

RESEARCH ABSTRACT

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**Study Title:** Community reassembly following volcanic disturbance: the ground dwelling beetles (Coleoptera)

**Key Words:** terrestrial arthropod insect beetle Coleoptera  
succession ecosystem ashfall zone blowdown zone pyroclastic flow  
debris avalanche long-term studies

**Abstract:** This study documents the recovery of beetles within the volcanically disturbed areas of Mount St. Helens and should provide an index to the rate and stage of ecosystem recovery at various points in time since the eruption. Beetles are ideal for monitoring ecological recovery following disturbance as they represent a broad trophic array. The ground dwelling beetle fauna of forests and clearcut habitats were sampled using pitfall traps (10 traps/site) that were open from the time of spring snow melt to early autumn from 1982-1984 and again in 1987 and 1990. Sites sampled include undisturbed "reference" areas and three post-eruption habitats (ashfall, blowdown, and pyroclastic/debris flow).

Some specimens remain to be identified and the complete data set needs to be analyzed, nevertheless, preliminary results suggest that there are extreme differences in species composition and abundances among the variously disturbed sites. Notably, the pyroclastic/debris flow site is dominated by ground beetles (Carabidae) and tiger beetles (Cicindelidae), while the blowdown habitat support large populations of long-horn beetles (Cerambycidae), "click" beetles (Elateridae), and darkling beetles (Tenebrionidae). The undisturbed forests and clearcuts are dominated by a large variety of rove beetles (Staphylinidae). The abundances of these beetle groups reflect the relative availabilities of food resources on each of the plots (insect prey, plant materials, fungi, etc.).

**Type of Measurement(s):** Species composition, richness and abundance are the data recorded.

**Frequency of Measurement(s):** Pitfall traps were operated from late spring through early autumn for years, 1982-1984 and again during 1987 and 1990. Contents of traps were gathered on a three or four week interval.

**Data Storage:** Samples, identified specimens, and reference collections will be deposited at the Insect Collection at Oregon State University, University of New Mexico's Museum of Southwestern Biology and at

the Mount St. Helens National Volcanic Monument. Data is on summary forms and on ASCII files at the University of New Mexico, Biology Department and at the Mount St. Helens National Volcanic Monument.

**Long-term plans:** Data available for collaborative efforts: Uncertain as to the longevity of this study. Collaborative efforts will be considered on a case specific basis.