

**Conservation Strategies  
for the  
Orient Point to Plum Island Important Bird Area**

**June 2009**

**The Orient Point to Plum Island Conservation Committee**

## **Background**

In the fall of 2005, Audubon New York convened a group of natural resource professionals and stakeholders to identify strategies to help protect the Orient Point to Plum Island (OPPI) Important Bird Area (IBA). Audubon's IBA program is part of a global effort to identify sites that are critical for maintaining bird populations and to work towards their conservation. In addition to this area's significance to birds, the growing momentum behind the Long Island Sound Stewardship Act (Appendix A) made this site prime for a conservation planning effort.

The purpose of the project was to facilitate conservation of the area by involving different interest groups in the protection of the site, increase public awareness of the site's importance, and engage more people in conservation. This project also served as a model for educating and engaging the public in the Long Island Sound Stewardship Initiative, as well as for implementing stewardship actions at specific sites. The OPPI IBA conservation committee reconvened in the Fall 2007 and updated conservation strategies in Spring 2008. This report summarizes the work carried out over the past three years and is intended to help guide future efforts to protect this incredible natural resource. Audubon New York received a grant from the National Fish and Wildlife Foundation to support this work.

## **Introduction**

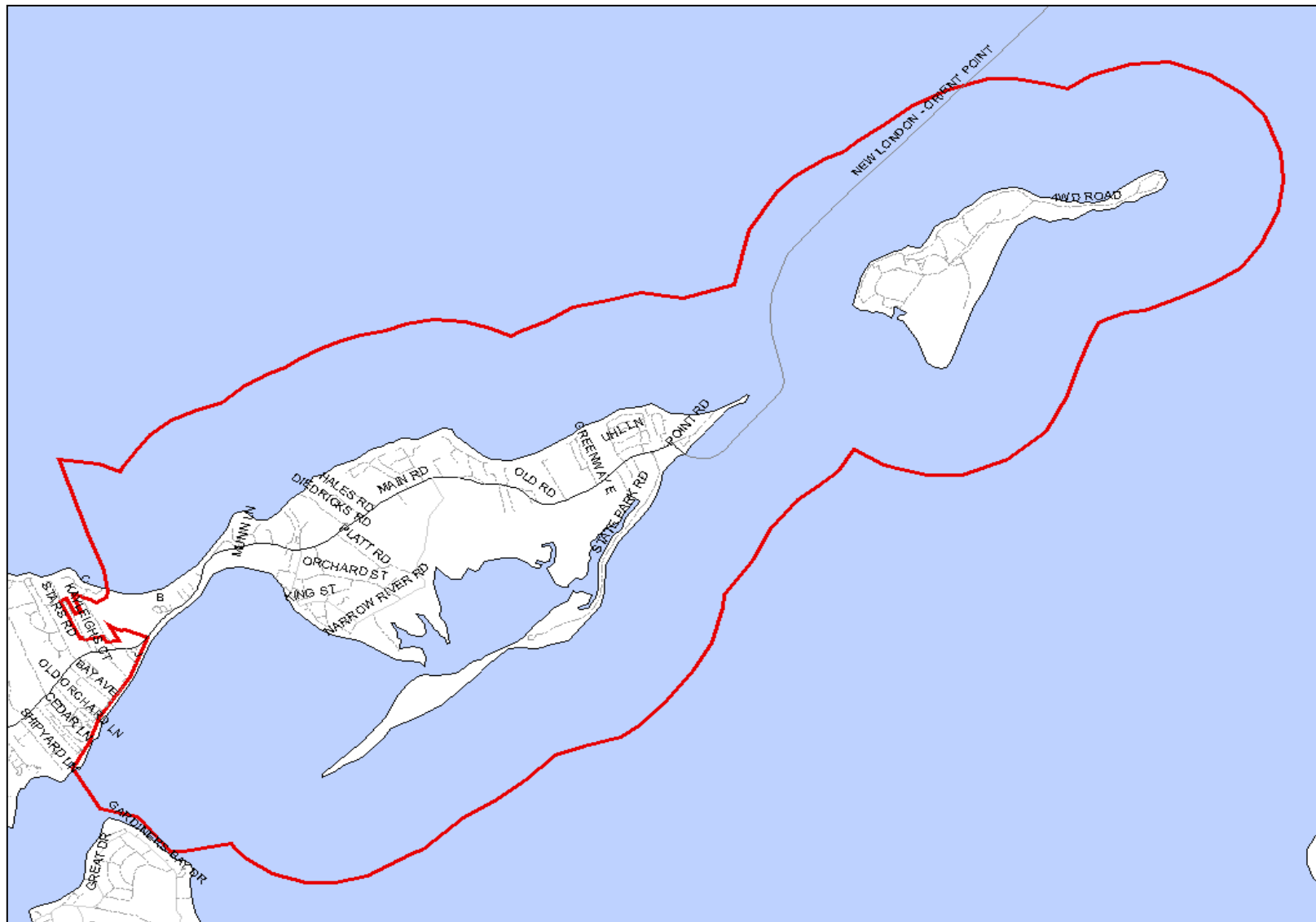
### ***Important Bird Area Program***

In the mid-1990s, Audubon New York's Important Bird Area (IBA) Program was initiated with the goal of identifying sites within the state that are most important to birds and to protect and promote proper management of those sites for the long-term conservation of birds, other wildlife, and their habitats. The New York IBA program was patterned after the efforts of BirdLife International that began in Europe and have since spread to many parts of the globe. As such, IBAs in New York are identified on the basis of criteria similar to those used throughout the world, which focus on threatened species, biome-restricted assemblages, and congregations of birds. With the oversight of a committee of ornithological experts from around the state and site nominations provided by individuals, Audubon chapters, bird clubs, and natural resource professionals, 136 IBAs have been identified in New York. This network of IBAs has provided a solid foundation to build conservation efforts aimed at protecting the full diversity of avian species in the state.

