

Develop a plan

Reforestation is a complex and long-term process. It requires careful planning, commitment, and getting the right resources.

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Goals & Perspective

Setting short and long term goals for the land will lead to a successful project. Review this section to learn about the possibilities for the future of the forest, and what goals to consider beyond just replanting trees.

Project goals inform the overall reforestation plan. Setting goals helps all parties understand compromises and commitments, identify constraints, and determine what will be realistically possible. Taking the objectives into account will also inform long-term decision making such as tree density, stand characteristics, and biomass removal.

In addition to just planting trees, some goals to consider are:

- Restore a healthy forest
- Carbon sequestration
- Wildlife habitat restoration
- Recreation
- Pass down the land to the next generation
- Timber/fiber production
- Soil or watershed protection
- Conservation of endemic or rare species/habitat
- Climate change mitigation and risk reduction

Goals & Perspective (continued from page 1)

Understanding nonindustrial forest landowner's values will help shape the project and ultimately lead to success. Forest landowners tend to be family-oriented and have strong ties to their land, valuing the solitude, beauty and environmental benefits provided. However, being affected by wildfire can leave an emotional toll on landowners, with deep lasting impacts.

For example, in an interview, one landowner commented: "The biggest loss for my family, and me in particular, was emotional—the structures I could've cared less about, it was the trees that really broke my heart. Trees that I grew up with." (Waks et al, 2019)

There may be a strong desire to get a forest back to its pre-fire state. However, before the fire the forest might not have been healthy, and returning to the same forest could mean a future disaster. Working with an expert, professional forest can lead to rebuilding a healthy, resilient forest.

Setting expectations for landowners will help avoid feelings of distress and frustration when the reforestation project ultimately takes as long as it does. Unless there are already contractors and seedlings secured, it can take 2-5 years before work begins. Providing a general timeline upfront can help landowners understand the long time horizons for reforestation projects, and spur discussion on what can go wrong and cause a delay.

Healthy Forests

Healthy forests are abundant with plant and animal life. It's more than just a forest thick with trees. Understanding the components will lead to long-standing trees, clean water, and habitat for a wide variety of flora and fauna.



Image credit: Mast Reforestation

Healthy Forests

Establishing a healthy forest involves several key components:

Biodiversity:

A healthy forest contains a unique community of plant and animal species that have evolved interrelated processes and dependencies that provide the structure and function of a healthy system. This promotes ecological balance and stability, resilience to pests and diseases, and provides habitat for wildlife.

Forest Structure & Regeneration:

A well-structured forest consists of trees of different ages and sizes, including young, mature, and old-growth trees. Proper spacing between trees and a well-developed canopy structure allow for optimal light penetration, ensuring the growth and productivity of the forest.

A healthy forest exhibits a natural cycle of regeneration, where new trees replace the older ones over time. It is essential to promote the establishment of desirable tree species and manage competing vegetation to facilitate successful regeneration.

Soil Health:

Healthy soils are crucial for the growth and vitality of trees. They provide essential nutrients, water-holding capacity, and a supportive root environment.

Resilience:

A healthy forest can withstand and recover from natural disturbances, such as wildfires, pests, or storms. This resilience can be fostered by promoting species diversity, managing forest density, and reducing the risk of potential hazards. Implementing sustainable forest management practices, like monitoring and adaptive management strategies, helps ensure the long-term health and adaptability of the forest.

Collaboration and Expertise:

Engaging with forestry professionals, such as consulting foresters, can provide valuable guidance and expertise. These professionals can assist in developing management plans, implementing best practices, and navigating regulatory requirements to ensure the health and sustainability of the forest.



Image credit: Mast Reforestation

Native Species

Replanting native tree species after a wildfire is a proactive and responsible approach to forest management, and crucial to restore the ecological integrity of the forest. Forestry experts can provide valuable guidance on selecting the appropriate native species.

A few key reasons why to replant native trees:

Adaptation:

Native tree species have evolved over time to be well-suited to the local climate, soil conditions, and other ecological factors of the region. By replanting native species, you are restoring the forest with trees that have adapted to the specific environmental conditions of your land. These trees are more likely to thrive, withstand future disturbances, and contribute to a healthy and resilient ecosystem.

Soil Stabilization and Nutrient Cycling:

Native tree species often have deep and extensive root systems that help stabilize the soil, reducing erosion and the loss of valuable topsoil. They also contribute to nutrient cycling, as they have developed intricate relationships with the local soil microbiota and other organisms.

