HEARING ON THE IMPACT AND STATUS OF THE NORTHERN SPOTTED OWL ON NATIONAL FORESTS

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON FOREST AND FOREST HEALTH

OF THE

COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

MARCH 19, 1998, WASHINGTON, DC

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OVERSIGHT HEARING ON THE IMPACT AND STATUS OF THE NORTHERN SPOTTED OWL ON NATIONAL FORESTS

THURSDAY, MARCH 19, 1998

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON FORESTS AND FOREST HEALTH, COMMITTEE ON RESOURCES, *Washington, DC.*

The Subcommittee met, pursuant to notice, at 2:04 p.m., in room 1324, Longworth House Office Building, Hon. Helen Chenoweth (chairman of the Subcommittee) presiding.

STATEMENT OF HON. HELEN CHENOWETH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO

Mrs. CHENOWETH. [presiding] The Subcommittee on Forests and Forest Health will come to order. The Subcommittee is meeting today to hear testimony on the impact and status of the northern spotted owl on the national forests.

This afternoon, the Subcommittee on Forests and Forest Health meets to evaluate the impact and status of the northern spotted owl on national forests in the Pacific Northwest. It has been 8 years since the Fish and Wildlife Service listed the owl as a threatened species in June 1990. In its listing decision the Service found that past trends, and I quote, "past trends strongly suggest that much of the remaining unprotected spotted owl habitat could disappear within 20 to 30 years, and on some forests the unprotected habitat could disappear within 10 years."—end quote.

Time has proven that prediction wrong. Since 1990, the area of known habitat has increased each year. Population counts have increased significantly over time, as well. And thanks in part to better inventories, we have also learned that the owl uses a greater variety of habitat than was initially assumed.

In 1994, when the President's Forest Plan was adopted, the landscape really changed. In one fell swoop, millions of acres of spotted owl habitat were set aside and stringent standards and guidelines were adopted, drastically altering the management of 19 national forests in 8 BLM districts.

As a result, at least 88 percent of the 24 million acre land base is now off-limits to timber management activities. This created a vastly different picture from the one described in 1990 when the Service decided that the owl's habitat was threatened because 63 percent of the national forest land within its range was subject to timber harvest.

Now, 4 years after adoption of the President's Forest Plan and 8 years after the spotted owl was listed, it is time to re-evaluate

the status of the owl, the condition of its habitat, the results of the agency's management under the plan, monitoring results, and plans for future research.

We must ask how its management affected the owl and what effect the owl has had on forest management. How much have we spent on management and monitoring activities, and what were the results? And most importantly, when and how will we know whether the decisions we made in the first half of this decade have worked so that the owl can ultimately be removed from the threatened list?

The growing body of scientific data on the population of the northern spotted owl, the area and type of habitat it requires, and changing management direction for both Federal lands and other lands have rendered obsolete many of the original assumptions about the owl and its habitat.

Now, scientists and land managers have raised new concerns that the invasion of the barred owl and the very real threat of catastrophic fire in reserved lands pose an even greater threat to the owl. These concerns need to be addressed. It is critical that we ensure, through this Committee's oversight responsibility, that national forest management decisions are made and taxpayer dollars are spent wisely. It is my intent that this hearing will shed light on some of our questions and help identify what changes may be needed to significantly improve management of the owl and its habitat in the future.

[The prepared statement of Mrs. Chenoweth follows:]

STATEMENT OF HON. HELEN CHENOWETH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO

This afternoon the Subcommittee on Forests and Forest Health meets to evaluate the impact and status of the northern spotted owl on national forests in the Pacific Northwest. It has been eight years since the Fish and Wildlife Service listed the owl as a threatened species in June, 1990. In its listing decision, the Service found that "past trends strongly suggest that much of the remaining unprotected spotted owl habitat could disappear within 20 to 30 years, and on some forests, the unprotected habitat could disappear within 10 years."

Time has proven that prediction wrong. Since 1990, the area of known habitat has increased each year. Population counts have increased significantly over time as well. Thanks in part to better inventories, we have also learned that the owl uses a greater variety of habitat than was initially assumed.

In 1994, when the President's Forest Plan was adopted, the landscape really changed. In one fell swoop, millions of acres of spotted owl habitat were set aside and stringent standards and guidelines were adopted, drastically altering the management of nineteen national forests and eight BLM districts. As a result, at least 88 percent of the 24 million acre land base is now off limits to timber management activities. This created a vastly different picture from the one described in 1990, when the Service decided that the owl's habitat was threatened because 63 percent of the national forest land within its range was subject to timber harvest.

