Species Status Assessment

Class: Birds
Family: Laridae
Scientific Name: *Sterna dougallii*
Common Name: Roseate tern

Species synopsis:

The North Atlantic population of roseate tern breeds along the Atlantic Coast from the Magdalen Islands in the Gulf of St. Lawrence southward to New York; this population is federally endangered. A separate population breeds in the Caribbean; this population is federally threatened. As colonies in Virginia and New Jersey became extirpated, these two populations, both *S. d. dougallii*, have been moving farther from one another, since the 1930s. The North Atlantic population rebounded in the early 1900s following protection from hunting and peaked in the mid-1970s. Both the number of colonies and the number of breeding pairs have dropped since then.

In New York, all colonies—historic and current—are on Long Island, with the vast majority of pairs (99% in 2010) nesting at Great Gull Island. Great Gull Island is the largest of only three primary colonies in the Northeast, resulting in an elevated risk of extirpation due to stochastic events. Nesting occurs in a variety of habitats including marshes, rocky islands, and open sand.

I. Status

a. Current and Legal Protected Status

i. Federal Endangered **Candidate?** N/A

ii. New York Endangered; SGCN

b. Natural Heritage Program Rank

i. Global G4

ii. New York S1B **Tracked by NYNHP?** Yes

Other Rank:
Partners in Flight – Priority IB

The North Atlantic population is federally endangered while the Caribbean population is federally threatened.

Status Discussion:
Currently, the Northeast population hovers at about 4,300 pairs (1,697 in MA in 2001) (Massachusetts Division of Fisheries and Wildlife 2005). Approximately 75% are concentrated at just three colonies: Great Gull Island, NY (1,500 pairs); Bird Island, Marion, MA (1,062 pairs); and Ram Island, Mattapoisett, MA (626 pairs).

II. Abundance and Distribution Trends

a. North America

i. Abundance

__X__ declining ____increasing ____stable ____unknown

ii. Distribution:

__X__ declining ____increasing ____stable ____unknown

Time frame considered: __North Atlantic and Caribbean populations have been separating since the 1930s.

b. Regional

i. Abundance

__X__ declining ____increasing ____stable ____unknown

ii. Distribution:

__X__ declining ____increasing ____stable ____unknown

Regional Unit Considered: ____North Atlantic population
Time Frame Considered: _____Since 2000

c. Adjacent States and Provinces

CONNECTICUT **Not Present _____** **No data _____**

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing ____stable __X__ unknown

Time frame considered: _____
Listing Status: _____Endangered_____ SGCN? __Yes____

MASSACHUSETTS **Not Present _____** **No data _____**

i. Abundance

____ declining ____increasing ____stable __X__ unknown

ii. Distribution:

____ declining ____increasing ____stable __X__ unknown

Time frame considered: _____
Listing Status: _____Endangered_____ SGCN? __Yes__

NEW JERSEY **Not Present __X____** **No data _____**

i. Abundance

____ declining ____increasing ____stable ____unknown

ii. Distribution:

____ declining ____increasing ____stable ____unknown

Time frame considered: ___No nesting since 1980- extirpated_____
Listing Status: _____Endangered_____ SGCN? ___Yes____

QUEBEC **Not Present _____** **No data _____**

i. **Abundance**

____ declining ____increasing ____stable __X__ unknown

ii. **Distribution:**

____ declining ____increasing ____stable __X__ unknown

Time frame considered: ___one colony with <10 pairs_____
Listing Status: _____Endangered_____

VERMONT **Not Present ___X___** **No data _____**

ONTARIO **Not Present __X____** **No data _____**

PENNSYLVANIA **Not Present __X____** **No data _____**

d. NEW YORK **No data _____**

i. **Abundance**

__X__ declining ____increasing ____stable ____unknown

ii. **Distribution:**

__X__ declining ____increasing ____stable ____unknown

Time frame considered: _____Since mid-1970s_____

Monitoring in New York.

NYSDEC conducts an annual survey of terns on Long Island.

Trends Discussion:

Peterson (1988) provides a summary of the population trend in New York: following protection from hunting pressure, former breeding areas were re-colonized through the 1950s and 1960s and populations grew through the early 1970s. A peak population was documented in 1975 with 2,254 breeding pairs, of which 1,500 were at Great Gull Island. In 1976, number of pairs at Great Gull

Island dropped to 700 as result of vegetation encroaching. In 1985 there were 967 pairs at only four colonies.

