

Species Status Assessment

Common Name: Roseate tern

Date Updated: 3/14/25

Scientific Name: *Sterna dougallii*

Updated By: Sophia Brown

Class: Aves

Family: Laridae

Species Synopsis (a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):

The North Atlantic subspecies of roseate terns (*Sterna dougallii dougallii*) has two breeding populations in North America. One of these populations 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 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 (98% in 2024) nesting at Great Gull Island. Great Gull Island is one of the largest 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 legal protected Status

i. **Federal:** Endangered (Atlantic Coast Breeding Population) **Candidate:** N/A

ii. **New York:** Endangered; SGCN

b. Natural Heritage Program

i. **Global:** G4

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

Other Ranks:

IUCN – Least Concern

Partners in Flight – Priority IB

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

(IUCN Red List, Northeast Regional SGCN, Partners in Flight, etc.)

Status Discussion:

In 2022 the Northeast population hovered at about 4,800 pairs. Approximately 75% are concentrated at just three colonies: Great Gull Island, NY (1,787 pairs); Bird Island, Marion, MA (2,031 pairs); and Ram Island, Mattapoisett, MA (934 pairs).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	North Atlantic and Caribbean populations have been separating since the 1930s	Endangered	-
Northeastern US	Yes	Declining	Declining	Since 2000		-
New York	Yes	Declining	Declining	Since mid-1970s	Endangered	Yes
Connecticut	Yes	Unknown	Unknown		Endangered	Yes
Massachusetts	Yes	Increasing	Stable	2013-2024	Endangered	Yes
New Jersey	No	Extirpated	Extirpated	No nesting since 1980 Extirpated	Endangered	Yes
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No	-	-			-
Quebec	Yes	Declining	Declining	One colony with hybridized ROTE/COTE pairs in 2022	Endangered	-

Column options

Present?: Yes; No; Unknown; No data; (blank) or Choose an Item

Abundance and Distribution: Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item

SGCN?: Yes; No; Unknown; (blank) or Choose an item

Monitoring in New York (*specify any monitoring activities or regular surveys that are conducted in New York*):

NYSDEC conducts an annual census count of breeding terns on Long Island.

Trends Discussion (*insert map of North American/regional distribution and status*):

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 (Peterson 1988).

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. As of 2024, Great Gull Island is the only site in New York where roseate terns consistently breed; it was the only active breeding site from 2016-2020 and in 2022. In 2024, 2,107 pairs nested at two active sites, 2,062 (98%) of which were at Great Gull Island.