Biodiversity Conservation:

Native tree species play a vital role in supporting the diversity of plants, insects, birds, and other wildlife that depend on them for habitat and food sources. By replanting native trees, you are creating or preserving the unique habitat required by various species. This contributes to a thriving and sustainable ecosystem.

Forest Succession and Resilience:

Native tree species are an essential component of natural forest succession – the process by which a forest recovers and regenerates after a disturbance, like a wildfire. By replanting native trees, you are facilitating the reestablishment of a diverse and resilient forest ecosystem. This improves the forest's ability to adapt to future disturbances and reduces the risk of future catastrophic events.



Image credit: Mast Reforestation (left and right)

Collaborating with an expert

Reforestation is challenging and complex. Collaborating with a professional forester will help ensure the project is done right.

Working with local forestry professionals, land management agencies, university extension specialists, or environmental organizations can provide guidance specific to the project's region.

Some public services may be available at no cost to landowners - check to see if a county conservation district or other local extension agency can help provide base level knowledge.

A local consulting forester can also be hired to work with you at every stage of the reforestation journey. Consulting foresters are a "jack of all trades" that will work with landowners on all their specific needs.

In typical forest management, a consulting forester may assist with plan writing, timber sales, permitting, inventory and appraisal, coordination of contractors, and general advice. With post-fire reforestation projects specifically, a consulting forester is a local expert that will visit the site and help with specific needs, like bridge construction or cattle fencing. These independent professionals will help lay out the goals, find contractors, source seed and seedlings, secure funding, and coordinate crews during the physical work. The forester-landowner relationship can last for decades.

Some helpful questions for landowners to ask a forester to determine they are a good match for their land:

1. What previous reforestation projects have you done? When? Were they successful?
2. Do you have references from other landowners you've worked with?
3. How do you stay current with reforestation practices?
4. Do you have licenses relevant to reforestation? (ex: herbicide applicators licenses)
5. How do you communicate with your landowner and make sure they are kept in the loop?

Questions inspired from: *Reforestation Practices for Conifers in California*

Site prescriptions

In silviculture, a prescription is a scheduled treatment(s) designed to manage the structure and composition of a stand to meet current land management goals. It will account for economic, ecological, and social objectives. The prescription will ensure the right quantity and mix of species are getting back on the landscape.

With post-fire reforestation, a prescription might include target density, existing trees, and species to be planted (eg: 50% Douglas fir, 50% Ponderosa Pine).

Key considerations for site prescriptions:

- Actual acres to be planted (so excluding unplantable areas, such as roads)
- Stocktype and size of seedlings
- Planting period or timeframe
- Desired density, sometimes referred to as “trees per acre”. This is an important consideration to ensure the trees have ideal growing conditions, and the forest is resilient. Landowners will want to work with a local forester to determine the appropriate density for their region.
- Legal requirements (location dependent)

Planning

A well-thought reforestation plan will help ensure success from beginning to end. This is typically done by a forestry professional to be reviewed with a landowner. A proper plan will include objectives, property description (including access and recent activity), resources, and monitoring.

Landowners can work with a forestry expert to develop a comprehensive reforestation plan. This plan should factor in your specific needs and goals (habitat, timber production, longevity), and site-appropriate tree species for your area.



Image credit: Trever Santora, Mast Reforestation

Additional Resources

Reforestation Practices for Conifers in California - An all encompassing manual for CA-based reforestation, but includes topics applicable in other ecosystems.

"What to replant after the trees die" by Susie Kocher, UC Cooperative Extension -

A short (two-page) overview on assessing the landscape, options for the types of seedlings you can replant, and where to plant trees.

"Reforestation Your Forestland after a Wildfire" by Yvonne Barkley, University of Idaho

Extension, Moscow, ID - A general overview of planning and executing a reforestation project

National Forest Foundation: Is there such a thing as too many trees? - Short summary with pictures and graphics of healthy versus overstocked forests.

WA State University - Extension Forestry: About Consulting Foresters - short article about services and expertise a consulting forester can provide, including example questions to ask.

Michigan Department of Natural Resources: Setting Goals - An overview about the importance of having clear goals and limitations to consider

U.S. Forest Service - Why use native plant material - lists advantages of using native plants, and the importance of genetic diversity

"Landowner Perspectives on Reforestation following a High-Severity Wildfire in California" (Waks et al) - 2019 paper summarizing 27 interviews of non-industrial forest landowners, the emotional toll from being affected by wildfire, and their experience working with a Resource Conservation District to restore their forests.