

# Inventory of breeding birds in Aniakchak National Monument and Preserve



Marbled Godwit. Photo by Dan Ruthrauff, USGS.



Male Snow Bunting. Photo by Bill Thompson, NPS.



## Background

- This inventory was conducted within the framework of the NPS' Inventory and Monitoring (I&M) program to establish baseline information on the avian resources within Aniakchak National Monument and Preserve (ANIA).
- This work represents the first systematic survey of birds in ANIA. Prior to this inventory, little was known about the status and distribution of birds in ANIA.
- This inventory complements recent work employing similar methodologies in Katmai and Lake Clark National Parks and Preserves (Ruthrauff et al. 2007) and Kenai Fjords National Park (Van Hemert et al. 2006).

## Objectives

In order to provide park managers with accurate information on the status, distribution, and habitat affinities of breeding birds in ANIA, we addressed two principal objectives:

- Document as many bird species as possible that occur within ANIA during the breeding season using targeted field investigations.
- Describe the distribution, habitat associations, and relative numbers of bird species that occur within ANIA during the breeding season.

## Methods

- Survey points allocated to ecological subsections in proportion to subsection extent, as well as to areas with unique habitats or landforms.
- Conducted unlimited distance point counts and focal area searches.
- Utilized the Viereck (Viereck et al. 1993) vegetation classification system to classify habitat within 50 m (closed habitats) or 150 m (open) of each survey point.
- Defined sites as either low (<120 m), middle (120–320 m), or high elevation (321–625 m) based on the distribution of vegetation cover.
- Assigned the 13 most-commonly detected species to elevation classes based on their occurrence at survey points.
- Calculated the percent cover of vegetation types within each elevation category.

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## Inventory Highlights

- First systematic inventory of breeding birds in Aniakchak. Previous ornithological observations were typically collected opportunistically, usually at Surprise Lake and along the Meshik River corridor in late summer / fall.
- Documented the occurrence of seven species not previously detected in Aniakchak: Gadwall, Golden Eagle, Merlin, Marbled Godwit, Downy Woodpecker, Horned Lark, and Hoary Redpoll.
- Documented the presence of 21 species of conservation concern.
- Discovered first active nest in Alaska for the Marbled Godwit. This subspecies (*Limosa fedoa beringiae*) breeds only in Alaska and numbers ~2,000 individuals. This subspecies is listed as a species of high conservation concern in within the U.S. Shorebird Conservation Plan (Brown et al. 2001).
- Taken together, these recent inventories (Van Hemert et al. 2006, Ruthrauff et al. 2007, Ruthrauff and Tibbitts 2009) systematically document much of SWAN's breeding landbird community, and provide a scientific framework for monitoring future ecosystem change.

## Inventory Results

- Inventory conducted from 30 May–8 June, 2008.
- Conducted 136 point count surveys at 8 10-km x 10-km plots and focal area searches at 6 locations (Figure 1).
- Detected 67 species during the inventory, including 21 species of conservation concern. (See handout for complete species list)
- Detected 7 species not previously recorded in ANIA: Gadwall, Golden Eagle, Merlin, Marbled Godwit, Downy Woodpecker, Horned Lark, and Hoary Redpoll.
- The most commonly-detected species were Golden-crowned Sparrow, Wilson's Warbler, and Hermit Thrush. These three species were also the most widely-distributed species.
- Inventory results confirmed the breeding status of numerous species in ANIA. Especially noteworthy was the discovery on 4 June of the first-ever active nest of a Marbled Godwit in Alaska.
- Elevational distribution of the 13 most commonly detected species is shown in Figure 2:
  - 7 species were characteristic of low elevation sites (e.g., Hermit Thrush, Wilson's Warbler, Golden-crowned Sparrow).
  - 4 species were associated with middle elevation sites (e.g., Willow Ptarmigan, American Pipit, Fox Sparrow).
  - 2 species were primarily detected at high elevation sites (Semipalmated Plover and Snow Bunting).
- The percent cover of vegetation types within each elevation category is represented in Figure 3:
  - Low elevation sites were dominated by low (primarily *Salix* species) and tall shrubs (*Alnus* and *Salix* species).
  - Middle elevation sites were characterized by low and dwarf shrubs (primarily *Empetrum nigrum*).
  - High elevation sites contained dwarf shrubs and bare ground (Figure 4).