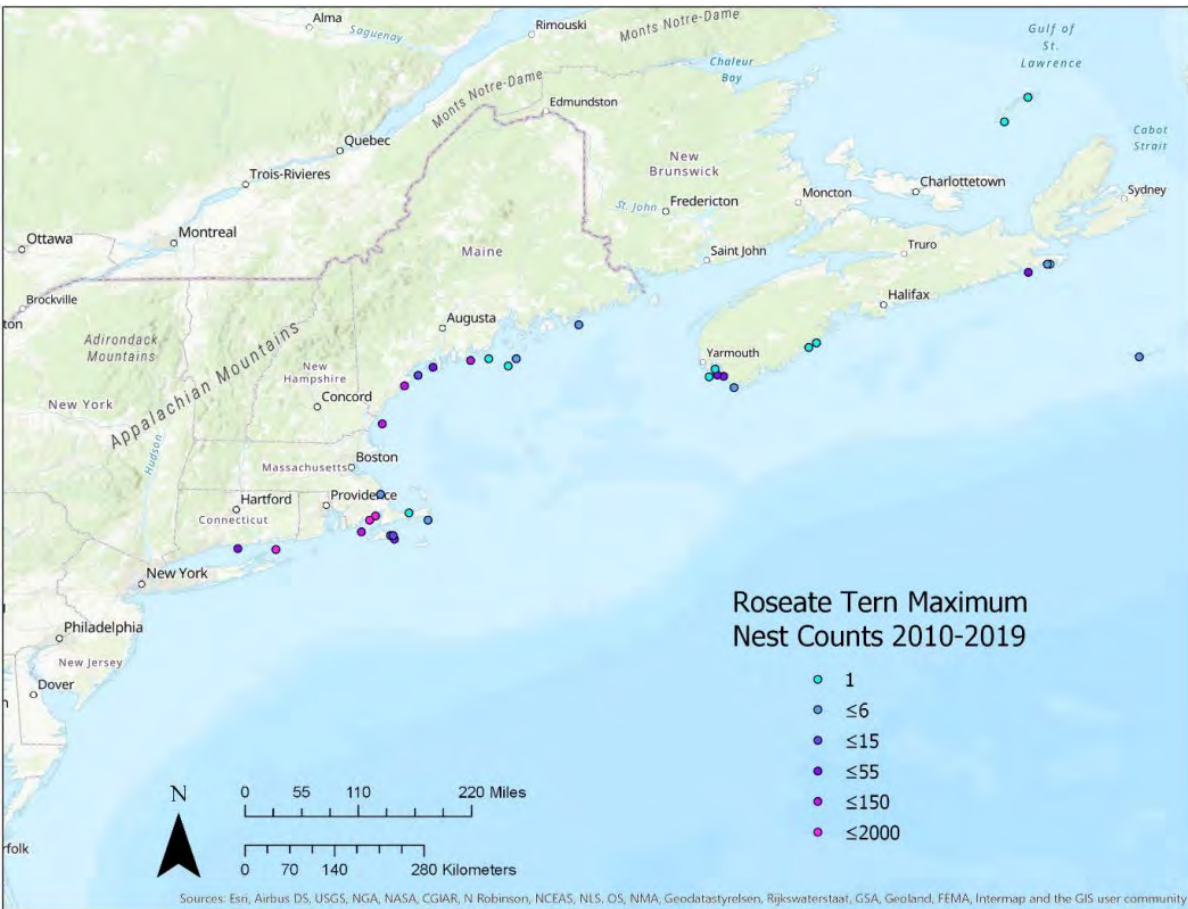


Figure 1. Roseate tern nest sites in the Northeast (USFWS 2020)

