



Elk Populations

RESOURCE MONITORING BRIEF

National Park Service
U.S. Department of the Interior

North Coast and Cascades Network
Inventory & Monitoring Network



IMPORTANCE

With their large size and wide-ranging movements, elk play an influential role in Pacific Northwest ecosystems. From coastal sloughs and lowland rain forests, up through subalpine meadows, these majestic herbivores affect plant growth and species composition, play a role in nutrient cycling, and are prey for predators such as bears and cougars. Outside park boundaries, elk viewing and hunting opportunities are valued recreational activities and are important for the regional economy.

Elk protection was a key reason for the establishment of Olympic National Park, and elk are important ecological and cultural components of other North Coast and Cascades Network (NCCN) parks. Biologists with NCCN and the U.S. Geological Survey are developing reliable methods for elk monitoring at Olympic National Park and Lewis and Clark National Historical Park. The NCCN and USGS are also working with the Muckleshoot Indian Tribe, the Puyallup Tribe of Indians, and the Washington Department of Fish and Wildlife to improve elk monitoring in subalpine habitats of Mount Rainier National Park.

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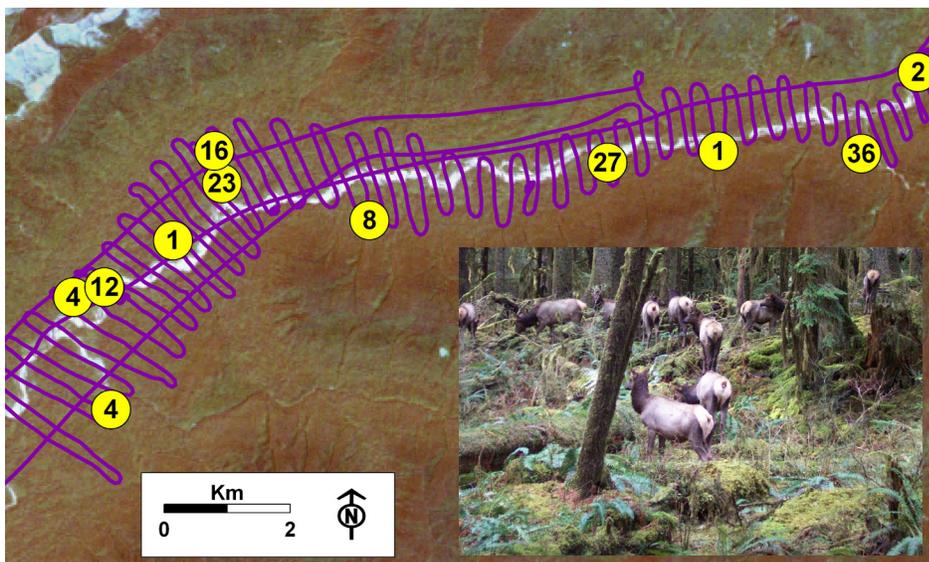
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Monitored at:

Lewis and Clark National Historical Park

Mount Rainier National Park

Olympic National Park



Helicopter flight path (purple) of the March 22, 2008 elk survey crisscrossing the Queets river valley, Olympic National Park. Where elk groups were seen, yellow circles are labeled by group size. Inset: An elk group in coastal forest at Olympic National Park (Photo credit: Olympic National Park).

STATUS and TRENDS

Biologists monitor elk populations using a variety of methods. On the ground at Lewis and Clark National Historical Park, NCCN and USGS biologists searched for elk fecal pellets in plots throughout the Fort Clatsop park unit in November 2008; pellet density in an area is related to elk use. At Lewis and Clark National Historical Park, biologists also monitor elk populations by driving survey routes along park roads.

At the larger parks, biologists conduct aerial counts using helicopters. Even from this vantage, not all elk in a surveyed area can be detected. One goal in Olympic National Park and Mount Rainier National Park is to estimate how factors such as group size, and the amount and type of vegetation in which the group is located influence an elk group's 'sightability,' which is the probability of detecting an elk group that is in the surveyed area. This can best be determined using radio-collared animals. The collars serve as known marks. If an animal is not seen during a survey, the radio-transmitter is used to find where it was when the survey occurred, and determine if the animal was missed, or if it was not in the surveyed area. Elk surveys in 2008 included three spring and three fall surveys at Olympic National Park, and eight fall survey flights at Mount Rainier National Park. Draft narratives for the NCCN elk monitoring protocol will be completed by July 2009.

DISCUSSION

Because of topography and density of vegetation at the parks, estimating elk 'sightability' can only be conducted with radio-collared elk. In 2008 trial surveys at Mount Rainier National Park, biologists were able to track elk that had Muckleshoot Indian Tribe radio collars. During surveys this led to observations of 27 elk groups with at least one radio collar; increasing that sample size is a key goal for 2009. At Olympic National Park, 11 elk that were fitted with radios in September 2008 will be available for sightability observations, which start in the spring 2009 surveys. GPS units on seven of the collars have been e-mailing four location points per day to NPS and USGS biologists, greatly increasing our understanding about movement patterns of this keystone species in the park ecosystem.

