DRAFT ENVIRONMENTAL ASSESSMENT FOR RECREATIONAL FACILITY IMPROVEMENTS AT BALD EAGLE STATE PARK CENTRE COUNTY, PENNSYLVANIA

APPENDICES

AUGUST 2020

APPENDIX A: PUBLIC COORDINATION

US Army Corps of Engineers
Baltimore District

Planning Division

Public Notice

10 July 2019

Bald Eagle State Park, Centre County, Pennsylvania

All Interested Parties: The Pennsylvania Department of Conservation and Natural Resources (DCNR) is proposing to develop additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Pennsylvania DCNR is proposing to construct an extension loop adjacent to the existing campground (enclosure 1), which may include modern campground sites and associated facilities. Bald Eagle State Park is located on land owned by the U.S. Army Corps of Engineers (USACE) as part of the Foster Joseph Sayers Dam and Reservoir Project. This land is under a long-term lease agreement with Pennsylvania DCNR, which manages the state park and its associated facilities. USACE Baltimore District is preparing an environmental assessment (EA) for the development of recreational facilities by Pennsylvania DCNR in accordance with the National Environmental Policy Act of 1969, as amended. The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR. The current schedule calls for the draft EA to be publicly released in the winter of 2019.

The purpose of this notice is to inform the public of the start of this assessment and to request any information that may affect the planning and design of campground facilities in the project area. We request that federal and state agencies provide information concerning interests within your organization's area of responsibility or expertise, and the public provide information which may be pertinent to this project, within 30 days from the date of this notice to the point of contact listed below. A timely review of the enclosed information and a written response will be greatly appreciated and will assist us with preparation of the EA.

If you have any questions regarding this project, please contact Mr. Seth Keller by phone at (410) 962-4940, by e-mail at Seth.D.Keller@usace.army.mil or by mail at U.S. Army Corps of Engineers, Planning Division, Subject: Bald Eagle State Park EA, 2 Hopkins Plaza, Baltimore, MD 21201.

Mark S Chalecki

Enclosure

Mark S. Chalecki, P.E.
Deputy Chief Planning Division

Enclosure 1

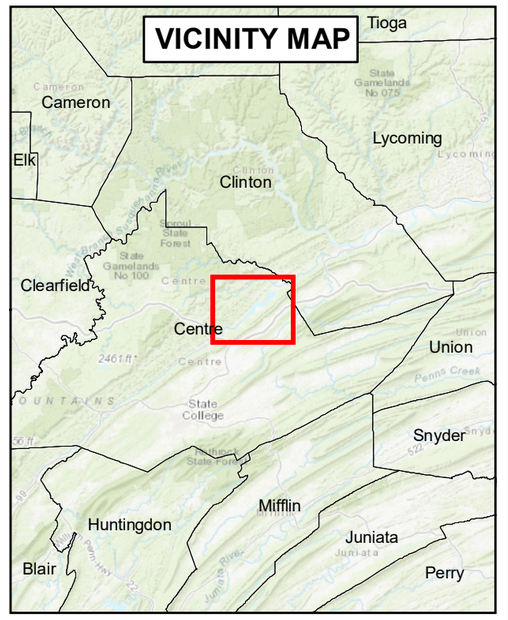
Bald Eagle State Park
Centre County, Pennsylvania

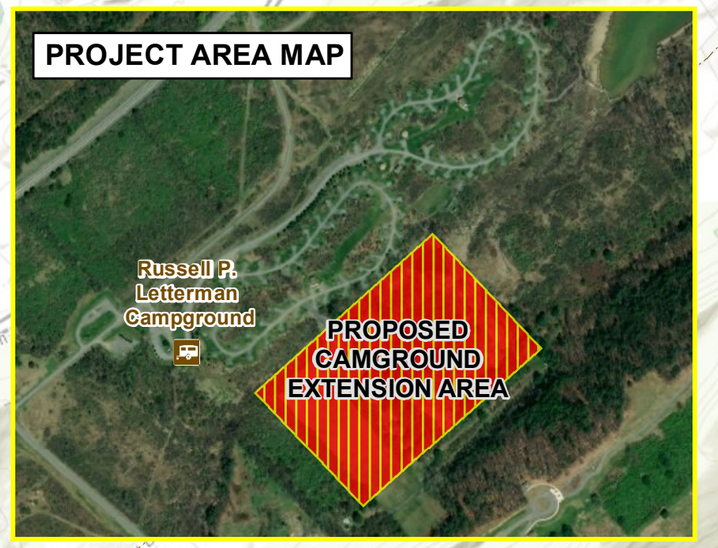
Legend

- Proposed Project Area

Bald Eagle State Park

- High Density Recreation Area
- Low Density Recreation Area
- Foster Joseph Sayers Dam and Reservoir Project Acquisition Limits
- Other Recreational Areas
- Trails





Prepared by: U.S. Army Corps of Engineers Baltimore District
Date: 11 June 2019
Source: USACE, PADCNR, ESRI Aerial, ESRI/USGS Topographic

pennsylvania DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

US Army Corps of Engineers Baltimore District

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Miles

From: DENNIS BITNER
To: Keller, Seth D CIV USARMY CENAB (US)
Subject: [Non-DoD Source] Campground Project
Date: Tuesday, July 16, 2019 8:57:16 AM

Sir

As Bald Eagle State Park continues to expand the use of access areas also has increased. Please address other areas of the Park that DCNR has not maintained over the years. To mention a couple approximately 15 years ago myself and a friend contacted Representative Mike Hanna concerning the Bald Eagle Launch and LOWER Greens Run boat launches, roads and parking lots. Mr. Hanna contacted the Bald Eagle State Park office and received a response that there were plans to upgrade at a cost of $400,000.00 and funds were not available. To date no improvements have been made. Since that time additions have been made to the Campground a new Motel and Park Office have been constructed. When conducting the EA study please visit these areas. You will notice pot holes in roads, parking lots and boat dock access areas in need of repair due to damage from storm water and flooding. As a lifetime local resident and user of the park I have seen boat trailers in ditches people fall around boat ramps and boats being damaged while owners are attempting to launch.

These type of projects are not part of the Campground expansion, however are effected by the increased use of Bald Eagle State Park.

Thanks in advance for your consideration.

Denny Bitner

From: Larry Markel
To: Keller, Seth D CIV USARMY CENAB (US)
Subject: [Non-DoD Source] Bald Eagle State Park
Date: Friday, July 19, 2019 1:26:22 PM

If you are going to add to the camp ground. What would be nice is a Canal from Hunter's Run to the Marina. Some of the new camp sits could have a place to put their boats. They would not have to take them out of the water each nite. Or the canal can just go to the new camp grounds.

From: Barbara C. Berenty
To: Keller, Seth D CIV USARMY CENAB (US)
Subject: [Non-DoD Source] Bald Eagle State Park, Centre County, PA
Date: Wednesday, July 24, 2019 9:08:42 AM

Mr. Keller,

I am in receipt of a Public Notice regarding additional park facilities at Bald Eagle State Park in Centre County, PA. Congratulations on the "expansion"! You certainly have a beautiful park, and many families enjoy that area all year long!

I would like request 911 Addressing be included in the process of the new facilities, in particular, road naming and address assignments. The current park has been given 911 service addresses as a matter of health and safety. Location identification is important, and also a time saver in critical situations. Proper identification aids emergency responders when looking for the caller. In keeping with continuity, please keep me informed of the progress, and include me in any meetings involving the proposed facilities. I will be the point of contact. My contact info is below. Thank you!

Barbara

BARBARA BERENTY
CENTRE COUNTY 911 ADDRESS COORDINATOR

Mapping & Addressing, CAD Alerts, ALI & CodeRED DBM

Centre County 911 Emergency Communications & Addressing

_____

CENTRE COUNTY GOVERNMENT | 420 Holmes Street | Willowbank Building | Bellefonte, PA 16823
tel (814) 355-8109 | fax (814) 355-6776

APPENDIX B: AGENCY COORDINATION

Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

26 April 2018

Tim Tritch
Larson Design Group
1000 Commerce Park Drive, Second Floor, Suite 201
Williamsport, PA 17701

Re: ER 2018-1090-027-C
Phase I Archaeological Survey, White Pine Cottage Loop Extension, Bald Eagle State Park, Howard and Liberty townships, Centre County, Pennsylvania

Dear Mr. Tritch:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

This report meets our standards and specifications as outlined in *Guidelines for Archaeological Investigations in Pennsylvania* (BHP 2017) and the Secretary of the Interior's Guidelines for Archaeological Documentation. We agree with the recommendations of this report and in our opinion no further archaeological work is necessary for this project.

If you need further information regarding archaeological resources, please contact Steven McDougal at smcdougal@pa.gov or (717) 772-0923.

Sincerely,

Douglas C. McLearen, Chief
Division of Environmental Review

DCM/srm

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

July 10, 2019

Mr. Robert Anderson
U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 322
State College, Pennsylvania 16801

Dear Mr. Anderson:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is preparing an Environmental Assessment (EA) for the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Bald Eagle State Park is located on land owned by USACE as part of the Foster Joseph Sayers Dam and Reservoir Project. This land is under a long-term lease agreement with Pennsylvania Department of Conservation and Natural Resources (DCNR), which manages the state park and its associated facilities. Pennsylvania DCNR manages Bald Eagle State Park for recreation as part of the Pennsylvania State Parks system, including camping, boating, fishing, swimming, hiking, and wildlife viewing. Pennsylvania DCNR has previously constructed facilities for overnight visitors including 97 modern campground sites, 2 yurts, 3 camping cottages, shower facilities, an amphitheater, dumping stations, and a primitive camping area. Full service accommodation is also available at The Nature Inn at Bald Eagle, a 16-room inn and interpretive facility in the State Park. Pennsylvania DCNR is proposing construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities (see enclosure 1 for a project area map). The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR.

USACE-Baltimore is preparing an EA for the development of recreational facilities in accordance the National Environmental Policy Act of 1969, as amended. USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public to acquire information that may affect and assist us with the preparation of this EA. The draft EA is expected to be publicly released in the winter of 2019.

At this time, USACE is requesting to initiate consultation to meet Fish and Wildlife Coordination Act (FWCA) requirements. Please confirm if a planning aid letter will suffice to meet the coordination needs for this project. Additionally, USACE is requesting information from your office regarding the presence of any federally-protected species listed by Section 7 of the Endangered Species Act that may be affected by the proposed project. An Information for Planning and Consultation (IPaC) draft resource list has been completed and is provided as enclosure 2. Also, for your information, the information generated through the Pennsylvania Natural Diversity Inventory environmental review mapper for the study area is provided

(enclosure 3). Please provide any information or concerns that your agency may have that will assist us with preparation of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the initiation and preparation of the draft EA is also being posted to the following website: http://www.nab.usace.army.mil/Home/Public-Notices/Ops-Public-Notices/.

If you have any questions, please contact Seth Keller by phone at (410) 962-4940 or by e-mail at Seth.D.Keller@usace.army.mil. Additionally, questions may be mailed to U.S. Army Corps of Engineers, Planning Division, Subject: Bald Eagle State Park EA, 2 Hopkins Plaza, Baltimore, MD 21201.

Sincerely,

Enclosures

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

CC:

U.S. Fish and Wildlife Service
Ms. Sheila Eyler
Mid-Atlantic Fish and Wildlife Conservation Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Enclosure 1

Bald Eagle State Park
Centre County, Pennsylvania

Legend

- Proposed Project Area

Bald Eagle State Park

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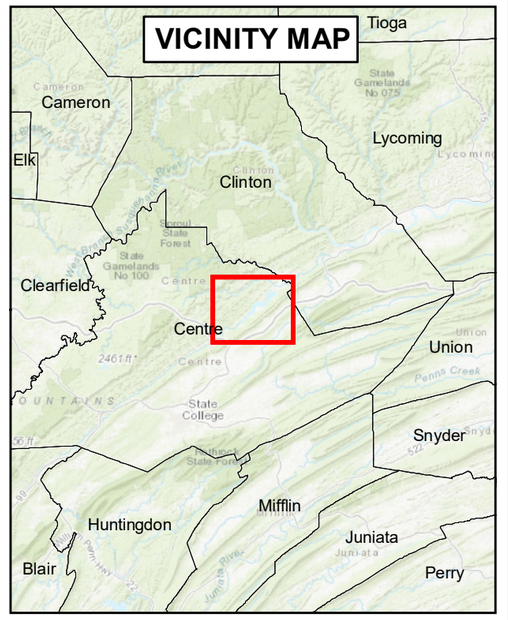

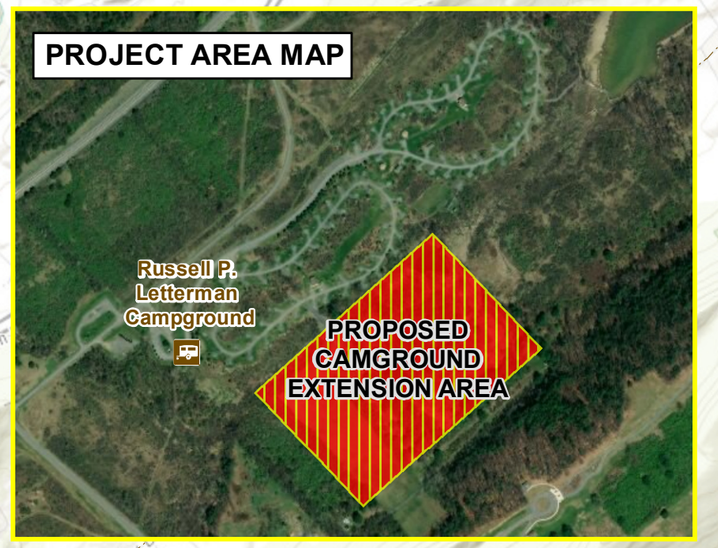

Prepared by: U.S. Army Corps of Engineers Baltimore District
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Source: USACE, PADCNR, ESRI Aerial, ESRI/USGS Topographic

pennsylvania DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

US Army Corps of Engineers Baltimore District

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Enclosure 2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748
http://www.fws.gov/northeast/pafo/

In Reply Refer To:
Consultation Code: 05E2PA00-2019-SLI-1033
Event Code: 05E2PA00-2019-E-05077
Project Name: Bald Eagle State Park Campground

June 12, 2019

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:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

Any activity proposed on National Wildlife Refuge lands must undergo a "Compatibility Determination' conducted by the Refuge. Please contact the individual Refuge to discuss any questions or concerns.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. 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
- USFWS National Wildlife Refuges and Fish Hatcheries

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:

Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
(814) 234-4090

Project Summary

Consultation Code: 05E2PA00-2019-SLI-1033

Event Code: 05E2PA00-2019-E-05077

Project Name: Bald Eagle State Park Campground

Project Type: RECREATION CONSTRUCTION / MAINTENANCE

Project Description: The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is preparing an Environmental Assessment (EA) for the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Bald Eagle State Park is located on land owned by USACE as part of the Foster Joseph Sayers Dam and Reservoir Project and under a long-term lease agreement with Pennsylvania Department of Conservation and Natural Resources (DCNR), which manages the state park and its associated facilities. Pennsylvania DCNR manages Bald Eagle State Park for recreation as part of the Pennsylvania State Parks system, including camping, boating, fishing, swimming, hiking, and wildlife viewing. Pennsylvania DCNR has previously constructed facilities for overnight visitors including 97 modern campground sites, 2 yurts, 3 camping cottages, shower facilities, an amphitheater, dumping stations, and a primitive camping area. Full service accommodation is also available at The Nature Inn at Bald Eagle, a 16-room inn and interpretive facility in the State Park. Pennsylvania DCNR is proposing construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities. The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.03495905014479N77.64260196508474W

Counties: Centre, PA

Endangered Species Act Species

There is a total of 4 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.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Northeastern Bulrush *Scirpus ancistrochaetus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6715	Endangered
Small Whorled Pogonia *Isotria medeoloides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

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

1. PROJECT INFORMATION

Project Name: **Bald Eagle State Park White Oak Campsite Loop**
Date of Review: **2/21/2018 11:17:17 AM**
Project Category: **Development, Other**
Project Area: **36.87 acres**
County(s): **Centre**
Township/Municipality(s): **HOWARD; LIBERTY**
ZIP Code: **16841**
Quadrangle Name(s): **HOWARD**
Watersheds HUC 8: **Bald Eagle**
Watersheds HUC 12: **Lick Run-Bald Eagle Creek**
Decimal Degrees: **41.034527, -77.641591**
Degrees Minutes Seconds: **41° 2' 4.2980" N, 77° 38' 29.7269" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Bald Eagle State Park White Oak Campsite Loop

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user

Bald Eagle State Park White Oak Campsite Loop

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

RESPONSE TO QUESTION(S) ASKED

Q1: The proposed project is in the range of the Indiana bat. Describe how the project will affect bat habitat (forests, woodlots and trees) and indicate what measures will be taken in consideration of this. Round acreages up to the nearest acre (e.g., 0.2 acres = 1 acre).
Your answer is: The project will affect 1 to 39 acres of forests, woodlots and trees.

Q2: Is tree removal, tree cutting or forest clearing of 40 acres or more necessary to implement all aspects of this project?
Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PGC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Podilymbus podiceps	Pied-billed Grebe	Special Concern Species*

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).
***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Timothy Tritch
Company/Business Name: Larson Design Group, Inc.
Address: 1000 Commerce Park Drive, Suite 201
City, State, Zip: Williamsport, Pennsylvania, 17701
Phone:(570) 323-6603 Fax:(570) 323-9902
Email: ttritch@larsondesigngroup.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Tim Tritch
applicant/project proponent signature

2/21/2018
date

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
Wildlife Habitat Management
(717) 787-6818

April 5, 2018

Mr. Timothy Tritch
Larson Design Group, Inc.
1000 Commerce Park Drive, Suite 201
Williamsport, Pennsylvania 17701
ttritch@larsondesigngroup.com

PNDI Receipt File: *project_receipt_bald_eagle_state_park_whi_650400_FINAL_1.pdf*
Re: Bald Eagle State Park White Oak Campsite Loop
Howard and Liberty Townships, Centre County, Pennsylvania

Dear Mr. Tritch,

Thank you for submitting Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt *project_receipt_bald_eagle_state_park_whi_650400_FINAL_1.pdf* for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

No Impact Anticipated

PNDI records indicate species or resources of concern are located within the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, the PGC has determined that no impact is likely. Therefore, no further coordination with the PGC will be necessary for this project at this time.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural

Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,

Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner

Pennsylvania Natural Heritage Program

OAB/oab

cc: File

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

July 10, 2019

Ms. Barbara Rudnick, NEPA Reviewer
U.S. Environmental Protection Agency,
Mid-Atlantic Region 3
1650 Arch Street, 3EA30
Philadelphia, Pennsylvania 19103

Dear Ms. Rudnick:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is preparing an Environmental Assessment (EA) for the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Bald Eagle State Park is located on land owned by USACE as part of the Foster Joseph Sayers Dam and Reservoir Project. The land is under a long-term lease agreement with Pennsylvania Department of Conservation and Natural Resources (DCNR), which manages the state park and its associated facilities. Pennsylvania DCNR manages Bald Eagle State Park for recreation as part of the Pennsylvania State Parks system, and includes camping, boating, fishing, swimming, hiking, and wildlife viewing. Pennsylvania DCNR has previously constructed facilities for overnight visitors including 97 modern campground sites, 2 yurts, 3 camping cottages, shower facilities, an amphitheater, dumping stations, and a primitive camping area. Full service accommodation is also available at The Nature Inn at Bald Eagle, a 16-room inn and interpretive facility in the State Park. Pennsylvania DCNR is proposing construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities (see enclosure 1 for a project area map). The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR.

USACE-Baltimore is preparing an EA for the development of recreational facilities in accordance the National Environmental Policy Act of 1969, as amended. USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public to acquire information that may affect and assist us with the preparation of this EA. The draft EA is expected to be publicly released in the winter of 2019.

Please provide any information or concerns that your agency may have that will assist us with preparation of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the initiation and preparation of the draft EA is also being posted to the following website: http://www.nab.usace.army.mil/Home/Public-Notices/Ops-Public-Notices/.

If you have any questions, please contact Seth Keller by phone at (410) 962-4940 or by e-mail at Seth.D.Keller@usace.army.mil. Additionally, questions may be mailed to U.S. Army Corps of Engineers, Planning Division, Subject: Bald Eagle State Park EA, 2 Hopkins Plaza, Baltimore, MD 21201.

