

FOREST RESTORATION AND HAZARDOUS FUELS REDUCTION EFFORTS

HEARING

BEFORE THE
SUBCOMMITTEE ON PUBLIC LANDS AND FORESTS
OF THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED TENTH CONGRESS
FIRST SESSION
TO
RECEIVE TESTIMONY REGARDING FOREST RESTORATION AND HAZ-
ARDOUS FUELS REDUCTION EFFORTS IN THE FORESTS OF OREGON
AND WASHINGTON

DECEMBER 13, 2007



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FOREST RESTORATION AND HAZARDOUS FUELS REDUCTION EFFORTS

THURSDAY, DECEMBER 13, 2007

U.S. SENATE,
SUBCOMMITTEE ON PUBLIC LANDS AND FORESTS,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:35 p.m., in room SD-366, Dirksen Senate Office Building, Hon. Ron Wyden presiding.

OPENING STATEMENT OF HON. RON WYDEN, U.S. SENATOR FROM OREGON

Senator WYDEN. The subcommittee will come to order. The purpose of today's hearing is to receive testimony about forest restoration and efforts to reduce the amount of hazardous fuels in the forests of Oregon and Washington.

This is a critical issue for the survival of our forests, our rural communities and for our economy. This subcommittee has a long tradition of working in a bipartisan way. I think with the hectic schedule here in the last few days before adjournment, we'll have some colleagues coming in and out, but I'm very glad that Senator Craig has already joined us. As Senator Craig knows, this subcommittee has played a key role in the only two major pieces of forestry legislation that had actually made it through the legislative gauntlet and signed into law. That's the County Payments Legislation and the Healthy Forest Restoration Act. It's my intention to go forward once again in a bipartisan way and deal with this very serious issue that the committee is looking at today, and that's reducing the amount of hazardous fuels in our forests.

For too long, the Federal Government's approach to hazardous fuels has basically been to fiddle while the forests burn. With different approaches, like thinning of overstocked second-growth forests, I believe it's possible to restore these forests to some semblance of diverse, resilient forests to reduce the risk of fire and to create good family wage employment. Addressing the forest restoration needs of the Northwest is an issue I intend to pursue, not only at today's hearing, but in the near future with legislation. As I mentioned, a number of us on this committee worked in a bipartisan way to pass the Healthy Forests Restoration Act, but it has not allowed the country to get ahead of the problem.

One significant factor in my view has been the inadequate funding for this. In section 108 of the Healthy Forests Restoration Act,

the Congress specifically authorized \$760 million for each fiscal year for hazardous fuels reduction projects.

There, on page 1901 of volume 117 of the Statutes at Large, is this specific inclusion, because both sides of the aisle felt it was necessary to have a dramatic increase in funding for hazardous fuels restoration work.

Now at that time, the Forest Service budget for hazardous fuels was about \$258 million. Four years later, the President's budget for hazardous fuels reduction is just over \$291 million. At the Interior Department, the President's proposed budget represents an \$18 million increase in hazardous fuels funding.

So at this subcommittee, again and again, we are told that not enough acres are being treated. In addition, many Oregon communities tell me that they are simply afraid.

They're afraid the forests are going to go up in flames, afraid that the infrastructure to restore the forests—both mills and human capital—is disappearing, and they're afraid that their communities and the jobs that depend on them will disappear, as well.

Now, in recent years, the subcommittee has been very active when it comes to forest thinning and restoration oversight. A hearing was held, for example, in this subcommittee on oversight, with respect to the forest restoration legislation.

At that hearing, I pointed out that limited progress implementing the Healthy Forests Act at that point would take more than 200 years to thin the 20 million acres called for in the legislation. We're glad to have the Secretary here, Secretary Rey. He said that in March 2004, that the essential work was going to get done in eight to 10 years.

Recent estimates indicate that at the current rate, conducting hazardous fuels reduction treatments on an average of 130,000 acres a year in Oregon, it will take three-quarters of a century to complete a single treatment of just the acres in the most endangered fire condition class. So clearly, expectations are not being met.

Today's testimony is designed to build the case for the urgent need to thin millions of acres of Oregon and Washington forests now. Previous hearings before the full committee have demonstrated why it is so important to take action. The fire is threatening more and more communities in the Wildland Urban Interface. The danger to these forests only increases as the climate changes.

Similarly, plantations in the Northwest moist western forests lack the tree diversity and resiliency that is seen in natural forests. The State of Oregon has approximately 30.2 million acres of forestlands that cover nearly half the State.

Approximately 60 percent of that land is owned by the Federal Government. Due to decades of poorly managed plantation forestry and fire suppression, there is now a breathtaking backlog, a backlog of millions and millions of acres that needs to be treated.

As a result, these choked, fire-suppressed forests are at great risk for naturally catastrophic fires, insect infestation, and disease. The health threats to the nation's forests, fire, insects and disease, obviously respect few geographic boundaries. That means that private landowners and communities are all at risk.

We're going to have an excellent hearing today with a diverse range of witnesses, all of whom I'm looking to, to assist us to try to break the gridlock. Now, before we move to our colleagues who have joined us, Senator Craig and Senator Smith, I want to touch on just two other issues that I know the senators care a great deal about.

Today, the energy bill was voted on. Had it gone forward, it would have included a 4-year, \$1.9 billion reauthorization for the Secure Rural Schools Program. In my view, it is not just bipartisan legislation, but it is sensible and responsive, and I'm very disappointed by the vote that was held earlier today.

We are not going to give up however. This is the only major bipartisan multi-year authorization approach that has any traction at this time. There hasn't even been a vote on it in the other body. The Administration's approach has not been able to attract even a single United States senator. So we are very hopeful that we will hear more supportive words from the Administration in these key hours before the session ends, because real communities in the West are waiting for this issue to be resolved in their favor. They've got sharp pencils out now, they're trying to make budgets for this upcoming year. It's critical that the Congress move forward. The amendment that I offered for a multiyear authorization of this program got 74 votes in the U.S. Senate.

An overwhelming plurality and I'm very hopeful that the Administration will work with us on it. It is directly relevant to the work hearing that we're holding today, because in the energy bill, the legislation we offered would put more than \$170 million out for collaborative forest restoration on Federal lands.

So we hope that the Administration will assist us so that this can get resolved before the Congress wraps up for this year. I also want to touch briefly on the definition debate that has come up with respect to biomass in H.R. 6.

I happen to think that the good folks—Scott Miller, Michelle Miranda, Frank Gladics—the bipartisan staff of this committee did very good work when we wrestled with this here in the Senate Committee. Together, on a bipartisan basis, we came up with a good definition of biomass that protected old growth. The old growth that the American people want to see protected, but would still allow significant biomass to be used from Federal lands to create renewable energy. So I'm hopeful that the Senate definition that has been able to generate bipartisan support can prevail, and I'm sure there will be some colleagues that will want to discuss it today.

Let me turn to two senators who've worked very closely with me on all these issues. We have a long history of it, beginning with Senator Craig.

STATEMENT OF HON. LARRY CRAIG, U.S. SENATOR FROM IDAHO

Senator CRAIG. Mr. Chairman, thank you very much, and thank you for holding this hearing today. When you include Idaho in that definition, then you have a partner. We have a few problems in Idaho. Idaho burned this year at an unprecedented rate, as many

of our States did. Of the 10-plus million acres of public land burned, we had nearly a quarter of them in our State.

Last week, a Federal Appeals Court took two steps backward on that Healthy Forest Initiative that both you and I are very proud of. I'm disappointed in a three-judge panel of the Ninth Circuit Court of Appeals, that they would side with the Sierra Club and against the Forest Service stating that the agency improperly used categorical exclusions under the National Environmental Policy Act.

As you know, we established categorical exclusions to some degree in healthy forests to be able to effectively streamline hazardous fuels reduction, primarily in the Urban Wildland Interface. I think the Sierra Club needs to understand two realities about hazardous fuels reduction. If they or their leaders haven't been out West looking at the smoky skies during the summer months of the hot summers we seem to be having, then they ought to go out and listen and smell, and their eyes will blur and their noses will smart.

Forest fuel reductions are not a guise for old-growth logging. Both the Senators from Oregon and I made sure of that. But somehow, that lingers on in this Kabuki dance that we're not in that don't allow us to get at what we need to get at. It is a necessary land management practice, designed to improve the health of our National Forest. That's what hazardous fuels reduction is all about. Just over 100 years ago, this country decided to take a stand against one of the natural disasters that we encounter in the West—wildfires.

We have battled and controlled the spread of human-caused and natural-caused wildfires for over a century. By doing so, we took the natural process of fire out of many of our terrestrial ecosystems. To counter this, we harvested timber and inadvertently reduced fuel loads. Now, we've taken logging out of the process. What we've ended up with is a National Forest Land that can aptly be described in many of its locations as a timberbox. When we look at the rating and the ranks that we're about today, we're talking well over 100 million acres, 100 and—I guess it's 140, 190-plus, somewhere in that range. Hazardous fuel treatment aided in a transition from, I hope, a tinderbox to a healthy forest.

Second, we are already behind the curve on meeting our goals and treatment acres we need. We don't need to elongate the time between project design and project implementation as we sit and watch the Forest Service to reanalyze the Healthy Forest Initiative, and its environmental effects. More acres will burn, and much greater intensity—with intensity and a much higher rate of tree mortality. My guess is that's what we'll see again next summer, and the summer after, and the summer after, and the summer after.

Last summer, following the fires and during the climate change debate, Mr. Chairman, I and my staff did a calculation. We tried to factor in by approximate acreage and approximate burn—and that was pre-California scrubland burn of the scrub oaks that we saw burning out there that wiped out so many homes in California late in the year this year. We estimated that if had we have not had the intensity of forest fires that we had, it would have been

equivalent to taking—by that, I mean the emission of CO₂ into the air and carbon—it would have been equal to taking 12 million automobiles off the road.

Now does anybody want to factor that one in? That's like taking almost all of California's car fleet off the road for 1 year. Somehow we still play this game that I now call officially the Kabuki Dance of the environmental community that thinks it's going to get somewhere by simply attempting to lock up our forests and not allow the reasonable management that you and I foresaw and tried to put together in reasonable law, convinced our colleagues to do so, and did so with limitations, with side-votes, with categorical definitions. Somehow, we can't get there.

With that in mind, I appreciate, Mr. Chairman, the effort to increase the number of acres to be treated; however, I would also ask that we be mindful that we've got policy that has to be adjusted, apparently, to make it work. We're going to have to listen to the Courts to some degree, for they're obviously—those judges up in the Ninth Circuit—are experts in land-use management, or so they proclaim by their decisionmaking.

Having said that, I think we're going to have an energy bill out by late evening. I hope within it, it has obviously the provisions that you and I have so closely worked on over the years as relates to timber-dependent school districts, and that we give them some long-term viability based on that effort. Thank you.

Senator WYDEN. Thank you, Senator Craig. Senator Smith.

**STATEMENT OF HON. GORDON SMITH, U.S. SENATOR
FROM OREGON**

Senator SMITH. Senator Wyden, Senator Craig, thank you for today's hearing. I welcome all the Oregonians who are here to testify. I know how long you've come. Senator Wyden and I make that trip regularly, and we respect your concern and effort in being here. I particularly want to welcome Commissioner Boyd Britton and from Grant County. In September, Commissioner Britton, and others from eastern Oregon issued a press release titled "Enough is Enough."

It described their frustration as elected officials in seeing the deplorable conditions of Federal forests and the ebbing forest products industries in their communities. The situation in Oregon's timber communities is indeed dire, and enough is enough. The situation simply must change. It seems no matter what the Congress or the White House does to help, it's not enough. The Forest Service budget for hazardous fuels removal has increased fourfold since 1999.

The green timber sale budget has increased 30 percent since 2000. The Forest Service Plan is finally fully funded. Congress passed the Healthy Forest Initiative. The Administration implemented reforms to speed up the process of thinning and forest restoration. But serial litigants and obliging courts continued to supplant their judgment for the people's elected representatives. Good faith efforts to clean up our forests and get our rural communities back on their feet continued to be defeated.

Mills are closing. Forests and habitat are still being incinerated. In 2000, Congress put into place the County Payments Safety Net

designed to remove counties from the boom and bust cycles of Federal timber management. That program was urgently needed as the Courts tightened their turnicate on Federal timber sales. Ironically, however, the Safety Net brought along its own uncertainties. Oregon counties are still in limbo, wondering if the Safety Net will be extended and where it will leave their budgets 5 years from now.

Reauthorization of the Safety Net has been as much of a roller coaster as Federal timber sales have ever been. I agree with my colleague from Oregon that new legislation is now needed to provide relief to Oregon counties. Relief in the old-fashioned way, the way used to do it—managing our forests, creating family waged jobs, providing a tax base for local services. That relief needs to be in the form of a sustainable, predictable supply of timber.

Thinning is undeniably a component of that solution—I emphasize component. A legislative solution can only be successful if it is formed by the broadest array of interests in our State. I respect all of the different views on this, but no view wins with the status quo. The environment loses. The economy loses. Governor Ted Kulongoski created the Federal Forest Land Advisory Committee to draft goals, to address the needs and possibilities of Federal land in Oregon.

I hope that Congress will embrace the recommendations developed by this diverse working group. Oregon counties, more than anyone, also need to be at the drawing table for legislation that addresses forest management in our State. Western Oregon counties have already been working with the BLM on the Western Oregon Plan Revision. Northeastern Oregon counties have been working with the Forest Service on its planned revisions in the Blue Mountain Forests.

Our counties know best what is happening on the ground, and they are critical in identifying the solutions best suited for their local needs. Oregon's Indian tribes also have a direct interest in the thinning and management of national forests. First, national forests adjoin some Indian reservations. For example, the Warm Springs Reservation is bordered on three sides by national forests. What happens on the national forest can directly impact their own forest resources and their personal safety.

Second, the Warm Springs and the Umatilla Tribes have treaties in which those tribes reserved important hunting, gathering, and pasturing rights on lands that now comprise national forests and BLM lands. Forest management obviously impacts these rights, as well as the Warm Springs and Umatilla treaty-reserved fishing rights. Third, tribes have a close government-to-government relationship with the Forest Service and deal routinely with the Forest Service on a host of issues. The Warm Springs tribes have entered into a MOU with nine national forests who memorialized this relationship.

Finally, the Warm Springs is actively developing a Biomass Electrical Generation Project that will utilize biomass from national forests. A major purpose of the project is to facilitate improvement of tribal and adjoining national forest health. Other tribes have shown an interest in following their example. For nearly a decade, the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw

Indians have been asking the Oregon Delegation for help along these very same lines. The tribes have asked Congress to return a portion of their ancestral homeland, and these lands would be thinned under guidelines stricter than the Northwest Forest Plan. We've seen too little help for them in this cause.

Recently, Governor Kulongoski wrote to the Oregon Congressional Delegation a letter regarding the Confederated Tribe's proposal. He urged us to work together to restore a portion of the tribe's homeland and allow them to restore these forests by thinning. The Confederated Tribes proposal and this thinning discussion are dovetails. Both aim to improve forest health, while also creating economic value. It also has support from both environmentalist and timber interests.

So I believe now is the time for Congress to take up this proposal. The fundamental point of this hearing is to reinforce the notion that we can have both healthy forests and healthy rural economies. We cannot have one without the other. If the history of the last few decades has taught us anything, it is that truth. Thank you, Mr. Chairman.

Senator WYDEN. I thank my colleague. We're joined by the ranking Minority Member Senator Barrasso. We're going to hear from Senator Barrasso, and then I'm told just now that they'll be four roll call votes at 3:55, so we're going to all sprint. That's what I gather, which will allow us to kick it over until 4:10 or something close to it. But Senator Barrasso, welcome, and we appreciate all your interest in this.

**STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR
FROM WYOMING**

Senator BARRASSO. Thank you very much, Mr. Chairman, for holding this hearing on forest restoration and hazardous fuel reduction. I want to add my welcome to all of the witnesses who are here with us today. Many of you have traveled a great distance. You're familiar with that, as you travel that same distance weekend after weekend, Senator Smith. I also appreciate Under Secretary of Agriculture Mark Rey being here, and Bureau of Land Management Director Jim Caswell who's come to testify. I note that they are both left-handed, and that probably is why they see eye to eye on so many things. I'll tell you the entire Wyoming Senate delegation is left-handed, as well. That says much for great cooperation among us.

Mr. Chairman, I understand how important the issues are of this hearing—forest restoration and hazardous fuels reduction. The State of Wyoming faces many of these issues. On our forests, like Oregon, almost half of Wyoming is entrusted to Federal Land Managers. We have 18 million acres of Bureau of Land Management lands, over 9 million acres of national forest lands. Wyoming has one of the largest national grasslands in the country—23,000 acres of national wildlife refuge, and 820,000 acres of Bureau of Reclamation lands. The need for management of forest health and hazardous fuels is very real and important in Wyoming. Forests in each of the seven national forests across Wyoming are at risk of being consumed by insects, by disease, or by fire. We must set re-

source policy that addresses these threats in a real, as well as a practical way.

Today, I've introduced Senate Bill 2468. It's called the Wyoming Forest and Watershed Restoration Act. That would provide for the State of Wyoming to cooperate with the U.S. Forest Service on forest health projects. You may have noticed, Mr. Chairman, they both picked up the pens in the left hand and wrote down S. 2468. I'm delighted to see that. Thank you.

Under this authority, the Wyoming State Forester could work with the U.S. Forest Service to carry out forest health projects on adjoining private, State, and Federal land. We do face an urgent problem in Wyoming with bark beetle infestation. Forests between Interstate 70 in Colorado and Interstate 80 in Wyoming are being killed by bark beetles. We're very familiar with that. We have thousands upon thousands of acres that are dying, and the only way to address threats like these bark beetles is to take on forest health projects on a landscape level.

Preventing forest fires, addressing watershed health, and conserving wildlife habitats require that same big-picture thinking. Resource issues don't stop at fence lines and neither should our policy. I'm proud to sponsor this bill, and I will work with the subcommittee to further this and other commonsense public land policy. The people of Wyoming, as you gentlemen know, really are people that demand on-the-ground results. That's why I'm concerned about policies that are too restrictive for our Forest Managers. The people of Wyoming want to see healthy forests and healthy communities, so let's get down to real business of forest management.

For instance, the definition that we saw just last week in the House of Representatives Energy Bill set, to me, what was an impractical standard. The language would prevent almost all biomass from Federal forests from being used to meet this country's energy and fuel needs. I can get into that a little bit later, Mr. Chairman, with some questions. That would eliminate for me any real potential for tackling the tough forest health projects that are before us. With that kind of policy, I think people in Wyoming would just shake their heads.

In closing, Mr. Chairman, the committee has tackled forest health and other important forestry issues in the past. Our country and our forests have been improved by your efforts. I pledge to work with you to find commonsense solutions. This work is important to set policy for public land managers. The utmost importance is to the people who live in and around our Federal forests and lands, the people who make their living off of the land. So I look forward to working with you, and to hearing the testimony of these great witnesses. Thank you, Mr. Chairman.

Senator WYDEN. I thank my colleague and appreciate his excellent statement. Let me also say that the Forest Service seems to have made sure that William Peter Wyden and Ava Rose Wyden, now 5 weeks old, will be getting off to a sensible start with respect to understanding the importance of forestry, and I want to thank the Forest Service and welcome both of you.

Secretary Rey is here, and also Director Caswell. We'll make your prepared remarks part of the record. Why don't we begin with you, Secretary Rey?

STATEMENT OF MARK REY, UNDER SECRETARY, NATURAL RESOURCES AND ENVIRONMENT, DEPARTMENT OF AGRICULTURE

Mr. REY. Thank you, Mr. Chairman. It's fortunate you didn't have triplets, because I only had two of those. Thank you for the opportunity to testify on the forest restoration and hazardous fuels reduction efforts of the Forest Service in Oregon and Washington.

The Administration credits implementation of the Healthy Forest Initiative and Healthy Forest Restoration Act of 2003 for much of the progress made today. The act is a significant legislative tool that allows timely implementation of fuels treatment and forest restoration projects that are critical to reducing the risk of severe wildfire. These projects are beneficial to forest health, as well as supportive of the regional economy. I want to thank those three of the four of you who were in service at the time in 2003 for your leadership in the enactment of that legislation.

My testimony for the record reviews the state of the forests in Oregon and Washington, as well as the status of the forest products industry. I'll highlight some of our achievement in the hazardous fuel reduction area, and then be happy to respond to your questions. To address dangerous fire and fuel conditions across the West, we're now treating more fuels than ever, and we are collaborating with our local State and tribal partners more than ever before.

From 2000 through 2007, the Forest Service and the Department of Interior Land Management Agencies have treated nearly 25 million acres for fuels reduction on Federal lands, including 18 million acres treated through hazardous fuel reductions programs, and over 7 million acres of landscape restoration accomplished through other land management activities and authorities. The Pacific Northwest region, which is Oregon and Washington, treated over 940,000 acres of hazardous fuels from fiscal year 2000 through 2007. The region's priority is to reduce the risk of damage from wildfire and municipal watersheds, and in threatened and endangered species' habitat on national forest lands, and on private property and infrastructure on adjacent lands.

Over 1 in 32,000 acres treated in the Wildland Urban Interface, and about an additional 4,000 acres were treated to reduce risks to threatened or endangered species' habitat in the region. The Pacific Northwest region focused 94 percent of its treatments in Fire Regimes I, II, or III in 2007. This was accomplished by integration of vegetative management treatments from multiple programs. Five of the 21 national wildfires that burned in 2007, burned in the fuels treatment areas. The Region monitored three of these, and found the number of acres that were burned severely were reduced as a result. The Department and the Department of the Interior, in collaboration with our non-Federal partners, continued to increase the community protection emphasis of the Hazardous Fuels Program. Community Wildfire Protection Programs are essential for localities to reduce risks and set priorities. In the Pacific Northwest Region, 40 Community Wildfire Protection Plans have been completed in Oregon, covering 291 communities; and 24 plans have been completed in Washington, covering 62 communities.

Additionally, the Administration supports full implementation of the Northwest Forest Plan and its timber sale components to meet the Plan's balanced purposes. The Fiscal Year 2007 President's Budget Request to Congress reflected this support, and the region received additional funding in fiscal year 2007 for the purpose of more fully implementing planned volume expectations. More than 90 stewardship contracts have been approved in the region—that is Oregon and Washington—since the initiation of stewardship contracting provided by Congress as a new authority in 2003.

All of these projects focus on restoration and/or fuels reduction, using thinning to accomplish forest health, habitat improvement, watershed improvement, and fuels reduction. Region 6 of the Forest Service, which encompasses Oregon and Washington, has issued more stewardship projects since that authority was provided by Congress in 2003 than any other Forest Service Region.

I am pleased to hear both Senator Wyden and Senator Barrasso's commitment to work on the biomass definition in the current pending energy bill, H.R. 6. Put simply, if the House language prevails, there will be no fuels reduction work that will occur on national forests as a result of that authority. Put even more simply, the Administration supports the language in the Senate bill that was developed by your staffs after long and arduous negotiations, and opposes the language in the House bill.

As it relates to progress today, I hear a bipartisan consensus of frustration associated with how fast we've been able to move and the funding we've been able to provide. Now, as far as the funding is concerned, if you look at what is authorized in HFRA, and compare it to what we're funding in our budgets, what you will find is that we're funding dollars in excess of the authorization. We can debate back and forth whether we're accurately interpreting that authorization. But there two inalienable realities that we cannot debate. The first of those is that we have been putting more money in successive budgets since the enactment of the Healthy Forest Restoration Act than any president has requested of any Congress in the history of the Republic. The second reality is that in 2006 Congress didn't give us as much money for this purpose as we requested. As a consequence of across-the-board decisions, the 2006 funding level was actually lower than the Administration's request.

So I point that out as something for further discussion. I would concede that the progress is not as fast as we'd like it to be. On the other hand, 25 million of acres, treated since 2001, is an area equivalent to the size of the State of Ohio, and we are now treating almost five times as many acres on an annual basis than we did in any year during the decade of the 1990s. That having been said, as we go forward, we often find ourselves taking two steps forward and one step back. The recent court decision by the Ninth Circuit Panel reversing a District Court decision on their use of categorical exclusions is clearly at least one, if not several steps back.

But if I might close with a simple illustration of what we mean by progress today, you've already noted that we endured a firestorm in Southern California this past October. That firestorm was not dissimilar to a firestorm that we endured in 2003, and that in fact provided much of the inducement to enact the Healthy Forest Restoration Act. Let me compare 2003 and 2007 in a couple of

critical ways. The 2003 event was an event of 15 days in duration of extended winds; the 2007 event was an 18-day event with higher sustained winds and drier fuels. During the 2003 event, we had 213 ignitions; during the 2007 event, 271 ignitions. Those resulted in 14 large fires that escaped initial attack in 2003, and 20 large fires that escaped initial attack in 2007.

Our success on extinguishing fires on initial attack was identical in both years—93 percent. But in 2003, we burned three-quarters of a million acres—750,000 acres in rough terms. In 2007 we have burned 518,000 acres. In 2003, we lost 5,200 major structures; in 2007 we lost 3,050 major structures. The biggest difference in those 2 years is that between 2003 and 2007 we treated 275,000 acres of Federal forest and range lands in that affected region. We know that as a result of those treatments we saved somewhere between 8,000 and 10,000 homes, because the fires that burned in the treated areas and were extinguished before they entered at-risk communities.

So there is progress, even if it's not as much as we'd like. Notwithstanding this progress, there are things that we can do together to accelerate our work. The Healthy Forest Partnership Act, which we sent to Congress last year and is actually strikingly similar to the Wyoming Good Neighbor Act, is, I think, a good place to start, as well as some of the ideas that you, Senator Wyden, Senator Craig, Senator Smith, and I have exchanged on forest thinning. Thank you very much.

[The prepared statement of Mr. Rey follows:]

PREPARED STATEMENT OF MARK REY, UNDER SECRETARY, NATURAL RESOURCES AND ENVIRONMENT, DEPARTMENT OF AGRICULTURE

INTRODUCTION

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify on the forest restoration and hazardous fuels reduction efforts in the forests of Oregon and Washington. The U.S. Forest Service, Pacific Northwest Region is dedicated to progress toward improved forest health and landscape resiliency. In fact, these are the Region's top resource management priorities. The Region will continue to use its authorities to strategically implement vegetative treatments, and to use collaborative approaches with partners and landowners to accomplish this goal.

The Administration credits implementation of the Healthy Forests Initiative (HFI) and the Healthy Forests Restoration Act of 2003 (HFRA) in part for the progress made to date. The Act is a significant legislative tool that allows timely implementation of fuels treatment and forest restoration projects critical to reducing the risk of severe wildfire to communities and to sensitive ecological resources. These projects are beneficial to forest health as well as supportive of the regional economy.

THE FORESTS IN OREGON AND WASHINGTON

The Pacific Northwest Region of the USDA Forest Service contains 19 (administered as 16 units) National Forests, a National Scenic Area, a National Grassland, and 2 National Volcanic Monuments, covering approximately 25 million acres, all within the States of Oregon and Washington.

Forest health conditions are mixed across the Region. Some forest insects and diseases have declined, while others have taken hold and expanded. In the last two years, precipitation levels have been at or above normal in western Oregon and Washington resulting in less moisture stress and greater resistance to bark beetle attacks. On the other hand, Mountain Pine Beetle outbreaks have continued to expand across the eastside of the region as a result of dense stand conditions and lower precipitation, especially along the east slope of the Cascades. Drought conditions continue to persist in eastern Oregon and southeastern Washington. Damage by defoliating insects has increased in the Region with expansion of western spruce

budworm. Climate and weather patterns continue to influence the start and spread of forest pests and diseases. If the warmer, dryer trends occurring in the eastern portion of the region continue, we expect to see increased damage from bark beetles and defoliators, particularly in overstocked stands. Mortality related to these infestations and wind events which blow down trees create conditions for increased fire risk.

Large fires are occurring in the Region with potential negative affects. The average number of wildfire acres burned across all ownerships has increased substantially since fiscal year 2000. In fiscal year 2000, about 1100 fires burned approximately 200,000 acres. In fiscal year 2006, the number of fires rose to almost 1700 and burned over 450,000 acres. On average, the length of the fire season appears to be 7–10 days longer today as compared to 20 years ago. Large fires impacted watersheds, habitats, trails, and created conditions in which pest infestation and invasive species could take hold, and resulted in the loss of economically valuable forest products.

Wildland Urban Interface (WUI) areas are expanding. There are approximately 16 million acres of Pacific Northwest national forests within Fire Regimes (FR) I, II, and III. These areas are likely to have highly altered vegetation as a result of changed fire disturbance processes (Condition Class 2 and 3), and therefore are at increased risk from uncharacteristic fire. Approximately 530,000 of these acres are within the WUI. The land in WUI is growing as development adjacent to NFS lands expands challenging our ability to treat and maintain all high priority lands.

The Pacific Northwest Region is striving to increasingly integrate its vegetation management and fuels reduction programs to improve treatment cost effectiveness, efficiency and to accomplish multiple outcomes for forest health, habitat and municipal watershed protection. All treatments which remove vegetation, including merchantable timber, are based on restoration oriented prescriptions. Timber volume offered reached a region-wide low of 335 mmbf in fiscal year 2002 and has rebounded to 593 mmbf in fiscal year 2007. We will work to maintain this level into FY 2008 to meet the treatment needs of our forests and to provide a stable supply of material for regional wood products and furniture industries.

A viable regional timber industry is an important element in meeting the goal of healthy forests. Currently, the forest products industry is experiencing difficult times and strained markets. Prices for timber products have been falling and are expected to fall further in 2008. Nationally, home sales are at a 5 year low while inventory of unsold new homes is about double what it was five years ago. Housing starts are projected to remain weak through 2008. Northeast Oregon has recently seen the closure of 2 key sawmills, affecting communities throughout that part of the State. North central Washington has also seen the closure of 2 mills, affecting projects on the Okanogan-Wenatchee NF. This loss of industry reduces the opportunity to meet healthy forest goals and allow the use of materials from forest treatments.

On a positive note, two new mills have opened in northwest Washington providing opportunity for timber sales from the Mt Baker Snoqualmie, and Olympic forests. Also, several companies have begun to use innovative and new technologies to utilize small-diameter trees and woody biomass in the Region. Biomass energy facilities are scheduled to open within the next couple of years in central and southern Oregon, and other new biomass starts are being considered that have the potential to allow more national forest lands to be managed to reduce fuel loading, protect communities, and improve forest health. Recently, prices for biomass, coupled with an Oregon tax credit, have allowed landing slash materials that normally would be burned, to be hauled in excess of 70 miles from the Fremont-Winema National Forest over the crest of the Cascade Mountains to White City, near Medford, Oregon. This example reflects a potential for an improvement in the market for biomass removal within the region.

HAZARDOUS FUELS REDUCTION

To address dangerous fire and fuels conditions across the west, we are aggressively treating fuels, and we are increasing our emphasis on collaborating with our local, State and tribal partners.

Some of our specific accomplishments in reducing hazardous fuels include:

- From 2000 through 2007 the Forest Service and Department of the Interior (DOI) land management agencies have treated nearly 25 million acres for fuels reduction on federal lands, including 20 million acres treated through hazardous fuels reduction programs and over 5 million acres of landscape restoration accomplished through other land management activities.

- Despite a substantial national wildfire suppression workload, the Forest Service and DOI reduced fuels and improved ecosystem health on more than 4.8 million acres of land nationally in 2007, of which over 3 million acres were treated through hazardous fuels reduction programs and 1.8 million acres of land restoration accomplished through other land management activities.
- In 2006, to more adequately demonstrate the benefits of fuels reduction treatments on fire risk, the Administration has begun to measure changes in the Condition Class of National Forest System land and is currently working on metrics for forest health changes that will help demonstrate the outcomes of projects that remove fuels.
- The Pacific Northwest Region treated over 940,000 acres from hazardous fuels reduction programs and land restoration accomplished through other land management activities from fiscal year 2000 through 2007. The Region's priority is to reduce risk of damage from wildfire in municipal watersheds and in T&E habitat on national forest lands and on private property and infrastructure on adjacent lands. This effort resulted in over 432,000 acres treated in the WUI on all lands and about 4,000 acres treated to reduce risk to T&E habitat in the region.
- The Pacific Northwest Region focused 94 percent of its treatments in FR 1, 2, or 3 in 2007. This was accomplished by integration of vegetative management treatments from multiple programs. Five of 21 large wildfires burned into fuel treatments in 2007. The region sent inter-disciplinary teams to assess three of these fire areas and through their observations found that the number of acres that were burned severely was reduced as a result of forest treatments.
- USDA and DOI, in collaboration with our non-federal partners, continue to increase the community protection emphasis of the hazardous fuels program. Community Wildfire Protection Plans (CWPPs) assist localities to reduce risk and set priorities. Over 1,100 CWPPs covering 3,000 communities have been completed nationally and an additional 450 plans are progressing toward completion. In the Pacific Northwest Region 40 CWPPs have been completed in Oregon (covering 291 communities) and 24 CWPPs in Washington (covering 62 communities).

FOREST RESTORATION IN OREGON AND WASHINGTON

The Pacific Northwest Region is committed to forest restoration and other management actions to improve landscape resiliency. The Region seeks to achieve this objective by:

- Revising fire management plans to implement wildland fire use.
- Increasing the ability to achieve multiple objectives in vegetation management and fuels treatment investments:
 1. Increase use of HFRA, HFI and stewardship contracting tools.
 2. Strategic placement of treatments to change fire behavior (to increase suppression effectiveness, reduce suppression costs and protect watersheds).
 3. Working with partners and adjacent landowners.
 4. Continuing to implement the Northwest Forest Plan.
 5. Incorporate climate change considerations in vegetation treatments.
- Implementing the aquatic restoration strategy with a focus on watershed function, resiliency, water quality, and salmon recovery.

The Region has begun the process of revising fire management plans to better integrate wildland fire use. The region recognizes that increasing wildland fire use (WFU) is critical to improving ecosystem resiliency over the long term. In 2007, we increased our acres available for WFU by 200,000 acres, to a total of 2,360,892 acres. We have increased funding for further expansion of wildland fire use in 2008.

The LANDFIRE project has now been completed for the western third of the mainland United States. The data are being used in setting hazardous fuel treatment priorities. The Forest Service is also testing methods of modeling fire risk with LANDFIRE data to help better inform hazardous fuel treatment prioritization. In addition the agency has begun allocating fuels reduction funds and measuring the effectiveness of those treatments in terms of wildfire risk reduction.

The Forest Service will continue to strive toward full implementation of the Northwest Forest Plan Amendments (NWFP). According to the "Northwest Forest Plan—The First 10 years (1994–2003): Synthesis of Monitoring and Research Results" published in October 2006, the Plan's success cannot be fully determined in 10 years, but some trends are clear. The most notable successes are associated with protection of old-growth and riparian forests and associated species. Approximately 80% of all federal lands in the NWFP area are in reserves or are congressionally

or administratively withdrawn. Vegetation management occurring on the lands in reserves, including timber harvest, is allowed to promote the restorative objectives of those reserves, i.e., riparian or old growth habitat protection or enhancement. Much has been learned about the distribution and habitat needs of old growth dependent species and how to use silvicultural practices to accelerate old-growth structural and functional development. Watersheds are being restored, roads de-commissioned, and species protected. Timber harvest has been lower than planned and budgeted for in the NWFP area and this has significantly impacted Pacific Northwest communities. Between 1995 and 2007 Region 6 offered on average 307 mmbf per year. Today, the volume offered in the Region is almost twice that figure.

The Administration supports full implementation of the Northwest Forest Plan and its timber sale component to meet the Plan's balanced purposes. The fiscal year 2007 President's Budget request to Congress reflected this support. The Region has been allocated increasing levels of funding to implement the NWFP and the NWFP forests have ramped up the offered volume as a result of this additional funding in fiscal year 2007, and expect to do so in fiscal years 2008 and 2009.

