



# Reforestation of Nonindustrial Private Forest Lands

## Following Two Oregon Wildfires

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### Abstract

Recent large wildfires in south-central Oregon have challenged the capacity of restoration partners and necessitated innovative partnerships and approaches to set burned acres on the path to forest recovery. The nonprofit Klamath Watershed Partnership (KWP) has worked with owners of nonindustrial private forest lands affected by the 242 Fire (in 2020) and the Bootleg Fire (in 2021) to restore and reforest these lands. KWP has leveraged diverse funding sources and an abundance of in-kind support from the Oregon Department of Forestry and Green Diamond Resource Company, an industrial timber company. This collaboration has facilitated the reforestation of more than 2,300 acres following the 2024 planting season, with more than 2,000 planned for 2025. This case example shows how collaboration may overcome the challenges presented by working across multiple nonindustrial lands and emphasizes that all lands are relevant in landscape-scale recovery efforts.

### Introduction

In 2020 and 2021, Klamath and Lake Counties in south-central Oregon experienced their largest wildfire years in recent history (figure 1). The Oregon Department of Forestry (ODF) and local watershed councils sought to help private nonindustrial landowners assess forest loss and the need for restoration and reforestation, but the scale of these fires necessitated innovative partnerships. The Klamath-Lake Forest Health Partnership, a collaboration of Federal and State agencies, nonprofits, and private landowners focused on forest health and wildfire resiliency, began a process of identifying opportunities to bring the necessary technical and financial resources to the region to achieve postfire restoration at a landscape scale. Whereas Federal and industrial landowners experienced the greatest loss of acres, the comparatively smaller nonindustrial landowners were at much greater risk of forest land conversion due to their inability to secure resources. Fortunately, the State recognized this disparity and developed programs that would provide critical and timely support to accelerate restoration.

The Klamath Watershed Partnership (KWP) is the nonprofit watershed council for the upper Klamath River Basin that works with private landowners to conserve, enhance, and restore natural resources. Although the local conservation organizations had not previously dealt with postfire restoration, the immediate needs necessitated that KWP take on these reforestation projects. Through its partnerships, the Klamath Lake Forest Health Partnership could ensure that private lands were restored and reforested swiftly.