Sincerely,

Enclosure

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

Enclosure 1

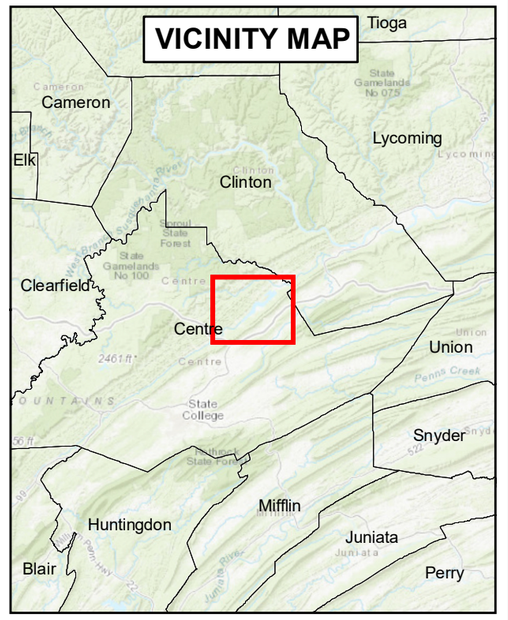
Bald Eagle State Park
Centre County, Pennsylvania

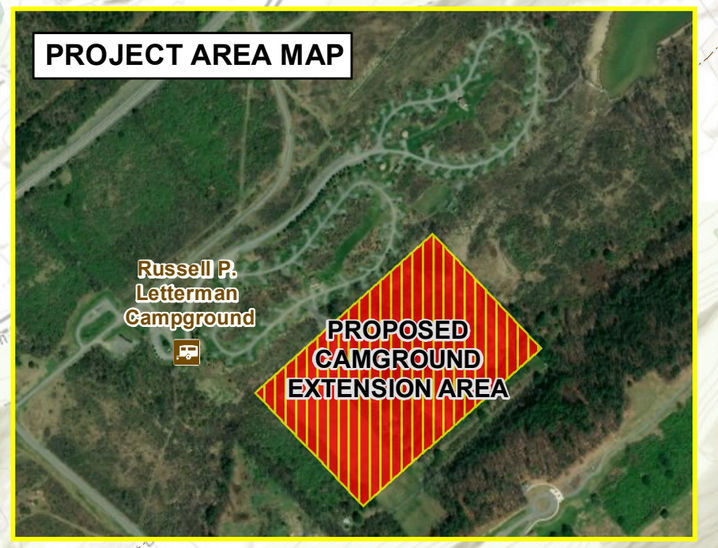
Legend

- Proposed Project Area

Bald Eagle State Park

- High Density Recreation Area
- Low Density Recreation Area
- Foster Joseph Sayers Dam and Reservoir Project Acquisition Limits
- Other Recreational Areas
- Trails





Prepared by: U.S. Army Corps of Engineers Baltimore District
Date: 11 June 2019
Source: USACE, PADCNR, ESRI Aerial, ESRI/USGS Topographic

pennsylvania DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

US Army Corps of Engineers Baltimore District

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Miles

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

July 10, 2019

Mr. Patrick McDonnell, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Dear Mr. McDonnell:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is preparing an Environmental Assessment (EA) for the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Bald Eagle State Park is located on land owned by USACE as part of the Foster Joseph Sayers Dam and Reservoir Project and under a long-term lease agreement with Pennsylvania Department of Conservation and Natural Resources (DCNR), which manages the state park and its associated facilities. Pennsylvania DCNR manages Bald Eagle State Park for recreation as part of the Pennsylvania State Parks system, and includes camping, boating, fishing, swimming, hiking, and wildlife viewing. Pennsylvania DCNR has previously constructed facilities for overnight visitors including 97 modern campground sites, 2 yurts, 3 camping cottages, shower facilities, an amphitheater, dumping stations, and a primitive camping area. Full service accommodation is also available at The Nature Inn at Bald Eagle, a 16-room inn and interpretive facility in the State Park. Pennsylvania DCNR is proposing construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities (see enclosure 1 for a project area map). The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR.

USACE-Baltimore is preparing an EA for the development of recreational facilities in accordance the National Environmental Policy Act of 1969, as amended. USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public to acquire information that may affect and assist us with the preparation of this EA. The draft EA is expected to be publicly released in the winter of 2019.

Please provide any information or concerns that your agency may have that will assist us with preparation of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the initiation and preparation of the draft EA is also being posted to the following website: http://www.nab.usace.army.mil/Home/Public-Notices/Ops-Public-Notices/.

If you have any questions, please contact Seth Keller by phone at (410) 962-4940 or by e-mail at Seth.D.Keller@usace.army.mil. Additionally, questions may be mailed to U.S. Army Corps of Engineers, Planning Division, Subject: Bald Eagle State Park EA, 2 Hopkins Plaza, Baltimore, MD 21201.

Sincerely,

Enclosure

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

CC:

Mr. Marcus Kohl, Regional Director
Pennsylvania Department of Environmental Protection
Northcentral (Williamsport) Regional Office
208 West Third Street, Suite 101
Williamsport, Pennsylvania 17701-6448

Enclosure 1

Bald Eagle State Park
Centre County, Pennsylvania

Legend

- Proposed Project Area

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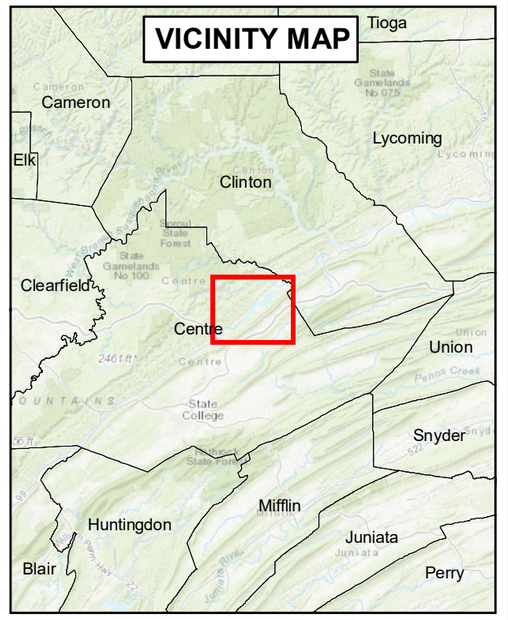

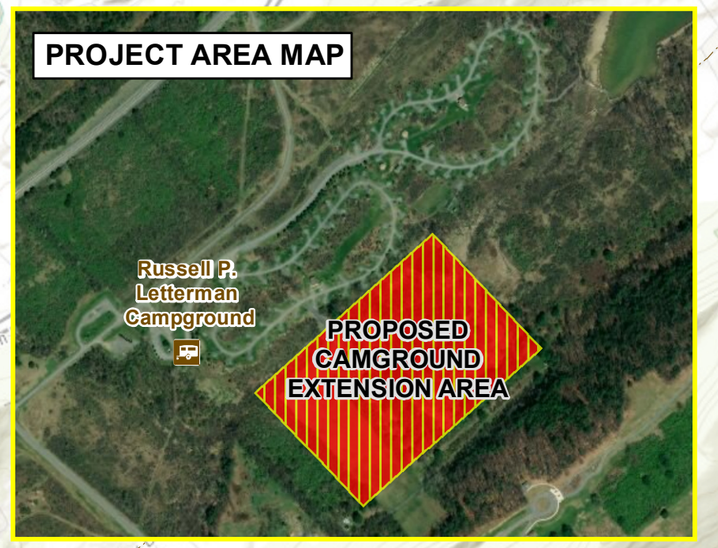

Prepared by: U.S. Army Corps of Engineers Baltimore District
Date: 11 June 2019
Source: USACE, PADCNR, ESRI Aerial, ESRI/USGS Topographic

pennsylvania DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

US Army Corps of Engineers Baltimore District

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Miles

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

July 10, 2019

Pennsylvania Game Commission
Northcentral Region Office
Attn: David Mitchell, Director
1566 South Route 44 Highway
Jersey Shore, PA 17740-5038

Dear Mr. Mitchell:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is preparing an Environmental Assessment (EA) for the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Bald Eagle State Park is located on land owned by USACE as part of the Foster Joseph Sayers Dam and Reservoir Project. This land is under a long-term lease agreement with Pennsylvania Department of Conservation and Natural Resources (DCNR), which manages the state park and its associated facilities. Pennsylvania DCNR manages Bald Eagle State Park for recreation as part of the Pennsylvania State Parks system, including camping, boating, fishing, swimming, hiking, and wildlife viewing. Pennsylvania DCNR has previously constructed facilities for overnight visitors including 97 modern campground sites, 2 yurts, 3 camping cottages, shower facilities, an amphitheater, dumping stations, and a primitive camping area. Full service accommodation is also available at The Nature Inn at Bald Eagle, a 16-room inn and interpretive facility in the State Park. Pennsylvania DCNR is proposing construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities (see enclosure 1 for a project area map). The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR.

USACE-Baltimore is preparing an EA for the development of recreational facilities in accordance the National Environmental Policy Act of 1969, as amended. USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public to acquire information that may affect and assist us with the preparation of this EA. The draft EA is expected to be publicly released in the winter of 2019.

At this time, USACE is requesting information on the presence of species of special concern in the Commonwealth of Pennsylvania within the project vicinity. The information generated through the Pennsylvania Natural Diversity Inventory environmental review mapper for the study area is enclosed (Enclosure 2). Please provide any information or concerns that your agency may have that will assist us with preparation of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the initiation and preparation of the draft EA is also being posted to the following website: http://www.nab.usace.army.mil/Home/Public-Notices/Ops-Public-Notices/.

If you have any questions, please contact Seth Keller by phone at (410) 962-4940 or by e-mail at Seth.D.Keller@usace.army.mil. Additionally, questions may be mailed to U.S. Army Corps of Engineers, Planning Division, Subject: Bald Eagle State Park EA, 2 Hopkins Plaza, Baltimore, MD 21201.

Sincerely,

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

Enclosures

CC:

Pennsylvania Game Commission
Bureau of Wildlife Habitat Management
Attn: Mr. Pete Sussenbach
2001 Elmerton Avenue
Harrisburg, PA 17110

Enclosure 1

Bald Eagle State Park
Centre County, Pennsylvania

Legend

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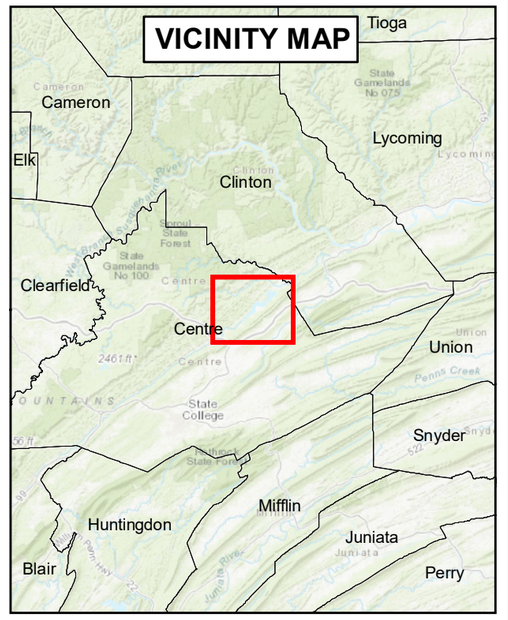

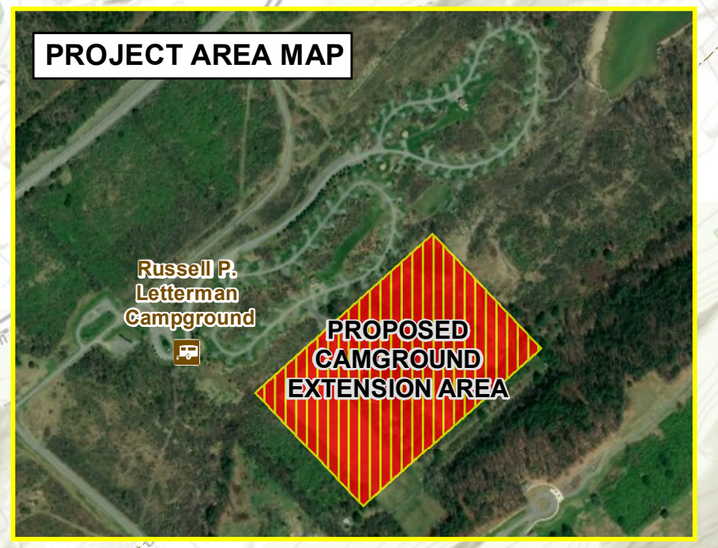

Prepared by: U.S. Army Corps of Engineers Baltimore District
Date: 11 June 2019
Source: USACE, PADCNR, ESRI Aerial, ESRI/USGS Topographic

pennsylvania DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

US Army Corps of Engineers Baltimore District

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Miles

1. PROJECT INFORMATION

Project Name: **Bald Eagle State Park White Oak Campsite Loop**
Date of Review: **2/21/2018 11:17:17 AM**
Project Category: **Development, Other**
Project Area: **36.87 acres**
County(s): **Centre**
Township/Municipality(s): **HOWARD; LIBERTY**
ZIP Code: **16841**
Quadrangle Name(s): **HOWARD**
Watersheds HUC 8: **Bald Eagle**
Watersheds HUC 12: **Lick Run-Bald Eagle Creek**
Decimal Degrees: **41.034527, -77.641591**
Degrees Minutes Seconds: **41° 2' 4.2980" N, 77° 38' 29.7269" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Bald Eagle State Park White Oak Campsite Loop

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user

Bald Eagle State Park White Oak Campsite Loop

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Buffered Project Boundary

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RESPONSE TO QUESTION(S) ASKED

Q1: The proposed project is in the range of the Indiana bat. Describe how the project will affect bat habitat (forests, woodlots and trees) and indicate what measures will be taken in consideration of this. Round acreages up to the nearest acre (e.g., 0.2 acres = 1 acre).
Your answer is: The project will affect 1 to 39 acres of forests, woodlots and trees.

Q2: Is tree removal, tree cutting or forest clearing of 40 acres or more necessary to implement all aspects of this project?
Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PGC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Podilymbus podiceps	Pied-billed Grebe	Special Concern Species*

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).
***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
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7. PROJECT CONTACT INFORMATION

Name: Timothy Tritch
Company/Business Name: Larson Design Group, Inc.
Address: 1000 Commerce Park Drive, Suite 201
City, State, Zip: Williamsport, Pennsylvania, 17701
Phone:(570) 323-6603 Fax:(570) 323-9902
Email: ttritch@larsondesigngroup.com

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Tim Tritch
applicant/project proponent signature

2/21/2018
date

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
Wildlife Habitat Management
(717) 787-6818

April 5, 2018

Mr. Timothy Tritch
Larson Design Group, Inc.
1000 Commerce Park Drive, Suite 201
Williamsport, Pennsylvania 17701
ttritch@larsondesigngroup.com

PNDI Receipt File: *project_receipt_bald_eagle_state_park_whi_650400_FINAL_1.pdf*
Re: Bald Eagle State Park White Oak Campsite Loop
Howard and Liberty Townships, Centre County, Pennsylvania

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Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,

Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner

Pennsylvania Natural Heritage Program

OAB/oab

cc: File

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

July 10, 2019

Mr. Greg Podniesinski
Pennsylvania Natural Heritage Program
400 Market Street
Harrisburg, Pennsylvania 17105

Dear Mr. Podniesinski:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is preparing an Environmental Assessment (EA) for the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania. Bald Eagle State Park is located on land owned by USACE as part of the Foster Joseph Sayers Dam and Reservoir Project. The land is under a long-term lease agreement with Pennsylvania Department of Conservation and Natural Resources (DCNR), which manages the state park and its associated facilities. Pennsylvania DCNR manages Bald Eagle State Park for recreation as part of the Pennsylvania State Parks system, including camping, boating, fishing, swimming, hiking, and wildlife viewing. Pennsylvania DCNR has previously constructed facilities for overnight visitors including 97 modern campground sites, 2 yurts, 3 camping cottages, shower facilities, an amphitheater, dumping stations, and a primitive camping area. Full service accommodation is also available at The Nature Inn at Bald Eagle, a 16-room inn and interpretive facility in the State Park. Pennsylvania DCNR is proposing construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities (see enclosure 1 for a project area map). The EA will evaluate alternatives for the development of proposed campground facilities that are likely to meet the recreational needs identified by Pennsylvania DCNR.

USACE-Baltimore is preparing an EA for the development of recreational facilities in accordance the National Environmental Policy Act of 1969, as amended. USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public to acquire information that may affect and assist us with the preparation of this EA. The draft EA is expected to be publicly released in the winter of 2019.

At this time, USACE is requesting information on the presence of species of special concern in the Commonwealth of Pennsylvania within the project vicinity. The information generated through the Pennsylvania Natural Diversity Inventory environmental review mapper for the study area is enclosed (enclosure 2). Please provide any information or concerns that your agency may have that will assist us with preparation of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the initiation and preparation of the draft EA is also being posted to the following website: http://www.nab.usace.army.mil/Home/Public-Notices/Ops-Public-Notices/.

If you have any questions, please contact Seth Keller by phone at (410) 962-4940 or by e-mail at Seth.D.Keller@usace.army.mil. Additionally, questions may be mailed to U.S. Army Corps of Engineers, Planning Division, Subject: Bald Eagle State Park EA, 2 Hopkins Plaza, Baltimore, MD 21201.

Sincerely,

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

Enclosures

CC:

Pennsylvania Department of Conservation and Natural Resources
Division of Resources Management and Planning, Chief
Attn: Matthew Azeles
400 Market Street
Harrisburg, PA 17105

Pennsylvania Department of Conservation and Natural Resources
Bureau of State Parks, Regional Manager, Region 1
Attn: Alan Lichtenwalner
260 Sezerville Road
Emporium, PA 15834-9799

Pennsylvania Fish and Boat Commission
Northcentral Region Office
Bureau of Wildlife Habitat Management
Attn: Mr. Ben Page
595 East Rolling Ridge Drive
Bellefonte, PA 16823

Pennsylvania Fish and Boat Commission
Northcentral Region Office
Division of Environmental Services
Attn: Heather Smiles
595 East Rolling Ridge Drive
Bellefonte, PA 16823

Enclosure 1

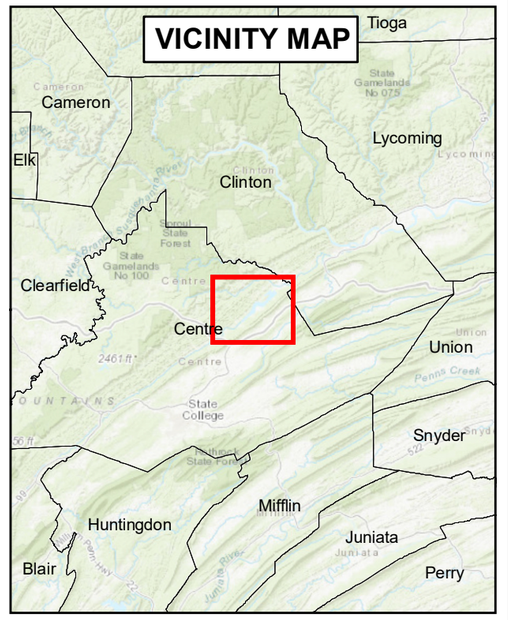
Bald Eagle State Park
Centre County, Pennsylvania

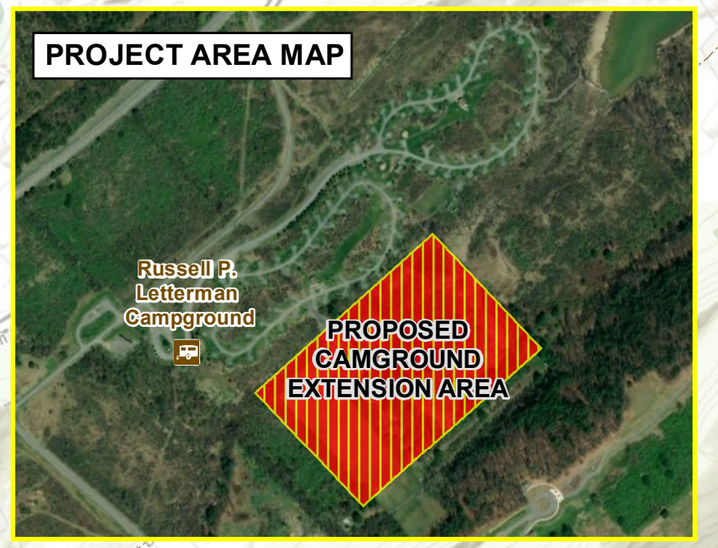
Legend

- Proposed Project Area

Bald Eagle State Park

- High Density Recreation Area
- Low Density Recreation Area
- Foster Joseph Sayers Dam and Reservoir Project Acquisition Limits
- Other Recreational Areas
- Trails





Prepared by: U.S. Army Corps of Engineers Baltimore District
Date: 11 June 2019
Source: USACE, PADCNR, ESRI Aerial, ESRI/USGS Topographic

pennsylvania DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

US Army Corps of Engineers Baltimore District

0 1 2 3 4
Miles

1. PROJECT INFORMATION

Project Name: **Bald Eagle State Park White Oak Campsite Loop**
Date of Review: **2/21/2018 11:17:17 AM**
Project Category: **Development, Other**
Project Area: **36.87 acres**
County(s): **Centre**
Township/Municipality(s): **HOWARD; LIBERTY**
ZIP Code: **16841**
Quadrangle Name(s): **HOWARD**
Watersheds HUC 8: **Bald Eagle**
Watersheds HUC 12: **Lick Run-Bald Eagle Creek**
Decimal Degrees: **41.034527, -77.641591**
Degrees Minutes Seconds: **41° 2' 4.2980" N, 77° 38' 29.7269" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Bald Eagle State Park White Oak Campsite Loop

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user

Bald Eagle State Park White Oak Campsite Loop

Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

RESPONSE TO QUESTION(S) ASKED

Q1: The proposed project is in the range of the Indiana bat. Describe how the project will affect bat habitat (forests, woodlots and trees) and indicate what measures will be taken in consideration of this. Round acreages up to the nearest acre (e.g., 0.2 acres = 1 acre).
Your answer is: The project will affect 1 to 39 acres of forests, woodlots and trees.

Q2: Is tree removal, tree cutting or forest clearing of 40 acres or more necessary to implement all aspects of this project?
Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PGC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Podilymbus podiceps	Pied-billed Grebe	Special Concern Species*

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).
***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Timothy Tritch
Company/Business Name: Larson Design Group, Inc.
Address: 1000 Commerce Park Drive, Suite 201
City, State, Zip: Williamsport, Pennsylvania, 17701
Phone:(570) 323-6603 Fax:(570) 323-9902
Email: ttritch@larsondesigngroup.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Tim Tritch
applicant/project proponent signature

2/21/2018
date

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
Wildlife Habitat Management
(717) 787-6818

April 5, 2018

Mr. Timothy Tritch
Larson Design Group, Inc.
1000 Commerce Park Drive, Suite 201
Williamsport, Pennsylvania 17701
ttritch@larsondesigngroup.com

PNDI Receipt File: *project_receipt_bald_eagle_state_park_whi_650400_FINAL_1.pdf*
Re: Bald Eagle State Park White Oak Campsite Loop
Howard and Liberty Townships, Centre County, Pennsylvania

Dear Mr. Tritch,

Thank you for submitting Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt *project_receipt_bald_eagle_state_park_whi_650400_FINAL_1.pdf* for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

No Impact Anticipated

PNDI records indicate species or resources of concern are located within the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, the PGC has determined that no impact is likely. Therefore, no further coordination with the PGC will be necessary for this project at this time.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural

Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,

Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner

OAB/oab

cc: File

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

July 30, 2019

Daniel M. Bierly
ATTN: Seth Keller
U.S. Army Corps of Engineers
Baltimore Corps District
2 Hopkins Plaza
Baltimore, MD 21201

RE: USFWS Project #2019-1033
PNDI Receipt #650400

Dear Messrs. Bierly & Keller:

Thank you for your letter of July 10, 2019, which provided the U.S. Fish and Wildlife Service (Service) with information regarding the proposed Bald Eagle State Park, Russell P. Letterman Campground, White Oak Loop expansion project located in Liberty Township, Centre County, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

The PA Department of Conservation and Natural Resources (DCNR – the land managers), in conjunction with the U.S. Army Corps of Engineers (the Corps – the property owners), propose to construct an extension loop in the Russell P. Letterman modern campground at the Bald Eagle State Park. The project includes modern campsites and other appurtenant facilities.

