



Alagnak

Aniakchak

Katmai

Kenai Fjords

Lake Clark

SWAN Field Season Highlights 2009

Eagle Nest Survey - KEFJ

Park and SWAN staff conducted the first NPS survey of bald eagle nests along the park coastline since 2002. Information gathered will be used to design a long-term monitoring program for nest occupancy and productivity of bald eagles in KEFJ.

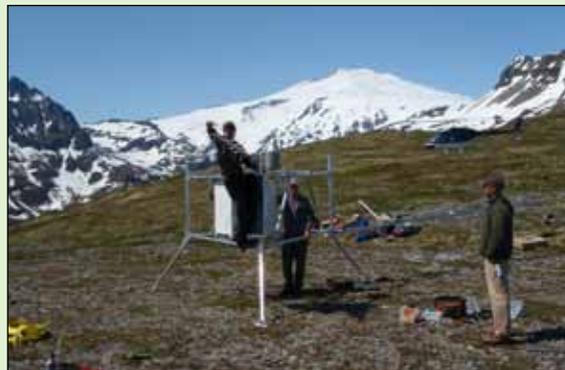
- Observers detected 44 active nests with incubating adults or eggs and 36 empty nests.
- Active nests occurred in three tree species: Sitka spruce (37), mountain hemlock (4) and balsam poplar (1). Two nests were located on the ground.
- 75% of the active nests were within 65 feet (20 meters) of the shoreline.
- The survey covered approximately 500 miles (800 kilometers) over seven days.



Resources Chief, Shelley Hall, and Pollux Aviation pilot Chuck Redd, head toward Bradley Lake during the bald eagle nest survey, May 2009.

Weather and Climate

Basic climatological data are necessary to understand how ecosystems are changing – from retreating glaciers to changes in the distribution, abundance, growth, and productivity of plant and animal communities.



Physical Scientist, Chuck Lindsay, and Geologist, Bruce Giffen, install the Fourpeaked weather station in KATM as pilot Nathan Hysbyn looks on. Fourpeaked Mountain is in the background.

- Installed two additional RAWS weather stations; one on the KATM coast, and one at a high elevation inland site in LACL.
- Performed annual maintenance on 7 RAWS weather stations; 2 stations in KEFJ required intensive repairs due to heavy winter icing; 1 station in LACL was damaged by bears.
- Data can be viewed at the Western Regional Climate Center website and some popular commercial weather service websites.

Marine Nearshore

Nearshore habitats provide a link between the terrestrial and aquatic ecosystems. They provide feeding and nesting grounds for a host of marine birds and large mammals, and nursery sites for marine organisms.

- Completed first skiff-based winter bird survey in KATM to characterize the density and distribution in over-wintering marine ducks.
- Initiated soft sediment invertebrate monitoring and marine bird surveys in LACL.
- SWAN staff assisted in the capture of 30 sea otters within KATM as part of a larger study being conducted by the National Pacific Research Board to examine sea otter body condition across the threatened southwestern Alaskan stock.



SWAN Ecologist, Heather Coletti, and Fisheries Biologist, Dan Young, sample soft sediments for invertebrates (LACL).

SWAN Field Season Highlights 2009 Continued

Freshwater Chemistry and Surface Hydrology

Aquatic systems in SWAN park units comprise some of the largest and most pristine freshwater resources in the national park system. Hydrology and water quality monitoring are fundamental to understanding the biophysical characteristics of these vast aquatic resources.



SWAN Aquatic Ecologist, Jeff Shearer, records stream discharge in Exit Creek, KEFJ. Exit Glacier can be seen in the upper right.

- Collected 70 vertical lake profiles measuring core WQ parameters (water temperature, pH, dissolved oxygen, specific conductivity) on Lake Clark (LACL), Naknek Lake (KATM), and Lake Brooks (KATM).
- Completed 3rd year of continuous water temperature monitoring in Lake Clark and 1st year in Naknek Lake.
- Lake stage was continuously measured on Lake Clark, Kontrashibuna Lake (LACL), Lake Brooks, and Naknek Lake (KATM) from June through September.
- Continuous water quality and stage data were collected in Exit Creek (KEFJ) and the Chulitna River (LACL).

Ground-based Vegetation Monitoring

Vegetation is integral to ecosystem function and element cycling, and is a sensitive indicator of environmental change. Ground-based monitoring is intended to target changes in vegetation structure, and species composition that are too subtle spectrally, or occur at too fine a scale, to monitor through remote sensing techniques.

- 33 vegetation monitoring plots were established in KATM in low elevation spruce woodland and closed forest, mid-elevation spruce woodland (treeline), and mid-elevation dwarf shrub tundra.
- Soil temperature dataloggers were installed at eight of the sites with three sites in proximity to a RAWS weather station.
- Rosemary Sherriff, Humboldt State University, joined the crew in August to establish long-term monitoring plots in forested sites affected by the spruce bark beetle (*Dendroctonus rufipennis*).



SWAN Ecologist, Amy Miller, and Data Manager, Cuyler Smith, conduct baseline monitoring of species composition in dwarf shrub tundra (KATM).

Rare Lichens Found - KATM

Erioderma pedicellatum, a globally endangered lichen, known from only two populations in North America, was discovered at a site in KATM. The other known population from western NA occurs on the south side of the Alaska Range.

Hypogymnia pulverata (Nyl.) Elix, a lichen known from the southern hemisphere but rare in NA, was found in several locations in KATM.



Erioderma pedicellatum (Hue) P.M.Jørg.

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U.S. Department of Interior

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<http://science.nature.nps.gov/im/units/swan/>