Now, four years after adoption of the President's Forest Plan and eight years after the spotted owl was listed, it is time to reevaluate the status of the owl, the condition of its habitat, the results of the agencies' management under the plan, monitoring results, and plans for future research. We must ask, how has management affected the owl, and what effect has the owl had on forest management? How much have we spent on management and monitoring activities, and what were the results? And most importantly, when and how will we know whether the decisions we made in the first half of this decade have worked, so that the owl can ultimately be removed from the threatened list?

The growing body of scientific data on the population of the northern spotted owl, the area and type of habitat it requires, and changing management direction for both Federal lands and other lands have rendered obsolete many of the original assumptions about the owl and its habitat. Now, scientists and land managers have

raised new concerns that the invasion of the barred owl and the very real threat of catastrophic fire in "reserved" lands pose an even greater threat to the owl. These concerns need to be addressed.

It is critical that we ensure, through this Committee's oversight responsibility, that national forest management decisions are made and taxpayer dollars are spent wisely. It is my intent that this hearing will shed light on some of our questions and help identify what changes may be needed to significantly improve management of the owl and its habitat in the future.

Mrs. CHENOWETH. If and when the Minority Member arrives, I will recognize him for any statements he may have; otherwise, I'm sure he'll have a statement that we'll be happy to submit in its entirety to the record. So with that, I'm very pleased and honored to introduce our first witness, the Honorable Wally Herger. Mr. Herger.

STATEMENT OF HON. WALLY HERGER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. HERGER. Thank you very much, Madam Chairman, and I thank you for this opportunity to testify today regarding oversight of the northern spotted owl.

When this species originally was listed by the Fish and Wildlife Service on June 26, 1990, the Service indicated two reasons for declaring the northern spotted owl as a threatened species. One, widespread destruction and modification of its habitat, and, two, existing regulatory mechanisms were inadequate to control further habitat loss.

However, since 1990 the definition of suitable habitat for the northern spotted owl has expanded until it now includes approximately 80 percent of the forested lands in California alone. Therefore, of the Service's two reasons for listing the owl—one, widespread destruction and modification of owl habitat has not occurred, and, in fact, an increase in habitat has been found; and, two, California regulatory mechanisms have been found to provide adequate habitat protection.

In addition, since this listing, owl numbers have been found to be much higher than previously estimated. In 1986, the National Audubon Society convened a blue-ribbon panel of experts to determine how many owls were needed to keep the species viable. They determined viability would require between 1,100 and 1,200 pairs, or 2,200 to 2,400 total owls.

In 1991, the U.S. Fish and Wildlife Service reported that further studies established that at least 3,500 known pairs of owls, or 7,000 total owls, throughout California and the Pacific Northwest.

Madam Chairman, this is three times the number experts originally reported were needed for a viable population. In addition, in 1995 the U.S. Forest Service reported an additional 2,600 to 4,000 California spotted owls in northern California. According to Forest Service biologists, California spotted owls are genetically identical to northern spotted owls and fully capable of inter-breeding with the northern spotted owl.

The only difference is that California owls live in the Sierra Nevada mountain range, while the northern owl lives in the Cascade mountain range. This means that just two years ago there were between 9,600 and 11,000 total spotted owls in California and the Pacific Northwest—between four and five times the number that sci-

entists have stated are needed to keep the species viable. Each year the total number increases as new nesting sites are confirmed, yet the species is still listed as threatened and is still managed as though it were in decline.

Since the listing of the northern spotted owl, 36 mills in my district alone have been forced to close their doors. A thirty-seventh mill is currently shut down until more local timber supplies can be found. This dramatic loss of jobs has forced many community members into the welfare rolls.

A professor at the University of California at Berkeley estimated, in 1993 alone, the unemployment compensation resulting from the implementation of the President's plan for the spotted owl increased by over $745 million. In recent years, Trinity County, in my district, has had an unemployment rate that has at times hovered around 20 percent.

Siskiyou County reported that in some years 23 of 29 schools in the county have 50 percent or more of their children receiving meals for needy children. This is a tragedy. These people don't want welfare. They want to work.

Madam Chairman, a strong economy and a healthy environment need not be mutually exclusive. The Endangered Species Act was never intended to foster intolerance in our society, yet that is exactly what happens every time we pit saving species against jobs and education.

By relying on sound science, we can maintain spotted owl populations and ensure jobs for our communities and support for our schools. If there was once a need to protect the spotted owl, that need has clearly been met. It is time to review the manner in which we deal with the spotted owl.

