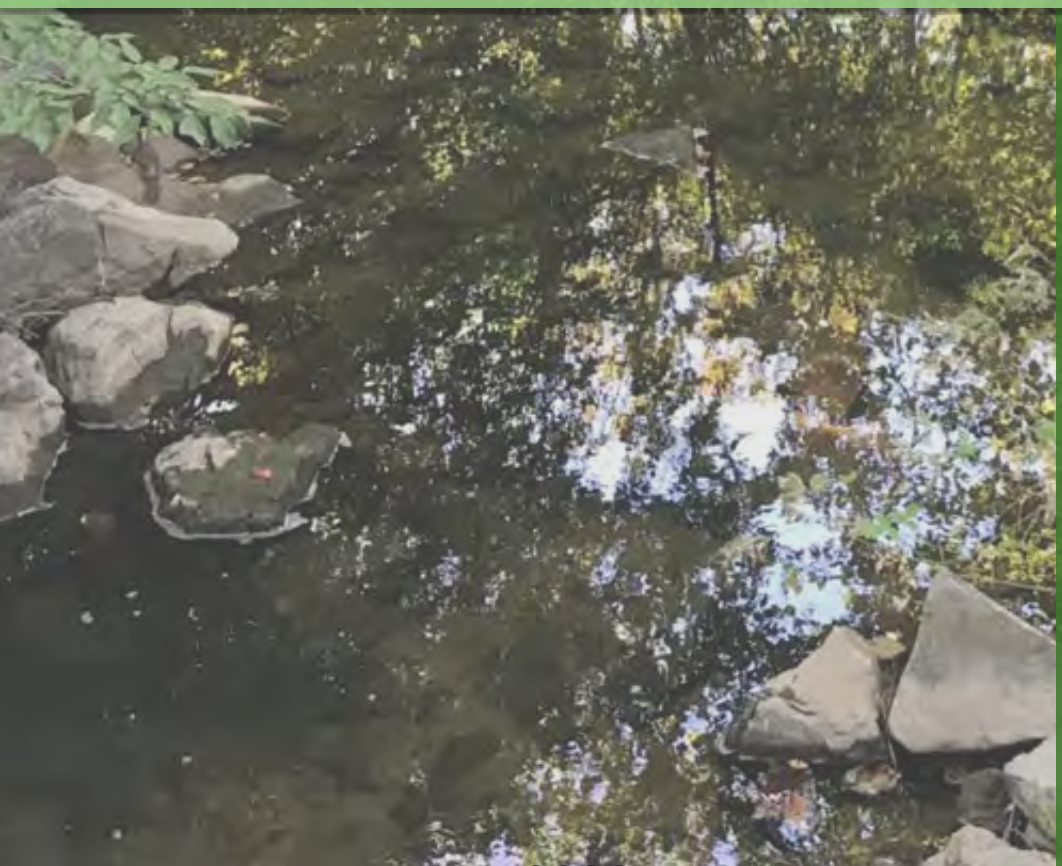
US Army Corps of Engineers

ANACOSTIA WATERSHED RESTORATION MONTGOMERY COUNTY, MARYLAND CONTINUING AUTHORITIES PROGRAM SECTION 206 AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

APPENDIX C: ENVIRONMENTAL AND CULTURAL RESOURCES



MARCH 2025

This page left intentionally blank.

TABLE OF CONTENTS

This page left intentionally blank.

ANACOSTIA WATERSHED RESTORATION
MONTGOMERY COUNTY, MARYLAND
CONTINUING AUTHORITIES PROGRAM SECTION 206
AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

APPENDIX C1: DRAFT PROGRAMMATIC AGREEMENT BETWEEN USACE AND MARYLAND STATE HISTORIC PRESERVATION OFFICER

This page left intentionally blank.

DRAFT PROGRAMMATIC AGREEMENT BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT AND THE MARYLAND STATE HISTORIC PRESERVATION OFFICER REGARDING THE ANACOSTIA WATERSHED AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

WHEREAS, the U.S. Army Corps of Engineers, Baltimore District (USACE) is studying the feasibility of designing and constructing aquatic ecosystem restoration actions that would improve in-stream habitat and fish passage in degraded streams within the Anacostia River watershed in Montgomery County; and,

WHEREAS, the USACE and the Montgomery County Department of Environmental Protection (MCDEP) have proposed to design and implement measures to improve stream habitat and fish passage in degraded streams; and,

WHEREAS, the USACE has drafted an Integrated Feasibility Report and Environmental Assessment has identified a Tentatively Selected Plan (TSP) that includes in-stream habitat improvement, wetland restoration where appropriate, improved stream and floodplain connectivity, and stream relocation where appropriate (Appendix A); and,

WHEREAS, the USACE is the lead Federal Agency for compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) for the Project pursuant to 36 CFR Part 800.2(a)(2); and,

WHEREAS, the Project is a federally funded undertaking, as defined in 36 CFR Part 800.16(y), and is therefore subject to the requirements of Section 106 of the NHPA (54 U.S.C. § 306108; Section 106); and,

WHEREAS, the USACE has determined that that the proposed undertaking may have the potential to cause an adverse effect on properties eligible for or listed in the National Register of Historic Places (NRHP) pursuant to Section 106 and 36 CFR Part 800; and,

WHEREAS, the USACE has consulted about the Project with MHT, which serves as the Maryland State Historic Preservation Office (SHPO), pursuant to 36 CFR Part 800, the regulations implementing Section 106; and,

WHEREAS, in consultation with the SHPO, has established the Project's area of potential effects (APE) as the areas where restoration actions may directly or indirectly alter the character defining features of historic properties; and,

WHEREAS, schedule and budgetary constraints, including Section 1001 of the Water Resources Reform and Development Act (WRRDA) of 2014 (Public Law 113-121) (limiting duration and costs of USACE final feasibility reports), limit the detailed engineering design of the Project features during the feasibility phase such that the USACE cannot conduct all of the necessary surveys to fully identify and evaluate historic and cultural resources, fully determine adverse effects of the Project on historic properties, or fully avoid, minimize, or mitigate those adverse

effects, prior to completing the appropriate National Environmental Policy Act (NEPA) documentation for the feasibility phase; and,

WHEREAS, because implementation of the Preconstruction, Engineering, and Design (PED) phase (where detailed engineering design will occur) is contingent on either authorization of funds by Congress, and execution of a Design Agreement between the USACE and MCDEP, the USACE may implement PED in phases to the extent that design and/or construction authority is phased and funds are appropriated, so that efforts to identify and evaluate historic properties, determine effects from Project components, identify appropriate avoidance, minimization or mitigation, and conduct related consultation may occur over a period of multiple years as the design for each Project construction phase and/or features is finalized; and,

WHEREAS, 36 CFR § 800.14(b)(1)[ii] allows federal agencies to fulfill their obligations under Section 106 through the development and implementation of Programmatic Agreements when effects on historic properties cannot be determined prior to approval of an undertaking; and,

WHEREAS, the MD SHPO has concurred with the use of a Programmatic Agreement and in being a Signatory to this Agreement; and,

WHEREAS, the USACE has determined that as Project components are further designed during the PED phase of the Project, the APE may be further refined, cultural resources surveys to be conducted may identify additional historic properties within the APE, and effects on historic properties may be further identified; and,

WHEREAS, in accordance with 36 CFR Part 800.6(a)(1)(i)(C) and in accordance with 36 CFR Part 800.14(b), the USACE has invited the Advisory Council on Historic Preservation (ACHP) to participate in consultation via the ACHP e106 submission and they [have/have not] elected not to participate; and,

WHEREAS, MCDEP is the non-Federal sponsor for the Project, and the USACE has invited them to sign this Agreement as an Invited Signatory and they [have/have not] elected not to participate; and,

WHEREAS, in accordance with 36 CFR § 800.14(b)(2)(i), the USACE has invited the Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Pamunkey Indian Tribe, Seneca-Cayuga Tribe, Stockbridge-Munsee Tribe, and Tuscarora Nation to sign this Agreement as Concurring Parties, and [insert parties] has elected to participate; and,

WHEREAS, the MD SHPO is hereinafter collectively referred to as Consulting Parties; and,

WHEREAS, the MD SHPO and other Consulting Parties agree that it is advisable to accomplish compliance with Section 106 of the NHPA through the development and execution of this Programmatic Agreement (PA) in accordance with 36 CFR § 800.6 and § 800.14 (b)(1)(ii); and,

WHEREAS, the USACE is coordinating, and shall continue to coordinate a public outreach program for this Project which in the past has consisted of a number of public meetings and the

circulation of cultural resource and environmental documents related to the Section 106 and National Environmental Policy Act review processes; and,

NOW, THEREFORE, the USACE and the SHPO (Signatories) agree that the Project shall be implemented in accordance with the following stipulations in order to consider the effects of the Project on historic properties:

DRAFT STIPULATIONS

The USACE shall ensure that the following measures are carried out:

I. Timeframes and Review Procedures

A. For all draft and final documents and deliverables produced in compliance with this Programmatic Agreement, the USACE shall provide documents electronically for formal review and for communications among the Consulting Parties. Upon request, a hardcopy via mail may be provided to any Consulting Party, time and size permitting. Any written comments provided on draft documents by the MD SHPO and other Consulting Parties within 30 calendar days from the date of receipt shall be considered in the revision of the document or deliverable. The USACE shall document and report the written comments received for the document or deliverable and how comments were addressed. The USACE shall provide a revised final document or deliverable to the MD SHPO and other Consulting Parties. The MD SHPO and other Consulting Parties shall have 30 calendar days to respond. Failure of the MD SHPO and other Consulting Parties to respond within 30 calendar days of receipt of any document or deliverable shall not preclude the USACE from moving to the next step of this Programmatic Agreement. A copy of the final document or deliverable shall be provided to the MD SHPO and other Consulting Parties subject to the limitations in Stipulation X (Confidentiality).

II. Area of Potential Effect

A. The preliminary APE for the Project was determined by the USACE based on feasibility-level design and in consultation with the MD SHPO and other Consulting Parties. The preliminary APE is comprised of Project components and corresponding viewsheds to include direct, indirect, and cumulative effects and is depicted in Appendix A of this Programmatic Agreement. Design and construction of the Project may occur in phases in which various components of the Project shall be funded and designed separately. The USACE shall refine and consult on the development of each Project phase and consult on the APE for each project feature throughout PED as designs are developed that either expand or contract direct and indirect areas of effect.

B. The APE shall be revised where necessary as project designs and details become available to incorporate all areas, including staging areas and travel routes, that will

be directly, indirectly, or cumulatively affected by the Project. If the USACE revises the APE, or an individual component of the APE, the USACE shall consult with the MD SHPO and other Consulting Parties on that revision in accordance with Stipulation I. Pursuant to Stipulation III.C, Project designs will be reviewed by the Consulting Parties at 35%, 65%, and 95% levels of design. The MD SHPO and other Consulting Parties may recommend revisions to the APE based on design changes. The USACE shall consult with the MD SHPO and other Consulting Parties on recommended revisions in accordance with Stipulation I and determine the final APE for each Project component. After consultation with the MD SHPO and other Consulting Parties, the new amended APE will be appended to this Agreement in Appendix A.

C. The USACE shall determine the potential for the Project to affect historic properties in a revised APE in consultation with the MD SHPO and other Consulting Parties pursuant to 36 CFR Part 800.3 – 800.5. If the USACE assesses the Project as proposed and determines that Project designs may cause additional/different effects, of a direct, indirect, or cumulative nature, then the APE should be modified and the USACE shall consult on the modified APE and its assessment of effects in accordance with Stipulation I. Revisions to the APE will not necessitate amendments to this Programmatic Agreement.

III. Treatment of Historic Properties

A. Identification and Evaluation

The USACE shall complete the identification and evaluation of historic properties as early as practicable, following Project authorization and receipt of funding, to assist in the avoidance and minimization of adverse effects to historic properties well in advance of Project construction. The USACE will begin consultation with the MD SHPO and other Consulting Parties regarding PED timeframes, cultural resources surveys, proposed construction schedules, how each Project component will be identified, delineated, and effects assessed, and development of a detailed consultation and document delivery schedule to be appended to this Agreement in Appendix D within six (6) months of receiving funding at the Baltimore District level.

1. *Archaeological Resources*. As design details and funding becomes available, the USACE shall consult on the need to initiate a historic properties identification survey of archaeological resources within the APE described in Stipulation II (Area of Potential Effect). Any surveys will be consistent with the SOI's Standards and Guidelines for Archeology and Historic Preservation.

    a. Prior to initiation of a survey, the USACE shall submit a scope of work for the proposed survey to the MD SHPO and other Consulting Parties for

review and comment consistent with Stipulation I (Timeframes and Review Procedures). Surveys and associated reporting will comply with all applicable guidelines and requirements listed in Stipulation VIII (Qualifications). Recordation of any archaeological sites shall be prepared using the appropriate MD SHPO site form.

b. Surveys will identify archaeological resources within the APE and determine if these properties are eligible for inclusion in the NRHP individually or as a contributing element to a district and/or NHL as appropriate.

c. The USACE shall submit identification and evaluation survey reports to the MD SHPO and other Consulting Parties for review and comment in accordance with Stipulation I (Timeframes and Review Procedures).

2. *NRHP Eligibility Determinations*. The USACE shall determine NRHP eligibility based on identification and evaluation efforts and consult with the MD SHPO and other Consulting Parties regarding these determinations. Should any Consulting Party(s) disagree in writing to the USACE's findings of NRHP eligibility and/or findings of effect within a final document or deliverable, the USACE will immediately notify the MD SHPO and other Consulting Parties of the objection and proceed to consult with the objecting Consulting Party(s) for a period of time, not to exceed 30 calendar days, to resolve the objection. Should the objecting Consulting Party(s) and the USACE be unable to agree on the issues to which the Consulting Party(s) has objected, the USACE shall proceed in accordance with Stipulation XI (Dispute Resolution); or,

a. Through mutual agreement of the Signatories, elect to consult further with the objecting Consulting Party(s) until the objection is resolved, or dispute resolution is exercised through the process set forth in Stipulation XI (Dispute Resolution); or,

b. Treat the property as eligible for the NRHP; or,

c. Obtain a formal determination of eligibility from the Keeper of the NRHP. The Keeper's determination will be final in accordance with 36 CFR Part 63.4.

B. Assessment of Effects

If historic properties meeting the criteria for listing in the NRHP are identified as a result of the activities described in Stipulation III.A, the USACE shall assess the effects of the Project on these properties in a manner consistent with 36 CFR Part 800.5, and submit its findings to the MD SHPO and other Consulting Parties for review and comment pursuant to Stipulation I (Timeframes and Review Procedures).

1. Findings of No Historic Properties Affected.

    a. Basis for Finding. The USACE shall make findings of "no historic properties affected" under the following circumstances:

        i. If no historic properties are present in the APE; or,

        ii. The Project component shall avoid effects to historic properties.

    b. The USACE shall notify the MD SHPO and other Consulting Parties of each finding and provide supporting documentation in accordance with 36 CFR Part 800.11(d). Unless a Consulting Party objects to a finding within 30 calendar days, the Section 106 review of the Project component will have concluded.

    c. If a Consulting Party(s) objects within 30 calendar days to a finding of "no historic properties affected," the USACE shall consult with the objecting Consulting Party(s) to resolve the disagreement.

        i. If the objection is resolved, the USACE either may proceed with the Project component in accordance with the resolution or reconsider effects on the historic property by applying the criteria of adverse effect pursuant to 36 CFR Part 800.5(a)(1).

        ii. If the USACE is unable to resolve the disagreement within 30 calendar days, it will forward the finding and supporting documentation to the ACHP and request that the ACHP review the USACE's finding in accordance with the process described in 36 CFR Part 800.4(d)(1)(ii). If the USACE's final determination is to reaffirm its "no historic properties affected" finding, the Section 106 review of the Project component will have concluded. If the USACE revises its finding, then it shall proceed to Stipulation III.B.2 or Stipulation III.B.3 as applicable.

2. Findings of No Adverse Effect

    a. Basis for Finding. If the USACE determines that a Project component does not meet the adverse effect criteria, the USACE shall propose a finding of "no adverse effect" and consult with the MD SHPO and other Consulting Parties in accordance with 36 CFR Part 800.5(b) and following steps i-iii below:

        i. The USACE shall notify the MD SHPO and other Consulting Parties of its finding; describe any project specific conditions and/or modifications required to the undertaking to avoid

adverse effects to historic properties; and provide supporting documentation pursuant to 36 CFR Part 800.11(e).

ii. Unless a Consulting Party disagrees with the finding within 30 calendar days, the USACE shall proceed with its "no adverse effects" determination and conclude the Section 106 review process.

iii. If a Consulting Party(s) disagrees with the finding of "no adverse effect," the USACE will consult with the objecting Consulting Party(s) to resolve the disagreement.

a) If the objection is resolved, the USACE shall proceed with the Project component in accordance with the resolution; or,

b) If the objection cannot be resolved, the USACE shall request that the ACHP review the findings in accordance with 36 CFR Part 800.5(c)(3)(i)-(ii) and submit the required supporting documentation. If the USACE's final determination is to reaffirm its "no adverse effect" finding, the Section 106 review of the Project component will have concluded. If the USACE will revise its finding, then it shall proceed to Stipulation III.B.3 below.

3. Determination of Adverse Effect

a. If the USACE determines that a Project component may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association resulting in an adverse effect to a historic property, the USACE shall notify the MD SHPO and other Consulting Parties of the determination.

b. Avoidance and Minimization of Adverse Effects. Avoidance of adverse effects to historic properties is the preferred treatment approach. The USACE will consider redesign of Project components in order to avoid and/or minimize historic properties and Project effects that may be adverse. Provisions for avoidance and minimization of adverse effects are outlined in Stipulation III.C. If the USACE determines that the Project component cannot be modified to avoid or minimize adverse effects, the USACE will make a determination of "adverse effect."

C. Avoidance and Minimization of Adverse Effects

1. Project components may be avoided or minimized through adherence to the SOI's Standards for Rehabilitation and/or other appropriate historic resource standards and guidelines. The USACE shall prioritize identifying and implementing avoidance and minimization measures and approaches in consultation with the MD SHPO and other Consulting Parties.

    a. The USACE will develop Project plans and specifications for each Project component at completion intervals of 35%, 65%, and 95% levels of design. At each level of design, the USACE will provide the draft plans and specifications to the MD SHPO and other Consulting Parties for review and comment in accordance with Stipulation I (Timeframes and Review Procedures).

    b. If, through consultation with the MD SHPO and other Consulting Parties, adverse effects to historic properties are avoided at the 35% or 65% level of design, the USACE shall make a determination of effect on the Project component in accordance with Stipulation III.B.2.a. The 95% level of design shall still be provided for review and comment in accordance with Stipulation I regardless of effects determination.

    c. If an effects determination has not been made at the 35% or 65% level of design the USACE shall make a determination of effect in accordance with Stipulation III.B after consultation with the MD SHPO and other Consulting Parties is complete for the 95% design review of the Project.

2. If the USACE, during its initial review of a Project component, finds the undertaking may adversely affect historic properties, the USACE shall develop and evaluate alternatives or modifications to the undertaking that could avoid or minimize adverse effects on historic properties. If an effect cannot be avoided or minimized, the USACE will follow Stipulation III.C.3 of this Agreement.

    a. Alternatives or modifications to the Project component that would avoid or minimize adverse effects on historic properties shall be provided to the MD SHPO and other Consulting Parties for review and comment in accordance with Stipulation I (Timeframes and Review Procedures).

    b. After all comments provided by the MD SHPO and other Consulting Parties in accordance with Stipulation I have been considered, the USACE shall make a determination of effect in accordance with the process described Stipulation III.B.2.a or Stipulation III.B.3.

3. In the event that an effect cannot be avoided or minimized, documentation will be provided to explain why the effect cannot be avoided or minimized and outline the alternatives considered to avoid or minimize, and the USACE will consult with the MD SHPO and other Consulting Parties to resolve the effects in accordance with Section III.D.

D. Mitigation of Adverse Effects

1. The mitigation of adverse effects to historic properties shall be funded by the USACE and MCDEP as part of the construction budget. If adverse effects cannot be avoided or minimized, the USACE, in consultation with the MD SHPO and other Consulting Parties, shall develop a treatment plan for the affected historic property in accordance with Stipulation III.D.2 below.

2. Historic Properties Treatment Plan

a. If the USACE determines that the Project will result in an adverse effect, they shall develop a Historic Properties Treatment Plan (HPTP) or Plans to resolve adverse effects. An HPTP would be developed after the USACE notifies the MD SHPO and other Consulting Parties of a determination of "adverse effect" for the Project or Project component, but before construction of the component commences as outlined in Stipulation IV (Notices to Proceed with Construction).

b. An HPTP shall outline the mitigation measures necessary to resolve the adverse effects to historic properties. Proposed mitigation measures may include, but are not limited to, data recovery, HABS/HAER/HALS documentation, educational programs, informative websites, donation of preservation easements, contributions to preservation funds, historic markers, interpretive brochures, publications, and other forms of creative mitigation or combinations of these measures depending on the historic property's criterion for eligibility. An HPTP shall include a general schedule of work for each Project component, and provide a schedule of key project milestones, and decision points at which to discuss opportunities for Project modification(s) with the MD SHPO and other Consulting Parties.

c. Where a historic property is under private ownership, the MD SHPO and other Consulting Parties shall to the maximum extent practicable involve the private owner(s) in the development of measures for the HPTP, provided that the HPTP measures to be developed are no more costly or extensive than would be for a comparable property under public ownership. Where a private owner refuses to participate in the development of an HPTP, the MD SHPO and other Consulting Parties may elect to develop an HPTP without the owner's participation.

Under no circumstances will the USACE be responsible for a private owner's refusal to participate in the development of an HPTP or the refusal to conduct onsite mitigation. Mitigation options may be constrained to offsite or non-invasive approaches (e.g., documentation, offsite interpretation, or further support to other larger scale mitigation measures, etc.) and must be consistent with parameters for use of Federal funds.

d. An HPTP shall define the process and conditions under which monitoring is appropriate, as applicable. An HPTP will outline the curation process and storage criteria for all artifacts and data recovered from historic properties. An HPTP will detail the means and methods of public outreach and dissemination of the results of data recovery excavations to the general public.

e. The USACE shall ensure that the provisions of an HPTP, as developed in consultation with the MD SHPO and other Consulting Parties and agreed to by the Signatories are documented in writing and implemented. An HPTP shall be appended to this Agreement in Attachment D without amending the Agreement. The use of an HPTP to resolve adverse effects resulting from the Project shall not require the execution of an individual Memorandum of Agreement or Programmatic Agreement and would follow the provisions below (i-vi).

    i. Development: The USACE shall develop an HPTP in consultation with the MD SHPO and other Consulting Parties after a determination of adverse effect is made in accordance with Stipulation III.B.3.
    ii. Review: The USACE shall submit the draft HPTP to the MD SHPO and other Consulting Parties for review and comment pursuant to Stipulation I (Timeframes and Review Procedures).
    iii. Concurrence: Following review and acceptance of the HPTP, the MD SHPO and other Consulting Parties will be provided the final HPTP, which will be appended to this Agreement in Appendix E and implemented in a manner consistent with the procedures outlined in this Agreement and the HPTP. Per Stipulation IV (Notices to Proceed with Construction) below, the HPTP shall be implemented prior to any construction or other activity associated with the undertaking that would adversely affect a historic property. Should the MD SHPO and other Consulting Parties be unable to agree on an HPTP, the USACE shall proceed in accordance with Stipulation XI (Dispute Resolution).

iv. Reporting: Reports and other data pertaining to the treatment of effects to historic properties will be distributed to the MD SHPO and other Consulting Parties and other members of the public, consistent with Stipulation X (Confidentiality), unless the MD SHPO and other Consulting Parties have indicated through consultation that they do not want to receive a report or data. Reports will be consistent with the procedures outlined in the appropriate MD SHPO and SOI standards and guidelines.

v. Amendments/Addendums/Revisions: If a historic property, which is not covered by an existing HPTP, is discovered within the APE subsequent to the initial inventory effort, if there are previously unanticipated effects to a historic property, or if the USACE, MD SHPO, and other Consulting Parties mutually agree that a modification to the HPTP is necessary, the USACE shall prepare an addendum to the HPTP. If necessary, the USACE shall then submit the addendum to the MD SHPO and other Consulting Parties for review in accordance with Stipulation I (Timeframes and Review Procedures), and if necessary, shall follow the provisions of Stipulation V (Inadvertant Discoveries). The HPTP may cover multiple discoveries for the same property type. Should the MD SHPO and other Consulting Parties be unable to agree on an HPTP addendum, the USACE shall proceed in accordance with Stipulation XI (Dispute Resolution).

vi. Final Report Documenting Implementation of HPTP(s): Within one year after the completion of all construction for the Project, the USACE shall submit to the MD SHPO and other Consulting Parties a final report, or reports if multiple HPTPs were used, documenting the results of all work prepared under the HPTP. The USACE may extend this period through written consent of the MD SHPO and other Consulting Parties. The submittal of the Final Report shall be in addition to the annual report required under Stipulation XIV (Monitoring and Reporting) of this Agreement and in accordance with Stipulation I (Timeframes and Review Procedures) and Stipulation X (Confidentiality).

IV. Notices to Proceed with Construction

A. After the identification and evaluation of historic properties have been completed for the undertaking, and an effects determination has been made per Stipulation III (Treatment of Historic Properties), the USACE may issue a notice to proceed (NTP) for Project components, defined by the USACE in its construction plans

and specifications, prior to resolution of the adverse effects on historic properties, provided that:

1. The HPTP has been finalized for the undertaking in accordance with Stipulation III.D and that the construction would not impact or prevent implementation of the HPTP; and,

2. Ground-disturbing activities associated with the undertaking do not encroach within 50 feet of the known boundaries of any historic property as determined from archaeological site record forms, other documentation, or as otherwise defined in consultation with the MD SHPO and other Consulting Parties, as appropriate; and,

3. If an archaeological monitor is deemed necessary by the USACE after consultation with the MD SHPO and other Consulting Parties, an archaeological monitor that meets the professional qualifications described in Stipulation VIII (Qualifications) will be present during any activities that are anticipated to extend either vertically or horizontally into any areas designated as archaeological sensitive.

B. Notification of the USACE's intent to provide an NTP for Project components will be provided to the MD SHPO and other Consulting Parties thirty days before the NTP is issued to the construction contractor. Notification of the NTP to MD SHPO and other Consulting Parties will only occur in instances where an adverse effects determination was made for a Project component.

V. Inadvertent Discoveries

A. If historic properties are inadvertently discovered or if unanticipated adverse effects to known historic properties are made during implementation of a Project component the USACE will ensure that the following stipulations are met, and that the following provisions will be included in all construction, operations, and maintenance plans.

B. When a previously unidentified cultural resource, including but not limited to, archaeological sites, standing structures, and properties of traditional religious and cultural significance to Indian Tribes, are discovered during the execution of the undertaking, the individual(s) who made the discovery shall immediately notify the USACE and the undertakings' Contracting Officer (CO), secure the vicinity, make a reasonable effort to avoid or minimize harm to the resource and comply with the following:

1. All ground-disturbing activities shall cease within a minimum of 50 feet from the inadvertent discovery until the USACE's agency official issues the NTP following the procedure outlined in Stipulation IV (Notices to Proceed with Construction).

2. The USACE will notify the MD SHPO and other Consulting Parties by email or telephone within 48 hours of the discovery or unanticipated effect.

3. The USACE will consult with the MD SHPO and other Consulting Parties by email, virtual meeting, or telephone to determine whether additional investigations are needed to determine if the resource is a historic property or if the available information is sufficient to make such a determination.

    a. If the USACE determines through consultation that the resource does not warrant further investigation, they will provide written notification by email to the MD SHPO and other Consulting Parties, outlining the USACE's justification and requesting concurrence. If no comments are received within 72 business hours of acknowledged receipt, construction may resume.

    b. If the USACE determines through consultation that the site warrants further investigation, a scope of work will be developed consistent with Stipulation III (Treatment of Historic Properties).

        i. The scope of work will be submitted to the MD SHPO and other Consulting Parties for review and comment within a timeframe established in the scope of work. If no comments are received within this period, work shall be implemented in accordance with the scope. If comments are received, the USACE shall take them into account and carry out the scope of work. A report of the investigations will be completed within the timeframe established by the scope of work and copies provided to the MD SHPO and other Consulting Parties. Should any party object to the proposed work plan or results, the USACE will proceed in accordance with Stipulation XI (Dispute Resolution), except that the calendar day periods in the timeframe for resolution in XI.A, shall be reduced from 30 calendar to not to exceed 10 business days.

        ii. If the resources are found to be ineligible for listing in the NRHP, construction may proceed as planned.

        iii. If the resources are determined to be eligible for listing in the NRHP, the USACE shall then initiate communication with the Project design team to determine if alternative design or construction methods can be implemented to avoid, protect, or minimize adverse effects to the resource.

If the resources cannot be avoided by construction activities, then a mitigation/treatment plan or other measures will be adopted in accordance with Stipulation III.D.2. Undertaking activities in the 50-foot buffer, or other appropriate distance determined by the USACE, will remain suspended until the USACE resolves the adverse effect.

c. Inadvertent discovery and the treatment of human remains is governed by Stipulation VI (Tribal Consultation and Treatment of Human Remains).

C. If unanticipated effects to historic properties are made during implementation of a Project phase or feature where a "no adverse effects" determination was previously made through development of Project feature design, monitoring, and/or protection plan in accordance with Stipulation III.C, the individual(s) who made the discovery shall immediately notify the USACE and the undertakings' CO, secure the vicinity, make a reasonable effort to stop and avoid further harm to the resource and comply with the following:

1. All ground-disturbing activities shall cease within a minimum of 50 feet from the inadvertent effect until the USACE's agency official issues the NTP following the procedure outlined in Stipulation IV (Notices to Proceed with Construction).

2. The USACE will notify the MD SHPO and other Consulting Parties by email or telephone within 48 hours of the discovery or unanticipated effect.

3. The USACE will consult with the MD SHPO and other Consulting Parties by email or telephone to determine the sources of the effect and whether the feature design, monitoring plan, and/or protection plan should be amended to avoid adverse effects.

a. If the USACE determines through consultation that an amendment to the feature design, monitoring plan, and/or protection plan can be made to protect the historic property from further effect, they will provide written notification by email to the MD SHPO and other Consulting Parties, outlining the USACE's justification and requesting concurrence. If no comments are received within 72 business hours of acknowledged receipt, construction may resume.

b. If, through consultation with the MD SHPO and other Consulting Parties, the USACE determines that damage occurred to a historic property as a result of the unanticipated effect constitutes an adverse effect as defined in Stipulation III.B.3, or that further

effects cannot be avoided through an amendment to the feature design, monitoring plan, and/or protection plan, a determination of adverse effect will be made and a HPTP will be developed in accordance with Stipulation III.D.2.

i. A construction buffer will be made in consultation with the Consulting Parties and construction will be allowed to continue outside of the buffer.

ii. After the HPTP has been finalized in accordance with Stipulation V.D, a NTP will be issued for the remainder of the Project feature impacted by the unanticipated effect in accordance with Stipulation IV (Notices to Proceed with Construction).

VI. Tribal Consultation and Treatment of Human Remains

A. At any point during design or construction of a Project component that may affect historic properties, particularly TCPs or human remains of Native American Origin, any Indian Tribe(s) may request to consult on the undertaking whether or not the Tribe(s) is a Concurring Party to this Agreement. If requested, the USACE will consult with the Tribe(s) on a government-to-government basis in recognition of their sovereign status.

