



**Ducks Unlimited  
New York In Lieu Fee Program  
Instrument 2.0:  
LRB-2010-00673**

**May 16, 2024**

**Ducks Unlimited Inc.  
1035 Seventh North Street  
Suite H  
Liverpool, New York 13088**

**Submitted To: U.S. Army Corps of Engineers and the Inter-Agency Review  
Team**



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## Introduction

Ducks Unlimited Inc. (DU) is a 501(c)3 non-profit organization dedicated to conserving and restoring wetlands and other aquatic resource features to sustain North America's waterfowl. The Ducks Unlimited New York In Lieu Fee Program (DU-NY-ILFP) was approved in January of 2012 to provide compensatory mitigation for impacts to aquatic resources in New York State. The DU-NY-ILFP provides a third-party compensatory mitigation option for unavoidable impacts to waters of the United States (including wetlands and streams) approved by the Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act ("CWA") and Section 10 of the Rivers and Harbors Act.

The DU-NY-ILFP also provides a third-party compensatory mitigation option for the New York State Department of Environmental Conservation (NYS-DEC) permit programs under the Environmental Conservation Law, including the Fresh Water Wetland Act, Article 24; the Stream Protection Act, Article 15; and the Water Pollution Control Act, Article 17 and the Adirondack Park Agency (APA). Additionally, the DU-NY-ILFP may be used to satisfy other federal, state, and local regulatory program requirements related to impacts to aquatic resources including enforcement actions. This instrument addresses the required elements for operating an ILF program under the federal 2008 Mitigation Rule. This document incorporates past amendments to the original enabling instrument. This instrument addresses the required elements for operating an ILF program under the federal 2008 mitigation rule (33 CFR Part 332).

## Qualifications of Sponsor

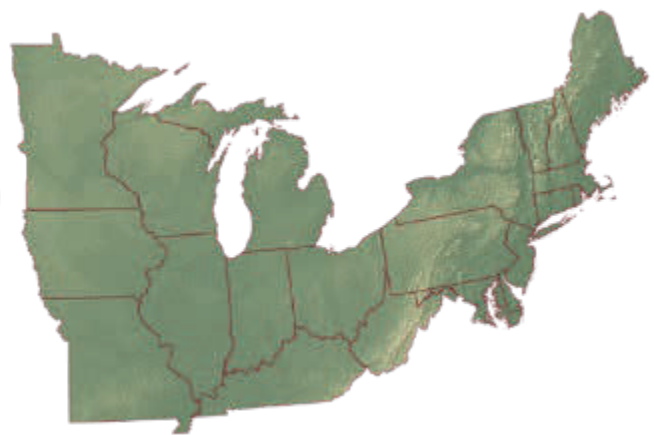
Ducks Unlimited (DU) is recognized as the world's largest private wetlands conservation organization and has over 85 years of experience restoring and protecting habitat, especially aquatic resources. Since its founding, Ducks Unlimited has protected over 18.0-million acres through direct conservation actions. Over the past 30 years, DU has worked with partners in New York delivering wetland and upland conservation through land protection, restoration, and enhancement. DU is the largest provider of advanced mitigation in New York State and Vermont.

The Great Lakes/Atlantic Regional Office (GLARO) of Ducks Unlimited is located in Dexter, Michigan and services a 21-state region in the northeastern U.S.

GLARO is one of four DU regional headquarter offices in the U.S., which coordinate and facilitate all aspects of DU's habitat conservation programs in the U.S. –

transforming ideas, science and wildlife ecology into completed projects. GLARO has over one hundred full-time conservation staff including biologists, engineers, mitigation and land protection specialists, CAD technicians, construction managers, GIS specialists,

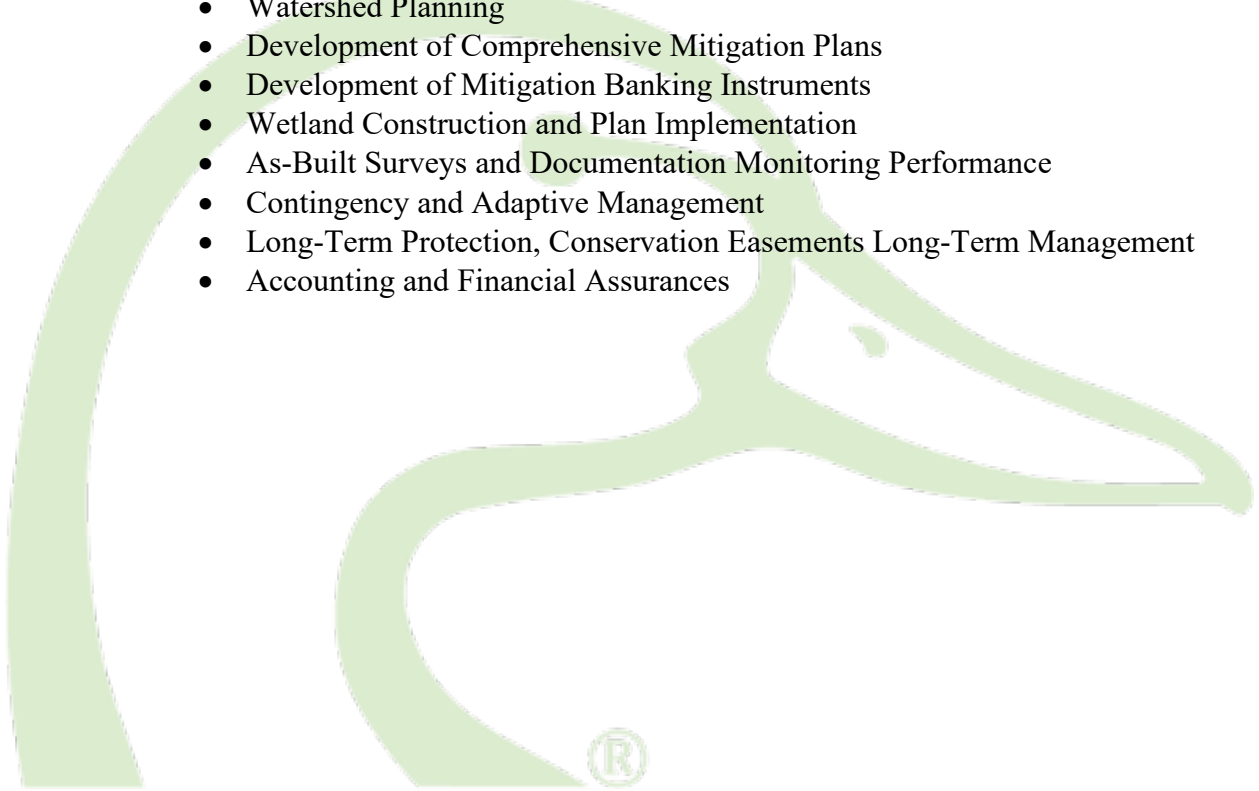
project coordinators, accountants, contract compliance managers, legal representation, and administrative assistants. DU delivers turn-key wetland mitigation projects throughout the country and collaborates extensively with regulatory staff, permittees, partners, landowners, and land managers to deliver high quality compensatory mitigation projects that span all types of wetlands, streams, riparian buffer and upland habitats. DU applies a science-based watershed approach to natural resource conservation that focuses on protecting enhancing and restoring ecologically important habitat within landscapes that are critical to waterfowl. This focus results in corollary benefits for plant and wildlife conservation spanning the continent. Our mission supports delivery of



high-quality mitigation projects and allows us to use our expertise and our network with partners, landowners, and land managers to pair mitigation funds with lands that are best suited for wetland and upland restoration and protection as required by compensatory mitigation policies. DU provides complete, full-service delivery of high-quality mitigation projects for permittee-responsible mitigation, in lieu fee programs, and mitigation banks.

Ecological services include, but are not limited to:

- Site Identification and Evaluation
- Remote Sensing and GIS Analysis
- Drone Image Capture and Photogrammetry
- Wetland Delineations
- Hydrology and Soils Investigations
- Wetland and Stream Design and Permitting
- Watershed Planning
- Development of Comprehensive Mitigation Plans
- Development of Mitigation Banking Instruments
- Wetland Construction and Plan Implementation
- As-Built Surveys and Documentation Monitoring Performance
- Contingency and Adaptive Management
- Long-Term Protection, Conservation Easements Long-Term Management
- Accounting and Financial Assurances





**Table 1 DU-NY ILF Approval / Amendement Dates.**

Item	Date DU Signed	Date USACE Signed	Description
<b>Instrument Approval</b>	September 6, 2012	September 19, 2012	Original ILF program instrument authorization
<b>Amendment 1</b>	November 2, 2017	November 1, 2017	Modification to Add Preemption Rd ILF Site
<b>Amendment 2</b>	March 22, 2018	March 28, 2018	Pricing schedule adjustment & increase in administrative fee percentage
<b>Amendment 3</b>	July 23, 2019	July 18, 2019	Modification to add McIntyre Rd ILF Site
<b>Amendment 4</b>	June 17, 2020	June 17, 2020	Modification to add Hwy 26 ILF Site
<b>Amendment 5</b>	March 8, 2021	March 5, 2021	Modification to add Eddy Rd ILF Site
<b>Amendment 6</b>	January 4, 2022	December 2, 2021	Modification to add Black Creek ILF Site
<b>Amendment 7</b>	N/A	June 23, 2022	Pricing schedule adjustment
<b>Amendment 8</b>	N/A	September 12, 2022	Modification to Add Middle Hudson and Hudson Hoosic Service Areas
<b>Amendment 9</b>	November 4, 2022	November 4, 2022	Modification to add Moon Rd ILF Site
<b>Amendment 10</b>	January 18, 2023	January 18, 2023	Modification to add Oatka Creek Site
<b>Amendment 11</b>	N/A	March 8, 2023	Modification to Increase Advance Credit Pool for Wetlands

## I. Program Service Areas

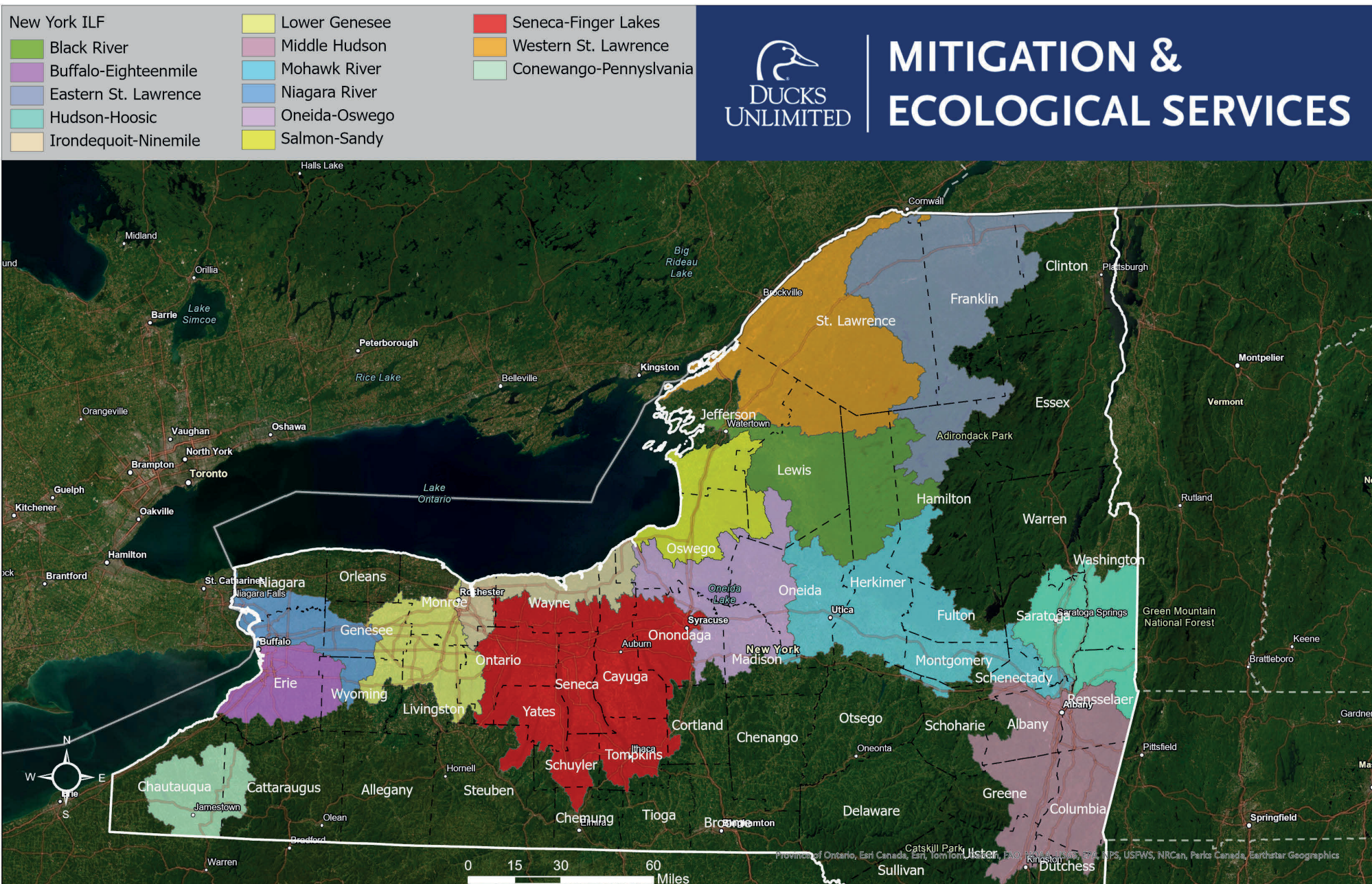
The DU-NY-ILFP will operate in the fourteen (14) service areas listed below. These service areas are watershed-based and comprised primarily of 8-digit HUCs. The St. Lawrence River Basin is comprised of 7 smaller 8-digit HUCs. This River Basin will be divided into two service areas: The Western St. Lawrence and the Eastern St. Lawrence. The Western St. Lawrence will include the Upper St. Lawrence, Oswegatchie River, Indian River, and Grass River 8-digit HUCs. The Eastern St. Lawrence will include the Raquette River, St. Regis River, and English-Salmon River 8-digit HUCs. The Oneida-Oswego Service Area is comprised of two 8-digit HUC codes. The Hudson-Hoosic Service Area contains small portions of the Housatonic Watershed along the Massachusetts border watershed.

The DU-NY-ILFP Service Areas extend across two USACE Districts (Buffalo and New York) and the St. Lawrence Service Areas and Black River Service Areas include land which falls under the authority of the Adirondack Park Agency (APA). Because ILF projects may be sited in either USACE district or on lands that fall within the APA, the IRT committee will include members from both Districts and may include a representative from the APA. The service areas listed and shown below in Table 2.

**Table 2 DU-NY ILF Service Areas.**

Service Area No.	Service Area
1	Black River (HUC 4150101)
2	Buffalo-Eighteen Mile (HUC 04120103)
3	Conewango-Creek (HUC 05010002)
4	Hudson - Hudson-Hoosic (HUC 02020003)
5	Hudson - Middle Hudson (HUC 02020006)
6	Irondequoit-Ninemile Creek (HUC 04140101)
7	Lower Genesee (HUC 04130003)
8	Mohawk (HUC 02020004)
9	Niagara River (HUC 04120104)
10	Oneida -Oswego (HUC 04140202 &04140203)
11	Salmon-Sandy (HUC 04140102)
12	Seneca-Finger Lakes (HUC 04140201)
13	St. Lawrence - Eastern (HUC 04150305-8)
14	St. Lawrence - Western (HUC 04150301-4)





**Figure 1. Ducks Unlimited New York ILF Service Areas.**



## **II. ILF Project Development**

This section identifies the general framework under which individual ILF projects will be developed and managed.

### **A. Project Site Selection**

Project sites will be selected and developed in accordance with the information detailed in the Compensation Planning Framework (see Appendix I).

DU will work with federal and state agencies and conservation partners to identify project sites suitable for wetland projects. DU will use the Site Selection and Evaluation Key (Appendix IV) to assist in screening candidate project sites. DU will seek feedback from the IRT concerning potential restoration sites prior to developing a mitigation plan.

Site selection will take into account:

- a) Watershed conservation priorities: DU will seek to develop projects in areas where the projects will contribute to watershed conservation priorities.
- b) Habitat Improvement: Sites will be evaluated based on their potential to address multiple functions and services which may include improvement of fish and wildlife habitat, support for rare or threatened species, flood attenuation, water quality improvement, and recreation values.
- c) Site Conditions: DU will evaluate the hydrology, soils, native vegetation, and other conditions conducive to aquatic resource development. Projects with greater aquatic resource functional gain per dollar will be given preference.

### **B. Mitigation Plan**

A mitigation plan will be developed for each ILF project and is subject to approval by the District Engineer for USACE permitted impacts. For impacts either jointly or separately permitted by the NYS-DEC or Adirondack Park Agency, the mitigation plans will require approval by the appropriate representatives of these agencies. Mitigation plans will be developed and implemented in accordance with 33 CFR 332.4 and NYS-DEC regulations and will include the following required twelve elements:

1. Project objectives
2. Site selection criteria
3. Site protection instruments
4. Baseline information
5. Credit determination methodology
6. Work plan
7. Maintenance plan
8. Performance standards
9. Monitoring requirements
10. Long-term management plan
11. Adaptive management plan
12. Financial assurances



### C. Ecological Performance Standards

DU will propose performance standards for each ILF project in accordance with current regulatory guidelines for USACE consideration for approval, USACE may consult with the IRT prior to approving. DU must attain approval from USACE for performance standards before they are finalized. The performance standards will relate to the objectives of the mitigation project. These performance standards will be used to assess whether the project is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics according to the terms detailed in 33CFR 332.5. Performance standards may be based on variables or measures of functional capacity described in functional assessment methodologies, measurements of hydrology or other aquatic resource characteristics such as diversity of flora and fauna.

### D. Project Approval and Instrument Modifications

As in-lieu fee project sites are identified and secured, DU will submit mitigation plans to the District Engineer that include all applicable items listed in 332.4(c) (2-14). The District Engineer has the final authority to approve a proposed mitigation project for a USACE permitted activity. The District Engineer is advised by members of the IRT on project review. USACE may add specific requirements and restrictions to each proposed mitigation project.

Approved projects will be added as an amendment to the Instrument following provisions identified in Section VI.

Because the DU-NY-ILF program extends across two USACE Districts, both the Buffalo and the New York District will participate in the review of proposed mitigation projects in the watersheds which extend across the district boundaries. For projects in these watersheds, approval will require the signature of appropriate designated representatives from both districts. Otherwise, projects will only require the signature of the appropriate designated representatives from the USACE district in which the project is located.

The IRT shall meet on a regular basis as determined by the USACE to review and approve ILF projects and discuss program management issues in a timely manner. The IRT shall be responsive to DU in terms of providing feedback and guidance on proposed mitigation sites and mitigation plans. Similarly, DU will be responsive to IRT questions and inquiries as program sponsor.

### E. Project Implementation

DU, or its authorized agents, provides the necessary personnel, equipment, and materials to implement ILF wetland mitigation projects. Land acquisition and initial physical and biological improvements must be initiated by the third full growing season after the first advance credit in that service area is sold, unless the District Engineer determines that more time is needed to plan and implement a project based on having insufficient funds. If only a small number of credits sell in a service area, DU may make a request to the IRT to satisfy mitigation obligations in an adjacent service area subject to the approval of the District Engineer. If an insufficient number of credits are sold in a given service area and not enough funds accrue to implement a project, this will not be considered by itself a default of the terms set forth in the Instrument.

The District Engineer may also direct DU to disperse funds from the DU-NY-ILF program account to provide alternative compensatory mitigation to fulfill the mitigation requirements. If a mitigation project is implemented by another organization, DU will transfer an amount of funds from the Program Account not to exceed the original amount paid to the designated organization.

### F. Monitoring

Monitoring of the mitigation project is necessary to determine if the project is meeting its performance standards and trending towards success as described in 33CFR 332.6. Each project-specific mitigation plan will include a monitoring plan that will describe the performance standards to be monitored, the methods for monitoring, the length of the monitoring period, the dates that the reports must be submitted, and the frequency for submitting monitoring reports. DU will be responsible for submitting monitoring reports to the IRT based on terms set forth in the permit or mitigation plan.

The content and level of detail of the monitoring reports will be commensurate with the scale and scope of the mitigation project, as well as the mitigation project type. Each report shall contain at a minimum the following:

1. Monitoring results with comparison to performance standards
2. Plans, maps, and photographs to illustrate site conditions
3. A narrative summarizing the condition of the project
4. Recommendations for adaptive management as needed

### **III. Management**

DU shall be responsible for maintaining the ILF projects, consistent with the terms in the approved mitigation plan, until the performance standards and any other requirements the District Engineer may have mandated, including the conditions of any USACE permit issued for the ILF mitigation site, have been achieved and the District Engineer has issued a Site Closure Letter.

#### **A. Site Protection**

DU shall be responsible for developing and implementing a long-term protection plan for each ILF project in accordance with terms described in 33 CFR 332.7(a). DU will ensure that long-term protection mechanisms acceptable to the IRT are identified prior to project implementation. A copy of the long-term protection mechanism shall be sent to the USACE and become part of the official project record. For projects requiring a conservation easement, an endowment will be established to pay for the annual monitoring and any necessary enforcement of the easement. The conservation easement endowment will be held in a designated account.

Long-term protection will likely require real estate instruments such as long-term management agreements and/or easements that specify responsible manager and associated management requirements. These obligations may be held by entities such as federal, tribal, state, or local resource agencies, non-profit conservation organizations including DU, or private land managers. For federal or state property, long-term protection may be provided through Facility Management Plans or Integrated Natural Resource Plans.

The real estate instrument, management plan, or other mechanism providing long-term protection of the compensatory mitigation site must, to the extent appropriate and practicable, prohibit incompatible uses that might otherwise jeopardize the objectives of the compensatory mitigation project. Where appropriate, multiple instruments recognizing compatible uses such as passive recreation (e.g., hunting, fishing, hiking) may be used (33 CFR 332.7(a) (2)).

The real estate instrument, management plan, or other long-term protection mechanism must contain a provision requiring 60-day advance notification to the district engineer before any action is taken to void or modify the instrument, management plan, or long-term protection mechanism, including transfer of title to, or establishment of any other legal claims over, the compensatory mitigation site (33 CFR 332.7(a) (3)).

#### **B. Sustainability**

Each ILF project will be designed, to the maximum extent practical, to require little or no long-term management per the terms described in 33 CFR 332.7(b). This includes minimization of active engineering features and appropriate siting to ensure that natural hydrology and landscape context will support long-term sustainability.

#### C. Adaptive Management

If the annual monitoring findings indicate that the ILF project is not making expected progress towards meeting the performance standards, DU shall notify the District Engineer as soon as possible as detailed in the terms described in 33 CFR 332.7(c) (1-3). Likewise, if the IRT determines that the project is not making expected progress towards meeting the performance standards, USACE shall report, in writing, any findings and recommend corrective measures if needed.

In such instances, DU in consultation with USACE and the IRT, will determine the appropriate adaptive management steps necessary to meet the performance standards of the ILF project. Measures may include, but are not limited, to site modifications, design changes, and invasive plant species and animal control. Performance standards and monitoring requirements may be revised based on adaptive management measures necessary to address deficiencies and ensure project success. Performance standards may also be revised to reflect changes in management strategies if the new performance standards ensure that ecological benefits are comparable or superior to those detailed in the original mitigation plan. No other revisions to performance standards will be allowed except in the case of natural disasters per the terms detailed in 33 CFR 332.7(c) (4).