Madam Chairman, in closing I would like to draw your attention to the testimony of the California Farm Bureau Federation President, Bill Pauli, and request it be entered into the record. This testimony goes into greater detail on what the impacts of listing of the owl have had on California.

Again, I thank you for this opportunity to speak on behalf of my constituents in northern California.

[The prepared statement of Mr. Herger follows:]

STATEMENT OF HON. WALLY HERGER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Madame Chairman, members of the Subcommittee, thank you for the opportunity to testify today regarding oversight of the northern spotted owl.

When this subspecies originally was listed by the Fish & Wildlife Service on June 26, 1990, the Service indicated two reasons for declaring the northern spotted owl as a threatened species: 1). widespread destruction and modification of its habitat, and 2). existing regulatory mechanisms were inadequate to control further habitat loss. However, since 1990, the definition of suitable habitat for the northern spotted owl has expanded until it now includes approximately 80 percent of the forested lands in California alone. Therefore, of the service's two reasons for listing the owl, 1). widespread destruction and modification of owl habitat has not occurred and in fact, an increase in habitat has been found, and 2). California regulatory mechanisms have been found to provide adequate habitat protection.

In addition, since its listing, owl numbers have been found to be much higher than previously estimated. In 1986, the National Audubon Society convened a "blue ribbon panel" of experts to determine how many owls were needed to keep the species viable. They determined viability would require between 1,100 and 1,200 pairs, or 2,200 to 2,400 total owls. In 1991, the U.S. Fish & Wildlife Service reported that further studies established at least 3,500 known pairs of owls—or 7,000 total owls—

throughout California and the Pacific northwest. This is three times the number experts originally reported were needed for a viable population. In addition, in 1995 the U.S. Forest Service reported an additional 2,600 to 4,000 California spotted owls in northern California. According to Forest Service biologists, California spotted owls are genetically identical to northern spotted owls and are fully capable of interbreeding with the northern owl. The only difference is that California owls live in the Sierra Mountain range, while the northern owl lives in the Cascade Mountain range. This means that just 2 years ago there were between 9,600 and 11,000 total spotted owls in California and the Pacific northwest—between four and five times the number that scientists have stated are needed to keep the species viable. Each year the total number increases as new nesting sites are confirmed. Yet the species is still listed as threatened and is still managed as though it were in decline.

Since the listing of the northern spotted owl, 36 mills in my district alone have been forced to close their doors. A 37th mill is currently shut down until more local timber supplies can be found. This dramatic loss of jobs has forced many community members onto the welfare rolls. A professor at the University of California at Berkley estimated, in 1993 alone, the unemployment compensation resulting from the implementation of the President's plan for the spotted owl increased by over $745 million dollars. In recent years, Trinity County in my district has had an unemployment rate that has at times hovered around 20 percent. Siskiyou County reported that in some years, 23 of 29 schools in the county have 50 percent or more of their children receiving meals for needy children. This is a tragedy. These people don't want welfare. They want to work.

Madame Chairman, a strong economy and a healthy environment need not be mutually exclusive. The endangered species Act was never intended to foster intolerance in our society, yet that is exactly what happens every time we pit saving species against jobs and education. By relying on sound science we can maintain spotted owl populations and ensure jobs for our communities and support for our schools.

If there was once a need to protect the spotted owl that need has clearly been met. It is time to review the manner in which we deal with the spotted owl.

Again thank you for this opportunity to speak on behalf of my constituents.

[The prepared statement of the California Farm Bureau Federation may be found at end of hearing.]

Mrs. CHENOWETH. Thank you, Mr. Herger. Do you know if the National Audubon Society or the Fish and Wildlife Society have indicated how many owls are necessary today to preserve viability in that species?

Mr. HERGER. I do not. All I know is what they at one time indicated.

Mrs. CHENOWETH. OK.

Mr. HERGER. Back in 1986.

Mrs. CHENOWETH. So you don't know if they've changed their—revised their earlier estimates.

Mr. HERGER. I do not. I do know that we have identified at least four times—three to four times more than what they at that time indicated they needed for a viability.

Mrs. CHENOWETH. In the best of all worlds, if we had the best of all worlds, what would you recommend happen?

Mr. HERGER. Well, Madam Chairman, thank you for asking. I support the Endangered Species Act. I believe, however, it is not being implemented in a fair and equitable manner. I think we've shown in our area that we know a great deal more in how to manage our forests today than we did 20 to 30 years ago, and we have shown that we can manage and be able to have viable northern spotted owl populations and still be able to go in, and by thinning our forests, working to restore them to their historic levels—they are currently in areas two to three times denser than they were—that we can thin these forests out, be able to have a very viable habitat for the northern spotted owl, and at the same time be able

to supply our communities with the jobs to keep wood products for our mills and supply our country with the very needed wood products that they need to keep our country going.

