Perennial | Native |
| bapalb | Baptisia alba var. macrophylla | Baptisia leucantha; Baptisia lactea | White Wild Indigo | 8 | FACU | Forb | Perennial | Native |
| bidfro | Bidens frondosa | Bidens frondosa | Devil's-Pitchfork | 1 | FACW | Forb | Annual | Native |
| braere | Brachyelytrum erectum | Brachyelytrum erectum | Bearded Shorthusk | 9 | UPL | Grass | Perennial | Native |
| brokal | Bromus kalmii | Bromus kalmii | Kalm's Brome | 10 | FAC | Grass | Perennial | Native |
| bropub | Bromus pubescens | Bromus pubescens; Bromus nottowanianus | Hairy Woodland Brome | 5 | FACU | Grass | Perennial | Native |
| calpal | Caltha palustris | Caltha palustris | Yellow Marsh-Marigold | 8 | OBL | Forb | Perennial | Native |
| camame | Campanulastrum americanum | Campanula americana | American-Bellflower | 4 | FAC | Forb | Annual | Native |
| cxau | Carex aurea | Carex aurea | Golden-Fruit Sedge | 9 | FACW | Sedge | Perennial | Native |
| cxblan | Carex blanda | Carex blanda | Eastern Woodland Sedge | 1 | FAC | Sedge | Perennial | Native |
| cxebur | Carex eburnea | Carex eburnea | Bristle-Leaf Sedge | 10 | FACU | Sedge | Perennial | Native |
| cxemor | Carex emoryi | Carex emoryi | Emory's Sedge | 5 | OBL | Sedge | Perennial | Native |
| cxhyst | Carex hystericina | Carex hystericina | Porcupine Sedge | 7 | OBL | Sedge | Perennial | Native |
| cxlacu | Carex lacustris | Carex lacustris | Lakebank Sedge | 5 | OBL | Sedge | Perennial | Native |
| cxpens | Carex pensylvanica | Carex pensylvanica | Pennsylvania Sedge | 5 | UPL | Sedge | Perennial | Native |