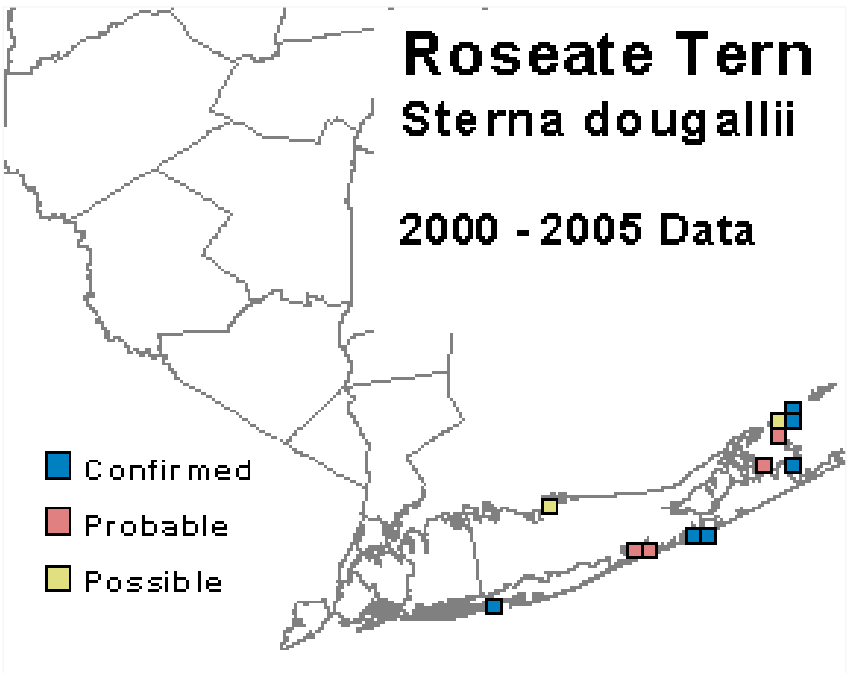


Figure 2. Roseate tern occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

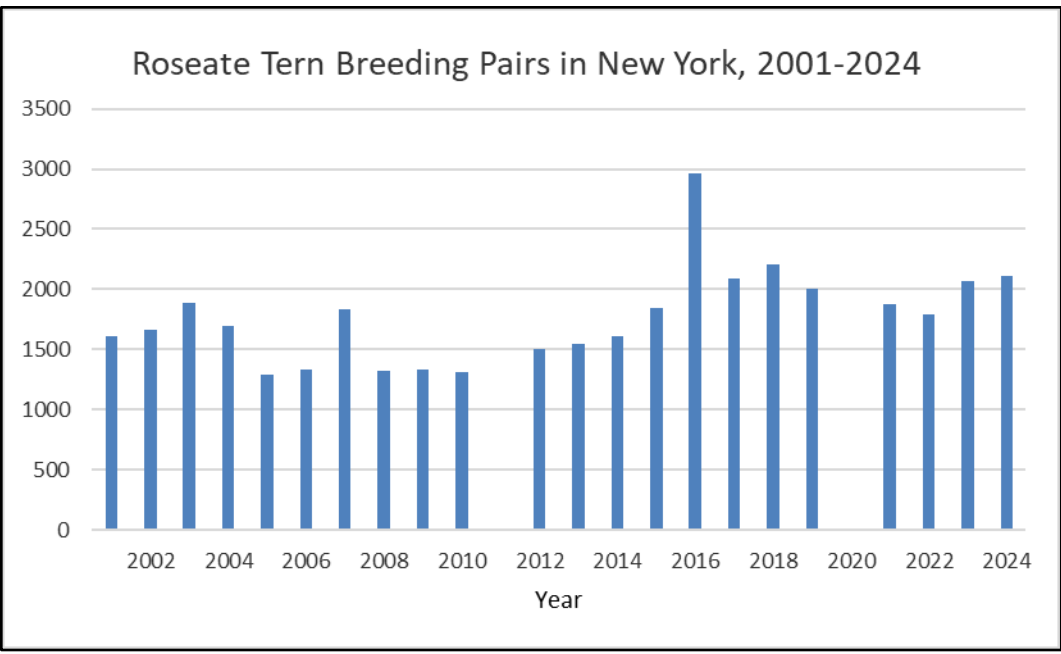


Figure 3. Number of breeding pairs of roseate terns in New York, 2001-2024 (Sophia Brown, personal communication).

