

Proposed Douglas-fir National Monument

At a few times in our nation's history, a species of tree was so magnificent that the President of the United States proclaimed a national monument to honor and protect that tree in a significant portion of its range. The Joshua tree in the Mojave Desert, the tree-like saguaro and organ pipe cacti in the Sonoran Desert, the bald cypress in Florida, the giant sequoia in the Sierra Nevada and the coast redwood in northwestern California and southwestern Oregon all have namesake national monuments or national parks. Each of these tree species is magnificent in its own ways, and so is the Douglas-fir.

Introduction

In order to preserve, protect, honor and conserve one of America's greatest natural treasures, the coast Douglas-fir forest ecosystem in a portion of the Western Cascades, it is proposed to create a Douglas-fir National Monument in the upper Santiam River watershed of Oregon for the benefit of this and future generations.

Throughout most of its range, Douglas-fir is found in stands mixed with other species. Coast Douglas-fir north of the Umpqua River is often naturally found in nearly pure stands. But after more than a century of intensive logging on both private and public lands, which has converted most original virgin Douglas-fir forest to tree plantations, the Douglas-fir landscape is highly fragmented and relatively few parts remain undisturbed. The proposed national monument contains some of the finest remaining stands of ancient temperate conifer forest in the world, as well as substantial areas of older mature forest that, in time, will acquire the character of old-growth forest. The previously logged stands within the proposed national monument would be allowed to recover their full natural community of plants and animals.

The national monument can become a significant natural, cultural and economic resource for the region and the world, and it will appropriately honor the State of Oregon's official tree.

In an era of climate change, preserving old-growth forests and allowing cutover forests to regrow will make a major contribution to carbon sequestration and help to slow global warming.

In addition to conserving and restoring vast stands of coast Douglas-fir and other coniferous forests, the proposed national monument would also encompass and protect numerous objects of historic, geologic, hydrologic, and/or ecologic interest, including numerous wildflower-strewn meadows, small lakes that dot the forest, and striking volcanic features.

Magnificent views would be preserved, and forms of recreation compatible with the conservation of the values for which the national monument was established would be protected and encouraged. Pleasure driving, hiking, birding, hunting, fishing, mountain biking, horseback riding, camping and related activities are some of the ways the national monument could be enjoyed and appreciated.



Old-growth Douglas-fir forest just outside the Middle Santiam Wilderness

Background

Until the twentieth century, most of Oregon west of the Cascade crest was covered by coniferous forest, comprising about 60% coast Douglas-fir, 17% hemlocks (*Tsuga* spp.; western and mountain hemlock), 15 % true firs (*Abies* spp.; white fir, noble fir, subalpine fir, Pacific silver fir, grand fir and California red fir.) and small percentages of other trees. Douglas-fir was the foundation species of this magnificent forest, which extended from 19° N latitude, in the mountains of central Mexico, nearly 2,800 miles to 55°N in central British Columbia. There are two recognized varieties: coast Douglas-fir (*Pseudotsuga menziesii* variety *menziesii*) and Rocky Mountain Douglas-fir (*P. menziesii* var. *glauca*.)



Most Douglas-fir forests have been clearcut for lumber and plywood, used in the construction of millions of dwellings. Today, pristine stands of mature and old-growth Douglas-fir are but a small fraction of their former extent.

Coast Douglas-firs can rival redwood trees in size and age, growing over ten feet in diameter; the Scottish botanist David Douglas, for whom the tree is named, noted trees in the lower valleys of western Washington that averaged 17 feet thick. They can reach heights of several hundred feet, but the tallest were logged first, and no one knows for sure how tall these were. The trunk of the Nooksak Giant, cut in 1897, was said to be 465 feet long. Douglas-firs can reach ages of a thousand years or more. In California there are both national and state parks that pay homage to the redwoods, yet nothing comparable exists for the Douglas-fir, even though it is a more important species in its range and significance, and old-growth forests of Douglas-fir are as magnificent as those of coast redwoods —often with greater ecological diversity.

The proposed national monument would protect a significant relic of the globally unique Pacific Northwest temperate rain forest for this and future generations to enjoy.

Conservation biologists tell us that in order to prevent catastrophic extinctions we must preserve approximately half of the earth in an essentially natural condition.¹ Yet the once-great conifer forests of Oregon have been mostly logged and replanted in even-aged stands that lack most of the ecological characteristics of a natural forest. The establishment of the Douglas-Fir National Monument won't solve this problem, but it would be a start and an inspiration to others to do the same elsewhere.

We are now at a historical crossroads in our relationship to the natural world that supports and nourishes us. Ecosystems of every sort are increasingly disrupted by fragmentation and resource extraction. Species of plants and animals are under unprecedented pressure as habitat shrinks to isolated islands in a sea of human activity.

Climate change is no longer a distant threat but is upon us. The conservation and restoration of the magnificent Douglas-fir forest will significantly help ameliorate global warming. Because of their massive amounts of biomass, unlogged Douglas-fir forests store huge amounts of carbon that, if logged, would be released into the atmosphere and contribute to climate change. Even though young forests are fast-growing, they do not approach the carbon storage of old-growth for at least 200 years (see p. 15 for references.)



A clearcut on private land north of the Menagerie Wilderness. In the proposed monument, such blocks of land will remain under private ownership and management unless they are acquired by the Forest Service from willing sellers.

The conversion of diverse Douglas-fir ancient forest to monocultural plantations is almost complete on private and state timberlands. Clearcutting is followed by replanting with just Douglas-fir seedlings, herbicide spraying to kill competing plants, and clearcutting again in 35-50 years. The resulting “forest” is impoverished for fish and wildlife, destructive to soils and streams and devoid of scenic value --and in the long run it is not sustainable.

The federal forestlands in the proposed national monument are currently managed under the 1995 Northwest Forest Plan (NWFP). While the NWFP is the best large landscape conservation plan ever implemented by any government in the world, it is not ecologically sufficient to conserve and restore ancient coast Douglas-fir forests. More must be done, such as the establishment of a national monument.

Essentially all remaining old-growth Douglas-fir forests are on federal public forestlands. Depending on how “old-growth” is defined, approximately 10-15% of these forestlands could be considered old-growth.



Log trucks still haul logs out of the forest, including in the area of the proposed monument.

Almost all of the federal forest has been significantly fragmented by past logging. Federal public forestlands also have many forest stands that were logged long ago and now are beginning to approach maturity. True “ancient” forest, with trees many hundreds of years old and of great structural complexity, is scarce everywhere, and the best stands are generally only accessible by driving many miles on logging roads and then hiking.

