

Appendix A: Birds

Nelson's Sparrow

Ammodramus nelsoni

Federal Listing	N/A
State Listing	SC
Global Rank	G5
State Rank	S3
Regional Status	



Photo by Scott Young

Justification (Reason for Concern in NH)

Birds that breed in salt marsh are widely recognized as conservation priorities by virtue of their specialized habitat needs, in combination with known high threats to salt marsh habitat.

Distribution

The Nelson's Sparrow breeds in three disjunct areas of North America (Greenlaw and Rising 1994). The most extensive portion of its range consists of prairies from the southern Northwest Territories to North Dakota and Minnesota. A second area includes the southwestern shore of Hudson and James Bays in Canada. Finally, the third segment ranges from the St. Lawrence River around the Canadian Maritimes and south to NH and extreme northeastern Massachusetts. In New Hampshire it occurs primarily in the fringing salt marshes of Great Bay, although smaller numbers are found regularly in marshes along the immediate coast. It appears least common in the Hampton/Seabrook estuary where the closely-related Saltmarsh Sparrow predominates (McKinley and Hunt 2007). The species winters in coastal marshes from Chesapeake Bay south and west to Texas.

Habitat

Nelson's Sparrows breeding in the northeastern United States (see Distribution) occur exclusively in salt marshes, although they sometimes use marshes with more freshwater influence than Saltmarsh Sparrows (Greenlaw and Rising 1994, pers. obs.). Farther north in southeastern Canada the species uses freshwater marshes more regularly, particularly along the St. Lawrence River. Inland populations use freshwater habitats exclusively (Greenlaw and Rising 1994). Unlike other salt marsh obligates, the Nelson's Sparrow does not appear to be area sensitive in coastal New England (Schriver et al. 2004).

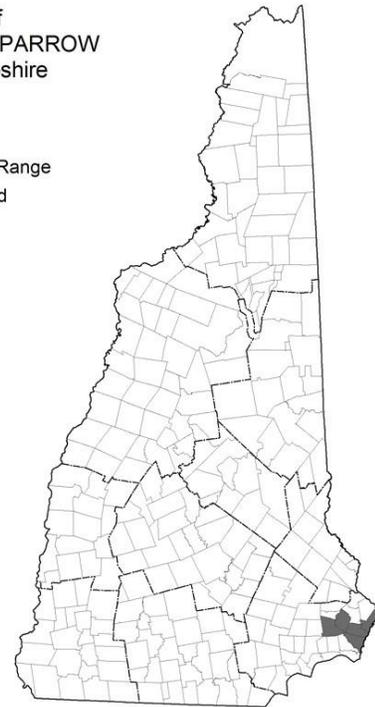
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NH Wildlife Action Plan Habitats

- Salt Marshes

Distribution of
NELSON'S SPARROW
in New Hampshire

■ Current Range
▨ Localized



Distribution Map

Current Species and Habitat Condition in New Hampshire

Based on surveys conducted in the 2000s, there are an estimated 200 Nelson's Sparrows in New Hampshire (M. Correll, pers. comm.), with most of these probably around Great Bay. Although there are insufficient data to measure population trend within the state, the regional trend (NH and Maine) is -4.2%/year since 1998. Annual reproductive success at Great Bay averages 1.4 broods/female.

Population Management Status

Management is not currently in place for this species.

Regulatory Protection (for explanations, see Appendix I)

- Fill and Dredge in Wetlands - NHDES
- Migratory Bird Treaty Act (1918)

Quality of Habitat

There is extensive variation across salt marshes in NH their suitability for salt marsh birds. Most coastal marshes have been subject to tidal restrictions and/or extensive ditching, both of which appear to reduce habitat quality. There are limited data with which to evaluate habitat quality in NH for Nelson's Sparrows. See also salt marsh habitat profile.

Habitat Protection Status

The remaining salt marshes in NH are largely protected from development by wetlands regulations,

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and some parcels are additionally under conservation ownership by public and private entities.