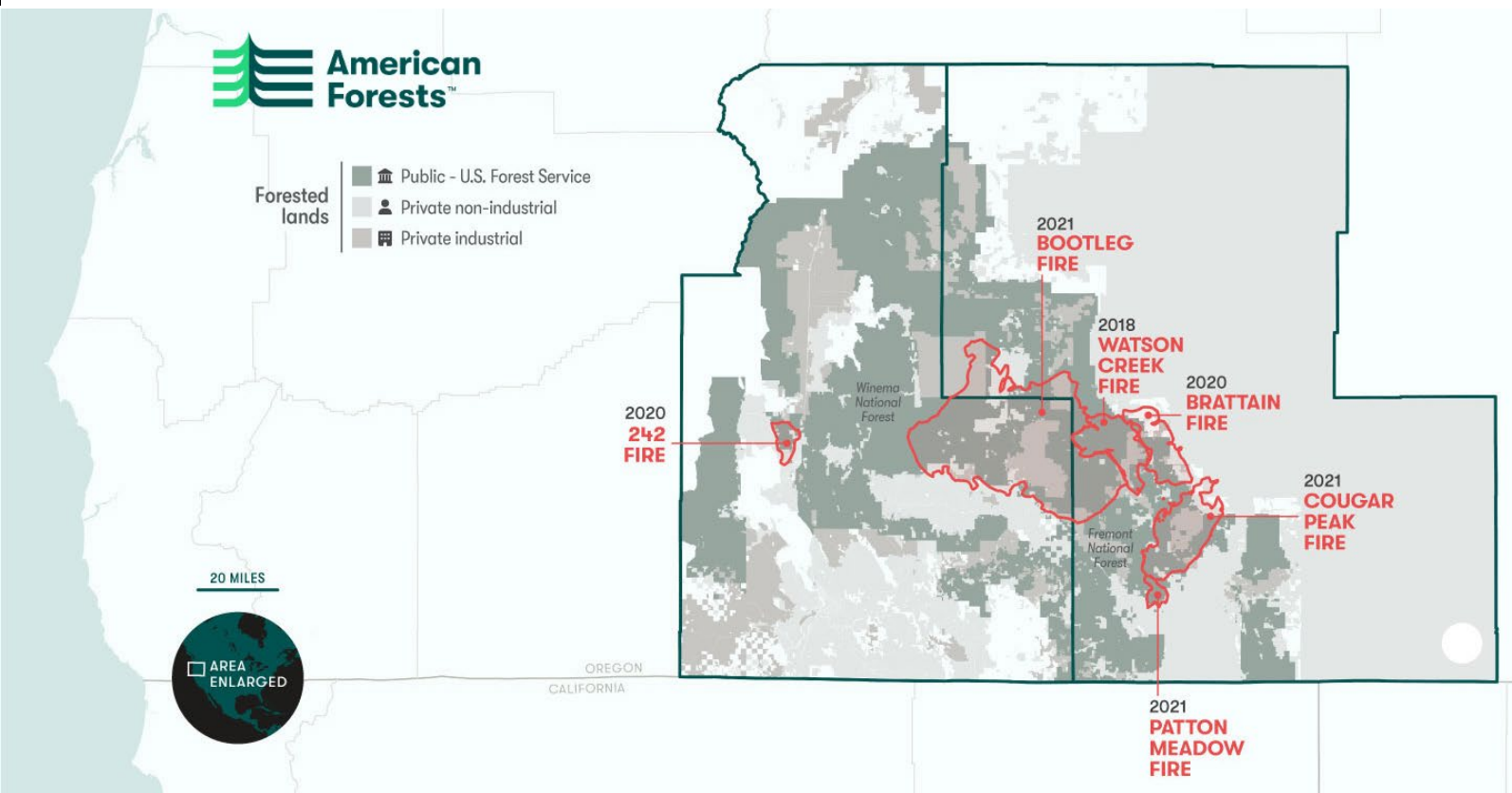
Unlike working with one large ownership to reforest an area, preparing for and conducting reforestation across multiple ownerships presents a unique set of challenges. Reforestation success is susceptible to the nuances of technique, site conditions, microsite selection, and other environmental factors that may be within or outside the control of the planter. Reforestation of multiple nonindustrial private lands at the scale of a wildfire will vary from place to place, but those inherent challenges will be compounded with issues related to land management variability, a paucity of technical expertise, availability of seedlings, and timing and nature of funding. This article highlights how KWP has overcome these issues in postfire reforestation, starting with 30 acres in 2021 in the footprint of the 242 Fire and continuing through with plans for more than 2,000 acres in 2025 in the footprints of the 242 and Bootleg Fires.

*Editor’s Note: The “Reforestation in Oregon” article, published in the Tree Planters’ Notes fall 2023 issue, provides a helpful context for how reforestation is undertaken in the State (Christiansen et al. 2023).*

## The Project

### Site Description

In September 2020, the 242 Fire burned 14,473 acres north and west of Chiloquin in Klamath County in south-central Oregon. Approximately one-third of the burned acres were private land, primarily dry-type forests dominated by ponderosa pine (*Pinus ponderosa*). The Bootleg Fire, which started July 6, 2021, burned over 413,000 acres and is the third-largest wildfire in recent Oregon history. Although the fire burned primarily on the Fremont-Winema National Forest (260,000+ acres) in Klamath and Lake Counties, private lands, predominately industrial timber, accounted for more than 150,000 acres that burned. The lands owned by nonindustrial private ownership were primarily stocked with ponderosa pine, but also included lodgepole pine (*Pinus contorta*), white fir (*Abies concolor*), incense cedar (*Calocedrus decurrens*), and western juniper (*Juniperus occidentalis*).



**Figure 1**—The 242 and Bootleg Fires are two of six fires that have burned in Klamath and Lake Counties since 2018. Collectively, these six fires burned approximately 660,000 acres. Map by American Forests, 2023.

## Prioritization

Local Federal, State, Tribal, and industrial partners developed an integrated postfire resilience strategy to assess and prioritize restoration and reforestation across six recent fires in Klamath and Lake Counties (Pansing et al. 2023). This assessment found that many of the acres burned at high severity and the resulting lack of seed sources, exacerbated by a warmer and drier climate, would hinder, if not inhibit, natural regeneration of native tree species.

Although these prioritizations sought to identify areas where reforestation had the greatest likelihood of success and greatest benefit based on land management priorities, they did not have the purpose, function, or resolution to guide reforestation across numerous, discrete nonindustrial parcels. If time, funding, or seedlings are limiting, then prioritization is necessary.