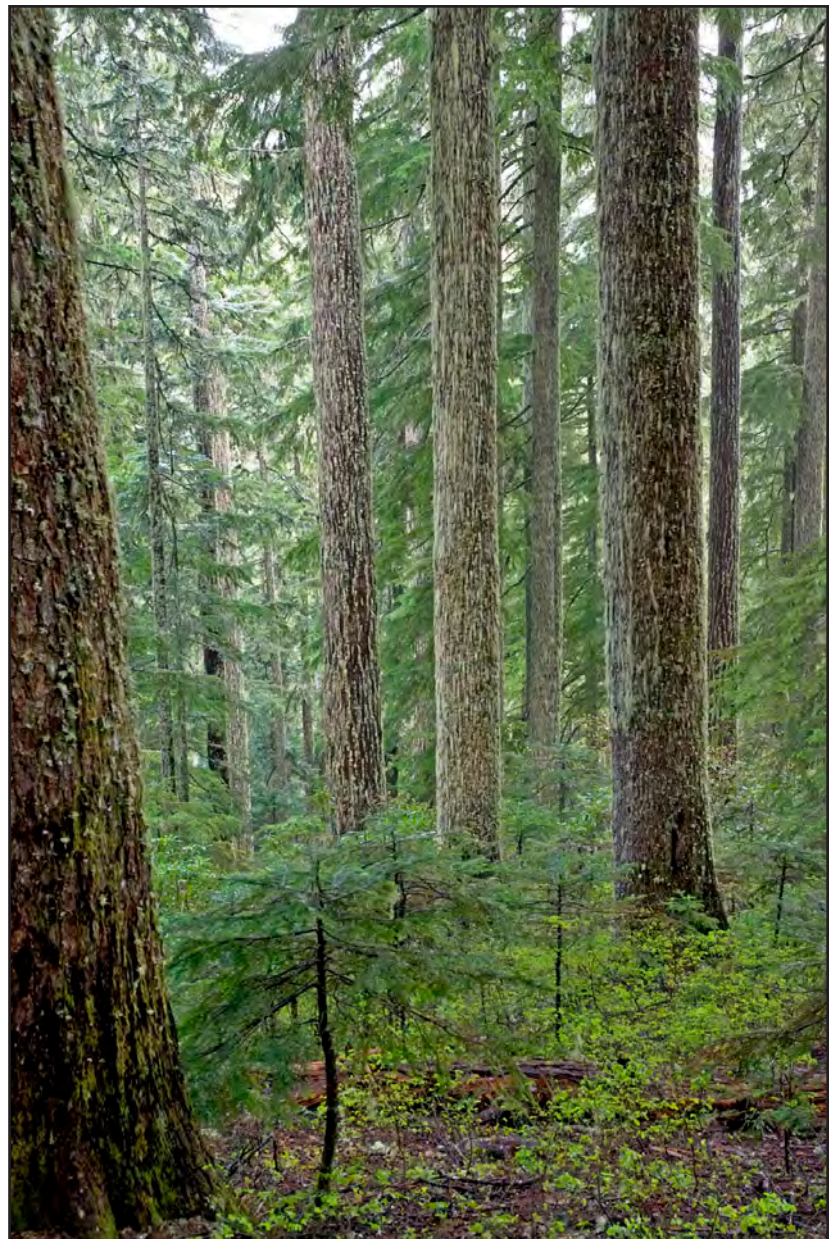


Federal public lands are mostly at higher elevations than private holdings, and they contain a mixture of stands of different ages from recent clearcuts to very old forest in a patchwork across the landscape. The taller forest in the background is a still-standing older forest on federal public lands. The middle ground is a Douglas-fir plantation.

Scientists have found that the root system of one Douglas-fir tree will graft to the roots of adjoining trees, and collectively they share hormones and starches. This is only one of many ways the forest is much more than a collection of individual trees.

The needle surface area of two average old-growth Douglas-fir trees is equal to the playing area of an American football field, making the trees amazing collectors of moisture from the atmosphere.

If all remaining blocks of old-growth coast Douglas-fir are preserved, if the natural young and mature stands are allowed to grow older, and if the young plantations are managed for ecological diversity instead of log production, then the Western Cascades within the proposed national monument has a chance to recover much of the wild quality it had before the era of massive clearcutting. The proposed Douglas-fir National Monument would preserve the best of what is left of the original forest, provide for long-term ecological and hydrological restoration and at the same time give honor and recognition to the tree which at the heart of this unique ecosystem.

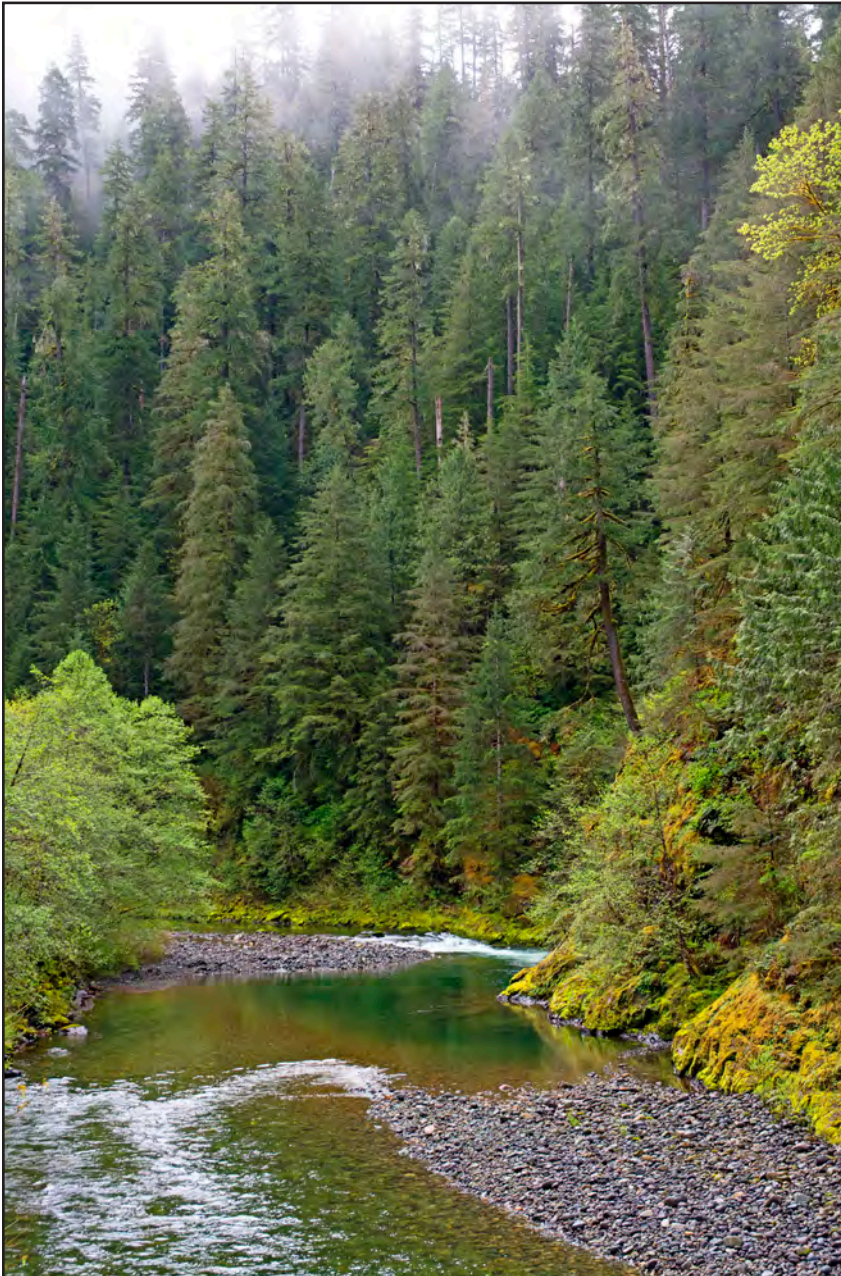


Old-growth coast Douglas-fir forest above Crabtree Lake.

Location and Extent of the Proposed Douglas-fir National Monument

The proposed monument would mostly consist of federal public land within and near the Willamette National Forest. The northern boundary would abut the Opal Creek Scenic Recreation Area, Opal Creek Wilderness and Bull of the Woods Wilderness. The southern boundary would be the hydrologic divide between the South Santiam and McKenzie River watersheds. The eastern boundary would be the Cascade Crest. The western boundary would generally follow the existing boundary of Willamette National Forest but would also include the contiguous area of U.S. Bureau of Land Management (BLM) holdings centered on the Quartzville Creek Wild and Scenic River and on Crabtree Valley, home to the oldest known Douglas-firs in Oregon. It would also include a 191-acre BLM parcel along the Middle Santiam River above Green Peter Reservoir, an exceptional remnant of magnificent, low-elevation, old-growth Douglas -fir forest.

