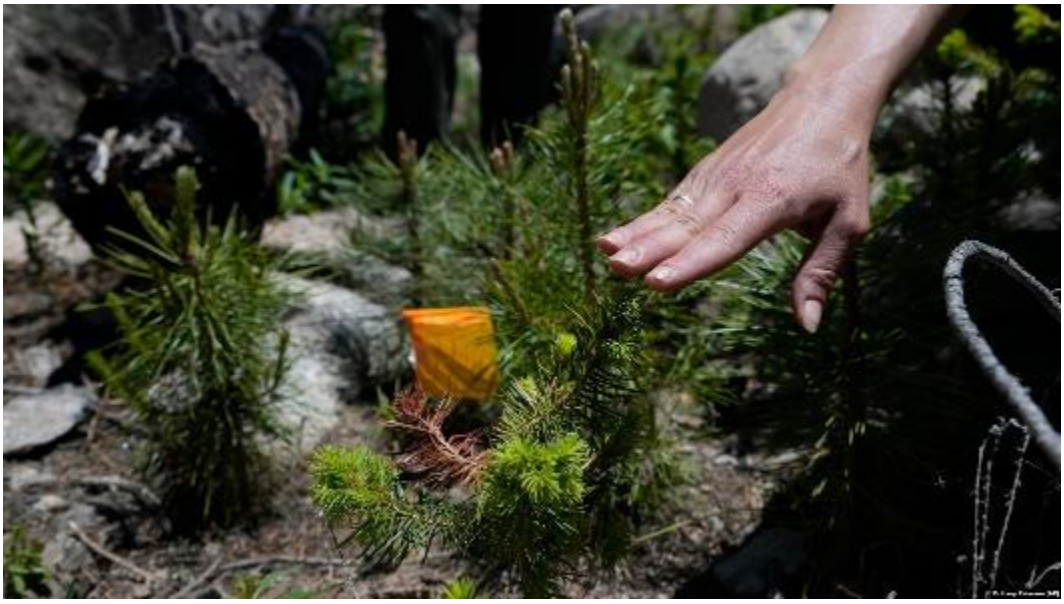
Study: Replanting Same Trees Cannot Replace Burned Forests

今回はアメリカ西部で進む森の再生に関する記事です。大規模な山火事のあと、焼けた土地に再び木を育てようとする研究者たちの挑戦が続いています。気候変動による環境の変化は予想以上に大きく、森を取り戻すのは簡単ではありません。文中の「drastic」は「急激な」「極端な」という意味で、変化の度合いが非常に大きいときや、思い切った対応が求められる場面で使われる単語です。drastic change（急激な変化）、take drastic measures（抜本的な対策を取る）といった形で使われます。あなたの国や地域では、自然災害のあとに森や自然をどのように回復させていますか？



1. Article

Read the following article aloud.

Camille Stevens-Rumann recently sat on the ground and measured small trees to see how much they had grown in seven months.

She found they had grown five to 10 centimeters. Her team had planted several different kinds of trees, known as evergreens, two years ago in an area of the Rocky Mountains in Colorado, which had burned in a fire in 2020.

Stevens-Rumann and other researchers want to learn the relationship between tree growth and **elevation**.

Researchers say there are not enough small trees or seeds from living trees to replace burned trees. Even if there were enough, they say the U.S. does not have the workers to plant and care for them.

The Forest Service said the biggest delays they meet while replanting on public land are preparing environmental and cultural studies and preparing burned areas, so they are safe to plant. That can take years.

Stevens-Rumann said, "We're in a place of such **drastic** climate change that we are not talking about whether or not some of these places will be a different kind of forest, but whether or not they will be forests at all."

Hotter fires

In the past, the U.S. was able to replant burned forests. But the researchers say larger, more intense fires are destroying trees that normally provide seeds. They say the fires leave burn scars so large trees cannot naturally regrow.

Solomon Z. Dobrowski is a University of Montana forest management expert. He said more areas in the West need replanting after fires than can be replanted. He said at least 1.5 million hectares need to be replanted but officials are unable to do so. He said that number could triple by 2050.

Targeted tree planting

Matthew Hurteau is a forest **ecologist** at the University of New Mexico. He studied the way scarred forests had been replanted after a fire in 2011 at Los Conchas. That fire destroyed huge areas of ponderosa pine trees. Hurteau found most of the seedlings, or very young trees, had died from earlier replanting.

As a result, he planted **seedlings** of different species at several elevations and on hillsides facing different directions. Now he is watching carefully for changes in the soil and water.

Researchers say seedling survival is less likely at lower elevations. It is hotter, drier and more open there. Replanting the same trees in the same areas is likely to fail.

Jason Sieg is acting supervisor of the Arapaho and Roosevelt National Forests & Pawnee National Grassland. He said the Forest Service rules require planting the same species at the same elevations as before a fire. But, he said, it is clear the agency will "need to be flexible moving forward."

For now, that might mean replanting at different elevations or collecting seeds from another place. Over time, researchers say it could require planting trees that are not native to the area. The idea has been debated but is gaining support.

"I've seen people go from saying, 'Absolutely, we cannot move trees around' to, 'Well, let's maybe let's try it at least, and do a few experiments to see if this will work,'" said Stevens-Rumann.

Environmental groups are working on private land burned by the Cameron Peak fire. They are replanting ponderosa pines 150 meters higher than where they used to grow, said Megan Maiolo-Heath. Maiolo-Heath is a spokesperson for the Coalition for the Poudre River Watershed.

So far, 84 percent of trees planted there last year are still alive.

Problems with replanting

The Forest Service is modernizing how it grows young trees. It is also studying ways to grow more or work with private **industry**, states and groups like the New Mexico Reforestation Center.

Experts say trees might never return to some areas. But it is important that the U.S. does as much as possible in a thoughtful way.

"Trees live for hundreds of years so we need to be thinking about what's right as we plant trees today," Hurteau said.

Tammy Webber, Brittany Peterson and Camille Fassett reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

Source: Study: Replanting Same Trees Cannot Replace Burned Forests
VOA

2. Key phrases and vocabulary

First repeat after your tutor and then read aloud by yourself.

1. elevation (n.)　the height of a location compared to sea level

The campground that we will be staying at is at an **elevation** of 2200 meters.

2. drastic (adj.)　extreme; major

Teachers had to make **drastic** changes to their classes during the COVID-19 outbreak.

3. ecologist (n.)　a person who studies the environment and how living things are related to each other

Ecologist Daniel Pauly has written about the damage being done to our oceans.

4. seedling (n.)　a young plant

We planted the asparagus **seedlings** in our garden last weekend.

5. industry (n.)　in general, companies that make and sell things

Local farmers are working with **industry** to make new kinds of seeds and other products.

3. Questions

Read the questions aloud and answer them.

1. **How is climate change making it harder to replant trees in a forest after a big fire?**
2. **Why is it more difficult for a seedling to survive at a lower elevation?**
3. **What kinds of changes might be made in the future to help forests recover?**
4. **Are forest fires becoming more common or more damaging In your area?**
5. **Forests experience other kinds of problems from climate change as well, including attacks from insects and disease and damage from heavy rains. Do forests in your area have such problems? How do people try to help the forests recover? Are they successful?**