



*Northern Goshawk*

## Management Direction and Implementation

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## **Chapter 4**

### **Management Direction and Implementation**

#### **Introduction**

This chapter describes an array of management objectives that work best toward achieving the refuge purposes, its vision, and the six primary conservation goals identified in chapter 1. We believe implementation of these objectives will also effectively address many conservation priorities of other Service, State, and regional conservation plans and the key issues raised during plan development as described in chapter 2.

This chapter also identifies “Other Management Activities” that do not specifically interconnect with any of the six goals developed for the CCP. For example, the strategies and actions related to cultural, archaeological and historic resources may not fit under habitat or public use goals, but are important nonetheless. Other Management Activities are described at the end of this chapter.

#### **Background**

Iroquois Refuge was one of the first Important Bird Areas (IBA) identified in New York State. This designation was prompted by the significant diversity of bird species supported by refuge habitats, especially wetlands. The wetlands of Iroquois Refuge support thousands of waterfowl during spring and fall migration. Refuge wetlands support a heron rookery and provide habitat for nesting bald eagles and for many bird species of special concern in the State of New York including the black tern. The refuge’s forested wetlands provide habitat for many songbirds of conservation concern as well.

National wildlife refuges are important for both rare and common species and generally provide habitat for high concentrations of birds. This underscores the role of refuges to provide places where wildlife comes first (NWRSIA 1997). National wildlife refuges are also models and demonstration areas for habitat management. To succeed in that mission, refuges need to engage the public in understanding and participating in the stewardship of refuge resources. Hunting, fishing, trapping, and wildlife viewing have long traditions in western New York, including in and around Iroquois Refuge. To ensure conservation and management of the resources entrusted to its care, the refuge needs to capture the interest and good will of traditional users and new visitors. With enhanced public outreach, interpretation, environmental education, and well-managed public use opportunities, traditional users and new visitors may become partners.

A refuge does not exist in isolation from its surrounding landscape. That is particularly true of Iroquois Refuge, located within the “Alabama Swamps” and in the heart of the Oak Orchard watershed. Habitats and wildlife populations are affected by land uses within the watershed including the effects of water quantity and quality. The refuge needs to expand its work with adjacent landowners, watershed residents and conservation partners within the basin to ensure a healthy, functioning refuge.

We believe this CCP provides the best approach to meet refuge challenges and opportunities. This CCP will result in an understanding of the refuge resources used by threatened and endangered species, migratory birds, and resident wildlife; the protection and enhancement of those resources; the protection of water quality; the restoration of refuge habitats; and the accessibility of the refuge to the public for compatible, wildlife-dependent public uses. The result is a set of goals, objectives and strategies related to key issues that will guide management of the refuge for the next 15 years. Students, interns, and volunteers, including Friends of Iroquois Refuge, are valuable partners in helping the refuge achieve the objectives set out in this management action.

Providing high quality migratory bird breeding, brood rearing, and migration habitat has been the primary objective of the refuge’s habitat management programs since its inception. At the same time, we have provided secondary uses through high quality recreational activities like hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. Balancing these two principles is paramount to the refuge’s wildlife management and public use programs. Throughout this chapter we have maintained this balance by either continuing existing public recreation activities as they are currently managed or making changes that we feel will bring these activities in line with the Service’s “Wildlife First” principle.

The refuge is required to conduct written compatibility determinations for recreational and economic uses. Compatibility determinations evaluate potential impacts to refuge resources in relation to the purpose the refuge was established and the mission of the National Wildlife Refuge System. Compatibility determinations for recreational and economic uses in this CCP can be found in Appendix B. In developing compatibility determinations we considered the available research, historical interactions between refuge visitors and wildlife, and our best professional judgment. The disturbance impacts to wildlife as a result of public recreation have been documented in the scientific literature including Boyle and Sampson 1985, Burger and Gochfeld 1998, Gutzwiller et al. 1994, Kight and Swaddle 2007, to name a few. The field of animal behavior research, as related to human recreation, is relatively small and in need of further study. However, the available literature suggests that essentially all types of public recreation that have been studied may show some level of disturbance to wildlife.

Where quantitative information was lacking, we generally tried to keep potential wildlife disturbance to a minimum while still providing some level of high quality recreation. Ultimately, some level of wildlife disturbance will occur from certain public recreation activities on the refuge. However, if managed properly, this disturbance need not detract from our goal of providing high quality wildlife habitat for migratory birds and resident wildlife.

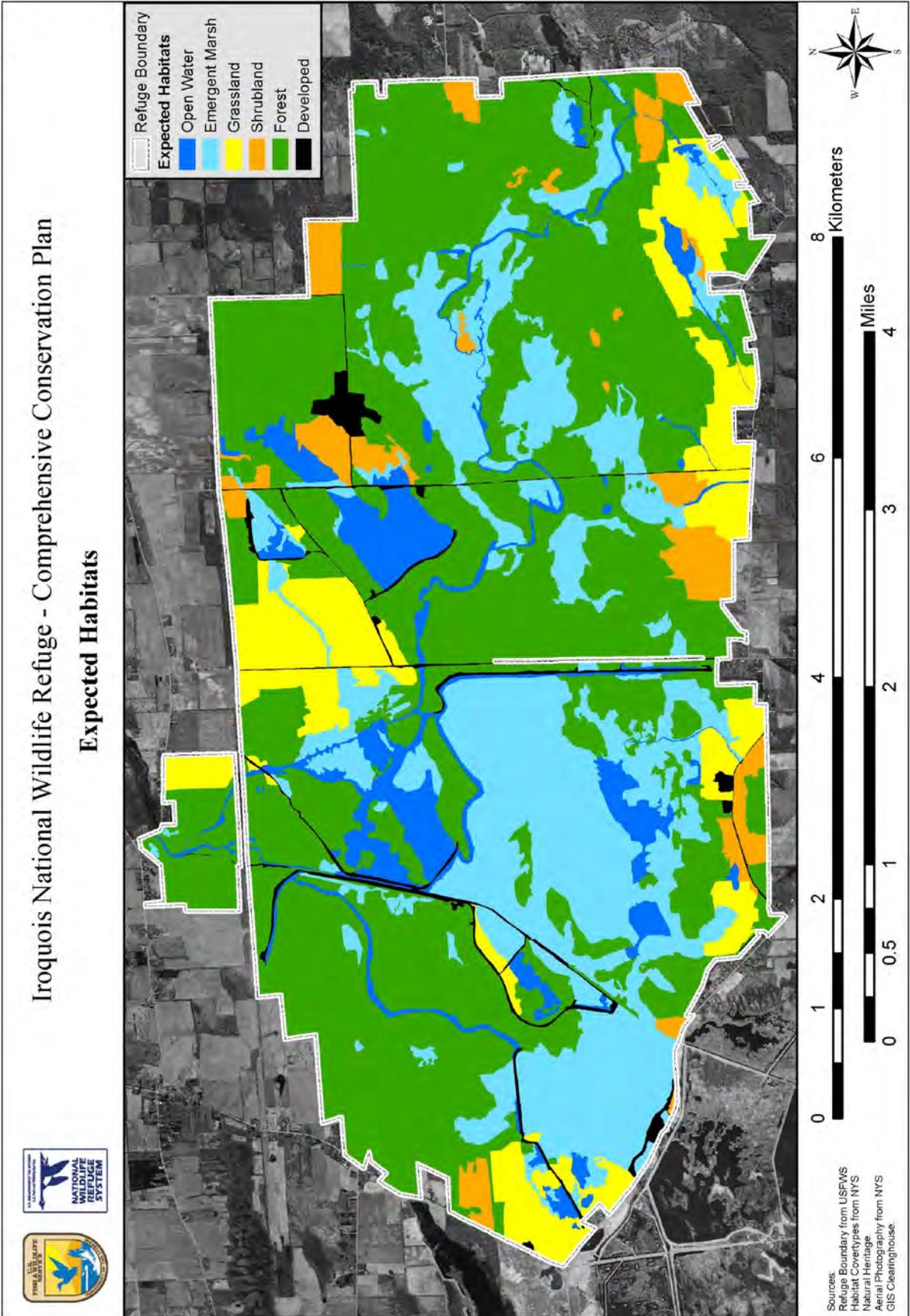
### ***Habitat Conditions***

Refuge habitat conditions will change in response to management decisions that focus on decreasing habitat fragmentation and restoring native habitats (table 4-1 and map 4-1). Refer to map 3-5 in chapter 3 for a visual comparison of expected habitats with current habitat conditions. Management of refuge impoundments will not change in respect to past management activities. Therefore, there will be no expected changes in the amount of open water and emergent marsh available to wildlife. Early successional habitat including grasslands and shrublands will increase slightly compared to the past as the refuge removes remaining hedgerows and improves connectivity between these habitats. Forest acres will increase more than any other habitat in response to the removal of 200 acres of non-native conifer plantations. Plantations will be replaced with native forest species best suited for individual sites. Some plantations that are in shrubland management areas will be converted to native shrub species as well.

**Table 4-1 Habitat Acres**

<b>Habitat Acres and Difference from Past Management</b>			
<b>Habitat</b>	<b>Past Management</b>	<b>Planned Management</b>	<b>Difference</b>
Open Water	823	823	0.00
Emergent Marsh	2,581	2,581	0.00
Grassland	1,048	1,073	25
Shrubland	526	539	13
Forest	5,402	5,570	168
Conifer Plantation	200	0.00	-200
Developed	248	242	-6
<b>Total</b>	<b>10,828</b>	<b>10,828</b>	

Map 4-1



***Public Access***

Prior to the completion of this CCP, visitors were required to stay on designated trails from March 1 through July 14 to limit disturbance during spring migration, nesting and brood rearing seasons. Visitors then were allowed to wander unrestricted from July 15 through the end of February. Recently, we have seen an increase in the number of visitors accessing off-trail areas of the refuge, particularly in the late-summer and fall. Additionally, visitors are increasingly accessing wetland areas which in the past were left relatively undisturbed.

Implementation of this CCP will change how unrestricted access is managed on the refuge. We will continue to allow unrestricted access in refuge uplands from October 1 through the end of February, excluding any sensitive areas such as bald eagle nesting sites, archeological sites, commercial facilities, construction areas, etc. Hiking and walking in and around wetland units will be restricted year round unless visitors are engaged in an authorized hunting, educational, or other special use activity. Restricting access to refuge wetlands will reduce/eliminate human disturbance when waterfowl and other migrating birds are using these wetlands to rest and feed. The refuge is a significant migration stopover area for waterfowl and other waterbirds and ongoing disturbance in impoundments directly impacts our ability to meet our wetland habitat objectives and adds to the cumulative impact of our waterfowl hunting program.

**Refuge Activity, Hunting, and Special Use Fees**

Refuge lands offer many recreational opportunities. However, the costs to maintain those activities continue to increase while revenues continue to decline. Maintaining gravel roads and other facilities and structures requires increasing staff time and financial resources. To help offset the increasing administrative costs associated with managing and overseeing recreational uses, we will continue collecting fees associated with hunting activities and special use permits. In addition, we will modify the hunting fee program. Eighty percent of revenues generated by the collection of fees for refuge programs will be retained to enhance visitor services and maintain recreation facilities at Iroquois Refuge. We use the remaining 20 percent in the Northeast Region for region-wide projects to improve and maintain visitor services, address visitor and staff health and safety, and pay for overhead associated with the recreation fee program and the Service in general.

The refuge will implement a permit system where a general permit will be available for hunting upland game, other migratory birds, and big game. An application fee will be charged for all controlled hunts that involve a lottery system which currently includes the spring turkey hunt and waterfowl hunting. The refuge will also investigate the effectiveness and feasibility of conducting a lottery draw for high use days during the deer firearm season.

Golden Age Passport holders, Golden Access Passport, and certain America the Beautiful Interagency Senior Pass Holders will still be entitled to half-price hunting fees under this management action. The refuge will continue to collect special use permit fees for haying; an activity that supports management of our grasslands. Currently, these permits are based on a minimum bid system that depends on how many acres are available for haying. We may add or adjust activity, hunting, and special use permit fees over the 15-year period of this plan to reflect changes in administrative costs, management goals, or policy.

Fees will not be charged for certain programs including Refuge Youth Hunt Programs, special events like Spring into Nature and the Youth Fishing Derby, and interpretive programs conducted by the Iroquois Observations (IO) program and refuge staff.

In addition to the fee program mentioned above, we anticipate that the Friends of Iroquois Refuge will continue to support the refuge using a portion of the funds received from membership dues, the Flyway Nature Store, fund raising activities, and grants. Visitors will be encouraged to make voluntary contributions at collection boxes at the visitor contact station and to the Friends group to support special events.

### **Visitor Contact Station and Administration Building**

The visitor contact station, located within the refuge office building has exhibits and information about the refuge including common wildlife species and wildlife-dependant recreational opportunities. The 5,000 square foot visitor contact station and administration building currently house six refuge employees and two NYSDEC employees. The visitor contact station receives approximately 6,000 visits per year; most during the months of March, April, and May. A 60-seat auditorium/multipurpose room serves as a meeting room and can accommodate school groups, civic groups, and families for interpretive and environmental education programs. The Flyway Nature Store, operated by Friends of Iroquois Refuge, is also located within the visitor contact station.

Regional Director's Orders No. 06-02 established a system to co-locate Service offices that are in close proximity to each other. It is expected that co-location will provide improved service to customers and maximize efficiencies and cost savings, while at the same time enhancing coordination and cooperation among the various Services resource programs and administrative support functions. Co-location is a clear step to minimizing space and utility costs and increasing cross-program collaboration.

We will co-locate the Lower Great Lakes Fish and Wildlife Conservation Office currently located in Amherst, New York with a new visitor contact station and administration building at Iroquois Refuge. The building will be developed in accordance with Service standard design facilities (Figures 4-1 and 4-2). The building will be approximately 10,609 square feet and include 5,484 square feet for administration and 5,125 square feet for the visitor contact area. The building will include a sales outlet for Friends of Iroquois Refuge exhibit hall, multi-purpose room, conference room, and offices to house staff from refuges, fisheries, and NYSDEC.

The new building will be created by adding on to the existing building. The existing portion will be remodeled to serve as the visitor contact section of the new building. An architectural and engineering firm will be hired to develop a conceptual design that will blend the existing building in with the new, standard design. The new portion of the building will be placed in an area that has already been disturbed when the current building was built in the 1970s. As we move forward with the design of the building we will be looking at alternative energy sources to reduce consumption of petroleum products to heat buildings as well as electricity to power the building. We will investigate the possibility of geothermal heating, a wind (small single/double) turbine, and solar energy.

**Figure 4-1 Conceptual Drawing of New Administrative Building**



**Figure 4-2 Conceptual Floor Plan for New Administrative Building Facilities**



## **Refuge Goals, Objectives and Strategies**

The following section identifies objectives and strategies to achieve each of the six refuge goals. While most strategies are specific to each goal, a few are applicable to multiple or all refuge goals. These are listed separately below.

### **Strategies that apply to all goals in the CCP:**

- Continue to recruit, hire, and train students under the Student Career Experience Program and Student Temporary Employment Program to assist with all refuge goals, programs, and operations.
- Continue to recruit and train interns and volunteers to assist with all refuge goals, programs, and operations and provide housing where possible.
- Continue to encourage a broad-based Friends of Iroquois Refuge group that supports refuge goals, programs, and operations.
- Hire a permanent full-time Law Enforcement Officer (GS-0025-9) to provide visitor safety, protect resources, and ensure compliance with refuge regulations.
- Hire a permanent full-time Maintenance Worker (WG-4749-8).
- Annually inspect approximately 20 percent of the refuge boundary to ensure signs are visible, readable, have not been vandalized, and are in good overall condition. Annually review that non-hunting areas are properly posted.
- Reach out to local communities and schools to build awareness, understanding, and support for refuge biological and land protection programs and activities and demonstrate the role of Iroquois Refuge in the Refuge System.

### **Strategies that apply to all objectives under Goals 1, 2, and 3:**

- Continue to develop a comprehensive GIS database for the refuge and the surrounding landscape to map and analyze habitat types and conditions, rare species populations, other ecological features, land use issues, and other relevant information for long-term planning and monitoring of resources.
- Continue to monitor and control non-native invasive species using a combination of mechanical, biological, and chemical techniques to restore native plant communities and healthy ecosystems; refine the protocol for prioritizing mapping, monitoring, and control of invasive species to have the greatest impact on the highest priority habitat objectives.
- Within 5 years evaluate all data from baseline surveys of birds, amphibians, reptiles, mammals, plants, mussels and fish, and other species to identify additional baseline surveys needed to confirm presence/absence in respective habitat types and to address management questions.
- Continue current inventorying and monitoring protocols, which are listed under the strategy sections for each habitat objective. Within 2 years of the CCP's completion, develop more inventory and monitoring protocols as necessary based on recognized needs in the HMP and include in the IMP.
- Over a 15 year period, systematically remove the majority of artificial nest structures as appropriate. Wood duck nesting data should be evaluated to determine which boxes are not used and which are used by undesirable species. These boxes should be removed sooner and the remainder phased out. Monitoring of wood duck boxes should be conducted by volunteers.
- Evaluate bluebird nest boxes to determine if boxes should be moved in response to habitat changes that result from implementation of the plan. Coordinate volunteers to maintain boxes.

- Coordinate volunteers to maintain purple martin colony structures which are used as an educational/interpretive discussion point.
- Hire one permanent full-time Biological Technician (GS-7).
- Hire one permanent part-time Biological Technician (GS-5. 0.5 FTE).

**Goal 1. Provide high quality freshwater wetland migration stopover and breeding habitat for waterfowl, marsh birds, shorebirds, and bald eagles in refuge impoundments through water level control.**

***Background***

Iroquois Refuge lies within the ACJV; one of the original joint ventures formed under the NAWMP. The ACJV initially focused on protecting and restoring habitat for the American black duck and other waterfowl species in the Atlantic Coast region of the United States. Much of its support is generated through grants provided by the NAWCA. While maintaining a strong focus on waterfowl, the ACJV mission has evolved to include the conservation of habitats for all birds. At the regional scale the ACJV is working on integrated planning efforts in eight BCRs. An important part of this planning effort is the development of Focus Area Plans. Focus Areas are discrete and distinguishable habitats or habitat complexes that are regionally important for one or more priority species during one or more life history stages. The Tonawanda-Iroquois-Oak Orchard Focus Area Plan (ACJV 1991) identified the rehabilitation of Mohawk and Oneida Pools on Iroquois Refuge as a high priority project. The Service prepared an EA specifically for this project in 2002 (Service 2002). The initial phase of the project is complete; three new wetland sub-units in the Mohawk Pool provide significant improvement in wetland habitat.

Iroquois Refuge lies within BCR 13, the Lower Great Lakes/St. Lawrence Plain (map 1-5). BCR 13 encompasses the vast, low-lying lake plain region surrounding Lake Erie and Lake Ontario, the St. Lawrence River Valley, low-lying regions between the Adirondack Mountains and the Laurentian Highlands, and upper regions of the Hudson River Valley. In addition to providing important lakeshore habitats and associated wetlands, this region was originally dominated by a mixture of oak-hickory, northern hardwood, and mixed-coniferous forests. Nearly 95 percent of the original habitat types have been lost and the landscape is now dominated by agriculture with interspersed wetlands and remnant forest stands. Bird Conservation Region 13 plays a critical role in providing important staging and migrating habitat for birds during the spring and fall migration (Hartley 2007).

