Audubon CT Wetland In-Lieu Fee Program
Five Year Assessment Report
2013-2017

February 2020

FITZGERALD & HALLIDAY, INC.
Innovative Planning, Better Communities

Audubon CONNECTICUT

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1 Introduction – The Audubon CT Wetland In-Lieu Fee Program

The National Audubon Society, Inc., through its Connecticut program (Audubon CT) is the sponsor of an In-Lieu Fee (ILF) Program for aquatic resource compensatory mitigation required by Department of the Army authorizations. This program was established by the New England District, Corps of Engineers (Corps) and Audubon Connecticut and commenced with a signed instrument on August 21, 2013.

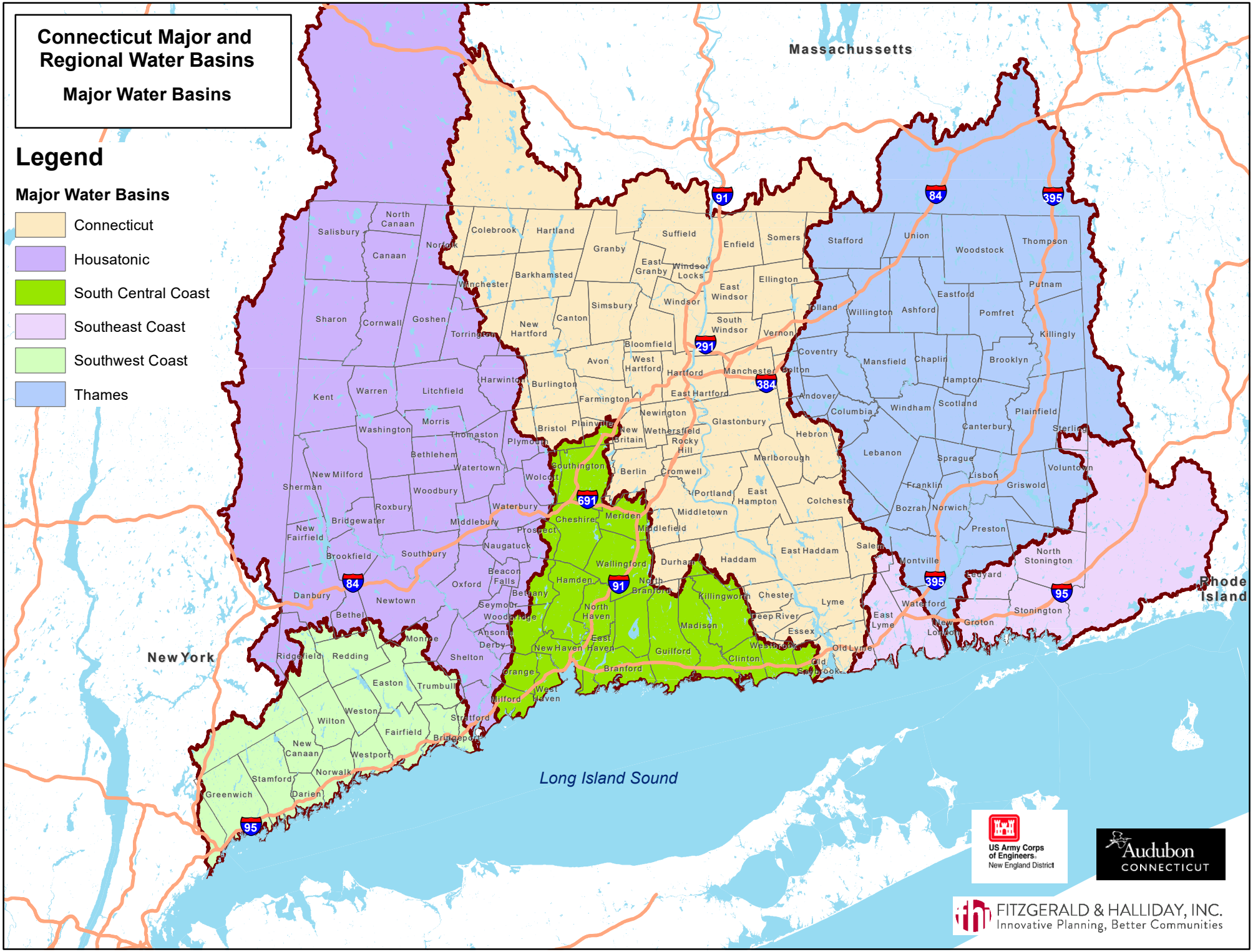
By the end of the third program year (2015) the Connecticut ILF Program had accrued sufficient funds to be made available for the preservation, restoration and enhancement of wetland and watercourse resources and associated upland buffers in the State of Connecticut. Letters of Interest (LOIs) through this program were issued in early 2016 to solicit requests for ILF funding for such projects.

Audubon Connecticut ILF receives its funds from applicants who have applied for permits under the Corps' Regulatory process and agree to use the program for mitigation of impacts resulting from their approved work. After the applicant avoids and minimizes wetland impacts to the extent possible, the Corps may approve the use of the ILF by the applicant. The Corps then determines the number of credits the applicant will need to purchase. The fees for the ILF credits are paid by the permittee to Audubon Connecticut and tracked by service area. There are six service areas in CT as follows: Connecticut River, Housatonic, Thames, South-central Coastal, Southeast Coastal, and Southwest Coastal. Service areas are depicted in **Figure 1**.

2 Operation of the CT Wetland In-Lieu Fee Program

2.1 Marketing and Outreach Efforts

Sale of advanced credits began in 2013 and continued throughout the rest of the five-year period. Audubon had determined that enough money had accrued in most service areas to offer a grant program by 2016. Advanced planning began in 2015 when Audubon solicited RFPs for a consultant to manage the grant program. The planning firm of Fitzgerald & Halliday, Inc. (FHI) was retained in 2015 to manage the grant program beginning in 2016. FHI began marketing the ILF Grant Program in earnest in 2016. Marketing efforts included direct marketing strategies and public presentations and attendance at natural resource conferences. The goal was to not only advertise the availability of funds through the grant program, but also to make known to the public and private sector that making payments into the ILF fund was now a potential option for most project proponents in place of permittee-responsible mitigation. Details of the two main marketing strategies are provided below.


Connecticut Major and Regional Water Basins
Major Water Basins
Legend
Major Water Basins
Connecticut
Housatonic
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Massachussetts
New York
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2.1.1 Direct Marketing

Direct marketing efforts included the creation of a postcard mailer, and email contact to over 400 recipients. These recipients included several architectural and engineering firms, environmental lawyers, universities, municipalities, land trusts, and various non-profit, non-governmental organizations (NGOs). Private developers can purchase ILF credits as mitigation for unavoidable impacts to wetlands from their proposed developments, but they do not qualify for the ILF Program grant. Once enough money had accrued in the majority of the service areas, ILF grants were offered for wetland restoration, enhancement, creation, and preservation projects. To solicit interest in the grants, a Request for Letters of Intent (RFLOI) was posted on the AudubonCT website, and in the electronic newsletters of the following organizations: Connecticut Land Conservation Council, the Connecticut Association of Wetland Scientists, and the Society of Wetland Scientists – New England Chapter. The ILF program and available grants were also advertised via social media on both Audubon and FHI social media platforms (e.g., Facebook, Linked In).

2.1.2 Conference Presentations/Attendance

Following posting of the RFLOI on the Audubon website, and direct mailings to over 400 recipients, the marketing focus shifted to attendance at natural resource management conferences to advertise the program to potential cooperating entities and generate interest in the program. FHI and Audubon hosted a workshop at the Connecticut Land Conservation Council Annual meeting in Middletown, CT in March of 2016. The workshop was designed to introduce cooperating entities to the ILF program, identify who was eligible, and describe the process for applying. A presentation of the ILF program was similarly given at the Connecticut Association of Wetland Scientists annual meeting in 2016 and 2017, and the Society of Wetland Scientists – New England Chapter's Annual Meeting in 2017.

2.2 Grant Program Commencement Year 2016

The CT ILF Grant Program commenced with the first issuance of a Request for Letters of Intent (RLOI) released on February 4, 2016. Initially, ten LOIs were received, with no projects located within the Thames River Basin Service Area, prompting a supplemental issuance of the LOI for the Thames River Basin only. The supplemental RLOI generated an additional three projects, for a total of 13 LOIs for the 2016 Inaugural ILF Grant Program Year. Among the 13 applicants, one was advised that their project was not competitive. Another applicant was informed that they did not qualify for ILF funding. Two applicants failed to get property owner commitments for their projects and thus did not submit a full proposal. One project was not recommended to the Interagency Review Team (IRT) after review of their full proposal by the Project Advisory Committee (PAC) (Refer to Section 4), and an additional applicant withdrew their project at the full proposal stage, leaving a total of seven projects recommended to the IRT. Of the seven full proposals evaluated by the IRT, two were not approved resulting in five projects approved for funding in 2016.

2.3 Grant Program Year 2017

In 2017, the ILF Grant Program was again initiated via the issuance of a RLOI. Initially, the deadline was set for March 5, 2017, but was subsequently extended by approximately two months to allow the solicitation

of more projects via networking at the various land conservation and natural resource management annual meetings during the month of March – especially the CT Land Conservation Council's Annual Meeting. After review and feedback of submitted LOIs, twelve applicants submitted full proposals for CT ILF Funding resulting in nine projects approved for funding in 2017 after PAC and IRT review. These nine projects included one watercourse restoration project, two existing nature preserve expansion projects, five preservation projects, and one stewardship project.

2.4 Credit Accounting

2.4.1 Advance Credits

The number of advance credits available for each service area was based on the impacts permitted within each service area over the three years prior to 2013, the year the ILF instrument was signed. Advanced credits were determined using acres or linear feet as a surrogate for credits and rounding up to a whole number for wetlands and linear feet for streams and rivers. For service areas where little impact had occurred over the previous three years from the year the ILF program commenced, a minimum of ten (10) advance wetland credits and 5,000 advance stream credits per service area were available to ensure sufficient funding to initiate projects in those service areas. Note that stream impacts tend to be small, so all service areas were given a minimum of 5,000 advance stream credits.

2.4.2 Sale of Credits

Credit sales began in the inaugural year of the ILF Program with the sale of credits in the Southwest Coast Service area. Initial credit sales occurred in the Housatonic River and Thames River Service areas in 2014 and continued throughout the three ensuing years. Initial sales in the Connecticut River and South-central Coast Service Areas occurred in 2015 and continued in 2016 and 2017. No credits were sold in the Southeast Coast Service area until 2017. Credit sales for each service area for each year of the five-year period are presented in **Table 2-1** below. A total of $2,651,266 was generated via the sale of credits during this five-year period.