### ***Site Description and Significance to Birds***

The Orient Point to Plum Island IBA includes land and water on the North Fork of Long Island, extending from Orient Harbor in the east to Plum Island in the west and including Orient Beach State Park. Between Orient Point and Plum Island lies Plum Gut, a deep open water channel that links the waters of Gardiners Bay with the waters of eastern Long Island Sound (Figure 1). The habitats of particular significance to birds and other wildlife include barrier beaches, salt marshes, shallow bays, and maritime forests. Plum Island has a mixture of rocky shoreline, sand beaches, wetlands, and various upland shrub, grassland, and forest habitats.

This site met the IBA species at-risk criterion for number of breeding Piping Plover, Common Tern, and Least Tern. It also met the waterbird congregation criterion because of the number of Common and Roseate Terns courting and fishing in the area between Plum Island and Orient Point (Table 1). In addition, Ospreys nest and forage in the marshes and the area is an important waterfowl wintering area with substantial numbers of Canada Geese, American Black Ducks, Mallards, Canvasbacks, scaup, Long-tailed Ducks, scoters, Buffleheads, Common Goldeneyes, and Red-breasted Mergansers. Recently obtained data indicate that this site also meets the waterfowl congregation IBA criterion, which will be presented to the IBA technical committee during the next IBA site review process.



**Figure 1.** The Orient Point to Plum Island IBA outlined in red, Town of Southold, NY. Conservation Committee members agreed on this boundary for this process, although noted that the boundary omits areas further offshore where wintering waterfowl congregate.

**Table 1.** IBA Criteria met at the Orient Point to Plum Island IBA.

<i>Criterion</i>	<i>Species</i>	<i>Data</i>	<i>Season</i>	<i>Source</i>
Species at Risk	Piping Plover	1 pair in 2002, 1 in 2001, 7 in 1998, 6 in 1997, 9 in 1996, 5 in 1995, 8 in 1994, 5 in 1993	Breeding	NY Natural Heritage Biodiversity Databases
Species at Risk	Common Tern	At least 40 nesting pairs	Breeding	Mike Wasilco pers. comm. 2004
Species at Risk	Least Tern	27 pairs in 1998, 16 in 1997, 108 in 1996, 23 in 1995, 16 in 1994, 48 in 1993	Breeding	NY Natural Heritage Biodiversity Databases
Congregations- Waterbirds	Terns	300+ Common and Roseate Terns courting and fishing in the area between Plum Island and Orient Point	Breeding and migration	Mike Wasilco pers. comm. 2004

### ***Historical and Cultural Background***

Orient is the eastern-most hamlet in the town of Southold on Long Island's North Fork. It was originally named Poquatuck, after the name of the local native American tribe that resided along the inland waterways. It was later named Oyster Ponds due to the abundance of shellfish in the area. It is said that the name was then changed to Orient to match the name of its most prominent land feature, Orient Point. The hamlet was originally settled by five families given a land grant by the King of England in the 1600's, and their names King, Terry, and Latham still resonate to this day. Later, Orient was used as a base of operations by British commanders such as Benedict Arnold and local Tories during the American Revolution to conduct raids on Yankee-held Connecticut.