Climate change has the potential to modify forests in the Pacific Northwest. Forest management can play a dual role in addressing global climate change, including: 1) management designed to position forests to remain healthy and resilient in the face of the environmental stresses associated with changing climate (adaptation role), and 2) management to reduce the build-up of atmospheric CO₂ to mitigate the rate of climate change (mitigation role). Our fuels treatment and ecosystem restoration activities can be important as a way to achieve adaptation and mitigation objectives. We will apply forest restoration activities to improve the capacity of forests to resist the environmental stresses of changing climate while producing, as a by-product of thinning, materials used for biofuels that also reduce fossil fuels consumption.

The Region is implementing recommendations of its Aquatic Restoration Strategy. This strategy identifies the highest priority restoration areas, outlines specific goals and objectives, and describes key actions needed to achieve them. Implementation of the strategy is showing positive initial results. For example, eleven watershed action plans have been developed for the highest priority areas. Agency partners strongly support agency restoration projects. For example, in fiscal year 2007, partners contributed almost \$8 million towards restoration projects, enabling the Forest Service to achieve \$3 of restoration work for every \$1 of appropriated funds.

COLLABORATION TO TREAT PACIFIC NORTHWEST FORESTS

Collaboration among communities, industry and local Forest Service staff has resulted in effective and successful hazardous fuels reduction projects. The Region is working to expand its use of the HFRA and HFI authorities to expedite strategic restoration efforts and to utilize stewardship contracting to carry them out. More than 84 stewardship projects have been approved in the Region since the initiation of Stewardship contracting in 2003. All of these projects focus on restoration and/or fuels reduction using thinning to accomplish forest health, habitat improvement, watershed improvement, and fuels reduction. Stewardship contracting in the Region, from utilization of retained receipts and non-monetary exchange for goods for services, is resulting in more acres being treated, improved relationships and partnerships for forest management projects and contributions to local economies.

The Lakeview Federal Sustained Yield Unit is a long standing collaborative effort (more than 10 years) that has focused on sustainable management and community partnership. The Fremont-Winema National Forest will have the Region's first 10-year stewardship contract within the Unit and is working on a second 10 year contract outside of the Sustained Yield Unit. These Forest and community efforts have allowed Fremont Sawmill to construct a small sawlog mill, and a biomass energy plant is planned adjacent to the Fremont sawmill in Lakeview, Oregon. These new facilities will allow the Fremont-Winema to manage more lands to improve forest health and reduce fuels by harvest and removal of small diameter material.

Another example of a community developed collaborative effort that is benefiting national forest management is on the Colville National Forest in northeast Washington. This collaborative effort has been ongoing for several years and has worked hard to facilitate HFRA projects and stewardship contracting projects. Most of the 12 approved stewardship contracting projects were designed to reduce fuel loading in the WUI by removing small diameter material. The Vaagens mill in Colville is using innovation and new technology to use very small diameter material for dimensional lumber. In addition, the Colville National Forest is one of three Model Forest Projects under the Proof of Concept Program. As a Model Forest, the Region is committed to a ten year flexible budget to meet objectives of restoration, ecosystem serv-

ices, recreation and sustainable forestry with an emphasis on local social and economic factors.

Within the NWFP area collaboration and the use of stewardship contracting are producing restoration gains on all forests, and in particular, the Siuslaw and Mt Hood national forests. Both national forests have worked with their respective community partnership groups to improve wildlife habitat by thinning in young stands, predominantly young managed plantations. In addition, both forests are using thinning practices to accelerate the development of old growth structure. Receipts from these thinnings are being used to improve fisheries habitat, close and/or manage roads to reduce sedimentation, remove invasive weeds, replace culverts to improve fish passage, and meet many other restoration objectives. Forests within the fire prone portions of the NWFP are also using thinning to improve the resiliency of timber stands as well as provide for the sustainability of northern spotted owl and other old growth dependent species.

CONCLUSION

Mr. Chairman, though we have much to do, we are making progress in Oregon and Washington regarding the health and resilience of Pacific Northwest forests. We believe the administration's focus on meeting the principals of the Northwest Forest Plan and use of the tools afforded through HFI and HFRA are producing positive results for the forest and communities.

I would be happy to answer any questions the subcommittee members may have.

Senator WYDEN. Thank you. Director Caswell.

STATEMENT OF JIM CASWELL, DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR

Mr. CASWELL. Thank you, Mr. Chairman. This is my first opportunity to testify.

Thank you for the opportunity to testify on BLM's activities for Forest Restoration and Hazardous Fuels. I will briefly summarize my testimony and ask that the entire statement be included in the record.

Senator WYDEN. Without objection it'll be done.

Mr. CASWELL. Of the 69 million acres of forests and woodlands that BLM manages, approximately 3.5 million are located in the State of Oregon and Washington. In Western Oregon, BLM manages about 2.5 million acres. In Eastern Oregon and in Washington State, it's about 233,000 acres of commercial forests, with an additional 815,000 acres of woodland. So the total's about 3.5 million acres in those two states. We appreciate your interest in pursuing an aggressive new focus on sustainable forest management, and your concern about thinning in Oregon's Federal forests. Based on my experience, I recognize the importance of thinning as a tool in restoring forest ecosystems, particularly in the Wildland Urban Interface.

BLM uses thinnings for several reasons—to reduce wildland fire risks, to accelerate the development of a structurally complex forest, and to accelerate growth for attainment of sustained yield and allowable sale quantity objectives. To reduce the risk of wildfire, BLM, since 2001, has applied nearly 674,000 acres of hazardous fuel reduction treatments to the woodlands and rangelands and forests on the public lands in Oregon and Washington.

In the area of the Northwest Forest Plan, Western Oregon, BLM uses thinning, both commercial and pre-commercial, to accelerate the development of structurally complex forests and to accelerate growth of younger stands for sustained yield in the allowable sale quantity. Mr. Chairman, we are aware that some interest in exploring whether commercial thinning could be relied upon to a

greater extent to provide a higher level of sustainable receipts for the ONC counties. A key question for the BLM is whether applying thinning to such a portion of the forest, specifically trees less than 80 or 120 years old, as a standalone silvicultural prescription could achieve this goal.

Unfortunately, the answer to that is no. Our preliminary analysis shows a significant decrease in harvest potential if limited to commercial thinning of forest stands less than 80 or 120 years old. Both timber volume and timber value would decline significantly. Thinning alone does not constitute a sustainable approach to forest management, and if limited to a portion of the landscape, cannot provide sufficient timber to generate the level of receipts the counties of rural Oregon have historically received. Finally, the BLM uses stewardship contracting in its byproducts of forest restoration and hazardous fuel reduction treatments to provide economic benefit to both local communities and to stimulate biomass utilization.

Since receiving this authority in 2003, BLM has used this tool primarily, though not exclusively, in the public domain and eastside forest and woodlands. The number of BLM's contracts has increased steadily from two contracts in 2003 to 30 contracts in fiscal year 2007. Planning is in process in 2008 for an additional 16 contracts. In conclusion, BLM will continue its efforts to achieve improvements in the health and productivity of public forests and rangelands. We will also continue to work in partnership with other Federal agencies, as well as the State, local, and tribal governments, and to accomplish fuel reduction and forest restoration projects, including an active thinning program.

We recognize that thinning is one tool in an overall forest management program to provide for sustainable and functional forest ecosystems. We appreciate your continued support for our forest management efforts and I stand for questions. Thank you, Mr. Chairman.

[The prepared statement of Mr. Caswell follows:]

STATEMENT OF JIM CASWELL, DIRECTOR, BUREAU OF LAND MANAGEMENT,
DEPARTMENT OF THE INTERIOR

Thank you for the opportunity to testify on the Bureau of Land Management's (BLM) activities for forest restoration and hazardous fuels reduction on the public lands in the states of Oregon and Washington. Although rangelands comprise much of the land administered by the BLM, we also manage substantial forest resources on the public lands. The BLM manages 69 million acres of forests and woodlands in 11 western states.

The President's Healthy Forests Initiative and the Healthy Forests Restoration Act have provided the BLM with additional tools to ensure sound forest management practices and to implement hazardous fuels reduction projects; stewardship contracting authority has allowed for the productive use of forest products that are the by-product of restoration treatments.

Since 2001, the BLM has applied nearly 674,000 acres of hazardous fuels reduction treatments to woodlands, rangelands, and forests on the public lands in Oregon and Washington, using the tools of prescribed burns, chemical, and mechanical fuels treatments.

Of the 69 million acres of forests and woodlands that BLM manages, more than 3.5 million acres are located in the states of Oregon and Washington. In these states, the BLM manages forests and woodlands through two distinct programs:

Western Oregon: Our western Oregon districts manage about 2.5 million acres that contain some of the most productive forest lands in the world. Of these, about 2.1 million acres are the "O&C" lands designated by Congress in the "Revested Oregon and California Railroad and Reconveyed Coos Bay Wagon Road Grant Lands

Act of 1937". The remaining 400,000 acres are public domain forest lands and are managed under the principles of multiple use as directed by the Federal Land Policy and Management Act of 1976 (FLPMA).

Eastern Oregon and Washington State: In eastern Oregon and Washington, the BLM manages about 223,000 acres of commercial forests (ponderosa pine, lodgepole pine, and Douglas-fir) and 815,000 acres of woodlands (predominantly western juniper). The public domain forests and woodlands are managed for multiple use under FLPMA.

THINNING AS A TOOL IN HAZARDOUS FUELS REDUCTION, FOREST RESTORATION, AND ACCELERATED GROWTH

Mr. Chairman, we appreciate your interest in pursuing an aggressive, new focus on sustainable forest management and your concerns about thinning in Oregon's Federal forests. Based on my experience as a professional forester, I recognize the importance of thinning as a tool in restoring forest ecosystems, particularly in the wildland urban interface (WUI).

The BLM in Oregon and Washington uses a variety of silvicultural treatments, including thinning of dense stands of trees, to achieve interrelated objectives:

- to reduce the risk of wildfire;
- to restore forest health and reduce the risk of insect and disease epidemics; and
- to accelerate development of a structurally complex forest, in areas identified for management as habitat for old growth related species including the Northern spotted owl; and
- to accelerate growth for attainment of sustained yield and allowable sale quantity objectives.

Reducing the risk of wildfire

Since the inception of the National Fire Plan in 2001, the BLM's hazardous fuels reduction and forest rehabilitation activities have been guided by the National Fire Plan's goals. These goals include: to reduce fuels (combustible forest materials) in forests and rangelands at risk, especially near communities; to rehabilitate and restore fire-damaged ecosystems; and to work with local residents to reduce fire risk and improve fire protection.

The National Fire Plan is being successfully implemented under the leadership of an interagency and intergovernmental group of local, State, and Federal agencies (including the BLM) working cooperatively to reduce wildfire risk and restore fire-adapted ecosystems. In Oregon and Washington states, the emphasis for hazardous fuel treatments (which may include a thinning component) is in areas east of the Cascade Mountain Range and in southwestern Oregon where concentrations of hazardous fuels are greatest and there is a high percent of WUI adjacent to federally managed land. With a focus in these areas, since 2001, the BLM has applied nearly 674,000 acres of hazardous fuels reduction treatments to woodlands, rangelands, and forests on the public lands in Oregon and Washington. Roughly 48 percent of the acres treated in OR/WA between 2003 and 2007 moved to a better condition class.

Restoring Forest Health

Thinning is used in forest restoration projects to reduce tree stocking levels and fuel loading of overstocked stands. A goal of forest restoration is increased forest resiliency to insect, disease and stand-replacing wildfire. Treatments are designed to leave in place species of trees that are more adapted to the forest ecosystem, including those where periodic ground fire is a normal disturbance. Many treatments in woodland vegetation have an additional benefit of improving watershed conditions, wildlife habitat, and species diversity.

Accelerating Development of Structurally Complex Forests

Since 1994, the BLM has managed the forested lands in western Oregon under the guidance of the Northwest Forest Plan (NWFP). BLM-managed lands (2.5 million acres in Oregon) comprise ten percent of the NWFP's total area of 24 million acres in Oregon, Washington, and northern California; the non-BLM lands are managed by the U.S. Forest Service. The NWFP established land use allocations, which include Late-Successional Reserve (LSR) [for management as habitat for late-successional and old growth related species including the Northern spotted owl], and Matrix (to be managed for multiple uses including timber harvest). Under the Northwest Forest Plan, BLM's target is 203 million board feet per year of allowable sale quantity and 100 million board feet of non-sustained yield LSR thinning volume pursuant to the settlement agreement in *AFRC et al. v. Clarke*. Each year the BLM comes closer to achieving the target.

Accelerating growth for sustained yield and allowable sale quantity

BLM uses pre-commercial and commercial thinning to support a sustainable level of timber sale offering for the long term management of the public lands in western Oregon. As in accelerating development for structurally complex ecosystems, thinning for growth enhancement is based on scientific studies carried out in the forests of the west. These studies are the basis for the growth and yield modeling that is used to predict the sustainable levels of harvest for both the NWFP and the current planning effort.

Late-Successional Reserves: Of the 2.5 million acres managed by BLM in the area of the Northwest Forest Plan, approximately 847,000 acres are in LSRs, and are managed exclusively to protect and enhance late-successional and old-growth forest ecosystems. Under the NWFP, no treatments are allowed in stands over 80 years except those that will enhance the development of old growth characteristics.

In LSR stands younger than 80 years of age, we estimate there are approximately 292,000 acres where thinning could be beneficial. Of these, 196,000 acres would involve pre-commercial thinning in stands less than 30 years of age, and 96,000 acres would involve commercial thinning in stands from 30 to 80 years of age. The objective of thinning in these areas is to accelerate the development of late-successional old growth characteristics. The actual thinning treatments are guided by the standards and guidelines contained within the Northwest Forest Plan. Thinning in these areas is accomplished based on scientific peer-reviewed studies that indicate timely treatment can accelerate and enhance the development of old growth characteristics in younger forests. Since 2001, BLM has completed such thinning projects on 46,000 acres in western Oregon, resulting in improved forest conditions and 564 million board feet of timber volume sold.

Mr. Chairman, we are aware of some interest in exploring whether commercial thinning could be relied upon to a greater extent to provide a higher level of sustainable receipts for the O&C counties. A key question for the BLM is whether applying thinning to just a portion of the forest, specifically, trees less than 80 or 120 years old, as a stand-alone silvicultural prescription, could achieve this goal. Unfortunately, the answer is no. To achieve higher levels of sustained yield management, we believe that thinning needs to be part of an overall, integrated, and landscape-wide forest management program.

We estimate there would be a significant decrease in harvest potential if limited to commercial thinning of forest stands less than 80 or 120 years old. Compared to the Northwest Forest Plan's current allowable sale quantity, harvest on BLM lands in western Oregon would decrease 32 percent in the first decade if limited to commercial thinning on stands less than 80 years old, and would decrease 24 percent in the first decade if limited to commercial thinning on stands less than 120 years old. These effects vary geographically as well, with a much greater impact to the rural counties in southwestern Oregon as compared to our northern districts.

Thinning is one forest management tool that must be used in concert with other silvicultural practices across the entire spectrum of age classes to meet desired resource and socio-economic objectives envisioned in the Northwest Forest Plan and the O&C Act. Thinning alone does not constitute sustainable forestry and, if limited to a portion of the landscape, cannot provide sufficient timber to generate that level of receipts the counties of rural Oregon have historically received.

BLM is revising six western Oregon Resource Management Plans tied to the NWFP. A few weeks ago, BLM released a draft plan analyzing four alternatives for the future management of 2.5 million acres of public lands in Western Oregon. BLM is currently accepting public comments on management options.

STEWARDSHIP CONTRACTING AND BIOMASS: BY-PRODUCTS OF FOREST RESTORATION AND HAZARDOUS FUELS REDUCTION TREATMENTS

Congress authorized the BLM to use stewardship contracts, which are intended to provide economic benefits to local communities, reduce hazardous fuels, and restore forest and rangeland health, in the FY 2003 Omnibus Appropriations Act (Section 323 of Public Law 108-7). The BLM in Oregon and Washington has used this tool, primarily, though not exclusively, in the public domain lands and eastside forests and woodlands, to accomplish forest, woodland, and range restoration projects, and to provide substantial amounts of forest products as a by-product of the restoration treatments. The number of BLM stewardship contracts has increased steadily from 2 contracts in FY 2003 to 30 contracts in FY 2007.

Stewardship contracting projects have become the BLM's best tool for promoting biomass utilization, as they allow for contract lengths of up to 10 years. A few examples include:

- **Klamath Falls:** The 10-year Gerber Stewardship project began in FY 2004 in south central Oregon. When completed, the project will result in the treatment of 10,000 acres, improving forest and woodland health, improving rangeland health, reducing hazardous fuels in the Wildland Urban Interface, improving wildlife and fisheries habitat, and enhancing riparian areas. It is now in its fourth year, with 1,500 acres under contract and resulting in the sale of 750,000 board feet and 15,000 tons of biomass for energy development.
- **Prineville:** Through the execution of a Memorandum of Understanding (MOU) with the Confederated Tribes of Warm Springs (Tribes) in January of 2006, the BLM and Forest Service in central Oregon agreed to offer 80,000 bone dry tons (8,000 acres) of woody biomass material annually. This long-term commitment to provide biomass to the mill at Warm Springs will provide a stable supply of biomass to expand the market for biomass energy. With the increased supply of renewable energy, the Tribes can market energy to power homes, or direct that energy to new businesses. Thus, woody debris that used to be discarded will now be converted to heat, light, and economic development. Based on this MOU, the Tribes are seeking a power purchase agreement and bank financing to develop a 15.5 megawatt cogeneration plant.
- **Lakeview:** The BLM has participated in the Lakeview Biomass Project since its inception in 2005. In November of 2007, the BLM joined its partners in the Lake County Resources Initiative (U.S. Forest Service, Collins Companies, Marubeni Sustainable Energy, Town of Lakeview, City of Paisley and Lake County) in a Memorandum of Understanding for a 20-year supply of woody materials for biomass for energy. We anticipate that treatments in the Lakeview District from western juniper cutting and removal, hazardous fuel reduction, and timber sales will result in the production of 6,000 to 13,000 “bone dry tons” of biomass per year—representing five to ten percent of the total annual supply needed for operation of the proposed facility. The Lakeview District has committed to applying mechanical treatments to approximately 2,000 acres per year, where biomass would be one of the natural resource products generated.

CONCLUSION

The BLM will continue its efforts to achieve significant improvements in the health and productivity of the public forests and rangelands. We will also continue to work in partnership with other Federal agencies, as well as State, local, and Tribal governments, to accomplish fuels reduction and forest restoration projects, including an active thinning program. We recognize that thinning is one tool in an overall forest management program to provide for sustainable and functional forest ecosystems. We appreciate your continued support of our forest management efforts. I would be glad to answer any questions.

Senator WYDEN. Thank you very much, Director. Secretary Rey, you and I consistently go through these sort of eye-glazing discussions about budgets and which account it's coming from. I think I'm going to spare everybody, because time is short. The bottom line to me, of course, is that a country that's going to end up going through a trillion dollars on the war in Iraq ought to be able to fund adequately the essential work that needs to be done in our forests. I know my friend, Boyd Britton, from Grant County—he's going to talk about inadequate funding. The environmentalists talk about inadequate funding.

Clearly, progress is not being made to the degree it must be made to meet the needs of the American people. Now, the environmental folks are going to say again today that our forests are deteriorating faster than they're being restored. Do you think that's right?

Mr. REY. No. I think that we still have serious challenges to get ahead of, and a ways to go to do that, but I believe we're at least reaching parity with the seriousness of the situation that we have today, in terms of the acreage of treatments that we're putting on the ground. We have focused, at the request of most major environmental groups, on the Wildland Urban Interface as a first priority.

Now, we didn't necessarily focus in the Wildland Urban Interface exclusively because of that request. We focused on it because that was where the greatest immediate threat to human life and property was. But I would say to any environmental group that's complaining that we're not moving fast enough to deal with a deteriorating situation—sit down with the regional forester or the forest supervisor, and tell us where you're willing to agree to work with us to accelerate the work that needs to be done. We're happy to do that.

The fact is, funding alone will not solve this problem. A perfect example of that is the Tahoe Basin, where we had a very difficult fire season and a very bad fire this year. Now, after we've lost the homes, including the home of the Head of the Lahontan Regional Water Resources Control Board, that regulatory agency and the Tahoe Regional Planning Authority is willing to look at their regulatory restrictions to fuels treatment work that we're adding \$200 an acre, \$250 dollars an acre, to getting that job done. Now, maybe we'll make some progress, but without that, I'm not sure we would have ever gotten that level of understanding about the work that needed to be done, and we would have continued to fight to spend upwards of \$3,000 to \$5,000 an acre to do that work in the Tahoe Basin.

So obviously, we need to increase our funding commitment this area, and we are doing that. But just as obviously in our judgment, we have to look for ways to do this job smarter and faster, at a lower unit cost in expense than we have been experiencing in certain areas.

Senator WYDEN. Mr. Caswell, do you want to add anything to that?

Mr. CASWELL. Mr. Chairman, the thing I would add to that is that, as Under Secretary Rey explained, there's a real issue here, in my view, with public understanding of the need. When there's smoke in the air, and the fire is on the ridge, everybody goes, "Holy cow, we ought to be doing something about this, and why didn't we?" The day it's gone out, everything's cooled off, everybody's gone back home, they all become complacent again, and forget about it until the next time. So, I think one of the things that we really need—"we" meaning the Federal agencies, along with our partners in the states—we really need to do a better job in reaching out to the public and explaining what it is we're trying to do, why it's important, and what the consequences are if we're not successful.

Senator WYDEN. I want to tell you that in every community meeting—and I go to every one of my rural counties—all I hear is, "The policies today aren't getting the job done." These rural communities are falling behind.

Now, Secretary Rey, I am going to hear today from witnesses that a number of Forest Service policies, from categorical exclusions for small projects, to acre-treated mandates that encourage treating the cheapest acres, to the budget cuts, are favoring scattered, small-scale projects. What people would like to see is more work done by the land managers to look at landscape-level kinds of projects. What can be done to encourage that?

Mr. REY. The use of stewardship contracts is where we've had the greatest success in dealing with issues at a landscape scale,

and we're eager to do more of that. One of the contracting problems that we've run into is one that is associated with cancellation liability and budgeting for that. We do believe that there's a fairly simple legislative fix to that, and that's one that we'd like to proffer to the subcommittee and work with you on to do. That, more than any single change, will accelerate our ability to use the stewardship contracting authority to do landscape-scale treatments, which I hear a lot of people asking for—

Senator WYDEN. We will follow up with you on that, and that's constructive. One last question for you, Secretary Rey, Professor Johnson will be here on the second panel. He's going to assert his testimony that restoration within old growth forests that are characterized by frequent fire ought to be a high priority for treatment. How does the Forest Service incorporate restoration within old growth into the priority setting efforts to go on at the department?

Mr. REY. Those would be among the Non-Wildland Urban Interface stands that would be of our highest priorities. The way that—I mean, the priorities are set through the community wildfire protection plans, but in generic terms, the top priority is where we've got homes and lives at risk in the Wildland Urban Interface. The next priority down would be where we have threatened or endangered species' habitat or critical watersheds at risk. Just below that then would be restoration work to deal with fire—frequent fire, older stands where we're trying to maintain that older stand structure.

One of those, quite frankly, is the Sequoia National Monument in Southern California. We need to remove second growth white fir from around the Sequoia Groves to save the Sequoia Groves, and we have been sued at every step of the way. We will eventually in my judgment lose the Sequoia Groves to a catastrophic fire, and it will because the fuel ladders that are represented by second growth white fir remain in place.

Senator WYDEN. OK. Senator Craig.

Senator CRAIG. Thank you very much, Mr. Chairman, Mark, and Jim. Thank you for your testimony. I'm glad you mentioned the Tahoe Basin, Mark, because you were staffing this committee when we sat down with Harry Reid and looked at the situation of the dead and dying environment there, and funded it.

Put money in a project that would begin to thin and clean and restore health to that and, of course, as you said, we were then stopped at every front, and it took a wipeout or a near wipeout to awaken the public to the reality that we saw a good number of years ago, and it is really quite tragic when those kinds of situations occur. I suspect to the homeowners in that Basin, it was even more tragic, at least those who lost their homes. What does the ruling of the Court mean to the Forest Service's ability to implement the Healthy Forest Act? By that, I mean in the absence of healthy forest CEs, how will it increase the agency's cost of implementing these projects?

Mr. REY. What the Court has done is overturned a District Court decision that sustained our judgment and our compliance with the National Environmental Policy Act in issuing Categorical Exclusion 10, which was a categorical exclusion for more detailed analysis under the National Environmental Policy Act for certain types of

fuels treatment activities with strict bounds on the size of the treatment and where it could be applied.

In the last couple of years, roughly 14 percent of the acres that we've been treated have—between both the Department of the Interior and the Department of Agriculture—have been treated under the authority of Categorical Exclusion No. 10. An average sized project under Categorical Exclusion No. 10 takes about 6 months to develop, at a cost of about \$50,000. If we are now going to have to do an environmental assessment for that type of project, it will take us upwards of a year at a cost \$250,000. If, as a consequence of further review and conflict, we end up going to an environmental impact statement, that will take between two and 3 years, and upwards of a million dollars.

So, those are the order of magnitude numbers for the difference between what gets done under the authority of a categorical exclusion, and what gets done under the authority of an environmental assessment or an environmental impact statement. So the short answer to your question is it's going to slow it down and make it more expensive.

Senator CRAIG. By a substantial factor. Could your staff provide us with a list of projects by State that have been undertaking using—In this case, No. 10, I guess, CE knocked out by the Court by this action?

Mr. REY. Yes. We're collecting that from the regions via a data call right now. I can tell you anecdotally that Categorical Exclusion 10 resulted in fuels treatments that allowed us to save Alomar Mountain this past October during the Southern California firestorm.

Senator CRAIG. Mr. Chairman, it was also, in a tragic environment, very pleasing to me to see those numbers earlier that Secretary Rey talked about in relation to similar fires. The fire that helped us bring about healthy forest versus the fire this year when, in fact, homes that were in fuel treated areas didn't burn or substantially less of them burned. It was easier for the firefighters to get in, get around them, get the fires down and under control, and that even during the fire, got noticed, in some instances, by those who were covering the fires.

I was impressed by that in the reality that I hope there is a bit of an awakening to that. Could you tell me what will happen to projects that are currently being implemented, that were approved using the CEs, that were knocked down by the Court? Where do we go from here? Would you couple that response with—Has the Forest Service and BLM looked at any ways that we might work with the Court to fix this, so that we can stay at the business without increasing the cost by a factor of five as it relates to a project, and doubling its time before we can bring it online?

Senator WYDEN. Let us say that any question that gets in before the—

Senator CRAIG. Oh.

Senator WYDEN [continuing]. Five-minute gong goes off is eligible for an answer.

Senator CRAIG. OK.

Senator WYDEN. Senator Craig's is.

Senator CRAIG. I doubled that one up. Thank you, Mr. Chairman. Please, gentlemen.

Mr. REY. The Circuit Court remanded the decision back to the District Court.

Senator CRAIG. OK.

Mr. REY. An injunction is not yet issued. From the language of the Circuit Court's opinion, it would appear that they want an injunction on any project that was approved after October 2004, when the lawsuit was brought. We are issuing direction to the field shortly that is not yet final. We're still looking at what the data call tells us, but I think it's reasonable to suspect that when the time that the pleadings, the motions practice here clears, we'll be enjoining future work on anything approved after 2004, unless enjoining that work would actually create an even bigger fire hazard.

For instance, we've got slash down on the ground that would have been removed could the project go to completion. So we'll get you the individual projects that would be affected, but I think that's going to be the nature of the impact. Then, of course, any future projects would not be able to go forward, anything that hasn't already been executed in the form of a contract. As far as working with the Court, we're assessing our opportunities for rehearing and appeal as the present time, and we'll continue in that regard.

Senator WYDEN. Thanks. Go to Senator Smith.

Senator SMITH. Thanks, Senator Wyden. Mark, on the weekend, Senator Wyden and I toured the wind and flood damage in Western Oregon, and I understand that while we saw some blowdown timber, there was a great deal of blowdown timber in Washington State on Federal lands. Do you have any—Have you quantified it at all? Do you have a figure at this point?

Mr. REY. We're collecting that information now. I would hazard a guess that the hardest-hit forests would be the Olympic National Forest in Washington, and the Siuslaw in Oregon. We'll probably have any initial damage reports in a week or 10 days, and we'll share them with you.

Senator SMITH. Do you have any plans for salvage on that?

Mr. REY. We would, as a normal course, within the constraints of the Northwest Forest Plan, try to salvage that material. What we don't know is, what you always have to look at carefully when you're looking at wind damages, what kinds of values you have left, because usually the trees are twisted before they're snapped off. Depending on how badly that occurs, it'll affect the value of what's there.

Senator SMITH. In 1998, there was a similar storm in Texas that blew down an awful lot of Federal forest, and the Clinton Administration used what they had called "alternative arrangements" in order to harvest the blowdown wood. Have you considered alternative arrangements when it comes to salvage?

Mr. REY. Whenever we have a natural disaster like this, we look at all of the available options—

Senator SMITH. Did they follow a statutory—

Mr. REY. It's a—yes—

Senator SMITH. Alternative arrangements—is that a statutory thing that'll permit it?

Mr. REY. No. The statute references it in a very succinct way. The procedures for when it's applicable are embodied in regulations issued by the Council on Environmental Quality.

Senator SMITH. It got around NEPA.

Mr. REY. Alternative arrangements are part of NEPA. So we'd like to express it that way.

Senator SMITH. So, in a sense, it got around NEPA.

Mr. REY. It's an alternative that NEPA provides for in situations where there's an imminent risk to human life and property.

Senator SMITH. Is there something different about the Pacific Northwest and Texas that would make alternative arrangements appropriate to one and not to the other?

Mr. REY. Not on the face of things. The question would be more site-specific. That is, is there an imminent threat to human life and property such that alternative arrangements are justified?

Senator SMITH. Was there in Texas to your recollection?

Mr. REY. The—Of course, this was—

Senator SMITH. I'm just trying to jog your—

Mr. REY. Yes.

Senator SMITH [continuing]. Your creativity here more.

Mr. REY. This was a decision rendered by my predecessors.

Senator SMITH. I'm trying to get some timber to some desperate communities.

Mr. REY. My recollection is that this was an area where there was concern about the following spring fire season, and that's why they wanted to move this stuff off quickly.

Senator SMITH. Any concern about the following spring fire season in the Pacific Northwest?

Mr. REY. The problem there is that you can likely make a better case for that on the Siuslaw than you can on the Olympic, but we'll have to look at it in a more specific way.

Senator SMITH. I hope you'll look at it. The Ninth Circuit Court of Appeals, when it invalidated the categorical exclusion process for certain hazardous fuels projects—my understanding is that a categorical exclusion has been used by the Forest Service in projects that successfully protected communities from wildfire. I think you've stated that. What type of projects will this decision now stop?

Mr. REY. This decision will stop relatively small-bore projects that fit within the categorical exclusion. There's an acreage cap of this particular categorical exclusion, and in a minute here I can describe those sideboards to you succinctly.

Senator SMITH. Do you have, in that description, do you have in mind legislation that we could work with you on in order to meet the Ninth Circuit objection and get this back online as a vehicle for you to harvest timber?

Mr. REY. We'd be happy to work with the subcommittee on that. But basically, for this categorical exclusion to work, the project has to be located in a Wildland Urban Interface area or in Condition Classes II or III in Fire Regime Groups I, II, or III. In other words, areas with high fuel loads and high fire frequencies. It has to be identified through a collaborative framework; be consistent with existing land management plans; not be within wilderness areas or wilderness study areas; not involve any use of herbicides, pes-

ticides, or the construction of permanent roads; and be subject to size limitations that vary depending on the nature of the fuel reduction activity in question, whether it's mechanical treatments or prescribed fire.

Senator SMITH. I'd like to work with you on some language that might meet the Court objection and allow this tool to be available to you still. Mr. Chairman, if I may have one other question.

Senator WYDEN. That'll be fine, but we're going to have to really hustle to get to our second panel before close.

Senator SMITH. Any comment from you, Mark? I keep hearing that you're focused on cutting all growth, but my understanding is that you're focused clearly on secondary growth, and not on old growth. Do you have any comment about that?

Mr. REY. Since the development of the Northwest Forest Plan we have harvested 400 acres of old growth in the affected region, and I think we still have about 5 million acres left, so——

Senator SMITH. OK. I think that——

Mr. REY [continuing]. Not old growth harvest been incidental.

Senator SMITH. I think that answers the question. Thank you, Mr. Chairman.

Senator WYDEN. Senator——

Senator BARRASSO. Thank you, Mr. Chairman. Mr. Caswell, earlier Mr. Rey testified about the House Energy Bill and compared it to the Senate Energy Bill with relation to some of the language in there about how biomass could be used. Do you agree with Mr. Rey, or any additional comments you'd like to make?

Mr. CASWELL. Absolutely, Senator. We're in lockstep.

Senator BARRASSO. Then Mr. Rey, I think we've recognized as far as health issues in Wyoming, and as well as around the country, and when I visit with my constituents and travel around the State, they ask the question if conservation efforts are actually overstepping their good intentions and causing some harm. Any comments you'd like to make on that?

Mr. REY. I think what I would urge people to focus on is that, notwithstanding all of the rhetoric that you've heard about the Healthy Forest Initiative, in the 4.8 million acres we treat in 2007, we will treat about 300,000 acres that will involve the utilization of commercial forest products. So about 6 percent of the acres treated are going to generate some sort of a commercial forest product. If you then compare that to the rhetoric, to the litigation, to the appeals, you have to wonder—what's all the sturm and drang about?

Senator BARRASSO. Mr. Chairman, just in the interest of time, I'll allow you to go on to the next panel.

Senator WYDEN. I thank my colleague for his courtesy. Let us do just that. I would certainly continue this debate about categorical exclusion if we weren't under such time constraints. Thank you, both. Let's go forward now with Professor Johnson and Phil Aune from Nine Mile Falls, Washington. Gentlemen, please come forward.

Professor Johnson, welcome. Always glad to have you and your long history of expertise here. Mr. Aune, we welcome you, as well. Professor Johnson, we'll make your prepared remarks part of the

record, and if you can summarize your key views, that would be helpful.

STATEMENT OF K. NORMAN JOHNSON, UNIVERSITY DISTINGUISHED PROFESSOR, OREGON STATE UNIVERSITY, CORVALLIS, OR

Mr. JOHNSON. Thank you, Mr. Chairman. It's good to be here, and good to be on the panel with my friend Phil Aune. I'm Dr. K. Norman Johnson, and I'm here to give testimony today for myself and Dr. Jerry Franklin. I'm Professor of Forest Resources at the College of Forestry at Oregon State. Jerry is Professor of Ecosystem Sciences in the College of Forest Resources at the University of Washington.

Our testimony focuses on forest restoration in the national forests of Oregon and Washington that it turned out when they added up we have been looking at and admiring for almost a 100 years in our professional life. We've also served on a number of scientific panels, including the panels that result in the Northwest Forest Plan, and we just recently completed a plan for the Klamath Tribes, a comprehensive restoration plan for their historic tribal lands that are currently part of the Winema Fremont.

Our definition of restoration is the establishment of ecological structures and processes on those forests where they have been degraded, and simultaneously restoration of economic and other social values on these lands. One product of this restoration will be substantial reductions and uncharacteristic fuel loadings. We emphasize here restoration activities in which ecological, economic, and social goals are compatible. Our restoration needs and objectives contrast greatly between forests representative of plant associations historically characterized by relatively frequent low-to mixed-severity fires, such as the Ponderosa Pine and the dry mixed-conifer forest, common east of the Cascade Range; and, on the other hand, relatively infrequent high severity disturbance regimes, such as Westside Douglas-fir and western hemlock forests, and our testimony will reflect these differences.

First, restoration of the forest characterized by frequent low-and mixed-severity fire regimes—We will lose these forests to catastrophic disturbance events unless we undertake aggressive, active management programs. This is simply not only an issue of fuels and fire, as important as they are. Because of the density of these forests, there is potential for drought stress and related insect attacks. Old growth pine and other trees are at high risk of death from both fire and western pine beetle. Without action, again, we're at risk of losing these forests, and this potential for loss is greatly magnified by expected future climate change, which will result most probably in more intense summer drought periods, putting additional stress on the forests.