| | | | | | | | |
|--------|--|---|-----------------------------------|---------|-------|-----------|--------|
| cxradi | Carex radiata | Carex radiata | Eastern Star Sedge | 5 UPL | Sedge | Perennial | Native |
| cxshor | Carex shortiana | Carex shortiana | Short's Sedge | 6 FACW | Sedge | Perennial | Native |
| cxspar | Carex sparganioides | Carex sparganioides | Burr-Reed Sedge | 5 FAC | Sedge | Perennial | Native |
| cxstri | Carex stricta | Carex stricta | Uptight Sedge | 5 OBL | Sedge | Perennial | Native |
| cxtrib | Carex tribuloides | Carex tribuloides | Blunt Broom Sedge | 7 OBL | Sedge | Perennial | Native |
| carcar | Carpinus caroliniana ssp. virginiana | Carpinus caroliniana virginiana | American Hornbeam | 8 FAC | Tree | Perennial | Native |
| carovt | Carya ovata | Carya ovata | Shag-Bark Hickory | 5 FACU | Tree | Perennial | Native |
| ceaame | Ceanothus americanus | Ceanothus americanus | New Jersey Tea | 6 UPL | Shrub | Perennial | Native |
| chafas | Chamaecrista fasciculata | Cassia fasciculata; Cassia fasciculata var. robusta | Sleepingplant | 4 FACU | Forb | Annual | Native |
| chegla | Chelone glabra | Chelone glabra | White Turtlehead | 8 OBL | Forb | Perennial | Native |
| cinaru | Cinna arundinacea | Cinna arundinacea | Sweet Wood-Reed | 5 FACW | Grass | Perennial | Native |
| circan | Circaea canadensis | Circaea lutetiana canadensis | Broad-Leaf Enchanter's-Nightshade | 3 FACU | Forb | Perennial | Native |
| corsto | Cornus alba | Cornus stolonifera; Cornus baileyi; Cornus sericea | Red Osier | 5 FACW | Shrub | Perennial | Native |
| coralt | Cornus alternifolia | Cornus alternifolia | Alternate-Leaf Dogwood | 10 FAC | Tree | Perennial | Native |
| corame | Corylus americana | Corylus americana | American Hazelnut | 5 FACU | Shrub | Perennial | Native |
| cyppar | Cypripedium parviflorum | | 0 Yellow Lady's-Slipper | 10 FACW | Forb | Perennial | Native |
| danspi | Danthonia spicata | Danthonia spicata | Poverty Oat Grass | 3 UPL | Grass | Perennial | Native |
| descaa | Desmodium canadense | Desmodium canadense | Showy Tick-Trefoil | 4 FACU | Forb | Perennial | Native |
| desglu | Desmodium glutinosum | Hylodesmum glutinosum | Pointed Tick-Trefoil | 5 UPL | Forb | Perennial | Native |
| dicacu | Dichanthelium acuminatum | Panicum auburne; Panicum lindheimeri; Panicum | Tapered Rosette Grass | 4 FAC | Grass | Perennial | Native |
| dodmea | Dodecatheon meadia | Dodecatheon meadia | Pride-of-Ohio | 6 FACU | Forb | Perennial | Native |
| elycan | Elymus canadensis | Elymus canadensis | Nodding Wild Rye | 4 FACU | Grass | Perennial | Native |
| elyhys | Elymus hystrix | Hystrix patula | Eastern Bottle-Brush Grass | 5 FACU | Grass | Perennial | Native |
| elyvil | Elymus villosus | Elymus villosus | Hairy Wild Rye | 5 FACU | Grass | Perennial | Native |
| equarv | Equisetum arvense | Equisetum arvense | Field Horsetail | 0 FAC | Fern | Perennial | Native |
| erican | Erigeron canadensis | Conyza canadensis | Canadian Horseweed | 0 FACU | Forb | Annual | Native |
| eriphi | Erigeron philadelphicus | Erigeron philadelphicus | Philadelphia Fleabane | 4 FACW | Forb | Perennial | Native |
| eryalb | Erythronium albidum | Erythronium albidum | Small White Fawn-Lily | 5 FACU | Forb | Perennial | Native |
| eupper | Eupatorium perfoliatum | Eupatorium perfoliatum | Common Boneset | 4 OBL | Forb | Perennial | Native |
| eupcor | Euphorbia corollata | Euphorbia corollata | Flowering Spurge | 4 UPL | Forb | Perennial | Native |
| astmac | Eurybia macrophylla | Aster macrophyllus | Large-Leaf Wood-Aster | 9 FACU | Forb | Perennial | Native |
| eutgra | Euthamia graminifolia | Solidago graminifolia | Flat-Top Goldentop | 4 FACW | Forb | Perennial | Native |
| eutpur | Eutrochium purpureum | Euthamia nuttallii | Sweet-Scented Joe-Pye-Weed | 6 FAC | Forb | Perennial | Native |
| fravir | Fragaria virginiana | Fragaria virginiana | Virginia Strawberry | 0 FACU | Forb | Perennial | Native |
| galcon | Galium concinnum | Galium concinnum | Shining Bedstraw | 7 FACU | Forb | Perennial | Native |
| genqui | Gentianella quinquefolia ssp. occidentalis | Gentiana quinquefolia occidentalis | Agueweed | 8 FAC | Forb | Annual | Native |
| germac | Geranium maculatum | Geranium maculatum | Spotted Crane's-Bill | 5 FACU | Forb | Perennial | Native |
| geucan | Geum canadense | Geum canadense | White Avens | 1 FAC | Forb | Perennial | Native |
| geulac | Geum laciniatum | Geum laciniatum | Rough Avens | 3 FACW | Forb | Perennial | Native |
| glystr | Glyceria striata | Glyceria striata var. stricta | Fowl Manna Grass | 4 OBL | Grass | Perennial | Native |
| hamvir | Hamamelis virginiana | Hamamelis virginiana | American Witch-Hazel | 8 FACU | Shrub | Perennial | Native |
| heldiv | Helianthus divaricatus | Helianthus divaricatus | Woodland Sunflower | 5 UPL | Forb | Perennial | Native |
| hepacu | Hepatica acutiloba | Hepatica acutiloba | Sharp-Lobe Hepatica | 8 UPL | Forb | Perennial | Native |
| hermax | Heraclium maximum | Heraclium maximum | American Cow-Parsnip | 5 FACW | Forb | Perennial | Native |
| hyppun | Hypericum punctatum | Hypericum punctatum | Spotted St. John's-Wort | 4 FAC | Forb | Perennial | Native |
| irivir | Iris virginica var. shrevei | Iris virginica shrevei | Virginia Blueflag | 5 OBL | Forb | Perennial | Native |
| junten | Juncus tenuis | Juncus tenuis | Lesser Poverty Rush | 0 FAC | Forb | Perennial | Native |
| juncom | Juniperus communis | Juniperus communis | Common Juniper | 8 UPL | Shrub | Perennial | Native |
| kribif | Krigia biflora | Krigia biflora | Two-Flower Dwarf-Dandelion | 9 FACU | Forb | Perennial | Native |
| leeory | Leersia oryzoides | Leersia oryzoides | Rice Cut Grass | 3 OBL | Grass | Perennial | Native |
| lilmic | Lilium michiganense | Lilium michiganense | Michigan Lily | 8 FACW | Forb | Perennial | Native |