The Long Island Colonial Waterbird Survey documented 1,315 nesting pairs in 2010 at four active sites; 1,303 (99%) of those pairs were at Great Gull Island. There were 1,886 breeding pairs documented on Long Island during the 2003 survey. The second Breeding Bird Atlas (2000-05) documented a 37% decline in occupancy since the first Atlas in 1980-85.

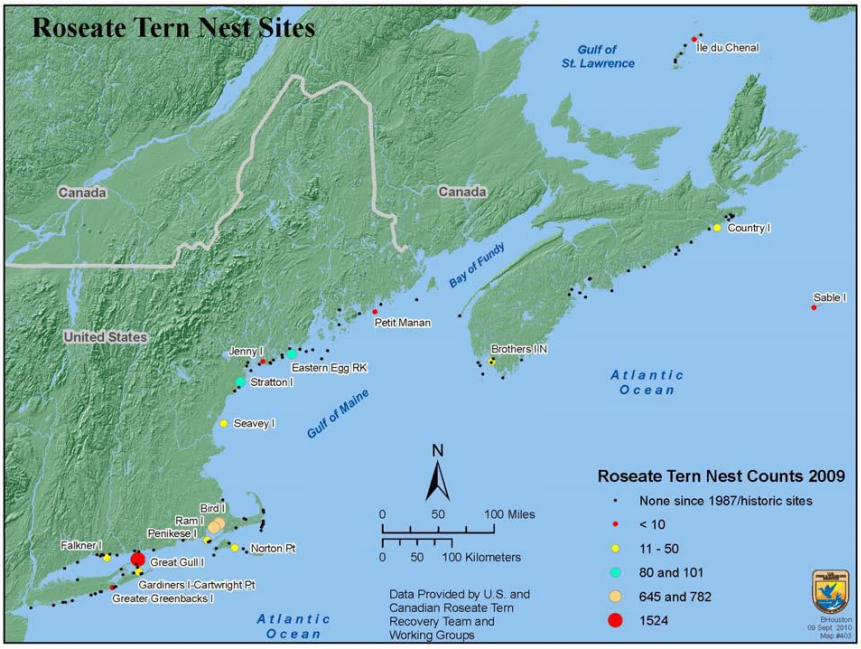

Figure 1: Roseate tern nest sites in the Northeast (USFWS 2010)

