

Elk

Lewis and Clark, Mount Rainier, Olympic

I & M RESOURCE BRIEF

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 US Geological Survey (USGS) have developed an improved methodology for elk monitoring at Lewis and Clark National Historical Park (LEWI). The NCCN and USGS also worked with the Muckleshoot Indian Tribe, the Puyallup Tribe of Indians, and the Washington Department of Fish and Wildlife to increase the accuracy of surveys in subalpine habitats of Mount Rainier (MORA) and Olympic (OLYM) national parks.

Status and Trends

Biologists monitor elk populations using a variety of methods. On the ground at LEWI, NCCN and USGS biologists, other park staff and community volunteers search for elk fecal pellets in plots throughout the Fort Clatsop park unit every March and November. Pellet counts provide an accurate index to population size. At LEWI, biologists also monitor elk groups that are seen from road survey routes in and near the Fort Clatsop unit.

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 at OLYM and MORA 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. From 2008-2010 biologists at MORA used radio-collared animals to gather data and develop a model that allows the estimation of sightability during the aerial surveys. If a radio-collared animal was not seen during a survey, the radio-transmitter was 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. A sightability model was developed for elk monitoring in MORA, and is currently under development at OLYM. In 2011 we flew five fall surveys at OLYM and three fall surveys at MORA.

Discussion

Because topography and vegetation reduce visibility of elk, estimating elk 'sightability' can only be conducted with radio-collared elk. From 2008-2010 in surveys at MORA, biologists were able to track elk with radio collars supplied by the Muckleshoot Indian Tribe and Puyallup Tribe of Indians. During surveys this led to observations of 97 elk groups with at least one radio collar. At OLYM, elk that were fitted with radios in 2008, 2009 and 2010 will be available for future sightability flights. GPS units on seven of the collars have been broadcasting 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.



Above A herd of Roosevelt Elk, from an aerial survey, September 2011. OLYM/Happe

Right Note elk standing on the snow has a radio collar. OLYM/Happe



CONTACTS Patti_Happe@nps.gov OLYM
Mason_Reid@nps.gov MORA
Carla_Cole@nps.gov LEWI