#### D. Long-term Management

ILF sites will be subject to a long-term management plan. The long-term management plan will have a description of any anticipated management needs and projected cost estimates. A portion of the credit sales to be determined by DU and the long-term manager in discussion with the IRT and subject to USACE approval shall be placed in a non-wasting, an interest-bearing account at a FDIC-Insured financial institution to ensure that funds will be available for long-term management. The long-term manager will be identified in the project-specific mitigation plan. DU has the authority to change the long-term manager, subject to approval by the District Engineer per 33 CFR 332.7(d).

#### E. ILF Project Closure

After the end of the designated monitoring period, when the performance standards have been met and approved by the IRT and all credits have been sold, the District Engineer shall issue a written Site Closure Letter to DU. DU may request that an ILF project be closed early if performance standards have been substantially achieved. The District Engineer shall decide whether to grant such requests. If the project is closed and there are still credits available to sell, the credits will be forfeited.

Once the ILF project is closed, the long-term management period will commence, and the designated long-term manager will assume responsibility for the site. If there are remaining funds in the project account associated with the ILF project, these funds will be released and will be transferred to the Program Account for the service area. If the remainder funds are used to generate ILF mitigation credits, the project will require a full mitigation plan that will follow the same process (public notice, IRT review) as a typical ILF mitigation project.

### IV. **Credit Accounting**

#### A. Advance Credits

The DU-NY-ILF Instrument approves DU to sell a designated number of advance wetland credits. The number of advance credits available is specified by service area (see Appendix I) and is derived in part from a review of



historical impacts based on data provided by USACE Buffalo District from a Freedom of Information Act request (FOIA), and DU credit sales and inquiry history from 2012-2023. These data were compared to information from the public notice data and information related to DU mitigation projects in New York.

In the service areas with fewer permitted wetland impacts, DU requested 30 advance wetland credits to ensure that the ILF program meets potential demand and has sufficient financing for project delivery. In service areas with a greater number of permitted wetland impacts, DU has requested 40-50 advance wetland credits to ensure that the ILF program meets potential demand and has sufficient financing for project delivery. If demand for wetland credits changes, DU may request additional advance credits. Very little information is available regarding the amount of stream mitigation that has been required in the State of New York, as a result the DU-NY-ILF Program will not have advance stream credits.

**Table 3 Advance Credit Availability by Service Areas.**

Summary of Demand produced from sale inquiry request, review of ORM data.

SERVICE AREA CREDIT SUMMARY		
Service Area No.	Service Area	Advance Wetland Credits
1	Black River (HUC 4150101)	30
2	Buffalo-Eighteen Mile (HUC 04120103)	50
3	Conewango-Creek (HUC 05010002)	30
4	Hudson - Hudson-Hoosic (HUC 02020003)	30
5	Hudson - Middle Hudson (HUC 02020006)	30
6	Irondequoit-Ninemile Creek (HUC 04140101)	40
7	Lower Genesee (HUC 04130003)	30
8	Mohawk (HUC 02020004)	30
9	Niagara River (HUC 04120104)	50
10	Oneida -Oswego (HUC 04140202 &04140203)	50
11	Salmon-Sandy (HUC 04140102)	30
12	Seneca-Finger Lakes (HUC 04140201)	40
13	St. Lawrence - Eastern (HUC 04150305-8)	30
14	St. Lawrence - Western (HUC 04150301-4)	30

#### B. Determining Credits

The number of credits generated for each ILF project will be based on the size and scope of ILF project and the amount of functional lift or ecological improvement generated by the project per the terms described in 33CFR 332.8(o). DU will propose credit ratios for each project subject to USACE approval and IRT coordination of appropriate ratios. A USACE-approved assessment approach will be used to assess and describe the aquatic resource types that will be restored, established, enhanced and/or preserved by the ILF project.

Preservation of existing wetlands and/or uplands, may be proposed to generate credits. Examples include areas that are under threat of development or that support a significant population of rare plant or animal species, or a

rare habitat type. Credits generated for preservation will be determined in accordance with the terms described in 33 CFR 332.3 (h, i) and 33 CFR 332.8 (o) 6, 7.

#### C. Cost of Credits

The credit fee will be determined by DU and will be based on full cost accounting. The credit fee covers project expenses for site identification, travel costs, land acquisition, mitigation plan development, permitting, construction, land protection, land protection endowment fee, performance monitoring, contingency measures for adaptive management, long-term management endowment, financial assurances, legal fees, an administrative fee, and any other factors as deemed necessary by DU or the IRT. The credit fee must take into account contingency costs appropriate to the stage of project planning, including uncertainties in construction and real estate expenses. The credit fees vary by service area based on expected land costs and other factors (see Appendix II). DU will evaluate credit fees on an annual basis (by end of the fiscal year July 1 through June 30). Fees may be adjusted as deemed necessary to reflect the full cost accounting of operating an ILF program, subject to USACE approval.

DU will receive an administrative fee of 17.5% per credit. The administrative fee will be deducted when payment is received and deposited into the DU Program account. The administrative fee offsets expenses associated with program administration which includes managing credit sale transactions, annual reporting, accounting, marketing, education and training, and other activities not related to project implementation.

#### D. Credit Release Schedule

Release of credits must be tied to performance-based milestones (permitting, site protection, construction, planting, and/or establishment of plant and animal communities). When determining the credit release schedule, factors to be considered may include, but are not limited to the type of ILF project (e.g., restoration, enhancement, establishment, etc.), the likelihood of success, the complexity of the project, and the aquatic resource type(s) and function(s) to be provided by the ILF project. The terms of the credit release schedule will be proposed in each mitigation plan. The District Engineer in consultation with the IRT will determine the credit release schedule, including the percentage of credits released after full achievement of performance standards.

#### E. Credit Release Approval

Mitigation obligations assumed by the sale of advance credits will be fulfilled by the implementation of one or more projects within the service area. Credit release requests by DU will be reviewed by USACE in consultation with the IRT in accordance with 33 CFR 332.8(o)(9) and the mitigation plan for the site.

Credits generated in excess of advance credit obligations may be sold as released credits based upon the credit release schedule in the mitigation plan.

#### F. Use of Credits

All activities authorized by DA permits (Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act), and activities authorized under the NYS-DEC's Environmental Conservation Law that includes the Fresh Water Wetland Act, Article 24; The Stream Protection Act, Article 15; and the Water Pollution Control Act, Article 17, the 1985 Food Security Act and other activities including enforcement actions may be eligible to use the DU-NY-ILF as compensatory mitigation. Credits may be sold to fulfill state requirements even if no USACE authorization is required. The appropriate agency representative(s) will determine the number of credits required to compensate for the authorized impacts. If an impact occurs outside of the DU-

NY-ILF service areas, consideration can be given by USACE or appropriate agency to allow the permittee to purchase credits from the closest ILF service area to the impact.

DU assumes the legal responsibility for compensation requirements only when the permittee purchases credits and transfers payment in full to DU. Credit sales are subject to availability. DU reserves the right not to sell credits for any reason.

#### G. Credit Transaction Notification

Each USACE authorization that includes a special condition requiring purchase of credits from the DU-NY-ILF will include a requirement that DU certify the transfer of responsibility via written communication to the permittee and the USACE.

As sponsor, DU must submit a Credit Sale letter to the USACE once payment is received. The Credit Sale letter must be signed by DU and the permittee and dated. The Credit Sale letter must include the permit number(s) for which DU is accepting fees, the number of credits being purchased, and resource type(s) of credits being purchased, if applicable. DU must submit the signed and dated Credit Sale letter electronically to the USACE within 30 days of receiving payment from the permittee. A copy of each Credit Sale letter will be retained by DU as part of the administrative and accounting records. Credit sales will be reflected in annual accounting reports and on RIBITS. The same process will be followed if the wetland impact is not under USACE jurisdiction and is permitted by the NYS-DEC and/or APA.

#### **V. In-Lieu Fee Program Account and Reporting**

DU will continue to maintain an ILF Program Account. The Program Account is held at a financial institution that is a member of the Federal Deposit Insurance Corporation. Interest that accrues from the program account will be applied towards the management of the ILF program and distributed equally across service areas. Disbursements from the Program Account may only be made upon receipt of written or electronic authorization from the District Engineer. Funds for the operation of the ILF program and project development may be obtained from other sources and repaid as credits are sold.

As part of the overall Program Account, sub accounts will be established for each service area. The sub accounts will track deposits from the sale of credits and expenses associated with implementing ILF projects in accordance with 33 CFR 328.8 (i) (3). In service areas where DU has met all the mitigation obligations associated with specific credit sales, then DU may use any remaining funds to establish mitigation projects within the same or in a different ILF service area in advance of a credit sale or remaining funds may be used for conservation projects within the same or different service area subject to approval by the USACE districts and the IRT.

DU will maintain a system for tracking the production of credits, credit transactions, and financial transactions by service area and separated for each project within the respective service area. Information will be reported on RIBITS. DU will submit an Annual Program Report to the IRT no later than October 31<sup>st</sup> of each year or by an agreed upon extension and will include program data from the previous fiscal year (July 1 – June 30). The Annual Report will include the following documents: summary sheet, income statement, expense statement, credit report summary, and the detailed credit report.



## **VI. Modifications of Instrument**

This Instrument may not be modified except by written agreement between DU and the USACE. Instrument modifications, including the addition ILF projects or service areas will generally follow the process outlined in Appendix V as detailed in 33 CFR 332.8(g) (1). The District Engineer may use a streamlined modification review process for changes reflecting adaptive management of the ILF program, credit releases, changes in credit releases, and credit release schedules, and changes that the District Engineer determines are not significant according to the terms detailed in 33 CFR 332.8(g) (2).

## **VII. Other Provisions**

### **Provision of Legal Responsibility**

The legal responsibility for providing compensatory mitigation lies with the permittee until the permittee purchases credits from the DU-NY-ILF program. The transfer of liability from the permittee to DU is established by the submission of a credit sale letter signed by DU and the permittee and the transfer of fees from the permittee to DU. DU will assume the responsibility for all aspects of mitigation until the Site Closure Letter is issued.

### **Default**

If the USACE, in consultation with the IRT, determines that the Sponsor is in material default of any provision of the Instrument or Instrument Amendment, the USACE, shall provide notice of the specific circumstances or actions which constitute a default(s) in writing to the Sponsor and providing a reasonable period of time to cure the default. If the Sponsor does not remedy the default or provide a remedial action plan acceptable to the USACE, in consultation with the IRT, in a timely manner, the USACE may take appropriate action. Such actions may include, but are not limited to, suspending credit sales, decreasing available credits, approving the use of funds at an alternate location, taking enforcement actions, calling upon financial assurances, or terminating the Instrument Amendment. In the event that the DU-NY-ILF program is terminated, DU is responsible for fulfilling any remaining obligations for credits sold. Default closure procedures for either the entire ILF Instrument or a specific service area may proceed within thirty (30) days upon written notification by either the Buffalo District Engineer or Ducks Unlimited. In the event that either the ILF Instrument or a specific service area is closed, DU is responsible for fulfilling any remaining obligations for credits sold prior to closure unless the obligation is specifically transferred to another entity as agreed to by the District Engineer and DU. DU shall be reimbursed from the ILF program account for all costs incurred in fulfilling the remaining obligations. USACE may review and approve use of these funds to purchase credits from another source of third-party mitigation or the disbursement of funds to a governmental or non-profit natural resource management entity willing to undertake further compensation activities. USACE itself cannot accept directly, retain, or draw upon those funds in the event of a default.

### **Instrument Closure Provisions**

Closure procedures for either the entire ILF Instrument or a specific service area may proceed within thirty (30) days upon written notification by either the Buffalo and New York District Engineers or Ducks Unlimited. In the event that either the ILF Instrument or a specific service area is closed, DU is responsible for fulfilling any remaining obligations for credits sold prior to closure unless the obligation is specifically transferred to another entity as agreed to by the District Engineer and DU. DU shall be reimbursed from the ILF program account for all costs incurred in fulfilling the remaining obligations. The USACE may direct DU to use these funds to purchase credits from another source of third-party mitigation or disburse funds to a governmental or non-profit natural resource management entity willing to undertake further compensation activities. The USACE itself cannot accept directly, retain, or draw upon those funds in the event of a default.

Any funds remaining in the program account after the mitigation obligations are satisfied must be used for the restoration and/or preservation of aquatic resources and associated upland buffers within the service area in which the funds reside unless otherwise approved by the District Engineer.

### **Force Majeure**

DU or a grantee will not be responsible for ILF project failure that is attributed to natural catastrophes such as flood, fire, drought, or regional pest infestation that the District Engineer determines is beyond the reasonable control of DU to prevent or mitigate. DU shall bear the burden of demonstrating that the Force Majeure event was caused by circumstances beyond the control of DU and the damage is irreparable by any practical and reasonable means. The IRT has sole reasonable discretion to determine whether an event is a Force Majeure.

### **Dispute Resolution**

Resolution of disputes between IRT members and the District Engineer shall be resolved in accordance with the terms detailed in 33 CFR 332.8 (e). Resolution of disputes related to overall program management or as it pertains to individual ILF projects, e.g., satisfaction of performance standards will be resolved between DU and the District Engineer in consultation with the IRT.

### **Validity of the Instrument**

This Instrument will replace the original program Instrument on the latter date of the signature of DU and the Buffalo and New York USACE Districts. This Instrument may only be amended or modified with the written approval of the DU and the District Engineer.

### **Invalid Provisions**

In the event that one or more of the provisions contained in this Instrument were developed inadvertently or with malicious intent and found to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions hereof, and this Instrument shall not be construed as invalid, illegal, or unenforceable.

### **Headings and Captions**

Any paragraph heading or captions contained in this Instrument shall be for convenience of reference only and shall not affect the construction or interpretation of any provisions of this Instrument.

### **Binding**

This Instrument shall be immediately binding upon DU and its successors, assignees and legal representatives upon signing by DU and the Buffalo and New York USACE Districts.

### **Liability of Regulatory Agencies**

The Buffalo and New York USACE Districts, the NYS-DEC, and signing IRT members that administer the ILF programs to protect wetlands and waterways and serve the public's interest will not guarantee the availability of credits to any entity, or ensure the financial success of the ILF program bank, specific individuals, or entities. The public should not construe this Instrument as a guarantee in any way that the IRT will approve sale of credits from the ILF program, or that the regulatory agencies will forgo other mitigation options that may also serve the public interest.

## **Right to Refuse Service**

Regulatory approval of purchase or transfer of credits from the DU-NY-ILF program does not signify DU's acceptance or confirmation of DU's offer to sell or transfer credits. DU reserves the right to refuse to sell or transfer credits from the DU-NY-ILF program for any reason.

## **Notice**

Any notice required or permitted hereunder shall be deemed to have been given either (i) when delivered by hand, or (ii) three (3) working days following the date deposited in the United States mail, postage prepaid, by registered or certified mail, return receipt requested, or (iii) sent by Federal Express or similar next day nationwide delivery system, addressed as follows (or addressed in such other manner as the party being notified shall have requested by written notice to the other party):

District Engineer  
U.S. Army Corps of Engineers - Buffalo District  
478 Main Street  
Buffalo, NY 14202

District Engineer  
US Army Corps of Engineers  
New York District  
ATTN: Regulatory Branch, Room 16-400  
26 Federal Plaza  
New York, NY 10278-0090

Ducks Unlimited, Inc.  
Attn: Mitigation  
1035 Seventh North Street  
Suite H  
Liverpool, New York 13088



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## Appendix I Compensation Planning Framework:

The compensation planning framework adopts a landscape-watershed approach to selecting and implementing ILF projects that restore, enhance, establish or preserve aquatic resources under the DU-NY-ILF program. This framework and the Site Selection Key will be used to identify, evaluate, and screen potential ILF projects. The compensation planning framework includes the following required 10 elements:

- I. Description of geographic service areas, including a watershed-based rationale for the delineation of each service area
- II. Description of the threats to aquatic resources and how the ILF program will help offset impacts resulting from those threats
- III. An analysis of historic aquatic resource loss in the service areas
- IV. An analysis of current aquatic resources conditions in the service areas
- V. A statement of aquatic resource goals and objectives for each service area
- VI. A prioritization strategy for selecting and implementing compensatory mitigation projects
- VII. An explanation of how any preservation strategies may satisfy the criteria for use of preservation
- VIII. A description of stakeholder involvement in plan development and program implementation
- IX. A description of the long-term protection and management strategies for activities conducted by the ILF program sponsor
- X. A strategy for periodic evaluation and reporting on the progress of the program

The mission of Ducks Unlimited is to conserve, restore, and manage wetlands and associated habitats that benefit wildlife and people. To achieve the mission, DU uses an ecosystem approach for conservation planning which is defined in our International Conservation Plan (ICP, [www.ducks.org](http://www.ducks.org)).

An ecosystem approach to conservation planning and delivery is consistent with the watershed approach that will be utilized to identifying and implementing ILF projects. A watershed approach allows for a step-down approach to conservation delivery in which the largest planning units are defined conceptually by watershed boundaries, whereas actual ILF projects will occur within specific service areas consistent with the compensation planning framework.

ILF projects that support restoration of a range of wetland types will contribute to the long-term conservation and management of critical habitats and associated wildlife species within the basin.



**Element I: Geographic service areas including a watershed-based approach for the delineation of service areas**

The DU-NY-ILF program will operate in the fourteen (14) service areas listed below.

**Appendix I Table 1. New York ILF Program Service Areas**

Service Area No.	Service Area
1	Black River (HUC 4150101)
2	Buffalo-Eighteen Mile (HUC 04120103)
3	Conewango-Creek (HUC 05010002)
4	Hudson - Hudson-Hoosic (HUC 02020003)
5	Hudson - Middle Hudson (HUC 02020006)
6	Irondequoit-Ninemile Creek (HUC 04140101)
7	Lower Genesee (HUC 04130003)
8	Mohawk (HUC 02020004)
9	Niagara River (HUC 04120104)
10	Oneida -Oswego (HUC 04140202 &04140203)
11	Salmon-Sandy (HUC 04140102)
12	Seneca-Finger Lakes (HUC 04140201)
13	St. Lawrence - Eastern (HUC 04150305-8)
14	St. Lawrence - Western (HUC 04150301-4)

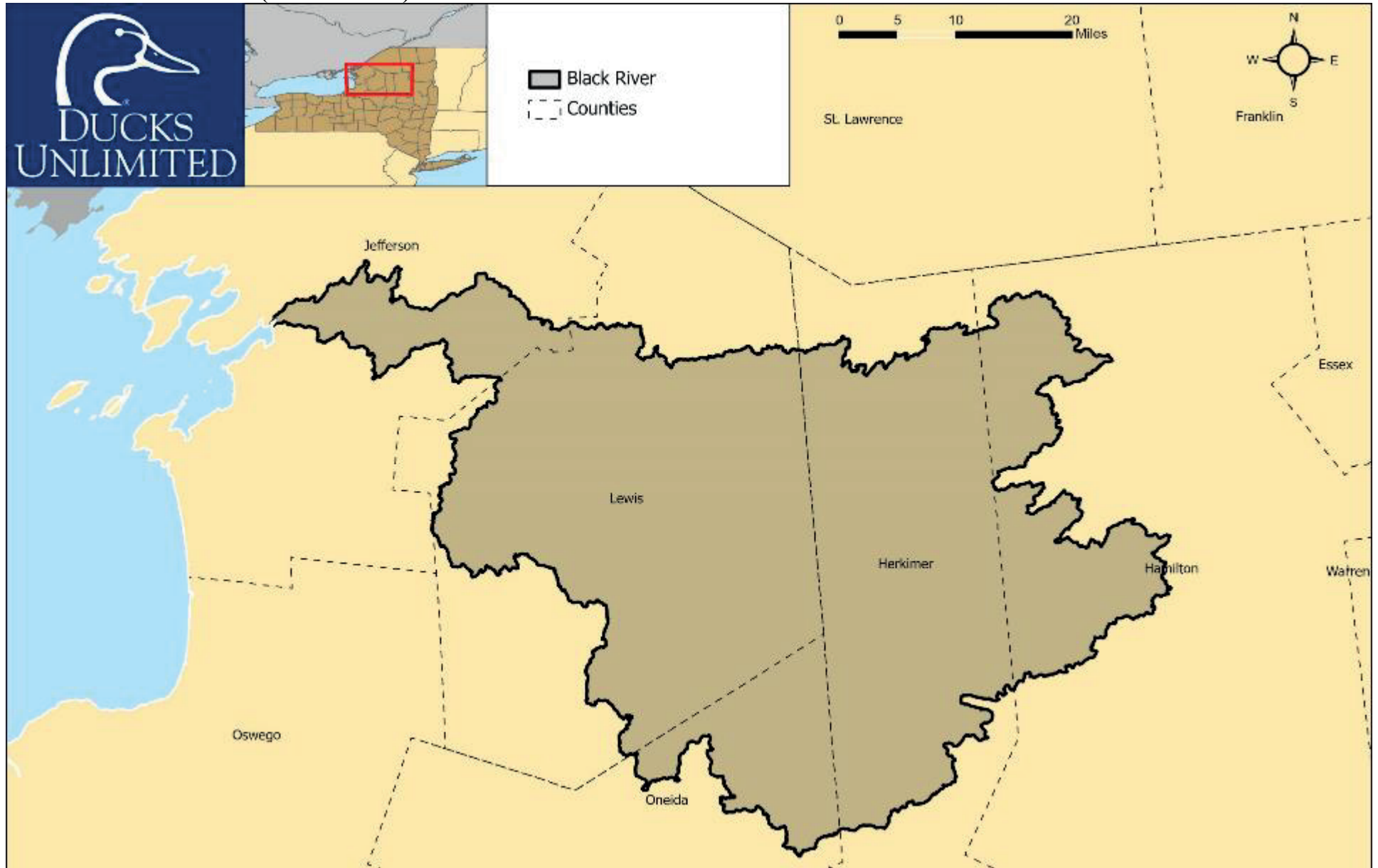
DU will mitigate for aquatic resource loss within the service areas by completing projects in the same service area where the impact occurred (e.g., a watershed approach) whenever possible. The type of impacts and watershed priorities will guide ILF project selection, plan development, and implementation. The service areas were selected based on the likelihood of future wetland impacts. Furthermore, DU has a familiarity with these service areas based on mitigation project related work and DU's New York conservation program which has operated for more than 30 years.

**Elements II, III, IV, and V: Includes description of threats to aquatic resources, historical and current resources lost in each service area, and statement of goals and objectives.**

As the ILF sponsor, DU will take into account the goals and objectives of watershed management plans and other conservation priority plans in identifying and implementing projects. While watershed and conservation plans can vary in their focus (e.g., water quality, biodiversity, and habitat restoration), the plans provide valuable information on conservation threats and strategies throughout the watersheds and on which agencies and conservation groups are leading the efforts. This section provides a description of watershed characteristics, threats and impacts, conservation planning, and watershed management goals by service area. ILF projects that support restoration of a range of wetland types will contribute to the long-term conservation and management of critical habitats and associated wildlife species within service areas.



**Service Area 1 - Black River (HUC 04150101)**



## Watershed Characteristics – Black River (HUC 04150101)

The Black River watershed is located in north central New York. It drains the western slope of the Adirondack Mountains and the eastern edge of Tug Hill, before entering into Lake Ontario. The Black River watershed is dominated by forest cover. Approximately half of the watershed boundary lies within the Adirondack Park. The entire watershed contains 3,910 miles of rivers and streams and over 600 lakes and ponds, including 179 significant freshwater lakes and reservoirs (NYS-DEC 2010).

