

Appendix A: Birds

Pied-billed Grebe

Podilymbus podiceps

Federal Listing	N/A
State Listing	T
Global Rank	S5
State Rank	S2
Regional Status	Very High



Photo by Pamela Hunt

Justification (Reason for Concern in NH)

Secretive marsh birds like the Pied-billed Grebe have generally been considered conservation priorities because of known losses of wetland habitats, combined with often poor data on species' distribution, abundance, and trend. In the case of the Pied-billed Grebe, data from repeated Breeding Bird Atlases in the Northeast are equivocal, with increased occupancy in New York (McGowan and Corwin 2008), a slight decline in Vermont (Renfrew 2013), and apparently stable populations in Ontario and Massachusetts (Cadman et al. 2007, MassAudubon 2014). As is the case for most marsh birds, data from the Breeding Bird Survey are generally poor, although some trends are suggested at larger scales. In the eastern and northeastern U.S., the BBS shows non-significant decreases from 1966-2013, and a non-significant increase in the East of 5.23%/year from 2003-2013 (Sauer et al. 2014). Pied-billed Grebe populations in New Hampshire appear to fluctuate considerably, but since 2005 the species has declined or disappeared from many areas where it was once reliable or even common.

Distribution

Population and habitat distribution: Pied-billed Grebes are widely distributed from southern Canada through southern Argentina, including the Caribbean (Muller and Storer 1999). The Pied-billed Grebe occurs throughout New Hampshire (with the exception of the White Mountains), but has always been rare and local in distribution (Foss 1994). Old regional ornithological works variously describe the species as a breeder, primarily a migrant, or absent, and a lack of comprehensive statewide coverage until relatively recently makes it difficult to ascribe any clear pattern to its distribution and abundance. Within this range, there are five areas of more regular occurrence:

- Extensive wetlands in Coos County (Cherry Pond, Androscoggin River, Lake Umbagog, Pittsburg)
- Wetlands around the northern portion of Lake Winnepesaukee (most recent records from Copp's Pond, Tuftonboro)
- Several larger wetlands in west-central New Hampshire (southern Grafton, Sullivan, and northwest Merrimack counties, most if not all of these sites now appear unoccupied)
- Southern Piscataquog River watershed (no recent data)
- Southeastern New Hampshire away from the immediate coast (Exeter, Brentwood, Durham, Newington, Rochester)

During 2000-2014, grebes were reported from 18 sites during the breeding season, and consistently (e.g., at least three years) only at eight: East Inlet (Pittsburg), Cherry Pond (Jefferson), Copp's Pond (Tuftonboro), Cascade Marsh (Sutton), Deer Hill WMA (Brentwood), Exeter WTP, Surrey Lane marsh

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(Durham), and Pickering Ponds (Rochester). Recent changes in water level at Lake Umbagog appear to have reduced habitat suitability for grebes (R. Quinn, pers. comm.), since there have been only two summer records since 2000. Cascade Marsh, formerly a reliable site for southern NH, has not had a summer record since 2004, and the species' disappeared from other wetlands in this region (e.g., McDaniel's Marsh in Springfield) around the same time. Both sites were surveyed with call playback in 2014 and no grebes were detected. The Deer Hill WMA in Brentwood was once the most reliable site in the state, with regular surveys there in the late 2000s documenting 5-7 pairs per year. But as this man-made wetland has begun to grow in as a result of succession, the number of nesting grebes has dropped, and only 1-2 pairs were reported in 2010-14.

Habitat

Pied-billed Grebes inhabit a range of wetlands, especially ponds or slow portions of streams with dense stands of emergent vegetation (Muller and Storer 1999). In the Northeast, they also appear to prefer areas with submerged aquatic beds (Gibbs et al. 1991). Nearby open water is needed for foraging and take-off prior to flight; sites in Maine averaged at least 34% open water (Gibbs et al. 1991). In Maine, most wetlands occupied by the species were those created by beavers (*Castor canadensis*) or by humans (Gibbs and Melvin 1992). Two additional features appear critical in nest site selection: water depth of at least 25 cm (10 in) and emergent stem densities of at least 10 cm²/m² (0.15 in²/ft²) in adjacent wetland patches (Muller and Storer 1999). Home range size is variable, and may depend on habitat type and quality. In the prairie pothole region, home ranges average 1-3.5 ha (2.5-8.75 ac, Muller and Storer 1999). In Maine, however, grebes rarely breed in wetlands less than 5 ha (12 ac) in size (Gibbs et al. 1991, Gibbs and Melvin 1992), suggesting that home range needs may be larger in this part of the country. Alternatively, lower population densities in the Northeast may allow grebes to be more selective since available habitat is not saturated.