With the goal of reforesting lost forested acres, KWP's approach is to work with every interested landowner. This site-specific approach seeks to reforest areas while also preserving limited habitats, such as meadows and aspen stands, by not reforesting them. The impetus behind this approach is recognition that funding and seedlings may not be available to these landowners in the future and acknowledging that the social and economic impacts of the fire on the community are as important to repair as the ecological impacts. Although recovery is a decades-long process, landowners are tremendously appreciative of the hope that newly planted seedlings bring.

## Approach

### Land Management

Following a wildfire, private landowners may face multiple issues that take precedence, such as loss of structures or improvements, impacts to land management, and the trauma of the event. There may be a lack of understanding regarding the timelines and processes for salvage logging or other techniques for removing burned material, or even if reforestation is needed. The outreach and educational components are ongoing in the months and years following a wildfire to ensure landowners receive the support needed to make timely decisions to set their properties on the trajectory for forest restoration.

Following the 242 Fire, many landowners consulted the Oregon Department of Forestry and other local resources to identify, clear, and transport burned material to processing mills and generate some profit from logs or chips. This early progress on the landscape is due in part to the landowners living in the area and having greater access to these resources, as well as more time and opportunity for getting materials to the mills. In contrast, once the Bootleg Fire was extinguished, winter was fast approaching, mills were full from previous fires, and wood quality was rapidly declining. Small landowners, nearly 90 percent of whom lived outside of the area, were at a disadvantage for acquiring technical and operational support for site prep. Additionally, markets for materials were farther from the Bootleg footprint than the 242.

KWP and others have used various means to reach and engage landowners, including community meetings, mailings, and phone calls. Although initial estimates and planning for restoration and reforestation were developed based on geographic information systems (GIS) analyses with taxlot maps and rapid assessment of vegetation condition after wildfire (RAVG) maps, KWP worked with the State and private contractors to visit and map every property considered for reforestation. Landowner input was necessary at every site to understand previous conditions, the work done to date, future objectives, and desired conditions.

### Technical Expertise

Silviculture in this region is primarily driven by uneven-aged management practices where reforestation is not needed. Following the wildfires in 2020 and 2021, it became apparent that the forestry professionals in the region lacked the resources and experience to conduct restoration across all ownerships at the scale and timelines needed. This lack of expertise particularly impacted the nonindustrial private landowners who were largely dependent on outside technical support and resources.

Fortunately, two entities in the region, the local State Forests division of the Oregon Department of Forestry and Green Diamond Resource Company, an industrial timber company, have experience conducting reforestation on their respective lands. Although these partners did not have the capacity or objective to undertake reforestation on private lands, they were (and continue to be) generous with information sharing.

In the initial years after these fires, with funding from the State, KWP secured seedlings with the help of the Oregon Department of Forestry and Green Diamond and did not have to manage the upfront seed collection aspects. However, KWP did need to understand nursery coordination, seedling storage and transportation, planting contracts, timing of planting, and other logistics to provide a comprehensive reforestation effort (figure 2). Reforestation infrastructure in the area was also deficient, consisting of old, unstaffed coolers that were remnants of previous Federal programs.

### Seedlings

Seed and seedling shortages across the West have highlighted a need that must be addressed in this new era of megafires. This realization is most impactful for private landowners who do not have seed stores and depend on seed collected by others on other properties in appropriate seed zones.

After the 242 Fire, this was a minor issue because Green Diamond and the Sun Pass State Forest had local seed available for purchase. This seedling availability proved timely because the interested private lands had been site prepped, salvage logged, or both in the 1–3 years preceding planting. Partners have reforested 2,400 acres across 55 land ownerships (68 percent of all private acres in the fire's footprint) as of 2025.

The Bootleg Fire presented a different challenge. It had a much larger footprint, and initially there was no appropriate seed available for private landowners, nor was there a State forest with seed reserves. Green Diamond, due to their loss of more than 110,000 acres, heavily invested in using their stored seed and collecting more for reforestation of their industrial land. Nonindustrial private landowners were reliant on collaborative, long-term cone collection efforts driven by the U.S. Department of Agriculture’s Forest Service and the nonprofit American Forests under their “Integrated Post-Fire Resilience Strategy” (Pansing et al. 2023), which could put them on a timeline and trajectory to miss funding opportunities and prime planting windows.