Table 2-1 Sum of Credit Sales per Service Area During the First Five Years of the CT Wetland ILF Program

	2013	2014	2015	2016	2017
Connecticut River			$ 409,946.82	$ 276,345.91	$ 47,282.37
Housatonic River		$ 487,659.36	$ 224,556.13	$ 67,597.97	$ 110,032.77
South-Central Coast			$ 10,000.00	$ 177,746.83	$ 9,875.79
Southeast Coast					$ 14,315.71
Southwest Coast	$ 8,025.60	$ 803.15	$ 7,506.62	$ 19.66	$ 239,167.37
Thames River		$ 30,011.77	$ 528,950.52	$ 672.73	$ 749.42
Totals	**$ 8,025.60**	**$ 518,474.28**	**$ 1,180,960.08**	**$ 522,383.10**	**$ 421,423.43**

3 Conditions and Objectives of the Six Service Areas

The overarching goals and objectives of the AudubonCT ILF program as stated in the 2013 Instrument were as follows:

a) Provide an alternative to permittee-responsible compensatory mitigation that will effectively replace functions and values of aquatic resources lost through permitted impacts;

b) Substantially increase the extent and quality of restoration, enhancement, creation and preservation of natural resources over that which is typically achieved by permittee-responsible mitigation for activities that impact on wetlands, significant wildlife habitats and other waters of the State of Connecticut, which include waters of the United States;

c) Reduce the extent of cumulative adverse impacts to aquatic resources that are protected by the regulatory framework of the Clean Water Act;

d) Provide applicants of permits from the Corps greater flexibility in compensating for adverse impacts to protected natural resources; and

e) Achieve ecological success on a watershed basis by directing AudubonCT ILF funds to natural resource types and functions that are appropriate to the geographic service area, and by integrating AudubonCT ILF projects with other conservation activities whenever possible.

Specific goals per each service area were also identified in the 2013 Instrument. They are as follows:

3.1 Housatonic River Service Area

This service area includes high density residential and commercial development at the mouth of the Housatonic River in Stratford and Milford and around the cities of Danbury, Waterbury and Torrington. The Housatonic River and its larger tributaries have seen the historic alteration of river flows to produce hydroelectric power. Development between the major roadways (Routes 7, 8 and I-84) is typified by low-density residential development and agricultural land use. Agricultural eutrophication of surface waters is evident on both small and larger water bodies and streams.

In contrast, the upper reaches of the service area are rural in nature supporting large undisturbed tracts of secondary hardwood forests, open meadow habitat and small farms. Tributaries along the Housatonic River provide cold water and headwater stream habitats. Habitats supporting endangered, threatened and state-species of special concern are prominent from the mouth of the Housatonic River, and in the southwestern and northwest portions of the service area.

Conservation Objectives:

- Acquire land and conservation easements in riparian areas adjacent to cold water streams.
- Encourage habitat connectivity and protection, particularly for areas identified in the Wildlife Action Plan, rare species, vernal pools, headwater streams (1st and 2nd order) and their associated critical terrestrial habitats.

- Pursue opportunities to restore priority resource types, as well as opportunities to restore marginal or non-productive agricultural land in sustainable landscape settings.

Acquisition of the conservation easement for the Bloomingfields Farm in Sherman, CT adjacent to Wimisink Marsh allowed the agricultural usage to continue (flower farm), but now provides conservation protection for populations of federal and state species of conservation concern. The Grobe Parcel acquisition in Bethany, CT, protected the riparian habitat and recharge zones of the downgradient Hockanum Brook. The *Spartina* marsh restoration at Lordship Point in Stratford, CT, which has been a great success, has effectively restored extensive salt marsh on the north side of the point which was previously removed as part of a lead waste remediation project (funded separately) at the point. This project was a critical step in the overall site restoration plan which aimed to restore wetlands lost by past remedial activities related to the excavation of contaminated intertidal sediment. As a result of this ILF-funded project, approximately 0.6 acres of intertidal wetlands has now been restored at Lordship Point, with additional acreage expected to form each year via rhizome spread from the well-established *Spartina* colonies.

3.2 Southwest Coast Service Area

The Southwest Coast service area contains densely developed urban land along the I-95 corridor. Interior regions of the area are typified by moderate to low density residential development. Coastal and inland aquatic resources have been impacted by both commercial and residential development. Waterways have been historically altered for power generation, impacting fisheries movement. Wetlands and riparian zones have been impacted from roadway construction and urban sprawl. Water quality impacts have resulted from both point and nonpoint source discharges resulting in accelerated siltation and accelerated eutrophication of water bodies. Areal loss of inland wetlands and waterways has been curtailed with the adoption of Inland Wetlands and Watercourses regulations, but functions and values of existing inland wetlands often continues to diminish over time.

Conservation Objectives:

- Acquire land and conservation easements to provide upslope “advancement zones” adjacent to tidal marshes.
- Pursue wetland restoration and enhancement opportunities (with upland buffers) in sustainable landscape settings.
- Encourage preservation projects, particularly for rare species, vernal pools, headwater streams (1st and 2nd order) and their associated critical terrestrial habitats.
- Restore the movement of anadromous fisheries to the upper reaches of the watercourses via fish ladders, by-passes or dam removal.

The sole project completed in this service area during the reporting period - the Acquisition of the Belknap property – achieved the conservation goal of protecting at least two vernal pools (each were documented to support obligate vernal pool species) and two 1st order streams that are headwater streams to the West Branch of the Saugatuck River which is a Class A watercourse that supports a cold water fishery. Additionally, the Eastern Box Turtle, which is listed as a Special Concern species in the Connecticut Endangered Species Act, was documented from this property as was the Wood Thrush in breeding season. The Wood Thrush is

designated as a "Highest Priority" species by the United States Fish and Wildlife Service (USFWS) in the Atlantic Coast Joint Venture Conservation Plan for Bird Conservation Region 30 -New England / Mid-Atlantic Coast. Acquisition of the Belknap Property essentially expanded the existing Honey Hill Preserve in western Connecticut, furthering the Aspetuck Land Trust's goal of creating a large forest block to protect the area's natural resources (such as those described above), to protect forest interior species, and preserve a wildlife corridor from the Norwalk River valley to the Devil's Den/Centennial Forest/Aquarion Water Company/Trout Brook Valley Conservation Area forested landscape.

3.3 Connecticut River Service Area

The central Connecticut valley is typified by urban core areas in the Hartford and New Haven region, surrounded by a moderate density residential and commercial urban periphery. These areas are flanked by suburban development. The area supports an extensive number of endangered, threatened and state-species of special concern and critical habitats.

Conservation Objectives:

1. Acquire land and conservation easements in riparian areas adjacent to cold-water streams.
2. Encourage habitat connectivity and protection, particularly for rare communities and species, high value vernal pools, headwater streams (1st and 2nd order) and their associated critical terrestrial habitats.
3. Pursue wetland restoration and enhancement opportunities (with upland buffers) in sustainable landscape settings.

Four projects were funded in this service area by the ILF Program during this reporting period: one in 2016, and three in 2017. The 2016 project – the Zemko Preserve Expansion Project - involved the acquisition of 20 acres of property adjacent to the existing 72-acre Zemko Sawmill Preserve owned by the Salem Land Trust, increasing the size of the preserve to 92 acres. The land acquisition protects an unnamed first order stream that flows into the Zemko Sawmill Preserve's Whittlesey Swamp. The outlet stream from Whittlesey Swamp in turn discharges to the East Branch of the Eight-mile River. The Eight-mile River has a National Park Service (NPS) designation as a Wild and Scenic River, one of only three rivers in the Connecticut with that designation. Therefore, this project meets Conservation Objectives Nos. 2 and 3 of this service area.

Of the remaining three Connecticut River Service Area projects (all of which were funded in 2017), one was a restoration project and two were preservation projects. The one restoration project – the Dolan Pond Fishway in the Centerbrook Village area of Essex, CT - resulted in the restoration of diadromous fish runs on most of the Falls River in Essex. Dolan Pond Dam was the second to the last barrier in a series of dams blocking the upstream passage of anadromous fish along this drainage. With the subsequent installation of a fish ladder at Mill Pond Dam (which was the last barrier), river herring can now reach spawning grounds in the 49 - acre Mill Pond in Centerbrook, completing the habitat connectivity of the Falls River to diadromous fish runs thus meeting Conservation Objective Nos. 2 and 3.

The two preservation projects – Danforth Property Acquisition in Colebrook, and the Stoeke Property Acquisition in Hartland – both met Conservation Objective No. 1 of acquiring land and conservation

easements in riparian areas adjacent to coldwater streams. The Danforth Property acquisition protects a groundwater seepage wetland with a direct connection to Sandy Brook in Colebrook, and the Stoeke Property protects a first order stream that discharges to the West Branch of the Farmington River.

3.4 South – Central Coast Service Area

This region is similar in land use to the Southwest Coast Service Area. Large urban environments with high density commercial and residential development along the coast grade into moderate to low density (suburban) residential development as one moves away from the coast.

Conservation Objectives:

- Acquire land and conservation easements to provide upslope "advancement zones" adjacent to tidal marshes.
- Pursue wetland restoration and enhancement opportunities (with upland buffers) in sustainable landscape settings.
- Encourage preservation projects, particularly for rare species, vernal pools, headwater streams (1st and 2nd order) and their associated critical terrestrial habitats to ensure that the region's extensive aquatic resources remain intact and functional into the future.

The ILF Grant program approved two projects within this service area during the reporting period. One In 2016 and one in 2017. The 2016 project resulted in the removal of an undersized culvert that often clogged with storm debris blocking the movement of fish along the drainage. The removal of the culvert restored free flow to the Indian River at the Ewen Preserve in Orange, CT and linked an approximately 2,000-foot upstream reach of the river with an approximately 2,000-foot downstream reach, restoring almost one mile of perennial stream flow and benefitting the populations of fish species resident in the stream.

In 2017, the ILF program directly led to the preservation of a 26-acre forested parcel – known as the Harrison Preserve - at the headwaters of the Branford River in North Branford, CT. Without the ILF grant to fund the stewardship of the property, the North Branford Land Conservation Trust (NBLCT) would not have accepted the Harrison Preserve Property into their portfolio of protected preserves due to the limited financial resources available to the NBLCT for stewardship expenses. The Harrison property not only contains a reach of the Branford River headwater stream but also contains palustrine forested wetlands and critical terrestrial habitat associated with a large vernal pool on an adjacent parcel.

3.5 Thames River Service Area

This service area is also dominated by low density rural development. The area encompasses several habitats supporting endangered threatened and state- species of special concern.

Conservation Objectives:

- Acquire land and conservation easements in riparian areas adjacent to coldwater streams.
- Promote wetland protection, particularly for rare communities and species, high value vernal pools, headwater streams (1st and 2nd order) and their associated critical terrestrial habitats.

- Pursue wetland restoration and enhancement opportunities (with upland buffers) in sustainable landscape settings.