Habitat Management Status

Habitat is not specifically managed for this species, although broader salt marsh restoration efforts would potentially benefit it, depending on project size and landscape context. See the salt marsh habitat profile for further detail.

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 conversion due to sea level rise (Threat Rank: High)

Rising sea levels will flood salt marshes and convert them to more open water habitats. In some cases, marsh will migrate inland, although rates and locations for such migration are poorly known. It is likely that existing human infrastructure will limit the extent to which marshes will migrate, resulting in a net loss of this already limited habitat in coastal New Hampshire. Species that nest in salt marsh will have less available habitat, and that which remains may be degraded and/or more vulnerable to flooding (see flooding threat) or other disturbance. See the salt marsh habitat profile for more information.

Disturbance from increased nest flooding (Threat Rank: High)

Birds nesting in salt marsh are vulnerable to nest flooding during extreme high tides (e.g., Gjerdrum et al. 2008). To the extent that habitat alteration, human response to sea level rise, and increased storm frequency may affect tidal heights, this species should be considered additionally vulnerable to reduced reproductive success in addition to overall habitat loss.

Habitat degradation from mosquito ditching (Threat Rank: High)

Historic ditching in salt marshes was used in attempts to control mosquito populations, and generally resulted in significant impacts to habitat conditions and salt marsh function. In a study of breeding birds in the Hampton-Seabrook Estuary, McKinley and Hunt (2008) documented significantly higher populations of Saltmarsh Sparrows in the least-ditched portion of marsh, although similar data are largely lacking for Nelson's Sparrow. See the salt marsh habitat profile for more information.

Habitat impacts from tidal restriction (Threat Rank: Medium)

Dams and channelized streams alter the normal flows of tides in salt marsh habitats, often resulting in conversion to freshwater marshes (e.g., above dams), invasion by non-native plants, or altered sedimentation patterns. The resulting habitat changes generally reduce an area's suitability for nesting salt marsh birds, although data are lacking on specific effects on Nelson's Sparrow. See the salt marsh habitat profile for more information.

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Disturbance from mercury toxicity (Threat Rank: Medium)

Relatively high levels of methylmercury have been documented in salt marsh sparrows (Schriver et al. 2006, Lane et al. 2011), which are believed the result of the high proportion of spiders in this species' diet. Mercury is known to interfere with neurological function and may ultimately reduce reproductive success, although there have been no studies to date on its effects in salt marsh birds.

Habitat impacts from insecticide use (mosquito treatment) (Threat Rank: Medium)

Insecticide spraying to control disease-bearing mosquito occurs regularly in coastal New Hampshire. To date there are no specific data on the effects of this spraying on non-target organisms, including birds. While direct toxic effects are unlikely, there are no data on whether reduced mosquito populations can have bottom-up effects on sparrow prey availability and thus reproductive success.

List of Lower Ranking Threats:

- Habitat degradation and disturbance from oil spills
- Habitat degradation due to invasive or introduced plants
- Habitat impacts from road fragmentation
- Habitat conversion due to development

Actions to benefit this Species or Habitat in NH

Salt Marsh Bird Monitoring

Objective:

Collect more detailed data on population trend to evaluate species status, and information on habitat use, to help prioritize conservation actions.

General Strategy:

More detailed data on population trend will allow for better evaluation of this species' current status (and recent trends) and perhaps serve as an indicator of the effects of ongoing stressors such as sea level rise. More detailed information on habitat use – in the context of current condition and future sea level rise – are needed to better prioritize conservation actions. Continue monitoring locations surveyed by SHARP in 2010-14 into the future and contribute these data to a regional data set. See the Salt Marsh habitat profile for additional actions that may benefit this species.

Political Location:

Rockingham County

Watershed Location:

Coastal Watershed

References, Data Sources and Authors

Data Sources

NHBR/NH eBird

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Data Quality

Because salt marsh birds live in habitats that are difficult to access, there is little in the way of long term data than could be used to assess trends. That problem has been solved through the implementation of a regional monitoring program (SHARP). SHARP has also provided data on smaller peripheral populations within the state, although some historic sites may still not have been surveyed recently.

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Literature

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