2015 Accomplishments

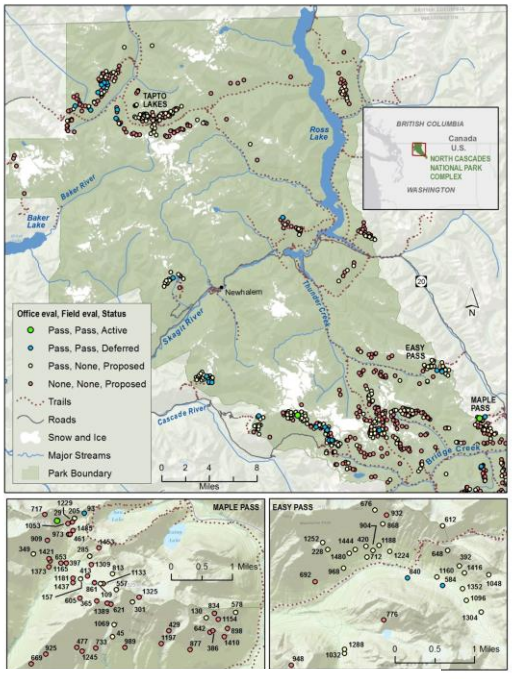
National Park Service
U.S. Department of the Interior

North Cascades National Park

Skagit Environmental Endowment Commission Projects at North Cascades National Park

Alpine/subalpine vegetation monitoring

Three National Park units, working together in the NPS North Coast and Cascades Network (NCCN), have developed an Alpine/Subalpine Vegetation Monitoring Program. These include North Cascades (NOCA), Mount Rainier (MORA), and Olympic (OLYM)) National Parks. The program is designed to monitor trends and changes in the alpine and subalpine vegetation communities. This will provide information concerning the changes in structure and composition of vegetation, timing of snow melt and changes in plant blooming and fruiting times (phenology). The program, as funded through the NCCN, is adequate to provide trend information at both 'network' and 'park' spatial scales. However, the funding is not adequate to support finer- scale questions that annual visits will provide, including phenological changes.



Example of potential sites on a field map

The alpine landscape

The Skagit Environmental Endowment Commission (SEEC) has provided additional funding (2014-2018) support for the NOCA) component of the NCCN Alpine/subalpine Vegetation Monitoring Program. SEEC funds are being used to expand our overall representation of alpine/subalpine vegetation within the Skagit drainage, enhancing our understanding of these vegetation communities and how they may change over time in the face of climate change.

MONITORING GOAL

The goal of the alpine and subalpine vegetation monitoring program is to understand the response of vegetation in the alpine treeline ecotone to climate change, within the three mountainous parks of the North Coast and Cascades Network

MONITORING OBJECTIVES - Determine status and trends in:

1. Composition and structure of alpine and subalpine vegetation communities in MORA, NOCA, and OLYM
2. Soil temperature and snow cover in vegetation plots
3. Structure and condition of whitebark pine stands in MORA, NOCA, and OLYM.

METHODS

1. The target population is limited to areas in each park that are within 1.5 km of trails and roads and where the slope is ≤35°
2. A Generalized Random Tessellation Stratified (GRTS) sample was drawn for each park to produce a spatially balanced, random sample. The sample frame was developed by overlaying a grid of points spaced 10 m apart.
3. Alpine & subalpine sample points must have <25% tree cover; plots are 10m x 10m.
4. Whitebark pine plots are 0.1 ha circular plots with a minimum of 10 whitebark pine trees; plots may have ≥25% tree cover.

Field crews navigate to the sites and determine their suitability for establishment. This is referred to as reconnaissance. If a site is determined suitable, a plot is established, and vegetation monitoring begins.

Objectives - 2015

- Conduct reconnaissance of subalpine and alpine plot locations within the Skagit Drainage
- Install plots which meet selection criteria
- Collect data and install data loggers

Whitebark pine

Summary of 2015 Field Sampling Activities

In 2015, field crews were based at Olympic National Park (OLYM) and at NOCA. At NOCA 40 sites were field checked- 32 were rejected, 8 were accepted. 12 plots were set up and surveyed - some of these have been evaluated and passed the field check in previous field surveys. 4 of the 9 plots installed were whitebark pine plots. Within the Skagit drainage, 15 plots were surveyed. Of those 10 were rejected as not suitable, 3 were installed and 1 will be installed in 2016.

Plans for 2016 Season

In 2106, field reconnaissance will continue for suitable plots, and plots will be established with an overall goal for 20 alpine plots and 20 subalpine plots for the entire park. Plots will be established, and vegetation will be monitored.