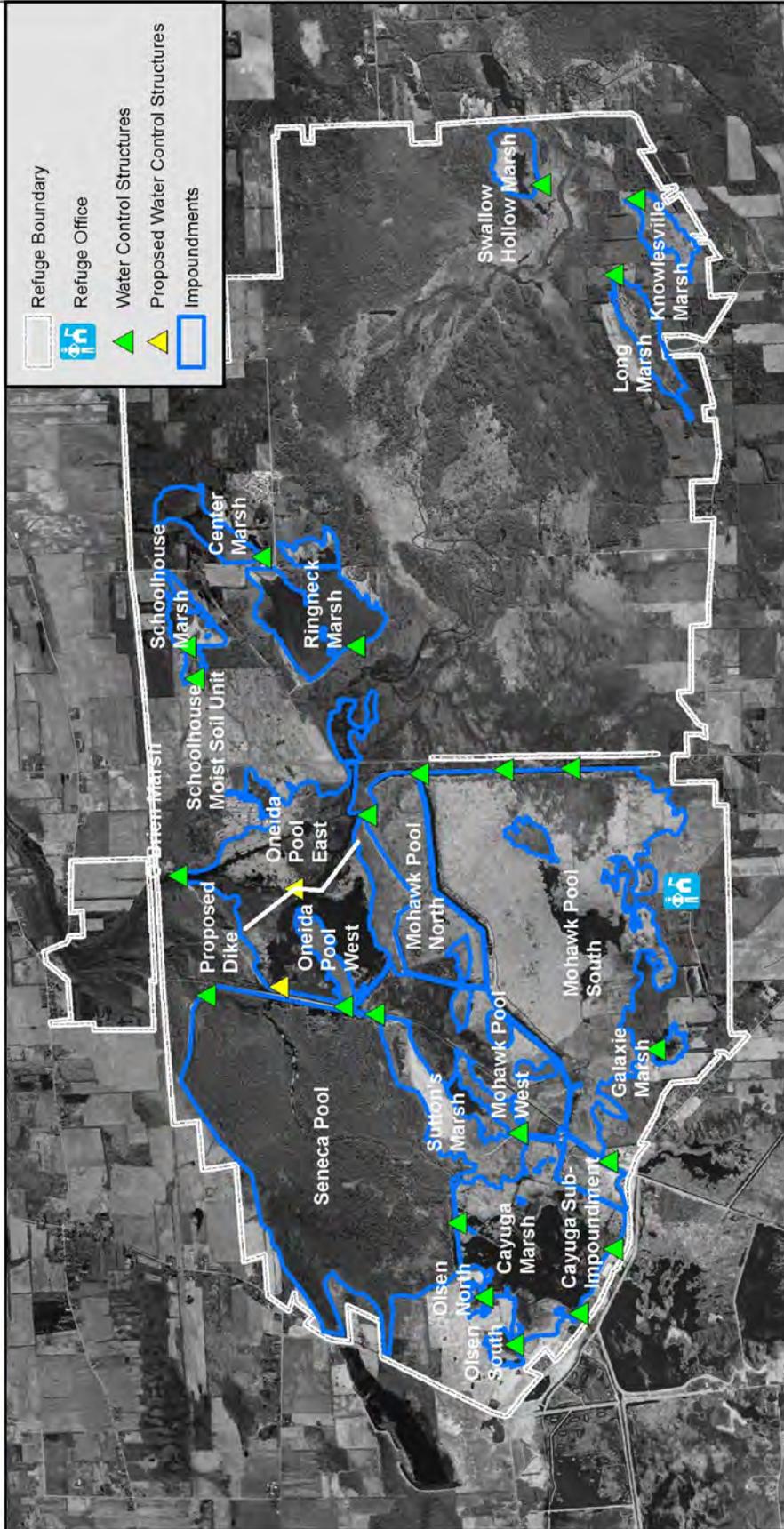
Iroquois Refuge is part of the 19,000-acre Tonawanda-Iroquois-Oak Orchard Wetland Complex. The creation of the Barge Canal System, beginning in the early 1800s, and the draining of wetlands for agriculture and other uses dramatically changed the hydrology of the “Alabama Swamps,” as this area was known. The area continued to flood each spring creating thousands of acres of shallow wetlands, but the spring waters would recede quickly and only the lowest areas remained wet through the summer. Once the refuge was established, farm ditches were plugged and several impoundments were created to allow managers to control water levels. Water level management provided wetland habitat throughout the year and restored variability to the hydrology of the region.

There are currently 19 wetland impoundments on the refuge (map 4-2). Fifteen impoundments are actively managed. These impoundments encompass just over 4,000 acres of diverse wetland habitat. Because of the changes in topography within individual impoundments, often a single impoundment will help meet multiple objectives within the same year. Water levels are adjusted within and between years to mimic natural hydroperiods associated with unaltered wetlands and to provide the optimal habitat conditions for wetland dependent wildlife species.

Map 4-2

# Iroquois National Wildlife Refuge - Conservation Comprehensive Plan

## Impoundments and Water Control Structures



Sources:  
 Aerial Photos from NYS  
 GIS Clearinghouse  
 Refuge Boundary, Office  
 Impoundments, and Water  
 Control Structures from USFWS

Each impoundment is drawn down approximately every 3 to 6 years; a few impoundments are scheduled for drawdown every year. These drawdowns mimic a drought in a natural marsh and allow the re-growth of natural vegetation in a “drawdown cycle.” In the first year of the cycle, water is drained from the impoundment after the peak of waterfowl migration (early spring). The relatively cool soils in April and May favor the germination of annual moist soil plants such as sedges, smartweed, and wild millet. The seeds of these plants provide waterfowl food when the impoundment is re-flooded in the fall. Organic material comprised of dead marsh vegetation accumulating over several years is exposed to oxygen during the drawdown and thus oxidizes (breaks down) and becomes nutrients for the growth of new marsh plants. As more of the water evaporates the bottom “firms up” and provides a rich bed for the new plant roots. Some perennials, such as cattail and bur-reed, germinate and grow. These plants usually will remain in the understory beneath the annual plant species. These perennials play an important role in future years of the cycle. If the water is drained off later in the year when the soil is warmer (June to August) it is likely that purple loosestrife will germinate. Purple loosestrife has become less of a problem due to expanding populations of *Galerucella* beetles, but the refuge still tries to keep loosestrife germination to a minimum.



*Eastern Box Turtle*

USFWS

The second year of the cycle is a year of growth and re-colonization. Residual seeds from the annuals provide a rich carbohydrate food source for the northward migrating waterfowl in the spring. The dead and partially decomposing stalks of the first year plants become a food source for many kinds of invertebrates. Invertebrates provide a critical protein source for migrating birds, particularly female ducks that will soon lay eggs. The cattails and bur-reed grow vigorously in the second year and the impoundment quickly becomes colonized by muskrats which utilize the perennials as both a food source and a material for construction of their houses. Habitat cover provided by perennial vegetation interspersed with new open water areas created by increased muskrat activity provides ideal conditions for waterfowl broods and migrating waterfowl.

In subsequent years of the cycle the interspersed small, irregular open water areas becomes greater as the perennials are used by muskrats and are stressed by higher, more constant water levels. Greater

interspersed open water results in habitat conditions suitable to marsh-nesting birds. Initially, the dense vegetation is ideal for rails. As it becomes more open, it becomes ideal for least bitterns and as the impoundment continues to open, black terns may begin to nest. The terns seem to favor old, sunken muskrat houses as nesting platforms. Eventually conditions become too open and the habitat value is greatly reduced for waterfowl and most marsh nesting species. The drawdown cycle starts over when refuge managers determine that habitat value is relatively low. A typical cycle may last three to six years.

Furbearer management will be conducted first and foremost as a tool to maintain habitat and keep the predator-prey balance. The implementation of a regulated furbearer management program on the refuge also affords a potential mechanism to collect survey and monitoring information, or contribute to research on furbearer (and other wildlife) occurrence, activity, movement, population status, and ecology. The section titled "Furbearer Management Compatibility Determination" in Appendix B provides additional information on how this program will be administered. By maintaining a trained and experienced group of trappers, the Service can utilize their skills and local knowledge to perform or assist with valuable management or research functions. Trappers that participate in the refuge program would provide assistance with the implementation of structured management objectives, such as alleviation or reduction of wildlife damage conflicts, negative species interactions, and habitat modifications. Refuge trappers typically have a stake in proper habitat and wildlife conservation and protection of the ecological integrity of the refuge so that their activity can continue. Accordingly, trappers are often valuable assets to the refuge manager in terms of providing onsite reports concerning the fundamental status of habitat, wildlife, and refuge conditions.

Removal of harvestable furbearers will have a beneficial effect by protecting refuge infrastructure (e.g., dikes and water control structures) from damage, thus ensuring management capabilities over wetlands.

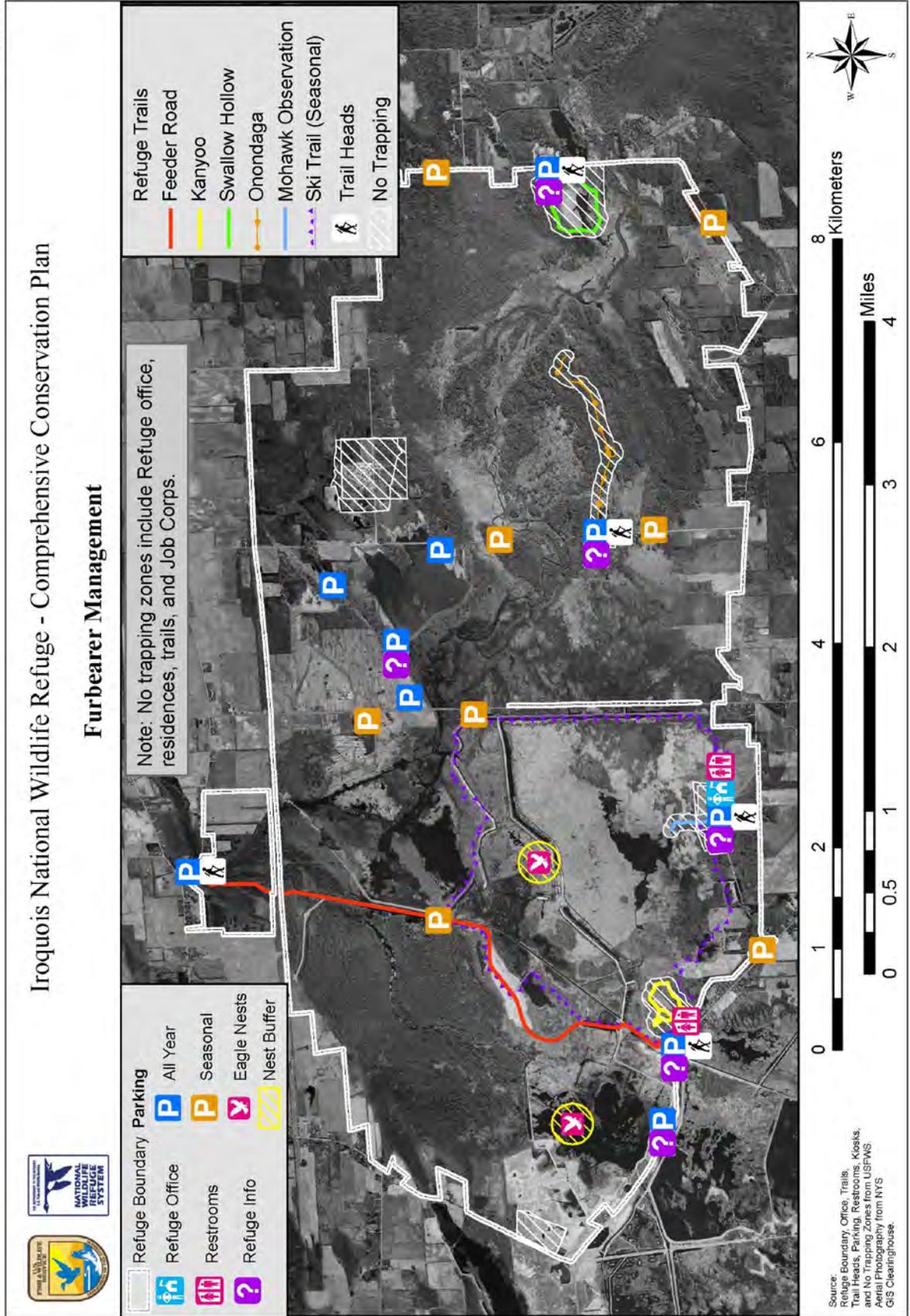
#### **Strategies that apply to all objectives under Goal 1:**

- Remove and prevent mute swans from becoming established on, or becoming regular inhabitants of, the refuge.
- Continue to allow management of marsh furbearers throughout the entire refuge and restrict muskrat trapping to marshes that have a large percentage of cattail coverage (map 4-3).
- Continue to conduct furbearer management in marshes at the completion of the refuge's waterfowl hunt season by allowing up to 50 permits issued annually.
- Continue to charge \$50.00 for the marsh furbearer management permit.
- Limit trappers to 25 traps each to reduce trapper competition while still maintaining furbearer populations at desired levels.
- Conduct annual counts of muskrat houses to ensure sustainable populations are retained for refuge needs and base removal of animals on annual numbers. After annual evaluation, determine which marsh(s) to open.
- Complete bathymetry mapping of refuge impoundments to better understand what the elevation changes are to ensure that the refuge is achieving appropriate water depths to meet its objectives.

#### ***Objective 1.1 Emergent Marsh – Migrating Waterfowl***

Each year, provide a minimum of 800 acres of waterfowl stopover habitat in mid-March through early May (spring migration) and again in late September to early November (fall migration) consisting of shallow flooded wetlands (less than 18") dominated by annual moist soil vegetation such as sedges, *Bidens spp.*, smartweed, and wild millet.

Map 4-3



### **Rationale**

Objective 1.1 will benefit many of the 20,000 ducks that pass through the refuge during migration including several waterfowl species listed as priorities (highest, high, or medium) in the BCR 13 Plan: American black duck (highest), northern pintail (high), blue-winged teal (medium), and mallard (medium). The black duck and northern pintail are species of management concern for the Service in the northeast region and are also listed in the New York Wildlife Action Plan (NYWAP) as species of greatest conservation concern. The New York IBA program listed a large concentration of migrating waterfowl as important criteria in designating Iroquois Refuge as an IBA.

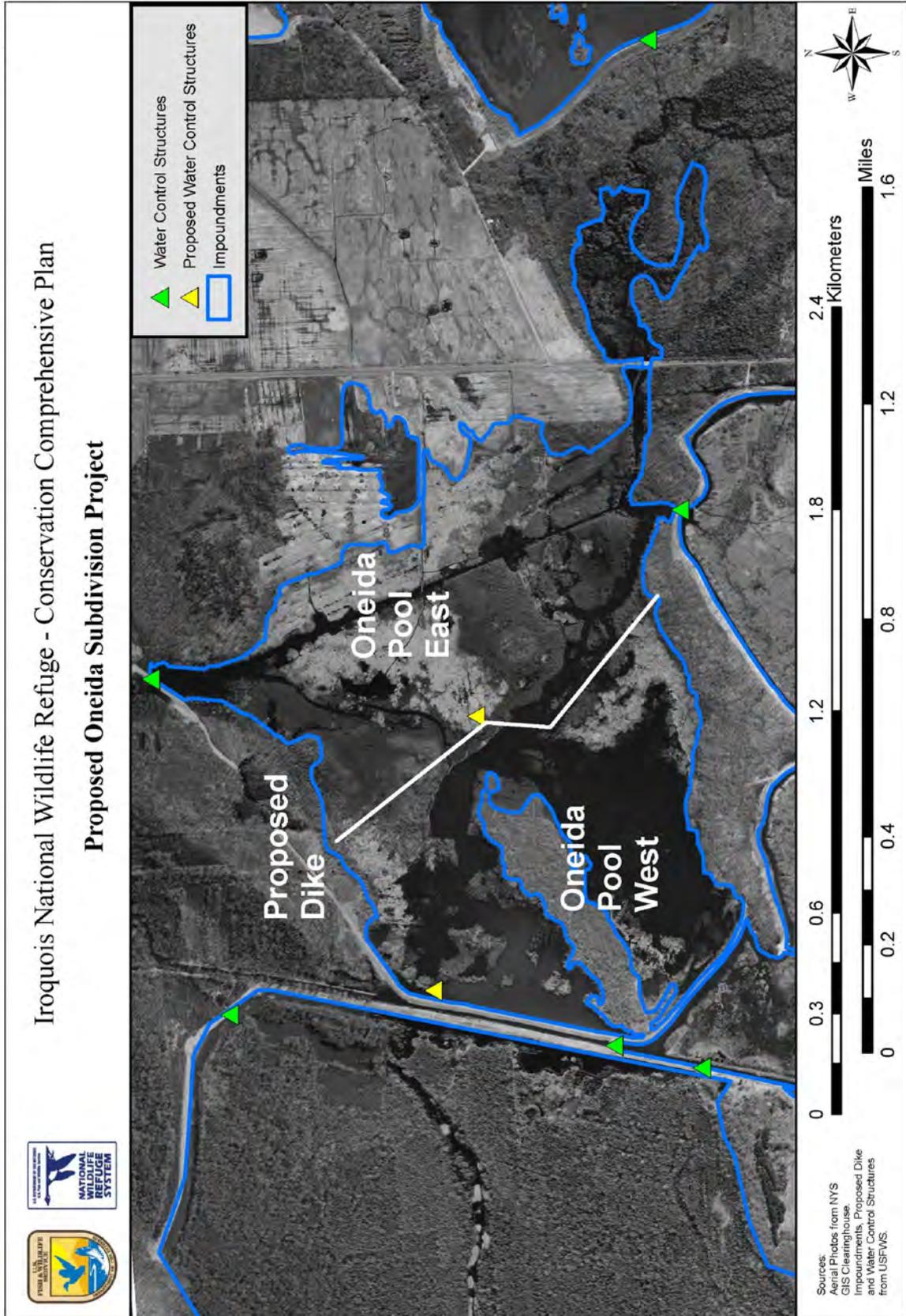
Fall migrant waterfowl require large amounts of carbohydrate rich foods to prepare them for their migration to the wintering grounds and also to replace the large amounts of energy needed to sustain them as cooler fall temperatures drain their energy reserves. Moist soil annual seeds produced as a result of wetland drawdowns provide a readily available source of carbohydrates. At Iroquois Refuge, these drawdowns are conducted in the spring of the year to ensure the greatest amount of annual vegetation and highest species diversity will result. Most annual species need a minimum of 60 days growing period to produce seeds. Prior to fall migration, wetlands that have been drawn down are shallowly re-flooded in preparation for the arrival of fall migrant waterfowl. Water levels are kept to 18" or less as this depth has been found to provide the best foraging habitat for most waterfowl species. Waterfowl will forage on these areas until they leave to continue their fall migration or until ice conditions force them to move to open water elsewhere. In some cases, water is not available in the fall to allow flooding of drawn down wetlands. When this happens, these areas are shallowly re-flooded over the winter and early spring as melt waters become available. These shallow wetlands provide habitat for migrating waterfowl in the spring of the year.

