

Species Status Assessment

Class: Birds
Family: Podicipedidae
Scientific Name: *Podilymbus podiceps*
Common Name: Pied-billed Grebe

Species synopsis:

One subspecies of pied-billed grebe occurs in New York: *Podilymbus podiceps podiceps*. It breeds in all of the United States, northward into southern Canada, and southward to all of Central America.

The pied-billed grebe is a Threatened species in New York. It is a rare and local breeder in the Ontario Plain, Great Lakes Plain, and Hudson Valley. Nesting occurs in freshwater wetlands with open shallow water and an abundance of aquatic emergent vegetation. The second Breeding Bird Atlas documented a 47% increase in occupancy from 1980-85 to 2000-05 with new records centered in Jefferson and St. Lawrence counties.

I. Status

a. Current and Legal Protected Status

- i. **Federal** Not Listed **Candidate?** No
- ii. **New York** Threatened; SGCN

b. Natural Heritage Program Rank

- i. **Global** G5
- ii. **New York** S3B,S1N **Tracked by NYNHP?** Yes

Other Rank:

Species of Northeast Regional Conservation Concern (Therres 1999)
Waterbird Conservation Plan – High Concern

Status Discussion:

The pied-billed grebe is an uncommon local breeder; it is a fairly common migrant, though more numerous in fall, and a rare but regular winter visitant.

II. Abundance and Distribution Trends

a. North America

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: 2000-2010

b. Regional

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Regional Unit Considered: Eastern region

Time Frame Considered: 2000-2010

c. Adjacent States and Provinces

CONNECTICUT Not Present _____ No data _____

i. Abundance

____ declining ____ increasing ____ stable X unknown

ii. Distribution:

____ declining ____ increasing X stable ____ unknown

Time frame considered: _____

Listing Status: _____ Endangered _____ SGCN? Yes

MASSACHUSETTS Not Present _____ No data _____

i. Abundance

____ declining ____ increasing X stable ____ unknown

ii. Distribution:

____ declining ____ increasing X stable ____ unknown

Time frame considered: 1975-79 to 2007-11

Listing Status: _____ Endangered _____ SGCN? Yes

NEW JERSEY Not Present _____ No data _____

i. Abundance

____ declining ____ increasing ____ stable X unknown

ii. Distribution:

____ declining ____ increasing ____ stable X unknown

Time frame considered: only 2 sites since 1981

Listing Status: Endangered (breeding); Special Concern (non-breeding) SGCN? Yes

ONTARIO Not Present _____ No data _____

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining X increasing ___ stable ___ unknown

Time frame considered: 1981-85 to 2001-05

Listing Status: Not Listed

PENNSYLVANIA Not Present _____ No data _____

i. Abundance

X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

X declining ___ increasing ___ stable ___ unknown

Time frame considered: 1984-89 to 2004-08

Listing Status: Not Listed SGCN? Yes

QUEBEC Not Present _____ No data _____

i. Abundance

___ declining ___ increasing X stable ___ unknown

ii. Distribution:

___ declining ___ increasing X stable ___ unknown

Time frame considered: 1984-89 to 2012

Listing Status: Not Listed

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

i. Abundance

____ declining ____ increasing X stable ____ unknown

ii. Distribution:

____ declining ____ increasing X stable ____ unknown

Time frame considered: 1976-81 to 2003-07

Listing Status: _____ Special Concern SGCN? Yes

d. NEW YORK

No data _____

i. Abundance

____ declining X increasing ____ stable ____ unknown

ii. Distribution:

____ declining X increasing ____ stable ____ unknown

Time frame considered: 1980-85 to 2000-05

Monitoring in New York.

A three-year pilot study of the National Marshbird Monitoring Program was conducted from 2009-2011 at selected wetlands across the state. Surveys continued in 2012. In addition, the Marsh Monitoring Program through Bird Studies Canada has long term marsh bird monitoring routes in the Great Lakes Basin part of New York. The pied-billed grebe is a target species in both of these survey protocols.

Trends Discussion:

The second Breeding Bird Atlas documented a 47% increase in occupancy statewide. Notable is the increase in Jefferson and St. Lawrence counties, mirrored by the increase in breeding reports in Ontario from the northeastern portion of Lake Ontario northward along the St. Lawrence River (McGowan 2008).

The Marsh Monitoring Program (Bird Studies Canada) shows a declining trend of -7.1% per year from 1995-2007 in the Great Lakes Basin (Archer and Jones 2009).

