Logging US Forests Shirley, cloudyclimate.org, June 5, 2025

Who owns the forest? Today, forests cover 800 million acres of the US, over a third of the landscape.[1] About 60% of US forestland is privately owned, two-thirds by families and a third corporate; 3% is tribal; and 40% is publicly owned federal, state, and local forests. Ownership is mostly private in the East and South, while Western forests are predominantly public.[2] National *Forests* have a multi-use mission to meet the needs of present and future generations for outdoor recreation, grazing land, timber, water, and wildlife and fish.[3] National *Parks* preserve natural and cultural resources. Wilderness areas have the highest level of protection.

Most logging in the US is on private land. Clear cutting removes all trees from large areas, cost-efficiently obtaining lots of timber quickly.[4] However, stabilizing roots are removed along with the trees, leading to soil erosion, poorer water storage and filtration, and disruption of mycelial nutrient networks. Cleared areas are replanted with one or a few tree species in rows. Thinning, or removing crooked or smaller trees, is used to lessen competition and promote trees of desired diameter, uniformity, and density. The rotation or time of harvesting depends on tree and economic return, with new trees usually harvested before full maturity. Planted forests are not equivalent to natural forests; they are less biodiverse, less resilient, less carbon rich.

Logging, as practiced, is not carbon neutral. Older mature trees store a lot of carbon, which is released when the trees are hewn. Only a fraction ends up in longer-lived wood products. A young sapling takes time to establish, then captures carbon for decades as it grows and matures. When logged before full growth, the carbon debt from felling the older tree is not repaid by the young tree.[5] Logging releases carbon that can take a hundred years or more to be recaptured by new trees.

Old-growth forest is found mostly on public land. We used to think old forests were nonproductive, no longer growing and rotting away as cellulose cemeteries. Historically, these were heavily logged.[6] Now we recognize their diverse habitats from canopy to decaying fallen trees, resilience, water cycle functions, and cultural and spiritual significance.[7] Old-growth forests continue to accumulate carbon, storing large amounts for centuries.[8] There are 32 million acres of old-growth on federal lands, and 79 million acres of mature forest which could become old-growth. The Tongass is our largest National Forest and contains our largest expanse of old-growth. Roads are its enemy, fragmenting the ecosystem and inviting logging and mining. The 1994 Northwest Forest Plan led to a steep decline in old-growth logging in the Pacific Northwest. A plan to protect old-growth forests nation-wide was withdrawn in January.[9] Wildfire, insects and disease, and logging are ongoing threats to old-growth.

Another thing we've learned is that fire was frequent in North American forests in the past.[10] Lit by lightning or indigenous traditional burning, lower-severity fires helped forests regenerate and lowered fuel loads. Fuels management treatments try to make up for decades of fire suppression, but there is a lot of confusion around the roles of logging, thinning, and reintroducing fire.[11] Thinning by removing smaller trees reduces tree density and the ladder fuels that can carry fire up to the crown. Prescribed intentional burns consume surface fuels. Thinning followed by burning or prescribed burning alone can lessen subsequent wildfire severity and intensity in western conifer forests. These methods may be constrained by terrain or weather and are not applicable to every forest type or location.[12]

Forests are large carbon sinks[13] and are the best carbon removal and storage system on land. But our forests face severe challenges. Climate change brings ever warmer and dryer conditions (hence the need to reduce greenhouse gas emissions), setting the stage for wilder fires. Recent layoffs at the Forest Service will hamper both firefighting and prescribed burning. Under an emergency decree, 110 million acres, or 59% of national forests, have been opened to accelerated logging "to fully exploit our domestic timber supply."[14] Next time: how the logged timber is used.

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