Spring migrant waterfowl, particularly females, require large amounts of protein rich foods to prepare them for the remainder of their northward migration and to provide them with the nutrition necessary to successfully nest. Hens gather this protein by feeding heavily on aquatic invertebrates on the wintering grounds and on feeding areas along their migration corridors. Invertebrate populations thrive on the residual annual vegetation left over from the previous year's drawdown and invertebrates emerge as soon as temperatures rise enough to melt the ice. Additionally, seeds produced by these annual plants during the drawdown year are often still available the following spring to northward migrating waterfowl and provide a carbohydrate-rich food source that supplements the protein being gathered while feeding on invertebrates.

Iroquois Refuge is an important spring migratory stopover area for many species of waterfowl in the Atlantic Flyway as it contains a variety of wetland types and sizes. Active wetland management, including drawdowns and subsequent shallow flooding, allows the refuge to provide the best possible migration habitat for spring migrant waterfowl. Wetlands that have undergone a drawdown in the previous year and are shallowly flooded (less than 18") in the spring are of particular importance to waterfowl during spring migration.

The goal of the refuge water management program is to provide high quality functioning wetlands that supply optimal stopover and breeding habitat for waterbirds and bald eagles. This program requires the manipulation of wetland water levels to provide high-energy plant and invertebrate foods and structural habitat diversity for feeding, resting, and breeding waterfowl and other migratory birds (Service 2005b). Waterfowl need appropriate nesting cover and substrate, as well as quality foraging areas. We will subdivide Oneida Pool into two smaller, more manageable impoundments (map 4-4) and also add an additional water control structure to increase the capacity to transfer water out of the impoundment during periods of high water.

Map 4-4



Oneida Pool is the second largest emergent marsh impoundment on the refuge. This impoundment contains uneven topography resulting in both large areas of open water and large areas of dense, monotypic cattail (*Typha* spp.). Neither of these habitat types is desirable for refuge objectives. We currently manage for lower water levels to reduce the areas of open water area but under the current conditions this also increases the area of dense, monotypic cattail. Managing water levels higher has the opposite effect. Neither management strategy provides overall improved wildlife habitat conditions. Over time, the areas of dense cattail are built up by sedimentation and decay of organic matter. This eutrophication further reduces the quality of the marsh for objective wildlife.



Oneida Pool

USFWS

Generally, dense stands of monotypic cattail are managed by increasing water levels and allowing water stress and muskrat foraging to reduce the amount of cattail. Additionally, mechanical means such as mowing, disking, burning, and chemical spraying can be used to control cattail. Past efforts to control the dense cattail stands in the higher elevation areas of Oneida Pool through increased water levels and burning have been unsuccessful. Mowing and disking in Oneida Pool can only be done in a small, previously farmed area due to the extensive tree stump and log debris covering the remaining areas. Chemical control has not been attempted because Oneida Pool is extremely large and a management strategy to control cattail stands that requires spraying such a large area makes chemical control undesirable.

To subdivide Oneida Pool, an approximately 4,000-foot dike will be built in a generally north-south alignment which will essentially divide the area in half along an existing elevation/vegetation contour. The area to the west of this dike is generally lower with more open water and will be managed with lower water levels. The area to the east of the dike, which is dominated by dense cattail, will be managed with slightly higher water levels to allow muskrats and water stress to thin out the cattail stands. Care will be taken to not increase the frequency of flooding to the east of the impoundment. The new dike will be built

to a height that is lower than the current emergency spillway in Oneida to allow high water to spill over the new dike from east to west. A new water control structure will be added to Oneida Pool to allow greater transfer of water from Oneida to the Feeder Ditch. This will help to alleviate problems with flooding during high water events.

**Strategies:**

- In impoundments where robust perennial emergent vegetation makes up less than 40 percent of the total wetland acres, conduct early spring drawdowns and subsequent water level manipulations to promote the growth of annual wetland plants and minimize germination of perennial emergent vegetation. Percentage of emergent vegetation should be determined in the late fall/early winter with consideration given to expected impoundment conditions the following spring.
- Re-flood drawn down impoundments to coincide with waterfowl migration chronology.
- If necessary, induce physical/chemical disturbance to set back succession and promote growth of annual moist soil vegetation.
- Continue to implement the 3 to 6 year drawdown cycle through water level controls.
- Complete Mohawk/Oneida Marsh Restoration project with construction of Oneida dike.
- Incorporate all suggestions below into the IMP and Strategic Habitat Conservation Model.
- Continue to record and maintain logs of the proposed and actual water levels for each impoundment (e.g., 2005 proposed, 2005 actual, 2006 proposed).
- Continue to collect bathymetry data on impoundments.
- Continue to monitor the response of annual moist soil vegetation after each drawdown.
- Create and implement a protocol to monitor waterfowl trends during spring and fall migration.
- Work with conservation partners to monitor waterfowl use of refuge impoundment habitats and enter the data into *www.ebird.org*.
- Monitor the response of purple loosestrife to herbivory by *Galerucella* beetles.

***Objective 1.2 Emergent Marsh – Spring Migrating Geese***

Each spring, provide a minimum of four patches of roosting habitat at least 50 acres in size, totaling at least 300 acres, for 75,000 or more migrating Canada geese from mid-March to May. Roosting habitat should consist of wetlands where open water makes up 50 percent or more of the wetland area.

**Rationale**

Over half of the refuge is wetland (6,200 acres) with 4,000 of these wetland acres contained in 19 managed freshwater impoundments. Water levels are adjusted within and between years to mimic natural hydroperiods associated with unaltered wetlands to provide a variety of feeding, nesting, brood rearing, and resting habitats for migratory birds and resident wildlife. The interspersed open water and aquatic and emergent plant communities provides resting and feeding habitat for over 120,000 waterfowl annually. The thousands of geese that migrate through the area each spring spend their day feeding in cornfields in the extensive agricultural lands surrounding the wetlands. The geese feed on waste corn left from the previous year's harvest before a new crop is planted later in the spring. At night the refuge serves as a secure roosting area away from predators. The flocks of geese using the refuge include birds from the Atlantic and Southern James Bay populations as well as geese from the resident population. Large numbers of resident geese are perceived to cause substantial resource and socioeconomic problems across

the region, necessitating control programs. However, the Atlantic and Southern James Bay populations are of conservation concern because of significant population declines and are listed as highest priority in the BCR 13 Plan.

Large wetlands with substantial amounts of open water provide ideal roosting areas for Canada geese. The geese roost in these areas where they are safe from terrestrial predators. Additionally, these wetland areas provide the birds with another food source to compliment the high carbohydrate waste grains that they are feeding on in fields near the refuge. Iroquois Refuge was created in part for its value as a spring migration stopover area for Canada geese. To this day, tens of thousands of geese roost and feed on the refuge during spring migration. Smaller numbers use the refuge during fall migration and a few hundred geese spend the summer months breeding on the refuge.

**Strategies:**

- Manipulate/maintain impoundment water levels greater than 18" to control the germination or expansion of perennial emergent vegetation.
- Continue to provide a 50:50 mix of water and vegetation.
- Continue to record and maintain logs of the proposed and actual water levels for each impoundment (e.g., 2005 proposed, 2005 actual, 2006 proposed).
- Continue to collect bathymetry data on impoundments.
- Establish a monitoring protocol to evaluate changes in wetland vegetation composition.
- Limit visitor access near roosting areas to minimize disturbance.
- Continue to provide spring roosting habitat with an emphasis on the Atlantic and Southern James Bay Canada goose populations.

***Objective 1.3 Emergent Marsh – Deep Water Breeding Marsh Birds***

Each year, provide a minimum of 800 acres of habitat for breeding marsh birds that use deeper water areas with specific emphasis on black tern, pied-billed grebe, and least bittern. Target a 50:50 mix of vegetation and open water (hemi-marsh) with an average water depth of 18 to 20" and at least three muskrat lodges per acre. Additionally, this habitat should be provided in a minimum of three patches at least 100 acres each.

**Rationale**

Weller and Spatcher (1965) found the maximum number and diversity of marsh birds occurred in wetlands with a well interspersed vegetation cover to water ratio of 50:50. This habitat type is usually referred to as a "hemi-marsh". At Iroquois Refuge hemi-marsh habitat has been found to support robust populations of breeding marsh birds. This habitat usually occurs during the middle 2 or 3 years of an average drawdown cycle. Wetland management on most refuge impoundments is designed to provide this habitat type.

Black tern, pied-billed grebe, and least bittern are all priority species (medium) in the BCR 13 Plan and are species of greatest conservation concern in the NYWAP. The black tern is listed as an endangered species and pied-billed grebe and least bittern are listed as threatened in New York. The abundance of these three breeding species was included as important criteria in designating the Iroquois Wetlands Complex as an IBA in New York. The New York Natural Heritage Program describes the Iroquois deep emergent marsh as a significant ecological community.

Pied-billed grebe, least bittern, and black tern are generally found in the deeper areas of hemi-marsh habitat with slightly more open vegetation. This habitat type allows these species more access to their preferred food resources and the optimal conditions for foraging. These species swim (pied-billed grebe), fly, and dive (black tern), or grasp vegetation along the edge of open water (least bittern) to forage, thus allowing them to use deeper water areas of the marsh. Conversely, species such as American bittern and Virginia rail are usually associated with shallower water areas supporting a slightly more robust vegetation component with less open water. These species stand in water to forage, thus restricting them to areas where water levels are only a few inches deep.

**Strategies:**

- Continue to maintain flooded conditions with an average water depth of 18 to 20” where the coverage of perennial emergent vegetation is greater than 60 percent of the unit.
- Continue to implement the 3 to 6 year drawdown cycle through water level control.
- Continue to record and maintain logs of the proposed and actual water levels for each impoundment (e.g., 2005 proposed, 2005 actual, 2006 proposed).
- Continue to survey and inventory muskrat houses.
- Continue to collect bathymetry data on impoundments.
- Continue to conduct marsh bird surveys in cooperation with NYSDEC.
- If necessary, induce physical/chemical disturbance to create additional openings when water manipulation and muskrat activity are not providing these openings.

***Objective 1.4 Emergent Marsh – Shallow Water Breeding Marsh Birds***

Each year, provide a minimum of 400 acres of habitat for breeding marsh birds that use shallow water areas with an emphasis on American bittern and Virginia rail. Target a 70:30 mix of vegetation and open water with an average water depth of 10 to 12". Additionally, this habitat should be provided in a minimum of two patches at least 50 acres each.

**Rationale**

The American bittern is a high priority species in the BCR 13 Plan, the NYWAP, and the NAWMP. The Virginia rail is a medium priority in BCR 13. See the rationale under Objective 1.3 for habitat requirements of selected marsh bird species.

**Strategies:**

- Continue to maintain flooded conditions with an average water depth of 18 to 20” where the coverage of perennial emergent vegetation is between 80 percent and 100 percent.
- Continue to implement the 3 to 6 year drawdown cycle through water level control.
- Continue to record and maintain logs of the proposed and actual water levels for each impoundment (e.g., 2005 proposed, 2005 actual, 2006 proposed).
- Continue to survey and inventory muskrat houses.
- Continue to collect bathymetry data on impoundments.
- Continue to conduct marsh bird surveys in cooperation with NYSDEC.

### ***Objective 1.5 Emergent Marsh – Waterfowl Brood Rearing***

Each year, provide a minimum of 400 acres of waterfowl (mallard, blue-winged teal, and wood duck) brood rearing habitat consisting of 40 percent to 80 percent vegetative cover with an average water depth of 10 to 20". This habitat should be provided in a least four patches 50 acres or greater each.

#### **Rationale**

Breeding (brood-rearing) habitat for mallard, blue-winged teal, and wood duck is a high priority in the BCR 13 Plan and in the NAWMP. Waterfowl broods require habitat that provides an abundance of food (primarily protein) and safety from predators. At Iroquois Refuge these needs can be met within impoundments in a hemi-marsh stage. Hemi-marsh habitat provides needed cover through the interspersed of robust perennial vegetation and open water allowing ducklings to forage on aquatic invertebrates while never being very far from adequate cover. The presence of both emergent and submergent vegetation in these wetlands provides the necessary substrate for invertebrate reproduction and subsequently provides ducklings with the protein-rich food resources necessary for their growth and survival.

Many duck species found at Iroquois Refuge nest in grasslands. Some nest sites can be a significant distance from water (> one mile). When a brood hatches the hen leads the ducklings to a wetland area where they can find food and safety. This overland trip from nest site to wetland has been found in some studies to result in a significant loss of ducklings (Dzubin and Gollop 1972). Providing brood rearing habitat adjacent to nesting grasslands should help reduce some of this duckling mortality. Impoundments used to meet Objectives 1.3 and 1.4 may also fulfill this objective, particularly if they are close to waterfowl nesting habitat.

#### **Strategies:**

- Where the coverage of perennial emergent vegetation is >80 percent, maintain flooded conditions with a minimum 18 to 20" water depth.
- When possible, locate brood rearing habitat adjacent to waterfowl nesting cover (grasslands).
- If necessary, induce physical/chemical disturbance to reduce vegetation cover.

### ***Objective 1.6 Open Water***

Each year, provide bald eagle feeding habitat on a minimum of 250 acres, consisting of at least two patches greater 100 acres each of open water wetland for foraging bald eagles to coincide with their hatching and fledging period (April - June).

#### **Rationale**

The bald eagle is a New York State threatened species and a bird of management concern for the Service. The presence of three breeding pairs contributed to the designation of the Iroquois Wetland Complex as an IBA.

The Service National Bald Eagle Management Guidelines from 2007 state new recommendations for land management practices as well as how to avoid disturbance to the eagles. In general, activities should be kept as far away from nest trees as possible, loud and disruptive activities should be conducted when eagles are not nesting, and activity between the nest and the nearest foraging area should be minimized. Some disturbance categories listed in the guidelines that are relevant to Iroquois Refuge are timber operations and forestry practices, off-road vehicle use, and non-motorized recreation and human entry.

The previous mentioned categories are taken from the Service's National Bald Eagle Management Guidelines and although off-road vehicle use is indicated, Iroquois Refuge does not allow off-road vehicle use on the refuge. This category would cover vehicle use by researchers, volunteers, refuge staff, etc. in conducting official duties.

**Strategies:**

- Continue to implement Service 2007 National Bald Eagle Management Guidelines including:
  - Category C – Timber Operations and Forestry Practices. Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. Selective thinning and other silviculture management practices designed to conserve habitat, including prescribed burning close to the nest tree, should be undertaken outside the breeding season. If it is determined that a burn during the breeding season would be beneficial, then, to ensure that no take or disturbance will occur, these activities should be conducted only when neither adult eagles nor young are present at the nest tree. Appropriate Federal and State biologists should be consulted before any prescribed burning is conducted during the breeding season.
  - Category D – Off-road vehicle use. No buffer is necessary around nest sites outside the breeding season. During the breeding season, do not operate off-road vehicles within 330 feet of the nest. In open areas, where there is increased visibility and exposure to noise, this distance should be extended to 660 feet.
  - Category F – Non-motorized recreation and human entry (e.g., hiking, camping, fishing, hunting, bird watching, kayaking, canoeing). No buffer is necessary around nest sites outside the breeding season. If the activity will be visible or highly audible from the nest, maintain a 330-foot buffer during the breeding season, particularly where eagles are unaccustomed to such activity (Service 2007b). Continue to conduct mid-winter bald eagle surveys.
- Continue to restrict public access to eagle nesting areas during the breeding season by implementing National Bald Eagle Management Guidelines.
- Continue to coordinate with the NYSDEC on the protection, monitoring, and management of the Iroquois Wetland Complex nesting eagles.
- Conduct spring/summer drawdowns to concentrate forage fish and make them more available to feeding bald eagles.
- Do not conduct complete drawdowns on Ringneck Marsh in years when drawdowns are conducted in impoundments containing eagle nests.

***Objective 1.7 Mudflats***

Provide up to 40 acres of mudflats with shallow water (less than 3"), sparse (less than 25 percent) vegetation and high invertebrate biomass annually during fall (August - September) to benefit migrating shorebirds including least, pectoral, semipalmated and solitary sandpipers, and Wilson's snipe.

**Rationale**

Most shorebirds using the Great Lakes region are long-distance migrants that require stopover sites to replenish their fat reserves and meet the high energy demands of migration. These "staging" areas require shallow water and/or mudflat habitats with sparse vegetation, undisturbed roosting areas, and abundant

invertebrate food resources. In this region these conditions can occur in various habitats including natural and managed wetlands, lakeshore, sand and gravel bars, reservoirs, and flooded agricultural fields.

Researchers are just beginning to understand the importance of habitats in the interior U.S. to shorebirds. However, variable climatic conditions common to inland areas make shorebird habitat unpredictable compared to coastal regions. Precipitation and hydrology patterns are highly variable from year to year and in different locations. In addition, loss of wetlands from urban development, hydrological disturbance, and agriculture has reduced the amount of habitat in the region. With the ability to manage water levels, Iroquois Refuge can contribute to providing habitat for migrating shorebirds.

Many shorebirds species are listed as a conservation concern in the Upper Mississippi Valley/Great Lakes (UMVGL) Shorebird Plan. The populations of these species are known or believed to be small and/or declining, and they are experiencing other known or potential threats (de Szalay et al. 2000). More information on the regional abundance, distribution, chronology, and population trends of shorebirds; responses of shorebirds and their invertebrate food base to management activities; wetland distribution and habitat conditions during a variety of climatic patterns; and effects of human disturbance on shorebirds is needed to guide shorebird habitat management on Iroquois Refuge.

### **Strategies:**

- Conduct early drawdowns, mechanical manipulation (when needed to reduce vegetation cover), and subsequent flooding of impoundments at least 4 weeks prior to peak shorebird migration to allow aquatic invertebrates to develop.
- Maintain high water levels, near full pool levels, through early summer and slowly lower levels during late summer to expose mudflats.
- Continue to manage the 41-acre Cayuga sub-impoundment and the 10-acre Schoolhouse sub-impoundment for fall migrating shorebirds using water level controls to create mudflats with shallow water areas less than three inches deep.
- Work with conservation partners to monitor shorebird use of refuge mudflat habitats and enter the data into *www.ebird.org*.

### ***Objective 1.8 Seneca Pool Forested Wetland***

Maintain the 935-acre Seneca Pool as a forested wetland dominated by red and silver maples, green ash, American elm, swamp white oak, and willow species to provide breeding habitat for cavity nesting waterfowl (primarily wood duck) and migratory songbirds (especially cerulean warbler).