We know enough to take action. We need to learn as we go, but we do need to take action now. Furthermore—and Dr. Jerry Franklin wanted me to emphasize this—it is critical for stakeholders to understand that active management is necessary in stands with existing old growth trees in order to reduce the risk to them. Activities at the stand level need to focus on restoring ecosystems to sustainable composition and structure, in addition to reducing fuel

level to acceptable amounts. As part of that, restoring old growth tree populations is an important goal.

Action is also needed to restore hardwood species often overlooked—such as aspen, willows, and alders—which have declined in the landscape. As mentioned earlier, restoration programs must be planned and implemented at the landscape level to be effective. Creating fuel treatment patches and strips is a useful first step to helping control wildfire, but it's not sufficient to save these forests and the important array of values in them. To conserve these forests, we believe we need to modify stand structure on one-half to two-thirds of the landscape, creating a matrix of more natural and sustainable forest interspersed with islands of dense stands, an environment we believe the northern spotted owl can survive in.

Key elements of actions to restore these forests include: Conserving old growth trees as a first priority, combining conservation of old growth trees, stand density targets, and emphasis on drought and fire tolerance species as an overall guide to action. As I mentioned before, focusing on areas with concentrations of old growth structure is a high priority, and also ensuring the conservation of aquatic systems.

Prescribed fire is a useful tool in forest restoration, but it's not sufficient alone. Mechanical silvicultural activities typically will be required. Harvests cannot pay for actions, of course, and provide useful economic and social benefits, although it's mentioned here additional funds will be needed. Then fire or other actions need to follow harvest to reduce short-term fuel hazards, or better yet, used as residue in biomass power plants. Finally and most profoundly, policymakers and managers need to plan for continued active management of these restored stands.

Now, I want to go on to restoration of forests associated with infrequent high intensity fire regimes in the Douglas-fir/western hemlock plant associations that dominate the Westside. The primary restoration need is for silvicultural activities to accelerate the development of structural complexity in plantations created following timber harvest. There are a number of key elements in this, and there are tens of thousands of acres of this—hundreds of thousands of acres, really. Key elements are conserving the remnant old growth trees using silvicultural prescriptions that would encourage development of spatial heterogeneity, allowing plantation thinning beyond the current limit of 80 years of age, and a number of other actions I discuss here.

Next, I want to briefly discuss a guide to activities following severe disturbances for restoration activities. Management goals should be a starting point in determining appropriate post-disturbance activities, and comparable structural goals should guide management before and after a wildfire. As an example of where ecological objections are primary, proposed salvage operations should retain structures of the same size and density as those developed for the green forest. Old growth trees, in that case, would be considered whether alive or dead. This approach provides a solid reference for action and can eliminate intense arguments over such issues of the probabilities where the burned trees will die.

Finally, and important to Jerry and I, is the notion that third-party review is a key to forest restoration. Successful restoration

of the forest will require large-scale actions over space and time, and managers need the latitude to adapt general policies to specific situations. In exchange, we need credible mechanisms for evaluating whether actions are moving our forests toward restoration goals, and also how to change when the actions are not doing that. Monitoring is necessary, but not sufficient. We think that third-party review is essential to gain and retain public acceptance.

[The prepared statement of Mr. Johnson follows:]

PREPARED STATEMENT OF K. NORMAN JOHNSON, UNIVERSITY DISTINGUISHED
PROFESSOR, OREGON STATE UNIVERSITY, CORVALIS, OR

I am Dr. K. Norman Johnson and I am here today to give testimony for myself and Dr. Jerry F. Franklin regarding forest restoration and hazardous fuel reduction efforts in the forests of the Pacific Northwest. I am a University Distinguished Professor in the College of Forestry at Oregon State University. Jerry Franklin is Professor of Ecosystem Sciences in the College of Forest Resources at University of Washington. These comments represent our view and not those of our respective institutions.

Our testimony focuses on forest restoration in the National Forests of Oregon and Washington. Collectively, we have been studying these magnificent forests and the amazing variety of benefits that they provide for almost 100 years. In addition to research, we have served on many scientific panels analyzing forest policy issues, including the Northwest Forest Plan, and recently completed for the Klamath Tribe, a comprehensive restoration plan for their historic tribal lands, which are currently a part of the Winema-Fremont National Forest.

Our definition of "restoration" is the re-establishment of ecological structures and processes on these forests where they have been degraded and, simultaneously, restoration of economic and other social values on these lands. One product of this restoration will be substantial reductions in uncharacteristic fuel loadings. We emphasize restoration activities in which ecological, economic, and other social goals are compatible.

NORTHWESTERN FORESTS REQUIRE MULTIPLE RESTORATION APPROACHES

Forests of the PNW are very diverse in their characteristic disturbance regimes and developmental patterns, and therefore restoration policies and practices must acknowledge and accommodate these differences. This diversity is obvious when one compares a typical old-growth forest of Douglas-fir, western hemlock, and western redcedar on the western slopes of the Cascade Range, with a typical old-growth ponderosa pine forest found on dry sites on the eastern slopes of the Cascade Range. The complexity of environmental conditions, as measured by variation in macroclimate, soils, landform, elevation, etc., and related differences in disturbance regimes make simple stratifications of forests, such as into areas either west or east of the Cascade Range divide, poor bases for policy or management prescription.

Plant associations and groupings of similar plant associations (PAGs) provide a sound scientific basis for stratifying these forests into different disturbance regimes for purposes of policy development, management planning, and silvicultural prescription.

Restoration needs and objectives contrast greatly between forests representative of plant associations historically characterized by (1) relatively frequent (<100 year interval), low-to mixed-severity fire, such as the ponderosa pine and dry mixed-conifer forests common east of the Cascade Range, or (2) relatively infrequent (>100 year interval), high-severity disturbance regimes, such as west side Douglas-fir—western hemlock forests. Although there are many plant associations and sites that exhibit intermediate behavior, in this presentation we will focus our discussion on types that are more at one end or the other of the disturbance gradient.

RESTORATION OF FORESTS CHARACTERIZED BY FREQUENT, LOW- AND MIXED-SEVERITY
FIRE REGIMES

These forests have been grossly modified during the last century by a variety of management actions including fire suppression, grazing by domestic livestock, logging, and establishment of plantations. Consequently, they differ greatly from their historical condition in having much higher stand densities and basal areas, lower average stand diameters, much higher percentages of drought- and fire-intolerant species (such as white or grand fir), and many fewer (or no) old-growth trees.

We will lose these forests to catastrophic disturbance events unless we undertake aggressive active management programs. This is not simply an issue of fuels and fire; because of the density of these forests, there is a high potential for drought stress and related insect outbreaks. Surviving old-growth pine trees are now at high risk of death to both fire and western pine beetle, the latter resulting from drought stress and competition. Many fir-dominated stands are now at risk of catastrophic outbreaks of insect defoliators, such as the spruce budworm, as has occurred at many locations on the eastern slopes of the Cascade Range in both Oregon and Washington.

Without action, we are at high risk of losing these stands—and the residual old-growth trees that they contain—to fire and insects and the potential for these losses is greatly magnified by expected future climate change. Historically, much of the loss of old growth trees and forests has come during time of drought. The expected longer and more intense summer drought periods with climate change will put additional stress on the forests here. The stress on old growth trees will be especially severe where they are surrounded by dense understories.

We know enough to take action (uncertainties should not paralyze us). Inaction is a much more risky option for a variety of ecological values, including preservation of Northern Spotted Owls and other old-growth related species. We need to learn as we go, but we need to take action now. Furthermore, it is critical for stakeholders to understand that active management is necessary in stands with existing old-growth trees in order to reduce the risk that those trees will be lost.

Activities at the stand level need to focus on restoring ecosystems to sustainable composition and structure—not simply to acceptable fuel levels. Objectives of these treatments need to include: Retention of existing old-growth tree populations; shifting stand densities, basal areas, diameter distributions, and proportions of drought- and fire-tolerant species (e.g., ponderosa pine and western larch) toward historical levels; and development of spatial heterogeneity. Plant associations provide a good basis for providing site-specific target goals for stand parameters, such as basal areas. Finally, restoring old-growth tree populations to, and maintaining them at, historical levels should be a goal of restoration management.

Action is also needed to restore hardwood species, such as aspen, willows, and alders, which have declined in these landscapes as a result of lack of regeneration and overtopping by dense conifers. Elimination of large predators is probably an additional key factor in the changes that have occurred in hardwood representation and riparian vegetation.

Restoration programs must be planned and implemented at the landscape scale to be effective; management over the last century has altered entire landscapes and created the potential for very large wildfires and insect outbreaks. Treating isolated stands within these landscapes will not be effective.

Creating fuel treatment patches and strips is a useful first step to help control wildfire, but is not sufficient to save these forests or the important array of values that they provide, including owls and old-growth trees. Many of the intervening areas will eventually burn and, even if they do not, old-growth trees will succumb to insects during periodic drought, since they are surrounded by dense competing vegetation.

To conserve these forests, we need to modify stand structure (e.g., treat fuels) on one-half to two-thirds of the landscape. This level of restoration will create a matrix of more natural and sustainable forest, which has a greatly reduced potential for stand-replacement fire and insect mortality, interspersed with islands of dense stands. These interspersed dense stands will provide habitat for species like the Northern Spotted Owl that utilize such areas. In fact, an approach that results in restoring conditions on the majority of the dry forest landscapes is the only way in which sustainable habitat for Northern Spotted Owls can be provided.

Key elements of actions to restore these forests include:

- Conserving old growth trees as a first priority.

- Utilizing historical conditions, such as historical densities and distributions of tree sizes, as an ecological guide, modified, as needed, by recognition of coming climate change.

- Combining conservation of old growth trees, stand density targets, and emphasis on drought and fire-tolerant species as an overall guide to action. We suggest moving away from approaches based on diameter limits. Young, shade-tolerant trees of substantial size often contribute to the unnaturalness of many stands, as well as threatening old-growth trees. Also, old-growth trees may be smaller than a proposed diameter limit but still should be retained.

- Focusing on areas with concentrations of old growth structure as a high priority for treatment. Recognition that such areas should receive early attention

is recent; there has been a tendency to think that stands with numerous old-growth trees should be left alone or, at least, be of much lower priority for treatment. The reality is the opposite! Forests that still retain substantial numbers of old-growth trees should be priorities for treatment because these are irreplaceable structures that are at great risk from uncharacteristic wildfire and bark beetle attack. Hence, reducing the potential for accelerated loss of these old trees should be at the top of the agenda.

Working to regain complexity—forests have been simplified through harvest, fire suppression, and grazing—work for heterogeneity at all spatial scales.

Returning understory community composition and ground fuels to characteristic composition and structure. Many areas that characteristically had frequent, low-frequency fire regimes no longer do, due to the accumulation of branches and dead trees on the forest floor and the loss of fine fuels (that used to carry these fires) to grazing. Reversing these effects will be needed.

Giving special attention to the hardwood component of the dry forest landscapes, both riparian and upland. In many ways, hardwood species and communities are in as much difficulty as conifer-dominated stands.

Ensuring conservation of aquatic systems. Limiting new roads, closing unneeded roads, improving road systems, revitalizing aspen and willow forests, and controlling aggregate watershed effects will all play a role in this effort.

Prescribed fire is a useful tool in forest restoration but is not sufficient alone—mechanical silvicultural activities typically will be required. Difficulties exist in safely dealing with the build-up in fuel; in many cases harvest is required to help reduce fuel loads. In addition, the uncertainty of a burn program, due both to smoke and safety issues, makes it difficult to base a forest management program for a large area solely on prescribed fire.

Harvest can help pay for actions and provide useful economic and social benefits, but additional funds will be needed. Significant commercial volumes need to be removed to restore these forests. They can provide the funds for treatment and also help maintain milling capacity and communities. Rarely has there been such a coming together of ecological, economic, and social considerations. Commercial harvest, though, will not pay for all that needs to be done.

Fire or other actions must follow harvest to reduce the short-term fuel hazards generated by mechanical treatment. Fire, at least to consume activity fuels (debris and small trees left on site), is an ideal follow-up to harvest where it can be carried out. Without treatment of activity fuels, thinning has a significant probability of actually accentuating the fuel hazards in treated forests for at least a period of time. Better yet, use this residue in biomass power plants.

Finally and most profoundly, policy makers and managers need to plan for continued active management of these restored stands. These activities and others will need to be repeated through time to maintain the sustainable structure and composition. Sometimes, this may be accomplished with burning but most of the time repeated silvicultural treatment of stands and landscapes will be required in the more productive mixed conifer types.

RESTORATION OF FORESTS ASSOCIATED WITH INFREQUENT, HIGH-INTENSITY FIRE REGIMES

On the west side of the Cascade Range, the primary restoration need is for silvicultural activities to accelerate the development of structural complexity in the plantations created following timber harvest. Tens of thousands of acres of young stands exist which could benefit from activities that reduce stand densities, favor biodiversity, and create spatial heterogeneity. There is an immense opportunity and need for restoration in these plantations that could result in significant contributions to ecological, economic, and social goals.

Restoration efforts can increase structural complexity in the plantations created after clearcutting. These plantations usually contain dense conifers dominated by one or two commercial species. Most have little or no structural legacy of standing and down trees from previous stands. Thus, these stands are much simplified from the young naturally regenerated forests that would have developed historically. Thinning and other activities can accelerate the development of complexity within these stands. Also, such thinning can speed the development of late-successional characteristics.

Key elements of actions to increase structural complexity in plantations:

Conserving all remnant old growth trees. There is rarely an ecological justification for cutting old growth trees as a part of restoration programs.

Utilizing silvicultural prescriptions that encourage development of spatial heterogeneity, such as variable density thinning.

Allowing plantation thinning beyond 80 years of age.

Ensuring conservation of aquatic systems Limiting new roads, closing unneeded roads, improving road systems, and controlling aggregate watershed effects will all play a role in this effort.

USING MANAGEMENT OBJECTIVES AND RESTORATION PRINCIPLES TO GUIDE ACTIVITIES FOLLOWING SEVERE DISTURBANCES

Management activities following major disturbance events, such as large intense wildfires, are among the most controversial issues in national forest management. Such "restoration" activities should follow the same principles previously emphasized with the goal of restoring structures and ecological processes where they have been degraded while simultaneously restoring economic and social values on these lands.

Management goals should be the starting point in determining appropriate post-disturbance activities. Hence, if ecological objectives are primary objectives prior to the disturbance they should be primary considerations in any post-disturbance restoration process.

Comparable structural goals should guide management before and after wildfire; these will certainly differ depending upon whether the management focus is primarily on ecological processes or wood production. Where ecological objectives are primary, proposed salvage operations should retain structures of the same size and density as those developed for the green forest. Old-growth trees should be conserved, whether alive or dead. This approach provides a solid reference for action and can eliminate intense arguments over such issues as the probabilities that burned trees will die.

Similarly, approaches to reforestation should reflect restoration principles and management objectives. For example, attempts to establish dense conifer plantations on ponderosa pine and dry mixed-conifer sites are not appropriate; if successful, such efforts simply have created, at best, stands in need of restoration thinning or, at worst, the next generation of uncharacteristic stand-replacement fires. Furthermore, the structurally-rich early successional communities that exist between a severe disturbance and re-establishment of a closed canopy of trees are very rich in biological diversity, including species and key ecological processes. Rapid termination of this successional stage is inappropriate where management objectives emphasize ecological objectives.

TRUST BUT VERIFY; THIRD-PARTY REVIEW AS A KEY TO FOREST RESTORATION

Successful restoration of these forests will require large-scale actions over space and time, as we have discussed above, and managers will need the latitude to adapt general policies to specific situations. Public acceptance and support will be needed and the social license for these efforts is tenuous in many places. A key component in gaining public support will be credible evidence that the actions are moving the forests toward restoration goals and a mechanism for changing management where the actions are not achieving the desired objectives.

Monitoring is necessary but not sufficient. Given the uncertainties that we face in forest restoration, keeping track of the state of the forests and the effects of actions is a first principle of forest management. We believe, though, that people are increasingly skeptical of an agency keeping score on the effectiveness of its own actions.

Third-party review will be essential to gain and retain public acceptance. We need mechanisms that provide trusted evaluations of the linkage between actions and goals along with the ability to suggest change as needed. Creation of third-party review as a regular part of forest restoration would go a long way toward this goal. As an example, a broad group of community leaders and resource managers could periodically review the results of restoration work and publish a report on their findings and suggestions for change. Other approaches, such as certification, could also be used. In sum, third party review could go a long way toward dispelling distrust in the public about the purpose and results of forest restoration programs.

Senator WYDEN. Professor, thank you. Mr. Aune, welcome. We're glad you're here from our neighbor State.

**STATEMENT OF PHILIP S. AUNE, RETIRED FORESTER,
FORMER RESEARCH PROGRAM MANAGER, REDDING
SILVICULTURE LABORATORY, PACIFIC SOUTHWEST RE-
SEARCH STATION, REDDING, CA**

Mr. AUNE. Thank you very much. It is indeed a pleasure to be here. Mr. Chairman, I'm really going to summarize my rather lengthy testimony.

My background is 45 years as a forester and silviculturist, primarily working in research and management. In my latter part of my career, I joined the California Forestry Association. All of my examples I'm going to use today are principally from California. So you can get a little bit of that, but they're very appropriate for especially Eastern Washington, Oregon, and the area east of the Cascades.

First thing I want to show is a couple of graphs.* Bear with me. The first one—We oftentimes forget the fundamentals. I think one time it was a famous saying “familiarity breeds contempt.” It's important to look at some of the fundamentals. Why do we thin? How do forest stands grow? As an example here on the axis going across we see a typical per-acre density. As density increases, what happens to the volume?

Professor Langsaeter, a Swedish scientist back in the 1940s, designed this curve, and it's very appropriate for today. In Zone I, identified by the Roman numerals, stocking is light, annual growth rates are extremely high. In Zone II, the annual growth rate starts to decline as trees compete. In Zone III, the annual growth rate is rather constant over a wide range of stocking. Then, as it approaches Zone IV, the inner tree competition begins and mortality starts. As it goes to Zone V, substantial amounts of mortality are occurring. Unfortunately, most of our public lands today are operating in Zones IV and V. So there's no need to argue about—Do our stands need to be restored? The historical forest was the mosaic operating in all of Langsaeter's zones. Somehow, we've got to get that back. The next chart, please.

Further, if we look at—What have we learned from research in thinning? What can it do? We have a lot of long-term research studies that show we can fundamentally change the characteristics of trees by thinning them. This is one example from a 30-year measurement, a study of investment in Forest Service research, and a plot called the Elliott Ranch Levels-of-Growing Stock Study. To simplify this, in 1970, five levels of treatment started by thinning a 20-year-old stand—90 percent of the trees were removed all the way down to 20 percent. Thirty years later, look at the gross difference in diameter from those thinning treatments—25.7 inches for the widest space versus 16 inches for the narrowest space.

Now, just imagine if one of our restoration goals was to accelerate the diameter of our trees. We have all of the knowledge and technology of how to do that. We need to encourage the willingness to do that. There are studies in the Douglas fir type throughout the West of these various kinds of studies. I used to use that as an example. You cannot influence such variables as the height growth on trees. But you can conversely influence the amount of mortality.

* Graphs and charts have been retained in subcommittee files.

Here we see diameter growth from the widest space. Guess what? That's the one with the lowest amount of mortality. As you increase stocking, guess what? You get more mortality. What does that mean? All of that mortality leads to the fuels.

Finally, I'd like to—Before I—Just one case study, the next one, an example of what happens when we thin our forests when a wild-fire comes up to the—and hits the forest. This was an accident in the long-term research project we initiated on the Blacks Mountain Experimental Forest, near Susanville, California. We were trying to study the effects of—How do you develop a forest with high structural diversity versus one with low? A simple forest versus a complex forest on 250-acre plots. We thinned those 250-acre plots. Then, of all of the nice things, we had a wildfire. I'll say that again—It was actually a nice thing, because that wildfire burned very aggressively through the Lassen National Forest where there was no thinning. A picture is worth 1,000 words.

Look down immediately to the experimental forest. That was thinned as one of our low structural diversity followed by broadcast burning. As you go across the Lassen National Forest, the fire—Again, most of its damage in the experimental plot right at the edge. It didn't even invade that part of the treatment. It moved rapidly through the private land. The private land looked like that area on the forest above us there, kind of a grass and brush and young plantation. It burned all the way through that. Notice that some of the small trees are still living, principally because the fuel loads were less. Then it came back onto the experimental forest in an unthinned plot. Notice closely how quickly it developed into a total stand destruction fire. What we can say unequivocally is every time that fire hit one of our treatment plots, it went down, and mortality was down significantly.

So there's a basis of science to what we do. Now, the modern science has gone beyond growth and yield. What I'd like to talk about, one recent research publication—I have two extra copies to leave for the record—the title of this is "Restoring Fire-Adapted Ecosystems: Proceedings of a 2005 Workshop." It's interesting, if we look at the 27 papers in here, they're all addressing forest restoration, the effects of fuels reduction. There are, of these 27 articles, there's 599 literature citations in there. Two-thirds of those came since 1990. Our knowledge base on this subject has grown dramatically. The oldest citation is 1664, from England. Forestry has a long history of studies, and so we've got to capture and utilize that. OK. Enough is enough. You've heard enough to science. What are you going to about it? We all are agreeing to do the restoration.

It's kind of like the eighth-grade dance. The music's playing, everybody's standing around the music, but nobody is dancing. We've got to make the music happen. Unfortunately, there is a bully that comes in periodically and says, "We're not going to dance." You can imagine what that bully is. It's the one that says, "You're going to do it my way or the highway." If the nothing is done by that, you will have son, daughter, grandson, granddaughter hearings on this very same subject. So I'm not really pleading too hard, I don't think, but we've got to do something about this problem. It just can't just restore the easy stuff, where

we get violent agreement about removing the small trees. We've got a treat whole stands to restore their components, and I think we just need the will to do that. Thank you very much.

[The prepared statement of Mr. Aune follows:]

PREPARED STATEMENT OF PHILIP S. AUNE, RETIRED FORESTER, FORMER RESEARCH PROGRAM MANAGER, REDDING SILVICULTURE LABORATORY, PACIFIC SOUTHWEST RESEARCH STATION, REDDING, CA

EXECUTIVE SUMMARY

1. Thinning is one of the key practices necessary to restore our forests, reduce excessive fuel accumulations, and make forests sustainable and resilient as we face the uncertainties surrounding climate change.

2. There is a strong scientific foundation for thinning our forests supported by centuries of research and forest management observations.

3. Within the last decade, a large body of research, development and application projects has expanded our knowledge of thinning and its effects on fuels reduction and forest restoration.

4. Thinning can play a major role in reducing the adverse environmental effects of catastrophic events to critical wildlife habitats, key watersheds, wilderness, parks, private timberlands and rural communities.

5. Thinning activities can be an expensive undertaking and therefore projects must consider existing infrastructure, markets for by-products, future silvicultural activities and available funding.

6. Thinning can be sustainable if economic objectives are substantially improved to meet the goals established for restoration and fuels reduction priorities. Social sustainability remains problematic for active forest management programs that require removal of trees.

TESTIMONY

Good afternoon Mr. Chairman and members of the Subcommittee, my name is Philip S. Aune and I am a retired forester with 37 years of service in the United States Forest Service. My last assignment was the Program Manager of the Redding Silviculture Laboratory, a unit of the Pacific Southwest Research Station. After retiring from the Forest Service, I served as Vice President of the California Forestry Association for 5½ years retiring in 2005. I am currently a resident of Nine Mile Falls, Washington and I work as a part-time consulting forester for the American Forest Resource Council.

My testimony today represents my views as a professional forester with over 45 years of experience in forest management, silviculture research, and forest policy and government affairs. I am also a member of the National Association of Forest Service Retirees an organization that strongly supports the need for thinning, stocking control and reducing the vulnerability of forests to fire, disease and insects problems. They clearly recognize that thinning is a valuable and necessary practice to achieve healthy and productive forests for Americans.

The focus of this hearing is on forest restoration and hazardous fuels reductions in western national forests and public lands managed by the Bureau of Land Management. The need and foundation for forest restoration is clearly described as part of the U.S. Department of the Interior and Forest Service 2001 Cohesive Strategy for Restoring Fire-Adapted Ecosystems on Federal Lands.¹ Reducing hazardous fuels by implementing the National Fire Plan was the major focus area in previous Senate Energy and Natural Resource hearings in 2001.² By 2002, in the midst of one of the worst fire seasons on record, President Bush announced the Administration's Healthy Forest Initiative in Central Point, Oregon.³ A bipartisan effort to provide united leadership concerning these issues came to fruition when the Healthy Forest Restoration Act HFRA was passed and signed into law on December 3, 2003 by President George W. Bush.

¹Restoring Fire-Adapted Ecosystems on Federal Lands . . . A Cohesive Strategy for Protecting People and Natural Resources. U.S. department of the Interior. USDA Forest Service. December 2001.

²September 25, 2001 Hearing on Implementing the National Fire Plan. Senate and Energy and Natural Resource Subcommittee on Public Lands and Forest.

³President Announces Healthy Forest Initiative. Remarks by the President on Forest Health and Preservation. The Compton Arena, Central Point, Oregon. September 13, 2002.

Many have questioned why the pace and scale of federal actions has been so slow ever since HFRA was passed. The focus of the land management agencies since then has been primarily to reduce the fuel accumulations in the Wildland Urban Interface (WUI) using a variety of forest practices. Most of the practices utilized require significant federal appropriations to be successful. In the last few years, agencies have been working with generally fixed budgets and strong competition for federal appropriated funding in a highly charged political environment. Generally, only thinning has the potential to produce revenues and the ability to help offset costs and the current reliance on appropriated funding to accomplish HFRA goals and objectives. Thinning will be the focus of my testimony today.

Science basis for thinning. Thinning of forest stands has a strong scientific foundation based on centuries of research, observations, development and application of this fundamental silvicultural practice. Most of the historic research concentrated on thinning responses designed to improve the overall health and vigor of forest stands while improving opportunities for increased growth and yield of forest products. Some of these thinning principles are:

1. This continual diminution in numbers (of trees) is primarily the results of a vigorous natural selection and is the expression of one of the fundamental biological laws of silviculture.⁴
2. The struggle for existence in dense, unthinned stands is so fierce as to reduce the growth and vigor of all trees in the stand.⁵
3. Very few trees ever recover a dominate position after they have fallen behind in the race for the sky.⁶
4. The total production of cubic volume by a stand of a given age and composition on a given site is, for all practical purposes, constant and optimum for a wide range of density of stocking.⁷

The last key principle has led to the following theoretical graph of growth, development and response to changes in stocking levels on a per acre basis. This graphical representation is part of the basis of silviculture and is known as the "Langsaeter Growth Curve."⁸

This graph* is extremely relevant today because helps to provide a framework for the overall condition of our public land forests today. The roman numerals represent five major growing and subsequently health conditions of forested stands. Zone I represents the most rapid period of annual growth resulting from ample growing space for individual tree growth. Zone II reflects that point in time when individual trees start to compete with their neighbors for nutrients, water, and light. Per acre annual growth rates are still relatively high and constantly increasing as overall stocking increases. Zone III represent the highest annual per acre growth rate over a wide range of stocking levels. Intertree competition accelerates to the point where stand density approaches levels found in Zone IV. In Zone IV, intertree competition has developed to the point where significant tree mortality begins. Annual growth rate declines begin and this is the Zone where the general forest health begins to decline. Zone V is the point where the effect of too many trees and severe competition is the dominate factor and tree mortality is the major event present in the stand.

The optimum time to thin forest stands is in Langsaeter Zone III with high annual growth conditions. Thinning practices should reduce the stocking levels to meet whatever the forest management objectives require. Generally speaking, forest management objectives should be established to reduce the stocking to levels found in Zone III to the lower end of Zone III or the high end of Zone II. Determining the specific quantifiable goals should be based on the best evidence from Levels of Growing Stock research (discussed later in this testimony) and objectives, local experience and economic considerations.

The next logical question is, "How much of our forest land needs thinning?" Most of our historic forests were a mosaic of stands in all five Zones of Langsaeter's growth curve. Today, our public forests are dominated by stand conditions found in

⁴Smith, David M. 1962. *The Practice of Silviculture*. Seventh Edition. John Wiley & Sons, Inc., New York.

⁵Ibid.

⁶Guillebaud, W.H., and F.C. Hummel. 1949. A note on the movement of tree classes. *Journal of Forestry*, Volume 23: 1-14.

⁷Smith, David M. 1962. *The Practice of Silviculture*. Seventh Edition. John Wiley & Sons, Inc., New York.

⁸Langsaeter, A. 1941. Om tynning I enaldret gran- og furuskog. Meddel. f.d. Norske Skogforsoksvesen 8-131-216. In Smith, David M. 1962. *The Practice of Silviculture*. Seventh Edition. John Wiley & Sons, Inc., New York.

*All graphs and figures have been retained in subcommittees file.

Langsaeter's Zone IV and V. Regardless of the cause, the facts are that our public forests are significantly out of balance from their historic ranges of variability. These overstocked conditions led the General Accounting Office to conclude in 1999 that 39 million acres of interior western forests have serious forest health problems.⁹ The national scope of the forest health problem was expanded and enlarged by 2002 based upon conclusions from the Healthy Forest Initiative. As an example, the American Forest and Paper Association concluded that there are 72 million acres of National Forest System Land at high risk to catastrophic wildfire. Another 26 million acres are at high risk to insect infestation and disease.¹⁰ That is almost 52 percent of all national forest land. Thinning has been and will continue to be the major silvicultural practice to balance stocking levels necessary for a wide variety of forest management objectives that require healthy and sustainable conditions. Thinning will also aid in achieving a balance of stands in all of Langsaeter's Zones necessary for healthy and sustainable forest conditions.

Case studies of thinning experiments. Langsaeter developed the theoretical concepts of growth, competition, and stocking levels that provide the basis for thinning and other silvicultural practices. His concept does not, however, provide the kind of information necessary for specific forest types. Fortunately, such insight is available from carefully control long term Levels of Growing Stock Studies (LOGS). One such example is the Interior Ponderosa Pine LOGS study with studies scattered throughout the Ponderosa pine range from Canada to Mexico. These study sites balance the range of site productivity variables from very low to very high productivity. One of the highly productive LOGS sites is the Elliot Ranch LOGS plots located on the Tahoe National Forest near Foresthill, California.

At the Elliot Ranch site, five levels of thinning were applied to a 20 year old Ponderosa pine plantation in 1970 that resulted from a 1950 wildfire. Each of the thinning plots had between 500 to 681 trees per acre before the first thinning with tree diameters between 6.6-7.2 inches. The heaviest initial thinning treatments removed approximately 90% trees, the next treatment 70%, the next 50%, then 30%, and the lightest thinning removed 20% of the trees to develop the 5 levels of growing stock. Three additional thinnings were applied 10, 15, and 20 years after the first thinning. All of the trees were measured every five years for a variety of tree characteristics such as diameter, height, mortality, live crown ratio, etc. Per acre values for volume in cubic feet and board feet, growth and mortality were developed from the basic tree measurements. Summarizing some of the key data results in the following illustrative graphs.*

After 30 years, the widest spaced treatment yield trees with an average diameter of 27.5 inches. The narrowest spacing resulted in trees with an average diameter of 16.8 inches or 10.7 inches smaller than the widest spacing, a 61.7% reduction in diameter growth. This could be very critical in meeting restoration objectives especially in areas devastated by wildfire and lacking the larger diameter trees necessary for wildlife habitat needs. As an example, California spotted owl guidelines require leaving trees greater than 30 inches in diameter. The LOGS plots provide ample evidence that thinning can play an important role in accelerating diameter growth rates. This does not mean that you will have California spotted owl habitat once the trees reach 30 inches in diameter. But what is informative is that the tree diameter requirements can be substantially influenced by thinning levels.

There are numerous attributes that can be displayed for all of the measured and calculated variables too numerous for this testimony. However, mortality is one of the key variables for forest health discussions. The general rule from research results is that mortality generally increases as stand density increases. The amount of mortality varies considerably by species and seasonal factors such as drought induced stress. The following graph* displays the mortality for the period 1970 to the measurements in 2000 at the Elliot Ranch LOGS site.

At ages 25, 30 and 35 mortality was minor. However, between the age of 35 and 40, mortality started to significantly increase in the highest density plots that only removed to 30% and 20% of the initial stocking. By age 45, all plots had some mortality with the widest spaced trees having only 2 square feet basal area¹¹/acre of

⁹Protection People and Sustaining Resources in Fire-Adapted Ecosystems. A Cohesive Strategy. April 13, 2000. The Forest Service Management Response to the General Accounting Office Report GAO/RCED-99-65.

¹⁰American Forest and Paper Association. September 5, 2002. Healthy forests don't just happen. A news release of the American Forest and Paper Association. Washington D.C.

¹¹Basal Area. The sum of the square feet contained in the cross section of trees generally measured at breast height (41/2 foot above the ground on the high side of trees). As an example, a tree 16 inches in diameter at breast height has 1.4 square feet of "basal area" which is equal to the area of a circle 16 inches in diameter. If a stand contained 100, 16 inch trees in one acre, the basal area/acre would be 140 square feet per acre.

mortality and the narrowest spaced trees had 20 square feet of basal area/acre. Translating these results in Langsaeter Zones, all of the initial thinning treatments were operating in Zones I and II for the first 15 years. After 20 years, the 90% initial thinning has been in Zone I and II; the 70% level in Zone II and III, the 50% level in Zone III and the 30% and 20% in Zone III and IV. It is fairly obvious that these two light thinning treatments need another thinning to maintain their health and vigor.

Another excellent example of LOGS studies and benefits from long-term forest management research is that the results can be used to evaluate environmental effects of thinning and prescribed burning as common management practices. This was recently accomplished in a long-term study in Ponderosa pine forest located near Bend, Oregon.¹² The study addresses whether their combined use is required to lower present-day fire risk and help restore natural ecological function; or whether fire or thinning alone is sufficient to attain these goals. The use of thinning as a fire surrogate is not well understood. The draft manuscript documents the effects of 16 treatments focused on thinning; a combination of thinning and broadcast burning; broadcast burning alone and fertilization on stand growth, understory development and biological diversity. This study is located on the Deschutes National Forest in the Interior Ponderosa pine forest type in eastern Oregon. This manuscript documents the observations of a study initiated in 1989 and includes all re-measurements through 2006. The results documented nearly two decades of thinning and prescribed fire effects and identified the following five conclusions:

1. Positive responses of ponderosa pine and understory shrubs to thinning alone;
2. Inconsequential effects of surface-applied thinning residues on vegetation response;
3. The need for multiple entries of prescribed fire if the abatement of shrub growth is required;
4. The ineffectiveness of repeated burning to stimulate herbaceous biomass production or diversity in these nutrient-poor forests, and
5. That thinning mimicked most ecological functions attributed to fire and was a key first step to restoring healthy and firesafe forests.”¹³

Thinning to reduce the effects of wildfire. There is substantial antidotal evidence that thinning will reduce the adverse effects of wildfires. Thinning significantly reduced fire severity and stand damage on the following fires: Hi Meadow, Colorado; Megram, California; Webb, Montana; Cerro Grande, New Mexico; Tyee, Washington; Cottonwood, California; Hochderffer, Arizona; Fontainebleau, Mississippi.¹⁴ These and other antidotal evidence from recent fires throughout Oregon and Washington and the interior west provide the best evidence of the potential of thinning to reduce the adverse effects of wildfire.

Carefully control research is lacking in the area and it is almost impossible to test the hypothesis that thinning will reduce the effects of wildfires with complete scientific rigor. Placing a statistically sound research design with replications and a variety of treatments would have to be done before the wildfire occurred. Even though wildfires are widespread, the control research problem is exacerbated by the difficulty of predicting where and when the wildfires would occur.