I would like to see some of this balance brought into play that is very obviously out of balance now. I'd like to see the politics removed. We have a number of special interests. I'm afraid within the environmental community that they have staked out a philosophy that seems to be refusing to look at new science. I don't believe our country can afford to continue in that direction any longer.

Mrs. CHENOWETH. Mr. Herger, is there anything else you would like to add for the record?

Mr. HERGER. I really don't. Again, I thank you for holding this very important hearing.

Mrs. CHENOWETH. You are very welcome, and if you have the time you are welcome to join me on the dias.

Mr. HERGER. Thank you. If you could excuse me, I do have an airplane—I'm headed back to California—but thank you again very much.

Mrs. CHENOWETH. You're welcome. Thank you, Mr. Herger.

I'd like to call our second panel of witnesses now. I do want to explain that I intend to place all of our witnesses under oath. This is a formality of the Committee that is meant to ensure open and honest discussion and should not affect the testimony given by witnesses. I believe all of the witnesses were informed of this before appearing here today, and they have each been provided a copy of the Committee rules.

And so now we welcome Dr. Mark Boyce, College of Natural Resources, University of Wisconsin, Stevens Point, Wisconsin; Dr. Robert Taylor, Endangered Species Group, Orangevale, California; Dr. Larry Irwin, National Council for Air and Stream Improvement; Sean Cosgrove, legislative coordinator, ForestWater Alliance in Washington, DC.

Gentlemen, I wonder if you might rise and extend your hands to the square.

[Witnesses sworn.]

Mrs. CHENOWETH. Under our Committee rules, witnesses must limit their oral statements to 5 minutes, but your entire statement will be admitted to the record and appear in its entire context. We will also allow questioning after you have finished, and I also want you to know that the record does remain open for a period of 10 days should you wish to substitute any information or add to your testimony. You are welcome to do so. You also need to know that I, too, will probably be sending you additional questions, and so we would appreciate a response from you within 10 days.

The Chair is very pleased to see that Mr. Faleomavaega has joined us. Mr. Faleomavaega, do you have a statement?

Mr. FALEOMAVAEGA. Madam Chairman, thank you for the opportunity and for your conducting this hearing on this issue. I don't have an opening statement, but I do look forward to hearing from our witnesses this morning. I'm sorry that I missed the testimony by our colleague, Congressman Herger, whom I understand has already testified before the Subcommittee, but thank you for the opportunity and I look forward to hearing from our witnesses. Thank you.

Mrs. CHENOWETH. Thank you, and the Chair recognizes Dr. Boyce.

STATEMENT OF DR. MARK S. BOYCE, COLLEGE OF NATURAL RESOURCES, UNIVERSITY OF WISCONSIN

Dr. BOYCE. Thank you. Madam Chair, and members of the Subcommittee, thank you for the opportunity to address this group.

I've been conducting research on the northern spotted owl since 1987. I wish to call your attention to our new study recently accepted for publication as a *Wildlife Monograph*. I've attached the abstract from this monograph to the written testimony.

Our research provides new information that challenges the dispersal-based model that is the fundamental basis for the President's forest management plan. Despite the focus on ecosystem management in the President's forest management plan, there is no question but what the spatial outlay of protected areas was driven initially largely by the Interagency Scientific Committee's work on the northern spotted owl.

Forest fragmentation—that is, the break up of the forest into isolated pieces—has been presumed to be a major factor threatening the future of the spotted owl. In fact, it's fundamental to the model that drove the forest management plan.

Our study was designed explicitly to test this assumption of the role of forest fragmentation, and we found no evidence that large-scale fragmentation influences the distribution or occupation of habitat by the northern spotted owl. Rather, the distribution and occupancy was driven by the loss of habitat, and habitat is a rather complex configuration as it relates to the northern spotted owl. It includes such things as the juxtaposition of old growth with shrubby areas and pole timber stands that are very important because they provide dispersing rodents that are prey for the northern spotted owl.

This new information challenges the focus of the President's plan on designated conservation areas and raises the hypothesis that dispersed smaller blocks of old growth may be actually more effective at ensuring the viability of the northern spotted owl.

Ours is not the only such study. Several studies have been published in the last 4 years that have come to the same conclusion, that the early focus upon the dispersal of young owls and the importance of spatial distribution for the owls, has been misplaced.