### **Rationale**

Red and silver maple and green ash dominate the 3,300 acres of forested wetland habitat on the refuge. Second growth mature trees approximately 75 years old dominate most of this habitat. More than 900 acres of forested wetland habitat are contained in Seneca Pool, an impoundment that was originally built and managed as a green tree impoundment. This pool is a red maple/green ash swamp, which has been purposely flooded in the past. Long periods of flooding have stressed and killed mature trees and prevented germination and survival of seeds and seedlings. Due to this negative effect on the forested wetland habitat, the pool level is now allowed to fluctuate with the level of Oak Orchard Creek. Fluctuating with the creek level reduces the amount of water in this pool and limits the amount of water stress put on the trees, while still providing wetland habitat during spring migration. This pool provides a large contiguous tract of forested wetland habitat managed for species such as the wood duck and cerulean warbler.

The floodplain forest and forested wetlands associated with Oak Orchard Creek support migrating and nesting species of conservation concern within BCR 13 including cerulean warbler, prothonotary warbler, Baltimore oriole, rusty blackbird, northern flicker, and wood duck. The Cerulean Warbler Atlas Project identified Iroquois as an important area for ceruleans. The NYWAP identifies several species of bats (eastern red, eastern small-footed, and hoary bats) and the river otter as priority species; all of which use the floodplain forest habitat within the Oak Orchard watershed.

Typically riparian or floodplain forests support a high diversity of plant species and food resources that are particularly important to migrating songbirds. An abundance of dead and dying trees of various sizes in floodplain forested wetlands are critical to cavity nesting ducks including wood duck and hooded merganser. Some songbird species (e.g., prothonotary warbler) require natural cavities as well. The Service is shifting away from artificial cavity nesting structures to a greater reliance on natural cavities.

### **Strategies:**

- Allow water levels in Seneca Pool to fluctuate with the level of Oak Orchard Creek.
- Monitor Seneca Pool's water control structure to ensure that debris does not obstruct the flow of water into or out of the impoundment.
- Continue to monitor avian species of conservation concern through land bird surveys.
- Create an annual inventory and monitoring plan to guide management and increase nesting success of migratory waterfowl and other wildlife.
- Complete vegetative inventory of Seneca Pool.
- Within 5 years, remove the northeast dike to restore natural hydrology to the greatest extent possible.

## **Goal 2. Maintain the environmental health and integrity of Oak Orchard Creek and associated forested wetlands as a natural free-flowing habitat with a diverse assemblage of native plants and animals.**

### ***Background***

The refuge contains the 523-acre Oak Orchard Creek Marsh National Natural Landmark (NNL, map 1-4). This marsh encompasses a pristine stretch of the sluggish and meandering creek that varies in width from 20 to 150 feet. The surrounding terrain is low and flat and floods annually. Broad-leaved cattail grows in marshy areas at the bends in the creek. Buttonbush and water willow are common shrubs along the creek edges, accompanied by a diversity of other plant species including red osier dogwood, flowering dogwood, swamp rose, purple nightshade, watercress, water hemlock, swamp milkweed, lizard tail, cardinal flower, broad-fruited bur reed, and forget-me-nots. A forested swamp dominated by silver maple with some green ash, swamp white oak and slippery elm with a dense understory of sensitive fern borders the creek channel (Vogelmann 1972). When this landmark was established in 1974 it also included the 15-acre Milford Posson Research Natural Area.

Furbearer management will be conducted first and foremost as a tool to maintain habitat and keep the predator prey balance. The implementation of a regulated furbearer management program on the refuge also affords a potential mechanism to collect survey and monitoring information, or contribute to research on furbearer (and other wildlife) occurrence, activity, movement, population status, and ecology. By maintaining a trained and experienced group of trappers, the Service can utilize their skills and local knowledge to perform or assist with valuable management or research functions. The Furbearer

Management Compatibility Determination in Appendix B provides additional information on how this program will be administered. Trappers that participate in the refuge program would provide assistance with the implementation of structured management objectives, such as alleviation or reduction of wildlife damage conflicts, negative species interactions, and habitat modifications. Refuge trappers typically have a stake in proper habitat and wildlife conservation, and protection of the ecological integrity of the refuge so that their activity can continue. Accordingly, they are valuable assets to the refuge manager in terms of providing onsite reports concerning the fundamental status of habitat, wildlife, and refuge conditions.

Removal of harvestable furbearers will have a beneficial effect by protecting refuge infrastructure (e.g., dikes and water control structures) from damage, thus ensuring management capabilities over wetlands. Decreasing predators will decrease the potential for predation on nesting migratory birds. In addition, reducing predator densities can reduce the spread of some density dependent diseases such as distemper, parvo, and rabies.

**Strategies that apply to all objectives under this goal:**

- Continue management of furbearers in marshes at the completion of the waterfowl season to help sustain desired ratio of vegetation and open water in each impoundment.
- Allow management of marsh furbearers throughout the entire refuge, with restrictions on muskrat trapping in marshes that have a large percentage of cattail coverage (map 4-2).
- Conduct furbearer management in marshes at the completion of the refuge's waterfowl hunt season, by allowing up to 50 permits issued annually.
- Continue to charge \$50.00 for the marsh furbearer management permit.
- Limit trappers to 25 traps each to promote recruitment and retention of new trappers by reducing trapper competition while still maintaining furbearer populations at desired levels.

***Objective 2.1 Oak Orchard Creek and Associated Emergent Marsh and Forested Wetlands***

Maintain, and restore as necessary, the water quality, natural flow regimes, and biological integrity of Oak Orchard Creek in the eastern portion of the refuge, relying on natural processes when possible.

**Rationale**

Oak Orchard Creek enters the refuge from the east and meanders sluggishly and unimpeded through the refuge east of Route 63. This area includes the Oak Orchard Creek Marsh NNL and supports many of the native plants and animals found in this region. While this section of the Creek is impacted by invasive species and upstream land use practices that degrade water quality, it offers some semblance of the watershed's historic condition before ditching and diking.

Most of the natural emergent marsh habitat on the refuge is located along Oak Orchard Creek, east of Sour Springs Road. In this area the creek is essentially uncontrolled. The only constrictions are Sour Springs Road itself, which may back water up during flood events, and transient beaver dams. These dams alter hydrology and ultimately change the vegetative characteristics of the creek.

A healthy riparian ecosystem provides migration, breeding and wintering habitat for many migratory birds and resident fish and wildlife species. Very few unmanaged, unaltered wetland systems still exist in western New York. While this section of Oak Orchard Creek is not wholly unaltered, it is essentially unmanaged. It is also in a condition where water management control is not critical to maintaining the quality of the wetland habitat. Preserving this section of the Creek in this "natural" condition allows the

refuge to provide a significant amount of riparian habitat for fish and wildlife with a minimum expenditure of resources.

**Strategies:**

- Monitor the condition of the Oak Orchard Creek Marsh NNL every 5 years to record the representative native plant species and condition (e.g., presence of invasive species).
- Continue to monitor colonial nesting bird rookery along Route 63.
- Work with partners to improve upstream land use practices to enhance water quality within Oak Orchard Creek as it enters the refuge.
- Work with local road agents to prevent runoff (salt, sand, and pollutants) into Oak Orchard Creek.
- Develop an index of biological integrity for the Oak Orchard Creek to be used by the refuge to monitor restoration and maintenance of this ecosystem.
- Conduct water quality, invertebrate and fish surveys to gather baseline data and then every 5 years to detect trends over time.
- Within the un-impounded floodplain forest in the Oak Orchard watershed, rely on natural tree cavities for nest sites for wood duck, hooded merganser, and other cavity nesters; remove any artificial nest structures in this area.
- Identify the locations of invasive species within the floodplain.
- Remove invasive species using mechanical methods wherever possible.
- Identify and map the vernal pools within the floodplain forest.
- Monitor and inventory vernal pools across the entire refuge for species of conservation concern.

***Objective 2.2 Natural Forested Wetlands***

Maintain a minimum of 2,300 acres of mature forested wetland dominated by red and silver maples, green ash, American elm, swamp white oak, and willow species by allowing natural processes and controlling non-native invasive species to provide breeding habitat for cavity nesting birds (e.g. wood duck and prothonotary warbler) and other migratory songbirds (especially cerulean warbler).

**Rationale**

The floodplain forest and forested wetlands associated with Oak Orchard Creek support migrating and nesting species of conservation concern within BCR 13 including cerulean warbler, prothonotary warbler, Baltimore oriole, rusty blackbird, northern flicker, and wood duck. The Cerulean Warbler Atlas Project identified Iroquois as an important area for ceruleans. The NYWAP identifies several species of bats (eastern red, eastern small-footed, and hoary bats) and the river otter as priority species; all of which use the floodplain forest habitat within the Oak Orchard watershed.

Typically riparian or floodplain forests support a high diversity of plant species and food resources that are particularly important to migrating songbirds. An abundance of dead and dying trees of various sizes in floodplain forested wetlands are critical to cavity nesting ducks including wood duck and hooded merganser. Some songbird species (e.g., prothonotary warbler) require natural cavities as well. The Service is shifting away from artificial cavity nesting structures to a greater reliance on natural cavities.

**Strategies:**

- Identify and map forested wetlands for rare plant species and natural communities to document their occurrence.
- Conduct an inventory of fauna.
- Develop and conduct a refuge wide forest inventory and establish permanent vegetation monitoring plots.
- Evaluate implications for management based on the habitat requirements of species of conservation concern.
- Conduct annual surveys of exotic invasive plants and control as necessary.
- Consult with the NY Natural Heritage Program on suitable management strategies to maintain natural forested wetland communities.
- Maintain and conserve vernal pools to sustain populations of species of conservation concern including obligate amphibians.

**Goal 3. Provide a diverse mix of grassland, shrubland and forested upland habitats arranged to reduce fragmentation and edge effects, and enhance habitat quality for priority species of conservation concern.*****Background***

Iroquois Refuge lies within BCR 13, the Lower Great Lakes/St. Lawrence Plain (map 1-5). In addition to providing important lakeshore habitats and associated wetlands, this region was originally dominated by a mixture of oak-hickory, northern hardwood, and mixed-coniferous forests. Nearly 95 percent of the original habitat types have been lost and the landscape is now dominated by agriculture with interspersed wetlands and remnant forest stands. The BCR 13 plan highlights specific sites or areas that are considered important for bird conservation. Iroquois Refuge together with Oak Orchard WMA is highlighted as an important area for landbirds including: bobolink, Henslow's sparrow, sedge wren, cerulean warbler, and Northern harrier. This focus area is one of the most important areas for migratory land bird habitats including grassland, shrubland and forest in western New York.

Approximately half of the 4,000 acres of upland habitat at Iroquois Refuge is currently maintained in an early successional stage as grassland or shrubland through active management. Grasslands are mowed or burned according to a multi-year rotation schedule to suppress encroachment of broadleaf forbs and woody plants. Shrubland management consists of vegetation manipulation through the use of mechanical or chemical treatment. The remaining acres of upland habitat are comprised of forest including Northern hardwoods (beech, sugar maple, yellow birch and hemlock) and Allegheny hardwoods (black cherry, tulip poplar and white ash). These types are rarely distinct from one another and tend to blend together with other species such as hickories, butternuts, and red or white oak. Much of the forest on the refuge is in second growth with a few isolated older stands.

Furbearer management will be conducted first and foremost as a tool to maintain habitat and keep the predator prey balance. The implementation of a regulated furbearer management program on the refuge also affords a potential mechanism to collect survey and monitoring information, or contribute to research on furbearer (and other wildlife) occurrence, activity, movement, population status, and ecology. By maintaining a trained and experienced group of trappers, the Service can utilize their skills and local knowledge to perform or assist with valuable management or research functions. Trappers that participate in the refuge program would provide assistance with the implementation of structured management

objectives, such as alleviation or reduction of wildlife damage conflicts, negative species interactions, and habitat modifications. Refuge trappers typically have a stake in proper habitat and wildlife conservation, and protection of the ecological integrity of the refuge so that their activity can continue. Accordingly, they are valuable assets to the refuge manager in terms of providing onsite reports concerning the fundamental status of habitat, wildlife, and refuge conditions.

Removal of harvestable furbearers will have a beneficial effect by protecting refuge infrastructure – dikes, water control structure – from damage, thus ensuring management capabilities over wetlands. Decreasing predators will decrease the potential for predation on nesting migratory birds. In addition, reducing predator densities can reduce the spread of some density dependent diseases such as distemper, parvo, and rabies.

### ***Objective 3.1 Grasslands***

Provide a minimum of 800 acres of grassland habitat in patches greater than 20 acres including two grassland areas greater than 100 acres. Maintain a diverse mix of grass and forb species with less than 2 percent shrub cover and no greater than 30 percent forb cover to provide breeding and nesting habitat for grassland nesting birds such as bobolink, Henslow's sparrow, grasshopper sparrow, sedge wren, and waterfowl, and to benefit other native wildlife including pollinating bees, butterflies, and other insects.

#### **Rationale**

Grasslands provide breeding habitat for a variety of migratory birds. Many grassland-nesting songbirds are area-sensitive and each species prefers a slightly different mix of grass, forb and bare ground. The Henslow's sparrow is one of the highest priority species in BCR 13; bobolink and grasshopper sparrow are also priorities (medium). Larger grasslands (e.g., greater than 100 acres) will generally provide habitat for a larger suite of grassland bird species than will smaller (e.g., less than 20 acres), isolated grassland patches (Sample and Mossman 1989).

Populations of grassland birds are declining as their habitats are converted to agricultural, residential, and other urban uses. Norment (2002) identifies a need to approach grassland bird conservation in the northeast with "particular wisdom and care." He notes that despite the relatively recent (last 200 years) rise and fall of grassland habitats and associated birds in the northeast, the region may still be important for these species given their continental decline and habitat loss in the core of their ranges in the Midwest.

Refuge grasslands are a mix of managed warm and cool season fields and unmanaged forb dominated fields. Switchgrass, smooth brome, and goldenrod dominate the grasslands. Grasslands are currently managed using a combination of mowing, chemical spraying and prescribed burns to control unwanted vegetation and to maintain nesting habitat for waterfowl and other grassland nesting birds. Haying, conducted through a cooperative farming program is also used as a grassland management tool (Service 2002). Approximately 450 acres of upland habitat have been planted to warm season grasses (primarily switchgrass, big bluestem and indiagrass) and succession is suppressed in these units (Service 2000c).

Refuge grassland units range in size from 1 to 250 acres. Patch size is often the most important factor limiting use and nest success of grassland nesting birds. Generally, the larger the grassland, the more it will be used and the higher the nest success. The goal of the refuge's grassland management program is to provide a few large grassland units and eliminate the smaller fragmented grasslands that are providing very little habitat to targeted wildlife species.

**Strategies:**

- Continue to use mowing, haying, prescribed fire, and herbicide application as tools to maintain grassland conditions. Schedule mowing every 1 to 3 years to occur between July 15 and October 15 depending on the desired vegetation structure. Mowing later in the season will provide added benefits to pollinators.
- Schedule prescribed fires between April 1 and June 15 to take advantage of adequate site conditions for burning to achieve the desired vegetation results.
- Conduct herbicide applications to provide maximum control of undesirable vegetation.
- Evaluate and determine the feasibility of using refuge grasslands for Karner blue butterfly reintroduction.
- Evaluate and refine bird and vegetation monitoring program for grassland units.
- Remove hedgerows within grassland areas to increase the size of grassland patches.
- Optimize the configuration (size and shape) of designated grassland units.

***Objective 3.2 Shrublands***

Provide 538 acres of mesic to dry shrubland habitat throughout the refuge to provide breeding, nesting, and migrating habitat for American woodcock, golden and blue-winged warblers, field sparrow, and black-billed cuckoo and to provide food sources for migrating songbirds. These shrublands should be dominated by native shrubs including willows, dogwoods, viburnums, and alders with less than 5 percent non-native invasive species.

**Rationale**

A range of habitat types are included under shrubland habitat ranging from brushy old field conditions to regenerating forests to more naturally maintained, relatively stable shrublands associated with wetlands. Shrublands support many high priority bird species in the BCR 13 Plan including blue and golden-winged warblers and field sparrow. Managing small areas (less than 20 acres) of shrubland habitat can be effective for many shrubland-dependent birds. Consolidating and clustering patches and maintaining some large patches of shrubland habitat will provide habitat for a range of wildlife associated with these habitats.

Many of the shrublands on the refuge have matured to a stage where they are moving from shrubland to forest habitat. The refuge is identifying those shrubland areas that would be best kept as shrubland management units and those areas that would be better left to revert to forest. A more active shrubland management program is necessary to maintain a significant quantity of shrubland habitat.

**Strategies:**

- Increase shrubland acres managed annually to 20 to 30 acres via hydroaxing in the winter on frozen ground or in mid-summer on dry ground.
- Treat shrubland units that have become dominated by non-native invasive species.
- Treat shrubland units that have become dominated by trees as necessary to retard succession into young forest.
- Develop a shrubland management treatment rotation schedule.

- Evaluate results of ongoing study on wildlife use of different shrubland types including native dogwood, non-native honeysuckle, and seedling green ash.
- Work with partners to develop cost-efficient methods for managing and maintaining shrublands dominated by native shrub species with few or no invasive species.
- Monitor avian composition annually for priority BCR species.

### ***Objective 3.3 Upland Forests (Early, Mid, and Late Successional)***

Provide 2,100 acres of early, mid and late (greater than 150 years old) successional upland forest in blocks greater than 75 acres dominated by hemlock, sugar maple, black cherry, hickory, and oaks to benefit migratory breeding birds including wood thrush, cerulean warbler, and black-billed cuckoo.

#### **Rationale**

Although once dominated by a mix of oak-hickory, northern hardwood, and hemlock-northern hardwood forests, the upland areas adjacent to Iroquois Refuge are now dominated by agricultural land interspersed with wetlands and remnant forest stands. Thus, Iroquois Refuge offers some of the best, remaining blocks of upland forest in this region. Currently, the late successional forest habitats on the refuge are not actively managed. The upland forests are relatively intact with a diversity of canopy tree species and some midstory and understory plant associates and light impact from invasive species. These forests support BCR 13 priority bird species including wood thrush and cerulean warbler (highest), and black-billed cuckoo (high). These three species are also birds of management concern for the Service in the Northeast Region and are noted as species of greatest conservation concern need in the NYWAP.

Over 46 percent of the refuge is covered by forest, 66 percent of which is forested wetland. Species composition of the forest varies across the refuge with mixed hardwood stands predominated by elm, maple, aspen, and upland species such as beech, hickory, and oak. Most conifers occur in plantations and include white pine, white spruce, Norway spruce, Scotch pine, red pine, Austrian pine, and Douglas fir. Several natural hemlock stands are found in small pockets.

Large blocks of upland forests and forested wetland habitats are unique to the present day landscape of the Western Lake Plain. Landuse or landcover data for northwestern New York was developed by the U.S. Geological Survey (USGS) as part of the Geographic Information Retrieval Analysis System (GIRAS) during the 1970s. Of the entire area displayed (1,469,706 acres), 1.6 percent of the land cover (23,709 acres) is mapped as forested wetlands and 6 percent (8,417 acres) as upland forest. Sizes of these forested areas vary, but the largest block of forested wetlands (20 percent of the total forested wetland cover) is within the Iroquois Refuge boundary.