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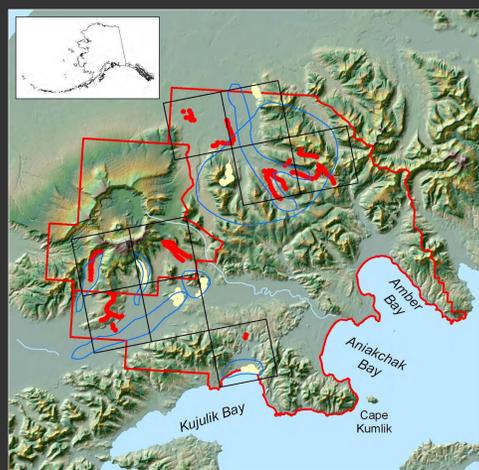


Figure 1. Aniakchak study area. 10-km x 10-km sample plot boundaries are in black, focal areas of special bird interest are in blue, survey points are depicted by red circles, focal-area survey crew locations are shown by yellow circles, and the Monument and Preserve boundary is in red.

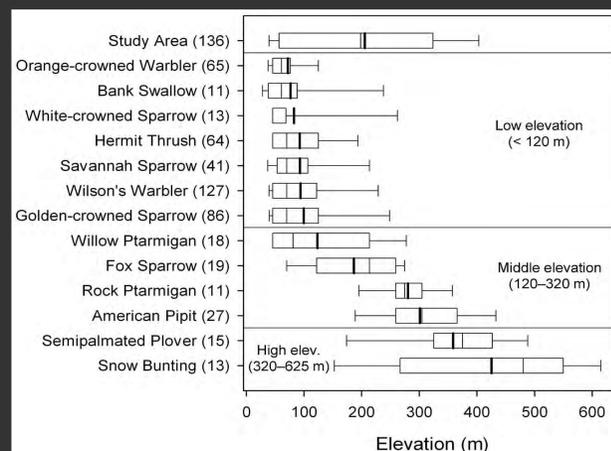


Figure 2. Elevational distribution of species commonly detected in Aniakchak. Box plots show median (thin vertical line), mean (thick vertical line), quartiles (open box), and 10th and 90th percentiles of values (whiskers). Number of detections in parentheses.

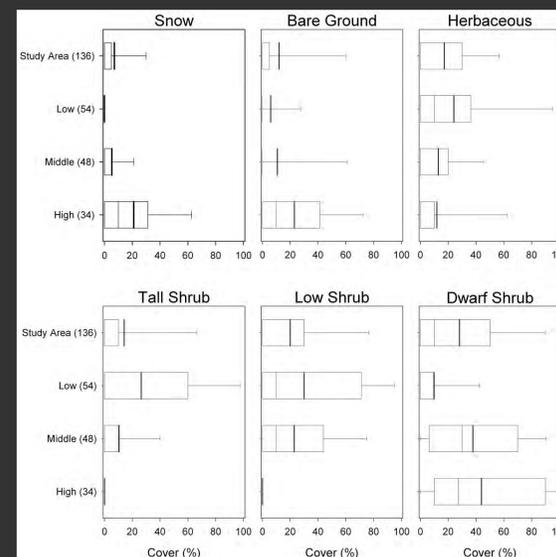


Figure 3. Percent cover of habitats and snow by study area and by elevational category in Aniakchak. Symbols as in Figure 2.



Figure 4. Aniakchak is largely defined by recent volcanic activity. Lisa Pajot conducts a point count at a low elevation site with expansive cover of volcanically-derived bare ground.

## References

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