Pied-billed grebe is not well sampled by Breeding Bird Surveys (BBS); trend estimates should be viewed with caution. Most tended to be nonsignificant; the few significant trends were nearly equally divided between increases and declines. Strong numerical decline in the eastern U.S. has not been analyzed in detail; may reflect eutrophication of wetland habitats.

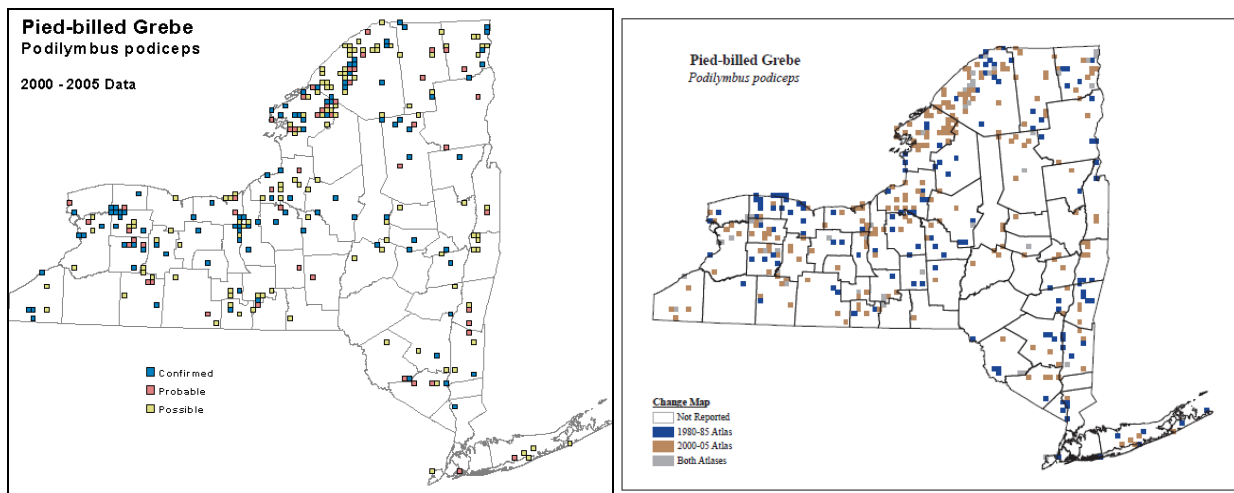


Figure 1. Known locations of pied-billed grebe from the NYS Breeding Bird Atlas (NYSDEC).

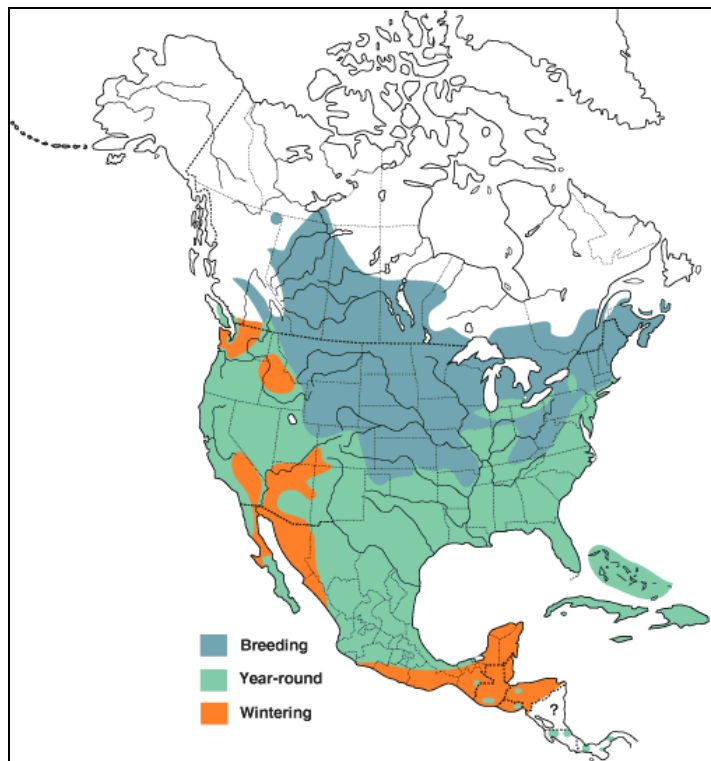


Figure 2. Distribution of pied-billed grebe in North America (Birds of North America Online).