During the 1960s and 1970s logging was conducted on the refuge for both production of wood products and firewood. Habitat degradation due to cutting outside specified areas and lack of staff time to monitor these areas caused an end to cutting in 1978. Currently, there is little to no management within the forested areas. Many species such as woodcock, grouse, turkey, wood duck, and hooded mergansers use the forested areas on the refuge.

Past history shows no evidence of widespread insect or disease outbreaks on the refuge. Concerns in the past have been with gypsy moth, Dutch elm disease, chestnut blight, and beech bark disease. The variety of tree species, coupled with the mosaic of upland and bottomland communities provides some protection from widespread insect or disease outbreaks. However, new threats are emerging all the time. In the summer of 2010, the Emerald Ash Borer was detected approximately 15 miles south of the refuge. This species could devastate the refuge forested wetlands. The refuge is currently working with the USDA

Forest Service to conduct a forest health assessment of the refuge. This assessment will guide the refuge in determining current and future threats and how to manage the refuge forests to combat these threats. A more detailed description of future management direction will be addressed in the Habitat Management Plan as well as the Integrated Pest Management Plan.

***Strategies:***

- Continue to monitor avian species of conservation concern through land bird surveys and woodcock surveys.
- Continue to conduct vernal pool surveys and amphibian surveys.
- Continue to limit any new trails into undisturbed upland forest to avoid providing pathways for invasive species.
- Continue to conduct annual surveys of exotic invasive plants, and control as necessary.
- Continue to rely on natural tree fall gaps within conifer plantations to create a multi-layered forest structure with a variety of dead and downed woody debris.
- Develop and conduct a refuge wide forest inventory and establish permanent vegetation monitoring plots.
- Develop forest management techniques for forested uplands for species of conservation concern.
- Implement a commercial forest management program to assist in maintaining early successional forest habitat in accessible areas using existing protocols for hiring contractors.
- Maintain a no-cut buffer of at least 100 feet along each side of perennial streams, rivers and extensive forested wetlands.
- Develop a protocol for monitoring and control of invasive plant species including garlic mustard and honeysuckle along woodland trails.
- Develop a protocol for monitoring invasive forest pests including gypsy moth, emerald ash borer, Asian longhorn beetle, beech bark disease and any new threat to refuge forests and work with partners to determine best methods for treatment and control.
- Evaluate the juxtaposition of early successional openings and upland forests to determine if restoration is needed and feasible to promote reforestation of artificial forest openings, areas surrounding forest peninsulas, gaps between isolated forest tracks, and riparian corridors to create more forest interior for area-sensitive species.
- Give restoration and management priority to those areas currently adjacent to large tracts of mature forest, thus increasing the overall size of the forest patch.
- Restore selected grasslands to forest by either natural regeneration or planting.

***Objective 3.4 Plantations***

Restore 200 acres of conifer plantations from the highest priority areas of the refuge to encourage development of natural forest (oak-hickory, northern hardwoods, hemlock-northern hardwoods) and/or shrubland (willows, dogwoods, viburnums, and alders), communities that are more beneficial for refuge priority resources of concern including wood thrush, cerulean warbler, and black-billed cuckoo.

### **Rationale**

Conifers are a relatively small component of the forest types on the refuge. The only naturally occurring, native conifer is the Eastern hemlock which is often found in association with sugar maple and American beech. All other conifers on the refuge are planted stock. Conifer planting peaked during the 1960's and early 1970s. Species planted include white spruce, white pine, red pine, Austrian pine, Scotch pine, Douglas fir, and Norway spruce.

The conifer plantations on the refuge are either monocultures or have only a few different species associated with them. This has caused a lack of diversity not only in the overstory and understory tree composition, but in age classes as well. The closely planted conifers restrict the amount of light that reaches the forest floor and therefore causes impoverished flora and fauna. The acidity from the conifer foliage also limits growth on the forest floor.

Plantations cause unnatural edges in the forest where naturally there would be transition zones between two different forest types. While edges can in general increase wildlife species richness and abundance, edges can have a negative effect on species which the refuge is managing for including nesting migratory songbirds. Negative effects include but are not limited to: nest predation and parasitism, decrease in forest interior nesting birds, and an absence of shade tolerant plant species (Hunter 1990).

Plantation areas will be prioritized for removal. Depending on location and outcome, different techniques maybe used as described in the Commercial Forest Harvest Compatibility Determination (Appendix B) or through girdling and nature regeneration. Restoring these non-native conifer plantations will result in more diverse forest communities and reduce the edge effect which will result in better habitats for refuge species of conservation concern.

### **Strategies:**

- Conduct annual surveys of exotic invasive plants and control as necessary.
- Evaluate current bird survey transects in conifer plantations and establish new surveys as needed to monitor for species of conservation concern as plantations convert to a more natural state.
- Prioritize plantations for removal.
- Implement a commercial forest management program to remove conifer plantations in accessible areas using existing protocols for hiring contractors.
- Determine if reforestation is needed or if natural seeding is sufficient in areas where conifer plantations have been removed.
- Incorporate survey results, habitat treatments, treatment responses, and future prescriptions into the Geographical Information Systems (GIS) database.

### **Goal 4. Refuge visitors will understand and appreciate fish and wildlife conservation through high quality recreation, education and interpretive programs.**

#### ***Background***

The Improvement Act identifies six priority public uses for refuges: hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. Interpretation and hunting have regionally been identified as the top two priority Areas of Emphasis at the Iroquois Refuge. These two activities will be given highest priority to ensure wise use of staff and funding resources and enable the refuge to provide fewer, but higher quality, visitor opportunities. Public use opportunities will be

provided to the extent that they are compatible with the Refuge System mission and the purposes of Iroquois Refuge. Goal 4 addresses wildlife observation, wildlife photography, environmental education, and interpretation. Goal 5 addresses hunting and fishing recreation.

We develop our wildlife-dependent recreation programs in consultation with State fish and wildlife agencies and stakeholders. Refuge recreation programs must

- promote safety of participants, other visitors, and facilities;
- promote compliance with applicable laws and regulations and responsible behavior;
- minimize or eliminate conflict with fish and wildlife population or habitat goals or objectives in an approved plan;
- minimize or eliminate conflicts with other compatible wildlife-dependent recreation;
- minimize conflicts with neighboring landowners;
- promote accessibility and availability to a broad spectrum of the public;
- promote resource stewardship and conservation;
- promote public understanding and increase public appreciation of America's natural resources and our role in managing and conserving these resources;
- provide reliable/reasonable opportunities to experience wildlife;
- use facilities that are accessible to people and blend into the natural setting; and
- use visitor satisfaction to help define and evaluate programs.

A Visitor Services Assessment and Review was completed in March 2009 (Service 2009a). This review was completed by visitor services managers in Region 5 to provide an objective view about refuge resources and visitor services programs. Their recommendations included example themes and key messages the refuge could integrate into interpretation, outreach, and education activities. The themes and key messages are listed below and will be used to help form our messages to the public.

#### *Biodiversity*

Biodiversity was as crucial to the survival of the Native Americans who historically inhabited this area as it is to the people, wildlife, and wildlands inhabiting it today.

#### *Wildlife*

The refuge is a significant stop-over point for migrating waterfowl and other birds and has been key in the recovery of the bald eagle and the comeback of nesting black terns while also providing critical habitat for other wildlife (mammals, reptiles, amphibians, fish).

#### *Habitat*

Iroquois Refuge and the adjacent State wildlife management areas provide the largest contiguous block of wildlife habitat between the Allegheny Plateau and Lake Ontario. The size and diversity of this natural area provides a variety of habitats to benefit wildlife and for enjoyment and appreciation by people. The management of such habitat diversity provides a wildlife oasis within a landscape fragmented by development and farming.

#### *People*

Iroquois Refuge is not only a refuge for wildlife, but also a refuge for people; a place where people connect with nature, rest, restore, and build health before continuing on the day's or life's, journey. A program called Connecting Children with Nature is part of the Service's Connecting People with Nature:

Ensuring a Conservation Legacy Strategy. It was established to address the American public's declining interaction with nature and the threat this decline poses to the mission of the Service. Connecting Children with Nature addresses the fact that children today spend less time playing outdoors than any previous generation. Today, kids reportedly spend an average of 6.5 hours per day with television, computers, and video games. This lack of connection with nature has been linked to a number of health problems, both physical and emotional (Children and Nature 2009). In order to accomplish the Service Directorate priority to connect people with nature, Northeast Region personnel have established the following goals:

- Educate ourselves and others about the benefits of connecting people, particularly children, with nature.
- Identify and share existing or new Service success stories.
- Facilitate new, and refine existing, opportunities.
- Network with other staff, partners, and other organizations to optimize opportunities.
- Identify, reduce, and remove barriers to connect people with nature.
- Identify and implement tools for accountability.
- Seek new funding and leverage existing funding for projects.
- Demonstrate Federal leadership in connecting people with nature.

The Service has also adopted the slogan "Let's Go Outside" to promote events, programs, and activities for the Connecting People/Children with Nature initiative. Each service unit can modify the slogan to suit the event or activity they have planned. For example, "Let's Go Birding" or "Let's Go Fishing" or "Let's Go Outside to Restore Habitat for Wildlife." Many of the refuge programs are designed to connect with kids to continue the conservation initiatives.

**Strategies that apply to all objectives under this goal:**

- Continue to replace outdated and faded signs (e.g. boundary, hunt zones, closed areas, primary entrance, secondary entrance) using current standard Service signs.
- Maintain consistency when posting "no hunting" signs along the refuge boundary.
- Continue to restrict public access to seasonally sensitive wildlife areas as needed.
- Restrict access to the refuge from March 1 through September 30 except in designated public use areas (trails, overlooks, photo blinds, and fishing locations).
- Restrict access to designated public use areas and refuge uplands from October 1 to the end of February.
- Hire one permanent full-time Park Ranger (GS-0025-5).

***Objective 4.1 Interpretive Programs***

Provide high quality, compatible interpretive programs with a focus on the Refuge System mission and the purpose of the refuge.

**Rationale**

Interpretation is one of the six priority public uses required by the Improvement Act of 1997 to receive enhanced consideration on refuges. Individuals, families, or small groups have the option to attend scheduled weekend programs presented in partnership with the Buffalo Audubon Society. Interpretive

messages are also presented through special events and non-personal interpretation including printed refuge brochures, stationary interpretive panels in kiosks, wayside panels at Cayuga Overlook, and interpretive signs and materials at Kanyoo, Onondaga, and Swallow Hollow Nature Trails. Interpretation is one of the two Areas of Emphasis for the refuge.

Refuge visitors include students from pre-K to college, area tourists, local conservation groups, wildlife photographers and observers, and hunters and fishermen. Annual visitation ranges from 35,000 to 45,000 people. To help address a shortage of refuge staff, the refuge partners with Buffalo Audubon Society to conduct interpretive programs on the refuge mostly during the spring and fall. These programs include a “scope watch” on the eagle nest from Cayuga Overlook, birding tours, nature walks to identify plants, butterflies and trees, bat programs, “owl prowls,” and canoe trips down Oak Orchard Creek. These programs are attended by 1,000 to 1,800 people each year. Participation in these programs has been increasing over the years and we expect that trend to continue.

Refuge staff conducts interpretive programs both on and off site. Onsite interpretive programs presented by refuge staff and volunteers include formal programs and presentation and guided trail walks. In fiscal year 2009 the refuge received eight requests from local schools, scouts, and church groups for guided visits which totaled 172 visitors. The refuge conducts two major interpretive events: Spring into Nature and the Youth Fishing Derby. Spring into Nature is a one day event hosted at the refuge visitor contact station and is usually attended by over 1,000 people. This event provides interpretive programs, kid’s activities and provides additional information on wildlife, habitats, conservation, and stewardship. The Youth Fishing Derby is held at Ringneck Marsh and incorporates interpretive information into a fishing contest for kids under the age of 16 years. In addition to these two events, the Buffalo Audubon Society presents interpretive programs called Iroquois Observations. In fiscal year 2009, Iroquois Observations documented 829 visits for programs including eagle watches, birding field trips, guest speakers, woodcock walks, owl prowls, canoe treks, and themed nature walks.

Offsite programs include Conservation Field Days in three counties (Orleans, Niagara and Monroe) as well as local festivals and other events. At Conservation Field Days the refuge provides one of many learning stations for over 200 students in each of the counties. Local festivals and other events include Plantaisia in Buffalo, Earth Day at Beaver Meadow Nature Center, the University of Buffalo Enviro Fair, EcoFest in Batavia, Ducks Unlimited Green Wing events, and interpretive programs at local schools. These programs record nearly 800 contacts.

The refuge will continue existing interpretive programs and add new opportunities. Providing high-quality interpretation programs on the refuge promotes visitor appreciation and support for refuge programs. The guiding principles for our interpretation programs include the following:

- Promote visitor understanding of, and increase appreciation for, America’s natural and cultural resources and conservation history by providing safe, informative, enjoyable, and accessible interpretive opportunities, products, and facilities.
- Develop a sense of stewardship leading to actions and attitudes that reflect interest and respect for wildlife resources and the environment.
- Provide quality interpretive experiences that help people understand and appreciate Iroquois Refuge and its role in the Refuge System.
- Provide opportunities for quality recreation and interpretive experiences consistent with criteria describing quality found in 605 FW 1.6 (*Service Manual*).
- Assist refuge staff, volunteers, and community in attaining knowledge, skills, and abilities in support of interpretation.

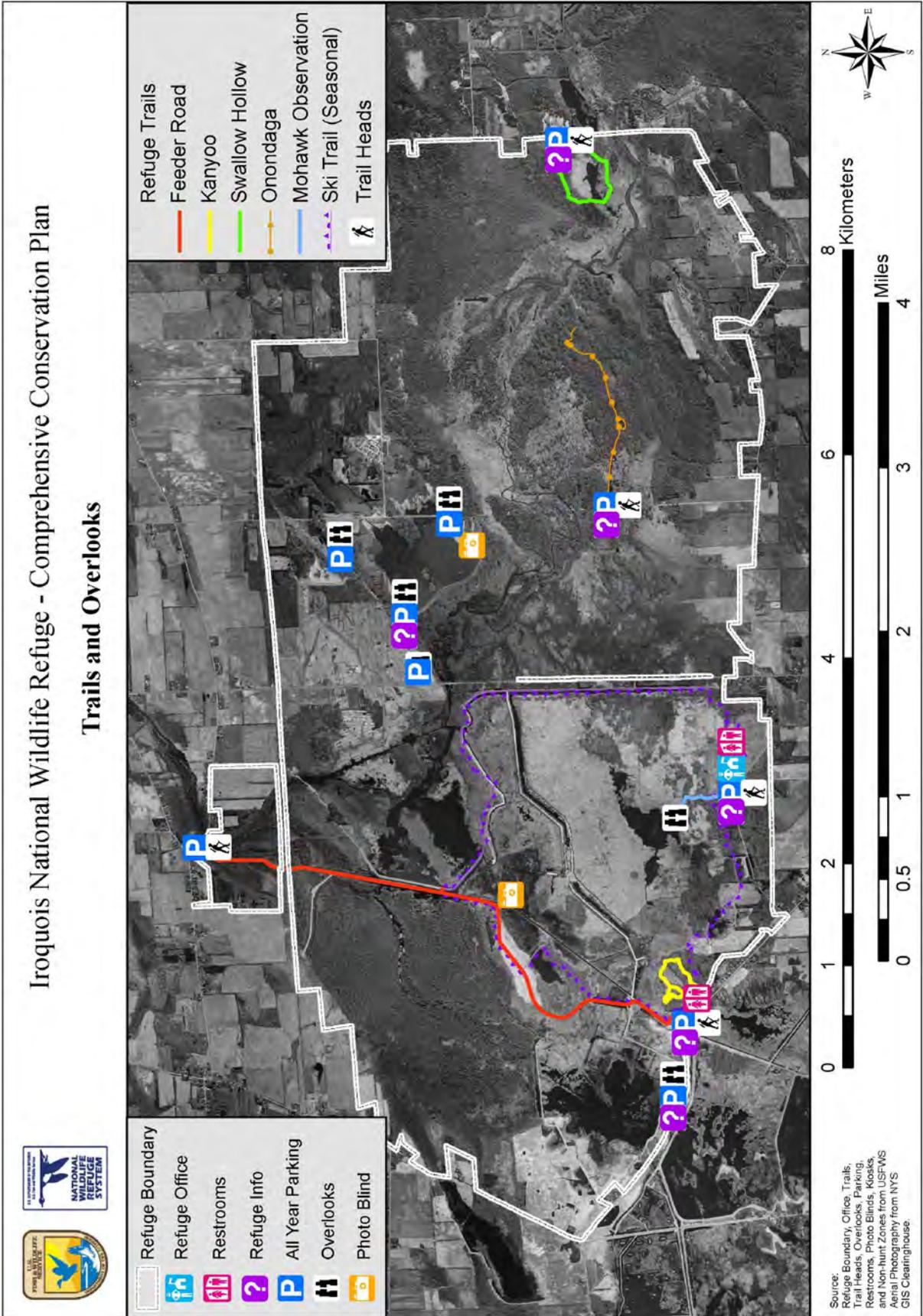
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities.

The refuge maintains a series of nature trails open to the public year-round, including Kanyoo, Onondaga, and Swallow Hollow (map 4-5). Kanyoo and Swallow Hollow Nature trails are used extensively for school groups for field trips to experience nature and wildlife. Over the past couple of years these trails have been enhanced to ensure adequate access and to provide interpretative panels. We will continue to ensure that the trails are maintained and free from obstruction to allow easy access to the trails. The refuge will plan and develop a new trail that will begin at the refuge headquarters (map 4-5).

### **Strategies:**

- Continue to host two special events during the year: Spring into Nature on the last Saturday in April and the Annual Youth Fishing Derby on the first Saturday in June to coincide with National Fishing and Boating Week.
- Continue to offer programs to assist Boy Scouts and Girl Scouts to obtain badges on request for a minimum of 10 children in the target audience.
- Continue to have the visitor contact station open Monday through Friday, except holidays, from 7:30 a.m. to 4 p.m. with extended hours on weekends in the spring and fall from 9 a.m. to 5 p.m.
- Continue to offer slide programs and/or guided trail walks as requested and presented by staff or volunteers with a minimum of 10 people in the target audience and no more than 60.
- Continue to partner with Buffalo Audubon Society to provide weekend nature programs in the spring and fall.
- Continue to distribute interpretive brochures including the Kanyoo Trail Guide.
- Continue to maintain interpretive displays in the visitor contact station and interpretive panels in kiosks at Cayuga Overlook, Onondaga, Kanyoo, and Swallow Hollow Nature Trails, and at the visitor contact station.
- Develop three to five power point programs that focus on different themes associated with refuge goals and objectives such as habitat wildlife and visitor services.
- Develop thematic programs for guided trail walks using the method described in the Certified Interpretive Guide Course to develop outlines which have theme, target audience, goals, mission-based behavioral objectives, introduction, sub-themes, and conclusion.
- Conduct two to four outdoor-related workshops such as Orienteering and Map Reading, Women in the Outdoors, and New Hunters to Iroquois Refuge.
- Rewrite the Kanyoo Nature Trail guide and install six interpretive panels on the blue loop of Kanyoo Trail.
- Standardize the six refuge kiosks and the messages they provide regarding refuge goals, objectives, and management.
- In locations where there are more than one kiosk for interpretation and hunting, determine if they can be combined into one kiosk.
- Conduct research on the demographics of refuge visitors and their activities.
- Renovate interpretive displays in the visitor contact station to integrate CCP goals and objectives.
- Revise refuge publications to current Service design standards and to reflect the updated rules and regulations.

