

America's Forest Health Crisis

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Abstract

Over 45% of our western states' forest land is included in our National Forest System (NFS). The NFS lands were set aside by Congress for the express purpose and intent to *"improve and protect the forest, secure favorable conditions of water flows, and furnish a continuous supply of timber for the use and necessities of citizens of the United States."* That intent was further defined to *"develop and administer the renewable surface resources of the National Forests for multiple use and sustained yield of the several products and services."*

However, for the past 25 years, our NFS has been experiencing a forest health crisis because laws regulating the NFS are often conflicting. Legislation that directs the Forest Service to provide timber products and recreational opportunities often conflicts with legislation that requires protection of wildlife species and surrounding habitat. Simply put, the Endangered Species Act requires protecting the wildlife in the forest while the National Forest Management Act emphasizes utilizing its goods and services. The original intent to manage and protect was known as "multiple use" management, where both timber resources and non-timber resources were underpinned by the enduring foundation of "sustained yield."

Today, multiple use within the NFS has been replaced by forest gridlock, leading to

- a 70% reduction in NFS timber outputs since the 1980s
- unprecedented losses due to fire and insects
- the necessity for federal payments to counties designed to minimally offset the reduction in receipts from reduced timber output
- rural families, communities and counties crumbling
- political and judicial turmoil
- the United States becoming the world's #2 IMPORTER of softwood lumber products

This paper identifies the causes of forest gridlock and offers short-term and long-term solutions that will improve both the health of our forests and our nation's economy.

A Foundation of America's Strength

America is blessed with some of the most diverse and bountiful forests in the world. From the rich hardwood and pine forests in the northeast and south, to the magnificent redwood and Douglas fir groves along the western coast, America's forests provide our great nation with a wealth of beauty and identity.

They are vast; over 750 million acres in size (“U.S. Forest Resource Facts and Historical Trends”). America’s forests cover approximately one-third of our land. They are home to thousands of wildlife species; they provide clean air and water to our cities and farms; and Americans, as well as world travelers, find adventure, solitude and renewal in our forests.

America’s forests have supplied the wood products that have seen this country grow from an idea hatched less than 250 years ago, to the most prosperous and powerful nation in the world.

With that positive backdrop, one would think all is well with America’s forests. Unfortunately, that is not the case. The reality is that in America, our current forest management policies, fraught with uncoordinated, conflicting, and overbearing state and federal regulations, are severely damaging our forests. Because of decades of congressional neglect, America’s forest lands are currently dying off at an unprecedented rate, due to catastrophic wildfires and epidemic insect and disease attacks.

Current forest management policies are skewed toward preserving our forests instead of managing them. The result of this preservation policy is that we now have forests choked with too many trees per acre. Millions of acres of America’s forests have been killed by bark beetles that thrive on overcrowded timber stands. Millions more, particularly in the past 10 years, have been devastated by wildfires with ever-increasing size and severity. With those fires comes increased erosion into waterways, increased greenhouse gas emissions, higher levels of air pollution from smoke, loss of fish and wildlife, and negative impacts to local economies. The U.S. Forest Service currently spends over 50% of its annual budget fighting forest fires.

In much of rural America, citizens live in fear of losing their communities to fires or floods because of mismanagement of our National Forests. And, if these facts alone aren’t reason enough to induce change, we have also neglected our forest products industry, to the point that today, the United States of America finds itself the second leading IMPORTER of softwood lumber in the world, second only to China.

In California alone, over 150 sawmills and biomass facilities have been shuttered just in the past 25 years. Additionally, thousands of related businesses dependent on the mills have closed, and entire communities have gone from vibrant to virtual ghost towns. These same communities are seeing the forests surrounding them decimated by fire and insects.

This short white paper chronicles the changes in our forest management policies that have seen our National Forests, and many of our private forests, go from places of beauty and diversity built on the principles of multiple use, to a state of neglect. This paper will not only highlight the main forest land management challenges we face, but will recommend sound scientific, as well as common sense, solutions to the problems.