In spite of these problems, accidents do occur on research plots that help provide some of the best quantifiable and pictorial evidence of the effect of thinning on fire behavior and subsequent stand damage. One such example occurred in 2002 on the Blacks Mountain Experimental Forest in the Interior Ponderosa pine forest type found throughout western United States. Three general conditions were present on the Blacks Mountain Experimental Forest when the Cone Fire occurred. Two large scale thinning treatments (250 acre replicated plots) and the unthinned areas between the thinned plots were present. In addition, substantial areas adjacent to the Experimental Forest were also unthinned. The Cone fire occurred when fuel moistures levels were between one and six percent and wind speeds were nine miles per hour with gusts up to 20 mph. The fire was control after burning through a full suite of the experimental research conditions and the unthinned forest. The following pictures* vividly demonstrate the results of the wildfire.

¹² Busse, M.D. et al. 2007. Is mechanical thinning an ecological surrogate for fire in Ponderosa pine forests? Peer Review Draft subject to changes. USDA Forest Service, Pacific Southwest Research Station, Redding California.

¹³ Ibid.

¹⁴ Skinner, Carl N. 2003. Forest Fires and Forest Fuels Power Point Presentation. Based upon Omi and Martinson 2002 data. USD Forest Service. Pacific Southwest Research Station, Redding, California.

The area within the generally square white area was experimentally thinned to create a forest with high structural biological diversity. The area below and to the right of the red circle was designed and thinned to achieve low structural diversity. All of the similar replaced plots were in place before the Cone Fire burned through the Experimental Forest in September, 2002. The Cone Fire started at the pointed area outlined in white on the far left of this aerial photo and burned toward the left side of the photo. The white line delineates the fire boundary. The fire burned through the square area thinned for high structural biological diversity. The low structural diversity plot to the left of the white line and below the red circle did not burn due to the lack of fuels following implementation of the thinning and broadcast burning.

The next photo shows a close up of the area surrounding the red circle in the above photo. Here the thinning and lack of thinning are fairly obvious.

In the upper left quarter of the photo, the area defined by the white lines is the Lassen National Forest with almost 100 percent mortality in an area that was not thinned prior to the Cone Fire. The lower left hand quadrant is the thinned low structural diversity research plot with less than 1–2 percent overall mortality. Most of that mortality occurred at the boundary of the unthinned Lassen National Forest where the fire was very intense heat from the crown-fire. The crown-fire moved rapidly fire through the unthinned portion of the Lassen National Forest to the Private Land in the upper right quadrant of the photo. The private land looked similar to the area immediately above the private land burned in the Cone Fire. This was a young planted sapling forest with annual grasses and brush understory composition.

As the fire moved from the private land back on to the Experimental Forest in the lower right quadrant, it encountered an unthinned portion of the Experimental Forest. Notice how immediately the fire resulted in complete killing of patches as it regained its strength. As the fire continued, it regained full strength as it moved through unthinned forest until encountering other research plots that had been thinned. Every time the Cone Fire encountered another thinned research plot, the crown-fire became a manageable ground fire.

The next two photos show the stark contrast between the unthinned forest and the thinned forest treatments. The most recent research publication documenting the five year results of the Cone fire concluded crown-fire spread and severe tree mortality was significantly reduced when advancing flames reached research areas that were recently thinned and underburned.¹⁵

The Cone Fire story is a good example of what can be learned from having a research quality experiment in place before a wildfire occurs.

Similar observations are being developed from careful analysis of other recent large scale wildfires. A recently released 2007 study of a large wildfire's effects in northeastern California describes the effects of wildfire and suppression efforts on areas with in-place fuel treatments, areas with no treatments and impacts on protected areas.¹⁶ The Wheeler fire was caused by lightning and started on July 5, 2007, burning 23,420 acres of mixed conifer and Interior Ponderosa pine forest types. The fire burned through areas treated for fuel hazard reduction, untreated areas, and areas protected for California spotted owl and goshawk habitat (Protected Activity Centers and home range core habitat) as well as Riparian Habitat Conservation Areas. Key findings from Fites et al. research were:

1. Treated areas had significantly reduced fire behavior and tree and soil impacts compared to untreated areas.
2. Treated areas were utilized during suppression along several flanks of the fire for both direct attack with dozers and handcrews, as well as for indirect attack with burn operations.
3. Treated areas that burned during the first two days—when suppression resources were limited and fire behavior more uniformly intense—had reduced fire effects compared to untreated areas. In some areas, these treated sites had moderate to high severity effects.
4. A Defensible Fuel Profile Zone treated area provided a safe escape route for firefighters when the column collapsed and two other escape routes were cut off by the fire.
5. Observations of fire behavior during the first two days suggest that large untreated areas allowed the fire to build momentum and contributed to increased fire behavior (rate of spread and intensity). Thus, the influence of these

¹⁵ Ritchie, Martin R., Skinner, C.N., and Hamilton, T.A. 2007. Probability of tree survival after wildfire in an interior pine forest of northern California: Effects of thinning and prescribed fire. *Forest Ecology and Management* 247, 2007, 200–208.

¹⁶ Fites, JoAnn, et al. August 2007. Fire Behavior and effects relating to suppression, fuel treatments, and protected areas on the Antelope Complex Wheeler Fire. USDA Forest Service.

untreated areas made it more likely that suppression resources could be overwhelmed, treated areas could be threatened and their effectiveness in thwarting fire spread and intensity diminished.

6. Satellite imagery reveals that protected areas (owl and goshawk nest stands) had significantly greater tree severity compared to untreated or treated areas. A majority of the larger blocks of untreated areas contained these concentrations of owl and goshawk habitat protected areas.¹⁷

Expanding thinning research beyond growth and yield studies. As mentioned earlier, most the research basis for thinning was designed to improve opportunities for increased growth and yield of forest products. Secondary goals included addressing questions on how to improve the overall health and vigor of forest stands. The concept of thinning has growth well beyond those earlier growth and yield objectives especially with the notion that thinning has utility in meeting a wide variety of forest management objectives such as restoration and fuels reduction. Modern thinning research, development and application programs focus on thinning to achieve a wide range of objectives rather than traditional growth and yield objectives. As an example, electronically searching the Forest Service Research Web Page (literature citations sub page) using "thinning" as the key word for a literature search from the period 1988–1997 was conducted during the week of December 3, 2007.¹⁸ The electronic literature search listed 106 publications responding to the keyword thinning. Using the same thinning keyword and changing the date to the last ten years resulted in 634 publications. That is a 598 percent increase in the number of publications over the previous decade. The vast majority of the recent thinning papers addressed restoration, fuels reductions and other ecological values. An excellent example of this is the publication:

Restoring Fire-Adapted Ecosystems: Proceedings of the 2005 National Silviculture Workshop. June 6–10, 2005. United States Department of Agriculture, Forest Service. Pacific Southwest Research Station General Technical Report PSW-GTR-2003. January 2007.

This General Technical Report contains 27 individual papers from across the nation dealing with research, development and application projects. Just about all of them address thinning as a tool for restoring our forests or reducing fuels.

Even though we have this developing body of knowledge, we must keep in mind that the principles gained from historic thinning experiments and management results have application to a wide variety of forest management objectives. Long-term studies demonstrate the natural ability of forest trees respond within thinned stands and regain full site occupancy. This fact leaves land managers with valuable options for current future ecological consideration in thinning operations. Stands that have been thinned regardless to the original objective, respond with rapid growth rates on the remaining trees. Depending on how much has been thinned, the stands fill in the thinned areas in a relatively short period of time. That is a dramatic opposite of long time required for stands recovery in stands devastated by the effects of wildfires or epidemics of diseases or insect infestations. The results from the LOGS plots and other control research clearly demonstrate this principle. This resiliency and re-growth will aid land managers in achieving current and future ecological or environmental objectives.

Even if these goals were not specifically addressed in older thinning operations, most thinnings rarely eliminate future ecological considerations options. An operational example of this occurred in 1973 when I was a silviculturist on the Mad River Ranger District of the Six Rivers National Forest. During this time, the Forest Service was charged by Congress to accelerate our harvest volumes using thinning or sanitation harvest practices that are generally referred to as intermediate harvests. Our clear goal was to put additional timber sale volume in the marketplace. I was given that task for our share on the Mad River Ranger District. I chose to thin a 200 acre 110 year old stand of overstocked Douglas-fir. The stand had a basal area 240 square feet per acre. My prescription call for thinning the stand to 55% of normal basal area. The stand was thinned down to 130–140 square feet/acre utilizing a classic thin from below approach using skyline logging system to harvest the trees. The sale generated around 10 thousand board feet/ acre of high value Douglas-fir trees that generated around \$2 million of revenue for the treasury.

¹⁷ Fites, JoAnn, et al. August 2007. Fire behavior and effects relating to suppression, fuel treatments, and protected areas on the Antelope Complex Wheeler Fire. USDA Forest Service.

¹⁸ Forest Service. December 2007. Research Tree Search Web Page <http://www.treesearch.fs.fed.us/pubs/results.jspErU>

Ten years later, Six Rivers National Forest personnel invited me back to see the results of the thinning and re-measure the stand growth response. Immediately after thinning, the stand was opened with 30% of the area open to blue sky when viewed from the ground. By 1983, there was very little blue sky available since the crowns had completely filled in all of the open growing space. The basal area per acre was back to 240 square feet per acre. The amount of live crown ratio on the trees was between 30–40 percent. Prior to thinning, the trees averaged around 20% live crown ratio. These results indicated the individual trees were very healthy and the stand was healthy with very little new mortality.

But the most important story was the northern spotted owl story. Spotted owls were not a special concern in 1973. By 1983 they were the crucial environmental issue for older forest conditions. In 1973 the sale area was never surveyed for spotted owls. By 1983, trees in the sale area were now 120 years old and definitely qualified as nesting habitat for the northern spotted owl. At that time, the thinned area was occupied by nesting spotted owls and was one of the best nesting habitats on the Six Rivers National Forest. Thinning of the entire 200 acre stand ten years earlier did not render the habitat unsuitable for owls.

One of the unintended consequences of “doing nothing” in special areas like spotted owl habitat, streamside buffer zones and old-growth reserves is the severe consequences from wildfires, insect and disease problems and other biological risks. Thinning definitely has a place in special areas and “doing nothing” will lead to some unintended consequences. A good example of this is long-term changes in species composition. Forests are obviously dynamic ecosystems constantly changing. Forest health goals could be easily achieved by “doing nothing” if they were static entities without risk. The dynamic nature of stands is emphasized in research results from “Methods of Cutting Trials” initiated in the late 1930s on the Blacks Mountain Experimental Forest. These results provide insight into species composition changes based upon ten year remeasurements data of the changes that occurred for a period of 50 years.

Five replicated research thinning treatments increasing the volume removed from a light thinning removing 10–15% of the volume to complete removal of all merchantable trees was span of the treatments.¹⁹ For comparison, a control with no cutting was included in the experimental design. The research plots were re-measured every 10 years for 50 years. For this testimony, one of the five treatments is displayed below to demonstrate the effect of thinning contrasted to no thinning. The thinning treatment selected for this example removed 55 percent of the volume in 1940. This is compared to no thinning throughout the 50 year period. The graphs* represent the effects on species composition as follows.

Notice that the percent of Ponderosa pine remained relatively constant over the 50 year measurement period. The predominate old-growth species was Ponderosa pine on this site before the treatment and Ponderosa pine maintained that dominance 50 years later. White fir declined from 35% of the species composition in 1940 to 25% in 1990. Incense cedar increased slightly during this period. The general conclusion from this data is that overall species composition remained relatively constant over the 50 year period even though 55% of the volume was initially thinned in 1940.

Contrast that with “doing nothing” from similar data gathered on the control plots in the following graph.*

Ponderosa pine declined from 50% of the stand composition to 25% during the 50 year period. Insect mortality was the cause of the decline in species composition as the old-growth pine trees declined in health and vigor at the same time shade tolerant white fir began to occupy and compete for growing space in the unthinned stand. Incense cedar also increased by almost 10% over the 50 year period. Today, the control plot continues to have the highest amount of annual mortality. Unfortunately, most of this mortality is in the remaining old-growth Ponderosa pine. White fir is rapidly becoming the dominate species on a site that was once dominated by old-growth Ponderosa pine. These data indicate that “doing nothing” will have consequences. The importance of these critical changes and consequences is dependent upon the objectives established for the stand or forest.

Economics of thinning. The classic reason for lack of strong thinning programs on federal lands is the value—or lack thereof, for the products removed. This is especially true for the smaller diameters. Stands with diameters too small to allow commercial thinning have been thinned with appropriated funding on federal lands. Early thinning in the life of a stand has historically been classed as “precommercial

¹⁹ Dolph, K.L., Mori, S.R., Oliver, W.W. 1995. Long-term response of old-growth stands to varying levels of partial cutting in the eastside pine type. *Western Journal of Applied Forestry*. 10, 1-1-108.

thinning.” Policy established in the 1960s placed restrictions on precommercially thinning trees greater than eight inches in diameter. Trees greater than eight inches were considered close to the meeting most of the minimum diameters for sawlog trees in those days. Trees less than eight inches limit were routinely precommercially thinned prior to the 1990s in western national forests. Most of the effort was in natural or planted stands with very high densities per acre. The rate of precommercial thinning was determined by annual federal appropriations and the amount of Knutson-Vandenberg funding generate for this purpose from timber sale activities.

Today the situation has changed. Stands that were precommercially thinned before 1990 are now being sold as commercial products if the local infrastructure is in place. Sawmill technology has been developed to improve utilization of trees down to six inches in diameter. Some plywood veneer plants can easily process logs from small diameter trees and can peel logs to a core of around 2 inches in diameter. In northeastern California, there is a strong infrastructure in place for processing biomass into electrical energy. Successful thinning programs selling a combination of sawlogs and biomass chips can be sold by the federal agencies. These are all positive steps to help improve utilization of small diameter trees. It is imperative that national energy policies recognize the important role woody biomass converted into electric can place reducing oil imports. In this case, our forest management policies are directly related to energy policies. Energy policies that encourage use of excess biomass off of our federal forest lands should be encouraged and supported in the next round of energy bills.

Unfortunately, this infrastructure is in not in place universally throughout the western, intermountain and southwestern areas of the United States where most of the fire risk and thinning opportunities occur. Establishing a sound energy policy that encourages, rather than discouraging investments in biomass plants can go a long way in attracting industry to areas where the forest products industry has been devastated by the dramatic drop in federal timber sales that began in the 1000's. Fortunately, small log processing and thinning programs are less problematic in the Midwest, southern and eastern forests. The infrastructure is generally in place and small log processing has been a staple of the forest products industry for decades.

The pace and scale of thinning on federal lands lags far behind what is necessary to effectively reduce the threats to fire, insects and diseases. The Stanislaus National Forest adjacent to Yosemite National Park is fairly representative of a typical western national forest. The following table indicates fire condition classes on the Stanislaus National Forest. Fire Condition Class III represents the worst situation, II the next, and Condition Class I the least overall risk to fire.²⁰

Fire Condition Class	Acres	Percent of Land Base
III	313,566	35.0
II	359,356	40.1
Sub-total	672,922	75.1
I	222,578	24.9
	895,500	100.0

Seventy-five percent of the entire forest is in the higher condition classes and is a priority for treatment to meet the goals of the National Fire Plan. Approximately 85% of the class II and III lands are forested and the remainder is highly flammable brush and grass areas. How many acres per year would have to be treated to reduce the Condition Class by at least one level if one wanted to accomplish that goal in 10 years? Obviously, the answer is 67,292 acres. The forest is actually accomplishing substantially less than 1/10 of the 67,292 acres. The irony is that near the Stanislaus National Forest a substantial industry infrastructure exists including sawmills and a 30 megawatt biomass power plant. The biomass plant is capable of burning 240,000 bone dry tons of biomass every year to produce their electricity. If all of that woody biomass was to come from typical Class III and II forested acres with two products removed, sawlogs and biomass chips, the 30 megawatt plant

²⁰ Stanislaus National Forest Planning File Data. March 5, 2005. Stanislaus National Forest, Sonora California.

could utilize the chips off of approximately 17,700 acres per year. Similar relationships are found on every western national forest. This is an extraordinary opportunity from one standpoint, and a disaster waiting to happen from another.

Why is the pace and scale so slow? The easy answer is lack of sufficient federal appropriations but the answer is much more complicated than simply budget problems. In order to develop some information on possible causes, I conducted an informal survey of American Forest Resource Council (AFRC) members and staff. AFRC has a federal timber sale monitoring system in place that monitors on a quarterly basis the progress of timber sales and stewardship contracts on every national forest in Washington, Oregon, California and some national forests in Idaho. Based upon this informal survey, the following reasons were identified as delaying progress of thinning timber sales or stewardship projects designed to reduce fuels. All of these are related to economics including use of scarce appropriated funds.

1. Appeals and lawsuits.—Dealing with appeals and lawsuits demands so much time, effort and financial resources from federal line officer's, staff and specialists. Some forests appear to just be afraid of the hassle of potential appeals and litigation that their programs lack a targeted and aggressive approach focused on minimizing the risk of appeals.

2. Budget.—Forests work with the uncertainty of Continuing Resolutions, coup with declining resource management budgets. Fire suppression costs are draining natural resource budgets in a constrained federal budget perspective. Annual fire suppression costs are constantly increasing while resource management funds are constantly decreasing. For more information on this issue see the National Association of Forest Service Retiree's Wildland Fire Fighting issue paper.²¹

3. Accountability.—The lack of real accountability in the system, for meeting targets or taking on difficult priorities, is hurting the system.

4. Inexperience.—Too many line officers do not have a reasonable resource and management background. Supervisors and Rangers whom have never been responsible for meeting targets, budget preparation and accountability have been weakening the process. Most new Line Officers at the Ranger level are also poorly trained in fire fighting management which may correlate to their lack of understanding of the urgency for fuel reductions and dealing appropriately with their overstocked forest conditions.

5. Downsizing of the ranks of field foresters.—Preparation of thinning projects requires highly skilled timber sale and stewardship contract personnel. Personnel with strong backgrounds in sale layout, silviculture, logging systems, and contract administration are generally found on successful thinning projects. Where they are absent, those projects are the most problematic. The missing skills are often the result of loss of qualified people to retirement and a lack of recruiting replacements in the forester ranks for the past 15 years. The agencies have been unable or reluctant to fill these crucial positions because of constant downsizing to react to and ever decreasing budget.

Value consideration plus the generally high cost of removal of smaller diameter logs and high transportation costs require careful economic considerations throughout the decision process for thinning programs. Unfortunately, that is not the case on small log sales and stewardship projects. The following economic considerations are problematic on the national forests and Bureau of Land Management programs AFRC has monitored.

1. Low volume per acre.—Marking is too light to achieve fuels reduction, restoration, silvicultural or economic objectives. Conservative marking is problematic on just about every sale offered or sold. Conservative marking also results in minimally effective fuel reduction efforts and continuation of fuel ladder problems throughout those stands treated.

2. High cost logging systems.—Poor road location, timber sale layout and harvest system choices have resulted in excessive logging costs. This is especially true when helicopter yarding is selected for thinnings. Opening or constructing temporary roads could be employed to utilize conventional logging systems and eliminate or greatly reduce the need for high cost helicopter logging.

3. Low product value (small diameters).—Most of the higher value from trees sold as sawlogs comes from clear wood associated with larger diameter trees. Smaller diameter trees do not contain large amounts of the high value clear grades. The lower value sawlogs coup with large amounts of non-sawlog mate-

²¹National Association of Forest Service Retirees. January 25, 2007. NAFSR ISSUE PAPER Funding Wildland Firefighting. Lincoln, California.

rial such as chips or biomass that must be removed, chipped, or burned substantially lowers the value of the products removed. A key solution for improvement is to increasing the amount of merchantable sawlog to economically cover the cost of removal, chipping or burning of non-sawlog material.

4. Product understanding.—Not every sawmill can process the low end of the small diameter trees. Even with mills that specialize in small diameter logs, they also need a mixture of larger diameter trees to balance economics of manufacturing of small diameter trees.

5. Diameter Limits.—It does not make sense to enact a diameter limit in a stand that needs to be thinned or is being attacked by insects or diseases. Forest managers generally understand the need or objective to achieve a healthy forest stand condition. Diameter limits, however, are the absolute wrong limitation to place on thinning prescriptions. The paramount objective should be leaving healthy individual trees that meet stand management objectives, overall stocking goals and economic considerations necessary to achieve the healthy condition. A classic example of diameter limits that hinders achieving healthy forest objectives is the 21" diameter rule from the "Eastside Screens" for eastern Washington and Oregon forests.

6. Standards and guidelines limit effective economic practices.—Some forests are using outdated standards that are based on logging equipment used in the '70's and '80's. This results in severely restricted operating seasons. The most severe example is using helicopter logging while flying over roads already in place and serviceable because of the fear of ground compaction. In addition to outdated standards, a plethora of new standards have significantly restricted operating seasons to the point where it is problematic to find windows where the purchasers can log the sales.

7. Appraisal system.—The current appraisal system does not do a good job of separating types of sales when they group sales in large geographic areas to acquire their base sale values used in transaction evidence appraisals. The appraisal system does not respond to rapid changes in market conditions since it is based upon past transactions. Appraisal personnel have limited understanding of logistics or costs involved in doing a project because of the reliance of computer based transaction evidence appraisal.

Most of the economic problems cited can be resolved without compromising or adversely affecting resource values. National, regional, and local efforts must be substantially improved in order to improve the economic viability of federal thinning programs.

Social aspects of thinning.—The public willingness to thin our forests and reduce the threats from wildfire has greatly changed in the last decade. During this time, vivid images on television of catastrophic wildfires have dominated the news concerning national forests and public lands. Major wildfires have occurred in just about every State west of the Mississippi. Lives have been lost and property destroyed. Suppression costs have ballooned into billions of dollars every year. The most significant impact on threatened and endangered habitat has been loss to wildfires. Watersheds have yielded tons and tons of sediments into our nation's rivers, lakes and reservoirs. Calls for action have been posted in editorials from small town weekly papers to major city dailies. Western Governors have held numerous conferences encouraging and demanding action. The Healthy Forest Restoration Act was passed. Given all of this, it is easy to say the national will to do something has been established and is there to support our federal agencies actions—but "how" to do this has never received unified support.

Support for local solutions has been very prevalent in local communities adjacent to and surrounded by federal forest lands. The problems of overstocked stands and wildfire threats are universally understood. This has led to wide acceptance of the need for aggressive active programs in local communities to deal with the problem. Realization of the threats from wildfires on the Wildland Urban Interface has led to the formation of community coalitions and Fire Safe Councils throughout the West. The need to undertake fuels reduction efforts is generally well supported by local citizens and county officials. As a generalization, the closer one is to the problem of overstocked forests, the greater the support for thinning to reduce the problem.

Active citizen coalitions designed to help the federal agencies develop effective programs are present in just about every location near federal lands. They are generally focused on improving the pace and scale of thinning and fuels reduction by providing unified support for active programs. As a recent example, a coalition of diverse individuals near Bend, Oregon is working together to develop prescriptions for encouraging thinning of overstocked stands near the Black Butte Ranch. Their

goal is an attempt to reach common ground and develop support for thinning programs, reduce conflicts and improve trust between diverse groups. The Bend Bulletin highlighted this program in a recent newspaper article:

The 20 or so people from the U.S. Forest Service, timber industry, conservation groups and some who just live nearby stood in the ponderosa pine forest next to Black Butte Ranch. Armed with 11 different colors and patterns of marking tape, they set out with a goal to flag which trees they would save, with the other ones left to be cut, if they were making the decisions.²²

Their solution will undoubtedly be relatively consistent for removing small diameter trees and brush as such actions are relatively free of conflicts. As the diameter of trees identified for removal increases, potential conflicts increase. Unfortunately, to be effective in dealing with current and potential forest health considerations, trees must be removed from all size classes. The critical problem for community is how to develop support for this concept. Based upon personal observations from critical situations, this is the essential problem in building effective solutions.

As an example, the community of Lake Arrowhead in the mountains surrounding Los Angeles has been a beautiful and restful place for thousands of southern California citizens. The residents and visitors to the community love their trees, their urban forest and the surrounding mountains. Their love for their urban forest manifested into City ordinances that made it very difficult to cut any tree within the city limits. Hence, very few trees were removed over the last two decades. As early as 1994, some people were predicting that lack of management in the area surrounding Lake Arrowhead would lead to potential problems with overstocking, insect mortality and ultimately severe wildfires.²³ At a Congressional Subcommittee Hearing Dr. Thomas Bonnicksen stated that he had, “been working on restoring beetle-killed forests in these mountains with Forest Service professionals almost continuously for most of this year, and I had warned of a possible tragedy as early as 1994.”²⁴ Even though Bonnicksen’s early warning was sounded, little action was taken in subsequent years by those who had chartered and received his 1994 situation analysis.

Over the last few decades, their once beautiful urban forest (and most of the San Bernardino National Forest) reached Zone V stocking conditions found in Langsaeter’s growth curve with the predictable increases in insect caused mortality. By 2000, bark beetle insect populations began to expand as they thrived in this favorable environment exacerbated by adverse effects of drought. Within three years, over 600,000 acres of forest lands surrounding Lake Arrowhead were suffering severe insect mortality. The local call to finally do something was loudest in Lake Arrowhead and other mountain communities. Unfortunately, it was too late—especially for the old-growth pine. Massive efforts were then undertaken to remove thousands of dead trees within Lake Arrowhead and other communities. The problem dramatically changed from insect mortality to wildfire prevention which unfortunately devastated the Lake Arrowhead and other communities in 2003 and 2007. The social question was, “which of our forest communities would be next and how can we develop support to protect our communities and forests?”

Some of the communities have been listening and have attempted implementing preventative actions. One of the biggest hindrances to implementing community based solutions is frustration with the process—especially the appeal and lawsuit aspects. The best example of this is the suite of appeals and lawsuits that have been placed in front of full implementation of the Herger-Feinstein Quincy Library Group Forest Recovery Act (“QLG Act”), P. L. 105-277. Ever since the law was passed and the Forest Service prepared their draft Environmental Impact Statement, numerous process delays, appeals and lawsuits have been put in the path of implementing this classic community based solution for a large portion of the Plumas, Lassen and Tahoe National Forests. Most of the projects initiated under the QLG framework have now been through NEPA three times due to appeals and lawsuits; some have been through NEPA five times. It is absolutely amazing that members of the QLG coalition are still aggressively working to implement reasonable programs supported by the QLG legislation. The local communities are still willing to support the federal

²² Ramsayer, Kate. November 16, 2007. Field trip helps forge trust among diverse interests. Bend Bulletin. Bend, Oregon.

²³ Bonnicksen, Thomas M. December 5, 2003. Witness testimony. Hearing on recovering from the fires: Restoring and protecting communities, water, wildlife, and forests in Southern California. Before the Committee on Resources, Subcommittee on Forests and Forest Health. Lake Arrowhead, California.

²⁴ Ibid.

agencies, but certain segments of society remain obstacles as they wield one process delay after another.

Conclusion—Sustainability of thinning.—Three major factors are critical for sustainability of thinning programs. These have been highlighted in many forums over the last 15 years. They are often represented by the theoretical blending of social, environmental and economic considerations in the following manner with sustainable solutions at the intersection of all three circles.*

With thinning, the environmental need is huge for restoration and fuels reduction on our national forests and B.L.M. public lands. The economic opportunities are there if the agencies are willing to cut the necessary trees to make their efforts economically viable. If not, they will have to rely on ever increasing federal appropriations in a highly competitive federal budget. Both the environmental aspects and economic aspects are bound by substantial time tested realities. There is a “bottom line” that these boundaries cannot be crossed in order to achieve sustainability for these two elements. Fortunately, there is a broad solution space for sustainability in these two elements. Unfortunately, the agencies are generally not using the entire solution space.

The question is, “Why are the agencies not using more of that solution space?” The answer is that the social aspect of sustainability is the most problematic. Some have been seeking the elusive consensus that is so easy to talk about, but so difficult to achieve. People still have vastly differing solutions ranging from aggressive management to “doing nothing”. Until people realize there is a problem—little action will be initiated. Even when actions are proposed, appeals and lawsuits will inevitably be used by those opposed to actions. Especially when those actions require removal of trees in a commercially viable timber sale or stewardship project. Developing socially acceptable solutions that truly blend with the environmental and economic considerations will be impossible if those who oppose actions continue with their ability to use the process, appeals and courts to override economic and environmentally sustainable solutions.

The Lake Arrowhead example and others indicates that local socially acceptable solutions can be achieved. However, it usually takes a potential or real crisis to achieve local actions. Those who support early aggressive actions are usually overruled until the crisis actually occurs. People will come together to help develop socially acceptable solutions only at the time of crisis. Once they realize there is or will be a significant problem, they will cooperate and work with the agencies to develop solutions. They may still have vastly different views of the range of possible sustainable solutions. Generally, the closer they are to the problem and more likely to receive benefits from the solution, the quicker they will agree on socially sustainable solutions. Once they unite on a solution, they will aggressively support the action similar to the Quincy Library Group.

However, there is a relatively narrow window in time of when this local support will continue. If the communities do not see meaningful results and aggressive cost effective programs from their federal land managers, their support will disappear. That is the case in many of the western communities because of a relatively tepid agency approach in dealing with the problems. There are many in local communities who honestly question the relevancy of the Forest Service and to some extent the BLM to local communities. Agency leaders and political entities must step forward and provide the leadership and programs where their actions truly speak louder than words.

Senator WYDEN. Well said. Professor Johnson, you’ve been at this for years and years, and we all read your reports devoutly. Once again, you come full of sensible suggestions. I think, particularly, getting these restoration programs off the ground at the landscape level is so logical. I want to start by posing a question to you, and getting your response to it. Secretary Rey said to me—I asked the Secretary whether our forests were deteriorating faster than they were being restored. I’m looking at what the nature of conservancy says, and each conservancy says that the Forest Service treated about 188,000 acres in Oregon. Based on their analysis, the country would need to treat at least 550,000 acres annually. Do you agree with Secretary Rey’s answer to me that we are staying equal to the number of forests that are deteriorating?

Mr. JOHNSON. This is how I’d answer it. There’s a lot of—the Forest Service is diligently trying to do a number of things. Many

of them are in so what I would call low-controversial areas. In the areas where our old growth trees are, as Secretary Rey alluded to, down in the Sequoia, or in Eastern Oregon and Washington, where our really valuable forest is, not a lot is being done. It's much more in the areas of low controversy, where significant—or near Wildland Urban Interface areas—where activity is being done. Under broader landscape, the parts of our forests that are of critical value to us are still deteriorating.

Senator WYDEN. So are we still falling behind, because every single community meeting—and boy, Britton will say it again—and, by the way, I think there are a variety of reasons for this. I happen to think that people ought to have a right to go to the judicial system when they disagree with something in the forestry area. I don't think they have a constitutional right to a 5-year delay strategy. I don't. So there are a variety of reasons for it, but—

Mr. JOHNSON. I—

Senator WYDEN. I'm not going to clobber you over the head here, but it just seems to me by any calculus—the county commissioners in rural Oregon, some of the environmental folks and others—we're not keeping up. I want to give you one more chance.

Mr. JOHNSON. If you were to ask me yes or no, as you now are, what would Dr. Franklin and I say? We'd say we are falling farther behind.

Senator WYDEN. OK. Thank you. Let me ask you, on this question of old growth, where you and Dr. Franklin have done so much good work, the public doesn't want old growth cut. In other words, any time you take a survey, they don't want it done. They do want forests thinned, and that's what I'm committed to doing. I'm committed to cutting through the frivolous litigation, doing exactly what we did on the forest health legislation on the county payments legislation, where I had pickets all over the place in efforts to try to pull people together.

So your point about getting it done is everything. I think, Professor Johnson, is it correct in saying that some of the characteristics of old growth, such as being resistant to fire, that's exactly what we ought to be trying to do as part of our whole restoration effort. Is that right?

Mr. JOHNSON. Oh, absolutely. Absolutely. In fact, those forests are much more both resistant and resilient to fire.

Senator WYDEN. The reason I'm asking is that it seems to me, instead of a lose-lose strategy, which is to go after the old growth, these treasured trees which the public wants to protect, and getting all this, you know, litigation, we've got a chance to say there's not going to be a fight in the area that the public wants to support. We'd get on with the kind of work that you and Professor Franklin are talking about, which is, you know, landscape-type projects and the like. So—

Mr. JOHNSON. Yes. As a matter of fact, this is the most significant coming together of values I've seen since I started work 40 years ago on how to manage our forests and what ought to be done, and whether it's the Malheur National Forest or the Winema National Forest. No. I think that's true, and it's a puzzle, and Phil Aune just said as to why we can't move forward. But could I just say one thing about it—

Senator WYDEN. Of course.

Mr. JOHNSON [continuing]. Which is that there still is concern, and I think legitimate concern, about will we in fact undertake these treatments in a way that conserves these forests, and conserves the old growth, we need to get beyond that. We need to find some mechanisms to get beyond that, and prove out what we're doing.

Senator WYDEN. I'm violating my rule, because I think I'm two seconds over, just so we can get you on this. Mr. Aune, your point about political will is absolutely key. I mean, this is about making sure that we protect our treasurers, and do sensible, commonsense ideas in the forestry area. Do you need additional research work at this point? I've noted that you've talked about, in the past, diminished research capacity on the part of the Forest Services. Is that also an area that you feel is important to this?

Mr. AUNE. One of the strengths of the United States Forest Service research is its ability to monitor long-term datasets. Universities historically have not been able to do that. I would say that there is a priority for the kinds of research. I'll give you one quick example. It's in my paper. Blacks Mountain Experimental Forest, 193940, five methods of cutting—thinning at light, medium, and heavy. We monitored that every 10 years for the last 50 years. What we can say unequivocally about that, by thinning the old growth forest back in 1940 to 55 percent of the volume was removed, compared to doing nothing, there is more old growth attributes left on that one stand that was thinned, the stand that was thinned in replicated plots.

So doing nothing doesn't help the situation. Do we have to cut all the old growth trees? No. Do we need to restrict the cutting and old growth trees? No. We need to say what is essential is to maintain those old growth trees, and provide them with an environment to grow and thrive. If we can do that, then it makes our problem much more easy. So I would add that to that. Beef up the strength of long-term research plots. The Forest Service can do that with all of the things. Universities are great at turning out grad students, Ph.D. candidates, as well. They're not—Forest Service isn't competing with that.

Senator WYDEN. Professor Johnson has graded just about everything, but your point is a good one, and we thank you. Senator Barrasso.

Senator BARRASSO. Thank you, Mr. Chairman. Professor Johnson, I'm glad you're here. I'd like to pick your brain about what's happening in Colorado and Wyoming. I know it's a bipartisan issue, because Senator Salazar has some significant concerns, as well, as we have about 70 percent of our trees with mortality in certain parts of Northern Colorado and Southern Wyoming with the bark beetle. At least my understanding from talking to our foresters is that the beetle can get in under the bark of the older trees, and then go up and down, and there's not enough sap to kill them off, and it's the older trees that they're able to reap the destruction, and in some of the younger trees, there is enough resistance and enough sap that it prevents that. So it's the older trees that seem to be dying.

Any recommendations that you have for us in terms of how to handle this problem? We have pictures of what things looked like 2 years ago, and then what they look like now, and the discoloration is significant in what's happening to these forests.

Mr. JOHNSON. Much of my testimony here is on Eastern Oregon and Washington, where it's pretty clear that conditions have developed that we didn't have historically. In the case of especially the Lodgepole Pine Forests of Colorado and Wyoming, it's a little more difficult. They've gone through natural cycles, historically, of insect kill that's undoubtedly accentuated now, and made more difficult, by the buildup of fuels, and the buildup of understories.

So it's a complicated—If, in fact, we're trying to restore the natural processes of those stands, it's a complicated issue. Certainly, thinning can help in some ways, but mortality has been part of those stands for a long time. Now, when I go there and look at those forests, and I've just recently done that, it's very disturbing. Certainly, harvest can help. But I would say that a really important part of this is to develop sort of a landscape framework for what sort of processes do we want to work in those landscapes and where as a starting point?