Map 4-5



- Investigate new technologies that can be incorporated into interpretive programs such as podcasts, virtual technologies, and [www.ebird.com](http://www.ebird.com).
- Update cultural resource interpretive displays to incorporate the history of the eastern elk and displays the antlers recently discovered on the refuge.
- Utilize the National Association of Interpreters Standards and Practices for Interpretive Methods, Interpretive Organizations, and Planning.

### ***Objective 4.2 Outreach***

Provide at least 10 opportunities annually for the local communities and visitors to learn about Iroquois Refuge and the role of the Refuge System in protecting and managing our natural resources.

#### **Rationale**

The Service is America's voice for wildlife, speaking for the wild creatures that cannot speak for themselves. To be effective, we must do so in a way that facilitates public understanding and inspires support (Service National Outreach Strategy). Outreach is two-way communication between the Service and the public to establish mutual understanding promote involvement, and influence attitudes and actions to improve joint stewardship of our natural resources. Communication is essential to the refuge mission. Frequent communication facilitates understanding and helps the public make informed decisions about the future of fish and wildlife resources. Marketing research shows a clear correlation between positive awareness and a willingness to act on behalf of a particular product or service.

Objective 4.2 focuses on achieving positive awareness for the refuge through better communications. Although the refuge must manage many controversial issues, it also enjoys significant strengths including dedicated staff and volunteers, and strong public interest in fish and wildlife. To meet refuge challenges and take advantage of its strengths, the strategies under this objective recommend a more unified and strategic communications program that will help the refuge carry out its resource conservation mission. Our approach is to make the most effective use of staff time and resources by focusing our messages into something people can easily understand and making sure it delivers that message to concerned people in a timely way.

The refuge is located between two major cities, Buffalo and Rochester, with a number of small towns and hamlets in between. The refuge is also only an hour away from Niagara Falls, which receives many visitors from across the nation as well as other countries. The location of the refuge provides an ideal place to reach local, national and international visitors and educate them about the refuge and the Refuge System.

#### **Strategies:**

- Continue current outreach activities which include news releases prior to major events and maintenance of a refuge Web site.
- Continue participating in Conservation Field Days in Orleans, Niagara, and Monroe Counties and in festivals or special events offsite.
- Continue to work with the Chambers of Commerce to reach visitors through the tourism industry.
- Continue to develop and distribute news releases to local papers, television, radio, schools, and local tourism about the refuge and wildlife activity.

- Continue to use social media, including twitter and facebook, to reach new audiences and distribute news and events going on at the refuge.
- Develop targeted outreach based on research findings conducted under Objective 4.1 and connect outreach goals to refuge messages and key resource needs.
- Develop an introductory video about the refuge.
- Update the refuge Web site to provide interactive management and natural resources games and ensure consistency with new Web site standards.
- Develop outreach program with Iroquois Job Corps Center (interpretation, environmental education, and partnerships).
- Develop a comprehensive outreach strategy.
- Within 5 years of completion of the CCP, conduct an evaluation of the effectiveness of current outreach techniques and identify at least two specific audiences for outreach goals that have thus been unexplored.
- Explore opportunities to work with the Buffalo and Rochester zoos to partner on outreach programs.
- Obtain training in tourism and eco-tourism and explore opportunities to connect with Niagara Falls tourism organizations.
- Update the refuge Web site to provide more information on the refuge's history, biological resources, recreational opportunities, regulations and policies, and the mission of the Service and the refuge.

### ***Objective 4.3 Environmental Education***

Reach 2,000 school-age (K-12) students annually with environmental education programs that coincide with NYS standards of learning. These programs should be conducted by staff, volunteers, partners, and members of Friends of Iroquois Refuge on or off refuge property and integrate refuge outreach and interpretive objectives and messages.

#### **Rationale**

Environmental Education is one of the six priority public uses required by the Improvement Act of 1997 and is one of the most important ways we can raise visibility, convey refuge messages, and communicate the significant contribution the refuge makes to natural resource conservation. Objective 4.3 focuses on creating curriculums or other structured programs on and off the refuge in association with local schools and teachers and other educational programs.

Local schools are incorporating wildlife and wetland topics into their curriculums to meet science-based standards of learning and help students understand scientific concepts, principles, and theories pertaining to their physical setting and living environment. The refuge can provide educational materials as well as an outdoor laboratory to augment the teachers existing curriculum and tie into NYS learning standards.

Providing high-quality environmental education on the refuge promotes visitor appreciation and support for refuge programs. The guiding principles for environmental education include:

- Teach awareness, understanding, and appreciation of our natural and cultural resources and conservation history.

- Allow program participants to demonstrate learning through refuge-specific stewardship tasks and projects that they can carry over into their everyday lives.
- Establish partnerships to support environmental education both on-and off-site.
- Support local, State, and national education standards through environmental education on refuges.
- Assist refuge staff, volunteers, and other partners in obtaining the knowledge, skills, and abilities to support environmental education.
- Provide appropriate materials, equipment, facilities, and study locations to support environmental education.
- Give refuges a way to serve as role models in the community for environmental stewardship.
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreation activities.

We currently partner with Canisius College to provide educational programs on the refuge. The Canisius Ambassadors for Conservation (CAC) is a program that has been operating at the refuge since 2005 teaching intermediate-grade students about the mission of the Service and the natural resources of Iroquois Refuge emphasizing wetlands and migratory birds. Between 700 and 2,000 students participate in this program each year. The programs are developed to ensure that specific elements are delivered and retained by the students.

**Strategies:**

- Continue the CAC education program ensuring that the program ties into the New York State Standard of Learning requirements.
- Continue to work with teachers to develop their own environmental education programs.
- Work with Friends of Iroquois Refuge and Canisius College to find secure funding for the CAC program.
- Continue to provide annual busing assistance to the CAC program.
- Develop three to five key environmental education curricula/messages for CAC teachers to evaluate their pre- and post-visit knowledge of refuge resources and management actions.
- Develop a program that provides environmental education options for the New York State School for the Blind focusing on non-visual teaching methods.
- In conjunction with the CAC program, conduct a conservation camp or after school camp such as the Junior Refuge Manager Program.
- Look for opportunities to incorporate the Shorebird Sister Schools Program, Junior Duck Stamp education materials, and Project Webfoot into environmental education activities.

***Objective 4.4 Wildlife Observation and Photography***

Provide access to unique and unusual habitats on the refuge for wildlife observation and photography compatible with wildlife habitat management needs. Encourage wildlife photographers to use the refuge by providing at least two well-placed photography blinds.

## **Rationale**

Wildlife observation and photography are two of the six priority public uses required by the Improvement Act of 1997 to receive enhanced consideration on refuges. The refuge provides opportunities to view and photograph wildlife in natural settings at nature trails and overlooks. Historically the refuge has been a popular birding site and has been recognized as an IBA by the National Audubon Society. The refuge is a stopover point for migratory waterfowl and attracts hundreds of thousands of birds during migration. The refuge's diverse habitat also attracts songbirds, shorebirds, raptors, marsh birds, reptiles, amphibians, and over forty species of mammals.

The 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation indicates that over 3.8 million people participated in wildlife-watching activities in the State of New York during 2006 and spent more than \$1.5 billion on activities and equipment related to wildlife watching (Service 2006b).

Providing a high-quality wildlife observation and photography on the refuge promotes visitor appreciation and support for refuge programs. The guiding principles for these two programs include:

- Provide safe, enjoyable, and accessible wildlife viewing opportunities and facilities.
- Promote visitor understanding of, and increase visitor appreciation for, America's natural resources.
- Provide opportunities for quality recreational and educational experiences consistent with criteria describing quality found in 605 FW 1.6.
- Minimize conflict with visitors participating in other compatible wildlife-dependent recreation activities.

The refuge facilitates opportunities for wildlife observations and photography at nature trails including Kanyoo, Onondaga, and Swallow Hollow, and at Cayuga, Ringneck, Mallard, and Schoolhouse Overlooks (map 4-5). Wildlife observation is the most common visitor activity at Iroquois Refuge.

The new office building, housing several divisions in the Service, will increase visitation to the headquarters area. Due to the anticipated increase in use and the desire by visitors to have access to a nature trail from the Headquarters location, we will plan and develop a trail using an existing waterfowl hunt trail as a wildlife observation trail as well as access to a new observation platform. This platform will be similar to the existing one at Cayuga Overlook and will allow visitors to observe wetland-dependent wildlife in Mohawk Pool. This area may be restricted to public access during the waterfowl hunt season.

Several non-wildlife dependent activities facilitate wildlife observations and are considered acceptable methods for visitors to experience wildlife. These include the following:

- **Cross-country Skiing/Snowshoeing** - Although not a priority public use, skiing and snowshoeing are often used by refuge visitors to enjoy the solitude of the refuge's natural areas and to view winter wildlife. Many skiers and snowshoers stop at the visitor contact station to obtain refuge and wildlife viewing information. The light amount of use that is received by the refuge for these activities will not interfere with the refuge purpose since very few species of birds are present during the winter season. Cross-country skiing/snow shoeing are permitted on Onondaga and Kanyoo Nature Trails and the Mohawk Ski Trail. The Mohawk Ski Trail closes on March 1 to limit disturbance during spring migration, nesting, and brood rearing seasons.
- **Hiking and Walking** - Hiking and walking are permitted on the refuge's designated trail system which includes Kanyoo, Onondaga, and Swallow Hollow Trails, the Feeder Road, along public

roads adjacent to the refuge, and refuge uplands from October 1 to the end of February. Hiking and walking allow visitors to enjoy the solitude of the refuge and view and photograph wildlife. The refuge will continue to restrict public access for hiking and walking to designated trails from March 1 to September 30. Access to wetland areas for hiking or walking will be prohibited year round.

- **Jogging and Bicycling** - Jogging and bicycling will be permitted but not encouraged on the refuge. Jogging and bicycling are not priority public uses but they can facilitate priority public uses on the refuge. Although jogging and bicycling are classified as non-wildlife activities, most participants use the refuge for the “wildlands” experience it provides. Jogging and bicycling generally occur between March and September. Some bicyclist stop at the visitor contact station to obtain refuge or wildlife viewing information. Most visitors bike on Feeder Road which is open for a variety of public use activities and is the main service road used by refuge staff for management functions. Bicycling is also permitted on other public roads that go around and through the refuge. Bikes are not permitted on nature trails due to damage they may cause to the trail surface.

The refuge is used by amateur photographers, family members taking photos, and tourists documenting their travels. Providing high quality opportunities for the public to engage in nature photography promotes visitor appreciation and support for refuge programs. Approximately 400 visitors participate in photography-related activities each year. We will replace the two existing photo blinds with new blinds in different locations to provide a greater opportunity for the public to view and photograph wildlife (map 4-5). One photo blind will be placed on the south side of Ringneck Marsh near Mallard Overlook and the second will be a combination photo/hunting blind that will be located in our waterfowl hunting area and used for both activities.

**Strategies:**

- Continue to maintain Kanyoo, Onondaga, and Swallow Hollow Nature Trails and Feeder Road to provide opportunities for wildlife observation and photography.
- Continue to maintain Cayuga, Mallard, Ringneck, and Schoolhouse Overlooks.
- Continue to promote Oak Orchard Creek as a canoe/kayak route to provide additional unique opportunities for wildlife viewing and photography.
- Continue to loan binoculars which can be checked out at the visitor contact station.
- Continue to operate the live kestrel cam to provide a unique opportunity to view an active kestrel nest. The live feed can be viewed via a monitor in the visitor contact station and on the web.
- Continue to permit cross-country skiing on the Mohawk Ski Trail from December 1 until the last day in February.
- Continue to allow biking on Feeder Road.
- Continue to allow jogging on nature trails and Feeder Road.
- Allow hiking and walking the refuge uplands (off designated nature trails) from October 1 to the end of February.
- Continue to update refuge publications and brochures regarding wildlife observation and photography opportunities every 3 years (e.g., fact sheets, wildlife lists, general brochure).
- Open existing trail used for waterfowl hunting access behind headquarters and create an overlook platform.

- Provide one designated photo blind and one combination photo/waterfowl hunt blind.
- Provide one canoe launch for accessing Oak Orchard Creek.
- Develop a refuge rack card for distribution at key tourism and highway information sites.
- Partner with Friends of Iroquois Refuge and others to offer an annual or a regular wildlife photography contest.
- Encourage and promote the use of [www.ebird.org](http://www.ebird.org) by publicizing it and adding an internet-linked kiosk on station so that birders can consult previous sightings and add their own sightings.
- Incorporate the Mohawk Ski Trail into other refuge maps and create a fact sheet about the trail.
- On Feeder Road, where biking is allowed, ensure trail is properly posted showing bike access.
- Reestablish an eagle camera when technology and an appropriate nesting tree are available.

#### ***Objective 4.5 Other Recreation***

Discontinue berry picking, a non-wildlife dependent recreational activity.

#### **Rational**

Berry picking is an example of a visitor activity on the refuge that is not a priority public use and may also result in disturbance to wildlife. In accordance with 605 FW1, General Guidance and 603 FW 1, Appropriate Refuge Uses, we will only permit non-priority uses when we determine that they are legally mandated, provide a benefit to the Service, occur due to special circumstances, or facilitate one of the priority wildlife-dependent recreational uses.

The majority of edible berry species on the refuge ripen in early summer when birds are still in the sensitive nesting and brood rearing season (March 1 – July 15). There are only a few berry species that carry their fruits into the late summer. We will close the refuge to berry picking to protect birds during nesting and brood rearing and to be consistent with the change in public access described in the beginning of this chapter which includes allowing public access only in designated areas from March 1 through the end of September.

#### **Strategies:**

- Close the refuge to berry picking.

### **Goal 5. Hunters and anglers will enjoy and support programs designed to provide high quality hunting and fishing experiences.**

#### ***Background***

The Improvement Act identifies six priority public uses for refuges: hunting, fishing, wildlife observations, wildlife photography, environmental education, and interpretation. Hunting and interpretation have regionally been identified as the top two priority Areas of Emphasis at the refuge. These two activities will be given highest priority to ensure wise use of staff and funding resources and enable the refuge to provide fewer, but higher quality, visitor opportunities. Iroquois Refuge is popular among all hunting groups, but most notably deer and waterfowl hunters. The refuge is becoming increasingly popular for these hunting activities and we are experiencing greater law enforcement challenges such as illegal deer stands, access into closed areas, littering, conflicts among user groups, and failure to abide by permit regulations.

We develop our wildlife-dependent recreation programs, including hunting, in consultation with State fish and wildlife agencies and stakeholders. Refuge recreation programs must

- promote safety of participants, other visitors, and facilities;
- promote compliance with applicable laws and regulations and responsible behavior;
- minimize or eliminate conflict with fish and wildlife population or habitat goals or objectives in an approved plan;
- minimize or eliminate conflicts with other compatible wildlife-dependent recreation;
- minimize conflicts with neighboring landowners;
- promote accessibility and availability to a broad spectrum of the public;
- promote resource stewardship and conservation;
- promote public understanding and increase public appreciation of America's natural resources and our role in managing and conserving these resources;
- provide reliable/reasonable opportunities to experience wildlife;
- use facilities that are accessible to people and blend into the natural setting; and
- use visitor satisfaction to help define and evaluate programs.

### ***Objective 5.1 Hunting***

Allow access for hunting of small game, deer, turkey, waterfowl, and other migratory birds in accordance with New York State regulations and consistent with sound biological principles to provide participants with reasonable harvest opportunities, un-crowded conditions, and minimal conflicts with other users.

#### **Rationale**

Hunting is one of the six priority public uses required by the Improvement Act of 1997 to receive enhanced consideration on refuges. Hunting is a popular and traditional activity in the area and a management tool to keep wildlife populations at healthy numbers to maintain healthy habitats. When managed appropriately, hunting can instill a unique understanding and appreciation of wildlife, their behavior, and their habitat needs.

According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation approximately 566,000 residents and non-residents participated in hunting in New York in 2006. That group spent more than \$715 million on activities and equipment related to hunting (Service 2006b).

Current hunting activities and methods permitted on the refuge were established in the Refuge Hunting Plan. This plan was approved in the mid-1980's and has had few modifications. In 2008 the refuge received approximately six visits for migratory bird hunting (non waterfowl), 432 visits for waterfowl hunting, 453 for upland game, and 4,656 for deer hunting. The refuge provides information regarding annual hunt programs through refuge brochures, hunting maps, fact sheets, and Web sites.

The refuge is open to hunting during most New York State hunting seasons and in accordance with New York State Hunting laws and refuge specific regulations. All hunting requires a refuge permit. Except for the spring turkey season which is open during the month of May, hunting is restricted on the refuge from March 1 through September 30.