B. The USACE will make every effort to avoid the disturbance of historic and prehistoric human remains. If human remains are identified, consultation would occur with any Indian Tribe(s) that claim cultural affiliation with the identified human remains and any associated funerary objects, sacred objects, and objects of cultural patrimony.

C. If encountered, human skeletal remains and the artifacts found in association with human remains, whether in association with marked graves or unmarked burials, will be left in situ, and all ground-disturbing work within 50 feet of the remains will cease. The contractor will contact the CO immediately. When human remains are encountered, all activity that might disturb the remains shall not resume until authorized by the District Medical Examiner or the State Archaeologist.

1. If, upon inspection by the appropriate legal authorities, the remains are determined to be a criminal matter and not archaeological, the USACE will ensure that appropriate legal and contractual requirements are followed.

2. If the remains are determined to be archaeological, the State Archaeologist has jurisdiction to determine the appropriate treatment and options for the remains following additional coordination with the MD SHPO and other Consulting Parties.

a. Human remains will be left in place and protected from further disturbance with security fencing and if necessary, a security guard until a site-specific work plan for their avoidance or, if necessary, their removal can be developed.

b. The USACE will coordinate with the MD SHPO and other Consulting Parties, Interested Tribe(s), and other interested parties or descendent communities to develop a treatment or avoidance plan consistent with Stipulation V (Inadvertent Discoveries).

D. If human remains are identified during analysis of archaeological materials, the MD SHPO and other Consulting Parties will be immediately contacted to determine the appropriate treatment of the remains. No photographs or scientific analysis beyond the identification of the remains are permitted. Minimal contact with such remains is permitted by those conducting fieldwork or laboratory analysis.

VII. Curation

A. The USACE shall ensure that all original archaeological records (research notes, field records, maps, drawings, and photographic records) and all archaeological collections recovered from the Project produced as a result of implementing the Stipulations of this Agreement are provided for permanent curation. The USACE shall ensure that the records, and collections and curation facility comply with standards set forth in 36 C.F.R. 79, Curation of Federally Owned and Administered Archaeological Collections.

B. The final disposition of collected material will be specifically outlined in the HPTP and the MD SHPO and other Consulting Parties will be notified in writing when records and collections have been placed in the permanent curation facility as agreed to in the HPTP.

VIII. Qualifications

A. Professional Qualifications
All key personnel (e.g. Principal Investigator, Bioarchaeologist/Osteologist, Architectural Historian, etc.) for technical work and specialized analysis, required for historic preservation activities implemented pursuant to this Agreement and outlined in research designs or HPTPs, shall meet or exceed the SOI's Historic Preservation Professional Qualifications Standards, as specified in 36 CFR Part 61 for archaeology, history, architectural history, architecture, or historic architecture as appropriate (48 FR 44739). The term "technical work" is defined as all efforts to inventory, evaluate, and perform subsequent treatment of potential historic properties that is required under this Agreement such as cultural resources surveys, architectural inventory, data recovery excavation or recordation. This

stipulation shall not be construed to limit peer review, guidance, or editing of documents by the MD SHPO or other Consulting Parties.

B. Historic Preservation Standards
Historic preservation activities carried out pursuant to this Agreement shall meet or exceed the Archaeology and Historic Preservation; Secretary of Interior's Standards and Guidelines (48 FR 44716-44740, September 29, 1983), as well as standards and guidelines for historic preservation activities established by the MD SHPO. The USACE shall ensure that all reports prepared pursuant to this Agreement are provided to the MD SHPO and other Consulting Parties, distributed in accordance with Stipulation X (Confidentiality), and meet the published standards of the MD SHPO or subsequent guidelines provided by the State of Maryland.

C. Monitoring Standards

1. Archaeological monitoring activities required for exploratory, construction, or construction-related, ground disturbing activities implemented pursuant to this Agreement shall be carried out by an individual meeting, at a minimum, the SOI's Historic Preservation Professional Qualifications Standards for archaeology or history, as appropriate (48 C.F.R. 44739). The term "archaeological monitoring" is defined as monitoring ground-disturbing activities that have been determined by the USACE to be occurring in areas potentially sensitive for historic properties or buried resources.

2. Archaeological monitoring will comply with all applicable guidelines and requirements specified in MD SHPO Standards and Guidelines.

3. Other monitoring required as a result of implementing the Stipulations of this Agreement shall be carried out by individuals meeting specific criteria outlined in the appropriate HPTP.

IX. Public Comment and Public Notice

The interested public shall be invited to provide input at appropriate times during the implementation of this Agreement. The USACE may carry this out through letters of notification, public meetings, site visits, and by utilizing the USACE's Baltimore District Public Website and will provide a link to that location through social media and/or a press release. The USACE shall ensure that any comments received from members of the public are considered and incorporated where appropriate. Review periods for such comments shall be consistent with Stipulation I (Timeframes and Review Procedures). In seeking input from the interested public, locations of historic properties will be handled in accordance with Stipulation X (Confidentiality).

X. Confidentiality

Signatory Parties to this Agreement acknowledge that information about historic properties is subject to the provisions of Section 304 of the NHPA (54 U.S.C. § 307103) and 36 C.F.R. § 800.11(c), relating to the disclosure of information about the location, character or ownership of an historic property, and will ensure that any disclosure under this Agreement is consistent with the terms of this Agreement and with Section 304 of the NHPA, 36 C.F.R. § 800.11(c), the Freedom of Information Act (5 U.S.C. § 552), as amended, and S.C. Code Ann. § 30-4-10, et al, as applicable. Confidentiality regarding the specific nature and location of the archaeological sites and any other cultural resources discussed in this Agreement shall be maintained to the extent allowable by law. Dissemination of such information shall be limited to appropriate personnel within the USACE (including their contractors), Consulting Parties and those parties involved in planning, reviewing, and implementing this Agreement. When information is provided to the USACE by the MD SHPO or others who wish greater control over the discretionary dissemination of that information, the USACE will make a good faith effort to do so, provided the information to be controlled and the rationale for withholding is clearly identified, to the extent consistent with applicable law.

XI. Dispute Resolution

A. At any time during the term of the Agreement, should any Signatory or Concurring Party object to any actions proposed or the manner in which the terms of this Agreement are implemented, the USACE will immediately notify the Consulting Parties of the objection and proceed to consult with the objecting party(s) for a period of time, not to exceed 30 calendar days, to resolve the objection. If the objection is resolved through consultation, the USACE may authorize the disputed action to proceed in accordance with the terms of such resolution. If the USACE determines that such objection cannot be resolved, the USACE will:

1. Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide the USACE with its recommendation on the resolution of the objection within 30 calendar days of receiving adequate documentation (See 36 CFR Part 800.11). Prior to reaching a final Agency decision, the USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, and other relevant Consulting Parties, and provide the objecting party with a copy of this written response. The USACE will then proceed according to its final Agency decision.

2. If the ACHP does not provide its recommendation regarding the dispute within the 30-day time period, the Baltimore District Commander may make a final Agency decision and proceed accordingly. Prior to reaching such a final Agency decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from

the MD SHPO or Consulting Parties to the Agreement and provide them and the ACHP with a copy of such written response.

3. The USACE's responsibility to carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute remain unchanged.

B. At any time while this Agreement is in effect, should a substantial objection pertaining to the implementation of this Agreement be raised by a member of the public, the USACE shall notify the MD SHPO and other Consulting Parties and take the objection under consideration. The USACE will consult with the MD SHPO and other Consulting Parties to this Agreement, regarding the objection for no longer than 15 calendar days. The USACE shall consider the objection and all comments provided by the MD SHPO and other Consulting Parties in reaching its decision. Within 15 calendar days following closure of the MD SHPO and other Consulting Parties' comment period, the USACE will render a written decision regarding the objection and respond to the objecting party. The USACE will promptly provide written notification of its decision to the MD SHPO and other Consulting Parties, including a copy of the response to the objecting party. The USACE's decision regarding resolution of the objection will be final. Following issuance of its final decision, the USACE may authorize the action that was the subject of the dispute to proceed in accordance with the terms of that decision. The USACE's responsibility to carry out all other actions under this Agreement shall remain unchanged.

XII. Notices

A. Unless otherwise agreed by the MD SHPO and other Consulting Parties, notices, demands, requests, consents, approvals or any other types of communications regarding this Agreement, shall be sent digitally, requiring confirmation of receipt. If a party to this Agreement requests communication sent by United States Mail, that party shall be considered in receipt of the communication five (5) calendar days after the initial communication is deposited in the United States Mail, certified and postage prepaid, return receipt requested.

B. The ACHP has requested electronic documents and/or electronic communications be used for formal communication among themselves for activities in support of Stipulation I (Timeframes and Review Procedures) as well as all notices, demands, requests, consents, or approvals. Any Consulting Party may consent to electronic documents and/ or electronic communications used in lieu of hard copies.

XIII. Amendments, Termination, and Duration

A. Amendment

Any Signatory Party to this Agreement may propose that the Agreement be amended, whereupon the USACE shall consult with the Signatories to consider such amendment. This Agreement may only be amended when all Signatories agree in writing to such an amendment. The amendment will be effective as of the date the amendment is signed by all the Signatories and filed with the ACHP.

B. Amended Appendices
All appendices to this Agreement, and other instruments prepared pursuant to this Agreement, may be revised or updated by the USACE through consultation consistent with Stipulation I (Timeframes and Review Procedures) and written agreement of the Signatory Parties without requiring an amendment to this Agreement. In accordance and Stipulation IX (Public Comment and Public Notice), the MD SHPO and other Consulting Parties will receive copies and interested members of the public will receive notice of any amendment(s) to the Agreement.

C. Termination
If any Signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment per Stipulation XIII.A, above. If within thirty (30) days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory may terminate the Agreement upon written notification to the other Signatories.

Once the Agreement is terminated, and prior to work continuing on the undertaking, the USACE must either (a) execute an Agreement pursuant to 36 CFR Part 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR Part 800.7. The USACE shall notify the Signatories as to the course of action it will pursue.

D. Duration
This Agreement shall remain in effect for a period of 15 years after the date it takes effect and shall expire at the end of this 15-year period, unless it is terminated prior to that time. No later than 90 calendar days prior to the expiration date of the Agreement, the USACE shall initiate consultation with all Signatory Parties to determine if the Agreement should be allowed to expire or whether it should be extended. Unless the Signatories unanimously agree in accordance with Stipulation XIII (Amendments, Termination, and Duration), this Agreement shall automatically expire and have no further force or effect.

XIV. Monitoring and Reporting

Each year following the execution of this Agreement until it expires or is terminated, the USACE shall provide all parties to this Agreement, on or about the annual anniversary date of execution, a summary memorandum detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems

encountered, and any disputes and objections received in the USACE's efforts to carry out the terms of this Agreement. The annual report shall specify how Project/Project component design has been utilized to minimize harm to affected historic properties to the maximum extent possible pursuant to 36 CFR Part 800.10. The annual report also shall include an updated digital copy of the Agreement that includes approved HPTPs, as well as APE revisions and updates to Attachments A through D.

XV. The Anti-Deficiency Act

The USACE's and other Federal agencies' obligations under this Agreement are subject to the availability of appropriated funds, and the stipulations of the Agreement are subject to the provisions of the Anti-deficiency Act, 31 U.S.C. Part 1341, et seq. The USACE and other Federal agencies shall make reasonable and good faith efforts to secure the necessary funds to implement their obligations under this Agreement. If compliance with the Anti-deficiency Act alters or impairs the USACE's ability to implement its obligations under this Agreement, the USACE shall consult in accordance with the amendment and termination procedures found in Stipulation XIII (Amendments, Termination, and Duration), or proceed in accordance with the procedures found in Stipulation III.D.2.e.(v), if the USACE and Consulting Parties agree that an addendum to an HPTP is appropriate.

XVI. Communications

Electronic mail (email) may serve as the official correspondence method for all communications regarding this Agreement and its provisions. See Appendix C for a list of contacts and email addresses. Contact information in Appendix C may be updated as needed without an amendment to this Agreement. It is the responsibility of each party to the Agreement to immediately inform the USACE of any change in name, address, email address, or phone number of any point-of-contact. The USACE shall forward this information to all parties to this Agreement by email.

XVII. Electronic Copies

Within one (1) week of the last signature on this Agreement, the USACE shall provide the MD SHPO and other Consulting Parties with one (1) high-quality, legible, color, electronic copy of this fully-executed Agreement and all of its appendices fully integrated into one, single document. Internet links shall not be used as a means to provide copies of the appendices since web-based information often changes. If the electronic copy is too large to send by email, the USACE shall provide the MD SHPO and other Consulting Parties with a copy of this Agreement on a compact disc or other appropriate means.

XVIII. Effective Date

This Agreement shall take effect on the date that it has been fully executed by the Signatory Parties.

XIX. Execution

By execution of this Agreement in the pages provided below, the Signatory Parties agree to the terms of this Agreement, and the execution and the implementation of the terms of this Agreement by the Signatory Parties evidence that the USACE has taken into account the effects of this Project on historic properties and afforded the ACHP an opportunity to comment.

Appendix A – Area of Potential Effects
Appendix B – Contact Information
Appendix C – Project Schedule (to be appended once funding is available at the Baltimore District level)
Appendix D – Historic Property Treatment Plans (to be appended once finalized)

Signatures Follow on Separate Page

SIGNATORY:

U.S. Army Corps of Engineers

_____ _____

Colonel Francis B. Pera Date
Commander and District Engineer

SIGNATORY:

Maryland State Historic Preservation Officer

_____ _____

Elizabeth Hughes, SHPO Date

DRAFT APPENDIX A
Area of Potential Effects
[to be inserted in final document]

DRAFT APPENDIX B
Contact Information

U.S. Army Corps of Engineers, Baltimore District

Luis Santiago
Study Manager
U.S. Army Corps of Engineers, Baltimore District (NAB)
2 Hopkins Plaza, Baltimore, MD 21201

Ethan Bean
Cultural Resources Specialist
U.S. Army Corps of Engineers
Baltimore District (NAB)
2 Hopkins Plaza
Baltimore, MD 21201
Office: 410-962-2173
Ethan.a.bean@usace.army.mil

Maryland Historical Trust

100 Community Place, 3rd Floor
Crownsville, MD 21032
Office: (410) 697-9591

DRAFT APPENDIX C
PROJECT SCHEDULE (to be appended once funding is available at the NAB level)

DRAFT APPENDIX D
HISTORIC PROPERTY TREATMENT PLAN (to be appended if used and/or once finalized)

ANACOSTIA WATERSHED RESTORATION
MONTGOMERY COUNTY, MARYLAND
CONTINUING AUTHORITIES PROGRAM SECTION 206
AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

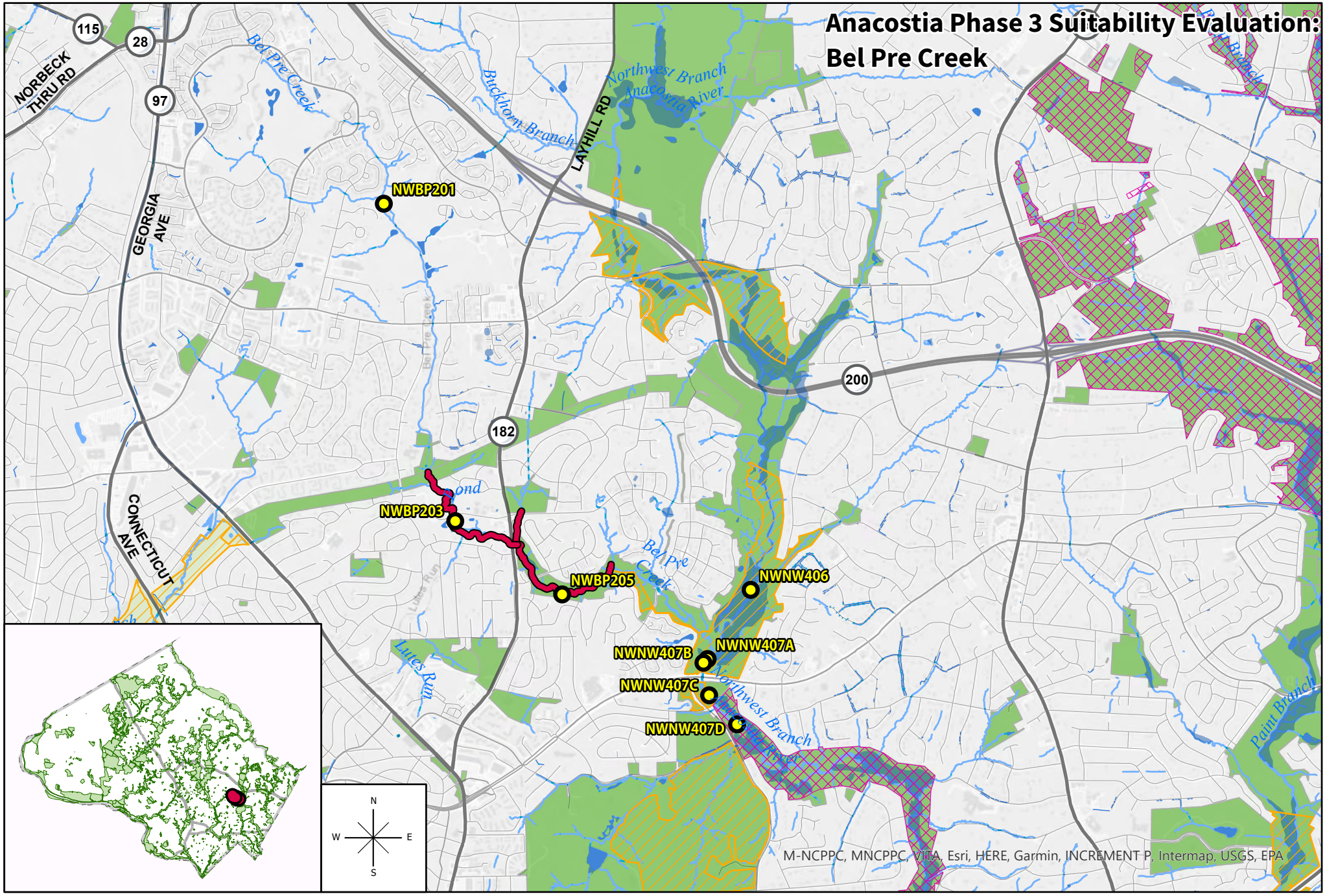
DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

APPENDIX C2: MCDEP BIOLOGICAL SAMPLING SUMMARY

This page left intentionally blank.

Montgomery County Candidate Stream Reaches MCDEP Sampling Summary					
Stream Name	**USACE Study Stream Segment No. (2014/5)**	**MCDEP Sampling Station Within Segment**	**Habitat**	**Benthic**	**Fish**
Bel Pre Creek	3			**Years of Sampling**	
		NWBP203	1995 (3), 2001 (2)	1995, 2001	1995, 2001
		NWBP205	1995 (3), 2001 (2), 2002 (2), 2004 (2), 2009 (2), 2011 (2)	1995, 2001, 2002, 2004, 2009, 2011	1995, 2001, 2002, 2004, 2009, 2011
Lamberton Creek	5	NWLT101	1995 (3), 2001 (1), 2002 (2), 2004 (2), 2005 (2), 2007 (2), 2009 (4), 2011(2)	1995, 2001, 2002, 2004, 2005, 2007, 2009, 2011	1995, 2001, 2002, 2004, 2005, 2007, 2009, 2016

Anacostia Phase 3 Suitability Evaluation: Bel Pre Creek



- Biological Monitoring Station
- Potential Project Reach
- Water
- M-NCPPC Park
- Other Parkland
- Best Natural Area (BNA)
- Biodiversity Area (BDA)
- Wetlands (from Field Studies)

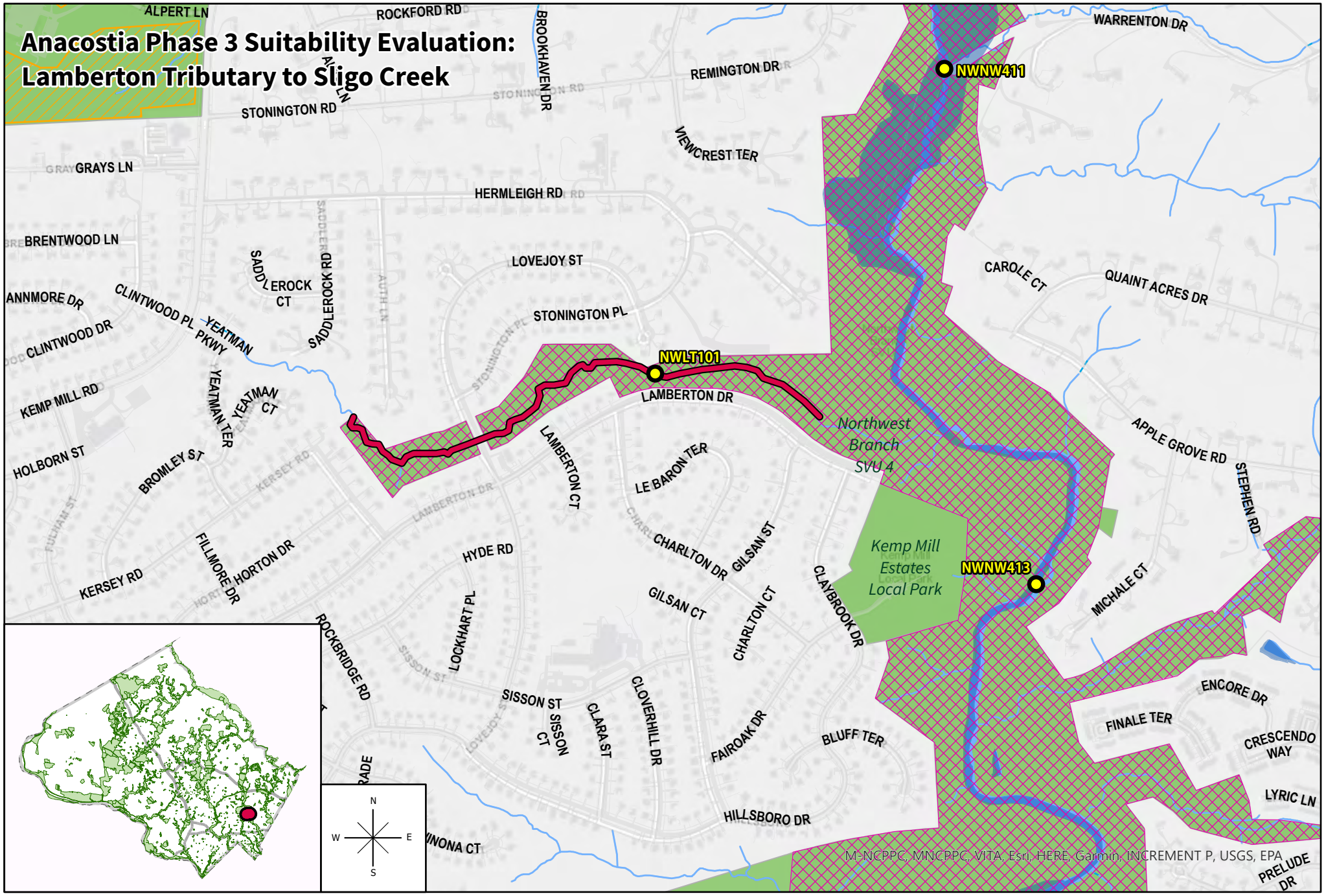
0 2,000 4,000 8,000 US Feet

0 500 1,000 2,000 Meters

Park Planning & Stewardship Division
Resource Analysis
2425 Reedie Drive, 11th Floor
Wheaton, MD 20902

Map information used for general planning purposes only.

Anacostia Phase 3 Suitability Evaluation: Lamberton Tributary to Sligo Creek



Biological Monitoring Station

Proposed Project Area

Water

M-NCPPC Park

Other Parkland

Best Natural Area (BNA)

Biodiversity Area (BDA)

Wetlands (from Field Studies)

0 500 1,000 2,000 US Feet

0 150 300 600 Meters

Park Planning & Stewardship Division
Resource Analysis
2425 Reedie Drive, 11th Floor
Wheaton, MD 20902

Map information for general planning purposes only.

SEGMENT 3 (Northwest Branch - Bel Pre Tributary) MCDEP Fish Sampling 1995-2016 Dates

STATION	DATE	SPECIES	PASS1	PASS2
NWBP203	6/5/1995	Blacknose Dace	44	7
NWBP203	6/5/1995	Bluegill	5	0
NWBP203	6/5/1995	Bluntnose Minnow	14	4
NWBP203	6/5/1995	Brown Bullhead	1	0
NWBP203	6/5/1995	Common Shiner	1	0
NWBP203	6/5/1995	Creek Chub	23	5
NWBP203	6/5/1995	Redbreast Sunfish	6	1
NWBP203	6/5/1995	Rosyside Dace	6	1
NWBP203	6/5/1995	Silverjaw Minnow	3	0
NWBP203	6/5/1995	Spottail Shiner	2	0
NWBP203	6/5/1995	Swallowtail Shiner	2	0
NWBP203	6/5/1995	Tessellated Darter	16	8
NWBP203	6/5/1995	White Sucker	17	3
NWBP203	7/10/2001	Blacknose Dace	56	31
NWBP203	7/10/2001	Bluntnose Minnow	2	5
NWBP203	7/10/2001	Creek Chub	7	2
NWBP203	7/10/2001	Longnose Dace	0	1
NWBP203	7/10/2001	Redbreast Sunfish	7	3
NWBP203	7/10/2001	Rosyside Dace	0	1
NWBP203	7/10/2001	Silverjaw Minnow	0	1
NWBP203	7/10/2001	Tessellated Darter	1	2
NWBP203	7/10/2001	White Sucker	21	5

STATION	DATE	SPECIES	PASS1	PASS2
NWBP205	6/6/1995	Blacknose Dace	127	60
NWBP205	6/6/1995	Bluntnose Minnow	83	61
NWBP205	6/6/1995	Common Shiner	2	0
NWBP205	6/6/1995	Creek Chub	32	16
NWBP205	6/6/1995	Fantail Darter	1	0
NWBP205	6/6/1995	Longnose Dace	4	1
NWBP205	6/6/1995	Redbreast Sunfish	4	3
NWBP205	6/6/1995	Rosyside Dace	23	5
NWBP205	6/6/1995	Silverjaw Minnow	11	6
NWBP205	6/6/1995	Swallowtail Shiner	2	3
NWBP205	6/6/1995	Tessellated Darter	15	11
NWBP205	6/6/1995	White Sucker	25	10
NWBP205	6/29/2001	Blacknose Dace	123	46
NWBP205	6/29/2001	Bluntnose Minnow	9	5
NWBP205	6/29/2001	Common Shiner	1	1
NWBP205	6/29/2001	Creek Chub	8	5
NWBP205	6/29/2001	Longnose Dace	1	0
NWBP205	6/29/2001	Redbreast Sunfish	1	1
NWBP205	6/29/2001	Silverjaw Minnow	2	0
NWBP205	6/29/2001	Tessellated Darter	6	2
NWBP205	6/29/2001	White Sucker	28	11
NWBP205	6/6/2002	Blacknose dace	206	70
NWBP205	6/6/2002	Bluntnose minnow	30	7
NWBP205	6/6/2002	Creek chub	20	7
NWBP205	6/6/2002	Fantail darter	1	1
NWBP205	6/6/2002	Redbreast sunfish	2	0

SPECIES PRESENT	
1	American Eel
2	Blacknose Dace
3	Bluegill
4	Bluntnose Minnow
5	Brown Bullhead
6	Common Shiner
7	Creek Chub
8	Cutlips Minnow
9	E. silvery minnow
10	Fallfish
11	Fantail Darter
12	Fathead minnow
13	Green Sunfish
14	Largemouth bass
15	Longnose Dace
16	Margined Madtom
17	Northern hogsucker
18	Pumpkinseed
19	Redbreast Sunfish
20	Rosyside Dace
21	Satinfin shiner
22	Silverjaw Minnow
23	Spotfin Shiner
24	Spottail Shiner
25	Swallowtail Shiner
26	Tessellated Darter
27	White Sucker

NWBP205	6/6/2002	Silverjaw minnow	8	1
NWBP205	6/6/2002	Swallowtail shiner	6	2
NWBP205	6/6/2002	Tessellated darter	10	2
NWBP205	6/6/2002	White sucker	39	5
NWBP205	7/23/2004	Creek Chub	8	1
NWBP205	7/23/2004	Tessellated darter	0	3
NWBP205	7/23/2004	Longnose dace	0	1
NWBP205	7/23/2004	Bluntnose minnow	9	7
NWBP205	7/23/2004	Bluegill	1	0
NWBP205	7/23/2004	Redbreast sunfish	6	4
NWBP205	7/23/2004	White sucker	10	1
NWBP205	7/23/2004	Blacknose dace	52	44
NWBP205	8/24/2009	Blacknose dace	162	23
NWBP205	8/24/2009	Bluegill	1	2
NWBP205	8/24/2009	Bluntnose minnow	125	45
NWBP205	8/24/2009	Common shiner	2	0
NWBP205	8/24/2009	Creek chub	13	3
NWBP205	8/24/2009	Fantail darter	4	0
NWBP205	8/24/2009	Fathead minnow	0	5
NWBP205	8/24/2009	Largemouth bass	9	2
NWBP205	8/24/2009	Longnose dace	13	4
NWBP205	8/24/2009	Pumpkinseed	3	1
NWBP205	8/24/2009	Redbreast sunfish	26	6
NWBP205	8/24/2009	Rosyside dace	1	0
NWBP205	8/24/2009	Silverjaw minnow	27	9
NWBP205	8/24/2009	Spottail shiner	5	5
NWBP205	8/24/2009	Swallowtail shiner	62	23
NWBP205	8/24/2009	Tessellated darter	19	9
NWBP205	8/24/2009	White sucker	20	10
NWBP205	6/30/2016	Blacknose dace	213	29
NWBP205	6/30/2016	Bluegill	2	0
NWBP205	6/30/2016	Bluntnose minnow	69	3
NWBP205	6/30/2016	Creek chub	1	0
NWBP205	6/30/2016	Cutlips minnow	1	0
NWBP205	6/30/2016	Fantail darter	3	3
NWBP205	6/30/2016	Green sunfish	2	0
NWBP205	6/30/2016	Hybrid minnow	1	0
NWBP205	6/30/2016	Longnose dace	17	2
NWBP205	6/30/2016	Redbreast sunfish	1	2
NWBP205	6/30/2016	Silverjaw minnow	4	1
NWBP205	6/30/2016	Spottail shiner	1	0
NWBP205	6/30/2016	Swallowtail shiner	3	0
NWBP205	6/30/2016	Tessellated darter	5	0
NWBP205	6/30/2016	White sucker	13	1

STATION	DATE	SPECIES	PASS1	PASS2
NWNW407A	8/4/1999	American Eel	1	1
NWNW407A	8/4/1999	Blacknose Dace	141	101
NWNW407A	8/4/1999	Bluegill	12	3
NWNW407A	8/4/1999	Bluntnose Minnow	247	124
NWNW407A	8/4/1999	Common Shiner	14	6
NWNW407A	8/4/1999	Creek Chub	3	4
NWNW407A	8/4/1999	Cutlips Minnow	16	2