The Corps recently investigated the project for potential project impacts on federally listed species, by means of the Information Planning and Consultation (IPaC) system and the Pennsylvania Natural Diversity Inventory (PNDI). The resultant IPaC search generated an endangered species list, identifying Bald Eagle State Park within the range of four federally listed species, the Indiana bat (*Myotis sodalis*), the northern long-eared bat (*Myotis septentrionalis*), the northeastern bulrush (*Scirpus ancistrochaetus*), and the small whorled pogonia (*Isotria medeoloides*). The project was also found to be in the range of the bald eagle (*Haliaeetus leucocephalus*), a species protected under the Bald and Golden Eagle Protection Act. Although none of the endangered species are known to occur at the State Park, potential habitat for all of these species may occur within the State Park. Eagles are known to occur near the project area. Development and implementation of the proposed expansion project should be evaluated by the Corps with respect to these species based on the information provided below.

Indiana Bat

Indiana bats hibernate in caves and mines during the winter months (November through March), and use a variety of upland, wetland and riparian habitats during the spring, summer and fall. Indiana bats usually roost in dead or living trees with exfoliating bark, or living or dead trees with crevices or cavities. Female Indiana bats form nursery colonies under the exfoliating bark of dead or living trees, such as shagbark hickory, in upland or riparian areas. However, a variety of tree species such as black birch, red and white oak, and sugar maple are also used. Land-clearing, especially of forested areas, may adversely affect Indiana bats by killing, injuring or harassing roosting bats, and by removing or reducing the quality of foraging and roosting habitat. Submission of more detailed project information to this office, particularly regarding the extent of forest habitat removal, would be necessary before we can determine whether the Indiana bat may be affected, and whether surveys are necessary.

In addition, if any natural caves or abandoned mines occur within a project area, it is possible that Indiana bats or other bat species may be using them during hibernation or potentially as summer roost sites. If potential Indiana bat hibernacula (i.e., caves or abandoned mines) occur within a project area, they should be surveyed by a qualified biologist. Prior to conducting any survey, however, the Pennsylvania Game Commission should be contacted to determine whether or not they have surveyed the cave/mine in the past. If adequate surveys have been conducted in the recent past, this may preclude the need to conduct additional surveys. Survey results should be submitted to the Service for review and concurrence.

Northern Long-eared Bat

The proposed project is not located within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree; therefore, any incidental take that may occur is not prohibited in accordance with the conservation rule (i.e., 4(d) rule) specific for this species. If the project has no federal nexus, no further coordination with us is necessary regarding this species. If the project is authorized, funded, or permitted by a federal agency, consultation under section 7 of the Act is required. The Service completed a nationwide biological opinion that fulfills this requirement, provided the conditions of the 4(d) rule are implemented. More information about the programmatic consultation and the streamlined procedures to meet this requirement are detailed at the link below: http://www.fws.gov/midwest/endangered/mammals/nleb/.

Northeastern Bulrush

Potential habitat for this species could be affected if project implementation will directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

The Fish and Wildlife Service recommends that a qualified botanist with field experience in the identification of this species conduct a thorough survey of all potentially suitable wetland habitat within any proposed project areas to determine the presence of the northeastern bulrush before

any permits are approved or earth-moving activities begin. Surveys for this species should be conducted between June 1 and September 30, when the flowering/fruiting culm is present. A survey report should be submitted to the Service for review and comment. A list of botanists skilled in the location and identification of the northeastern bulrush is available on our website at the following link: https://www.fws.gov/northeast/pafo/pdf/Bulrush_qualified_10302018.pdf.

Small-Whorled Pogonia

The small-whorled pogonia typically occurs in upland sites in mixed-deciduous or mixed-deciduous/coniferous forests that are in second or third-growth stages. Characteristics common to most sites include sparse to moderate ground cover in the species' microhabitat, a relatively open understory canopy, and proximity to features (logging roads, streams, other features) that create long-persisting breaks in the forest canopy; too much shading could be a limiting factor. Soils at most sites are acidic and nutrient-poor, with moderately high soil moisture values. Various types of decaying vegetation are almost always found in the microhabitat of this species. Slope, aspect, and the position of the plants on the slope vary greatly throughout the range of the species. Individual plants rarely emerge consistently year after year; dormancy periods of up to four years have been documented.

We recommend that a qualified botanist with field experience in the identification of this species conduct a thorough survey of all potentially suitable habitat within proposed project areas before any permits are approved or earth-moving activities begin. Surveys for this species should be conducted between May 15 and July 31. Because this species is often confused with the common whorled pogonia (*Isotria verticillata*) and Indian cucumberoot (*Medeola virginiana*), the timing of the survey and use of a qualified surveyor are important. A list of qualified surveyors is available on our website at the following link: https://www.fws.gov/northeast/pafo/pdf/SWP_qualified_10302018.pdf. Survey reports should be submitted to the Service for review and comment.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) are known to nest in the vicinity of the project area, with two nests being located within a 0.5 mile of the project site. Consequently, we recommend that you evaluate the project type, size, location and layout in light of the *National Bald Eagle Management Guidelines* to determine whether or not bald eagles might be disturbed as a direct or indirect result of this project. If it appears that disturbance may occur, we recommend that you consider modifying your project consistent with the *Guidelines*. These guidelines, as well as additional eagle information, are available at http://www.fws.gov/northeast/EcologicalServices/eagle.html. To assist you in making a decision regarding impacts to bald eagles, a screening form can be found at: https://www.fws.gov/northeast/pafo/bald_eagle_map.html.

If you have additional questions regarding eagle permits, please contact Thomas Wittig, Northeast Regional Bald and Golden Eagle Coordinator at 413-253-8577 or Thomas_Wittig@fws.gov.

Should any of the above species be found during any surveys, further coordination with the Service will be necessary, including the submission of detailed project plans, and an analysis of alternatives to avoid and minimize adverse effects.

This response relates only to endangered or threatened species under our jurisdiction based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding these comments, please contact Jennifer Kagel of my staff at 814-234-4090, Ext. 7451.

Sincerely,

For Sonja Jahrsdoerfer
Project Leader

cc:
PGC – Braun

From:	Gillespie, Joy
To:	Keller, Seth D CIV USARMY CENAB (US)
Cc:	Okorn, Barbara; Rudnick, Barbara
Subject:	[Non-DoD Source] Bald Eagle State Park Project
Date:	Wednesday, August 7, 2019 9:26:21 AM

Dear Mr. Keller:

The U.S. Environmental Protection Agency (EPA) has reviewed the Public Notice and letter dated July 10, 2019 regarding the development of additional recreational facilities at the Russell P. Letterman Modern Campground in Bald Eagle State Park in Liberty Township, Centre County, PA. The U.S. Army Corps of Engineers (USACE) is preparing an Environmental Assessment (EA or Study) that will evaluate the impacts from the project, which proposes construction of an extension loop in the Russell P. Letterman Modern Campground, which may include modern campground sites and associated facilities. The EA is being done in compliance the National Environmental Policy Act (NEPA) of 1969, Section 309 and CEQ regulations implementing NEPA.

As the purpose of an EA is to provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact, the EA should include a discussion of the need for the proposal, the alternatives considered, the environmental impacts of the proposed action and alternatives, mitigation as appropriate and a listing of the agencies and persons consulted.

Due to the limited information provided in the Public Notice and letter, we are unable to provide a detailed set of comments at this time; however, please find some recommendations for your consideration in the development of the EA:

* The EA should examine the potential direct and indirect impacts of the project on the environment. Any expansion of the developed area will likely impact water resources, including wetlands, streams, and resources associated with the adjacent Bald Eagle Creek (and Foster Joseph Sayers Lake). Potential impacts to aquatic resources present on and around the proposed project area should be evaluated in the Study. Impacts to wetlands should be avoided and minimized whenever possible. In addition, mitigation measures for any adverse environmental impacts should be described.
* An assessment of the proposed campground extension area using NEPAssist1 revealed the footprint is in a flood hazard zone with freshwater emergent wetlands within or near the project area.
* We suggest the document evaluate potential aquatic resources impacts, including estimated acreage of indirect and direct impacts, a discussion of hydrology, including sources and direction of flow; the vegetative communities, soil types; and an assessment of expected functions based on the hydrogeomorphic type, ecological community, and surrounding land use. Wetlands present on or immediately surrounding the site should be delineated according to the 1987 Manual and the Atlantic and Gulf Coastal Plain Regional Supplement. Including data such as delineation or assessment information in the EA is helpful, and photos are recommended to characterize the resources. Functional assessments are useful for documenting baseline conditions and establishing a point of reference for mitigation actions. We recommend that a wetland functional assessment applicable both the resource type(s) and region be used to assess impacted wetlands.
* Some information on resources may be gained from public websites including:

    * NEPAssist1: Blockedhttps://www.epa.gov/nepa/nepassist <Blockedhttps://www.epa.gov/nepa/nepassist>
    * EnviroMapper2: Blockedhttps://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system <Blockedhttps://www.epa.gov/waterdata/waters-watershed-assessment-tracking-

environmental-results-system>

* Envirofacts3: Blockedhttps://www3.epa.gov/enviro/ <Blockedhttps://www3.epa.gov/enviro/>
* 303(d) Listed Impaired Waters: Blockedhttps://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters <Blockedhttps://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters>
* Watershed Resource Registry4: Blockedhttps://watershedresourcesregistry.org/states/virginia.html

* We recommend that the EA provide a description of the terrestrial habitat resources in the study area, including an assessment of mammals, birds, amphibians, reptiles, and plant communities and any rare or high value resource types present in the study area that may be impacted. The project's potential contribution to the spread of invasive species should also be evaluated and mitigation measures addressed.
* We suggest the NEPA document discuss any "time-of-year" considerations that would be observed to minimize impacts on wildlife and fisheries.
* We recommend coordination with the applicable agencies be documented in the EA, including correspondence regarding state and federal threatened and endangered species.
* The EA should outline measures to protect surface waters; including a discussion of runoff, sediment and erosion control measures during construction and long-term stormwater management. Stormwater runoff is one of the leading sources of water pollution in the United States and high percentages of impervious surfaces are linked with aquatic resource degradation and impairment. Where possible, redevelopment opportunities should be explored to reduce impervious area expansion and to limit disturbance of vegetation that may filter runoff. Impacts to aquatic resources from stormwater management facilities should be avoided.
* To reduce runoff volume and improve water quality, EPA recommends the incorporation of Low Impact Development (LID) design features where possible, for building design, parking, paving, landscaping, and stormwater management. Technical guidance in implementing green infrastructure (GI) practices and LID can be found at the following sites:

https://19january2017snapshot.epa.gov/sites/production/files/2015-0
<ttps://19january2017snapshot.epa.gov/sites/production/files/2015-0> 9/documents/eisa-438.pdf

Blockedwww.epa.gov/greeninfrastructure

Blockedwww.epa.gov/nps/lid

Blockedwww.epa.gov/smartgrowth Blockedhttp://www.bmpdatabase.org

* EPA recommends consideration of any impacts to recreational activities that may be affected by the proposed activities associated with the project study area. Visual effects and noise associated with the proposed project may also have adverse effects on the use of these resources and on recreational users in the area. Noise is anticipated from various construction activities. We suggest installing signage near the proposed project area, within public view, that explains the project, including the purpose, need and goals of the project for the public to consider.
* We suggest the NEPA document contain an analysis of any hazardous materials that maybe on site, particularly associated with the use of heavy construction equipment. An effort should be made to minimize the release of petroleum product or other associated contaminates from such equipment. An analysis should also consider pollution prevention.
* We suggest the NEPA document state the size of the area of disturbance, including staging areas and access routes with an emphasis on minimizing the area impacted.
* We recommend the document include consideration of extreme weather events in particular in association with resiliency design.

Thank you for coordinating with EPA on this project. We look forward to working with you as more information becomes available. Please let me know if you have any questions on the recommended topics above.

1 The Watershed Assessment, Tracking & Environmental Results System (WATERS) unites water quality information previously available only from several independent and unconnected databases

2 Includes enforcement and compliance information

3 NEPAssist is a tool that facilitates the environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA Geographic Information System databases and web services and provides immediate screening of environmental assessment indicators for a user-defined area of interest. These features contribute to a streamlined review process that potentially raises important environmental issues at the earlier stages of project development.

4: Watershed Resource Registry is an interactive online mapping tool that prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management control across an entire state. The tool is helpful for a wide variety of purposes but is especially useful for developers, natural resource planners, transportation planners, and others who are required to avoid impacting natural areas or to provide mitigation for any unavoidable impact.

Sincerely,

Joy Gillespie

_____

Joy M. Gillespie, Life Scientist
office: 215.814.2793

Office of Communities, Tribes & Environmental Assessment
U.S. EPA Region III

1650 Arch Street (3RA10)
Philadelphia, PA 19103
Blockedwww.epa.gov/NPDES <Blockedhttp://www.epa.gov/wetlands>

From: Wittig, Thomas
To: Sowers, Angela M CIV USARMY CENAB (US)
Cc: Kagel, Jennifer
Subject: [Non-DoD Source] Re: [EXTERNAL] Proposed Campground Expansion at Bald Eagle State Park
Date: Wednesday, December 11, 2019 12:43:59 PM

Hello Angie,

Thank you for your patience.

Based on the details provided, the proposed campground construction will be well outside the Service's standard recommended nest buffer distance of 660 feet for development activities. Consequently, I concur with USACE'S determination that the proposed project is unlikely to disturb nesting bald eagles.

I recommend the project reexamine the location of bald eagle nests each breeding season until construction begins. Bald eagles will occasionally establish new nests within existing territories. Additionally, as Pennsylvania's bald eagle population continues to grow, new territories appear each year. In the event a new nest is discovered within 660 feet of the proposed project site, please contact the Service for further guidance.

Please let me know if you have any questions or concerns

Best,
Tom

On Fri, Nov 22, 2019 at 12:41 PM Sowers, Angela M CIV USARMY CENAB (US) <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> > wrote:

Hi Tom (view as HTML),

I spoke with Jennifer Kagel this morning. DCNR has proposed adding a campground loop to their campground facilities at Bald Eagle State Park. I have attached our coordination letter that we sent to FWS earlier this year and the response we received. I wanted to touch base about bald eagles and our determination that there would be no effect on bald eagles from this proposed project.

The park has provided information on the closest nest site. It is 1 mile to the northeast, on the peninsula west of the dam between Hunter's Run Cove and the lake. I also consulted the nest mapper. It doesn't appear that that nest is identified, but it does show 2 nests on the far shoreline of the lake.

Below are two additional images (from what is shown in the coordination letter) that show the area selected for the campground loop and the proposed campground layout. Alternative 5 is the proposed site in the first figure. There would be tree loss from project implementation, but DCNR has evaluated the size of the trees in an effort to maintain larger trees to enhance the shade in the campground.

Please let me know if you need any additional information and if you agree that this project would not impact bald eagles.

Thanks,
Angie

Angie Sowers, Ph.D.

U.S. Army Corps of Engineers

Baltimore District- Planning Division

Civil Project Development Branch

Integrated Water Resources Management Specialist

2 Hopkins Plaza

10-E-04

Baltimore, MD 21201

angela.sowers@usace.army.mil <mailto:angela.sowers@usace.army.mil>

(410) 962-7440

--

Tom Wittig

Eagle Coordinator, Div. of Migratory Birds
USFWS, North Atlantic-Appalachian Region
300 Westgate Center Drive
Hadley, MA 01035
(413)253-8577 phone

(413)253-8424 fax

-----Original Message-----
From: Thees, Dianne B [mailto:Dianne_Thees@fws.gov]
Sent: Friday, May 8, 2020 6:20 PM
To: Bierly, Daniel M CIV USARMY CENAB (USA) <Daniel.M.Bierly@usace.army.mil>; Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>; olbraun@pa.gov
Subject: [Non-DoD Source] USFWS Project #2019-1033 Bald Eagle State Park Russell P Letterman Campground White Oak Loop

Attached is a scanned, signed copy of our response to the above-mentioned project. No hard copy of this correspondence will be sent by this agency.

We review projects in the order in which we receive them. Endangered Species Act regulations provide for a 60-day response period, though we strive to respond within 30 days if workload allows. Due to staff shortages & a large project review workload, current project review times are sometimes 60 days or more. We cannot provide a date when a response will be sent prior to the 60-day review period. Every project review is important, therefore, we do not prioritize certain projects ahead of others.

The U.S. Fish and Wildlife (USFWS) Pennsylvania Field Office remains open; however, all staff are teleworking until further notice in an effort to slow the spread of COVID-19 and provide social distancing. As a consequence, we have very limited office access. To help ensure that your questions and project review responses are processed and reviewed as quickly as circumstances allow, we have made the following adjustments.

Project Review Submission and consultation

Effective immediately and until further notice, the following email address should be used to submit electronic project review request submissions and associated documentation (e.g., maps, diagrams, photos) for any project that did not receive clearance through PNDI: IR1_ESPenn@fws.gov <mailto:IR1_ESPenn@fws.gov>

The USFWS Pennsylvania Field Office replies to all correspondence via electronic mail method. Please insure your electronic mail address is included in your correspondence to us and located in a prominent location for ease of reference.

Dianne Thees
Secretary, PA Field Office

FEB 13 2020

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

Chief William Fisher
Seneca-Cayuga Nation
P.O. Box 453220
Grove, OK 74344

Dear Chief Fisher:

The purpose of this letter is to initiate consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding a proposed campground extension project at Bald Eagle State Park in Centre County, Pennsylvania (Enclosure 1). The purpose of the project is to construct an extension loop in the existing Russell P. Letterman Modern Campground, to include modern campground sites and associated features. The U.S. Army Corps of Engineers, Baltimore District (USACE) is preparing an Environmental Assessment for the development of the proposed campground loop.

The project's area of potential effects (APE) is defined as the area where the new campground loop would be constructed. A preliminary examination of the APE was completed using the Pennsylvania Historical and Museum Commission's (PHMC) Cultural Resources Geographic Information System (CRGIS). The CRGIS indicated that no prehistoric or historic resources have been identified within the project area. The CRGIS also indicated that the project area is located in an area exhibiting a low potential for containing archaeological resources. Additionally, an archaeological survey of the area was conducted by Rue Environmental LLC in 2017. No historic properties were recorded as part of that survey, and, in a letter dated April 26, 2018, the PHMC expressed their concurrence with the survey results (Enclosure 2). Given the above information, we have determined that no historic properties will be affected by the proposed campground extension.

Please let us know if you are interested in consulting on this project on a Government-to-Government basis, and the extent to which you wish to participate. We will provide a USACE representative at any consultation meetings, and we will fully consider any information you wish to provide.

Thank you for your assistance with this project. We respectfully request your response within 30 days of the receipt of this letter. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch
Planning Division

Enclosures

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

FEB 13 2020

Susan Bachor
Tribal Historic Preservation Representative
Delaware Tribe of Indians
P.O. Box 64
Pocono Lake, PA 18347

Dear Ms. Bachor:

The purpose of this letter is to initiate consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding a proposed campground extension project at Bald Eagle State Park in Centre County, Pennsylvania (Enclosure 1). The purpose of the project is to construct an extension loop in the existing Russell P. Letterman Modern Campground, to include modern campground sites and associated features. The U.S. Army Corps of Engineers, Baltimore District (USACE) is preparing an Environmental Assessment for the development of the proposed campground loop.

The project's area of potential effects (APE) is defined as the area where the new campground loop would be constructed. A preliminary examination of the APE was completed using the Pennsylvania Historical and Museum Commission's (PHMC) Cultural Resources Geographic Information System (CRGIS). The CRGIS indicated that no prehistoric or historic resources have been identified within the project area. The CRGIS also indicated that the project area is located in an area exhibiting a low potential for containing archaeological resources. Additionally, an archaeological survey of the area was conducted by Rue Environmental LLC in 2017. No historic properties were recorded as part of that survey, and, in a letter dated April 26, 2018, the PHMC expressed their concurrence with the survey results (Enclosure 2). Given the above information, we have determined that no historic properties will be affected by the proposed campground extension.

Please let us know if you are interested in consulting on this project on a Government-to-Government basis, and the extent to which you wish to participate. We will provide a USACE representative at any consultation meetings, and we will fully consider any information you wish to provide.

Thank you for your assistance with this project. We respectfully request your response within 30 days of the receipt of this letter. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch
Planning Division

Enclosures

FEB 13 2020

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

Deborah Dotson, President
Delaware Nation
P.O. Box 825
Anadarko, Oklahoma 73005

Dear Ms. Dotson:

The purpose of this letter is to initiate consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding a proposed campground extension project at Bald Eagle State Park in Centre County, Pennsylvania (Enclosure 1). The purpose of the project is to construct an extension loop in the existing Russell P. Letterman Modern Campground, to include modern campground sites and associated features. The U.S. Army Corps of Engineers, Baltimore District (USACE) is preparing an Environmental Assessment for the development of the proposed campground loop.

The project's area of potential effects (APE) is defined as the area where the new campground loop would be constructed. A preliminary examination of the APE was completed using the Pennsylvania Historical and Museum Commission's (PHMC) Cultural Resources Geographic Information System (CRGIS). The CRGIS indicated that no prehistoric or historic resources have been identified within the project area. The CRGIS also indicated that the project area is located in an area exhibiting a low potential for containing archaeological resources. Additionally, an archaeological survey of the area was conducted by Rue Environmental LLC in 2017. No historic properties were recorded as part of that survey, and, in a letter dated April 26, 2018, the PHMC expressed their concurrence with the survey results (Enclosure 2). Given the above information, we have determined that no historic properties will be affected by the proposed campground extension.

Please let us know if you are interested in consulting on this project on a Government-to-Government basis, and the extent to which you wish to participate. We will provide a USACE representative at any consultation meetings, and we will fully consider any information you wish to provide.

