



USFWS

Chapter 4

Green-winged teal

Management Direction and Implementation

- Introduction
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Introduction

This CCP includes an array of management actions that, in our professional judgement, work towards achieving the purposes of all the refuges in the Complex, the vision and goals for the Complex, and State and regional conservation plans. In our opinion, it will effectively address the key issues. We believe it is reasonable, feasible, and practicable.

In all program areas, this CCP will enhance the quality and sustainability of current resource programs, develop long-range and strategic step-down plans, promote partnerships, and preserve, manage, and restore habitat.

Relating Goals, Objectives, and Strategies

Developing goals for the Complex was one of the first steps in our planning process. Those goals, common to all of the alternatives, are intentionally broad, descriptive statements of the desired future conditions for Complex lands. They articulate the principal elements of refuge purposes and our vision statement, and provide the foundation for developing specific management objectives. After developing our goals, we considered a wide range of possible management actions or strategies that could help us meet them. Then we began the process of creating alternatives.

Essentially, objectives are incremental steps we take to achieve a goal, and they further define management targets in measurable terms. Objectives can often provide the basis for determining more detailed strategies, and monitoring and evaluating refuge management performance. For each objective, we developed strategies: specific actions, tools, techniques, or a combination of those that we may use to achieve the objective. We will use the objectives in this CCP in writing step-down plans, including habitat management plans. In the process of developing step-down plans, we may revise some of the strategies, but most will translate directly. We will measure our success by how well we achieve our objectives.

Unless otherwise noted, Complex staff will implement all of the actions described in this chapter, assuming that appropriate staffing is available.

General Refuge Management

We primarily developed our management direction hierarchically from goals to objectives and strategies. However, we also found that there were many actions we wanted to highlight that either relate to multiple goals or represent general administrative or compliance activities. These are presented in this section.

Biological monitoring

The Complex is currently developing a Habitat Management Plan with other National Wildlife Refuges in Bird Conservation Region 30. The HMP will provide specific guidance for the implementation of management strategies such as invasive species control and habitat monitoring efforts.

Protecting amphibians and reptiles

At Wertheim, we will confirm the presence of the state-endangered mud turtle, and survey anurans under a region-wide protocol.

Managing for black duck and other wintering waterfowl

We manage the Big Fish Creek impoundment at Wertheim for waterfowl and shorebirds, and conduct waterfowl and shorebird surveys there. Because invasive species impact black ducks and other wintering waterfowl, we control common reed (*Phragmites australis*) with chemical and mechanical treatments, and limit mute swan populations by adding eggs. Two important factors in the overgrazing of the restoration plantings at Oyster Bay refuge were the small size of the planted areas and the low fencing used to exclude geese. At the nearby Beaver Dam Creek planting, fencing has successfully prevented overgrazing by geese in the areas planted in 2005 and 2006.

Water quality

We will continue to support the Friends of the Bay in monitoring water quality at Oyster Bay by providing and maintaining a Hydrolab® water quality surveyor. Receiving information from county and state workers, volunteers, legislators, and the general public will keep us apprised of water quality conditions.

We also monitor all dock structures on the refuge annually, and extensively review all special use permit requests according to our revised policy.

Protecting piping plover, roseate tern, and least tern

Piping plovers, which can be found breeding at the Complex, are federal-listed as threatened and state-listed as endangered. Roseate terns are federal- and state-listed as endangered. They feed and rest on the refuges during winter migration. Least terns, a state-listed threatened species, rest on refuge units while migrating in the winter.

We close sections of beach at the Morton and Target Rock refuges for the plover and tern nesting season. At Morton, we prohibit public access to the peninsula, and at Target Rock, we prohibit access to portions of beach. We enforce the closure at Morton with the daily presence of seasonal plover stewards and periodic patrols by a refuge officer. The plover stewards erect predator exclosures for piping plover and the least tern colony, monitor nesting success, and assess the relative abundance of potential predators. Parts of the Morton, Target Rock, and Amagansett refuges remain open during those beach closures. We install symbolic fencing to restrain public use on beaches above mean high tide line. We will install artificial nest structures for roseate terns at Morton.

To raise public awareness of threatened or endangered species and other species of concern, volunteers and seasonal staff meet and educate beach visitors; interpretive signs are available at Morton; and the public can participate in the beach clean-up program at Target Rock. At both refuges, signs and press releases inform the public about beach closures.

Establishing hunting and fishing opportunities

We evaluated and approved a controlled public deer hunt in an environmental assessment and through its public input. That hunt began at Wertheim in the fall 2005. We will continue to evaluate the effectiveness of the hunt.

Fishing areas are available at Target Rock, Amagansett, Wertheim, Morton, and Oyster Bay. See table 3.5 for details, and map 4-1 for other public use opportunities available at the Complex.

Wildlife observation, photography, and interpretation

We will maintain existing opportunities in wildlife observation, photography, and interpretation as described in chapter 3. Cross-country skiing, snowshoeing, and non-motorized boating are activities that can help facilitate these priority public uses. For example, cross-country skis and snowshoes allow visitors to access existing trails at Wertheim, Morton, and Target Rock during the winter months when there is snow on the ground. Similarly, non-motorized boats allow visitors at Wertheim and Oyster Bay a means to engage in wildlife observation and other priority wildlife-dependent public uses in areas inaccessible by foot. Since skiing and snowshoeing are winter activities that require snow, there are fewer adverse impacts to the Complex's species of concern compared to activities like jogging, bicycling, and horseback riding. See map 4-1 for other public use opportunities available at the Complex.

Maintenance Dredging

Maintenance dredging at Seatuck and Morton refuges provides boat access to navigable waters. Maintenance dredging is not a priority public use of the System. However, it does allow access for other priority public uses, including wildlife observation and photography. Refuge staff will evaluate all requests for maintenance dredging before allowing them on refuge property. No dredging project will be allowed if the refuge manager has not issued a special use permit (SUP), or if the refuge manager determines that dredging may adversely affect wildlife, wildlife habitat, on-going or planned refuge management activities, approved priority public uses, or public health and safety. We will also require any dredging project applicant to obtain all federal, state, and local permits applicable before we issue a SUP.

Increasing opportunities for public stewardship and improving outreach

We will promote our existing partnerships, new partnerships, and volunteer opportunities. Those relationships are vital for success in managing all aspects of the refuge, from protecting land to managing habitat and species or providing wildlife-dependent recreation.

Volunteers and partners have opportunities to lead interpretive tours, conduct teacher workshops, maintain trails, and update interpretive materials. Refer to chapter 3 for details, more volunteer opportunities, and how we maintain and improve our volunteer and partner relations. Table 3.7 lists many of our established partnerships.

We update elected officials, partners, and other agencies with what we are doing at the Complex. News releases, fact sheets, brochures, our website, and participating in local events all improve our outreach.

Land Acquisition

We will continue to acquire refuge inholdings within approved refuge boundaries as willing sellers become available. We will also continue to consider minor acquisitions adjacent to existing refuges that are biologically important or provide connections with other protected lands of our conservation partners, e.g. the FAA site adjacent to Sayville, the Shinnecock wetlands east of Wertheim, and Lloyd Harbor and the private beach at Target Rock. These situations will be handled on a case by case basis as they become available.

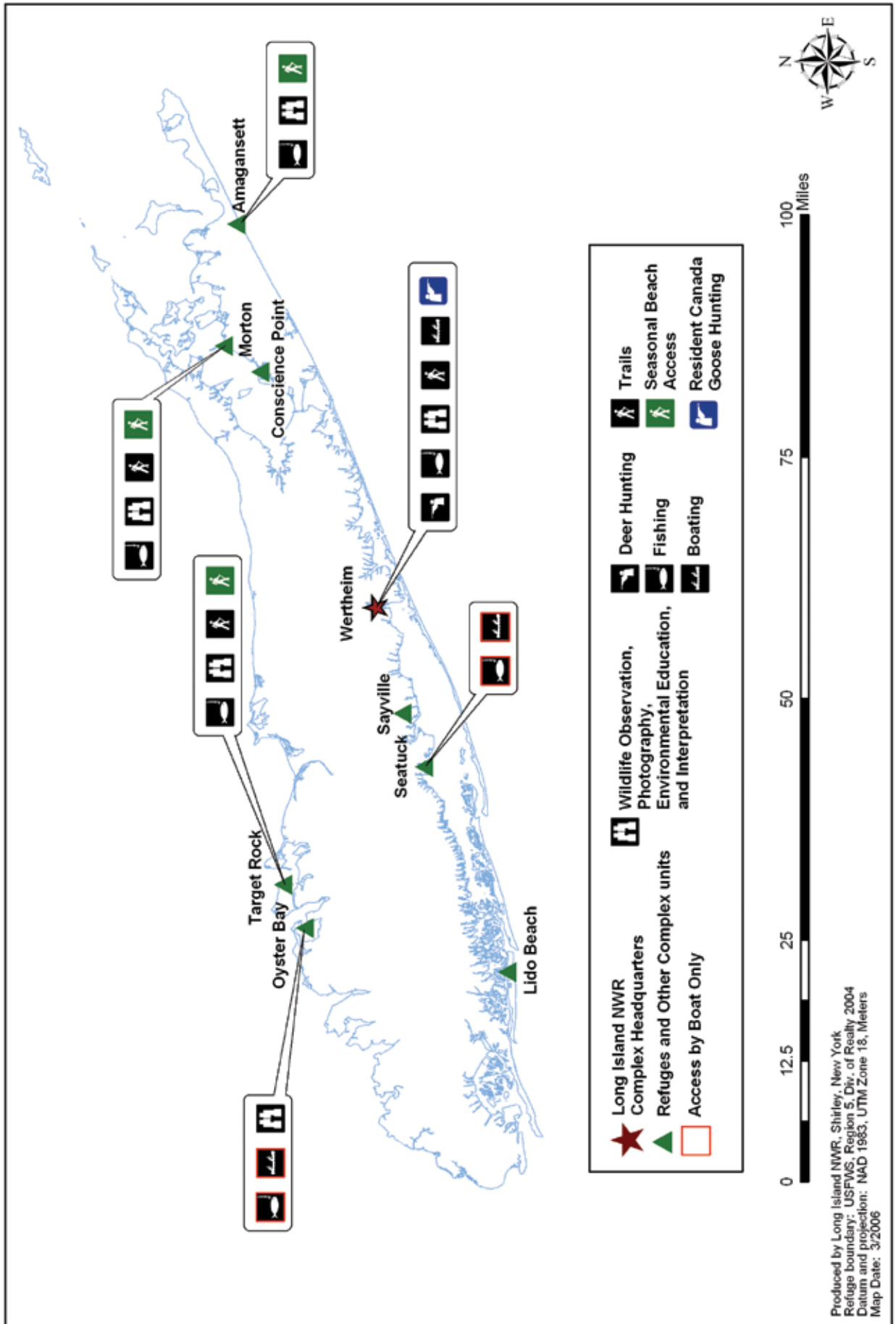
Map 4-1

Public Use Opportunities

U.S. Fish & Wildlife Service

Long Island National Wildlife Refuge Complex

Nassau and Suffolk Counties, New York



Produced by Long Island NWR, Shirley, New York
 Refuge boundary: USFWS, Region 5, Div. of Realty 2004
 Datum and projection: NAD 1983, UTM Zone 18, Meters
 Map Date: 3/2006