| | | | | | | | |
|--------|------------------------------------|------------------------------------|-----------------------------|---------|-------|-----------|--------|
| lobcar | <i>Lobelia cardinalis</i> | <i>Lobelia cardinalis</i> | Cardinal-Flower | 7 OBL | Forb | Perennial | Native |
| maiste | <i>Maianthemum stellatum</i> | <i>Smilacina stellata</i> | Starry False Solomon's-Seal | 5 FAC | Forb | Perennial | Native |
| mitdip | <i>Mitella diphylla</i> | <i>Mitella diphylla</i> | Two-Leaf Bishop's-Cap | 10 FACU | Forb | Perennial | Native |
| monfis | <i>Monarda fistulosa</i> | <i>Monarda fistulosa</i> | Oswego-Tea | 4 FACU | Forb | Perennial | Native |
| muhten | <i>Muhlenbergia tenuiflora</i> | <i>Muhlenbergia tenuiflora</i> | Slim-Flower Muhly | 10 UPL | Grass | Perennial | Native |
| nabalb | <i>Nabalus albus</i> | <i>Prenanthes alba</i> | White Rattlesnake-Root | 5 FACU | Forb | Perennial | Native |
| osmcla | <i>Osmunda claytoniana</i> | <i>Osmunda claytoniana</i> | Interrupted Fern | 8 FAC | Fern | Perennial | Native |
| ostvir | <i>Ostrya virginiana</i> | <i>Ostrya virginiana</i> | Eastern Hop-Hornbeam | 5 FACU | Tree | Perennial | Native |
| oxastr | <i>Oxalis stricta</i> | <i>Oxalis europaea</i> | Upright Yellow Wood-Sorrel | 0 FACU | Forb | Perennial | Native |
| parqui | <i>Parthenocissus quinquefolia</i> | <i>Parthenocissus quinquefolia</i> | Virginia-Creeper | 4 FACU | Vine | Perennial | Native |
| pedcan | <i>Pedicularis canadensis</i> | <i>Pedicularis canadensis</i> | Canadian Lousewort | 9 FACU | Forb | Perennial | Native |
| pensed | <i>Penthorum sedoides</i> | <i>Penthorum sedoides</i> | Ditch-Stonecrop | 4 OBL | Forb | Perennial | Native |

