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Ecological Responses to the 1980 Eruptions of Mount St. Helens

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The eruption of Mount St. Helens on May 18, 1980, had a momentous impact on the fungal, plant, animal, and human life from the mountain to the far reaches of the explosion's ash cloud and mudflows. Although this intense natural event caused loss of substantial life and property, it also created a unique opportunity to examine a huge disturbance of natural systems and their subsequent responses. Based on one of the most studied areas of volcanic activity, this book synthesizes the ecological research that has been conducted for twenty-five years since the eruption. Research from geology as well as plant and animal ecology has been integrated in this unprecedented look at the complex interactions of biological and physical systems in the response of the volcanic landscape. Lessons from the volcano inform our larger understanding of ecosystem disturbances, natural processes, and the impact of land-use practices. Included are results of significant and long-term research on vegetation, mycorrhizae, plant and animal interactions, arthropods, amphibians, mammals, fish, lakes, nutrient cycling, geomorphology, and environmental management. This comprehensive account will be of value to those interested in natural history, ecology, disturbance, conservation biology, limnology, geoscience, and land management. Questions about what actually happens when a volcano erupts, what the immediate and long-term dangers are, and how life reasserts itself in the environment are discussed in full detail.

From the contents: ▶ Disturbance ecology ▶ Geological and ecological setting before May 18, 1980 ▶ Geophysical environments & events at Mt. St. Helens since March 1980 ▶ Spatial & temporal stratified analysis of landscape-scale vegetation change during the first 20 years following the eruptions ▶ Plant recovery in forest understories of the tephra-fall zone ▶ Vegetation recovery on volcanic mudflows ▶ Plant succession on the debris avalanche ▶ Proximity effects, microsites & biotic interactions during early primary succession ▶ Ups & downs of a biological mutualism: mycorrhizae & Mt. St. Helens ▶ The importance of herbivores in early primary succession at Mt. St. Helens ▶ Arthropods as pioneer (primary) colonists of the blast zone ▶ Post-eruption arthropod succession on Mt. St. Helens: ground-dwelling beetle fauna (Coleoptera) ▶ Fish responses & recovery in systems impacted by the 1980 eruptions ▶ Resistance & resilience of an amphibian assemblage to catastrophic disturbance at Mt. St. Helens ▶ Reorganization of avian assemblages on lands impacted by the 1980 eruptions ▶ Small mammal colonization on Mt. St. Helens 1980-2000 ▶ Response & recovery of lakes in the blast zone ▶ Policy implications ▶ Synthesis

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