

## Forest science foundation study released

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Scientists are facing a moving target when trying to predict the future in regards to forest health and management in a new era of climate change and mega-fires, they agreed in a new voluminous study released by the U.S. Forest Service this week. But research indicates the status quo of protecting threatened species and limiting logging, as part of the Pacific Northwest Forest Plan (PNFP), might still be the best way to manage the forests. The 919-page tome outlines what scientists have learned in the last 12 years since the last “synthesis of science” was published, and will serve as the scientific foundation for land management planning in Western Washington, Oregon and Northern California. Although it provides new information for the PNFP, implemented 24 years ago, it is not a decision-making document. Curry Countians hurt by the limitations put on logging in the 1990s, however, might not be happy to learn the report indicates the status quo limiting logging and protecting the owl might be the path to continue taking.

### New science

Based on the best available scientific data at the time, crafters of the PNFP were challenged to make a plan that resolved debates about old-growth forests and endangered species while permitting logging on 24 million acres in 17 Northwest national forests. That might not change, but new data in the past quarter-century might change how things are approached in the forest. While the report addresses an array of historical information, including the types of trees that grow in various locations throughout the state, the roles snags play in animal habitat, bug and pathogen infestations, it also dedicates a significant portion to climate change and wildfires, two elements increasingly common — and increasingly pertinent in discussions — in forests and grasslands throughout the U.S. The spotted owl still carries weight with the scientists, the study indicates. “New conservation concerns have arisen, including a major threat to spotted owl populations from expanding populations of the nonnative barred owl, effects of fire suppression, fire behavior and a lack of development of diverse vegetation as a result of fire suppression,” the report reads. “And climate change and invasive species have emerged as threats to native biodiversity, and expansion of the wildland-urban interface has limited the ability of managers to restore fire to fire-dependent ecosystems. “The policy, social and ecological contexts for the NWFP have changed since it was implemented,” it continues. “Conservation on federal lands alone, however, is likely insufficient to reach the goals of the NWFP or the newer goals of the 2012 planning rule, which emphasizes managing for ecological resilience, and a few species of concern, rather than the populations of hundreds of individual species.”

## **What's worked**

“One of the most significant findings of the Northwest Forest Plan (study) is that the plan has protected old-growth forests as habitat for important species,” the introduction reads. “At the same time, the report found that using fire and other management activities can strengthen forest resilience.”

Twenty-four years ago, the forest plan came down to protecting a little spotted owl and greatly curtailing the cutting of timber. The only new thing on the scene is the intensity and frequency of fires and climate change. How they work in tandem is still unfolding, scientists said. “It is evident that knowledge of historical forest dynamics is essential for conservation and restoration of native vegetative communities and wildlife species even under climate change,” the report reads. “The challenge of applying (any) concept is to be aware of limitations and apply historical knowledge with caution. Using historical conditions as a target for conservation and restoration can be unrealistic, impossible, or even incongruent with conservation goals.” According to the study, climate change has already helped insects get a stronger toehold in giant swaths of forests, prepping tens of thousands of acres of dead trees for fire. Warmer temperatures and more intense droughts will also play a part in forest plan changes made later, scientists said. “One of the challenges may be deciding the degree to which past lessons are relevant to future management,” the report reads. “Relevance will depend on goals, reasonable expectations of the future climate and resources required to attaining those goals. “Consequently, planning efforts based on ecological history will need to be flexible, adaptive and periodically revised to keep up with new knowledge and changing ecosystems.” In general, the study agrees fire suppression hasn't worked to either keep forests healthy nor fires in check. They've also learned that trees particularly the old-growth ones are indeed incredible “carbon sinks” an argument pro-logging groups are using to harvest more rather than release all that carbon in the air during a fire. But the report showed only 1 to 3 percent of the carbon in trees larger than 3 inches burned in the Biscuit Fire in 2002. About half the carbon remaining after a fire stays in the soil for about 90 years; the other half persists for more than 1,000 years as charcoal, the study reads. “Forest managers 25 years ago thought cutting trees every 40 to 50 years would provide the most effective long-term carbon sequestration,” the report reads, but longer rotations and selective or no harvesting provides the most, one study cited in the report said.

## **Meeting halfway**

One of the only ways to meet both older forest conservation goals and timber production is a “structure-based management” approach proposed by the Oregon Department of Forestry. “Until more research is done, there is little debate that the best way to conserve and maximize old-growth values is to exclude intensive timber management activities (e.g., clearcutting and plantation establishment) in old growth,” the report reads. “This was the direction of the NWFP when it placed 80 percent of the remaining old-growth forest patches on federal lands into (reserves).” The remaining 20 percent was placed into matrix lands — open to timber management. “The suggested management approach of the NWFP in the

matrix lands weren't implemented, and would have allowed scientists to learn about the tradeoffs between timber harvest and ecological conservation. Not surprisingly, the study said the probability of "very large fires" will increase in Oregon. But past trends in this rapidly changing era are of little value in predicting the future, the report said.