If we remain on the forest mismanagement path we are traveling, the result will be more fires and floods, and forests decimated by insects and disease. America will continue to be a leading importer of wood products, as we watch a once vibrant timber industry shut down.

As you read through this paper, please consider that making our forests great again will play a key role in Making America Great again.

Consistent Policies Are Essential for National Forests

Management of America's public forests has lost step with presidential and congressional intent for the National Forest System (NFS) which was created by the 1897 Forest Service Organic Administration Act (FSOAA). These forests were established to *"improve and protect the forest, secure favorable conditions of water flows, and furnish a continuous supply of timber for the use and necessities of citizens of the United States."* More than 100 years ago, the President and Congress recognized that responsible forest management combined protection of forest resources with economic outputs that would allow Americans to prosper. For more than 60 years, this national policy was successfully implemented.

In 1960, Congress restated this policy by enacting The Multiple Use Sustained Yield Act (MUSYA), authorizing the Secretary of Agriculture to *"administer the renewable surface resources of the National Forests for multiple use and sustained yield...utilized in a combination that best meets the needs of the American people."*

However, 1969 was a monumental turning point for America's National Forest System. The paradigm of "multiple use" began to crumble with the passage of the National Environmental Policy Act (NEPA). NEPA set as national policy that all Americans have *"safe, healthful, productive, and esthetically and culturally pleasing surroundings."* NEPA failed to recognize the original FSOAA policy of multiple use and sustained yield, creating a situation in which both policies could not be achieved simultaneously.

A second conflicting policy was enacted in 1973 with the passage of the Endangered Species Act (ESA), which calls for the *"use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which such measures are no longer necessary."* Again, a new policy was created that failed to recognize the original FSOAA policy of multiple use and sustained yield.

In 1976, Congress once again reaffirmed the principles of multiple use and sustained yield with the National Forest Management Act (NFMA) which states that all forested lands in the National Forest System *"shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management."*