Orient's population was 662 at the 2000 census and increases to well over 1,000 in the summer months. Other than a post office, a gas station, and a few seasonal tourist stands, there is no center of commerce and residents depend on nearby Greenport for every-day necessities. Many make a living at the US Government's Department of Agriculture lab on nearby Plum Island, a 15 minute boat ride from Orient Point across Plum Gut, or at businesses further inland. There is also truck farming and commercial fishing industry.

Agriculture has played a key role in the history of Plum Island since Samuel Wyllys bought it from Chief Wyandanch, sachem of the Montauk Indian tribe, on April 27, 1659. Part of their agreement was that Wyllys would be able to pasture his cattle on the island free from interference. In 1897, the U.S. government acquired 130 acres on the island to construct harbor and coastal defense facilities. Two years later, the island became home to Fort Terry, and was used as a look out point throughout World War II.

In 1954 the U. S. Department of Agriculture acquired the island and established the modern-day Plum Island Animal Disease Center (PIADC), a high-security biocontainment facility, to research foreign animal diseases that impact livestock. In 2002 the PIADC facility was transferred from the U. S. Department of Agriculture to the U. S. Department of Homeland Security (Appendix B).

### ***Other Noteworthy Ecological features***

Several regionally rare plant species occur here, including Scotch loveage (*Ligusticum scothicum*), slender knotweed (*Polygonum tenue*), and sea-beach knotweed (*Polygonum glaucum*). A stand of blackjack oak (*Quercus marilandica*) represents the northernmost extent of the range of the species. Orient Harbor supports a significant bay scallop (*Aequipecten irradians*) commercial shellfishery and is an important spawning, nursery, and feeding area for a variety of fish. The offshore waters, especially of Plum Gut, host large concentrations of striped bass (*Morone saxatilis*), bluefish (*Pomatomus saltatrix*), tautog (*Tautoga onitis*), summer flounder (*Paralichthys dentatus*), and others. Plum Gut is a major migration corridor for striped bass and Atlantic Salmon (*Salmo salar*).

The Christmas Bird Count that almost completely covers this site is one of the oldest counts in the United States and was started by the great naturalist, Roy Latham of Orient.

### ***Conservation Committee Members***

Participants in this process represented the U.S. Department of Homeland Security, U.S. Department of Agriculture, North Fork Audubon Society, Eastern Long Island Audubon Society, Audubon New York, Peconic Land Trust, Town of Southold, Suffolk County Parks, The Nature Conservancy, NYS Office of Parks, Recreation, and Historic Preservation, NYS Department of Environmental Conservation, U.S. Fish and Wildlife Service, and Cornell Cooperative Extension.

## **Conservation Strategies and Actions**

Conservation strategies for the OPPI IBA were developed using a modified version of The Nature Conservancy's Conservation by Design (<http://www.nature.org/aboutus/howwework/cbd/>) along with the Conservation Measures Partnership's Open Standards for the Practice of Conservation (<http://www.conservationmeasures.org>). A series of meetings were held with the conservation committee between September 2005 and March 2008. The purpose of these meetings was to identify and prioritize conservation targets, threats to those targets, and strategies to help address the threats. During the period of October 2008 to May 2009 the committee continued to meet to refine the conservation strategies, prioritize strategies based on need and opportunity, and begin implementation of selected conservation strategies within the IBA.

### ***Conservation Targets***

The Conservation Committee brainstormed priorities (conservation targets) to conserve and protect within the OPPI IBA. Initially the following targets were identified: Breeding and

feeding areas for beach nesting birds, including Piping Plover, Common Tern, Least Tern; Osprey; wintering waterfowl areas; old field habitat for wintering birds; saltmarsh habitat (focal species include Saltmarsh Sharp-tailed Sparrow and Seaside Sparrow); and maritime beach dune complex. The list was modified to five conservation targets to focus the effort.