NWNW407A	8/4/1999	E. silvery minnow	2	2
NWNW407A	8/4/1999	Fantail Darter	9	9
NWNW407A	8/4/1999	Longnose Dace	9	6
NWNW407A	8/4/1999	Margined Madtom	0	1
NWNW407A	8/4/1999	Northern hogsucker	19	3
NWNW407A	8/4/1999	Redbreast Sunfish	24	1
NWNW407A	8/4/1999	Rosyside Dace	13	7
NWNW407A	8/4/1999	Silverjaw Minnow	17	24
NWNW407A	8/4/1999	Spotfin Shiner	19	7
NWNW407A	8/4/1999	Spottail Shiner	63	24
NWNW407A	8/4/1999	Swallowtail Shiner	26	8
NWNW407A	8/4/1999	Tessellated Darter	29	20
NWNW407A	8/4/1999	White Sucker	34	3
NWNW407A	8/29/2001	American Eel	1	1
NWNW407A	8/29/2001	Blacknose Dace	97	50
NWNW407A	8/29/2001	Bluegill	4	0
NWNW407A	8/29/2001	Bluntnose Minnow	163	64
NWNW407A	8/29/2001	Common Shiner	18	4
NWNW407A	8/29/2001	Creek Chub	3	0
NWNW407A	8/29/2001	Cutlips Minnow	9	2
NWNW407A	8/29/2001	E. silvery minnow	1	0
NWNW407A	8/29/2001	Fallfish	1	0
NWNW407A	8/29/2001	Fantail Darter	44	7
NWNW407A	8/29/2001	Green Sunfish	1	0
NWNW407A	8/29/2001	Longnose Dace	22	9
NWNW407A	8/29/2001	Northern hogsucker	4	2
NWNW407A	8/29/2001	Pumpkinseed	1	0
NWNW407A	8/29/2001	Redbreast Sunfish	14	2
NWNW407A	8/29/2001	Rosyside Dace	20	5
NWNW407A	8/29/2001	Silverjaw Minnow	51	4
NWNW407A	8/29/2001	Spotfin Shiner	8	0
NWNW407A	8/29/2001	Spottail Shiner	38	5
NWNW407A	8/29/2001	Swallowtail Shiner	16	4
NWNW407A	8/29/2001	Tessellated Darter	42	9
NWNW407A	8/29/2001	White Sucker	55	9
NWNW407A	6/26/2002	Blacknose dace	346	66
NWNW407A	6/26/2002	Bluegill	8	1
NWNW407A	6/26/2002	Bluntnose minnow	268	57
NWNW407A	6/26/2002	Common shiner	6	0
NWNW407A	6/26/2002	Creek chub	2	4
NWNW407A	6/26/2002	Cutlips minnow	7	3
NWNW407A	6/26/2002	Fantail darter	40	14
NWNW407A	6/26/2002	Largemouth bass	1	1
NWNW407A	6/26/2002	Longnose dace	17	7
NWNW407A	6/26/2002	Northern hogsucker	3	2
NWNW407A	6/26/2002	Pumpkinseed	4	0
NWNW407A	6/26/2002	Redbreast sunfish	6	5
NWNW407A	6/26/2002	Rosyside dace	7	1
NWNW407A	6/26/2002	Satinfin shiner	3	0
NWNW407A	6/26/2002	Silverjaw minnow	117	29
NWNW407A	6/26/2002	Spotfin shiner	2	3
NWNW407A	6/26/2002	Spottail shiner	25	13
NWNW407A	6/26/2002	Swallowtail shiner	5	2

NWNW407A	6/26/2002	Tessellated darter	15	6
NWNW407A	6/26/2002	White sucker	66	18
NWNW407A	10/9/2003	American eel	0	2
NWNW407A	10/9/2003	Blacknose dace	23	16
NWNW407A	10/9/2003	Bluegill	4	2
NWNW407A	10/9/2003	Bluntnose minnow	29	19
NWNW407A	10/9/2003	Brown bullhead	1	0
NWNW407A	10/9/2003	Cutlips minnow	0	1
NWNW407A	10/9/2003	Fantail darter	25	21
NWNW407A	10/9/2003	Longnose dace	4	2
NWNW407A	10/9/2003	Northern hogsucker	1	3
NWNW407A	10/9/2003	Pumpkinseed	1	0
NWNW407A	10/9/2003	Redbreast sunfish	6	0
NWNW407A	10/9/2003	Satinfin shiner	0	2
NWNW407A	10/9/2003	Swallowtail shiner	0	1
NWNW407A	10/9/2003	Tessellated darter	6	4
NWNW407A	10/9/2003	White sucker	44	11
NWNW407A	8/30/2005	White sucker	22	5
NWNW407A	8/30/2005	Spottail shiner	52	14
NWNW407A	8/30/2005	Blacknose dace	50	45
NWNW407A	8/30/2005	Bluntnose minnow	41	21
NWNW407A	8/30/2005	Tessellated darter	14	9
NWNW407A	8/30/2005	Creek chub	7	5
NWNW407A	8/30/2005	Cutlips minnow	2	1
NWNW407A	8/30/2005	Northern hogsucker	4	2
NWNW407A	8/30/2005	Rosyside dace	7	4
NWNW407A	8/30/2005	Spotfin shiner	2	0
NWNW407A	8/30/2005	Swallowtail shiner	5	3
NWNW407A	8/30/2005	Silverjaw minnow	11	1
NWNW407A	8/30/2005	Longnose dace	19	16
NWNW407A	8/30/2005	Fantail darter	0	2
NWNW407A	8/30/2005	Common shiner	0	2
NWNW407A	8/30/2005	Satinfin shiner	1	1
NWNW407A	6/22/2007	Spottail shiner	31	17
NWNW407A	6/22/2007	Blacknose dace	67	70
NWNW407A	6/22/2007	Longnose dace	19	20
NWNW407A	6/22/2007	Largemouth bass	1	1
NWNW407A	6/22/2007	White sucker	4	1
NWNW407A	6/22/2007	Bluntnose minnow	72	56
NWNW407A	6/22/2007	Satinfin shiner	3	1
NWNW407A	6/22/2007	Cutlips minnow	1	2
NWNW407A	6/22/2007	Tessellated darter	14	17
NWNW407A	6/22/2007	Rosyside dace	1	1
NWNW407A	6/22/2007	Fantail darter	13	16
NWNW407A	6/22/2007	Margined madtom	1	1
NWNW407A	6/22/2007	Swallowtail shiner	2	2
NWNW407A	6/22/2007	Silverjaw minnow	0	4
NWNW407A	6/22/2007	Redbreast sunfish	0	2

SEGMENT 3 (Northwest Branch - Bel Pre Tributary) M-NCPPC Fish Sampling 2018-2021 Dates

STATION	DATE	SPECIES	PASS1	PASS2
NWNW407C	10/2/2018	Blacknose dace	1	1
NWNW407C	10/2/2018	Bluegill	2	2
NWNW407C	10/2/2018	Bluntnose minnow	57	40
NWNW407C	10/2/2018	Brown bullhead	1	0
NWNW407C	10/2/2018	Common shiner	2	1
NWNW407C	10/2/2018	Creek chub	2	1
NWNW407C	10/2/2018	Cutlips minnow	1	0
NWNW407C	10/2/2018	Eastern mosquitofish	6	5
NWNW407C	10/2/2018	Fantail darter	1	1
NWNW407C	10/2/2018	Green sunfish	8	2
NWNW407C	10/2/2018	Longnose dace	3	1
NWNW407C	10/2/2018	Margined madtom	21	19
NWNW407C	10/2/2018	Northern hogsucker	22	11
NWNW407C	10/2/2018	Redbreast sunfish	65	20
NWNW407C	10/2/2018	Rosyside dace	0	1
NWNW407C	10/2/2018	Satinfin shiner	7	12
NWNW407C	10/2/2018	Silverjaw minnow	57	15
NWNW407C	10/2/2018	Smallmouth bass	3	0
NWNW407C	10/2/2018	Spottail shiner	16	12
NWNW407C	10/2/2018	Swallowtail shiner	3	3
NWNW407C	10/2/2018	Tessellated darter	9	2
NWNW407C	10/2/2018	White sucker	2	2

STATION	DATE	SPECIES	PASS1	PASS2
NWNW407D	9/21/2021	American eel	5	1
NWNW407D	9/21/2021	Blacknose dace	25	5
NWNW407D	9/21/2021	Bluegill	10	5
NWNW407D	9/21/2021	Bluntnose minnow	443	132
NWNW407D	9/21/2021	Common shiner	1	1
NWNW407D	9/21/2021	Creek chub	14	11
NWNW407D	9/21/2021	Fantail darter	35	8
NWNW407D	9/21/2021	Green sunfish	20	22
NWNW407D	9/21/2021	Longnose dace	9	2
NWNW407D	9/21/2021	Margined madtom	4	4
NWNW407D	9/21/2021	Mosquitofish	40	38
NWNW407D	9/21/2021	Northern hogsucker	68	14
NWNW407D	9/21/2021	Redbreast sunfish	98	78
NWNW407D	9/21/2021	Satinfin shiner	36	17
NWNW407D	9/21/2021	Silverjaw minnow	11	12
NWNW407D	9/21/2021	Smallmouth bass	3	1
NWNW407D	9/21/2021	Spottail shiner	178	134
NWNW407D	9/21/2021	Swallowtail shiner	16	18
NWNW407D	9/21/2021	Tessellated darter	71	29
NWNW407D	9/21/2021	White sucker	85	55

SEGMENT 5 (Northwest Branch - Lamberton Tributary) MCDEP Fish Sampling

STATION	DATE	SPECIES	PASS1	PASS2
NWLT101	6/21/1995	Blacknose Dace	15	4
NWLT101	6/21/1995	Creek Chub	5	2
NWLT101	7/3/2001	Blacknose Dace	8	1
NWLT101	7/3/2001	Creek Chub	6	6
NWLT101	6/20/2002	Blacknose dace	1	1
NWLT101	6/20/2002	Bluegill	1	0
NWLT101	6/20/2002	Creek chub	1	0
NWLT101	7/13/2004	Blacknose dace	6	5
NWLT101	7/13/2004	Creek chub	1	0
NWLT101	9/29/2005	Creek chub	26	11
NWLT101	9/29/2005	Blacknose dace	57	9
NWLT101	9/29/2005	White sucker	2	0
NWLT101	6/20/2007	Rosyside dace	1	0
NWLT101	6/20/2007	Blacknose dace	26	16
NWLT101	6/20/2007	Creek chub	0	1
NWLT101	6/23/2009	Blacknose dace	54	13
NWLT101	6/23/2009	Creek chub	3	2
NWLT101	8/25/2009	Blacknose dace	59	26
NWLT101	8/25/2009	Creek chub	4	1

SPECIES PRESENT	
1	Blacknose Dace
2	Bluegill
3	Creek Chub
4	Rosyside dace
5	White sucker

ANACOSTIA WATERSHED RESTORATION
MONTGOMERY COUNTY, MARYLAND
CONTINUING AUTHORITIES PROGRAM SECTION 206
AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

APPENDIX C3: US FISH AND WILDLIFE PLANNING AID REPORT

This page left intentionally blank.

Final Planning Aid Report:

Anacostia River Watershed Restoration Project: Montgomery County, MD

Montgomery County, MD

Prepared for U.S. Army Corps of Engineers
Baltimore District

Prepared by: Amy O'Donnell
Biologist, U.S. Fish and Wildlife Service
Chesapeake Bay Field Office

October 2023

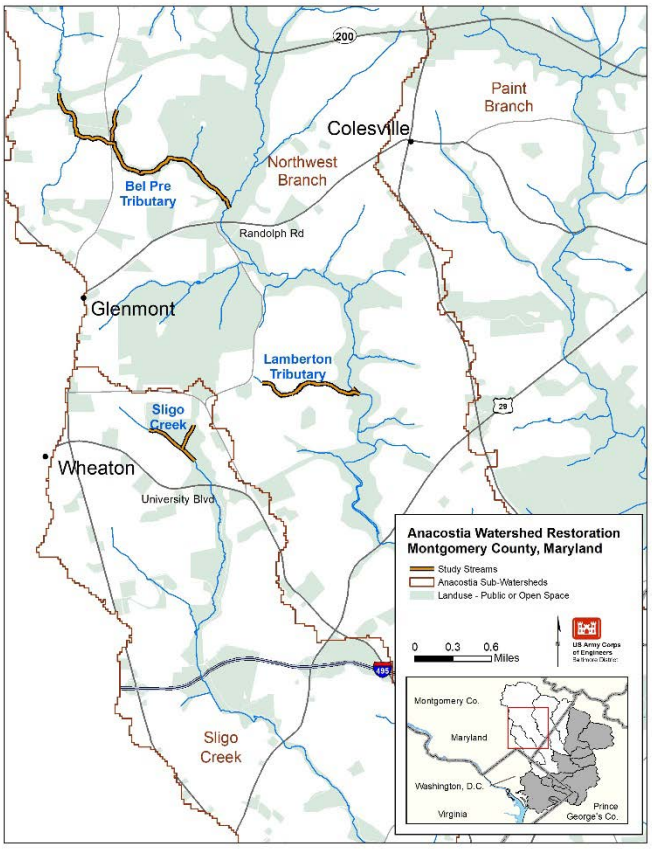
Contents

Project Description

The United States Army Corps of Engineers (USACE) initiated an aquatic ecosystem restoration feasibility study of three tributary systems of the Anacostia River in Montgomery County, MD. The three tributaries are Bel Pre Creek (3.1 miles), Lamberton Creek (1 mile) and Upper Sligo Creek (0.7 miles). These tributaries were previously evaluated as a part of a larger USACE investigation study considering additional streams within the Montgomery County portion of the Anacostia River. The study ceased in 2016 and was not completed. The U.S. Fish and Wildlife Service (the Service) prepared a Planning Aid Report (PAR) for USACE in 2015; the PAR included an assessment of multiple streams within the Anacostia watershed in Montgomery and Prince George's Counties and included a field-evaluation of Sligo Creek using a rapid stream assessment.

The three stream segments combined are equal to 4.8 miles in length and flow through lands owned by the Maryland-National Capital Park and Planning Commission (MNCPPC). The streams flow in predominantly forested riparian corridors, eroded streambanks occur throughout their entirety. Through a feasibility study, opportunities for stream restoration, wetland restoration and increase of the stream-floodplain interaction will be evaluated. The study seeks to minimize detrimental impacts to forests and mature trees.

This project has been authorized under the Continuing Authorities Program, Section 206 of the Aquatic Ecosystem Restoration Water Resources Development Act of 1996, as amended. This will benefit the Chesapeake Bay by achieving protection and restoration goals established by the 2009 Executive Order 13508 and the 1014 Chesapeake Bay Program to restore clean water, recover habitat, sustain fish and wildlife, conserve land and increase public access.



0Detailed Alternative Plan Description

Three alternatives are being considered for this project:

Alternative 1**:** Future Without Project (FWOP: No Action)

Alternative 2a (**Tentatively Selected**): Natural Channel Design - in stream habitat improvement; wetland restoration in concert with stream restoration, opportunities are likely to include Sligo, Bel Pre tributaries; increase stream/floodplain connection; stream relocation where appropriate; fish passage improvement (step pools or fish ladder); and invasive plant species removal where appropriate

Alternative 2b: Natural Channel Design with Major Infrastructure Modification - includes all the measures outlined in Alternative 2a and relocation or movement of existing major infrastructure such as bridges and roads to provide habitat improvement (riparian reforestation, improved stream geometry)

Alternative 3: Streambank Stabilization - use of USACE Engineer Research and Development Center (ERDC) techniques for stream restoration; wetland restoration in concert with stream restoration; stream relocation where appropriate; partial removal of concrete in channelized stream reaches or addition of in-stream structures within concrete channels; daylight pipes where appropriate; fish passage improvement (step pools or fish ladders); and invasive species removal where appropriate

The streams in the project area are highly urbanized and have eroded streambanks and unstable channel conditions. The tentatively selected plan is Alternative 2a Natural Channel Design.

Resources Without the Project

Baseline Environmental Conditions

The Anacostia River, a tributary of the Potomac River, flows through Washington D.C. and drains portions of Montgomery and Prince George's Counties in Maryland and D.C., one of the most densely populated areas along the Eastern Coast of the United. Historically, this watershed was thriving and a cultural resource for the native Nanchotank Indians among the Piedmont and Coastal Plain geographic provinces. Once a vibrant ecosystem, the Anacostia River hosted healthy populations of sturgeon, shad, perch, redbreast sunfish, pickerel, catfish and herring. The river's decline coincides with settlement of the area. Forests were cleared for agriculture which accelerated rapidly and now the area has become increasingly urbanized and industrialized.

Over 70 percent of the once forested area in the Anacostia watershed has been developed. This landcover change decreases possibility for attenuation and filtration of stormwater runoff (*Anacostia River Watershed Restoration Plan and Report*, 2010); reduced available forest habitat; fragmented the landscape; and diminished the value and functional capacity of the ecosystem. Due to shoreline development, filling, dredging and other anthropogenic activities, emergent tidal and non-tidal wetlands have been reduced within the watershed. An estimated 6,500 acres of wetlands have been lost within the last 50 years; remaining wetlands are degraded and fragmented (*Anacostia River Watershed Restoration Plan and Report*, 2010). Riparian habitat and wetlands provide critical ecosystem services and aid in the Anacostia River's overall function, but both have been severely reduced in this watershed.

The increased urbanization alongside aging infrastructure and outdated sewer systems has contributed to the decline in water quality. Increasing urbanization has caused excessive runoff, reduced groundwater recharge, reduced water quality due to transport of pollutants and increased loss of riparian areas which has led to an overall degradation of the ecological habitat. The area has seen an increase in impervious surface due to population growth and development, which has disrupted hydrologic cycles, having a direct impact on the health of the Anacostia River and its tributaries. The upper tributaries begin in neighborhoods as stormwater runoff which brings chemicals from yards and vehicles, sediment, pet waste and a variety of other pollutants rushing into the stream during rain events. Further downstream, the sewer system in D.C. combines wastewater with stormwater runoff that forces the discharge of untreated sewage and stormwater runoff through a Combined Sewer Overflow outfall, directly into the lower Anacostia River; about one-third of D.C.'s stormwater and sewer infrastructure are combined (*Anacostia River Watershed Restoration Plan and Report*, 2010). This uncontrolled and untreated runoff causes flow volume, rates and velocities to increase which entrenches the channel and contributes to streambank erosion. An increase in sediment within the channels carries additional pollutants attached to fine-grained sediment, reduces water clarity, impairs aquatic and riparian habitat and impairs not only the local ecosystem but the Potomac River and Chesapeake Bay. The Anacostia River Watershed Restoration Plan (*Anacostia River Watershed Restoration Plan and Report*, 2010) cites the Anacostia River as one of the most polluted waterways in the nation and The State of the River Report Card for the last 2 years has graded the Anacostia River with an F. Overall levels of dissolved oxygen, fecal bacteria, water clarity and stormwater runoff volume have improved in the upper extents of the Anacostia, but there is still overall need for improvement toward a clean and healthy river system (*2022 State of the Anacostia River Full Report*, 2022). It is not likely that this area will see large-scale redevelopment aside from demolition of commercial areas that have reached the end of their lifecycle.

The Anacostia River and its tributaries provide important habitat for fish migration; however, there are many obstructions along the channel that impede movement. Uncovered utility lines, road culverts and weirs from previous stream projects all contribute to passage barriers for aquatic species. Migrating fish are unable to pass through areas where depth is reduced to mere inches, and currently there are over 120 major fish barriers within the watershed (*Anacostia River Watershed Restoration Plan and Report*, 2010).

The proposed project area addresses the upper tributaries of the Anacostia River. They begin as stormwater drainage systems for neighborhoods in Montgomery County. The areas surrounding the selected project sites are suburban neighborhoods with wide streets, sidewalks and manicured yards. Storm events create deluges of runoff that contribute to declining waterway conditions with chemical runoff from the street, increased sediment load and uncontrolled currents that erode streambanks.

The baseline condition of Anacostia River and its tributaries has room for improvement. Without new practices at the time of renovation or redevelopment, the areas of large impervious surface will remain and continue to contribute to the degradation of this watershed. No Action would likely result in further decline in the ecological function of the Anacostia River and its tributaries. Actions within the tributaries of the Anacostia could provide benefits for wildlife within that tributary and increase water quality further downstream.

Effects on Fish and Wildlife Resources

Data Quality

The following is a description of priority Service resources for the project area. The information represents the best available current information that could be gathered from existing sources. Whenever possible, project specific information was used.

Migratory Birds

Migratory birds are an important trust resource, and the Service works with partners to protect, restore and conserve bird populations and their habitats for the benefit of future generations. The following databases were used to gather information on migratory birds within the project area, including data from the Service's Information for Planning and Consultation system (IPaC). This was done in order to provide a more complete analysis of the resources that are found within the described project area and represents the "best available science" for this project. IPaC is a project planning tool that is used to streamline the Service's environmental review process; it is used to identify migratory birds, endangered species, interjurisdictional fish, marine mammals, wetlands and refuge lands. IPaC official species lists are valid for 90 days. After 90 days project proponents should reconfirm their results by requesting an updated species list for their project area to ensure an accurate and up-to-date list.

A polygon of the project area was mapped in IPaC (Appendix B). From this data a list of migratory birds as well as Birds of Conservation Concern (BCC) was created (Table 1). IPaC identified 11 migratory bird species for this site (accessed 1/31/2023). The relevant species of conservation concern are presented below and are the subset of birds identified in IPaC that relate to the 1988 Fish and Wildlife Coordination Act mandating the Service to, "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973."

There are also particular Time of Year (TOY) restrictions that need to be taken into account. TOY restrictions provide general guidance for the protection of wildlife; they focus on the time of year that species may be more sensitive to human activities such as during the breeding season.

Table 1. Birds of Conservation Concern known to occur in the project area (data from USFWS IPaC Trust Resource Report).

Common Name	Scientific Name	Breeding Season
Bald Eagle	*Haliaeetus leucocephalus*	Sept 1 to Jul 31
Black-billed Cuckoo	*Coccyzus erythropthalmus*	May 15 to Oct 10
Cerulean Warbler	*Dendroica cerulea*	Apr 28 to Jul 20
Chimney Swift	*Chaetura pelagica*	Mar 15 to Aug 25
Golden Eagle	*Aquila chrysaetos*	Breeds elsewhere
Kentucky Warbler	*Geothlypis formosa*	Apr 20 to Aug 20
Prairie Warbler	*Dendroica discolor*	May 1 to Jul 31
Prothonotary Warbler	*Protonotaria citrea*	Apr 1 to Jul 31
Red-headed Woodpecker	*Melanerpes erythrocephalus*	May 10 to Sep 10
Rusty Blackbird	*Euphagus carolinus*	Breeds elsewhere
Wood Thrush	*Hylocichla mustelina*	May 10 to Aug 31

Another resource used to examine wildlife presence is the Rapid Avian Information Locator (RAIL) tool, which pulls graphics and information from multiple data sources. The results indicate that a species has been observed within 10 kilometers of the project area within the last 10 years and therefore is a starting point for identifying birds that have potential to be found within the project area with the best available information from a several credible resources (*RAIL - Rapid Avian Information Locator*, n.d.); results in Appendix A. The results listed over 200 species, many of these are not expected to be nesting within the project area but have a potential to use the project area.

Threatened and Endangered Species

The following species were shown to be present near or within the project area as of a January 2023 IPaC report.

Northern Long-eared Bat (*Myotis septentrionalis)*

The northern long-eared bat is small, weighing between 5 and 8 grams with a body length of 3 to 4 inches. Their range includes most of the eastern United States and all Canadian provinces. In the summer they will roost underneath bark or in crevices or cavities of live trees and snags; they do not depend on a particular species of tree for roosting and will use a wide variety of species that offer suitable cavities. They forage within forested areas, 1 to 3 meters above the ground. Because of this behavior, retaining forested areas is critical for this species. The main threats to the northern long-eared bat are white-nose syndrome, habitat loss and degradation and hibernaculum disturbance (U.S. Fish and Wildlife Service, 2022; Whalen & Krusac, 2014). This species is present within 15 miles of the project area. Effective March 31, 2023 the northern long-eared bat's status will be changed to endangered. The Service will be operating under an Interim Consultation Framework until April 1, 2024. We recommend

that the Corps' submit their project through IPaC as the project develops to determine whether consultation with the Service is necessary.

At-Risk Species

At-risk species are species that are declining but are not yet determined to be threatened or endangered. This includes species that are proposed for listing, candidates for listing and/or petitioned for listing under the Endangered Species Act (ESA). The Service may also consider species of greatest conservation need as identified by the states. While the RAIL indicated many species in decline within 10km of the project area, only the species potentially using the area for reproduction are outlined below. This project is not expected to have negative or positive population level effects on species utilizing the area during migration. Alternatives that would create improved riparian areas, remove invasive species and leave large forest tracts would offer better resting areas for forest dwelling species using the project site during migration.

Cerulean Warbler (*Setophaga cerulea*)

The cerulean warbler is a small migratory bird. The males are brightly colored blue above and white below with white wing bars, white tail spots, and a black necklace and black streaking along the side and back. The female is a duller turquoise color above and yellow-white below with a pale blue crown and a white or yellow line over the eye. They are considered area-sensitive. They prefer to breed only in large forest tracts, building open cup nests in the middle to upper branches of deciduous trees 15 to 90 feet above the ground. Three or four eggs are laid in May or June and incubated for about 2 weeks. These warblers prefer river valley deciduous forests and will breed in mature hardwoods in upland systems or along streams where there is a clear understory (*Cerulean Warbler | Audubon Field Guide*, n.d.).

A No Action alternative would not likely impact this species on a population level. This species is not well studied within suburban areas in Maryland. It is not likely to nest near the project area due to lack of larger forest tracts, but because it is not well studied it could occur within the project area and is regularly seen in surrounding larger forest tracts (historic eBird hotspots in Rock Creek Park, Wheaton Regional Park, RAIL results). While project construction may disturb individuals, as long as trees are not removed during the nesting season (April 28 - July 20), the species is mobile and is expected to disperse from active construction areas. Tree removal could impact available nesting habitat for the species in this area. Since there is a lack of enclosed forests outside of the project area, this could be the most suitable nesting habitat for this species in this area. For this species the Service would recommend maintaining as much forest tract as possible.

Little Brown Bat (*Myotis lucifugus*)

The little brown bat is a small bat with glossy brown fur; it can be distinguished by its feet, they have large feet with long hairs that extend past the toenails. In the summer they will roost in buildings in attics, under shingles and behind shutters. In the winter they inhabit caves or mines. This species has a broad historical range. This species was once abundant but has experienced recent severe declines due to white-nose syndrome, it is a Species of Greatest Conservation Need in Maryland and ranked as highly

state rare (Maryland Department of Natural Resources, n.d.). The Service is currently reviewing the status of this species and expects to issue a proposed listing decision in 2023.

The Service recommends that the Corps' submit their project through IPaC as the project develops to determine if consultation is required for little brown bat. The time of year restrictions and inspections proposed for the northern long-eared bat will also reduce impacts to these species.

Monarch (*Danaus plexippus plexippus*)

The monarch butterfly is a brush-footed butterfly with large, orange and black wings that uses open prairie, meadow, open woodland, gardens and roadside habitat with suitable milkweed species for larvae and nectar plants for adults. This monarch butterfly subspecies is unique, however, in that its multi-generational migration life strategy necessitates widespread breeding and food resources at the right places at the right times (Midwest Association of Fish and Wildlife Agencies, 2018). Destruction and alteration of breeding, migrating and wintering habitats, including loss of adult and larval food and places to live during critical stages of its life cycle, have reduced its range and abundance over the last 30 years. At one time, the monarch was common in most states east of the Rocky Mountains during the breeding season and gathered in large numbers on the wintering grounds in Mexico. Based on 20 years of wintering ground surveys, the eastern population has fallen from approximately 1 billion to fewer than 35 million monarchs, representing a decline of 97 percent from the 1997 high count and a 90 percent decline from the 20-year average (Rendon-Salnias et al., 2014). Monarchs are vulnerable in Maryland (*Danaus Plexippus | NatureServe Explorer*, n.d.), a state that provides summertime breeding habitat.

In 2014, the Service was petitioned to protect the monarch butterfly under the ESA. On December 15, 2020, the Service announced that listing the monarch as endangered or threatened is warranted but precluded by listing of other species in greater need. This decision is the result of an extensive status review that compiled and assessed the monarch's current and future status (*Monarchs | U.S. Fish & Wildlife Service*, n.d.). The monarch is now a candidate under the ESA. The Service will review its status annually until a listing decision is made. In the interim, significant and expansive conservation measures are being undertaken throughout the species' range to boost populations (U.S. Fish and Wildlife Service, 2020).

The No Action alternative would not offer any benefits to this species, nor would it have a negative effect on the overall population. The other alternatives have the potential to create resting and feeding habitat for the monarch populations migrating through Maryland. All of the alternatives offer wetland and riparian restoration and include invasive species removal which could benefit the population of monarchs utilizing this area. To support this species, restoring riparian areas and removing invasive vegetation is highly recommended as this can provide more suitable habitat for monarchs. Whenever possible plant mixed vegetation including milkweed species to encourage the generation using the area while migrating north, and flowering forbs and trees which feed monarchs traveling south during fall migration.

Spotted Turtle (*Clemmys gutatta*)

Spotted turtles are aquatic turtles that are black in color with yellow spots. They are small, measuring between 3.5 and 4.5 inches. This species can be found in wetlands throughout the East Coast of the United States, and they favor shallow water habitats with vegetation. This includes ditches, bays,

bogs and swamps. Their specific habitat requirements and slow reproductive rates are what designates them as an at-risk species. Their primary threats are collection, habitat loss (isolated freshwater wetlands without protection), habitat fragmentation (contiguous habitat fragmented by development and roads) and climate change (changes in rainfall patterns may alter favored wetlands, and warming temperatures can skew sex ratios). This species was petitioned for listing under the ESA in July 2012 and the initial finding was that listing may be warranted. The Service will review the species status and make a final listing determination by 2023 (*Spotted Turtle (Clemmys Guttata) | U.S. Fish & Wildlife Service*, n.d.). A No Action alternative would not have a negative or positive effect on this species. Because this species is found in Montgomery County, maintaining freshwater ponding and improving wetlands and riparian areas will allow for continued use by spotted turtles, as well as maintaining connective habitat in the watershed to enable this species to safely move between different areas.

Tricolored Bat (*Perimyotis subflavus*)

The tricolored bat is one of eastern North America's smallest bats. It is distinguished by its unique fur type that has three distinct color segments. They have been documented in over half the states in North America. When they are not hibernating, they roost in live or dead leaf clusters of deciduous hardwood trees. They forage over waterways and forest edges at treetop level early in the evening and then closer to the ground later in the evening. The main threats are white-nose syndrome, wind related mortality, habitat loss and climate change. In September 2022, this species was proposed for listing as endangered under the ESA. Similar to the northern long-eared bat, these bats have been found within 15 miles of the project area (U.S. Fish and Wildlife Service, 2021b). We recommend that the project submit their project through IPaC after the Service releases interim guidance and as the project develops. The time of year restrictions and inspections proposed for the northern long-eared bat will also reduce impacts to these species.

Wood Thrush (*Hyclocichla mustelina*)

The wood thrush is a robin sized brown bird with cinnamon colored brown upper and a boldly spotted white breast. They lay 3 to 4 eggs, incubate for about 2 weeks and young fledge about 12 days after hatching. Wood thrushes forage on the ground, typically in forest undergrowth but can be found occasionally on open lawns. They feed on insects and berries. Their preferred habitat is deciduous woodlands, and they breed in the understory usually 10 to 15 feet above the ground. While they are more numerous in damp forests and near streams, they will nest in suburban areas where there are enough large trees. The population of this species has declined in recent decades due to nest parasitism by cowbirds and habitat fragmentation (Audubon, 2014).