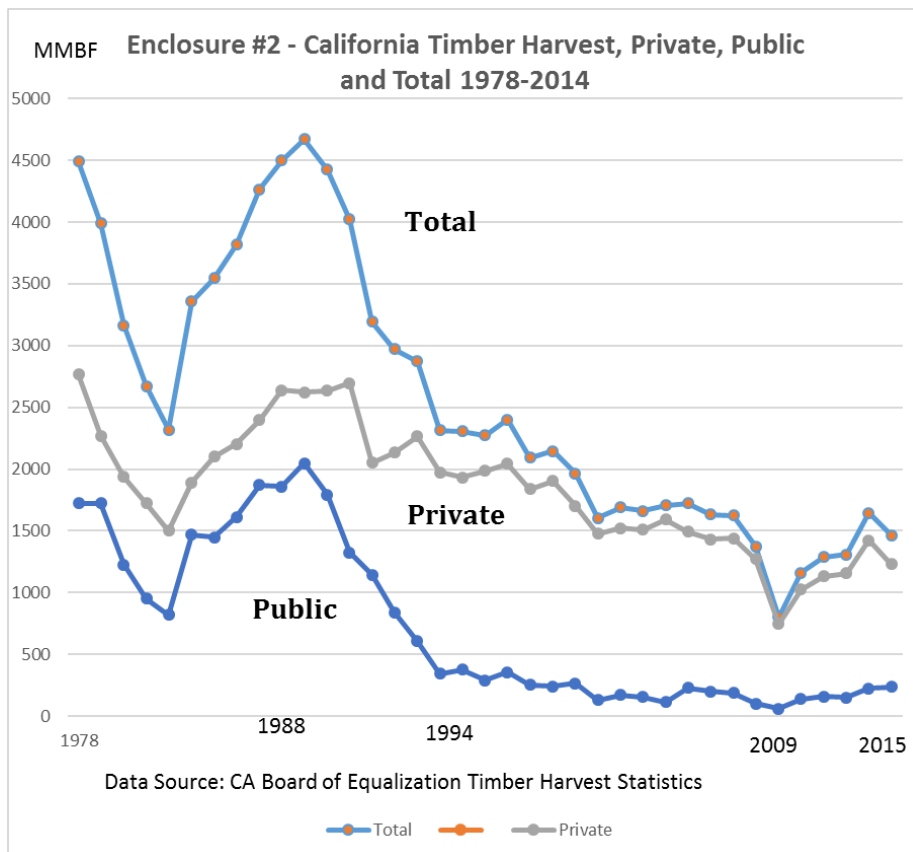
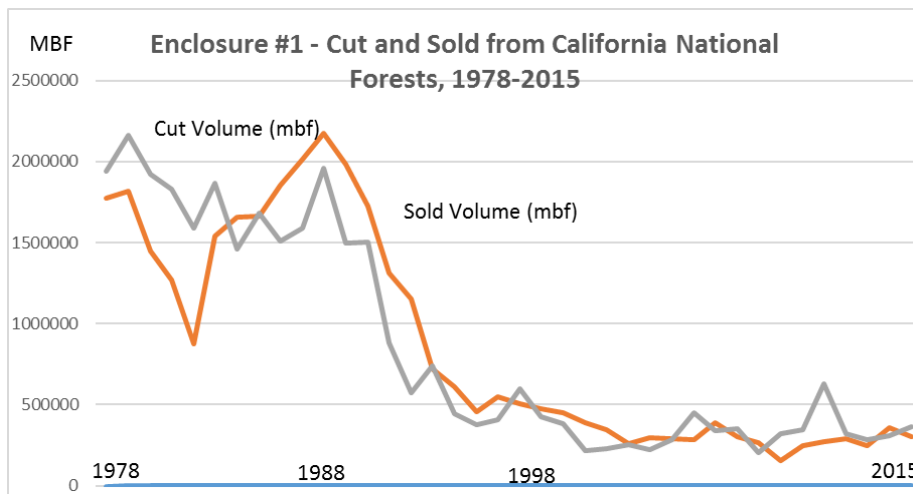
The inconsistent forest policy brought about by the enactment of NEPA and ESA has led to a gridlock of confusion and litigation, hindering the extensive and comprehensive planning process mandated by NFMA. NEPA and ESA have been the basis for numerous lawsuits, many filed with the intent of excluding commercial output from America's National Forest System.

National Forests and the Economy

The resulting inability of the Forest Service to manage forests has created a forest management disaster for the rural West, illustrated well by the enormous impacts now being experienced in California.