As part of the refuge's commitment to young hunters, we accommodate two youth orientation programs and two youth-only hunt days each year. These youth events are coordinated with the National Wild Turkey Federation and Lake Plains Waterfowl Association and are limited to 25 junior hunters. Providing a high-quality hunt on the refuge promotes visitor appreciation and support for refuge programs. The guiding principles for the refuge hunt program include the following:

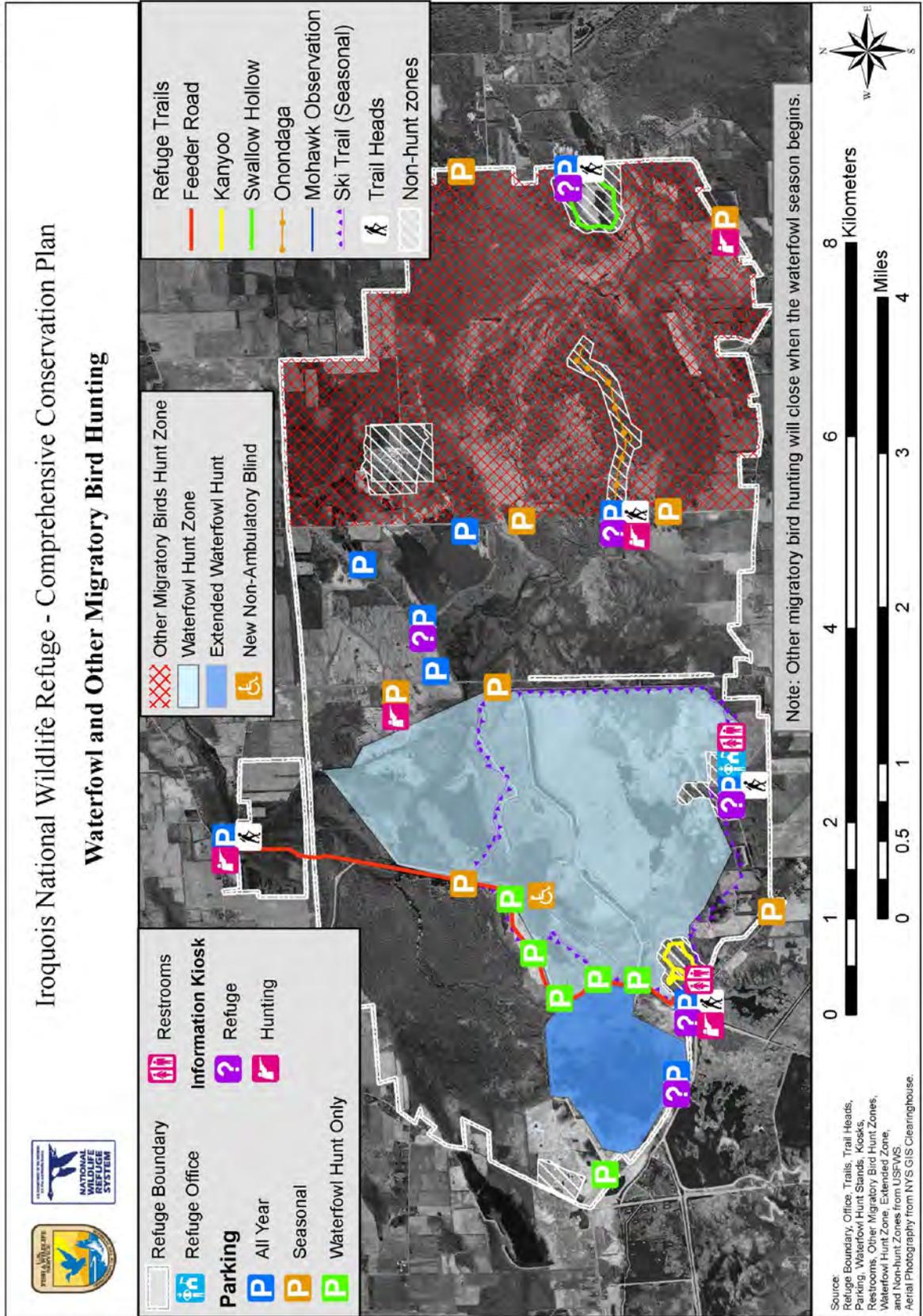
- Manage wildlife populations consistent with the Refuge System, specific management plans approved after 1997, to the extent practicable, State fish and wildlife conservation plans.
- Promote visitor understanding of, and increase visitor appreciation for, America's natural resources.
- Provide opportunities for quality recreation and interpretive experiences consistent with criteria describing quality found in 605 FW 1.6 (*Service Manual*).
- Encourage participation in hunting to help preserve it as a tradition deeply rooted in America's natural heritage and conservation history.
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities.

Deer hunting is the most common form of hunting pressure on the refuge. More than 400 hunters use the refuge on opening day of the regular deer season and on Thanksgiving Day, and 100-200 people hunt the refuge on other days during the season. This level of hunting pressure creates potentially unsafe, overcrowded hunting conditions. The number of reported deer hunter visits increased significantly from 2007 (3,227 hunters) to 2008 (4,500 hunters). The refuge will continue to operate the deer hunting programs on the refuge as status quo until we can further investigate whether there is a need to limit the number of hunters during high use days. This may require us to look at hunting pressure and harvest data for several years to reestablish refuge use and trend data for the deer hunt programs.

The refuge receives more turkey hunt lottery applications than it has permits available. We will continue to manage permits with a pre-season lottery draw; however, the refuge season will be split into two sessions to provide additional permits available per year. This would allow individuals to hunt for either 15 or 16 days depending on the session for which they are drawn. This lottery draw will allow hunters to rank their sessions in their order of preference. The first session will run from May 1 to May 15 and the second session will run from May 16 to May 31. There will be 50 permits for Session 1 and 25 permits for Session 2. This new system would allow 50 percent more permits to be issued to refuge turkey hunters per year, thus allowing more hunters to participate. The refuge's Youth Turkey Hunt which has been conducted on the first Sunday after the opening of the spring turkey season will be moved to align with New York State's designated Youth Hunting Days in late April. The refuge will open a fall turkey hunt aligned with the New York State season. Hunting will be allowed in the same areas where upland/small game hunting is allowed, which is most of the refuge minus the emergent marshes.

The lands and waters of Iroquois Refuge were purchased through the sale of Duck Stamps under the Migratory Bird Hunting and Conservation Stamp Act as an "inviolable sanctuary for migratory birds and other wildlife uses." In 1958 an amendment to the Migratory Bird Hunting and Conservation Stamp Act increased the total area of a refuge that could be opened for hunting migratory game birds from 25 percent up to 40 percent. Because the refuge was acquired as an inviolable sanctuary, only 40 percent of the refuge area may be opened at one time for hunting waterfowl and other migratory birds (woodcock, snipe and rail). After reevaluating the areas which are open to waterfowl and other migratory bird hunting we found that we exceed the 40 percent limit when the New York State seasons for hunting waterfowl and other migratory birds overlap (map 4-6). Waterfowl hunting is the second most popular hunt on the refuge with an average of 400 hunt visits per year over the past five years. Hunting of other migratory birds

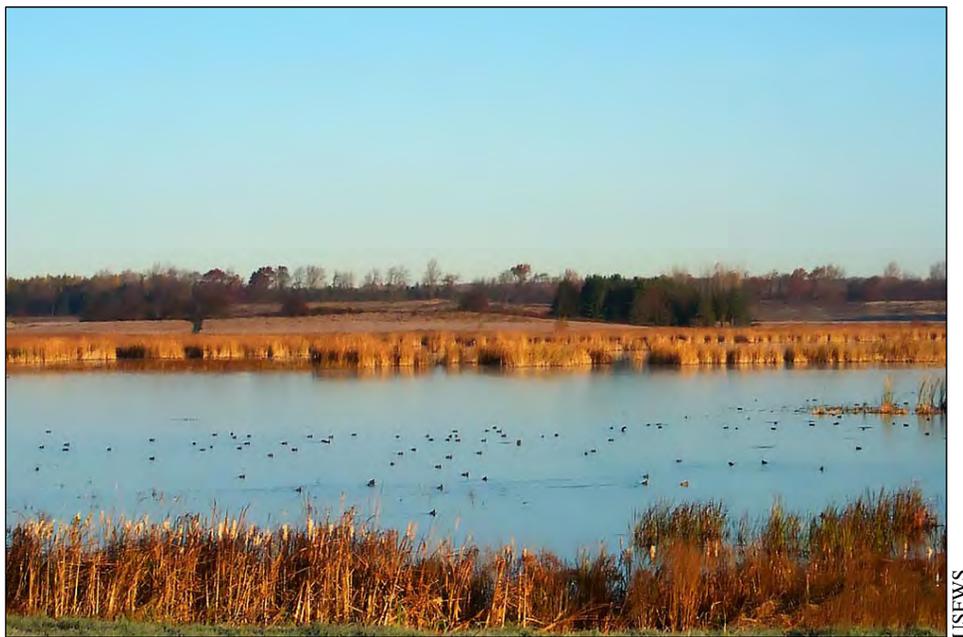
Map 4-6



reports an average of 17 hunt visits per year over the past five years. Based on our evaluation of the current hunting program several strategies will be implemented in the waterfowl and other migratory bird hunting programs to bring the refuge into compliance.

Traditionally, refuge waterfowl hunting has been closed on the Thursday prior to the opening of the deer firearm season. Since the refuge hunts waterfowl only Tuesday, Thursday, and Saturday, this has limited the number of hunt days to about nine waterfowl hunting days each year. The waterfowl hunting season will be extended in Cayuga Pool only until December 1. This will provide additional hunting days for waterfowl hunters. The structure of Cayuga Pool and its surrounding areas will maintain separation between waterfowl hunters and deer hunters while maintaining the quality waterfowl hunt Iroquois Refuge is known to have. Youth waterfowl hunting usually takes place the Sunday after the opening of the season. The New York State Youth Hunting Days are almost two weeks earlier. The refuge is changing its Youth Waterfowl Hunt Program to coincide with New York State Youth Hunting Days to align these two programs and allow young hunters the first opportunity to harvest birds.

The refuge will implement a refuge permit system where a general permit will be available for hunting of upland game, other migratory birds, and big game. An application fee will be charged for all controlled hunts that are determined through a lottery system; this will include the spring turkey hunt and waterfowl hunting.



*Cayuga Pool*

USFWS

**Strategies – All Hunting:**

- Create a general permit for the refuge hunting program. Under a general permit, hunters may choose to apply for hunts that require a lottery system and submit the required fee.
- All lottery hunts will require an application fee.

**Strategies – Deer Hunting:**

- Continue current management of refuge deer hunting programs and evaluate each year.

- Develop survey/permitting protocol to look at hunting pressure and harvest data for firearms season. Evaluate to determine if hunting pressure restriction is needed.
- Post Onondaga Trail as a “no hunting zone” to restrict hunting and hunter access. This will make it consistent with the other nature trails on the refuge and allow use by other visitors during the regular (gun) deer hunting season (map 4-7).
- Improve big game hunting brochure to cover all aspects of frequently asked questions to better inform our hunters.
- Continue to provide two locations for deer hunters with disabilities and make improvements including providing ground blinds.
- Develop parameters/protocol for hunting and reserving non-ambulatory hunting blinds.

**Strategies – Spring Turkey Hunting:**

- Issue turkey permits through a pre-season lottery draw. The lottery draw would allow hunters to be considered for two separate sessions that they will rank by preference. The first session will run from May 1 to May 15 and the second session will run from May 16 to May 31.
- Increase hunting permits up to 75 permits, divided into the two different hunt sessions. There will be 50 permits in Session 1 and 25 permits in Session 2.
- Reschedule the Youth Turkey Hunt Program to align with the New York State Youth Hunting Weekend.
- Continue to require and provide a youth only orientation in cooperation with the local chapter of the National Wild Turkey Federation prior to the youth hunt weekend.

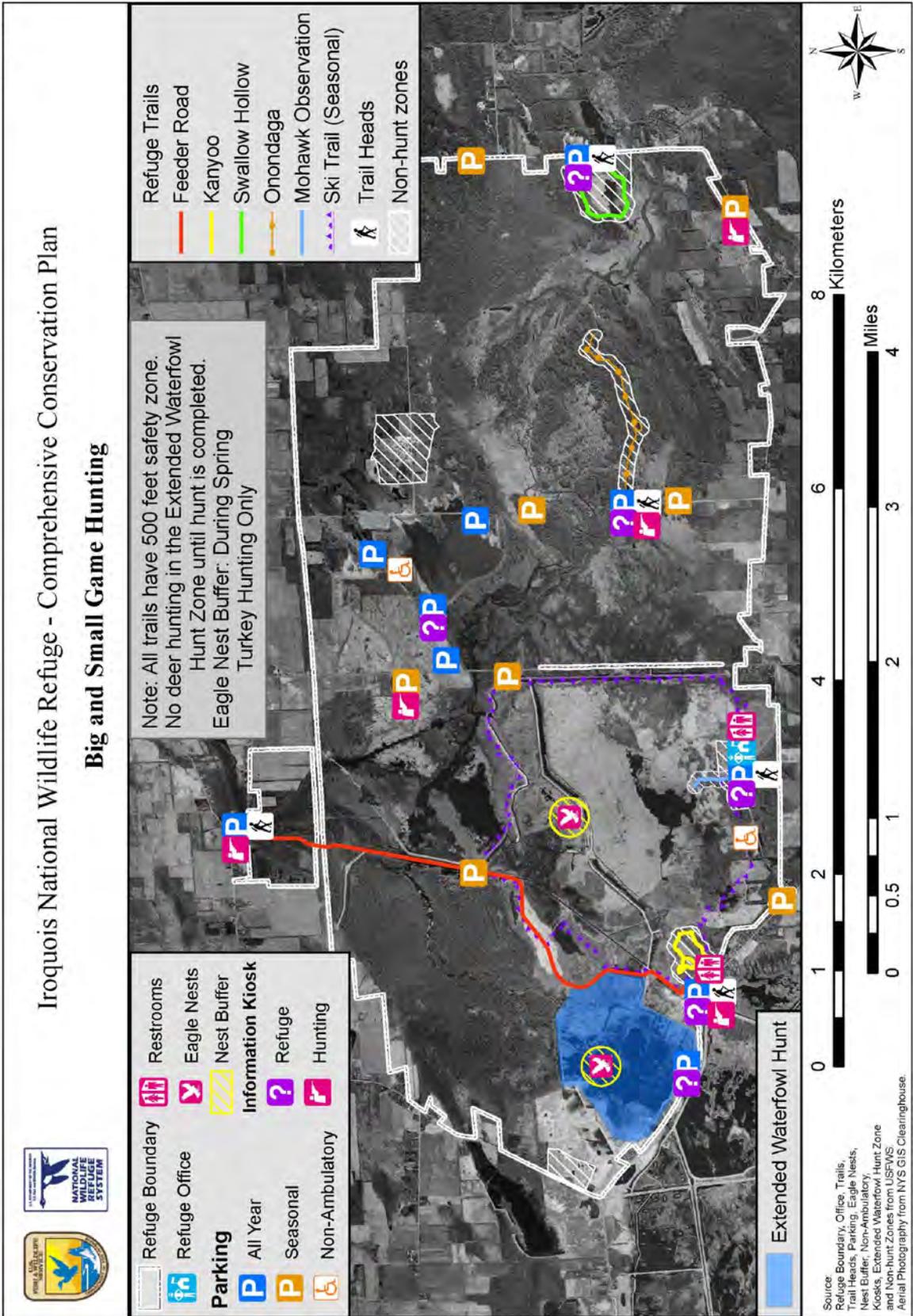
**Strategies – Fall Turkey Hunting:**

- Allow fall turkey hunting in accordance with State seasons and regulations under general permits.

**Strategies – Waterfowl Hunting:**

- Establish a lottery permit fee that is the same for weekdays and Saturdays.
- Continue to hunt in the same marshes that are currently open to hunting (map 4-6).
- Continue to provide hunt stands and add an opportunity to hunt in “free roam” areas. Use habitat conditions to determine the exact locations of stands and free roam areas. Selection for free roam areas will take place at the check station during the draw.
- Allow canoeing for both free roam areas as well as stand areas as appropriate.
- Continue to allow waterfowl hunting on Tuesdays, Thursdays and Saturdays from one-half hour before legal sunrise until noon. Check out will be at the Waterfowl Permit Station no later than 1:00 p.m.
- Extend waterfowl hunting season no later than December 1 in Cayuga Pool only, however, there will be no hunting on Thanksgiving Day.
- Develop parameters and guidelines to allow scouting.
- Continue to host the Youth Waterfowl Hunt Program with a youth only hunt day. Reschedule Youth Waterfowl Hunt Program to align with the New York State Youth Hunting days.
- Hold a pre-season lottery drawing for expected high use waterfowl hunt days prior to the hunt season. Allow stand-by hunters for no shows as long as the hunter has a refuge permit and other required documents.

Map 4-7



- Continue to require and host waterfowl identification courses in cooperation with the NYSDEC and the Finger Lakes and Western New York Waterfowl Association.
- Create a permanent, accessible hunt blind and develop parameters for hunting and reserving this blind.
- Continue to provide a 50 percent discount on permit fees for Golden Age and America the Beautiful – Interagency Senior Pass Holders.

**Strategies - Other Migratory Bird Hunting:**

- Continue to hunt under general permits with no associated fees.
- Allow hunting of woodcock, snipe, and rail prior to the opening of waterfowl season. Discontinue during waterfowl season to maintain the 40 percent acreage requirement discussed above (map 4-6).

**Strategies – Small/Upland Game:**

- Continue to hunt small/upland game (ring neck pheasant, ruffed grouse, cottontail rabbit, gray squirrel, coyote, raccoon, skunk, opossum, and fox) under general permits.

***Objective 5.2 Fishing***

Provide opportunities for fishing on the refuge in a manner that minimizes conflicts between fishing and biological resources, particularly nesting birds, and provide participants with reasonable harvest opportunities, un-crowded conditions, and minimal conflict with other users.

**Rationale**

Fishing is one of the six priority public uses required by the Improvement Act of 1997 to receive enhanced consideration on refuges. Fishing is also a popular and traditional activity in the area. Fishing on the refuge is permitted in accordance with Federal and State regulations. The refuge received 1,073 visits in 2008 for recreational fishing.

According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation approximately 741,000 residents and non-residents participated in fishing in New York during 2006. Approximately 247,000 more anglers fished in the Great Lakes. Anglers spent more than \$925 million on activities and equipment related to fishing during 2006 (Service 2006b).

Providing high-quality fishing opportunities on the refuge promotes visitor appreciation and support for refuge programs. The guiding principles for our fishing program include the following:

- Maximize safety for anglers and other visitors.
- Cause no adverse impact on populations of resident or migratory species, native species, threatened and endangered species, or habitat.
- Encourage the highest standards of ethical behavior in regard to catching, attempting to catch, and releasing fish.
- Provide opportunities to a broad spectrum of the public that visits, or potentially would visit, the refuge.
- Provide reasonable accommodations for individuals with disabilities to participate in refuge fishing activities.