### **Other possibilities**

Ecosystem restoration, the study said, includes preferential retainment of minority species" and creating an array of landscapes, from open gaps to thick stands of trees, now might be what's best to maintain a healthy forest. And thinning has its own repercussions — good and bad. It opens up areas to new vegetation and fauna. It could also end up providing a preferred habitat for animals that prey on threatened species, such as the murrelet and the spotted owl. "Other factors, such as weather patterns, seed availability, harvesting and impacts of insects, diseases and herbivores on seed or seedlings suggest that restoration treatments are not likely to hit any specific target perfectly." The target keeps moving. Another option might be to undertake "ecological forestry," that includes thinning in plantations, prescribed burns and "retention silviculture," which focuses on what to keep rather than what to remove. A study cited within the report criticized ecological forestry as placing too much emphasis on timber production and not enough on protecting habitat for the northern spotted owl, especially given the threat now posed by the barred owl. At the same time, Oregon county commissioners want higher levels of timber production, especially from Bureau of Land Management lands, and complain that ecological forestry does not produce enough timber for local economies. "Clearly, the social aspects of active management to restore or create desired ecological patterns and processes and producing socioeconomic values are as important to consider as the biophysical aspects," the report reads. Locally, residents who have long worked in the timber industry have said of late that "our forest is different," and the study indicates scientists are well aware of that. One critical difference from all other parts of the state is the prevalence of Sudden Oak Death (SOD) in Curry County. Many of the trees burned in the Chetco Bar Fire last summer were those infected with SOD and no one knows if the pathogen will re-emerge with the tanoak saplings that returned shortly after the fire was extinguished.

### **Salvage logging**

Loggers won't like what the report has to say about salvage logging, another nagging splinter in the sides of many after the Chetco Bar Fire. "The ecological consequences of salvage logging are often considered negative from the perspective of soils, hydrology, postfire seedling establishment and wildlife habitat resources," the report reads. "If not followed by fuel treatment or accomplished through whole tree harvesting, salvage logging can increase fine fuels to levels that support high-severity fires, which kills regeneration." The report then said there are few studies about the effects of salvage on later wildfire, but one study did indicate burns were more severe on land that had previously been logged after a burn than those that were left alone. "A 2007 study hypothesized that salvage logging without sufficient treatment of the slash after logging and plantations likely contributed to higher fuel loads after salvage and consequently to the higher reburn severity," the report reads. "More work is

needed.” Suggestions from various scientists indicated the best way to promote natural recovery is to retain old large trees and snags, protect soil against compaction and erosion and protect sensitive areas such as reserves, steep slopes and roadless areas. “In general, research (indicates) salvage logging does not benefit native species and ecosystems,” it reads. “Further long-term research on salvage practices would greatly enhance understanding of the circumstances under which salvage might be beneficial.”

### **The spotted owl**

When the NWFP was crafted, populations of spotted owls were estimated to be declining at about 4.5 percent per year — and the situation hasn’t improved since the barred owl flew in from the East Coast. But the decrease is less than that on lands that were managed, the report said, suggesting that the NWFP strategies worked, to a degree. Their numbers are predicted to increase as trees age. “However, this expectation is based on current rates of harvest and wildfire occurrence, which may change depending on future forest plan revisions and the predicted increased size, frequency and severity of wildfires due to climate change,” the report reads. “In addition, it is unknown if improved habitat for the owl can overcome the influx of the barred owl. “If spotted owls are to persist under competitive pressure from barred owls, it will likely be only in localized areas that support few barred owls,” the report reads. “However, it remains doubtful if there are any areas where spotted owls hold a competitive advantage over barred owls. Competition with established populations of barred owls has emerged as a much more prominent and complex threat to the long-term persistence of the spotted owl than was anticipated during the development of the NWFP.” Climate change models for the first half of the 21st century predict warmer, wetter winters and hotter, drier summers for the Pacific Northwest, which are expected to reduce survival rates of the owls, as well. “The NWFP alone is not sufficient for spotted owl recovery,” it reads. “Additional measures beyond the plan will be needed for long-term (survival) of spotted owls. Barred owl populations may now be high enough across the range of the spotted owl that, despite the continued management and conservation of suitable forest cover under the NWFP, the spotted owl population will continue to decline.”

### **Murrelets**

The marbled murrelet — that fanciful black and white bird that roosts on the ocean by day and flies into the forest to rest on old-growth tree branches by night — has also lost ground due to timber harvesting, the report reads.

Demographic projection models in 1994 said the population declined 4 to 7 percent per year from 1990 to 1995. One way to help could be to keep human recreation activities away from their nests — not so much because of the human element, but because people tend to attract predators such as ravens, crows and jays in campgrounds. “The social and economic basis of many traditionally forest-dependent communities have changed in 24 years, and many are now focused on amenity values,” the report reads. “The capacities of human communities and federal agencies, collaboration among stakeholders, the interdependence of restoration and the timber economy, and the role of recreation-based communities are important

considerations in managing for ecological resilience, biodiversity conservation and social and economic sustainability.

“All management choices involve social and ecological trade offs,” it reads, “and collaboration, risk management, adaptive management and monitoring are considered the best ways to deal with complex social and ecological systems with futures that are difficult to predict.” The second volume addresses other species, and the third volume addresses the socio-economic well-being of the Pacific Northwest, its changing values, environmental justice and tribal engagement. The science synthesis was authored by 50 scientists from Forest Service Research and Development, other federal agencies, universities and tribes and was published by the Pacific Northwest Research Station.

**Source:-** <https://www.currypilot.com/news/6314520-151/forest-science-foundation-study-released>