

# Arctic Landscape Conservation Cooperative

## Shorebird distribution maps for Arctic Alaska

### The Big Picture

As the Arctic warms, we expect widespread changes in water availability and vegetation, but it is not clear how these changes in habitat may impact bird species. Shorebirds are abundant in the Arctic, and individual species exhibit a wide range of habitat preferences. Therefore we expect differences in their response to climate change. A better understanding of each species' habitat association will provide a solid basis for predicting those responses. As a group, shorebirds may be good indicators of climate-associated ecological shifts.

**Project ID:** ARCT2010-02

**Year Funded** – 2010

**Start** – June 2010

**End** – June 2012

**Budget** – \$246,966

### Research Partners:

Manomet Center for  
Conservation Sciences  
U.S. Fish and Wildlife  
Service

### Using geospatial habitat modeling as a first step in assessing effects of climate change

#### Project Description

Researchers from the Manomet Center for Conservation Sciences will combine field observations of shorebirds with mapped physical and ecological parameters to develop a series of spatially dependent habitat selection models that predict the contemporary distribution of shorebird species across the Arctic Coastal Plain of Alaska.

#### Why We Are Interested

Reliably forecasting future species distribution and abundance depends on a solid foundation of empirical data. Unfortunately, the contemporary distribution of shorebirds on the Coastal Plain is poorly known, because few field observations are available. This project lays the ground-work for habitat selection models and models of future population response to climate-associated habitat change



Ruddy Turnstone (*Arenaria interpres*). Photo by USFWS



## What Will Be Done

Researchers will compile existing shorebird presence/absence data and nest locations from a variety of sources (Figure 1). They will test whether species distributions are statistically related to measurable habitat characteristics, such as landcover and distance to coast. If so, they will develop habitat selection models that would describe the contemporary distribution of shorebird species across Alaska's Arctic Coastal Plain.

## Expected Outcomes

This work will generate predictive models that can be used to predict the presence of various shorebird species throughout Alaska's Arctic Coastal Plain. If these models cannot be developed due to a lack of data, then this project will identify gaps that need to be filled in order to predict species response to climate change.

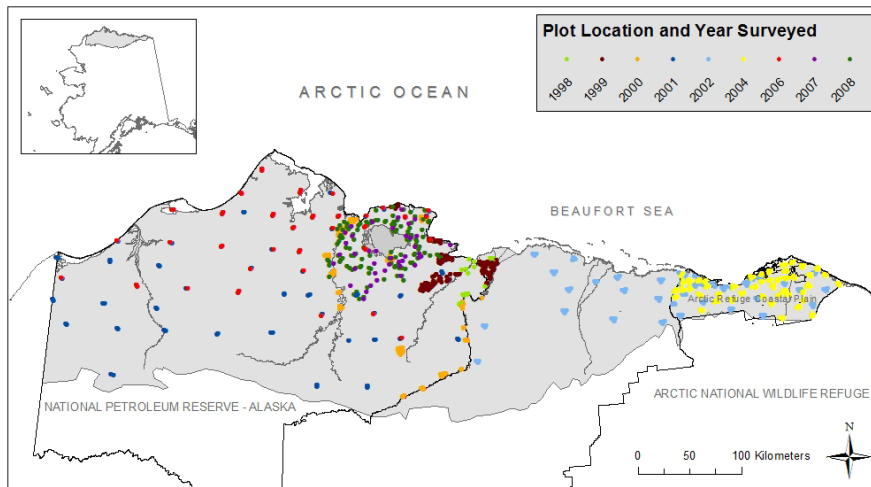


Figure 1: Location of the study area (shaded), major administrative boundaries, major riverine areas, and plots surveyed between 1998 and 2008.

## Timeline

July 2011: Text Compile GIS databases on shorebird presence and absence and nest sites; identification of key physical and ecological parameters to include in the model.

July 2012: Final report and predictive models.



The mission of the Arctic LCC is to identify and provide information needed to conserve natural and cultural resources in the face of landscape scale stressors, focusing on climate change, through a multidisciplinary program that supports coordinated actions among management agencies, conservation organizations, communities, and other stakeholders.

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Climate-mediated changes in habitat may have a profound effect on those species of shorebirds that rely on habitats on the Arctic Coastal Plain during the breeding season.

June 2011

To learn more about this project and other Arctic LCC projects visit: [arcticlcc.org](http://arcticlcc.org)  
or contact Greg Balogh, Coordinator at [greg\\_balogh@fws.gov](mailto:greg_balogh@fws.gov)  
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