Madam Chair and members of the Committee, I am concerned that our new information will not be used. I believe that there is so much bureaucratic inertia in the President's Forest Plan that there will be little attempt to evaluate how effectively the plan is working for the northern spotted owl, nor will there be opportunity to reconsider its effectiveness.

The forest management plan needs adaptive management. It needs a rigorous interface between science and management. In the Forest Ecosystem Management Assessment Team report, adaptive management areas were designated to be set aside for experimental management. There are 10 such areas in the Pacific Northwest. The Forest Service has been slow to implement these adaptive management areas, and the Fish and Wildlife Service has created hurdles to conducting experimental management on the north-

ern spotted owl. We cannot break the management gridlock in the Pacific Northwest without new information and without research and monitoring.

I ask the Subcommittee to do two things; one, to do what is necessary to ensure that the Forest Service and the Fish and Wildlife Service work together to ensure adaptive management protocols for big picture issues related to the northern spotted owl, and that these be implemented on each and every adaptive management area. And second, I request that you enlist the National Research Council to design institutional mechanisms that would facilitate true adaptive management on our public lands.

Thank you very much for the opportunity to testify.

[The prepared statement of Dr. Boyce may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much, Dr. Boyce. The Chair now recognizes Dr. Robert Taylor, Endangered Species Group, Orangevale, California.

STATEMENT OF DR. ROBERT J. TAYLOR, ENDANGERED SPECIES GROUP, ORANGEVALE, CALIFORNIA

Dr. TAYLOR. Thank you, Madam Chairman. I've been asked to testify today because for the last 6 years I have spent a great deal of time working with data on the northern spotted owl in California—analyzing it, plotting it on maps, and feeding it into computer models.

I shall limit my answers to the three questions that form the topic of this hearing to conditions in California alone, and I'll be repeating to some extent Congressman Herger, I'm afraid.

Question one: the status of the northern spotted owl. To understand the status of the owl in California, it helps to know that the State's Department of Fish and Game has, for a number of years, maintained a centralized data base for spotted owl observations that everybody who surveys owls, public and private, contributes to and considers reliable.

At the time of the spotted owl status review in 1989, the State data base contained observations on about 500 pairs of owls. Observations were heavily clustered on national forests, with a light scattering on private land. Scientists looking at this pattern thought it meant that the owl population was becoming increasingly patchy as its old growth habitat disappeared. The few owls known to occupy second-growth forests on public or private lands were considered outcasts from good habitat, residents of population sinks where survival and reproduction were low.

Data on private lands were largely absent at the time the listing decision was made. Intensive surveys of private industrial forests only began at that time. Subsequently, those surveys have found surprisingly large numbers of owls, resident and breeding, in second-growth commercial forests. We know now that the first impressions of the size and extent of the spotted owl population did not reflect the ecology of the spotted owl so much as they reflected incomplete and biased survey data.

Using a recent version of the State data base, I've estimated the number of breeding pairs in California to be approximately 1,800. The spatial pattern of these territories shows complete coverage of

the surveyed forests of northwest California. Spotted owls are found breeding in habitats ranging from redwood forests in the north to hardwood-dominated stands in the south. California exhibits an enormous variety of managed forest types, all of which appear to be occupied by owls.

Although various habitat studies suggest that owls prefer dense stands of large trees, banding studies have not shown a difference in survival and reproduction between owls living in relatively undisturbed old growth and in managed second growth.

To summarize, the scientific theory that dominated the President's Forest Plan, that the spotted owl population was headed toward a precarious existence in a limited number of refuges, has not held up to new information gathered in California. The spotted owl appears to be more flexible in its use of forest habitats and its population more robust than originally thought.

Question two: the impact of national forest management activities on owl populations. The primary effect of the President's plan in California has been to stop nearly all logging in the national forests. What impact this has had on the spotted owl is difficult to assess since the plan was implemented shortly after the Forest Service put a nearly complete stop to owl monitoring.

One can only speculate about the effects of an aging and an increasingly homogeneous forest on owl populations. My own speculation is that the trend will be worse for the owl, as its preferred prey in more open forests, the dusky-footed woodrat, is replaced by the smaller and less common flying squirrel.

Question three: the impact of the owl on management activities. How much of the change in national forest management should be attributed to the concern for spotted owls is difficult to know. While the owl served as the poster child for the President's Forest Plan, the FEMAT team generalized the issue far beyond this one species.

The major impact on private land, in my opinion, is the concentration of the forest industry into fewer larger landowners. Sixty-four lumber mills have closed in northern California in the last 10 years, a number of these small, family owned operations. The larger companies that survived have more resources to put into regulatory issues and have seen the values of their land soar.