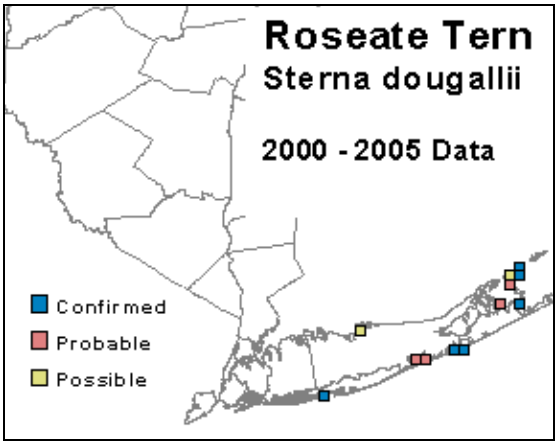

Figure 2. Roseate tern occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

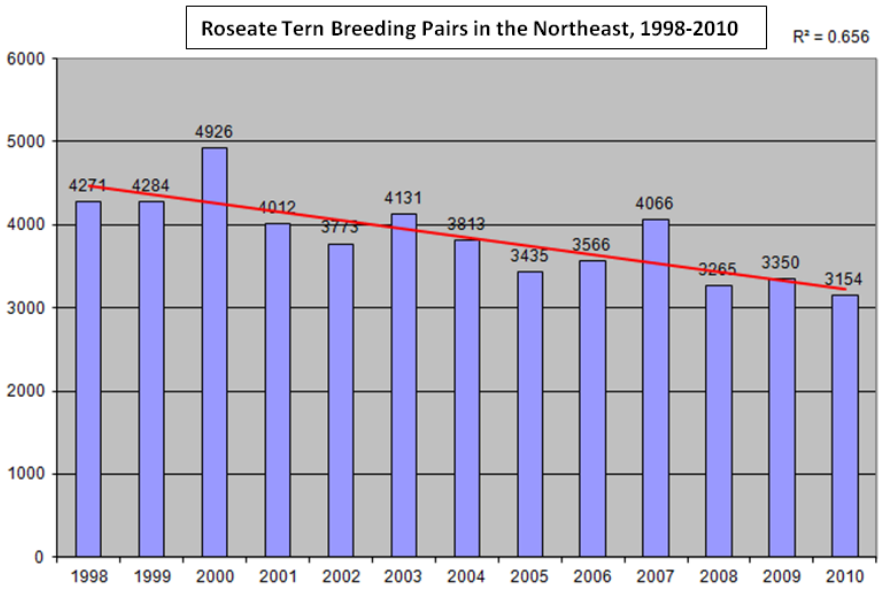

Figure 3. Number of breeding pairs of roseate terns in the Northeast, 1998-2010 (Chip Hamilton, personal communication).

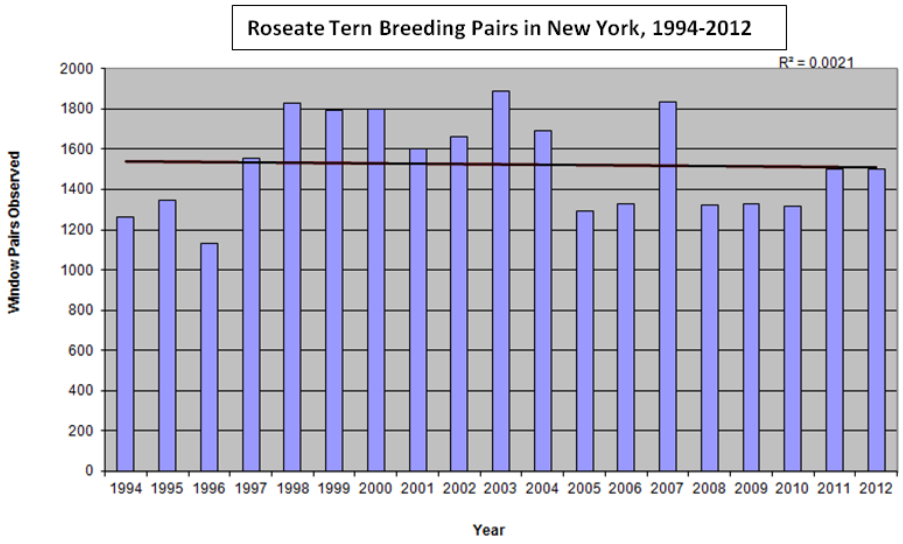

Figure 4. Number of breeding pairs of roseate terns in New York, 1994-2010 (Chip Hamilton, personal communication).

III. New York Rarity, if known:

Historic	# of Animals	# of Locations	% of State
prior to 1970	_____	_____	_____
prior to 1980	2,254 pr	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

The roseate tern population peaked in 1975 with 2,254 breeding pairs at 11 colonies.

Current	# of Animals	# of Locations	% of State
	1,315 pr	_____	_____

Details of current occurrence:

The Great Gull Island colony—the largest occurrence of roseate tern in New York—there were 1,200 breeding pairs in 1988; 1,500 in 1996; 1,273 in 2005; and 1,303 pairs in 2010. The population in New York during 2010 totaled 1,315 breeding pairs. The North Atlantic roseate tern population is concentrated at three main colonies, the largest of which is Great Gull Island in Suffolk County. Thus, this colony is regionally and globally significant (Cooper et al. 1970, Gochfeld 1983). The North Atlantic population is regarded as two subregional groups: (1) the "warm water" group south and west of Cape Cod, and (2) the "cold water" group north and east of Cape Cod, including Canada.