**Orient Point to Plum Island Conservation Targets**

1) *Beach nesting birds and their habitats*  
 2) *Wintering waterfowl*  
 3) *Early successional habitat for breeding shrub birds*  
 4) *Agricultural areas for wintering grassland birds*  
 5) *Saltmarsh habitat*

The committee defined the conservation targets to identify the aspects of each target that, if missing or altered, would lead to the substantial loss of that target over time and its ability to persist in the long-term. This helped determine what was needed to measure and assess the status of each target. Definitions, measures, and knowledge needs for each of the five conservation targets are summarized in Table 2. The committee decided to gather information relative to the conservation targets before moving forward with identifying and prioritizing strategies (Appendix C).

**Table 2.** Definitions, measures, and knowledge needs of identified conservation targets for the Orient Point to Plum Island IBA.

<b>Conservation Target</b>	<b>Definition</b>	<b>Measure</b>	<b>Knowledge Needs</b>
<i>Beach nesting birds and their habitats</i> ( <i>Piping Plover, Common Tern, Least Tern, Roseate Tern, and Osprey</i> )	<ul style="list-style-type: none"> <li>• Necessary/essential breeding and migratory habitat: open, early successional habitat, sparse vegetation, distributed nesting habitat, platforms</li> <li>• Suitable habitat: beach use, and access to prey</li> <li>• Essential food: mud flats, fresh and salt water areas</li> </ul>	<ul style="list-style-type: none"> <li>• Breeding population size</li> <li>• Productivity</li> <li>• Breeding distribution</li> <li>• Migratory species and number of individuals</li> <li>• Length of migratory stay</li> <li>• Frequency of migration use</li> </ul>	<ul style="list-style-type: none"> <li>• Locations and number of nesting osprey, plovers, and terns.</li> <li>• Migratory counts and location/use of migratory habitats.</li> </ul>
<i>Wintering waterfowl</i> ( <i>American Black Duck, Canvasback, scaup spp., Long-tailed Duck, scoter spp., Bufflehead, Common Goldeneye, and Red-breasted Merganser</i> )	<ul style="list-style-type: none"> <li>• Suitable and essential habitat</li> <li>• Food</li> <li>• Shelter, lack of disturbance</li> <li>• Open areas</li> </ul>	<ul style="list-style-type: none"> <li>• Species and numbers of individuals</li> </ul>	<ul style="list-style-type: none"> <li>• Number of waterfowl.</li> </ul>

<p><b>Early successional habitat for breeding shrub birds</b> (Northern Harrier, American Woodcock, Blue-winged Warbler, Prairie Warbler, Willow Flycatcher, Northern Bobwhite, American Kestrel, Eastern Kingbird, Horned Lark, Brown Thrasher, Eastern Towhee, Field Sparrow, Indigo Bunting, Savannah Sparrow)</p>	<ul style="list-style-type: none"> <li>• Size</li> <li>• Plant species composition and structure</li> <li>• Habitat distribution</li> <li>• Landscape context</li> </ul>	<ul style="list-style-type: none"> <li>• Acreage of habitat</li> <li>• Inventory of plant community</li> <li>• Number and richness of target bird species in breeding season</li> </ul>	<ul style="list-style-type: none"> <li>• What exists--are areas supporting breeding species</li> <li>• List of priority species we are targeting</li> <li>• Requirements of priority species</li> <li>• Amount, size and distribution of habitat</li> <li>• Farm inventory includes approx 55 tax parcels, this includes all types of agriculture</li> </ul>
<p><b>Agricultural areas for wintering grassland birds</b> (Horned Lark, Savannah Sparrow, Snow Bunting, Others?)</p>	<ul style="list-style-type: none"> <li>• Size</li> <li>• Plant species composition and structure</li> <li>• Habitat distribution</li> <li>• Landscape context</li> </ul>	<ul style="list-style-type: none"> <li>• Acreage of habitat</li> <li>• Number and richness of target bird species in winter season</li> </ul>	<ul style="list-style-type: none"> <li>• Winter species use of fallow fields on private farms in Orient.</li> </ul>
<p><b>Saltmarsh habitat</b> (Salt-marsh Sharp-tailed Sparrow, Seaside Sparrow)</p>	<ul style="list-style-type: none"> <li>• Nutrient level</li> <li>• Salinity</li> <li>• Ability to migrate</li> <li>• Size</li> </ul>	<ul style="list-style-type: none"> <li>• Plant indicators</li> <li>• Presence of bird species</li> <li>• Amount of shoreline that would not allow for migration (e.g. roads, hardened, etc.)</li> <li>• Sediment structure</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of habitat.</li> <li>• Seasonal differences in habitat availability and species use.</li> </ul>