One project, the Lucaszek acquisition, was successfully completed in the service area during the five-year period. This sole project, however, fully met the conservation objective of "*promoting wetland protection, particularly for rare communities and species, high-value vernal pools, and headwater streams … and their associated critical habitats*". This 72-acre acquisition protects the headwater streams and sources of the Five Mile River. It contains the approximately 25-acre Long Pond which is flanked by Black Spruce (*Picea mariana*) bogs – a rare habitat in CT (Dowhan and Craig, 1976) and a critical habitat for a number of species listed in the CT Endangered Species Act's most recent list of Endangered, Threatened, and Special Concern species (CTDEEP, 2015). Other rare habitat types noted on-site include Atlantic White Cedar swamp and sand barren upland. There are other vegetation cover types that show promise of harboring listed species as well, based upon the presence of indicator species, or the presence of host plants for rare lepidoptera. Historic surveys conducted by the Connecticut Botanical Society revealed the presence of two rare plant species on the site. The status of these plants is currently unknown and would require site visits to affirm that they remain extant populations on site.

3.6 Southeast Coast/Pawcatuck River Service Area

This service area is dominated by low density rural development. The area includes several habitats supporting endangered, threatened and state species of special concern.

Conservation Objectives:

- Encourage habitat protection, particularly for rare communities and species, high value vernal pools, headwater streams (1st and 2nd order) and their associated critical terrestrial habitats.
- Pursue wetland restoration and enhancement opportunities (with upland buffers) in sustainable landscape settings.
- Restore the movement of fisheries at key locations via fish ladders, bypasses or dam removal.

Very few credits were sold in this service area, therefore limited funds were available for the ILF grant program. As a result, no projects applied to the ILF Grant Program resulting in no projects for this five-year reporting period.

4 Project Evaluation Process

4.1 Project Assessment & Scoring

According to the law, the projects determined to be appropriate for receipt of CT ILF Fund monies are subject to approval by the "Corps". Under direction and approval of the Corps, a Project Advisory Committee (PAC) was assembled to provide a mechanism for reviewing, evaluating, and scoring submitted full proposals. The PAC is charged with identifying proposals that represent priority projects that most effectively compensate for the loss of functions and values from the projects that paid into the Fund. Projects were assessed and

scored individually by each member of the PAC using the criteria provided in the instrument and which is attached herein as Appendix A.

The first PAC was convened in June 2016 with members providing evaluations and scoring of full proposals for 2016 and then again in 2017. The PAC members consisted of the following people:

- Michael Chambers – Board Member, Audubon Connecticut (PAC Chairman)
- Patrick Comins – Director of Bird Conservation- Audubon Connecticut
- Barbara Newman (2016) and Mike Weirbonics (2017) – Corps Project Managers for CT ILF
- Nate Margason – United States Environmental Protection Agency (EPA)
- Suzanne Paton – United States Fish and Wildlife Service (USFWS)
- Steve Gephard – CTDEEP Inland Fisheries Division
- Gwen MacDonald – Save the Sound
- Beth Evans – Connecticut Association of Wetland Scientists (CAWS)
- Frogard Ryan – Executive Director, The Nature Conservancy in Connecticut

Once the PAC was in agreement of which projects best met the goals and objectives of the CT ILF Program, a report of findings and recommendations was submitted to the Corp's Interagency Review Team (IRT) which consisted of natural resource specialists from the following state and federal agencies:

- CTDEEP
- USDA NRCS
- ACOE-NED
- USEPA
- USFWS
- NOAA

Final recommendations for projects approved for funding were provided to AudubonCT via letter correspondence from the Corps, based upon the findings of the IRT. A summary of all projects commenced during the reporting period are provided in Appendix B.

5 Summary of Status and Trends of Program

5.1 Compensatory Mitigation Projects Summary

Public agencies, non-profit conservation organizations, and private individuals may submit proposals for compensation projects under the CT ILF Program. Projects awarded funding must be maintained in perpetuity in their natural state by a responsible state or federal resource agency or conservation organization demonstrating the technical and financial capacity to maintain the project.

Table 3 shows the breakdown of funds awarded to compensatory mitigation projects during the reporting period. Projects have been awarded funding in five out of the six service areas that had funds available.

It should be noted that the reporting period began when the ILF Program Instrument was signed on August 21, 2013. However, it took time to acquire enough funding via the sale of advance credits to offer a meaningful grant. Money accrued from August 2013 through December 2015 was offered in the inaugural ILF Grant year of 2016. Therefore, the two funding rounds of 2016 and 2017 are included in this report. Table 5-1 provides a tally of the total number of completed projects per service area during the 2016-2017 grant rounds.

Table 5-1. Compensation Projects Awarded Funding 2016-2017

Region	Number of Compensation Projects	Funds Awarded
Housatonic River Service Area	4	$ 586,071
CT River Service Area	4	$ 442,825
Thames River Service Area	1	$ 250,000
Southeast Coast Service Area	0	$ 0
South Central Coast Service Area	2	$ 58,000
Southwest Coast Service Area	1	$ 200,000
Totals	**12**	**$1,536,896**

In the 2016 and 2017 funding rounds there were three additional projects that were approved for funding but the projects did not move forward. As a result, the funds were not dispensed but were returned to the service area in which they were originally accrued/allocated. The reasons for the projects not being completed varied. On one project, the applicant reported that their winning contractor estimate for the proposed work came in much lower than they had estimated for the grant, which significantly lowered their overall estimated project cost. As a result, the applicant informed Audubon that the approved grant money was not needed to complete their project.

In another project, negotiations with the landowner broke down over the ILF requirement of environmental contaminant hazard screening. The property owner inherited the land from his father's estate and the land was located in an urban setting underlain by historic fill materials. The property had been used for a construction lay-down yard for many years. The property owner did not want intrusive (i.e., subsurface) environmental investigations conducted on the property. Therefore, he would not agree to provide access for Phase I and II Environmental Site Assessments so that the purchaser could conduct environmental due diligence as a provision of the real estate transactions. The Applicant, a municipal land trust, was not willing to accept the risk of acquiring such a property without the prudence of conducting environmental site assessments. Since the two could not agree on how to move forward, the land trust decided to forfeit the grant and not pursue acquisition of the property.

The third project failed to obtain the balance of the funding needed to purchase the property.

Seven of the 12 projects awarded funding in the 2016-2017 funding rounds have been sponsored by land trusts. Three additional projects were sponsored by other conservation non-profit organizations, one was sponsored by a municipal conservation commission, and one was sponsored by an academic Institution. Ten different non-profits have been awarded funding. Preference is not given to non-profit organizations over

other conservation entities, but these organizations tend to stay well-informed about potential funding sources, many attend the outreach events where the ILF Program is promoted and are familiar with grant proposal writing. Therefore, they have been the most active in bringing projects to the program. Even so, there has been a learning curve for many of the non-profit organizations since compensation program requirements are different than the typical conservation grant programs with which they may be familiar. The focus on aquatic resource protection first, rather than the development of passive recreation amenities such as trail networks, access, parking, etc., has proven to be a challenge for some projects.

Project success has been variable among the conservation entities with some organizations meeting the program requirements easily while others struggle due to staffing, lack of expertise in natural resource management, or limited funding available for consultants or contractors to provide same.

5.2 Alignment with State, Regional, and Federal Rare Species or Habitat Conservation Initiatives.

Despite the initial challenges of the program, the ILF Program has brought financial and collaborative resources together in CT that has resulted not only in wetland and watercourse restoration, enhancement, or preservation but also the protection of biodiversity in general. Collectively, the program has not only protected both state and federally listed species on their respective versions of their endangered species acts, but also has protected additional species of conservation concern outlined by both state and federal proactive initiatives designed to prevent further declines in native species that could result in additional ESA listings. One such proactive initiative on the state level that is extremely important for wildlife conservation is the Connecticut Wildlife Action Plan. Each ILF site was found to be occupied by multiple species of flora or fauna identified as Greatest Conservation Need in Connecticut's Wildlife Action Plan (Refer to Tables 4-2 through 4-13, below).

Other conservation initiatives for which the ILF program actions are consistent include the Atlantic Coast Joint Venture for Avian Conservation, the Migratory Bird Treaty Act, the Marine Mammal Protection Act, the Magnuson Stevens Act, the Bald and Golden Eagle Protection Act, various state and municipal plans of conservation and development, and the Statewide Comprehensive Outdoor Recreation Plan [SCORP].

Information on additional State, Regional, and Federal Conservation Initiatives for which each of the sites are consistent is also provided in their respective subsections below.

> "*Natural areas and waterways provide critical wildlife habitat, clean drinking water, and the scenic natural beauty that is the foundation of the tourism industry. However, not all undeveloped land is protected open space, some of it will eventually be developed. For Connecticut to remain an attractive state in which to live, work, visit, and recreate, it is critical that development be balanced with land conservation. Only the public possession of property rights can guarantee that open spaces will remain protected in perpetuity for outdoor recreation access and conservation*" – CT Statewide Comprehensive Outdoor Recreation

5.2.1 Salmon Kill Creek

The Conservation Entity who applied for funding via the In Lieu Fee Grant Program for this project was Trout Unlimited (TU). This project was a manifestation of their mission which is to "*Conserve protect and restore*

North America's coldwater fisheries and their watersheds". https://www.tu.org/about/ . The restoration of coldwater fisheries within the watershed is not only consistent with the ILF Program goals for this watershed, but also helps to restore habitat for three species of conservation concern within the Salmon Kill drainage including one species listed in the CT ESA as "Special Concern". The three species of conservation concern reported to occur on the site and their conservation status are listed in Table 5-2 below.

Figure 5-1. Adult Wild Brown Trout from Salmon Kill Creek

Table 5-2. Species of Conservation Concern Reported to Occur in the Salmon Kill Restoration Sites and their Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Notes
Brook Trout (*Salvelinus fontinalis*)	(MI)		Recorded previously during a 2015 survey. Not found again in 2017 survey (TU, 2018). A coldwater fishery indicator species. Requires small cold streams with gravel or cobble bottoms, tree canopies for shade and adequate cover (Jacobs and O'Donnell, 2009)
Brown Trout (*Salmo trutta*)	(MI)		Recorded during a 2017 survey (TU, 2018) following restoration. Coldwater fishery indicator species but can tolerate higher water temperatures and lower dissolved oxygen levels than Brook Trout; prefer coldwater streams with gravel to cobble bottoms and adequate cover (Jacobs and O'Donnell, 2009).
White Sucker (*Catostomus commersonii*)	(I)		Requires shallow riffles for spawning (created by addition of in-stream coarse woody debris during the 2016 restoration
Black-nosed Dace (*Rhinichthys atratulus*)	(I)		Inhabits pools and slower runs of cool, gravelly, or rocky headwaters, creeks, small rivers with high – moderate gradient
Pumpkinseed (*Lepomis gibbosus*)	(I)		Inhabits clear water of ponds, lakes, sloughs, with aquatic vegetation and some organic debris
Slimy Sculpin (*Cottus cognatus*)	(MI)	(SC)	Requires clear, cold water streams with gravel to cobble substrate and moderate to fast flows (Jacobs and O'Donnell, 2009)

MI = Most Important; I = Important; SC = Special Concern

Although Brown Trout are not native in New England, they have become naturalized over the 130 years that they have been in existence in New England waters. Due to the cumulative impacts of our waterways since colonial times, many of the state's watercourses can no longer sustain breeding populations of Brook Trout. Brown Trout now often fill the gap in these altered waterways. According to the CT WAP:

> "*Brown Trout are but one example of a non-native fish species that now plays a central role in the functioning and conservation of Connecticut's freshwater ecosystems. For this reason, it is listed in the most important tier of GCN fish species. Many of our other non-native fish originate from regions close to Connecticut where they are sympatric with other native species with whom they likely co-evolved. From among the many introductions made over the past 150 years, there are a small number of non-native but long Established fish species that today serve as critical components or key indicators of aquatic environmental health and have thus been included on Connecticut's list of GCN species*".

