

RESEARCH ABSTRACT

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Study Title: Effects of elk and deer on early forest succession at Mount St. Helens

Key Words: terrestrial plants animals upland vegetation
shrubs herbs grasses vertebrate mammal elk
deer succession long-term studies debris avalanche blowdown zone

Abstract: The objective of this study is to determine the role of elk and deer in the recovery of both natural and managed vegetation following volcanic disturbance. Additionally, we are interested in documenting the influence of elk and deer on vegetation establishment in areas that received different levels of volcanic impact. This goal will be achieved through a network of exclosures that will allow cross-site comparisons.

To date elk exclosures have been installed at three locations within the Mount St. Helens National Volcanic Monument. The Coldwater exclosure is located at a pre-eruption clearcut site within the blowdown zone. The Castle exclosure is located on the debris avalanche deposit in the North Fork Toutle valley. The Clearwater exclosure is located in an area that had been salvage logged and reforested following the eruption. Additional exclosures are planned but are dependent upon additional funding.

Adjacent to each exclosure a "control" plot of equal size will be installed. The difference in vegetation attributes between the control plot and that of the exclosure should reflect the influence that elk are having on the returning plant communities at each site. Each exclosure is 70.75 X 70.75 m (232' X 232') and is surrounded by an eight foot high wire stock fence. An area 60 X 60 m within the fenced exclosure will be sub-sampled. The control plot and area sub-sampled within it are the same dimensions as for the exclosure.

Type of Measurement(s): Two methods of vegetation sampling are used in both the exclosure and control plot: 1 square meter subplot and 15 meter line intercept.

125 - 1 square meter subplots: percent cover by species; total stems of *Epilobium angustifolium* taller than 20 cm; number of stems of *E. angustifolium* browsed (control only).

15 - 15 m line transects: species; beginning and ending points of interception with tape to the nearest centimeter; height of *E. angustifolium* stems taller than 20 cm; *E. angustifolium* browsed (yes or no; control plot only).

Frequency of Measurement(s): Exclosure and control plots at Coldwater Lake were sampled during September 1991. Castle plots were sampled in August, 1992. Clearwater plots were sampled in August, 1993. All plots will be sampled in 1994 and at three year intervals, thereafter.

Data Storage: Field notes and data sheets are on file in the Monument Scientist's office at the Mount St. Helens National Volcanic Monument Headquarters.

Long-term plans: Data available for collaborative efforts: This is a long term study. Monument Science staff plans on sampling these plots for many decades. Additional exclosures are planned but installation and sampling are dependent upon additional funding. Data are available for future collaborative efforts.