Managing Post-Fire Vegetation Change in a Warming Climate

Warmer, drier and longer fire seasons in the Northwest have led to increased frequency of large wildfires in recent decades. These changes in climate and fire regime have in turn led to growing concern that in some areas of the Northwest, particularly in the semi-arid forests and sagebrush ecosystems east of the Cascade Mountains, existing vegetation communities may face difficulty regrowing after fires, transitioning instead to different kinds of vegetation (e.g., from forest or sagebrush to grassland).

The Northwest Climate Adaptation Science Center’s (NW CASC) 2020 Deep Dive convened natural resource managers and scientists from across the Northwest in a virtual working group process to review what is known and unknown about managing climate-driven, post-fire vegetation transitions in the Northwest.

Key Findings

> Climate-driven, post-fire vegetation transitions are occurring in shrubland and forest systems in the Northwest, especially at lower elevations east of the Cascade Range.

> Managers are observing transitions and are concerned but face institutional barriers and resource limitations that hinder their ability to respond.

> The effectiveness of strategies for managing post-fire vegetation transitions remains largely untested but likely varies depending on where or when action is taken.

> Traditional Knowledge has not received adequate recognition or respect from non-tribal entities, limiting its meaningful integration into the management of post-fire vegetation transitions.

> There are many online tools that can help guide management decision-making around climate-driven, post-fire vegetation transitions, but little assessment or guidance exists to inform their use.

> Managing vegetation transitions is a function of what is both biophysically possible and socially acceptable.

> Collaboration and knowledge sharing among diverse partners - while challenging - will be necessary to manage vegetation transitions at ecologically relevant scales.

Deep Dive participants also identified research and capacity-building needs for informing management of post-fire vegetation transitions. Research needs include better understanding of the likelihood and consequences of post-fire transitions in the Northwest, the effectiveness of available management strategies and better integration of Traditional Knowledge in management strategies. Capacity-building needs include training, guidance and knowledge sharing for natural resource managers; engaging the public and affected community members; and elevating relevant experience and expertise of tribal nations.

Results and products of the 2020 Deep Dive will help inform actionable science investments by the NW CASC and its partners to support management of climate-driven, post-fire vegetation transitions in the Northwest. In addition, the collaboration of scientists and managers to co-produce 2020 Deep Dive results and products helped build the community of practice around this emerging climate risk through peer-to-peer learning, networking and a cross-disciplinary exchange of knowledge and ideas.

For more information, visit: https://nwcasc.uw.edu/resources/actionable-science-deep-dives/