A No Action alternative would not have any negative impact on this species outside of further degradation of the project area over time. While project construction may disturb individuals, as long as trees are not removed during the nesting season (May 10 - August 31), the species is mobile and is expected to disperse from active construction areas. Maintaining a contiguous forest tract is a preferred way to minimize nest predation by cowbirds as this increases difficulty in finding wood thrush nests to parasitize. An alternative that included larger scale infrastructure construction could be more disruptive to current available habitat, but disruption would be temporary, and this project has the potential to enhance the overall habitat for wood thrush by increasing longevity and vitality of the riparian areas.

Bald and Golden Eagle Protection Act (BGEPA)

The bald eagle (*Haliaeetus leucocephalus*) was identified due to its federally protected status under the MBTA and BGEPA. There are no bald eagles nesting near the project site (*Bald Eagle Nest Monitoring*, n.d.; *CCB Mapping Portal*, n.d.).

Fish and Shellfish Resources

Anadromous and Catadromous Fish

The Anadromous Fish Conservation Act (Act) is a Federal law enacted in 1965 to conserve, develop, and enhance the anadromous fish resources of the U.S. that are subject to depletion from water resources development and other causes, or with respect to which the U.S. has made conservation commitments by international agreements, and the fish in the Great Lakes and Lake Champlain that ascend streams to spawn. The provisions of the Act are found under 16 USCS §§ 757a-757f. Inter-jurisdictional, catadromous and anadromous fish are a Service trust resource. Anadromous fish spend most of their adult lives in saltier water but return each year to spawn in freshwater. Catadromous fish spend most of their adult lives in freshwater and return to salt water to spawn. The Service and our partners are working to protect the health of aquatic habitats, recover and restore populations of native fish and provide opportunities to enjoy the many benefits of healthy aquatic resources. Fish passage allows for fish and other aquatic species to migrate throughout an aquatic system that are necessary to complete their life cycle. Millions of fish move between larger bodies of water and within river systems to survive. Movement is essential during various life stages to reproduce, feed and recycle nutrients within the ecosystem they inhabit. If fish are unable to migrate or access different habitat types, they are not able to reproduce and build sustainable populations. Improving fish passage not only aids aquatic resources but helps make waterways safer and can reduce flooding (U.S. Fish and Wildlife Service, n.d.).

American eel (*Anguilla rostrata*) has been surveyed within the proposal project areas (Appendix D); they are the only catadromous eel native to Atlantic coastal waters. Its status has been reviewed by the Service in 2007 and 2015 for listing under the ESA. Both times, the determination was that protection is not warranted. The population appears to be stable; a No Action alternative would not have a positive or negative effect on this species within the project area. An alternative that opens up fish passage would have a positive impact on the species and water quality, and allows aquatic organisms to travel further upstream in these tributaries (U.S. Fish and Wildlife Service, 2021a). Mussels are restricted to the lower mainstem of the Anacostia River within the tidally influenced zone. This project is far enough upstream that it will not have any direct or indirect impacts to mussels in the watershed (M. Ashton, personal communication, March 3, 2023).

A No Action alternative would not have a positive or negative effect on the present species. The conditions would likely continue to degrade, erosion would continue to undercut banks, channel entrenchment would continue leading to uncontrollable velocities and fish passages would be further reduced over time. The preferred alternative includes fish passage improvement, which the Service supports and appreciates. The Service recommends consulting the Chesapeake Bay Program's June 2021 document, "Recommendations for Aquatic Organism Passage at Maryland Road-Stream Crossings" (Chesapeake Bay Program, 2021) prior to any design work occurring. This document offers guidance and recommendations that were developed by a stakeholder group consisting of state and Federal agencies

(including the Service and Maryland Department of Transportation) and multiple conservation groups and would be the standard design approach recommended by the Service for this project.

Invasive Species

At the site visit, it was noted there was an abundance of bamboo, particularly at Sligo Creek. Invasive species threaten native plant diversity. This change magnifies up the food chain and can lead to a decline in pollinator diversity. Invasive vines will choke out trees and alter soil chemistry, either with deep roots that access nutrients shallower roots cannot reach or by changing the pH of the soil (University of Maryland Extension, n.d.). A No Action selection would not aid in the removal or invasive species, which likely would continue to spread within the project areas. All of the other alternatives include a component of invasive species removal, which would assist in the ever-present struggle against expansion of invasive species. The preferred alternative would include a component addressing invasive plant species removal to benefit Service resources by offering the opportunity for native plants. Additionally, invasive species management and planting outside of the LOD can occur to ensure proper invasive species management in accordance with federal regulations.

Conclusion

The preferred alternative selected by USACE includes wetland restoration in concert with stream restoration, both habitat types are importance to Service fish and wildlife resources. Restoration opportunities are likely to include Sligo and Bel Pre tributaries, both of which have large tracts of riparian area that offer preferred habitat to at-risk species. The preferred alternative will increase stream/floodplain connection which will assist in streambed stabilization. It may also include stream relocation where appropriate, which may offer longevity to the stream system as a whole, and as long as this does not require extensive forest clearing could benefit Service resources using the area.

Inclusion of fish passage improvement (step pools or fish ladder) is of vital importance to Service resources. Fish are essential for the full life cycle to continue within this watershed, as well as to assist in nutrient recycling. Invasive plant species removal is also desired for Service resources. Removal of invasive species is highly encouraged; if this is to be done in tandem with plantings, the Service recommends native plants. If the site would support pollinator habitat, milkweed and late summer/early fall blooming flowers would support migrating butterflies. Removing invasive species can increase diversity of native species in the riparian area and enhances habitat for fish and wildlife resources.

The Service recommends a conservative approach to any restoration work, this is because multiple bat and bird species in the area are experiencing significant population declines. Maintaining as much forest tract as possible and leaving snags will offer roosting locations for bats and benefit other forest-dwelling species. A time of year restriction is recommended to protect forest-dwelling species, and tree removal is discouraged in order to protect these bat and bird species.

Citations

2022 State of the Anacostia River Full Report. (2022). Anacostia Watershed Society. https://www.anacostiaws.org/what-we-do/public-policy-advocacy/state-of-the-river-report-card/2022-state-of-the-anacostia-river-full-report.html

Anacostia River Watershed Restoration Plan and Report (p. 163). (2010). https://www.anacostia.net/archive/download/arp/Anacostia-Report-Web-Quality.pdf

Ashton, M. (2023, March 3). *Mussels in Anacostia upper tributaries* [Personal communication].

Audubon. (2014, November 13). *Wood Thrush*. Audubon. https://www.audubon.org/field-guide/bird/wood-thrush

Bald Eagle Nest Monitoring. (n.d.). Maryland Bird Conservation Partnership. Retrieved March 8, 2023, from https://marylandbirds.org/bald-eagle-nest-monitoring

CCB Mapping Portal. (n.d.). Retrieved March 8, 2023, from https://ccbbirds.org/maps/

Cerulean Warbler | Audubon Field Guide. (n.d.). Retrieved March 8, 2023, from https://www.audubon.org/field-guide/bird/cerulean-warbler

Chesapeake Bay Program. (2021). *Recommendations for Aquatic Organism Passage at Maryland Road-Stream Crossings*.

Danaus plexippus | NatureServe Explorer. (n.d.). Retrieved March 8, 2023, from https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.108245/Danaus_plexippus

Isenberg, D. (2023, February 28). *Fish Data Request* [Personal communication].

Maryland Department of Natural Resources. (n.d.). *Little Brown Bat*. Maryland Department of Natural Resources. Retrieved March 8, 2023, from https://dnr.maryland.gov/wildlife/Pages/default.aspx

Midwest Association of Fish and Wildlife Agencies. (2018). *Mid-America Monarch Conservation Strategy 2018-2038* (Public Review Draft 1.0).

Monarchs | U.S. Fish & Wildlife Service. (n.d.). FWS.Gov. Retrieved March 8, 2023, from https://www.fws.gov/initiative/pollinators/monarchs

RAIL - Rapid Avian Information Locator. (n.d.). Retrieved March 8, 2023, from https://data.pointblue.org/apps/rail/

Rendon-Salnias, E., Fajardo-Aroyo, A., & Tavera-Alonso, G. (2014). Trends in Deforestation and Forest Degradation after a Decade of Monitoring in the Monarch Butterfly Biosphere Reserve in Mexico. *Conservation Biology*, *28*(1), 177–186. https://doi.org/10.1111/cobi.12138

Spotted Turtle (Clemmys guttata) | U.S. Fish & Wildlife Service. (n.d.). FWS.Gov. Retrieved March 8, 2023, from https://www.fws.gov/species/spotted-turtle-clemmys-guttata

University of Maryland Extension. (n.d.). *Introduction to Invasive Plants in Maryland*. Retrieved March 8, 2023, from https://extension.umd.edu/resource/introduction-invasive-plants-maryland

U.S. Fish and Wildlife Service. (n.d.). *National Fish Passage Program*. FWS.Gov. Retrieved March 8, 2023, from https://www.fws.gov/program/national-fish-passage

U.S. Fish and Wildlife Service. (2020). *Monarch (Danaus plexippus) Species Status Assessment Report, version 2.1 September 2020*. 96.

U.S. Fish and Wildlife Service. (2021a). *American Eel (Anguilla rostrata) Ecological Risk Screening Summary*. https://www.fws.gov/sites/default/files/documents/Ecological-Risk-Screening-Summary-American-Eel.pdf

U.S. Fish and Wildlife Service. (2021b). *Species Status Assessment Report for the Tricolored Bat* (1.1).

U.S. Fish and Wildlife Service. (2022). *Species Status Assessment Report for the Northern long-eared bat*.

Whalen, R., & Krusac, D. (2014). *Biological Assessment for Activities Affecting Northern Long-Eared Bats on Southern Region National Forests*.

Appendix A. Results from eBird Survey of Matthew Henson Trail (Layhill Rd – Georgia Ave) and Sligo Creek Park (north end to Dennis Ave) nearest hotspots, accessed 1/31/2023.

Acadian Flycatcher	Bufflehead	Evening Grosbeak	Nashville Warbler	Scarlet Tanager
American Black Duck	Cackling Goose	Field Sparrow	Northern Cardinal	Semipalmated Sandpiper
American Coot	Canada Goose	Fish Crow	Northern Flicker	Sharp-shinned Hawk
American Crow	Cape May Warbler	Fox Sparrow	Northern Harrier	Solitary Sandpiper
American Goldfinch	Carolina Chickadee	Golden-crowned Kinglet	Northern Mockingbird	Song Sparrow
American Redstart	Carolina Wren	Golden-winged Warbler	Northern Parula	Spotted Sandpiper
American Robin	Cedar Waxwing	Gray Catbird	Northern Rough-winged Swallow	Swainson's Thrush
Bald Eagle	Chestnut-sided Warbler	Great Blue Heron	Northern Waterthrush	Swamp Sparrow
Baltimore Oriole	Chimney Swift	Great Crested Flycatcher	Ovenbird	Tennessee Warbler
Barn Swallow	Chipping Sparrow	Great Egret	Palm Warbler	Tree Swallow
Barred Owl	Clay-colored Sparrow	Great Horned Owl	Pileated Woodpecker	Tufted Titmouse
Bay-breasted Warbler	Common Grackle	Green Heron	Pine Siskin	Turkey Vulture
Belted Kingfisher	Common Loon	Hairy Woodpecker	Pine Warbler	Veery
Black Vulture	Common Merganser	Hermit Thrush	Prairie Warbler	Vesper Sparrow
Black-and-white Warbler	Common Nighthawk	Hooded Merganser	Purple Finch	Warbling Vireo
Blackburnian Warbler	Common Raven	Hooded Warbler	Red-bellied Woodpecker	White-breasted Nuthatch
Black-crowned Night Heron	Common Yellowthroat	House Finch	Red-breasted Nuthatch	White-eyed Vireo
Blackpoll Warbler	Cooper's Hawk	House Sparrow	Red-eyed Vireo	White-throated Sparrow
Black-throated Blue Warbler	Dark-eyed Junco	House Wren	Red-headed Woodpecker	Winter Wren
Black-throated Green Warbler	Double-crested Cormorant	Indigo Bunting	Red-shouldered Hawk	Wood Duck
Blue Jay	Downy Woodpecker	Killdeer	Red-tailed Hawk	Wood Thrush
Blue-gray Gnatcatcher	Eastern Bluebird	Lincoln's Sparrow	Red-winged Blackbird	Yellow Warbler
Blue-headed Vireo	Eastern Kingbird	Louisiana Waterthrush	Rock Pigeon	Yellow-bellied Sapsucker
Brown-headed Cowbird	Eastern Phoebe	Magnolia Warbler	Rose-breasted Grosbeak	Yellow-billed Cuckoo
Broad-winged Hawk	Eastern Towhee	Mallard	Ruby-crowned Kinglet	Yellow-crowned Night Heron
Brown Creeper	Eastern Wood Pewee	Merlin	Ruby-throated Hummingbird	Yellow-rumped Warbler
Brown Thrasher	European Starling	Mourning Dove	Savannah Sparrow	Yellow-throated Vireo

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly a ected by activities in the project area. However, determining the likelihood and extent of e ects a project may have on trust resources typically requires gathering additional site-speci c (e.g., vegetation/species surveys) and project-speci c (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS o ce(s) with jurisdiction in the de ned project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Montgomery County, Maryland

Local office

Chesapeake Bay Ecological Services Field O ce

(410) 573-4599
(410) 266-9127

177 Admiral Cochrane Drive

177 Admiral Cochrane Drive
Annapolis, MD 21401-7307

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of in uence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly a ected by activities in that area (e.g., placing a dam upstream of a sh population even if that sh does not occur at the dam site, may indirectly impact the species by reducing or eliminating water ow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential e ects to species, additional site-speci c and project-speci c information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local o ce and a species list which ful lls this requirement can **only** be obtained by requesting an o cial species list from either the Regulatory Review section in IPaC (see directions below) or from the local eld o ce directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an o cial species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the sheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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

The following species are potentially a ected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butter y Danaus plexippus Wherever found This species only needs to be considered if the following condition applies: • The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html). No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential e ects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

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

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

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

Black-billed Cuckoo Coccyzus erythropthalmus — Breeds May 15 to Oct 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9399

Cerulean Warbler Dendroica cerulea — Breeds Apr 28 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/2974

Chimney Swift Chaetura pelagica — Breeds Mar 15 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Kentucky Warbler Oporornis formosus — Breeds Apr 20 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler Dendroica discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler Protonotaria citrea — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rusty Blackbird Euphagus carolinus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

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

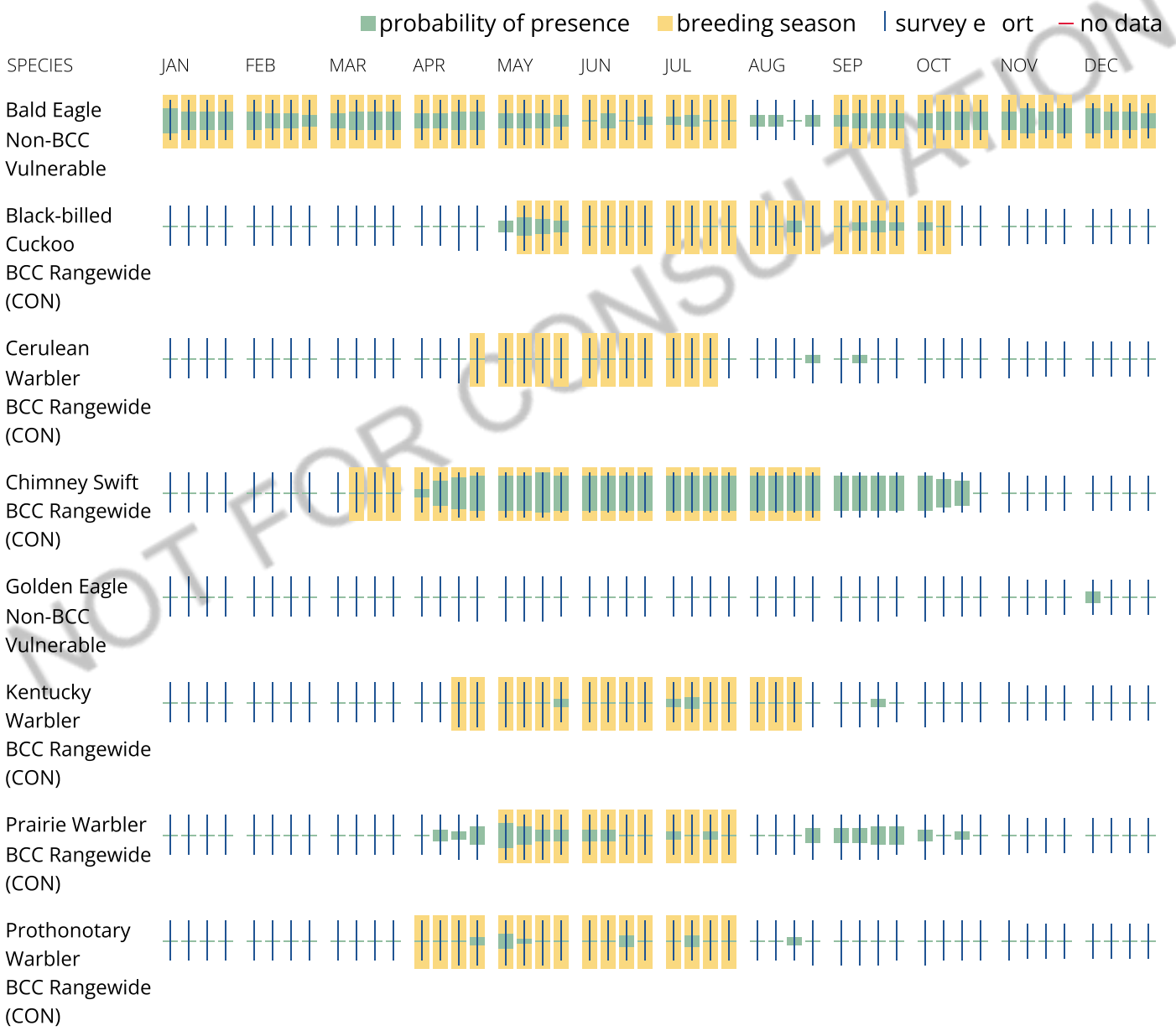
Survey Effort (|)

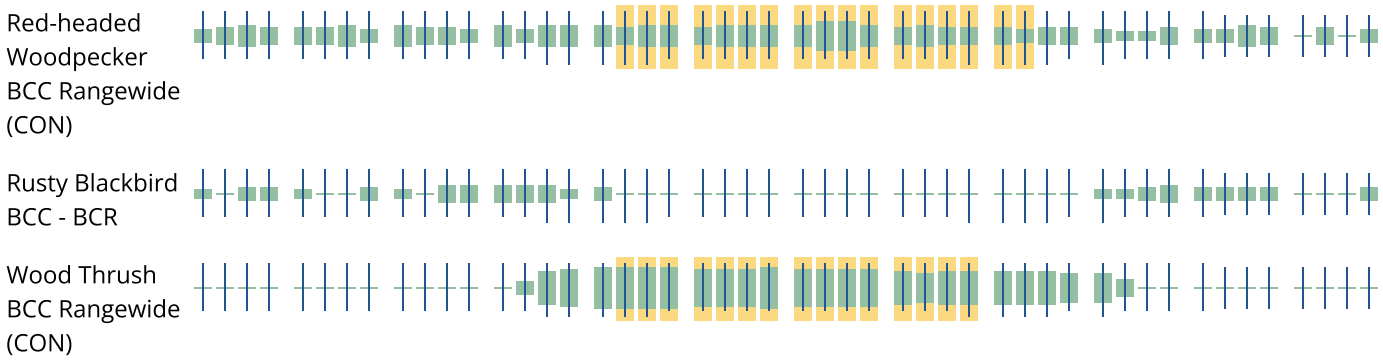
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey e ort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas o the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





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

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

What does IPaC use to generate the list of migratory birds that potentially occur in my speci ed location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

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

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

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

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the pro les provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe speci ed. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially a ected by o shore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my speci ed location". Please be aware this report provides the "probability

of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey e ort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey e ort is the key component. If the survey e ort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey e ort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to con rm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be con rmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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 at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identi ed based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classi cation established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth veri cation work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or eld work. There may be occasional di erences in polygon boundaries or classi cations between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuber cid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may de ne and describe wetlands in a di erent manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to de ne the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modi cations within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning speci ed agency regulatory programs and proprietary jurisdictions that may a ect such activities.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To: 01/14/2025 17:56:24 UTC
Project Code: 2023-0055541
Project Name: Anacostia Watershed Restoration - Montgomery County

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

To Whom It May Concern:

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 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 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:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

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

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 Code 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
- Wetlands

OFFICIAL SPECIES LIST

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

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

PROJECT SUMMARY

Project Code: 2023-0055541

Project Name: Anacostia Watershed Restoration - Montgomery County

Project Type: Modification Stream or Waterbody

Project Description: The U.S. Army Corps of Engineers (USACE) has initiated an aquatic ecosystem restoration feasibility study of several tributary streams of the Anacostia River: Bel Pre (2.5 miles), Lamberton (1 mile), and Upper Sligo (0.7 miles). The study is a partnership between USACE and the Montgomery County Department of Environmental Protection (MCDEP), the non-Federal sponsor for the study. The streams lie in lands owned by the Maryland-National Capital Park and Planning Commission (MNCPPC) and they are participating in the study. The streams being investigated receive drainage from some of the county's most highly urbanized watersheds where eroded streambanks and unstable stream channel conditions are common. Opportunities for stream restoration, wetland restoration, and increasing stream-floodplain interaction will be sought and evaluated through the feasibility study. The study will seek to minimize impacts to forests and mature trees.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.0725908,-77.04283087781134,14z

Counties: Montgomery County, Maryland

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 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.

---

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

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

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.

WETLANDS

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

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

RIVERINE

- R5UBH
- R4SBC

FRESHWATER FORESTED/SHRUB WETLAND

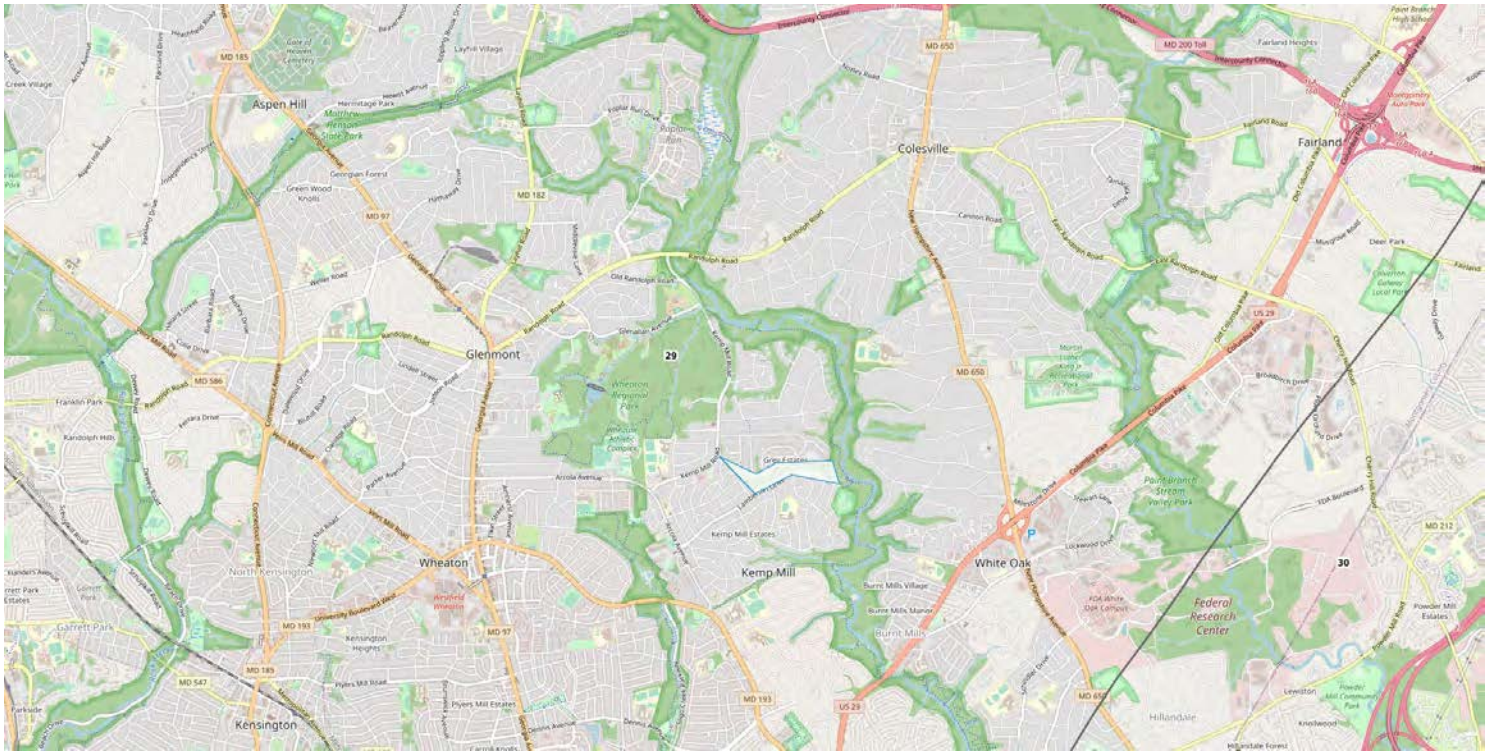
- PFO1A

FRESHWATER POND

- PUBHh

IPAC USER CONTACT INFORMATION

Agency: Department of Defense
Name: Chris Johnson
Address: 2 Hopkins Place
City: Baltimore
State: MD
Zip: 21201
Email christopher.a.johnson@usace.army.mil
Phone: 4438077461



Species Results

BCR(s): 29-PIEDMONT
State(s): MD

Acadian Flycatcher
Empidonax virescens

Global: 5,200,000
Continental U.S.: 5,200,000

Common

American Avocet
Recurvirostra americana

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Breeding: 9, 33

American Bittern
Botaurus lentiginosus

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: |MD|

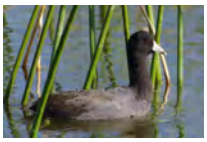
State Endangered: MA, CT, NJ, PA, OH, IN

American Black Duck

Global: Not yet available
Continental U.S.: Not yet available

Common

Anas rubripes



American Coot
Fulica americana

Global: Not yet available
Continental U.S.: Not yet available

Common

American Crow
Corvus brachyrhynchos

Global: 28,000,000
Continental U.S.: 18,000,000

Common

American Goldfinch
Spinus tristis

Global: 44,000,000
Continental U.S.: 30,000,000

Common

American Kestrel
Falco sparverius

Global: 9,200,000
Continental U.S.: 2,000,000

State Threatened: NJ

State Endangered: DE

American Pipit
Anthus rubescens

Global: 20,000,000
Continental U.S.: 200,000

Common

American Redstart
Setophaga ruticilla

Global: 42,000,000
Continental U.S.: 8,500,000

Common

American Robin

Global: 370,000,000
Continental U.S.: 200,000,000

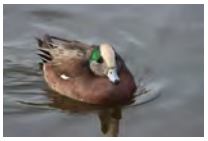
Common

Turdus migratorius

American Tree Sparrow
Spizelloides arborea

Global: 26,000,000
Continental U.S.: 9,600,000

Common



American Wigeon
Mareca americana

Global: Not yet available
Continental U.S.: Not yet available

Common

American Woodcock
Scolopax minor

Global: Not yet available
Continental U.S.: Not yet available

Common

Bald Eagle
Haliaeetus leucocephalus

Global: 200,000
Continental U.S.: Not yet available

State Threatened: MA, CT, NH, NY, TX

State Endangered: NJ, VT, CA

Baltimore Oriole
Icterus galbula

Global: 12,000,000
Continental U.S.: 9,900,000

Common

Bank Swallow
Riparia riparia

Global: 29,000,000
Continental U.S.: 5,500,000

State Threatened: CA

Barn Swallow
Hirundo rustica

Global: 190,000,000
Continental U.S.: 40,000,000

Common

Barred Owl
Strix varia

Global: 3,500,000
Continental U.S.: 3,100,000

State Threatened: NJ

Bay-breasted Warbler
Setophaga castanea

Global: 9,900,000
Continental U.S.: 100,000

BCRBCC Breeding: 14

Belted Kingfisher
Megaceryle alcyon

Global: 1,800,000
Continental U.S.: 830,000

BCRBCC Breeding: 13

Black Vulture
Coragyps atratus

Global: 190,000,000
Continental U.S.: 9,600,000

Common

Black-and-white Warbler
Mniotilta varia

Global: 18,000,000
Continental U.S.: 5,200,000

Common

Black-billed Cuckoo

Global: 880,000
Continental U.S.: 380,000

BCRBCC Breeding: 11,12,13,14,17,19,22,23,24,28,29,30

Coccyzus erythropthalmus

Black-crowned Night-Heron
Nycticorax nycticorax

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: ME, NJ, OH

State Endangered: DE, PA, IN

Black-throated Blue Warbler
Setophaga caerulescens

Global: 2,400,000
Continental U.S.: 800,000

Common

Black-throated Gray Warbler
Setophaga nigrescens

Global: 3,200,000
Continental U.S.: 2,700,000

BCRBCC Breeding: 15,34

Black-throated Green Warbler
Setophaga virens

Global: 9,200,000
Continental U.S.: 2,900,000

BCRBCC Breeding: 27

Blackburnian Warbler
Setophaga fusca

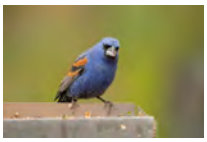
Global: 13,000,000
Continental U.S.: 4,000,000

Common

Blackpoll Warbler
Setophaga striata

Global: 60,000,000
Continental U.S.: 14,000,000

State Endangered: PA



Blue Grosbeak
Passerina caerulea

Global: 35,000,000
Continental U.S.: 21,000,000

Common

Blue Jay
Cyanocitta cristata

Global: 17,000,000
Continental U.S.: 15,000,000

Common

Blue-gray Gnatcatcher
Polioptila caerulea

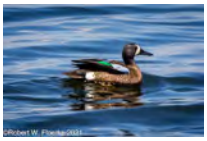
Global: 260,000,000
Continental U.S.: 230,000,000

Common

Blue-headed Vireo
Vireo solitarius

Global: 13,000,000
Continental U.S.: 2,000,000

Common



Blue-winged Teal
Spatula discors

Global: Not yet available
Continental U.S.: Not yet available

Common

Blue-winged

Global: 680,000
Continental U.S.: 660,000

BCRBCC Breeding: 13,30

Warbler
Vermivora cyanoptera

Bobolink
Dolichonyx oryzivorus

Global: 10,000,000
Continental U.S.: 7,600,000

State Threatened: NJ

BCRBCC Breeding: 9,10,11,12,13,14,17,19,22,23,24,28,30

Bonaparte's Gull
Chroicocephalus philadelphia

Global: Not yet available
Continental U.S.: Not yet available

Common

Broad-winged Hawk
Buteo platypterus

Global: 1,900,000
Continental U.S.: 980,000

State Endangered: DE

Brown Creeper
Certhia americana

Global: 11,000,000
Continental U.S.: 4,700,000

Common

Brown Thrasher
Toxostoma rufum

Global: 6,200,000
Continental U.S.: 5,700,000

Common

Brown-headed

Global: 130,000,000
Continental U.S.: 100,000,000

Common

Cowbird
Molothrus

Bufflehead
Bucephala albeola

Global: Not yet available
Continental U.S.: Not yet available

Common

Cackling Goose
Branta hutchinsii

Global: Not yet available
Continental U.S.: Not yet available

Common

Canada Goose
Branta canadensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Canada Warbler
Cardellina canadensis

