

RESEARCH ABSTRACT

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**Study Title:** Effects of pocket gopher (*Thomomys talpoides*) mounds on plant reestablishment processes.

Key Words:       terrestrial           plant           animal           vertebrate  
seedling       survival           gopher           blowdown zone   archives

**Abstract:** This study documents that pocket gophers in the blast zone did survive the May 1980 eruption of Mount St. Helens, and they did have an effect on early plant re-establishment within the blast zone. One study site is approximately 20 km northeast of the volcano. This site received a layer of pumice and ash to an average depth of 12 cm in 1980. Vegetation on gopher mounds was compared to that on surrounding un-mounded soil surface. Findings show that species composition is different; there are more residual species on mounds, and seedlings on mounds are more likely to survive and contribute to future local population growth.

A second site, 12 km northeast of the volcano in the blowdown zone, was chosen for additional study. As of 1988 results from sampling this site were not conclusive as to the influence of pocket gophers on plant reestablishment because overall revegetation of the area was still very limited.

Type of Measurement(s): 20 cm x 50 cm or 25 cm by 50 cm quadrats were centered on each mound and adjacent to each mound, .75 meters from it. Plant species identified, individuals counted and growth rate (cm/year) measured for individual plants. In the blowdown zone, all vegetation within randomly located 2 by 2 meter (N=14) permanent plots was tabulated and mapped, as was vegetation within randomly located 25 cm by 50 cm quadrats (N=30); survivorship of marked individuals was noted.

**Frequency of Measurement(s):** 54 mounds created in 1980 and 1981 at the tephra fall site were sampled in 1981, 1982, 1983, and 1988. Mounds created in 1982-1984 at the blowdown site were sampled in 1984 and 1988.

**Data Storage:** Tabulated data are on floppies in ABSTAT or LOTUS files, and field maps of plots and marked mounds are in Andersen's personal possession. Maps have been digitized using Intergraph IGDS software and are available on tape for use in a geographical information system to bona fide investigators.

**Long-term plans:** Data available for collaborative efforts: Andersen hopes to continue to monitor blowdown site in the future as revegetation of the area increases; influence of pocket gophers on revegetation may become evident. Future work at this site may also include monitoring changes in small mammal populations; will pocket gopher population increase as vegetation increases? Opportunity to return and continue investigation depends on funding and schedule (work would have to be conducted independently of current position, probably using vacation or leave time). Andersen is willing to share data or otherwise cooperate with investigators interested in monitoring the permanently marked plots he has established.