Refuge Goals, Objectives, and Strategies

The following goals, objectives, and strategies are designed to enhance the quality, effectiveness, and sustainability of our management priorities. They will increase our protection and management of endangered, threatened or other species of concern, including migratory wildlife. They will also increase the number and quality of opportunities for compatible, wildlife-dependent, public recreation, and allow the Complex to benefit from its proximity to New York City and urban communities.

Goal 1. **Improve the biological diversity and integrity of upland cover types to sustain high-quality habitat for migratory passerine birds.**

Objective 1: White-tailed deer management

Within 10 years, reduce deer densities at Wertheim and Seatuck so that they do not exceed 20-30 deer/square mile. This will improve conditions for ground nesting birds by promoting forest regeneration and increasing vegetation diversity.

Rationale

Overabundant populations of white-tailed deer reduce forest regeneration, impact woody understories, eliminate many herbs, minimize plant diversity, and impact habitats for songbirds (Healy et al. 1997). The impacts of overabundant deer populations on public health and safety include tick-borne disease and vehicle collisions. The economic impacts of overabundant deer include negative effects on timber resources and ornamental and agricultural plantings (Woolf and Harder 1979, Cypher and Cypher 1988).

Six fenced deer exclosures at Wertheim help us evaluate forest regeneration in the absence of deer herbivory. Regeneration is important for the long-term resilience of a forest and for ground-nesting birds. We will continue to monitor deer populations and their effects on wildlife habitats at Wertheim and Seatuck refuges, and expand monitoring onto the remaining upland units of the Complex. We initiated a controlled public deer hunt at Wertheim in the 2005 deer hunting season, and will continue the annual deer cull at Seatuck as needed.

Strategies

- Manage deer populations exceeding 20–30 deer/square mile with lethal controls.
- Implement improved public hunting programs at Wertheim; the only Complex unit sizeable enough to support such activities.
- Accurately estimate deer densities through the use of ground-based and aerial counts and establish monitoring plots to assess the effects of deer browsing on forest regeneration.
- Assess what ground-nesting bird species use forested habitat communities at the Complex and the current status of those species.
- Develop a monitoring regime to follow species response to deer management practices at Wertheim.
- Improve and extend fencing along the western refuge boundary at Seatuck.

- Encourage deer management programs on state lands in the immediate vicinity of refuges: e.g., Target Rock and Seatuck.

Objective 2: Invasive plant management

Within 5 years, complete mapping of upland invasive plant species including Asiatic bittersweet, black locust, Japanese barberry, Japanese honeysuckle, and multiflora rose, and develop stand-specific strategies for management. Within 10 years, implement the management strategies to treat 30% of the stands dominated by invasive species.

Rationale

Invasive plants are nationally recognized as threats to ecosystems. We have kept strategic pristine areas such as forest interiors free of exotic plants by hand-pulling and applying an herbicide to cut stumps. In 2003, the Challenge Cost Share Program provided matching funds for controlling 4 acres of black locust at Conscience Point, 12 acres of Asiatic bittersweet and black locust at Wertheim, and 2 acres of black locust at Seatuck.

The Complex is a founding member of the Long Island Invasive Species Management Area. Networking with other members and attending periodic meetings has helped us recognize the most problematic species, develop mapping standards, prioritize treatment regimes, and prepare outreach materials. Our staff will continue to collaborate in both field projects and meetings. See goal 2, objective 1 for information about controlling *Phragmites*.

Strategies

- Identify and map invasive plant locations and their approximate acreage at each refuge by 2010.
- Develop a treatment prioritization that accounts for the “invasability” of a species, resources at risk of invasion (e.g. federal-listed species), extent of spread, and ease of control.

Objective 3: Restore and maintain fire dependent native plant communities

By 2008, map vegetation communities that are fire-dependent, describe their current and future desired conditions, develop a strategy to restore and maintain these communities, and begin implementing the strategy.

Rationale

The Brookhaven Fire District has become more engaged with the refuge in participating in prescribed burns and discussing lesser impact wildfire suppression techniques. We will negotiate similar cooperative agreements with the other six Fire Districts that provide protection for the other refuges as time allows.

Fire is part of a natural process that shaped the North American landscape over thousands of years (Patterson and Sassman 1988), and is recognized as one of the primary historic disturbances on Long Island that contributed to controlling or influencing the structure and composition of native vegetative communities. Early- to mid-successional habitats in northeastern North America, such as pine barrens and maritime heath, developed over time on coastal areas from

southern Maine to the mid-Atlantic, as a result of infrequent natural fires, and frequent fires set by Native Americans (Patterson and Sassman 1988, Vickery and Dunwiddie 1997). More recently, however, humans have suppressed wildfires aggressively, particularly in densely populated areas. When fire is excluded from a fire-dependent ecosystem, the vegetation in those communities is either altered to favor species that dominate under longer disturbance intervals for that ecosystem, or the plant community may be completely converted to a non-fire-dependent type. Because the restoration of the influence of natural wildfires is often not possible to restore or maintain those communities, the fire period that supports them has to be determined, and then mimicked with prescribed fire.

Prescribed fire is a management tool involving the closely controlled ignition, monitoring, and suppression of fire to attain a habitat goal. Prescribed fire has been used successfully on Long Island since the early 1990s to maintain and enhance woodlands, grasslands, and marshlands, including endangered fire-dependent plant communities. While ensuring public safety and minimizing habitat destruction and property damage will receive top priority, we will encourage Fire Departments to use Minimum Impact Suppression Techniques, which will allow fires to burn under certain conditions and extinguish them with minimal residual adverse effects on the environment.

Strategies

The primary purpose of using prescribed fire is to restore and maintain fire-dependent native plant communities. Thus, it is important to first have a precise vision of the historic fire regimes that shaped the native pine barrens and maritime grasslands in central and eastern Long Island, and the probable distribution of those habitat types on existing refuge lands.

- Determine the historic fire return interval, seasonality of natural fires, and fire intensity for pitch pine forest, hardwood forest, shrubland, and grassland communities (Jordan et al. 2003).
- Use fire history information, USDA soils databases for Long Island, and historical information on vegetation community distribution for Long Island to estimate the types and possible proportions of fire-dependent vegetation communities that historically existed at each refuge unit.
- Use that information as an “ecological roadmap” to evaluate maps of existing vegetation communities and soil types per refuge unit. Assign areas for restoration or maintenance of fire-dependent habitat types. Develop a “future conditions map.”
- Evaluate that future conditions map in light of constraints posed by adjacent private properties and Wildland Urban Interface (WUI) issues. Move target areas which may be subject to high intensity crown fires away from WUIs.
- Group target vegetation communities into logical burn units by fire regime. For example, group all areas scheduled for top-killing, high intensity fires, surface fires, of return interval 5 to 20 years into one burn unit. Likewise, group all areas scheduled for low-intensity, dormant season surface fires of return interval 2 to 10 years into a separate burn unit.

- Cooperate with local fire departments and partner agencies with regard to suppressing wildfires and supporting prescribed fires.
- Begin implementing prescribed fire and other associated treatments at a refuge level scale on the highest priority units and rotation.
- Conduct stand and fuel inventories for each refuge as a baseline for fire management treatments.
- Identify priority systems and units based on age class, stand condition, time since last fire, threatened and endangered species, etc.
- Develop an equipment cache adequate to support fire-related activities of Complex and Central Pine Barrens Commission partners.
- Develop outreach programs to educate the public about fire issues.

Objective 4: Restore and enhance bird populations

Initiate a biological monitoring program that assesses bird populations and habitat conditions within upland cover types for the breeding and non-breeding seasons. By 2010 complete assessments on 50% of upland stands.

Rationale

Rigorous, appropriate, and habitat-specific surveys and monitoring regimes for bird species need to be developed. We are primarily interested in enhancing breeding and non-breeding habitat community functions for migratory birds in forest, grassland, and beach strand communities. Analyzing data from breeding land bird surveys at Wertheim will focus our contribution to regional, national, and Bird Conservation Region 30 goals. We will also develop or adopt appropriate surveying and monitoring protocols for those species using habitats we have not previously assessed.

Staff and volunteers perform surveys of breeding land birds and salt marsh birds at Wertheim, including salt marsh sharp-tailed sparrows and seaside sparrows, under a region-wide protocol. Those surveys provide an index of species occurrence, highlight areas used by declining species, and prove valuable in the analysis of regional breeding concentration areas.

We will apply the following strategies to each refuge as appropriate, depending on its habitats.