Senator BARRASSO. Mr. Aune, do you have any suggestions or recommendations of things we ought to be thinking about there?

Mr. AUNE. I think you've got to go back again to Professor Langsaeter's curve. In the historic forest, there was a set of conditions, in the Lodgepole Pine Forest, all the way from the forests that were relatively unstocked, not growing very well, to very well-stocked forests. The problem is, they're all up at that Zone IV and V. When you do get an insect outbreak, it just gets atrocious and it magnifies itself like we've never seen before. All you've got to do is look north to your neighbors in British Columbia—our neighbors in British Columbia. Bark beetle epidemics, similar to what's going on in Colorado, now infest 26 million acres of British Columbia. Dynamic, dramatic effects. We can build a situation like that here in the United States if we don't actively manage our stands.

I'd also like to point out that forests in Southern California, valued for their recreation, and while the most significant deleterious effect to the old growth forests that are down there has been a bark beetle attack. After decades of trying to save those very trees, 600,000 acres of forestland there have been devastated. Then you confound that with fire problems, and it's a situation for disaster. Commonsense tells us it's the time to really aggressively thin our stands. That's the only one of our economically viable treatments that can do something. Everything else relies on huge Federal appropriations. Thank you.

Senator BARRASSO. Thank you, Mr. Chairman.

Senator WYDEN. Gentlemen, thank you both. I'm sorry things are so hectic, and we'll look forward to working very closely with you in the days ahead. Let's see if we can start our next panel. It seems that both are being held up for a few minutes. We'll get as far as we can. Russ Vaagen, Vice President of Vaagen Brothers Lumber Company in Colville, Washington is here. Matthew Donegan, Co-President of Forest Capital Partners in my hometown is here. Russ Hoefle, Vice President of the Nature Conservancy in Oregon, is

also here. The Honorable Blake Britton, one of my friends from Grant County.

Welcome to all of you, and we're going to get as far down the road as we can. Why don't we begin with you, Mr. Vaagen. Welcome.

**STATEMENT OF RUSSELL C. VAAGEN, VICE PRESIDENT,
VAAGEN BROS. LUMBER INC., NORTHEAST WASHINGTON
FORESTRY COALITION, COLVILLE, WA**

Mr. VAAGEN. Thank you, Mr. Chairman. I'm Russ Vaagen. I'm Vice President of Vaagen Brothers Lumber, and I'm also Vice President of Northeast Washington Forestry Coalition. My family has been in the forest products industries since the 1920s. Our company is based in Colville, Washington, and we're focused on maximum responsible utilization of our forest resources. We have transformed our company from a traditional sawmill to one focused on small-diameter logs. We produce building products from logs as small as four-and-a-half inches.

We think there is a critical need to treat millions of acres of national forestland that is currently in poor condition, as discussed earlier. Something very important is happening in our area and many other areas throughout the Western states. Environmentalists and members of the timber industry have been coming together to solve current forest health problems, and things have changed. The conservation groups have come to the table to solve problems, instead of trying to fight with the timber industry. The industry has started to look to the conservation groups as potential allies rather than the evil opposition.

Much of the timber industry has also moved to technology that allows the use of smaller logs. Due to these changes, conservation and timber management advocates have common interests, including healthy forests, quality wildlife habitat, and clean water, with safe, stable, rural economies—I mean, rural communities. Excuse me. In our area, we have created the Northeast Washington Forestry Coalition. It's a nonprofit organization, made up of members from conservation groups, the local sawmill companies, consulting foresters, other business leaders, and community members.

It's open to the public, and we encourage others to attend our meetings and join our coalitions if they have interest in the stuff that we're working on. Specifically, we were formed to work with the Colville National Forest in order to influence and help the local forest management staff manage the just over 1 million acre forest in Northeast Washington, comprising the three northeast counties. We have been very successful in that we have not had any appeals or litigation in over 4 years, and we have been able to secure funding to launch new forest restoration projects in the Wildland Urban Interface. Our agreement on projects is documented and ongoing.

The unfortunate thing is that just because we may now agree doesn't mean the Forest Service is poised to act on it. The budget is one reason, but more importantly, it's an attitude and a culture that does not readily accept or respond to change. It takes entirely too long to complete the NEPA document required to move forward on projects. The staff also has a real fear of doing things wrong or doing things too fast. Caution is fine, but when we're talking about

areas of critical need that has the necessary road system in place, conservation groups and timber industries agree on what needs to happen, it's very costly and frustrating.

The Forest Service budget has also seen great changes in recent years. One particular change that's more than troubling, and that is the amount spent on fire suppression and preparedness. It's out of control. It's moved from consuming 13 percent of the budget to almost half, and is now squeezing every other non-fire program. This is a disaster of epic proportions, which I believe is a major conflict of interest for the agency. The same people that are responsible for the management of our national forestlands are the same people who are spending countless hours training for fires in the off-season, and fighting them in the summer months. This makes completing the necessary forest management projects very difficult.

It's clear that our agency is only treating the symptom of the problem rather than addressing the root cause. Thinning the forest is the best way to prevent massive-scale wildfires. This trend needs to be addressed and reversed. Maybe funding for fires should be handled another way, possibly a FEMA-like approach for funding emergencies. Without any action, we're going to continue to spin out of control at the expense of other important needs. We are wasting more time and money each year, and the problem keeps getting worse. The solution is restoring forests to a healthy condition through large-scale thinning projects.

Thinning and forest restoration projects using the new stewardship authority is starting to gain a foothold as a primary tool of forest management in the national forests of the intermountain west. Designed stewardship projects can be beneficial both to the forests and the economy. There's a spectrum of activities that make up thinning. Thinning can be very intensive, with small amounts of commercially valuable material, or it could be done efficiently, with high-tech machines that create valuable forest products. In Northeast Washington, we have a great market for small-diameter logs, for both the production of lumber and chips. This is critical to the success of thinning.

It is very important to have a fully functional wood-use market. Keeping our infrastructure in place and healthy is critical to the restoration treatments needed in our forests. Many projects that are currently being proposed are too small in size and they don't—

Senator WYDEN. There we go on the votes, folks. So I'm going to have wrap you up. But can you just finish up real quick, Mr. Vaagen.

Mr. VAAGEN. I can certainly do that. Yes. The projects that are being proposed currently are too small in size and too short in duration. I guess I can just hold it right there.

[The prepared statement of Mr. Vaagen follows:]

PREPARED STATEMENT OF RUSSELL C. VAAGEN, VICE PRESIDENT, VAAGEN BROS. LUMBER INC., NORTHEAST WASHINGTON FORESTRY COALITION, COLVILLE, WA

My family has been in the forest products industry since the 1920s. Our company, Vaagen Bros. Lumber, Inc based in Colville, Washington is focused on maximum and responsible utilization of our forest resources. We have transformed our company from a traditional sawmill to one focused on small diameter logs. We produce building products (2x4's to 2x10's) from logs as small as 4½" small end diameter.

This puts us in a position to utilize small diameter material from forest thinning and forest restoration activities. We think there is a critical need to treat millions of acres of National Forest land that is currently in poor condition. The following testimony is only a snap shot of the issues facing our forests and the forest products industry of the Intermountain West. I want to touch on collaboration, thinning and other opportunities that can result from better management of our National Forests.

COLLABORATION AND THE UNITED STATES FOREST SERVICE

Something very important is happening in our area and many other areas throughout the western states. Environmentalists and members of the timber industry have been coming together to discuss how to solve our current forest health problems. Things have changed in that the conservation groups have come to the table to solve problems rather than trying to fight with the timber industry and the industry has started to look at the conservation groups as potential allies rather than the evil opposition. Much of the timber industry has also moved to technology that allows the mills to use smaller logs. Due to these changes, conservation and timber management advocates have common interests, including healthy forests, quality wildlife habitat, and clean water with safe and stable rural communities.

In our area we have created the Northeast Washington Forestry Coalition. It is a non-profit organization made up of members of conservation groups, the local sawmill companies, consulting foresters, other business leaders and community members. It is open to the public and we encourage others to attend our meetings and join the coalition if they have an interest in what we are working on. Specifically we were formed to work with the Colville National Forest in order to influence and help the local Forest Service staff manage the just over 1 million acre National Forest located in the three northeast counties of Washington State. We have been very successful in that we have not had an appeal or litigation in four years. We have even been able to secure funding to launch new forest restoration projects in the Wildland Urban Interface (WUI). Our agreement on projects is documented and ongoing.

The unfortunate thing is that just because we may agree now doesn't mean the Forest Service (USFS) is poised to act on it. There are many reasons the USFS has not been able to respond in a manner consistent with our urgent forest health needs. The budget is one reason, but more importantly it is an attitude and a culture that does not readily accept or respond to change. We need to change the way we have done things in the past. It takes entirely too long to complete the NEPA documentation required to move forward on projects. It would be helpful if Congress would work to ensure that the agency is using the tools it has at its disposal, such as the Healthy Forest Restoration Act.

The staff also has a real fear of doing things wrong or doing them too fast. Caution is fine, but when we are talking about areas of critical need that already has the necessary road system in place and the conservation groups and the timber industry agree on what needs to take place, delays are very costly and frustrating. It is my opinion that if we do not start treating these areas very soon on a large scale, the fires that we have seen are only going to get larger and more dangerous.

The Forest Service's budget has also seen great changes in recent years. One change in particular is more than troubling. The amount that is spent on fire suppression and preparedness is out of control. It has moved from consuming 13% of their budget to almost half, and is now squeezing every other non-fire program. This is a disaster of epic proportions which I believe is a major conflict of interest for the Agency. The same people that are responsible for the management of our National Forest lands are the same people who are spending countless hours training for fires in the off-season and then fighting them in the summer months. More money and time are being spent on fire suppression at the expense of non-fire programs. This makes completing the necessary forest management projects very difficult.

It is clear that the agency is only treating the symptom of the problem rather than addressing the root cause. Thinning the forest is best way to prevent massive scale wildfires. This trend needs to be addressed and reversed. Maybe funding for fire fighting should be handled in another way, possibly a FEMA-like approach for funding emergencies. It appears like the system is very wasteful with very little incentive given to keeping costs under control. Without any action this is going to continue to spin out of control at the expense of other important needs. We are wasting more time and money each year and the problem keeps getting worse. There is a solution. The solution is in restoring forests to a healthy condition through large scale thinning projects.

THINNING

Thinning and forest restoration projects using the relatively new stewardship authority is starting to gain a foothold as the primary tool for forest management in the National Forests of the Intermountain West. Many private landowners and State forests have been undertaking similar projects for years with great success. Well designed stewardship projects can be beneficial to both the forest and the economy. There is a spectrum of activities that make up thinning. Thinning can be very intensive with small amounts of commercially valuable material or it can be done efficiently with high tech machines and create many valuable forest products. In northeast Washington we have a great market for small diameter logs for both the production of lumber and chips. This is critical to the success of thinning. It is very important to have a fully functional wood use market. There are good markets in our area for chips, bark, sawdust, and shavings. Many areas of the Intermountain West do not have that luxury. This underscores the need to have large projects where the cost of doing the intensive work with low material value can be offset by larger volumes of higher value material. Keeping infrastructure in place and healthy is critical to the restoration treatments needed in our forests.

Many projects that are currently being proposed are too small in size and they don't include enough areas with marketable material. Projects need to be large and they need to spread out over years so the mills and the contractors doing the work on the ground can count on the logs and the work. With millions of acres in need of thinning, projects that are small in size and short in duration make very little sense. In many cases, it would take the same amount of time and funding for the Forest Service to prepare a larger project. Many communities just like ours have Community Wildfire Protection Plans in place. Those should be used as templates for large scale projects. It only makes sense to tie these Community Wildfire Protection Plans and thinning projects together. In northeast Washington our three counties, Ferry, Stevens and Pend Oreille all have completed plans. The USFS should propose and sell a major project in each county. They need to be between 30,000 and 40,000 acres each and should be 10 year contracts. This would focus the effort in the places of the most need in terms of safety and forest health as well as provide certainty for the local businesses and workforce. By having larger projects it also expands opportunity to add value to the material by investing in new uses. We currently use biomass to create green energy, but we are only scratching the surface of what's possible. There is so much material in the woods that can be used to create power, heat, and bio-fuels. Making the material available will spark innovation and investment while restoring forests and reducing the costs of fighting fires.

OPPORTUNITIES AND OBSERVATIONS

We have an incredible opportunity to take this real problem and challenge ourselves to create economic and social benefit for years to come. It is already being done in other parts of the World. In Europe, some of the most socially conscious nations are managing their forests much better than we are. They don't have wildfires and don't use prescribed fire nearly as much as our National Forest managers do. They use wood residuals to make power in the place of coal. Their milling infrastructure is still in place and there no social disconnect between responsible resource management and conservation, they are nearly one in the same. Doing a better job of managing our forests is a great way to reduce the effects of climate change and CO₂ emissions. Making a forest healthier improves its ability to take in Carbon Dioxide and replace it with Oxygen. When a forest burns it releases much of the CO₂ that was stored as well as the massive release of heat. By making the forests resilient to fire we are taking steps to improve carbon storage and reduce carbon emissions.

There is a need for new technologies to be introduced to add value to the forest residuals. In areas where mills have never or no longer exist, financial assistance from the government makes sense. The government should assist private industry in the development of new technologies or in the use of effective proven technologies. Grant money is currently being used to assist some businesses, but there is a need to be cautious. Grant money should be used to stimulate infrastructure in areas where it is missing and avoid undermining the competitiveness of any existing infrastructure. Supporting our current wood product facilities is critical to restoring healthy forests.

Although collaboration is taking place in many areas, not all companies are taking part in the collaborative process. Collaboration takes time, energy, and a great deal of effort. Some companies wait for companies such as ours do the work to get the projects put together, and then show up at the bid table. These projects should be a best value bid, and firms that invest heavily in the collaborative process should

earn a competitive edge in the bidding process. We welcome companies to join in the efforts, but if a company chooses to focus their efforts in other areas, they should not get the same opportunity to purchase sales or projects when others worked very hard to bring them to market. It undermines the entire process and frustrates all who work collaboratively to help restore our nation's forests.

CLOSING REMARKS

Thank you very much for the opportunity to talk to you today. If you have any questions today or in the future please do not hesitate to contact me. The issue of thinning our Nation's Forests is common sense backed by common ground. Leaders in our communities have the wherewithal and talent to show the way. Now we need your help in getting the Forest Service to follow our lead.

Thank You.

ADDENDUM TO STATEMENT OF RUSSELL C. VAAGEN

A SHORT LETTER AUTHORED BY MIKE BEYE, INFORMATION OFFICER,
VAAGEN BROS. LUMBER INC.

Twenty-thirty years ago we realized that the seemingly unlimited bounty of the forest lands in the U.S. was in fact limited. A movement within the conservation community made clear that the forests were being over cut and were in danger of being lost. They were right. The reaction to that belief was to stop managing our forests completely or manage them in a very limited way. The reaction by the forest products industry was not in line with this belief and caused a stalemate with regard to how forests should be managed. The result has been a forest that is now in greater danger of being lost through catastrophic fire and disease. The pendulum, as is so often the case in a democracy, has started to swing the other way. There is a need to more actively manage our forests to ensure their value and survival.

During this same period of time Duane Vaagen (President, Vaagen Bros. Lumber, Inc.) realized that there was a business opportunity in the manufacture of lumber products from small diameter timber. This is the same type of timber that is choking our forests thus creating the fuels that result in fire and the conditions that result in disease. The common wisdom in the forest products industry was that Duane would not survive, that small timber did not make quality lumber products and the economics would cause failure. The common wisdom was wrong. Vaagen Bros. Lumber has succeeded. They have embraced technologies, efficiencies and a philosophy of total fiber utilization that creates value where there was none. The lumber and bio-mass products we manufacture are the industry standard for quality.

We found that when we create value from the forest, the greatest recipient of that value is the land owner. We have been returning value to the private, institutional, and government land owners from timber that was held to contain no value at all. As a direct result of this utilization of small timber, we have developed the strategies and practices that remove this fiber from the forest through thinning. The land owners demand not only a revenue from their timber stands but an esthetically pleasing, healthy stand that in itself contains value. We are experts at managing this need. The new generation at Vaagen Bros. realizes that there is a need to actively and appropriately manage our forest with the help of the conservation community. Collaboration on the Colville forest was born of this need.

The first conversations that this group of differing interests discovered was that in reality everyone wanted the same things for the forests. The differences were not that great and could be worked out. All the groups together could achieve real change and return real value to the land owners of our national forests. Vaagen Bros. Lumber has been a great supporter of this process and its possibilities.

We are through the transition period from unlimited forest bounty to understanding the limitations of this great national resource and the real value that the owners of this forest place upon it. We are in a position to return to the forest the value that the owners expect. We are only looking for an opportunity to set the standard of what has to follow, to return our national forests to health, beauty, and sustainability. Removal of fuel hazards, creating value in the process and retuning it to the landowner is what we have already proven can be done.

**Note: Mike Beye did not grow up in the Timber Industry, so his insights are from his ten years with our company.*

Senator WYDEN. Great. We've got 15 minutes. Let me see if I can get most of you in. Mr. Donegan, welcome, and Forest Capital Partners, and important contributor. Thank you.

**STATEMENT OF MATT DONEGAN, CO-PRESIDENT, FOREST
CAPITAL PARTNERS, LLC, PORTLAND, OR**

Mr. DONEGAN. Thank you. My name is Matt Donegan. I am Co-President of Forest Capital Partners, one of America's largest private forestland owners and leading producers of sustainably grown forest products. I'm honored to have this opportunity today to present a private landowner's perspective on Federal forest policy. Today, I hope to convey three basic messages. First, management practices on public forests do directly affect the health of private forests. Second, the health of private forests is under threat from deforestation, fragmentation, and conversion to development. Third, thinnings aimed at public forest restoration can also play a prominent role in restoring private forest health, while also fundamentally transforming the debate over America's forestlands. I would like to briefly expand upon these messages.

The first, public policies directly affect private forest health, is perhaps intuitive. Even for landowners like Forest Capital Partners, who do not purchase Federal timber, or have any direct financial interest in Federal harvests, there exists an interdependence with all of our fellow landowners, private and public alike. We share property lines, as all neighbors do, and as the risks from fire, insects, and disease grown on Federal ownerships, so do the risks to adjacent forest landowners, like Forest Capital. A Federal thinning program could substantially reduce the risks to private forests.

Public policies also directly affect the health of our mill customers. With further loss of mills in the Inland West, private landowners will have no market for our product. Such is already the case in several western regions, while other regions are barely hanging on to the remaining mills. This creates a sense of urgency to initiate thinnings now, before the remaining mills are irreversibly lost.

The second message, private forests are being lost to development, is perhaps intuitive, as well. Forest loss is directly driven by economics. With mills closing, development can become the only option facing the landowners. Since 1991, 89 mills have permanently closed in Eastern Washington, Eastern Oregon, and Idaho, representing 40 percent of regional lumber capacity. In the wake of these closures, landowners must now truck their products to far-away destinations, increasing freight costs and eroding revenues. New mill investment is needed to reverse this trend and to improve the viability of private working forests.

Which brings me to my third message. A restoration thinning initiative could advance conservation on private forests, as well as public forests. The key to saving private forests is to provide economic incentives that reward forestland use. By revitalizing forest communities, inviting investment, growing new markets—including woody biomass energy—encouraging work force development, igniting new research and development, and otherwise replacing the prevailing pessimism in Western communities with renewed optimism, a Federal thinning program would encourage private landowners to retain their working forests as opposed to selling or developing them. Perhaps most importantly, by rising to the chal-

lenges we face today, an updated forest policy could be the catalyst for a much-needed new chapter of America's forests.

Far removed from the timber wars that pitted commercial interests against conservationists, a responsibly administered thinning program would protect old growth and spotted owls from unnatural fires and insect infestations, and demonstrate leadership in tackling some of the greatest environmental challenges of our generation, namely, habitat loss, climate change, and deforestation of private lands. A thinning program rooted in ecosystem restoration, while providing renewable energy via woody biomass, could serve to fundamentally redirect the forest debate in the Northwest, aligning business, community, and conservation interests in a long-overdue fashion. Such a vision is certainly worthy of all of our best efforts, and it has been my distinct privilege to contribute today to a discussion that holds such promise. Thank you.

[The prepared statement of Mr. Donegan follows:]

PREPARED STATEMENT OF MATT DONEGAN, CO-PRESIDENT, FOREST CAPITAL PARTNERS, LLC, PORTLAND, OR

INTRODUCTION

Forest Capital Partners, LLC (FCP) is a private forestland owner and operator with stewardship over 2.1 million acres of American forests. Our land is located in Oregon, Washington, Idaho, Louisiana, Texas and Minnesota, where our resource professionals apply the latest advances in sustainable forest management to generate long-term investment returns. Stewardship and resource conservation are deeply-held company values, as evidenced by our commitment to third-party forest certification on all FCP lands.

Pertinent to this testimony, we own no manufacturing facilities, purchase no federal timber, and otherwise derive no direct financial benefit from federal timber harvests. We are in fact competitors with federal agencies in every region where we operate, frequently selling logs within common markets. Viewed narrowly through this competitive lens, our short-term interests would be advanced by continued restrictions to federal timber supply. We nonetheless view the current state of federal forest policy as detrimental to the long-term environmental, social and economic sustainability of western forest communities and therefore support changes in federal policy, including restoration thinnings, which would increase federal timber supply.

On a national scale, and most dramatically within the western U.S., the environmental and social impact of federal forest policy can hardly be overstated. As the largest single landowner in most western states, the federal government is the driving force behind landscape-level ecosystem health, carbon emissions and sequestration, watershed enhancement, and a myriad of program funding ranging from local schools to environmental research. Based on our personal and company values, we are strongly committed to federal forest policies that restore natural habitat, sequester atmospheric carbon, improve water quality and revitalize local communities. Within the context of this hearing, we will defer to the more qualified panelists addressing these environmental and social issues, and will thus confine our remarks to issues specifically affecting the sustainability of private forests.

As with all communities, the principle of interdependence is central to the forest community. As neighbors sharing property lines, landowners mutually depend on one another to manage their respective ownerships in a responsible manner, or otherwise subject one another to risks from fire, disease and insect outbreak. Further, as fellow community members, landowners share the basic operational infrastructure in a region. We mutually depend on one another to invest in our institutions, research and development, and human capital, or otherwise collectively contend with long-term declines within a fiercely competitive global marketplace. This testimony will first present three pressing trends related to the interdependence between federal and private landowners: 1) increased natural hazard risks for landowners abutting federal ownerships; 2) basic infrastructure decay stemming from current federal policies; and 3) private forest conversion to non-forest use resulting from this decay of infrastructure. We will then share a vision for revitalizing the western forest community, and conclude by conveying a sense of urgency to stem

the decay of forest communities before they reach a “tipping point” beyond which revitalization will become extremely difficult.

INCREASES IN NATURAL HAZARD RISKS

Nationwide, FCP neighbors 21 National Forests administered by the U.S. Forest Service and six federal ownerships managed by the Bureau of Land Management. Our properties abut federal forestlands in every region in which we operate and, in many locations, our properties are literally embedded within federal lands. The management policies on federal lands have very real and direct implications for the health and safety of our own forests. We are very concerned about the increased fire risk associated with the excessive build-up of fuels in western federal forests. While fire is a normal part of forest ecosystems, a century of fire suppression combined with a lack of thinning operations and drought conditions, have resulted in an increasing number of large, severe fires and insect infestations in recent years. Global climate change will exacerbate this situation. The substantial curtailment of timber production on federal lands over the past fifteen years has also resulted in a less well maintained network of logging roads that are needed for fire control; and, a reduced pool of forest workers available to fight fires. This increased fire hazard is reflected in the rising cost of fire protection and suppression that is the shared responsibility of private and federal landowners.

The consequences of a catastrophic fire originating on federal forests are chillingly illustrated by the Timbered Rock fire in southwestern Oregon that occurred in 2002. This fire began as a series of lightning strikes on U.S. Forest Service land. By the time it was extinguished three weeks later, the fire had burned 13,000 acres of Bureau of Land Management-U.S. Forest Service land and 9,100 acres of adjacent private land now owned by FCP. The value of timber lost to the fire on what are now our lands was in excess of \$10 million (adjusted for revenue generated through sale of salvaged material), and the costs of restoration and replanting were over \$3 million. In addition to lost private timber values, the fire caused significant damage to threatened and endangered species habitat. Within the fire perimeter, 23 Northern Spotted Owl sites were affected, and three miles of riparian zones providing protection for Coho Salmon core areas were burned.

To protect ourselves from the possibilities of future disasters like the Timbered Rock fire, private landowners will have to shoulder the costs of more intensive fire suppression and protection. These higher fire related costs will divert funds that could otherwise be directed to research and development, and gaining operational efficiencies that would allow landowners to better compete in global markets. Of note, large diversified landowners like FCP face far less exposure to single-event natural hazards than smaller landowners whose woodlots often comprise a comparatively high portion of total family savings.

DECLINES IN FOREST COMMUNITY INFRASTRUCTURE

Another area of concern driven by federal forest policy is the continued viability of the forest products sector in the inland west. Changes in federal forest policy have resulted in substantially lower timber production, which has triggered mill closures and lost production. The inland west is the only major producing region in the U.S. that has experienced net disinvestment in softwood lumber capacity. Softwood lumber capacity in the inland west dropped from 12.0 BBF in 1990 to 8.0 BBF in 2000, and then to 7.3 BBF in 2007. Between 1991 and 2007, 89 wood product mills permanently closed their doors in Idaho, eastern Oregon and eastern Washington, with an associated loss of over 7,600 jobs. The loss of mill capacity and employment in the inland west continues today as lumber and plywood manufacturers contend with the current collapse in residential construction activity.

The concentration of mills in some areas of the inland west has fallen to the point that the supporting infrastructure necessary for conducting business is in jeopardy (indeed, many locations have already passed this point). Fewer mills equate to longer hauling distances and greater freight costs. For private and public landowners alike, added freight costs erode revenues and limit the suite of economically viable silviculture options at a forester's disposal. Responding to shrinking markets, the level of rail service has been cut back, forcing businesses to depend more heavily on expensive trucking; the labor pool shrinks as workers succumb to prevailing pessimism and migrate to urban areas; and local suppliers also pull up stakes.

Besides the dire social consequences imposed upon the region's communities by the decay of forest industry infrastructure, the potential environmental consequences to the vast expanse of public lands are equally alarming. In the future, should federal managers seek to thin overstocked forests for ecosystem health or to promote carbon sequestration, a viable market will be essential to pay for such pre-

scriptions. Likewise, a skilled workforce will be needed to conduct such treatments, and the absence of an existing forest industry cluster would make it more difficult to motivate the investment needed to develop wood based energy or bio-fuel production in the region. From this perspective, maintaining the remaining industrial infrastructure will be critical to the long-term ecosystem health of federal forests and underscores the interdependence that exists between private and public landowners. Maintaining the remaining industrial infrastructure will also be critical to the long-term ecosystem health of private forests, as presented in the following section.

INFRASTRUCTURE DECAY INVITES DEFORESTATION, FRAGMENTATION

Across the West, the loss of private forests and farmlands to development has emerged as a public policy priority. Recent State ballot initiatives—Measures 37 and 49 in Oregon, Initiative 933 in Washington, and Proposition 2 in Idaho, to name a few—illustrate public anxiety about the rate and extent of forest loss. The accelerated rate of development, deforestation and fragmentation is symptomatic of economic trends that reward real estate land use over the continued retention of working forests. At present, policymakers in most, if not all, western states are pursuing ambitious agendas to protect private working forests. We believe a federal thinning program could play a vital role in support of these objectives.

Faced with shrinking forest products markets in the inland west, private landowners find it increasingly difficult to justify the long-term investments required to sustain working forests. Without improved market prospects for timber markets in the inland west, a growing share of these private forestlands will continue to be converted to residential and recreational uses. Central Oregon provides a number of examples of how these shifts in land-use are already occurring. In Jefferson County over 60% of the industrial forestland has changed hands since 1990. Lands previously managed for sustainable timber production are now closed to public access, and subdivided into residential lots and built into destination resorts. Such incidents are growing in frequency across the inland west.

This movement away from the management of large contiguous blocks of forestland for long-term sustained timber production towards greater development will lead to a more fragmented landscape, a greatly increased urban/wild-land interface and a loss of wildlife habitat. As more development projects are located in close proximity to federal lands with a high fire risk, the potential liability of public agencies grows. Adding more homes and resorts in the forest landscape increases the value of assets at risk from catastrophic forest fire, expanding costs and complications for the already strained public agencies mandated to control these fires.

The key to protecting private forests and slowing conversion is to increase the relative profitability of working forests compared to alternative land uses. A large-scale federal thinning program could reverse the decay of western forest communities; ensure a critical mass of supply to invite investment, modernize and diversify forest markets including wood based energy; reinvigorate skilled workforce and infrastructure development; and, in sum, increase economic incentives to maintain private working forests. A federal thinning regime would thereby leverage the interdependence of western forest communities for the mutual benefit of private as well as public forests.

OPPORTUNITIES TO REVITALIZE THE WESTERN FOREST COMMUNITY

Given the enormity of its western land base, the federal government is without question the most important forest community member in the western U.S., and its natural leader. Federal agencies have a unique leadership opportunity with regard to wood-based energy development and capturing the potential far-reaching benefits both regionally and globally of this emerging industry. A large-scale federal thinning program could catalyze the development of woody biomass and bio-fuel energy in the western U.S., offering numerous advantages:

- Creating new sources of renewable energy
- Increasing the capacity of federal forests to sequester atmospheric carbon
- Restoring natural habitat
- Recruiting new investment and revitalizing western communities
- Diversifying and modernizing timber markets for both public and private landowners

An encouraging step in this direction has been the development of the Lakeview Biomass Project, a 15 megawatt biomass energy facility being built by Marubeni Sustainable Energy in conjunction with The Collins Companies' Fremont Sawmill in Lakeview, Oregon. An agreement to secure a stable long-term supply of woody biomass fuel from federal lands was an essential element for moving the project for-

ward. The Collins Companies will also be building a new small-log sawmill to take advantage of the increased harvest of small diameter logs from federal ownerships. The Lakeview Biomass Project is being hailed for its innovation and collaboration, and new woody biomass energy plants are now under development in several other sites in Oregon, including Cave Junction, Lyons, Tillamook and Warm Springs.

A prerequisite for the continued development of these new wood-based industries in the West will be a commitment from federal forests to generate an adequate and stable supply of wood fiber to fuel these energy-related projects. Recognizing the environmental and social opportunities associated with the development of forest-based energy projects, Forest Service Chief, Gail Kimbell, has proposed a national effort to reach two forest-related goals:

- Sustaining and strengthening the role of America's forests as a net carbon sink, and
- Increasing the amount of America's energy that comes from forests

We feel that landowner interests are closely aligned with these goals set by Chief Kimbell. We welcome the opportunity to support these efforts, but recognize the difficult environment in which the Forest Service operates, particularly in the western U.S., dealing with the ceaseless threat of litigation or appeals, which hobbles their ability to confidently make and implement decisions and at times, to most effectively work with their neighbors.

Assuring a dependable supply of woody biomass from federal forests will be made more difficult in the wake of the recent ruling by the 9th U.S. Circuit Court of Appeals nullifying a central provision of the Healthy Forest Initiative that exempts from environmental review any logging project involving up to 1,000 acres and any prescribed burns up to 4,500 acres. Building a secure supply chain for an emerging bio-energy industry dependent on woody biomass sourced from federal forests may require affording the agencies responsible for managing the forests some form of statutory protection from legal challenges and appeals.

Chief Kimbell has highlighted the valuable role that federal forests can play in both boosting atmospheric carbon sequestration through increased forest productivity and reducing carbon emissions through improved fire management. With a more widespread recognition of the importance of federal forests in balancing atmospheric carbon, additional funding support for federal thinning programs may be available from emerging carbon offset markets. At present, the Western Climate Initiative is considering the viability of federal thinning programs as legitimate carbon offsets and we view the prospects of carbon-related funding of restoration thinnings on federal land very positively.

Such efforts are worthy of due consideration, as the potential linkage of wood based energy and federal thinnings offers perhaps the greatest hope to western forest communities in a generation.

CONCLUSION—THINNING OF FEDERAL FORESTS WOULD BRING LANDSCAPE-LEVEL BENEFITS TO BOTH PUBLIC AND PRIVATE LANDS

Private and public ownerships do not exist in a vacuum, but rather cohabitate within interconnected forest communities. Within the western forest community, the recent performance of the federal government, a natural leader, has not yet risen to the challenges that we now face. This is not to criticize the shift in public priorities on America's public lands—deemphasizing commodity production in favor of broader ecosystem and community objectives. Nor is this an admonishment of federal managers who face the Herculean task of reconciling the diverse, competing interests of numerous constituencies and constantly defending their actions in both the public and judicial arenas. Rather, it is a recognition that structural obstacles undermine our government's capacity to act as a steward of both public and private forestlands.

Current federal policies create undue risks to private ownerships from fire, insects and disease. Further, nearly two decades of community decay has imperiled the critical forest infrastructure needed to equip stewards of public and private forests alike. A large-scale thinning program, afforded adequate statutory protection, may reverse these trends by restoring federal forest health and modernizing western forest communities. The alternative to pursuing the goal of healthier forests and a renewed western forest economy is to accept the ongoing degradation of the federal forests accompanied by the continuing erosion of forest-related businesses, infrastructure and human capital in the rural forest-dependent communities. Given the consequences to global climate change, natural habitat and watershed health, and private forest sustainability, the importance of the Senate's oversight hearing on

federal forests, and the need for meaningful change in the near-term, could hardly be greater.

Senator WYDEN. Thank you very much. Avoiding those past timber wars, that is music to everybody. I saw nods all around. Let's see if we can get Mr. Hoefle in, and I may have to come back and just start with Boyd, but we'll kind of go from here. Let's see what we can do now.

STATEMENT OF RUSSELL HOEFLICH, VICE PRESIDENT AND OREGON DIRECTOR, THE NATURE CONSERVANCY, PORTLAND, OR

Mr. HOEFLICH. Senator, I'll get right to the point. Thank you, and I ask that my testimony be placed into the record of the hearing.

Senator WYDEN. Without objection.

Mr. HOEFLICH. Due to decades of fire suppression in Oregon and Washington, and elsewhere in the West, our nation's forests are in a crisis. You've heard that today. Roughly, 128 million acres of public forests nationwide, including over 13 million acres in Oregon, are at risk of unnaturally severe fire unless we take immediate action. Stands that historically have had 10 to 100 trees per acre now have as many as 1,000 to 1,500 trees per acre. The current condition of our national forests is not only impacting fish, wildlife, and water quality, it is compounding the challenges we face from climate change.

Beyond the ecological impacts, this is a budgetary issue. Today, nearly \$1.5 billion is spent every year to fight wildfires. Fire-fighting costs do consume close to 50 percent of the U.S. Forest Service budget today, making it more difficult each year to proactively manage our forests and to address the problems people have been describing throughout the beginning of this hearing. To restore our forests back to health, scientists at the Nature Conservancy estimate that in Oregon and Washington alone over the next 25 years, we need to treat by thinning and reintroduction to fire at least 550,000 acres per year in each State. This is on an annual basis. This is well over three times the current rate of treatments.

There are a number of barriers to increasing forest management treatments to the necessary scale. First is the longstanding disagreement over the management of our public forests. We have eroded trust, and it has led to extensive legal battles over the past three decades. Second, the controversy surrounding forest management compel Federal agencies to plan only small-scale restoration projects, rather than the larger ones that are truly needed, as Norm Johnson and Jerry Franklin make reference to.

One point that I want to make reference to, the Ninth Circuit Court of Appeals record of decision to enjoin U.S. Forest Service for engaging in practices for exercising categorical exclusions to facilitate the removal of potential fuel loads, that is an issue that is basically one that we feel we need to put behind us. That is primarily an issue of small-scale habitat manipulation. We have to get to landscape scale and the effective treatments. We cannot be fighting over 1,000-acre treatments. We have to pull communities together and focus on a scale of dialog of a quarter-million acres to a half-million acres, and in some cases, even larger than that. Let's not

waste our energy on categorical exclusion sites of 1,000 acres here and there. We need to be ramping up community conversations at a scale that is meaningful to our society.