How this shift will play out in forest management is not yet clear. Optimists think that private forest management will fall into increasingly professional hands. Pessimists believe that return on investment will increasingly win out over good forest stewardship.

Nobody I talk to in the regulatory agencies in California seems particularly concerned about spotted owls anymore. The species has become a low priority item. Given that, one wonders why Federal and State regulators will not consider revising habitat standards crafted back in the Dark Ages of spotted owl science. Presumably, new, relaxed standards would still ensure the conservation of the species, yet we seem to be permanently stuck in limbo on spotted owls.

Six years after the publication of a draft recovery plan, no final plan has appeared. Four years after the Fish and Wildlife Service initiated section 4(d) rules for private lands, no rule has been published. While local Fish and Wildlife personnel are perfectly willing

to accept that science has changed, the agency itself seems unable or unwilling to reflect those changes in a programmatic document.

Thank you.

[The prepared statement of Dr. Taylor may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much, Dr. Taylor.

Dr. Larry Irwin, National Council for Air and Stream Improvement, Stevensville, Montana.

STATEMENT OF DR. LARRY L. IRWIN, NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, STEVENSVILLE, MONTANA

Dr. IRWIN. Thank you, Madam Chairman. My purpose today is to present to you four topics that are related to scientific information that has been gathered about the owl since the owl was listed in 1990.

The first topic has to do with the spotted owl population trends. We've been doing a study on the spotted owl population since 1990 in the eastern Cascades of Washington. We found that, using innovative analytical techniques, survival rates of adult female owls in that population have apparently been stable since 1990, therefore there is some room for optimism for at least that population.

The second topic has to do with linking population trends with trends in habitat conditions. Since 1990, we have found that the relationship, between spotted owls and forest conditions are much more complex than we thought previously.

For example, in our studies in eastern Washington, we have found that owls in managed forests there have twice the rate of reproduction, despite having access to about half as much late-successional old growth forests as spotted owls in reserved areas along the crest of the Cascades. That seemingly totally contradictory pattern is related to physical environmental attributes that presumably translate into abundance or access to the spotted owl's food base.

The third topic has to do with the risk of large-scale wildfires. After the owl was listed in 1990, we learned that extensive wildfires are likely to occur in owl habitats in the eastern Washington and Oregon Cascades, as well as the Klamath Region in southern Oregon and northern California.

The risks are highest and sometimes extreme in areas where dense, undergrowth trees create ladder conditions for small fires to enter forest canopies and thereby escalate into landscape-scale fires.

Given that, managers have to face a very difficult question. How can we protect spotted owls in areas that are also prone to landscape-scale fires? One implication, similar to what Dr. Boyce pointed out, is that simply mapping old forests and setting aside large blocks of those forests, may not be the optimal strategy in the long run for spotted owl conservation in fire-prone areas.

What to do about these topics is my fourth point, the value of adaptive management. It should be possible to condition forests in fire-prone areas to reduce the risk of fire and yet maintain the owl, and it should also be possible to create spotted owl habitat in managed forests. Working toward both of those goals requires manipulating forests to test several promising options simultaneously in

an adaptive management program. However, to my knowledge, the adaptive management activities proposed for northern spotted owls by the Thomas Committee in 1990 have yet to become operational. Moreover, Federal monitoring programs for the owl have been reduced.

In summary, there appears to be significant new information on spotted owls that would seem worthy of consideration in conservation and management. Possibly a group of scientists might be empaneled to examine the data and suggest mechanisms for rapid application.

Furthermore, and mindful of the need for justifiable budgets these days, I respectfully make the following specific suggestions. I suggest to increase funding for research that links owl population dynamics with habitat factors and with attributes of the physical environment.

Secondly, I would encourage research on forestry methods that may be compatible with spotted owls and that simultaneously reduce the risk of large-scale wildfire. And third, I suggest to enable adaptive management programs that can identify a combination of conservation strategies—not necessarily a single strategy, but a combination for protecting spotted owls across a landscape mix of managed and unmanaged forests.

Thank you, Madam Chairman.

[The prepared statement of Mr. Irwin may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much, Dr. Irwin.

The Chair recognizes Sean Cosgrove, legislative coordinator, ForestWater Alliance, Washington, D.C. Sean?

STATEMENT OF SEAN COSGROVE, LEGISLATIVE COORDINATOR, FORESTWATER ALLIANCE, WASHINGTON, DC

Mr. COSGROVE. Thank you, Madam Chairman, and Mr. Faleomavaega, for allowing me the opportunity to testify here today. It is an honor to be here before the Subcommittee and on this panel with these learned gentlemen here.