The Black River flows over 180 miles, encompasses 1,920 square miles, and is fed by the Beaver and Moose Rivers (NYS-DEC 2009) and spans across Hamilton, Herkimer, Jefferson, Lewis and Oneida counties. The Black River, a designated Blueway Trail, is a major destination for scenic viewing, fishing and water-based recreation, including kayaking and rafting.

### Threats and Impacts

Water quality threats and impacts are the result of 1) acid rain, 2) atmospheric deposition of mercury, 3) agriculture and other non-point sources, 4) and site-specific and rural community wastewater treatments in non-sewered areas (NYS-DEC 2010). Within the Black River Basin, 21% of the river miles (806 miles) are listed as Priority Water bodies by NYS-DEC (2010). There are 75 lakes on the Priority Waterbody List that have impaired uses or minor impacts. About 85% of all lakes are impaired by acid rain (NYS-DEC 2009).

Anthropogenic changes caused by development (residential and commercial, roads, power lines), dredging, and wetland draining, in addition to natural changes such as forest succession have reduced both the habitat quantity and the habitat quality and disrupted the ecological functions of remaining habitat patches (NYS-DEC 2010).

### Conservation Planning

The NYS-DEC is implementing a Black River Watershed management plan. The purpose of the plan is to ensure that the resources in the Black River and its associated tributaries, lakes, and wetlands are protected and improved wherever possible. The goal of the Black River Comprehensive Strategy (NYS-DEC 2010) is to restore the chemical, physical and biological integrity of the ecosystem in a manner that reflects the communities concern for the preservation and protection of the watershed (EPA 2010). Implementation of the Black River Watershed management plan will assist in the protection and restoration of key habitats, improve water quality and ensure compatible land use development, helping to protect the river's natural resources (Bergmann Associates 2010).

Key habitats in the Black River watershed include the Mainstream Black River Valley, Adirondack Mountains and foothills, Tug Hill Plateau, Lower Black River, wetland habitats, and cave systems. These areas serve as important ecological resources within the watershed and represent focus areas for management and restoration (Bergmann Associates 2010).

- 1) Mainstream Black River Valley: The mainstream central portion of the Black River is undammed and represents a contiguous stretch of river important to fish, game, and non-game species. The area also contains floodplain forests, uncommon plant communities, and wetlands.
- 2) Adirondack Mountains and foothills: The Adirondacks represent one the largest undeveloped areas in the northeast US. The area provides a variety of habitats from mature to early succession forests which support a variety of ecological communities.
- 3) Tug Hill Plateau: The Tug Hill Plateau represents another large area of undeveloped lands and provides many of the same ecological benefits as the Adirondacks.
- 4) Unforested upland habitat: the Black River Watershed supports many grassland and shrub-land habitats. These varying succession habitats support a variety of birds and mammals.



- 5) Lower Black River: The lower Black River is important to fisheries and provides habitat for nongame fish, such as spawning sturgeon.
- 6) Wetlands: The Black River supports a variety of wetland habitat which provide breeding and wintering habitat for many fish and wildlife species.
- 7) Caves: The limestone caves provide habitat for a variety of animals such as the federally-endangered Indiana Bat. (*Information adapted from Bergmann Associates 2010 and NYS-DEC 2010*)

Examples of common, threatened, and endangered species, and species of special concern located within the watershed that may benefit from ILF projects include the following:

A) Common Species

- Fish: Grass pickerel (*Eox Americanus vermicultatus*), Eastern silvery minnow (*Hybognathus hankinsoni*), Mimic shiner (*Notropis volucellus*)
- Reptiles and Amphibians: redback salamander (*Plethodon cinereus*), spring peeper (*Hyla crucifer*), eastern milk snake (*Lampropeltus triangulum*)
- Mammals: white tailed deer (*Odocoileus virginianus*), beaver (*Castor Canadensis*)
- Birds: herons, warblers, waterfowl, and water birds

B) Endangered Species

- Black tern, round whitefish (*Prosopium cylindraceum*)

C) Threatened Species:

- Lake Sturgeon (*Acipenser fulvescens*), Blanding turtle (*Emys blandingi*)

D) Species of Special Concern:

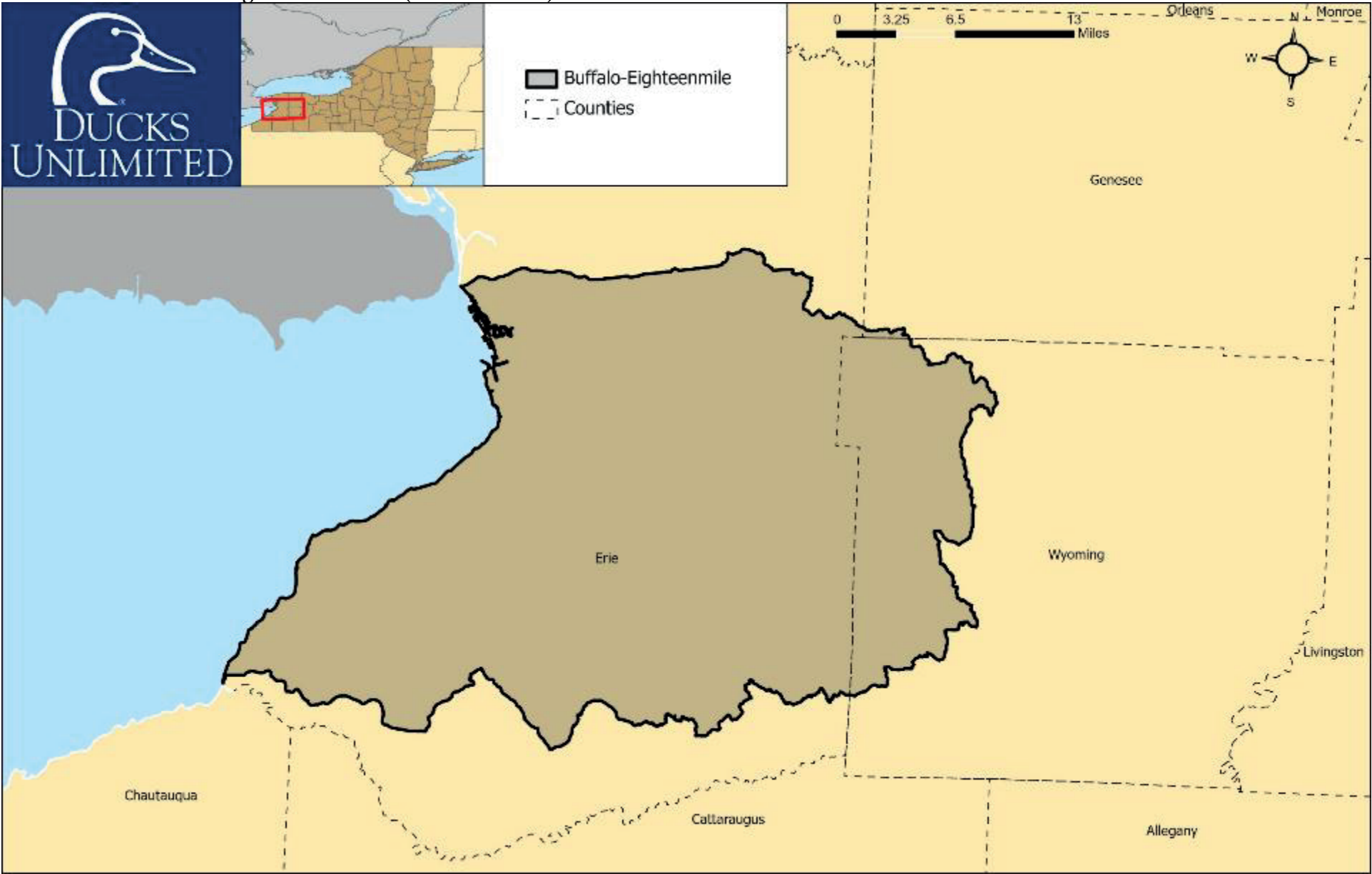
- Brook Trout (*Salvelinus fontinalis*), wood turtle (*Clemys insculpta*), golden-winged warbler (*Vermivora chrysoptera*)

### Watershed Management Goals

(**Bold** represents watershed goals that ILF projects may support)

- 1) **Partnerships, collaborations, and education**: improve communication between groups, promote shared ownership, build partnerships, and provide a richer understanding of the water quality issues
- 2) Development, infrastructure and storm water management: reduce the adverse impacts from new development, reduce loading of nutrients, bacteria, and sediment into water bodies
- 3) Wastewater management: reduce nutrient loads
- 4) Agricultural practices and management: maintain viable agricultural land use, minimize negative impacts
- 5) **Floodplain management**: Improve preservation of riverine and lacustrine floodplains and shorelines, improve coverage and accuracy of floodplain delineation
- 6) Forestry practices: Ensure continued viability of the forestry practices, minimize negative impacts
- 7) **Invasive species control**: prevent establishment of invasive species
- 8) **Planning and land use**: ensure management plans and safe land use practices are in place

Service Area 2 – Buffalo-Eighteenmile Creek (HUC 04120103)



### Watershed Characteristics– Buffalo-Eighteenmile Creek (HUC 04120103)

The Buffalo Eighteenmile Creek Watershed encompasses approximately 732 square miles and drains into portions of Erie and Wyoming Counties in western New York State. In the upper basin, the land use patterns within the watershed are primarily agricultural and woodland. In the lower basin, there is greater residential and industrial real estate development (Great Lakes Commission 2009).

There are three sub-watersheds in the Buffalo Eighteen-mile Creek Watershed: the Cayuga, Cazenovia, and Buffalo.

- The Cayuga Creek watershed drains 126 square miles across Erie, Genesee, and Wyoming Counties, and supports protected remnants of original forest cover of about 400 contiguous acres.
- Cazenovia Creek watershed drains 138 square miles of southern Erie County, joining the Buffalo River about 6 miles above Lake Erie. The contiguous forest and aquatic communities remaining in Cazenovia Creek's headwaters have statewide significance. The topography is characterized by deposits of dense, fine-grained lacustrine clays. The stream channel is largely clay-lined, the water turbid, and the soils poorly drained. The northern portion of the watershed supports a diversity of habitats, including a mosaic of uplands and wetlands (NYS-DEC 2010). Riverine aquatic communities within the watershed include a mixture of large rivers and streams, headwater streams, intermittent streams, and springs (NYS-DEC 2010).
- The Buffalo River watershed supports a wide diversity of wildlife: fish species include pirate perch, gizzard shad, grass pickerel, striped shiner and horneyhead chub; at least 5 species of reptiles and amphibians, including eastern box turtle (special concern); 52 species of birds, including the short-eared owl (endangered), upland sandpiper and northern harrier (threatened), and American bittern, grasshopper sparrow and horned lark (special concern) (Gomez and Sullivan 2006).

### Threats and Impacts

In the mid-1980s, the International Joint Commission (IJC) listed 42 “Areas of Concern” (AOCs), or severely degraded rivers and harbors across the U.S. - Canada Great Lakes basin which included the lower 6.2 miles of the Buffalo River (NYS-DEC 2010). This stretch of the Buffalo River, which is upstream from the mouth of Lake Erie and 1.4 miles from the City Ship Canal, is considered an AOC by NYS-DEC because of the degradation of the aquatic resources, in part due to environmental impacts related to historic industrial activity. These impacts have contributed to the loss of fish and wildlife habitat and have impacted the macro-invertebrate community in the river.

Other sources of pollutants include wastewater facility discharge and other non-point source pollutants that have resulted in river contamination (e.g., mercury, PCBs, chromium). Stream bank erosion has facilitated further pollution of the Buffalo River (NYS-DEC 2023).

Habitat loss and fragmentation related from agricultural practices and real estate development is the most frequently cited threat to species groups occurring in the watershed (NYS-DEC 2010).

### Conservation Planning

The NYS-DEC has stated that restoration of fish and wildlife habitat is a primary conservation goal in the watershed (NYS-DEC 2010). The existing diversity of fish and wildlife species living in the watershed underscores the potential for restoring wildlife and fisheries populations through conservation efforts. Watersheds along Lake Erie contain a greater amount of wetlands when compared to the majority of New York State. Therefore, wetland conservation in this basin should be considered a priority for habitat restoration and conservation objectives (NYS-DEC 2010).

The ILF projects may support priority objectives for the watershed outlined by NYS-DEC Comprehensive Wildlife Conservation Strategy for NY (2010d). A summary includes:

- A) Early Succession Forest/Shrubland Birds: Maintain, restore, and enhance early succession habitats using prescribed fire, mowing, and other management tools
- B) Forest Breeding Raptors: Maintain appropriate breeding habitat for forest breeding raptors
- C) Freshwater Marsh-Nesting Birds: Manage water levels in nesting areas to prevent nest loss for freshwater marsh-nesting birds, and optimize water and vegetation cover for waterfowl and turtles
- D) Grassland Birds: Use mowing and/or prescribed fire to manage the vegetative structure of established grasslands
- E) Beach and Island Ground-Nesting Birds and Transient Shorebirds: Reestablish high-quality transient shorebird foraging habitats by manufacturing sand flats, and mudflats
- F) Lake and River Reptiles: Manage uplands adjacent to aquatic habitat and restore hardened shoreline areas to provide adequate and secure nesting sites and dispersal routes for migrating animals
- G) Freshwater Fish: Restore in-stream and riparian habitat
- H) Turtles: Manage adverse effects of habitat fragmentation
- I) Freshwater Mussels: Restore degraded habitat sites to allow for recolonization or reintroduction of listed mussels
- J) Lake and River Reptiles: Manage water-borne pollutants that adversely affect lake and river reptiles
- K) Invasive species: Control and minimize the spread of invasive aquatic species

#### Watershed Management Goals

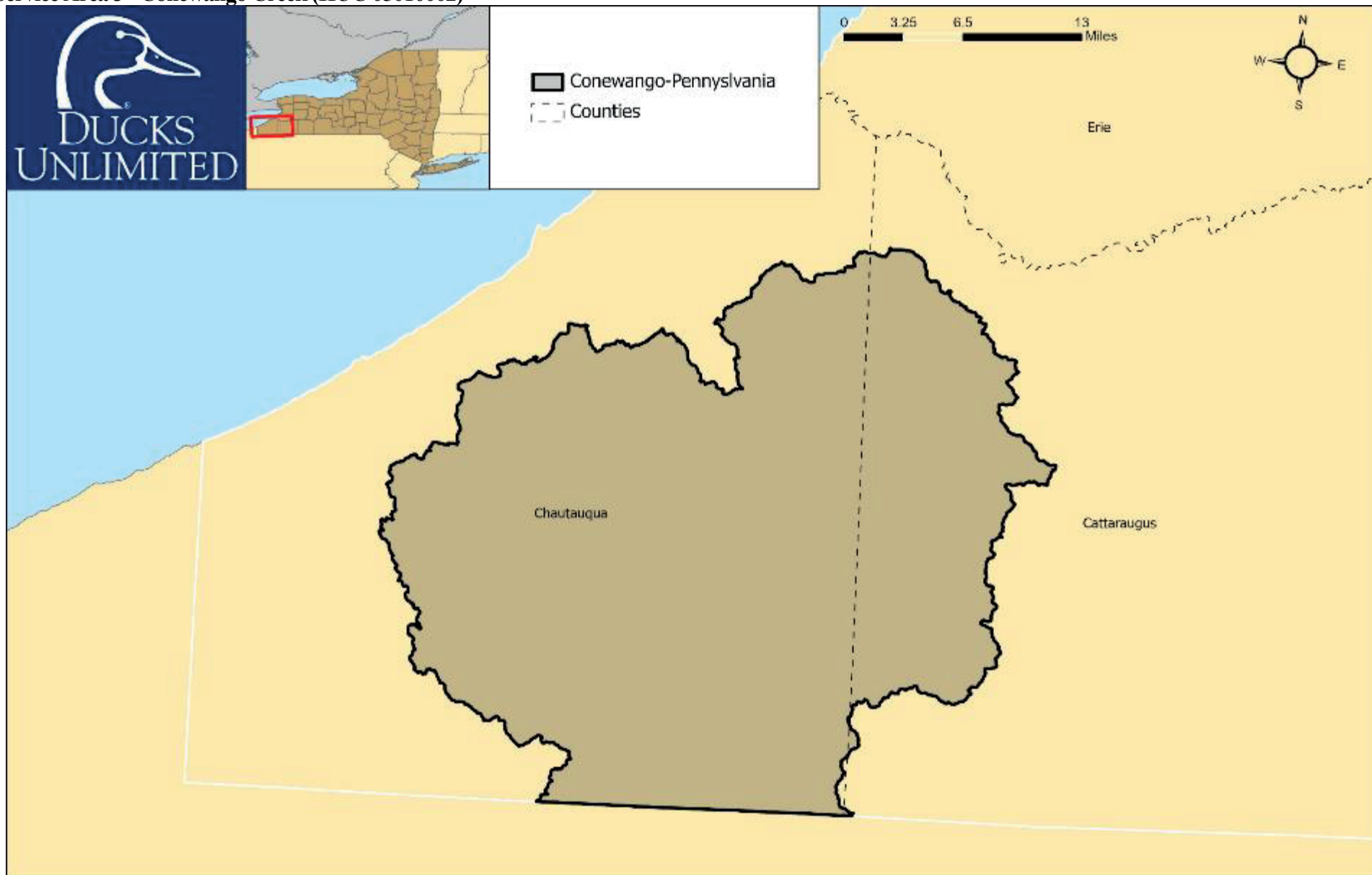
Objectives for the Buffalo River Watershed are outlined in NYS-DEC Comprehensive Wildlife Conservation Strategy for NY (NYS-DEC 2010):

(**Bold** represents watershed goals that ILF projects may support)

- 1) **Improved stability of stream banks**
- 2) **Minimize bank erosion**
- 3) Develop a management use plan for intense human-use areas
- 4) **Enhance existing aquatic habitat**
- 5) **Ensure long-term monitoring to ensure success**
- 6) Evaluate and assess habitat conditions for mammals, birds, herptofauna, and fish
- 7) **Invasive species control**
- 8) Update and maintain water treatment facilities
- 9) **Restore habitat connectivity**
- 10) **Improve stream quality**
- 11) **Restore hydrological functions that benefit habitat and wildlife and fish species**
- 12) **Maintain stream systems by protecting intact gorge landscapes and riparian buffers.**
- 13) **Protect and maintain Lake Erie and Niagara River near shore habitat and natural shoreline habitat, including beds of submerged and emergent aquatic vegetation**
- 14) **Restore priority habitats affected by land use practices.**
- 15) **Prevent further introductions of aquatic and terrestrial non-native invasive species.**
- 16) **Reduce pollution and siltation runoff into streams and tributaries.**
- 17) **Protect and maintain existing, functional core areas of mature forests**



Service Area 3 - Conewango Creek (HUC 05010002)



### Watershed Characteristics Conewango-Pennsylvania Creeks (HUC 05010002)

The Conewango Creek Watershed has a total of 1,406 miles of river/streams in New York and Pennsylvania of which 781 miles are in New York, according to the NYS-DEC. This watershed encompasses an area over 900 square miles. The Conewango Creek watershed covers much of southeastern Chautauqua County and southwestern Cattaraugus County. The Conewango Creek is a tributary of the Allegheny River. Most of the landscape is covered with forest, wetlands, and streams, but agricultural lands are also common in the watershed. The watershed varies from the rugged, heavily wooded Allegheny Hills along the Pennsylvania border to the flatter lands in the north and west.

The predominant land-cover classifications are deciduous and mixed forest (67% combined) and agricultural lands (NYS-DEC 2010). The Conewango Creek Watershed has meandering river channels with substrates of clay and sand. The lower section and flooded backwaters have not been greatly impacted by agricultural activities (NYS-DEC 2010). According to NYS-DEC data, wetland types in the watershed, recorded during the 1990s, were 59% forested, 22% scrub-shrub, 11% emergent, and 8% open water.

#### Threats and Impacts

Scrub-shrub and emergent wetlands have declined in the watershed, while open areas and forests have increased (NYS-DEC 2010). Similarly, upland and riparian buffers adjacent to stream corridors are declining and there is a noticeable loss of aquatic habitats throughout the basin which in turn negatively impacts the diversity and populations of both fish and amphibian species (NYS-DEC 2010).

Overall, populations of marsh nesting birds, grassland birds, reptiles, and amphibians are also declining, while species that are associated with forested habitats are stable. The major environmental stressors in the Conewango Creek watershed are related to residential development, urban and industrial runoff, contaminants from abandoned and active oil and gas wells, non-point source pollution, agriculture, forestry practices, and gravel mining (NYS-DEC 2010).

The watershed has also seen a reduction in natural habitats and riparian buffer loss resulting in excessive nutrient and sediment loading (NYS-DEC 2010). Many of these impacts can be attributed to poor agricultural management, including livestock with unrestricted access to streams, improper manure application on fields, intensively cultivated crop lands with minimal riparian buffers, and fertilizer and pesticide application in the absence of approved management plans (NYS-DEC (2010).

#### Conservation Planning

The main watershed management goal for the Conewango Creek watershed is to maintain the rural nature and biodiversity while minimizing impacts from energy development and transmission. Goals for habitat improvement are detailed in the plans such as the NYS-DEC Wildlife Action Plan, the Natural Heritage Program, and TNC priority natural areas.