However, in 2024, Green Diamond worked with KWP to provide almost 43,000 seedlings for purchase by nonindustrial private landowners. Green Diamond is also working with KWP and the Oregon Department of Forestry to provide approximately 750,000 seedlings from their woods-run collected seed stores to plant in 2025. Although it is almost 4 years since the fire, many of the properties to be planted were prepared in fall 2024 and are ready to receive seedlings.



**Figure 2**—In 2023, KWP coordinated the planting of 177,600 seedlings across 592 acres of private nonindustrial lands. Photo by Leigh Ann Vradenburg, 2023.

## Funding and In-Kind Support

As a nonprofit, KWP secures grants and other types of support to conduct projects. In the case of these and other recent wildfires, the State of Oregon, through the Watershed Enhancement Board and the Department of Forestry, has developed timely and meaningful levels of support for restoration of private land. KWP secured two emergency grants through the watershed board’s 2020 and 2021 postfire programs and two additional grants, all totaling \$2.4 million. The U.S. Partners for Fish and Wildlife Program has also supported postfire restoration, including reforestation, with nearly \$700,000 in funding. The Oregon Department of Forestry secured more than \$5.8 million from the Forest Service in the form of disaster relief funds for wildfire recovery, largely focused on the Klamath and Lake County fires. This funding and effort will also include the development of new staff positions at the department focused on postfire support at the local level.

Equally important to this effort is the in-kind support from the Oregon Department of Forestry and Green Diamond. Oregon wanted to develop additional and ongoing opportunities for seedling production for private landowners impacted by wildfires. KWP’s success reforesting the footprint of the 242 Fire was largely due to the Department of Forestry’s efforts at identifying seed and setting up nursery contracts. In 2024, this involved multiple seed lots at three nurseries, which KWP would not have had the capacity or connections to do otherwise.

Green Diamond’s engagement in reforestation efforts began in 2021 when they donated extra seedlings from their 242 Fire reforestation to KWP for planting on private lands. They helped KWP work with a planting contractor and stored the seedlings. In 2023 and 2024, Green Diamond grew their in-kind support as the number of seedlings and planting days for the 242 Fire increased dramatically. In 2023 Green Diamond stored 177,600 seedlings for KWP in their refrigerated trucks, providing daily forklift loadout for the planting crew for 2 weeks (figure 3). In 2024 this effort grew to 445,504 seedlings with seedling sorting, counting, and loadout for three crews (figure 4).



**Figure 3**—Green Diamond’s in-kind support for KWP’s reforestation efforts included providing logistical support for the 445,504 seedlings that were to be planted in a 2-week period. Photo by Leigh Ann Vradenburg, 2024.

Also in 2024, KWP planted the first nonindustrial private acres in the Bootleg Fire footprint. KWP worked directly with Green Diamond to plant 160 acres on two private properties adjacent to Green Diamond ownership that they were also planting. KWP paid for the seed, seedlings, and planting crew, but Green Diamond's coordination of the entire effort, including provision of planting inspectors, brought efficiencies and cost savings to the project.



**Figure 4**—Critical to the reforestation success is the availability of planting crews. In south-central Oregon, this forest worker industry is still robust. Photo by Leigh Ann Vradenburg, 2024.

## Discussion

The need for postfire restoration and reforestation is increasing and will continue to increase across the Western United States. Because megafires impact all ownerships, entities such as KWP and the Oregon Department of Forestry must be ready to provide resources to owners of private forest lands. Working across multiple private lands presents unique challenges, including variable management regimes and objectives, the need for technical and operational resources, access to appropriate seedlings, and financial support. Thanks to readily available funding and the tremendous support of partners such as Green Diamond Resource Company, dozens of private landowners in the 242 and Bootleg Fires of south-central Oregon will have new forests that are on their way to free-to-grow status. Looking ahead, collaborative efforts such as cone collection and seed storage are being implemented to meet current and future needs across all ownerships. A seed orchard is also in the works to provide seed security in the coming decades, preserving genetic diversity suited to the landscapes of south-central Oregon.

Nonindustrial private landowners may be undervalued at the scale of a wildfire because the relative ecological impact of the acres burned pales in comparison to Federal, State, or industrial ownership, or because the ownerships are so variable and subdivided that restoration may occur as disparate postage stamps. At the landscape scale, however, the process of rebuilding these lands and empowering land stewards has value beyond the acres treated. A form of social license is formed with the community, ensuring private landowners that restoration partners “see” them in the recovery processes. Restoring healthy forests across wildfire footprints is in the best interest of all parties, and with the trending size and severity of fires, every acre and every partner matter.

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