The coalition I represent consists of 21 national and grassroots conservation groups across the Pacific Northwest. These are groups that have a long history of involvement in Federal forest management, and particularly involvement with the Northwest Forest Plan. Across the region these groups collectively represent about 100,000 citizens.

For decades in the Pacific Northwest, the Federal Government has been in the business of selling off ancient forests from our public lands. Throughout the 1980's, the Forest Service allowed ancient forests to be logged at a pretty phenomenal rate. By 1987, the timber industry was logging an estimated 170 acres of old growth—that's the equivalent of about 129 football fields of ancient forest every day. The draft forest management plans that the Forest Service was looking at at that time called for the continued liquidation of old growth forests.

By the early 1990's, much of our national forests in western Washington, Oregon, and northwest California were a tattered maze of clear-cuts and logging roads. Ancient forests that previously covered the region have been left in scattered remnant

stands. The practice of clear-cutting old growth forests has not only harmed forest-dwelling species, but has also seriously damaged salmon streams and degraded watersheds that provide drinking water to so many people in the Pacific Northwest.

Well, by this time in the early 1990's several forest species and salmon runs were on the brink of extinction. Continued illegal logging of ancient forests eventually led a U.S. Federal court to stop old growth logging until a plan was devised to protect the Northwest's ancient forests and salmon streams. This injunction and the need to provide better, scientific management led to the creation of the Northwest Forest Plan.

The Northwest Forest Plan was heralded by the Clinton Administration as the plan that would protect and recover ancient forests, salmon populations, and numerous other forest-dwelling species. However, since this plan was put into effect in May 1994, we believe it has fallen quite short. Four years after Mr. Clinton's Forest Plan, Forest Service personnel have been exploiting loopholes in the plan to clear-cut in streamside reserves, log on steep, landslide-prone slopes, log in ancient forest reserves, log in unprotected wilderness, and log in watersheds that provide communities with drinking water.

The ForestWater Alliance compiled a report that provides a snapshot of Northwest national forest management in fiscal year 1997. Compiling information from Federal fiscal year 1997 timber sales in the 17 national forests and 6 BLM districts in Washington, Oregon, and California that are managed under the Northwest Forest Plan, we found that the Forest Service logged over 7,000 acres of ancient forest, over 5,500 acres of forest in streamside reserves, and over 7,800 acres of forest in ancient forest reserves.

To compound that problem, we've seen that more timber sales sold in municipal watersheds and unprotected wilderness. One of these sales is—I'll give you an example—the Lane Creek timber sale, which is the municipal watershed for the town of Cottage Grove, Oregon. If you were to go hiking up there or walk through this municipal watershed, you'd see that the Forest Service and the town of Cottage Grove have put up signs asking people not to camp in this area and asking people not to go swimming in the streams or ponds in these areas because they want to protect the municipal water supply. But at the same time, the Forest Service is planning a timber sale there. I can show you some pictures here—maybe I'll pass them up to you afterwards—of the signs up there in the forest, in the municipal watershed, asking people to stay out of there.

Well, another reason for this Northwest Forest Plan is the need to protect salmon. Salmon are part of our national heritage and an important symbol of Northwest culture. Preventing salmon extinction means protecting the forest streams where these fish feed and lay their eggs. Logging and road construction can fill the streams with silt and eroded material, and as you know, this smothers fish eggs and literally chokes salmon to death.

Well, the Northwest Forest Plan has failed to protect threatened and endangered salmon populations in several ways. The effect is continued degradation of salmon habitat, decline in salmon populations, and an impact on tens of thousands of fishing jobs. If you look on the back of my written testimony there, you'll see a cut-

out there from the Oregonian newspaper which shows a scale of the size of acreage of imminent listings for threatened and endangered salmon species.

Our Federal forests also provide many people with clean, clear drinking water. In Oregon alone, more than half of the population gets its drinking water from streams originating in Federal forests. Logging and road construction in community and municipal drinking watersheds add erosion and silt to the drinking water. During winter storms, the runoff from roads and clear-cuts can turn clear streams into muddy torrents. In some instances this can place the drinking water supplies for whole communities in jeopardy.

In 1996, the North Santiam River was filled with silt and mud when heavy rains hit a landscape that had been degraded by clear-cuts and logging roads. This caused many major landslides. Residents and businesses were forced to dramatically curtail water use and buy water from a neighboring community when muddy water threatened to destroy Salem's filtration system.