Thank you for your assistance with this project. We respectfully request your response within 30 days of the receipt of this letter. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch
Planning Division

Enclosures

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850
814-234-4090

May 8, 2020

Daniel M. Bierly
ATTN: Angela Sowers
U.S. Army Corps of Engineers
Baltimore Corps District
2 Hopkins Plaza
Baltimore, MD 21201

RE: USFWS Project #2019-1033
PNDI Receipt #650400

Dear Mr. Bierly & Ms. Sowers:

Thank you for your phone call of January 27, 2020, and your emails of December 11, 2019, January 27 and March 25, 2020, which provided the U.S. Fish and Wildlife Service (Service) with additional information regarding the proposed Bald Eagle State Park, Russell P. Letterman Campground, White Oak Loop expansion project located in Liberty Township, Centre County, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

The PA Department of Conservation and Natural Resources (DCNR – the land manager), in conjunction with the U.S. Army Corps of Engineers (Corps – the property owners), propose to construct an extension loop in the Russell P. Letterman modern campground at the Bald Eagle State Park. The project includes modern campsites and other appurtenant facilities.

The Information Planning and Consultation (IPaC) system and the Pennsylvania Natural Diversity Inventory (PNDI) identified Bald Eagle State Park within the range of four federally listed species, the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), northeastern bulrush (*Scirpus ancistrochaetus*), and small whorled pogonia (*Isotria medeoloides*). The project was also found to be in the range of the bald eagle (*Haliaeetus leucocephalus*), a species protected under the Bald and Golden Eagle Protection Act. We previously commented on this project by letter dated July 30, 2019. Based on our recent phone conversations and the additional information that you sent, we offer the following additional comments.

Indiana Bat and Northern Long-eared Bat

Land-clearing associated with the project may result in the death or injury of roosting Indiana bats if tree-cutting is conducted during the time of year when bats may be present (*i.e.*, April 1 to September 30). To avoid killing or injuring Indiana bats, the DCNR/Corps commits to implement a seasonal tree cutting restriction, and will cut trees from the project area from October 1 to March 31, during which time bats are hibernating or concentrated near their hibernacula (Corps 2020, and email of December 11, 2019). This seasonal restriction on tree cutting should apply to trees that are greater than or equal to 5 inches in diameter at breast height (DBH). Where possible, project proponents should retain shagbark hickory trees, dead and dying trees, and large diameter trees (greater than 12 inches DBH) to serve as roost trees for bats; and forested riparian corridors and forested wetlands.

Based on a review of the project information, including the size of the project area and the anticipated effects on forest habitat, the Service has determined that the proposed project will not have a significant adverse effect on overall habitat quality or availability for the Indiana bat. Therefore, when the proposed seasonal restriction on tree cutting is implemented, we concur with your determination that this project is not likely to adversely affect the Indiana bat. However, if you are unable to implement the proposed seasonal restriction on tree cutting, please contact this office for further coordination.

Additionally, the proposed project is not located within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree; therefore, any incidental take that may occur is not prohibited in accordance with the conservation rule (*i.e.*, 4(d) rule) specific for this species. Because the project is authorized, funded, or carried out by a Federal agency, consultation under section 7 of the Act is required. The Service completed a nationwide biological opinion that fulfills this requirement, provided the conditions of the 4(d) rule are implemented. More information about the programmatic consultation and the streamlined procedures to meet this requirement are detailed at the following link: http://www.fws.gov/midwest/endangered/mammals/nleb/.

Based on the information provided (Corps 2020) and anecdotal information from the park managers (DCNR) there are no documented natural caves or abandoned mines within, or near, the project area.

Northeastern Bulrush

Potential habitat for this species could be affected if project implementation may directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

The Larson Design Group (LDG) conducted a wetland delineation study on May 7, 2017 (Corps 2020). One wetland was identified during the survey. It was found to be hydrologically connected to the fringe habitat of Lake Howard. This wetland contained open water, forested, scrub-shrub, and emergent habitats, but no vernal pools.

Project proponents have designed the proposed campground loop to completely avoid wetland areas. Furthermore, they have retained the natural drainage paths to preserve the integrity and health of the existing wetlands, including the configuration, design, and siting of new stormwater management facilities; and a buffer of about 150 feet. Construction of the project would include appropriate best management practices (BMPs) to protect the existing wetland (Corps 2020).

Based on the information provided in the Environmental Assessment (Corp 2020) and emails of December 11, 2019 and January 27, 2020, including no work in the wetlands; a minimum of 150-foot buffer from the wetland, and the implementation of appropriate BMPs to protect the wetland, we concur with your determination that this project is not likely to adversely affect the northeastern bulrush.

Small-Whorled Pogonia

In February 2020, the DCNR retained the LDG to evaluate the project area for the presence of potential habitat that would support the small-whorled pogonia. Based on the report received (LDG 2020), the study identified four distinct habitat types, including 1) mixed mature habitat; 2) mixed succession/coniferous habitat; 3) mixed scrub shrub; and 4) meadow/open water. No prime habitat for the small-whorled pogonia was observed within any of these habitats due to, respectively, 1) moderate disturbances (trail systems) and non-acidic soils, 2) dense vegetative understory and lack of mature hardwood trees; 3) herbaceous vegetation and thick shrub understory; and 4) a dense herbaceous vegetation layer, lack of forested vegetation, and the presence of open water and wetlands (LDG 2020). Additionally, LDG identified three species of invasive vegetation, including multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*) and reed canary grass (*Phalaris arundinacea*). These species are all potential competitors of the small-whorled pogonia. LDG concluded that, due to the lack of habitat identified, and the existing habitat disturbances, it would be unlikely that the small-whorled pogonia would be found in this project area.

Based on the findings of no optimal small-whorled pogonia habitat within the project area, lack of characteristics common to pogonia habitat (including open field areas and dense scrub shrub understory), human and animal disturbances within the project area, the large amount of invasive plant species, and the unsuitable soil chemistry within the project area, we concur with LDG's conclusions that the pogonia is not likely to be found within the project boundaries. We conclude that this project is not likely to adversely affect the small-whorled pogonia.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) are known to nest in the vicinity of the project area, with two nests being located within 0.5 mile of the project site. Consequently, the DCNR/Corps have coordinated with Thomas Wittig, the Service's Regional Bald and Golden Eagle Coordinator. Mr. Wittig concluded that the project would not affect the bald eagle, as the project is outside of the recommended 660-foot buffer distance. However, as bald eagles tend to frequently relocate their nests, Mr. Wittig recommended that project proponents reexamine the area for any new nests each breeding season until project construction begins. If a new nest is discovered within

660 feet of the project, the project proponents should coordinate with the Service for further guidance (Corps 2020, and email of December 11, 2019)

This response relates only to endangered or threatened species and the bald eagle under our jurisdiction based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding these comments, please contact Jennifer Kagel of my staff at 814-206-7451.

Sincerely,

For Sonja Jahrsdoerfer
Project Leader

cc:
PGC – Braun

References

Larson Design Group (LDG). 2020. Habitat Survey Report: DCNR Bald Eagle State Park – White Oak Campsite Loop, Small Whorled Pogonia Habitat Survey, Liberty Township, Centre County, PA.

U.S. Army Corps of Engineers (Corps). 2020. Bald Eagle State Park Campground, Russell P Letterman White Oak Loop Environmental Assessment.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850
814-234-4090

August 5, 2020

Daniel M. Bierly
ATTN: Angela Sowers
U.S. Army Corps of Engineers
Baltimore Corps District
2 Hopkins Plaza
Baltimore, MD 21201

RE: USFWS Project #2019-1033
PNDI Receipt #650400

Dear Mr. Bierly & Ms. Sowers:

Thank you for your follow-up email of July 20, 2020, which provided the U.S. Fish and Wildlife Service (Service) with additional information regarding the proposed Bald Eagle State Park, Russell P. Letterman Campground, White Oak Loop expansion project, located in Liberty Township, Centre County, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

The Pennsylvania Department of Conservation and Natural Resources (DCNR – the land manager), in conjunction with the U.S. Army Corps of Engineers (Corps – the property owners), propose to construct an extension loop in the Russell P. Letterman campground at the Bald Eagle State Park. The project includes modern campsites and other appurtenant facilities. We previously commented on this project by letters dated July 30, 2019, and May 8, 2020.

The Information for Planning and Consultation (IPaC) system, the Pennsylvania Natural Diversity Inventory (PNDI), and our previous letters identified the northeastern bulrush (*Scirpus ancistrochaetus*) as one of the four federally regulated species within the project area. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

Based on the information in your July 20 email, no work in the wetland is anticipated and measures will be taken to protect the wetland. Further, the design of the detention pond is intended to preserve the integrity and health of the existing wetlands.

In response to your email of July 20, Service staff visited the site on July 21, 2020. Conditions were very dry, and it appeared that the main basin of the wetland would have had about 1.5 feet of additional water during normal precipitation years. The wetland was hydrologically connected to the fringe habitat of Lake Howard and contains open water, forest, scrub-shrub, and emergent habitats, but no vernal pools.

Due to the location in the landscape (low lands, not at elevation), the lack of vernal pools (hydrology appeared to be year-round but fluctuated), and the vegetative community (predominantly palustrine emergent, with no forested canopy), the wetland within the project boundaries does not have characteristics of suitable northeastern bulrush habitat. Therefore, we concur with your determination that this project is not likely to adversely affect the northeastern bulrush.

This response relates only to endangered or threatened species under our jurisdiction. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding these comments, please contact Jennifer Kagel of my staff at 814-206-7451.

Sincerely,

Sonja Jahrsdoerfer

Sonja Jahrsdoerfer
Project Leader

cc:
Corps – C. Leasure

From: Kagel, Jennifer
To: Sowers, Angela M CIV USARMY CENAB (USA)
Cc: Leasure, Charles W CIV USARMY CENAB (USA); Anderson, Robert M
Subject: [Non-DoD Source] Re: [EXTERNAL] FW: USFWS Project #2019-1033 Bald Eagle State Park Russell P Letterman Campground White Oak Loop
Date: Thursday, May 14, 2020 2:25:10 PM

Angie:

Based on the information that you sent via your email of January 3. 2020, this project has been designed to be protective of fish and wildlife habitat that we would be concerned with. It is my understanding that there will be no long-term, impacts to wetland habitats, as the proposed campground loop was designed to avoid all onsite wetlands, and there will be somewhat of a buffer between the wetland and the proposed campground loop. Additionally, the Corps proposes to use best management practices, including natural drainage paths, to preserve the integrity and health of the wetlands through the configuration and design of the site and stormwater management facilities.

Given that you have already addressed these issues, this office has no FWCA comments.

Warm regards,

Jennifer Kagel
Fishery Biologist
U.S. Fish & Wildlife Service

Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801

office phone: 814 234-4090
direct extension: 814/206-7451
fax: 814-234-0748 or 814/206-7452
Blockedhttp://www.fws.gov/northeast/pafo/

Note: I am working remotely to facilitate social distancing (temporarily teleworking). This may delay responses. You can continue to reach me through email listed above.

From: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Sent: Thursday, May 14, 2020 7:53 AM
To: Kagel, Jennifer <jennifer_kagel@fws.gov>
Cc: Leasure, Charles W CIV USARMY CENAB (USA) <Charles.W.Leasure@usace.army.mil>
Subject: [EXTERNAL] FW: USFWS Project #2019-1033 Bald Eagle State Park Russell P Letterman Campground White Oak Loop

Hi Jennifer,
We have received the response about ESA. Thank you very much. In the letter, it specifically states that the response does not cover FWCA. We only received ESA feedback from the initial coordination letter we sent in July 2019. Can you advise how you would like us complete the FWCA coordination? We have a target to complete the EA by the end of September. Can we provide the draft EA for the Service to respond with a FWCA letter? Or, do you have enough information that a draft letter can be provided in the near future? Can I give you a call today? Thanks,

From:	Sowers, Angela M CIV USARMY CENAB (USA)
To:	Kagel, Jennifer
Cc:	Rodgers, Jennifer; Leasure, Charles W CIV USARMY CENAB (USA); Winters, Michael (DCNR); Keller, Seth D CIV USARMY CENAB (USA)
Subject:	Bald Eagle State Park Campground Extension - Habitat assessment for small-whorled pogonia
Date:	Wednesday, March 25, 2020 10:48:00 AM
Attachments:	Small Whorled Pogonia Survey Report_FINAL Reduced.pdf

Hi Jennifer,

Please find the habitat assessment for the small-whorled pogonia developed by the Larson Design Group attached. Please respond that you have received this email and provide a timeframe in which we can expect a response. If this is not an acceptable determination to address concerns about the potential presence of the small-whorled pogonia at Bald Eagle SP, we need to get a surveyor lined up for the summer.

Thanks,
Angie

Angie Sowers, Ph.D.
U.S. Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Integrated Water Resources Management Specialist
2 Hopkins Plaza
10-E-04
Baltimore, MD 21201
angela.sowers@usace.army.mil
(410) 962-7440

Habitat Survey Report

DCNR - Bald Eagle State Park – White Oak Campsite Loop
Small Whorled Pogonia Habitat Survey
Liberty Township, Centre County, PA

Prepared by

LARSON DESIGN GROUP
1000 Commerce Park Drive, Suite 201
Williamsport, PA 17701

Prepared for

DCNR
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801

Project No. 6396-1008

March 2020

Larson Design Group

Habitat Survey Report for the Small Whorled Pogonia
DCNR – Bald Eagle State Park – White Oak Campsite Loop

Liberty Township ■ Centre County ■ Pennsylvania
LDG Project No. 6396-1008

1.0 INTRODUCTION

Larson Design Group (LDG) has been retained by DCNR to complete a habitat survey report for the Small Whorled Pogonia on the proposed White Oak Campsite Loop Project within Bald Eagle State Park in Liberty Township, Centre County, Pennsylvania.

LDG completed the habitat survey report of the proposed campground expansion area on February 19th, 2020. The survey was performed as requested by the United States Fish and Wildlife Service as part of their final review process. The species of interest is the Small Whorled Pogonia (*Isotria medeoloides*). This survey was conducted by Joshua E. Glace, P.W.S., of Larson Design Group. The proposed project area consists of upland and wetland habitat located behind existing camp sites within Bald Eagle State Park. The White Oak Campsite Loop will be located on Army Corp of Engineer (ACOE) land that is leased and overseen by PA DCNR. Special attention was directed to areas within and surrounding the project area with potential habitat associated with the Small Whorled Pogonia. These areas consisted of habitat with mature hardwood trees and an open understory.

2.0 METHODOLOGY

The proposed White Oak Campsite Loop area was surveyed on February 19th, 2020. Based on information from the Pennsylvania Natural Heritage Program and further research into the life cycle of the Small Whorled Pogonia, a systematic soil sampling technique was employed to identify changes in soil acidity within the project area, as well as a vegetative habitat scaling system.

Vegetation across varying habitat types was recorded by walking the entire project area in a zigzag pattern to ensure complete and total coverage. Vegetative habitat was subcategorized and ranked on a scale from optimal to poor habitat for the Small Whorled Pogonia. Please refer to Section 4.2 for a detailed description of the habitat classifications.

Soil pH and other physical characteristics of the site were documented. Special attention was directed to mature hardwood forested areas and slopes due to the high potential for the Small Whorled Pogonia's prioritized habitat. A GPS unit was utilized to record soil sampling locations and habitat types within the project area. Photos were taken throughout the proposed project location to document existing site conditions.

Data that was collected during the field survey, along with existing data from the Wetland Delineation and additional background information, was then analyzed to determine if any suitable habitat existed on site for this plant species.

Soil pH testing was completed manually in the field to provide a second set of comparable data to the NRCS Soil Survey Dataset for the entire project area. Field soil pH testing was completed using a SmartChoice 3 in 1 Soil Meter. All pH tests taken in the field provided a pH reading between the range of 7 and 8.

In addition, a soil sample was taken from the optimal Small Whorled Pogonia habitat and was analyzed in the office following the field survey. This soil sample was tested using a LaMotte Soil pH Test Kit #5024 – Dye/Indicator Test. Two tests were completed utilizing soil from the same soil sample. Both tests provided result readings of a pH of 6.

Joshua E. Glace, P.W.S, Senior Environmental Specialist, completed the Small Whorled Pogonia Habitat Survey Report. Joshua E. Glace is a Professional Wetland Scientist with 10 years of environmental experience related to wetland delineations, environmental site assessments, botanical and habitat assessments, and environmental permitting in Pennsylvania, New York, Ohio and West Virginia.

3.0 BACKGROUND INFORMATION

3.1 Site Description

The proposed project area consists of upland and wetland habitat located behind existing camp sites within Bald Eagle State Park in Centre County, Pennsylvania. This project includes expanding the existing camping area within the proposed project location.

The project area begins off of the Oak Loop in the existing campground and encompasses an approximate 13-acre area that will be used to create an additional campground loop, the White Oak Loop, within Bald Eagle State Park. This project area encompasses mixed deciduous forested habitat, scrub/shrub habitat, meadow habitat, wetland habitat, existing roadways and camping infrastructure, and existing access trails.

3.2 Soils Information

The NRCS Web Soil Survey identified four (4) major soils in the investigation area as shown in Table 2.

Table 2: Soils Within the Project Area

MUSYM	NAME	SLOPE	pH RATING
BkB	Berks channery silt loam	3 to 8 percent	5.6
BkC	Berks channery silt loam	8 to 15 percent	5.6
MaB	Markes silt loam	2 to 10 percent	5.7
W	Water	-	-
WhB	Wharton silt loam	3 to 8 percent	4.8

The majority of the soil units are listed as Moderately Acid (pH rating of 5.6-6.0) while Wharton silt loam (WhB) is considered Very Strongly Acid (pH rating of 4.5-5.0).

Please refer to Appendix A for a Soil Sample Location Map displaying the field soil data and Appendix C for additional soil information from the NRCS Soils Report. Soils information specific to wetlands identified within the project area are located within Section 4 of this report.

3.3 National Wetlands Inventory Status

The National Wetlands Inventory (NWI) was reviewed to determine whether any NWI wetlands were located within the area of investigation. The NWI Program under the U.S. Fish and Wildlife Service (FWS) is responsible for the mapping and inventory of major wetlands within the United States. The FWS Wetlands Mapper (http://www.fws.gov/Wetlands/Data/Mapper.html) was used to review NWI wetlands within the area of investigation. A map of the project area from the FWS Wetlands Mapper is located in Appendix A.

3.4 Background Information on Small Whorled Pogonia

A. *Isotria medeoloides* (Small Whorled Pogonia)

Background information on *Isotria medeoloides* (Small Whorled Pogonia) was obtained prior to completing this habitat survey report. Special attention was paid to habitat likely to contain *Isotria medeoloides*. This species prefers an open understory in mature hardwood forests, and sometimes grows in stands of softwood trees such as hemlock. The Small Whorled Pogonia prefers acidic soils with a thick layer of dead leaves, often resides on sloped areas near streams (FWS) and is partial to areas that are not disturbed. This plant is a small delicate orchid with an upright stem and can reach up to 10 inches high. The stem is topped with a whorl of 4 to 6 leaves (often 5). The leaves are grayish-green, somewhat oblong, and are between 1 and 3.5 inches long. The flower is similar to the Large Whorled Pogonia, although the sepals in the Small Whorled Pogonia are greenish, not spreading, and are less than an inch in length. This species is only found in the Eastern United States and is very sparsely dispersed (PNHP). The plant blooms from May to June with flowers only lasting a few days to a week (FWS).

Please refer to the attached Small Whorled Pogonia Fact Sheets located in Appendix D.

3.5 Existing Fungal Conditions

The Small Whorled Pogonia was found to have a symbiotic relationship with a mycorrhizal fungus that is a part of the *Russulaceae* family (Smithsonian). Due to this dependency, the existing site comprehensive mushroom list located in the Commonwealth of Pennsylvania Department of Conservation and Natural Resources Bureau of State Parks Bald Eagle State Park Resource Management Plan, located in Appendix D, was analyzed to determine the genera of the known

fungal species within the area. Please view Table 3 below for the Bald Eagle State Park Comprehensive Mushroom List as well as family classifications.

Table 3: Bald Eagle State Park Comprehensive Mushroom List

Common Name	Scientific Name	Family
Rodman's Mushroom	Agaricus rodmani	*Agaricaceae*
Puffball	*Agaricus sp.*	*Agaricaceae*
Fly agaric	*Amanita muscaria, Amanita sp.*	*Amanitaceae*
Chanterelles	*Chantharellus sp., Lycoperdon sp.*	*Fungiidae*, *Agaricaceae*
Ram's head	*Polyporus frondosus, Polyphore sp.*	*Polyporaceae*

Due to the lack of Russulaceae species within Bald Eagle State Parks known comprehensive mushroom list, it has been interpreted that the possible presence of the Small Whorled Pogonia is limited to none.

3.6 Background Site Information

Background information of the prospective site location for the White Oak Campsite Loop was obtained prior to completing the habitat survey for the Small Whorled Pogonia. This site is currently utilized as an individual cabin location with various trails, and existing access roads. The project area is located immediately adjacent to the existing campsites and is often disturbed by people utilizing the campsites and trail systems.

The project is located behind the existing Russell P. Letterman Campground that is open to the public from April to December. There are 97 camp sites at this location and is in the main park area.

Bald Eagle State Park opens 4,910 acres to the public for hunting during established seasons and is a highly utilized recreational area. The park is located in Wildlife Management Unit 2G, which is allotted 26,000 antlerless deer permits, which were all sold for the 2019-2020 hunting season. The park is also enrolled in the Deer Management Assistance Program, which allots additional antlerless tags that have an overpopulation of deer in hopes of reducing the herd size. A total of 1,001.13 acres of the park are enrolled in the 1324 DMAP area. 112 tags are allotted for the 1324 area for the 2019-2020 hunting season and all were sold.

For more information on Bald Eagle State Park, please view the Commonwealth of Pennsylvania Department of Conservation and Natural Resources Bureau of State Parks Bald Eagle State Park Resource Management Plan located in Appendix D and the attached Russell P. Letterman Campground map located in Appendix A.

4.0 RESULTS

4.1 Habitat Types Encountered

After completing an investigation to document all habitat types present within the proposed project area, the following list was formed to illustrate recorded habitats.

Mixed Mature Habitat (Optimal):
This habitat is dominated by large mature Black Cherry, Red Maple, and Oak. The understory is open, with a decreased shrub/immature tree component. The overall habitat structure of this community is relatively homogenous with a decreased vegetative diversity. Often this vegetative community overlaps with scrub/shrub habitat. Overall this area has moderate levels of disturbance from wildlife and human interaction from the adjacent cabin and existing trail systems. This area would be the most likely residence for the Small Whorled Pogonia due to the mature hardwoods and limited understory. The moderate disturbance of the area by humans, wildlife, and non-acidic soil conditions ultimately hinders the usefulness of the habitat for this species.