Global: 2,600,000
Continental U.S.: 550,000

BCRBCC Breeding: 12,13,14,23,28,30

Canvasback
Aythya valisineria

Global: Not yet available
Continental U.S.: Not yet available

Common

Cape May Warbler
Setophaga tigrina

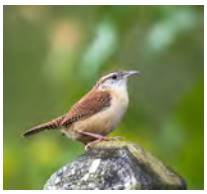
Global: 7,000,000
Continental U.S.: 260,000

BCRBCC Breeding: 14

Carolina Chickadee
Poecile carolinensis

Global: 13,000,000
Continental U.S.: 13,000,000

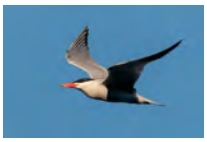
Common



Carolina Wren
Thryothorus ludovicianus

Global: 19,000,000
Continental U.S.: 18,000,000

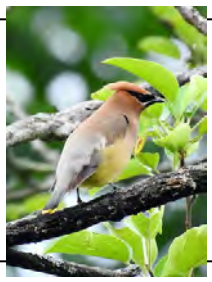
Common



Caspian Tern
Hydroprogne caspia

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: MI



Cedar Waxwing
Bombycilla cedrorum

Global: 64,000,000
Continental U.S.: 29,000,000

Common

Cerulean Warbler
Setophaga cerulea

Global: 530,000
Continental U.S.: 520,000

State Threatened: MI

State Endangered: DE, RI

BCRBCC Breeding:
12,13,22,23,24,26,27,28,29,30

Chestnut-sided Warbler
Setophaga pensylvanica

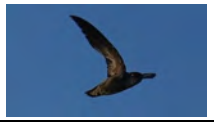
Global: 18,000,000
Continental U.S.: 5,400,000

Common

Chimney Swift

Global: 8,800,000
Continental U.S.: 8,700,000

BCRBCC Breeding:
11,12,13,14,18,19,20,21,22,23,24,25,26,27,28,29,30,31,36,37



Chaetura pelagica

Chipping Sparrow
Spizella passerina

Global: 240,000,000
Continental U.S.: 100,000,000

Common

Clay-colored Sparrow
Spizella pallida

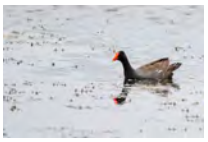
Global: 60,000,000
Continental U.S.: 9,100,000

Common

Cliff Swallow
Petrochelidon pyrrhonota

Global: 83,000,000
Continental U.S.: 71,000,000

Common



Common Gallinule
Gallinula galeata

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: ME

State Endangered: CT, IN

Common Goldeneye
Bucephala clangula

Global: Not yet available
Continental U.S.: Not yet available

Common

Common Grackle
Quiscalus quiscula

Global: 67,000,000
Continental U.S.: 60,000,000

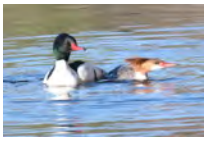
Common

Common Loon

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: NH, MI

Gavia immer



Common Merganser
Mergus merganser

Global: Not yet available
Continental U.S.: Not yet available

Common

Common Nighthawk
Chordeiles minor

Global: 23,000,000
Continental U.S.: 20,000,000

State Endangered: CT, NH, VT

Common Raven
Corvus corax

Global: 29,000,000
Continental U.S.: 2,500,000

Common

Common Yellowthroat
Geothlypis trichas

Global: 77,000,000
Continental U.S.: 42,000,000

Common

Connecticut Warbler
Oporornis agilis

Global: 1,800,000
Continental U.S.: 50,000

BCRBCC Breeding: 12

Cooper's Hawk
Accipiter cooperii

Global: 1,000,000
Continental U.S.: 790,000

Common

Dark-eyed Junco
Junco hyemalis

Global: 220,000,000
Continental U.S.: 81,000,000

Common

Dickcissel
Spiza americana

Global: 28,000,000
Continental U.S.: 28,000,000

State Endangered: PA

BCRBCC Breeding: 37

Downy Woodpecker
Dryobates pubescens

Global: 13,000,000
Continental U.S.: 11,000,000

Common

Dunlin
Calidris alpina

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 11,12,13,22,23,27,30,31,37,2

BCRBCC Breeding: 3

Eastern Bluebird
Sialia sialis

Global: 23,000,000
Continental U.S.: 21,000,000

Common

Eastern Kingbird

Global: 26,000,000
Continental U.S.: 22,000,000

Common

Tyrannus tyrannus

Eastern Meadowlark
Sturnella magna

Global: 37,000,000
Continental U.S.: 24,000,000

State Threatened: CT

BCRBCC Breeding: 13,20,35,36

Eastern Phoebe
Sayornis phoebe

Global: 35,000,000
Continental U.S.: 27,000,000

Common

Eastern Screech-Owl
Megascops asio

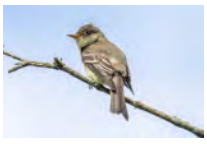
Global: 560,000
Continental U.S.: 490,000

Common

Eastern Towhee
Pipilo erythrophthalmus

Global: 29,000,000
Continental U.S.: 29,000,000

Common



Eastern Wood-Pewee
Contopus virens

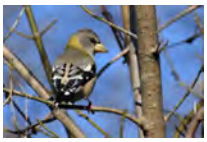
Global: 6,500,000
Continental U.S.: 6,100,000

Common

European Starling
Sturnus vulgaris

Global: 250,000,000
Continental U.S.: 74,000,000

Common



Evening Grosbeak

Coccothraustes vespertinus

Global: 3,800,000
Continental U.S.: 1,800,000

BCRBCC Breeding: 5,9,10,12,13,14,15,16,34,35

Field Sparrow

Spizella pusilla

Global: 9,300,000
Continental U.S.: 9,200,000

BCRBCC Breeding: 20,24

Fish Crow

Corvus ossifragus

Global: 470,000
Continental U.S.: 470,000

Common

Fox Sparrow

Passerella iliaca

Global: 35,000,000
Continental U.S.: 16,000,000

Common

Gadwall

Mareca strepera

Global: Not yet available
Continental U.S.: Not yet available

Common

Golden Eagle

Aquila chrysaetos

Global: 130,000
Continental U.S.: 40,000

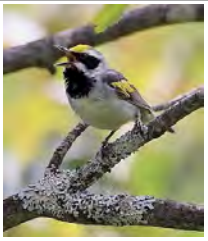
State Endangered: ME, NH, NY

Golden-crowned Kinglet

Global: 140,000,000
Continental U.S.: 44,000,000

Common

Regulus

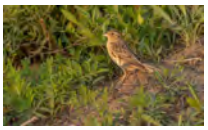


Golden-winged Warbler
Vermivora chrysoptera

Global: 390,000
Continental U.S.: 330,000

State Endangered: MA, CT, NJ, IN

BCRBCC Breeding: 11,12,13,23,28



Grasshopper Sparrow
Ammodramus savannarum

Global: 34,000,000
Continental U.S.: 33,000,000

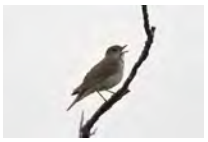
State Threatened: MA, NH, NJ, VT

State Endangered: CT, ME

Gray Catbird
Dumetella carolinensis

Global: 29,000,000
Continental U.S.: 25,000,000

Common



Gray-cheeked Thrush
Catharus minimus

Global: 46,000,000
Continental U.S.: 18,000,000

Common

Great Blue Heron
Ardea herodias

Global: Not yet available
Continental U.S.: Not yet available

Common

Great Crested Flycatcher

Global: 8,800,000
Continental U.S.: 8,100,000

Common

Myiarchus crinitus

Great Egret
Ardea alba

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: CT

State Endangered: PA

Great Horned Owl
Bubo virginianus

Global: 5,700,000
Continental U.S.: 3,000,000

Common

Greater Yellowlegs
Tringa melanoleuca

Global: Not yet available
Continental U.S.: Not yet available

Common

Green Heron
Butorides virescens

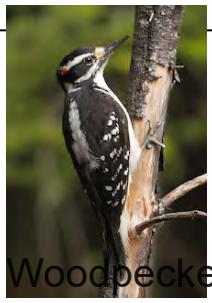
Global: Not yet available
Continental U.S.: Not yet available

Common

Green-winged Teal
Anas crecca

Global: Not yet available
Continental U.S.: Not yet available

Common



Hairy Woodpecker
Dryobates villosus

Global: 8,900,000
Continental U.S.: 4,200,000

Common

Hermit Thrush
Catharus guttatus

Global: 72,000,000
Continental U.S.: 15,000,000

Common

Herring Gull
Larus argentatus

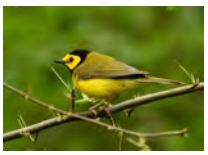
Global: Not yet available
Continental U.S.: Not yet available

Common

Hooded Merganser
Lophodytes cucullatus

Global: Not yet available
Continental U.S.: Not yet available

Common



Hooded Warbler
Setophaga citrina

Global: 5,200,000
Continental U.S.: 5,200,000

State Endangered: DE

Horned Grebe
Podiceps auritus

Global: Not yet available
Continental U.S.: Not yet available

State Endangered: MN

Horned Lark
Eremophila alpestris

Global: 140,000,000
Continental U.S.: 73,000,000

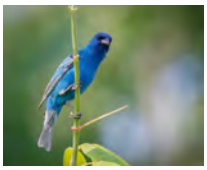
State Threatened: NJ

State Endangered: CT

House Finch
Haemorhous mexicanus

Global: 40,000,000
Continental U.S.: 33,000,000

Common

HOSP	House Sparrow *Passer domesticus*	Global: 740,000,000 Continental U.S.: 80,000,000	**Common**	
	House Wren *Troglodytes aedon*	Global: 190,000,000 Continental U.S.: 30,000,000	**Common**	
	Indigo Bunting *Passerina cyanea*	Global: 77,000,000 Continental U.S.: 76,000,000	**Common**	
	Kentucky Warbler *Geothlypis formosa*	Global: 2,600,000 Continental U.S.: 2,600,000	**BCRBCC Breeding:** 21,22,24,25,26,27,28,29,30	
	Killdeer *Charadrius vociferus*	Global: Not yet available Continental U.S.: Not yet available	**Common**	
	Lark Sparrow *Chondestes grammacus*	Global: 11,000,000 Continental U.S.: 11,000,000	**State Endangered:** OH	
	Laughing Gull *Leucophaeus atricilla*	Global: Not yet available Continental U.S.: Not yet available	**Common**	

Least Bittern
Ixobrychus exilis

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: CT, NY, OH, MI

State Endangered: MA, ME, PA, IN

Least Flycatcher
Empidonax minimus

Global: 27,000,000
Continental U.S.: 4,200,000

Common

Least Sandpiper
Calidris minutilla

Global: Not yet available
Continental U.S.: Not yet available

Common

Lesser Yellowlegs
Tringa flavipes

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 5,9,10,11,12,13,14,16,17,18,19,20,21,22,23,24,25,26,27,30,31,36,37

BCRBCC Breeding: 4

Lincoln's Sparrow
Melospiza lincolnii

Global: 88,000,000
Continental U.S.: 16,000,000

Common

Little Blue Heron
Egretta caerulea

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Breeding: 21,26

Long-tailed

Global: Not yet available
Continental U.S.: Not yet available

Common

Duck
Clangula hyemalis

Louisiana Waterthrush
Parkesia motacilla

Global: 450,000
Continental U.S.: 450,000

State Threatened: MI

Magnolia Warbler
Setophaga magnolia

Global: 39,000,000
Continental U.S.: 1,400,000

Common

Mallard
Anas platyrhynchos

Global: Not yet available
Continental U.S.: Not yet available

Common

Marsh Wren
Cistothorus palustris

Global: 11,000,000
Continental U.S.: 8,900,000

State Endangered: IN

Merlin
Falco columbarius

Global: 3,200,000
Continental U.S.: 240,000

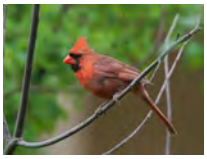
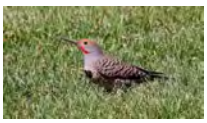
State Threatened: MI

Mississippi Kite

Global: 700,000
Continental U.S.: 700,000

Common

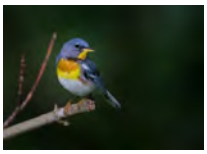
Ictinia mississippiensis

	Mourning Dove *Zenaida macroura*	Global: 150,000,000 Continental U.S.: 130,000,000	**Common**	⌄
	Mourning Warbler *Geothlypis philadelphia*	Global: 14,000,000 Continental U.S.: 1,600,000	**State Endangered:** |MD|	⌄
	Nashville Warbler *Leiothlypis ruficapilla*	Global: 40,000,000 Continental U.S.: 6,200,000	**State Threatened:** |MD|	⌄
	Northern Cardinal *Cardinalis cardinalis*	Global: 130,000,000 Continental U.S.: 120,000,000	**Common**	⌄
	Northern Flicker *Colaptes auratus*	Global: 12,000,000 Continental U.S.: 5,500,000	**Common**	⌄
NOHA	Northern Harrier *Circus cyaneus*	Global: Not yet available Continental U.S.: Not yet available	**Not Available**	⌄

Northern Mockingbird
Mimus polyglottos

Global: 43,000,000
Continental U.S.: 34,000,000

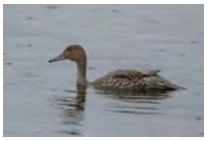
Common



Northern Parula
Setophaga americana

Global: 18,000,000
Continental U.S.: 12,000,000

State Threatened: MA



Northern Pintail
Anas acuta

Global: Not yet available
Continental U.S.: Not yet available

Common

Northern Rough-winged Swallow
Stelgidopteryx serripennis

Global: 27,000,000
Continental U.S.: 19,000,000

Common

Northern Shoveler
Spatula clypeata

Global: Not yet available
Continental U.S.: Not yet available

Common

Northern Waterthrush
Parkesia noveboracensis

Global: 17,000,000
Continental U.S.: 4,300,000

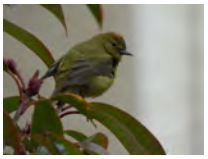
Common

Olive-sided Flycatcher
Contopus cooperi

Global: 1,900,000
Continental U.S.: 830,000

State Endangered: |MD|

BCRBCC Breeding: 2,3,5,9,10,12,14,15,16,32,34



Orange-crowned Warbler
Leiothlypis celata

Global: 82,000,000
Continental U.S.: 34,000,000

Common

Orchard Oriole
Icterus spurius

Global: 12,000,000
Continental U.S.: 11,000,000

BCRBCC Breeding: 36

Osprey
Pandion haliaetus

Global: 1,200,000
Continental U.S.: 230,000

State Threatened: NJ

Ovenbird
Seiurus aurocapilla

Global: 26,000,000
Continental U.S.: 9,500,000

Common

Palm Warbler
Setophaga palmarum

Global: 13,000,000
Continental U.S.: 60,000

Common

Pectoral Sandpiper
Calidris melanotos

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 9,11,12,13,16,18,19,20,21,22,23,25,26,27,30,31,36,37

BCRBCC Breeding: 3

Peregrine Falcon
Falco peregrinus

Global: 340,000
Continental U.S.: Not yet available

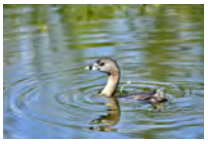
State Threatened: CT, NH, VA, TX

State Endangered: MA, ME, NJ, NY, PA, RI, MI

Philadelphia Vireo
Vireo philadelphicus

Global: 4,000,000
Continental U.S.: 59,000

Common



Pied-billed Grebe
Podilymbus podiceps

Global: Not yet available
Continental U.S.: Not yet available

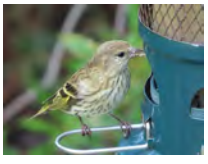
State Threatened: NH, NY

State Endangered: MA, CT, DE, NJ, RI

Pileated Woodpecker
Dryocopus pileatus

Global: 2,600,000
Continental U.S.: 1,700,000

Common



Pine Siskin
Spinus pinus

Global: 46,000,000
Continental U.S.: 15,000,000

Common

Pine Warbler

Global: 13,000,000
Continental U.S.: 12,000,000

Common

Setophaga pinus

Prairie Warbler
Setophaga discolor

Global: 3,600,000
Continental U.S.: 3,600,000

State Endangered: MI

BCRBCC Breeding:
13,14,24,25,26,27,28,29,30,31

Global: 2,100,000
Continental U.S.: 2,100,000

BCRBCC Breeding:
21,22,24,25,26,27,28,29,30,37

Prothonotary Warbler
Protonotaria citrea

Purple Finch
Haemorhous purpureus

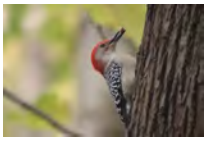
Global: 6,500,000
Continental U.S.: 2,300,000

Common

Purple Martin
Progne subis

Global: 9,300,000
Continental U.S.: 8,400,000

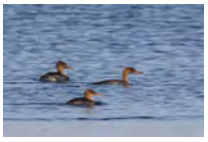
Common



Red-bellied Woodpecker
Melanerpes carolinus

Global: 16,000,000
Continental U.S.: 15,000,000

Common



Red-breasted Merganser

Global: Not yet available
Continental U.S.: Not yet available

Common

Mergus serrator

Red-breasted Nuthatch
Sitta canadensis

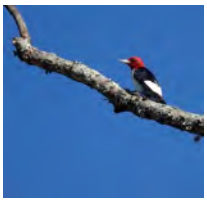
Global: 20,000,000
Continental U.S.: 8,500,000

Common

Red-eyed Vireo
Vireo olivaceus

Global: 130,000,000
Continental U.S.: 49,000,000

Common



Red-headed Woodpecker
Melanerpes erythrocephalus

Global: 1,800,000
Continental U.S.: 1,800,000

State Threatened: NJ

State Endangered: CT

BCRBCC Breeding: 11,13,17,18,19,21,22,23,24,25,26,27,28,29,30,31,37

Red-shouldered Hawk
Buteo lineatus

Global: 1,900,000
Continental U.S.: 1,800,000

State Threatened: MI

State Endangered: NJ

Red-tailed Hawk
Buteo jamaicensis

Global: 3,100,000
Continental U.S.: 2,100,000

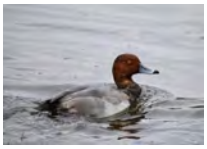
Common

Red-winged Blackbird

Global: 180,000,000
Continental U.S.: 140,000,000

Common

Agelaius phoeniceus



Redhead
Aythya americana

Global: Not yet available
Continental U.S.: Not yet available

Common

Ring-billed Gull
Larus delawarensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Ring-necked Duck
Aythya collaris

Global: Not yet available
Continental U.S.: Not yet available

Common

Rock Pigeon
Columba livia

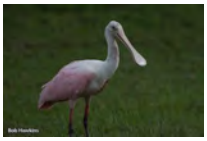
Global: 140,000,000
Continental U.S.: 12,000,000

Common

Rose-breasted Grosbeak
Pheucticus ludovicianus

Global: 4,700,000
Continental U.S.: 2,400,000

BCRBCC Breeding: 13,14



Roseate Spoonbill
Platalea ajaja

Global: Not yet available
Continental U.S.: Not yet available

Common

Ross's Goose

Global: Not yet available
Continental U.S.: Not yet available

Common

ROGO *Anser rossii*

Ruby-throated Hummingbird
Archilochus colubris

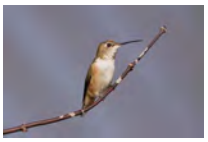
Global: 36,000,000
Continental U.S.: 30,000,000

Common

Ruddy Duck
Oxyura jamaicensis

Global: Not yet available
Continental U.S.: Not yet available

Common



Rufous Hummingbird
Selasphorus rufus

Global: 22,000,000
Continental U.S.: 9,300,000

BCRBCC Breeding: 5,9,10

Rusty Blackbird
Euphagus carolinus

Global: 6,800,000
Continental U.S.: 930,000

State Endangered: VT

BCRBCC Non Breeding: 22,23,24,26,27,28,29,30

Savannah Sparrow
Passerculus sandwichensis

Global: 170,000,000
Continental U.S.: 69,000,000

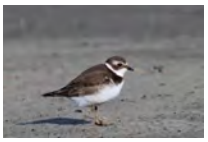
State Threatened: NJ

Scarlet Tanager

Global: 2,600,000
Continental U.S.: 2,400,000

BCRBCC Breeding: 30

Piranga olivacea



Semipalmated Plover
Charadrius semipalmatus

Global: Not yet available
Continental U.S.: Not yet available

Common

Semipalmated Sandpiper
Calidris pusilla

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 12,13,14,22,23,24,26,27,30,31

Sharp-shinned Hawk
Accipiter striatus

Global: 1,000,000
Continental U.S.: 160,000

State Endangered: CT

Shiny Cowbird
Molothrus bonariensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Snowy Egret
Egretta thula

Global: Not yet available
Continental U.S.: Not yet available

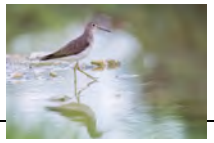
State Threatened: CT

State Endangered: OH

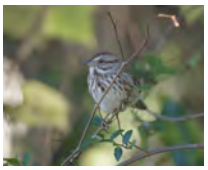
Solitary Sandpiper

Global: Not yet available
Continental U.S.: Not yet available

Common



Tringa solitaria



Song Sparrow
Melospiza melodia

Global: 130,000,000
Continental U.S.: 71,000,000

Common

Sora
Porzana carolina

Global: Not yet available
Continental U.S.: Not yet available

Common

Spotted Sandpiper
Actitis macularius

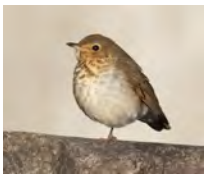
Global: Not yet available
Continental U.S.: Not yet available

Common

Summer Tanager
Piranga rubra

Global: 12,000,000
Continental U.S.: 11,000,000

Common



Swainson's Thrush
Catharus ustulatus

Global: 120,000,000
Continental U.S.: 39,000,000

Common

Swamp Sparrow
Melospiza georgiana

Global: 23,000,000
Continental U.S.: 2,800,000

Common

Tennessee Warbler
Leiothlypis peregrina

Global: 110,000,000
Continental U.S.: 88,000

Common

Tree Swallow
Tachycineta bicolor

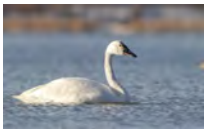
Global: 19,000,000
Continental U.S.: 8,700,000

Common

Tufted Titmouse
Baeolophus bicolor

Global: 12,000,000
Continental U.S.: 12,000,000

Common



Tundra Swan
Cygnus columbianus

Global: Not yet available
Continental U.S.: Not yet available

Common

Turkey Vulture
Cathartes aura

Global: 28,000,000
Continental U.S.: 8,200,000

Common

Veery
Catharus fuscescens

Global: 11,000,000
Continental U.S.: 4,000,000

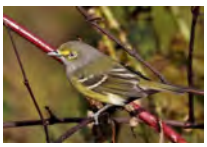
Common

Vesper Sparrow
Pooecetes gramineus

Global: 35,000,000
Continental U.S.: 22,000,000

State Threatened: MA

State Endangered: CT, NJ

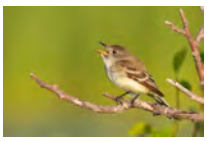
	Virginia Rail *Rallus limicola*	Global: Not yet available Continental U.S.: Not yet available	**State Endangered:** IN	⌄
	Warbling Vireo *Vireo gilvus*	Global: 53,000,000 Continental U.S.: 24,000,000	**Common**	⌄
	White-breasted Nuthatch *Sitta carolinensis*	Global: 10,000,000 Continental U.S.: 9,500,000	**Common**	⌄
	White-crowned Sparrow *Zonotrichia leucophrys*	Global: 79,000,000 Continental U.S.: 39,000,000	**Common**	⌄
	White-eyed Vireo *Vireo griseus*	Global: 24,000,000 Continental U.S.: 22,000,000	**Common**	⌄
	White-throated Sparrow *Zonotrichia albicollis*	Global: 160,000,000 Continental U.S.: 5,600,000	**Common**	⌄
	White-winged Crossbill	Global: 79,000,000 Continental U.S.: 3,500,000	**Common**	⌄

Loxia leucoptera

Wild Turkey
Meleagris gallopavo

Global: 6,900,000
Continental U.S.: Not yet available

Common



Willow Flycatcher
Empidonax traillii

Global: 8,100,000
Continental U.S.: 5,300,000

State Endangered: CA

Wilson's Snipe
Gallinago delicata

Global: Not yet available
Continental U.S.: Not yet available

Common

Wilson's Warbler
Cardellina pusilla

Global: 81,000,000
Continental U.S.: 39,000,000

Common

Winter Wren
Troglodytes hiemalis

Global: 11,000,000
Continental U.S.: 910,000

Common

Wood Duck
Aix sponsa

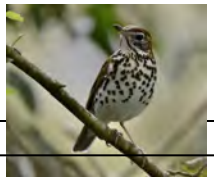
Global: Not yet available
Continental U.S.: Not yet available

Common

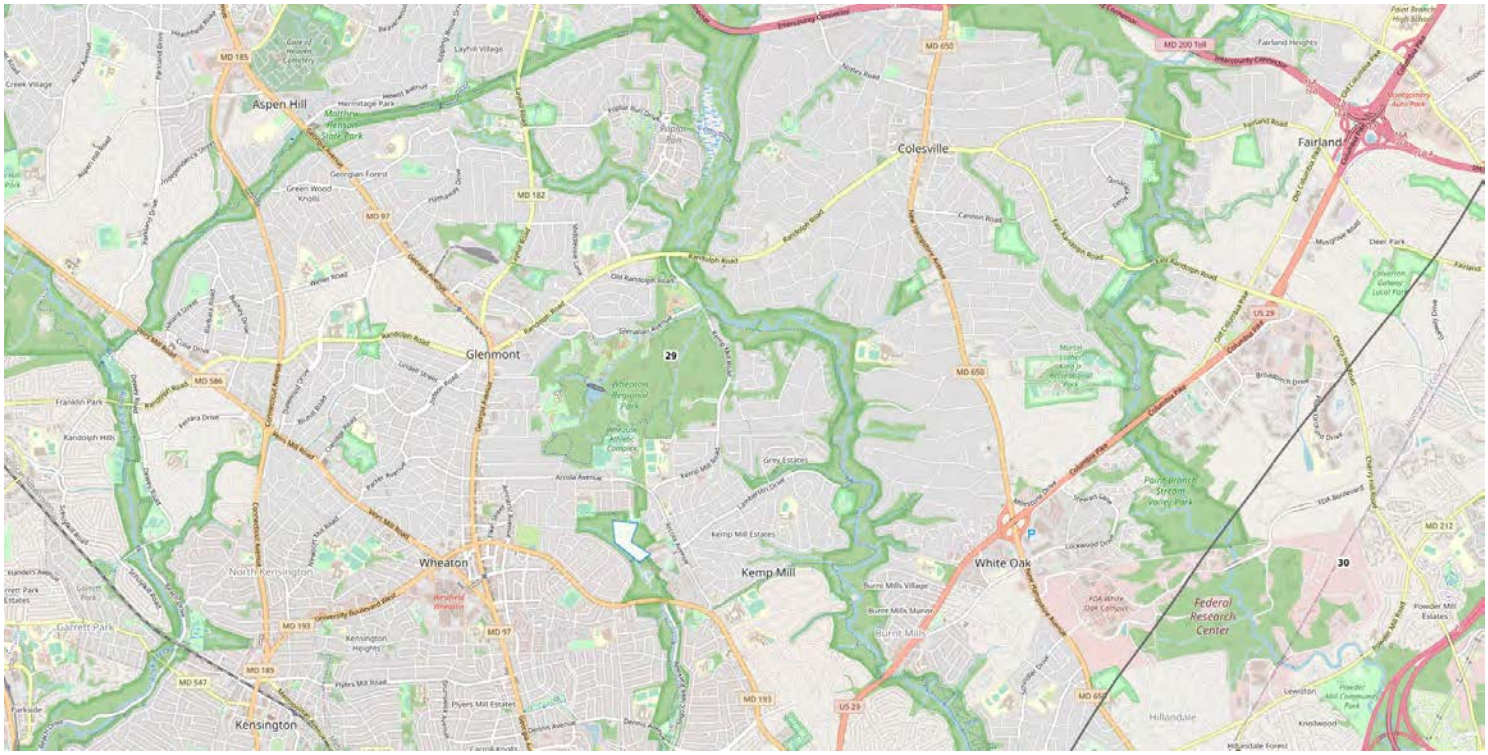
Wood Thrush

Global: 12,000,000
Continental U.S.: 12,000,000

BCRBCC Breeding:
12,13,14,22,23,24,25,26,27,28,2

	*Hylocichla mustelina*		9,30	
	Worm-eating Warbler *Helmitheros vermivorum*	Global: 780,000 Continental U.S.: 780,000	**Common**	
	Yellow Warbler *Setophaga petechia*	Global: 97,000,000 Continental U.S.: 40,000,000	**Common**	
	Yellow-bellied Flycatcher *Empidonax flaviventris*	Global: 13,000,000 Continental U.S.: 530,000	**State Endangered:** PA	
	Yellow-bellied Sapsucker *Sphyrapicus varius*	Global: 14,000,000 Continental U.S.: 3,200,000	**Common**	
	Yellow-billed Cuckoo *Coccyzus americanus*	Global: 9,600,000 Continental U.S.: 8,300,000	**Federally Threatened:** Western DPS: U.S.A. (AZ, CA, CO (western), ID, MT (western), NM (western), NV, OR, TX (western), UT, WA, WY (western)); Canada (British Columbia (southwestern); Mexico (Baja California, Baja California Sur, Chihuahua, Durango (western), Sinaloa, Sonora) **BCRBCC Breeding:** 28	

	Yellow-breasted Chat *Icteria virens*	Global: 17,000,000 Continental U.S.: 15,000,000	**State Endangered:** CT, RI	
	Yellow-crowned Night-Heron *Nyctanassa violacea*	Global: Not yet available Continental U.S.: Not yet available	**State Threatened:** NJ **State Endangered:** DE, PA, IN	
	Yellow-rumped Warbler *Setophaga coronata*	Global: 170,000,000 Continental U.S.: 47,000,000	**Common**	
YSFL	Yellow-shafted Flicker *Colaptes auratus auratus*	Global: Not yet available Continental U.S.: Not yet available	**Not Available**	
	Yellow-throated Vireo *Vireo flavifrons*	Global: 4,700,000 Continental U.S.: 4,600,000	**Common**	
	Yellow-throated Warbler *Setophaga dominica*	Global: 2,000,000 Continental U.S.: 2,000,000	**State Threatened:** MI	



Species Results

BCR(s): 29-PIEDMONT
State(s): MD

Acadian Flycatcher
Empidonax virescens

Global: 5,200,000
Continental U.S.: 5,200,000

Common

American Avocet
Recurvirostra americana

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Breeding: 9, 33

American Bittern
Botaurus lentiginosus

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: |MD|

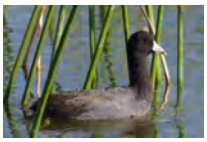
State Endangered: MA, CT, NJ, PA, OH, IN