Strategies

- Develop baseline surveying and monitoring regimes and adopt or develop protocols for the Complex's habitat communities for breeding and non-breeding seasons and initiate the surveys.
- Analyze baseline data for each community and determine where to focus specifically designed monitoring efforts to help track changes in species/habitat communities. This may be on a particular species guild, bird species, or habitat community of concern which supports a group of species.

- Determine what intervals we need for continued surveys on breeding land birds at Wertheim. Initially, surveys will focus on salt/brackish marsh and pitch pine-scrub oak habitat communities at Wertheim and Sayville. Additional surveys will take place at Seatuck as grassland area is expanded for rare and endangered plant and lepidopteron species.
- Initiate surveys at other refuges in the Complex where restoration, management, or public use occurs.
- Develop an atlas of lepidoptera and odonata for the Complex with the assistance of volunteers and interested associations like the Dragonfly Society of America.
- Continue to monitor forest regeneration plots at Wertheim and establish plots at Seatuck, which also has an overabundant deer population.
- Establish and maintain surveillance programs for forest pest species like the gypsy moth, emerald ash borer, orange-striped oakworm, and the Asian long-horned beetle.

Objective 5: Increase grassland size to benefit nesting grassland birds

By 2010, expand the effective area of grasslands at Conscience Point, Seatuck, and Sayville to the minimum area required by Savannah, Vesper, and Grasshopper sparrows, Eastern Meadowlark, and Bobolink. Ensure that habitat conditions such as vegetation type and density, coverage of woody stems, perch availability etc., are suitable for use by these species.

**Goal 2.
Restore the
biological health
of aquatic habitats
to high-quality
conditions on
the Complex salt
marshes, bays,
tidal**

Objective 1: Reduce Phragmites

By 2007, prevent the expansion of *Phragmites australis* and, by 2010, reduce its overall distribution to 75% of 2005 levels.

Rationale

The invasive plant common reed (*Phragmites australis*) has overtaken and dominated once-prized freshwater marsh communities throughout much of the coastal northeast. Compared to native marsh plants, *Phragmites* is of no food value and provides only limited cover for marsh-dwelling birds. The presence of such dense, monotypic growth severely impacts such species as American black duck (Audubon 2003), other dabbling ducks, least sandpiper, semipalmated sandpiper, willet, and great egret. This plant now dominates roughly 335 acres of coastal marsh at Wertheim. That acreage is greater than half of the marsh and virtually all the tidal-freshwater marsh at the refuge.

Aerial photography interpretations revealed that common reed at Wertheim increased from 155 acres in 1974 to 335 acres in 2000. It now dominates virtually all of the brackish intertidal marsh (Batcher 2003). To limit its spread, we work with the DEC to encourage permitting for the use of herbicides, mowing, burning, and manipulating water levels in Wertheim impoundments.

We initiated a control project at Wertheim's Big Fish Creek impoundment in 2001, and expanded it in 2002 to the sub-impoundment nearby. The treatments included the application of the herbicide Rodeo® by a certified contractor and the prescribed

burning or mowing of dead canes. That treatment regime is repeated annually for 3 to 4 years to improve its effectiveness. Approximately 45 acres are now free of common reed. We will continue to treat previously treated areas until our restoration objectives have been met, and in 2005 we spot treated the headwaters of Yaphank Creek and Little Neck Run, both at Wertheim refuge.

Strategies

- Use 2005 aerials to accurately identify and map Phragmites distribution at all refuge units by 2007.
- Develop a species specific treatment plan basing priorities on the resources at risk of invasion, and ease of control. At Wertheim, part of the treatment plan will involve restoring tidal inundation, therefore increasing salinity which discourages Phragmites growth.
- Implement a treatment plan that controls problematic invasive plants with hydrologic restoration, herbicide application, mechanical removal, and/or prescribed fire with the intent of re-establishing native plants. Such a treatment plan will help eradicate at least 25 acres/year of invasive upland species, including at least 5 acres of invasive wetland plants.

Objective 2: Enhance habitat conditions for salt marsh sharp-tailed sparrow and seaside sparrow

Improve habitat conditions for salt marsh sharp-tailed sparrow and seaside sparrow populations at Wertheim, Morton, Seatuck and Lido Beach through invasive species control (goal 2, objective 1).

Rationale

Since the 1930s, most of Long Island's salt marshes have been ditched for mosquito control purposes (see goal 2, objective 3 for a more detailed discussion on mosquito control). The intent was to eliminate shallow ponds or pannes and other areas of standing water in which female mosquitoes deposit their eggs. The extensive network of parallel and grid ditches at the refuges in the Complex have effectively removed those aquatic features. Some bird, insect, mollusk, crustacean, and plant species flourish only in those communities. The bird species at highest risk that depend on this habitat community are the salt marsh sharp-tailed and seaside sparrows. However, it also provides high-quality feeding and resting habitat for many wading birds, shorebirds, and waterfowl.

Saltmarsh sharp-tailed sparrows and seaside sparrows are high salt marsh specialists. Saltmarsh sharp-tailed sparrow is considered globally vulnerable to extinction and is a priority species for conservation and management. IUCN Red List has the species as globally vulnerable to extinction. Virtually the entire breeding population occurs in USFWS Region 5. Seaside sparrows have a much broader breeding range, but are listed as a Species of Special Concern in New York.

Strategies

- Collaborate with the New York Department of State, the New York Department of Environmental Conservation, The Nature Conservancy, Ducks Unlimited and others to

perform new tidal wetland mapping and digitizing to serve as a basis for management planning, trends analysis, monitoring baseline, and plan for sea-level rise.

- Assess the hydrologic condition of each salt/brackish marsh system at the Complex to determine the factors that altered the tidal exchange.
- Develop salt/brackish marsh restoration plans specific to each marsh system. The plans will outline the impacts that altered each marsh system and the methods to be utilized for restoration.
- Implement the restoration plan to restore 600 acres of salt/brackish marsh at the Complex by the year 2020.
- After we complete our evaluation of OMWM (see goal 2, objective 3) revise mosquito control practices within Wertheim and Seatuck to incorporate OMWM techniques, if appropriate.

Objective 3: Decrease insecticide use in marsh communities

By 2015, enhance the biotic integrity of salt and brackish marshes by decreasing the use of mosquito control chemicals at Wertheim, Seatuck and Lido Beach by 75%.

Rationale

We are working with partners to reduce the amount of spraying on refuge lands and ensure activities are consistent with the Service's interim and future mosquito control guidance. The Service's interim mosquito Guidance (2005) states that "when necessary to protect human, wildlife, or domestic animal health, the Service will reduce mosquitoes associated health threats using an integrated pest management approach, including when practical compatible, non-pesticide actions that reduce mosquito production. Except in officially determined health emergencies, any procedure the Service uses to reduce mosquito production will meet compatibility requirements as found in 603 FW 2 and must give full consideration to the safety and integrity of non-target organisms and communities, including federally listed threatened and endangered species."

Mosquito management is complicated because many refuges in the Complex are adjacent to residential communities where disease vector and nuisance issues are amplified. A conflict of interests arises between protecting public health and protecting and restoring the salt/brackish marsh community. Additionally, OMWM techniques are not favored by everybody because of their initial impact on existing wetlands.

Residents near refuges create pressure to manage mosquito populations. As a result, local governments spray areas of marsh both inside and outside refuge lands by helicopter during the spring-summer mosquito breeding season. The two compounds typically used are methoprene (Altosid®), a growth regulator, and *Bacillus thuringiensis* (Bti), a bacterial pathogen. Past sprayings occurred as often as weekly in August and September at Wertheim, Seatuck, and Lido Beach. More recently, refuge negotiations with local governments have reduced that spraying.

Spraying larvicides may adversely affect non-target wildlife like fish, birds, reptiles, mollusks, and other insects. The long-term effects of those compounds on non-target salt marsh species are not fully known (Brown; date unknown). However, killing mosquito larvae can alter the benthic community and potentially impact the food base of marsh-dependent migratory birds. As a result, the future productivity of the birds may be reduced. In addition, low-flying helicopters have been observed disturbing nesting osprey, and may also stress less visible marsh-nesting birds.

Mosquitoes serve as a valuable food source for many insect and bird species in the salt/brackish marsh community. Although we wish to eliminate mosquito spraying on refuges for the sake of wetlands and wildlife, we still recognize the need to protect public health. Therefore, when public health is at stake, we have authorized the use of an environmentally benign larvicide that specifically targets mosquito larvae. The use of larvicide is less damaging to the environment than adulticide.

We need more information before implementing any new management strategies for controlling mosquitoes. We are assessing the results of an open marsh water management (OMWM) pilot study conducted at Wertheim and considering its potential as both a mosquito control mechanism and a wetlands restoration tool. We will also be evaluating the results of a 5-year region-wide OMWM study recently completed by the Service. We are sensitive to concerns about the health risks that mosquitoes pose, the impact of pesticides on water quality, habitats, and human health and the impact of OMWM techniques on the present marsh landscape. The results of the studies, public concerns, and any new information our biologists have gathered will guide our future mosquito and marsh management strategies.

Implementing OMWM techniques will reduce mosquito larvae numbers and decrease the risk to public health. However, OMWM does not eliminate all mosquitoes, so nuisance mosquitoes may persist, and it is also not favored by all. We do not support spraying for nuisance mosquitoes, because the cumulative negative impacts of the compound on the environment do not warrant its use.

Strategies

- Study and document the effects of larvicide on aquatic insects by comparing communities within sprayed and unsprayed marshes.
- Eliminate the routine spraying of mosquito larvicides. Revise special use permits to allow spraying on refuges only during public health emergencies and not for public health nuisances.
- Continue OMWM pilot restoration study at Wertheim.
- After evaluating the results of the OMWM study, explore the possibility of returning marshes back to “pre-ditching” state, with active and widespread creation of shallow ponds, pannes, and natural tidal creeks instead of ditches to substantially reduce mosquito population.
- Develop and enhance outreach efforts for neighbors in mosquito-prone areas. Inform them of the impacts of mosquito spraying on non-target insects, mollusks, crustaceans,

fish, and birds. As new information becomes available, we will educate neighbors about alternative control measures like OMWM.