**Threats to Conservation Targets**

The committee identified and discussed a number of threats to each target (Table 3). These threats were then ranked as high, medium, or low by individual committee members and then as a group. Factors determining whether a threat received a ranking of high, medium, or low included its scope (proportion of the target that can be expected to be affected by the threat), severity (level of expected damage to the target given the continuation of current circumstances and trends), and irreversibility (degree to which the effects of the threat can be reversed and the target restored if the threat no longer existed). This led to a prioritization of threats for each of the conservation targets (Table 4).

**Table 3.** Threats to the conservation targets for the Orient Point to Plum Island IBA.

Conservation Target	Threats
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<b><i>Beach nesting birds and their habitats</i></b>	<ul style="list-style-type: none"> <li>• Direct human-caused mortality (intentionally killing or destroying nests)</li> <li>• Existing development (residential, municipal, and commercial)</li> <li>• Future development (residential, municipal, and commercial, developmental pressures)</li> <li>• Climate change (unusual weather patterns, sea level rise)</li> <li>• Incompatible recreation (unleashed dogs, fireworks, ORVs)</li> <li>• Pollution (garbage, oil spills)</li> <li>• Predation (e.g. feral cats, raccoons)</li> <li>• Sea-level rise</li> <li>• Shoreline hardening (beach erosion and dredging)</li> <li>• Succession (short-term and long-term needs, source of this threat needs to be addressed but is a longer-term effort, there may be short-term actions that can address it)</li> <li>• Energy development (Wind turbines)</li> </ul>
<b><i>Wintering Waterfowl</i></b>	<ul style="list-style-type: none"> <li>• Brown tide cause (need to know more)</li> <li>• Incompatible recreation (boat disturbance and illegal hunting)</li> <li>• Large scale aquaculture (potential)</li> <li>• Pollution (oil spills)</li> <li>• Energy development (potential, preliminary stages, will have to do full EIS)</li> </ul>
<b><i>Early successional habitat for breeding shrub birds</i></b>	<ul style="list-style-type: none"> <li>• Atmospheric deposition</li> <li>• Climate change</li> <li>• Existing development</li> <li>• Farming practices</li> <li>• Fire suppression/exclusion</li> <li>• Future development</li> <li>• Invasive species</li> <li>• Motor-powered recreation</li> <li>• Habitat fragmentation (right of ways, roads, utility/power lines)</li> <li>• Succession</li> <li>• Deer (browsing, habitat/vegetation destruction)</li> </ul>
<b><i>Agricultural areas for wintering grassland birds</i></b>	<ul style="list-style-type: none"> <li>• Existing development</li> <li>• Farming practices</li> <li>• Future development</li> <li>• Invasive species</li> </ul>
<b><i>Saltmarsh habitat</i></b>	<ul style="list-style-type: none"> <li>• Existing development (septic systems, pesticides, lawn fertilizers, filling, lack of buffers)</li> <li>• Future development (septic systems, pesticides, lawn fertilizers, filling, lack of buffers)</li> <li>• Climate change (sea level rise)</li> <li>• Incompatible mosquito control</li> <li>• Incompatible recreation (wakes, jet skis, boaters)</li> <li>• Invasive species</li> <li>• Navigational dredging (cause marsh to slump, but not much happening within IBA)</li> <li>• Pollution (agricultural run-off, road run-off, residential)</li> <li>• Shoreline hardening</li> </ul>

**Table 4.** Priority threats to conservation targets for the Orient Point to Plum Island IBA.

<p><b><u>Beach nesting birds and their habitats</u></b></p> <ol style="list-style-type: none"> <li>1. Predation (Orient Beach State Park, Plum Island)</li> <li>2. Incompatible Recreation (Orient Beach State Park)</li> <li>3. Future Development (Plum Island)</li> </ol>
<p><b><u>Wintering waterfowl</u></b></p> <ol style="list-style-type: none"> <li>1. Pollution</li> <li>2. Incompatible Recreation</li> </ol>
<p><b><u>Early successional habitat for breeding shrub birds</u></b></p> <ol style="list-style-type: none"> <li>1. Habitat Fragmentation</li> <li>2. Invasive Species</li> </ol>
<p><b><u>Agricultural areas for wintering grassland birds</u></b></p> <ol style="list-style-type: none"> <li>1. Future Development</li> <li>2. Farming Practices</li> </ol>
<p><b><u>Saltmarsh habitat</u></b></p> <ol style="list-style-type: none"> <li>1. Invasive Species</li> <li>2. Climate Change</li> </ol>