The ILF projects may support priority objectives for the watershed outlined by NYS-DEC Comprehensive Wildlife Conservation Strategy for NY (2010d). A summary includes:

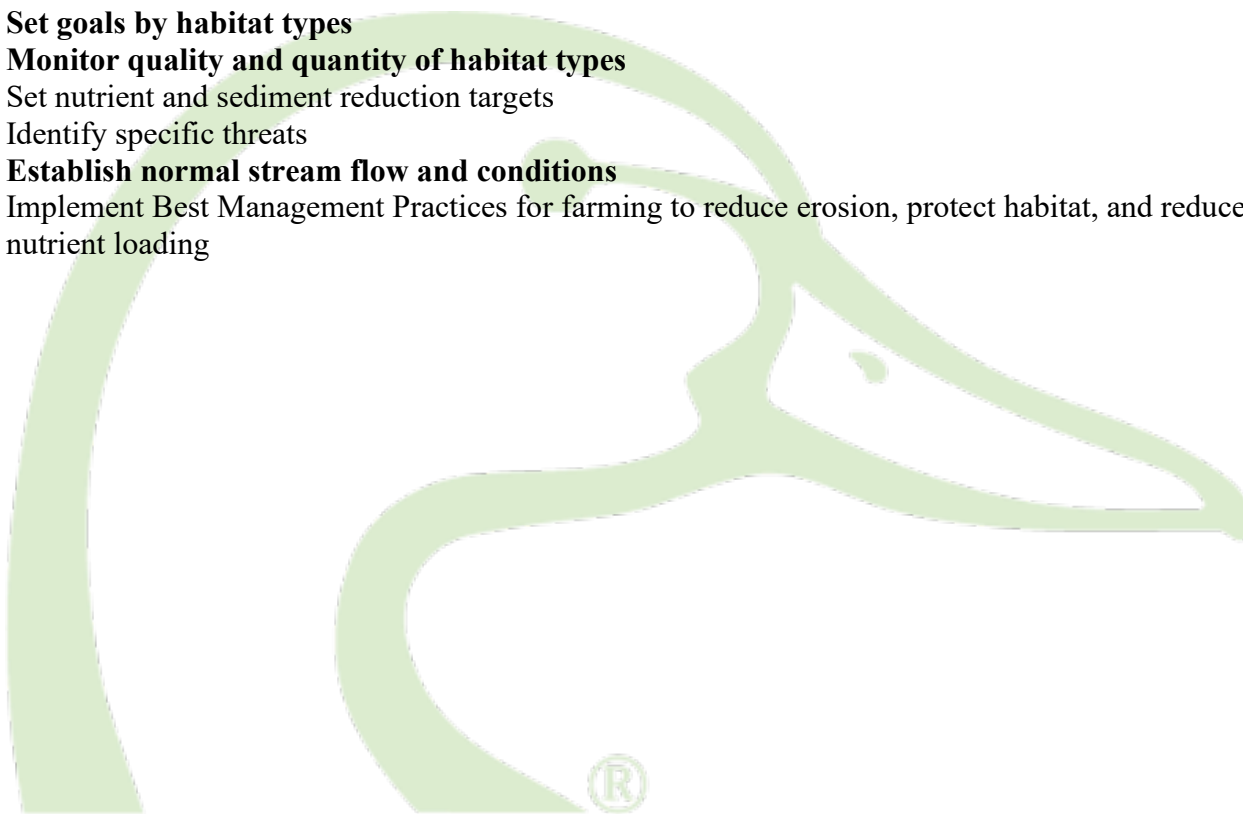
- A) Early Successional Forest/shrub land birds: Identify and provide high core habitats within the basin and priority avian species
- B) Freshwater Marsh Nesting Birds: Manage water levels in nesting areas to prevent nest flooding, and optimize water and vegetation cover for waterfowl; Restore emergent marsh to benefit freshwater marsh nesting birds
- C) Grassland Birds: Use mowing and/or prescribed fire to manage vegetative structure of established grasslands

- D) Herp and fauna: Manage uplands adjacent to aquatic habitat to provide adequate and secure nesting sites and dispersal routes for migrating animals
- E) Freshwater Bivalves: Evaluate threats to mussels and prioritize areas within the basin for remedial actions
- F) Bats: High priority species are tree-roosting bats, eastern red and hoary bats; and the cave-roosting Indiana bat
- G) Fisheries: Manage land use practices in riparian areas of the basin to foster buffer strip restoration and retention to minimize loss of stream cover

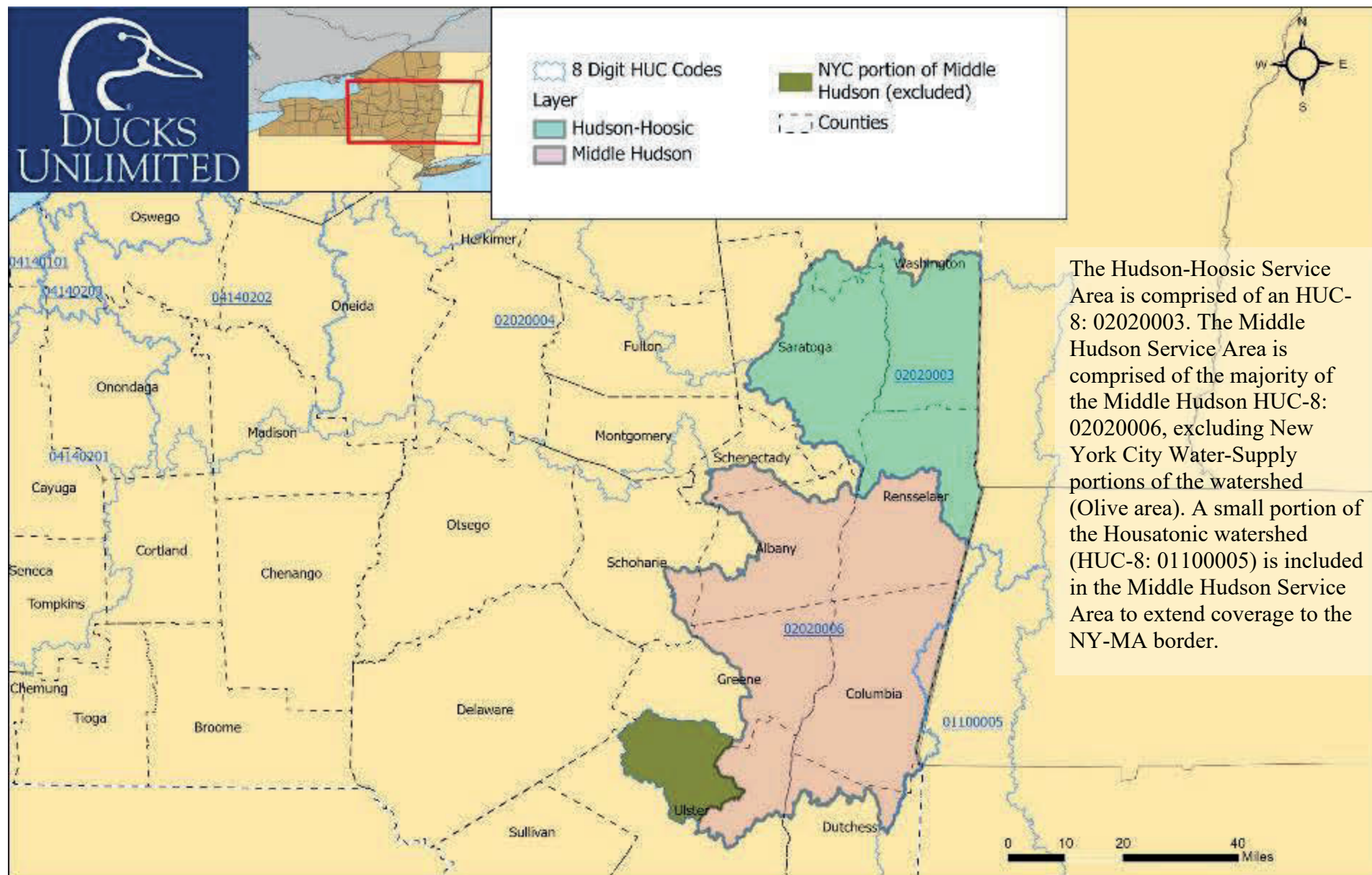
### Watershed Management Goals

(**Bold** represents watershed goals that ILF projects may support)

- 1) Determine the status and trends of grasslands, early and late-succession forests, wetlands and aquatic habitats in the basin
- 2) **Set goals by habitat types**
- 3) **Monitor quality and quantity of habitat types**
- 4) Set nutrient and sediment reduction targets
- 5) Identify specific threats
- 6) **Establish normal stream flow and conditions**
- 7) Implement Best Management Practices for farming to reduce erosion, protect habitat, and reduce nutrient loading



**Service Area 4 and 5 – Hudson: Middle Hudson and Hudson Hoosic (HUC 02020006 and 02020003)**





## Watershed Characteristics – Hudson-Hoosic (HUC 02020003) & Middle Hudson (HUC 02020006)

The Hudson River flows into an ecologically and economically significant estuary. Non-point source pollution from runoff including fertilizers, pesticides, oil and sediment negatively impact water-quality and harm coastal wetlands and dependent biota (NYS-DEC, 2015). The Middle Hudson and Hudson-Hoosic watersheds have some of the greatest mitigation demand in New York State and would benefit from having a mitigation option that facilitates development of larger, more-sustainable mitigation sites (Brett & Bliss, 2019; Hunter et al., 2012). Placing larger mitigation sites using a watershed-based selection approach in the middle and northern portions of the Hudson River Basin is likely to lead to improved water-quality benefits downstream, as wetland restoration is a key strategy to reducing nutrient loading in estuaries (Batiuk et al. 2013).

Numerous rare and threatened species call the Hudson River Basin home including: bog turtle (*Glyptemys muhlenbergii*), Blanding's turtle (*Emydoidea blandingii*), spotted turtle (*Clemmys guttata*), eastern box turtle (*Terrapene carolina*), wood turtle (*Glyptemys insculpta*) Jefferson Salamander (*Ambystoma jeffersonianum*), blue spotted salamander (*Ambystoma laterale*), marbled salamander (*Ambystoma opacum*), northern cricket frog (*Acris crepitans*), bald eagle, least bittern, pied-billed grebe, Kentucky warbler (*Geothlypis formosa*), scarlet tanager (*Piranga olivacea*), worm-eating warbler (*Helmitheros vermivorum*), and Cerulean warbler (*Setophaga cerulea*) (e.g., Mudd and Tabak 2017). All of these species use or can use wetlands for at least a portion of their lifecycle (NYS-DEC, 2015). Bog turtle is federally listed as threatened. Habitat loss, fragmentation, succession are among the largest threats to this species (Shoemaker & Gibbs, 2013). This small turtle utilizes early-successional groundwater wetlands known as fens and surrounding red maple swamps (Bedford & Godwin, 2003; Myers & Gibbs, 2013). Moreover, most extant bog-turtle populations in New York State are located within the Hudson River Basin, underscoring the importance of preserving and restoring high-quality wetland habitats (Myers and Gibbs 2013).

Common waterfowl species found in this portion of the Atlantic Flyway include: mallards, American black ducks, wood ducks, green-winged teal, American wigeon, Canada geese, Atlantic brant, and greater snow geese. Mallards, Atlantic brant, and Canada geese have experienced negative growth trends in recent years in the Atlantic Flyway. Expansion of the DU-NY-ILF program is likely to enable projects that would provide important breeding habitat suitable for mallards and Canada geese.

The Hudson River and its tributaries drain central and eastern portions of New York State, southwestern Vermont, western Massachusetts and Connecticut. The Hudson-Hoosic service area in particular spans 1,285 square miles, encompassing most of Saratoga, Washington, and Rennselaer counties, as well as parts of Warren, and Albany Counties. The Middle Hudson service area spans 2,170 square miles including most of Columbia and Albany counties, as well as portions of Greene, Ulster, Schoharie, Schenectady, and Dutchess counties. Land-uses in these watersheds are dominated by forested cover, agricultural fields, and developed portions of Albany and outlying service areas (Homer et al. 2015). The Hudson-Hoosic watershed has approximately 135,967 acres (11.2% of the watershed) of wetland habitat, and approximately 60,000 acres of those wetlands are New York State regulatory freshwater wetlands (NRCS 2015). An additional 18,059 acres occurs as open water in the watershed according to NLCD (Homer et al. 2015). The Middle Hudson watershed has approximately 115,341 acres (7.4% of the watershed) of woody/emergent herbaceous wetland habitat, and approximately 58,000 acres of those wetlands are New York State regulatory freshwater wetlands (NRCS 2011). There are approximately 36,655 acres of open water in the Middle Hudson watershed. The wetlands in these watersheds are largely palustrine emergent, scrub/shrub, and forested, and there are also tidal wetlands in the influence of the Hudson River. The major economic activities in the watershed are education services, health-care, public administration, retail, agriculture, logging, mining, and recreation/tourism, and a growing solar sector (NYS-DEC 2015).

## Threats and Impacts

The atmospheric deposition of pollutants such as acid rain and mercury originating outside the basin negatively impact water quality (NYS-DEC 2015). Similarly, the water quality is affected by agricultural practices and industrial development and legacy impacts of polychlorinated biphenyls (PCBs) within the Hudson River and adjacent wetlands. Hazardous wastes and other industrial impacts associated with resource extraction are also a concern in specific areas. In sum, approximately 230 river miles and 918 acres of freshwater lakes in the Hudson-Hoosic watershed are listed by the EPA as impaired waters (EPA 2014). In the Middle Hudson, approximately 252 river miles, 46 square miles of estuary, and 10,333 acres of freshwater lakes are similarly listed as impaired waters (EPA 2014). Development pressure from energy projects, solar, transportation, and new construction are also high (Brett & Bliss, 2019). Non-point source pollution including fertilizers, pesticides, oil and grease, and sediment are other factors affecting the health of waters in the Hudson River Watershed (EPA 2014).

Watershed Threats (NYS-DEC 2015):

(**Bold** represents threat that will be targeted by the DU-NY-ILF program)

**A) Habitat loss and fragmentation**

**B) Degraded water quality**

C) Atmospheric deposition

**D) Altered hydrology**

**E) Invasive species**

F) Human-wildlife interactions

G) Climate change

#### Conservation Planning

The primary cause of impairment in the Hudson-Hoosic watershed is phosphorous loading (NYS-DEC 2015). The NYS-DEC, New York Natural Heritage Program, and Scenic Hudson have identified conservation strategies to improve water-quality, habitat connectivity, and adaptability to climate change for the Hudson River Valley (Penhollow et al. 2006, Howard and Schlesinger 2012, Mudd and Tabak 2017). Key to these spatially-explicit strategies are protection and restoration of priority connective lands and wetlands. With the addition of DU's wetland targeting tools to the existing suite of GIS-conservation planning tools (e.g., Howard and Schlesinger 2012, Mud and Tabak 2017, Raney and Leopold 2018) DU will focus on wetland restoration projects that include restoration of important non-tidal wetland areas, reducing gaps in connectivity, and preservation of significant areas for biodiversity. Critical gaps in habitat connectivity have been identified (Howard & Schlesinger, 2012), and will be a focus for acquisitions in the DU-NY-ILF. Such areas are well identified in existing spatial conservation planning tools and will be targeted for acquisition by DU.

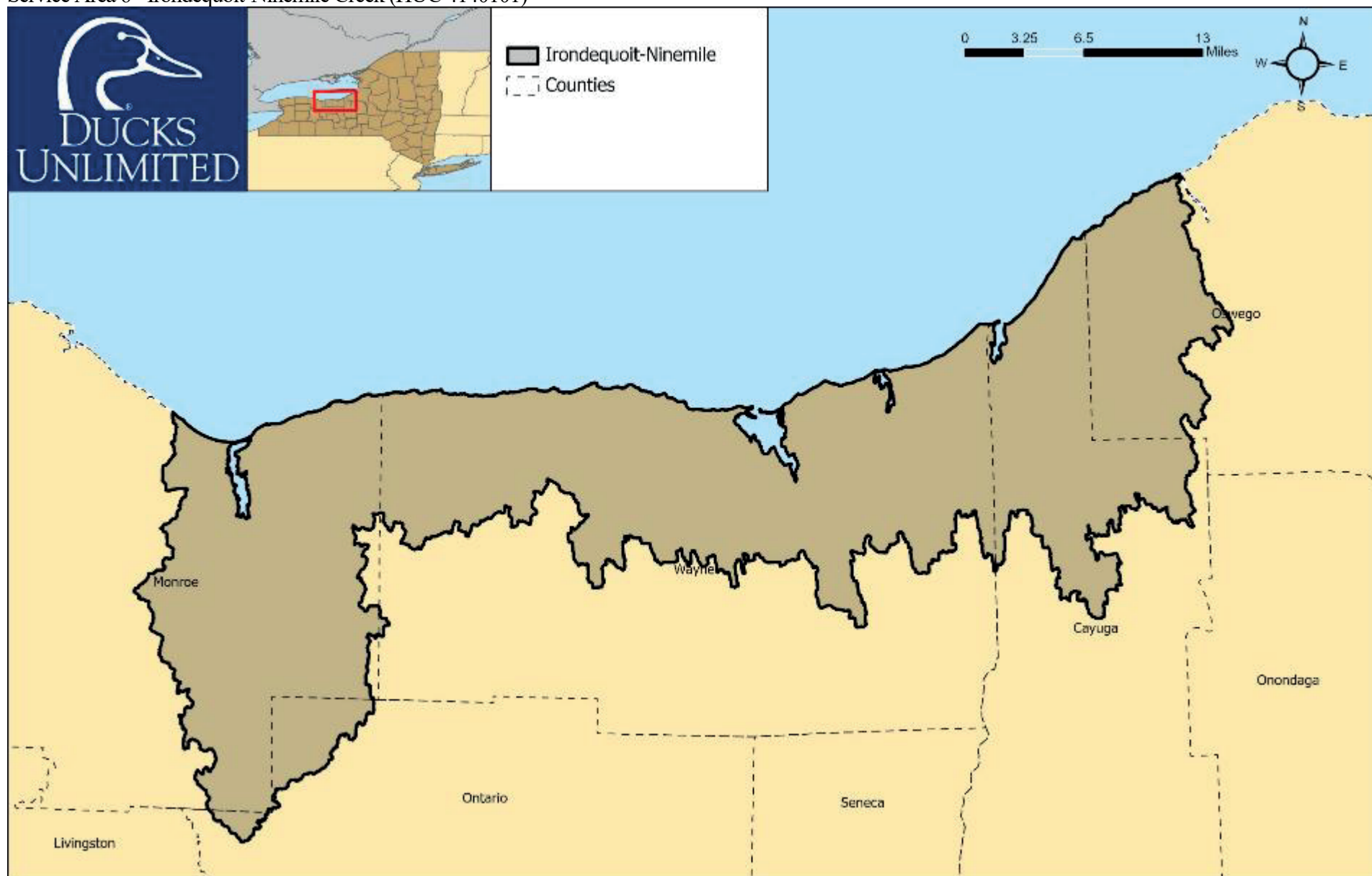
The priority habitats and their associated priority species include the following (*information below was adapted from NYS-DEC comprehensive Hudson River Estuary Wildlife Habitat Conservation Framework 2006*):

- A) Large habitat blocks: Priority targets will contribute to habitat connectivity and larger habitat restorations. Habitat fragmentation threatens diversity of forest interior birds and wide-ranging mammals, such as fisher (*Martes pennanti*).
- B) Early succession habitats: Support a host of early successional birds such as Canada warbler (*Wilsonia canadensis*), ruffed grouse (*Bonasa umbellus*), and American woodcock (*Scolopax minor*); raptors, such as long-eared owl (*Asia outs*), and forest interior birds
- C) Wetlands: Areas of concern are floodplain forest, shrub swamps, and calcareous fens. These wetland habitats support a diversity of state-listed turtles: Blanding's turtles (*Emydoidea blandingii*), bog turtles (*Glyptemys muhlenbergii*), and spotted turtles (*Clemmys guttata*).
- D) Freshwater tributaries: Support a mixture of wetlands and associated buffers reduce limit nutrient loading. These tributaries are important for migratory fish.
- E) Grasslands: Support populations of bobolink (*Dolichonyx oryzivorus*), Henslow's sparrow (*Ammodramus henslowii*), savannah sparrow (*Passerculus sandwichensis*), and sedge wren (*Cistothorus platensis*).

#### Watershed Management

(**Bold** represents watershed goals that ILF projects may support)

- 1) **Work with conservation stakeholders to manage, protect, and enhance the at-risk biodiversity**
- 2) **Manage animals, habitats, and land use practices to produce sustainable benefits for species of conservation concern**
- 3) **Identify, manage, maintain, and protect/restore habitats and communities over a broad spatial scale**
- 4) **Control invasive species**
- 5) Development, infrastructure and storm water management: reduce the adverse impacts from new development, reduce loading of nutrients, bacteria, and sediment into water bodies
- 6) Agricultural practices and management: maintain viable agricultural land use, minimize negative impacts
- 7) **Floodplain management: Improve preservation of riverine and lacustrine floodplains and shorelines, improve coverage and accuracy of floodplain delineation**
- 8) Forestry practices: Ensure continued viability of the forestry practices, minimize negative impacts
- 9) **Work with land managers to incorporate wildlife-based objectives**





### Watershed Characteristics Irondequoit-Ninemile Creek (HUC 4140101)

The Irondequoit-Ninemile watershed is located along Lake Ontario and encompasses 708 sq. miles, according to the USGS. The watershed is in a highly urbanized area. Portions of the watershed also occur in a rural setting, with considerable agricultural lands and forest tracts. The Irondequoit Creek encompasses 316 miles in Monroe, Ontario, and Wayne Counties. The watershed supports a diversity of plant and animal communities given the temperate climate, wide range of wetland and terrestrial habitats, and floodplain soils. A mix of herbaceous and woody vegetation provides robust riparian buffers.

### Threats and Impacts

Habitat loss and fragmentation have impaired the watershed. Additional stressors have occurred from the discharge of chemicals into the tributaries and lakes of the watershed which have resulted in fish consumption advisories (NYS Comprehensive Wildlife Action Strategy). Similarly, nutrient runoff which leads to aquatic plant growth has impacted water quality of the near shore waters. The basin is currently home to at least 129 Species of Greatest Conservation Need, representing 24% of the total Priority Species. Threats to the watershed include (**bold** text refers to threats that ILF projects might address):

- A) **Habitat fragmentation**: over half the land throughout the basin has been altered by human activities and fragmentation is a substantial threat to terrestrial species
- B) Energy developments: damming of rivers and streams for hydropower has had a lasting negative effects on aquatic habitats
- C) **Water level fluctuations**: diminished habitat quality for marsh-nesting birds, warm water fish, and other species
- D) **Contaminants**: the level of contamination depends on the land uses surrounding the lakes and the discharges to the lakes and their tributaries, such as sewage, heavy metals, phosphorus loading, PCBs, mercury
- E) **Exotic/invasive** species: the basin is home to several invasive plants and animals such as zebra mussels (*Dreissena polymorpha*), Purple loosestrife (*Lythrum salicaria*), and double-crested cormorants (*Phalacrocorax auritus*)

### Conservation Planning

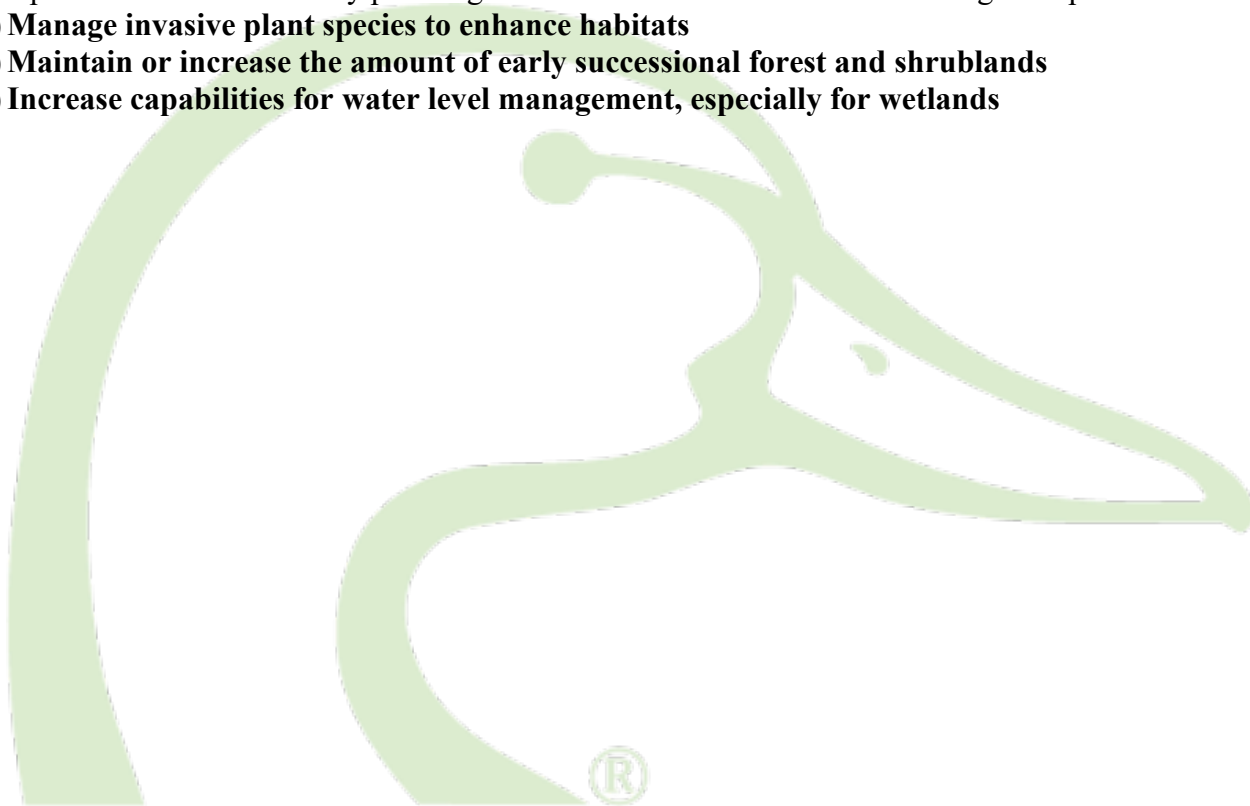
Several species of concern can be found in the watershed such as the Chittenango ovate amber snail and the Indiana bat (*Myotis sodalist*), both of which are federally listed species. Similarly, the bog turtle (*Glyptemys muhlenbergii*), another threatened species can be found in the watershed (NYS-DEC 2010). The NYS-DEC compiled a list of critical habitats that support the life-history stages of the priority species which include:

- A) Terrestrial open-upland systems: Grasslands, lakeside beaches, and cliffs provide critical nesting habitat for grassland birds, foraging areas for raptors, and habitat for many species of butterflies and adult odonates
- B) Forested lands: Forests provide critical breeding habitat for deciduous/mixed forest breeding birds, early successional forest/shrubland birds, and forest breeding raptors
- C) Lakes and streams: emergent wetlands and wooded wetlands provide habitat for freshwater marsh-nesting birds, turtles and amphibians
- D) Warm water, cold water, still and flowing waters: A wide variety of animals from birds to fish to insects are found in the open waters of lakes in the basin
- E) Barrier beaches and sand dunes, seasonal mudflats, and some agricultural lands: These habitats provide habitat for migrating shorebirds

### Watershed Management Goals

(**Bold** represents watershed goals that ILF projects may support)

- 1) Protection and enhancement of sensitive natural areas and resources**
- 2) Improve and protect water quality for desired uses which emphasize a healthy ecosystem**
- 3) Ensure development around the watershed without impacting significant resources (e.g., environmental, historical, archeological)
- 4) Minimize and resolve water surface use conflicts among stakeholders
- 5) Improve public access for recreational opportunities
- 6) Manage land use practices to produce long-term benefits for species of conservation concern**
- 7) Identify, manage, protect, maintain, and restore habitat/natural communities over as broad of a spatial scale as possible**
- 8) Work with land managers to incorporate wildlife-based objectives into traditional land management activities such as forestry and agriculture**
- 9) Identify specific and appropriate focus areas for grassland bird conservation**
- 10) Water level management in lakes, the canal system, and at numerous dams
- 11) Update the federal recovery plan to guide establishment of additional endangered species
- 12) Manage invasive plant species to enhance habitats**
- 13) Maintain or increase the amount of early successional forest and shrublands**
- 14) Increase capabilities for water level management, especially for wetlands**



Service Area 7 - Lower Genesee (HUC 04130003)



### Watershed Characteristics – Lower Genesee (HUC 04130003)

The Lower Genesee Watershed is part of the overall Genesee River Basin which encompasses 2,500 square miles of New York. The watershed contains 24 separate sub-watersheds. The watershed's primary drainage channel (i.e., the Genesee River) travels through highly industrialized portions of Rochester before entering Lake Ontario (USACE 2004). The Lower Genesee Watershed encompasses 1,070 square miles.