5.2.2 Stratford Point Spartina alterniflora Restoration Project

This project was one component of a wider, comprehensive site restoration plan developed for Stratford/Lordship Point by Sacred Heart University, Connecticut Audubon Society, and the property owner. Restoration of the *Spartina alterniflora* marsh was also a necessary component of an alternative remedial strategy at Stratford Point to address exposure of waterfowl to residual lead shot pellets in the intertidal zone. The site has benefitted from the restoration of the Spartina marsh in many ways. The Spartina marsh has curtailed the landward erosion of the shoreline, it has converted an erosional environment to a depositional environment, and it has provided habitat for almost two dozen species of conservation concern in CT and the greater biogeographical area. Species of conservation concern reported to occur at Stratford Point within the restoration site and their respective conservation status is provided in Table 5-3.

Table 5-3. Species of Conservation Concern Reported to Occur at Stratford Point within the ILF Restoration Site and their Respective Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Eastern Oyster (*Crassostrea virginica*)	(MI)			Eastern Oysters have colonized the artificial reef system adjacent to the Spartina restoration site (Mattei, 2019)
Atlantic Silversides (*Menidia menidia*)	(VI)			Silversides and other "forage fish" species seek cover among the Spartina stands during high tide (Mattei, 2019)
Mummichog (*Fundulus heteroclitus*)	(VI)			Mummichog and other "forage fish" species seek cover among the Spartina stands during high tide (Mattei, 2019)
American Black Duck (*Anas rubripes*)	(VI)		BCC BCR30 – Highest Priority (W/M)	Documented in unpublished monitoring reports to Corteva Agriscience (formerly DuPont)
American Wigeon (*Anas americana*)			BCC BCR30 – Moderate Priority (W/M)	Documented in unpublished monitoring reports to Corteva Agriscience
Gadwall (*Anas strepera*)			BCC BCR30 – Moderate	Documented in unpublished monitoring reports to Corteva Agriscience

			Priority (W/M)	
Northern Pintail (*Anas acuta*)			BCC BCR30 – Moderate Priority (W/M)	Documented in unpublished monitoring reports to Corteva Agriscience
Great Egret (*Ardea alba*)	(VI)	(T)		Site used for foraging by this species
Snowy Egret (*Egretta thula*)	(MI)	(T)	BCC BCR30 – Moderate Priority (B/M)	Documented in unpublished monitoring reports to Corteva Agriscience
Piping Plover (*Charadrius melodus*)	(MI)	(T)	(T), BCC BCR30 – Highest Priority (B/M); USSCP – Highly Imperiled	Site used rarely for foraging by this species
Spotted Sandpiper (*Actitis macularius*)			BCC BCR30 – Moderate Priority (W/M)	Site used for foraging by this species during migration
Least Tern (*Sternulla antillarum*)	(MI)	(E)	BCC BCR30 – High Priority (B/M)	Forages within the nearshore waters inclusive of the site during breeding and migration
Common Tern (*Sterna hirundo*)	(I)	(SC)	BCC BCR30 – Moderate Priority (B/M)	Site used for foraging by this species during breeding and migration
American Oystercatcher – Foraging (*Haematopus palliatus*)	(VI)	(T)	BCC BCR30 – Highest Priority (B); USSCP – High Concern	
Ruddy Turnstone (*Arenaria interpres*)			BCC BCR30 – Highest Priority (M); USSCP – High Concern	Site used for foraging by this species
Black-bellied Plover (*Pluvialis squatarola*)			BCC BCR30 – High Priority (W/M)	Site used for foraging by this species
Semipalmated Plover (*Charadrius semipalmatus*)			BCC BCR30 – Moderate Priority (W/M)	Site used for foraging by this species
Semipalmated Sandpiper (*Calidris pusilla*)			USSCP – High Concern	
Saltmarsh Sparrow (*Ammodramus caudacutus*)		(SC)	BCR30 – Highest Priority (M)	Site used for foraging by this species during migration
Nelson's Sharp-tailed Sparrow (*Ammodrammus nelsonii*)			BCR30 – Moderate Priority (M)	Site used for foraging by this species during migration
Seaside Goldenrod (*Solidago sempervirens*)	(I)			Growing on restored dunes landward of and protected by the restored Spartina alterniflora marsh
Switchgrass (*Panicum virgatum*)	(I)			Growing on restored dunes landward of and protected by the restored *Spartina alterniflora* marsh

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; USSCP=US Shorebird Conservation Plan; VI = Very Important; MI = Most Important; I = Important; T = Threatened; E = Endangered

Additional species of conservation concern are expected to benefit from this restoration project as well. The American Sand Lance (*Ammodytes americanus* – GCN – Very Important) is expected to utilize the unvegetated shoaling sands that have formed at the restoration site, and suitable foraging and nesting habitat is now available for the state special concern Diamond-backed Terrapin (*Malaclemys terrapin* – GCN-Important).

Dabbling ducks are currently hazed at the site to prevent them from foraging in the intertidal zones which may contain residual lead-shot deposited over many years when the site was formerly used as a skeet shooting range. As the marsh develops, and sediments accumulate, the lead shot will become buried and thus inaccessible to foraging waterfowl.

Restoration of the Stratford Point shoreline is also consistent with conservation goals and objectives, and benefits focal species of both the United States Shorebird Conservation Plan (Clark and Niles et al, no date) and the Western Hemisphere Shorebird Reserve Network (Manomet, 2013), and the Connecticut Audubon Society's Coastal Habitat Restoration Plan (CAS, 2011). The restoration efforts conducted to date at this site have won national award recognition (see Inset).

"The Stratford Point Living Shoreline is an outstanding example of how to work with multiple partners and nature to solve some of our most difficult human-caused coastal degradation problems. This project clearly demonstrates the importance of shellfish reefs in the protection of newly restored salt marsh and their role allowing time for marsh migration to occur as sea levels rise and storms increase. Especially noteworthy were its well-characterized objectives, long-term monitoring plan that demonstrated success, and the multiple funding partners involved in taking the project from concept to execution that achieved real environmental and coastal resilience outcomes" - American Shore & Beach Preservation Association's (ASBPA) second annual Best Restored Shores awards.

Figure 5-2. Spartina Restoration Site at Stratford's Lordship Point Before (Left) and After (Right) Restoration

5.2.3 Lucaszek Property (Long Pond Preserve)

Nine species of conservation concern have been documented to occur on the Lucasek Preserve. These include four species that are listed in the CT ESA. Plant records are based upon historical documentation obtained from the Connecticut Botanical Society by the applicant, copies of which were submitted with the Applicant's full ILF proposal. Therefore, the current status of the CT ESA-listed plant populations is unknown. The species, their conservation status and other details are provided in (Table 5-4).

Table 5-4. Species of Conservation Concern Reported to Occur at the Long Pond/Lucaszek Preserve

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Notes
Bog Aster (*Oclemena nemoralis*)		(E)	Historical record from Connecticut Botanical Society (CBS); Reported from site by Douglas McGrady August 2017
Shining Rose (*Rosa nitida*)		(SC*)	Historical record from CBS; status of population currently unknown
Witherod/Wild Raisin (*Viburnum nudum*)		(SC*)	Reported from site by Douglas McGrady August 2017. Follow-up confirmation requested
Common Yarrow (*Achillea millefolium*)	(I)		Reported from site by Douglas McGrady August 2017
Yellow Wild Indigo (*Baptisia tinctoria*)	(I)		Host plant for the state Threatened Frosted Elfin
Atlantic White Cedar (*Chamaecyparis thyoides*)	(I)		host plant for the state endangered Hessel's Hairstreak
Beaked Hazel (*Corylus cornuta*)	(I)		Reported from site by Douglas McGrady August 2017
Highbush Blueberry (*Vaccinium corymbosum*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Lowbush Blueberry (*Vaccinium angustifolium*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Swamp Milkweed (*Asclepias incarnata*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Common Milkweed (*Asclepias syriaca*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Blue Toadflax (*Nuttallanthus canadensis*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Pitcher Plant (*Sarracenia purpurea*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Little Bluestem (*Schizachyrium scoparium*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Bayberry (*Morella caroliniensis*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Scrub Oak (*Quercus ilicifolia*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Meadowsweet (*Spirea alba*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Notes
Sugar Maple (*Acer saccharum*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Black Oak (*Quercus velutina*)	(I)		Reported from site via email to WLT by Douglas McGrady August 2017
Alder Flycatcher (*Empidonax alnorum*)	(I)	(SC)	
Bald Eagle (*Haliaeetus leucocephalus*)	(I)	(T)	Protected[1]
Wood Frog (*Lithobates sylvaticus*)	(I)		Obligate vernal pool species (Kenney and Burne, 2000). Tadpoles found by Citizen Science Volunteers (May 6, 2017).
Spotted Salamander (*Ambystoma maculatum*)	(I)		Three eggs masses found and reported by Citizen Science Volunteers during land trust monitoring event (May 6, 2017).

[1] Protected under the Federal Bald and Golden Eagle Protection Act BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; I = Important; SC* = Special Concern (historic – may be extirpated); T = Threatened; E = Endangered

Figure 5-3. Long Pond at the Lucaszek Preserve

Additional listed species of conservation concern are expected based upon the preliminary observations of the site conducted by the IRT. During the site visit, the IRT observed an Atlantic White Cedar Swamp on site. Designated as "Important" in the CT WAP, Atlantic White Cedar is the host plant for the state endangered Hessel's Hairstreak (*Callophrys hesseli*) a species also designated as Most Important for conservation in the CT WAP. Host plants are also present for the state threatened Frosted Elfin (*Callophrys irus*) – designated as Very Important in the CT WAP – and the state endangered Dwarf Mistletoe (*Arceuthobium pusillum*). The presence of a Black Spruce Bog in CT is a rare occurrence and thus may yield additional species that are rare because they are habitat limited in the state. An example would be the state endangered Ringed Bog Haunter (*Williamsonia lintneri*) – a species designated as Most Important for conservation in the CTWAP. It inhabits Sphagnum bogs with open pools (Nikula et al., 2003). Given its geographical position in the state in the Northeastern Hills Ecoregion, the site may yield CT's first record of Bog Elfin (*Callophrys lanoraieensis*) based upon reports from similar nearby habitats in Worcester County, MA (http://www.butterfliesofmassachusetts.net/bog%20elfin.htm). Additional rare plant species are also expected based upon reports from this ecoregion by Dowhan and Craig (1976). These plants include

Dragon's mouth (Arethusa bulbosa) - a CT endangered plant of bogs and wet peaty meadows; the CT endangered Showy Lady's Slipper (*Cypripedium reginae*), a species of deciduous swamps, Northern White Cedar swamps, and calcareous bogs; and the CT endangered Hyssop-leaf Hedge-nettle (*Stachys hyssopifolia*), a plant of sandy pond margins (Magee and Ahles, 1999).