American Black Duck

Global: Not yet available
Continental U.S.: Not yet available

Common

Anas rubripes



American Coot
Fulica americana

Global: Not yet available
Continental U.S.: Not yet available

Common

American Crow
Corvus brachyrhynchos

Global: 28,000,000
Continental U.S.: 18,000,000

Common

American Goldfinch
Spinus tristis

Global: 44,000,000
Continental U.S.: 30,000,000

Common

American Kestrel
Falco sparverius

Global: 9,200,000
Continental U.S.: 2,000,000

State Threatened: NJ

State Endangered: DE

American Pipit
Anthus rubescens

Global: 20,000,000
Continental U.S.: 200,000

Common

American Redstart
Setophaga ruticilla

Global: 42,000,000
Continental U.S.: 8,500,000

Common

American Robin

Global: 370,000,000
Continental U.S.: 200,000,000

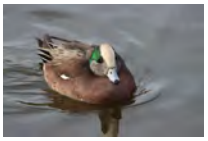
Common

Turdus migratorius

American Tree Sparrow
Spizelloides arborea

Global: 26,000,000
Continental U.S.: 9,600,000

Common



American Wigeon
Mareca americana

Global: Not yet available
Continental U.S.: Not yet available

Common

American Woodcock
Scolopax minor

Global: Not yet available
Continental U.S.: Not yet available

Common

Bald Eagle
Haliaeetus leucocephalus

Global: 200,000
Continental U.S.: Not yet available

State Threatened: MA, CT, NH, NY, TX

State Endangered: NJ, VT, CA

Baltimore Oriole
Icterus galbula

Global: 12,000,000
Continental U.S.: 9,900,000

Common

Bank Swallow
Riparia riparia

Global: 29,000,000
Continental U.S.: 5,500,000

State Threatened: CA

Barn Swallow
Hirundo rustica

Global: 190,000,000
Continental U.S.: 40,000,000

Common

Barred Owl
Strix varia

Global: 3,500,000
Continental U.S.: 3,100,000

State Threatened: NJ

Bay-breasted Warbler
Setophaga castanea

Global: 9,900,000
Continental U.S.: 100,000

BCRBCC Breeding: 14

Belted Kingfisher
Megaceryle alcyon

Global: 1,800,000
Continental U.S.: 830,000

BCRBCC Breeding: 13

Black Vulture
Coragyps atratus

Global: 190,000,000
Continental U.S.: 9,600,000

Common

Black-and-white Warbler
Mniotilta varia

Global: 18,000,000
Continental U.S.: 5,200,000

Common

Black-billed Cuckoo

Global: 880,000
Continental U.S.: 380,000

BCRBCC Breeding: 11,12,13,14,17,19,22,23,24,28,29,30

Coccyzus erythropthalmus

Black-crowned Night-Heron
Nycticorax nycticorax

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: ME, NJ, OH

State Endangered: DE, PA, IN

Black-throated Blue Warbler
Setophaga caerulescens

Global: 2,400,000
Continental U.S.: 800,000

Common

Black-throated Gray Warbler
Setophaga nigrescens

Global: 3,200,000
Continental U.S.: 2,700,000

BCRBCC Breeding: 15,34

Black-throated Green Warbler
Setophaga virens

Global: 9,200,000
Continental U.S.: 2,900,000

BCRBCC Breeding: 27

Blackburnian Warbler
Setophaga fusca

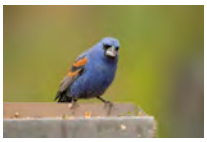
Global: 13,000,000
Continental U.S.: 4,000,000

Common

Blackpoll Warbler
Setophaga striata

Global: 60,000,000
Continental U.S.: 14,000,000

State Endangered: PA



Blue Grosbeak
Passerina caerulea

Global: 35,000,000
Continental U.S.: 21,000,000

Common

Blue Jay
Cyanocitta cristata

Global: 17,000,000
Continental U.S.: 15,000,000

Common

Blue-gray Gnatcatcher
Polioptila caerulea

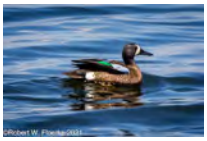
Global: 260,000,000
Continental U.S.: 230,000,000

Common

Blue-headed Vireo
Vireo solitarius

Global: 13,000,000
Continental U.S.: 2,000,000

Common



Blue-winged Teal
Spatula discors

Global: Not yet available
Continental U.S.: Not yet available

Common

Blue-winged

Global: 680,000
Continental U.S.: 660,000

BCRBCC Breeding: 13,30

Warbler
Vermivora cyanoptera

Bobolink
Dolichonyx oryzivorus

Global: 10,000,000
Continental U.S.: 7,600,000

State Threatened: NJ

BCRBCC Breeding: 9,10,11,12,13,14,17,19,22,23,24,28,30

Bonaparte's Gull
Chroicocephalus philadelphia

Global: Not yet available
Continental U.S.: Not yet available

Common

Broad-winged Hawk
Buteo platypterus

Global: 1,900,000
Continental U.S.: 980,000

State Endangered: DE

Brown Creeper
Certhia americana

Global: 11,000,000
Continental U.S.: 4,700,000

Common

Brown Thrasher
Toxostoma rufum

Global: 6,200,000
Continental U.S.: 5,700,000

Common

Brown-headed

Global: 130,000,000
Continental U.S.: 100,000,000

Common

Cowbird
Molothrus

Bufflehead
Bucephala albeola

Global: Not yet available
Continental U.S.: Not yet available

Common

Cackling Goose
Branta hutchinsii

Global: Not yet available
Continental U.S.: Not yet available

Common

Canada Goose
Branta canadensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Canada Warbler
Cardellina canadensis

Global: 2,600,000
Continental U.S.: 550,000

BCRBCC Breeding: 12,13,14,23,28,30

Canvasback
Aythya valisineria

Global: Not yet available
Continental U.S.: Not yet available

Common

Cape May Warbler
Setophaga tigrina

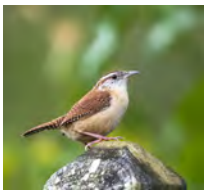
Global: 7,000,000
Continental U.S.: 260,000

BCRBCC Breeding: 14

Carolina Chickadee
Poecile carolinensis

Global: 13,000,000
Continental U.S.: 13,000,000

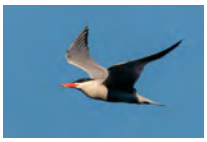
Common



Carolina Wren
Thryothorus ludovicianus

Global: 19,000,000
Continental U.S.: 18,000,000

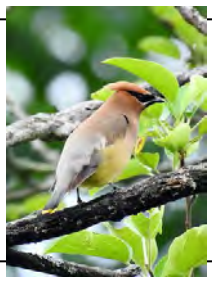
Common



Caspian Tern
Hydroprogne caspia

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: MI



Cedar Waxwing
Bombycilla cedrorum

Global: 64,000,000
Continental U.S.: 29,000,000

Common

Cerulean Warbler
Setophaga cerulea

Global: 530,000
Continental U.S.: 520,000

State Threatened: MI

State Endangered: DE, RI

BCRBCC Breeding:
12,13,22,23,24,26,27,28,29,30

Chestnut-sided Warbler
Setophaga pensylvanica

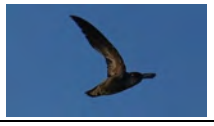
Global: 18,000,000
Continental U.S.: 5,400,000

Common

Chimney Swift

Global: 8,800,000
Continental U.S.: 8,700,000

BCRBCC Breeding:
11,12,13,14,18,19,20,21,22,23,24,25,26,27,28,29,30,31,36,37



Chaetura pelagica

Chipping Sparrow
Spizella passerina

Global: 240,000,000
Continental U.S.: 100,000,000

Common

Clay-colored Sparrow
Spizella pallida

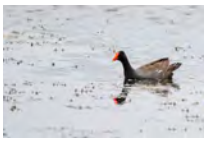
Global: 60,000,000
Continental U.S.: 9,100,000

Common

Cliff Swallow
Petrochelidon pyrrhonota

Global: 83,000,000
Continental U.S.: 71,000,000

Common



Common Gallinule
Gallinula galeata

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: ME

State Endangered: CT, IN

Common Goldeneye
Bucephala clangula

Global: Not yet available
Continental U.S.: Not yet available

Common

Common Grackle
Quiscalus quiscula

Global: 67,000,000
Continental U.S.: 60,000,000

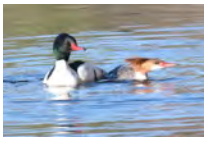
Common

Common Loon

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: NH, MI

Gavia immer



Common Merganser
Mergus merganser

Global: Not yet available
Continental U.S.: Not yet available

Common

Common Nighthawk
Chordeiles minor

Global: 23,000,000
Continental U.S.: 20,000,000

State Endangered: CT, NH, VT

Common Raven
Corvus corax

Global: 29,000,000
Continental U.S.: 2,500,000

Common

Common Yellowthroat
Geothlypis trichas

Global: 77,000,000
Continental U.S.: 42,000,000

Common

Connecticut Warbler
Oporornis agilis

Global: 1,800,000
Continental U.S.: 50,000

BCRBCC Breeding: 12

Cooper's Hawk
Accipiter cooperii

Global: 1,000,000
Continental U.S.: 790,000

Common

Dark-eyed Junco
Junco hyemalis

Global: 220,000,000
Continental U.S.: 81,000,000

Common

Dickcissel
Spiza americana

Global: 28,000,000
Continental U.S.: 28,000,000

State Endangered: PA

BCRBCC Breeding: 37

Downy Woodpecker
Dryobates pubescens

Global: 13,000,000
Continental U.S.: 11,000,000

Common

Dunlin
Calidris alpina

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 11,12,13,22,23,27,30,31,37,2

BCRBCC Breeding: 3

Eastern Bluebird
Sialia sialis

Global: 23,000,000
Continental U.S.: 21,000,000

Common

Eastern Kingbird

Global: 26,000,000
Continental U.S.: 22,000,000

Common

Tyrannus tyrannus

Eastern Meadowlark
Sturnella magna

Global: 37,000,000
Continental U.S.: 24,000,000

State Threatened: CT

BCRBCC Breeding:
13,20,35,36

Eastern Phoebe
Sayornis phoebe

Global: 35,000,000
Continental U.S.: 27,000,000

Common

Eastern Screech-Owl
Megascops asio

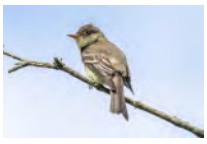
Global: 560,000
Continental U.S.: 490,000

Common

Eastern Towhee
Pipilo erythrophthalmus

Global: 29,000,000
Continental U.S.: 29,000,000

Common



Eastern Wood-Pewee
Contopus virens

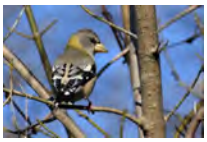
Global: 6,500,000
Continental U.S.: 6,100,000

Common

European Starling
Sturnus vulgaris

Global: 250,000,000
Continental U.S.: 74,000,000

Common



Evening Grosbeak

Coccothraustes vespertinus

Global: 3,800,000
Continental U.S.: 1,800,000

BCRBCC Breeding: 5,9,10,12,13,14,15,16,34,35

Field Sparrow

Spizella pusilla

Global: 9,300,000
Continental U.S.: 9,200,000

BCRBCC Breeding: 20,24

Fish Crow

Corvus ossifragus

Global: 470,000
Continental U.S.: 470,000

Common

Fox Sparrow

Passerella iliaca

Global: 35,000,000
Continental U.S.: 16,000,000

Common

Gadwall

Mareca strepera

Global: Not yet available
Continental U.S.: Not yet available

Common

Golden Eagle

Aquila chrysaetos

Global: 130,000
Continental U.S.: 40,000

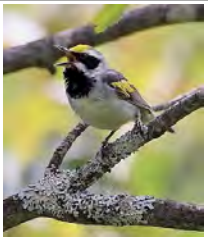
State Endangered: ME, NH, NY

Golden-crowned Kinglet

Global: 140,000,000
Continental U.S.: 44,000,000

Common

Regulus

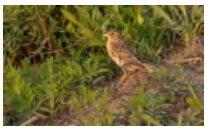


Golden-winged Warbler
Vermivora chrysoptera

Global: 390,000
Continental U.S.: 330,000

State Endangered: MA, CT, NJ, IN

BCRBCC Breeding: 11,12,13,23,28



Grasshopper Sparrow
Ammodramus savannarum

Global: 34,000,000
Continental U.S.: 33,000,000

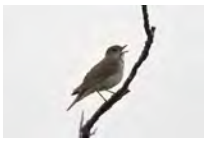
State Threatened: MA, NH, NJ, VT

State Endangered: CT, ME

Gray Catbird
Dumetella carolinensis

Global: 29,000,000
Continental U.S.: 25,000,000

Common



Gray-cheeked Thrush
Catharus minimus

Global: 46,000,000
Continental U.S.: 18,000,000

Common

Great Blue Heron
Ardea herodias

Global: Not yet available
Continental U.S.: Not yet available

Common

Great Crested Flycatcher

Global: 8,800,000
Continental U.S.: 8,100,000

Common

Myiarchus crinitus

Great Egret
Ardea alba

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: CT

State Endangered: PA

Great Horned Owl
Bubo virginianus

Global: 5,700,000
Continental U.S.: 3,000,000

Common

Greater Yellowlegs
Tringa melanoleuca

Global: Not yet available
Continental U.S.: Not yet available

Common

Green Heron
Butorides virescens

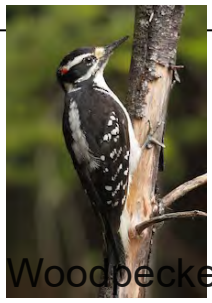
Global: Not yet available
Continental U.S.: Not yet available

Common

Green-winged Teal
Anas crecca

Global: Not yet available
Continental U.S.: Not yet available

Common



Hairy Woodpecker
Dryobates villosus

Global: 8,900,000
Continental U.S.: 4,200,000

Common

Hermit Thrush
Catharus guttatus

Global: 72,000,000
Continental U.S.: 15,000,000

Common

Herring Gull
Larus argentatus

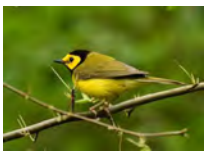
Global: Not yet available
Continental U.S.: Not yet available

Common

Hooded Merganser
Lophodytes cucullatus

Global: Not yet available
Continental U.S.: Not yet available

Common



Hooded Warbler
Setophaga citrina

Global: 5,200,000
Continental U.S.: 5,200,000

State Endangered: DE

Horned Grebe
Podiceps auritus

Global: Not yet available
Continental U.S.: Not yet available

State Endangered: MN

Horned Lark
Eremophila alpestris

Global: 140,000,000
Continental U.S.: 73,000,000

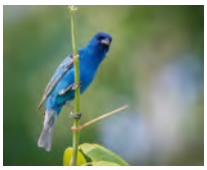
State Threatened: NJ

State Endangered: CT

House Finch
Haemorhous mexicanus

Global: 40,000,000
Continental U.S.: 33,000,000

Common

HOSP	House Sparrow *Passer domesticus*	Global: 740,000,000 Continental U.S.: 80,000,000	**Common**	
	House Wren *Troglodytes aedon*	Global: 190,000,000 Continental U.S.: 30,000,000	**Common**	
	Indigo Bunting *Passerina cyanea*	Global: 77,000,000 Continental U.S.: 76,000,000	**Common**	
	Kentucky Warbler *Geothlypis formosa*	Global: 2,600,000 Continental U.S.: 2,600,000	**BCRBCC Breeding:** 21,22,24,25,26,27,28,29,30	
	Killdeer *Charadrius vociferus*	Global: Not yet available Continental U.S.: Not yet available	**Common**	
	Lark Sparrow *Chondestes grammacus*	Global: 11,000,000 Continental U.S.: 11,000,000	**State Endangered:** OH	
	Laughing Gull *Leucophaeus atricilla*	Global: Not yet available Continental U.S.: Not yet available	**Common**	

Least Bittern
Ixobrychus exilis

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: CT, NY, OH, MI

State Endangered: MA, ME, PA, IN

Least Flycatcher
Empidonax minimus

Global: 27,000,000
Continental U.S.: 4,200,000

Common

Least Sandpiper
Calidris minutilla

Global: Not yet available
Continental U.S.: Not yet available

Common

Lesser Yellowlegs
Tringa flavipes

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 5,9,10,11,12,13,14,16,17,18,19,20,21,22,23,24,25,26,27,30,31,36,37

BCRBCC Breeding: 4

Lincoln's Sparrow
Melospiza lincolnii

Global: 88,000,000
Continental U.S.: 16,000,000

Common

Little Blue Heron
Egretta caerulea

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Breeding: 21,26

Long-tailed

Global: Not yet available
Continental U.S.: Not yet available

Common

Duck
Clangula hyemalis

Louisiana Waterthrush
Parkesia motacilla

Global: 450,000
Continental U.S.: 450,000

State Threatened: MI

Magnolia Warbler
Setophaga magnolia

Global: 39,000,000
Continental U.S.: 1,400,000

Common

Mallard
Anas platyrhynchos

Global: Not yet available
Continental U.S.: Not yet available

Common

Marsh Wren
Cistothorus palustris

Global: 11,000,000
Continental U.S.: 8,900,000

State Endangered: IN

Merlin
Falco columbarius

Global: 3,200,000
Continental U.S.: 240,000

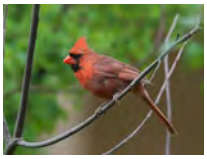
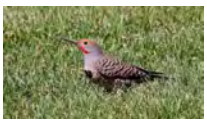
State Threatened: MI

Mississippi Kite

Global: 700,000
Continental U.S.: 700,000

Common

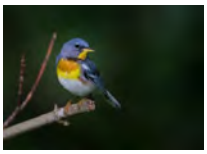
Ictinia mississippiensis

	Mourning Dove *Zenaida macroura*	Global: 150,000,000 Continental U.S.: 130,000,000	**Common**	⌄
	Mourning Warbler *Geothlypis philadelphia*	Global: 14,000,000 Continental U.S.: 1,600,000	**State Endangered:** |MD|	⌄
	Nashville Warbler *Leiothlypis ruficapilla*	Global: 40,000,000 Continental U.S.: 6,200,000	**State Threatened:** |MD|	⌄
	Northern Cardinal *Cardinalis cardinalis*	Global: 130,000,000 Continental U.S.: 120,000,000	**Common**	⌄
	Northern Flicker *Colaptes auratus*	Global: 12,000,000 Continental U.S.: 5,500,000	**Common**	⌄
NOHA	Northern Harrier *Circus cyaneus*	Global: Not yet available Continental U.S.: Not yet available	**Not Available**	⌄

Northern Mockingbird
Mimus polyglottos

Global: 43,000,000
Continental U.S.: 34,000,000

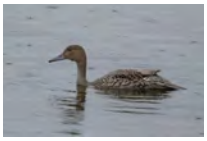
Common



Northern Parula
Setophaga americana

Global: 18,000,000
Continental U.S.: 12,000,000

State Threatened: MA



Northern Pintail
Anas acuta

Global: Not yet available
Continental U.S.: Not yet available

Common

Northern Rough-winged Swallow
Stelgidopteryx serripennis

Global: 27,000,000
Continental U.S.: 19,000,000

Common

Northern Shoveler
Spatula clypeata

Global: Not yet available
Continental U.S.: Not yet available

Common

Northern Waterthrush
Parkesia noveboracensis

Global: 17,000,000
Continental U.S.: 4,300,000

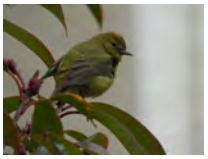
Common

Olive-sided Flycatcher
Contopus cooperi

Global: 1,900,000
Continental U.S.: 830,000

State Endangered: |MD|

BCRBCC Breeding: 2,3,5,9,10,12,14,15,16,32,34



Orange-crowned Warbler
Leiothlypis celata

Global: 82,000,000
Continental U.S.: 34,000,000

Common

Orchard Oriole
Icterus spurius

Global: 12,000,000
Continental U.S.: 11,000,000

BCRBCC Breeding: 36

Osprey
Pandion haliaetus

Global: 1,200,000
Continental U.S.: 230,000

State Threatened: NJ

Ovenbird
Seiurus aurocapilla

Global: 26,000,000
Continental U.S.: 9,500,000

Common

Palm Warbler
Setophaga palmarum

Global: 13,000,000
Continental U.S.: 60,000

Common

Pectoral Sandpiper
Calidris melanotos

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 9,11,12,13,16,18,19,20,21,22,23,25,26,27,30,31,36,37

BCRBCC Breeding: 3

Peregrine Falcon
Falco peregrinus

Global: 340,000
Continental U.S.: Not yet available

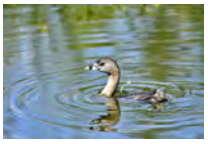
State Threatened: CT, NH, VA, TX

State Endangered: MA, ME, NJ, NY, PA, RI, MI

Philadelphia Vireo
Vireo philadelphicus

Global: 4,000,000
Continental U.S.: 59,000

Common



Pied-billed Grebe
Podilymbus podiceps

Global: Not yet available
Continental U.S.: Not yet available

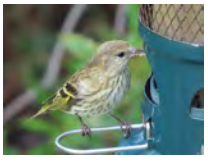
State Threatened: NH, NY

State Endangered: MA, CT, DE, NJ, RI

Pileated Woodpecker
Dryocopus pileatus

Global: 2,600,000
Continental U.S.: 1,700,000

Common



Pine Siskin
Spinus pinus

Global: 46,000,000
Continental U.S.: 15,000,000

Common

Pine Warbler

Global: 13,000,000
Continental U.S.: 12,000,000

Common

Setophaga pinus

Prairie Warbler
Setophaga discolor

Global: 3,600,000
Continental U.S.: 3,600,000

State Endangered: MI

BCRBCC Breeding:
13,14,24,25,26,27,28,29,30,31

Global: 2,100,000
Continental U.S.: 2,100,000

BCRBCC Breeding:
21,22,24,25,26,27,28,29,30,37

Prothonotary Warbler
Protonotaria citrea

Purple Finch
Haemorhous purpureus

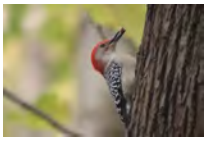
Global: 6,500,000
Continental U.S.: 2,300,000

Common

Purple Martin
Progne subis

Global: 9,300,000
Continental U.S.: 8,400,000

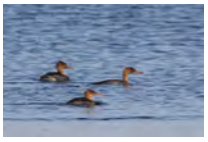
Common



Red-bellied Woodpecker
Melanerpes carolinus

Global: 16,000,000
Continental U.S.: 15,000,000

Common



Red-breasted Merganser

Global: Not yet available
Continental U.S.: Not yet available

Common

Mergus serrator

Red-breasted Nuthatch
Sitta canadensis

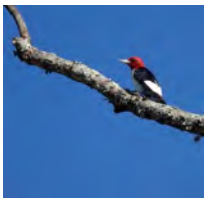
Global: 20,000,000
Continental U.S.: 8,500,000

Common

Red-eyed Vireo
Vireo olivaceus

Global: 130,000,000
Continental U.S.: 49,000,000

Common



Red-headed Woodpecker
Melanerpes erythrocephalus

Global: 1,800,000
Continental U.S.: 1,800,000

State Threatened: NJ

State Endangered: CT

BCRBCC Breeding: 11,13,17,18,19,21,22,23,24,25,26,27,28,29,30,31,37

Red-shouldered Hawk
Buteo lineatus

Global: 1,900,000
Continental U.S.: 1,800,000

State Threatened: MI

State Endangered: NJ

Red-tailed Hawk
Buteo jamaicensis

Global: 3,100,000
Continental U.S.: 2,100,000

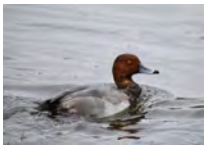
Common

Red-winged Blackbird

Global: 180,000,000
Continental U.S.: 140,000,000

Common

Agelaius phoeniceus



Redhead
Aythya americana

Global: Not yet available
Continental U.S.: Not yet available

Common

Ring-billed Gull
Larus delawarensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Ring-necked Duck
Aythya collaris

Global: Not yet available
Continental U.S.: Not yet available

Common

Rock Pigeon
Columba livia

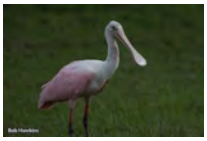
Global: 140,000,000
Continental U.S.: 12,000,000

Common

Rose-breasted Grosbeak
Pheucticus ludovicianus

Global: 4,700,000
Continental U.S.: 2,400,000

BCRBCC Breeding: 13,14



Roseate Spoonbill
Platalea ajaja

Global: Not yet available
Continental U.S.: Not yet available

Common

Ross's Goose

Global: Not yet available
Continental U.S.: Not yet available

Common

ROGO *Anser rossii*

Ruby-throated Hummingbird
Archilochus colubris

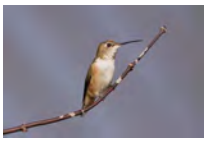
Global: 36,000,000
Continental U.S.: 30,000,000

Common

Ruddy Duck
Oxyura jamaicensis

Global: Not yet available
Continental U.S.: Not yet available

Common



Rufous Hummingbird
Selasphorus rufus

Global: 22,000,000
Continental U.S.: 9,300,000

BCRBCC Breeding: 5,9,10

Rusty Blackbird
Euphagus carolinus

Global: 6,800,000
Continental U.S.: 930,000

State Endangered: VT

BCRBCC Non Breeding: 22,23,24,26,27,28,29,30

Savannah Sparrow
Passerculus sandwichensis

Global: 170,000,000
Continental U.S.: 69,000,000

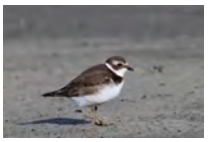
State Threatened: NJ

Scarlet Tanager

Global: 2,600,000
Continental U.S.: 2,400,000

BCRBCC Breeding: 30

Piranga olivacea



Semipalmated Plover
Charadrius semipalmatus

Global: Not yet available
Continental U.S.: Not yet available

Common

Semipalmated Sandpiper
Calidris pusilla

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 12,13,14,22,23,24,26,27,30,31

Sharp-shinned Hawk
Accipiter striatus

Global: 1,000,000
Continental U.S.: 160,000

State Endangered: CT

Shiny Cowbird
Molothrus bonariensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Snowy Egret
Egretta thula

Global: Not yet available
Continental U.S.: Not yet available

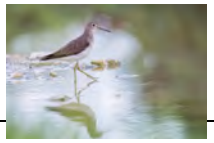
State Threatened: CT

State Endangered: OH

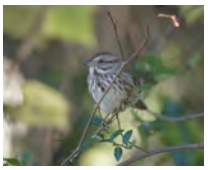
Solitary Sandpiper

Global: Not yet available
Continental U.S.: Not yet available

Common



Tringa solitaria



Song Sparrow
Melospiza melodia

Global: 130,000,000
Continental U.S.: 71,000,000

Common

Sora
Porzana carolina

Global: Not yet available
Continental U.S.: Not yet available

Common

Spotted Sandpiper
Actitis macularius

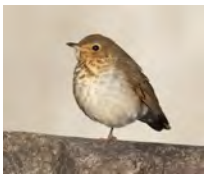
Global: Not yet available
Continental U.S.: Not yet available

Common

Summer Tanager
Piranga rubra

Global: 12,000,000
Continental U.S.: 11,000,000

Common



Swainson's Thrush
Catharus ustulatus

Global: 120,000,000
Continental U.S.: 39,000,000

Common

Swamp Sparrow
Melospiza georgiana

Global: 23,000,000
Continental U.S.: 2,800,000

Common

Tennessee Warbler
Leiothlypis peregrina

Global: 110,000,000
Continental U.S.: 88,000

Common

Tree Swallow
Tachycineta bicolor

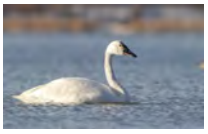
Global: 19,000,000
Continental U.S.: 8,700,000

Common

Tufted Titmouse
Baeolophus bicolor

Global: 12,000,000
Continental U.S.: 12,000,000

Common



Tundra Swan
Cygnus columbianus

Global: Not yet available
Continental U.S.: Not yet available

Common

Turkey Vulture
Cathartes aura

Global: 28,000,000
Continental U.S.: 8,200,000

Common

Veery
Catharus fuscescens

Global: 11,000,000
Continental U.S.: 4,000,000

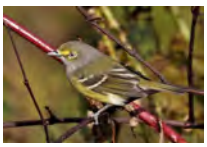
Common

Vesper Sparrow
Pooecetes gramineus

Global: 35,000,000
Continental U.S.: 22,000,000

State Threatened: MA

State Endangered: CT, NJ

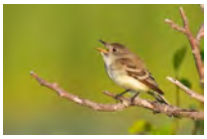
	Virginia Rail *Rallus limicola*	Global: Not yet available Continental U.S.: Not yet available	**State Endangered:** IN	⌄
	Warbling Vireo *Vireo gilvus*	Global: 53,000,000 Continental U.S.: 24,000,000	**Common**	⌄
	White-breasted Nuthatch *Sitta carolinensis*	Global: 10,000,000 Continental U.S.: 9,500,000	**Common**	⌄
	White-crowned Sparrow *Zonotrichia leucophrys*	Global: 79,000,000 Continental U.S.: 39,000,000	**Common**	⌄
	White-eyed Vireo *Vireo griseus*	Global: 24,000,000 Continental U.S.: 22,000,000	**Common**	⌄
	White-throated Sparrow *Zonotrichia albicollis*	Global: 160,000,000 Continental U.S.: 5,600,000	**Common**	⌄
	White-winged Crossbill	Global: 79,000,000 Continental U.S.: 3,500,000	**Common**	⌄

Loxia leucoptera

Wild Turkey
Meleagris gallopavo

Global: 6,900,000
Continental U.S.: Not yet available

Common



Willow Flycatcher
Empidonax traillii

Global: 8,100,000
Continental U.S.: 5,300,000

State Endangered: CA

Wilson's Snipe
Gallinago delicata

Global: Not yet available
Continental U.S.: Not yet available

Common

Wilson's Warbler
Cardellina pusilla

Global: 81,000,000
Continental U.S.: 39,000,000

Common

Winter Wren
Troglodytes hiemalis

Global: 11,000,000
Continental U.S.: 910,000

Common

Wood Duck
Aix sponsa

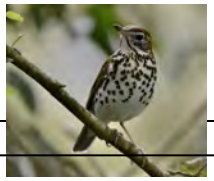
Global: Not yet available
Continental U.S.: Not yet available

