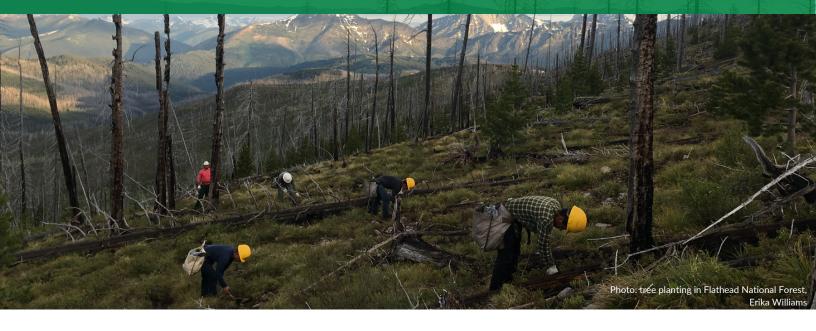
Post-Fire Recovery

Hotter and more destructive wildfires are making it hard for forest ecosystems to re-establish after severe wildfire. Ecologically-minded management helps forest landscapes recover following significant burn events.

- Recent fires far surpass the beneficial scale and create significant challenges for forest regeneration.
 - Historic fire suppression has created the conditions for catastrophic wildfires. 1, 2, 3
 - Recent wildfires have been catastrophic. Unlike the beneficial fires this region is adapted for, contemporary wildfires impact huge landscapes, leading to tree loss, erosion, and decreased water quality.^{1, 2, 3}
 - After fires of this magnitude, the forest ecosystem needs help to return to a healthy state.
 Often, the ecosystem is unable to regenerate on its own and can shift to a non-forest state. ^{1, 2, 3, 4}
 - "An eight-fold increase in annual area burned at high-severity occurred between 1985 and 2017 in western U.S. forests." ⁵
 - The area that is burning is astonishing, we now face a greater need for reforestation from areas of forest burned and destroyed than during the peak of clearcutting in the 20th century. Particularly under drier climate-change conditions, tree regeneration after fire events is remarkably low.
- ▶ If left too long, standing dead trees present a safety hazard and challenge for restoration.
 - The intensity and scale of severe wildfires disrupt the ecological processes of restoration by destroying seed sources, interrupting nutrient cycles, and creating water-resistant soil. ^{7, 8, 9}
 - Trees are killed, leaving behind dead snags. These trees can be salvage logged but can become hazardous and create safety issues if left on the landscape for too long. 10



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➤ The forest cannot recover on its own after high severity fire.

- Nonforest vegetation, like grasses and shrubs, and particularly invasive plants, re-establish first, therefore outcompeting tree seedlings. ^{Z, 10}
- These conditions encourage the conversion of forests to chaparral or grasslands that do not provide the same ecosystem services as forests. $\frac{8}{11}$, $\frac{12}{12}$

Post-fire restoration solutions

- Remove some standing dead trees to allow for safe replanting and post-fire operations.
- Replant native tree seedlings that are adapted to local conditions.
- Implement low-tech restoration solutions, including beaver-dam analogs and postassisted log structures, to protect meadows and waterways
- Prevent shrubs and invasive plants from overtaking the landscape with weeding, plastic sheeting, or herbicide.
- Use prescribed burning and fuels reduction treatments to reduce future fire risk. 13, 14

Benefits of fire regime restoration

- Preparing the forest to be resilient under future fire scenarios significantly decreases the risk of another large, catastrophic wildfire.
- Preventing future high-severity fires leads to benefits such as:
 - Protected air quality from wildfire smoke
 - Protected water quality from post-fire erosion
 - Increased carbon stability and reduced emissions
 - Enhanced habitat for biodiversity
 - Protected nutrient cycling

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The restoration needs after each fire vary depending on region and fire severity.

To learn about how conservation finance can support post-fire recovery, contact us at connect@blueforest.org.