Included in the proposed national monument would be the all of Middle Santiam and Menagerie Wilderness areas, Quartzville Creek Wild and Scenic River and a portion of the Mount Jefferson Wilderness.



The monument would also include roadless lands adjacent to existing Wilderness areas. For example, adjacent to the existing Mount Jefferson Wilderness are roadless lands located downslope from the current Wilderness boundary. These lands were excluded from the Wilderness at the time it was designated, to allow highly profitable clearcutting to proceed.

When the Middle Santiam Wilderness was established in 1984, it was to set aside an example of old-growth Douglas-fir forest and it did. But the example was just a sample and the de facto Middle Santiam wildland is over twice the size of the Middle Santiam Wilderness.

The portion of Quartzville Creek administered by the Bureau of Land Management (from the Willamette National Forest downstream to near Green Peter Reservoir) is a federal Wild and Scenic River. The upper portion of Quartzville Creek should be as well.

The proposed national monument would also include important roadless areas, including:

- Bachelor Mountain features several miles of ridgeline and canyon trails. It is a haven for songbirds and wildflowers and may be habitat for the critically endangered lynx. It also contains very large Engelmann spruce and sugar pine. Cascade peaks visible from here range from Mount Hood to Diamond Peak.
- Crabtree Valley is an island of pristine forest surrounded by a sea of industrial clearcuts. The valley's old-growth Douglas- fir and western redcedar are perhaps 1,000 years old.



Crabtree Lake after a late spring snowfall.

- Gordon Meadows contains lakes and meadows in various stages of succession. Towering over the lakes and meadows is Soapgrass Ridge. Here one will find the Millennium Grove, a unique stand of 700 to 900 year-old — and older — old-growth Douglas-fir interspersed with other younger, 200 to 300 year-old trees.



*Gordon Meadows
Photo courtesy of Tanya Harvey.*

- Hoover Ridge is a scenic backdrop for anglers and boaters on Detroit Reservoir and is home to nesting bald eagles.
- Iron Mountain, at the headwaters of the North, Middle and South Santiam rivers, is home to over 300 species of flowering plants belonging to 18 distinct plant communities. Over 60 species found here are unusual or rare for the western Cascade Mountains, including *Ivesia gordonii* (right.)
- Jumpoff Joe is an impressive rock outcropping that is easily seen from US 20. The Old Santiam Wagon Road traverses the unit.



Ivesia gordonii, called *alpine ivesia* or *Gordon's mousetail*, on top of Cone Peak looking southeast to the Three Sisters.
Photo courtesy of Tanya Harvey



- Three Pyramids contains a true “cathedral forest” hidden in a remote valley with towering ridges above. The soils in this unit are so unstable that landslides regularly occur in this virgin forest, even without the prodding of roading and logging. Above the forest are wildflowers usually not found in the vicinity, suggesting an ice-age refuge.
- Moose Creek qualifies for federal Wild and Scenic River status and hosts runs of spring chinook salmon and winter steelhead that are facing extinction. The unit’s intact low-elevation forest is very rare in the Oregon Cascades.

Moose Creek.

A Collision of Conifers

On a mere quarter section (160 acres) on Echo Mountain Ridge, one can find 80 percent of all the Oregon conifer species found at that elevation. The sixteen species of conifers that have been identified in the unit are:

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|-----------------------|------------------------------|--------------------|
| • Pacific silver fir | • white fir/grand fir hybrid | • noble fir |
| • western white pine | • lodgepole pine | • western redcedar |
| • mountain hemlock | • grand fir | • subalpine fir |
| • Alaska yellow cedar | • Engelmann spruce | • ponderosa pine |
| • Douglas-fir | • western hemlock | • dwarf juniper |
| • Pacific yew | | |

Surprisingly, sugar pine is not found here, although it is found elsewhere in the proposed national monument. This may be because this area is located near the northern edge of the sugar pine’s range, or perhaps there just wasn’t room for it here.

Within the proposed national monument boundary are some blocks of private timberland—legacies of 19th Century railroad land grants. National monument designation would *not* affect their private land ownership or management. If any private lands were to come into federal ownership due to sale by willing sellers, any such lands would become part of the national monument. The communities of Detroit and Idanha (as well as Detroit Reservoir) would be excluded from the monument boundary. Total area included in the proposed Douglas-fir National Monument is 487,491 acres of which ~404,604 acres are part of Willamette National Forest, administered by the U.S. Forest Service, and ~31,800 acres are administered by the Bureau of Land Management (BLM.) Only federal public lands would be managed as the Douglas-Fir National Monument. Within its exterior boundary are ~1,270 acres that are part of Santiam State Forest, and about 49,854 acres of privately owned land.

Why So Big?

At almost 762 square miles (487,491 acres) the proposed Douglas-fir National Monument would be far larger than other national monuments in Oregon. The Oregon Caves (4,558 acres) and John Day Fossil Beds national monuments (13,944 acres) and Newberry National Volcanic Monument (50,000 acres) were established to protect discrete geologic features. Both larger and smaller national monuments are found across the American West.

A national monument to and for the Douglas-fir needs to include a lot of Douglas-fir forest of all ages and conditions across a large landscape.

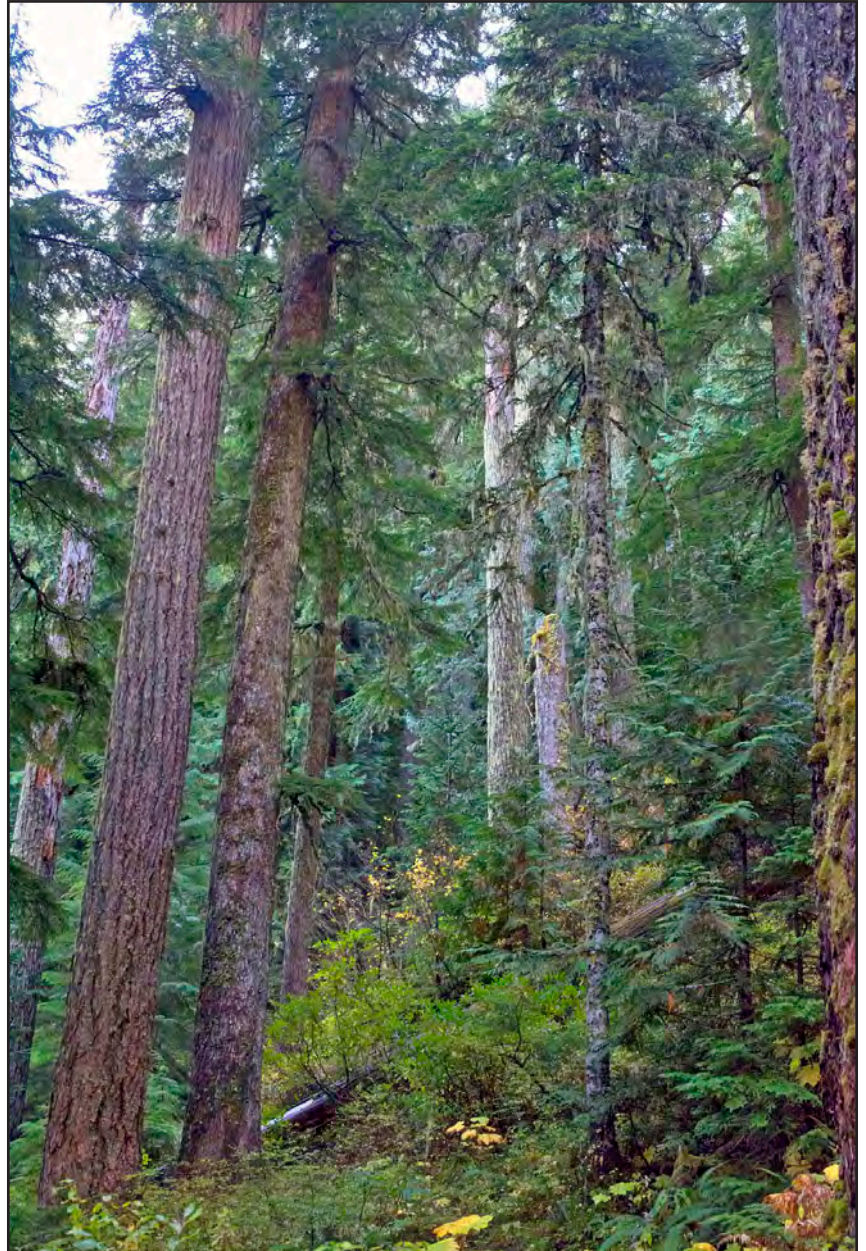


Douglas-fir forest south of the Opal Creek Wilderness.