Mid-Succession/Coniferous Habitat (Suboptimal):
This habitat exhibits signs of past clearing with the majority of the forest stand comprised of mature White Pine. The understory is thick throughout the majority of this habitat, often dominated by woody shrubs and a herbaceous layer. This habitat is located near existing campsites and the existing trail systems. Within this habitat, there is a variance in levels of thickness and stages of the community. This area is unlikely to support the Small Whorled Pogonia due to the predominant density of the vegetative community and lack of mature hardwood trees.

Mixed Scrub-Shrub Habitat (Marginal):
This habitat is dominated by young forested and scrub-shrub vegetative habitat. This area contains similar species as the mixed mature habitat, but is only composed of a thick shrub/immature tree understory. This habitat is located within the wetland system, as well as along an existing trail system. This area would be unlikely to provide suitable habitat for the Small Whorled Pogonia due to the herbaceous vegetative layer and woody shrub understory.

Meadow/Open Water Habitat (Poor):
The meadow habitat is dominated by herbaceous habitat and is surrounded by mixed mature forest and scrub-shrub habitat. Only one portion of the project area contains meadow habitat and is accessible via trail systems. This area encompasses a large portion of the project area and includes a section of the wetland system located on site. An access trail leads to and throughout the meadow habitat system. Vegetation is rather limited in diversity, as it is dominated by many of the same plants throughout. This area does not provide suitable habitat for the Small Whorled Pogonia due to the dense herbaceous layer and lack of forested vegetation. Open water and wetland areas are also unlikely habitats for the Small Whorled Pogonia and do not provide necessary conditions to sustain this species.

4.2 Habitat Score Ratings

Habitat score ratings were determined by the quality and probability that those locations would be suitable habitat for the Small Whorled Pogonia. These ratings range from Optimal to Poor. Below is a description of each habitat score rating.

Optimal
Habitat that was given the score of Optimal is the most probable habitat that the Small Whorled Pogonia would utilize within the proposed project area. Optimal habitat within this project area consists of the mixed mature habitat. This area was given the optimal rating due to its open understory and hardwood mature trees. This area would be the most probable location for this species.

Suboptimal
Habitat that was given the score of Suboptimal within the project area was determined to have the possibility of providing the Small Whorled Pogonia refuge. These habitat locations are unlikely areas due to the incorrect tree species and thicker understory.

Marginal
Habitat that was given the score of Marginal was determined to have minimal ability to host the Small Whorled Pogonia due to the inadequate understory and canopy, soil acidity, and light filtration.

Poor
Habitat that is given the score or Poor was determined to have no ability to provide the Small Whorled Pogonia refuge due to the inadequate vegetative understory, lack of canopy, and hydrology.

4.3 Individual Wetland Habitat Descriptions (*Delineated 5/7/18)

Wetland 1 is a large multi-habitat wetland that consists of open water, forested, scrub/shrub and emergent habitat. The wetland is located on the north and western side of the project area. The wetland is bound by the existing campground loop and a hiking trail. There are culverts that keep the wetland hydraulically connect to the fringe wetlands of Lake Howard. Soils observed at this project location consisted of Munsell Soil colors of 10YR-4/1-2, 6/2, 7.5 YR 4/1 with soil textures of silt loam and redox features of 7.5 YR 5/8 and 5 YR 4/6. Wetland hydrology indicators present at the project location consisted of Saturation (A3), Water-Stained Leaves (B9), and Observed Drainage Patterns (B10).

Below is a list of vegetation located within this wetland system during the time of delineation (5/7/18).

Acer rubrum	*Scirpus cyperuis*
Elaegnus umbellata	*Lysimachia nummularia*
Lonicera tartarica	*Juncus effusus*
Rosa multiflora	*Ranunculus acris*
Berberis thunbergii	*Epilobium coloratum*
Onoclea sensibilis	*Phalaris arundinacea*
Solidago sp.	*Impatian capensis*

5.0 Narrative of the Small Whorled Pogonia Habitat

This detailed narrative has been prepared to explain the presence/absence of the Small Whorled Pogonia habitat within the proposed project location. A description of survey methods, areas of unsuitable habitat, plant competition, and potential habitat will be discussed. A complete description of survey methods utilized can be found in Section 2.0 of this report.

As the Small Whorled Pogonia (*Isotria medeoloides*) predominately resides in hardwood forests with an open understory, acidic soils, filtered light, leaf litter, and a symbiotic relationship with a mycorrhizal fungus, it is anticipated that disturbances associated with the proposed work will not impact the species. The installation of the existing campground disturbed the natural habitat within this area, limiting the diversity and lowering the likelihood of the species presence.

As the Small Whorled Pogonia (*Isotria medeoloides*), likes to grow in mature hardwood forests with an open understory, particular attention was paid to these habitat types within the project area. Of the habitat types identified within the investigative area, one area fits this designation. The optimal area identified is often disturbed due to the proximity of a cabin, existing camp sites, and existing roads/trails. The mature forested habitat is utilized by people and pets and is not likely to provide the Small Whorled Pogonia habitat.

Areas of unsuitable habitat that were identified include meadow, mid-successional/coniferous, wetland, and mixed scrub/shrub within the proposed project area. Invasive species identified within the proposed project area include *Rosa multiflora* (Multiflora Rose), *Berberis thunbergii* (Japanese Barberry), and *Phalaris arundinacea* (Reed Canary Grass). It is possible that the competition from these species has contributed to the absence of the species.

Due to the minimal habitat identified within the project area and the probable habitat being previously disturbed and accessed, minimization/avoidance measures are not necessary as the species is not likely to utilize the area.

6.0 JUSTIFICATIONS AND RECOMMENDATIONS

As prime habitat for the Small Whorled Pogonia was not observed within the project area of investigation, no impacts to the species are anticipated. Therefore, we recommend that the proposed Bald Eagle State Park Campground Expansion proceed as proposed.

If you should have any questions concerning the site investigation or need additional information, please feel free to contact me at LDG's Selinsgrove, PA office at 570-374-5700 ext. 4011 or via jglace@larsondesigngroup.com.

LARSON DESIGN GROUP

Joshua E. Glace

Joshua E. Glace, PWS, CPESC, SEO
Senior Environmental Specialist

REFERENCES

Commonweath of Pennsylvania Department of Conservation and Natural Resources Bureau of State Parks. (1991). *Bald Eagle State Park Resource Management Plan*.

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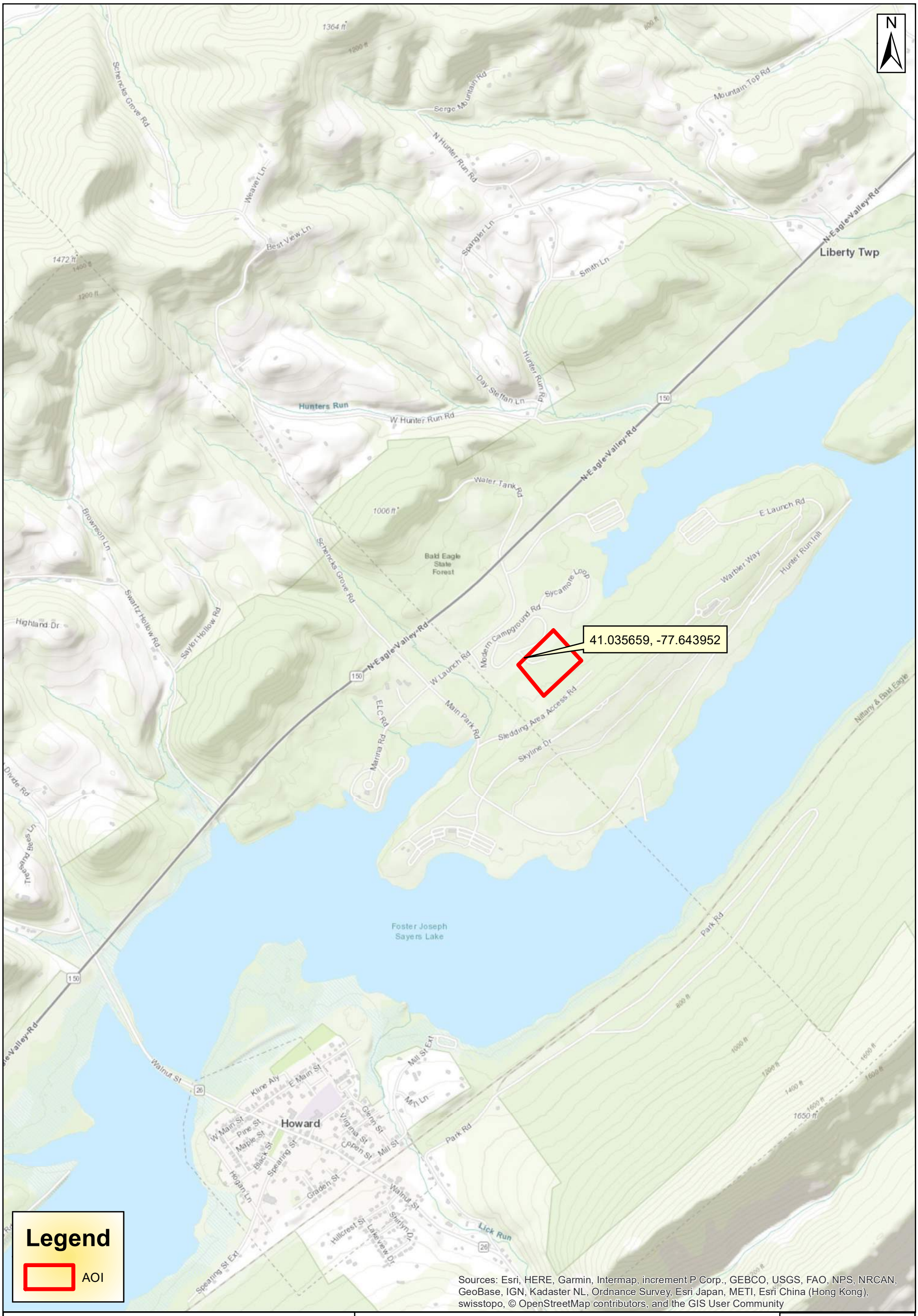
Appendix A: Figures and Mapping

- Project Location Map
- Photo Location Map
- Soil Test Map
- Habitat Assessment Map
- NWI Map



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Bald Eagle State Park
Project Location Map

Liberty Township, Centre County, PA

Date	2/24/2020
Designer	TEG
Project No.	6396-1008
Scale	1 inch = 2,000 feet

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PIC50

Legend

- Photo Locations
- NWI Wetlands
- Wetlands
- AOI

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Bald Eagle State Park
Photo Location Map

Liberty Township, Centre County, PA

Date	2/27/2020
Designer	TEG
Project No.	6396-1008
Scale	1 inch = 150 feet

Path: P:\6396\6396-1008\70-Site\700-PD & General Consulting\50-Wetlands\Small Whorled Pogonia\Mapping\Bald Eagle 2020.mxd

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Legend

- LaMotte Soil Test
- Soil pH Tests
- NWI Wetlands
- Wetlands
- AOI

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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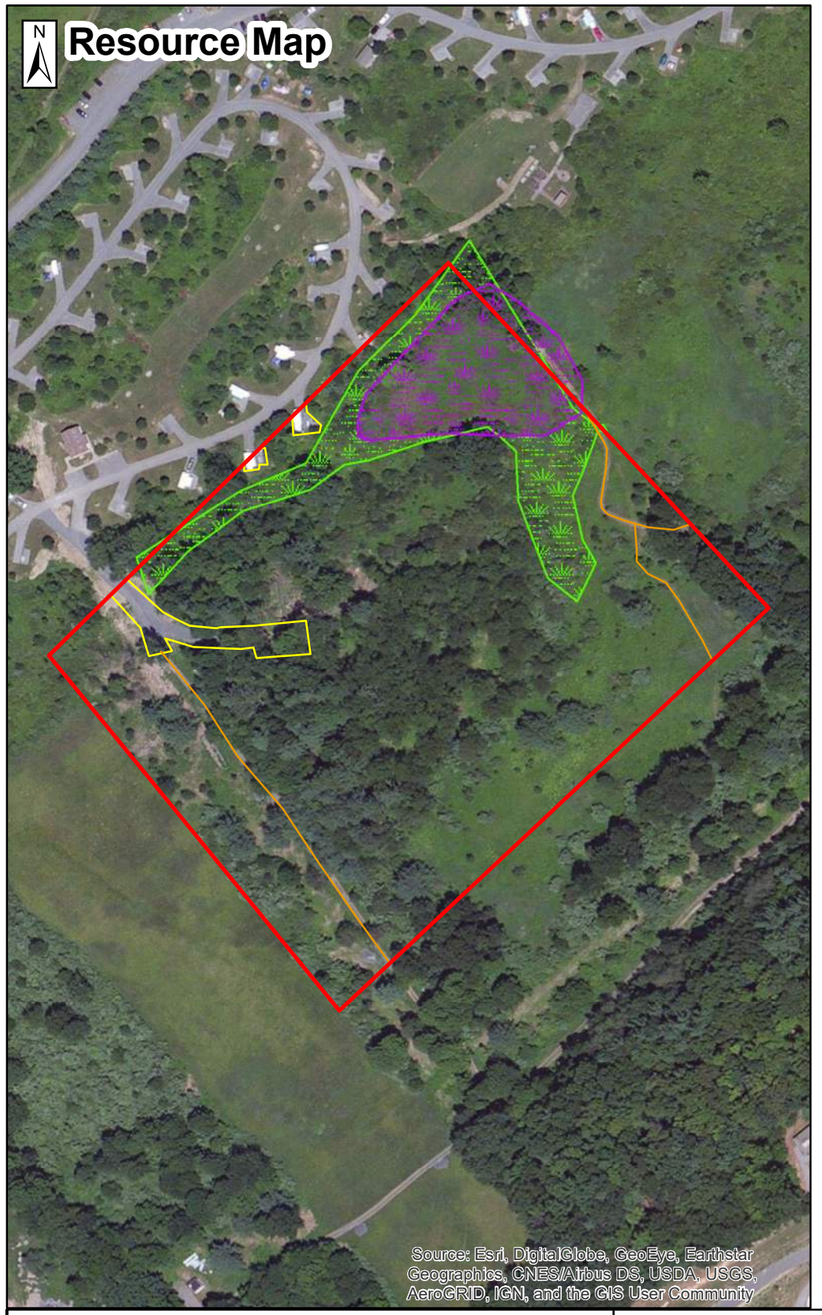
Bald Eagle State Park
Soil Acidity
Sample Location Map

Liberty Township, Centre County, PA

Date	2/27/2020
Designer	TEG
Project No.	6396-1008
Scale	1 inch = 150 feet

Path: P:\6396\6396-1008\70-Site\700-PD & General Consulting\50-Wetlands\Small Whorled Pogonia\Mapping\Bald Eagle 2020.mxd

Resource Map



Habitat Conditions

Soil Acidity

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Bald Eagle State Park
Small Whorled Pogonia
Habitat Assessment Mapping

Liberty Township,
Centre County, PA

Date	2/27/2020
Designer	TEG
Project No.	6396-1008
Scale	1 inch = 220 feet

Map Legend

- AOI
- NWI Wetland
- Wetland
- Roadbeds
- Trails

Habitat Conditions
- Optimal
- Suboptimal
- Marginal
- Poor

Soil pH Conditions
- Very Strongly Acid (pH 4.5- 5.0)
- Moderately Acid (pH 5.6 - 6.0)
- Not Rated (Water)

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U.S. Fish and Wildlife Service
National Wetlands Inventory

Bald Eagle State Park

February 27, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix B: Project Photo Log

DCNR – Bald Eagle State Park – White Oak Campsite Loop

Liberty Township ■ Centre County ■ Pennsylvania
LDG Project No. 6396-1008

PHOTO #: 1 DATE: 2/19/20 DIRECTION: South PHOTO DESCRIPTION: Looking South along the existing access to the Bluegill Cabin.	

PHOTO #: 2 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest along the entrance to the proposed White Oak Campsite Loop and existing roadway.	

PHOTO #: 3 DATE: 2/19/20 DIRECTION: East PHOTO DESCRIPTION: Looking East at the habitat along the existing roadway.	

PHOTO #: 4 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest at the habitat along the western side of the existing roadway.	

PHOTO #: 5 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast along the existing roadway to the Bluegill Cabin.	

PHOTO #: 6 DATE: 2/19/20 DIRECTION: South PHOTO DESCRIPTION: Looking South along an existing trail system.	

PHOTO #: 7 DATE: 2/19/20 DIRECTION: South PHOTO DESCRIPTION: Looking at the Bluegill Cabin.	

PHOTO #: 8 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast along the existing roadway for the Bluegill Cabin and electrical box.	

PHOTO #: 9 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest along the existing roadway for the Bluegill Cabin.	

PHOTO #: 10 DATE: 2/19/20 DIRECTION: North PHOTO DESCRIPTION: Looking North at the habitat across the road from the Bluegill Cabin.	

PHOTO #: 11 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast at the electrical box for the Bluegill Cabin.	

PHOTO #: 12 DATE: 2/19/20 DIRECTION: East PHOTO DESCRIPTION: Looking East at the forested habitat at the end of the existing roadway.	

PHOTO #: 13 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest toward the Bluegill Cabin.	

PHOTO #: 14 DATE: 2/19/20 DIRECTION: South PHOTO DESCRIPTION: Looking South at the forested habitat behind the Bluegill Cabin.	

PHOTO #: 15 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest at the forested habitat and canopy located behind the Bluegill Cabin.	

PHOTO #: 16 DATE: 2/19/20 DIRECTION: Northeast PHOTO DESCRIPTION: Looking Northeast at the habitat and canopy located behind the Bluegill Cabin.	

PHOTO #: 17 DATE: 2/19/20 DIRECTION: East PHOTO DESCRIPTION: Looking East at the habitat near the existing trail system.	

PHOTO #: 18 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast across the forested habitat within the project area.	

PHOTO #: 19 DATE: 2/19/20 DIRECTION: East PHOTO DESCRIPTION: Looking East at the forested habitat from the existing trail system.	

PHOTO #: 20 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest along the existing trail system.	

PHOTO #: 21 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast along the existing trail system.	

PHOTO #: 22 DATE: 2/19/20 DIRECTION: Northeast PHOTO DESCRIPTION: Looking Northeast across the White Pine habitat off the existing trail system.	

PHOTO #: 23 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest along the existing trail system and at the adjacent habitat.	

PHOTO #: 24 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast along the existing trail system toward the back of the proposed project area.	

PHOTO #: 25 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast at the back of the project area.	

PHOTO #: 26 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest across the scrub/shrub and forested habitat at the back of the project area.	

PHOTO #: 27 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest across the habitat near the back of the project area.	

PHOTO #: 28 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast across the meadow habitat within the project area.	

PHOTO #: 29 DATE: 2/19/20 DIRECTION: Northeast PHOTO DESCRIPTION: Looking Northeast at the meadow habitat within the project area.	

PHOTO #: 30 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest at the border of meadow and forested scrub/shrub habitat.	

PHOTO #: 31 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest across scrub/shrub meadow habitat at the back of the project area.	

PHOTO #: 32 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast at the meadow habitat at the back of the project area.	

PHOTO #: 33 DATE: 2/19/20 DIRECTION: North PHOTO DESCRIPTION: Looking North within the scrub/shrub meadow habitat.	

PHOTO #: 34 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest across the middle of the project area.	

PHOTO #: 35 DATE: 2/19/20 DIRECTION: Northeast PHOTO DESCRIPTION: Looking Northeast across the middle of the forested project area.	

PHOTO #: 36 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest across the scrub/shrub habitat near the wetland area.	

PHOTO #: 37 DATE: 2/19/20 DIRECTION: South PHOTO DESCRIPTION: Looking South from within the wetland at the surrounding habitat.	

PHOTO #: 38 DATE: 2/19/20 DIRECTION: East PHOTO DESCRIPTION: Looking East from within the wetland habitat.	

PHOTO #: 39 DATE: 2/19/20 DIRECTION: West PHOTO DESCRIPTION: Looking West toward the existing roadway from within the wetland.	

PHOTO #: 40 DATE: 2/19/20 DIRECTION: North PHOTO DESCRIPTION: Looking North at the pond located in the Northeast corner of the project area.	

PHOTO #: 41 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest at the habitat surrounding the pond.	

PHOTO #: 42 DATE: 2/19/20 DIRECTION: Northeast PHOTO DESCRIPTION: Looking Northeast across the wetland habitat.	

PHOTO #: 43 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest at the habitat adjacent to the wetland.	

PHOTO #: 44 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast within the wetland habitat.	

PHOTO #: 45 DATE: 2/19/20 DIRECTION: West PHOTO DESCRIPTION: Looking West at the canopy cover surrounding the wetland habitat.	

PHOTO #: 46 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest along an existing trail beh9in the pond and wetland system.	

PHOTO #: 47 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest at the pond from the existing trail system.	

PHOTO #: 48 DATE: 2/19/20 DIRECTION: Southwest PHOTO DESCRIPTION: Looking Southwest across a small forested patch along the existing trail system.	

PHOTO #: 49 DATE: 2/19/20 DIRECTION: Southeast PHOTO DESCRIPTION: Looking Southeast along the existing trail system.	

PHOTO #: 50 DATE: 2/19/20 DIRECTION: Northwest PHOTO DESCRIPTION: Looking Northwest at the meadow habitat along the trail system.	