***Strategies to Address Threats to Conservation Targets***

During the winter and spring of 2009, the committee met to brainstorm strategies to address threats to conservation targets, prioritize those strategies based on need and opportunity, and discuss involvement of the committee and member organizations in addressing the priority strategies. Based on the priority threats to conservation targets identified, the strategies prioritized by the committee for each of the conservation targets are listed below.

**Priority strategies for beach nesting birds and their habitats**

- Ensure the plover/tern sites at Orient Beach State Park and Plum Island are monitored regularly throughout the season effective April 1<sup>st</sup> each year.
- Reduce the threat of nest and chick predation for priority bird species through predator management.
- Selectively control documented predators at sites with high predation rates (removal of raccoons, gulls, etc.).
- Become involved in the potential transition of Plum Island—write a letter to USDA expressing interest in seeing it preserved, identify potential land protection partners who may be interested in acquisition, identify potential funds (e.g., EPF, LISSA) for acquisition. Work with the Town of Southold to ensure zoning of Plum Island protects critical habitats.

**Priority strategies for wintering waterfowl**

- Reduce the threat of nonpoint source pollution and solid waste to priority species and their habitats through policy and management.

#### Priority strategies for early successional habitat for breeding shrub birds

- Identify focus areas within the IBA for these habitats and species thru surveys being conducted and work to maintain them as productive habitat. This could be achieved through management and/or land protection via town zoning or working with land protection partners (such as Town/County/State/TNC/PLT) to preserve land and mitigate future development.

#### Priority strategies for agricultural areas for wintering grassland birds

- Identify focus areas within the IBA for these habitats and species thru surveys being conducted and work to maintain them as productive habitat. This could be achieved through management and/or land protection via town zoning or land protection partner.

#### Priority strategies for saltmarsh habitat

- Determine extent of habitat within IBA and conduct monitoring to detect presence/occurrence of target species.
- Reduce the threat of adverse habitat modification and altered plant community composition from increased prevalence of invasive species.
- Become aware of activities that other groups are doing at a larger scale to assess and address climate change and rising sea level and see if there are ways we can assist at the local scale (e.g., the Eastern States Alliance group work, Sea Level Rise Task Force; monitoring or other activities may be a part of those efforts).

#### *Next Steps*

In the Spring of 2009, the committee met to determine capacity of member organizations to address priority conservation strategies as well as the committee's role moving forward. It was determined that the committee was already moving forward with addressing some of the priority strategies while other strategies were not feasible to address at this time. Current activities by the committee to address priority strategies include:

- Audubon New York and US FWS have been working with US DHS and NYS OPRHP to conduct regular weekly monitoring of beach-nesting bird activity throughout the breeding season at Orient Beach State Park and Plum Island beginning in April of 2009.
- Predator exclosures were used in the 2009 breeding season to protect Piping Plover nests at Orient Beach State Park and Plum Island.
- USDA trapped and removed raccoons from Plum Island in 2008.
- Audubon New York and North Fork Audubon have identified agricultural habitat for wintering grassland birds in Orient and have conducted a first round of bird surveys at these sites in Winter 2009.
- Audubon New York, US FWS, and The Nature Conservancy have identified saltmarsh habitat within the IBA. Site visits in June 2009 have confirmed use of saltmarsh habitat by Saltmarsh Sharp-tailed Sparrows.
- Audubon New York and North Fork Audubon continue to work with US DHS to conduct bird surveys on Plum Island.

In the case where the timing was not appropriate for the committee to address particular strategies, the group agreed to monitor the events and progress of other stakeholders in addressing these strategies. For example, the committee feels that it is important for us to be

involved in the potential transition of Plum Island. However, the closure of the facility on Plum Island has not yet been finalized and so there are not any actions for the committee at this time other than to monitor the situation so that we can become involved if the transition is announced.