5.2.4 Zemko Sawmill Preserve Expansion

The Zemko Sawmill Preserve lies within an area designated as a "terrestrial ecosystem core area" in the Nature's Network collaborative. The Nature's Network is "*a collaborative effort facilitated by the U.S. Fish and Wildlife Service Science Applications program that brings together partners from 13 states, federal agencies, nongovernmental organizations, and universities to identify the best opportunities for conserving and connecting intact habitats and ecosystems and supporting imperiled species to help ensure the future of fish and wildlife across the Northeast region*" (http://naturesnetwork.org/). Un-fragmented forest blocks larger than 500 acres generally have higher successful breeding rates of forest interior bird populations and are also important for other larger vertebrate organisms as well. Habitat blocks between 125 and 500 acres in size are considered to have less but still fair to important value for forest interior avifauna, especially if the surrounding landscape is not intensely developed (Askins et al., 1987). Forest blocks smaller than 125 acres can be considered to have poor to fair value for supporting populations of forest interior bird species. The recent expansion of the Zemko Sawmill Preserve increases the habitat block to 92 acres. The contiguous forest lands to the north form a supportive landscape with the potential to contain a number of forest interior species. Species of conservation concern reported to occur on the site and their respective conservation status are provided in Table 5-5.

Table 5-5. Species of Conservation Concern Reported to Occur on the Zemko Sawmill Preserve Expansion Site and their Respective Conservation Status.

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Saw-whet Owl (*Aegolius acadicus*)	(I)	(SC)		Reported by Land Trust based upon member's personal observation; Presumed to be a migrant or wintering bird
Wood Thrush (*Hylocichla mustelina*)			BCC BCR30 – Highest priority	Forest Interior-edge Species (Askins, 1987)
Ovenbird (*Seiurus aurocapilla*)	(I)			Documented on-site by FHI personnel
Worm-eating Warbler (*Helmitheros vermivorus*)	(VI)			Forest Interior Indicator Species (Askins, 1987)
Scarlet Tanager (*Piranga olivacea*)	(I)			Forest Interior Indicator Species (Askins, 1987)

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Sugar Maple (*Acer saccharum*)	(I)			Documented on-site by FHI personnel
Red Cedar (*Juniperus virginiana*)	(I)			Documented on-site by FHI personnel

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important; I = Important; VI = Very Important; SC = Special Concern

Figure 5-4. The Zemko Saw Mill Preserve Expansion project expanded the preserve to the west side of Whittlesey Swamp. Both sides of Whittlesey Swamp are now preserved.

5.2.5 Indian River Culvert Replacement

Removal of the culvert at this site has eliminated a chronic fish passage blockage from the stream corridor. The twin concrete culverts often clogged with storm debris and other forest litter fragmenting the stream habitat. Movement of fish during low flow periods is essential in order for them to effectively disperse through the system and to find deep pool refugia until flow volumes once again increase. At the project site, the stream was forced to bypass the culvert and flow across an adjacent field through dense vegetation with no defined channel. The Indian River fish community has limited species richness, with only four species reported to occur during the last available survey conducted by the CTDEEP Fisheries Division in 1990. All four species found in the Indian River at the time are presented in Table 5-6 below. All are species of Greatest Conservation Need in CT.

Table 5-6. Species of Conservation Concern Reported to Occur in the Indian River and Their Respective Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Notes
White Sucker (*Catostomus commersonii*)	(I)		Requires shallow riffles for spawning
Black-nosed Dace (*Rhinichthys atratulus*)	(I)		Inhabits pools and slower runs of cool, gravelly or rocky headwaters, creeks, small rivers with high – moderate gradient
American Eel (*Anguilla rostrata*)	(MI)		Assuming they can pass the dam at a private pond west of Lambert Road, this species now has access to additional habitat upstream of the site
Brown Trout - Wild (*Salmo trutta*)	(I)		Not likely to pass the dam at a private pond west of Lambert Road and downstream of the site. Therefore, status on site is unknown

Data obtained from: http://www.cteco.uconn.edu/projects/fish/viewer/index.html

MI = Most Important; I = Important

Figure 5-5. The former cart path across the Indian River at the Ewen Preserve

5.2.6 Belknap Preserve

Site visits associated with the preparation of the Conservation and Management Plan for the Belknap Parcel Acquisition resulted in the documentation of over a dozen GCN species. These species, their conservation status, and additional notes are presented in Table 5-7 below. Among them is the state Special Concern Eastern Box Turtle. The mosaic of habitat types on the property meet the various needs of this species' life history. The remaining nine GCN species include herpetofauna, including two obligate vernal pool species; migratory birds, and plants with high wildlife value.

Table 5-7. Species of Conservation Concern Reported to Occur on the Belknap Preserve Site and Their Respective Conservation Status

Species of Conservation Concern	CTWAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Eastern Box Turtle (*Terrapene c. carolina*)	(VI)	(SC)		Evidence (shell) found on site Detected on site during preparation of the CMP. Extant population reported by CT NDDB to occur in the habitat block inclusive of the site
Gray Tree Frog (*Hyla versicolor*)	(I)			Detected on site during preparation of the CMP. Facultative vernal pool species (Kenney and Burne, 2000)
Wood Frog (*Lithobates sylvaticus*)	(I)			Detected on site during preparation of the CMP. Obligate vernal pool species (Kenney and Burne, 2000). Egg masses and young frogs found on site.
Spotted Salamander (*Ambystoma maculatum*)	(I)			Obligate vernal pool species (Kenney and Burne, 2000). Egg masses found on site during preparation of the CMP.
Northern Flicker (*Colaptes auratus*)	(VI)		BCC BCR30 – High Priority	Detected on site during preparation of the CMP.
Gray Catbird (*Dumetella carolinensis*)			BCC BCR30 – Moderate Priority	Detected on site during preparation of the CMP.
Wood Thrush (*Hylocichla mustelina*)	(MI)		BCC BCR30 – Highest Priority	Forest Interior-Edge Species. Documented during point count surveys conducted on site during the breeding season.
Veery (*Catharus fucescens*)	(I)			Detected on site during preparation of the CMP. Forest Interior Indicator species (Askins, 1987)
Eastern Wood-pewee (*Contopus virens*)	(I)			Detected on site during preparation of the CMP. Forest Interior Indicator Species (Askins, 1987)
Ovenbird (*Seiurus aurocapillus*)	(I)			Detected on site during preparation of the CMP. Forest Interior Indicator Species (Askins, 1987)
Scarlet Tanager (*Piranga olivacea*)	(VI)		BCC BCR30 – High Priority	Detected on site during preparation of the CMP. Forest Interior Indicator species (Askins, 1987)
Beaked Hazel (*Corylus cornuta*)	(I)			Detected on site during preparation of the CMP.
Lowbush Blueberry (*Vaccinium angustifolium*)	(I)			Dominant upland shrub of the Chestnut Oak forested ridgetops. Fruits eaten by Ruffed Grouse, Eastern Bluebird, Gray Catbird, Scarlet Tanager (Martin et al., 1951). Host plant for various rare Lepidoptera.
Highbush Blueberry (*Vaccinium corymbosum*)	(I)			Common in scrub/shrub swamps on site. Fruits eaten by Ruffed Grouse, Eastern Bluebird, Gray Catbird, Scarlet Tanager (Martin et al., 1951). Host plant for various rare Lepidoptera.
Sugar Maple (*Acer saccahrinum*)	(I)			Detected on site during preparation of the CMP.

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important; MI = Most Important; SC = Special Concern; VI = Very Important; MI = Most Important; I = Important

Figure 5-6. Spotted Salamander egg mass in a vernal pool at the Belknap Preserve

In addition to these species, the state special concern Spotted Turtle (*Clemys guttata*) was reported to occur in the West Branch of the Saugatuck River drainage on the adjacent Fromson/Strassler Property to the north (Markow, 1998). This species is identified in the CTWAP as a GCN-Important species. Since this species is reported to forage within vernal pools (Keeney and Burnes, 2002), the Belknap Parcel offers suitable foraging habitat for this species.

5.2.7 Grobe Upland Preserve

The applicant reported two listed species as a result of NDDB consultation, the Eastern Box Turtle and the Five-lined Skink. An extant population of the former species is likely to occur on the Grobe Parcel. However, details regarding the presence of the latter were not provided. The two species and their conservation designations are provided in Table 5-8. Klemens (1993) did not identify Bethany among the towns with current or historical records of the Five-lined Skink. There are, however, newly reported 2016 skinks records from the northwest corner of Bethany in the Naugatuck State forest (CTDEEP, unpublished data). No further details of this species on site were provided by the applicant, therefore the current status of the Five-lined Skink on site is unknown.

Figure 5-7. The Grobe Upland Preserve connects three existing Bethany Land Trust preserves that contain wetland and watercourse resources. Pictured here is the Mendell's Folly preserve.

Table 5-8. Species of Conservation Concern Reported to Occur on the Grobe Parcel and their Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Eastern Box Turtle (*Terrapene c. carolina*)	(VI)	(SC)		Reported by applicant based upon an NDDB record.
Five-lined Skink (*Eumeces fasciatus*)	(VI)	(T)		Reported to occur by NDDB on site or vicinity. Current records for this species reported in Northwest Bethany in 2017 (D. Quinn, personal communication). Current status on site is unknown
Gray Catbird (*Dumetella carolinensis*)			BCC BCR30 – Moderate Priority	Observed on site by FHI (June 2020)

Wood Thrush (*Hylocichla mustelina*)	(MI)		BCC BCR30 – Highest Priority	Reportedly observed within the contiguous habitat block by BLT members (White, 2019)
Veery (*Catharus fuscescens*)	(I)			Reportedly observed within the contiguous habitat block by BLT members (White, 2019)
Great-crested Flycatcher (*Myiarchus crinitus*)			BCC BCR30 – High Priority	Reportedly observed within the contiguous habitat block by BLT members (White, 2019)
Eastern Wood-pewee (*Contopus virens*)	(I)			Reportedly observed within the contiguous habitat block by BLT members (White, 2019)
Yellow-throated Vireo (*Vireo flavifrons*)			BCC BCR30 – High Priority	Observed on site by FHI (June 2020)
Ovenbird (*Seiurus aurocapillus*)	(I)			Observed during IRT site visit conducted on June 20, 2017 which is during the breeding period for this species
Louisiana Waterthrush (*Parkesia motacilla*)			BCC BCR30 – High Priority	Observed during IRT site visit conducted on June 20, 2017 which is during the breeding period for this species
Scarlet Tanager (*Piranga olivacea*)	(VI)		BCC BCR30 – High Priority	Observed during IRT site visit conducted on June 20, 2017 which is during the breeding period for this species
Baltimore Oriole (*Icterus galbula*)	(I)		BCC BCR30 – High Priority	Reportedly observed within the contiguous habitat block by BLT members (White, 2019)
Black Oak (*Quercus velutina*)	(I)			Observed during preparation of the CMP by the Forest Ecologist (White, 2019)
Lowbush Blueberry (*Vaccinium angustifolium*)	(I)			Dominant upland shrub of the forested ridgetops. Fruits eaten by Eastern Bluebird, Gray Catbird, Scarlet Tanager (Martin et al., 1951). Host plant for various rare Lepidoptera.
Sugar Maple (*Acer saccahrinum*)	(I)			

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important; MI = Most Important; I = Important; SC= Special Concern; T = Threatened

5.2.8 Stoeke Parcel Acquisition

The Stoeke Parcel lies within an area designated as a "terrestrial ecosystem core area" in the Nature's Network collaborative (defined above). As such, it is significant parcel to preserve to combat forest fragmentation and to protect core forests. The CT NDDB reported two species listed in the CT ESA as occurring in the vicinity of the preserve. Over a half a dozen more species with GCN status in the CT WAP were also noted on site. The species of conservation concern noted to date on the Stoeke Parcel are provided in Table 5-9.