New York's Contribution to Species North American Range:

% of NA Range in New York	Classification of New York Range
____ 0-5%	__X__ Core
____ 6-10%	____ Peripheral
____ 11-25%	____ Disjunct
__X__ 26-50%	Distance to core population:
____ >50%	_____

IV. Primary Habitat or Community Type:

1. Maritime Dunes
2. Estuarine, Brackish Intertidal, Tidal Wetland, High Marsh
3. Estuarine, Intertidal, Benthic Geomorphology, Bar
4. Maritime Intertidal Gravel/Sand Beach
5. Estuarine, Brackish Intertidal, Tidal Wetland, Low Marsh

Habitat or Community Type Trend in New York:

__X__ Declining ____Stable ____ Increasing ____Unknown

Time frame of decline/increase: ___Since 1970s_____

Habitat Specialist? _____ Yes __X__ No

Indicator Species? _____ Yes __X__ No

Habitat Discussion:
Roseate tern colonies occur in a variety of habitats in New York including rocky offshore islands (Great Gull Island), barrier beaches (Gardiners Island), and salt marsh (Shinnecock Bay). Roseate terns frequently nest with common tern, but roseate tern are less flexible in nesting site requirements than common tern. Most roseate tern colonies are near shallow-water fishing sites with sandy bottoms, bars, or shoals. Roseate terns will place their nests under artificial structures including boxes and buried tires.

Roseate terns characteristically select dense vegetation, rocks, or other shelter to hide their nests (Jones 1906), but occasionally nests are placed in the open. Roseate terns will readily use inverted boxes or half-buried tires, which provide covered nest sites (Spendelow 1982).

V. New York Species Demographics and Life History

__X__ Breeder in New York

__X__ Summer Resident

__X__ Winter Resident

____ Anadromous

____ Non-breeder in New York

____ Summer Resident

____ Winter Resident

____ Catadromous

____ Migratory only

____Unknown

Species Demographics and Life History Discussion:

Most roseate terns breed age three years of age, but some delay until they are four years old or more (Nisbet 1984, 1989, J. Hatch and J. Spendelow pers. comm.). Breeding is presumed to occur annually, but trapping data at Cedar Beach, NY, suggest that some pairs may skip breeding in poor food years. One clutch per year is produced but may be replaced if eggs or chicks are lost. Hatching success is generally very high, but can be as low as 58.6% (LeCroy and Collins 1972). Estimating productivity is challenging for this species, for which nest sites are often inaccessible (Great Gull I., NY), chicks hide in dense vegetation (Bird I., MA) or under rocks (Falkner I., CT; Great Gull I.), or predation occurs (Cedar Beach, NY; Falkner I.). Average overall reproductive success can vary from 0.0 to 1.6 young fledged/nest, depending on food supply, egg size, parental performance, year, colony, predation rates and other factors. Late-nesting pairs are almost always less successful than earlier-nesting pairs (Burger et al. 1996). Banded adults as old as 25 years have been recovered. Recruitment rate (survival from fledging to first breeding) has been estimated at about 20% on basis of data from Falkner Island, CT (Nichols et al. 1990, Spendelow 1991).

Intercolony movement has been documented by Spendelow et al. (1995). Adults have moved among Bird Island (MA), Falkner Island (CT), and Great Gull Island (NY; and to lesser extent Cedar Beach) between breeding seasons, and even within a breeding season after initial nesting failure. This movement amounts to about 3% emigration, taking into account the possibility of dispersal to yet unknown sites (Spendelow et al. 1995).

VI. Threats:

From Gochfeld et al. (1998): Roseate terns are susceptible to human disturbance, although their habit of placing nests in protected sites under vegetation or other objects makes them less vulnerable than species that place nests in the open. As a beach-nesting bird, tern chicks and eggs are lost each year to beach maintenance equipment and during annual Fourth of July fireworks and associated nighttime human presence on nesting areas. Airboats, off-road vehicles, and human recreationists can also destroy eggs and chicks. Some colony sites have been preempted by nesting gulls, forcing terns to use some sites that are more accessible to predators (Nisbet 1973, 1981). Availability of fish may also have been reduced; this requires study in Northeast and Caribbean, and on wintering grounds.

Rising sea levels are expected to inundate the coastal beaches, barrier islands, and mud flats that provide habitat for shorebirds; storm tides may inundate nests (North American Bird Conservation Initiative 2010). Roseate tern was classified as “moderately vulnerable” to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program (Schlesinger et al. 2011).

Are there regulatory mechanisms that protect the species or its habitat in New York?