All sites in New Hampshire where the species has occurred regularly contain open water and surrounding cattail (*Typha sp.*) marsh and may include ponds or small lakes (including beaver ponds), fens or slow streams, impoundments, sewage lagoons and other man-made wetlands, and backwaters of larger lakes. With the exception of sewage ponds, most Pied-billed Grebe habitat includes some woody vegetation such as alder (*Alnus sp.*) or buttonbush (*Cephalanthus occidentalis*).

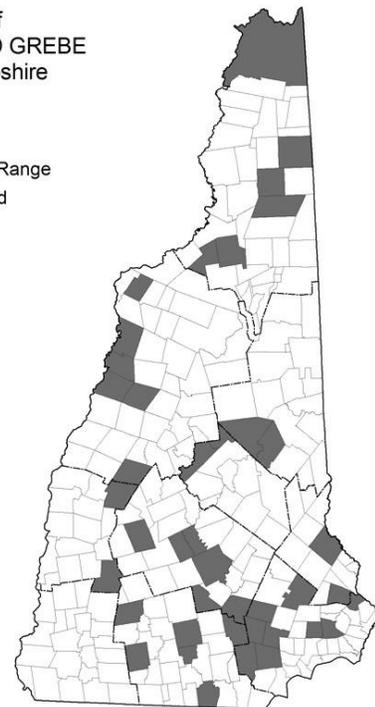
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NH Wildlife Action Plan Habitats

- Marsh and Shrub Wetlands
- Peatlands

Distribution of PIED-BILLED GREBE in New Hampshire

- Current Range
- ▨ Localized



Distribution Map

Current Species and Habitat Condition in New Hampshire

Seemingly in decline at several historically reliable sites in New Hampshire. See Justification and Distribution.

Population Management Status

Management is not currently in place for this species.

Regulatory Protection (for explanations, see Appendix I)

- Endangered Species Conservation Act (RSA 212-A)
- Fill and Dredge in Wetlands - NHDES
- Migratory Bird Treaty Act (1918)

Quality of Habitat

No information, although as noted above, succession and increased water levels appear to be reducing quality at some sites.

Habitat Protection Status

Of the 18 recent locations for the species alluded to under distribution, 14 (77.8%) are protected in whole or in part by easement or fee-simple, and ten of these are state or federal wildlife areas.

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However, WMA or other protected status does not preclude loss of habitat quality as noted above, as evidenced by the disappearance or decline of grebes from sites as diverse as Lake Umbagog, Cascade and McDaniel's Marshes, Stubb's Pond (Newington, another water level issue), and the Deer Hill WMA.

Habitat Management Status

At Cascade Marsh, management of water levels to benefit Pied-billed Grebes has been in place since the 1980s (E. Robinson and D. Gagnon, New Hampshire Fish and Game (NHFG), personal communication). Water levels at these sites are first lowered after ice goes out to levels suitable for grebes while still allowing for vegetation growth. This water level is maintained through the summer and is raised in September when grebes are no longer nesting. It is feasible to apply similar water level management at 3 additional grebe sites in State Wildlife Management Areas (Hirst, MacDaniel's Marsh, Danbury Bog). As noted earlier, absence of good water level management may be behind the decline or disappearance of Pied-billed Grebes from the Lake Umbagog and Great Bay NWRs.

Threats to this Species or Habitat in NH

Threat rankings were calculated by groups of taxonomic or habitat experts using a multistep process (details in Chapter 4). Each threat was ranked for these factors: Spatial Extent, Severity, Immediacy, Certainty, and Reversibility (ability to address the threat). These combined scores produced one overall threat score. Only threats that received a "medium" or "high" score have accompanying text in this profile. Threats that have a low spatial extent, are unlikely to occur in the next ten years, or there is uncertainty in the data will be ranked lower due to these factors.