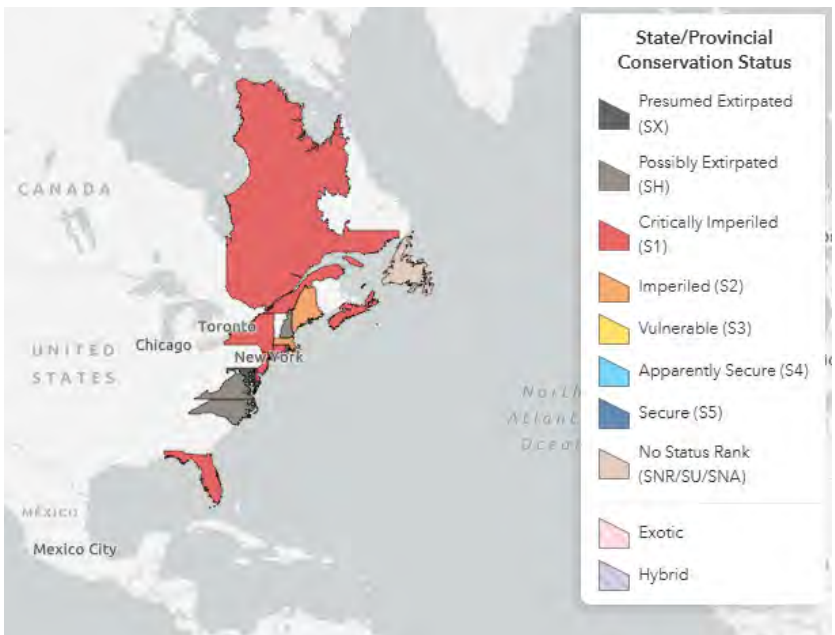


Figure 4. Conservation status of roseate tern in North America (NatureServe 2024)

III. New York Rarity (provide map, numbers, and percent of state occupied)

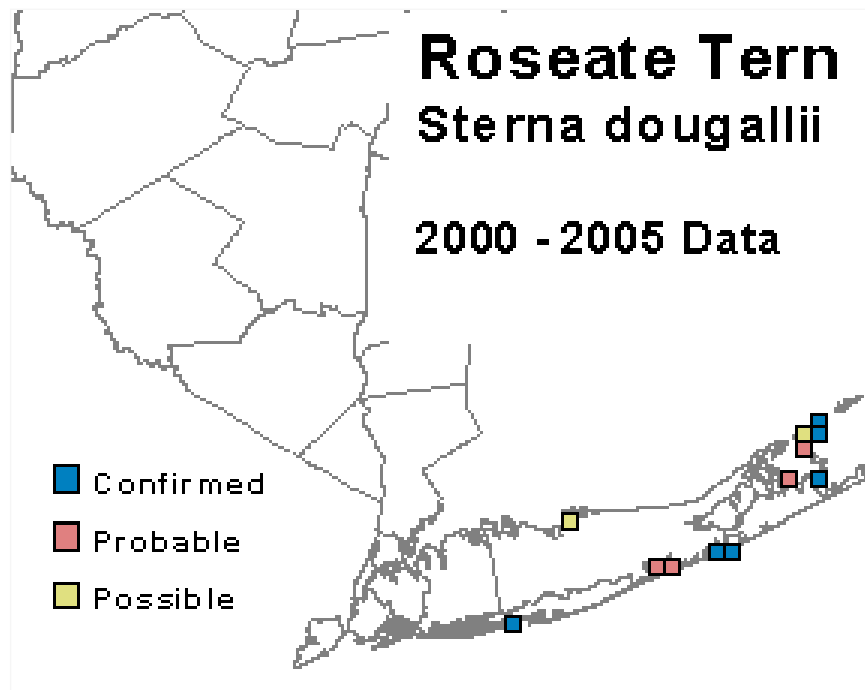


Figure 5. Roseate tern occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

From 2019-2024, Roseate Terns were found at 7 different sites in New York, all on Long Island. A majority of the New York population (98% in 2024) nest at Great Gull Island.

Details of historic and current occurrence:

The first Breeding Bird Atlas (BBA) (1980-85) documented occupancy in 19 blocks, 0.4% of the survey blocks statewide (Andrle and Carroll 1988). The second BBA (2000-05) documented occupancy in 12 blocks, 0.2% of the survey blocks statewide (McGowan and Corwin 2008).

The third BBA (2020-25) is currently underway and utilizes a different number and layout of survey blocks across New York, making direct comparison with the first two Atlases difficult. There were 5,333 blocks in the first and second BBAs, and there are 5,710 blocks in the current BBA, of which 1,815 are considered priority blocks. To date, roseate tern has been documented in 16 priority blocks, 0.2% of all priority blocks statewide during the third BBA (NY BBA III Overview, 2024).