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Centre County, Pennsylvania

February 25, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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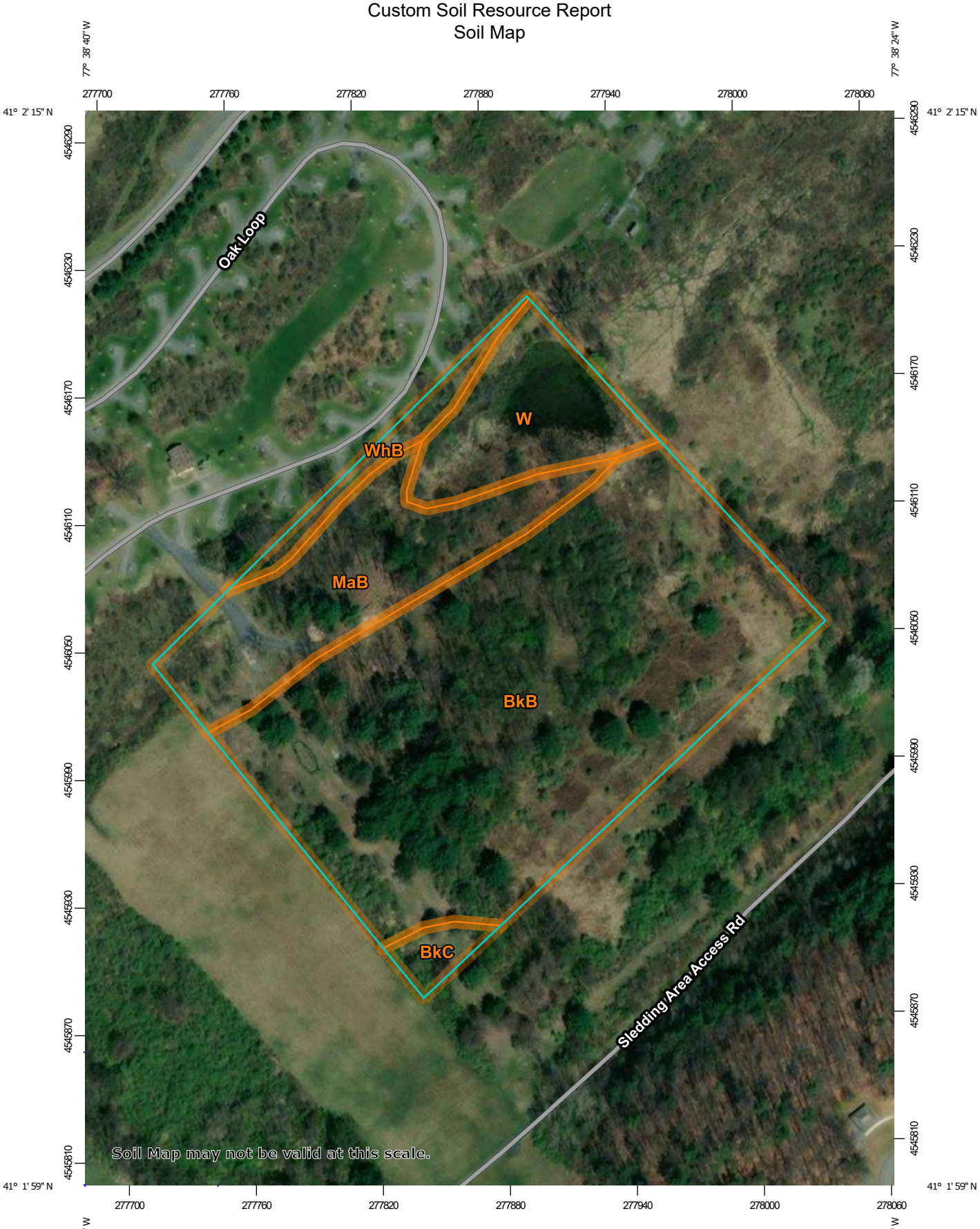
Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Centre County, Pennsylvania
Survey Area Data: Version 19, Sep 17, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 4, 2012—Sep 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BkB	Berks channery silt loam, 3 to 8 percent slopes	8.5	65.9%
BkC	Berks channery silt loam, 8 to 15 percent slopes	0.2	1.9%
MaB	Markes silt loam, 2 to 10 percent slopes	2.3	18.0%
W	Water	1.4	11.0%
WhB	Wharton silt loam, 3 to 8 percent slopes	0.4	3.2%
Totals for Area of Interest		**12.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Centre County, Pennsylvania

BkB—Berks channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2sgb5
Elevation: 320 to 3,570 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 47 to 56 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Berks and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berks

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Ap - 0 to 7 inches: channery silt loam
Bw1 - 7 to 15 inches: channery silt loam
Bw2 - 15 to 28 inches: very channery silt loam
C - 28 to 36 inches: extremely channery silt loam
R - 36 to 46 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Other vegetative classification: Dry Uplands (DU2)
Hydric soil rating: No

Minor Components

Weikert
Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: Droughty Shales (SD2)
Hydric soil rating: No

Brinkerton
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

BkC—Berks channery silt loam, 8 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2sgcg
Elevation: 320 to 3,570 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 47 to 56 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Berks and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berks

Setting
Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bw1 - 8 to 14 inches: very channery silt loam
Bw2 - 14 to 26 inches: very channery silt loam
C - 26 to 36 inches: extremely channery silt loam
R - 36 to 46 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Other vegetative classification: Dry Uplands (DU2), Dry Uplands (DU3)
Hydric soil rating: No

Minor Components

Weikert

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: Droughty Shales (SD2)
Hydric soil rating: No

Brinkerton

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

MaB—Markes silt loam, 2 to 10 percent slopes

Map Unit Setting

National map unit symbol: l24y
Elevation: 480 to 3,000 feet
Mean annual precipitation: 30 to 65 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Markes and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Markes

Setting

Landform: Depressions, structural benches
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from shale and siltstone

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 27 inches: very channery silt loam
H3 - 27 to 32 inches: very channery silt loam
H4 - 32 to 36 inches: bedrock

Properties and qualities

Slope: 2 to 10 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Cavode
Percent of map unit: 10 percent
Hydric soil rating: No

Ernest
Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Setting
National map unit symbol: l26j
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 120 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WhB—Wharton silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2vxhr
Elevation: 1,030 to 2,910 feet
Mean annual precipitation: 38 to 50 inches
Mean annual air temperature: 45 to 49 degrees F
Frost-free period: 126 to 165 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Wharton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wharton

Setting
Landform: Hillslopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: silt loam
BA - 4 to 8 inches: silt loam
Bt1 - 8 to 21 inches: silt loam
Bt2 - 21 to 42 inches: silty clay loam
Bt3 - 42 to 52 inches: channery silty clay loam
C - 52 to 69 inches: very channery silty clay loam
R - 69 to 79 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 46 to 80 inches to lithic bedrock
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 14 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Gilpin

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Armagh

Percent of map unit: 5 percent
Landform: Depressions on hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Ernest

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave, linear

Hydric soil rating: No

Cavode

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Chemical Properties

Soil Chemical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil chemical properties include pH, cation exchange capacity, calcium carbonate, gypsum, and electrical conductivity.

pH (1 to 1 Water)

Soil reaction is a measure of acidity or alkalinity. It is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion. In general, soils that are either highly alkaline or highly acid are likely to be very corrosive to steel. The most common soil laboratory measurement of pH is the 1:1 water method. A crushed soil sample is mixed with an equal amount of water, and a measurement is made of the suspension.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—pH (1 to 1 Water)

Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- Ultra acid (ph < 3.5)
- Extremely acid (pH 3.5 - 4.4)
- Very strongly acid (pH 4.5 - 5.0)
- Strongly acid (pH 5.1 - 5.5)
- Moderately acid (pH 5.6 - 6.0)
- Slightly acid (pH 6.1 - 6.5)
- Neutral (pH 6.6 - 7.3)
- Slightly alkaline (pH 7.4 - 7.8)
- Moderately alkaline (pH 7.9 - 8.4)
- Strongly alkaline (pH 8.5 - 9.0)
- Very strongly alkaline (pH > 9.0)
- Not rated or not available

Soil Rating Lines

- Ultra acid (ph < 3.5)
- Extremely acid (pH 3.5 - 4.4)
- Very strongly acid (pH 4.5 - 5.0)
- Strongly acid (pH 5.1 - 5.5)
- Moderately acid (pH 5.6 - 6.0)
- Slightly acid (pH 6.1 - 6.5)
- Neutral (pH 6.6 - 7.3)
- Slightly alkaline (pH 7.4 - 7.8)
- Moderately alkaline (pH 7.9 - 8.4)
- Strongly alkaline (pH 8.5 - 9.0)
- Very strongly alkaline (pH > 9.0)
- Not rated or not available

Soil Rating Points

- Ultra acid (ph < 3.5)
- Extremely acid (pH 3.5 - 4.4)
- Very strongly acid (pH 4.5 - 5.0)
- Strongly acid (pH 5.1 - 5.5)
- Moderately acid (pH 5.6 - 6.0)
- Slightly acid (pH 6.1 - 6.5)
- Neutral (pH 6.6 - 7.3)
- Slightly alkaline (pH 7.4 - 7.8)
- Moderately alkaline (pH 7.9 - 8.4)
- Strongly alkaline (pH 8.5 - 9.0)
- Very strongly alkaline (pH > 9.0)
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Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 19, Sep 17, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 4, 2012—Sep 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—pH (1 to 1 Water)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BkB	Berks channery silt loam, 3 to 8 percent slopes	5.6	8.5	65.9%
BkC	Berks channery silt loam, 8 to 15 percent slopes	5.6	0.2	1.9%
MaB	Markes silt loam, 2 to 10 percent slopes	5.7	2.3	18.0%
W	Water		1.4	11.0%
WhB	Wharton silt loam, 3 to 8 percent slopes	4.8	0.4	3.2%
Totals for Area of Interest			**12.9**	**100.0%**

Rating Options—pH (1 to 1 Water)

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 16

Units of Measure: Inches

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Appendix D: Additional Information/Resources

Small-whorled Pogonia (*Isotria medeoloides*)

Pennsylvania Endangered Plant Species
State Rank: S1 (critically imperiled), Global Rank: G2 (imperiled)

Identification

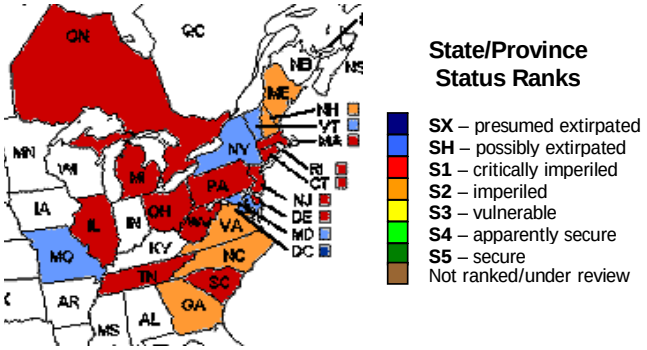
The small whorled pogonia is a delicate orchid with a stout, upright stem eight to 10 inches high, topped with a whorl of four to six (usually five) leaves. Single or paired yellowish-green flowers, 1-inch long, arise from the center of the leaf whorl. This species is most clearly distinguished from the more common l. *verticillata* (large whorled pogonia) by the shape of the sepals. Sepals in the small whorled pogonia are greenish, not spreading, and are less than an inch long. The large whorled pogonia has widely spreading, purplish sepals, 1 1/4 to 2 1/2 inches long.


Photo Credit: Paul Wiegman, Western Pennsylvania Conservancy

Biology-Natural History

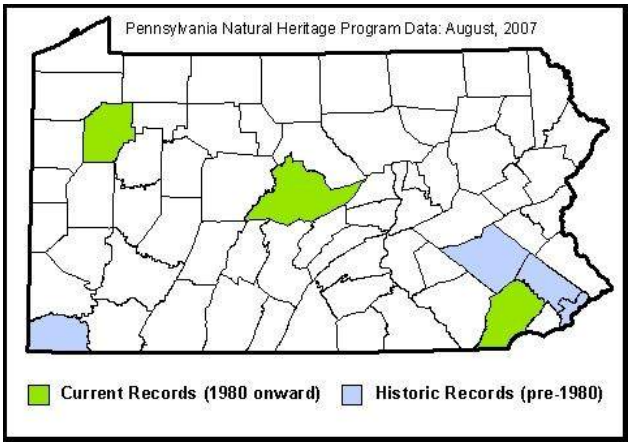
The small whorled pogonia is a member of the Orchid Family *(Orchidaceae).* Both *Isotria* species are perennials found only in the Eastern United States. l. *medeoloides* is very sparsely distributed from southern Ontario, Canada and Maine, south to Georgia and west to Illinois. Within this region, only 12 of the 17 states which have historically recorded plant sites, are known to still have them. This species is noted for long periods of dormancy, such that colonies often fluctuate in apparent size from year to year. Plants bloom in May and June.

North American State/Province Conservation Status
Map by NatureServe (August 2007)



Habitat

Nearly all small whorled pogonia populations occur in second growth or relatively mature forests. Pennsylvania populations seem to be most abundant on dry east or southeast facing hillsides in mixed oak forests. The soils are generally rocky and somewhat acidic.



Reasons for Being Endangered

The small whorled pogonia is considered our rarest orchid. Only three populations are known in Pennsylvania. Data collected by The Nature Conservancy in 1985 show that approximately 52 populations existed from Ontario to South Carolina. The main threats to this endangered orchid are collecting and habitat alteration.

Management Programs

The small whorled pogonia has been listed as a federal endangered species since 1982. Inventory, monitoring, and protection work initiated by the Western Pa. Conservancy, will be continued through the use of federal endangered species funds. Plants located on public land will be protected by the managing agency.

PNHP
Pennsylvania Natural Heritage Program

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U.S. Fish & Wildlife Service

Threatened and Endangered Species

Small Whorled Pogonia

Isotria medeoloides

States where the small whorled pogonia, an orchid, is found.

Photo by USFWS; Sarena Selbo

The small whorled pogonia is a threatened species. Threatened species are animals and plants that are likely to become endangered in the foreseeable future. Endangered species are animals and plants that are in danger of becoming extinct. Identifying, protecting, and restoring endangered and threatened species is the primary objective of the U.S. Fish and Wildlife Service's endangered species program.

What is the small whorled pogonia?

Appearance: The small whorled pogonia is a member of the orchid family. It usually has a single grayish-green stem that grows about 10 inches tall when in flower and about 14 inches when bearing fruit. The plant is named for the whorl of five or six leaves near the top of the stem and beneath the flower. The leaves are grayish-green, somewhat oblong and 1 to 3.5 inches long. The single or paired greenish-yellow flowers are about 0.5 to 1 inch long and appear in May or June. The fruit, an upright ellipsoid capsule, appears later in the year.

Range: Although widely distributed, the small whorled pogonia is rare. It is found in 18 eastern states and Ontario, Canada. Populations are typically small with less than 20 plants. It has been extirpated from Missouri, Vermont and Maryland.

Habitat: This orchid grows in older hardwood stands of beech, birch, maple, oak, and hickory that have an open understory. Sometimes it grows in stands of softwoods such as hemlock. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams.

What is the small whorled pogonia? (continued)

Reproduction: This pogonia flowers from mid-May to mid-June, with the flowers lasting only a few days to a week. It may not flower every year but when it does flower, one or two flowers are produced per plant. If pollinated, a capsule forms that contains several thousand minute seeds. The pogonia appears to self-pollinate by mechanical processes. The flower lacks both nectar guides and fragrance and insect pollination has not been observed.

Why is the small whorled pogonia threatened?

Habitat Loss and Degradation: The primary threat to the small whorled pogonia is the past and continuing loss of populations when their habitat is developed for urban expansion. Some forestry practices eliminate habitat. Also, habitat may be degraded or individual plants lost because of recreational activities and trampling.

Collection: As with all rare orchids, the small whorled pogonia is vulnerable to collecting for commercial or personal use.

What Is being done to prevent extinction of the small whorled pogonia?

Listing: The small whorled pogonia was added to the U.S. List of Endangered and Threatened Wildlife and Plants in 1982 as an endangered species. In 1994 it was reclassified to threatened.

Recovery Plan: The U.S. Fish and Wildlife Service prepared a recovery plan and revised that plan in 1992. The Recovery Plan describes and prioritizes actions needed to help recover the species.

Research: Many small whorled pogonia populations are being monitored to determine long-term population trends. Habitat management techniques, such as reducing shade through selected tree removal are being investigated.

Habitat Protection: A variety of government and private conservation agencies are working to preserve the small whorled pogonia and its habitat. Voluntary protection agreements have also been made with some private landowners.

What can I do to help prevent extinction of species?

Learn: Learn more about the small whorled pogonia and other endangered and threatened species. Understand how the destruction of habitat leads to loss of endangered and threatened species and our nation's plant and animal diversity.

Volunteer: Volunteer at your local zoo, wildlife refuge or nature center. Work with their staff or other community members to maintain and restore local habitat.

Protect: Protect native plants by cleaning your shoes after hiking to avoid spreading invasive plants seeds and staying on trails if you are hiking in an area with rare plants in the the understory.

Grow Natives: Grow native plants in your lawn and garden but obtain the plants from local nurseries, do not dig up native plants from natural areas. Avoid using invasive, non-native plants in landscaping, such as purple loose-strife, bush honeysuckles and burning bush.

U.S. Fish & Wildlife Service
5600 American Boulevard
Bloomington, Minnesota 55437
612/713-5350
www.fws.gov/midwest/endangered

February 2016

COMMOMWEALTH OF PENNSYLVANIA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
BUREAU OF STATE PARKS

BALD EAGLE STATE PARK
RESOURCE MANAGEMENT PLAN

MARCH 1991

Contact Mike Winters, Bald Eagle State Park manager, for a copy of this plan.
baldeaglesp@pa.gov or 814-625-2775

APPENDIX C: USACE - BALTIMORE WATER QUALITY PROGRAM ANNUAL REPORT

The following pages provide excerpts from the full 2019 report including background information and results for Foster Joseph Sayers Dam and Reservoir. The full report can be requested from USACE by contacting Angie Sowers at angela.sowers@usace.army.mil.

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT
WATER QUALITY PROGRAM ANNUAL REPORT
FY 2019

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I. Executive Summary

In 2019, the Baltimore District (NAB) Water Quality Program (CENAB-EN-WW) monitored the water quality for fourteen projects in six hydrologic basins. Each project was sampled twice within the range of May through September, including sampling stations at the reservoir's inflow, in-lake stations, and outflow. The number of in-lake stations varies with the size and complexity of the reservoir. At each station, a depth profile was taken with a multi-probe sonde that records the temperature, sp. conductance, DO, pH, and chlorophyll A. Chlorophyll A readings are not quantitatively compared year to year but used as an indicator, along with other observations, of the presence of an algae bloom. Furthermore, at that station a point sample is collected at the surface, bottom, and midpoint when a thermocline is present, unless specified to be a profile station only. A point sample is also taken at the inflow and outflow. These point samples are taken back to the laboratory where the alkalinity, acidity, phosphate, ammonia, and nitrate levels are measured. Sulfate and iron levels are measured at specific stations where there has historically been a high level of these analytes.

During the May sampling survey at Jennings Randolph, the multi-probe sonde, used for taking the depth profiles malfunctioned. It was shipped out for repairs in mid-May and was not returned until late June. This delayed the schedule of the early summer trips for all the remaining projects. The West Branch river basin would typically be surveyed in May and the Chemung, Upper Susquehanna, and Main-Stem Susquehanna river basins would be sampled in June; where this year they were sampled in July.

In late September, a benthic survey was completed in the Juniata & Upper Susquehanna river basins. Two inflow and outflow stations were sampled at Raystown. One inflow and outflow station was sampled at Whitney Point. Two inflow and one outflow stations were sampled at East Sidney. At each station a 30 second kick-sample was taken with a D-net over three, one square-foot areas in the pool and glide habitats over a 75 meter reach of the stream. In addition, a surber sampler was used to sample three, one square-foot areas of the riffle habitat. At each station, a reading was taken with a multi-probe sonde to record the temperature, sp. conductance, DO, and pH. A point sample was also taken at each station and brought back to the laboratory to measure the alkalinity, acidity, phosphate, ammonia, and nitrate levels. The benthic data collected from this sampling effort will be included in a separate benthic report.

The monitoring objectives of the water quality program are to compare existing conditions with state and federal water quality regulations as mandated by federal law, Executive Order (EO) 12088, to provide support to water control managers, to document the condition of the water quality of the District's reservoirs and identify significant trends, and to evaluate the

effectiveness of the Water Control Plan where applicable to manage for water quality concerns.

II. Introduction

The USACE Water Quality Program "provides one of the greatest opportunities for the USACE to demonstrate its commitment to environmental leadership, conservation, restoration, and stewardship" (ER 1110-2-8154). This commitment is supported by several authorities, regulations, and acts, all requiring compliance with applicable water quality and environmental standards set forth by federal, state, and interstate agencies (Figure 1). Establishing and maintaining a strong viable water quality program will ensure achievement of the water control plan objectives for Congressionally-authorized water resource projects and aid in evaluating project performance.

Figure 1: Guiding Water Quality Policies and Authorities

- Public Law 92-500 of the Federal Water Pollution Control Act; 18 October 1972
- Section 313 of the Clean Water Act (CWA) of 1979
- Executive Order 12088; Federal Compliance with Pollution Control Standards; 13 October 1978
- USACE ER 1110-2-8154; Water Quality and Environmental Management for Corps Civil Works Projects; 31 May 1995
- USACE EM 1110-2-3600; Management of Water Control Systems; 30 November 1987
- USACE ER 1110-2-8156; Preparation of Water Control Manuals; 31 Aug 1995
- Federal Facilities Act of 1990
- USACE ER 200-2-3; Environmental Compliance Policies; 29 Oct 2010

A full commitment to environmental stewardship requires a comprehensive understanding of the interactions of the uses and users of the watershed and the impact of USACE activities on the aquatic and upland environment. Water quality data collection at inflow, in-lake, and outflow stations is essential for:

1. developing an understanding of cause and effect relationships that create unique water chemistry and sediment conditions at each project,
2. providing necessary information for integrating environmental considerations into water management decisions,
3. supporting management of multiple competing project purposes and providing support for evaluating the effects of the water control plan.

Understanding the physical, chemical, and biological processes occurring in our waterways allows the Corps the opportunity to operate projects as efficiently as possible, in ways that provide for sustainable human uses while conserving the environmental value of the resource. The ultimate responsibility to control water quantity and quality while protecting fish and wildlife at all USACE projects rests with the Corps.

A. Organization of NAB Water Management Section

The Water Quality Program is managed within the Water Management Section within the Engineering Division. The Water Quality Program has historically been supported by two full-time personnel but due to staffing changes in 2014, a water control manager has since led the Water Quality Program with the assistance of other Baltimore District employees. The section's office and laboratory space is located at the Baltimore District Headquarters

Office, Baltimore, Maryland. Storage and workspace is also utilized at Fort McHenry, Baltimore, Maryland.