Common

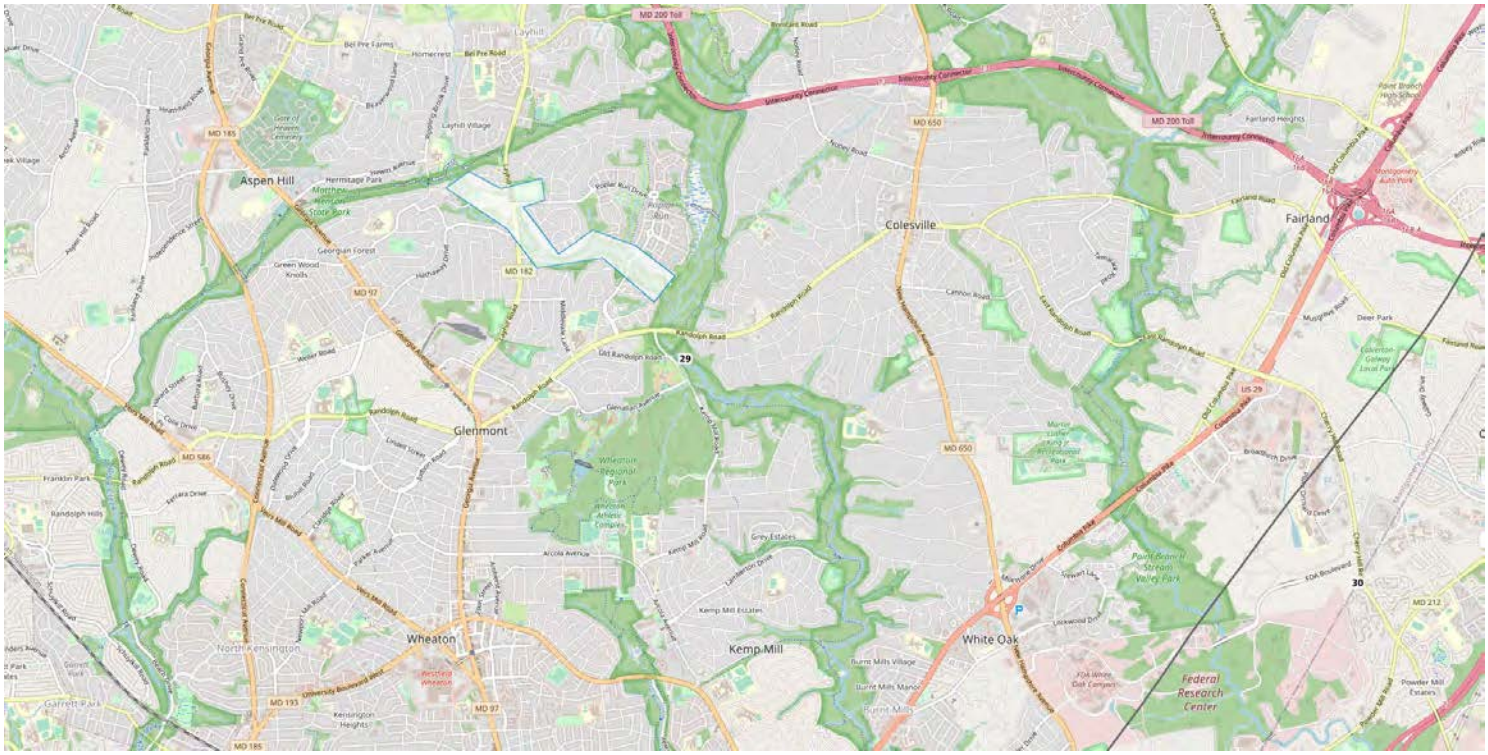
Wood Thrush

Global: 12,000,000
Continental U.S.: 12,000,000

BCRBCC Breeding:
12,13,14,22,23,24,25,26,27,28,2

	*Hylocichla mustelina*		9,30	
	Worm-eating Warbler *Helmitheros vermivorum*	Global: 780,000 Continental U.S.: 780,000	**Common**	
	Yellow Warbler *Setophaga petechia*	Global: 97,000,000 Continental U.S.: 40,000,000	**Common**	
	Yellow-bellied Flycatcher *Empidonax flaviventris*	Global: 13,000,000 Continental U.S.: 530,000	**State Endangered:** PA	
	Yellow-bellied Sapsucker *Sphyrapicus varius*	Global: 14,000,000 Continental U.S.: 3,200,000	**Common**	
	Yellow-billed Cuckoo *Coccyzus americanus*	Global: 9,600,000 Continental U.S.: 8,300,000	**Federally Threatened:** Western DPS: U.S.A. (AZ, CA, CO (western), ID, MT (western), NM (western), NV, OR, TX (western), UT, WA, WY (western)); Canada (British Columbia (southwestern); Mexico (Baja California, Baja California Sur, Chihuahua, Durango (western), Sinaloa, Sonora) **BCRBCC Breeding:** 28	

	Yellow-breasted Chat *Icteria virens*	Global: 17,000,000 Continental U.S.: 15,000,000	**State Endangered:** CT, RI	
	Yellow-crowned Night-Heron *Nyctanassa violacea*	Global: Not yet available Continental U.S.: Not yet available	**State Threatened:** NJ **State Endangered:** DE, PA, IN	
	Yellow-rumped Warbler *Setophaga coronata*	Global: 170,000,000 Continental U.S.: 47,000,000	**Common**	
YSFL	Yellow-shafted Flicker *Colaptes auratus auratus*	Global: Not yet available Continental U.S.: Not yet available	**Not Available**	
	Yellow-throated Vireo *Vireo flavifrons*	Global: 4,700,000 Continental U.S.: 4,600,000	**Common**	
	Yellow-throated Warbler *Setophaga dominica*	Global: 2,000,000 Continental U.S.: 2,000,000	**State Threatened:** MI	



Species Results

BCR(s): 29-PIEDMONT
State(s): MD

Acadian Flycatcher
Empidonax virescens

Global: 5,200,000
Continental U.S.: 5,200,000

Common

American Avocet
Recurvirostra americana

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Breeding: 9, 33

American Bittern
Botaurus lentiginosus

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: |MD|

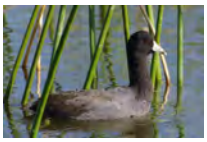
State Endangered: MA, CT, NJ, PA, OH, IN

American Black Duck

Global: Not yet available
Continental U.S.: Not yet available

Common

Anas rubripes



American Coot
Fulica americana

Global: Not yet available
Continental U.S.: Not yet available

Common

American Crow
Corvus brachyrhynchos

Global: 28,000,000
Continental U.S.: 18,000,000

Common

American Goldfinch
Spinus tristis

Global: 44,000,000
Continental U.S.: 30,000,000

Common

American Kestrel
Falco sparverius

Global: 9,200,000
Continental U.S.: 2,000,000

State Threatened: NJ

State Endangered: DE

American Pipit
Anthus rubescens

Global: 20,000,000
Continental U.S.: 200,000

Common

American Redstart
Setophaga ruticilla

Global: 42,000,000
Continental U.S.: 8,500,000

Common

American Robin

Global: 370,000,000
Continental U.S.: 200,000,000

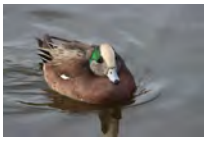
Common

Turdus migratorius

American Tree Sparrow
Spizelloides arborea

Global: 26,000,000
Continental U.S.: 9,600,000

Common



American Wigeon
Mareca americana

Global: Not yet available
Continental U.S.: Not yet available

Common

American Woodcock
Scolopax minor

Global: Not yet available
Continental U.S.: Not yet available

Common

Bald Eagle
Haliaeetus leucocephalus

Global: 200,000
Continental U.S.: Not yet available

State Threatened: MA, CT, NH, NY, TX

State Endangered: NJ, VT, CA

Baltimore Oriole
Icterus galbula

Global: 12,000,000
Continental U.S.: 9,900,000

Common

Bank Swallow
Riparia riparia

Global: 29,000,000
Continental U.S.: 5,500,000

State Threatened: CA

Barn Swallow
Hirundo rustica

Global: 190,000,000
Continental U.S.: 40,000,000

Common

Barred Owl
Strix varia

Global: 3,500,000
Continental U.S.: 3,100,000

State Threatened: NJ

Bay-breasted Warbler
Setophaga castanea

Global: 9,900,000
Continental U.S.: 100,000

BCRBCC Breeding: 14

Belted Kingfisher
Megaceryle alcyon

Global: 1,800,000
Continental U.S.: 830,000

BCRBCC Breeding: 13

Black Vulture
Coragyps atratus

Global: 190,000,000
Continental U.S.: 9,600,000

Common

Black-and-white Warbler
Mniotilta varia

Global: 18,000,000
Continental U.S.: 5,200,000

Common

Black-billed Cuckoo

Global: 880,000
Continental U.S.: 380,000

BCRBCC Breeding:
11,12,13,14,17,19,22,23,24,28,29,30

Coccyzus erythropthalmus

Black-crowned Night-Heron
Nycticorax nycticorax

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: ME, NJ, OH

State Endangered: DE, PA, IN

Black-throated Blue Warbler
Setophaga caerulescens

Global: 2,400,000
Continental U.S.: 800,000

Common

Black-throated Gray Warbler
Setophaga nigrescens

Global: 3,200,000
Continental U.S.: 2,700,000

BCRBCC Breeding: 15,34

Black-throated Green Warbler
Setophaga virens

Global: 9,200,000
Continental U.S.: 2,900,000

BCRBCC Breeding: 27

Blackburnian Warbler
Setophaga fusca

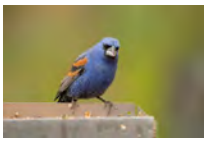
Global: 13,000,000
Continental U.S.: 4,000,000

Common

Blackpoll Warbler
Setophaga striata

Global: 60,000,000
Continental U.S.: 14,000,000

State Endangered: PA



Blue Grosbeak
Passerina caerulea

Global: 35,000,000
Continental U.S.: 21,000,000

Common

Blue Jay
Cyanocitta cristata

Global: 17,000,000
Continental U.S.: 15,000,000

Common

Blue-gray Gnatcatcher
Polioptila caerulea

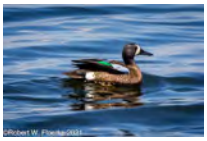
Global: 260,000,000
Continental U.S.: 230,000,000

Common

Blue-headed Vireo
Vireo solitarius

Global: 13,000,000
Continental U.S.: 2,000,000

Common



Blue-winged Teal
Spatula discors

Global: Not yet available
Continental U.S.: Not yet available

Common

Blue-winged

Global: 680,000
Continental U.S.: 660,000

BCRBCC Breeding: 13,30

Warbler
Vermivora cyanoptera

Bobolink
Dolichonyx oryzivorus

Global: 10,000,000
Continental U.S.: 7,600,000

State Threatened: NJ

BCRBCC Breeding: 9,10,11,12,13,14,17,19,22,23,24,28,30

Bonaparte's Gull
Chroicocephalus philadelphia

Global: Not yet available
Continental U.S.: Not yet available

Common

Broad-winged Hawk
Buteo platypterus

Global: 1,900,000
Continental U.S.: 980,000

State Endangered: DE

Brown Creeper
Certhia americana

Global: 11,000,000
Continental U.S.: 4,700,000

Common

Brown Thrasher
Toxostoma rufum

Global: 6,200,000
Continental U.S.: 5,700,000

Common

Brown-headed

Global: 130,000,000
Continental U.S.: 100,000,000

Common

Cowbird
Molothrus ater

Bufflehead
Bucephala albeola

Global: Not yet available
Continental U.S.: Not yet available

Common

Cackling Goose
Branta hutchinsii

Global: Not yet available
Continental U.S.: Not yet available

Common

Canada Goose
Branta canadensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Canada Warbler
Cardellina canadensis

Global: 2,600,000
Continental U.S.: 550,000

BCRBCC Breeding: 12,13,14,23,28,30

Canvasback
Aythya valisineria

Global: Not yet available
Continental U.S.: Not yet available

Common

Cape May Warbler
Setophaga tigrina

Global: 7,000,000
Continental U.S.: 260,000

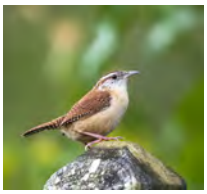
BCRBCC Breeding: 14

Carolina Chickadee

Poecile carolinensis

Global: 13,000,000
Continental U.S.: 13,000,000

Common

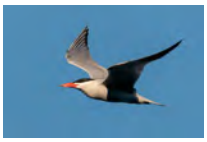


Carolina Wren

Thryothorus ludovicianus

Global: 19,000,000
Continental U.S.: 18,000,000

Common

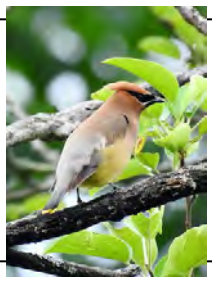


Caspian Tern

Hydroprogne caspia

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: MI



Cedar Waxwing

Bombycilla cedrorum

Global: 64,000,000
Continental U.S.: 29,000,000

Common

Cerulean Warbler

Setophaga cerulea

Global: 530,000
Continental U.S.: 520,000

State Threatened: MI

State Endangered: DE, RI

BCRBCC Breeding:
12,13,22,23,24,26,27,28,29,30

Chestnut-sided Warbler

Setophaga pensylvanica

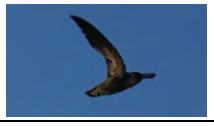
Global: 18,000,000
Continental U.S.: 5,400,000

Common

Chimney Swift

Global: 8,800,000
Continental U.S.: 8,700,000

BCRBCC Breeding:
11,12,13,14,18,19,20,21,22,23,24,25,26,27,28,29,30,31,36,37



Chaetura pelagica

Chipping Sparrow
Spizella passerina

Global: 240,000,000
Continental U.S.: 100,000,000

Common

Clay-colored Sparrow
Spizella pallida

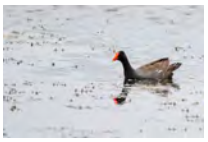
Global: 60,000,000
Continental U.S.: 9,100,000

Common

Cliff Swallow
Petrochelidon pyrrhonota

Global: 83,000,000
Continental U.S.: 71,000,000

Common



Common Gallinule
Gallinula galeata

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: ME

State Endangered: CT, IN

Common Goldeneye
Bucephala clangula

Global: Not yet available
Continental U.S.: Not yet available

Common

Common Grackle
Quiscalus quiscula

Global: 67,000,000
Continental U.S.: 60,000,000

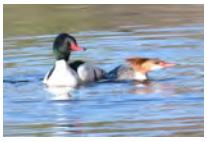
Common

Common Loon

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: NH, MI

Gavia immer



Common Merganser
Mergus merganser

Global: Not yet available
Continental U.S.: Not yet available

Common

Common Nighthawk
Chordeiles minor

Global: 23,000,000
Continental U.S.: 20,000,000

State Endangered: CT, NH, VT

Common Raven
Corvus corax

Global: 29,000,000
Continental U.S.: 2,500,000

Common

Common Yellowthroat
Geothlypis trichas

Global: 77,000,000
Continental U.S.: 42,000,000

Common

Connecticut Warbler
Oporornis agilis

Global: 1,800,000
Continental U.S.: 50,000

BCRBCC Breeding: 12

Cooper's Hawk
Accipiter cooperii

Global: 1,000,000
Continental U.S.: 790,000

Common

Dark-eyed Junco
Junco hyemalis

Global: 220,000,000
Continental U.S.: 81,000,000

Common

Dickcissel
Spiza americana

Global: 28,000,000
Continental U.S.: 28,000,000

State Endangered: PA

BCRBCC Breeding: 37

Downy Woodpecker
Dryobates pubescens

Global: 13,000,000
Continental U.S.: 11,000,000

Common

Dunlin
Calidris alpina

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 11,12,13,22,23,27,30,31,37,2

BCRBCC Breeding: 3

Eastern Bluebird
Sialia sialis

Global: 23,000,000
Continental U.S.: 21,000,000

Common

Eastern Kingbird

Global: 26,000,000
Continental U.S.: 22,000,000

Common

Tyrannus tyrannus

Eastern Meadowlark
Sturnella magna

Global: 37,000,000
Continental U.S.: 24,000,000

State Threatened: CT

BCRBCC Breeding: 13,20,35,36

Eastern Phoebe
Sayornis phoebe

Global: 35,000,000
Continental U.S.: 27,000,000

Common

Eastern Screech-Owl
Megascops asio

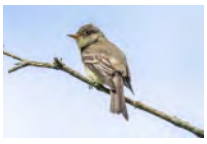
Global: 560,000
Continental U.S.: 490,000

Common

Eastern Towhee
Pipilo erythrophthalmus

Global: 29,000,000
Continental U.S.: 29,000,000

Common



Eastern Wood-Pewee
Contopus virens

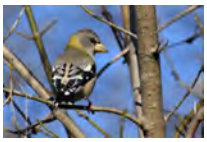
Global: 6,500,000
Continental U.S.: 6,100,000

Common

European Starling
Sturnus vulgaris

Global: 250,000,000
Continental U.S.: 74,000,000

Common



Evening Grosbeak

Coccothraustes vespertinus

Global: 3,800,000
Continental U.S.: 1,800,000

BCRBCC Breeding: 5,9,10,12,13,14,15,16,34,35

Field Sparrow

Spizella pusilla

Global: 9,300,000
Continental U.S.: 9,200,000

BCRBCC Breeding: 20,24

Fish Crow

Corvus ossifragus

Global: 470,000
Continental U.S.: 470,000

Common

Fox Sparrow

Passerella iliaca

Global: 35,000,000
Continental U.S.: 16,000,000

Common

Gadwall

Mareca strepera

Global: Not yet available
Continental U.S.: Not yet available

Common

Golden Eagle

Aquila chrysaetos

Global: 130,000
Continental U.S.: 40,000

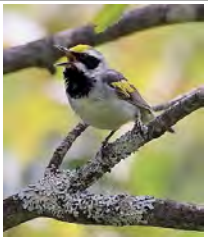
State Endangered: ME, NH, NY

Golden-crowned Kinglet

Global: 140,000,000
Continental U.S.: 44,000,000

Common

Regulus

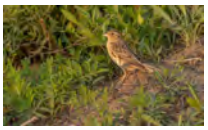


Golden-winged Warbler
Vermivora chrysoptera

Global: 390,000
Continental U.S.: 330,000

State Endangered: MA, CT, NJ, IN

BCRBCC Breeding: 11,12,13,23,28



Grasshopper Sparrow
Ammodramus savannarum

Global: 34,000,000
Continental U.S.: 33,000,000

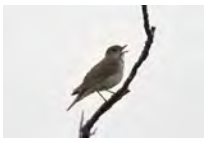
State Threatened: MA, NH, NJ, VT

State Endangered: CT, ME

Gray Catbird
Dumetella carolinensis

Global: 29,000,000
Continental U.S.: 25,000,000

Common



Gray-cheeked Thrush
Catharus minimus

Global: 46,000,000
Continental U.S.: 18,000,000

Common

Great Blue Heron
Ardea herodias

Global: Not yet available
Continental U.S.: Not yet available

Common

Great Crested Flycatcher

Global: 8,800,000
Continental U.S.: 8,100,000

Common

Myiarchus crinitus

Great Egret
Ardea alba

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: CT

State Endangered: PA

Great Horned Owl
Bubo virginianus

Global: 5,700,000
Continental U.S.: 3,000,000

Common

Greater Yellowlegs
Tringa melanoleuca

Global: Not yet available
Continental U.S.: Not yet available

Common

Green Heron
Butorides virescens

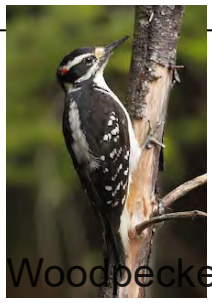
Global: Not yet available
Continental U.S.: Not yet available

Common

Green-winged Teal
Anas crecca

Global: Not yet available
Continental U.S.: Not yet available

Common



Hairy Woodpecker
Dryobates villosus

Global: 8,900,000
Continental U.S.: 4,200,000

Common

Hermit Thrush
Catharus guttatus

Global: 72,000,000
Continental U.S.: 15,000,000

Common

Herring Gull
Larus argentatus

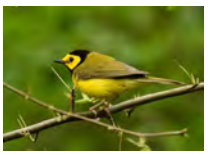
Global: Not yet available
Continental U.S.: Not yet available

Common

Hooded Merganser
Lophodytes cucullatus

Global: Not yet available
Continental U.S.: Not yet available

Common



Hooded Warbler
Setophaga citrina

Global: 5,200,000
Continental U.S.: 5,200,000

State Endangered: DE

Horned Grebe
Podiceps auritus

Global: Not yet available
Continental U.S.: Not yet available

State Endangered: MN

Horned Lark
Eremophila alpestris

Global: 140,000,000
Continental U.S.: 73,000,000

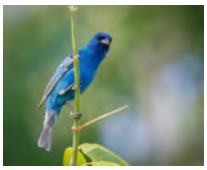
State Threatened: NJ

State Endangered: CT

House Finch
Haemorhous mexicanus

Global: 40,000,000
Continental U.S.: 33,000,000

Common

HOSP	House Sparrow *Passer domesticus*	Global: 740,000,000 Continental U.S.: 80,000,000	**Common**	
	House Wren *Troglodytes aedon*	Global: 190,000,000 Continental U.S.: 30,000,000	**Common**	
	Indigo Bunting *Passerina cyanea*	Global: 77,000,000 Continental U.S.: 76,000,000	**Common**	
	Kentucky Warbler *Geothlypis formosa*	Global: 2,600,000 Continental U.S.: 2,600,000	**BCRBCC Breeding:** 21,22,24,25,26,27,28,29,30	
	Killdeer *Charadrius vociferus*	Global: Not yet available Continental U.S.: Not yet available	**Common**	
	Lark Sparrow *Chondestes grammacus*	Global: 11,000,000 Continental U.S.: 11,000,000	**State Endangered:** OH	
	Laughing Gull *Leucophaeus atricilla*	Global: Not yet available Continental U.S.: Not yet available	**Common**	

Least Bittern
Ixobrychus exilis

Global: Not yet available
Continental U.S.: Not yet available

State Threatened: CT, NY, OH, MI

State Endangered: MA, ME, PA, IN

Least Flycatcher
Empidonax minimus

Global: 27,000,000
Continental U.S.: 4,200,000

Common

Least Sandpiper
Calidris minutilla

Global: Not yet available
Continental U.S.: Not yet available

Common

Lesser Yellowlegs
Tringa flavipes

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 5,9,10,11,12,13,14,16,17,18,19,20,21,22,23,24,25,26,27,30,31,36,37

BCRBCC Breeding: 4

Lincoln's Sparrow
Melospiza lincolnii

Global: 88,000,000
Continental U.S.: 16,000,000

Common

Little Blue Heron
Egretta caerulea

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Breeding: 21,26

Long-tailed

Global: Not yet available
Continental U.S.: Not yet available

Common

Duck
Clangula hyemalis

Louisiana Waterthrush
Parkesia motacilla

Global: 450,000
Continental U.S.: 450,000

State Threatened: MI

Magnolia Warbler
Setophaga magnolia

Global: 39,000,000
Continental U.S.: 1,400,000

Common

Mallard
Anas platyrhynchos

Global: Not yet available
Continental U.S.: Not yet available

Common

Marsh Wren
Cistothorus palustris

Global: 11,000,000
Continental U.S.: 8,900,000

State Endangered: IN

Merlin
Falco columbarius

Global: 3,200,000
Continental U.S.: 240,000

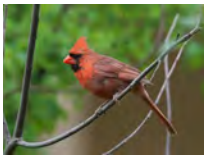
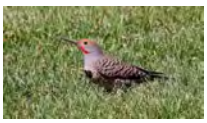
State Threatened: MI

Mississippi Kite

Global: 700,000
Continental U.S.: 700,000

Common

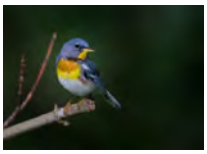
Ictinia mississippiensis

	Mourning Dove *Zenaida macroura*	Global: 150,000,000 Continental U.S.: 130,000,000	**Common**	⌄
	Mourning Warbler *Geothlypis philadelphia*	Global: 14,000,000 Continental U.S.: 1,600,000	**State Endangered:** |MD|	⌄
	Nashville Warbler *Leiothlypis ruficapilla*	Global: 40,000,000 Continental U.S.: 6,200,000	**State Threatened:** |MD|	⌄
	Northern Cardinal *Cardinalis cardinalis*	Global: 130,000,000 Continental U.S.: 120,000,000	**Common**	⌄
	Northern Flicker *Colaptes auratus*	Global: 12,000,000 Continental U.S.: 5,500,000	**Common**	⌄
NOHA	Northern Harrier *Circus cyaneus*	Global: Not yet available Continental U.S.: Not yet available	**Not Available**	⌄

Northern Mockingbird
Mimus polyglottos

Global: 43,000,000
Continental U.S.: 34,000,000

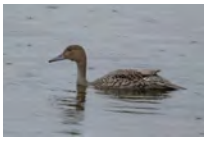
Common



Northern Parula
Setophaga americana

Global: 18,000,000
Continental U.S.: 12,000,000

State Threatened: MA



Northern Pintail
Anas acuta

Global: Not yet available
Continental U.S.: Not yet available

Common

Northern Rough-winged Swallow
Stelgidopteryx serripennis

Global: 27,000,000
Continental U.S.: 19,000,000

Common

Northern Shoveler
Spatula clypeata

Global: Not yet available
Continental U.S.: Not yet available

Common

Northern Waterthrush
Parkesia noveboracensis

Global: 17,000,000
Continental U.S.: 4,300,000

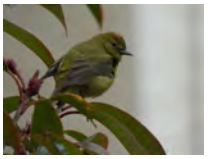
Common

Olive-sided Flycatcher
Contopus cooperi

Global: 1,900,000
Continental U.S.: 830,000

State Endangered: |MD|

BCRBCC Breeding: 2,3,5,9,10,12,14,15,16,32,34



Orange-crowned Warbler
Leiothlypis celata

Global: 82,000,000
Continental U.S.: 34,000,000

Common

Orchard Oriole
Icterus spurius

Global: 12,000,000
Continental U.S.: 11,000,000

BCRBCC Breeding: 36

Osprey
Pandion haliaetus

Global: 1,200,000
Continental U.S.: 230,000

State Threatened: NJ

Ovenbird
Seiurus aurocapilla

Global: 26,000,000
Continental U.S.: 9,500,000

Common

Palm Warbler
Setophaga palmarum

Global: 13,000,000
Continental U.S.: 60,000

Common

Pectoral Sandpiper
Calidris melanotos

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 9,11,12,13,16,18,19,20,21,22,23,25,26,27,30,31,36,37

BCRBCC Breeding: 3

Peregrine Falcon
Falco peregrinus

Global: 340,000
Continental U.S.: Not yet available

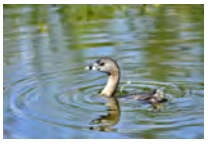
State Threatened: CT, NH, VA, TX

State Endangered: MA, ME, NJ, NY, PA, RI, MI

Philadelphia Vireo
Vireo philadelphicus

Global: 4,000,000
Continental U.S.: 59,000

Common



Pied-billed Grebe
Podilymbus podiceps

Global: Not yet available
Continental U.S.: Not yet available

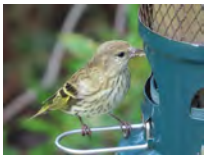
State Threatened: NH, NY

State Endangered: MA, CT, DE, NJ, RI

Pileated Woodpecker
Dryocopus pileatus

Global: 2,600,000
Continental U.S.: 1,700,000

Common



Pine Siskin
Spinus pinus

Global: 46,000,000
Continental U.S.: 15,000,000

Common

Pine Warbler

Global: 13,000,000
Continental U.S.: 12,000,000

Common

Setophaga pinus

Prairie Warbler
Setophaga discolor

Global: 3,600,000
Continental U.S.: 3,600,000

State Endangered: MI

BCRBCC Breeding:
13,14,24,25,26,27,28,29,30,31

Global: 2,100,000
Continental U.S.: 2,100,000

BCRBCC Breeding:
21,22,24,25,26,27,28,29,30,37

Prothonotary Warbler
Protonotaria citrea

Purple Finch
Haemorhous purpureus

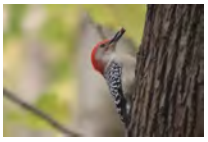
Global: 6,500,000
Continental U.S.: 2,300,000

Common

Purple Martin
Progne subis

Global: 9,300,000
Continental U.S.: 8,400,000

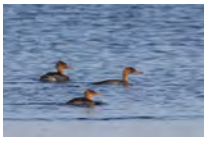
Common



Red-bellied Woodpecker
Melanerpes carolinus

Global: 16,000,000
Continental U.S.: 15,000,000

Common



Red-breasted Merganser

Global: Not yet available
Continental U.S.: Not yet available

Common

Mergus serrator

Red-breasted Nuthatch
Sitta canadensis

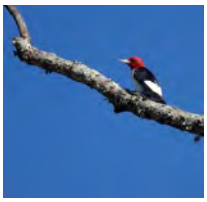
Global: 20,000,000
Continental U.S.: 8,500,000

Common

Red-eyed Vireo
Vireo olivaceus

Global: 130,000,000
Continental U.S.: 49,000,000

Common



Red-headed Woodpecker
Melanerpes erythrocephalus

Global: 1,800,000
Continental U.S.: 1,800,000

State Threatened: NJ

State Endangered: CT

BCRBCC Breeding: 11,13,17,18,19,21,22,23,24,25,26,27,28,29,30,31,37

Red-shouldered Hawk
Buteo lineatus

Global: 1,900,000
Continental U.S.: 1,800,000

State Threatened: MI

State Endangered: NJ

Red-tailed Hawk
Buteo jamaicensis

Global: 3,100,000
Continental U.S.: 2,100,000

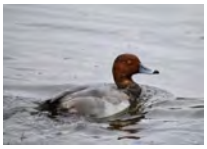
Common

Red-winged Blackbird

Global: 180,000,000
Continental U.S.: 140,000,000

Common

Agelaius phoeniceus



Redhead
Aythya americana

Global: Not yet available
Continental U.S.: Not yet available

Common

Ring-billed Gull
Larus delawarensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Ring-necked Duck
Aythya collaris

Global: Not yet available
Continental U.S.: Not yet available

Common

Rock Pigeon
Columba livia

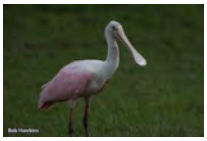
Global: 140,000,000
Continental U.S.: 12,000,000

Common

Rose-breasted Grosbeak
Pheucticus ludovicianus

Global: 4,700,000
Continental U.S.: 2,400,000

BCRBCC Breeding: 13,14



Roseate Spoonbill
Platalea ajaja

Global: Not yet available
Continental U.S.: Not yet available

Common

Ross's Goose

Global: Not yet available
Continental U.S.: Not yet available

Common

ROGO *Anser rossii*

Ruby-throated Hummingbird
Archilochus colubris

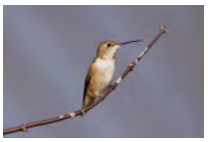
Global: 36,000,000
Continental U.S.: 30,000,000