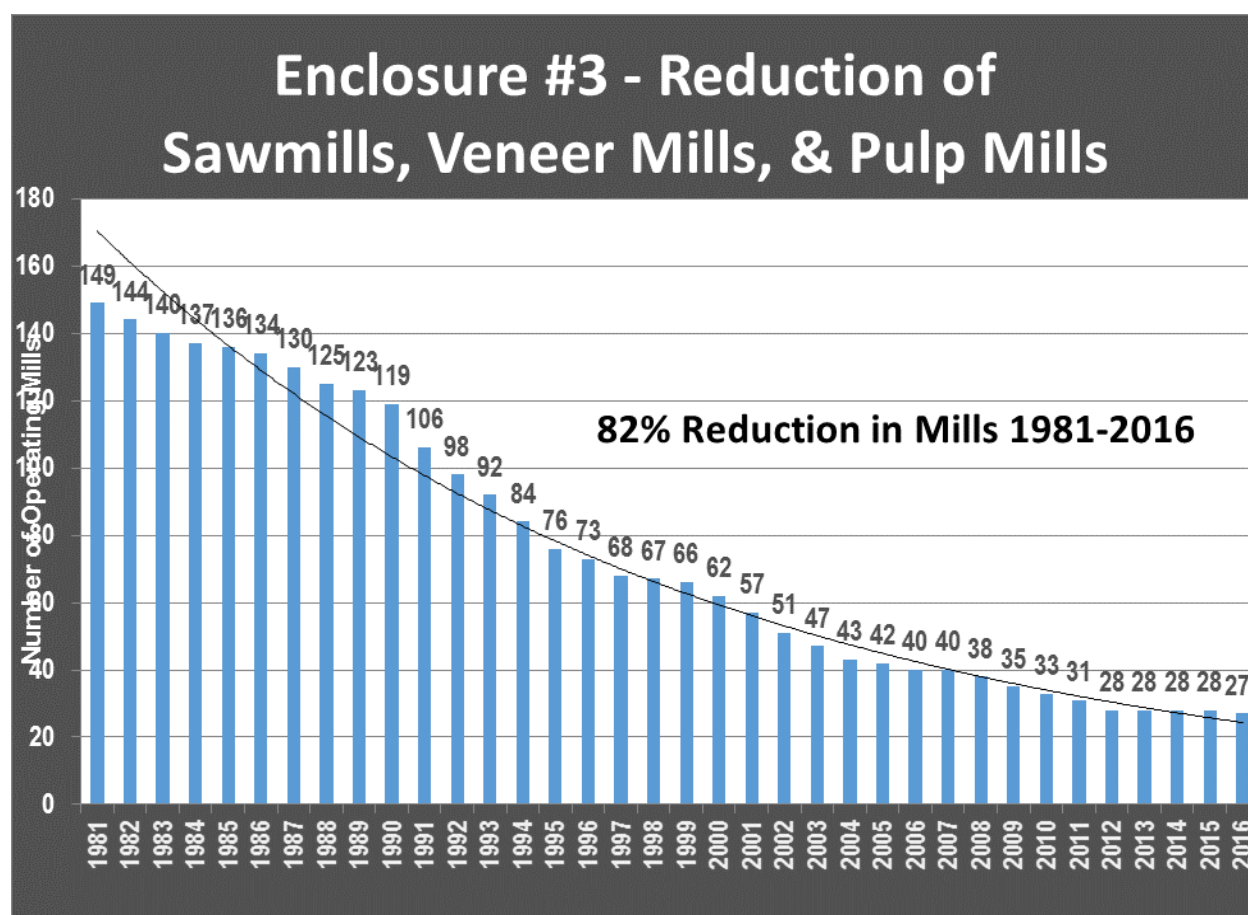
California's National Forests grow at the rate of 4 billion board feet per year on the available productive forest land.

In California, beginning in the early 1990's, the ESA was used to promote a change in management practices to benefit the northern and California spotted owls. This led to unnecessary precipitous declines in wood production, depicted in the graphs below.



These spotted owl management practices brought about extensive economic downturn in the California forest products industry:

1. The Forest Service in California went from annual wood production of 2 billion board feet (bbf) in the late 1980s to an annual supply of less than 0.35 bbf since the mid-1990s.
2. On private lands, annual wood production fell from approximately 2.7 bbf in the late 1980s down to approximately 1.3 bbf today.
3. The forest milling infrastructure in California declined 82%, from 149 sawmills and veneer mills in 1981 to only 27 remaining today.
4. The loss of jobs in the forest sector in the rural timber counties led to a staggering \$1.2 billion annual loss in payroll.



National Forests in California currently have a vast standing inventory of 178 bbf. Due to mismanagement over the past 25 years, the average number of trees per acre has increased dramatically to an average of over 300 trees/acre. However, the landscape only has enough water to support about 20-100 trees/acre. As a result, over the past 15 years, wildfire has been

burning up the National Forests at an annual average rate of 320,000 acres/year. Burn severity on National Forest land has been steadily increasing, with high burn severity on National Forest land exceeding 50% on many recent fires (2014 King Fire, Willow Fire, Bald Fire, Coffee Fire, Eiler Fire; 2015 Lake Fire). Additionally, a devastating insect and disease epidemic started in the southern Sierra Nevada Range in 2013 and has steadily moved northward, now encompassing 11 counties. Approximately 85% of pine in the southern Sierra Nevada has died. On the Sierra National Forest alone, the insect and disease epidemic has now destroyed over 10 bbf of timber. As a result of wildfire and the insect and disease epidemic, over 583,000 acres of productive National Forest are now brush fields and identified as in need of reforestation. Restoring these brush fields would require approximately \$2,000/acre, a total of over \$1.2 billion.

