Willet

Tringa semipalmata

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

Photo by Pamela Hunt

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

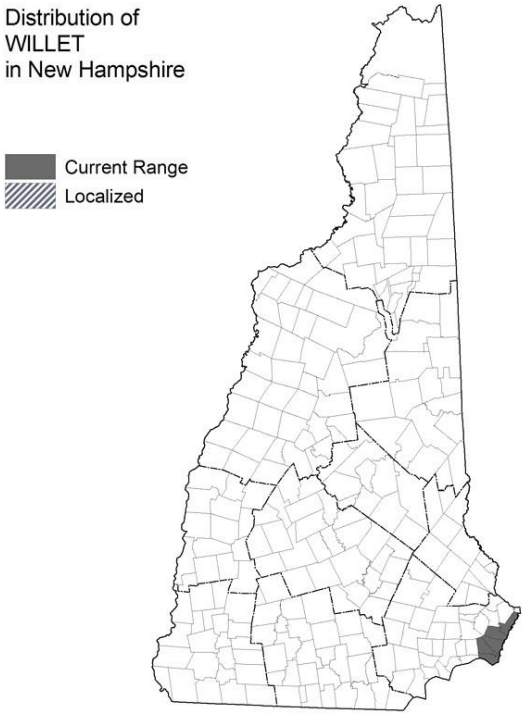
There are two subspecies (perhaps species) of Willet. The "Western Willet" breeds in freshwater marshes and prairie potholes in the Great Basin and across the northern Great Plains. The "Eastern Willet" along the Atlantic coast from eastern Canada south and west to northeastern Mexico, and also in the Caribbean from the Bahamas to northern Leeward Islands. The species winters in coastal habitats from California and Virginia south to northern South America (Lowther et al. 2001). In New Hampshire, Willets are restricted to salt marshes along the immediate coast from Rye to Seabrook.

Habitat

In the east (see Distribution), Willets breed almost exclusively in salt marshes, particularly in high marsh in areas of pools and pans (Lowther et al. 2001). Salt marshes used by Willets tend to be more extensive than those used by salt marsh sparrows, suggesting some area sensitivity. In a study in Connecticut, the smallest marsh used by this species was roughly 140 hectares in area (Benoit and Askins 2002). Willets may also nest on barrier beaches and islands, but have not been recorded doing this in New Hampshire. Other details on habitat specifics have not been extensively researched. In non-breeding season, frequents beaches, mudflats, and saltmarshes.

NH Wildlife Action Plan Habitats

- Salt Marshes
- Estuarine
- Dunes



Distribution Map

Current Species and Habitat Condition in New Hampshire

There is currently little information with which to evaluate the population size or trends of salt marsh bird species in New Hampshire. A study of the Hampton-Seabrook estuary in 2007 (McKinley and Hunt 2008) suggests that it may support approximately 25-30 pairs of Willets. Fewer than 10 pairs of Willets are likely along the rest of the coast, with the majority of these at Awcomin Marsh in Rye.

Although there are point count data for New Hampshire salt marshes dating back to the late 1990s, these are not sufficient for trend analysis. Analysis at the regional scale (USFWS Region 5) indicates stable populations since the 1990s (M. Correll, pers. comm.). Based on trends in salt marsh distribution, it is likely that the net loss of habitat and extensive ditching (see Eberhardt and Burdick 2009) have resulted in fewer birds than were historically present. Populations of Willets along the Atlantic Coast were severely reduced by market hunting and egg collecting in the late 1800s (Lowther et al. 2001), but gradually recovered during the 20th century, recolonizing New Hampshire by the 1980s.

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

- Marsh and shrub wetlands
- 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 Willets. See also salt marsh habitat profile

Habitat Protection Status

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

Habitat impacts from tidal restriction (Threat Rank: High)

Dams and channelize 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. See the salt marsh habitat profile for more information.

Disturbance from increased nest flooding (Threat Rank: Medium)

Birds nesting in salt marsh are vulnerable to nest flooding during extreme high tides. To the extent that habitat alteration, human response to sea level rise, and increased storm frequency may affect

tidal heights, these species should be considered additionally vulnerable to reduced reproductive success in addition to overall habitat loss.

Disturbance from human activities (walking, running dogs, shellfish harvest) (Threat Rank: Medium)

Disturbance results from recreational use of beaches or other habitats that shorebirds need for roosting and feeding during migration. People, pets, or vehicles using these habitats regularly flush birds, causing them to both expend energy in avoidance flights and reduce energy intake via foraging. Studies of shorebird behavior combined with physiological models suggest that repeated disturbance can reduce individual birds' chances of successfully completing migration (Harrington and Drilling 1996, Burger et al. 2007).

Habitat degradation from mosquito ditching (Threat Rank: Medium)

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. Although detailed data are lacking for Willets, 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, a pattern also seen elsewhere in the Northeast (Reinert et al. 1981). See the salt marsh habitat profile for more information.

Disturbance from mercury toxicity (Threat Rank: Medium)

Relatively high levels of methylmercury have been documented in salt marsh sparrows (Schriver et al. 2006), which are believed the result of the high proportion of spiders in this species' diet. Because Willets feed primarily on benthic invertebrates, their mercury exposure may be different, although data are lacking. 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.

List of Lower Ranking Threats:

Habitat degradation and disturbance from oil spills

Habitat degradation due to invasive or introduced plants

Habitat conversion and degradation from human climate change response

Habitat degradation from dredging and the dumping of spoils

Mortality from unregulated hunting in the Caribbean

Habitat impacts from road fragmentation

Habitat conversion and degradation from storm-altered deposition patterns

Disturbance from phenology shifts

Species impacts from siltation, acidification, fresh-water inputs, and increased temperatures

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

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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