The goal of creating a new national monument to the Douglas-fir forest is not merely to preserve the scattered fragments of older forest that remain today, but to restore ecological and hydrological integrity to a region that has undergone profound alteration since large-scale industrial logging began after World War II. Thanks to the efforts of many dedicated people, some excellent groves of ancient Douglas-fir forest are permanently protected in places like the Middle Santiam and Mount Jefferson Wildernesses. However, most of the older Douglas-fir forest stands in the area only have some level of administrative protection, which is subject to change as administrations change.

The proposed national monument has many scattered stands of magnificent old-growth Douglas-fir forest. Some of the oldest stands are in Crabtree Valley and the Gordon Meadows roadless area (Millennium Grove) and on the edges of the Middle Santiam Wilderness. Large stands of old trees are found in many places in the proposed national monument.

As the most southern and northern limits of the proposed monument would be separated by over 40 miles, and its eastern and western limits separated by a range of nearly 10,000 feet elevation (from the peak of Mount Jefferson to the South Santiam River) the monument would include a diversity of Douglas-fir and other forest types with differing mixes of native tree and understory vegetation. It would also include the entire upper watersheds of the North, Middle and South Santiam rivers.



Old forest in the upper reaches of McQuade Creek, just outside the northern edge of the Middle Santiam Wilderness. In addition to magnificent Douglas-fir trees there are stands of very old western hemlock and western redcedar.

Besides isolated “cathedral groves” of ancient forest, where one can walk among majestic, ancient trees that are simply amazing and awe-inspiring, much of the remaining old-growth forest consists of “younger” (though often well over a century or two in age) stands with very old trees scattered within them. This pattern reflects the history of large natural cataclysmic events—predominantly fires (but also wind storms), which left a naturally patchy mosaic on the landscape.



In areas such as the Millennium Grove near Gordon Lakes, for example, there are large-diameter trees 800 or more years old, remnants of an ancient fire, standing tall among smaller trees that survived a different fire about 200 years ago (still old growth in anybody's book). Areas such as this may only have one giant tree per acre, but can have ten or more per acre and—in any case— they are natural, virgin, old-growth forests. Older forests, with a mixture of trees of different ages—along with abundant snags and downed logs they are the most favorable for wildlife—also provide the best conditions for healthy streams. These areas need to be large and connected, and we live in a historical moment that offers a unique opportunity to restore this kind of intact landscape in the heart of the Douglas-fir country.

Old-growth forest near Gordon Lakes, where most trees are about 200 years old, but some are several times older.

Permanent Congressional Protection Versus Vulnerable Administrative Protection

Portions of the proposed national monument are already designated by Congress as Wilderness (Mount Jefferson, Middle Santiam and Menagerie areas) or as a Wild and Scenic River (Quartzville Creek), both designations that can provide enduring conservation for the benefit of this and future generations.

Most of the proposed national monument is managed under the Northwest Forest Plan (NWFP) of 1995, which established conservation areas called Late Successional (older forest) Reserves and Riparian (streamside) Reserves. It also established “Matrix” land for logging. There is a lot of Matrix in the proposed monument that contains mature and old-growth forest that is generally open to logging. The NWFP is subject to being weakened by a future administration. Including these lands in the national monument will add a degree of protection that would be shielded from evolving policies within the Forest Service or BLM.

Current Kinds of Logging and Quantity of Logs Would Continue for Generations

Clearcut logging of old-growth forests on federal public lands took off after the end of World War II and came abruptly to an end in 1995 at the commencement of the Northwest Forest Plan. An era of about two generations of an unsustainable logging boom ended (there was never a plan to let the cutover stands ever again reach an old-growth condition), and another era began. In the current era (since the NWFP), there has been about another generation of logging, but now it is almost completely the logging of trees that were established in plantations after clearcutting of old-growth forests.

The establishment of a Douglas-fir National Monument would not mean an immediate end to logging from public lands in the area. Rather, for at least another generation—if not two generations (generally defined as 30 years)—the careful logging of many of the previously managed (planted after clearcutting) forests should continue, for the reasons given below.

There are vast stands of “successful” Douglas-fir plantations in the proposed national monument. The trees in these stands are generally of all the same age, same spacing and same species. They are closer to biological deserts than real forests. Judicious ecological restoration thinning of such stands can accelerate the onset of late-successional (older forest) characteristics, putting these stands on a fast track to again becoming old-growth forests. Thinning a stand can allow the remaining Douglas-fir trees to get bigger faster (bigness is a characteristic of an ecologically complex old forest). Where bigleaf maple, alder and other native conifer species have nonetheless established themselves in the plantation, thinning can favor the growth of these stalwart survivors, increasing the diversity of the stands. In addition, small openings can be created to the benefit of deer and elk.



A thinned stand south of House Rock Campground. It may look bad now, but the forest floor will heal and the red paint will fade.

There are lots of plantations that could improve from ecological restoration thinning. The Forest Service estimates that plantation thinning on the Willamette National Forest can continue to at least 2050 (assuming only one-half the plantations are thinned at 60 years of age).² However, their analysis assumes that money to prepare thinning projects is not a limiting factor. In fact, funding has been and will likely continue to be limited by Congress. At current funding levels, ecological restoration thinning projects on previously managed stands could easily continue another generation beyond that until about 2075.

The Ecoregions of the Proposed Douglas-fir National Monument³

The proposed national monument is entirely within the Cascades “Level III” Ecoregion, as defined by the Environmental Protection Agency. The mountains of the Cascades are widely underlain by Cenozoic volcanic rocks and have been affected by alpine glaciation. Maximum elevations of up to 11,239 feet occur on active and dormant volcanic peaks in the eastern part of the ecoregion. The Western Cascades are older, lower and dissected by numerous, steep-sided stream valleys. The Cascades have a moist, temperate climate that supports an extensive and highly productive coniferous forest that has been intensively managed for logging. Subalpine meadows occur at high elevations.