In California, the Forest Service recognizes that nearly all of the available productive public forest land (9.1 million acres) is in need of forest health and/or fuels reduction treatments. Wildfires and insect and disease have destroyed over 40% of the available productive public forest land. If the Forest Service had been mechanically thinning 140,000 acres/year since the early 1990s, wildfire impacts would have been dramatically reduced and there might not have been an insect and disease epidemic.

Nationally, up until the mid-1980s, the net receipts from Forest Service timber sales harvesting 10-12 bbf/year paid for the entire Forest Service budget. Today, due to the high costs of firefighting, treatment of insect and disease tree mortality, and litigation, total net receipts from 2.9 bbf sold wouldn't cover even 4% of the Forest Service budget.

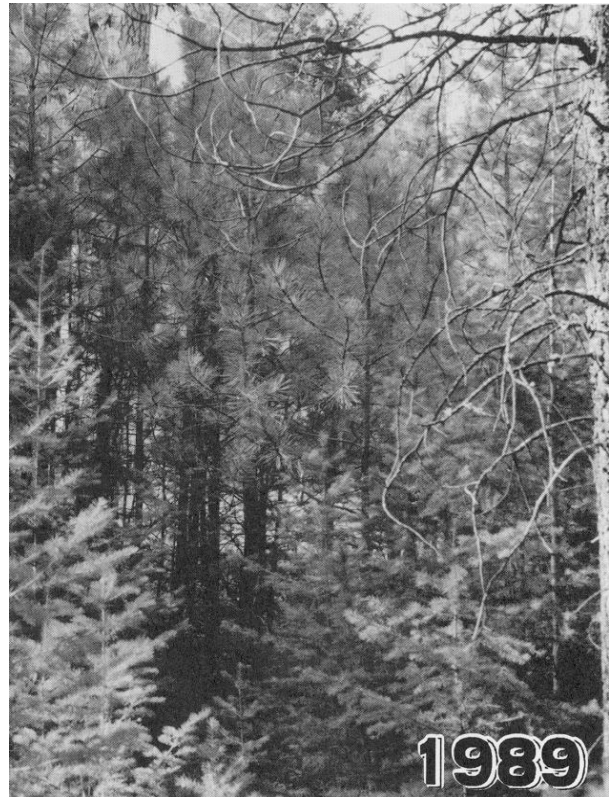
The Effect of Wildfires on National Forests

One hundred years of wildfire suppression effectively protected National Forests from wildfire for nearly 80 of the past 100 years. However, protection from wildfire has become increasingly more difficult over the past 20 years, due in large part to the overstocked condition of the forests.

Wildfires can provide two ecological benefits. They maintain stand health, and replace stands of over-mature trees with young thrifty trees. But the lack of active management and timber harvesting has made forests more vulnerable to the damaging effects of wildfire. In addition, effective exclusion of wildfire in the absence of active management has resulted in the unintended consequence that increasingly large wildfires have destroyed vast areas of America's western forests.

Changes in forest conditions are slow and are often difficult to realize during one's lifetime. The Intermountain Fire Sciences Laboratory in Missoula Montana has chronicled 90 years of the evolution of a Ponderosa pine forest in the absence of both wildfire and timber harvest, through a series of photos, each capturing the same location. The transition from widely-spaced healthy trees to densely-packed unhealthy trees illustrates a key cause of both recent devastating wildfires and the insect epidemic.