Habitat degradation from the succession of artificial wetlands (Threat Rank: Medium)

Some of the more significant sites for Pied-billed Grebe in southeastern NH have been in artificial wetlands such as unused ponds at wastewater treatment plants or reclaimed borrow pits. While such sites can provide suitable habitat for a number of years, unless vegetation is actively managed they eventually become overgrown to the point that they are no longer quality habitat. Because such sites lack dams or hydrological connections to other wetlands, controlling increased vegetation by regulating water levels is not possible, and the only other alternative – mechanical disturbance – is expensive and potentially damaging.

Habitat degradation and species impacts from introduced or invasive plants (Threat Rank: Medium)

There are limited data on specific responses by grebes to invasive plants (see Whitt et al. 1999). In general, if invasives result in a reduced area of open water, habitat may be less attractive to the species, although again data are lacking.

List of Lower Ranking Threats:

- Habitat degradation from fertilizer that increases eutrophication
- Habitat degradation from non-point and point contaminants
- Habitat degradation from mercury deposition
- Habitat conversion and mortality from drawdowns or removal of dams

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Habitat degradation from dredging ponds and removal or management of vegetation

Mortality and disturbance from lead toxicity from ingesting ammunition and tackle

Disturbance to nests by watercraft

Habitat conversion from the direct filling of wetlands for development

Actions to benefit this Species or Habitat in NH

Pied-billed Grebe Monitoring

Objective:

Conduct monitoring for Pied-billed grebe populations.

General Strategy:

Periodically resurvey recently-active Pied-billed Grebe sites to determine current status and distribution. In addition, any broad wetland bird monitoring project should include this species, and should ensure that observers can identify it.

Political Location:

Statewide

Watershed Location:

Statewide

Stabilize water levels.

Primary Threat Addressed: Habitat conversion and mortality from drawdowns or removal of dams

Specific Threat (IUCN Threat Levels): Natural system modifications

Objective:

Maintain suitable nesting habitat for Pied-billed Grebes

General Strategy:

Appropriate water level management should be instituted as a standard NHFG activity at state Wildlife Management Areas that support or potentially support grebes. It would also be beneficial to determine ownership and management policy of dams associated with other grebe sites, and to improve grebe nesting success at these locations.

Political Location:

Statewide

Watershed Location:

Statewide

Expand mercury research to grebes and other marsh-nesting birds.

Primary Threat Addressed: Habitat degradation from mercury deposition

Specific Threat (IUCN Threat Levels): Pollution / Air-borne pollutants / Mercury

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Objective:

Given increasing concern for the effects of mercury in other aquatic birds, it may be valuable to expand mercury research to grebes and other marsh-nesting birds.

General Strategy:

Although various environmental pollutants have been proposed as threats to Pied-billed Grebes (Gibbs and Melvin 1992), there are few, if any, data on the presence and effects of such contaminants on grebe populations. Given increasing concern for the effects of mercury in other aquatic birds, it may be valuable to expand mercury research to grebes and other marsh-nesting birds.

Political Location:

Northeast

Watershed Location:

Research effects of human disturbance, particularly that caused by small watercraft.

Primary Threat Addressed: Disturbance to nests by watercraft

Specific Threat (IUCN Threat Levels): Human intrusions & disturbance

Objective:

To understand the effects of human disturbance, particularly small watercraft, on the incidence of nest abandonment or failure.

General Strategy:

In the absence of such data it is premature to propose conservation actions such as no-entry zones for this species.

Political Location:

Statewide

Watershed Location:

References, Data Sources and Authors

Data Sources

Data on site occupancy were compiled from NHBR. Information pertaining to management at some grebe sites (state wildlife management areas) was obtained from the NHFG (E. Robinson, NHFG, personal communication).

Data Quality

Information on pied-billed grebe distribution in New Hampshire is limited by habitat inaccessibility and inconsistency of coverage. Because grebes have a history of both patchiness and site fidelity, the discontinuation of regular visits to a given site can significantly alter our broader knowledge of current statewide distribution. Thus, the absence of reports from a known breeding site cannot be taken as evidence of the species' absence.

As indicated above, data on pied-billed grebes and their habitat in New Hampshire are inconsistent. There are no data on management activity at the majority of sites where the species is known to occur.

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2015 Authors:

Pamela Hunt, NHA

2005 Authors:

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