There are approximately 31 lakes, ponds, and reservoirs within the watershed of which 9 are listed as priority water bodies, as reported on the New York State Water Quality Monitoring Strategy. Priority water bodies are defined as waters that have documented water quality impacts, impairments, or threats (NYS-DEC 2015).

Wetland habitats in Lower Genesee Watershed include wooded swamps, emergent marshes, wet meadows, riparian and linear wetlands, and open water habitats. Most of the wetlands are located in the central and northern portions of the watershed. THE NYS-DEC reports that only 2% of the watershed is composed of wetlands and open water habitats (NYS-DEC 2010, 2015).

New York Natural Heritage Program has designated certain areas of the watershed as priority areas for preservation (NYS-DEC 2010). The watershed also has statewide significance for a variety of other priority species including marsh birds, riparian tiger beetles, Eastern massasauga rattlesnakes (*Sistrurus catenatus catenatus*), and western chorus frogs (*Pseudacris triseriata*) (NYS-DEC 2010).

#### Threats and Impacts

Impacts to the Genesee River and Lower Genesee Watershed are caused by nutrient loading from pesticide use in agriculture, stream bank erosion, stormwater run-off, and hydrological modifications. Additional environmental stressors in the watershed result from residential and commercial development. The most frequently cited threats to species groups occurring in the watershed are caused by construction related to new buildings, road ditches, and roads (NYS-DEC 2010).

#### Conservation Planning

Management goals for the Genesee River watershed are based on short and long-term goals to target the primary pollutant sources (NYS-DEC 2015).

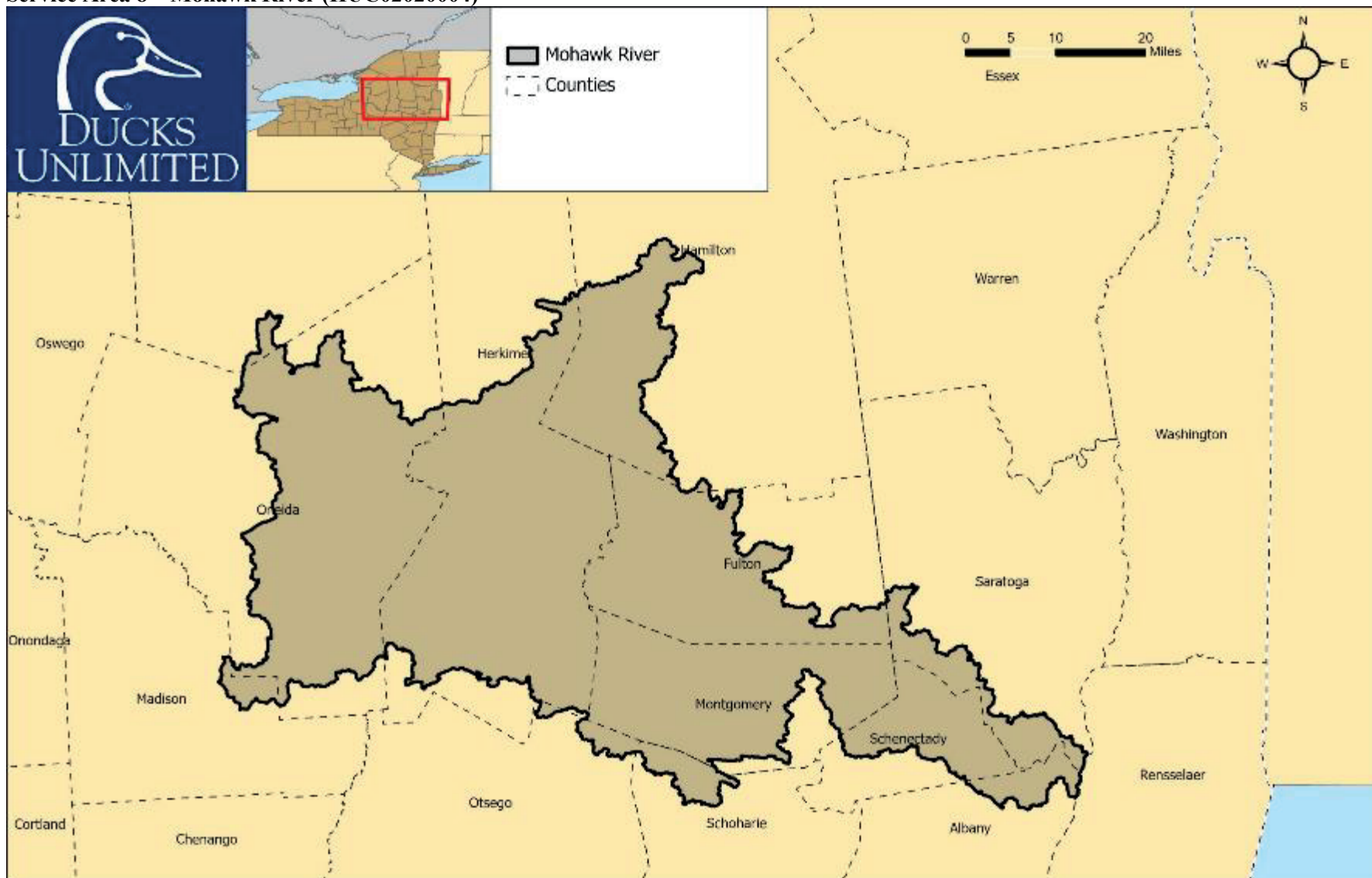
#### Watershed Management Goals

(**Bold** represents watershed goals that ILF projects may support)

- 1) **Stream bank erosion:** Implement structural, bioengineering and regulatory controls
- 2) Storm water run-off: Develop management programs and compliance measures for all counties
- 3) **Hydrological and Habitat Management:** apply the Genesee River Watershed Sediment Transport Model, develop watershed plans to improve wetlands and riparian habitats
- 4) Wastewater Treatment Systems: public outreach programs and routine inspections
- 5) Municipal Drainage/Industrial Discharge: Full compliance and improvements related to facilities
- 6) Toxic and Contaminated Sediments: Develop an innovative strategy with agencies to remove contaminants
- 7) Determine the current and historical extent of grasslands, early successional and shrub, deciduous/mixed forest cover, and wetlands in the basin
- 8) **Conduct habitat mosaic planning and set target goals for these habitat types**
- 9) **Maintain and improve stream systems by protecting and enhancing riparian buffers**
- 10) **Maintain and improve priority conservation areas for priority species**
- 11) **Reduce pollution and siltation runoff into streams and tributaries**
- 12) **Prevent further introductions of aquatic and terrestrial non-native species**
- 13) **Monitor the quality and quantity of habitats on a 10-year rotational cycle**
- 14) **Identify key areas for acquisition, restoration, and/or other means of protection**



**Service Area 8 – Mohawk River (HUC02020004)**



### Watershed Characteristics – Mohawk River (HUC02020004)

The Mohawk River watershed spans approximately 3,460 square miles and is the largest tributary to the Hudson River. It contains more than 6,600 miles of rivers, streams, and canals. The watershed has several development pressures from transportation, to energy production and transmission, residential and commercial pressure on resources in Utica. The watershed is also situated between Syracuse and the Capital District. Non-point source pollution from runoff including fertilizers, pesticides, oil and sediment negatively impact water-quality and harm wetland dependent biota (NYS-DEC, 2015). The Mohawk River watershed contains long-stretches of the New York State Thruway, Erie Canal, has relatively high mitigation demand and would benefit from having a mitigation option that facilitates development of larger, more-sustainable mitigation sites (Brett & Bliss, 2019; Hunter et al., 2012). As of April 2021, no banks have been established in this watershed. Placing larger mitigation sites using a watershed-based selection approach is likely to lead to improved water-quality benefits (Batiuk et al. 2013).

The Mohawk River and its tributaries drain central portions of New York State. The Mohawk Service area in particular spans 3,460 square miles, encompassing significant portions of Herkimer, Oneida, Montgomery, Hamilton, Fulton, Albany, Schenectady, as well as parts of Madison, and Saratoga Counties. There are approximately 4,086 miles of rivers and streams, and over 18,315-acres of freshwater lakes, ponds, and reservoirs in the watershed (NYS-DEC 2015). Approximately 10% of the watershed consists of freshwater wetlands, with the majority occurring as forested wetlands (MRWC 2015). The major economic activities in the watershed are education services, healthcare, retail, nanotechnology, agriculture, logging, and a growing solar sector (NYS-DEC-2018). Sections of the Mohawk River also serve as the New York State Barge (Erie) Canal supporting commerce (NYS-DEC 2015).

### Threats and Impacts

The Mohawk River basin is a connector between urban markets in Syracuse, Utica and Albany. Energy development and transmission between these markets and a growing solar industry indicate ongoing wetland impacts are likely to continue in this watershed (Brett and Bliss 2019; New York State Energy Research and Development Authority, the new Competitive Tier 2 renewable energy program, 2021). The Mohawk River Watershed contains significant stretches of the New York State Barge Canal system, and several feeder canals that periodically require maintenance that necessitates mitigation. Water quality in the watershed is impaired by agricultural runoff from pesticides, nutrient inputs from livestock and fertilizer, as well as wastewater treatment. Impervious surfaces have also contributed in conjunction with increased rainfall to flooding (NYS-DEC 2018).

Current Watershed Threats (MRWC 2015; NYS-DEC 2018):

(**Bold** represents threat that will be targeted by the DU-NY-ILF program)

- A) Habitat loss and fragmentation**
- B) Degraded water quality**
- C) Flood hazards**
- D) Wastewater treatment inputs
- E) Altered hydrology**
- F) Invasive species**
- G) Climate change**

### Conservation Planning

The primary cause of impairment is water-quality impairment from nutrient and stormwater loading from agricultural and impervious surfaces (MRWC 2015). The NYS-DEC, Mohawk River Watershed Coalition have identified conservation strategies to improve water-quality, habitat connectivity, and adaptability to climate

change (MRWC 2015). Key to these strategies are protection and restoration of priority connective lands and wetlands, and particularly revegetation of floodplains and other impaired aquatic resources. With the addition of DU's wetland targeting tools to the existing suite of GIS-conservation planning tools (MRWC 2015, Raney and Leopold 2018) DU will focus on wetland restoration projects that include restoration of important wetland areas, reducing gaps in connectivity, and preservation of significant areas for biodiversity. Such areas are well identified in existing spatial conservation planning tools and will be targeted for protection and restoration by DU.

The priority habitats and their associated priority species include the following:

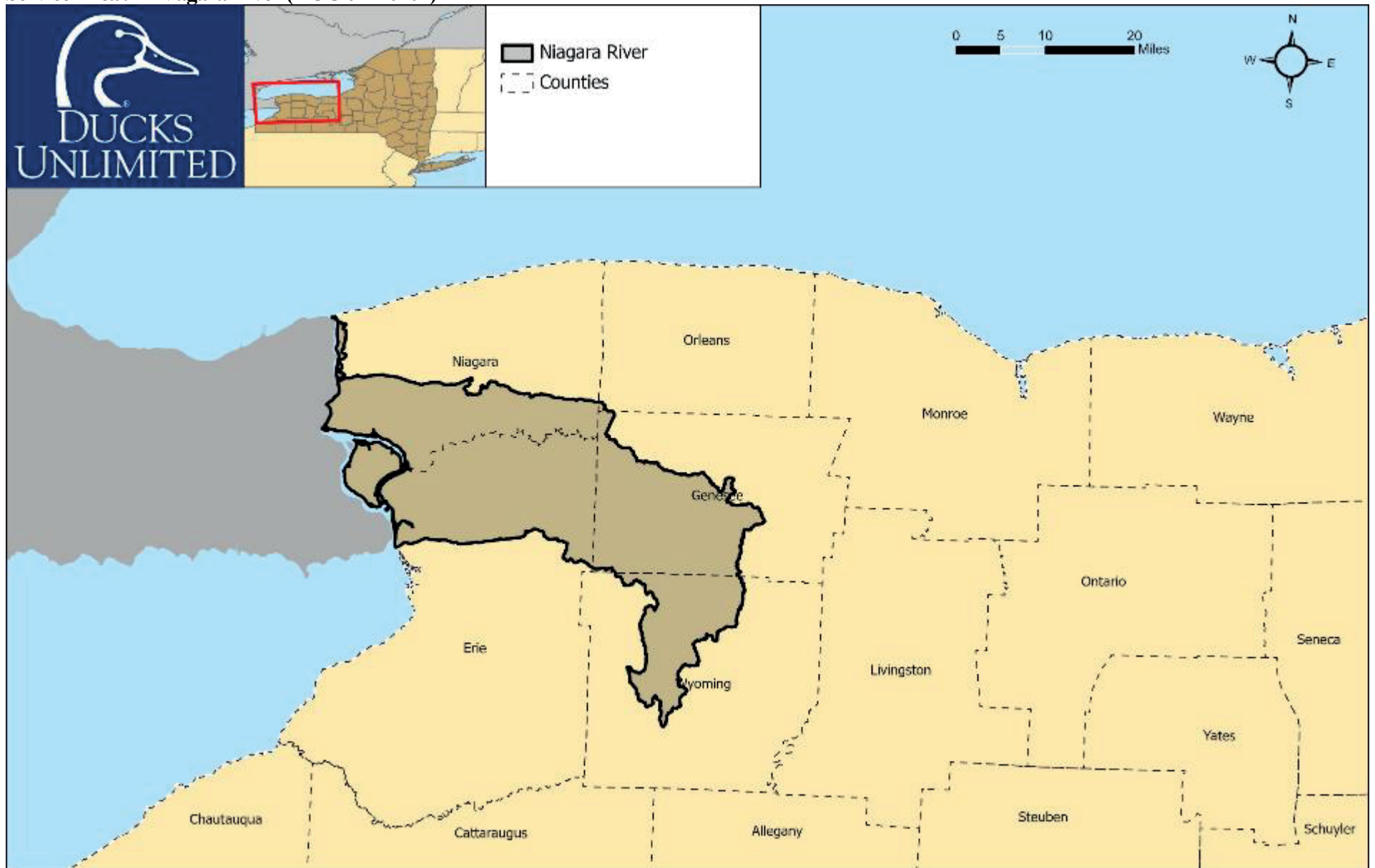
- A) Large habitat blocks: Priority targets will contribute to habitat connectivity and larger habitat restorations. Habitat fragmentation threatens diversity of forest interior birds and wide-ranging mammals, such as fisher (*Martes pennanti*).
- B) Early succession habitats: Support a host of early successional birds such as Canada warbler (*Wilsonia canadensis*), ruffed grouse (*Bonasa umbellus*), and American woodcock (*Scolopax minor*)
- C) Wetlands: Areas of concern are floodplain forest, shrub swamps, and calcareous fens.
- D) Freshwater tributaries: Support a mixture of wetlands and associated buffers to reduce nutrient loading. These tributaries are important for migratory fish.

#### Watershed Management

(**Bold** represents watershed goals that ILF projects may support)

- 1) **Work with conservation stakeholders to manage and protect landscapes to reduce flood risk**
- 2) Identify, manage, maintain, and protect/restore habitats and communities over a broad spatial scale
- 3) **Control invasive species**
- 4) **Development, infrastructure and stormwater management: reduce the adverse impacts from new development, reduce loading of nutrients, bacteria, and sediment into water bodies**
- 5) Agricultural practices and management: maintain viable agricultural land use, minimize negative impacts
- 6) **Floodplain management: Preserve and restore riverine floodplains and increase vegetative cover**
- 7) Forestry practices: Ensure continued viability of the forestry practices, minimize negative impacts
- 8) Work with land managers to incorporate wildlife-based objectives

Service Area 9 – Niagara River (HUC 04120104)





### Watershed Characteristics – Niagara River (HUC 04120104)

The Niagara River Watershed is in western New York near Buffalo and encompasses 774 sq. miles. Historically, productive marshes were used by resident and migrating wildlife for feeding, breeding, and wintering habitat along the Niagara River. Over 80 species of fish have been reported in the Niagara River. However, industrial development has significantly altered the landscape, reducing wetland habitat and degrading water quality (NYS-DEC 2007). There has been a loss of scrub-shrub and emergent marsh systems in the watershed such that wetland conservation in the Niagara River Watershed is a priority objective for the NYS-DEC (2010d).

The Niagara River Islands and the river corridor serve as a major north-south flyway for migrating birds (Wooster and Matthier 2008). Historical reports from the NYS-DEC indicate that the shoreline areas once contained massive beds of aquatic plants. Species included wild celery (*Vallisneria americana*), four species of pondweed (*Potamogeton Richardsonii*, *P. gramineus* and var. *graminifolius*, and *P. pectinatus*), and *Chara* or stonewort (Wooster and Matthier 2008).

#### Threats and Impacts

The most frequently cited threat to both aquatic and terrestrial species groups occurring in the watershed is loss of habitat loss and fragmentation from development. This threat includes ‘hardening’ of the landscape from the construction of buildings and roads as well as activities associated with land-clearing and wetland draining for agriculture and mining (NYS-DEC 2010).

Major water quality concerns in the watershed include 1) industrial discharge, 2) urban storm water and sewer overflow, 3) stream bank erosion, and 4) agricultural and other non-point sources of nutrient and various other pollutants (NYS-DEC 2007).

The Water Quality Summary provided by NYS-DEC (2007) reported that one-fourth of the river miles in the Niagara River watershed (1,216 miles) are listed as Priority Water bodies and have been identified as either “not supporting designated activities and uses” or having impacts or threats to the water quality. Agriculture, sediment contamination, and failing on-site septic systems are likely causes of the impairments.