Finally, the lack of sufficient funding for forest treatment blocks progress on all fronts. Despite these challenges, there is truly a growing consensus among stakeholders about fire-prone forests that need active management to restore the health and resiliency. So we have both an enormous challenge, and we truly have an enormous opportunity. The Nature Conservancy would like to give you the following recommendations.

One, put the ecological needs of the forest first. While it's true that the forest restorations will provide jobs and businesses, and opportunities to the communities, the only way stakeholders will achieve consensus on forest treatments will be through rigorous scientific restoration design. Two, we have to plan and begin implementing large-scale restoration efforts. Unless we begin the treatments at the watershed or larger landscape scale, we're simply going to fall further and further and further behind. Third, we need to bring the full diversity of stakeholders into the conversation. The diverging interests and values of the stakeholders is really key to the success. As they work together to define a common vision for the future for our forests, consensus tends to replace conflict and litigation. We must facilitate these conversations.

Four, create incentives to spur private investments and new technology and infrastructure. The byproducts of forestry offer a tremendous resource for commercial products and renewable energy. A forest restoration economy will tap the ingenuity of the business sector, so long as the right incentives are in place. Working together, I believe we can bring the nation's forests back to health for the benefit of present and future generations. I'm here today to underscore the commitment of the Nature Conservancy to realize this vision.

[The prepared statement of Mr. Hoefflich follows:]

PREPARED STATEMENT OF RUSSELL HOEFELICH, VICE PRESIDENT AND OREGON
DIRECTOR, THE NATURE CONSERVANCY, PORTLAND OR

My name is Russell Hoefflich, and I am Vice President and Oregon Director of The Nature Conservancy. The Nature Conservancy is an international, nonprofit organization dedicated to the conservation of biological diversity. Our mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. Our on-the-ground conservation work is carried out in all 50 states and in more than 30 foreign countries and is supported by approximately one million individual members. The Nature Conservancy has protected more than 117 million acres of land and 5,000 miles of river around the world.

The Conservancy owns and manages approximately 1,400 preserves throughout the United States—the largest private system of nature sanctuaries in the world. We recognize, however, that our mission cannot be achieved by establishing and maintaining protected areas alone. Therefore, we increasingly form partnerships with individuals, businesses, and governments to seek compatible human uses over large landscapes that benefit both biological diversity and sustain human well-being in a changing world.

I'm honored to testify before the committee about the health of federal forest lands in Washington and Oregon. My testimony focuses on a specific aspect of public forest management—namely, the challenges coming from changes in forest structure, fuel loads, and fire regimes.

The Landscape Fire and Resource Management Planning Tools Rapid Assessment (LANDFIRE) tells us that 80% of the lower 48 states have vegetation that is mod-

erately to highly departed from reference conditions. In forests, this means they are overly-dense, have lost old growth structure, lack diversity of age classes, and are in danger of losing key ecological components to wildfire, insects, or lack of successional processes.

Northwest forest management stands at a crossroads. After decades of controversy over management of forests in the Pacific Northwest, a consensus is emerging that offers an unprecedented opportunity to meet the challenge with strategies that restore habitats while improving local economic conditions at the same time. We believe it is time to move beyond this controversy by building a restoration economy around Oregon and Washington forests. Conservation-based treatments, and the re-introduction of fire where it is needed, will build an economy that will not only create jobs, but will also benefit fish, wildlife, and water quality and could be part of the solution to mitigating the impacts of climate change.

CONDITION OF DRY-SITE PACIFIC NORTHWESTERN FORESTS

While we believe this new restoration economy can be applied across the State today, I am going to focus on the challenges and opportunities in the dry public land forest in eastern Washington, Oregon, and portions of southwestern Oregon. Here, past management practices, including timber harvest, livestock grazing, and fire suppression have helped to create unnaturally dense forests, spurred the removal of large dead and live old structures, changed the composition of forest species, and caused a decrease in landscape resiliency. Dry, fire-prone forest stands which historically had 50 to 100 large trees per acre now have as many as 500 or 1,000 small trees per acre. Fire-sensitive species such as Douglas-, grand and white fir have encroached into ponderosa pine and mixed conifer forests, changing species composition. Similarly, high-elevation stands of whitebark pine are being replaced by sub-alpine fir and spruce due to fire exclusion.

Subsequent high tree mortality and fuels build-ups have altered how wildfire, insects, disease and invasive species interact with forests, ultimately modifying forest resiliency. These overly-dense forest stands are more susceptible to damage from insects. Crowded trees lack the water and vigor to fend off insects such as bark beetles. During drought conditions in the late 1990s and from 2002 through 2005, Eastern Oregon insect activity was at epidemic levels. In 2004, the unusual abundance of mountain pine beetle affected over 415,000 acres in Eastern Washington, resulting in mortality to over four million pine trees, about 20 times the average mortality rate for the previous 20 years. Aerial detection surveys show an almost eight-fold epidemic increase in tree death along the eastern slopes of the Cascade Mountains during 2004.¹

When fires ignite in these overly-dense stands, they are much more likely to develop into uncharacteristic stand-replacing crown fires. Historically, fires in these stands maintained healthy forests by thinning the forest from below and removing fuels that accumulated on the forest floor. The current forest conditions constitute an extremely large problem that continues to get worse with time.

Besides promoting uncharacteristically severe fires, the changes to forest structure and composition outlined above also affect wildlife species composition and distribution by altering hiding and thermal cover and impeding movement. The Oregon Conservation Strategy and Washington's Comprehensive Wildlife Conservation Strategy identify altered fire regimes as one of the six (Oregon) and nine (Washington) key statewide issues that present the greatest threats to fish and wildlife populations and their habitat. Too much, too little, or the wrong kind of fire in these fire-prone forests was identified as a limiting factor or threat to a number of species, including golden eagles and the northern spotted owl. The Washington strategy described suppression of natural fires as one of the most severe long-term problems for wildlife and habitat in Eastern Washington forests on public and private lands.²

To assess the scope of this problem in Oregon, we analyzed the LANDFIRE 2006 Rapid Assessment data to map the forest and woodlands with low and mixed severity fire regimes (Fire Regime Condition Class I and III).³ Of Oregon's 34.1 million

¹ Elaine O'Neil, Bruce Lippke, Larry Mason. July 2007, *Eatside Climate Change, Forest Health, Fire and Carbon Accounting Initial Report: The Future of Washington's Forests and Forestry Industries*. College of Forest Resources, University of Washington.

² Washington Department of Fish and Wildlife. 2006. *Washington's Comprehensive Wildlife Conservation Strategy*. Washington Department of Fish and Wildlife, Olympia, Washington. Oregon Department of Fish and Wildlife. 2006. *Oregon Conservation Strategy*. Oregon Department of Fish and Wildlife, Salem, Oregon.

³ Catherine Macdonald, Steven Buttrick, and Michael Schindel. March 2006. *The Condition of Oregon's Forests and Woodlands: Implications for the Effective Conservation of Biodiversity*.

acres of forests and woodlands, 21.1 million acres are moderately or highly modified from historic conditions due to fire suppression, grazing, logging, and other land uses. Thirteen million four hundred thousand acres are on Bureau of Land Management and U.S. Forest Service lands. While we did not conduct a similar analysis for Washington, we anticipate a similar result for that State. Using National LANDFIRE data for both Oregon and Washington, we are updating this analysis; upon completion, we will submit our findings as supplemental testimony.

CURRENT TREATMENTS ARE NOT ENOUGH

Federal forest management officials are aware of this crisis and are trying to respond. Forest restoration projects are underway throughout the West, and the people doing this work should be proud. But the problem is growing at a rate faster than federal agencies can respond. Instead of getting ahead of the problem, we're falling further behind.

In 2007, the Forest Service, Fish and Wildlife Service, and Bureau of Land Management treated about 188,000 acres in Oregon and 44,000 in Washington. Based on our analysis, over the next 25 years we will need to treat at least 550,000 acres annually in Oregon—more than three times previous levels of treatments.

Today, nearly 46 percent of the Forest Service's budget is spent on fire suppression, compared to 13 percent in 1991. Funding needed to put fires out takes away from funding needed for other programs, including restoration, recreation, wildlife management, and facilities. It is essential to find a way to put more resources into forest restoration and agency budgets now so we can save money on fire suppression in the years to come.

No matter what values or interests we defend personally or in our affiliations, the crisis facing federal forests described above demands immediate attention. I am convinced we all share a strong enough desire—and even a passion—to pass on a legacy of healthy forests to future generations. But we must act now to save forests from continued deterioration and loss from unnaturally severe and frequent fire.

IDENTIFYING THE OBSTACLES PREVENTING PROGRESS

There are a number of barriers to increasing forest management treatments to address this problem.

1. Longstanding disagreements over the management of our public forest lands have eroded trust and led to extensive legal battles over the past three decades. Trust between the various stakeholders is an essential element in any effort to restore health to our federal forests.

2. Controversies surrounding forest management compel federal agencies to plan restoration projects at very small scales. To meet their action goals, federal agencies have to consider what is doable in addition to considering what is most important. As a result, they often propose relatively small and narrowly-focused management actions. On the other hand, ecosystems and the species they support interact in complex ways and at relatively large scales on the landscape. The magnitude of the forest health problem demands working at vastly larger scales if we are to get ahead of the problem.

3. Successful restoration efforts link protection and restoration. Sound forest management practices, such as the restoration program underway in the Colville National Forest in Washington and the Lakeview Stewardship Unit in Oregon define both the forests in need of restoration and those portions of the forest that require protection. Efforts that solve only a part of the problem make collaboration among stakeholders more difficult, time-consuming and costly.

4. Lack of sufficient funding for forest restoration treatments is a huge barrier to success. The 2007 fuels treatment budget for Region 6 was approximately \$25.3 million; when applied to the more than 13 million acres in Oregon alone in need of treatment, the budget falls well short of meeting the needs of the entire region. Inadequate funding for treatments and the growing number of people living within 30 miles of federal forest land affects what and how treatments are proposed. We need to revisit how and where money is currently spent in the agencies, increase agency budgets, and find outside sources of funding, while ensuring that the wood products industry has sufficient incentives to invest in new equipment and infrastructure.

POLICY RECOMMENDATIONS

Despite the problems outlined above, there is growing consensus among stakeholders that our fire-prone forests need active management to restore stand structure and composition and improve resilience to natural disturbance and climate change. We appreciate your efforts to seek solutions that would expand protections for older trees while simultaneously promoting a new forest restoration economy across the West. This approach holds promise for increasing the certainty of supply while achieving desired future ecological conditions. In our opinion, the ideal solution for Oregon and Washington would balance increased legislative protections for mature and old-growth stands with efficient planning and management flexibility to address the diversity of conditions in our forests, the effects of climate change, and an improving knowledge base.

In Oregon, Governor Ted Kulongoski has created the Federal Forestland Advisory Committee to draft goals that highlight the following roles for federal forest lands: protecting and restoring ecosystems, providing predictable, sustainable supply of the full suite of goods and services, and contributing to the creation of jobs and economic well-being for local communities. One of the pressing problems identified by the committee is the alteration of natural processes in our native forests. To address this problem, legislation should consider 20-30 year timeframes, and focus on the following:

Put the ecological needs of the forest first

While we believe forest restoration should be a source of jobs and opportunity, scientifically credible ecological restoration goals must provide the foundation on which these jobs are created. We must be honest with ourselves; there's a residue of mistrust among stakeholders based on the fact that ecological health hasn't always been the prime objective of federal forest policy or management. We need to rebuild that trust, and scientific credibility is the way to do it. That means all the pieces of this complex puzzle—including the technologies of biomass utilization, mill retooling, harvest equipment design and minimum-impact road building—must to be guided by what the science says these forests need to be healthy.

As our goal is to return these forests to a healthy state, we must agree to a number of science-based “environmental sideboards” to guide our work. First, we target all timber management on restoration of late-successional and old-growth characteristics at the tree level and the landscape level. Except under extraordinary circumstances, we should eliminate post-fire or insect salvage logging, except in areas previously designated for thinning. As a general policy, dry-site trees in excess of 125 years should be protected and encouraged to mature into stands reflecting traditional forest characteristics.⁴ It also means restoring fire as an integral part of forest management. Thinning may reduce stocking density, but by itself doesn't restore ecosystem function; restoring fire in dry forest types is typically necessary to restore forest function.

This approach is essential to ensure that restoration projects are not undermined or delayed by being linked to controversial mature and old-growth timber sales. In conversations with conservationists across the West, we are beginning to find common ground for scientifically-driven forest restoration efforts. But, without considerations for some protections, many projects will become mired in contention and litigation, and our forests will continue to suffer.

Plan for restoration at a significantly larger scale

Currently, conflicting direction from senior federal officials and the threat of litigation makes it risky for land managers to spend limited planning budgets on large-scale restoration. If a large-scale plan is litigated, our federal partners are less likely to meet their performance targets than if they focus on a few small projects.

As a result, most of the restoration planning is being done at a scale of a few hundred to a few thousand acres at a time. These treatments aren't achieving restoration at scale, and they aren't large enough to support biomass utilization businesses. Unless we begin planning at the watershed, landscape or larger scale, the problems facing the dry forests of the Pacific Northwest forests will not be solved.

Not only is planning across larger scales better for addressing biodiversity issues, it's also critical to ensuring a predictable supply of local materials to stimulate business investments. So, it's critical that we find ways to allow the agencies to take the risk to invest in large-scale planning. To achieve large scale restoration, federal

⁴Our recommendation sits well with public opinion; according to research conducted in 2002 by Davis, Hibbits, & McCaig, over seventy percent of Oregonians and Washingtonians believe that trees over 100 years are “old growth.” Polling was done on behalf of The Northwest Old Growth Campaign, World Wildlife Fund, and the Wilderness Society.

agencies must be given the direction and resources necessary to carry out their objectives. As a start, this could mean increasing agency budgets, updating forest plans, modifying performance targets, and creating incentives for identifying large landscapes as restoration priorities.

Bring the full diversity of stakeholders into the conversation and give them a seat at the table

In communities throughout the West, stakeholders are coming together and creating consensus around forest management. Examples of effective collaboration include the Front Range Roundtable in Colorado, the Ashland Forest Resiliency Project and Lakeview Stewardship Collaboration in Oregon, and the Tapash Sustainable Forests Collaborative in Washington.

The divergent interests and values of stakeholders are not barriers to progress. Actually, this diversity is key to success. In our view, the best way to avoid litigation and conflict over forest management is through collaboration. Successful collaboration begins by asking stakeholders to develop a shared vision of the desired future conditions for the forest in question. With grounding in good science about past and present ecological conditions, these groups can, and are, creating consensus around the best steps to restoring healthy forests.

We aren't naïve. While early engagement with diverse stakeholders can't eliminate the risk of a lawsuit, we have seen it reduce the odds. And while the process takes time, it builds trust. And that's what's needed to take active forest restoration to larger scales.

Incentivize private investment

Finally, we need to examine policies and programs to make sure the appropriate incentives are in place to spur private investments in new equipment and infrastructure.

For this conservation approach to work, local industries must be able to utilize woody biomass to produce merchantable products and services. But while market forces have begun to signal a transition away from reliance upon large diameter trees for commercial timber production, investment in new technology logging and small diameter milling equipment is costly. Electricity produced from woody biomass is approximately double the price of electricity produced with coal, so to operate within an acceptable cost range biomass generation facilities must locate close to woody biomass supply; most experts recommend sourcing biomass no more than 50 miles from the facility. To make the forest restoration economy work, policymakers should consider offering incentives to help bring woody biomass to the mills for conversion into commercial products and clean energy, incentives designed to facilitate ecological restoration on federal public forestlands while creating a restoration economy.⁵ Additionally, Congress should address federal contracting barriers that hinder private investment, for example the contingent liability coupled to service contracts.

I don't want to oversimplify. There are plenty of complex scientific, technical, economic and political challenges that lie ahead. To realize the goals I've outlined in my testimony will require a commitment from all of us to agree to set aside our differences and work together to realize the vision we share—a legacy of healthy forests, understood and managed at the landscape scale, and well-stewarded by thriving local communities.

At The Nature Conservancy, we're passionate about joining with you to meet the challenge of a generation. We look forward to working with you.

Senator WYDEN. Thank you very much. Let's do this. We've only got a couple of minutes before the vote expires. What I'd like to do is break now for the votes. There are going to be, I think, four. Then we'll come back. We'll begin with you, Boyd, when we come back. So I think that's kind of fitting that we hear from Grant County to wrap this up, and people see what this really means on the ground. Then we'll go to questions. Is that acceptable to everybody? Do people have planes to catch and the like? OK. We're going to break for the four votes, and then I'm going to be back. Thanks.

[Recess.]

⁵ The Oregon Forest Resource Institute (OFRI) offers a set of policy recommendations designed to promote biomass energy development and forest restoration. See Chapter 6 of their report, *Biomass Energy and Biofuels from Oregon's Forests*. June 30, 2006. www.oregonforests.org

Senator WYDEN. The subcommittee will come back to order, and let me apologize to all our witness. This is life at the end of the session, and I feel badly, and didn't want you to feel that you we're going to stay for cornflakes or breakfast or something by the time we got started again.

So Boyd, great of you to journey from Grant County. As you know, one of things I like most about this job is coming over for community meetings and getting into that community hall and just kind of listening. So you've taken some time here now and you've come a long way. Tell me, having listened to all this testimony, and all the experts and, like, tell me what it really means to folks in the community and on the ground in a place where the Federal Government owns most of the land. So welcome.

**STATEMENT OF BOYD BRITTON, COUNTY COMMISSIONER,
GRANT COUNTY, OR**

Mr. BRITTON. OK, sir, you'll have to excuse me. I like to stand up when I'm speaking, and everybody at your staff has told me I can't do that. I've got to compliment you right off the get-go on your staff. Scott and Michelle and Rachel have been excellent to work with.

Senator WYDEN. Thank you. They are.

Mr. BRITTON. Thank you. Senator, thank you for inviting me, and I would like to put this as part of the record.

Senator WYDEN. Without objection, it will be done.

Mr. BRITTON. Thank you, sir. I am the guy in Eastern Oregon that has the rose-colored glasses. I see hope and I want to thank you, Senator Wyden, for having the courage to hold these hearings and bring us all in here. We've heard from the rest of the testimony, everybody agrees. We've got to do something, and we've got to do it quickly. What's happening in our community, if I could, we're decreasing in population by 2 percent a year. Our schools went down the last 5 years, decreased 15 percent. We're getting poorer and poorer, but I must tell you about our community.

When 9/11 happened, the tragedy, we raised enough money that it averaged \$6 for every man, woman and child there. Even in Katrina, \$5 in average for every man, woman, and child in Grant County. So we are poor, but we are a very, very giving community. It tears us up to see our infrastructure going away. I disagree with some folks. I do not think that the Forest Service is the enemy. I humbly, respectfully disagree with Secretary Rey. Not enough is being done. It is burning up and dying before our eyes. Michelle came out and got to see part of it. The environmental community has come out and has got to see it. Everybody agrees. It's the radical element.

I won't call them environmentalists, sir, because I'll call them deconstructionists. Because if I could describe a real, true environmentalist—Turner York. He's a lifelong logger in Grant County. His family was there, and his parents were there, and he was there. Sir, if you can say that, he's a big man, and a strong man. If you can see him looking up at Summit Fire, where that happened, and see that fire afterwards, and you see tears in his eyes—Nobody is going to tell me that man doesn't love the environment as much as anybody.

Walt Guinness, four generations of family there in Grant County and he's telling us stories that—Up in a fire where Indian Creek runs now. Never in his whole family's history has it run anything but clear. After that fire, Senator Wyden, I'm sorry, it doesn't run clear anymore. We talk about the Endangered Species Act. Great. Meaning. But if we're going to devastate our forest, these endangered creatures—Where are they going to hang out? I mean, Benjamin Franklin, he made a sense that—made a comment that the only bad thing about commonsense is that it's not very common.

In these catastrophic fires, with all this fuel buildup, it just builds and builds and builds, and they're not being able to adequately treat it. With a good thinning bill, sir, you folks have the power to make it happen, to get it out there. Sir, we can turn it around—Not only for the resources, but the communities, because we work hand-in-hand. I was talking to one of your staffers, Scott. He mentioned that he read some statistics about Oregon 40 years ago. Eastern Oregon had the highest per-capita income. Our forests were healthier back then. Now, it's not great, sir. We're the poorest. So, Senator Wyden, you've been courageous about calling this hearing, calling the witnesses, and I thank you for inviting me.

But, sir, this committee is going to have to be courageous and stand up and say, "This is what's right." One of the ways in county government that we're a little bit kind of like you, except on a lot smaller scale. We have to balance budget. One of the ways I suggest is maybe take some of the funding from the upper echelons of the Forest Service and put it down on the ground where the work is actually being done. Down here, national forests, their personnel has reduced by 46 percent in the last 10 years. If we start cleaning up the forests like you want to, sir, you know what? There'd be some economic benefit that maybe we can start putting money back into the treasury like we used to.

The collaboration, sir? We're trying. We're busting our—we're trying hard to get that done. I mean, we go to—I've met—Judge Webb and I have gone and met with Russ. Susan Jane Brown from the Pacific Environmental Advocacy Center—We've had her right here on tour. We've gone around and looked at the forests. Emily Platt, from the Gifford Pinchot. We've engaged those folks. We took them on one tour, sir—and I'll make this brief—

Senator WYDEN. No—

Mr. BRITTON. Excuse me. I get wound up.

Senator WYDEN. You're saying it well, and you've come a long way to say it.

Mr. BRITTON. But we took them out on a tour and we got to see various parts of the forest. On one particular trip, we went—the private land was on the West and the Forest Service land was on the east. It was remarkable the difference. We drove out to a private ranch that had been logged 3 years before. Susan Jane, God bless her, and Emily made the comment that, "Gee, I wish the rest of the forest looked this good."

It doesn't, sir. But our guys are trying. We've got a forest supervisor that has changed attitudes. He's got them excited. If they could just help him out with a little bit more personnel, a little bit of money, and it would change things. One quick little, brief, primitive analogy, and I'll get out of here.

Senator, imagine if you and your mates, if you went home and your toilet was plugged, and your kitchen sink was plugged, and you had to wait for a need for analysis, and go through collaboration, and then you had to get the approval from the Washington office, and then the regional office. When you got all that done, then you'd have to go to the Ninth Circuit Court of Appeals and ask them to review whether or not your sink and toilet were really plugged. Probably wouldn't get fixed. Sir, our sink is plugged. Please help us out with some legislation to let the Forest Service do the kind of work that they can do, and they want to do. Thank you.

[The prepared statement of Mr. Britton follows:]

PREPARED STATEMENT OF BOYD BRITTON, COUNTY COMMISSIONER,
GRANT COUNTY, OR

I would like to thank the distinguished members of this committee especially Senator Wyden for allowing me the privilege to testify before you and attempt to answer any questions you may have.

I am a County Commissioner from Grant County in Eastern Oregon. The citizens I represent love and cherish our land and I know my fellow commissioners and citizens in neighboring Wallowa, Union, Baker and Harney counties feel the same way about their portion of the Iron Triangle forests.

All of us across the West are scared because we can see our precious natural resources, forests, range, water and wildlife being destroyed by unnatural catastrophic wildfire. Grant and Harney counties share the largest Ponderosa Pine forest in the nation. This summer the Emigrant Creek Ranger District of the Malheur National Forest in Harney County lost 25% of its district to wildfire. Two years ago the Forest Service spent 14 million dollars in 13 days on a 14,000-acre fire in Grant County. That same area, which burned precious old growth, destroyed wildlife habitat and negatively impacted salmon was scheduled for treatment in the early 1990s but was stopped due to litigation.

Senator Wyden correctly pointed out to me a few years ago that we couldn't close the courthouse doors to litigation; however this body I'm addressing today has the ability with legislation to limit frivolous appeals especially ones of a procedural nature. The citizens in the West are frustrated that a radical environmental individual can, with a 41-cent stamp, stop, delay or weaken a project that can significantly reduce the possibility of a catastrophic fire. As an elected county official, when a citizen or group brings forward a problem I like to have them propose a solution. I would like to propose a few ideas.

The United States Government spent 2 billion dollars last year on fire suppression, which is just treating a symptom of the real problem that is unhealthy forests. The Forest Service spent 47% of their budget last year putting out fires which left little money or manpower to do other work that they have the desire, training and expertise to do. Forest management should be done by the local, on the ground managers not by activist judges on the Ninth Circuit Court of Appeals; nor should it be done by radical environmental obstructionists or by regional or national offices of the Forest Service.

I would ask you to put in place legislation that would limit appeals and increase the percentage of funding to the local land managers. In the last ten years staffing on the Malheur National Forest has decreased by 46%. When the Forest Service began downsizing some of the first positions to go were the timber and brush disposal crews. Now with the established targets of fuel reduction the Forest Service is forced to burn "cheap" acres to meet their targets. The needed mechanical thinning that needs to be done before the under burning is four times more expensive. The Forest Service is in a death spiral and I would suggest that increasing the funding of local land managers and not administrative offices such as at the regional or national levels would begin to slow down this spiral. The local communities are poised to help. The thinning and fuel removal that needs to be done will put our citizens back to work, preserve the infrastructure within the community and most of all preserve our natural resources for our grandchildren.

Senator Wyden and my friend, Congressman Walden successfully put forward the Healthy Forests Restoration Act which has helped to start reducing fuels within the Wildland Urban Interface and we thank you for that, but for lack of funding, lack of personnel, litigation, and the threat of litigation it is moving too slowly. We are

fortunate on the Malheur NF to have a current Forest Supervisor that has a vision and the energy to push forward. For years, the Malheur's employees have been beat down and frustrated by litigation delays, the cumbersome planning process and lack of support from the regional level but the Supervisor is changing the atmosphere of the local Forest Service employees and the community. One of the silviculturists is a neighbor of mine and for many years when asked, "How are you doing?" he would invariably reply, "I've got 4 years, 3 months and 2 days until I retire." Now Eric's excited about having proactive leadership, he just needs your help.

The Iron Triangle forests, Malheur, Wallowa Whitman and Umatilla cover an area larger than the state of Massachusetts. The health of these forests is reflected in the health and well being of our communities. Wallowa County's mill has shut down and 54 good family wage jobs along with their health care are gone. Harney County lost its only mill and 92 family wage jobs are going away. Here in Grant County, Grant Western Lumber Co.'s mill shut down and we lost 56 family wage jobs along with their health care benefits. If you were to compare this loss of jobs on a percentage basis to Portland Oregon it would amount to 22,000 lost jobs. The state has come in with assistance from the Federal Government and offered retraining. That's well and good but guess what? Those people are going to have to leave our counties to find a place for those new skills. Grant County has been decreasing in population at the rate of 2% a year. We are losing not only the resources of our federal lands but also the precious resource of our people.

The HFRA legislation requires collaboration. We joined in the process a little over 3 years ago by inviting the scariest thing known to a Grant County citizen—an environmental lawyer from the Pacific Environmental Advocacy Center. Old time foresters like Walt Gentis, logger Charley O'Rourke, the County Court and Forest Service got on a bus and toured parts of the forest. We all observed the same things and came up with a similar conclusion—the Forest needs help. One of the areas we visited has since burned. We were able to drive up Highway 395 and see to the west Forest Service managed lands and to the east private lands. There was total agreement that Forest Service lands were significantly more fire prone than the privately managed lands. Attorney Susan Jane Brown and Emily Platt from the Gifford Pinchot Task Force even made the comment at a private ranch that had been logged 3 years earlier she wished the Forest Service lands looked this good.

I understand here in Washington DC the talk about progress being made in Oregon in the West. I respectfully disagree. In the years 2005 through 2007 our country has lost 27.2 million acres due to wildfire at a cost of billions. That's an area larger than the state of Virginia. We are in dire need of immediate action.

If I could provide a primitive analogy: Would the members of this committee if having a bathroom toilet and kitchen sink backed up want to go through a NEPA analysis, collaboration, and review by the Washington Office and Regional Office before you started fixing the problem. Then, by the way, you would have to get the Ninth Circuit Court of Appeals to rule whether or not the toilet and sink were really backed up. Our sink is plugged. With proper legislation, the endless appeals won't stall needed projects. Increasing budgets to the ground level will help restore our resources and communities to a healthy condition which will be good for the West and good for the country, and perhaps when we talk to our grandchildren we can say we did a good thing and not hang our heads in shame and say I'm sorry we let you down.

Thank you and I would welcome your questions.

Senator WYDEN. Boyd, very, very well said. That's exactly where we're going to be going next. I just want to get on the record, because I think it's going to be important as we wrap this up, we had Professor Johnson say that he disagreed with Secretary Rey. We had Boyd Britton say that he disagreed with Secretary Rey. Mr. Hoefle, do you disagree with Secretary Rey?

Mr. HOEFLICH. I do.

Senator WYDEN. Mr. Donegan, do you disagree with Secretary Rey?

Mr. DONEGAN. I do.

Senator WYDEN. OK. If nothing else comes out of today's hearing, I hope that will help to show that what we're trying to do, as Mr. Donegan said—really, all of you have said—is to try bring together parties that have disagreed to get serious about thinning and forest restoration in the days ahead. I can tell you I feel just as strongly

about this as I did about the County Payments Effort and the Forest Health Legislation, which as I said many hours ago was those were the only two pieces of legislation actually that have gotten passed in the forestry area in the last 15 years. So this has been very helpful.

So let me start by asking each of you, starting with you, Boyd. Given the fact that we have a difference of opinion, that we're losing more than we're restoring, if you had to apportion it, how much is due to funding? How much is due to staffing? How much of it is due to appeals and litigation? How would you break it out in terms of the problem? I think that'll be helpful, too, because as you can see, to get the solution we're going to have to say, "Look, everybody is going to have to do something." Tell me your take on how much, at least in those three areas, how much is that contributing to the problem?

Mr. BRITTON. That's a tough one, sir. I will try. One of the most frustrating words I hear from the Forest Service is "process." If I died tomorrow and never heard that word "process" again, I'd die a happy man. But funding has a bunch to do with it. The structure, the way Forest Service does business, is a big part of it. On the fuel reduction, sir, they've given these targets they have to meet. If they don't meet them, they're castigated, they get bad reviews, whatever. So they have to go out and treat these tree bakers, I'll call them, that really aren't in that bad a need, and then they're treating two and three different entries, when the real treatment needs to be done going in and doing the mechanical thinning first, at least that should be done before the under-burning.

But that costs four times as much. But because of the way they're set up, sir, they can't meet their targets going that way. So part of it is bureaucratic. Part of it is just the way the Forest Service does business. Part of it is legislative. If you folks could twist that legislation, do whatever you do—I don't know how you do it, but you guys have got the power and you know what you're doing. But if you could change that legislation, sir, in such a way that it reduces those bureaucratic pratfalls that they fall through, lessen the opportunities—and I said in my statements, sir, and you pointed out to me very strongly one time a few years ago, and you were right, that we can't close courthouse doors. You're right, sir.

But we shouldn't have to open them wide and invite the nut cases in to say, "Hey, put this off for 5 years. Kill the project." That's what's happening now. The true environmental community wants to work with the industry, I think. I could be proven wrong.

Senator WYDEN. I think that's a good way to put it.

Mr. BRITTON. Did I answer you?

Senator WYDEN. Yes, you did, and very well. You shouldn't have a constitutional right to five, 10-year, whatever delays. I think there's a lot of common ground there. Mr. Hoefle, in terms of your assessment, how much of it is due to funding? How much of it is due to needless appeals? How much is due to staffing? There may be other factors that you want to outline, so feel free to incorporate other ones. But as you break down the problems, since we now have unanimity—professors, environmental folks, rural communities, timber industry people—that, you know, we're falling be-

hind, let's get out the sense of what the factors are in terms of proportion. You next.

Mr. HOEFLICH. Let me try to address it this way. I think that Boyd hit on the most critical issue, and that has to do with the motivation of the employees in the field. If they are continually promoted and encouraged, based upon small-scale actions, and they are not given incentives to take risks and plan at the scale that it really needs to be done, that is the No. 1 problem for us. When, in fact, I was sitting on a project in the Klamath Basin where there were 19 very hard working people in that Basin who were asked by the Forest Service to do a planning exercise on a few thousand acres.

When I asked the person in charge of that project for the Forest Service, I said, "You really need to be working at 212,000 acres for the entire watershed," they said they couldn't afford to do it, and the fact of the matter is they wouldn't hit their performance standards because they'd be tied up in court. So it's just a vivid example of the same 19 people were being forced to plan at a scale that was meaningless to the long-term health and viability of the community, let alone the ecological needs of the forest. It's under your control to be able to switch the incentives for the employees in the Forest Service to be able to take the risks to plan at the scale. The issue of resources really pertains to a reallocation of the resources.

We need to be able to get the best and the brightest of scientists from around the Federal agencies, as well as the State agencies, to come to the table and support these hardworking people in the community to frame a desired future condition of their forest. If the resources are put out there up front to help have a conversation about a—to help develop a consensus over that desired future condition, and the Forest Service then is empowered to work in lock-step to develop the need for documents at scale that's meaningful, then, in fact, I think we can avoid the litigation.

I'm just trying to put this positive energy and the resources in the right place. Let's try to develop a model where we avoid that litigation. At least reasonable people can agree and can reason prevail in the end. I think that if we marginalize those on the end that are really not with the conservation community, and not with the community overall, understand where they're coming from—we've invited them to the table but they haven't offered pragmatic solutions—that, in fact, we should be able to prevail, not only in the Court of reason but hopefully in the Court of law.

Senator WYDEN. OK, Mr. Donegan. Your assessment of—because what I'm going to do is—You sort of tried to identify the problem, and next you go to cure. I think your colleagues there have sort have been touching on both. Go ahead and take a crack at this question of how you'd apportion the problem, and then some of your remedies.

Mr. DONEGAN. I should start by saying I'm not the most qualified panelist, with regard to Federal processes and decisionmaking. What I can share is that I think that, with regard to problem-solving, part of the problem-solving is going to have to include funding, obviously, going forward. If we're going to try to accomplish something at the scale that my fellow panelists are describing, I think funding is going to be a big part of that. Part of that solution can

very well be qualifying Federal forests and thinnings for carbon offsets, and within the emerging carbon markets and recognizing the role of that Forest Plan Carbon Sequestration.

That could establish a long-running source of funding, and stable and sustainable source of funding. I think, you know, the other point that I'd like to make is that emerging biomass markets could play a role here, as well. Again, you know, I think they'd need to be nearby. You don't want to have long trucking distances. You'd probably want a number of smaller mills as opposed to a few larger mills. I think that market development is going to take public and private capital.

I think for it to attract private capital, I think the biggest obstacle at this point is just going to be stability. Private investors need stability. They abhor risk. I think that speaks to the litigation risks that all the fellow panelists have brought up today. So I think anything you can do to address this litigation risk, I think, can in turn address the funding issue.

Senator WYDEN. I can tell you there is going to be a part of my legislation that is going to get at that. I mean, I think—and Boyd put his hands on it, and we talk about it every time I'm in John Day or Canyon City or any of our meetings—there is something in between cutting off the rights of people to be able to express their views about the forestry policy. That was the whole sufficiency debate and talk about timber wars, as Mr. Donegan did. That was about as acrimonious a discussion as I've ever seen.

There's something in between cutting off the right of people to be heard, and what I for shorthand call the Constitutional Right to Five-Year Delay. And We're going to be working with all three of you to try to figure out what that is that is between those two points, and I think we can get it done. You know, we tried, as part of the Healthy Forest Legislation, to try to expedite some of the processes. We can look to that and other kinds of approaches and we will involve all of you.

Now, the only other area that I was really interested in some input is what are the ramifications of technology in this area? I saw something that indicated that the new mill in Lakeview that folks are very excited about is going to cut trees up to 7" dbh. This, I think, is called diameter at breast height is the technical lingo. This has helped the mill significantly increase their capacity to generate profits. I gather that now they want to know whether this is going to get the agency to start redefining, you know, what constitutes commercial and non-commercial, you know, timber. But what do the three of you think about the technology questions here? I mean, are there areas for the record that we need to be looking at as we examine technology? Boyd, or any three, or all three of you can feel free to weigh in.