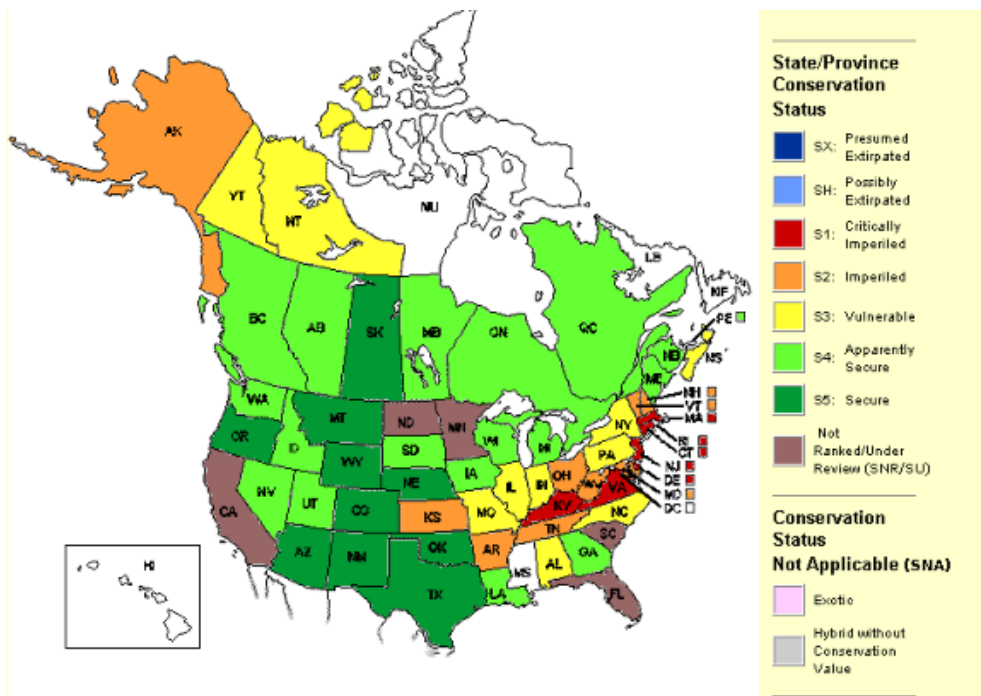


Figure 3. Conservation status of pied-billed grebe in North America (NatureServe 2012).

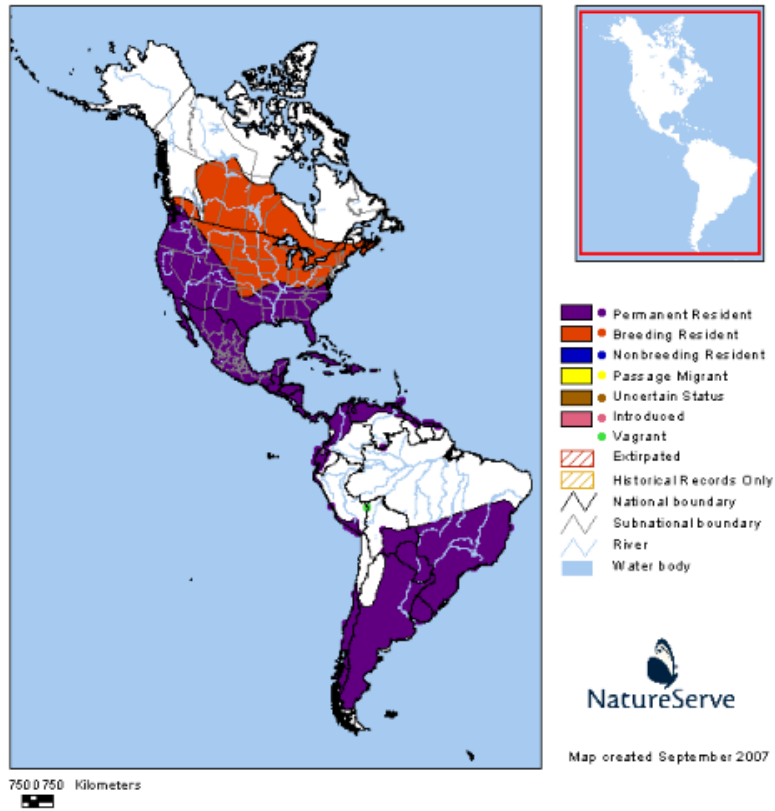


Figure 4. Pied-billed grebe range map (NatureServe 2012).