Objective 4: Shoreline restoration

By 2012, where practical, restore shorelines of tidal rivers and creeks to native emergent vegetation and mud flats.

The zone between the aquatic environment and the adjoining upland is especially important for wildlife, given its diversity of plant cover and rich food resources. Unfortunately, those zones typically border rivers and bay shores, and therefore, are often human-altered sites such as bulkheads and dredge dumps. The strategies in this objective are intended to restore the habitat functions associated with such areas.

Strategies

- Remove the bulkheaded segments of shoreline on Wertheim's Carmans River and Seatuck's Champlin Creek. Grade upland to a 10:1 slope and establish native emergent plant communities.
- Control Phragmites along tributary creeks through hydrologic, chemical, and mechanical means.
- Remove deposits of dredged material to reclaim the former native emergent marsh at Seatuck.

Objective 5: Oyster Bay

Within 15 years, revise Oyster Bay policy to clarify the criteria for legal private structures and the refuge's authority and responsibility over them. We will ensure that the policy addresses construction and expansion of un-permitted docks and other shoreline structures on refuge property and is also consistent with the intentions of the original deed, the Refuge Improvement Act, and other Service mandates.

Rationale

We continue to implement the 1989 decision document regarding private structures and dredging; work with the DEC and the ACOE to review construction and dredging projects; participate in the long-range planning coalition; and survey the refuge boundaries to minimize impacts on its aquatic habitats. We also have a MOU with the Friends of the Bay for monitoring water quality. The data collected by the organization will help with management decisions. We have also established partnerships with the Long Island Wetland Restoration Initiative, Ducks Unlimited, and others to restore wetlands and other habitats on Long Island for the benefit of wildlife.

Strategies

- Produce compatibility determinations for all private structures and activities in the refuge by year 5 (i.e., 5 years after plan approval).
- Inventory all private docks in the refuge and determine the legality of each by year 5.

- Inventory all moorings in the refuge and determine the legality of each by year 10.
- Inventory all other private structures in the refuge, including boat ramps and bulkheads, and determine the legality of each by year 10.
- Expand on the definition of each criterion from the 1989 Decision Document to clarify the policy for private structures by year 2. Incorporate that clarification into the Code of Federal Regulations under Oyster Bay National Wildlife Refuge.
- Work with the town to clarify all boundary issues, including the location of the corners and any private, pre-existing riparian rights by year 5.
- Work with the town, villages, and other pertinent entities to assess the current number of moorings and which entities are authorizing moorings in the refuge by year 5.
- Develop and finalize MOU with the town, villages, etc. by year 10.
- Develop outreach materials on the private structure policy in Oyster Bay by year 3. Conduct briefings for all levels of elected officials and send a refuge letter to each landowner with property adjacent to the refuge, and to applicable realty offices.
- Remove all illegal structures, docks, and moorings from the refuge by year 15.
- Restore all intertidal areas that have been denuded of vegetation by year 15.
- Initiate the sensitive and controversial issue of moorings with the town, elected officials, etc. around year 5. Develop a MOU regarding the number, type, and location of moorings and the fee procedure and ownership associated with them.
- Work with DOI solicitor's office and DOJ's AUSA to develop a resolution regarding the Pascucci dock matter and serve the FWS letter by year 2.
- Complete the land transfer of the refuge beach property for the town wetland acreage by year 2.

Objective 6: Enhance brook trout

By 2015, survey the native sea-run brook trout population that exists in Yaphank Creek at Wertheim. Develop and implement habitat enhancement strategy to remove invasive vegetation and maintain water quality, working with off-refuge landowners within the watershed. Remove passage barriers such as LI Railroad culverts.

Rationale

Yaphank Creek at Wertheim refuge is recognized as one of the few locations on Long Island that supports a native population of sea-run brook trout. Organizations like Trout Unlimited have been charting trends in this population for several years, and have a great interest in its long-term well-being. To satisfy angler demand, the DEC stocks hatchery-raised rainbow and brown trout in the Carmans River several times each year. The stocked fish are part of a "put-and-take" fishery, whereby the fish are of "legal" size.

We will continue to monitor the size, age, and geographic distribution of the native population at least once every 5 years and restore habitat degraded by Phragmites

and mute swans along the shoreline of Yaphank Creek. We will also continue monitor the effects of stocking hatchery-reared brown and rainbow trout to ensure native brook trout populations are not put at risk. This will be accomplished with the assistance of FWS Fisheries, NOAA Fisheries, and the DEC.

**Goal 3.
Restore and
increase the
biological
diversity and
integrity of native
grasslands to foster
endangered plant
recovery and the
communities upon
which they depend.**

Objective 1: Sandplain gerardia

Maintain and enhance the existing sandplain gerardia population at Sayville FAA site.

Rationale

Sandplain gerardia is a federal-listed endangered plant that ranges from northern Maryland through Cape Cod. On Long Island, it occurs at 11 sites, including Sayville and Conscience Point, although only five, including Sayville, are viewed as being viable over the long term. The native population Sayville constitutes by far the greatest number of plants of any site on Long Island. In contrast, seeds successfully sown at Conscience Point resulted in the germination of two plants in 2003. Seatuck has soils similar to those on which sandplain gerardia thrives, and may constitute a suitable establishment site.

We will consider current and future access in order to protect plants from accidental harm from public.

More than 85 percent of the New York State population of federal-listed endangered sandplain gerardia grows at a 101-acre site adjacent to the Sayville Unit of Wertheim refuge. Although the Federal Aviation Administration owns that site, we assist The Nature Conservancy in managing it. It represents one of the top three most important populations of sandplain gerardia in the Northeast, and is quite possibly the most viable of the three.

Although we do not own that property, we will continue to assist TNC in its management. Refuge staff will mow the grassland at Sayville annually to discourage the growth of woody plants. We will also continue the translocation in plots at Conscience Point and Seatuck that we started in 2001 and evaluate the current and future access to the site to protect the plants from accidental harm from the public. We will collaborate with TNC and the DEC on periodic, prescribed burns at Sayville, Conscience Point, and Seatuck. Once the Sayville FAA site has been transferred to us, we will develop and implement a prescribed burn regime and remove the intruding, non-native vegetation. Our goal is to restore that site to its natural habitat.

Strategies

- Incorporate a tree/shrub clearing where necessary, and mowing/prescribed fire regimes that increase and maintain maritime grasslands on refuge units, representing a diversity of native grass and herb species.
- Protect the establishment sites from unwanted wildfires and soil-disturbing activities like unauthorized ATV use, excavations.

- Identify appropriate sites in these refuges for endangered plant establishment based on soils and dominant grassland vegetation.
- Coordinate establishment efforts with Recovery Team.
- Monitor the establishment plots for germination/survival rate each September.

Objective 2: Grasslands

Within 10 years, maintain adequate interspersion of successional stages and plant diversity within the Complex's grasslands to maintain the State-listed rare plant and lepidopteron component.

Rationale

The maritime grasslands at Sayville and Conscience Point are considered globally rare (NYSDEC 2004), and support several species of grassland-dependent state-listed endangered or threatened plants and butterflies. The long-term viability of such communities depends upon active habitat management.

Strategies

- Implement a periodic monitoring program for state-listed plants and animals in collaboration with NY Natural Heritage Program.
- Treat invasive plants aggressively with herbicides, mowing, and/or prescribed fire to limit their spread.
- Clear areas of recently established (less than 20 years old) young pitch pine, pitch pine scrub oak woodlands, and scrub oak thickets, to allow for the reestablishment of maritime grassland habitats, and implement a 2- to 10-year, low-to-moderate intensity surface fire regime for grassland habitats (Jordan et al. 2003).
- Maintain areas of young pitch pine, pitch pine scrub oak woodlands, and scrub oak thickets by intermittent mowing combined with scorching moderate intensity surface fire about every 10 years (Jordan et al. 2003).

Goal 4. Enhance the functionality of coastal strand habitats as they relate to beach-nesting colonial water birds and shorebirds to meet optimal population levels.

Objective 1: Assess plover/tern breeding potential

Assess the condition of coastal strand communities and determine the number of piping plover, roseate tern, and least tern breeding pairs that can be supported at Morton, Target Rock, Amagansett, and Oyster Bay.

Rationale

Although nesting has not been observed at Target Rock, adjoining stretches of beach generally support 1 to 2 plover pairs annually. One nesting pair was observed at Amagansett in 2005. In 2006, 2 pairs of piping plover and 10 pairs of least tern nested at Amagansett; eight piping plover chicks and an unknown number of least terns fledged. Since 2003, NYSDEC have been monitoring nesting piping plover on the sound side of the wetland at Frost Creek, near Oyster Bay NWR, and at Center Island and Stehli Beach.

Strategies

- Assess habitat conditions for plovers and terns as well as the limiting factors affecting productive breeding seasons at the above refuge units with species experts and refuge staff.
- Determine an appropriate goal for the number of nesting pairs at each refuge.
- Identify limiting factors that may be influencing colonial water bird productivity.
- Develop cooperative agreements with partners and adjacent landowners.
- Coordinate with NYSDEC to address piping plover at Oyster Bay.

Objective 2: Active management of habitat/predator/public use

Actively manage habitat, predators, and public use, where necessary, to improve nesting and foraging habitat conditions for piping plover and least tern. Establish breeding common terns by 2010 and roseate terns at Morton by 2020.

Rationale

The level of nesting success by colonial water birds may be influenced by several factors, including the quality of nesting and foraging habitat, the degree of human activity, and the presence of predators. The habitat factors relate to the physical environment; its limitations will constrain any proposed modifications. Human use and predators can be managed by several means, depending on socially acceptable practices.