#### Conservation Planning

The primary goal for the Niagara Watershed is to ensure the quantity and quality of essential habitats via the following:

##### **Priority Habitats for Protection**

*Defined by NYS-DEC (2010d) and Wooster and Matthier (2008):*

- A) Riparian Buffers
- B) Wetland habitat
- C) Coastal habitats
- D) River and streams
- E) Buffalo Harbor (including lakefront above and below mouth of the Buffalo River, break walls and Bird Island Pier)
- F) Contiguous forest habitat

#### Wildlife and associated Habitat Conservation Priorities

*Priority objectives for the watershed outlined by NYS-DEC Comprehensive Wildlife Conservation Strategy for NY (2010d) may benefit from the ILF projects:*

- A) Early Successional Forest/Shrubland Birds: Maintain, restore, and enhance early successional habitats using prescribed fire, mowing, and other management tools

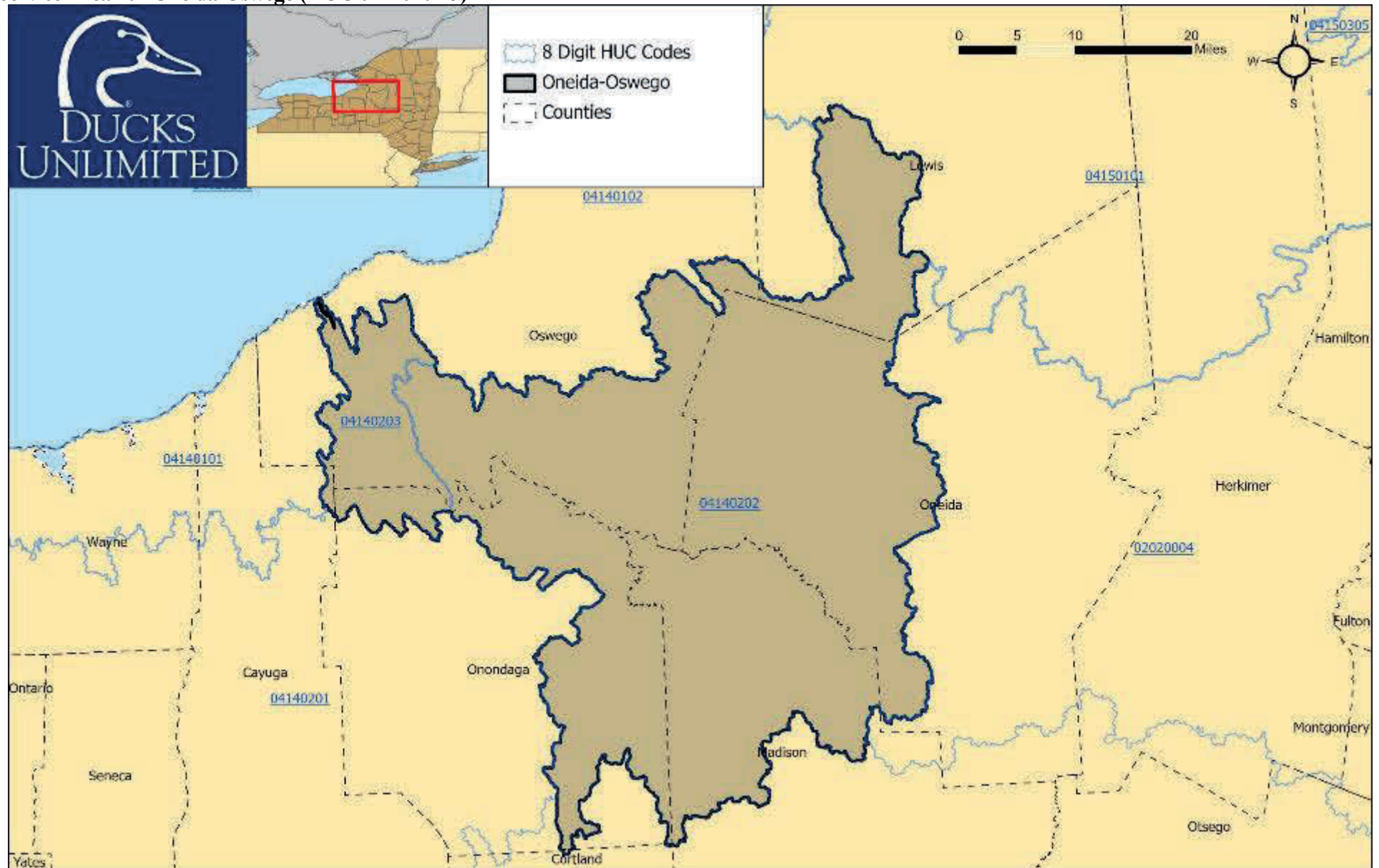
- B) Forest Breeding Raptors: Maintain appropriate breeding habitat for forest breeding raptors
- C) Freshwater Marsh-Nesting Birds: Manage water levels in nesting areas to prevent nest loss for freshwater marsh-nesting birds, and optimize water and vegetation cover for waterfowl and uncommon turtles of wetlands
- D) Grassland Birds: Use mowing and/or prescribed fire to manage the vegetative structure of established grasslands
- E) Beach and Island Ground-Nesting Birds and Transient Shorebirds: Re-establish high-quality transient shorebird foraging habitats
- F) Lake and River Reptiles: Manage uplands adjacent to aquatic habitat and restore hardened shoreline areas to provide adequate and secure nesting sites and dispersal routes for migrating animals
- G) Freshwater Fish: Restore in-stream and riparian habitat
- H) Uncommon Turtles of Wetlands: Manage adverse effects of habitat fragmentation
- I) Freshwater Mussels: Restore degraded habitat sites to allow for recolonization or reintroduction of listed mussels
- J) Lake and River Reptiles: Manage water-borne pollutants that adversely affect lake and river reptiles
- K) Invasive species: Control and minimize the spread of invasive aquatic species

#### Watershed Management Goals

*Priority objectives for the watershed are outlined by NYS-DEC Comprehensive Wildlife Conservation Strategy for NY (2010d); **bold** represents watershed goals that will benefit from the NY-ILF program.*

- 1) **Improve water quality**
  - 2) **Reduce and improve contaminated river sediments**
  - 3) **Reduce point-source pollutants control**
  - 4) **Improving fish and wildlife habitat**
  - 5) **Establish Long-term monitoring**
  - 6) Improve Waste water treatment facilities
  - 7) Improve Human health
  - 8) **Maintain stream systems by protecting intact gorge landscapes and riparian buffers**
  - 9) **Protect and maintain Lake Erie and Niagara River near shore habitat and natural shoreline habitat, including beds of submerged and emergent aquatic vegetation**
  - 10) **Improve connectivity and habitat function of protected areas in the basin**
  - 11) **Restore priority habitats affected by land use practices**
  - 12) **Prevent further introductions of aquatic and terrestrial non-native invasive species**
  - 13) **Reduce pollution and siltation runoff into streams and tributaries**
- Protect and maintain existing, functional core areas of mature forest**

Service Area 10– Oneida-Oswego (HUC 04140202-3)



### Watershed Characteristics – Oneida-Oswego (HUC 04140202-3)

The Oneida Lake Watershed includes 69 municipalities and encompasses a total of 1,470 sq. miles. Surface and ground water from this watershed drain into Oneida Lake (Central New York Regional Planning and Development Board [CNYRPDB] 2010). Oneida Lake is the largest water body located entirely within New York State and the lake is shallow and nutrient rich (Harrington 2001) this watershed flows into the Oswego River before exiting to Lake Ontario. The watershed was once part of a vast forest system covering much of the region, but today about 80% of the watershed is covered with second growth forest (Oneida Lake and Watershed Advisory Council 2004).

The Oneida-Oswego watershed provides habitat for a highly productive warm water fish, migratory and resident waterfowl, various NYS-DEC priority species, and is a valuable recreational resource for New York. Oneida Lake has islands, shoals, and marshes that provide nesting and nursery habitat for many aquatic and semi-aquatic species. The watershed historically supported Atlantic salmon, lake sturgeon, and American eel populations (NYS-DEC 2010). The watershed also supports a small population of Eastern massasauga rattlesnakes and bog turtle, and a high density of peatlands that support rare plant species (Raney et al. 2014, Raney and Leopold 2018).

### Threats and Impacts

Wetlands in the watershed have been significantly reduced by development and agriculture. Major infrastructure projects including I-81 realignment, development of solar farms, revitalization efforts, and residential developments threaten aquatic resources (e.g., NYS-ORES 2020). Oswego portions of the watershed are heavily impacted by muck farming, and high-value commodity crops grown on mucklands often prohibit their availability for restoration efforts. These losses have resulted in a reduced ability of the watershed to filter nutrient and sediment pollutants, temper water levels during periods of high precipitation, and provide habitat for wildlife. Wetlands and slow-flowing streams which characterize much of the region are susceptible to flooding due to the flat terrain (Harrington 2001). Continued development and land use change poses the greatest threat to the remaining natural areas (NYS-DEC 2010-23). This growth in this watershed coincides with locations of some of the most sensitive habitats and the rare species that depend upon them.

### Current threats to the watershed (NYS-DEC 2023):

(**Bold** indicates threats that ILF projects may help address)

- A) **Habitat fragmentation**: over half the land throughout the basin has been altered by human activities
- B) Energy developments: damming of rivers and streams for hydropower has had a lasting negative-effects on aquatic habitats
- C) **Water level fluctuations**: diminished habitat quality for marsh-nesting birds, warm water fish and other species
- D) Human disturbance: habitat degradation through extensive use
- E) **Contaminants and degradation of water quality**: nature of the contamination depends on the land uses surrounding the lakes and the discharges to the lakes and their tributaries, such as sewage, heavy metals, phosphorus loading, PCBs, mercury
- F) **Exotic, invasive, and over abundant species**: several invasive plants and animals of concern in this basin, including aquatic and terrestrial, for example, zebra mussels (*Dreissena polymorpha*), Purple loosestrife (*Lythrum salicaria*), double-breasted cormorants (*Phalacrocorax auritus*)
- G) **Habitat loss and degradation**: loss of critical habitat as a result of development

### **Conservation Planning**

The Central New York Regional Planning and Development Board (CNYRPDB) is leading the implementation of the Oneida Lake Watershed Management Plan as a regional initiative. This presents an opportunity for local



governments and stakeholders to identify and prioritize issues of concern in the watershed and to select restoration and enhancement goals for the long-term protection of water resources (CNYRPDB 2004).

Priority Land Acquisition and Protection (NYS-DEC 2010):

(**Bold** represents watershed goals that ILF projects may support)

- A) **Conservation of private agricultural lands that are suitable for management of grassland dependent priority species**
- B) Private working forest lands (of various ages and composition) that support priority species
- C) **Riparian habitat to buffer stream and lake habitats**
- D) Acquire core habitats for cerulean warblers
- E) **Acquire known critical habitats for bog turtles**
- F) Target management and protection on land identified in the NYS-DEC Open Space Plan (e.g., North shore of Oneida Lake wetland parcels in Toad Harbor and Big Bay swamps, Cicero wildlife management area)

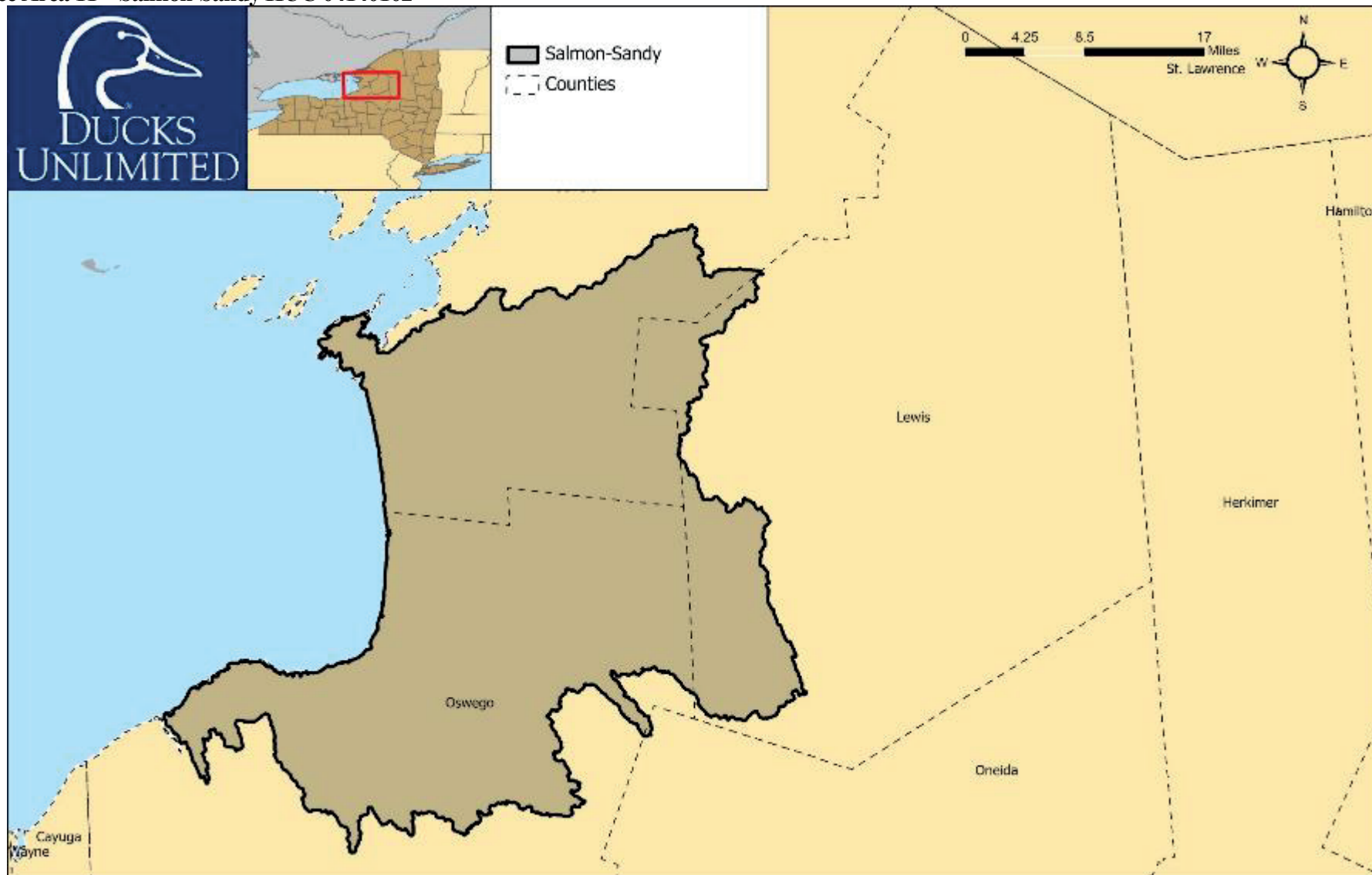
#### Watershed Management Goals

(**Bold** represents watershed goals that ILF projects may support)

- 1) Cooperation among organizations, pool services, and enhanced communication
- 2) Ability to prioritize projects to develop ecologically based, cost effective solutions
- 3) Increase recreational opportunities
- 4) **Increase biodiversity**
- 5) Expand economic potential for watershed residents
- 6) Improve opportunities for research grants
- 7) Water resource goals are established as grassroots, locally based
- 8) **Improve watershed riparian zones**
- 9) **Reduce impacts of invasive species**
- 10) **Implement a comprehensive management plan**
- 11) **Better protection and enhancement of sensitive natural areas and resources**
- 12) **Improve and protect water quality for desired uses which emphasize a healthy ecosystem**
- 13) Ensure development around the watershed without impacting significant resources (e.g., environmental, historical, archeological)
- 14) Minimize and resolve water surface use conflicts and conflicts among stakeholders
- 15) **Manage animals, habitats, and land use practices to produce long-term benefits for species of conservation concern**
- 16) **Identify, manage, protect, maintain, and restore habitat/natural communities over as broad a spatial scale as possible**
- 17) Work with land managers to incorporate wildlife-based objectives into traditional land management activities such as forestry and agriculture
- 18) **Identify specific and appropriate focus areas for grassland bird conservation**
- 19) Water level management in lakes, the canal system and at numerous dams
- 20) Update the federal recovery plan to guide establishment of additional endangered species
- 21) **Maintain or increase the amount of early successional forest and shrublands**
- 22) **Increase capabilities for water level management, especially for wetlands**
- 23) **Restore degraded emergent marshes**
- 24) **Manage uplands adjacent to aquatic habitats used by lake and river reptiles to maintain necessary linkages between the two for nesting and dispersal habitat**



Service Area 11 – Salmon-Sandy HUC 04140102



## Watershed Characteristics – Salmon-Sandy HUC 04140102

The Salmon River watershed has several development pressures from transportation and commerce, non-point source pollution from runoff including fertilizers, pesticides, oil and sediment negatively impact water-quality and harm wetland dependent biota (SRWNRA 2008). As of April 2021, no banks or In-Lieu Fee sites have been established in this watershed. Placing larger mitigation sites using a watershed-based selection approach is likely to lead to improved water-quality benefits. Common waterfowl species found in this portion of the Atlantic Flyway include: mallards, American black ducks, wood ducks, green-winged teal, American wigeon, Canada geese, and greater snow geese. Expansion of the DU-NY-ILF program is likely to enable projects that would provide important breeding habitat suitable for mallards, Canada geese, and black ducks. Moreover, several rare species are present in the Salmon River watershed including the wetland-dependent species: Jacob's ladder, pod grass, slender bulrush, ram's head lady slipper, lesser bladderwort, black tern, pitcher plant borer moth, pied-billed grebe, and least bittern (SRWNRA 2008). Consistent with the namesake, the rivers and streams in the watershed serve a critical role in the life cycle of Atlantic, Coho, and King Salmon. Brook trout, as well as naturalized populations of rainbow and brown trout rely on the Salmon River and its tributaries as habitat. Ensuring water-quality remains unimpaired is a chief objective for this economically important fishery. Establishment of an In-Lieu Fee option is expected to lead to improved water-resource outcomes as compared to permittee responsible projects.

The Salmon-Sandy River and its tributaries drain central portions of New York State to Lake Ontario. The Salmon-Sandy service area in particular spans 280 square miles, encompassing Oswego, Lewis, Jefferson, and a portion of Oneida Counties. The Salmon-Sandy watershed has approximately 117,000 acres of wetland habitat, and approximately 4,000 miles of rivers and streams, and includes one of the most intact sections of forest in the state within Tug Hill (SRWNRA 2008). The major economic activities in the watershed are agriculture, logging, and recreational fishing and tourism (NYS-DEC 2015).

### Threats and Impacts

Stormwater runoff, nutrient loading, and sedimentation from logging and agriculture are among some of the more pronounced threats to water-quality. Habitat loss arises both from development pressures and conversion of land-use. While this watershed scores lower in terms of impairment than many watersheds in New York State, invasive species and climate change also pose threats to the resource. Improving protection of natural resources and the resiliency of resources to threats is a goal of the watershed management plan developed for the Salmon River (SRWNRA 2008).

Watershed Threats (SRWNRA 2008):

(**Bold** represents threat that will be targeted by the DU-NY-ILF program)

- A) Habitat fragmentation and alteration**
- B) Pollution and sedimentation**
- C) Invasive species**
- D) Altered hydrology**
- E) Physical habitat disturbances**

### Conservation Planning in the Salmon-Sandy SA

The primary cause of impairment in the Salmon River watershed is phosphorous loading (NYS-DEC 2015). Protection and restoration of priority connective lands and wetlands are primary conservation strategies in the watershed. DU will focus on wetland restoration projects that include restoration of important wetland areas,

reducing gaps in connectivity, and preservation of significant areas for biodiversity. Important wetland areas include the Salmon-River Estuary, red-maple swamps, dwarf-shrub bogs and fens, as well as coastal marshes along Lake Ontario (NYNHP 2022). Ducks Unlimited has been active in this watershed through its voluntary conservation programs, protecting and restoring emergent marshes that are important to migratory waterfowl. DU staff have also modeled the distribution of rare wetland types in New York State, and these spatial databases will enable targeted acquisitions of priority landscapes for conservation.

The priority habitats and their associated priority species include the following:

- a) Large habitat blocks: Priority targets will contribute to habitat connectivity and larger habitat restorations. Habitat fragmentation threatens diversity of forest interior birds and wide-ranging mammals, such as fisher (*Martes pennanti*).
- b) Early succession habitats: Support a host of early successional birds such as ruffed grouse (*Bonasa umbellus*), and American woodcock (*Scolopax minor*).
- c) Wetlands: Several wetland habitats occur within this watershed including: black spruce tamarack bogs, floodplain forests, hemlock hardwood swamps, red maple hardwood swamps, spruce-fir swamps, vernal pools, dwarf shrub bogs, inland poor fens, shrub swamps, sedge meadows, shallow and deep emergent marshes.
- d) Freshwater streams and tributaries: Support a mixture of wetlands and associated buffers to reduce nutrient loading. These tributaries are important for migratory fish including Chinook and Coho salmon, brown and brook trout, and steelhead.

#### Watershed Management

(**Bold** represents watershed goals that ILF projects may support)

1. Work with conservation stakeholders to manage, protect, and enhance the at-risk biodiversity
2. **Manage animals, habitats, and land use practices to produce sustainable benefits for species of conservation concern**
3. Identify, manage, maintain, and protect/restore habitats and communities over a broad spatial scale
4. **Control invasive species**
5. **Development, infrastructure, and storm water management: reduce the adverse impacts from new development, reduce loading of nutrients, bacteria, and sediment into water bodies**
6. Agricultural practices and management: maintain viable agricultural land use, minimize negative impacts
7. **Floodplain management: Improve preservation of riverine and lacustrine floodplains and shorelines**
8. Forestry practices: Ensure continued viability of the forestry practices, minimize negative impacts
9. Work with land managers to incorporate wildlife-based objectives



Service Area 12 – Seneca-Finger Lakes Region (HUC 04140201)



### Watershed Characteristics Seneca-Finger Lakes Region (HUC 04140201)

The Seneca Lakes Watershed is part of the Finger Lakes – Ontario Basin which encompasses 3,430 sq. miles (Great Lakes Commission) and includes eleven glaciated lakes. There are twenty-nine sub-watersheds and direct drainages associated within the Seneca Lake watershed which drains the Oswego, Oneida, Seneca and Clyde Rivers. The watershed is one of the largest in the state, draining 5,070 square miles (NYS-DEC 2010i). There are about 8,896 miles of rivers and streams (and canals) and over 400 lakes and ponds (NYS-DEC 2010i). The lakes and principal tributaries on the southern edge of the region drain more than one quarter of the watershed.

Historically, the Seneca-Finger Lakes Watershed was dominated by a mixture of northern hardwood and softwoods (Genesee/Finger Lakes Regional Planning Commission 2007) but land conversion resulted in a conversion of forested land to agriculture. However, as agricultural lands become abandoned, many formerly cleared lands have reverted back to forests.

### Threats and Impacts

There are several water quality concerns in the watershed. The first issue is pollution associated past industrial activity, municipal discharges, and urban runoff. The second issue is the protection of the water resources provided by the Finger Lakes from various point and non-point sources of pollution (NYS-DEC 2010i). Additionally, invasive species such as the Eurasian water milfoil (*Myriophyllum spicatum*) and zebra mussels (*Dreissena polymorpha*) have impacted the Seneca Lake Watershed.

Current threats to the watershed (NYS-DEC 2010i):

(**Bold** indicates threats that ILF projects may minimize)

- A) **Habitat fragmentation**: over half the land throughout the basin has been altered by human activities and fragmentation
- B) Energy development: damming of rivers and streams for hydropower has negatively impacted the aquatic habitats
- C) **Water level fluctuations**: diminished habitat quality for marsh-nesting birds, warm water fish, and other species
- D) Human disturbance: habitat degradation through extensive use of natural areas
- E) **Contaminants and degradation of water quality**: types of contamination varies based on the land uses adjacent to the lakes and discharges to the lakes and their tributaries
- F) **Exotic, invasive, and over abundant species**: there are several invasive plants and animals of concern in this basin, including aquatic and terrestrial, for example, zebra mussels (*Dreissena polymorpha*), Purple loosestrife (*Lythrum salicaria*), and double-crested cormorants (*Phalacrocorax auritus*).
- G) Agricultural runoff and other non-point pollutants

### Conservation Planning

The watershed supports approximately 178 species that are listed on NYS-DEC species of greatest conservation need, 49 of which are thought to be extirpated from the watershed. Management and conservation objectives for the watershed target animals, habitats, and land use practices to produce long-term benefits for species of conservation concern (NYS-DEC 2010). Protection of wetlands not currently covered by Article 24 regulations is also a primary objective for the watershed (NYS-DEC 2010). A focus area identified by NYS-DEC in the watershed is the Montezuma wetland complex which is an area of state-wide significance.