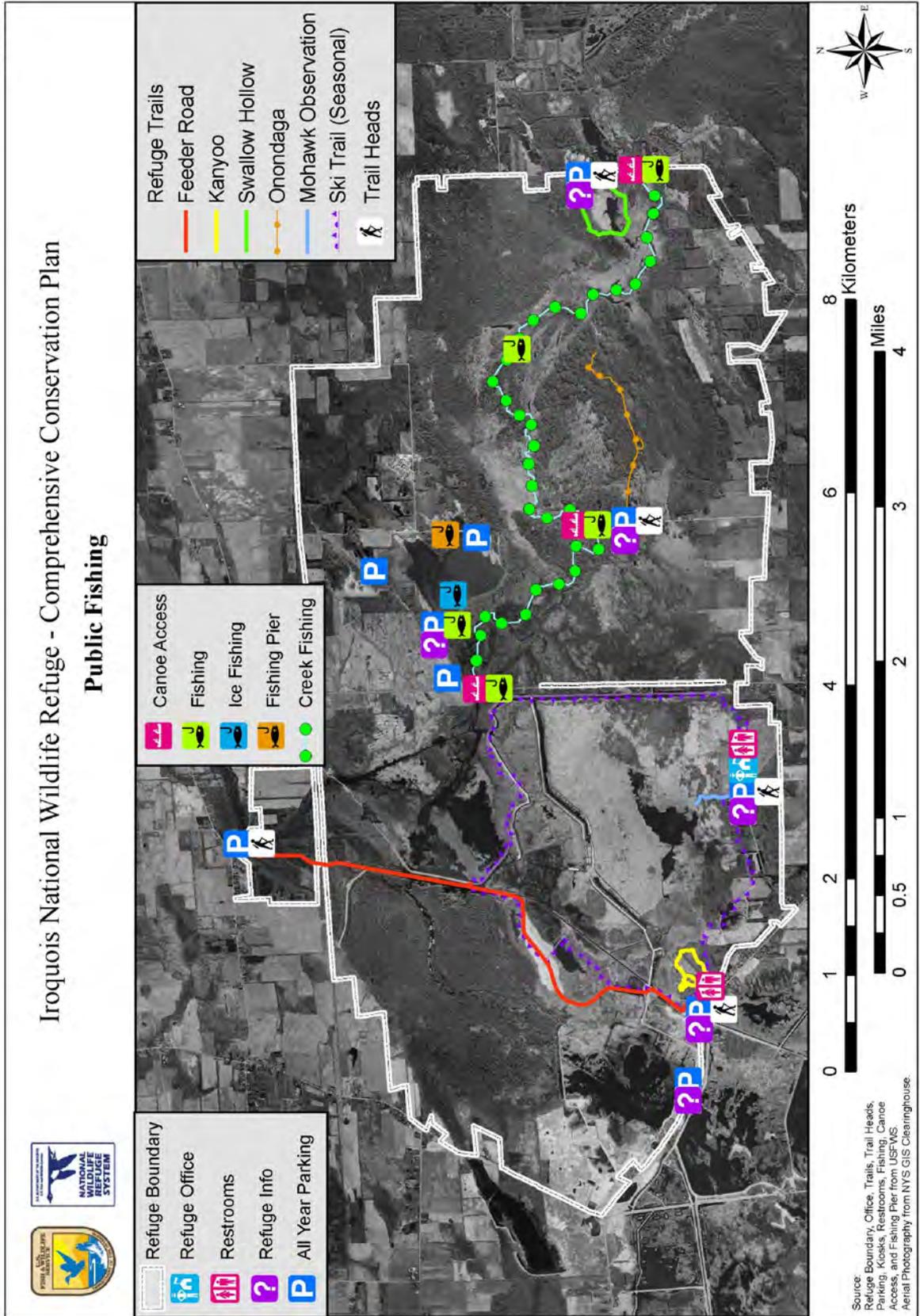
- Reflect positively on the Refuge System.
- Provide uncrowded conditions.
- Create minimal conflict with other priority, wildlife-dependent recreational uses or refuge operations.
- Provide reasonable challenges and harvest opportunities.
- Increase visitor understanding and appreciation for the fishery resource.

Fishing is currently permitted year-round from sunrise to sunset from the shore of Ringneck Marsh and in Oak Orchard Creek from the shore at Route 63, Sour Springs Road and Knowlesville Road or by non-motorized boat between Route 63 and Knowlesville Road (map 4-8). Frogging will be continued on the refuge for bullfrogs only per State fishing regulations.

**Strategies:**

- Continue to allow access for fishing in accordance with New York State regulations in designated areas providing participants with reasonable harvest opportunities, uncrowded conditions, and minimal conflicts with other users.
- Continue frogging for bullfrogs only on the refuge using a spear, club, hand, or hook under State fishing regulations.
- Continue to allow fishing at Ringneck Marsh and Oak Orchard Creek year-round.
- Continue to host the Youth Fishing Derby on the first Saturday in June as part of National Fishing and Boating Week.
- Partner with the Service Fisheries Office to conduct a fisheries inventory on the refuge.
- Evaluate the quality of fishing opportunities at Ringneck Marsh.
- Develop an accessible fishing pier at Ringneck Marsh or in Oak Orchard Creek along Sour Springs Road.
- Prohibit the use of lead sinkers and other lead tackle to prevent their ingestion by wildlife and possible lead poisoning.
- Develop an outreach program to minimize conflicts among user groups, help control aquatic invasive plants and lead in the environment, reduce the introduction of nonnative fish species, and minimize the disturbance to wildlife and habitat.

Map 4-8



**Goal 6. Enhance partnerships with local communities and various organizations to garner support and promote refuge programs and resources.**

***Objective 6.1 Landscape-Scale Conservation***

Enhance the conservation and management of fish and wildlife resources in western New York through partnerships with public and private conservation groups, private landowners, State, and local entities including Oak Orchard Watershed Protection Alliance, NYSDEC, and other Service offices.

**Rationale**

The refuge has benefited from existing partnerships in a variety of ways. These include sharing of technical expertise to support wildlife and public resources, collaborative land conservation planning to ensure that important wildlife habitat is conserved throughout western New York, and cooperative outreach and enforcement of refuge regulations. We conduct biological and environmental research and monitoring through partnerships with colleges, local schools, Ducks Unlimited (DU), other NGO's, and NYSDEC. The lack of refuge staffing and funding is the limiting factor in developing and maintaining partners and partner programs.

The refuge and the NYSDEC have been in partnership for management of the Iroquois Wetland Complex which includes Iroquois Refuge, Oak Orchard WMA, and Tonawanda WMA since the refuge was established. The refuge and the NYSDEC work together to manage the wetlands and other habitats and cooperate on shared projects and activities. In addition, NYSDEC Environmental Conservation Officers provide law enforcement coverage on the refuge and NYSDEC trains and provides instructors for the waterfowl identification classes held at Iroquois Refuge.

Iroquois Refuge will work closely with other agency, NGO, and private partners to initiate a private lands habitat restoration program in the Oak Orchard Creek watershed. Water flowing into Oak Orchard Creek upstream of the refuge has a direct effect on refuge water quality. Additionally, wildlife habitat on private lands near the refuge can complement the habitats provided on the refuge and improve the quality of the watershed as a whole. Much of the property adjacent to the refuge and State WMAs has been developed for agriculture or residential and commercial uses. Any restoration activities on these private lands will increase the natural buffer around the refuge and directly improve the refuge's water and habitat quality.

We intend to work within existing Service or Natural Resource Conservation Service (NRCS) private lands programs to help facilitate private land projects on land near the refuge. Currently, most government sponsored private land habitat improvement programs have many more applicants than can be accommodated by existing resources. The additional assistance the refuge can provide by facilitating these programs on our neighbor's lands will help the private landowners, the agency overseeing the program, and the refuge itself.

Additionally, the refuge currently oversees 23 conservation easements on lands throughout western New York. These easements were transferred to the refuge from the U.S. Department of Agriculture (USDA) through the Farm and Home Administration (FMHA) loans. Generally, these easements protect relatively small wetlands located on agricultural lands. The refuge will visit and catalogue the biological resources on these easements and determine any restoration and enhancement opportunities that may exist on these lands as well as determining compliance with easement requirements. While visiting, refuge staff will also record any potential wetland restoration or habitat/water quality improvement opportunities that exist on the adjacent lands not currently covered under the easement and contact landowners to determine their interest in private lands programs.

**Strategies:**

- Continue to partner with the Service Partners for Fish and Wildlife Program to provide technical assistance for habitat restoration projects in western New York.
- Continue to cooperate with the Service New York Field Office in Cortland, NY to manage trust resources on and off refuge lands.
- Continue to work with the Service Lower Great Lakes Fisheries Resources Office on habitat restoration projects, fisheries inventory, and outreach.
- Continue to partner with NYSDEC on law enforcement, habitat restoration and management, outreach events, etc.
- Increase communication and collaboration with local communities including the Town of Alabama, the Town of Shelby, and Orleans and Genesee Counties.
- Enhance partnership with the Oak Orchard Watershed Alliance which was established in August of 2004 to guide the development of the State of the Basin Report for the Oak Orchard watershed. The State of the Basin Report is the first step in the development of a comprehensive watershed management plan. The Orleans and Genesee County Soil and Water Conservation Districts sponsor this watershed planning effort.
- Co-locate with the Lower Great Lakes Fish and Wildlife Conservation Office currently located in Amherst, New York into a new refuge visitor contact station and administration building (as discussed in the beginning of this chapter).

***Objective 6.2 Support for Refuge Programs***

Enhance refuge programs and increase awareness and stewardship for the refuge through support from partners that contribute to the Service mission, the refuge purpose, and refuge habitat, wildlife, and recreation programs.

**Rationale**

Due to our limited staff and funding, many refuge programs would not be possible without partners. Partners help with public use, special events, outreach, and research.

Friends of Iroquois Refuge is a not-for-profit organization dedicated to increasing public awareness of Iroquois Refuge and to helping the community understand the refuge's mission and goals.

The Friends of Iroquois Refuge has several priorities to achieve their mission:

- Conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people.
- Support the stewardship of the National Wildlife Refuge System.
- Improve awareness, appreciation, conservation, and responsible utilization of the refuge.
- Provide assistance to refuge programs by entering into agreements with the Service.
- Produce and make available to refuge visitors, by sales or free distribution, suitable interpretive and educational materials to increase visitor understanding of the refuge, wildlife, and the environment.
- Produce and make available to refuge visitors, by sales or free distribution, special materials,

memorabilia, and events that will enhance visitor enjoyment.

- Acquire materials, supplies, equipment, and labor which may be retained by the Corporation, or donated to the Service or refuge to support operational, educational, or maintenance projects.

Friends of Iroquois Refuge have secured funding from the Margaret L. Wendt Foundation, the National Fish and Wildlife Foundation Centennial Legacy Fund, the Wild Birds Unlimited Pathways to Nature Program, the Service, the Iroquois Job Corp, and Friends of Iroquois Refuge members. Friends of Iroquois Refuge are able to raise funds to be allocated for specific, much-needed projects on the refuge. Examples of such projects and activities include the Youth Fishing Derby and the Spring into Nature Celebration, purchase of camera equipment for live views of the eagle and kestrel nests, rehabilitation of Swallow Hollow Nature Trail, purchase of trail benches, support for outreach and educational programs such as the CAC program, and the purchase and installation of a water control structure.

The refuge is fortunate to have a dedicated group of individuals who voluntarily assist the refuge in various ways. Thirty volunteers contributed over 5,000 hours in 2007 and 86 volunteers provided over 7,000 hours of volunteer time to refuge activities in 2008 (Table 3-23). These volunteers assisted with environmental education programs and outreach events, conducted wildlife and habitat surveys, provided visitor services, banded birds, managed habitats and species, and carried out general maintenance tasks. In addition to helping the refuge achieve its objectives and strategies, this group of volunteers serves as an important link with the community at large, promoting refuge messages and garnering support for the Refuge System.

Iroquois Job Corps Center has contributed significantly to projects and events on the refuge. Carpentry students helped rebuild the 250-foot boardwalk on Kanyoo Nature Trail, participated in the rebuilding of Swallow Hollow Nature Trail, including 2,000 feet of boardwalk, and put a new roof and siding on Building 17 (a storage building located at refuge headquarters). These activities saved the refuge more than \$75,000. Students from Iroquois Job Corps Center have also assisted with the refuge Spring into Nature Celebration helping visitors build bird houses, paint bird silhouettes, and conduct face painting.

The refuge works with many non-profit organizations to help facilitate refuge programs to meet the demand of the public, to utilize their expertise, or to complete projects that would otherwise be delayed. Such refuge programs include the Young Waterfowler's Orientation, the New York State Waterfowl Identification Course, the waterfowl hunt program, and summer internships.

**Strategies:**

- Increase support for activities of Friends of Iroquois Refuge to promote refuge programs and act as a local grassroots organization through interpretation and education programs.
- Enhance the refuge volunteer program to assist with the completion of refuge projects.
- Enhance partnership with the Iroquois Job Corps Center by engaging in at least one cooperative project per year with the center.
- Continue to partner with other non-profit organizations like Buffalo Audubon Society, Western New York and Finger Lakes Waterfowl Association, Lake Plains Waterfowl Association, Canisius College, and University of Buffalo.
- Develop a recreational vehicle (RV) pad with hookups on the refuge to accommodate seasonal volunteers.

### ***Objective 6.3 Research***

Conduct research activities using non-Service personnel from colleges, universities, Federal, State, and local agencies, NGOs, and qualified members of the public to enhance our understanding of species requirements, habitat changes, and effectiveness of management techniques.

#### **Rationale**

Some research activities on the refuge are currently conducted by non-Service personnel including colleges, universities, Federal, State, and local agencies, NGOs, and qualified members of the public. Such research furthers our understanding of the natural environment and improves the management of the refuge's natural resources. The information research generates applies to management on and near the refuge. Past research projects have studied species including neotropical migrants, marsh birds, and waterfowl. Habitat management techniques like mowing and prescribed fire have been examined to determine their effects on flora and fauna. Other projects have been broader in scale such as the surface-water/ground-water interaction study being conducted by USGS to understand how water flows through the entire refuge.

The Service encourages and supports research and management studies on refuge lands that will improve our understanding of and strengthen decisions on managing natural resources. The refuge manager encourages and seeks research that clearly relates to approved refuge objectives, improves habitat management, and promotes adaptive management. Priority research addresses the need for better managing the nation's biological resources. These resources are important to the Department of Interior, the Refuge System, and State fish and wildlife agencies. Such research identifies important management issues or demonstrates techniques for managing species or habitats.

We also consider research for other purposes that may not relate directly to refuge-specific objectives, but contribute to the broader enhancement, protection, use, preservation, or management of native populations of fish, wildlife, and plants, and their natural diversity in the region or the Atlantic Flyway. All proposals must comply with Service policy on compatibility.

#### **Strategies:**

- Continue to encourage local college research projects on the refuge to further obtain information regarding the success of management strategies.
- Continue to work with State and other Federal agencies on research projects conducted on the refuge.
- Develop a database of research needs that is updated each year to allow the refuge to respond quickly to funding opportunities.

### **Other Management Actions**

These actions are not specific to any goal or objective but will be completed with the 15-year comprehensive planning timeframe.

### ***Funding Considerations***

We developed an estimate of staffing and funding requirements for implementation of the CCP management activities (Appendix F). An assumption is made that projects proposed will be implemented as such funds become available.

### ***Federal Regulations***

We developed and assessed the Service management actions based on the assumption that all applicable Federal laws and regulations will be complied with when the management actions are implemented.

### ***Protecting Historical and Cultural Resources***

We will comply with all regulations and employ existing methods for protecting historical and cultural resources across the refuge. Implementation of individual projects will be reviewed for their potential effect on cultural resources to comply with the National Historic Preservation Act. The New York State Preservation Officer and Native American Tribal governments will be engaged for consultation as appropriate. Our regional cultural resources staff will evaluate certain management actions which have the potential to negatively affect cultural resources. These include new facilities such as hunt blinds, non-motorized boat access, boardwalks, and dike extensions.

### ***Adaptive Management***

We acknowledge that our current information on species and ecosystems is incomplete or provisional, and subject to change as our knowledge base improves. We will use an adaptive management approach to keep the CCP relevant and current. Through this approach we will incorporate the most recent scientific research, experience from past management actions, and the knowledge of staff and other partners to make the most informed future management decisions.

### ***Control of Invasive Plant Species***

The Refuge System has identified invasive species control as a national priority. Fortunately the threat of invasive species at Iroquois Refuge is currently low. Our objective is to prevent new invasive plant species from becoming established as we continue to manage and control the spread of the few invasive species that already exist. To the extent possible, we will physically remove invasive species whenever they are encountered. Service-approved herbicides may be used to control invasive species when considered necessary by the refuge manager and upon regional office review and approval. Invasive species of concern on the refuge include purple loosestrife, common reed, black swallow wart, non-native honeysuckles, autumn olive, oriental bittersweet, and multiflora rose.

### ***Control of Resident Canada Geese***

The refuge currently supports a population of resident Canada geese that appears to be stable and in balance with desired vegetation conditions and other wildlife populations. If the refuge population of resident Canada geese becomes large enough to have a negative effect on refuge vegetation and consequently on other wildlife that are dependent on that vegetation, we will consider opening a controlled goose hunt during the New York State's September Canada goose season.

Resident geese that use the refuge as a roosting area in September are currently exposed to hunting pressure as they leave the refuge each day to feed in nearby agricultural fields. Currently, this hunting pressure appears to be adequate to keep the refuge resident Canada goose population at a sustainable level.

### ***Hydrological Constraints***

The refuge lies near the center of the Oak Orchard Creek watershed in a section of floodplain that is relatively flat over a large geographic area. High water events, especially in the spring, occasionally cause flooding of roadways and uplands within and around the refuge. Water restrictions (e.g., natural rock restriction in Shelby) exist downstream of the refuge within the creek which slow water movement and prolong flood events. The refuge has minimal control over the flow of Oak Orchard Creek. Some refuge impoundments are lowered in anticipation of flood events to reduce the chances of flooding State Route 63. However, the water holding capacity of refuge impoundments is only a small fraction of the overall

size of the upstream watershed and runoff quickly fills impoundments to capacity. When this happens the only relief from flooding comes when downstream water levels begin to recede. The refuge will continue to function under the hydrological constraints imposed upon it due to its location within the Oak Orchard Creek watershed.

### ***Developing Refuge Step-down Plans***

Service planning policy (602 FW 4) identifies 25 step-down plans that may be applicable on any given refuge. We have identified nine plans listed below in priority order as the most relevant to this planning process and necessary to achieve all six refuge goals stated in this CCP. Sections of the refuge HMP which require public review are presented within this document and will be incorporated into the final version of the HMP immediately upon CCP approval. Step-down plans will be modified and updated as new information is obtained. The schedule for the completion of the following step-down management plans is shown below and also in Table 1-3:

- Habitat Management Plan (HMP) - immediately following CCP approval
- Inventory and Monitoring Plan (IMP) - within one year of CCP approval
- Visitor Services Plan (includes hunting and fishing) - within one year of CCP approval
- Law Enforcement Plan - within two years of CCP approval
- Furbearer Management Plan - within three years of CCP approval
- Fire Management Plan – within three years of CCP approval
- Integrated Pest Management Plan - within four years of CCP approval
- Cultural Resources Management - within four years of CCP approval
- Fishery Resources Management – within five years of CCP approval

The HMP along with IMP will be developed as the highest priority step-down plans after approval of the CCP. These, along with the Visitor Services Plan, are described in greater detail below.

### **Habitat Management Plan**

The refuge HMP is the requisite first step to achieving the objectives of Goals 1 through 3. The HMP will incorporate the habitat objectives developed herein, and will also identify “what, which, how, and when” actions and strategies will be implemented over the 15-year time frame to achieve those objectives. Specifically, the HMP will define management areas, treatment areas, identify type or method of treatment, establish the timing for management actions, and define how we will measure success over the next 15 years. In this CCP, the goals, objectives, and list of strategies under each objective identify how we intend to manage habitats on the refuge. Both the CCP and HMP are based on current resource information, published research, and our own field experiences. Our methods, timing, and techniques will be updated as additional information becomes available. To facilitate our management, we will regularly maintain our GIS database, documenting any major vegetation changes at least every five years.

### **Inventory and Monitoring Plan**

The refuge IMP is vital for implementing habitat management actions and measuring our success in meeting the objectives. The IMP will outline the methodology to assess whether our original assumptions and implemented management actions are supporting our habitat and species objectives. Inventory and monitoring needs will be prioritized in the IMP. The results of inventories and monitoring activities will provide us with more information on the status of our natural resources and allow us to make informed management decisions.

**Visitor Services Plan**

The refuge visitor services plan is the requisite first step to achieving the objectives of Goals 4 and 5. The visitor services plan will incorporate the public use and recreation objectives developed herein and will incorporate and further define implementation of strategies to achieve the objectives.