Strategies

- Reduce the density of beach grass adjacent to current and future nesting areas on all refuge beaches.
- Create new intertidal foraging areas where foraging opportunities are limiting piping plover use.
- Assess red fox, raccoon, Norway rat, crow, and gull populations at each refuge, and develop a predator management plan in collaboration with NYSDEC and USDA Wildlife Services. We will continue to work with our partners, including the state, to address predator management on the Complex.
- Patrol nesting areas during the mid-May to late July peak breeding season to keep refuge visitors out of closed areas at Morton.
- Further restrict areas accessible by the beach-going public and/or limit the allowable range of human activities, including picnicking, canoe portaging, and beach driving.
- Manage dredge spoil and identify sediment sinks that adversely affect beach strand habitat.
- Initiate discussion or consultation with appropriate parties to mechanically modify beach habitat to create extensive shallows. Possible techniques may include manipulating dunes and beach grass to decrease hiding cover for predators and

increase opportunities for overwash, and excavating shallow mud flat foraging areas for plover at Morton.

Goal 5.

Provide priority wildlife-dependent recreational and educational opportunities when compatible with the resource and available funding.

Objective 1: Visitor Service Plan

Within five years, develop and implement a Visitor Services Plan according to the Visitor Service Requirements. The plan will function as a step-down plan for this document and replace the outdated public use plan.

Rationale

More than 40 million people visit units of the Refuge System each year to enjoy a wide range of wildlife related opportunities; nearly 500,000 visit Long Island's national wildlife refuges. As its organic law states, any recreational use on areas of the Refuge System must be compatible with the primary purpose(s) for which the area was acquired or established.

Strategies

- Within 2 years, formally evaluate the Complex visitor services program and wildlife-dependent recreational opportunities.
- Within 4 years, conduct visitor surveys to aid in planning visitor services.
- Within 5 years, make management recommendations and incorporate them into a step-down Visitor Services Plan for the management of the Complex wildlife-dependent public uses and related infrastructure.
- Add sales outlets at Wertheim and Morton.

Objective 2: Headquarters/Visitor Facility

Within 7 years, develop, implement and complete the design, construction, and staffing of an office headquarters and visitor facility.

Rationale

The existing administrative office space for the Complex is a converted hunting lodge of approximately 1,200 square feet constructed in the early 1900s. It was first used as office space by two refuge staff members in 1974. Since then, the scope of operation and responsibility has increased, and the Complex has grown to encompass nine refuge units, up to 12 permanent employees and varying numbers of seasonal employees, student interns, volunteers and partners. The headquarters facility now consists of the original converted hunting lodge, two office trailers, and three desks in the maintenance shop; however, there is only one restroom, located in the main building. The present office space is severely inadequate, not to mention unsafe, to serve the mission of the refuge, the Complex, the Refuge System, or the needs of the public.

Given the presence of more than 30 million residents and visitors to Long Island, a headquarters and visitor center is essential to achieving the mission of the Service, the Refuge System, and the Complex. A new visitor center for the Complex was most appropriately located at Wertheim because of its central location among the

refuge units, its larger size, and its accessibility by major roads. Of the nearly 500,000 annual visitors to the Complex, more than 90,000 visited Wertheim in 2004. The Complex staff examined the potential for a visitor center on lands owned by other agencies. Those sites included the Southaven School, owned by the South Country School District, and the Robinson Duck Farm, owned by Suffolk County Parks. In both cases, the properties were not available for sale; therefore, they were eliminated from further consideration.

In 2000 and 2001, the Service evaluated four alternatives for a visitor center/staff office at Wertheim. An environmental assessment prepared in compliance with the NEPA and the Council on Environmental Quality Regulations provided a description of the purpose and need for the project, a brief background, the features of each alternative, the affected environment, and the effects and consequences of each alternative.

The selected alternative in that EA was a 6 acre site and residence adjacent to Wertheim on its eastern boundary. Our Regional Director approved the EA in February 2001, with the selection based on factors that included lower costs, less disturbance to the resources, and a relatively shorter time frame to complete the project. However, that site is no longer favored. The location of the new site can be found on map 4-2, and an aerial photograph is available in appendix G.

In our current analysis of site selection (see map 4-2) for the headquarters and visitor center, we applied this set of general criteria.

- Large enough site for all proposed facilities.
- On or easily accessible from Montauk Highway.
- Relatively close to the existing refuge entrance road to minimize additional costs and traffic impacts.
- Safe ingress/egress to the site for employees and visitors.
- Safe, adequate parking for employees and visitors.
- Located on refuge-owned property to improve the visibility of the Service and refuge, facilitate public contact, and eliminate the hassle of a difficult real estate market.
- Reasonable site development costs.
- Low ecological, cultural, and esthetic impacts.

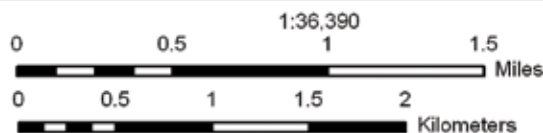
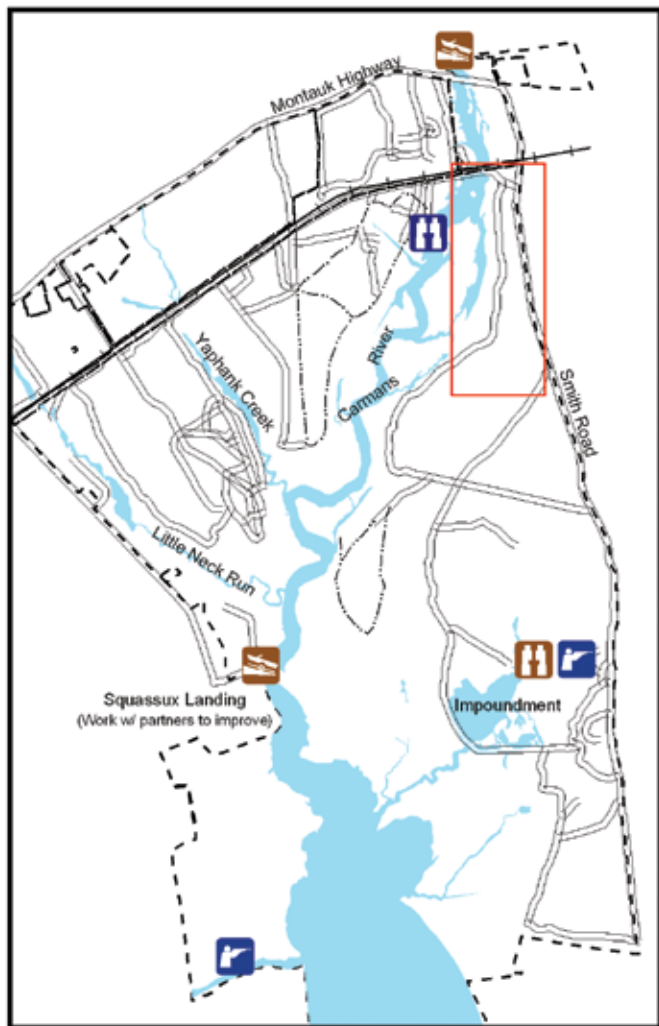
The proposed visitor center will also serve as office space for refuge employees. This action will involve constructing a new building at Wertheim across the Carmans River from the present office site. See Appendix G, "Conceptual Plans" for perspectives and floor plans for the proposed facility and an aerial view of the site. The site will have to be cleared of approximately 9 acres of pioneer hardwood vegetation, as well as a 30-vehicle parking lot. The proposed site currently has no structures. We will construct the entrance road on existing refuge lands where it cannot be seen from Smith Road residences. The visitor center will include 1,000 square feet of display area, an auditorium, classroom, and staff offices.



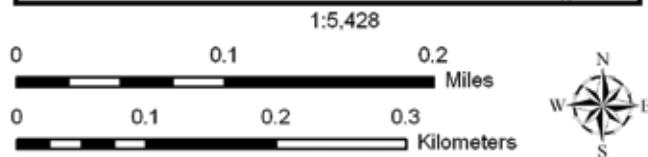
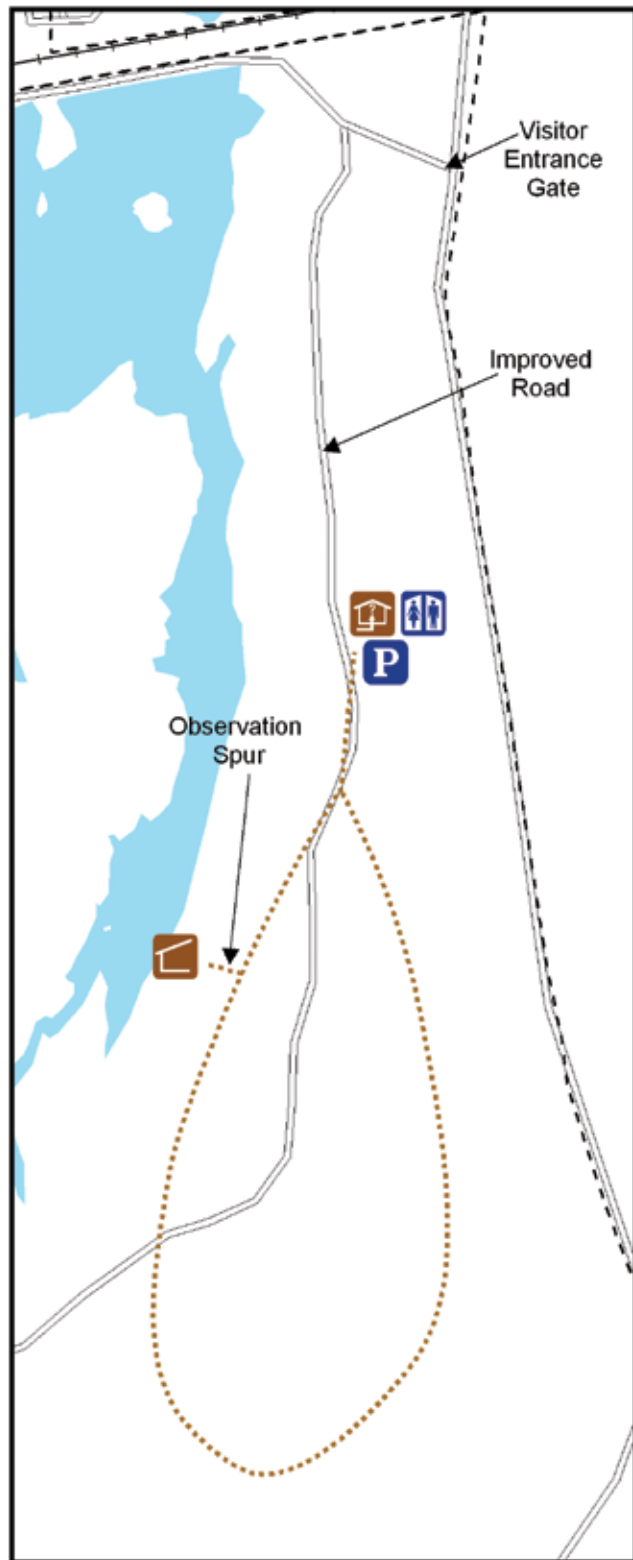
U.S. Fish & Wildlife Service
Wertheim National Wildlife Refuge
 Suffolk County, New York