The NYS-DEC has compiled a list of critical habitats that support the life-history stages of the priority species, and as a result NYS-DEC has identified priority conservation areas, which include:

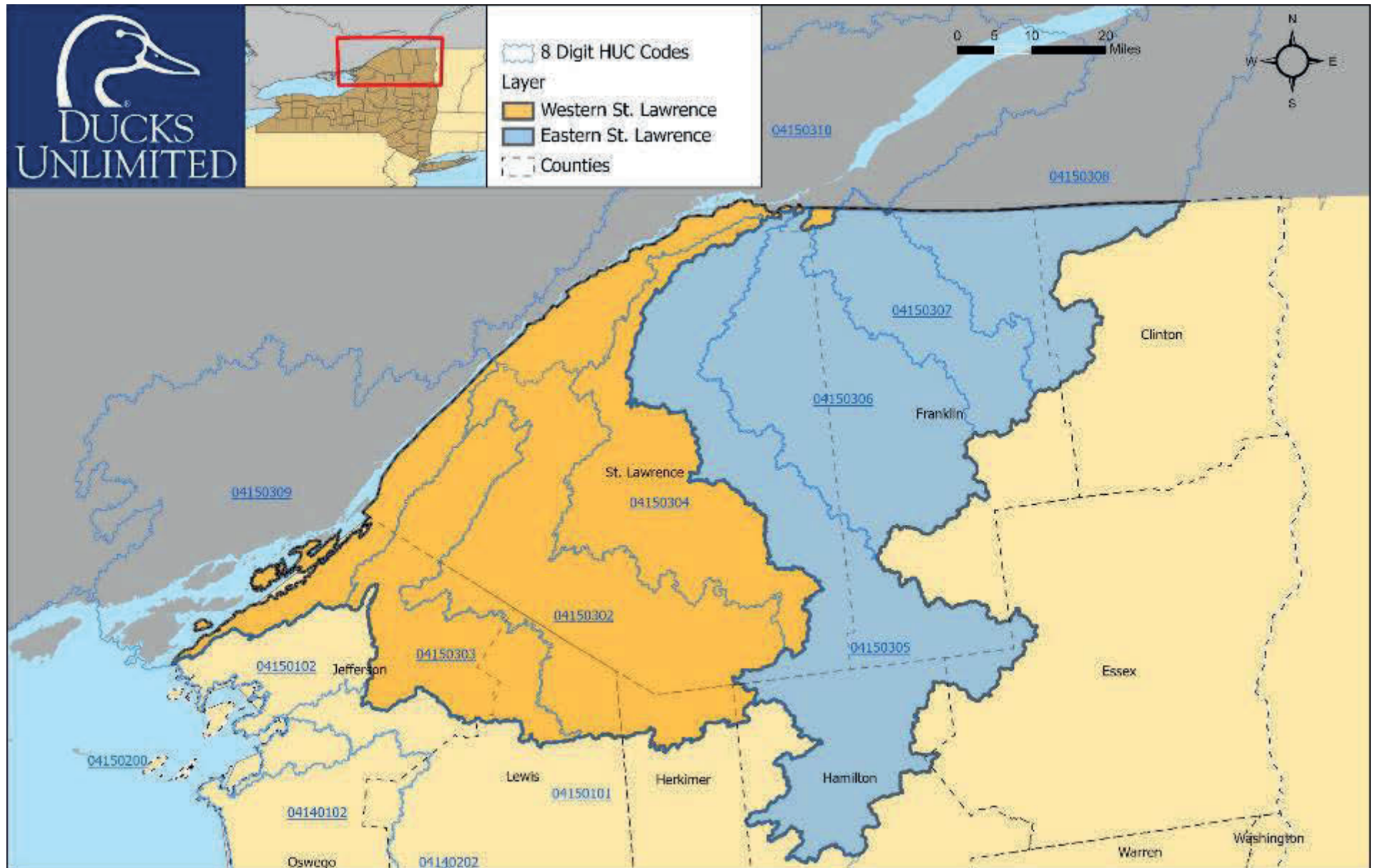
- A) Terrestrial open-upland systems: Grasslands, lakeside beaches, and cliffs: provide critical nesting habitat for grassland birds, foraging areas for raptors, and habitat for many species of butterflies and adult odonates
- B) Forested lands: Forests provide critical breeding habitat for deciduous/mixed forest breeding birds, early successional forest/shrubland birds, and forest breeding raptors
- C) Lakes and streams: lakes have emergent wetlands at their fringes and there are extensive wooded wetlands provide some of the best and most extensive habitat for freshwater marsh-nesting birds and are critical for many turtle and amphibians
- D) Barrier beaches and dunes, and mudflats: provide critical habitat for migrating shorebirds
- E) Warm water, cold water, still and flowing waters: A wide variety of animals from birds to fish to insects are found in the open waters of lakes in the basin
- F) Wetlands: emergent and shrub wetlands adjacent to stream, rivers and lakes.

### Watershed Management Goals

(**Bold** represents watershed goals that ILF projects may support)

- 1) Agriculture: agricultural best management practices
- 2) Forestry: watershed stream-side management plans (e.g., STMZ), and sustainable forestry management plan
- 3) Roads: best management practices to control pollutants on roads and ditches
- 4) Stream bank stabilization**
- 5) Public education
- 6) Storm water, erosion, and sediment control and management
- 7) Development of a comprehensive watershed management plan
- 8) Identification and reduction of containment loading
- 9) Increased riparian buffers**
- 10) Better protection and enhancement of sensitive natural areas and resources**
- 11) Improve and protect water quality for desired uses which emphasize a healthy ecosystem**
- 12) Ensure development around the watershed without impacting significant resources (e.g., environmental, historical, archeological)
- 13) Minimize and resolve water surface use conflicts and conflicts among stakeholders
- 14) Improve public access to a diversity of recreational opportunities
- 15) Manage animals, habitats, and land use practices to produce long-term benefits for species of conservation concern**
- 16) Identify, manage, protect, maintain, and restore habitat/natural communities over as broad a spatial scale as possible**
- 17) Work with land managers to incorporate wildlife-based objectives into traditional land management activities such as forestry and agriculture**
- 18) Identify specific and appropriate focus areas for grassland bird conservation**
- 19) Water level management in lakes, the canal system and at numerous dams
- 20) Update the federal recovery plan to guide establishment of additional endangered species
- 21) Manage invasive plant species to enhance habitats**
- 22) Maintain or increase the amount of early successional forest and shrublands**
- 23) Increase capabilities for water level management, especially for wetlands**







## Watershed Characteristics - St. Lawrence River – Eastern and Western (HUCs 04150301-04150308)

The St. Lawrence River Watershed lies at the border of New York and Canada. Within New York, the watershed drains the northern and western Adirondack Mountains and the lake plain region of the St. Lawrence Valley (NYS-DEC 2009c). The St. Lawrence service is comprised of eight 8 digit HUCs that encompasses all of St. Lawrence county, most of Franklin, Jefferson, Lewis, Herkimer, and Hamilton counties, and a small part of western Essex and Clinton counties. The entire service area covers 5,600 square miles of land in New York (NYS-DEC 2010g). There are 11,371 miles of freshwater rivers and streams, 376 significant freshwater lakes, ponds, and reservoirs, and 185 miles of St. Lawrence shoreline (NYS-DEC 2010). The service area will be divided into an Eastern and Western sub-service area as noted in the Section I Program Service Area.

The land use in the watershed is split between dense forested woodlands in the northern and western Adirondack Mountains and flat agricultural lands along the lake plain (NYS-DEC 2010). The major economic activities in the watershed are agriculture, logging, mining, and recreation/tourism (NYS-DEC 2010).

The Thousand Islands section (northwestern Jefferson County and southwestern St. Lawrence County) is comprised of numerous islands, shoals, and channels. The middle corridor (St. Lawrence County) is narrow and supports mostly riverine systems. The watershed provides spawning grounds for fish, nesting habitat and migratory corridor for birds, raptors, and waterfowl, and habitat for amphibians, invertebrates, and other species of conservation concern (NYS-DEC 2010).

### Threats and Impacts

The atmospheric deposition of pollutants such as acid rain and mercury which originate outside the basin negatively impacts the water quality. Similarly, the water quality is affected by agricultural practices and industrial development. Acid rain and mercury deposition limit fish consumption and aquatic life, and poor agricultural practices and run-off contribute to nutrient and sediment loading in the waterways (NYS-DEC 2010).

Impacts from agricultural activities are also frequently cited in this vary rural and agriculturally intensive area. Hazardous wastes and other industrial impacts associated with resource extraction are also a concern in specific areas.

Watershed Threats (NYS-DEC 2010):

(**Bold** represents threat that will be targeted by the DU-NY-ILF program)

- H) Habitat loss and fragmentation**
- I) Degraded water quality**
- J) Atmospheric deposition
- K) Altered hydrology**
- L) Invasive species**
- M) Incompatible silviculture and agriculture practices
- N) Human-wildlife interactions
- O) Climate change

The chart below show the quality of the St. Lawrence (NYS-DEC 2010).

### Conservation Planning

About fifteen percent of the 11,371 river miles in the St. Lawrence Watershed are included on the NYS-DEC Priority Water bodies list and are considered stressed or threatened (NYS-DEC 2010). Sixty-nine percent of the 376 lakes in the watershed are included on the Priority list.

The NYS-DEC has identified critical habitat for priority conservation (NYS-DEC 2010). In order to be designated a priority habitat, priority species must be present during one life stage or the habitat must face significant threat due to current land use trends in the watershed (i.e., wetland habitat protected from drainage for agriculture). Priority habitats identified by the NYS-DEC for the St. Lawrence watershed will be targeted for the ILF projects, these habitats and their associated priority species include the following (information below was adapted from NYS-DEC comprehensive wildlife conservation strategy 2010):

- A) Forested habitats: Include lowland deciduous, evergreen, and mixed forests. Predominant vegetation types in this region are beech-maple forest, hemlock northern hardwood forest, and spruce-fir forests. The forest habitats support a diversity of mammals, such as marten (*Martes Americana*) and fisher (*Martes pennanti*)
- B) Early succession habitats: Support a host of early successional birds such as Canada warbler (*Wilsonia canadensis*), ruffed grouse (*Bonasa umbellus*), and American woodcock (*Scolopax minor*); raptors, such as long-eared owl (*Asia outs*), and forest interior birds
- C) Wetlands: Areas of particular concern are wetlands embedded in a forest matrix, wooded wetlands, bogs, wooded swamp/bottomland forest, shrub swamps, wetlands in a grassland matrix, vernal pools, and coastal wetlands. These wetland habitats support wetland birds such as American bittern (*Botaurus lentiginosus*), least bittern (*Ixobrychus exilis*), and pied-billed grebe (*Podilymbus podiceps*). Marsh and vernal pool habitats also support herpetofauna such as blue-spotted salamander (*Ambystoma laterale*). These habitats also provide critical breeding areas for northern pike (*Esox lucius*) and littoral fishes, Blanding's turtles (*Emydoidea blandingii*), northern harriers (*Circus cyaneus*), and least bitterns.
- D) Freshwater wetlands and tributaries: Support a mixture of wetlands and associated grassland buffers which provide critical habitat for a variety of priority migratory bird species, such as American woodcock, golden-winged warbler (*Vermivora chrysoptera*), and a diversity of waterfowl species.
- E) Grasslands: Support an abundance and diverse population of bobolink (*Dolichonyx oryzivorus*), eastern meadowlark (*Sturnella magna*), short eared owl (*Asia flammeus*), upland sandpiper (*Bartramia longicauda*), Henslow's sparrow (*Ammodramus henslowii*), savannah sparrow (*Passerculus sandwichensis*), grasshopper sparrow (*Ammodramus savannarum*), and sedge wren (*Cistothorus platensis*).

#### Watershed Management

(**Bold** represents watershed goals that ILF projects may support)

- 1) **Work with conservation stakeholders to manage, protect, and enhance the at-risk biodiversity**
- 2) **Manage animals, habitats, and land use practices to produce sustainable benefits for species of conservation concern**
- 3) **Identify, manage, maintain, and protect/restore habitats and communities over a broad spatial scale**
- 4) **Control and reduce the spread of invasive species**
- 5) Development, infrastructure and storm water management: reduce the adverse impacts from new development, reduce loading of nutrients, bacteria, and sediment into water bodies
- 6) Agricultural practices and management: maintain viable agricultural land use, minimize negative impacts
- 7) **Floodplain management: Improve preservation of riverine and lacustrine floodplains and shorelines, improve coverage and accuracy of floodplain delineation**
- 8) Forestry practices: Ensure continued viability of the forestry practices, minimize negative impacts
- 9) **Work with land managers to incorporate wildlife-based objectives**

## Element VI: Prioritization for Selecting and Implementing Mitigation Activities

Potential sites for ILF mitigation projects will target priority conservation habitats best suited to replace lost wetland functions. As part of the DU site identification methodology, we have combined several data layers into decision tools to identify potential projects on the ground. These tools include GIS base layers of protected areas (PAD-US) national conservation easement database (NCED), restorable wetlands, hydric soils, soil features (NRCS Web Soil Surveys), digital elevation models, land use (i.e., agricultural landscapes), spatial analyses including surrounding landscapes, invasive species type and distribution, National Wetland Inventory data, and conservation/protected lands distribution. Sample data layers for targeting mitigation projects can be found below (Figures A-D).

In addition to the data analysis, DU will engage in discussions with our network of conservation partners (i.e., federal, state, and NGOs) and draw on our relationships with landowners in the site identification phase. Many partners have extensive lists of priority lands that are targeted for restoration (e.g., TNC priority natural areas).

Criteria for site selection will include:

- A) Additional success parameters: Threats from invasive species or vandalism should be low or manageable. The project will be evaluated for its ability to result in successful and sustainable net gain of aquatic resource area and/or function.
- B) Multiple objectives: Projects will be evaluated based on their potential to address multiple functions and services such as improvement of fish and wildlife habitat, support for rare species, flood attenuation, water quality improvement, and recreation or education values. Projects that can utilize native plant community diversity and natural processes will yield greater functional gains and be given higher preference.
- C) Support regional conservation initiatives and is compatible with the surrounding landscape: Projects should be located where they complement adjacent land uses, meet regional conservation priorities, address limiting factors in watersheds, increase habitat diversity, support state wildlife action plans, reduce fragmentation, establish corridors and enhance the function of existing natural areas.
- D) Project costs: Projects with high aquatic resource functional gain per dollar will be given preference.
- E) Address water quality issues: Focus on the most degraded areas or most severe water quality issues important for maintaining or improving ecosystem functions.

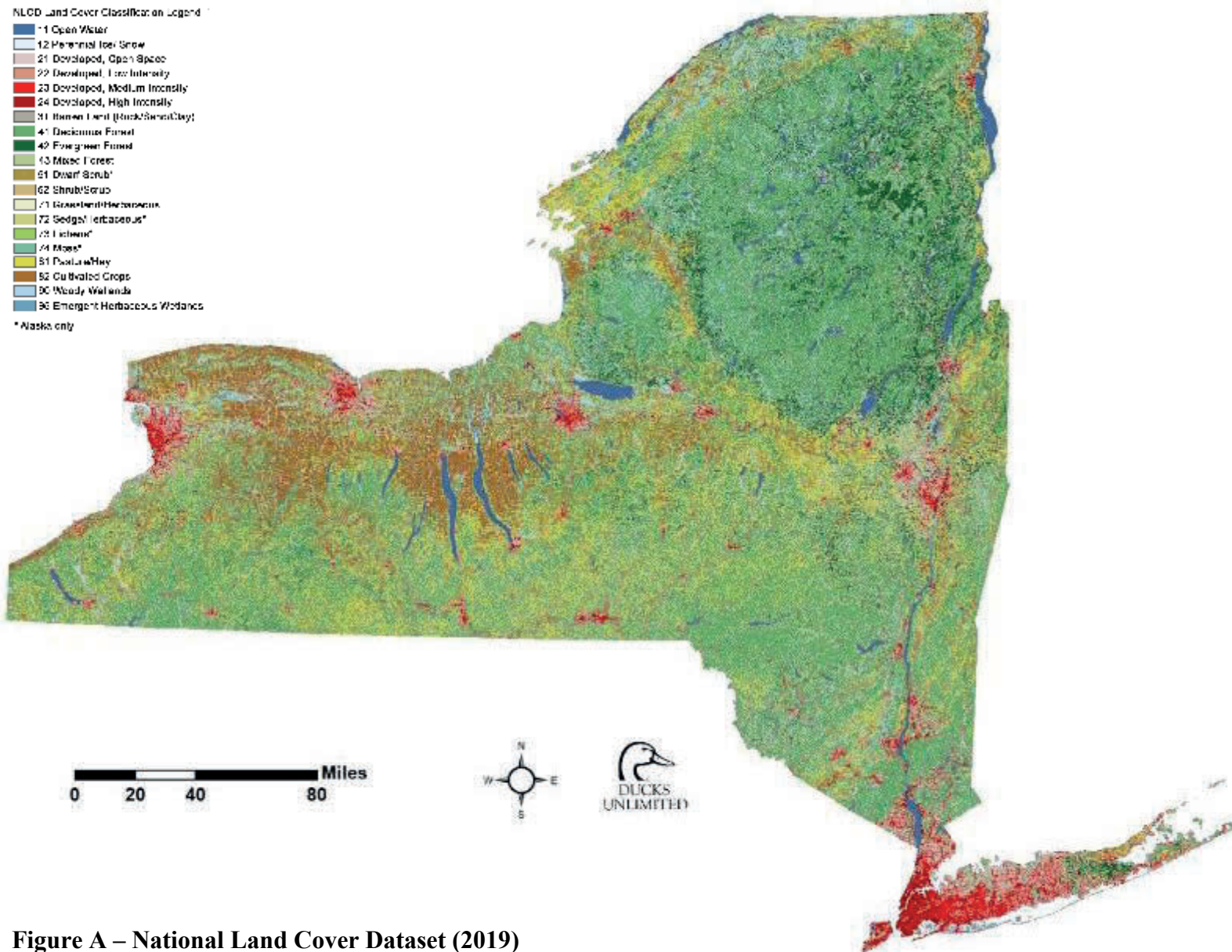
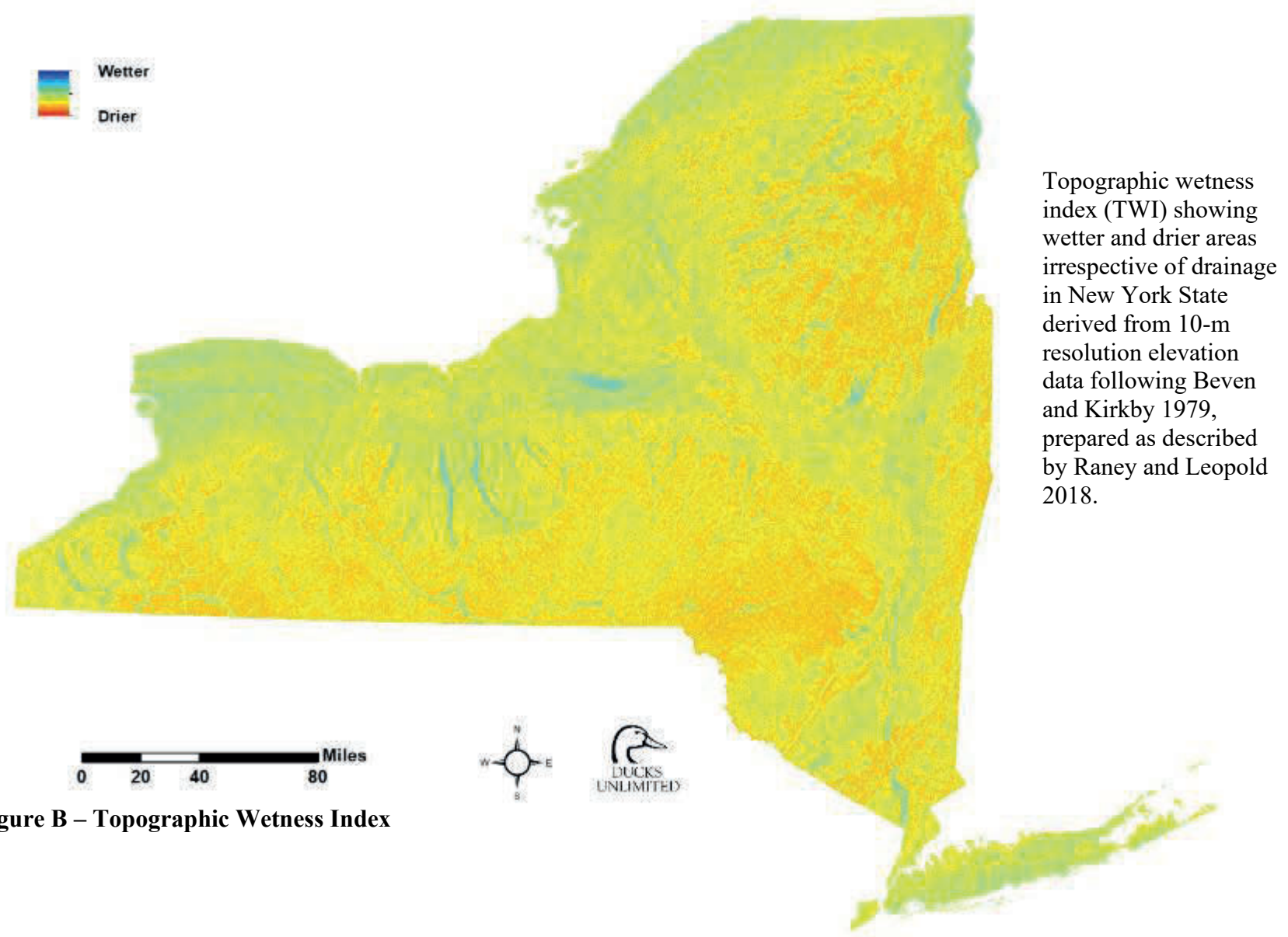
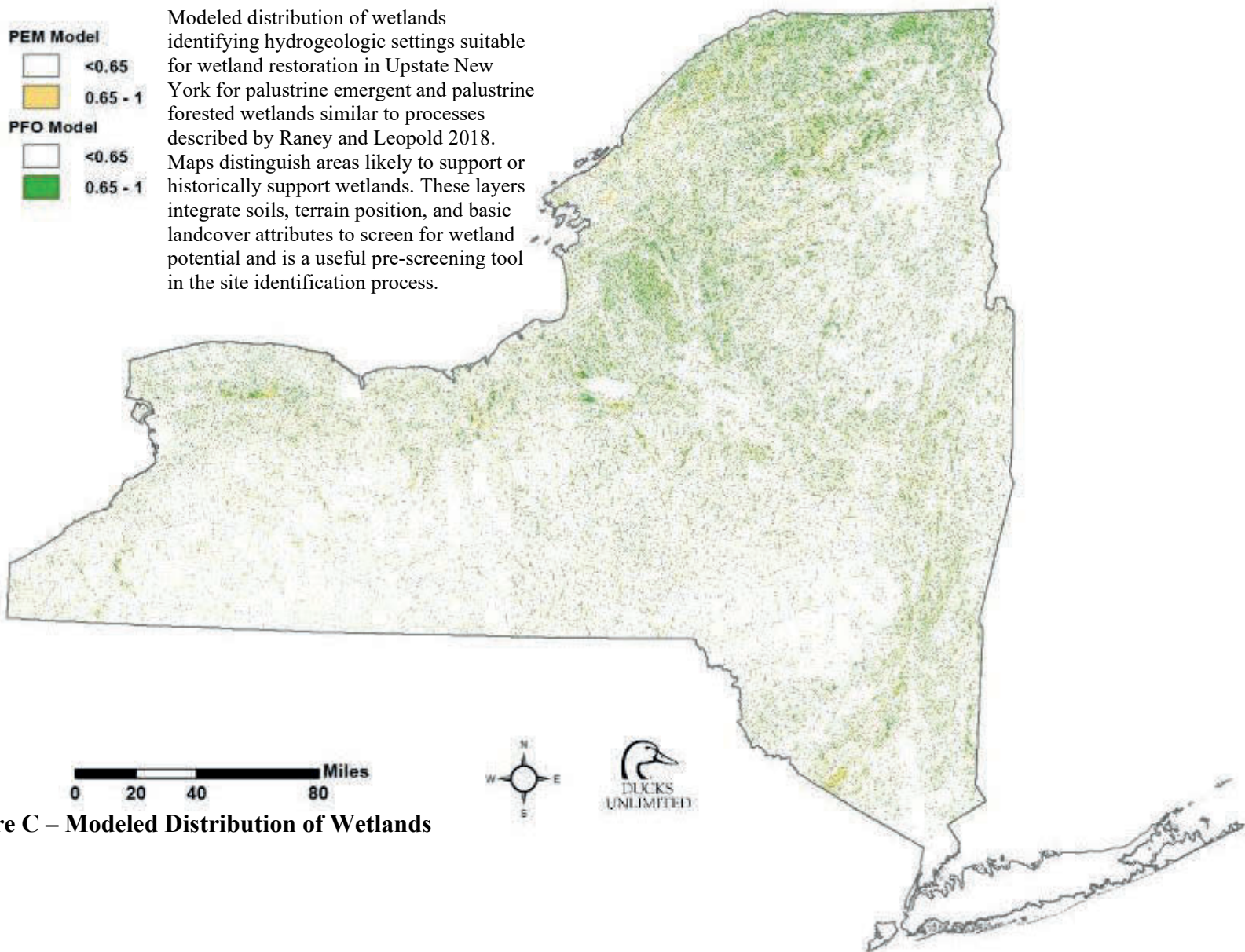


Figure A – National Land Cover Dataset (2019)





**Figure B – Topographic Wetness Index**



**Figure C – Modeled Distribution of Wetlands**

## **Element VII: Preservation Objectives**

According to the definition in the federal mitigation rule (33 CFR 332.3(h)), preservation refers to the removal of a threat or preventing the decline of aquatic resources. The term includes activities associated with the protection and maintenance of aquatic resources through legal and physical mechanisms. Preservation does not result in a gain of aquatic resources.