Mr. BRITTON. I'd love to give a shot at it, sir.

Senator WYDEN. Yes.

Mr. BRITTON. The two mills that are left up there in Grant County, they've already done a whole lot of upgrading on their mills. They're going to smaller and smaller top—don't quote me on this, sir, but I think they can go down to a four-inch top, and still make something happen. But what they lack to keep going and keep doing that kind of technology is sustainability.

They have to have a guarantee somehow or another that they're going to have, you know, 10 years of product. That's especially true of the Forest Service. They've done some good work trying to get biomass to come in. We've had some demonstration projects out there, where they can go out and do the slash removal and take it out of the woods. But we've got people that are interested in it, but they're not going to come, sir, until they have that guarantee of a product. That's Business 101.

Senator WYDEN. Very good. Mr. Hoefle.

Mr. HOEFLE. I've gotten into this issue a bit with the Federal Forest Land Advisory Committee and the Oregon Biomass Workgroup that I've been on. To Boyd's point, if in fact we have the certainty of the volume, I'm finding that the incentives will be there, and if the assurance of the product is there, the creativity, the energy infrastructure is there, people will be able to find the technology to be able to pull the wood out of the forest. There already is a lot of experimentation to cost effectively remove the product. There's experimentation on how to get a chip truck out, and get the product in because traditional chip trucks will not get into these remote locations.

But there are people who are trying to break through those issues. They're using European designs to be able to test their effectiveness and light entry into the system. Creating some incentive to expedite that experimentation, I think, is going to be helpful from what I'm hearing from the industry, and Matt may know more about that element of it.

Mr. DONEGAN. Yes, I can speak to this. I actually wish my friend Russ was here, because this is really his specialty. Unfortunately, he had to fly back home. But I will say that, yes, small log technology has made tremendous advancements in recent years, and has allowed sawmills to much more efficiently process smaller diameter or dbh timber. That again is an area especially for Vaagen Brothers. It's really what makes them a very unique partner in this regard.

I think, equally, the other element of technology mentioned just previously is just the whole takeoff on woody biomass. I think that's particularly exciting, is that as we would envision a thinning program—a large-scale thinning program—revitalizing Western forest communities, I think a very exciting part of that would be inviting new technology, woody-based or woody biomass-based technology, and perhaps cellulosic ethanol. So there's a lot of work to be done there. That would have far-reaching ramifications in regard to renewable energy and addressing our dependence on foreign oil. I think that would have diverse and far-reaching implications.

Senator WYDEN. You all have been very helpful. The biomass issue, I think, sort of highlights once again how you tackle these issues in a responsible kind of way. You three probably wouldn't know all the history, but Mr. Gladics, and Mr. Miller, and Ms. Miranda will recall vividly in the course of the energy, you know, debate, we tried to offer originally something that we thought would strike a responsible approach in terms of protecting old growth, but at the same time would make sure that we would have a good quantity of material for biomass.

As the three of them can attest, we had people who said they'd never heard anything about it, and they were fighting, and it was going to end the ability to get biomass. The three of them basically went out, and with considerable passion from all sides, basically got our committee, which was pretty much ready to wrap up the energy title bill to hold off until we talked to people about merits of the issue. These three came up with a very large book, as it related to the definitions and the like, and essentially stayed with it until they found a reasonable position that would allow us to get significant amount material for the kinds of projects Mr. Donegan's talking about, and investors want, and then folks in Grant County would like to see get off the ground, Boyd.

We got it done. That was because people worked together. It would have been real easy to take potshots and start putting out press releases and say, "So-and-so didn't care about old growth. So-and-so didn't care about biomass and rural communities and getting a fresh start for rural areas." That would have been a piece of cake to just go to the ramparts and just start cranking up your press releases. But we took a different route. I hope that eventually that position is going to prevail. So you all have given us a lot of good counsel, and we got there on county payments.

We're still waiting for the final news for this session, but we're going to stay at until we get it done. I can assure you of that. The Forest Health Legislation was of certainly some value, but now it is time—given the seriousness, and given the fact that we've got—just as you've told me Boyd—all these communities fearful. They're fearful of fires. They're fearful of losing everything. They just see little action and, you know, the prospect of their community going up in flames. We've got to make sure that the same kind of bipartisan efforts are made to build the kind of coalition, you know, that you're talking about.

We've had business, Professor Johnson, so well-respected, environmental folks, rural communities all make it clear to me—and we'll have it, you know, for the record—after you've journeyed a long way to come to Washington, that there's a lot of common sense out there that can mobilized to solve the next challenge in forestry. I am committed to doing it. I always like to give the witnesses, you know, the last word here. So we can go right down the row. Boyd, and then Mr. Hoeflech, Mr. Donegan. You've all been very patient. Would you like to add anything else at this time?

Mr. BRITTON. Sir, if you don't mind, I could add a few more things. I'm a politician, so you know we can always add something. I don't know how everybody shakes out on this global warming. OK? I don't know. I'm not going to address that. However, by treating the forests, it will reduce the carbon emissions. Absolutely. There's no question about it. By making our forests healthier, they're going to have places for those carbon sinks. Instead of our forests being emitters, they'll become places for them to sink.

You're probably wondering about this. I brought it for a visual aid. This is a Canyon Creek Woody Fuels Reduction Project. It's the EA. You're looking at, by the time it's said and done, sir, 5 years of work, \$1 million worth of labor, and it's going to treat 7,000 acres. You've got to help the Forest Service. The Senate and the House have got to help them so they can do a better job. They

want to. They have the desire. But they ain't going to get it cut. That's not going to cut it, sir. Excuse me for stuttering, but it kind of—I get wrapped up about it. Going at that rate, and God bless you and Congressman Walden for getting that Healthy Forest Restoration Act done. It's very good. But they need more tools with it. More money, more tools, more people. Thank you for doing that, sir.

Senator WYDEN. Well said. Mr. Hoefle.

Mr. HOEFLE. I guess I want to say that time is of the essence for some of these rural communities. I'm honored to be working with the members of—the leadership of Grant and Harney County. But truly, time is not on their side. I shudder to think about what will happen to us if we struggle over the next two or 3 years. We will have dead and dying trees. We'll have a community that's probably cut in half that doesn't have the expertise to be able to harvest the trees. The mills will have shut down. Then we'll be sitting in front of you asking for emergency appropriations to retrain and to bring back a mill infrastructure that meets the needs of the community.

If there is some way for us to expedite a process to be able to take care of the biological needs, so we don't hit the next catastrophic fire, that we can preserve the integrity of this community, the heart and soul of this community, before it is lost—I spent time earlier this week with John Shulk from Ochoco Lumber. He is hanging on by a thread, and we've already lost others in the community. It is just—I don't want to be standing in front of you like my counterparts in Arizona and New Mexico, where they have to start all over again. They have now come to consensus in the community of a desired future vision, but there's no infrastructure. So that's our challenge.

Senator WYDEN. Very good. Mr. Donegan.

Mr. DONEGAN. I will just add an additional perspective to what Russ just said, with regard to timing. That is, you know, I think as a professional forester and as somebody who works not only in the private forest, but I also serve on the National Council of National Park Conservation Association, and I'm very familiar with land ownerships, public and private, I think all resource professionals need tools at their disposal in order to conduct management activities that meet their objectives.

Almost always, the limiting factor is funding. I would just—to add urgency to what Russ just said—without mills and without some existing remaining infrastructure that will put place dramatic funding limitations on the Federal Government in years to come. If the remaining mills are lost, I hate to think that we will wake up 5 years from now and say, “Jeez, we've got to introduce an aggressive thinning program to better sequester carbon, to better restore habitat, and, oh man, we realized this too late, and our mills are now gone.”

Likewise, from a private landowner's perspective, the need for mills is equally dire. You can definitely look across the Inland west at sub-regions where the mills are already gone. These are the regions that are experiencing the greatest levels of development, land conversion, fragmentation, because literally, the landowners were left without any economic options. So I would say you can look at

Eastern Washington, Eastern Oregon, parts of Idaho, and say, if these few remaining mills are lost, you're going to see tremendous advancement of deforestation and fragmentation in those areas. So I would just echo the sense of urgency that we don't have much remaining time. We applaud your leadership for our home State, and ask for all your diligence on this.

Senator WYDEN. The last word has been delivered by three very thoughtful advocates from the State of Oregon, and with that, the subcommittee is adjourned.

[Whereupon, at 6:03 p.m., the hearing was adjourned.]

[The following statement was received for the record.]

STATEMENT OF MICHAEL E. DUBRASICH, EXECUTIVE DIRECTOR, WESTERN INSTITUTE FOR STUDY OF THE ENVIRONMENT, LEBANON, OR

INTRODUCTION

My name is Michael E. Dubrasich. I reside in Linn County, Oregon. I am a professional consulting forester with 26 years experience in private practice, and am currently Executive Director of the Western Institute for Study of the Environment [<http://westinstenv.org>]. I am knowledgeable about and have professional expertise in restoration forestry.

I am in strong and substantial agreement with the testimony of Drs. K. Norman Johnson and Jerry F. Franklin regarding the pressing need to undertake immediate restoration forestry action in National Forests of Oregon. I quote for emphasis:

We will lose these forests to catastrophic disturbance events unless we undertake aggressive active management programs.
Johnson and Franklin

THE PROBLEM

National Forests in Oregon are at extreme risk from catastrophic fire. The Biscuit Fire of 2002 destroyed nearly 500,000 acres of heritage forests, principally in the Siskiyou N.F. The B&B Fire of 2003 and adjacent fires of the last ten years have destroyed nearly 150,000 acres of the Deschutes N.F.

These and numerous other fires of the past 15 years have decimated old-growth stands and converted priceless, heritage forests to brushfields. Multi-cohort old-growth stands are the preferred habitat of northern spotted owls and other old-growth associated species. Catastrophic fires destroy old-growth habitat and they have been implicated in the continuing decline of Threatened and Endangered species populations in Oregon—plant and animal, vertebrate and invertebrate.

The fire hazard is increasing with each passing year, as new growth adds to burgeoning fuel loads. Catastrophic fire acreage, fire suppression costs, and resource losses to fires have been increasing nationwide.

The 2006 fire season was the worst in over fifty years. Nearly 10,000,000 acres burned in wildfires with suppression costs approaching \$1.85 billion.

With nearly 9.3 million acres burned nationally, the 2007 fire season was the second worst fire season in over fifty years and the fourth record-setter in eight years. Seven of the worst ten fire seasons since the 1950s have occurred in the last 12 years.

Fires that start in untended, fuel-laden federal forests occasionally escape beyond federal property lines. Such, often very large or megafires, threaten and burn private property. Thousands of homes are lost to escaped federal fires each year. Urban as well as rural homes are burned.

If we continue on the present course, we will lose many more millions of acres of heritage, old-growth forests and the habitat they provide to important wildlife species. We will continue to lose thousands of private homes each year to escaped federal fires.

National Forests across the state of Oregon are in a condition of unnatural density. Fires in forests overburdened by dense fuels tend to become stand-replacing. That is, most trees are killed by such fires, including old-growth trees.

Historical analyses based on pioneer journals, oral histories, and empirical investigations of stand age structures provide strong evidence that most forests in Oregon were open and park-like in prior centuries. Frequent, regular, seasonal fires maintained trees at wide spacing, overtopping grassy understories.

Historically, fires in such stands were NOT stand-replacing. Instead, regular, frequent, seasonal fires gave rise to conditions that allowed trees to grow to great ages. Without frequent light fires, trees do not grow very old. The actual historical development pathways for many (if not most) of our forests involved frequent light fires, not stand-replacing fire.

Nowhere is this more apparent than in the Biscuit Burn and in other burns of the last two decades in Oregon. Typically the forests that have been destroyed by catastrophic fire were strongly multi-cohort with older cohort trees of 150 to 600 years of age. Also typically, the vegetation that arises after the fires is sclerophyllous brush with a few, even-aged conifer germinants.

It is clear that the new forests will be nothing like the old forests. In fact, it is probable that the new forests will burn again after 15 to 50 years of new fuel development. We know from reburned areas such as the Silver Burn (1987) within the Biscuit Burn (2002) that the new "forest" is loaded with highly flammable brush. The few conifer germinants grow slowly and are killed in the subsequent fire. After reburns no conifer seed sources are left, and the new "forest" becomes a permanent, catastrophic fire-type shrubfield.

Historical analyses also provide strong evidence that the regular, frequent, seasonal fires of the past that sustained old-growth forests were anthropogenic (human-set). Indian burning for a variety of subsistence purposes gave rise to and maintained open, park-like forest structures. In the absence of Indian burning, or modern equivalents thereof, our forest structures have deviated from historically sustainable conditions.

Today's forest fires in dense fuels are catastrophic and stand-replacing. The historical forest development pathways of the past were different. They must have been different because they gave rise to open, park-like forests with old trees, not permanent fire-type brush.

In addition to inviting extreme, ecosystem-altering fires, overly dense stands are more prone to insect infestations and fungal epidemics. From the testimony of Drs. Johnson and Franklin:

This is not simply an issue of fuels and fire; because of the density of these forests, there is a high potential for drought stress and related insect outbreaks. Surviving old-growth pine trees are now at high risk of death to both fire and western pine beetle, the latter resulting from drought stress and competition.

Johnson and Franklin

THE SOLUTION

The solution is restoration forestry. Dr. Thomas M. Bonnicksen, the Father of Restoration Forestry, defines it thusly

Restoration forestry is a vision for the future rooted in respect for the past. Thus, restoration forestry uses the historic forest as a model for the future forest.

Restoration forestry aims to recover our nation's forest heritage while also restoring the productive and harmonious relationship between people and forests that existed in historic forests.

Restoration forestry is defined as restoring ecologically and economically sustainable forests that are representative of landscapes significant in America's history and culture.

The goal of restoration forestry is to restore and sustain, to the extent practical, a forest to a condition that resembles, but does not attempt to duplicate, the structure and function of a reference historic forest. The term "reference historic forest" means the way a whole forest appeared spreading over a landscape, with all of its diversity, at or about the time it was first seen by European explorers.

A reference historic forest does not represent a particular point in time. It represents a period and the variations in forest structure that characterized that period.

Bonnicksen, Restoration Forestry

The practice of preparing forests to accept fire without total incineration MUST include positive, scientific forestry goals of protecting heritage trees, meadows, and other ancient cultural landscape features by restoring historically-accurate and proven-to-be-sustainable open, park-like stand structures.

Trees have to be spaced fairly far apart to prevent crown-to-crown propagation of fire. Canopy fires plume into firestorms and do the most damage. Breaking up the

continuity of the canopy is absolutely necessary to preclude crown-to-crown propagation and canopy fires.

We need more than “fuels management” however. We need silviculture that recreates historical development pathways leading to open, park-like forests, savannas, and meadows at their historically-accurate geographic locations within our National Forests. That means thinnings, clearings, and other aggressive active management actions, and maintaining the restored landscape conditions with anthropogenic fire.

Historically and ecologically, human beings administered the key partial disturbances that maintained sustainable forests: frequent, regular, seasonal, human-set fire. Human stewardship of the land was an important component in the development of our old-growth stands. We need human stewardship again, to protect and restore them.

History is a key element of restoration forestry. From the testimony of Drs. Johnson and Franklin:

Activities at the stand level need to focus on restoring ecosystems to sustainable composition and structure—not simply to acceptable fuel levels. Objectives of these treatments need to include: retention of existing old-growth tree populations; shifting stand densities, basal areas, diameter distributions, and proportions of drought- and fire-tolerant species (e.g., ponderosa pine and western larch) toward historical levels . . . Finally, restoring old-growth tree populations to, and maintaining them at, historical levels should be a goal of restoration management.

Johnson and Franklin

One-half to two-thirds (at least) of our public forests require restoration forestry to protect, maintain, and perpetuate old-growth forests. That means the Northwest Forest Plan must be revisited and a modified Plan developed. The NWFP set-aside 85 percent of the landscape in No Touch Zones. The NWFP is thus not compatible with old-growth forest protection, maintenance, and perpetuation, according to the experts who drafted it. Again, from the testimony of Drs. Johnson and Franklin:

Restoration programs must be planned and implemented at the landscape scale to be effective; management over the last century has altered entire landscapes and created the potential for very large wildfires and insect outbreaks. Treating isolated stands within these landscapes will not be effective . . .

Creating fuel treatment patches and strips is a useful first step to help control wildfire, but is not sufficient to save these forests or the important array of values that they provide, including owls and old-growth trees. Many of the intervening areas will eventually burn and, even if they do not, old-growth trees will succumb to insects during periodic drought, since they are surrounded by dense competing vegetation.

To conserve these forests, we need to modify stand structure (e.g., treat fuels) on one-half to two-thirds of the landscape.

Johnson and Franklin

The benefits of restoration forestry include:

- Prevention of megafires and reduction in emergency fire suppression costs
- Prevention of ecosystem conversion to high hazard brush
- Prevention of catastrophic fire damage to watersheds
- Preservation of historic features of our shared, heritage landscapes
- Sustaining old-growth trees and old-growth development pathways
- Sustaining wildlife habitat, including T&E species
- Reinvigoration of rural economies
- Local stewardship

In fact, across much of the publicly-owned landscape in Oregon (and other Western states as well), restoration forestry is the ONLY way to capture those benefits.

The need for restoration forestry on a landscape scale is well-recognized by the experts. The public demand for restoration forestry is also strong. Surveys of public attitudes have shown that as many as 85 percent of urban residents favor active management to prevent catastrophic forest fires. The percentage of rural residents in favor is undoubtedly higher.

Restoration forestry is more than “active management” just as it is more than “fuels management.” Our forests are living systems with numerous values to society. They are complex, they are precious, and they are at risk. That combination of factors demands intensive science-based stewardship to fulfill our shared responsibilities.

Past efforts to institute restoration forestry, including the Healthy Forests Restoration Act of 2003 (P.L. 108-148) (HFRA) are laudable but have not achieved the landscape scale necessary to either prevent catastrophic megafires, or to protect, maintain, and perpetuate old-growth forests.

Lack of action on restoration forestry also endangers the capacity of our National Forests to provide clean water in steady quantities. Catastrophic fires damage soils, decrease absorption and deep percolation, increase erosion, increase sedimentation, and debilitate watershed hydrologic functions.

An untenable economic burden has been imposed on rural counties and residents by the lack of restoration forestry. Congress is perennially asked to provide payments in lieu of timber receipts to economically distress counties in the West. Restoration forestry is self-funding and can provide the jobs and receipts, relieving the need for Congress to provide additional emergency allocations.

The US Forest Service does, however, need additional funds to employ professional forestry expertise. Congress must engage in rebuilding the agency's professional ability to manage our forests, which has diminished significantly in the past 15 years.

Much more must be done and soon. I offer the following specific recommendations for your evaluation and adoption.

SPECIFIC RECOMMENDATIONS

1. Conduct a US Forest Service mission review

The US Forest Service has not had a mission review since the Organic Act of 1897. The fundamental purposes of the USFS have changed since then. Landscape-scale forest restoration cannot be accomplished if the land management agency has lost its legal bearings.

The mission review should be followed by review of the governing laws and regulations to ensure that the restated mission can be met. Funding and staffing must also be appropriate to the restated mission.

And most especially, restoration forestry must be made central to the restated mission of the USFS. The scale of the problem, and of the solution set, require conformance to purpose in the agency and governing laws.

2. Revisit the Northwest Forest Plan

The Northwest Forest Plan is also out of accord with the pressing need to apply restoration forestry on a landscape-scale.

The NWFP has failed in all its goals: spotted owl populations have declined as much as 40 percent since inception of the NWFP; millions of acres of multi-cohort spotted owl habitat have been incinerated; the geographic continuity of owl habitat has been shredded, and regional economies, and especially rural economies, have suffered enormously.

The NWFP is an impediment to restoration forestry, and thus an impediment to saving owls, saving owl habitat, and protecting rural economies. After nearly 14 years of failure, the time has come to review the NWFP and to alter it so as to better achieve the original objectives, and to enable landscape-scale forest restoration.

3. Fund research and teaching in restoration forestry

The goal of restoration forestry is to recover and sustain the structure and function of historical forests. To do that we must first investigate historical forests and landscapes. We must understand history to envision the future. Second we must study the efficacy and efficiency of restoration forestry treatment options. New research and teaching is needed in:

- Forest and landscape history
- Ethno-ecology
- Traditional ecosystem management
- Historical landscape geography
- Historical forest development
- Restoration forestry principles and practices
- Fire management

Emphasis should be placed on empirical studies within those fields.

4. Conduct a forest-by-forest natural/cultural historical analysis

The US Forests must initiate a program to investigate, analyze, and report on the actual forest and landscape histories every National Forest and BLM District in Oregon, and preferably throughout the West. The histories should look back at least 10,000 calendar years Before Present, and must include analysis of the (reconstructed) historical forest and landscape development pathways.

The histories must refer to substantial evidence collected in the field, as well as ethnographic and anthropological research specific to each area. Forest-by-forest, empirical studies of pre-Columbian, pre-Contact, and pre-Euro-American settlement forests and landscapes will also provide a set of reference conditions for restoration forestry in each local landscape or watershed.

5. Apply landscape-scale restoration forestry treatments

The US Forests must initiate a program to plan and undertake landscape-scale restoration forestry treatments on every National Forest in Oregon to prevent catastrophic fires and protect, maintain, and perpetuate old-growth forests.

Locally designed forest-by-forest restoration plans must be created. Plans should be based on reference conditions but not be limited to exacting replications. The goal of restoration forestry is to enhance sustainable conditions that protect old-growth trees and old-growth development pathways, as well as to protect historical natural/cultural landscape features.

The process should include open, public, juried reviews of each plan at the local level. Publicly-empanelled juries should be made up of local experts who are familiar with the specific forest or landscape. Public participation should be encouraged in plan development as well as evaluation.

Approved plans should be implemented without delay. Landscape-scale restoration forestry treatments are needed now. The sooner treatments are applied the more acres of heritage forests will be saved from incineration by stand-replacement fires. As many have pointed out, restoration forestry treatments are self-funding through sales of removed fuels in various forms.

6. Utilize local private and public sector resources

The task before us is immense. Both public and private sector expertise and capabilities must be utilized in all phases of restoration forestry, including historical analyses, treatment planning and evaluation, and application of restoration forestry to every National Forest in Oregon.

Private/public partnerships, contracted arrangements, and community participation are required for restoration forestry to be successful. Wide application at landscape scales is necessary, and thus wide participation is too.

Local stewardship, the management of local forests, watersheds, and landscapes by local communities, is the best social strategy. Also, locally is where all the local knowledge, expertise, and management skills reside. Local residents bear the brunt of local forest management outcomes, and so wish to assume authority and responsibility for local stewardship practices.

SUMMARY

I am in strong agreement with a broad spectrum of forest experts and expertise in America. I too call upon Congress to initiate landscape-scale restoration forestry in at-risk old-growth forests and natural/cultural landscapes within the National Forests of Oregon.

I have explained the problem and the solution, and given six specific recommendations for Congressional action, oversight, and leadership in restoration forestry.

Thank you for your consideration of these issues.

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

RESPONSES OF PHILIP S. AUNE TO QUESTIONS FROM SENATOR BARRASSO

Mr. Aune I understand that you have spent a career implementing the research concepts that folks like Professor Johnson developed, as well as managing federal forests and research forests. I also understand that you were involved in examining a variety of thinning prescriptions that were burned in a later fire.

Question 1. You mentioned the Lake Arrowhead situation in your testimony, are there any commercial sawmills on that forest?

Answer. Big Bear Timber Company operated a sawmill located in the Santa Ana wash near San Bernardino prior to 1979. In 1979, that mill was sold to Golden Bear Timber Company who operated the mill for a couple of years. Timber supply off of the southern California national forests was drastically reduced due to land management planning decisions in the 1980s and the mill folded. The small amount of federal timber that has been offered since then has generally been purchased by Sierra Forest Products in Terra Bella, California. Sierra Forest Products is approximately 220 miles north of the Lake Arrowhead area.

The insect devastation of the Lake Arrowhead and San Bernardino Mtn. area provide an opportunity to remove substantial volumes of timber beginning in 2002. I will describe who was involved with the role of the forest products and biomass industries in my response to question 2 below.

Question 2. What did they do with the material they removed from those areas?

Answer. Several saw mills in California and Oregon processed sawlogs from the southern California area insect epidemic. Mills involved:

Company Name	Location	Distance from Lake Arrowhead
Sierra Forest Products	Terra Bella, CA	220 miles
Sierra Pacific Industries	Sonora, CA	420 miles
Sierra Cedar	Marysville, CA	500 miles
Collins Pine	Chester, CA	615 miles

All of these companies purchased logs from the southern California area with Sierra Forest Products purchasing the largest amount of the volume. Almost all of the wood purchased was from private land and right-of-way for transmission lines of Southern California Edison and Bear Valley Electric. Very little federal timber was sold to these firms with the exception of Sierra Cedar who processed a small amount of federal timber. The shorter haul distance was accomplished by truck transportation. Longer distance log hauling to the mills was accomplished with a combination of truck and rail transportation. Some of the companies used their lumber trucks to haul logs back to their sawmills after delivering lumber to Southern California market areas.

Over 70 million board feet has been processed in lumber mills since 2002. Keep in mind that the actual volume removed was a very small percentage of the total volume killed in the 611,000 acre infestation.¹ The following sawlog volume was delivered by individual mills listed below:

¹As of September 2003, the infestation was on 429,700 acres of federal land, 39,800 acres of State of California, 116 acres of local government land and 141,300 acres of private land. Source: California Department of Forestry and Fire Protection.

Volume in million board feet

Company Name	2002	2003	2004	2005	2006	Total
Sierra Forest Products	5.2	16.7	8.4	4.4	0.8	35.5
Sierra Pacific Industries	0	0.1	11.7	5.5	0.1	18.3
Collins Pine	0	1.1	9.3	0	0	10.3
Sierra Cedar	Unknown, Company Closed 2007					

All of these mills produced pine boards from the logs that were delivered. The biggest problem with the wood delivered to the mill was “blue stain” associated with insect killed timber. “Blue stain” does not cause structural problems with the finished boards. But it does cause a stain of the generally whiter boards produced from ponderosa and sugar pine logs. Logs with blue stain are generally worth about 55% less than those without the blue stain for typical logs delivered to the mills from the southern California area.

In addition to the volume processed by these established forest products mills, Mr. Matt Allen and others set up small portable sawmills right in the Lake Arrowhead area in 2004. They were able to process a small amount of volume for pallet stock and other rough cut uses. Some of this volume was exported to Mexico.

Biomass Electrical Energy.—San Bernardino County operated a land fill and accepted wood waste from the surrounding mountain area free of charge until 2003. Because of the large amount of material coming off the mountain areas, a tipping fee of \$30/ton was established by San Bernardino County. This action helped to force removal and use of some of the material for biomass electrical energy.

The area is fortunate to have Colmac Energy, Inc. located in Mecca, California. The plant is located on land leased from the Cabazon Band Mission Indians south of Palm Springs and is right in the heart of the southern California bark beetle problem. Colmac Energy is a 50 megawatt power plant that uses 325,000 green tons (250,000 bond dry tons) of biomass per year to generate the power they produce. Prior to January 2004, Colmac Energy produced all of their electrical energy from contracts for wood waste in the southern California area, especially Riverside County.

Since January 2004, Colmac Energy has been receiving about 1,500 tons of wood from private land and utility clearing. About 500 tons per day comes from the northern portion (Lake Arrowhead/Big Bear area) and 1,000 tons per day from the southern area (Idyllwild area). Colmac Energy is willing to pay for the transportation cost for chips delivered to the plant and the cost of chipping plus delivery for logs delivered to the plant. So far, the vast majority of the volume has been in the form of chips delivered to the energy plant.² None of this volume has come from federal lands. They could easily take and store more volume given the dry desert climate that is very favorable for short-and long-term storage of logs or chips used for biomass electrical energy.

Question 3. If you just put it in a land fill or burn it, what about air pollution and the carbon dioxide emitted? How can that be helpful to the Los Angeles airshed?

Answer. The southern California wildfires of 2003 provided vivid examples of what happens to pollution levels surrounding the southern California area. With the Santa Ana winds blowing off the desert, almost all of southern California was covered with smoke from the fires past Catalina Island as can be seen in the right hand photo* below.

When the winds shifted to their “normal” flow pattern, the smoke and pollution effect covered most of the southwest as can be seen in this photo.

In a high fire year, roughly 900,000 to 1 million tons of particulate matter is emitted into the air. Compare this with the approximately 2.2 million tons per year of particulates that all other combustion sources (fuel combustion, industrial processes, transportation sources) produce. Additionally, with the large number of homes, structures, and other materials going up in flames, many materials (such as plastics, metals, etc.) were not properly disposed of emitting several harmful organic contaminants into the air.³

The real question is what needs to be done to reduce the potential health and air pollution effects of smoke and associated pollutants from wildfires. One alternative is to burn the material in the field as part of a prescribed fire strategy. Another

²Personal communication with Phil Reese, Colmac Energy.

* All photos have been retained in subcommittee files.

³Source: Environmental Protection Agency.

alternative is to burn the excess biomass as fuel for electrical energy production. Common air pollutants resulting from field burning is compared to burning woody biomass fuel in a biomass boiler in the following table:

Pollutant	Field Burning ⁴ (lbs/ton)	Biomass Boiler ⁵ (lbs/ton)	%Reduction for Biomass Boiler
Sulfur Oxides	1.7	0.04	97.6
Nitrogen Oxides	4.6	0.70	84.8
Carbon Monoxide	70.3	0.40	99.4
Particulates	4.4	0.26	94.1
Hydrocarbons	6.3	0.00	100.0
Total	87.3	1.40	98.4

⁴Emission factors from "Hydrocarbon Characterization of Agricultural Waste Burning." CAL/ARB Project A-7-068-30, University of California Riverside, E.F. Darley, April, 1979.

⁵Based on actual emissions. California Biomass Energy Alliance.

In addition to the positive reduction of specific pollutants described above, converting excess woody biomass into electrical energy will help to reduce our needs on imported oil. As an example, the annual woody biomass burned in the Colmac Energy plant will save the equivalent of 21,000,000 barrels of oil over the lifetime of the plant.

Question 4. Mr. Aune you heard my question for Dr. Johnson on old-growth; based on your experience, what do you think the implications of changing the Forest Service and BLM's mission to old growth restoration would mean to rural communities, wildlife, watersheds, recreations and other values or uses?

Answer. Changing the Forest Service and BLM's mission to old growth restoration will undoubtedly be just as unwise as changing the mission to young growth establishment. Managing national forests for either extreme will not achieve the sustainable conditions described in my original testimony. Healthy forest conditions will require a balance of old, middle-aged and young forest conditions. These considerations have to be balanced with social and economic considerations to truly sustainable.

While it is relatively easy to say our goal is to restore the forests to some sort of pre-European condition, this ignores the fact that we are a nation of 303,164,528 people as of January 3, 2008.⁶ The demands we place on our resources are so vastly different than demands placed on the resources at the time of pre-European conditions. Information is available comparing conditions around the year 2000 and 1900 on the demands we place on our forests to provide wood for the citizens of the United States. For comparison purposes, the US population in 1900 was 76,094,000 or 27.9 percent of the population in 1999. US lumber consumption for 1999 and 1900 provides an interesting comparison of the total volume consumed and the per capita consumption.

In 1999, lumber consumption in the United States for all uses totaled 68.3 billion board feet, continuing records set through the decade. Consumption in 1999 also exceeded levels in the early 1900s, when lumber was the most important raw material used in the United States for construction, manufactured products, and shipping. Per capita consumption in 1999 was 250 board feet, almost equal to the record high of 251 board feet in 1987, but nevertheless greater than per capita use in the 1960s, 1970s, and early 1980s. However, per capita consumption was below averages for most years prior to 1965 and dramatically below that in the early 1900s when consumption exceeded 500 board feet per person.⁷

Per capita consumption was cut in half between 1900 and 1999. This drop was offset by the huge increase in population over the last 100 years. We consumed 30 billion more board feet than we consumed in 1900. Almost none of the wood consumed in 1900 came from the national forests. Any strategy that does not consider

⁶US Popclock. <http://www.census.gov/main/www/popclock.html>.

⁷Howard James. L. 2001. U.S. timber production, trade consumption, and price statistics 1965 to 1999. Res. Pap. FPL-RP-595. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 90 p.

consumptive demands such as wood products, water consumption, meat consumption, minerals consumption, etc. and all of the supply relationships is doomed for failure. We could develop a single-minded focus for the national forests based on providing a large share of the forest products consumed by Americans. This single focus would be just as unwise as restoring our forest to some highly debatable pre-European condition.

A similar view was expressed in the USDA Forest Service General Technical Report I submitted for the record.⁸ In the Introduction to the General Technical Report, Powers and Landrum stated:

From the perspective of human life spans, North American forests seem unchanging. But change is certain. Climate, seemingly immutable to our parents, is changing. And while the exact causes of climatic change remain arguable, evidence compels us to believe that the future will be different from the past and that we must be ready. Managers must develop strategies for coping with change. One expected change is the nature of wildfire. Our forests—particularly those of the West—are threatened. Each successive year seems marked by a rise in wildfire frequency, extent, and severity. Well-meant policies of decades of fire suppression plus shifts in forest management practices have led to changes in forest structure and diversity, physiological stress, and fuel accumulation. And a mantra is heard that our public forests should be managed toward conditions typifying pre-European settlement. But this is a vain hope akin to putting the genie back into the bottle, because our forests have a new complexion (emphasis added). Many of our forests are urbanized—some as traffic corridors, others as semimanaged interstices in a patchwork of community development. This has produced a mosaic of ownerships and a complexity of management challenges. Yet, as we fret with the bustle of everyday life, forests continue to grow. Change marches inexorably. The threat of catastrophic fire looms large.⁹

What should be done? The general concept of restoring the health of our forests without the nonsense of some form of pre-European condition should be the focus of forest management strategies. The focus on restoring the health of our forests provides an opportunity to develop short-term as well as long-term strategies specific to the existing local conditions. When developing restoration strategies focused on forest health conditions, the key component will be developing forest conditions that are resilient to the wide variety of specific site factors, physiological and biological stress relationships, and forest fuels conditions. In order to accomplish the task at hand, most of our western national forests will require substantial thinning programs for the next few decades. Building resiliency into our overstocked forests will require thinning in all size classes!

Programs that establish diameter limits or focus on such vague concepts as only removing small diameter trees lack any basis in science and will not accomplish the goals of leaving resilient healthy stand conditions. Most of the effort will require thinning from below and the focus should be on leaving individual trees with ample growing space on at least three sides. There is very little meaningful debate on that one simple concept. Combining thinning with removal of ladder fuels¹⁰ and surface fuels will provide the best strategy to leave healthy and resilient stand conditions. Given the uncertainties of climate changes, forests that are resilient will be our meaningful legacy to current and future generations. Finally, these forest strategies must be developed in a truly sustainable manner that is based upon strongly integrated economic and social considerations.

Question 5. I am wondering if you think the forest health issues on federal lands can be dealt with in the absence of a vibrant biomass and renewable fuels industry that is encouraged to take materials from federal land.

Answer. This time my answer will be brief—NO! See following response.

Question 6. Can you talk about what it will cost to accomplish this thinning in the absence of a viable timber and biofuels or energy industry in an area?

⁸ USDA Forest Service. 2005. Restoring Fire-Adapted Ecosystems: Proceedings of the 2005 National Silviculture Workshop. General Technical Report PSW-GTR-203. Pacific Southwest Research Station. Albany, California 305 p.

⁹ USDA Forest Service 2005. Restoring Fire-Adapted Ecosystems: Proceedings of the 2005 National Silviculture Workshop. General Technical Report PSW-GTR-203. Pacific Southwest Research Station. Albany, California. 305 p.

¹⁰ Live and dead vegetation that provide a pathway for a ground fire to move upward into the forest canopy leading to the potential of a crown fire.