Map 4-2

Public Use Opportunities at Wertheim National Wildlife Refuge



- | | | | |
|--|--|--|------------------------------------|
| | New Visitor Center/
Headquarters | | Resident Canada
Goose Hunt Area |
| | Restrooms | | Parking |
| | Improved
Viewing Platform | | New Nature Trail |
| | Observation Blind/
Proposed Goose
Hunt Blind | | Access Road |
| | Boat Launch/
Fishing Access Site | | Railroad |
| | Education Pavillion/
Covered Shelter | | Water |
| | | | Refuge Boundary |



Produced by Long Island NWRC, Shirley, New York
 Refuge boundary: USFWS, Region 5, Div. of Realty 2004
 Datum and projection: NAD 1983, UTM Zone 18, Meters
 Map Date: 3/2006

Telephone and electric utilities will be brought onto the site from Smith Road, 0.1 miles distant. The public will gain access via the present refuge entrance at Smith Road, 0.3 miles south of Montauk Highway. The old office and the two office trailers now used as office space will be removed.

Access to the site by the public will remain as is. From the William Floyd Parkway or Montauk Highway, visitors will take Smith Road to the present refuge entrance. Smith Road is a secondary, neighborhood road. Visitors to the site will travel less than 0.3 miles on Smith Road until they enter the refuge, thus minimizing safety issues. Access for emergency responses by fire, medical and law enforcement agencies will still be available by all of the existing refuge entrances and fire roads. No government quarters will be located at the site of the proposed visitor center.

Visitors to the proposed visitor center will include students, natural resource groups, and members of the public interested in wildlife-dependent recreation, education, and interpretation. Refuge and visitor facility hours/days of operation and facility carrying capacity will be determined in consideration of wildlife/habitat, local residents, and staff constraints. Current sites of access to the refuge will also remain in operation, including the White Oak Nature Trail, the fishing access site maintained by the DEC on Montauk Highway, and the Beaver Dam/Squassux Landing site maintained by the Town of Brookhaven and a local community group.

Environmental education and interpretation sites accessible at the center will include a 0.5 mile nature trail through a mixed hardwood forest and on an existing fire road to an observation platform for viewing the refuge impoundment. Visitors who wish to use the White Oak Nature Trail at the present headquarters will be routed back out to the present entrance road.

Strategies

- Within 1 year, plan for the construction, interpretive design, and staffing of a new Complex visitor center/headquarters at Wertheim. The plans for the structure will follow closely those for a similar facility at the Rhode Island National Wildlife Refuge Complex.
- Within 1 year, begin the permit application process necessary for building construction along the Carmans River.
- Within 1 year, update existing Project Identification Document to reflect changes in facility and site selection from the 2000 Draft Environmental Assessment.
- Within 1 year of funding, work with interpretive planners to finalize the conceptual design of interpretive exhibits including messages, types of exhibits, visitor flow patterns, visitor carrying capacity, etc.
- Within 4 years of funding, complete exterior and interior construction of facility; this includes utilities, access, linking to and updating the nature trail and trail guide.
- By the grand opening of the new facility, update Complex brochures and interpretive panels available at the information kiosk according to plans devised for the new facility.

- Coinciding with the grand opening of the visitor facility, staff it with an outdoor recreation planner, a volunteer coordinator, and a law enforcement officer, as well as volunteers.
- Update existing buildings and have additional staff dedicated to Morton and Target Rock on a seasonal basis.
- Work with the Town of Oyster Bay and the DEC to explore the possibility of a shared, staffed Oyster Bay office.

Objective 3: Public Access to Refuge Lands

Allow public access to Complex units to the extent it will not adversely impact Federal trust resources or compromise human safety. At least 90% of refuge visitors and neighbors will be able to explain the purpose of access restrictions. Visitors will also be able to support habitat conservation by conducting themselves according to “Leave No Trace” principles.

Rationale

Our primary responsibility is to protect wildlife and promote wildlife conservation. Some sensitive areas require us to restrict public access to minimize disturbance, especially during the nesting season. Beach areas for beach-dependent nesting birds are partially closed late spring and summer to public use each year. No matter the level of access granted, visitor safety and resource protection take priority over all other activities. We have set up facilities for public visitation, including parking, restrooms, information kiosk, nature trails and guides on three refuges: Wertheim, Target Rock and Morton. Oyster Bay and Amagansett are open to visitors, but lack onsite facilities.

We grant special use permits for access to closed areas and closed units for certain activities, including research and photography, on a case-by-case basis when the activity will benefit the Complex. Access to closed areas and units is also granted to certain partners involved in cooperative agreements and memorandums of understanding to protect resources or enhance habitat.

Problems with trespassing, littering, and feeding wildlife on the refuges have become increasing problems in recent years. They adversely affect wildlife and their habitat and can pose a threat to public safety.

Sunbathing and beach use at Amagansett and Morton are allowable activities.

Strategies

- Continue to provide access to Complex units via visitor facilities, permits, and agreements as noted above.
- Continue to impose seasonal restrictions for the protection of shorebird nesting areas.
- Within 5 years, develop and implement a plan for increased patrols of refuge units, including strengthening and formalizing partnerships with local authorities, DEC Conservation Officers, and NYS Forest Rangers.

- Within 5 years, explore partnership with Long Beach School District, Nike Environmental Center, to provide facilities such as a boardwalk, and access to Lido Beach WMA for environmental education purposes.
- Within 15 years, provide access to the closed units of Seatuck, Sayville, and Conscience Point by exploring partnerships with the Towns of Islip and Southampton and other adjacent landowners, where access may involve our providing interpretive information kiosks and observation areas on properties adjacent to the refuges.
- Work with the Southampton Trails Preservation Society and other partners to explore the possibility of opening and adding trails at Conscience Point. This must include detailing, inventorying, and mapping of sensitive habitats and species at the refuge to determine the appropriateness and compatibility of opening the refuge and adding trails.

Objective 4: Interpretation

Enhance interpretive opportunities at the Complex and update them according to the Visitor Services Plan. 90% of visitors will be able to identify the property as a national wildlife refuge and 80% will be able to identify at least one important Complex habitat type and relate its significance to migratory birds and other native wildlife.

Rationale

Interpretation is a priority public use in the Refuge System Improvement Act, and is one of the most important ways we can increase the visibility of the Complex, convey its mission, identify its significant contributions to wildlife conservation, and raise public understanding of the Service and its activities on Long Island. Recently, USFWS Region 5 identified “areas of emphasis” with regards to the six priority wildlife-dependent recreational uses for every refuge. The Long Island NWR Complex was identified for environmental education and interpretation. Thus, we will further consider this recognition as we implement the strategies of the CCP over the next 15 years.

Complex visitors often confuse us with county, state, or national parks. Many are unaware of the Refuge System and its scope, and most do not understand the importance of the Complex in the conservation of migratory birds and threatened or endangered species.

Proposed future programs will raise the visibility of the Service, the Refuge System, and the Complex through increased visitor contacts, onsite programs, and new and improved infrastructure. We want people to recognize that the Complex has as its priority managing a variety of habitats to benefit migratory birds, with particular emphasis on restoring habitat for threatened or endangered species. Expanding our interpretation program will give visitors a better understanding of that contribution. For example, we will work more closely with the NPS Sagamore Hill National Historic Site and Fire Island National Seashore on interpretive programs and displays that mutually benefit our respective agencies, wildlife, and public use.

We receive daily requests for guided interpretive programs. Although provisions for self-guided programs are available in an excellent nature trail guide and

activity guides, most group leaders who request guided programs prefer not to lead a program themselves.

