

## Appendix A: Birds

### Red Knot

*Calidris canutus*

Federal Listing	T
State Listing	N/A
Global Rank	G4
State Rank	SNR
Regional Status	Very High



Photo by Len Medlock

#### Justification (Reason for Concern in NH)

Populations of several migratory shorebirds are in steep decline (Morrison et al. 2006, Andres 2009). Based largely on these declines, several species were proposed as RSGCN for the Northeast, and those that occur regularly in NH are included in the 2015 NH Wildlife Action Plan. Declines in the *rufa* subspecies of Red Knot have been significant enough to result in it being listed as Threatened under the ESA (U.S. Fish and Wildlife Service 2014).

#### Distribution

Red Knots of the *rufa* subspecies breed in high arctic Canada and winter along the coast of South America (Baker et al. 2013). Their spring migration relies heavily on a handful of stopover sites, including Delaware Bay and nearby areas in the mid-Atlantic states. This species is relatively rare in New Hampshire, and while it occurs annually it is rarely reported in numbers above single digits.

#### Habitat

Although migratory shorebirds of some species occur inland in NH, the species treated in the 2015 Wildlife Action Plan are almost entirely coastal in distribution, occurring primarily along the immediate coast, Great Bay (rarely), and at the Isles of Shoals. In New Hampshire, Red Knots are primarily found on beaches or tidal mudflats, but will use all coastal habitats. They do not occur on Great Bay.

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### NH Wildlife Action Plan Habitats

- Salt Marshes
- Estuarine
- Coastal Islands
- Dunes



Distribution Map

### Current Species and Habitat Condition in New Hampshire

Populations of Red Knots wintering and migration staging areas appear to have declined significantly starting around 2000, and numbers in Argentina (winter) and Delaware Bay (spring) are roughly 70-75% lower than when baseline surveys were conducted in the 1980s (U.S. Fish and Wildlife Service 2014).

### Population Management Status

Management is not currently in place for this species.

### Regulatory Protection (for explanations, see Appendix I)

- Federal Endangered Species Act
- Migratory Bird Treaty Act (1918)

### Quality of Habitat

Unknown

### Habitat Protection Status

Variable. Some of New Hampshire's coastal beaches and salt marsh areas are protected from development, but such protection does not preclude recreation use that may constitute an important threat to migrating shorebirds.

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### Habitat Management Status

Habitat is not specifically managed for this species.

### 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 and degradation due to sea level rise (Threat Rank: Medium)

Much of the original beach/dune/estuary system along the New Hampshire coast has been permanently altered by human infrastructure (roads, buildings, parking lots) and coastal engineering (salt marsh ditching, tidal restrictions, seawalls), with a net loss in habitats available for migrating shorebirds. Projected rises in sea level of even a few inches will further reduce available habitats (estuarine mudflats and rocky intertidal sites) that shorebirds need for roosting and feeding (Galbraith et al. 2014).

### Species impacts from the harvest of important prey items (Horseshoe Crabs) (Threat Rank: Medium)

Harvest of Horseshoe Crabs in the mid-Atlantic states has been proposed as a significant factor behind in Red Knot populations (Baker et al. 2013). While not a significant threat locally in New Hampshire, regional efforts may be needed to reduce this harvest.

### 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).

### List of Lower Ranking Threats:

- Habitat degradation and disturbance from oil spills
- 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 conversion and degradation from storm-altered deposition patterns

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Disturbance from phenology shifts

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

### **Actions to benefit this Species or Habitat in NH**

#### **Incorporate shorebird needs into coastal climate change planning.**

**Primary Threat Addressed:** Habitat conversion and degradation due to sea level rise

**Specific Threat (IUCN Threat Levels):** Climate change & severe weather

**Objective:**

Ensure that human activities in response to climate change do not negatively affect important shorebird habitats or stopover sites.

**General Strategy:**

Provide information on shorebird habitat and important sites to local and regional planning authorities in the seacoast area. Work with these entities to ensure that the needs of migratory shorebirds are considered in climate adaptation and response plans.

**Political Location:**

Rockingham County

**Watershed Location:**

Coastal Watershed

#### **Manage human activity relative to shorebird stopover**

**Primary Threat Addressed:** Disturbance from human activities (walking, running dogs, shellfish harvest)

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

**Objective:**

Minimize disturbance of migrating shorebirds

**General Strategy:**

Manage human disturbance through beach closures, dog restraints, outreach, volunteer “wardens,” and other means as identified. This would only need to occur during peak migration periods and primarily at key sites identified through shorebird monitoring.

**Political Location:**

Rockingham County

**Watershed Location:**

Coastal Watershed

#### **Shorebird stopover monitoring**

**Objective:**

Obtain data on distribution and abundance of shorebirds that can inform trends and prioritize conservation actions.

**General Strategy:**

Migratory shorebirds are best monitored at staging areas during migration along the Atlantic Coast, with lesser efforts directed at breeding sites and wintering areas. Because New Hampshire has such a

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small coast and limited shorebird habitat, it is recommended that the State rely on regional and/or national monitoring efforts to inform conservation planning. There may be specific research needs that relate to site-specific activities, in which case more targeted research or monitoring may be warranted.

### **Political Location:**

Northeast

### **Watershed Location:**

## **References, Data Sources and Authors**

### **Data Sources**

Most data on shorebird use of the Hampton-Seabrook estuary come from a study by NH Audubon in 2006-07 (McKinley and Hunt 2008), while general data on distribution and abundance of all species are available in the New Hampshire Bird Records and eBird databases.

### **Data Quality**

Although data on the numbers of birds that pass through New Hampshire on migration is limited, there are good data on which areas are preferred by shorebirds and the number of individuals using these at a given point in time.

### **2015 Authors:**

Pamela Hunt, NHA

### **2005 Authors:**

## **Literature**

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Galbraith, H., DesRochers, DW., Brown, S., and J.M. Reed. 2014. Predicting vulnerabilities of North American shorebirds to climate change. *PLoS ONE* 9(9):1-13

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