Answer. Two examples provide some insight into this question. In a 2003 field review of a Lake Tahoe Basin Management Unit project northeast of South Lake Tahoe, the Forest Service presented one of their forest health projects.¹¹ The project involved removing trees and forest fuels that was offered unsuccessfully as a timber sale. No bids were received. The Forest Service then offered the project under a Service Contract and paid the successful bidder approximately \$6,000/acre to accomplish the work. The second example is the entire vegetation management program on the San Bernardino National Forest. Their unit costs are the highest in the nation. I do not have access to the recent figures, but they should be readily available to your Subcommittee. Without a viable forest products industry and developing economically viable projects, federal appropriations will be saddled with very expensive programs. Currently, the national forests are generally using their appropriated funds on relatively easy projects with questionable utility in reducing hazardous fuels and preventing catastrophic wildfire. The more expensive forest health projects that rely exclusively on federal appropriations are being postponed into the future.

Rather than dwelling on the negative aspects and well known examples of high cost projects, the Subcommittee should look closely at success stories that actually have demonstrated cost reductions and revenue enhancements with economically sound thinning programs. These programs should be emulated. The key to every successful project is the availability of a viable forest products industry. The thinning programs on the Eagle Lake Ranger District of the Lassen National Forest near Susanville, California are classic examples of this success. The forest products industry is a vital part of their success. The entire Lassen National Forest area is blessed with both a traditional competitive forest products industry plus a viable and competitive electrical biomass generating industry. Given this mix, here are two examples of forest health projects on the Eagle Lake Ranger District:

The Signal Thinning project was designed to improve overall forest health conditions on 1,189 acres of national forest land. The 2002 project removed 28.5 green tons/acre including 17.1 tons/acre of biomass chips and 11.4 tons/acre of sawlogs. The net revenue from this project was \$74,183 or \$124.67/acre. Before and after pictures document the results in a very meaningful manner. The top photo is before thinning and the bottom is after the thinning was accomplished.

The second example is also from the Eagle Lake Ranger District. This year 2000 project did not have enough revenue generating capability as the Signal Thinning project. The Mower Goshawk Management Area thinning was designed to enhance old growth-goshawk objectives as developed by a Forest Service wildlife biologist. The project reduced the surface and ladder fuels and removed 18 green tons of material per acre including 11.7 tons/acre of biomass chips and 6.3 tons/acre of sawlogs. The Forest Service used a Service Contract to accomplish the project objectives. The Service Contract price was \$197/acre. Selling the products removed from the 108 acre project generated \$3.76/green ton. The revenues helped to offset the Service Contract price and the net cost to the Forest Service was \$129.32/acre or a savings of \$67.98/acre. This project was accomplished before the advent of the stewardship contract authorization. The new authorizations for stewardship contracting make this type of project relatively easy to accomplish. The pictures below demonstrate the before and after aspects of this project.

These two projects demonstrate what can be accomplished with the help of a viable and vibrant forest products industry. In order to accomplish most of the goals of restoring healthy forest conditions, industry must be present and capable of handling all of the products that need to be removed. The biggest need is to make sure that existing forest products industry remains an active partner with the federal land management agencies. Second, federal energy policies must be improved to encourage development of the biomass electrical industry or biomass fuels utilization. We must alter the dynamic of having fuel reduction and thinning as a liability or high cost item to our forests and change them into an asset for forest management programs. The examples cited from the Lassen National Forest provide insight into how this can be accomplished.

RESPONSES OF RUSS HOEFELICH TO QUESTIONS FROM SENATOR BARRASSO

Mr. Hoeflich in your testimony you said: "We believe it is time to . . . build . . . a restoration economy around Oregon and Washington forests. Conservation-based treatments, and the reintroduction of fire where it is needed, will build

¹¹Forest Resource Association Western Region Annual Meeting Field Tour. May 2003. South Lake Tahoe, California.

an economy that will not only create jobs, but will also benefit fish, wildlife, and water quality and could be part of the solution to mitigating the impacts of climate change.”

Question 1. In your estimation is there any hope of developing an economy to deal with the materials from the treatments you speak of on federal lands in Oregon, if those materials can't be utilized by a biomass fuels or energy industry?

Answer. Given the current state of federal forests, we believe sound, conservation based, forest restoration plans will require the removal of non-merchantable woody biomass to improve forest health and reduce the risks from fires caused by decades of stored fuels. However, there is insufficient funding to pay for all of the restoration needed to restore forest health on our federal forestlands. Recognizing this funding shortfall, The Nature Conservancy supports broad consideration of an array of uses for woody biomass, including biomass to energy and ethanol production.

Unfortunately, despite some federal and state incentives, producing biomass energy using woody biomass taken from federal forestlands remains economically marginal. The costs of removal of woody biomass, transporting these materials, developing and/or securing transmission capacity, capital costs of energy or ethanol production infrastructure, etc. are too high at this time to compete with (for example) energy generated from coal or wind or ethanol produced from coal. A case in point is the Lakeview, OR biomass facility; at this time most of the feedstock planned for use at the biomass to energy plant will be supplied from waste material generated by the adjacent sawmill. The sawmill will use a significant portion of the energy produced, and the facility is near major electricity transmission lines. Without these attributes, it is unlikely this project would be economically viable.

In our view, a key to the successful, economically viable use of woody biomass taken from federal forest restoration projects is value-added processing of small logs, coupled with appropriately sized biomass to energy/ethanol to use mill and restoration by-products. At this time, wood products have a higher value than wood for energy. Using the Lakeview project again as my example, the Collins Companies uses state-of-the-art small log processing equipment, allowing the mill to produce dimensional lumber and other products using smaller logs. As an added benefit, the milling of these small logs produces enough waste material to supply the energy plant with nearly 60% of its fuel.

In essence, the answer to your question is a cautious yes. We strongly believe that there are creative, innovative, economically-viable opportunities to use restoration byproducts from restoration of our federal forests, but that we need every tool available, e.g. biomass to energy, to ensure economic viability given changing demand and markets for wood products over time.

To this end, The Nature Conservancy was disappointed that the definition for renewable biomass for ethanol production excluded biomass generated from restoration of our federal forest lands. We look forward to working with the Committee to address this issue.

Mr. Hoefflich, you also said we need to treat up to 550,000 acres annually in Oregon for each of the next 25 years to deal with our collective problem.

Then you said: “We aren't naive. While early engagement with diverse stakeholders can't eliminate the risk of a lawsuit, we have seen it reduce the odds. And while the process takes time, it builds trust. And that's what's needed to take active forest restoration to larger scales.”

Question 2. Given the size of the problem and the reality that there seems to always be someone willing to legally challenge these projects, do we have the time needed to wait for the local trust building?

Answer. There is no alternative to but to build trust; and experience shows that once trust is established the implementation timeline will accelerate rapidly. For example, building trust among stakeholders is has resulted in substantial restoration progress on the Siuslaw National Forest in Oregon where there has not been a timber sale in litigation since the early 1990s. Trust building is paying off on the Fremont National Forest in Oregon where the Collins Company just invested \$7 million in a new state-of-the-art small log facility. It is working on the Colville National Forest in Washington. You'll recall that Russ Vaagen of Vaagen Brothers Lumber Company also testified on behalf of the Northeast Washington Forestry Coalition, which includes Conservation Northwest. Trust building efforts have begun laying the foundation for forest restoration work on the Malheur National Forest.

Other regions of the country are also seeing payoffs from collaborative processes that build trust. The Southwest region was a hotspot of legal challenges to public lands forestry but the appeals and litigation has declined as collaboration has increased. The Apache-Sitgreaves National Forest has had no appeals of projects that are part of a 150,000 acre stewardship contract, a success attributed to the collaboration required for such contracts.

Federal public forests lands belong to all Americans, and it is important to maintain the right of American's to become involved in public resource management decisions. Democracy may not be the most efficient way to make decisions, but over time we believe it produces the most equitable outcomes.

RESPONSES OF MATT DONEGAN TO QUESTIONS FROM SENATOR BARRASSO

Question 1. Mr. Donegan, would I be correct to summarize your testimony by saying: you think your federal neighbor's inability to manage their lands is negatively impacting the forest industry infrastructure you need to manage your lands, as well as your markets?

Answer. Yes

Question 2. If the federal land problems do not improve and your neighbor's inactions dry up your markets, what are your other options for the lands that you own?

Answer. Should market opportunities for growing timber continue to dry up, land-owners should be expected to pursue those market opportunities that remain, or emerge. The primary non-timber market opportunity in the Inland West is real estate development.

Question 3. If Congress and the agencies continue to restrict access to the federal lands and continue to close roads, do you see the fire situation on the federal lands getting any better?

Answer. A well-maintained road infrastructure is very important for suppressing fire.

Question 4. Final question, if your company continues to experience fires that start on federal land and then burn your land; how long before you sell off your at-risk lands?

Answer. At present we have no plans to sell lands due to fire risk, though a meaningful increase in fire risk could cause us to sell lands that we would otherwise own and manage for sustainable timber production.

RESPONSES OF RUSS VAAGEN TO QUESTIONS FROM SENATOR WYDEN

Question 1. I congratulate you on the successes of your collaborative efforts. You mentioned that you have not had appeals or litigation in four years as a result of your collaboration. In your experience, does the Forest Service ever take a history of successful collaboration into account when making contracting decisions?

Answer. The Forest Service does not adequately understand what it means to have successful collaboration in terms of getting more things done on the ground or in the project planning process. If there is successful collaboration, a project can be larger and can move faster because questions are answered ahead of time and while the process is taking place. Our projects are still very similar in size as they always have been. The Forest Service employees are so trained to do more work, especially as it pertains to NEPA, than they have to. They don't seem to realize that if they work with an acceptable collaborative group, that they can move faster and make projects larger. Shifting their thinking has been very difficult.

Question 2. I understand that the new mill that opened in the community of Lakeview in my State can now cut trees with a 7" dbh (diameter at breast height). I understand this equipment has truly increased the capacity of the mill to make profits. Do you think this small diameter technology will change the agency's assessment of "commercial" and "non commercial" timber?

Answer. To be completely honest, I don't think that the agency has a clue what is commercially viable and what is not. They do a very poor job of understanding their customers and what products they can and should provide. I would hope that they would get better at it, in the last four or five years we have had only two USFS employees come to our place of business to ask us questions on what we do so they could better understand what they should provide. We spend millions of dollars buying logs from National Forest lands, you would think it would be a higher priority.

I would also ask you to caution your thinking when it comes to the commercial value of small diameter logs from small trees. They need to be priced significantly less than larger sawlogs in order to be profitable. The Collins Companies should be applauded for their efforts and should be able to buy smaller logs at a discount to larger logs in order to maintain profitable operations, especially in very difficult lumber markets such as the one we find currently.

Lastly, not all trees are created equal. A tree with a 7" DBH is not well defined in terms of value. Some trees are short and have high taper, while others are tall and slender. Each of these trees of the same specie can have very different values. We (as the timber industry) are now using trees smaller than ever before. The value

of these capabilities go far beyond the value of the small logs, but more so to the land that we can provide better stewardship than ever before.

Question 3. As you know, there have been many mills in the Pacific Northwest (and around the country) that have closed. What do you attribute your company's persistence to?

Answer. First and foremost, our persistence is due to the vision and drive of my father, Duane Vaagen, to always strive for the best possible. Best possible in all areas. That drive led us to adopt Scandinavian equipment and stewardship principles when many, if not all were doing much of the same things that they had always done. Many people thought we were crazy, but here we are, doing better work than ever before and providing leadership to a new, better way of doing work in the forests. We have only scratched the surface of the vision, and we are no where near best possible when it comes to responsible resource management and environmental stewardship.

RESPONSES OF RUSS VAAGEN TO QUESTIONS FROM SENATOR BARRASSO

Mr. Vaagen you said in your testimony: "It is very important to have a fully functional wood use market. There are good markets in our area for chips, bark, sawdust, and shavings."

Question 4. What would happen to your company's ability to do the work it is doing if your markets for chips, bark, sawdust, and shavings disappeared?

Answer. Small log sales retrieve \$1,200 per acre not only because we can make lumber out of those logs, but also due to the fact that we can sell the by-products from those activities for good prices. Not having good markets for the by-products means that you have to make up for that loss of revenue in some other way. Operating a sawmill in an area with little to no value being placed on those by products means you have to pay less for logs. This impacts the distance you can haul the products and the overall value that is placed on a timber sale or stewardship project. Less value for the goods means less service work on the ground. It is very possible to operate this way, but it puts more pressure on the resource value making it more difficult than an area that has a fully functional wood use market. The areas that have a fully functional wood use market should be the target area for projects so those markets can continue to thrive because it takes a very long time to develop markets such as ours.

Question 5. I understand you have looked at other regions of the country to see if you might replicate your efforts in Colville elsewhere, what has kept you from opening additional mills in other States?

Answer. There have been many reasons why we have not expanded at this point. Some have been internal, but most have to do with the ability to confidently acquire raw material at a price and volume that would make economical sense. We are still searching and evaluating. We know very well about the bark beetle epidemic that faces Colorado and Wyoming. I have been there. The Forest Service needs to put together larger projects that can attract the kind of investment and interest needed to build a mill. We are working on mobile technology that will allow us to move into areas in a R&D mode to test an area out. By developing that technology and working with local collaborative groups we are hoping to put enough pressure on the Forest Service to help them put together very large, economically viable projects.

We want to be certain that the Forest Service gets it right in our area (Colville National Forest) before we make promises to move on to other area of the country.

If your office wanted to provide us with any information on areas of emphasis within the State of Wyoming we would certain look to work with those that want to find solutions to these forest health problems.

You also said: "Keeping infrastructure in place and healthy is critical to the restoration treatments needed in our forests."

Question 6. In my state of Wyoming we are down to a small handful of sawmills compared to just a decade ago, what would you recommend Congress do to re-establish the forestry infrastructure needed to undertake what you seem to be succeeding at in Northeast Washington?

Answer. We talk to the remaining sawmill operators in your state regularly. Their issues continue to be very similar to ours. They need more wood available at a reasonable price. Providing large, landscape level projects that can operate year over year is one of the best ways to address this. Filling the needs of the existing sawmills first is critical. Once that is done, offering more volume is the best way to entice investment and expansion.

Helping expand biomass power generation would also be helpful. In your state there are little to no markets for wood chips that I know of. Burning that wood waste in a clean boiler system is a great way to use the residual wood waste. Not

only can the steam pressure be used to turn turbines to create power, the steam can be used to dry lumber and to heat buildings or even entire municipal areas. Continuing emphasis on tax credits for biomass power as green energy is helpful. The only caution is that providing incentives and funding for some new projects that directly compete with existing infrastructure can have a negative affect overall by putting an otherwise healthy company out of business.

Finally you said about the northern European Counties: "They don't have wildfires and don't use prescribed fire nearly as much as our National Forest managers do. They use wood residuals to make power in the place of coal. Their milling infrastructure is still in place and there no social disconnect between responsible resource management and conservation, they are nearly one in the same."

Question 7. So what is different, do they have the environmental documentation laws, appeals regulations, and litigation that we have when it comes to federal lands?

Answer. I don't pretend to know the laws of other nations, so I can only share my perceptions from seeing our land management and knowing our process, with what I have seen in other countries. I think they have a completely different view about responsible management. Many of the countries are smaller, so they have more common thinking when it comes to their lands. In Finland for instance, the land mass is roughly the size of a Canadian province. Most of the public understand what resources they have and accept how the government and the private land-owners manage their land. In the US there is very little understanding of what resources we have from region to region. Very few know how those lands are managed. I believe this is the reason we have create so many laws and regulations that make very little sense on a local level yet have a great deal of impact. We have built a system for the lowest common denominator that puts us in the unenviable position we find ourselves in today.

Question 8. What would we have to change in this country to replicate their success?

Answer. We need to focus on doing a few projects right and showcasing them. We need to build confidence in the public as a whole and the local communities that we are doing the right thing and that we are going to continue to do the right thing. We should probably start sending delegations from the US to other countries in order to learn from what is being done there so we can borrow their techniques and systems here. No one that I know in the Forest Service knows anything about forestry in any other country. They don't even seem to know about successful forestry on private, state, and other lands.

The USFS spends \$1.8 Billion annually on fighting fires, yet less than 2% of the burned areas are reclaimed economically. European nations don't have these costs. They reduce fire danger by thinning aggressively. At the same time they have the World's healthiest forests with the benefits going back to the local communities and their people.

If we commissioned some studies of forestry and forest products in Germany, Austria, France, Finland, Sweden, and Canada our government and industry could learn a great deal.

RESPONSES OF K. NORMAN JOHNSON TO QUESTIONS FROM SENATOR BARRASSO

Question 1. If I understand your testimony, you support additional removal of both commercial and pre-commercial trees and slash from federal land to improve forest health and to restore these ecosystems.

Answer. Yes, of course.

Question 2. Do you believe there is currently an adequate demand for this type of material to facilitate its economic removal from the federal lands you believe should be managed?

Answer. There is demand for these products. The demand would be greater if there was a stable supply of products and better markets for the energy that can be produced from forest biomass. This would also encourage investment in such facilities where plants capable of utilizing this material are absent.

Question 3. If not, what markets need to be encouraged, and should material from federal lands be allowed to participate in those markets?

Answer. Please see the answer to question #2.

Question 4. Your testimony has some very specific views about the treatment of old-growth forests. Given that in some areas in Wyoming and Colorado we have 70% mortality, and your statements about what parts of forests should and shouldn't be managed and if I understood you answer to my question you suggested that these stands suffered these fires historically and there wasn't much we could or should

do about the older dead and dying trees at high elevation in the intermountain West.

What would you recommend be done to restore our intermountain forests that are being killed by the insects?

What would you have us do about the dead old-growth?

Answer. Appropriate management differs with forest type and management history. We were distinguishing between the disturbance processes in the forests of Oregon and Washington and those in the Intermountain forests. For advice on the management of Intermountain forests, we suggest that you contact the forestry/natural resource experts at such institutions as Colorado State University, University of Idaho, Montana State University, and the University of Montana.

Question 5. Congress has a long history of supporting a broad set of multiple use objectives for the Forest Service and BLM, so are you proposing that this position should change? If that is the case, what are the implications to rural communities, wildlife, watersheds recreations and other values or uses?

Answer. We were not proposing that we change the multiple-use objectives for federal lands. In fact, we strongly support involvement of stakeholders representing all interests as a part of management planning and decision making.

Question 6. In your answer to my question during the hearing are you suggesting that these unfortunate events do occur and there is nothing that we should do about these situations?

Answer. We were not suggesting that nothing could be done. In fact, our testimony suggests what we might do to reduce the change of uncharacteristic disturbances. Again, relative to Intermountain forests, we suggest you contact experts from the states where those forests occur.

Question 7. What about the damage to the soil and wildlife and fisheries that could occur if one of these areas burns? Are you suggesting those are acceptable consequences of saving all old-growth dead or alive?

Answer. We were suggesting that the ecological function of old growth trees continues for many decades and sometimes centuries after they die. Furthermore, replacing old-growth forests with dense young stands, including plantations, will not reduce the risk of intense fire with resultant damage to other resources; indeed, it sometimes increases it.

Question 8. If we burn these areas and seriously damage the reproductive nature of these thin soils and delay a future forest for decades, is that an acceptable consequence to you of having not cut dead old growth trees?

Answer. We are not sure we understand this question. Our suggestions were aimed at preventing the uncharacteristic fires that can cause the effects you mention. Again, as noted in our response to question 7, getting rid of the old growth is not going to eliminate the risk of fire.

RESPONSES OF JIM CASWELL TO QUESTIONS FROM SENATOR WYDEN

Question 1. What is the largest stewardship contract that you have issued?

Answer. By project area, the Gerber Stew Project, implemented by the BLM's Lakeview (Oregon) District Office, is the agency's largest stewardship contract. The Gerber Stew Project, with a 7-year contract term, covers a gross planned area of 10,000 acres. The Project is in its fourth year and has 7,500 acres under contract for a variety of treatments, with some acres receiving multiple treatments.

Question 2. Do you feel it is possible to use this tool for large acreage?

Answer. Yes, stewardship contracting could be a very effective tool for landscape-sized projects (10,000 to 50,000 acres). Treating larger areas presents the opportunity to apply a diversity of vegetative treatments, which may result in an increase in the amount and types of by-products available to the contractor.

Question 3. What is the longest timeframe for a stewardship contract that you have issued?

Answer. Public Law 108-7 authorizes the BLM to enter into stewardship contracts of up to 10 years in length. BLM has entered into 10 contracts with the maximum 10-year timeframe. The average length of our stewardship contracts is 3.5 years. Nearly 70 percent of the BLM's stewardship contracts have contract terms of one to three years; 17 percent have terms of four to seven years; 14 percent have terms of eight to 10 years.

Question 4. Do you think it is an option for longer timeframe contracts?

Answer. A recent interagency stewardship survey suggested that five 10-year contracts may be more beneficial when building community-scale wood processing or bioenergy facilities. The BLM has used stewardship contracting authority primarily with small to mid-size contractors for an average contract length of 3.5 years. We

have not encountered a notable demand for contracts exceeding the currently-authorized 10-year term. Some informal conversations between land managers and larger woodfiber processors have indicated that larger, landscape-level treatments could potentially benefit their long-term business strategy due to the increased assurance of access to the product over the life of their investments (generally 20 years).

However, other factors also need to be taken into consideration in assessing whether the appropriate length of stewardship contracts should be increased above the 10-year duration set in Public Law 108-7, which already reflects an extension of time periods for procurement and service contract periods generally available to the Government. These factors include the risks to the taxpayer if circumstances on-the-ground change over a longer time horizon, the risks to contractors if economic and market conditions change dramatically, and potential loss of revenues to the Treasury. We believe the current 10-year authority Congress provided for stewardship contracts provides a reasonable balance in meeting the objectives of stewardship contracts.

Question 5. What are the barriers to doing larger or longer stewardship contracts?

Answer. The specific barriers to implementing larger or longer stewardship contracts are highly dependent upon local conditions. In general, however, the absence of any of the following factors would raise significant barriers to the development and implementation of larger, landscape-scale stewardship contract projects:

- established infrastructure such as permanent roads;
- local industry capability to process increased volume of contract by-products;
- local workforce ready, willing, and possessing the skills needed to complete the service required by the contract;
- local communication infrastructure to enable the BLM to contact all local entrepreneurs who may be interested in and able to bid on a given contract statement of work; and
- a plan to promote effective cooperation and coordination of vegetative treatments across ownership/management jurisdictions.

RESPONSES OF MARK REY TO QUESTIONS FROM SENATOR WYDEN

Question 1. You stated in the hearing that the Forest Service had logged only 400 acres of old growth forests in the Pacific Northwest since the Northwest Forest Plan went into effect. However, the satellite-based late-successional old-growth monitoring report prepared by Moeur et al indicates that 17,300 acres of old forest were destroyed by clearcutting within the range of the spotted owl. See Moeur, M, T. A. Spies, M. Hemstrom, J. Alegria, J. Browning, J. Cissel, W. B. Cohen, T. E. Demeo, S. Healy and R. Warbington. In review. Northwest Forest Plan-The First Ten Years (1994-2000): Status and Trends of Late-Successional and Old-Growth Forests. USDA Forest Service General Technical Report. http://www.fs.fed.us/pnw/publications/pnw_gtr646/

The recent spotted owl status review found that 156,000 acres of suitable habitat for the spotted owl on federal lands has been lost to both clearcutting (as well as thinning that would not be visible from space so was excluded by the Moeur et al study). See U.S. Department of the Interior, Fish and Wildlife Service. 2004. Estimated Trends in Suitable Habitat for The Northern Spotted Owl (*Strix occidentalis caurina*) on Federal Lands from 1994 to 2003. For Use By: Sustainable Ecosystems Institute for the Northern Spotted Owl 5-year Review. USDI Fish and Wildlife Serv. Can you reconcile the discrepancy in your statement and that from the cite?

Answer. Information from broad-scale remote-sensing vegetation classification was used to estimate the amount of older forest present near the start of the Northwest Forest Plan (Plan) (in Oregon the approximate date is 1996). In 1996, the amount of older Forest Plan-wide was 7,867,900 acres.

In our report, Northwest Forest Plan—The first 10 years (1994–2003): status and trend of late-successional and old-growth forest. Gen. Tech. Rep. PNW-GTR-646. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, information from broad-scale remote-sensing disturbance-mapping projects was used to assess loss of older forest to harvest in the first decade after the Plan. Between 1996 and 2002, 16,900 acres of older forest were estimated to be clearcut. The remote-sensing approach used for this time frame was only sensitive to land cover changes resulting from regeneration harvest (clearcutting), land use conversion (e.g., forested land cleared for nonforest use), and wildfire severe enough to remove the forest canopy. It was not sufficiently sensitive to detect less severe disturbances that did not remove the canopy, such as partial harvest, thinnings, or groundfires. Therefore, our reported acres of older forest removed by harvest are an underestimate of the actual amount lost.

The total of 16,900 acres is the older forest mapped as removed by stand replacing harvest across all of the federal lands in the Northwest Forest Plan area, as of October 2002. These management actions were consistent with the definitions and prescriptions of the Northwest Forest Plan. Approximately 400 acres has been harvested on National Forest lands in the Region 6 portion of the Northwest Forest Plan area since October of 2002.

Question 2. Russ Vaagen—who testified on the third panel at the hearing—makes a point in his testimony that echoes many others’ frustration with the agencies’ failure to take full advantage of best-value contracting. Mr. Vaagen suggests that if a mill owner develops broad support among all interested stakeholders through collaboration, then that should be factored into the bidding process. Does the Forest Service do that, and, if not, why not?

Answer. The Forest Service evaluates a number of factors as part of the bidding process, including:

- A. Price
- B. Technical Approach
 - Plan of Operation
 - Quality Control
 - Contract Manager and On-the-Ground Supervisor(s)
 - Equipment
 - Production Capability
- C. Capability and Past Performance
 - Key Personnel
 - Subcontractors
 - Past Contracts
- D. Utilization of Local Work Force

The evaluation of these factors is done for each contractor’s proposal and is based on Forest Service Handbook 2409.19 Chapter 63.2, which states: “To ensure that there is opportunity for use of local small business sawmills, ensure that the request for proposals for stewardship contracting projects considers technical evaluation criteria that give weight for use of local small businesses, including small business sawlog mills. During the evaluation and award process, give additional weight to those proposals that are responsive to the local community needs.”

Collaboration is a part of stewardship project development and implementation. To the degree that collaboration is used in the contractor’s proposal to be responsive to the evaluation factors, the Forest Service does consider it.

Question 3. What is the largest stewardship contract that you have issued? Do you feel it is possible to use this tool for large acreage? What is the longest timeframe for a stewardship contract that you have issued? Do you think it is an option for longer timeframe contracts? What are the barriers to doing larger or longer stewardship contracts?

Answer. The White Mountain Contract on the Apache-Sitgreaves National Forest in Arizona is the largest stewardship contract in the nation at this time. It is a multi-year Integrated Resource Service Contract with a ten-year term expected to treat an average of 10,000 acres per year for a total of approximately 150,000 acres. Currently, we issue stewardship contracts for a maximum of ten year terms as provided under the stewardship contracting authority, which already reflects an extension of time periods for procurement and service contract periods generally available to the Government. This is based, primarily, on the length of time that can be reasonably planned. While we recognize that terms of greater than ten years could increase local market and economic stability, there is a concern that time frames beyond this can lead to elevated levels of uncertainty of management need and product flow while increasing the potential loss of revenues to the Treasury.

The Forest Service is strongly in favor of expanding the use of stewardship contracts to accomplish forest restoration work in collaboration with local communities, non-governmental organizations, tribal, state, and local governments. There are factors which challenge our ability to expand the scope and scale of contracts. Some constraints that could limit our success of providing guaranteed long-term contracts include, but are not limited to:

- Land management horizon limitations—changed circumstances and new information, such as catastrophic events and discovery of new sensitive, threatened, and endangered species; changes in land management in response to resource needs and environmental bio-energy, carbon sequestration, and climate change.
- Market uncertainty—long range estimates of product volume and service work acreage; new markets and new technology

- Regulatory constraints—lack of implementable NEPA documentation for extended terms;

RESPONSES OF MARK REY TO QUESTIONS FROM SENATOR BARRASSO

Question 4. How important to the Forest Service's efforts to restore forest health are federal grant programs or tax credits that allow material from your lands to be utilized for renewable fuel or renewable electricity programs?

Answer. Programs that provide incentives to public—private partnership are essential to accelerate success. The Forest Service is committed to management activity that helps to restore forest health on the National Forests and to assist on all of the Nation's forests. One program, the Forest Service Woody Biomass Utilization Grant program was authorized 2005. The objectives of this grant program are to:

- Help reduce forest management costs by increasing value of biomass and other forest products generated from forest restoration activities;
- Create incentives and/or reduce business risk for increased use of biomass from National Forest System lands;
- Institute projects that target and help remove economic and market barriers to using small-diameter trees and woody biomass.

In fiscal year 2005, twenty proposals were funded at \$4.3 million and matched with approximately \$16 million in non-federal dollars. In fiscal year 2006, eighteen proposals were funded at almost \$4.2 million and matched with approximately \$9 million in non-federal dollars. In fiscal year 2007, twenty-six proposals were funded at \$6.2 million and matched with approximately \$12 million in non-federal dollars. The 2008 program is underway with 92 applications under review, totaling \$23 million in requested funding.

Your office recently sent a letter to Senator Domenici expressing grave concerns about the definitions of renewable biomass in Title Two and Title Fourteen of the recently passed House Energy Bill.

That letter said: Title Two of the House passed Energy Bill "excludes all material from Federal Forests, with the exception of those obtained from the immediate vicinity of buildings or public infrastructure at risk to wildfire. This would presume that the majority of materials produced on federal lands would not be available for use in the creation of bio-fuels."

Question 5. How much would it cost the Forest Service to restore the at-risk-forest lands in Oregon and Washington if the material can't be utilized by the biomass industry?

Answer. There are several factors that lead to National Forest System lands being regarded as "at risk," including hazardous levels of fuel accumulation, insect infestations, and restoring habitat for threatened and endangered species. Decisions on project purpose, design, and parameters are made at the individual national forest. For projects where the design criteria include removal of small diameter woody vegetation, the price to the Forest Service of conducting such treatment can be reduced if the woody biomass has value and can be considered a product. Therefore, in areas where there is a viable fuels market, the ability to sell woody biomass can significantly reduce the cost of vegetation treatments.

Question 6. Can you provide my staff with an estimate of the anticipated total cost of treating the other at-risk federal forest lands nationwide, with and without available bio-fuels and/or bio-energy markets for material off federal lands?

Answer. Fuels treatments are designed and implemented to fit the needs of a particular landscape. Therefore, there is no standard prescription for treating federal lands at-risk from catastrophic wildfire and no way to provide a meaningful cost estimates. In addition, not all areas are accessible for biomass utilization (due to a combination of factors, including local industry, haul distances, etc). However, in areas that currently have a viable biomass market, the Forest Service saves money on contracting the cutting and piling of the small diameter woody material, plus, by using the material, the Forest Service does not have to have crews burn the fuel piles, saving additional expense and avoiding the release of CO₂ into the atmosphere from the burning piles.

Question 7. Would you have your staff develop an estimate for me of how much biomass material could be removed from Forest Service lands in Oregon and Washington and nationwide over the next 10 years and the amount of tons of carbon that could be released if these areas burned rather than are treated?

Answer. Individual national forests make decisions on how to design and when to undertake treatments on at-risk lands. Within a forest service region there is a large variation in ecosystems, the treatments used to restore those ecosystems, and the amount of small-diameter woody material produced by each treatment. However, the Forest Service treats a significant amount of acreage each year that pro-

duces woody material. Since, wildfires currently release over 10 tons/km of CO₂ annually in the Northwest, treatments to reduce the carbon release associated with wildfires can have an important impact on decreasing the greenhouse gas effect. In contrast, mechanical treatment with associated prescribed burning releases much less CO₂ into the atmosphere, while mechanical treatment with biomass utilization reduces the CO₂ emissions from the treatment area even further.

RESPONSES OF MARK REY TO QUESTIONS FROM SENATOR SMITH

Question 8. Can you provide a breakdown of direct costs associated with fighting fires on national forests in each of the last five years, along with an estimate of the economic impact of the lost timber?

Answer. In FY 2007 the Forest Service modified coding for the fiscal system to associate direct suppression expenditures to the unit (e.g., Forest) where the incident occurred, or the incident “host” unit. Prior to FY 2007 the system associated suppression expenditures with the resources’ host unit, or the sending unit. To compile suppression expenditures on a Forest basis prior to FY 2007 would require significant analysis. The Forest Service will continue to make modifications to enhance accountability and provide appropriate data. Below is a chart with FY 2007 expenditures by Forest, however, please note that it does not include FS expenditures on other federal or cooperator incidents. The agency is currently discussing options for displaying those costs to the State, and possibly the Forest level next fiscal year.

FS Region 06—FY 2007 Suppression Costs directly charged to Incidents	Expenditures by Activity—1,000 \$’s		Total Expenditures 1,000 \$’s
	BAER	Suppression	
0601: Deschutes	193.9	10,904.6	11,098.5
0602: Fremont		1,877.4	1,877.4
0603: Gifford Pinchot		183.3	183.3
0604: Malheur	567.8	25,590.3	26,158.1
0605: Mt Baker- Snoqualmie		88.9	88.9
0606: Mt Hood	355.4	3,315.5	3,670.9
0607: Ochoco	243.7	1,402.9	1,646.6
0609: Olympic	95.0	304.4	399.4
0610: Rogue River/ Siskiyou		2,293.0	2,293.0
0611: Siskiyou		1.6	1.6
0612: Siuslaw		12.5	12.5
0614: Umatill	334.6	26,941.1	27,275.7
0615: Umpqua		1,979.0	1,979.0
0616: Wallowa Whitman	242.9	23,734.1	23,976.9
0617: Wenatchee	13,357.4	14,418.9	27,776.3
0618: Willamette	66.4	299.7	366.1
0620: Winema		11.2	11.2
0621: Colville		6,519.4	6,519.4

FS Region 06—FY 2007 Suppression Costs directly charged to Incidents	Expenditures by Activity—1,000 \$'s		Total Expenditures 1,000 \$'s
	BAER	Suppression	
0622: Columbia River Gorge Natural Area		138.6	138.6
Totals	\$15,457.1	\$120,016.5	\$135,473.6

** Does not include FS expenditures for other federal agencies & non-federal fires.

We do not calculate economic loss from fire killed trees for all fires or areas of fires. We do calculate economic values for the fire areas that we analyze for salvage sale projects. During the NEPA analysis for each salvage project we calculate the value of volume being included in each alternative, as well as the values forgone with the no action alternative. The percent of fire killed trees that actually get included in a salvage project is dependent on many factors. Example of these factors include, where the fires burned in relation to Wilderness, Inventories Roadless Areas, and Forest Plan Land Use Allocations that do not allow for salvage, road accessibility, logging system costs, species and sizes of dead trees, and resource issues and concerns.

The charring caused by fire does not immediately reduce the value of the wood, but value loss occurs quickly as a result of subsequent deterioration caused by several factors including decreasing moisture content of the wood, causing checking and splitting, attacks by beetles, decay fungi and stains.

Question 9. Biomass cogeneration is seen as an essential component of any financially feasible stewardship projects, yet there is little financial aid to add such capacity so that a mill can financially succeed and generate positive cash flow. Given that most mills cannot finance the cost of adding such capacity, do you believe that it is in the country's best interest for the government to help finance the addition of biomass capacity, particularly in the West?

Answer. Congress and the Administration have worked together to support financial assistance and incentives to help expand biomass capacity. Hazardous fuels on both federal and private lands, combined with extended drought across much of the west, expanding wildland urban interface (WUI), and managerial decisions made during fire incidents, have contributed to escalating cost of fire suppression. We believe that it is important to find ways to economically remove this woody biomass and utilize it in order to help reduce wildland fire severity, protect property and other important values, and progress in restoring the health of our National Forest.