Table 5-9. Species of Conservation Concern Reported to Occur on the Stoeke Parcel and their Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Northern Spring Salamander (*Gyrinophilus porphyriticus*)	(VI)	(T)		Reported for "vicinity of the preserve" by the CT NDDB (CTDEEP NDDB, 2019)
Broad-winged Hawk (*Buteo platypterus*)	(VI)	(SC)		Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species; Reported for "vicinity of the preserve" by the CT NDDB (CTDEEP NDDB, 2019)
Veery (*Catharus fuscescens*)	(I)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species. Also reported on site by White (2019).
Great-crested Flycatcher (*Myiarchus crinitus*)			BCC BCR30 – High Priority	Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Brown Creeper (*Certhia americana*)	(I)			Documented in HLT's CMP for the Stoeke Property (White, 2019)
Black-throated Blue Warbler (*Setophaga caerulescens*)	(VI)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Ovenbird (*Seiurus aurocapillus*)	(I)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Sugar Maple (*Acer saccharum*)	(I)			Documented in HLT's CMP for the Stoeke Property (White, 2019)
Highbush Blueberry (*Vaccinium corymbosum*)	(I)			Documented in HLT's CMP for the Stoeke Property (White, 2019). Fruits eaten by Ruffed Grouse, Eastern Bluebird, Gray Catbird, Scarlet Tanager (Martin et al., 1951). Host plant for various rare Lepidoptera.

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important;
VI = Very Important; I = Important; SC = Special Concern; T = Threatened

Figure 5-8. A palustrine emergent wetland complex within a utility line easement across the Stoeke Property. Photo Credit: Harry White

5.2.9 Danforth Property Acquisition

This parcel added another 15 acres to the existing 1300ac of connected forest, wetland and old field habitats that make up the Anton Forest. The site and adjacent existing protected lands of the Anton Forest are identified as Terrestrial Core Forest in the Nature's Network Conservation planning Area (CPA) https://nalcc.databasin.org/maps/new#datasets=a045195633fc479ba71652b8b8c23a9b . Such large blocks of unfragmented habitat with natural cover type diversity is of exceptionally high value to the state's biodiversity. Approximately 134 species of birds have been reported from the Anton Forest

https://ebird.org/hotspot/L2171925. This list includes species designated in the CT Endangered Species Act as Special Concern (e.g. Broad-winged Hawk), or Threatened (e.g., Bald Eagle), and several GCN species. Five GCN species – four birds and one amphibian) were noted during a site walk conducted by the IRT on one day in June 2017. An additional bird species – the Black-and-white Warbler – is also a regional conservation priority (Table 5-10). Many more GCN species, especially those that are representative of more northern climates, are expected to occur on site.

Figure 5-9. Eastern Newt (terrestrial Red Eft stage) on the forest floor of the Danforth Property

Table 5-10. Species of Conservation Concern Observed on the Danforth Property and their Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Black-billed Cuckoo (*Coccyzus erythropthalmus*)	(VI)			Heard calling during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Ovenbird (*Seiurus aurocapillus*)	(I)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Black-and-white Warbler (*Mniotilta varia*)			BCC BCR30 – High Priority	Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Veery (*Catharus fuscescens*)	(I)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Chestnut-sided Warbler (*Setophaga pensylvanica*)	(VI)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species
Eastern Newt (*Notophthalmus viridescens*)	(I)			Observed during IRT site visit conducted on June 19, 2017 which is during the breeding period for this species

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important; I = Important

5.2.10 Harrison Farm Preserve

The Harrison Farm Preserve abuts an extensive forested watershed protected by the South Central Regional Water Authority in North Branford Connecticut. The Lake Gaillard forest block encompasses thousands of acres and is therefore of high importance for biodiversity and conservation. The Harrison Preserve lies at the southeastern corner of the forest block. Although the property suffers from prolific invasive plant species, it none-the-less contains species of conservation concern. Acquisition of the property by the North Branford Land Trust, and subsequent funds for stewardship via the CT ILF Program, will now make it possible to address the conservation threats on the property and help to prevent their spread onto RWA watershed lands. Species of conservation concern reported to occur on the Harrison Preserve and their conservation status are presented in Table 5-11.

Table 5-11. Species of Conservation Concern Reported to Occur on the Harrison Preserve and Their Conservation Status.

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Wood Frog (*Lithobates sylvaticus*)	(I)			Obligate vernal pool species (Kenney and Burne, 2000). Breeds in a large vernal pool adjacent to the site. Harrison Preserve lies within the vernal pool envelope as defined by Calhoun and Klemens,
Spotted Salamander (*Ambystoma maculatum*)	(I)			Obligate vernal pool species (Kenney and Burne, 2000).
Gray Catbird (*Dumetella carolinensis*)			BCC BCR30 – Moderate Priority	Observed by PAC members during site walk
Wood Thrush (*Hylocichla mustelina*)	(MI)		BCC BCR30 – Highest Priority	Observed during Breeding Season June 20, 2017.
Yellow-billed Cuckoo (*Coccyzus americanus*)	(VI)			Detected during Breeding Season June 20, 2017.
Sugar Maple (*Acer saccharum*)	(I)			Observed by PAC members during site walk
Red Cedar (*Juniperus virginiana*)	(I)			Observed by PAC members during site walk

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important; MI = Most Important; I = Important

Figure 5-10. The Harrison Farm Preserve protects a large portion of the critical upland habitat associated with this vernal pool.

5.2.11 Dolan Pond Fishway

The Dolan Pond Dam was the second to the last barrier to the restoration of diadromous fish runs on the Falls River in Essex, CT. The last barrier is the Mill Pond Dam in Centerbrook, also scheduled for a fishway installation. Benefits of diadromous fish restoration are felt over an enormous area that extends for many river miles collectively from the upstream and downstream portions of a restored fishway, into Long Island Sound and even the open ocean. In the case of the Dolan Pond Dam/Falls River project, there were less than 100 river herring entering the stream prior to construction. When the full project objectives are met, there will be an estimated 100,000 river herring entering this stream and the benefits will extend well beyond the ~50 acres of the habitat upstream of the two dams. Moreover, the benefits go beyond fish. These fish import significant amounts of marine derived nutrients that fuel the food webs all along the migratory path, enhancing the Wildlife Habitat function of the watercourse. A myriad of species feed on the river herring (and other species) at all life stages, including osprey, eagles, cormorants, mergansers, many species of colonial nesting birds such as terns, egrets and herons, kingfishers, owls, shearwaters, gannets, and other seabirds, as well as otter, mink, freshwater fish (e.g. largemouth bass, chain pickerel, trout), saltwater fish (e.g. striped bass, bluefish, tuna), and marine mammals (e.g. whales, porpoises, seals). In addition, river herring are under great risk and may soon be considered once again for listing under the federal Endangered Species Act. All diadromous fish species are listed as Species of Greatest Conservation Need in the State Wildlife Action Plan. The species anticipated to benefit from the Dolan Pond Dam Fishway are provided in Table 5-12, below.

Table 5-12. Species of Conservation Concern Reported to Occur In the Falls River and their Conservation Status

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA Status	Other	Notes
Alewife (*Alosa pseudoharengus*)	(MI)		Former Petition Species		Status Review (NMFS, 2019) found listing under ESA not warranted at this time
Blueback Herring (*Alosa aestivalis*)	(MI)	(SC)	Former Petition Species		Status Review (NMFS, 2019) found listing under ESA not warranted at this time
American Eel (*Anguilla rostrata*)	(MI)			ASMFC - Managed Species	Requires rivers, streams, ponds, and the shallow, more productive areas of lakes; spawns in Sargasso Sea

ASMFC – Atlantic States Marine Fisheries Commission; MI = Most Important; SC= Special Concern

Alewife and American Eel are not the only species of conservation concern to benefit from the Dolan Pond Fishway. The state special concern Blueback Herring (*Alosa aestivalis*) occurs sympatrically with Alewife in the Connecticut River and when the fishway was designed and constructed, it was thought the species may

run up the Falls River as well. This species is identified in the CT WAP as GCN – Most Important. It was thought that the restoration of habitat connectivity in the Falls River might benefit Blueback Herring as well by opening up the additional reach of river upstream of Dolan Pond Dam. However, unlike Alewife, Blueback Herring do not spawn in lentic habitats when they co-occur with Alewife, but instead spawn in the lotic portions of rivers and streams (Munroe, 2002). Therefore, it is unclear if Blueback Herring will benefit to the same extent as Alewife from reaching the 48-acre Mill Pond. However, their young utilize lentic habitats similar to the young of the Alewife. There is a section of free-flowing stream upstream of Mill Pond so that Blueback Herring could spawn in that lentic habitat and their young will drift down into the lotic habitat of Mill Pond.

Editor's Note: The Dolan Pond Fishway was operated for the first time in 2020 and DEEP biologist confirmed the passage of both Alewife and Blueback Herring through the fishway the very first year. The DEEP was not able to confirm spawning but has no reason to doubt that it took place (S. Gephard, personal communication). These results prove that both species are in the river and capable and motivated to use the fishway. Increases in run size will take many years as the offspring from the early spawners return 'home' to spawn themselves.

5-11. The completed Dolan Pond Fishway on the Falls River in Centerbrook Village, Essex, CT.

5.2.12 Wimisink IBA Expansion

One hundred and thirty-nine species of birds have been reported to occur in the Wimisink Preserve in Sherman, CT. Among that impressive list of species, over a dozen have been reported to occur during the breeding season. The Wimisink IBA expansion project effectively extends the northeastern limits of the protected lands within the IBA. This expansion site will be of particular importance to the species listed in Table 5-13, especially the federally protected Bog Turtle (*Clemmys muhlenbergii*) The United States Fish and Wildlife Service Bog Turtle Recovery Plan identifies the protection of "Bog Turtle sites through purchase and conservation easements" as Task No. 2.3 under Task 2.0 "Secure the long-term Protection of Bog Turtle sites" (USFWS, 2001).

