

Reforestation

The Experimental Network for Assisted Migration and Establishment Silviculture (ENAMES)

The USDA Forest Service Pacific Northwest and Pacific Southwest Research Stations are initiating a study to learn how we can improve the success of reforestation activities across the western United States through novel silvicultural practices, including human-assisted migration of seed sources to more hospitable environs. In the interest of covering a wide range of conditions and a diversity of management objectives, **the study team is looking for forest landowners and managers** who are willing to partner with us to facilitate this research on lands they manage.



Why do we need this study? To boost our chance of success.

Although change is a constant in forest ecosystems, the current pace and extent of change is unprecedented. As forests in California, Oregon, and Washington continue to experience increases in high-severity fire—a major catalyst for ecological change—the past is no longer the guide it once was. Our old approach to restoring forests after wildfires may no longer be optimal under a changing climate and could even result in forests that are less resilient.

Thanks to previous research and experience, we already know quite a bit about how to select the right seeds to grow under a changing climate. However, there is still uncertainty about what seedlings to plant and how to plant them. With better data and information, we can greatly increase

the chances of successful reforestation and improve long-term resilience of forests to changing conditions.

Our goal for the ENAMES project is to evaluate the selection of seed sources and post-disturbance stand establishment practices to provide guidance on **what tree seed sources to use and how to plant them** to maintain functional forest ecosystems in the future.

What do we plan to do?

Build a network to enhance knowledge.

- Establish a network of 20 experimental sites across California, Oregon, and Washington through collaboration between researchers and land managers.
- Test the effects of assisted population migration (movement of seed sources or populations of a particular species from their existing location to new, currently cooler locations within their habitat range) in partnership with forest managers across all ownerships. Assisted population migration treatments at each site will include seed sources representing four different climate scenarios (recent-past, current, mid-century, and end-of-century climates).
- Test different silvicultural strategies designed to increase reforestation success and long-term forest resilience. Silvicultural treatments will be determined through a collaborative process with partners and then crossed with each assisted migration treatment to represent a gradient of adaptation strategies.

Why do we need your help?

To make this study as useful as possible.

We want to cooperate with our manager partners across all ownerships to develop the silvicultural adaptation treatments to be tested. Our goal is to ensure that the practices we are testing are relevant to your operational practice and aligned with your management objectives and the resources available to achieve them.

What does this partnership entail?

Sharing information.

We are asking for you, our land manager partners, to identify study sites as reforestation needs arise. We will also ask you to work cooperatively with the project

“We absolutely need this information about seed sources and climate change because more and more we are going to run into trouble with seed sources not working any longer.”

—*Pacific Northwest land manager*

Plans are underway to replant this site on the Willamette National Forest, which was burned by wildfire. USDA Forest Service photo by Jessica Wright.





team to identify silvicultural treatments and implement the treatments as part of normal reforestation efforts. We will organize the project, assist with treatment implementation, lay out the plots, conduct the measurements, and analyze the data. Your reforestation costs will not go up: we will cover most of the costs associated with seedling production and planting, plot layout and related logistics, and measurements over time.

The study is applicable for a wide diversity of tree species, site conditions, and ownerships. The project is intended to assess species and practices that are of greatest interest to you and other forest managers.

We want this partnership to benefit you.

Over time, the network will provide information on the practices best suited for reforestation under changing conditions. The 20 experimental network sites will serve as a foundation for assisted population migration research across the region and nationally for many years to come. The network will also help researchers and land managers exchange ideas and information on how to apply the study results and support adaptive management into the future. This is a great opportunity for you to be directly involved in developing research that is useful to your forest management.

How can you get involved?

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These Douglas-fir seedlings will be planted as part of a reforestation effort at the site of the 2020 Santiam Fire on the Willamette National Forest. USDA Forest Service photo by Rich Cronn.

The ENAMES project spans from southern California to northern Washington and includes all ownerships—at a much larger scale than has ever been attempted for such studies.



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