### ***Conclusions***

The Orient Point to Plum Island IBA is a site of statewide significance because of the habitat it provides to birds, specifically breeding at-risk birds and congregations of terns and waterfowl. To facilitate conservation and increase awareness of the site's significance, a group of interested individuals from a variety of organizations participated in a series of meetings to develop this conservation action plan. Although this report summarizes the work carried out to date, the strategies and actions outlined in this report will require long-term commitment on behalf of those who have been involved in this effort and could involve other conservation partners.

## **Appendix A**

### **Long Island Sound Stewardship Act**

The Long Island Stewardship Act was passed by the House on Sept. 18, 2006 and the Senate on Sept. 20, 2006 and the president signed the bill on October 16, 2006. The measure would authorize up to \$25 million annually through 2011 to preserve and improve open spaces and important ecological sites around the Sound, as well as to provide additional access to this nationally significant estuary. Thirty-three initial priority sites have been identified by the LIS Study Policy Committee, including Plum Island. Orient Point has not been identified in this list, but is within the Peconic Estuary, which would make it eligible for funding under the Act.

The bill was amended several times since its introduction to both houses in June 2004. One of the amendments in 2005 added the Peconic Estuary as part of the larger Long Island Sound region. This would allow for grants from this bill to be used in furtherance of the Peconic CCMP which was issued in 2001. Other changes reduced the authorized funding level from \$40 million annually to \$25 million, and the federal to local match from 75%-25% to 60%-40%. The sunset term was reduced from Dec. 31, 2013 to Dec. 31, 2011. There were many other small changes and some more troubling amendments, including the definition of a qualified applicant. Hopefully, many of the concerns will be resolved when the guidelines and criteria are established pursuant to the terms of the bill.

## **Appendix B**

### **Relevant reports and other sources of information**

Orient, New York. (2006, November 19). In *Wikipedia, The Free Encyclopedia*. Retrieved 20:00, December 19, 2006, from [http://en.wikipedia.org/w/index.php?title=Orient%2C\\_New\\_York&oldid=88743524](http://en.wikipedia.org/w/index.php?title=Orient%2C_New_York&oldid=88743524)

An Island Fortress for Biosecurity. USDW Research and the Plum Island Animal Disease Center. Retrieved 16:50, December 19, 2006, from <http://www.ars.usda.gov/plum/forum1295.htm>

## Appendix C

### Resources for addressing identified knowledge needs related to conservation targets for the OPPI IBA.

Target	Knowledge Needs	Resources
<b>1) Beach-nesting birds and their habitats.</b>	Locations and number of nesting osprey, plovers, and terns.	LICWS data (1994 – 2007) for Orient Beach State Park and Plum Island. NYS Natural Heritage Program data. NFAS Osprey Census data and nest stand locations (2006 and 2007). NYS DEC Osprey surveys.
	Migratory species counts and location/use of migratory habitats.	Plum Island surveys. eBird
<b>2) Wintering waterfowl.</b>	Number of waterfowl.	eBird Plum Island surveys (1/25/07, 3/5/07, 11/27/07). CBC surveys (1994 – 2006).
<b>3) Early successional habitat for breeding shrub birds.</b>	What exists? Are areas supporting breeding species?	Plum Island surveys (6/27/07, 7/13/07, 6/19/08, 7/5/08). Breeding Bird Surveys (beginning Spring 2009)? eBird Habitat map using orthophotos, PEP and Southold Town land cover GIS data.
	List of priority species we are targeting.	NYS and federally listed species. Audubon WatchList 2007. Partners in Flight assessment of species of concern/stewardship 2005. NYS Breeding Bird Atlas.
	Requirements of priority species.	Literature review. Audubon New York Science office.
	Amount, size, and distribution of habitat.	Habitat map using orthophotos, PEP and Southold Town land cover GIS data.
	Farm inventory includes approx 55 tax parcels, this includes all types of agriculture.	Habitat map using orthophotos, PEP and Southold Town land cover GIS data.
<b>4) Agricultural areas for wintering grassland birds.</b>	Winter species use of fallow fields on private farms in Orient.	eBird Winter Surveys (beginning Winter 2008 – 2009)? CBC surveys (1994 – 2006).

<b>5) Saltmarsh habitat.</b>	Amount of habitat.	Habitat map using orthophotos, PEP and Southold Town land cover GIS data.
	Seasonal differences in habitat availability and species use.	eBird Habitat map using orthophotos, PEP and Southold Town land cover GIS data.