Table 5-13. Species of Conservation Concern Reported to Occur in the Wimisink IBA

Species of Conservation Concern	CT WAP GCN Rank	CT ESA Status	Federal ESA or USFWS Partner Status	Notes
Bog Turtle (*Glyptemys muhlenbergii*)	(MI)	(E)	(E)	Found on site by property owner, confirmed by CTDEEP (Jenny Dickson, personal communication)
Least Bittern (*Ixobrychus exilis*)	(VI)	(T)	BCR30 – Moderate Priority	eBird reports, June 2020
American Woodcock (*Scolopax minor*)	(MI)		BCR30 – Highest Priority	eBird reports, June 2020
Sora (*Porzana carolina*)	(I)		BCR30- Moderate	eBird reports, June 2020
Northern Flicker (*Colaptes auratus*)	(VI)		BCR30 – High Priority	eBird reports, June 2020; High Priority designation applies to breeding, wintering, and migrating birds for this species
Gray Catbird (*Dumetella carolinensis*)			BCR30 – Moderate Priority	eBird reports, June 2020
Wood Thrush (*Hylocichla mustelina*)	(MI)		BCR30 – Highest Priority	eBird reports, June 2020
Veery (*Catharus fucescens*)	(I)			eBird reports, June 2020
Eastern Wood-pewee (*Contopus virens*)	(I)			eBird reports, June 2020
Eastern Kingbird (*Tyrannus tyrannus*)	(I)		BCR30 – High Priority	eBird reports, June 2020
Willow Flycatcher (*Empidonax traillii*)	(I)		BCR30 – High Priority	eBird reports, June 2020
Northern Waterthrush (*Parkesia noveboracensis*)	(I)			eBird reports, June 2020

Rose-breasted Grosbeak (*Pheuticus ludovicianus*)	(I)			eBird reports, June 2020
Eastern Towhee (*Pipilo eurythrophthalmus*)	(VI)		BCR30 – High Priority	eBird reports, June 2020; High Priority designation applies to breeding, wintering, and migrating birds for this species
Indigo Bunting (*Passerina cyanea*)	(VI)			eBird reports, June 2020
Baltimore Oriole (*Icterus galbula*)	(I)		BCR30 – High Priority	eBird reports, June 2020

BCC = Bird Species of Conservation Concern; BCR30 = Bird Conservation Region 30; VI = Very Important; MI = Most Important; I = Important; T = Threatened; E = Endangered

Purchase of a conservation easement to extend the protections of wetland habitat contiguous with the Wimisink Marsh is also consistent with Audubon's Important Bird Area Conservation Initiative. Audubon's Important Bird Area Program began in 1995 and is a partnership between Audubon and BirdLife International. The program is part of a global effort to identify sites that are most important for maintaining populations of birds and to focus conservation efforts toward protecting these sites. Important Bird Areas

5-12. Bloomingfields Farm adjacent to the Wimisink Swamp Important Bird Area

are sites that provide essential habitat for one or more species of birds. IBAs may include public or private lands and may or may not include areas currently designated as protected land.

Expansion of the IBA is also consistent with the Highstead Foundation's H2H Regional Conservation Partnership, a partnership that links Westchester County, NY with Fairfield County, CT by aligning conservation goals in this geographical area. According to the H2H Mission: "The H2H partner network advances the pace and practice of regional land protection and stewardship from the Hudson to the Housatonic by collaborating across boundaries to enhance the connection between people and nature". The H2H Regional Conservation Partnership vision that "A landscape mosaic abundant in forests, farms, wildlands, and waterways of the Hudson to Housatonic Region enriches the quality of life for all who live, work and play here" is supported by strategic land protections such as the Bloomingfields Farm conservation easement as it expands existing habitat, conserves a waterway, and provides a wildlife corridor to additional protected lands to the north.

6 Constraints, Conclusions, and Recommendations for Program Improvements

Implementation of the CTILF Program officially commenced with the signing of the program instrument on August 21, 2013. Advanced credit sales accrued money within the six service areas to offer the first CT ILF program grant in 2016. From 2016 to 2017, the grant program generated 12 compensatory mitigation projects that have been consistent with the program's conservation goals and objectives, which are consistent in multiple ways with state and regional conservation initiatives.

However despite this consistency, the program continues to be constrained by CTDEEP policy of not allowing in lieu fee payments to compensate for impacts to state regulated resources. As a result, Audubon has received feedback from prospective clients of credit sales that they feel they are "paying twice" for wetland mitigation. Once for credit sales in the ILF program when applying for federal permits, and a second time to comply with state mitigation requirements when applying for state wetland permits. This disconnect should be rectified by modification of the Connecticut Wetlands Protection Act which currently does not allow for payments in lieu of mitigation for state wetland resources (note: the federal ILF Program in CT did not exist when the CT Wetland Protection Act was signed into law).

Regardless of this constraint, the first five years of the program has granted $1,536,896 toward the restoration, enhancement and preservation of sites throughout CT that have resulted in the protection of over 67 total acres of wetlands and restored or enhanced the connection of 4.3 linear miles of stream corridor for fish passage. Collectively, these projects have leveraged not only an additional $668,638 worth of matching funds but also additional matching labor and equipment resources. Still more economies were realized as some property owners agreed to bargain sales of their property to a conservation entity since the land would be protected in perpetuity for conservation purposes.

All 12 projects funded by the ILF Program during the reporting period have met one or more conservation objectives for their respective service areas and are consistent with multiple state, regional, and federal natural resource conservation plans. These 12 compensatory projects have secured the restoration,

enhancement, or preservation of dozens of species of conservation concern identified by the CTDEEP Wildlife Action Plan. These species span numerous plant and animal taxa and include approximately 26 species listed in the CT Endangered Species Act, two of which are also listed in the federal Endangered Species Act. Additionally, the ILF projects have secured the preservation of rare habitats and parcels within core forests. Many of these habitats have not been fully inventoried for rare species. Based upon the presence of the rare habitats, and the habitat attributes, many more rare species are expected to occur on these ILF-protected properties, and are likely to be documented as the resources of these properties continue to be investigated and inventoried. Therefore, the ILF Program is consistent with CTDEEP biodiversity conservation strategies and initiatives and is sometimes the catalyst for affecting these biodiversity conservation actions in the state.

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Appendix A - CT ILF Evaluation Criteria

The following criteria is used to rank proposals. Applicants are encouraged to structure their full proposals such that specific sections are organized in a similar way that provide information to address the following:

Criteria 1 – Project Potential to Meet Audubon CT ILF Program Goals (30%). The proposal meets the core program requirement to restore, enhance, preserve or create aquatic resources and that all project sites must be conserved in perpetuity by appropriate easement or other legal mechanism. Considerations include:

a) The sustainability of the proposed mitigative actions (restoration, enhancement, preservation, creation) and the acreage proposed for each or any of these. To fully meet this criterion, projects cannot be preservation only.

b) The resource types to be restored, enhance, preserved or created and the degree to which the proposed project replaces the functional benefits of impacted resources in the service area based on a functional assessment of the project.

c) Proximity of the proposed project to impacts within the same service area.

d) For preservation projects, the type and likelihood of the threat of degradation to the site over the next twenty years.

e) Inclusion of upland areas sufficient to protect, buffer, or support identified aquatic resources and ecological connectivity to other conservation areas or undeveloped large blocks of habitat.

f) Current and proposed condition of the property, and "functional lift" provided by the project (e.g., proposed change in habitat quality, contribution to functioning biological systems, water quality, level of degradation, etc.)

g) Other specific conservation objectives developed for the major watershed basin within which the project exists.

Criteria 2 – Project's Landscape Context (20%). The proposal meets the core program requirement to consider the location of a potential project relative to statewide focus areas for land conservation or habitat preservation identified by a state agency, other regional or municipal plans, or Audubon CT.

a) Presence within or adjacent to habitat areas of statewide conservation significance or other natural resource priority areas.

b) Presence within or adjacent to public or private conservation lands that maintain and preserve habitat connectivity.

c) Presence of natural resources of significant value and/or rarity within the project site boundaries.

Criteria 3 - Project Readiness/Feasibility (20%). The proposal meets the core program requirement to demonstrate project readiness and likelihood of success, where success is defined by the ability of the project to meet Audubon CT ILF Program goals and objectives in a reasonable time period. Considerations include:

a) Documentation of landowner willingness to participate in the proposed project, including conveying a conservation easement or fee title, with conservation covenants, to the property (for projects not on public or private conservation lands).

b) Level of project urgency (e.g., area of rapid development or on-going site degradation, other available funding with limited timing, option to purchase set to expire, etc.)

c) Degree to which the proposal demonstrates understanding of resource conservation issues and needs.

d) Soundness of the technical approach of the conceptual plan presented in the proposal.

e) Initial progress (e.g., planning, fundraising, contracting, site design, etc.)

f) Likelihood that the project will meet proposed schedule and/or required deadlines.

g) Likelihood that the proposed actions will achieve the anticipated ecological benefits and results.

h) Completeness and feasibility of long-term stewardship and monitoring plan, including endowment.

i) Potential for adverse impacts (such as flooding or habitat loss) associated with the project.

j) Conformance with any applicable Corps and state mitigation policy, guidance and permitting requirements, including appropriate financial assurances for any construction activity.

Criteria 4 - Project Sponsor Capacity (15%). The proposal meets the core program requirement to provide for long-term management and/or stewardship by a responsible state or federal resource agency, municipality, or conservation organization. Considerations include:

a) Presence of qualified, capable conservation entity willing to sponsor and/or maintain the project.

b) Level of support and involvement of other relevant agencies, organizations and local community.

c) Degree to which the project sponsor, and any associated partners, demonstrate the financial, administrative and technical capacity to undertake and successfully complete the project.

d) Adequacy of long-term stewardship to ensure the project is sustainable over time and a funding mechanism for the associated costs (e.g., endowment or trust).

e) Legal and financial standing of the project sponsor.

f) Quality and completeness of proposal materials.

Criteria 5 – Project Cost Effectiveness (10%). The proposal meets the core program requirement that a project uses its funds efficiently given the condition, location and relative appraised value of property(ies). Considerations include:

a) Clarity and detail of budget submitted.

b) Sufficiency of funds available in the applicable service area (major watershed basin).

c) Availability and source of matching funds necessary to complete the project.

Criteria 6 - Other Project Benefits (5%). The Application assesses the potential for the project to support economic activity, job creation, recreational access, scenic enhancements or other contributions to the environmental quality of the area where the project is located.