Further refining the ecoregion, EPA scientists divide Oregon’s Cascade Range Level III Ecoregion into six additional Level IV ecoregions, four of which are found here:

- The ***Western Cascades Lowlands and Valleys*** ecoregion includes the lower slopes of the Cascades. Its mild, wet climate promotes lush western hemlock/Douglas-fir forests. Soils are warmer than in higher elevation ecoregions. The steep valleys contain high gradient rivers and streams that support coldwater salmonids, including the threatened chinook salmon, steelhead and bull trout. Reservoirs store winter snowmelt for irrigation and municipal water supply in the Willamette Valley.
- The ***Western Cascades Montane Highlands*** ecoregion is composed of steeply sloping, dissected mountains between about 3,000 and 6,500 feet elevation. The western Cascades are older and more eroded than the lava plateau and prominent snow-covered cones of the High Cascades (the Cascade Crest Montane Forest and Cascades Subalpine/Alpine Ecoregions); they are composed of dark basalt in contrast to the gray andesite of the High Cascades. The Western Cascades Montane Highlands has lower temperatures and receives more winter snow than the Western Cascades Lowlands and Valleys. Soils have frigid or cryic temperature regimes, in contrast to the mesic temperature regime of soils in the Western Cascades Lowlands and Valleys. Abundant precipitation supports forests dominated by Douglas-fir, western hemlock, noble fir and Pacific silver fir.
- The ***Cascade Crest Montane Forest*** ecoregion consists of an undulating plateau punctuated by volcanic mountains and lava flows. Volcanism in the Pliocene epoch overtopped the existing Miocene volcanics of the Western Cascades Montane Highlands. Later Pleistocene glaciation left numerous naturally-fishless lakes. Today, this ecoregion contains forests dominated by mountain hemlock and Pacific silver fir. It has a shorter summer drought and fewer intermittent streams than the High Southern Cascades Montane Forest.
- The ***Cascades Subalpine/Alpine*** ecoregion contains the prominent volcanic peaks of the High Cascades. Pleistocene glaciation reshaped the mountains above 6,500 feet, leaving moraines, glacial lakes and U-shaped glacial canyons. Glaciers and permanent snowfields still occur on the highest peaks. The vegetation is adapted to high elevations, cold winter temperatures, short growing season and deep winter snow pack. Herbaceous subalpine meadow vegetation and scattered patches of mountain hemlock, subalpine fir and whitebark pine occur near timberline.

Benefits of Douglas-fir National Monument

1. Landscape Conservation and Restoration of the Douglas-fir Ecosystem

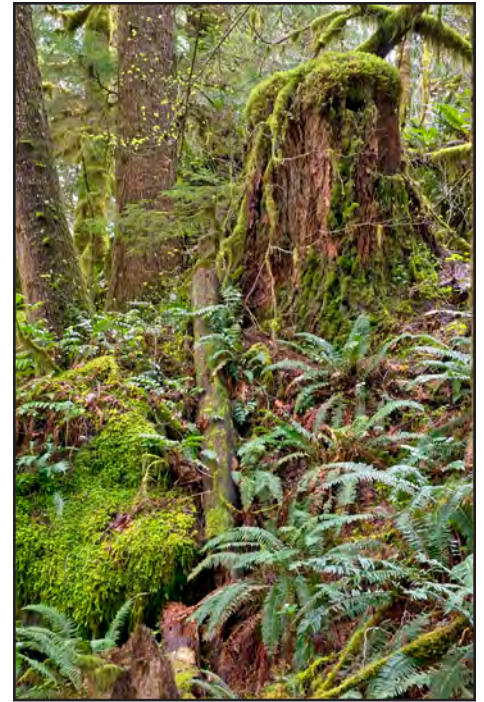
The proposed national monument will provide a tremendous opportunity to conserve and restore ecosystem integrity and a full complement of biological diversity to a significant part of the range of the Douglas-fir. The western Cascades are home to 322 regularly occurring species of vertebrates, including 187 birds, 74 mammals, 18 amphibians and 12 reptiles. There are also over 7,000 species of arthropods (for example, insects and spiders), and thousands of different species of plants, fungi and lichens. These species do not live in isolation, but in complex networks of interaction. Most of their interrelationships are probably still unknown to science, and are important to maintaining the ecosystem. For example, recent studies have shown that the canopy layer of the Douglas-fir forest is home to some 6,000 species of arthropods, making it a reservoir of species biodiversity comparable to that found in the tropics.



Calypso bulbosa orchid.



Usnea species lichens, including Methuselah's beard (U. longissima) along Quartzville Creek.



Mosses and ferns cover an old stump.

Especially important to the health of the forest, but largely invisible, are over 2,000 species of mycorrhizal fungi that nourish the roots of large trees and provide food for small mammals such as the northern flying squirrel (right), one of the main prey species of the northern spotted owl. These fungi are largely destroyed by the kind of forestry that has prevailed for the last century, but will recover in time if left alone. Larger ecosystems have more resilience than small ones and can recover better from natural disruptions such as wildfires. A national monument will provide a significant buffer against disturbance, a local environmental insurance policy in a time of global climate change.



Northern flying squirrel (Glaucomys sabrinus).

2. More and Better Fish and Wildlife Habitat

Conditions for wildlife will improve enormously after the establishment of the national monument. Many animals need older forest to thrive, not only northern spotted owls but also pileated woodpeckers, northern goshawks, many amphibians and mollusks, and mammals such as the wolverine, fisher and marten. An exciting mid-term possibility is that wolves may return to this area and—in the longer term—grizzly bears. Recent research has demonstrated that ecosystems lacking their traditional top predators are out of balance, leading to overpopulations of ungulates such as deer and elk, and impoverished vegetation. Animals that prefer more open forest stages will benefit from the restoration of natural young forests, a landscape consisting of diverse habitats rather than tree farms.



Gray wolf (Canis lupus) in winter
Photo ©Kenneth Canning/
iStock/Getty Images

Of particular importance will be the protection and enhancement of streams for native fish such as bull and steelhead trout. By protecting streams and entire watersheds from the effects of logging—and from the erosion caused by road building—habitat for fish will be enhanced. Restoration of salmon habitat has been underway for some time in Moose Creek, a stream within the proposed Monument, and the restoration of healthy riparian habitats will be one of the major goals of the area's management.

The proposed national monument will also improve connectivity between areas of prime wildlife habitat, reducing the fragmentation that can trap animals in shrinking islands of their preferred range. Many animals need to travel over large areas to feed or find mates, or, like the spotted owl, they may use one type of habitat for nesting and another for foraging. It is crucial that the national monument be large enough to allow for the free and necessary movement of the larger mammals.

The ecosystem would benefit from rewilding, that is, the restoration of all of its natural components including large predators. The proposed national monument has the potential to become a key component of what has been called the Pacific Wildway, a mega-linkage for wildlife that could potentially extend from Baja California to Alaska.

Yet another benefit of the proposed national monument for wildlife is as a refuge in a time of global warming. Climate change is already causing stress to many animal populations and older forest with its greater shade, abundant moisture, complexity of vegetation and variety of structural features offers the best chance for long term survival. North-facing slopes of mature forest often provide the most protective habitat for animals in need of shelter from a warming climate.

3. Watershed Conservation and Restoration for Nature and People

Ancient forests provide the best water quality and quantity on the planet. All of the towns and cities downstream from the proposed national monument would see an enhancement of their water quality, including the communities of Salem, Lebanon, Mill City, Stayton and Sweet Home. Costs for filtration will drop as the quantity of sediment in the water decreases, and this enhanced water quality will be provided at no cost to the ratepayer.

Helping the Climate: Carbon Storage

Mature forests provide one of the most effective mechanisms of carbon storage in existence, and mature moist forests on public lands in Oregon and Washington store the equivalent of nearly 130 times the states' annual greenhouse gases. Forests contribute to the atmosphere in two ways: they actively remove carbon through photosynthesis as they simultaneously release oxygen, and they store enormous amounts of carbon in their biomass. Logging releases large amounts of this carbon to the atmosphere and even replanted areas are net emitters of carbon for about their first 15 years.