Strategies

- Continue to maintain and provide facilities and materials including nature trails and guides, interpretive kiosks, activities guides to facilitate interpretation at Wertheim, Target Rock and Morton.
- Maintain partnerships with environmental education organizations that regularly use the Complex nature trails.
- Maintain our relationship with the Long Island Visitors Bureau & Sports commission, and keep the Complex website up-to-date.
- Continue to provide support and guidance to the Friends of Wertheim Programs Committee.
- Within 5 years, with partners, develop a detailed interpretive program for the refuge that tiers to the Visitor Services Plan.
- Within 5 years and every 3 years thereafter, evaluate the Complex interpretation program and update facilities and information to reflect its Visitor Services Plan.
- Within 5 years, coordinate with the Town of Oyster Bay, Friends of the Bay, The Waterfront Center and the Theodore Roosevelt Audubon Bird Sanctuary to develop interpretive exhibits and programs for Oyster Bay.
- Within 7 years, work with the National Park Service Sagamore Hill National Historic Site to develop a trail and interpretive overlook at Oyster Bay adjoining that property.
- Within 5 years, explore partnership opportunities with the National Park Service Fire Island National Seashore that utilize the shared skills, resources, and facilities of our two agencies, and we will cooperate in their upcoming General Management Plan process.
- Within 3 years, formalize partnerships with local Audubon Society Chapters and other environmental organizations to provide guided interpretive programs at Wertheim, Target Rock, and Morton refuges.
- Within 10 years, develop and implement portable displays and compact discs about refuge units and their management.
- Within 10 years, re-evaluate and renovate trails to make barrier free, and develop self-guided interpretive signs, including at restoration sites.
- Work with local canoe/kayak vendors to develop an interpretive self-guided tour of the Carmans River with an accompanying brochure.
- Within 15 years, interpret Amagansett, Seatuck, Sayville, and Conscience Point by exploring partnerships with the Towns of Islip and Southampton and other adjacent landowners, wherein the Complex may provide interpretive information kiosks and/or observation areas on properties adjacent to the refuge.

- Within 7 years, provide interpretation of all Complex units by constructing and maintaining a headquarters office/visitor facility that will host permanent and changing interpretive exhibits.
- Within 10 years, develop docent program with volunteers to staff visitor contact station at Morton and conduct interpretive programs.
- As funds allow, continue to hire and train student interns to provide guided interpretation to refuge visitors.
- In conjunction with the new visitor center, improve self-guided experience through thematic interpretive wayside exhibits on trails.

Objective 5: Wildlife Observation and Photography

Maintain the current wildlife observation and photography opportunities provided on the Complex. Provide an observation area at the Wertheim impoundment and explore partnerships with adjacent landowners of Seatuck, Sayville, and Conscience Point for possible observation areas on properties adjacent to the refuges. Ensure that 80% of adult visitors report they were satisfied with the Complex's efforts to provide safe and accessible opportunities to observe and photograph wildlife.

Rationale

Wildlife observation and photography are two of six priority public uses. Nassau and Suffolk counties contain hundreds of photography groups. We regularly receive requests for access to closed areas of the Complex, and issue special use permits on a case-by-case basis. Permission to use the images for refuge purposes is one requirement of those permits. The occasional photography workshops and birding programs that have been presented on Complex units open for public use have met with great success and large attendance. Enhancing those opportunities not only will serve to update the Complex library of images for outreach, educational, and historical purposes, but also will help build public understanding and support of Complex management.

Strategies

- Continue to maintain observation and photography platforms and blinds along the Complex nature trails at Wertheim, Target Rock and Morton; maintain and update spotting scopes at Wertheim, Target Rock and Morton as needed.
- Within 3 years, develop a nature photography club that can provide annual wildlife photography workshops. Offer an annual Friends group-sponsored wildlife photography contest.
- Review SUP fee policy for commercial wildlife photography primarily on closed refuge property.
- Continue to issue special use permits on a case-by-case basis for nature photography of benefit to the resource.
- Formalize partnerships with environmental organizations to provide photography and birding programs at Complex units.

- Continue to support and provide guidance to the Friends of Wertheim Programs Committee.
- Within 10 years, develop portable photography blinds and implement a reservation system.
- Within 15 years, provide access to the closed units of Seatuck, Sayville, and Conscience Point by exploring partnerships with the Towns of Islip and Southampton and other adjacent landowners, where access may involve our providing interpretive information kiosks and observation areas on properties adjacent to the refuges.

Objective 6: Environmental Education

Provide opportunities for partner-led and self-guided environmental education programs on Complex lands.

Rationale

Our staff encounters high demand for guided school programs and in-classroom programs, especially for Wertheim and Morton. During the school year, we receive at least three requests per week for guided educational programs. Most educators or group leaders prefer not to guide their own programs related to environmental science. Although we have provided quality programs and materials to teachers and group leaders, comments from the public indicate improvements are needed.

Strategies

- Continue to participate in and promote the Federal Junior Duck Stamp Program for New York State with Ducks Unlimited.
- Continue to issue fee waivers/special use permits to educational institutions for outdoor laboratory exercises.
- In conjunction with the new visitor center, develop and implement an outdoor classroom area at Wertheim adjacent to the new facility.
- Within 5 years, explore formalizing a partnership with Long Beach School District, Nike Environmental Center, to provide boardwalk facilities and access for environmental education purposes.
- Within 7 years, partner with local educational institutions to plan, develop, and implement teacher environmental education workshops utilizing Complex resources.
- Partner with local schools and other educational institutions to enhance utilization of Complex resources for environmental education.
- Partner with NGOs and academic institutions to develop a detailed, self-guided environmental education program for opened refuge units that tier to Visitor Services Plan.
- Within 5 years, develop a network of educators willing to assist in program/curriculum development for the Complex. This network would act as supporters of the Complex, advocates for environmental education, and as a liaison to the community.
- Develop/purchase educational materials/equipment for use by educational institutions.

- Within 10 years, expand teacher workshops to Target Rock and Morton.
- Develop education kits for scout leaders to use in conducting education programs at the Complex. Encourage use of refuge by scouts to earn official badges.
- Participate in environmental education events-Nassau Boces, Town of Oyster Bay.

Objective 7: Fishing

Promote fishing opportunities at Complex units through partnership with the New York State Department of Environmental Conservation, Suffolk and Nassau Counties, Town agencies and non-governmental organizations. We want 90% of partners and visitors, including those who visit our website, to be able to state that the Complex offers fishing on various units.

Rationale

Both freshwater and saltwater fishing opportunities are available at Wertheim and Oyster Bay, and saltwater fishing is available at Target Rock, Morton and Amagansett. Those units offer fishing from shore, although some fishing at Wertheim and Oyster Bay is restricted to boat access. Wertheim offers boat launching at the fishing access site on Montauk Highway, Route 27A/CR 80 for canoes and kayaks, and at Squassux Landing at the end of Beaver Dam Road in Brookhaven. Boat access at Oyster Bay is from town launches or from the Long Island Sound. Sportsmen and fish conservation groups including the New York Fishing Tackle Trade Association, Trout Unlimited, and the Suffolk Alliance of Sportsmen have shown considerable interest in improving fishing access at various Complex units, especially Wertheim. Over the past three years, interest has also improved in fishing workshops for nontraditional anglers, including kids and families.

Strategies

- formalize partnerships to promote fishing opportunities and habitat restoration projects on Complex units with state, county, town and non-government organizations. Promotion will include, but not be limited to, fishing events, media stories, and website information.
- Within 10 years, develop fish species and fishing regulation rack cards for use at Complex information kiosks and outreach packets.
- Within 3 years and each year thereafter, develop and implement a family fishing event for at least one Complex unit.
- Within 5 years, evaluate the opportunities on the Complex for nontraditional anglers, and make recommendations for improving access and opportunities as part of the Visitor Services Plan.
- Within 8 years, implement the fishing opportunity and access recommendations of the Visitor Services Plan.

As a step-down from the Visitor Services Plan

- within 5 years make recommendations to improve fishing access/opportunities. Implement the plans recommendations within 8 years.
- Explore opportunity and evaluate sites to provide shore-based public fishing opportunities where compatible and feasible.
- Construct at least one “barrier free” fishing structure.
- Improve fishing access site(s) at Wertheim north of Montauk Highway in partnership with the DEC, NYFTTA, and NY Department of Transportation.
- Within 5 years, improve the fishing access site at the end of Beaver Dam Road in partnership with the Town of Brookhaven.
- Integrate NY Department of State report on the south shore estuary.
- Design and develop interpretive displays or kiosks at fishing locations that teach visitors about responsible fishing, sensitive habitats, and the importance of a healthy ecosystem of fish and their associated habitats.

Objective 8: Hunting

Provide “safe” hunting opportunities on Complex lands as part of the effective and efficient management of upland and wetland habitats. “Safe” hunting entails that the number of accidents and incidents related to hunting on the Complex are less than New York State’s average number of hunting-related accidents and incidents per year.

Rationale

Hunting is one of our six priority public uses. Hunting can be used as a tool for managing wildlife, unless we determine that safety concerns or overriding resource concerns will make hunting incompatible.

Reasons for establishing a hunt program are to (1) maintain a diversity of habitats in the Complex capable of supporting a diversity and abundance of wildlife species and, (2) provide wildlife-dependent recreational opportunities. The Service recognizes hunting as a healthy, traditional, outdoor pastime deeply rooted in our American heritage. When managed appropriately, hunting can instill a unique understanding and appreciation of wildlife, their behavior, and their habitat needs.

The draft policy for hunting on national wildlife refuges, issued in the Federal Register on January 16, 2001, describes a quality hunting experience. A quality hunting experience

- (1) maximizes safety for hunters and other visitors;
- (2) encourages the highest standards of ethical behavior in taking or attempting to take wildlife;
- (3) is available to a broad spectrum of the hunting public;
- (4) contributes positively to or has no adverse effect on population management of resident or migratory species;
- (5) reflects positively on the individual refuge, the System, and the Service;

- (6) provides hunters with un-crowded conditions by minimizing conflicts and competition among hunters;
- (7) provides reasonable challenges and opportunities for taking targeted species under the described harvest objective established by the hunting program;
- (8) minimizes the reliance on motorized vehicles and technology designed to increase the advantage of the hunter over wildlife;
- (9) minimizes habitat impacts;
- (10) creates minimal conflict with other priority wildlife-dependent recreational uses or Complex operations; and
- (11) incorporates a message of stewardship and conservation in hunting opportunities.

The refuge will provide additional public hunting with an emphasis on waterfowl (i.e., early season/September resident Canada goose) hunting opportunities. For waterfowl, this could occur along the refuge shoreline of Bellport Bay, west of the mouth of the Carmans River. At this location, hunters will be required to provide their own temporary blinds and remove them each day. We may also establish one or two resident Canada goose hunt blinds at Wertheim located near the Big Fish Creek Impoundment. See map 4-2 for the proposed location. The blinds will be adequately placed to ensure a safe, quality experience and reduce the incidence of waterfowl being displaced from the refuge, and will be located a sufficient distance from nature trails to avoid visitor conflicts. Priority access to the blinds will be granted to youth and mobility-impaired hunters.