| | | | | | | | |
|---------|--|--|---|--------|-------|-----------|--------|
| pervir | <i>Persicaria virginiana</i> | <i>Polygonum virginianum</i> | Jumpseed | 4 FAC | Forb | Perennial | Native |
| phldiv | <i>Phlox divaricata</i> | <i>Phlox divaricata</i> | Wild Blue Phlox | 5 FACU | Forb | Perennial | Native |
| phrllep | <i>Phryma leptostachya</i> | <i>Phryma leptostachya</i> | Lopseed | 6 UPL | Forb | Perennial | Native |
| podpel | <i>Podophyllum peltatum</i> | <i>Podophyllum peltatum</i> | May-Apple | 4 FACU | Forb | Perennial | Native |
| polrep | <i>Polemonium reptans</i> | <i>Polemonium reptans</i> | Greek-Valerian | 8 FAC | Forb | Perennial | Native |
| polbif | <i>Polygonatum biflorum</i> | <i>Polygonatum canaliculatum</i> | King Solomon's-Seal | 4 FACU | Forb | Perennial | Native |
| potstim | <i>Potentilla simplex</i> | <i>Potentilla simplex argyrisma</i> | Oldfield Cinquefoil | 3 FACU | Forb | Perennial | Native |
| pruser | <i>Prunus serotina</i> | <i>Prunus serotina</i> | Black Cherry | 0 FACU | Shrub | Perennial | Native |
| pruvir | <i>Prunus virginiana</i> | <i>Prunus virginiana</i> | Choke Cherry | 3 FACU | Shrub | Perennial | Native |
| pteaqu | <i>Pteridium aquilinum</i> var. <i>latiusculum</i> | <i>Pteridium aquilinum latiusculum</i> | Northern Bracken Fern | 5 FACU | Fern | Perennial | Native |
| quealb | <i>Quercus alba</i> | <i>Quercus alba</i> | Northern White Oak | 5 FACU | Tree | Perennial | Native |
| queell | <i>Quercus ellipsoidalis</i> | <i>Quercus ellipsoidalis</i> | Hill's Oak | 4 UPL | Tree | Perennial | Native |
| quemac | <i>Quercus macrocarpa</i> | <i>Quercus macrocarpa</i> | Burr Oak | 5 FAC | Tree | Perennial | Native |
| querub | <i>Quercus rubra</i> | <i>Quercus rubra</i> | Northern Red Oak | 5 FACU | Tree | Perennial | Native |
| ranabo | <i>Ranunculus abortivus</i> | <i>Ranunculus abortivus</i> | Kidney-Leaf Buttercup | 1 FACW | Forb | Annual | Native |
| ransep | <i>Ranunculus hispidus</i> var. <i>nitidus</i> | <i>Ranunculus septentrionalis</i> | Bristly Buttercup | 5 FAC | Forb | Perennial | Native |
| ribame | <i>Ribes americanum</i> | <i>Ribes americanum</i> | Wild Black Currant | 4 FACW | Shrub | Perennial | Native |
| ribcyn | <i>Ribes cynosbati</i> | <i>Ribes cynosbati</i> | Eastern Prickly Gooseberry | 5 FAC | Shrub | Perennial | Native |
| roscar | <i>Rosa carolina</i> | <i>Rosa carolina</i> | Carolina Rose | 5 FACU | Shrub | Perennial | Native |
| ruball | <i>Rubus allegheniensis</i> | <i>Rubus allegheniensis</i> | Allegheny Blackberry | 3 FACU | Shrub | Perennial | Native |
| rubocc | <i>Rubus occidentalis</i> | <i>Rubus occidentalis</i> | Black Raspberry | 0 UPL | Shrub | Perennial | Native |
| rudhir | <i>Rudbeckia hirta</i> | <i>Rudbeckia hirta</i> var. <i>pulcherrima</i> | Black-Eyed-Susan | 1 FACU | Forb | Perennial | Native |
| schsco | <i>Schizachyrium scoparium</i> | <i>Andropogon scoparius</i> | Little False Bluestem | 5 FACU | Grass | Perennial | Native |
| sciatv | <i>Scirpus atrovirens</i> | <i>Scirpus atrovirens</i> | Dark-Green Bulrush | 4 OBL | Sedge | Perennial | Native |
| shecan | <i>Shepherdia canadensis</i> | <i>Shepherdia canadensis</i> | Russet Buffalo-Berry | 10 UPL | Shrub | Perennial | Native |