III. New York Rarity, if known:

Historic	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1970	_____	_____	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	<u>3</u>

Details of historic occurrence:

The first Breeding Bird Atlas (1980-85) documented occupancy in 182 survey blocks statewide (3%), with Confirmed breeding in 53 of those blocks (29%).

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	_____	<u>5</u>

Details of current occurrence:

The second Breeding Bird Atlas (2000-05) documented occupancy in 267 survey blocks statewide (5%), with Confirmed breeding in 101 of those blocks (38%). The increase in occupancy between the Atlas periods was 47%. Increases were noticeable in the St. Lawrence Plain.

New York’s Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

- X 0-5%
- _____ 6-10%
- _____ 11-25%
- _____ 26-50%
- _____ >50%

Abundance (within NY distribution)

- ___ abundant
- ___ common
- ___ fairly common
- X uncommon
- ___ rare

NY's Contribution to North American range

- 0-5%
- 6-10%
- 11-25%
- 26-50%
- >50%

Classification of New York Range

- Core
- Peripheral
- Disjunct

Distance to core population: _____

IV. Primary Habitat or Community Type:

1. Freshwater Marsh
2. Great Lakes Freshwater Estuary Marsh
3. Coastal Plain Pond

Habitat or Community Type Trend in New York:

Declining Stable Increasing Unknown

Time frame of decline/increase: long-term loss since 1900, short-term since 1950s

Habitat Specialist? Yes No

Indicator Species? Yes No

Habitat Discussion:

Pied-billed grebes breed on seasonal or permanent ponds and other bodies of slow-moving or still water such as sluggish rivers and freshwater marshes where there is an abundance of emergent aquatic vegetation. The nest is floated on dense stands of dead or growing emergent vegetation. Open water areas are also important to pied-billed grebes.

V. New York Species Demographics and Life History

- Breeder in New York**
 - Summer Resident**
 - Winter Resident**
 - Anadromous**
- Non-breeder in New York**
 - Summer Resident**
 - Winter Resident**
 - Catadromous**
- Migratory only**
- Unknown**

Species Demographics and Life History Discussion:

No data are available for age at first breeding in wild birds, but captive birds laid eggs at 13–14 months of age (MacVean 1988, 1990). Annual success is difficult to determine, owing to differences in parameters reported. No data is available on lifetime reproductive success. Nest success is influenced by wind and wave action, water level fluctuations, predation of eggs or adult bird at nest, or damage to nest and loss of eggs as result of spawning activity of common carp. Chicks are extremely susceptible to drafts and chilling for first 2 weeks after hatching (McAllister 1963). Pied-billed grebe eggs and newly hatched young are preyed upon by raccoons, mink, snapping turtles, and various avian predators. Few data on lifespan and survivorship (Muller and Storer 1999).

The species was reported a victim of botulism outbreak at Lake Michigan in 1963–1964 (Rosen 1971).

The population probably is regulated by availability of suitable nesting habitat and food, and possibly by winter habitat, but not studied. Productivity is influenced by nest destruction and egg

loss (wind and waves, swamping, drought, predation on adults, eggs, and chicks, nest destruction by introduced species). The influence of eutrophication of wetlands remains to be studied.

VI. Threats:

Habitat degradation and destruction resulting from the draining, dredging, filling, pollution, and siltation of wetlands through the 1900s are the greatest threats facing the pied-billed grebe population.

Nests can be destroyed by alterations in water level (either flooding or drops in water level) or by wakes from motorized and non-motorized boats dislodging nests attached to emergent aquatic plants. In addition to these threats specific to nesting, pied-billed grebes are threatened by outright destruction of appropriate wetland habitats; decline and degradation of their prey populations; by pesticides in current use; and by the lingering effects of bioaccumulating pesticides used in the past.

Pied-billed grebes have been killed at TV towers during nocturnal flights. They are also killed by cars, sometimes after landing on roadway during heavy rainstorm at night. Grebes occasionally become entangled in fishing line. Wading birds tend to be susceptible to many diseases such as avian cholera, botulism, lice and mites, but little is known about the effects of disease and parasites on reproduction (NatureServe 2013).

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

No **Unknown**

Yes

The pied-billed grebe is listed as a threatened 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.