The Water Management team is currently supported by seven full time personnel, including five water control managers and an IT specialist. Water control managers make reservoir regulation decisions for each project to satisfy its authorized project purposes while maintaining appropriate lake elevations, observing maximum and minimum release targets, and maintaining or improving both in-lake and downstream water quality conditions. The members of the Water Management Section are shown in Table 1.

Table 1: Baltimore District Water Management Section, Civil Works Branch, Engineering Division:

Name	Title	Position
Julia Fritz	Supervisory Hydraulic Engineer	Water Control Manager
Laura Felter	Hydraulic Engineer	Water Control Manager & Water Quality Program Lead
Debra Strickland	Hydraulic Engineer	Water Control Manager
Donald Lambrechts	Hydraulic Engineer	Water Control Manager
Simon Evans	Hydraulic Engineer	Water Control Manager
Thomas Ressin	IT Specialist	
Robert Nagy	Ecologist	Water Quality Program Support

B. Water Quality Sampling Program Overview

In 2019, the Baltimore District Water Quality Program monitored the water quality for fourteen Corps-owned reservoir projects in six hydrologic basins. Each project was sampled twice within the range of May through September. Each reservoir has sampling stations at the reservoir's inflow, in-lake stations, and outflow. The number of in-lake stations varies with the size and complexity of the reservoir. These stations have been consistently monitored, giving the District around 30 years of historical data at most projects. At each station, a depth profile was taken with a multi-probe sonde that records the temperature, sp. conductance, DO, pH, and chlorophyll A. Chlorophyll A readings are not quantitatively compared year to year but used as an indicator, along with other observations, of the presence of an algae bloom. Also at that station a point sample was collected at the surface, bottom, and midpoint when a thermocline is present, unless specified to be a profile station only. A point sample was also taken at the inflow and outflow. These point samples were taken back to the laboratory where the alkalinity, acidity, phosphate, ammonia, and nitrate levels were measured. Sulfate and iron levels were measured at specific stations where there has historically been a high level of these analytes. The GPS coordinates of each sampling location can be found in Appendix D, Table 17. Benthic macroinvertebrate sampling surveys are completed on a three year

cycle where one basin is surveyed for three consecutive years before moving on to the next basin in the District wide cycle. These surveys support any observed physical water quality trends and are used to monitor impacts of water quality to the biota.

C. Interagency Coordination

The Baltimore District maintains contact with the Maryland Department of Natural Resources (MD DNR), the Pennsylvania Department of Environmental Protection (PADEP), the New York Department of Environmental Conservation (NYSDEC), and the Susquehanna River Basin Commission (SRBC), providing them with information on reservoir operations that may impact water quality in Corps lakes or downstream of projects. Notifications are generally given for any operation that deviates from the approved regulation plan. In addition, reservoir operations are coordinated some of the time with the State resource agencies to try to minimize impacts of any reported chemical spills or fish kills in the area. The Water Management and Quality Section also coordinates water quality activities with other agencies, including the Maryland Department of Freshwater Fisheries, the Susquehanna River Basin Zebra Mussel Monitoring Network, and the Pennsylvania Fish & Boat Commission.

D. Program Modifications

Hazardous algae blooms (HABs) continue to affect our District throughout the summer. This year both Whitney Point and East Sidney had a bloom recorded once over the summer. For Whitney Point, in order to increase the communication of these blooms, Dorchester Park was asked to notify Water Quality Program Staff of algae blooms and recreational closures.

A contract was put in place in 2017 between the District and BSA Environmental, through an ERDC contract, to analyze (pick and count) our benthic samples. The District had a fairly significant backlog of samples to be analyzed as in-house expertise was lost upon the retirement of a Water Quality staff member. The samples sent with FY17 funds first addressed the oldest outstanding samples. Another round of samples were sent in FY18. This process will continue until the back log of samples have all been analyzed.

III. Water Quality Objectives

The Baltimore District covers approximately 42,200 square miles of drainage area, within which there are five river basins that make up the flow of the Susquehanna River and one basin for the Potomac River. Water quality monitoring is conducted to fulfill four major responsibilities that drive NAB's water quality program:

1. to compare existing conditions with state and federal water quality regulations
2. to provide support to water control managers
3. to document the condition of the District's water quality and identify significant trends
4. to evaluate the effectiveness of the Water Control Plan where applicable to manage for water quality concerns.

These objectives are in compliance with the guidance of ER 1110-2-8154 – Water Quality and Environmental Management for Corps Civil Works Projects (Figure 2).

Figure 2: Water Quality Data Collection Objectives (ER 1110-2-8154; section 10.a)
Water quality data collection activities will be carried out to support one or more of the following objectives as appropriate for a given project or system of projects:

1. Establish baseline conditions and identify trends, opportunities, and problems.
2. Compare existing conditions with applicable Federal, state, and local water quality standards.
3. Provide an adequate database for understanding project conditions and facilitate coordination with Federal and state agencies with regard to watershed activities influencing water quality.
4. Provide water quality data required for real-time project regulation.
5. Evaluate water/sediment interactions and their effects on overall water quality.
6. Engineer aquatic environments and ecosystems.
7. Develop and maintain the environmental awareness and sensitivity essential for sound stewardship for the resource.
8. Monitor swimming beaches and water supplies for priority pollutants.

A. Assess Compliance

State and Federal compliance responsibilities are established by the following authorities:

"The U.S. Army Corps of Engineers' water quality management authority is founded on the Federal Water Pollution Control Act (FWPCA) of 1948 and its amendments including the Clean Water Act of 1977 and the Water Quality Act of 1987. The FWPCA Amendment of 1972 (PL 92-500) strongly affirms the Federal interest in water quality. Executive Order 12088, Federal Compliance with Pollution Control Standards, dated 13 October 1978, requires compliance by Federal facilities and activities with applicable pollution control standards in the same manner as any non-Federal entity. To ensure project compliance, the Federal Facilities Compliance Act of 1990 provides for EPA and/or States to inspect federally owned or federally operated facilities that are subject to Clean Water Act of 1977." **– ER 1110-2-8154; Section 4. Authorities**

Other compliance responsibilities are defined by, but not limited to:

- Public Law 92-500 of the Federal Water Pollution Control Act; 18 October 1972
- Section 313 of the Clean Water Act (CWA) of 1979
- Executive Order 12088; Federal Compliance with Pollution Control Standards; 13 October 1978
- USACE ER 1110-2-8154; Water Quality and Environmental Management for Corps Civil Works Projects; 31 May 1995
- USACE EM 1110-2-3600; Management of Water Control Systems; 30 November 1987
- USACE ER 1110-2-8156; Preparation of Water Control Manuals; 31 Aug 1995
- Federal Facilities Act of 1990
- USACE ER 200-2-3; Environmental Compliance Policies; 29 Oct 2010

B. Provide Support to Water Control Managers

Flood damage reduction is the primary purpose at all of the reservoirs, though there are other project purposes that are considered when making reservoir release decisions. Water management decisions must include water quality and biological assessments as part of the daily decision process. These decisions are necessary to help meet project purposes such as flood damage reduction, recreation, water supply, low flow augmentation, and hydropower.

The main water quality operation decisions are the following:

1. Control outflow temperatures to maintain downstream cold or warm water fisheries, as appropriate
2. Release a minimum flow to augment reduced flows in dry months
3. Monitor pH upstream and downstream and regulate outflow to help buffer low pH levels
4. Conduct Artificially Varied Flow (AVF) releases at Jennings Randolph Lake to remove accumulated organic sediments, thus improving the downstream aquatic environment.
5. Slowly release water from Tioga Lake when ice cover is 70-100% to prevent the formation of acid slugs.

C. Monitor Water Quality Conditions

Water quality monitoring is used to determine the condition of a project's watershed which can then be compared to an already established baseline condition. This helps in identifying any changes within the basin and water quality trends that may affect a project's purposes. Data from this monitoring can also be analyzed to evaluate the effectiveness of the water control plan and whether a need for modification exists. The information necessary to monitor water quality conditions is collected mainly through sampling efforts.

D. Evaluate the Effectiveness of the Water Control Plan

Evaluating a water control plan's effectiveness incorporates the results of water quality monitoring, biological monitoring, establishing baselines, establishing trends, and evaluating status of various watershed impairments. The water control plans are established in each project's Reservoir Regulation Manual.

Other sections of the Reservoir Regulation Manual contain land use and watershed characteristics that are subject to changes. Many water quality analytes are indicators of land use change and analyzing the data may reveal and support any updates necessary to the Reservoir Regulation Manuals.

IV. Water Quality FY19 Activities

A. Special Surveys

None.

B. Reservoir Sampling Surveys

Reservoir sampling survey data is used to report analyte concentrations of concern, compare to historical data, suggest operational changes impacting water quality, and to ensure that project purposes established in the Reservoir Regulation Manuals are being attained. Each sampling location is sampled for a predetermined water quality suite consisting of physical parameters, nutrients, and metals, listed in Figure 3. These constituents are common indicators of ecosystem health. The data is then analyzed for trends and concentrations of concern. A historical range has been established at each station sampled so trends in data or unusual results can easily be identified. The derivation of this range is further explained in Appendix F.

Figure 3: Water Quality Constituents/Analytes Sampled

Physical Parameters

- Water Temperature (°C)
- Specific Conductance (µS/cm)
- Dissolved Oxygen (mg/l)
- pH
- Secchi reading (m)

Analytes

- Alkalinity (mg/l)
- Acidity (mg/l)
- Phosphorus, Ortho phosphate) (mg/l)
- Ammonia, Total (mg/l)
- Nitrate, Total (mg/l)
- Sulfate, Total (mg/l)
- Iron, Total (mg/l)

C. Water Quality Data Management and Analysis

Data Management and Analysis System for Lakes, Estuaries and Rivers (DASLER) is a Windows-based program interface to an Access database containing physical, chemical, and biological water quality data. DASLER has been used in the Baltimore District since 2000 to manage and report water quality data. All 2019 water chemistry and physical data were entered into DASLER for data management and analysis.

D. Water Control Operations

Water quality improvement is considered in the water control operations at NAB's reservoir projects.

1. Controlling the outflow temperatures to maintain downstream cold or warm water fisheries is a project objective at Jennings Randolph Lake, Savage River Dam (a state operated dam jointly operated with Jennings Randolph Lake), Cowanesque Lake, and Raystown Lake. During the warmer months, specifically when the lake is stratified, Jennings Randolph Lake and Savage River Dam operate, when feasible, for the downstream cold water fishery. This requires taking routine temperature profiles and performing downstream temperature analysis. Using this

data and the current weather forecast, NAB applies best water management practices to meet the target range temperature of 13 to 15°C at the stilling basin of Jennings Randolph Lake through its selective withdrawal system. At Savage River Dam, releases are managed during the summer months to conserve as much cold water as possible in order to keep temperatures below 20°C downstream of the dam for as long as possible during the warmest months of the year. In contrast, downstream of Cowanesque Lake and Raystown Lake are warm water fisheries. When the lake is stratified, water is released from the top of the lake to release the warmest possible water from the reservoir. Cowanesque Lake has a selective withdrawal system and is capable of releasing water from the uppermost portion of the lake through the top ports. The non-Federal hydropower project at Raystown Lake has the ability to operate for downstream water temperature, and NAB's warm water outlet system can be used if the hydropower plant is not operational and as additional outflow beyond the hydropower plant capacity is needed.

2. Most NAB projects have a designated minimum flow release to augment reduced flows in dry periods within the basin.
3. The pH downstream of Tioga-Hammond Lakes, Sayers Dam, and Jennings Randolph Lake is monitored and releases are made to help raise low pH levels. Tioga Lake and Hammond Lake are connected by a channel that allows historically alkaline water in Hammond Lake to flow into and mix with historically acidic water of Tioga Lake, producing a more neutralized outflow from both projects.
4. The outflow from Jennings Randolph Lake is occasionally varied through Artificially Varied Flow (AVF) releases at a higher rate during extended low flow periods to help minimize adverse environmental effects of extended low flows. AVF releases are a regulation tool for removing accumulated organic sediments in the downstream channel, thus improving the downstream aquatic environment. AVF releases are typically made in late August and September depending upon weather and river conditions. Generally, releases from Jennings Randolph Lake at a flow rate of 1,000 cfs for 30-48 hours are effective in removing the accumulated organic sediments.
5. A winter regulation procedure is in place for Tioga Lake in which the lake is put on a slow fall throughout the winter season when the lake is ice-covered. The purpose of this procedure is to keep water in the lake continuously moving towards the outlet tower and to help induce mixing of the Tioga and Hammond water, thereby minimizing the formation of pockets or layers of acid mine water. Wind movement allows for sufficient water mixing during most months but when ice cover on the lake is between 70-100% this operation is necessary.

E. Real-Time Data Collection

Real-time water quality data is available through various sources via gages and sensors at several locations on the Potomac, Juniata, and Chemung Rivers. On the Potomac River, the Barton (MD DNR supported), Keyser (MD DNR supported), and DS Savage gages report water temperature. In addition the Barnum gage reports pH and sp. conductance and the Washington gage at Little Falls, MD reports sp. conductance. On the Juniata River, the DS Raystown gage reports water temperature. On the Chemung River, the Mansfield and Tioga Junction gages report pH, sp. conductance, and water temperature, and the Lawrenceville gage reports water temperature.

Historically there had been a real-time water quality gage at Renovo on the West Branch Susquehanna River to monitor pH, but that capability no longer exists. In order to monitor pH at Renovo since then, the pH is measured by a manual method once a week by the reservoir operators at Bush Dam. Real-time water quality monitoring was discontinued at the Luke and Pinto gages in October 2008 due to funding reductions in the Operations and Management budget.

F. Manually Collected Data

In addition to the real-time water quality data available from gages and the sampling surveys completed by the Water Quality program each year, the dam operators at several projects manually collect the following water quality data at the lakes or surrounding vicinity:

1. Jennings Randolph Lake – in-lake water temperature profiles are taken to manage releases for downstream temperatures.
2. Savage River Dam – in-lake water temperature profiles are taken to manage releases for downstream temperatures.
3. Cowanesque Lake – in-lake water temperature profiles are taken for seasonal port gate change decisions to manage downstream temperatures.
4. Tioga-Hammond Lakes – a lake water quality profile including water temperature, pH, and conductance is taken at the tower and reported to monitor current lake conditions.
5. Sayers Dam – pH, acidity, and alkalinity are measured at several locations in the downstream watershed; a titration analysis is also conducted with water from an acidic tributary in the watershed, to monitor and ensure that sufficient neutralizing releases are being made from Sayers when refilling the lake in the spring.

G. Reservoir Regulation Manual Revisions

No revisions were made related to water quality for the Reservoir Regulation Manuals this year.

V. Results

NOTE: Sections A through I are not presented for brevity.

I. Foster Joseph Sayers Dam

Site Location: The Foster Joseph Sayers Dam and Reservoir is located on Bald Eagle Creek in Centre County, PA approximately 70 miles northwest of Harrisburg, PA.
Project Purposes: Sayers Dam was constructed primarily to provide flood control for Bald Eagle Creek and the West Branch Susquehanna River. Additionally, the project is used to provide recreational opportunities and improve downstream water quality.
Site Characteristics: The lake covers 1,730 acres at the summer recreation pool level (630' PCD) and 3,450 acres at flood control pool (657' PCD). The lake is generally rectangular in shape, approximately 6 miles long by 1/4 mile wide except near the dam, where it is approximately 3/4 mile wide. The watershed draining into the site encompasses 339 square miles. The terrain in this region is variable and includes moderately steep slopes on Bald Eagle Mountain and predominantly flat topography along the valley floor. Annual precipitation in the watershed averages 39 inches with snowfall ranging between 34 and 49 inches. There are a few medium-sized communities upstream of Sayers, including State College (pop. 42,430 in 2017) and Bellefonte (pop. 6,308 in 2017); however, most of the watershed is rural.
Historical Concerns: Sayers is surrounded by limestone-rich bedrock, and therefore does not experience acidity problems; however, the lake occasionally experiences nutrient enrichment and algae blooms. Most of the suspended sediment entering the lake is resultant from agricultural and construction sites in the watershed. The lower end of Sayers Lake is eutrophic whereas the upper end is mesotrophic. No HABs have been reported at Sayers Lake to current date.

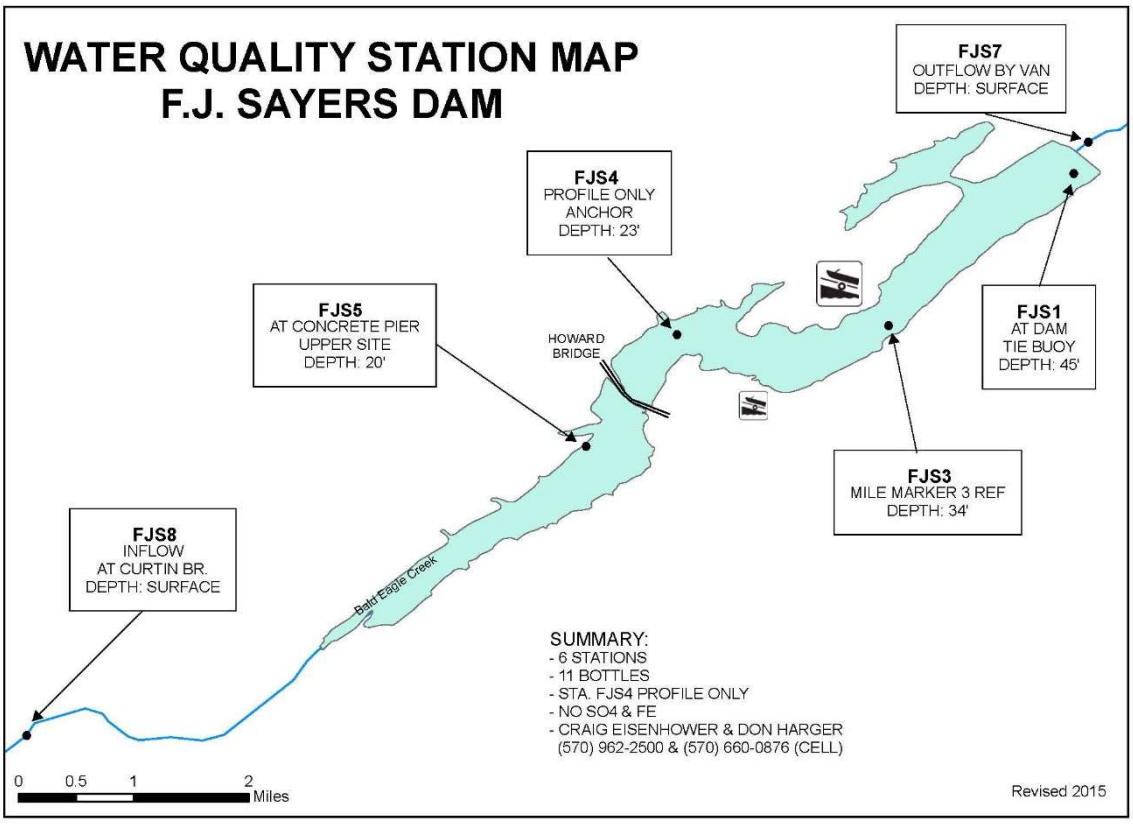
Water Quality Management Objectives:

The main objectives for water quality management at Sayers are:

1. Maintaining an in-lake warm water fishery managed jointly by the Pennsylvania Fish and Boat Commission and the PA Bureau of State Parks. Downstream from the dam, Bald Eagle Creek supports a fish habitat which is managed for appropriate water temperature and pH. Alkaline flows from the dam are utilized to neutralize acidic water from Beech Creek and other rivers downstream that receive heavily polluted acid mine drainage water. Historically, these streams have experienced fish kills due to very low pH. Ideally, outflow from Sayers should equal inflow to the dam, but more can be released when necessary to neutralize acidic Beech Creek flows.
2. Alleviation of dust created from wind disturbing exposed lake bed sediments and depositing them in the nearby town of Howard, PA by keeping lake levels higher in the winter.

2019 Activities: Two sampling trips were completed on 8 & 9 July and 12 & 13 August. Samples were taken at six stations; inflow, outflow, and four in-lake stations (Figure 12). The water temperature, sp. conductance, DO, and pH were taken with each profile reading. Alkalinity, acidity, phosphate, ammonia, and nitrate were measured from the collected point samples.

Figure 12: Sayers Station Location Map



Observed Water Quality Concerns: In both July and August, all analytes measured were within the EPA standards for both the bottom of Station 4 and the outflow. The lake transparency did not meet the EPA standard at all the surface stations in both July and August. The sp. conductance level at the inflow was above the EPA maximum in both July and August with the addition of the bottom of Stations 3 & 5 in August. Sayers is one of the most alkaline lakes in the Baltimore District due to the limestone geology in its watershed and this relatively basic outflow is used to help neutralize Beech Creek flow into Bald Eagle Creek downstream of the dam. In August, at most stations, the surface and the next three meters of water had a pH level higher than the EPA maximum range. The DO at the bottom of Stations 1 & 3 were the only two stations below the EPA minimum standard in both July and August. The only nutrient concentration that did not meet EPA standards was phosphate readings at the bottom of Stations 1 in July. In addition to the analytes already mentioned, chlorophyll levels are visible with the sonde. This is not the most accurate way to measure chlorophyll so these measurements are not reported, but they can be used as indicators. In August, there were depths at Stations 3, 4 & 5 that indicated very high chlorophyll levels. This indicates that there was likely an algae bloom occurring here, which was also noted by the very green color of the water at these stations. The water quality concerns are summarized in Table 10 and shown graphically in Appendix A.

Trends: Secchi readings at half of the stations were higher than the expected historical range in July and all within the expected range in August. The readings of sp. conductance, pH, and DO fell within the expected range for all stations in July and most stations in August. Ion concentrations continued to meet EPA standards and most values fell within the expected range for both surveys. Phosphate levels during both surveys were immeasurable and therefore within the expected range with the exception of the bottom of Station 1 in July which was the only station with a measured amount and was higher than the expected range. The ammonia level in July was higher than the historical range at most stations but all were back within range in August.