| silste | <i>Silene stellata</i> | <i>Silene stellata</i> | Starry Campion | 6 UPL | Forb | Perennial | Native |
| smilas | <i>Smilax lasioneuron</i> | <i>Smilax lasioneura</i> | Common Carrion Flower | 5 UPL | Vine | Perennial | Native |
| solalt | <i>Solidago altissima</i> | <i>Solidago altissima</i> | Tall Goldenrod | 1 FACU | Forb | Perennial | Native |
| solffe | <i>Solidago flexicaulis</i> | <i>Solidago flexicaulis</i> | Zigzag Goldenrod | 7 FACU | Forb | Perennial | Native |
| soljun | <i>Solidago juncea</i> | <i>Solidago juncea</i> | Early Goldenrod | 3 UPL | Forb | Perennial | Native |
| solnem | <i>Solidago nemoralis</i> | <i>Solidago nemoralis</i> | Gray Goldenrod | 3 UPL | Forb | Perennial | Native |
| solulm | <i>Solidago ulmifolia</i> | <i>Solidago ulmifolia</i> | Elm-Leaf Goldenrod | 5 UPL | Forb | Perennial | Native |
| statri | <i>Staphylea trifolia</i> | <i>Staphylea trifolia</i> | American Bladdernut | 7 FAC | Shrub | Perennial | Native |
| symdru | <i>Symphyotrichum drummondii</i> | <i>Aster sagittifolius drummondii</i> | Drummond's Aster | 3 UPL | Forb | Perennial | Native |
| symlae | <i>Symphyotrichum laeve</i> | <i>Aster laevis</i> | Smooth Blue American-Aster | 9 FACU | Forb | Perennial | Native |
| symlat | <i>Symphyotrichum lateriflorum</i> | <i>Aster lateriflorus</i> | Farewell-Summer White Oldfield American-Aster | 4 FACW | Forb | Perennial | Native |
| sympil | <i>Symphyotrichum pilosum</i> | <i>Aster pilosus</i> | Aster | 0 FACU | Forb | Perennial | Native |
| symuro | <i>Symphyotrichum urophyllum</i> | <i>Aster sagittifolius</i> | Arrow-Leaf Aster | 5 UPL | Forb | Perennial | Native |
| symfoe | <i>Symplocarpus foetidus</i> | <i>Symplocarpus foetidus</i> | Skunk-Cabbage | 8 OBL | Forb | Perennial | Native |
| thadas | <i>Thalictrum dasycarpum</i> | <i>Thalictrum dasycarpum hypoglaucum</i> | Purple Meadow-Rue | 6 FACW | Forb | Perennial | Native |
| thadio | <i>Thalictrum dioicum</i> | <i>Thalictrum dioicum</i> | Early Meadow-Rue | 7 FACU | Forb | Perennial | Native |
| tilame | <i>Tilia americana</i> | <i>Tilia americana</i> | American Basswood | 5 FACU | Tree | Perennial | Native |
| toxrad | <i>Toxicodendron radicans</i> | <i>Rhus radicans</i> | Eastern Poison-Ivy | 2 FAC | Vine | Perennial | Native |
| traohi | <i>Tradescantia ohiensis</i> | <i>Tradescantia ohiensis</i> | Bluejacket | 3 FACU | Forb | Perennial | Native |
| trigra | <i>Trillium grandiflorum</i> | <i>Trillium grandiflorum</i> | Large White Trillium | 9 UPL | Forb | Perennial | Native |
| trirec | <i>Trillium recurvatum</i> | <i>Trillium recurvatum</i> | Bloody-Butcher | 5 FACU | Forb | Perennial | Native |
| uvugra | <i>Uvularia grandiflora</i> | <i>Uvularia grandiflora</i> | Yellow Bellwort | 7 UPL | Forb | Perennial | Native |
| viblen | <i>Viburnum lentago</i> | <i>Viburnum lentago</i> | Nanny-Berry | 4 FAC | Shrub | Perennial | Native |
| vibraf | <i>Viburnum rafinesquianum</i> | <i>Viburnum rafinesquianum</i> | Downy Arrowwood | 8 UPL | Shrub | Perennial | Native |
| viopub | <i>Viola pubescens</i> | <i>Viola pubescens</i> var. <i>scabruscula</i> | Downy Yellow Violet | 5 FACU | Forb | Perennial | Native |
| vitrip | <i>Vitis riparia</i> | <i>Vitis riparia</i> var. <i>syrticola</i> | River-Bank Grape | 1 FACW | Vine | Perennial | Native |