80 years of change in a Ponderosa pine forest, Bitterroot National Forest, Montana



Changes in forest conditions and disruption of natural processes brings changes in ecological response. Fire exclusion without additional active management has resulted in overly dense forests and increased the intensity of wildfires. Prior to the 1960s, large wildfires were comparatively rare. Over the past 50 years, the number of, and destructive effects of, large wildfires has increased dramatically. “In the 1980s about 21% of burned acres were high severity (incinerated), while many recent fires have seen over 50% high severity on National Forest land.

The Effect of the Bark Beetle Epidemic on National Forests

The insect and disease epidemic in California was caused by a combination of 4+ years of drought and grossly overly-dense National Forests. Trees were already water-stressed, and coupled with warm, dry winters, the epidemic began. From 2010 to 2014, 11 million trees died; in 2015, 29 million; in 2016, 62 million; with a current estimated total of 102 million dead trees. *[May 2018 update: over 130 million.]*

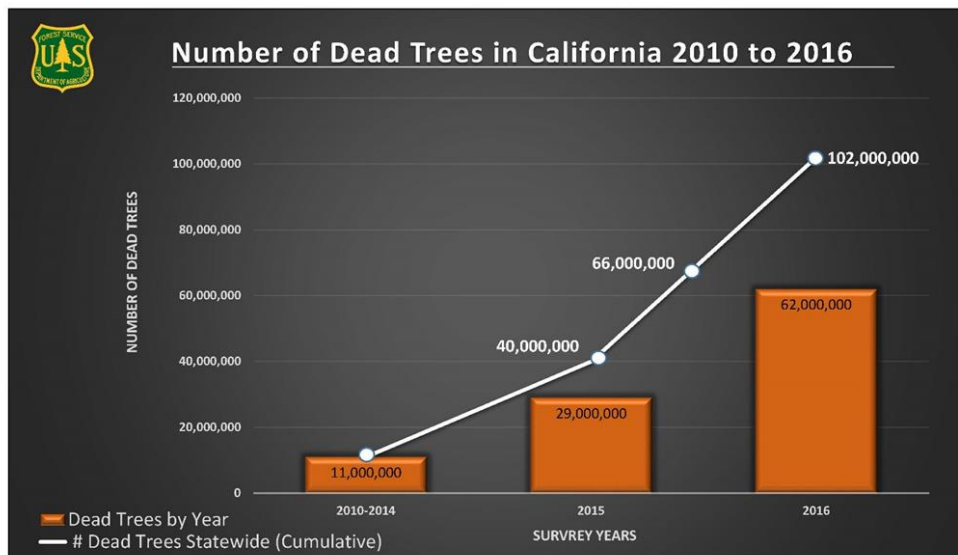
The highest concentration of the beetle epidemic is in the southern Sierra Nevada Range. It first became evident in 2010, and has been increasing in intensity ever since, marching northward. The Forest Service assesses the amount of mortality twice a year, in spring and late summer. The latest assessment showed significant increase in mortality in the northern Sierra Nevada (Tahoe, Plumas, Lassen and Modoc National Forests).

The Sierra National Forest (east of Fresno, California) has been doing on-the-ground plots over the past 2 years to assess the amount of mortality. The fall 2016 plots show 526,000 acres on the forest (60% of the productive forest land) affected by mortality and 10 bbf (68% of the 14.6 bbf standing inventory on the forest) as dead.

California Region Forest Service Biometrician, Beverly Bulaon, believes it will take 2+ consecutive years of above-average precipitation to reduce the beetle populations, and cold winters would be beneficial as well.