Environmental and Operational Concerns:

1. Algae – Sayers has a history of algae blooms which was observed again this year with the entire lake appearing a green or olive color in July and August. High chlorophyll readings also confirm this. In August, there were depths at Stations 3, 4 & 5 that had very high chlorophyll levels that are approaching a concerning amount of enrichment. No HABs have been reported at Sayers Lake to current date.
2. AMD - Discharges from Sayers Lake were regulated, especially during spring re-fill, to augment Beech Creek flows and neutralize water downstream of the confluence of Beech and Bald Eagle Creeks.
3. Bald Eagle Creek downstream of Sayers Dam to the confluence of the West Branch Susquehanna River is cited for impairments to aquatic life because of

metals and pH from AMD and organic enrichment/low DO, thermal modifications, and flow alterations from upstream impoundment. Beech Creek, which is a tributary to Bald Eagle Creek downstream of Sayers Dam, is cited for metals and pH from AMD as well (PADEP Integrated WQ Monitoring & Assessment Report – Streams, 2016).

4. Possible Sources of Contamination or Nutrient Enrichment
    a) Agriculture - Four hatcheries are within the watershed and have historically violated their nutrient discharge permit. There is one CAFO in the watershed and it has violated its permits within the last two years (EPA ECHO, 2019).
    b) Sewage Treatment Plants – There are several large municipal treatment plants upstream of Sayers; one with significant violations for BOD, fecal coliform, ammonia, phosphate, and total suspended solids. Two other plants have had violations in just a few pollutants (EPA ECHO, 2019).
    c) Industry - A lime quarry and lime manufacturer (with significant violations for sulfur dioxide in 2014), concrete factory, nuclear reactor, several metal products companies (one with major violations for Zinc, 2008), and plastics, foil, and paper bag manufacturer are all located upstream of the reservoir. The facilities with permit violations in the past three years are the Bestway Travel Center, a mining waste treatment facility, two auto salvage yards, a golf course, and a petroleum station (EPA ECHO, 2019).
    d) Hydraulic Fracturing – There are three surface water withdrawal locations and two consumptive use dockets (SRBC Water Resources Portal, 2019).

Table 10: Summary of Data Collected in 2019 That Does Not Meet EPA Standards at Sayers

Summary of Data Collected in 2019 below EPA Standards						
Station	Station Type	Analytes of Concern	EPA Thresholds	Historical Range	2019 Observed Value	Date of Survey
FJS8	Inflow	sp. Conductance	<500 µS/cm	402-622	583	July
					573	August
FJS5 Surface	Lake	Secchi	>3.4 m	0.5-1.4	1.1	July
					1.0	August
		pH	6.5-9.0	8.49-9.35	9.36	August
FJS5 Bottom	Lake	sp. Conductance	<500 µS/cm	352-519	519	August
FJS4 Surface	Lake	Secchi	>3.4 m	0.5-1.9	2.0	July
					1.0	August
		pH	6.5-9.0	9.3-13.0	9.13	August
FJS4 Bottom	Lake	None				July & August
FJS3 Surface	Lake	Secchi	>3.4 m	0.9-2.6	2.1	July
					1.0	August
		pH	6.5-9.0	8.59-9.23	9.14	August
FJS3 Bottom	Lake	sp. Conductance	<500 µS/cm	351-493	506	August
		DO	>6.5 mg/l	1.8-7.1	4.0	July
					5.2	August
FJS1 Surface	Lake	Secchi	>3.4 m	0.9-2.9	3.0	July
					1.5	August
FJS1 Bottom	Lake	DO	>6.5 mg/l	0-4.2	0.5	July
					1.4	August
		Phosphate	<0.05 mg/l	0-0.92	0.63	July
FJS7	Outflow	None				July & August

VI. Looking Forward

The Water Quality program will continue to monitor the current concerns outlined in this year's water quality assessment summarized in Table 17 through continued observations by site personnel and yearly sampling surveys. Identified point sources in each basin will also continue to be monitored. The Water Quality Program staff will continue to be kept up to date with E. coli data from Hammond and Cowanesque, as well as expanding this initiative to all projects with beaches. In light of the frequent HABs occurring at our Upper Susquehanna projects, the Water Quality Team will work on producing a HAB Response Plan in FY20.

Table 17: 2019 NAB Project's Water Quality Survey Summary

Project	Historical Concerns		EPA Standards Not Met		Identified Sources of WQ Concerns
Jennings Randolph	acid mine drainage	low alkalinity	high sp conductance		acid mine drainage
	sediment		n/a		sedimentation
	n/a		low DO	low transparency	nutrient loading
East Sidney	nutrient loading low DO	algae blooms	low DO	low transparency	nutrient loading
Whitney Point	nutrient loading low DO	algae blooms	low DO	low transparency	nutrient loading
Almond	sediment	nutrient loading	high phosphate low DO	low transparency	nutrient loading
	n/a		high sp conductance		unknown
Cowanesque	nutrient loading algae blooms	high alkalinity low DO	high phosphate low DO	low transparency	nutrient loading
	sediment		n/a		unknown
Tioga	acid mine drainage	low alkalinity	low alkalinity		acid mine drainage
	n/a		low DO	low transparency	nutrient loading
Hammond	nutrient loading		high phosphate low DO	low transparency	nutrient loading
	high pH		n/a		naturally occurring
Curwensville	nutrient loading high phosphate	algae blooms low DO	low DO	low transparency	nutrient loading
Bush	sediment	nutrient loading	low DO	low transparency	nutrient loading
	n/a		low alkalinity	high pH	unknown
Sayers	nutrient loading low DO	algae blooms	high phosphate low DO	low transparency	nutrient loading
	n/a		high conductance		unknown
	high pH		high pH		naturally occurring
Raystown	nutrient loading low DO	algae blooms	high phosphate low DO	low transparency	nutrient loading
Stillwater	n/a		n/a		n/a
Aylesworth	acid mine drainage		low alkalinity		acid mine drainage
Indian Rock	high conductance		high conductance		industrial point sources
	nutrient loading		high phosphate		nutrient loading

B. Definitions

1. Physical Properties

a) Thermal Stratification often occurs in warmer months as a result of the density difference that develops between the upper (epilimnion) and lower layers (hypolimnion) of water in a lake. Because the epilimnion is exposed to sun during the day, the temperature increases and it becomes less dense. The hypolimnion remains cold and the disparity in the densities of the two layers further prevents mixing. The thermocline (metalimnion) is an area that separates the epilimnion and hypolimnion where temperature changes rapidly.

b) pH is a function of hydrogen ion activity. Water with more free hydrogen ions is acidic and has a lower pH. Water with more free hydroxyl ions is alkaline and has a higher pH. pH serves as one of the most important water quality parameters because many biological and chemical processes in water are dependent upon pH.

c) Secchi transparency is a method of determining water clarity by observing the point at which a black and white disk disappears from view as it is lowered beneath the surface of the water

2. Chemical Properties

a) Conductance is water's ability to conduct an electric current. Conductance values correspond to the amount of dissolved solids in the water and can be related to water clarity. Lower conductance is an indicator of a more pristine water body, and high conductance is an indicator of more polluted water body.

b) Dissolved oxygen is essential for life in water. Rapidly moving water usually has high levels of dissolved oxygen and still waters typically have little. The amount of organic material in water also affects oxygen levels. Bacteria use dissolved oxygen as organic matter decays.

c) Acidity/Alkalinity: Alkalinity is a measure of the total acid-neutralizing capability of a solution whereas total acidity measures the ability of the solution to neutralize bases. Thereby, as alkalinity is increased, the ability of the solution to absorb hydrogen ions is increased, and as total acidity is increased, the ability of the solution to release hydrogen ions is increased.

d) Phosphate/Nitrate: Phosphate and nitrate are nutrients that provide food for plankton and aquatic vegetation. Some nutrients are naturally present in water and are required to sustain aquatic life. In excess, they can lead to eutrophication and depleted oxygen which can be toxic to fish. Common sources of phosphates in water are: sediment, wastewater, dairies, and feedlots. Common sources of excess nitrates in water are: wastewater, septic tanks, animal waste, and feed lots.

e) Ammonia is a metabolic waste product of fish and commonly used as a fertilizer. Ammonia's toxicity is temperature and pH dependent, but it can be toxic in concentrations as low as 0.05 mg/L. Un-ionized ammonia can be calculated using total ammonia concentrations, temperature and pH to give a better idea of its toxicity.

3. Trophic Status

a) Oligotrophic lakes are generally characterized by: low nutrient levels, low aquatic plant production, more algae biodiversity, sparse aquatic plants, presence of oxygen in the hypolimnion, and more deep-dwelling, cold water fish.

b) Eutrophic lakes are generally characterized by: high nutrient levels, high aquatic plant production, few algae species, abundant aquatic plants, absence of oxygen in the hypolimnion, and surface dwelling, warm water fish.

c) Mesotrophic lakes are generally characterized by intermediate nutrient levels and productivity.

C. List of Acronyms

AMD – acid mine drainage
AVF – artificially varied flow
CAFO – concentrated animal feeding operation
CENAB-EN-WW – Baltimore District, Engineering Division, Water Resources Section
CWA – Clean Water Act
DASLER – Data Management and Analysis System for Lakes, Estuaries and Rivers
DO – dissolved oxygen
DS - downstream
ECHO - Enforcement & Compliance History Online
EM – Engineering Manual
EO – Executive Order
EPA – Environmental Protection Agency
ER – Engineer Regulation
FWPCA – Federal Water Pollution Control Act
HAB – Hazardous Algae Bloom
IT – information technology
NAB – North Atlantic Division, Baltimore District
NPDES – National Pollutant Discharge Elimination System
NYSDEC – New York State Department of Conservation
PADEP – Pennsylvania Department of Environmental Protection
PCD – project construction datum
PL – Public Law
SAV – submerged aquatic vegetation
SRBC – Susquehanna River Basin Commission
U/S - upstream
USACE – United States Army Corps of Engineers
WWTP – wastewater treatment plant

D. Coordinates Water Quality Survey Sampling Locations

Table 18: Coordinates of Water Quality Survey Sampling Locations

Station	Location Description	Lat	Long	Station	Location Description	Lat	Long
ALM1	JUST D/S OF DAM	42.3466	-77.7034	JRL1	OUTFLOW	39.4309	-79.1189
ALM2	AT TOWER 17 FT	42.3480	-77.7057	JRL10	50 FT	39.4150	-79.1489
ALM3	@ BRIDGE NEAR X ERIE ST AND RT 21	42.3196	-77.7361	JRL11	SURFACE 3 FORKS	39.4087	-79.1608
AYL1	INTAKE 8 FT	41.5220	-75.5301	JRL12	POTOMAC INFLOW SURFACE IN KITZ	39.3878	-79.1813
AYL3	INFLOW JUST ABOVE RESERVOIR	41.5219	-75.5261	JRL2	200 FT	39.4289	-79.1271
AYL4	BELOW TREATMENT	41.5210	-75.5235	JRL3	185 FT PROFILE	39.4247	-79.1313
AYL5	ABOVE TREATMENT	41.5196	-75.5238	JRL8	135 FT	39.4158	-79.1430
BUS1	35 FT @ DAM	41.3602	-77.9271	RAY1	187 FT	40.4293	-78.0083
BUS2	24 FT PROFILE ONLY	41.3656	-77.9320	RAY10	104FT	40.3570	-78.1161
BUS3A	FIRST BRIDGE UPSTREAM	41.4060	-77.9218	RAY11	80 FT JAMES CREEK	40.3643	-78.1384
BUS4	OUTFLOW	41.3519	-77.9257	RAY12	80FT PROFILE	40.3264	-78.1704
COW1	OUTFLOW	41.9884	-77.1474	RAY16	70 FT	40.3099	-78.1838
COW10	INFLOW	41.9762	-77.2502	RAY18	48 FT	40.2831	-78.1887
COW2	72FT	41.9827	-77.1542	RAY21	INFLOW, PULL OFF JUST AFTER BRIDGE	40.1937	-78.2596
COW4	53FT	41.9827	-77.1780	RAY6	135 FT	40.3978	-78.0439
COW6	43 FT	41.9721	-77.1902	RAY8	129 FT	40.3703	-78.0676
COW9	10 FT	41.9742	-77.2237	RAYR	OUTFLOW	40.4290	-77.9898
CUR1	OUTFLOW	40.9617	-78.5178	SAY1	45 FT	41.0456	-77.6105
CUR2	33 FT	40.9507	-78.5275	SAY3	34 FT	41.0264	-77.6337
CUR2A	26 FT PROFILE	40.9478	-78.5420	SAY4	23 FT PROFILE	41.0253	-77.6603
CUR3	17 FT @ OLD rr x	40.9386	-78.5512	SAY5	20 FT @ PIER	41.0112	-77.6717
CUR4	INFLOW NEAR BRIDGE	40.9226	-78.5756	SAY7	OUTFLOW	41.0495	-77.6087
ESL1	JUST BELOW DAM	42.3299	-75.2312	SAY8	INFLOW @ CURTIN BRIDGE	40.9749	-77.7420
ESL2	44 FT AT DAM	42.3289	-75.2298	STL1	OUTFLOW AT INTAKE	41.6970	-75.4830
ESL2A	12 FT PROFILE	42.3278	-75.2133	STL2	INFLOW EAST BRANCH LACKAWANNA	41.7019	-75.4843
ESL3	10 FT	42.3244	-75.2035	STL3	INFLOW MAIN LACKAWANNA	41.7166	-75.4886
ESL4	HANDSOME BRROK INFLOW	42.3216	-75.1844	TI01	OUTFLOW	41.9017	-77.1368
ESL5	OULEOUT CREEK INFLOW	42.3318	-75.1745	TI07	12 FT PROFILE	41.8647	-77.1150
HAM3	26FT CONNECTING CHANNEL	41.8944	-77.1585	TI09	INFLOW LAMBS CREEK	41.8528	-77.1137
HAM4	20FT PROFILE	41.8950	-77.1655	TIO2	45FT	41.8975	-77.1390
HAM5	15FT BEACH	41.8932	-77.1834	TIO3	40FT	41.8912	-77.1428
HAM7	INFLOW	41.8731	-77.2067	TIO5	28FT	41.8806	-77.1369
IRL1	OUTFLOW @ BRIDGE NEAR RT. 182 SPLIT	39.9337	-76.7550	TIO6	8 FT	41.8700	-77.1200
IRL2	TAILRACE JUST D/S OF DAM OFF OF ACCESS ROAD	39.9227	-76.7521	TIOM1	13FT	41.8821	-77.1248
IRL3	LARGE PARKING LOT OFF OF WOODBERRY RD, NEAR X W/ INDIAN ROCK DAM RD	39.9204	-76.7643	WPL1	JUST D/S OF DAM	42.3383	-75.9663
IRL4	AT BRIDGE ON MARTIN RD	39.8875	-76.8362	WPL2	27 FT	42.3431	-75.9670
IRL5	JUST DS OF SPRING GROVE AT USGS GAUGE	39.8787	-76.8535	WPL3	24 FT	42.3627	-75.9818
				WPL3A	15 FT	42.3830	-75.9661
				WPL4	ACCESS OFF OF COUNTY RD 152 ON RIGHT	42.3994	-75.9721

Table 19: GPS Coordinates of Benthic Stations for East Sidney, Whitney Point & Raystown

Station	Description	GPS Coordinates
ESL2 GLIDE, POOL & RIFFLE	OULEOUT @ KOA	N42 20.388 W75 14.809
ESL3 GLIDE, POOL & RIFFLE	OULEOUT ABOVE ESL	N42 20.663 W75 10.077
ESL4 GLIDE, POOL & RIFFLE	HANDSOME BROOK ABOVE ESL	N42 19.252 W75 10.968
WPL1 GLIDE, POOL & RIFFLE	OTSELIC RIVER TAILRACE	N42 19.875 W75 57.976
WPL2 GLIDE, POOL & RIFFLE	OTSELIC RIVER @1ST BRIDGE ON LANDERS CNR RD.	N42 25.411 W75 56.912
RLP1 GLIDE, POOL & RIFFLE	JUNIATA U/S RAYSTOWN BR.	N40 27.570 W77 58.917
RLP2 GLIDE, POOL & RIFFLE	RAYSTOWN BRANCH U/S OF JUNIATA RIVER	N40 27.237 W77 59.130
RLP3 GLIDE, POOL & RIFFLE	D/S OF DAM NEAR GAUGE STATION (CORBINS ISLAND)	N40 25.720 W77 59.385
RLP4 GLIDE, POOL & RIFFLE	RAYSTOWN BRANCH, 1/2 MI D/S SAXTON	N40 13.267 W78 15.188
RLP5 GLIDE, POOL & RIFFLE	RAYSTOWN BRANCH 1/2 MI U/S OF SAXTON	N40 12.338 W78 14.994

E. EPA Standards

Table 20 lists the water quality standards established by the EPA as well as the sources (listed below) of the standards for each analyte. Table 21 lists the EPA recommended secchi depths for each project based on location within EPA Ecoregions.

Table 20: EPA Standards

Analyte	Standard	Source
Alkalinity	Minimum 20 mg/L	1
Conductance	Maximum 500 µs/cm	3
Dissolved Oxygen	< 6.5 mg/L- in-lake, <8 mg/L-stream	5
Iron	Maximum 1 mg/L	1
Manganese	Maximum 0.1 mg/L	1
Nitrate	90 mg/L maximum	5
pH	6.5 - 9.0	1
Phosphate	0.025 mg/l, 0.05 mg/L maximum	5
Sulfate	Maximum 250 mg/L	2
Un-ionized Ammonia	Varies with pH	4

Table 21: EPA Recommended Secchi Depths

Project Name:	Secchi 50p (m)	Source
Jennings Randolph	3.4	6
East Sidney	4.0	
Whitney Point	4.0	
Almond	4.0	
Cowanesque	4.0	
Tioga-Hammond	4.0	
Curwensville	3.4	
Bush	4.0	
Sayers	3.4	
Raystown	2.1	
Stillwater	2.1	
Aylesworth	2.1	
Indian Rock	1.6	

Sources for Standards:

1. “National Recommended Water Quality Criteria”. EPA's compilation of national recommended water quality criteria is presented as a summary table containing recommended water quality criteria for the protection of aquatic life and human health in surface water for approximately 150 pollutants. These criteria are published pursuant to Section 304(a) of the Clean Water Act and provide guidance for states and tribes to use in adopting water quality standards. https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table
2. US Environmental Protection Agency. “Quality Criteria for Water”. 1986 (http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/up load/2009_01_13_criteria_goldbook.pdf)
3. EPA: http://water.epa.gov/type/rsl/monitoring/vms59.cfm
4. Department of Fisheries and Aquatic Sciences, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Document FA-16. Revised 2009. http://edis.ifas.ufl.edu/fa031
5. EPA: http://water.epa.gov/type/rsl/monitoring/vms59.cfm
6. EPA. “Ambient Water Quality Criteria Recommendations”. 2000.

F. Expected Range Based on NAB Historical Data

As a tool to help identify if data collected is similar to historical data collected at each project, an "Expected Range" has been established for each station sampled. Data was taken from the past 10 years and separated by station. For in-lake stations, only surface and bottom readings were included in the expected range computation. Then for each station, the mean, variance and standard deviation were calculated for the 10 year period data. The expected range was then evaluated to be the mean plus or minus the standard deviation to give the high and low expected ranges, respectively. The variance allows the user to quickly evaluate how far the data diverges from the mean. Table 22 shows this computation for Jennings Randolph Lake as an example. The results of this table could then be used to determine the expected value for the next sampling season.

Table 22: Historical Analysis for Analyte Expected Ranges at Jennings Randolph Lake

	EXPECTED RANGE - CONDUCTANCE										
	1JRL1	1JRL3 S	1JRL3 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S	1JRL2 B
LOW	165	230	164	241	181	252	287	257	350	254	204
HIGH	538	539	575	541	566	553	632	773	806	484	521

	EXPECTED RANGE - DO										
	1JRL1	1JRL3 S	1JRL3 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S	1JRL2 B
LOW	9.8	7.6	7.9	7.5	6.4	7.7	2.9	6.5	8.0	7.6	7.3
HIGH	11.6	10.3	11.4	9.7	11.2	9.7	9.3	10.4	9.6	10.0	12.1

	EXPECTED RANGE - pH										
	1JRL1	1JRL3 S	1JRL3 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S	1JRL2 B
LOW	7.00	7.13	6.98	7.16	6.98	7.33	7.05	6.95	7.39	7.05	6.90
HIGH	7.90	7.81	7.54	7.78	7.55	7.78	7.59	8.06	8.05	7.99	7.54

	EXPECTED RANGE - ALKALINITY								
	1JRL1	1JRL2 S	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12
LOW	12	12	11	12	12	15	17	11	16
HIGH	28	31	28	28	26	29	37	29	48

	EXPECTED RANGE - ACIDITY								
	1JRL1	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S
LOW	2	0	0	2	1	3	2	2	0
HIGH	15	19	16	15	15	16	14	16	15

	EXPECTED RANGE - PHOSPHATE								
	1JRL1	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S
LOW	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HIGH	0.24	0.17	0.23	0.21	0.32	0.27	0.38	0.44	0.26

	EXPECTED RANGE - AMMONIA								
	1JRL1	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S
LOW	0.011	0.000	0.011	0.051	0.004	0.116	0.000	0.000	0.000
HIGH	0.408	0.725	0.523	0.526	0.593	0.855	0.636	0.759	0.649

	EXPECTED RANGE - NITRATE								
	1JRL1	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S
LOW	0.816	0.801	0.799	0.900	0.823	0.860	0.740	0.770	0.703
HIGH	1.554	1.772	1.593	1.775	1.623	1.836	1.620	1.960	1.661

	EXPECTED RANGE - SULFATE								
	1JRL1	1JRL2 S	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12
LOW	74	77	63	59	46	85	91	84	87
HIGH	116	150	129	176	183	147	159	183	238

	EXPECTED RANGE - IRON								
	1JRL1	1JRL2 B	1JRL8 S	1JRL8 B	1JRL10 S	1JRL10 B	1JRL11	1JRL12	1JRL2 S
LOW	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HIGH	0.148	0.408	0.385	0.862	0.151	1.373	0.924	0.197	0.128

	EXPECTED RANGE - SECCHI			
	1JRL2 S	1JRL3 S	1JRL8 S	1JRL10 S
LOW	1.9	2.2	2.1	2.1
HIGH	6.5	6.4	6.8	5.7

G. Sources

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9. PennFUTURE CAFO mapping, https://www.google.com/maps/d/u/0/viewer?mid=zgczrZgJIAck.kCMaeUyyWFoU, December 2019
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