Under the DU-NY-ILF program, preservation objectives will be consistent with the watershed approach to protecting aquatic habitat. Preservation will support regional conservation initiatives and projects will be located where they complement adjacent land uses, meet regional conservation priorities, address limiting factors in watersheds, increase habitat diversity, support state wildlife action plans, reduce fragmentation, establish corridors and enhance the function of existing natural areas. For example, DU may focus on preserving riparian buffers along a stream, floodplain forest, or critical corridors for contiguous habitat.

Preservation actions will be targeted at the habitat level which will correspond with the goals for managing New York's Species of Greatest Conservation Need (i.e., New York Wildlife Action Plan; NYS-DEC 2005) and reducing current habitat threats which include:

- 1) conversion of floodplains, lakeshores, and riparian communities to agriculture;
- 2) removal or alteration of vegetative communities;
- 3) interruption of corridors;
- 4) dams, drainage and ditching that affect flooding, and erosion;
- 5) habitat alteration from invasive species; and
- 6) increased human activities disturbing wildlife activities (NYS-DEC 2005).

Preservation strategies will be based on their potential to alleviate threats and protect functions and services, such as improvement of fish and wildlife habitat (increase corridors, reduced fragmentation), increase native species, support for rare species, flood attenuation, and water quality improvement.

In accordance with the federal mitigation rule (33 CFR 332.3(f) (3) (h)), preservation-only projects may be used to provide compensatory mitigation when the following criteria are met:

- 1) The resource to be preserved provides physical, chemical, or biological function for the watershed.
- 2) The resource to be preserved contributes significantly to the ecological sustainability of the watershed
- 3) The resources are under threat of destruction or adverse modifications
- 4) The preserved sites will be permanently protected through a legal instrument.
- 5) The project manager determines the compensatory mitigation is necessary to offset unavoidable impacts to aquatic habitat.

DU's goal for setting ecological criteria for selecting and prioritizing aquatic ecosystems is designed with the explicit purpose of functionally integrating landscapes capable of perpetually sustaining healthy populations of wildlife through retention and restoration of their ecological integrity. The main conservation principles include:

- (i) Focus on essential wetland habitat
- (ii) Use ecosystem management
- (iii) Conserve existing habitat
- (iv) Use appropriate levels of management intervention
- (v) Integrate adaptive resource management

The broad approach of DU's conservation goals leads to water quality improvements, flood control, and soil and water conservation. DU's conservation mission and goals address the Mitigation Rule's requirements for preservation. Preservation shall be done to protect all aquatic resource and associated buffer restoration, establishment, and/or enhancement activities. DU's conservation actions are designed to abate threats, maintain and restore functioning wetland complexes, and to sustain these complexes in perpetuity.

#### **Element VIII: Description of Stakeholders' Involvement**

As the DU-NY-ILF program sponsor, DU will work closely with federal and state agencies, other conservation partners, and private landowner to identify projects that consider local knowledge and planning efforts. DU has a long history of working collaboratively with a wide variety of partners. DU will readily engage with partners in NY to evaluate wetland and stream mitigation opportunities and in the development of mitigation plans and assessment methods. Efforts will be made to utilize methods for assessing aquatic resource functions pre- and post-project implementation that are commonly used by the NYS-DEC and other conservation entities thus allowing projects to inform and be compared against other restoration activities.

DU's team of mitigation biologists, engineers, and GIS specialists can provide full-service delivery of mitigation projects from site identification to land protection. Nonetheless, DU will continue to work closely with volunteers and partners to deliver projects that maximize conservation potential. Partnerships with organizations and agencies are a hallmark of DU.

DU will continue to develop and build partnerships that share common goals and understandings. For example, developing partnerships and management strategies with conservation groups and other private landowners can provide technical and financial assistance for wetland protection, enhancement, and management. Partnerships will also benefit wetland dependent wildlife by improving water quality, conserving critical wetland habitat, and expanding on existing conservation lands. Partnerships allow for a coordinated identification of current threats to conservation targets, implementation of management plans to abate threats, and ensure long term protection at a variety of eco-regional scales. DU will develop a diversity of partners from state, federal, private, academic, and industrial entities that will provide alliances and collaboration required to achieve successful conservation results.

Potential partners and stakeholders include:



Federal Government Agencies:

- Natural Resources Conservation Service
- US Fish and Wildlife Service
- National Park Service
- US Army Corps of Engineers
- Environmental Protection Agency
- Soil and Water Conservation Districts
- US Forest Service
- National Oceanic and Atmospheric Administration

State Agencies:

- NYS-DEC, Agency of Natural Resources (i.e., Department of Environmental Conservation, Department of Fish and Wildlife, Clean and Clear, etc.).
- NYS Parks Department
- NY State Office of Historic Preservation

Other:

- Conservation organizations
- Land Trusts
- Private landowners
- Forestry and Logging Corporations
- Native American Tribal Nations

Partners can assist with a variety of tasks, including:

- Locate and identify suitable lands for mitigation projects
- Hold easements (i.e., Land Trusts)
- Assist with development and implementation of monitoring programs
- Assist with expansion of contiguous habitat
- Provide long term management and protection
- Provide local knowledge and contacts

**Element IX: Description of Long-Term Protection and Management**

DU will be responsible for developing and implementing a long-term protection and management plan for each DU-NY-ILF project. On privately-owned property, including property

held by DU or other conservation organizations, real estate instruments will be developed and recorded to guarantee protection in perpetuity. Draft conservation easements or equivalent protection mechanisms will be submitted to the IRT as part of each project mitigation plan for review and approval. In the event that projects are implemented on publicly-owned property, long-term protection and management may be provided through facility management plans or integrated natural resource plans.

DU-NY-ILF projects will be designed, to the maximum extent practicable, to require little or no long-term management efforts once performance standards have been achieved. DU shall be responsible for maintaining DU-NY-ILF program projects consistent with the mitigation plan to ensure long-term viability as functional aquatic resources. DU shall retain responsibility unless and until the long-term management responsibility is formally transferred to a long-term manager with USACE approval. The long-term management plan developed for each DU-NY-ILF project will include a description of anticipated management needs with annual cost estimates and an identified funding mechanism (such as non-wasting endowments, trusts, contractual arrangements with future responsible parties, or other appropriate financial instruments).

The final conservation easement or equivalent mechanism for long-term protection will be submitted to the IRT for review upon acquisition of the site and will be the first milestone for which credit release can occur. Upon achieving its performance standards and approved transfer of the project for long-term protection and management, DU will request that the Corps issue written “closure certification” in coordination with the IRT.

**Element X: Program Monitoring and Reporting**

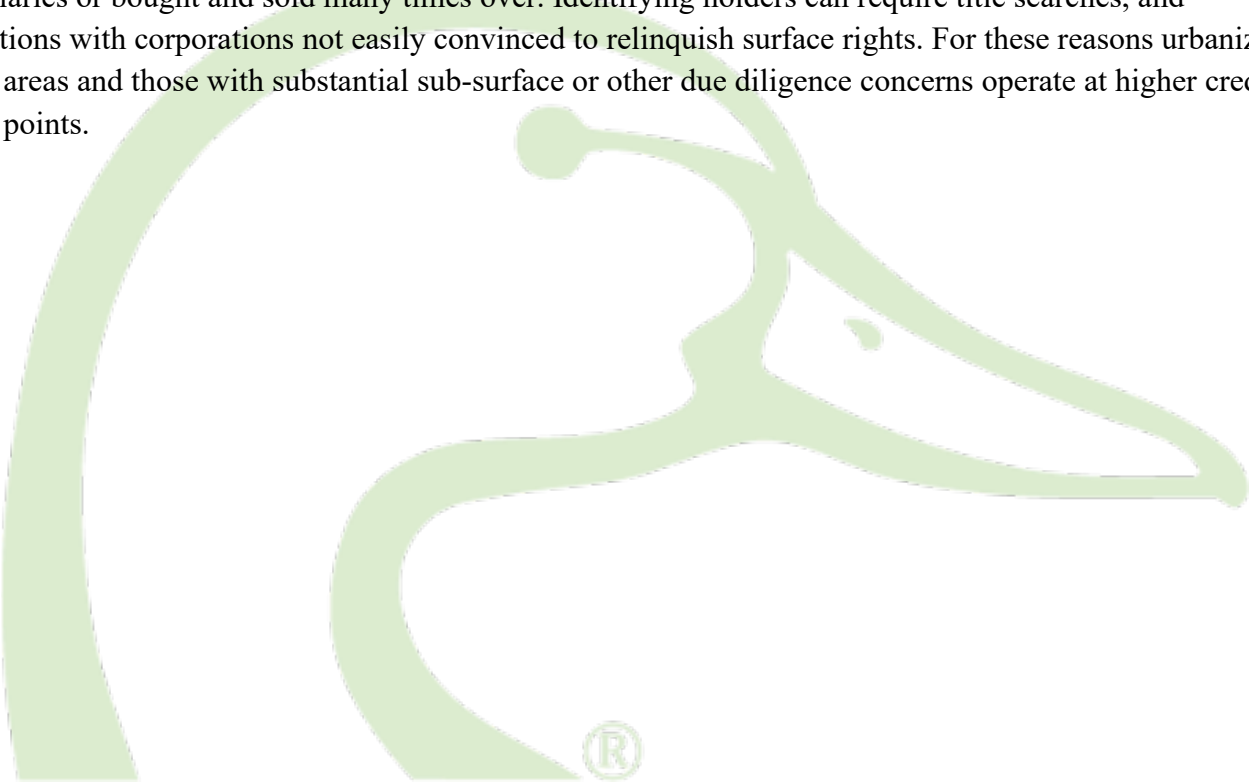
As detailed in Section V of the Instrument, DU will submit an Annual Program Report to the IRT no later than October 31<sup>st</sup> of each year and will include program data from the previous fiscal year (July 1 – June 30).

Additionally, upon request, DU will submit a program findings/evaluation report to the District Engineer as an addendum to the Annual Program Report. In this report, anticipated to be a brief document, DU will address how the goals and objectives set forth in the Instrument and detailed in the Compensation Planning Framework are being met in terms site selection and project implementation. The report may also include relevant ‘lessons learned’ and describe any proposed changes to the Compensation Planning Framework.





Two main factors that drive divergence in delivery cost by service area are the underlying cost of land and or easements, and differences in the level of due-diligence concerns encountered by watershed in typical sites. Land costs vary near urban markets from more rural environments and are reflected in price divergences near Buffalo, Rochester, and Albany. Urban environments also frequently carry legacy contaminant concerns that may at a minimum require due-diligence (environmental phase 1, 2) determinations or worse, require remediation. Ubiquitous subsurface rights severances in Western New York have added to operating costs there (*gas-well locations as proxy for sub-surface severances were obtained from NYS-DEC 2023*). DU must investigate sub-surface rights holdings and attempt to negotiate extinguishment of surface access provisions within the area producing mitigation credits per regulatory guidance. This is a complex, tedious process to identify subsurface interest holders. Subsurface interests may have been passed down, fractured among beneficiaries or bought and sold many times over. Identifying holders can require title searches, and negotiations with corporations not easily convinced to relinquish surface rights. For these reasons urbanized service areas and those with substantial sub-surface or other due diligence concerns operate at higher credit pricing points.





## Appendix II: Table 1 Summary of Credit Prices by Service Area

Price of delivery varies based on variation in land expense in rural vs. more urban settings. Due diligence concerns and prevalence of subsurface right severances explain divergence in pricing among service areas.

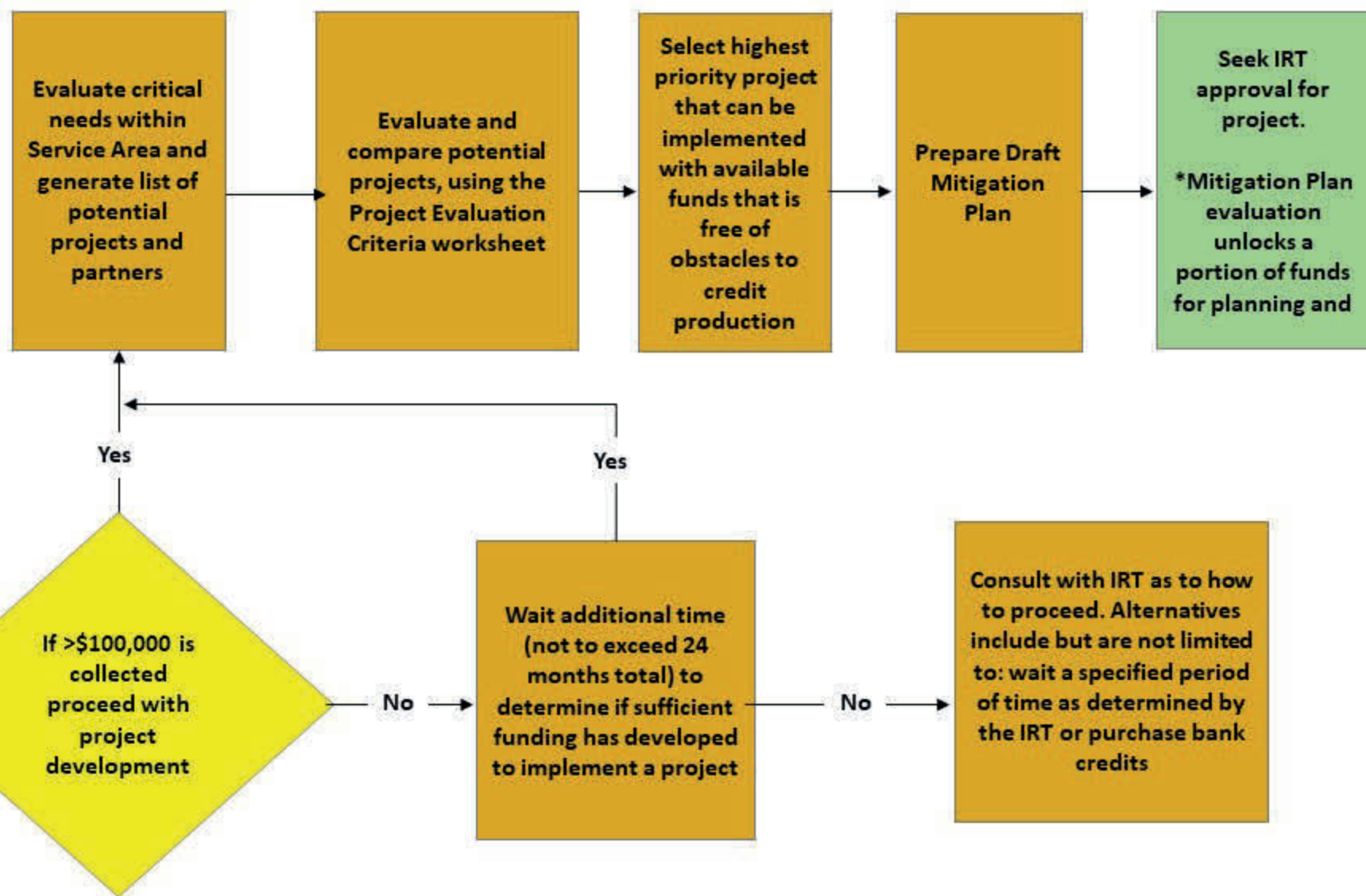
Service Area Name	Advanced Wetland Credits	Wetland Credit Pricing
Black River	30	\$145,000
Buffalo-Eighteen Mile Creek	50	\$152,000
Conewango-Pennsylvania River	30	\$152,000
Hudson: Hudson-Hoosic	30	\$152,000
Hudson: Middle Hudson	30	\$152,000
Irondequoit - Nine Mile Creek	40	\$145,000
Lower Genesee River	30	\$145,000
Mohawk River	30	\$145,000
Niagara River	50	\$152,000
Oneida-Oswego	50	\$152,000
Salmon-Sandy	30	\$145,000
Seneca-Finger Lakes Region	40	\$145,000
St. Lawrence Region	40	\$145,000
St. Lawrence Region	40	\$145,000

### **Appendix III: Site Selection and Evaluation Key**

Some or all of the following steps will be utilized to identify, evaluate, and rank wetland sites. A modified process will guide site selection for stream mitigation. Site selection will be made in close consultation with the IRT.



# Process for ILF Project Development

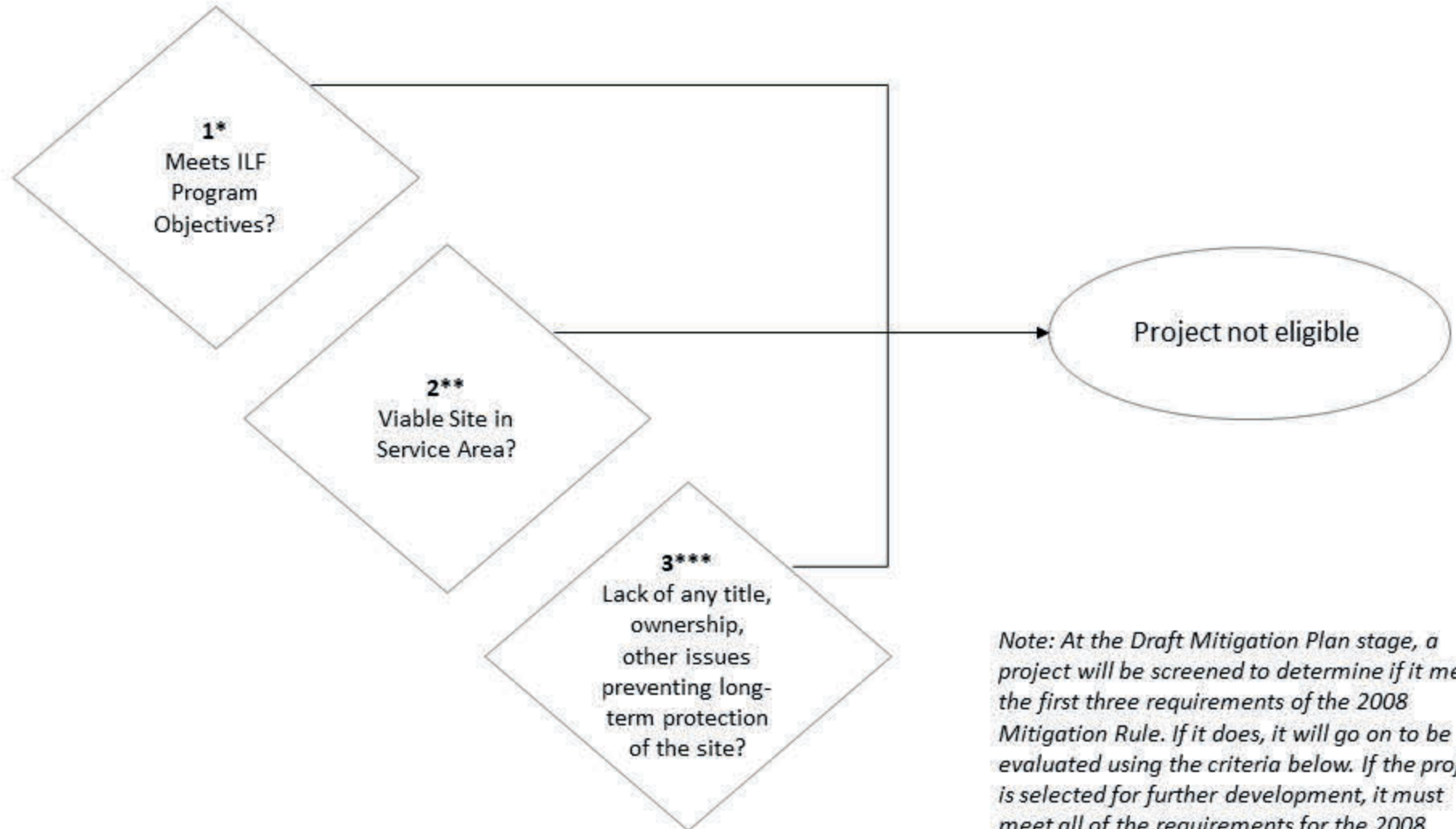


# Eligibility Criteria

*Eligible projects at the Draft Mitigation Plan stage must meet the three initial criteria*

Commitment by the ILF Project Proponent that all components of the 2008 Mitigation Rule will be met, including:

1. **Objectives\***
2. **Site Selection\*\***
3. **Site protection instrument\*\*\***
4. Baseline information
5. Determination of credits
6. Mitigation work plan
7. Maintenance plan
8. Performance standards
9. Monitoring requirements
10. Long-term management plan
11. Adaptive management plan
12. Financial assurances



*Note: At the Draft Mitigation Plan stage, a project will be screened to determine if it meets the first three requirements of the 2008 Mitigation Rule. If it does, it will go on to be evaluated using the criteria below. If the project is selected for further development, it must meet all of the requirements for the 2008 Mitigation Rule to be approved.*



## Evaluation Criteria

*Eligible projects will be evaluated and compared using the following criteria.*

*(Circle the appropriate criteria in each category and place the corresponding score in the column to the right)*

	LOW: 1	MEIDUM: 2	HIGH: 3	SCORE
Degree to which project addresses Service Area priorities	No priorities met, but meets other goals	One SA priority met	More than one SA priority met	
Potential for reestablishment or rehabilitation of wetlands	Enhancement	Rehabilitation	Reestablishment	
Use of natural processes in restoring ecological function	No natural process used to achieve ecological lift	1-2 ecological components improved using natural processes	All 3 ecological components improved using natural processes	
Extent of connectivity with other protected lands	Isolated	Within planned connectivity corridor or biological core areas	Immediately adjacent to protected lands	
Extent of buffer	Buffer less than 50 feet in width	Buffer between 50 and 100 feet	Buffer >100 feet	
Experience of proponent	Has never done a mitigation project	Has done one successful mitigation project	Has done multiple successful mitigation projects	
Cost effectiveness	Per acre cost more than fee collection rate	Per acre cost equal to fee collection rate	Per acre cost less than fee collection rate	
Credits generated	Equal to minimum needed	More than minimum needed	Equal to or more than minimum needed and could create additional types of credits (e.g., USFWS or CDFW species credits)	
TOTAL				