

Researcher sees how forests thrive after fires and volcanoes

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Forests hammered by windstorms, avalanches and wildfires may appear blighted, but a Washington State University researcher says such disturbances can be key to maximizing an area's biological diversity.

In fact, says Mark Swanson, land managers can alter their practices to enhance such diversity, creating areas with a wide variety of species, including rare and endangered plants and animals.

"The 1980 eruption of Mt. St. Helens, for example, has created very diverse post-eruption conditions, and has some of the highest plant and [animal diversity](#) in the western Cascades range," says Mark Swanson, an assistant professor of [landscape ecology](#) and silviculture in Washington State University's School of the Environment.

Swanson, who has studied disturbed areas on Mount St. Helens and around western North America, presents his findings this week at the national convention of the [Ecological Society of America](#) in Portland.

His findings run counter to a widely held perception that most, if not all rare species tend to require older forests, not younger. In fact, he says, a substantial proportion of Washington's state-protected forest plants and animals spend some or all of their life cycle in areas rebounding from a major disturbance. That's because such habitats often include [woody debris](#) and snags, varied landscape patterns, and a rich diversity of plants that can be exploited for food and shelter.

"Severe fire in the northern Rockies creates conditions for some rare birds that depend on abundant dead trees, like the black-backed woodpecker," says Swanson. "It can benefit a host of other organisms, too, like elk, deer, [bighorn sheep](#), some [frog species](#), and many more."

Forest disturbances can be natural events, says Swanson, but they can also be the product of carefully designed forest harvests. In either case, he says, forest managers can help maximize [biological diversity](#) with practices that extend the time it takes the forest to return to a climax state with a closed canopy.

Clearcutting often leaves too little behind to provide habitat for a diversity of species, Swanson says. Also, clearcut areas are often reforested too quickly to allow open conditions and a diverse herb and shrub community to persist. By the same token, post-disturbance logging can hurt [diversity](#) by removing structures favored by plants and animals.

However, where maintaining biodiversity is an objective, like on federal lands, timber harvests can be designed to mimic natural disturbance and create habitat for some species that depend on a forest's recovery, or succession, says Swanson. Afterwards, he says, managers should avoid dense "recovery" plantings that can so shorten a forest's succession that they give short shrift to the ecological role of its early stages.

Provided by Washington State University

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