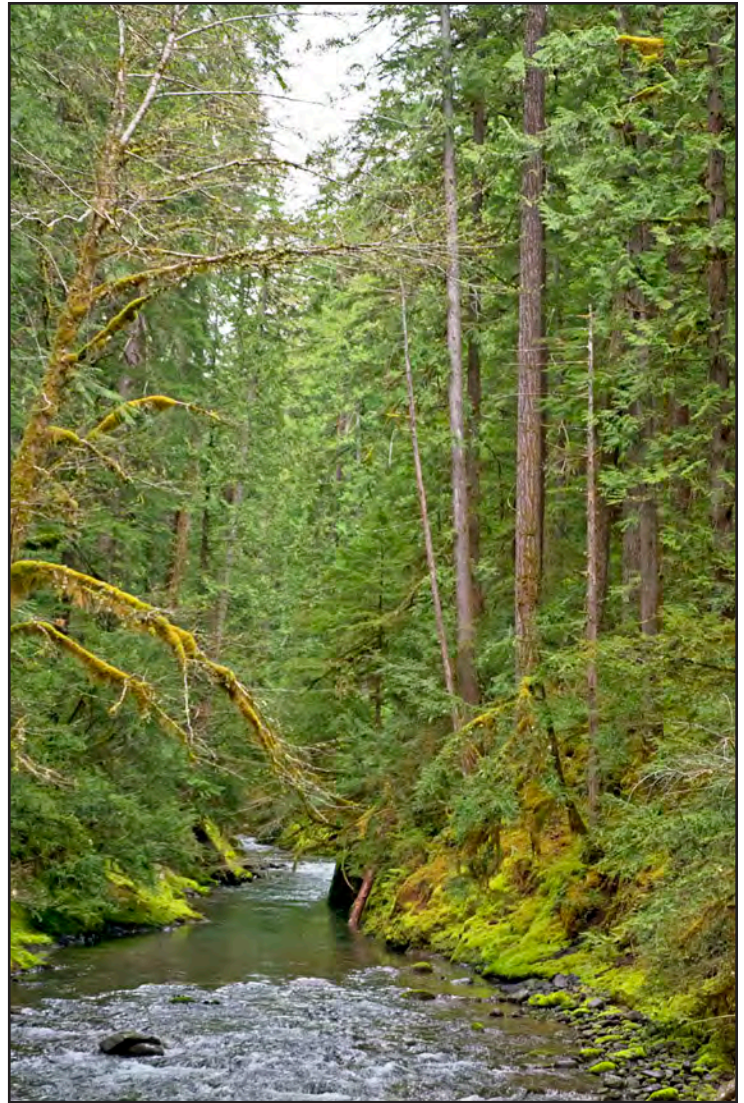
Simulation studies have shown that conversion of old-growth forests to young, fast-growing, forests does not decrease atmospheric carbon, even when the sequestration of carbon in wooden buildings is taken in to account. Old forests store more carbon, and young forests do not approach old-growth storage capacity for at least 200 years.⁴

Globally, deforestation contributes more to climate change than the entire transportation industry. After the enactment of the Northwest Forest Plan, and with the subsequent reduction of logging on federal lands, northwestern forests changed from a source of carbon to a carbon sink. A Douglas-fir Forest National Monument that promotes the growth of mature forests and preserves the ancient ones will contribute significantly to mitigating global warming.⁵

5. Opportunities for Educational and Scientific Study

The proposed national monument can be a site for advanced scientific study, since science still has much to discover about the dynamics of natural forests and about many of the organisms that live there. In addition to the importance of mycorrhizal fungi, examples of scientific findings from the last few decades of research include:

- the amazing diversity of life in the canopy of old forests, with trees of many other species sprouting from moss-covered limbs high in the air,
- the isolation of paclitaxel (now synthesized), the active ingredient in the cancer-fighting drug Taxol®, from the bark of the Pacific yew (*Taxus brevifolia*), once considered a weed tree,
- research that suggests millipedes and mollusks play key roles in the maintenance of forest soils, showing that some of the most seemingly humble organisms can turn out to be the most important; and



South Fork of the Breitenbush River, flowing through an old-growth forest.

- the discovery that the lichen *Lobaria oregana*, sometimes called lung lichen, or Oregon lettuce, is a primary source of fixed atmospheric nitrogen in old forests. It is an organism that supplies free fertilizer to the ecosystem, but it cannot grow in tree plantations with short rotation cycles.

The lichen, Lobaria oregana on a conifer limb.



6. Outdoor Recreation



Establishment of the national monument will provide increased recreational benefits, first and foremost by creating an icon of the Douglas-fir forest, giving it official recognition as a place of value, a unique treasure of the Pacific Northwest. As the younger portions of the area grow back into mature forest, and the now-mature forest approaches the conditions of old-growth, the attractiveness of the Monument will steadily increase, drawing more and more visitors to the region.

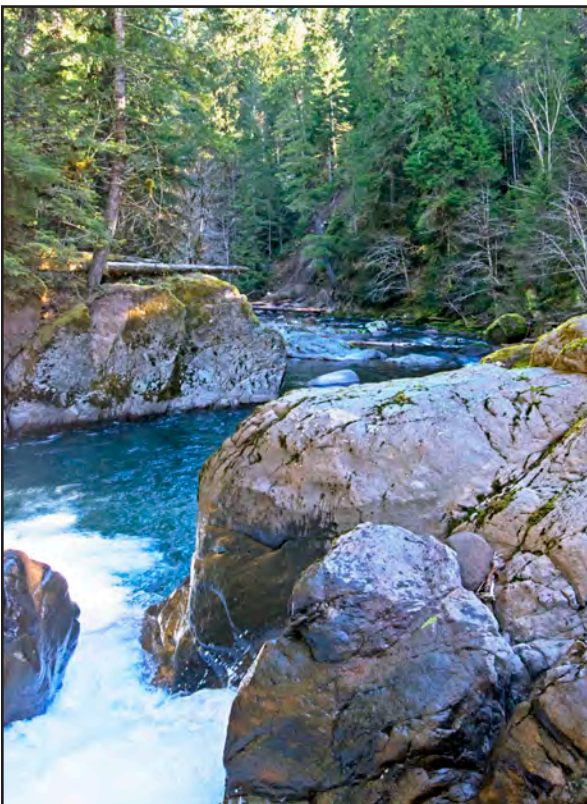
The area in the proposed monument currently has 11 campgrounds and ~45 trailheads serving about 500 miles of trails. Many of the trails, as well as many roads, are accessible to mountain bikes. As heavy visitor use of Opal Creek Scenic Recreation Area demonstrates, large numbers of people, from families with young children to the aged, want to explore trails in old forests, especially trails that follow streams, or ridgelines with commanding views. Proper management of the Monument could increase the number of places this would be possible while simultaneously enhancing the area's wild character overall. The national monument will serve the recreational needs of Oregonians and attract visitors from elsewhere in the nation and also around the globe.

7. Spiritual Renewal

Ancient forests—not only the trees but the entire community of life they support—stand in relation to human society as an elder to its children, and need to be honoured and respected. The forest can also be a locus for educational and spiritual activities, with much to teach old and young alike. People will learn about plants, animals, stream life and ecosystems by visiting the Monument, and it will inspire contemplation of our place in nature for people of all ages and beliefs. It will be a setting in which we can gain a proper sense of context, a sense of humility, and the knowledge that we are but one part of a much larger and vastly complex world. It will be a place to experience actual, rather than virtual, reality.



Old-growth forest above Crabtree Lake after a spring snowfall.



The Middle Santiam River above the Wilderness area.

Not Just a National Monument

Wild and Scenic Rivers

Within the proposed Douglas-fir National Monument are numerous creeks, rivers and small lakes that qualify for inclusion in the National Wild and Scenic Rivers System. Wild and Scenic River status confers not only additional recognition as to the outstandingly remarkable values of these water bodies, but also addition protection against dams and other water diversions. Presently, the only Wild and Scenic River in the proposed monument is 12 miles of lower Quartzville Creek. Potential Wild and Scenic Rivers include the Breitenbush River and its forks, the North, Middle and South Santiam rivers and several of their tributaries, Crabtree Creek (including Crabtree Lake) and upper Quartzville Creek with several tributaries.