Common

Ruddy Duck
Oxyura jamaicensis

Global: Not yet available
Continental U.S.: Not yet available

Common



Rufous Hummingbird
Selasphorus rufus

Global: 22,000,000
Continental U.S.: 9,300,000

BCRBCC Breeding: 5,9,10

Rusty Blackbird
Euphagus carolinus

Global: 6,800,000
Continental U.S.: 930,000

State Endangered: VT

BCRBCC Non Breeding: 22,23,24,26,27,28,29,30

Savannah Sparrow
Passerculus sandwichensis

Global: 170,000,000
Continental U.S.: 69,000,000

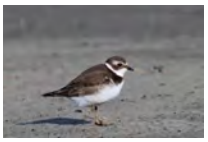
State Threatened: NJ

Scarlet Tanager

Global: 2,600,000
Continental U.S.: 2,400,000

BCRBCC Breeding: 30

Piranga olivacea



Semipalmated Plover
Charadrius semipalmatus

Global: Not yet available
Continental U.S.: Not yet available

Common

Semipalmated Sandpiper
Calidris pusilla

Global: Not yet available
Continental U.S.: Not yet available

BCRBCC Non Breeding: 12,13,14,22,23,24,26,27,30,31

Sharp-shinned Hawk
Accipiter striatus

Global: 1,000,000
Continental U.S.: 160,000

State Endangered: CT

Shiny Cowbird
Molothrus bonariensis

Global: Not yet available
Continental U.S.: Not yet available

Common

Snowy Egret
Egretta thula

Global: Not yet available
Continental U.S.: Not yet available

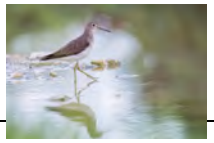
State Threatened: CT

State Endangered: OH

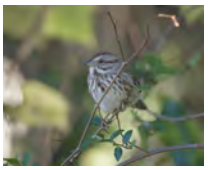
Solitary Sandpiper

Global: Not yet available
Continental U.S.: Not yet available

Common



Tringa solitaria



Song Sparrow
Melospiza melodia

Global: 130,000,000
Continental U.S.: 71,000,000

Common

Sora
Porzana carolina

Global: Not yet available
Continental U.S.: Not yet available

Common

Spotted Sandpiper
Actitis macularius

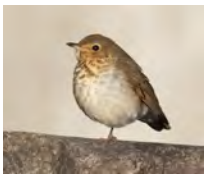
Global: Not yet available
Continental U.S.: Not yet available

Common

Summer Tanager
Piranga rubra

Global: 12,000,000
Continental U.S.: 11,000,000

Common



Swainson's Thrush
Catharus ustulatus

Global: 120,000,000
Continental U.S.: 39,000,000

Common

Swamp Sparrow
Melospiza georgiana

Global: 23,000,000
Continental U.S.: 2,800,000

Common

Tennessee Warbler
Leiothlypis peregrina

Global: 110,000,000
Continental U.S.: 88,000

Common

Tree Swallow
Tachycineta bicolor

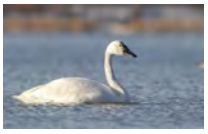
Global: 19,000,000
Continental U.S.: 8,700,000

Common

Tufted Titmouse
Baeolophus bicolor

Global: 12,000,000
Continental U.S.: 12,000,000

Common



Tundra Swan
Cygnus columbianus

Global: Not yet available
Continental U.S.: Not yet available

Common

Turkey Vulture
Cathartes aura

Global: 28,000,000
Continental U.S.: 8,200,000

Common

Veery
Catharus fuscescens

Global: 11,000,000
Continental U.S.: 4,000,000

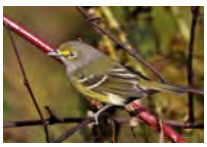
Common

Vesper Sparrow
Pooecetes gramineus

Global: 35,000,000
Continental U.S.: 22,000,000

State Threatened: MA

State Endangered: CT, NJ

	Virginia Rail *Rallus limicola*	Global: Not yet available Continental U.S.: Not yet available	**State Endangered:** IN	
	Warbling Vireo *Vireo gilvus*	Global: 53,000,000 Continental U.S.: 24,000,000	**Common**	
	White-breasted Nuthatch *Sitta carolinensis*	Global: 10,000,000 Continental U.S.: 9,500,000	**Common**	
	White-crowned Sparrow *Zonotrichia leucophrys*	Global: 79,000,000 Continental U.S.: 39,000,000	**Common**	
	White-eyed Vireo *Vireo griseus*	Global: 24,000,000 Continental U.S.: 22,000,000	**Common**	
	White-throated Sparrow *Zonotrichia albicollis*	Global: 160,000,000 Continental U.S.: 5,600,000	**Common**	
	White-winged Crossbill	Global: 79,000,000 Continental U.S.: 3,500,000	**Common**	

Loxia leucoptera

Wild Turkey
Meleagris gallopavo

Global: 6,900,000
Continental U.S.: Not yet available

Common

Willow Flycatcher
Empidonax traillii

Global: 8,100,000
Continental U.S.: 5,300,000

State Endangered: CA

Wilson's Snipe
Gallinago delicata

Global: Not yet available
Continental U.S.: Not yet available

Common

Wilson's Warbler
Cardellina pusilla

Global: 81,000,000
Continental U.S.: 39,000,000

Common

Winter Wren
Troglodytes hiemalis

Global: 11,000,000
Continental U.S.: 910,000

Common

Wood Duck
Aix sponsa

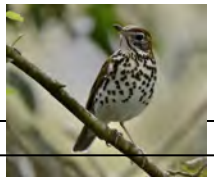
Global: Not yet available
Continental U.S.: Not yet available

Common

Wood Thrush

Global: 12,000,000
Continental U.S.: 12,000,000

BCRBCC Breeding:
12,13,14,22,23,24,25,26,27,28,2

	*Hylocichla mustelina*		9,30	
	Worm-eating Warbler *Helmitheros vermivorum*	Global: 780,000 Continental U.S.: 780,000	**Common**	
	Yellow Warbler *Setophaga petechia*	Global: 97,000,000 Continental U.S.: 40,000,000	**Common**	
	Yellow-bellied Flycatcher *Empidonax flaviventris*	Global: 13,000,000 Continental U.S.: 530,000	**State Endangered:** PA	
	Yellow-bellied Sapsucker *Sphyrapicus varius*	Global: 14,000,000 Continental U.S.: 3,200,000	**Common**	
	Yellow-billed Cuckoo *Coccyzus americanus*	Global: 9,600,000 Continental U.S.: 8,300,000	**Federally Threatened:** Western DPS: U.S.A. (AZ, CA, CO (western), ID, MT (western), NM (western), NV, OR, TX (western), UT, WA, WY (western)); Canada (British Columbia (southwestern); Mexico (Baja California, Baja California Sur, Chihuahua, Durango (western), Sinaloa, Sonora) **BCRBCC Breeding:** 28	

	Yellow-breasted Chat *Icteria virens*	Global: 17,000,000 Continental U.S.: 15,000,000	**State Endangered:** CT, RI	
	Yellow-crowned Night-Heron *Nyctanassa violacea*	Global: Not yet available Continental U.S.: Not yet available	**State Threatened:** NJ **State Endangered:** DE, PA, IN	
	Yellow-rumped Warbler *Setophaga coronata*	Global: 170,000,000 Continental U.S.: 47,000,000	**Common**	
YSFL	Yellow-shafted Flicker *Colaptes auratus auratus*	Global: Not yet available Continental U.S.: Not yet available	**Not Available**	
	Yellow-throated Vireo *Vireo flavifrons*	Global: 4,700,000 Continental U.S.: 4,600,000	**Common**	
	Yellow-throated Warbler *Setophaga dominica*	Global: 2,000,000 Continental U.S.: 2,000,000	**State Threatened:** MI	

Appendix D: Fish Survey

These fish were surveyed by Montgomery County, list provided by Montgomery County Biologist Dan Isenberg (D. Isenberg, personal communication, February 28, 2023)

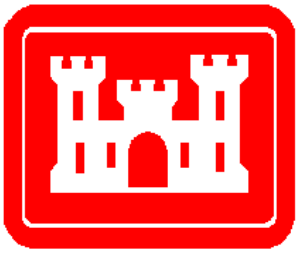
American Eel	*Anguilla rostrata*
Blacknose Dace	*Rhinichthyus atratulus*
Bluegill	*Lepomis machrochirus*
Bluntnose Minnow	*Pimephales notatus*
Brown Bullhead	*Ameiurus nebulosus*
Common Shiner	*Luxilux cornutus*
Creek Chub	*Semotilus atromaculatus*
Cutlips Minnow	*Exoglossum maxillingua*
Eastern Mosquitofish	*Gambusia holbrooki*
Fallfish	*Semotilus corporalis*
Fantail Darter	*Etheostoma flabellare*
Fathead Minnow	*Pimephales promelas*
Green Sunfish	*Lepomis cyanellus*
Hybrid Minnow	
Hybrid Sunfish	
Largemouth Bass	*Micropterus salmoides*
Longnose Dace	*Rhinichthys cataractae*
Pumpkinseed	*Lepomis gibbosus*
Redbreast Sunfish	*Lepomis auritus*
Rosyside Dace	*Clinostomus funduloides*
Silverjaw Minnow	*Ericymba buccata*
Spottail Shiner	*Notropis hudsonius*
Swallowtail Shiner	*Notropis procne*
Tessellated Darter	*Etheostoma olmstedi*
White Sucker	*Catostomus commersonii*

ANACOSTIA WATERSHED RESTORATION
MONTGOMERY COUNTY, MARYLAND
CONTINUING AUTHORITIES PROGRAM SECTION 206
AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

APPENDIX C4: AIR CONFORMITY ASSESSMENT

AIR CONFORMITY ASSESSMENT
MONTGOMERY COUNTY
ANACOSTIA WATERSHED RESTORATION
MONTGOMERY COUNTY, MARYLAND



Prepared by

U.S. Army Corps of Engineers
Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201

August 2023

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS & ACRONYMS

AEi	Annual emissions of chemical i
CAA	Clean Air Act
CO	Carbon Monoxide
EFi	Chemical i emission factor
MOVES3	Motor Vehicle Emissions Simulator Version 3
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_x	Nitrogen Oxides
O^3	Ozone
OTR	Ozone Transport Region
SIP	State Implementation Plan
USEPA	Unites States Environmental Protection Agency
VMT	Number of vehicle miles traveled per year
VOC	Volatile Organic Compounds

1 INTRODUCTION

This conformity analysis is submitted in support of the National Environmental Policy Act (NEPA) assessment for the aquatic ecosystem restoration project in the Anacostia River watershed, Montgomery County, Maryland. The project includes restoration at Lamberton Tributary, Bel Pre Tributary, and Sligo Creek. Emissions associated with the project would originate from vehicles and other equipment during construction activities, as well as construction vehicles and workers' vehicles travelling to and from the construction site. United States Environmental Protection Agency's (USEPA) Motor Vehicle Emission Simulator Version 3 (MOVES3) software was utilized to estimate emissions for on-road and off-road vehicles and equipment.

2 REGULATORY BACKGROUND

General Conformity is the process required by Section 176(c) of the Clean Air Act (CAA), which establishes the framework for improving air quality to protect public health and the environment. The goal of general conformity is to ensure that Federal Actions[1] are consistent with State air quality goals. These air quality goals are tied to states meeting the National Ambient Air Quality Standards (NAAQS), requirements that are established by the USEPA and are designed to protect human health and the environment. Each state develops a State Implementation Plan (SIP), which includes the state's strategy for attaining or maintaining the NAAQS, the modeling that demonstrates attainment or maintenance, and the various rules, regulations, and programs that provide the necessary air pollutant emissions reductions.

General Conformity rules of the CAA apply to all non-transportation related projects, excluding exempt actions which would cause only de minimis levels, are presumed to conform, or are specifically identified in the regulations as exempt. The General Conformity program is an emissions-based system which requires federal agencies taking or sponsoring an action in certain areas to ensure that increased air pollution emissions from that action conform with the current, approved SIP. This includes estimating both direct and indirect emissions that are likely to occur.

Six criteria pollutants that can injure health, harm the environment, and cause property damage are evaluated by the USEPA to determine air quality in an area. NAAQS for each of the criteria pollutants set permissible levels for these criteria pollutants in outdoor air. If the air quality in a geographic area meets or does better than the national standard, it is called an attainment area. The General Conformity regulations only apply in nonattainment and maintenance areas. A nonattainment area is an area designated by the USEPA as not meeting a NAAQS. A maintenance

[1] Federal Actions include any activity engaged in by a department, agency, or instrumentality of the Federal government, or any activity that a department, agency or instrumentality of the Federal government supports in any way, provides financial assistance for, licenses, permits, or approves, other than activities related to transportation plans, programs, and projects developed, funded, or approved under title 23 U.S.C. or the Federal Transit Act (49 U.S.C. 1601 *et seq.*). Where the Federal action is a permit, license, or other approval for some aspect of a non-Federal undertaking, the relevant activity is the part, portion, or phase of the non-Federal undertaking that requires the Federal permit, license, or approval.

area is an area that was once designated as nonattainment but is currently meeting and maintaining the standard. The USEPA promulgated de minimis emissions levels for each of the NAAQS pollutants. If the total direct and indirect emissions from an action are less than the de minimis levels, the action is exempt from General Conformity rules. The de minimis levels are based on an area's designation and classification, and the levels are identified in 40 CFR 93.153(b)(1) and (b)(2).

Montgomery County, Maryland, is designated as a moderate nonattainment area for ozone (2015 8-hour ozone standard) and is in maintenance for carbon monoxide (CO) and ozone (2008 8-hour ozone standard). Montgomery County is in attainment of the NAAQS for all other criteria pollutants (USEPA 2023a). Maryland is also in the Ozone Transport Region (OTR). The OTR includes states in the northeast United States that must adhere to stricter conformity thresholds for nitrogen oxides (NOx) and volatile organic compounds (VOCs), which are precursors for ozone.

Because ozone and CO pollutants remain a concern for Montgomery County, it is necessary to determine if emissions for these air pollutants or their precursors could exceed de minimis threshold levels as provided in **Table 2-1**. Emissions from the total action are used to determine if they exceed the de minimis levels.

Table 2-1 De Minimis Emission Levels for Pollutants of Concern

Pollutant	Precursor	Designation	Classification/Location	De Minimis Level (tons/year)
O_3	VOC	Nonattainment	Other, inside an OTR	50
	NO_x		Other, inside an OTR	100
O_3	VOC	Maintenance	Inside OTR	50
	NO_x		All Maintenance Areas	100
CO	-		All Maintenance Areas	100

Notes: Source: https://www.epa.gov/general-conformity/de-minimis-tables

O_3 Ozone
CO Carbon Monoxide
VOC Volatile Organic Compounds
NO_x Nitrogen Oxides
OTR Ozone Transport Region

3 ASSESSMENT OF STUDY EMISSION RATES

A conformity review requires consideration of both direct and indirect air emissions associated with the proposed action. Direct emissions are those that occur as a direct result of the action and occur at the same time and place as the action. Sources that would contribute to direct emissions would include construction activities associated with the proposed action and equipment used to facilitate the action (e.g., construction vehicles). Indirect emissions are those that occur at a later time or distance from the location of the action but may be reasonably anticipated because of the proposed action. To be counted as an indirect emission, the Federal proponent for the action must have continuing control over the source of the indirect emissions. Sources of indirect emissions

for this project include commuter activity to and from the construction site (e.g., employee vehicle emissions) and offsite emissions (e.g., emissions from vehicles servicing the site). Both stationary and mobile sources must be included when calculating the total of direct and indirect emissions; however, this project involves only mobile sources as it is a stream restoration project with no associated fixed sources of air pollution.

Air pollutant direct emissions generated by the proposed action were calculated to determine whether the total of direct and indirect emissions for NOx, VOCs, and CO would be below the conformity de minimis limits.

For non-road emissions, the equipment, total operational hours, and phase in which the equipment would be used was provided by the cost engineer. Equipment operational hours were distributed per year based on the planning unit construction phase (Sligo Creek/Colt Terrace, Lamberton, and Bel Pre) and percentage of phase occurring in the elected years. The equipment types and operational hours per year used in the non-road vehicle analysis are included in **Table 3-1**. Pollutant emissions were estimated based on the operational hours per equipment for each planning unit and aggregated per year for comparison to de minimis thresholds.

Table 3-1 Non-Road Operational Equipment and Hours

MOVES Equipment Type Description	Annual Operation (hours/year)							
	Sligo Creek/Colt Terrace			Lamberton			Bel Pre	
	2027	2028	2029	2027	2028	2029	2027	2028
Paving Equipment	11	43	10	5	21	5	21	11
Graders	5	21	5	11	43	10	43	21
Excavators	109	432	105	108	428		1,727	856
Crawler Tractor/Dozers	32	128	31	27	107	26	128	64
Tractors/Loaders/Backhoes	40	159	39	46	183	45	544	270
Rollers	16	64	16	16	64	16	64	64
Dumpers/Tenders	114	453	110	99	395	96	2,332	1,156
Off Highway Truck	5	21	5	5	21	5	21	11
Paver	5	21	5	5	21	5	21	11
Chippers/Stump Grinders (com)	5	21	5	5	21	5	174	86
Chainsaws	11	43	10	11	43	10	43	21
Plate Compactors	11	43	10	11	43	10	43	21
Cranes	7	30	7	7	27	7	86	43
Other Construction Equipment	4	16	4	3	12	3	124	61
Total Hours per Year	**377**	**1,498**	**364**	**360**	**1,431**	**244**	**5,372**	**2,696**

Sligo Creek/Colt Terrace construction phase: 1 October 2027 through 31 March 2029
Lamberton construction phase: 1 October 2027 through 31 March 2029
Bel Pre construction phase: 1 January 2027 - 30 June 2028

For on-road emissions, the vehicle, total operational hours, and construction phase in which the vehicle would be used was provided by the cost engineer. Based on the operational hours provided by the cost engineer, the number of vehicle miles traveled per year was estimated by the preparer of this analysis. For purposes of calculating emission rates, vehicles were placed into vehicle classifications based on gross vehicle weight. The vehicle classifications and estimated mileage per year used in this analysis are included in **Table 3-2**. Pollutant emissions were estimated based on the mileage per vehicle for each planning unit and aggregated per year for comparison to de minimis thresholds.

Table 3-2 On-Road Vehicles and Estimated Annual Mileage

Heavy Duty Vehicle Classifications	Annual Mileage (miles/year)							
	Sligo Creek/Colt Terrace			Lamberton			Bel Pre	
	2027	2028	2029	2027	2028	2029	2027	2028
Class VI	50	50	50	50	50	50	50	50
Class VII	20	20	20	20	20	20	20	20
Class VIIIa	170	170	170	170	170	170	170	170
Total Hours per Year	**240**	**240**	**240**	**240**	**240**	**240**	**240**	**240**

Sligo Creek/Colt Terrace construction phase: 1 October 2027 through 31 March 2029
Lamberton construction phase: 1 October 2027 through 31 March 2029
Bel Pre construction phase: 1 January 2027 - 30 June 2028

3.1 NON-ROAD USEPA MOVES EMISSION TOTALS

The USEPA MOVES3 was used to estimate non-road emission factors through a range of user-defined parameters based on the study location and provided construction information.

The project description and project-based assumptions were used to define model input parameters for the non-road run specifications. The following panels were defined during the modeling process: scale, time span, geographical bounds, vehicle/equipment type, road type, pollutant and process, and output emissions. The input values for the non-road MOVES models, and rationale for each selection, are presented in **Appendix A**.

The study alternatives are scheduled to begin construction in 2027. Therefore, emission factors were modeled for a 12-month period in 2027 and applied to all succeeding years. Post processing scripts were run on the MOVES3 output databases to model emission factors in grams per hour for each equipment type. To remain conservative, the highest emission factor in the 12-month model period was used to calculate pollutant emissions for each alternative equipment.

Operational hours per year (**Table 3-1**) were multiplied by the highest emission factor in the 12-month period to determine pollutant emissions for each equipment type. Pollutant emission totals per year for non-road equipment are included in **Table 3-3**.

Table 3-3 Emission Totals per Year – Non-Road Equipment

Year	Pollutant	Planning Unit Emissions (tons)			Total Emissions (tons)
		Sligo Creek/Colt Terrace	Lamberton	Bel Pre	
2027	**CO**	0.040	0.039	0.376	0.455
	NOx	0.057	0.054	0.702	0.812
	VOC	0.011	0.010	0.092	0.112
2028	**CO**	0.159	0.155	0.187	0.500
	NOx	0.225	0.214	0.348	0.787
	VOC	0.042	0.041	0.045	0.128
2029	**CO**	0.039	0.038	--	0.076
	NOx	0.055	0.052	--	0.107
	VOC	0.010	0.010	--	0.020

3.2 ON-ROAD EMISSIONS CALCULATIONS

Emissions from on-road vehicles were calculated using "typical" (or "average) emission factors. Average emission factors for CO, NOx, and VOCs were obtained from the USEPA Office of Transportation and Air Quality (USEPA 2008). The annual emissions from on-road vehicles were calculated using the following formula (USEPA 2022):

AE i = VMT * EF i * 1.10231E-06

Where,
AEi = Annual emissions of chemical i (tons i/year)
VMT = Number of vehicle miles traveled per year (miles/year)
EFi = Chemical i emission factor (grams i/mile)
1.10231E-06 = Factor to convert grams to tons (tons i/grams i)

The calculation for each alternative is provided in **Appendix B**. Pollutant emission totals per year for on-road equipment are included in **Table 3-4**.

Table 3-4 Emission Totals per Year – On-Road Equipment

Year	Pollutant	Planning Unit Emissions (tons)			Total Emissions (tons)
		Sligo Creek/Colt Terrace	Lamberton	Bel Pre	
2027	CO	0.00056	0.00056	0.00056	0.00169
	NOx	0.00222	0.00222	0.00222	0.00665
	VOC	0.00012	0.00012	0.00012	0.00035
2028	CO	0.00056	0.00056	0.00056	0.00169
	NOx	0.00222	0.00222	0.00222	0.00665
	VOC	0.00012	0.00012	0.00012	0.00035
2029	CO	0.00056	0.00056	--	0.00112
	NOx	0.00222	0.00222	--	0.00443
	VOC	0.00012	0.00012	--	0.00023

4 CONCLUSIONS

Emissions totals for both non-road and on-road emissions for the pollutants of concern are displayed in **Table 4-1**.

Table 4-1 Emission Study Totals

Pollutant	Total Emissions (tons)			De minimis Threshold (tons)
	Sligo Creek/Colt Terrace	Lamberton	Bel Pre	
CO	0.239	0.233	0.564	100
NOx	0.343	0.326	1.054	100
VOC	0.063	0.061	0.137	50

Ozone precursors, VOCs and NO_x, as well as CO are below the de minimis thresholds which begin at 50 tons for VOC and 100 tons for other pollutants as presented. All other annual emission totals and aggregated study emission totals for criteria pollutants are not anticipated to exceed all other USEPA de minimis thresholds.

There is likely substantial uncertainty in the accuracy of the estimates given the numerous assumptions made and of the parameter values. Because the emissions estimates are substantially less than de minimis levels, no mitigation measures are required for compliance with the CAA.

5 REFERENCES

USEPA. 2008. USEPA Office of Transportation and Air Quality. *Average In-Use Emissions from Heavy-Duty Trucks*. October.

USEPA. 2020. *MOVES3 Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity.* November.

USEPA. 2022. General Conformity Training Modules: Appendix A Sample Emissions Calculations. Retrieved from https://www.epa.gov/general-conformity/general-conformity-training-modules-appendix-sample-emissions-calculations/. Accessed on 31 July 2023.

USEPA. 2023a. *Maryland Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. https://www3.epa.gov/airquality/greenbook/anayo_md.html. Accessed on 31 July 2023.

USEPA. 2023b. *General Conformity.* Retrieved from https://www.epa.gov/general-conformity. Accessed on 31 July 2023.

APPENDIX A

Appendix A: Non-Road MOVES Model Input Values

Panel		Selected Input	Rationale
Scale	Model	Nonroad	Runspec to estimate emissions from nonroad equipment.
	Domain/Scale	National	No other Domain/Scale can be selected for a nonroad MOVES Runspec.
	Calculation Type	Inventory	No other Calculation Type can be selected for a nonroad MOVES Runspec.
Time Spans	Time Aggregation Level	Day	No other Time Aggregation Level can be selected for a nonroad MOVES Runspec.
	Years	2027, 2028, 2029	The study alternatives are scheduled to begin construction on 1 January 2027. Therefore, emission factors were modeled for a 12-month period in 2027 and applied to all succeeding years.
	Months	All	All months were selected in order to average the emissions rate over the course of the year.
	Days	Weekdays	Based on the assumption that the contractor would work for 8 hours per day for 40 hours per week.
	Hours	N/A	No selection can be made under this input panel.
Geographic Bounds	Region	County	The county option was selected as stated above under Domain/Scale, and only one county is being analyzed under this Runspec.
	Selection	MARLAND - Montgomery County	The location of the project is in Montgomery County, Maryland.
Vehicles/Equipment	Nonroad Vehicles	Nonroad Diesel Fuel - Commercial Nonroad Diesel Fuel - Construction Nonroad Diesel Fuel - Industrial Gasoline - Commercial Gasoline - Construction Gasoline - Industrial	The inputs were selected based on the equipment list provided by the cost engineer.
	Nonroad	Nonroad	Not applicable when modeling nonroad emissions.

Appendix A: Non-Road MOVES Model Input Values

Panel		Selected Input	Rationale
Pollutants and Process	Total Gaseous Hydrocarbons	Running Exhaust, Crankcase Exhaust, Refueling Displacement Vapor Loss, Refueling Spillage Loss, Evap. Tank Permeation, Evap. Hose Permeation, Diurnal Fuel Vapor Venting, HotSoak Fuel Vapor Venting, RunningLoss Fuel Vapor Venting	These pollutants and processes associated with a particular pollutant (as noted under Selected Input) were chosen in order to account for the emissions of that pollutant.
	Non-Methane Hydrocarbons	Running Exhaust, Crankcase Exhaust, Refueling Displacement Vapor Loss, Refueling Spillage Loss, Evap. Tank Permeation, Evap. Hose Permeation, Diurnal Fuel Vapor Venting, HotSoak Fuel Vapor Venting, RunningLoss Fuel Vapor Venting	
	Volatile Organic Compounds	Running Exhaust, Crankcase Exhaust, Refueling Displacement Vapor Loss, Refueling Spillage Loss, Evap. Tank Permeation, Evap. Hose Permeation, Diurnal Fuel Vapor Venting, HotSoak Fuel Vapor Venting, RunningLoss Fuel Vapor Venting	
	Carbon Monoxides	Running Exhaust	
	Oxides of Nitrogen (NOx)	Running Exhaust	
	Primary Exhaust PM2.5 - Total	Running Exhaust	
	Sulfur Dioxide (SO2)	Running Exhaust	
Manage Input Data Sets	Database	None selected	Alternative data tables were not used in place of the data from the MOVES default database, therefore, there were no inputs in this section.
Strategies	Rate of Progress	None selected	Based on the "MOVES2014a Users Guide" these calculations are not relevant for nonroad equipment. Therefore, there were no inputs in this section.
General Output	Output Database	MOVES_MoCoCAP_nonroad_output	Outputdatabase where the Runspec results are stored and the units reported.
	Units	Mass Units: Grams Energy Units: Joules Distance Units: Miles	Grams was chosen as the mass units to reduce the possible loss of significant figures.

Appendix A: Non-Road MOVES Model Input Values

Panel		Selected Input	Rationale
Output Emissions	Always	Time: 24-hour day Location: County Pollutant	The only option for time aggregation of the output is 24-hour day. Therefore this was chosen as the time input. Because county was chosen as the input for the geographic bound, county was selected as the location input.
	For All Vehicle Equipment Categories	Fuel Type, Emission Process	This selection was made to provide detailed emissions for fuel type and emission process in the output. Model year results for each source type was not needed.
	On and Off Road	SCC	Source Classification Code (SCC) was selected in order to classify the emission sources in the output.
	Off Road	Sector, Engine Tech., HP Class	In order to provide a detailed output emission estimate, sector, Engine Tech, and HP class were selected.
Advanced Performance	-	None selected	Based on the "MOVES2014a Users Guide" which states that the advanced performance features panel is generally not used, there were no inputs into this section.
NonRoad Data Importer	Fuel	Default Data Values	
	Meteorology	Default Data Values	

APPENDIX B

Appendix B: On-Road Emissions Calculations
Sligo Creek/Colt Terrace

Sligo Creek/Colt Terrace - Annual Emission Rates for Class VI Vehicles

CO:		
AEi	7.53429E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	1.367	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	2.01172E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.365	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.000330142	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	5.99	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	9.47987E-06	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.172	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	1.02515E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.186	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)

Sligo Creek/Colt Terrace - Annual Emission Rates for Class VII Vehicles

CO:		
AEi	3.78974E-05	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	1.719	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	9.98693E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.453	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.000164707	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	7.471	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	3.90218E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.177	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	4.23287E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.192	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)

Appendix B: On-Road Emissions Calculations
Sligo Creek/Colt Terrace

Sligo Creek/Colt Terrace - Annual Emission Rates for Class VIIIa Vehicles		
CO:		
AEi	0.000448806	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	2.395	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	8.52637E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.455	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.001722326	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	9.191	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	4.02894E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.215	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	4.36625E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.233	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)

Total Annual Emissions for CO, Nox, and VOCs			
	2027	**2028**	**2029**
CO	0.00056	0.00056	0.00056
Nox	0.00222	0.00222	0.00222
VOC	0.00012	0.00012	0.00012

Note: totals include the sum of annual emissions for each vehicle classification (Class VI, Class VII, and Class VIIa).

Appendix B: On-Road Emissions Calculations
Lamberton

Lamberton - Annual Emission Rates for Class VI Vehicles		
CO:		
AEi	7.53429E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	1.367	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	2.01172E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.365	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.000330142	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	5.99	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	9.47987E-06	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.172	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	1.02515E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.186	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)

Lamberton - Annual Emission Rates for Class VII Vehicles		
CO:		
AEi	3.78974E-05	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	1.719	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	9.98693E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.453	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.000164707	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	7.471	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	3.90218E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.177	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	4.23287E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.192	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)

Appendix B: On-Road Emissions Calculations
Lamberton

Lamberton - Annual Emission Rates for Class VIIIa Vehicles		
CO:		
AEi	0.000448806	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	2.395	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	8.52637E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.455	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.001722326	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	9.191	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	4.02894E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.215	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	4.36625E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.233	Chemical i emission factor (g i/mile)
	1.10231E-06	Factor to convert grams to tons (tons i/g i)

Total Annual Emissions for CO, Nox, and VOCs			
	2027	**2028**	**2029**
CO	0.00056	0.00056	0.00056
Nox	0.00222	0.00222	0.00222
VOC	0.00012	0.00012	0.00012

Note: totals include the sum of annual emissions for each vehicle classification (Class VI, Class VII, and Class VIIa).

Appendix B: On-Road Emissions Calculations
Bel Pre

Bel Pre - Annual Emission Rates for Class VI Vehicles		
CO:		
AEi	7.53E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	1.367	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	2.01E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.365	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.00033	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	5.99	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	9.48E-06	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.172	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	1.03E-05	Annual emissions of chemical i (tons i/yr)
VMT	50	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.186	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)

Bel Pre - Annual Emission Rates for Class VII Vehicles		
CO:		
AEi	3.79E-05	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	1.719	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	9.99E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.453	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.000165	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	7.471	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	3.9E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.177	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	4.23E-06	Annual emissions of chemical i (tons i/yr)
VMT	20	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.192	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)

Appendix B: On-Road Emissions Calculations
Bel Pre

Bel Pre - Annual Emission Rates for Class VIIIa Vehicles

CO:		
AEi	0.000449	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	2.395	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
VOC:		
AEi	8.53E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.455	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
NOx:		
AEi	0.001722	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	9.191	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
PM2.5		
AEi	4.03E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.215	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)
PM10		
AEi	4.37E-05	Annual emissions of chemical i (tons i/yr)
VMT	170	number of vehicle miles traveled per year (miles/yr) (ASSUMPTION)
EFi	0.233	Chemical i emission factor (g i/mile)
	1.1E-06	Factor to convert grams to tons (tons i/g i)

Total Annual Emissions for CO, Nox, and VOCs

	2027	2028
CO	0.00056	0.00056
Nox	0.00222	0.00222
VOC	0.00012	0.00012

Note: totals include the sum of annual emissions for each vehicle classification (Class VI, Class VII, and Class VIIa).