Pied-billed grebe is protected under the Migratory Bird Treaty Act of 1918. The Freshwater Wetlands Act provides protection for wetlands greater than 12.4 acres in size under Article 24 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:

In the Northeast, preservation of relatively large (>10 ha) wetlands with a mixture of dense, robust emergents, sub-emergent vegetation, and open water is the most urgent management need for pied-billed grebes. Wetland managers need to periodically reverse vegetative succession and open up extensive stands of emergent vegetation while maintaining suitable habitats nearby to serve as alternate nesting areas during wetland manipulation. Complete drying during wetland drawdowns should be avoided to prevent die-offs of dragonflies and fish. Large, motorized boats should be excluded from marshes with nesting grebes to avoid flooding and capsizing of nest by wave action (Gibbs and Melvin 1992).

McGowan (2008) notes that the continued existence of pied-billed grebe in New York is closely tied to the protection of wetlands. Grebes undoubtedly benefit from preservation of habitat in wildlife management areas and federal refuges across the state.

Conservation actions following IUCN taxonomy are categorized in the table.

Conservation Actions	
Action Category	Action
Education and Awareness	Awareness & Communications
Education and Awareness	Training
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

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for freshwater marshbirds.

Curriculum development:

___ Utilize education as a tool for reducing wetland loss and the possible detrimental effects of human disturbance.

Fact sheet:

___ Promote the establishment of buffer areas around agricultural fields and developments.

Habitat management:

- ___ Restore wetland habitat and improve water level control.
- ___ Evaluate the extent to which management actions can reduce nest and chick losses via predator management and water level regulation.
- ___ Promote the use of Farm Bill and Landowner Incentive program funds to manage and restore appropriate habitat.
- ___ Adapt wetland management practices throughout the range of these species so they can simultaneously benefit waterfowl, marsh birds, and other water birds.
- ___ For endangered, threatened or rapidly declining marsh bird species/populations, protect all sites currently in use, and all historic sites of suitable habitat.

Habitat monitoring:

- ___ Identify and prepare a catalog of key migratory staging, molting areas, and wintering grounds.
- ___ Prepare a catalog, where possible, of breeding sites, identifying and mapping sites at a course scale to select those worthy of monitoring.
- ___ Investigate diet and nutrition in relation to breeding habitat quality and prey populations.

Habitat research:

- ___ Evaluate habitats by a variety of techniques at multiple scales to better understand the micro- and macro- habitat features important to nest site selection.
- ___ Conduct controlled experiments to see which management actions are effective locally in producing habitat suitable for marsh birds.

Invasive species control:

- ___ Identify invasive species which have the potential to negatively impact marsh birds and quantify impact.
- ___ Reduce the spread and colonization of new sites by invasive exotic species.
- ___ Where feasible, control invasive species, which are known to have detrimental effects on marsh birds, to reduce negative impact (i.e. promote the implementation of biological controls to combat purple loosestrife).

Life history research:

- ___ Conduct demographic studies at selected sites across the species' breeding range to identify "source" and "sink" populations, thus the regions most important for maintaining a breeding population.
- ___ Conduct studies of habitat use, prey availability, and diet at migratory staging and molting areas and wintering grounds to assess possible threats and limiting factors.
- ___ Investigate aspects of behavioral ecology, such as mate selection, mate fidelity, spacing behavior, coloniality, dispersal, and post-fledging parental care.
- ___ Periodically monitor the levels of contaminants in marsh birds and their eggs to assess trends and determine effects on eggshell thinning, behavioral modification, chick development, nesting success, and juvenile survival.

Modify regulation:

- ___ Concurrently with management actions, efforts should be pursued vigorously to protect the quality and quantity of available wetland habitat and minimize wetland loss.

New legislation:

- ___ Develop and implement a noxious weed law to control the introduction and distribution of invasive exotic species.

New regulation:

- ___ Maintain water quality in nesting marshes and discourage use of pesticides on public lands to prevent reduction of insect populations and contamination of wetlands.

Population monitoring:

- Refine monitoring techniques to better detect population trends and determine the cause of these changes.
- Initiate baseline population surveys to determine abundance and distribution and periodically resurvey to detect trends
- Study metapopulation dynamics and demography, focusing on such parameters as survival, age at first breeding, recruitment, dispersal, and the factors that affect them, using color-banded or radio-tagged birds.

Regional management plan:

- Collaborate with existing planning initiative such as the North American Waterbird Plan, Bird Conservation Regional Plans and other regional efforts.

VII. References

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