New York’s Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
26-50%	Core	

Column options

Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item

Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

IV. Primary Habitat or Community Type (from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):

- a. Maritime Dunes
- b. Estuarine, Brackish Intertidal, Tidal Wetland, High Marsh
- c. Estuarine, Intertidal, Benthic Geomorphology, Bar
- d. Maritime Intertidal Gravel/Sand Beach
- e. Estuarine, Brackish Intertidal, Tidal Wetland, Low Marsh

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
No	No	Declining	Since 1970s

Column options

Habitat Specialist and Indicator Species: Yes; No; Unknown; (blank) or Choose an item

Habitat/Community Trend: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

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 terns 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. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/Catadromous?
Yes	No	No	Yes	No	Choose an item.

Column options

First 5 fields: Yes; No; Unknown; (blank) or Choose an item

Anadromous/Catadromous: Anadromous; Catadromous; (blank) or Choose an item

Species Demographics and Life History Discussion (include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):

Most roseate terns breed at 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 because 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.). In the Northeast, most chick mortality is due to starvation and falls mainly on B-chicks: this is the main source of variability in productivity (Nisbet et al. 1995, 1999, Nisbet and Spendelow 1999). 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).

This species is a specialist forager and takes a small prey spectrum compared to Common Tern at the same sites (Birdlife International 2000). At various colonies in New York, USA, birds were observed to forage at sites up to 30 km away from their breeding colony, although at most sites, most birds foraged within 10 km (Birdlife International 2000).

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 NY 2015 SWAP or newly described):

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
3. Energy Production & Mining	3.3 Renewable Energy	3.3.2 Wind farms	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6. Human Intrusions & Disturbance	6.3 Work & Other Activities	6.3.1 Research activities	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.2 Problematic Native Plants & Animals	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	9.2.1 Oil spills	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.1 Habitat Shifting & Alteration	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.5 Storms & Severe Weather	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to roseate tern.

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 (Gochfeld et al 1998). 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. Offshore wind could potentially affect roseate terns in the future. Roseate terns can migrate far offshore bringing them into contact with turbines.

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). The major colonies of Roseate Terns in the Northeast are on islands composed of glacial till that were parts of the terminal moraines of the Pleistocene icesheets and are being eroded rapidly. Bird Island, one of the three largest roseate tern colonies in the northeast US, experienced a 50% reduction in nesting habitat since 1970 due to erosion requiring funding to restore the island in 2018. Falkner Island once had over 200 breeding pairs of roseate terns and now fluctuates between 20 and 55 pairs due to erosion of habitat (USFWS 2020). 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).

Most of the rocky and glacial-till islands available for nesting are dominated by alien and invasive plants (U.S. Fish and Wildlife Service 2010). These plants are often too dense at ground level for nesting terns, and both Common and Roseate Terns are then limited to small areas around the periphery of the islands.

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

Yes: ü

No: _____

Unknown: _____

If yes, describe mechanism and whether adequate to protect species/habitat:

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). It is also protected as a federally-listed endangered species under the Endangered Species Act.

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).

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct habitat management	Site/Area management
A.1 Direct Habitat Management	A.1.1.0.0 Manage plants, animals, fungi, or bacteria	Invasive/Problematic species control
A.2 Direct Species Management	A.2.1.1.2 Nest boxes, roosts, and other artificial maternities	Species Recovery (nesting platforms)
B.3 Outreach	B.3.1.4.0 Public outreach and information	Awareness & Communications
C.6 Design and Plan Conservation	C.6.5.0.0 Conservation planning	-Site/Area protection -Resource/Habitat Protection
C.6 Design and Plan Conservation	C.6.5.1.3Develop a conservation, management, or restoration plan for protected private lands	Habitat/Natural process restoration
C.10 Institutional Development	C.10.2.0.0 External support and organizational development	Alliance and Partnership Development

Table 2. Recommended conservation actions for roseate tern.

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

Burger, J., I. C. T. Nisbet, C. Safina, and M. Gochfeld. 1996. Temporal patterns in reproductive success in the endangered Roseate Tern (*Sterna dougallii*) nesting on Long Island, New York, and Bird Island, Massachusetts. *Auk* 113:131-142.