Wilderness

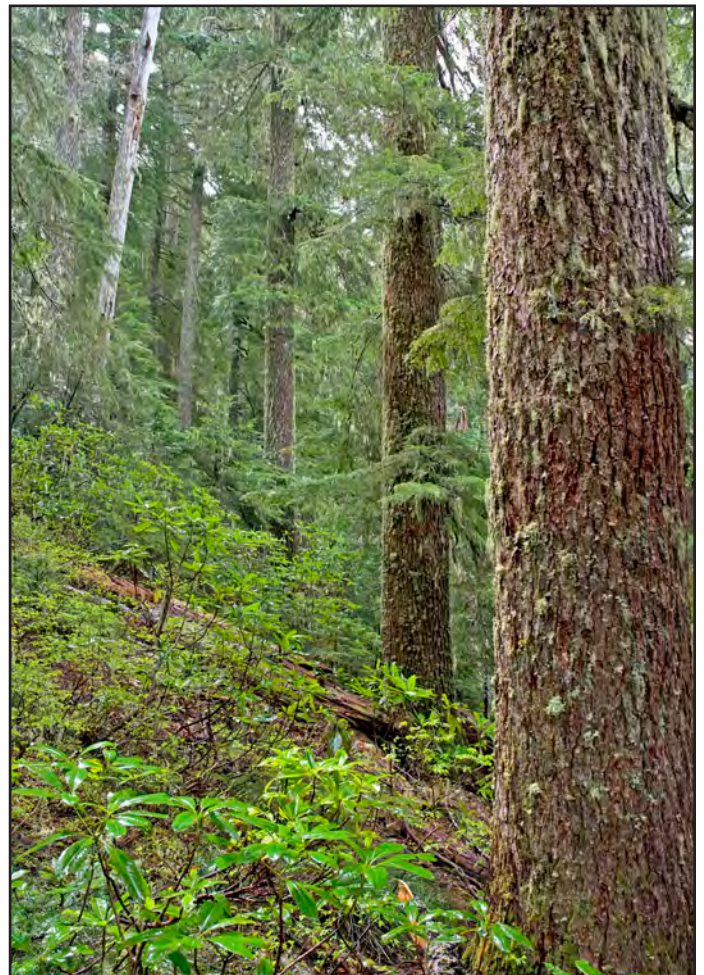
Also within the proposed national monument are numerous roadless areas that qualify for inclusion in the National Wilderness Preservation System. Currently, the only designated Wildernesses in that area are the Middle Santiam (7,500 acres), Menagerie (4,800 acres) and a portion of the Mount Jefferson (~85,000 acres) areas. Potential Wilderness areas include, but are not limited to:

- Gordon Meadows (10,125 ac.)
- Moose Creek (5,529 ac.)
- Jumpoff Joe (6,298 ac.)
- Menagerie Additions (1,906 ac.)
- Iron Mountain (8,808 ac.)
- Three Pyramids (4,167 ac.)
- Middle Santiam Additions (9,219 ac.)
- Mount Jefferson Additions (12,000 ac.)
- Bachelor Mountain (3,902 ac.)
- Mount Bruno (3,239 ac.)
- Hoover Ridge (2,306 ac.)
- Hall Ridge (2,460 ac.)
- Scorpion Mountain (4,868 ac.)
- Box Canyon (2,582 ac.)
- Crabtree Valley (1,822 ac.)

Byways

Much of the Quartzville Road Back Country Byway (USFS 11), Over the River and Through the Woods Scenic Byway (US 20), West Cascades National Scenic Byway (OR 22 and Breitenbush River Road) as well as the Mt. Hood portion of the Cascades Birding Trail, traverse the proposed Douglas-Fir National Monument. A byway designation only confers recognition of scenic and recreation resources along the route. A national monument designation would confer protection of such resources.

Old-growth forest in Crabtree Valley.



Management Guidelines for the Monument

1. Administration

The proposed Douglas-fir National Monument could be administered by either the National Park Service or the Forest Service. The mandate and clear goal of monument designation would be the conservation and protection of the natural environment. Only uses that are compatible with that goal would be allowed in the national monument. As proposed herein, the Douglas-fir National Monument would be established by an Act of Congress, but it could also be proclaimed by the President under authority granted by Congress in the Antiquities Act of 1906.

2. Forestry

Forestry within the national monument would be limited to previously logged lands in ways that aid the reestablishment of natural ecosystem and watershed dynamics, such as variable density thinning to accelerate the recreation of older forest characteristics. Any logs produced by logging within the national monument would be a byproduct of ecological restoration. No unnatural salvage logging after a natural fire, windstorm, disease occurrence or insect event would be allowed, as these disturbances are natural and beneficial. As one key study says:

...post-fire (salvage) logging does not contribute to ecological recovery; rather, it negatively affects recovery processes, with the intensity of impacts depending upon the nature of the logging activity. Post-fire logging in naturally disturbed forest landscapes generally has no direct ecological benefits and many potential negative impacts. Trees that survive fire for even a short time are critical as seed sources and as habitat that sustains biodiversity both above- and belowground. Dead wood, including large snags and logs, rivals live trees in ecological importance. Removal of structural legacies, both living and dead, is inconsistent with scientific understanding of natural disturbance regimes and short- and long-term regeneration processes.⁶



A post-disturbance forest is one of the rarest and most biologically diverse ecosystem stages. Often called a “snag forest,” it is full of wildlife, including species that require or prefer those kinds of forest conditions, such as the black-backed woodpecker, whose coloring allows it to enjoy food from the blackened trees with reduced risk of being eaten itself.

This giant snag, still standing in an old-growth forest near Gordon Lakes, is not a result of forest fire, but of old age. It is dotted with numerous woodpecker holes.

3. Roads

Existing US and state highways would not be affected by national monument designation other than to improve the scenic views as logged-over forests recover in time.

An extensive road system, necessary for the public enjoyment and administration of the national monument, would be maintained. Unnecessary roads would be encouraged (through recontouring of the slope, etc.) or allowed (passive restoration) to revert to nature. Some might become hiking, horseback riding and mountain biking trails. Necessary roads would be maintained and improved to make public travel safer and to make such roads more wildlife- and watershed-friendly. No new roads would be built, with the possible exception of short spur roads to new necessary visitor facilities.

4. Fires

Natural wild fire is either the rebirth or the continuation of a forest. As a general rule, fires would be left to burn naturally until they run out of fuel or the rains come. The protection of buildings would be accomplished primarily through vegetation management directly adjacent to those buildings.

5. Biological Diversity and Wildlife

A key component of management in the national monument will be to restore as much as possible the full complement of species diversity and wildlife that was historically present in the Western Oregon Cascades. Habitats favored by species that are rare, threatened or endangered, such as the northern spotted owl and the fisher, will be given highest priority for protection, and access to these habitats restricted as needed to preserve and increase populations at risk. Re-establishment of beavers (the Oregon state mammal) in their historic range, and the return of wolves will be encouraged. The managing agency will endeavour to maintain national monument lands in a condition that enhances their use as wildlife corridors.

6. Mining

Subject to valid existing rights, the federal public lands within the proposed national monument would be withdrawn from all forms of mineral exploitation. Any valid mining claims could proceed.

7. Recreation

Recreation that is compatible with the conservation goals of the national monument, such as hiking, birding, botanizing, photography, camping and pleasure driving would be encouraged. Hunting and fishing would remain under the jurisdiction of the State of Oregon. Off-highway motorized recreation use would be limited to kinds, and in areas, that do not harm the values for which the national monument was established.

8. Existing Homes and Businesses

The cities of Detroit and Idanha (as well as Detroit Reservoir) are specifically excluded from the Monument. The status of privately owned inholdings on federal land will remain unchanged, and traditional access will be preserved.