Appendix B – CT ILF Project Summaries

Award Year Project Name Town	Total Cost CTILF Award % Total	Project Summary Bolded numbers denote project boundaries on corresponding maps for each service area
Housatonic River Service Area (HOUS)		
2016 **Salmon Kill Creek Restoration** Salisbury, CT	$179,720 **$122,000** 68%	**HOUS – 1** - The Salmon Kill Restoration Project provided the continuation of a multiphase project initiated by Trout Unlimited to restore reaches of the Salmon Kill, a low order upper perennial watercourse in northwestern CT. Restoration measures were needed to address habitat fragmentation issues for native Brook Trout (*Salvelinus fontinalis*) – a keystone coldwater fishery species for this riverine system. The landowner is the Weantinoge Heritage Land Trust and the adjacent pasture is leased to a cattle farmer who raises grass-fed beef and is supportive of the project. Seven discrete reaches of the Salmon Kill are in various stages of restoration. Prior to the application to the ILF program, construction at Sites 1 and 6 had not yet commenced due to lack of funding. TU acquired $122,000 to implement the proposed restoration measures at Sites 1 and 6 - two reaches of the stream that bisect agricultural lands (currently used as cattle pastures). At both sites 1 and 6, various wood treatments, plantings, and channel modifications were funded by the ILF program. These treatments provided stabilization of bank erosion, and provided habitat cover and other stream attributes conducive to coldwater fisheries sustainability within the Salmon Kill.
2016 **Stratford's Lordship Point Spartina Marsh Restoration** Stratford CT	$500,000 **$250,000** 50%	**HOUS – 2** - Sacred Heart University (SHU) obtained funds from the Connecticut ILF Program to restore intertidal habitats from low marsh on the seaward end to coastal dune habitat at the landward end along the Housatonic River Estuary shoreline at Stratford's Lordship Point. These endpoints are integral components of a larger Stratford Point restoration plan prepared by Connecticut Audubon Society in 2011. SHU obtained $250,000 of funding to procure and plant all smooth cordgrass (*Spartina alterniflora*) in the lower intertidal zone to replace a low elevation tidal marsh lost due to historic site activities and ensuing coastal erosion. Additionally, short smooth cordgrass and salt meadow cordgrass (*Spartina patens*) were planted in the upper intertidal zone to replace high elevation tidal marsh; and beachgrass (*Ammophila breviligulata*), switchgrass (*Panicum*

		virgatum), Seaside Goldenrod (*Solidago sempervirens*) and other native species were planted to restore the coastal dune.
2017 **Wimisink Marsh Expansion** Sherman, CT	$205,600 **$140,500** 68%	**HOUS – 3** - The Naromi Land Trust used ILF funding to purchase a perpetual conservation easement over 20 acres of private land known as Bloomingfields Farm at #9 CT Route 55 in Sherman, CT. The Farm is located adjacent to the Wimisink Preserve in Sherman, owned by Naromi Land Trust. The Wimisink Preserve is an Audubon-designated Important Bird Area and is home to numerous bird and butterfly species of conservation concern including species listed on both the Federal and state Endangered Species Acts. Bloomingfields Farm is a keystone parcel in the continued protection and expansion of the Wimisink Preserve. Naromi Land Trust holds the conservation easement, and Weantinoge Land Trust serves as a back-up grantee and holds enforcement rights. This arrangement ensures that (a) if Naromi becomes the fee-title owner in the future (a possibility), Weantinoge will become the easement holder and, in effect, the property will enjoy 2 layers of protection; and (b) should there be a major violation, the resources of both organizations can be brought in to resolve such a violation
2017 **Grobe Parcel Acquisition** Bethany, CT	$73,571 **$73,571** 100%	**HOUS – 4** – Using ILF Funds, the Bethany Land Trust acquired 25 acres of undeveloped forested land. The Parcel is located in an area of un-fragmented upland forest which completes a connection between two existing Bethany Land Trust preserves, Mendell's Folly (125 acres) to the north and west and the Woodward Preserve (36 acres) to the south. Mendell's Folly contains Hockanum Brook (also known as Lebanon Brook), and an unnamed tributary stream, and a large wetland area subject to periodic beaver activity. The Woodward Preserve contains a large wetland area just south of the Grobe parcel. The Grobe Parcel acquisition preserves the critical upland recharge zone just north of this wetland. Together the parcels form a habitat block of 186 acres of BLT protected lands in a larger area of ecological integrity which includes the Naugatuck State Forest directly across Route 42 to the north. The Town of Bethany also owns a large block of undeveloped land proximal to the east.
CT River Service Area (CTRV)		
2016 **Zemko Sawmill Preserve Expansion** Salem, CT	$50,825 **$65,825** 77%	**CTRV-1–** The Salem Land Trust used ILF funds to acquire four contiguous parcels adjacent to the Zemko Preserve (originally approved as residential building lots) that were available for sale by a private landowner. These parcels lie within the Eight Mile River Watershed and contain a headwater stream that bisects a Palustrine Forested wetland. The Eight Mile River has a national Wild and Scenic River designation. The four contiguous parcels provide a wooded buffer to a larger interspersed palustrine wetland system on the adjacent Zemko Sawmill Preserve, which is also drained by an intermittent stream that contributes flow to the Eight Mile River.

		The acquisition of these parcels extends the protection of the habitats in the existing Zemko Sawmill Preserve. The estimated acquisition cost was $50,825. The Salem Land Trust received $15,000 from the ILF program with the balance of the acquisition cost ($35,825) acquired via other sources (i.e., donors and foundations).
2017 **Stoeke Property Acquisition** Hartland, CT	$197,895 **$192,000** 97%	**CTRV – 2** - Hartland Land Trust (HLT) acquired an ILF grant of $192,000 to purchase approximately 67.7 undeveloped acres of the Stoeke property in West Hartland, Connecticut for the purpose of it being forever held in its natural state. This acquisition preserves the property's wetlands and its uplands for water quality as well as for maintaining natural habitat for the rich diversity of plant and animal life on the property. The property drains into both the east and west branches of the Wild and Scenic Farmington River, essential to the drinking water supply for the greater Hartford region and an important tributary of the Connecticut River. Preserving the Stoeke property in perpetuity builds on existing conservation lands in countering fragmentation and sensitive habitat loss. The property borders Tunxis State Forest and HLT's Bassett-Kell Preserve, and is connected to the nearby Audubon Pasquariello Property through the Bassett-Kell Preserve).
2017 **Danforth Property Acquisition** Colebrook, CT	$60,000 **$50,000** 83%	**CTRV – 3** – Aton Forest, Inc. used ILF funds to acquire 15 acres of undeveloped land in the Town of Colebrook adjacent to Aton Forest, a 1300-acre field research station and nature preserve. The organization has been protecting this core of contiguous lands not only to preserve these as open space, but also to conduct and promote natural history studies. The newly acquired Danforth property contains a mature palustrine forested evergreen (Eastern Hemlock) hillside seepage forest that drains to Sandy Brook, a riverine unknown perennial, unconsolidated bottom watercourse that drains to the Still River and eventually to the Farmington River via the West Branch.
2017 **Dolan Pond Fishway** Essex, CT	$170,000 **$150,000** 88%	**CTRV– 4** – The Nature Conservancy used CT Wetland ILF funds to pay for the construction of a steep-pass fishway recessed into the fieldstone dam at Dolan Pond in Centerbrook, CT. The dam was the second to the last barrier in a series of dams that blocked access of river herring to the spawning habitat in Centerbrook's 48-acre Mill Pond. In a separately-funded project, a fishway was subsequently installed on the last barrier – the Mill Pond Dam – in 2019, completing the restoration of historic river herring runs on the Falls River in Essex.
Thames River Service Area (THRV)		
2016 **Lucaszek Property Acquisition**	$300,000 **$250,000** 83%	**THRV – 1** -The Wyndham Land Trust acquired 76.6 acres of land adjacent to Long Pond in Thompson CT using ILF funding. This property was a significant acquisition as it provides the sole access to additional land-locked undeveloped and forested land surrounding Long Pond. As a result of this

Thompson, CT		preservation project, 13.4 ac of palustrine unconsolidated bottom (PUBHh) wetland, 15 acres of Palustrine scrub/shrub (PSS3Ba), and additional unknown of palustrine emergent (PEM1Fh) wetland. The project preserves not only Long Pond but also the source water of the Five Mile River and rare wetland community types (e.g., Atlantic White Cedar Swamp, Black Spruce Bog, etc.) that support at least a dozen CT Threatened & Endangered spp. & other species identified as Greatest Conservation Need (GCN) in the Connecticut Wildlife Action Plan.
Southwest Coast Service Area (SWC)		
2017 **Belknap Property Acquisition** Weston, CT	$388,770 **$200,000** 51%	**SWC -1** - The Aspetuck Land Trust (ALT) acquired ILF funding to help purchase a portion of a 38-acre parcel adjacent to Aspetuck Land Trust's existing 81-acre Honey Hill Preserve located at the terminus of Wampum Hill Road in Weston, CT. The ALT also purchased a conservation easement over the remainder of the property. The property is a key parcel in Aspetuck Land Trust's forest block assemblage project to eventually conserve 410 acres in one of the last undeveloped interior forest blocks in Weston and Wilton, CT. The forest block assemblage project is adjacent to the Norwalk River Valley Trail and contains protected lands owned by the Wilton Land Conservation Trust, Aspetuck Land Trust, The Nature Conservancy, and undeveloped municipal land owned by the towns of Wilton and Weston. Taken together, these lands encompass 2,652 acres of undeveloped open space. To the east of this area is the Saugatuck Reservoir and Aspetuck Land Trust's 1,009- acre Trout Brook Valley Conservation Area which is surrounded by 10 square miles of Centennial Watershed State Forest and Aquarion Water Company lands. The subject property and surrounding lands were identified as "Undeveloped Lands of Regional Conservation Value" (top 33% of undeveloped lands in the county) by the Fairfield County Regional Conservation Partnership. The Belknap Property contains palustrine forested and scrub/shrub wetlands, vernal pools, and headwater streams to the West Branch of the Saugatuck River.
South Central Coast Service Area (SCC)		
2016 **Indian River Culvert Removal** Orange, CT	$8,282 **$8,000** %96	**SCC-1** - The Town of Orange Conservation Commission funded the removal of under-sized culverts from the Indian River. These culverts periodically accumulate debris in the spring and during large storm events causing the stream to jump its channel and flow across an adjacent farm field. Removal of these culverts would prevent that from continuing and thus remove an impediment to Brown Trout and other fish movement within the Indian River system. The east side of the bridge is Orange

		Open Space Conservation Land (known as the Ewen Preserve) and the west side is private property (the Ewen Farm).
2017 **Harrison Preserve Stewardship** No. Branford, CT	$55,871 **$50,000** 89%	**SCC – 2** - Ethyl and Dudley Harrison, lifetime residents of North Branford, CT donated two tracts of land located at 89 North Street, North Branford, CT to the North Branford Land Conservation Trust, Inc. (NBLCT). The property encompasses approximately 18+ acres of land together with an easement and right of way extending from North Street in the town's Historic District. The Harrisons wish was for the land to be conserved in perpetuity primarily as woodlands, forest, and wetlands, with one open field. NBLCT is accepted the land on condition that it could acquire funding for the conveyance and proper stewardship of the property to protect the natural resources. this land as a donation and agrees to protect and provide stewardship of the property as open space. NBLCT applied to and received funding to cover the cost of the conveyance, parcel surveys, title search, closing costs, and subsequent stewardship including the preparation of a conservation and management plan. The property contains a reach of the Branford River headwater stream, a large vernal pool and Palustrine Forested Broad-leaved deciduous forest wetland (Red Maple swamp)