We are investigating the possibility of designing the blinds for multiple uses to include wildlife observation and photography.

The refuge will be closed to hunting except during specific “open” hunting dates between September 1 and September 30 established by annual rule. Hunting will occur on Wednesday and Saturday from one-half hour before sunrise until 12:00 noon. We will randomly select hunters for the program by lottery. The program will initially accommodate two hunters at each blind. We will allow hunting dogs for the purpose of retrieving birds, but they must be under the control of their owners at all times. Use of hunting dogs must also comply with state regulations.

We prepared a compatibility determination (included in appendix C of this document) that evaluated the compatibility of hunting with refuge purposes and the mission of the Refuge System.

Strategies

- Within 1 year, develop and begin to implement an outreach plan to educate the public and our partners about hunting on national wildlife refuges. Produce a Complex hunting brochure, including refuge regulations and maps and post similar information on the Complex website.
- Continue to inform the public and our partners about hunting on Complex units by personal communication, letters, press releases, and special events.

- Establish a monitoring protocol for evaluating the quality of the experience for hunters and non-hunters during various hunting seasons.
- Within 1 year, formalize partnerships with the DEC, as well as local Audubon Society chapters and sportsmen groups, to offer annual hunter education courses and hunter orientation programs for the Complex.
- Within 5 years, work with the DEC, DU, and other partners to promote current hunting programs for non-traditional sportsmen including women, youth, and disabled people.
- Within 5 years, work with partners to evaluate the feasibility of a limited duck hunt at Wertheim. Priority access will be granted to youth and disabled hunters.
- Within 5 years, work with the State/DU, towns, and other partners including adjacent landowners to resolve the issue of hunters on neighboring lands that come on Conscience Point refuge to retrieve waterfowl.
- Conduct routine law enforcement patrols of Complex lands both open and closed to hunting.
- Annually review the Hunt Plan and institute changes as appropriate to better meet management and safety goals.
- Identify dates when state- and federal-listed species are present to avoid take.

Goal 6.
Communicate and collaborate with local communities and partners throughout Long Island to promote the National Wildlife Refuge System and the Complex.

Objective 1: Outreach

Within 5 years, through community outreach, attain a 50% increase in the number of adults on Long Island that know the Complex exists and that it is part of the U.S. Fish and Wildlife Service's national system of refuges. These adults will also be able to identify our management priorities for migratory bird conservation and threatened and endangered species.

Rationale

This objective aims at developing an effective outreach program targeted at Long Island communities whose residents may not be aware that a national wildlife refuge is nearby. It is particularly important that local residents understand, appreciate, and support the mission of the Refuge System and the unique contribution of the Complex to that mission.

Strategies

- Maintain and regularly update contact information for partners, elected officials, the media, and the general public; keep the database current and user-friendly.
- Maintain refuge-specific fact sheets.
- Continue to inform refuge neighbors of refuge management activities via the website, press stories, and letters.

- Utilize volunteers to participate in community events on Long Island and in New York City where effective outreach of Complex programs can occur.
- Regularly work with media representatives to form personal working relationships; within 3 years, work with FWS External Affairs office to ensure that 6 articles or radio or TV spots about the Complex appear in national media highlighting refuge resources, issues, and management.
- Regularly promote successes via events, project demonstrations, and media stories.
- Within 5 years, develop survey protocol to measure success with meeting this objective.
- Within 5 years, develop an outreach plan, as part of the Visitor Services Plan, to outline direction for promoting the National Wildlife Refuge System and the Complex, and keeping neighbors and partners up to date about current projects and proposals. The plan could include provisions for publishing a newsletter or a regular column in a widely-read publication; utilize volunteers, interns and the Friends group for publication. Outreach will focus on recognized days such as, but not limited to, International Migratory Bird Day, National Wildlife Refuge Week, and National Boating and Fishing Week, as well as seasonal “happenings” on Complex units. The plan should capitalize on the Complex’s proximity to the nation’s media capital, New York City.
- Within 2 years, develop and implement an annual volunteer recruitment, training, and appreciation/recognition events.
- Within 3 years, develop and implement procedures to offer refuge “behind the scenes” tours to the media, elected officials, and the general public.
- After the proposed headquarters and visitor center opens, develop and implement a video/DVD about the Complex.
- Outreach to local kayak rental and sporting entities to limit trespass and related problems at the refuges.
- Within 5 years, evaluate partnerships to identify those that will benefit from formal MOUs/MOAs or cooperative agreements. This will help identify mutual goals, cost sharing, technical exchange, and environmental education and interpretation opportunities.
- Establish joint programs with other visitor centers/community gathering places and partners to support mutual work in natural resources i.e. NPS, towns.
- Work with partners to highlight work and successes; use media links e.g., websites.
- Maintain cooperative agreement with Brookhaven Volunteer Fire Department.
- Partner with the Cornell Cooperative Extension to use the Complex units as sites for their Master Birder and Master Naturalist Programs.
- Within 7 years, initiate a Friends group for Morton and Target Rock. Expand outreach to ensure visitors become more aware of Friends groups and how they can join. Develop recruitment strategies with the regional Friends coordinator. Formally recognize the contributions of Friends groups. Provide office and retail space, with cooperating agreement, for Friends groups at the proposed headquarters/visitor center at Wertheim (see goal 5, objective 2). Inform Friends group membership of opportunities to participate in biological and public use opportunities. Increase staff involvement with Friends group and vice versa.
- Continue working closely with and supporting the Friends of Wertheim and attending their board meetings.
- Within 10 years, recruit Friends Groups and volunteers to host annual events at Morton, Wertheim, and Target Rock.

Implementation, Monitoring, and Revision

Refuge Funding Needs

Successful implementation of the CCP relies on our ability to secure funding, personnel, infrastructure, and other resources to accomplish the actions identified. The recommended projects and their recurring costs, such as staff salaries, are listed and prioritized in the Refuge Operations Needs System (RONS) database (appendix E). In this appendix, we also identify new projects that we will include in the RONS database with the next annual update. The source of funding for these projects and salaries primarily comes from Refuge Operations (1261) dollars. Also, included in appendix E are our maintenance funding needs.

Some of the projects may be eligible for funding from the Refuge Roads Program (RRP) under the Transportation Equity Act for the 21st Century (TEA-21), a relatively new source of funding for the Refuge System. Examples include refuge public use roads, parking lots, bridges, restrooms, and trails. These funds can also be used for interpretive enhancements associated with these projects, as long as the costs for the interpretive facilities do not exceed 5% of the project budget. RRP funds can be used as the non-Federal match for Federal Highway Administration (FHA) funds available through State Departments of Transportation. Refuges can also use appropriated Service funds as the non-Federal match for these funds as well. This matching ability can be used to further compatible city, county, and State transportation and transit funds for projects on or near the refuge.

Staffing the Complex

The staff at Wertheim refuge will continue to administer the Complex (see appendix F). We will always ensure that visitors have a safe visit, engage in approved compatible activities, and understand and adhere to refuge regulations. Those include maintaining refuge boundary signs and continuing to make visitor contacts and conduct outreach and law enforcement. If RONS funding is not available, we will continue to seek alternate means of accomplishing our projects: for example, through volunteers, challenge cost share grants or other partnership grants, and interns. See table 3.7 for a list of established partners.

Monitoring and Evaluation

Monitoring and evaluating the implementation of this CCP will occur at two levels. The first level, which we refer to as implementation monitoring, responds to the question, “Did we do what we said we would do, when we said we would do it?”

The second level of monitoring, which we refer to as effectiveness monitoring, responds to the question, “Are actions we proposed effective in achieving the results we had hoped for?” Or, in other words, “Are the actions leading us toward our vision, goals, and objectives?” Effectiveness monitoring evaluates an individual action, a suite of actions, or an entire resource program. This approach is more analytical in evaluating management effects on species, populations, habitats, refuge visitors, ecosystem integrity, or the socio-economic environment. More often, the criteria to monitor and evaluate these management effects will be established in step-down, individual project, or cooperator plans, or through the research program. The Inventory and Monitoring Plan will be based on the needs and priorities identified in the HMP.

Adaptive Management

We will use a strategy of adaptive management to keep the CCP relevant and current through scientific research and management. We acknowledge that our information on species and ecosystems is incomplete, provisional, and subject to change as our knowledge base improves. The need for adaptive management is all the more compelling today.

“The earth’s ecosystems are being modified in new ways and at faster rates than at any other time in their nearly 4 billion year history. These new and rapid changes present significant challenges to our ability to predict the inherently uncertain responses and behaviors of ecosystems.” (Christensen, et al. 1996)

Objectives and strategies must be adaptable in responding to new information and spatial and temporal changes. We will continually evaluate management actions, both formally and informally, through monitoring and research to reconsider whether their original assumptions and predictions are still valid. In this way, management becomes an active process of learning what really works. It is important that the public understand and appreciate the adaptive nature of natural resource management.

The Refuge Manager is responsible for changing management actions if they do not produce the desired conditions. Significant changes may warrant additional NEPA analysis; minor changes will not, but will be documented in annual monitoring, project evaluation reports, or the Annual Refuge Narrative.

Plan Amendment and Revision

Periodic review of the CCP will be required to ensure that objectives are being met and management actions are being implemented. Ongoing monitoring and evaluation will be an important part of this process. Monitoring results or new information may indicate the need to change our strategies.

At a minimum, CCPs will be fully revised every 15 years. We will modify the CCP documents and associated management activities as needed, following the procedures outlined in Service policy and NEPA requirements. Minor revisions that meet the criteria for categorical exclusions (550 FW 3.3 C) will only require an Environmental Action Memorandum.