9. Native American Interests

The establishment of the national monument will not increase, decrease or change any Native American rights. Native American tribes with interests in the proposed national monument area would be especially consulted as to the development and implementation of the management plan.

Economic Impacts of the Monument

1. Timber and Other Extractive industries

Under the Northwest Forest Plan as implemented, logging on the federal lands within the proposed national monument has generally been limited to ecological restoration thinning of previously logged stands. This would generally continue for the foreseeable future.

Since 1995, the number of wood products mills and jobs in Oregon have halved, while the milling capacity of the remaining mills has increased by one-quarter. The timber industry's appetite for logs increases while it provides less jobs. Most logs in the state come from non-federal lands. More logs from private lands are exported to Shanghai and Tokyo than come from federal public lands in Oregon and Washington.

Jobs in Oregon's wood products industry will continue to decline both as mill automation continues to increase. In 2014, Oregon exported ~\$1 billion of wood products, while exporting ~\$3 billion of agricultural and food products, ~\$5 billion of heavy manufacturing goods and ~\$9 billion of consumer and electronic goods and services. Our remaining older forests are more valuable for the watershed, recreation and ecosystem goods and services they provide, rather than as mere sawlogs.⁷

2. Tourism and Recreation

Outdoor recreation in Oregon is thriving; it is growing, and it can be sustainable. Statewide, outdoor recreation generates 141,000 direct jobs, \$40 billion in wages and salaries, \$128 billion in consumer spending and \$955 million in state and local tax revenues.⁸ The creation of the Douglas-Fir National Monument will attract visitors to the area from everywhere on the globe, from Asian and European tourists to hikers from the Willamette Valley, around the state and Northwest; it will have a significant positive impact on the economic health of the region.

Outdoor recreation industry jobs in Oregon are on the increase. In addition, Oregon employers have a competitive advantage over other parts of the country in that they offer jobs to workers that allow them to enjoy the great Oregon outdoors during their time off.



*Photo ©Isaac LKovat/
iStock/Getty Images*

3. Local Businesses

Local businesses would see enhanced revenues from increased recreational use of the area, more than offsetting the slight loss of lumber-related jobs.

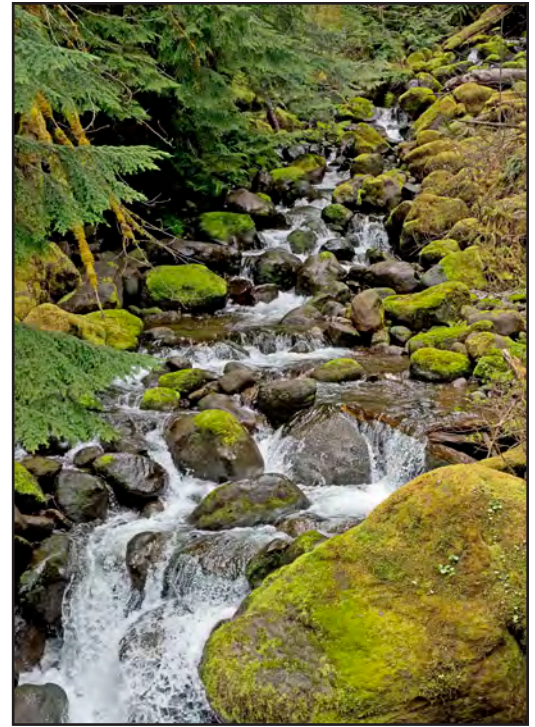
4. Water Resources

Over time, local communities downstream will see a decrease in their costs for filtration and water treatment due to the enhancement of water quality that will result from the Monument's establishment.

5. Carbon Storage and Sequestration

Climate change is costly to society in ways that influence every aspect of life, such as rising sea levels, more severe storms, disruption to agriculture, impacts on water supplies, increased cooling costs and the spread of invasive species and pathogens. By conserving older forests and allowing the continued growth of younger ones, the Monument will help mitigate these costs. Additionally, as carbon pollution is properly priced in the market, the stored carbon in proposed Douglas-Fir National Monument can be economically recognized.

A stream in an older part of the forest, south of House Rock Campground



Planning for the Future



The Douglas-fir National Monument will provide a large net benefit to the economy of Oregon through an increase in recreation-related activities, improved water quality and the sequestration of carbon. Any loss in jobs due to a reduction in log supply from the federal public forestlands that would be part of the proposed Douglas-Fir National Monument will be more than offset by the creation of other jobs. The Monument will also provide great ecological social and cultural benefits by honoring and preserving one of the greatest ecosystems on earth, attracting visitors from around the globe and restoring a complex community of life that is unique to the Western Cascades.

The local economies in the North Santiam Canyon and the South Santiam Valley are in transition. The days of huge logging levels attained by the clearcutting of old-growth forests are long gone. Almost all state and private lands have been converted to plantations, and society has decided that what old-growth forest is left on the public lands has higher and better uses than an unsustainable wood supply.

For better or worse, the Willamette Valley will continue to increase in population and urbanize. The establishment of the Douglas-fir National Monument can help the economic transition and diversification of local communities. There is still money to be made and jobs to be had by logging on public lands—just not the old growth and at so high of levels as a generation ago. Increasingly, there will also be money to be made and jobs to be had from a sustainable tourism- and recreation-based economy. People who come to see and enjoy the vast forests of Douglas-fir will need lodging, food, drink, supplies and guides. The trees of the national forest will still be producing economic value to local communities, but they won't have to give their lives to do so.

By including currently degraded forests in a national monument dedicated to long-term conservation, our grandchildren will be able to see the vast landscape of old-growth forests that our grandparents saw.

A Discussion Draft

This document is intended to provoke discussion. While a detailed proposal in many ways, it is subject to revision and refinement based on discussions with and engagement of relevant stakeholders. Obviously, the authors strongly believe in the concept of a Douglas-fir National Monument being established for the benefit of this and future generations. We hope you will too.

Endnotes

1. Harvey Locke, "Nature Needs (At Least) Half: A Necessary New Agenda for Protected Areas" in *Protecting the Wild*, George Wuerthner, Eileen Crist and Tom Butler, eds., The Foundation for Deep Ecology and Island Press, 2015.
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3. Text gratefully adapted from Thor D. Thorson, Sandra A. Bryce, Duane A. Lammers, Alan J. Woods, James M. Omernik, Jimmy Kagan, David E. Pater, Jeffrey A. Comstock. 2003. Ecoregions of Oregon (color poster with map, descriptive text, summary tables and photographs). USDI-Geological Survey. Reston, VA (map scale 1:1,500,000).
4. Mark E. Harmon, William K. Ferrill and Jerry F. Franklin, "Effects on Carbon Storage of Conversion of Old-Growth Forests to Young Forests", *Science*, Feb 9, 1990, 247.
5. Information in this section from "Why Forests Need to be enlisted in climate change actions" by Dominick A. DellaSala, Ph.D., Chief Scientist Geos Institute, 2015, and from the talk on that subject by Dr. DellaSala at the 2015 Public Interest Environmental Law Conference, Eugene, OR.
6. Reed F. Noss, Jerry F. Franklin, William L. Baker, Tania Schoennage, and Peter B. Moyle, "Managing fire-prone forests in the western United States", *Frontiers in Ecology and the Environment*, 2006; 4(9): 481–487. Ecological Society of America.
7. Information from the Oregon Office of Economic Analysis (<http://oregoneconomicanalysis.com/2015/08/12/oregon-exports-2015-industries/>)
8. Information from the Outdoor Industry Association website. https://outdoorindustry.org/images/ore_reports/OR-ore-

For a website about the proposed monument see <http://www.douglasfirnationalmonument.org/>

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Proposed Douglas-fir National Monument