_____ No ____ Unknown

__X__ Yes

The roseate tern is listed as an endangered species in New York and is protected by Environmental Conservation Law (ECL) section 11-0535 and the New York Code of Rules and Regulations (6 NYCRR Part 182). A permit is required for any proposed project that may result in a take of a species listed as Threatened or Endangered, including, but not limited to, actions that may kill or harm individual animals or result in the adverse modification, degradation or destruction of habitat occupied by the listed species. It is also protected as a federally-listed endangered species.

The Tidal Wetlands Act provides protection for all tidal wetlands under Article 25 of the NYS Conservation Law.

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Fencing is practical in open nesting areas and was recommended by Nisbet and Drury (1972). Slight mortality has been documented due to trauma or entanglement in fences (0.6%; Nisbet and Drury 1972). Conservation actions following IUCN taxonomy are categorized in the table below.

Conservation Actions	
Action Category	**Action**
Land/Water Protection	Site/Area Protection
Land/Water Protection	Resource & Habitat Protection
Land/Water Management	Site/Area Management
Land/Water Management	Invasive/Problematic Species Control
Land/Water Management	Habitat & Natural Process Restoration
Education & Awareness	Awareness & Communications
Species Management	Species Recovery (nesting platforms)
External Capacity Building	Alliance & Partnership Development

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for beach and island ground-nesting birds, and for roseate tern specifically.

Easement acquisition:

____ Protect nesting and foraging habitat and associated upland buffers through acquisition, easement and through regulatory constraints on development.

Educational signs:

____ Post interpretive signage at all public nesting locations.

Fact sheet:

____ Update Endangered Species fact sheets to reflect current status of species in New York.

Habitat management:

____ Encourage the establishment of nesting and foraging populations by protecting newly created suitable habitat produced as a result of overwash and/or breaches with symbolic fencing and posting.

____ Encourage and support a "no net increase" in shoreline armoring along Long Island bays and harbors.

____ Encourage compliance with the recommendations for habitat and recreation management contained within Federal and State Recovery Plans for beach-nesting species.

____ Encourage landowners to control predators that represent significant threats to the viability of species. Options to be considered include control of predators through contact with a licensed nuisance wildlife control person, allowing hunting and/or trapping during legally specified seasons and habitat modification to remove roosting or denning sites of nest predators. It is recommended that the mechanism for predator control by landowners be done in consultation with DEC.

____ Where possible, protect nesting areas from human disturbance by posting, electric fencing and symbolic fencing. Also, control density and composition of vegetation at breeding sites to maintain suitability for nesting. Accomplish through planting of fresh spoil sites with

desired species and grading and/or spoil deposition at sites where vegetation has become too dense.

Habitat research:

____ Support and encourage habitat research projects that would help define preferred habitat in order to guide restoration efforts and focus habitat protection efforts.

____ Assess beach driving activities, locations and impacts.

Habitat restoration:

____ Encourage the reestablishment of roseate tern colonies at suitable and historic sites throughout Long Island.

____ Encourage and support policies that purchase storm-damaged homes within the coastal erosion hazard area for the purposes of beach and dune habitat restoration.

____ Where possible, reestablish high quality foraging habitats by either manufacturing sand flats, mudflats or overwash fans or allowing such formations to build naturally. Also, ephemeral pool creation adjacent to beach nesting habitat will be pursued.

____ Where possible, nesting habitat will be expanded to create new nesting opportunities for species. This will be accomplished through dredge spoil management, input into beach re-nourishment projects and de-vegetation of formally suitable sites.

Life history research:

____ Support research that addresses priorities established in the Roseate Tern Recovery Plan and similar planning documents that have been prepared through interstate and interagency working groups.

Other action:

____ Minimize and mitigate habitat impacts from development and public works projects by pursuing a goal of no net loss of habitat at a project location.

____ Establish and/or maintain enforcement of no-work windows within breeding habitats during the breeding season (April 1 - September 1 on Long Island).

____ Educate the public on the impacts of domestic cats on birds and encourage landowners to keep their cats indoors.

____ Secure funding to initiate new beach-dependent species programs.

Population monitoring:

____ Annual surveys will track population status at known breeding locations.

Regional management plan:

____ Develop a long term management plan that establishes population objectives for all beach-dependent breeding birds and management recommendations to achieve them.

VII. References

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