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
Phone: (312) 216-4720 Fax:

<http://www.fws.gov/midwest/endangered/section7/s7process/7a2process.html>

In Reply Refer To:

September 04, 2019

Consultation Code: 03E13000-2019-SLI-0438

Event Code: 03E13000-2019-E-01267

Project Name: Ravine 10 Ecosystem Restoration - Section 506 Great Lakes Fishery & Ecosystem Restoration

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

To Whom It May Concern:

To Whom It May Concern:

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.

Please note! For all **wind energy projects** and **projects that include installing towers that use guy wires or are over 200 feet in height**, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

For all other projects, continue the Section 7 Consultation process by going to our Section 7 Technical Assistance website at <http://www.fws.gov/midwest/endangered/section7/s7process/index.html>. If you are familiar with this website, you may want to go to Step 2 of the Section 7 Consultation process at <http://www.fws.gov/midwest/endangered/section7/s7process/step2.html>.

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. This verification can be completed formally or informally. You may verify the list by visiting the ECOS-IPaC website

<http://ecos.fws.gov/ipac/> at regular intervals during project planning and implementation and completing the same process you used to receive the attached list. As an alternative, you may contact this Ecological Services Field Office for updates.

Although no longer protected under the Endangered Species Act, be aware that bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), as are golden eagles. Projects affecting these species may require measures to avoid harming eagles or may require a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at <http://www.fws.gov/midwest/midwestbird/EaglePermits/index.html> to help you determine if you can avoid impacting eagles or if a permit may be necessary.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

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:

Chicago Ecological Service Field Office

U.s. Fish And Wildlife Service Chicago Ecological Services Office

230 South Dearborn St., Suite 2938

Chicago, IL 60604-1507

(312) 216-4720

Project Summary

Consultation Code: 03E13000-2019-SLI-0438

Event Code: 03E13000-2019-E-01267

Project Name: Ravine 10 Ecosystem Restoration - Section 506 Great Lakes Fishery & Ecosystem Restoration

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: Integrated Detailed Project Report & Environmental Assessment

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.19851215812305N87.7976062080968W>



Counties: Lake, IL

Endangered Species Act Species

There is a total of 7 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 1 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 |
|--|------------|
| 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 | 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 is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039 | Endangered |
| Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. 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. Species profile: https://ecos.fws.gov/ecp/species/2202 | Threatened |

Insects

| NAME | STATUS |
|---|------------|
| Karner Blue Butterfly <i>Lycaeides melissa samuelis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6656 | Endangered |

Flowering Plants

| NAME | STATUS |
|---|------------|
| Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</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"> ▪ Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html Species profile: https://ecos.fws.gov/ecp/species/601 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/984/office/31131.pdf | Threatened |
| 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.