Current Situation

- Estimated 66 Million DEAD trees since 2010
- 5.5 million Hazardous trees to be removed
 - 2/3 on Forest Service Land
 - 1/3 on Private lands



Estimated Cumulative Number of Dead Trees on Select National Forests of the Sierra: 2010 – 2016

National Forest	Estimated Cumulative Number of Dead Trees on Select National Forests							
	<i>Rounded to the nearest 1000</i>							
	2010	2011	2012	2013	2014	2015	2016	All Years
Eldorado	78,000	21,000	5,000	7,000	62,000	210,000	1,028,000	1,411,000
LTBMU	15,000	6,000	1,000	1,000	6,000	35,000	72,000	136,000
Sequoia	191,000	33,000	63,000	89,000	323,000	6,130,000	10,147,000	16,976,000
Sierra	82,000	66,000	72,000	103,000	190,000	5,900,000	18,563,000	24,976,000
Stanislaus	49,000	15,000	55,000	81,000	414,000	1,251,000	4,896,000	6,761,000
Tahoe	165,000	42,000	21,000	9,000	30,000	93,000	358,000	718,000
Total	580,000	183,000	217,000	290,000	1,025,000	13,619,000	35,064,000	50,978,000

Acres of tree mortality detected in National Forests of the south Sierra from 2010 – 2016

National Forest	Rounded Acres* <i>Rounded to the nearest 1000</i>
Eldorado	220,000
LTBMU	21,000
Sequoia	595,000
Sierra	696,000
Stanislaus	377,000
Tahoe	178,000
Total	2,087,000

*All overlap between surveys was removed from data prior to analysis

We Can Do Better!

This white paper has touched on some of the key forest policy issues that have led to what many professional foresters now refer to as “analysis paralysis.” The well-meaning intent of much of America’s original forest management policy: continuous timber supply, clean water, wildlife habitat, and recreation, has been circumvented by litigation. As documented in this paper, the result has been rural economic hardship, steady forest decline, catastrophic fire, and epidemic insect and disease outbreaks.

Instead of filtering the air and supplying the oxygen we need to exist, millions of acres of forests go up in smoke each year, adding to toxic greenhouse gases. Many of our forest watersheds are not providing clean drinking water, but instead clog our streams and reservoirs with ash and sediment. Hundreds of sawmills have been shuttered, and tens of thousands of forest industry

jobs are gone. The majority of the Forest Service budget is now spent on firefighting. The same can be said for most of our state forestry programs. This neglect of our forests, and the habitat they provide for plants, animals, and people, cannot be allowed to continue.

Our dependency on other countries for wood products is shameful and absurd. We have the resources to not only supply all of our own lumber needs, but to also help supply the rest of humanity. Instead, America has become the second leading importer of lumber in the world, only behind China. The expectation of many of our own legislators, as well as other world leaders, is summed up by a statement from Susan Yurkovitch, the president and CEO of the Council of Forests in British Columbia. In discussing future Canadian lumber exports to America, Ms. Yurkovitch said, "There is an inability to meet domestic demand for lumber in the U.S."

Susan Yurkovitch is correct. We are not supplying our domestic demand, but it's not due to inability, it is solely due to a lack of commitment. With new leadership, and a commitment to once again manage America's forests under the umbrella of multiple use, the forest products industry can go a long way in making America's forests great again.

To do so, the Joint Governmental Affairs Committee and the California Forestry Association recommend that the Trump Administration give strong consideration to the following recommendations:

- Declare that the overgrown National Forests are in a state of emergency that demands immediate attention.
- Support sensible reforms to the National Environmental Policy Act and endangered Species Act, providing the Forest Service adequate resources to prepare and implement forest projects.
- Take action against nuisance lawsuits aimed to block implementation of Forest Service projects. Plaintiffs suing the Forest Service should be required to post a bond to cover the agency's legal expenses in the event the Forest Service prevails.
- Remove tree diameter limits as a timber harvesting benchmark.
- Maintain a statutory requirement that highly productive public forest lands are classified for commercial timber production as the dominant use, following the principles of multiple use and sustained yield.
- Separate the federal forest firefighting budget from the National Forest management budget.
- Pass legislation that formally recognizes the carbon neutrality and carbon benefits of biomass energy derived from wood and plant material, putting biomass in the same category of wind, solar, and other renewables.

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