- Gochfeld, M., J. Burger and I.C. Nisbet. 1998. Roseate Tern (*Sterna dougallii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/370> doi:10.2173/bna.370
- Jones, L. 1906. A contribution to the life history of the Common (*Sterna hirundo*) and Roseate (*Sterna dougallii*) Terns. Wilson Bull. 18:36-47.
- Lecroy, M. and C. T. Collins. 1972. Growth and survival of Roseate and Common Tern chicks. Auk 89:595-611.
- Massachusetts Division of Fisheries & Wildlife. 2005. Commonwealth of Massachusetts Comprehensive Wildlife Conservation Strategy. Department of Fish and Game, Executive Office of Environmental Affairs. <http://www.mass.gov/dfwele/dfw/>
- NatureServe. 2024. NatureServe Explorer. Page last published 11/1/24. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105391/Sterna_dougallii. Accessed November 18, 2024.
- New York State Breeding Bird Atlas III Overview (NYS BBA III Overview). 2024. New York Checklist Overview. <https://ebird.org/atlasny/state/US-NY>. Accessed November 18, 2024.
- Nichols, J. D., J. A. Spendelow, and J. E. Hines. 1990. Capture-recapture estimation of prebreeding survival rate for birds exhibiting delayed maturation. J. Field Ornithol. 61:347-354.
- Nisbet, I. C. T. 1973. Terns in Massachusetts: present numbers and historical changes. Bird-Banding 44:27-55.
- Nisbet, I. C. T. 1981. Biological characteristics of the Roseate Tern (*Sterna dougallii*). Report 50181-084-9. U.S. Fish Wildlife Service, Newton Corner, MA.
- Nisbet, I. C. T. 1984. Migration and winter quarters of North American Roseate Terns as shown by banding recoveries. J. Field. Ornithol. 55:1-17.
- Nisbet, I. C. T. 1989. Status and biology of the northeastern population of the Roseate Tern (*Sterna dougallii*): a literature survey and update: 1981-1989. Contract Report 50181-88-8105. U.S. Fish Wildlife Service, Newton Corner, MA.
- Nisbet, I. C. T., J. Burger, C. Safina, and M. Gochfeld. 1990. Estimating fledging success and productivity in Roseate Terns (*Sterna dougallii*). Colon. Waterbirds 13:85-91.
- Nisbet, I. C. T. and W. H. Drury. 1972. Measuring breeding success in Common and Roseate Terns. Bird-Banding 43:97-106.
- North American Bird Conservation Initiative, U.S. Committee. 2010. The State of the Birds 2010 Report on Climate Change, United States of America. U.S. Department of the Interior: Washington, DC.
- Schlesinger, M.D., J.D. Corser, K.A. Perkins, and E.L. White. 2011. Vulnerability of at-risk species to climate change in New York. New York Natural Heritage Program, Albany, NY.
- Spendelow, J. A. 1982. An analysis of temporal variation in, and the effects of habitat modification on, the reproductive success of Roseate Terns. Colon. Waterbirds 5:19-31.
- Spendelow, J. A. 1991. Postfledging survival and recruitment of known-origin Roseate Terns (*Sterna dougallii*) at Falkner Island, CT. Colon. Waterbirds 14:108-115.

Spendelov, J. A., J. D. Nichols, I. C. T. Nisbet, H. Hays, and G. D. Cormons. 1995. Estimating annual survival and movement rates of adults within a metapopulation of Roseate Terns. *Ecology* 76:2415-2428.

USFWS. 2010. Caribbean roseate tern and North Atlantic roseate tern (*Sterna dougallii dougallii*) 5-year review: Summary and Evaluation. USFWS, Concord NH.

USFWS. 2020. Roseate Tern Northeastern North American Population (*Sterna dougallii dougallii*) 5-year review: Summary and Evaluation. USFWS, Concord NH.