Many landslides have occurred since 1996, and many slides continue to bleed silt into Salem's drinking water supply. Despite these circumstances, four 1997 timber sales will log an additional 791 acres in the same watershed. The Mayor of Salem, Mike Swaim, the past mayor, and several Salem City Council members have sought to protect the watershed from Federal logging plans, pending results of a Government Accounting Office investigation.

Mayor Swaim comments, "Every time they log off another timber sale in Salem's municipal watershed, I worry about our drinking water. What you see in a clear-cut is what you get in your drinking glass—dirt." Well, the government's response has been to double logging in the North Santiam watershed in 1998.

The Northwest Forest Plan was an ambitious undertaking, and it has made some improvements to Federal forest management in the Pacific Northwest. However, the plan still allows for the destruction of ancient forests, the degradation of salmon streams, and the development of unprotected wilderness. The Northwest Forest Plan allows logging and road construction in communities' drinking water supplies. The Northwest Forest Plan is full of loopholes that allow logging in ancient forests and streamside reserves. Some loopholes even allow for clear-cutting across streams.

Mrs. CHENOWETH. Mr. Cosgrove, will you be able to wrap it up?

Mr. COSGROVE. Real quick here.

Mrs. CHENOWETH. Thank you.

Mr. COSGROVE. Is this what Northwesterners thought they were getting when the forest plan was devised? We don't think so. Four years after adoption of the plan, it is clear that residents of the Northwest want better protection. A recent poll conducted by the ForestWater Alliance shows that 72 percent of residents across the region want to see more Federal lands designated as wilderness. The time has come to honestly assess the problems with the Northwest Forest Plan and Federal forest management to work together for better forest protection on our public forests.

Thank you very much.

[The prepared statement of Mr. Cosgrove may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much.

I'd like to ask Dr. Boyce first, and then I would like Dr. Irwin to also answer this. If you would explain your concerns with the Fish and Wildlife Service's models that predict owl populations are declining.

Dr. BOYCE. The demographic models that have been used provide only a capture of the current, or recent past, change in the population. They give you no idea, whatsoever, of the future for that population. So, characterizing lambda, which is the growth rate for the population based upon these models that include information on survival and reproduction are a characterization of how the population is changing at the time that it's being monitored. But, that tells you absolutely nothing about the long-term trajectory for that population. And, it's often times misunderstood, I believe, that people think that if the population is declining, that it's going to continue to decline. There's no necessary reason that would be the case whatsoever.

Mrs. CHENOWETH. Dr. Irwin?

Dr. IRWIN. I, too, respond to that, Madam Chairman. One is that whenever we do modeling for wildlife population trends, we like to use several lines of evidence to help us make conclusions. In this case, we have, basically, two lines of evidence; one are the models, which are computer-based models of survival of adult females, for example. It's based on sampling female owls in the summer habitats that they occurred in. The other has to do with, just simply, observations from year to year, to find out whether the owls that were there last year are occupying the sites again this year. It turns out that those two forms of evidence don't exactly correspond with each other, which raises some question about the accuracy of the modelling procedure.

And, in asking those questions, we commissioned some statisticians to examine some of the assumptions that go into those models and found that, when those assumptions fail, that there's a high likelihood for selecting a model that can be interpreted to mean that the owl population is declining at an accelerating rate, but—which would be an incorrect interpretation of what is actually happening. We accounted for that in some new modelling that we did that had to do with the way female owls are captured. One of the assumptions has to do with the expectation that all individuals are captured independently of each other. We know that is not true for spotted owls, because we don't find females unless we find their mated males first. When we accounted for that in our study on the east side of the Cascades in Washington, we found out that our annual survival rate trends were flat, were constant, and were not declining.

Mrs. CHENOWETH. Interesting. Dr. Taylor, what is needed, in your opinion, to demonstrate that the owl is in recovery beside the population?

Dr. TAYLOR. Madam Chairman, I think the evidence in California is that the owl is constant, and I think there is almost unanimous agreement among scientists in California that it is. I don't know how—this is a territorial species. It's intolerant of crowding above a certain level. I don't know how you could show growth in this population. I don't think the owls are going to permit themselves, the population, to grow. If the standard that's been articulated is

we have to show growth in the population, then we will never meet a standard for recovery. I think we have recovery in California.

Mrs. CHENOWETH. We just heard Dr. Boyce testify about cycles, where we see cycles in the declining of the population and increase in the population. Based on your studies, what is the period of time of these cycles?

Let me back that up by saying I was in California just recently, and I had heard that actually there are more owls down there now than there were in pre-Columbian times.

Dr. TAYLOR. Well, I don't think we have very good data from pre-Columbian times.

Mrs. CHENOWETH. I don't think so either.

[Laughter.]

Mrs. CHENOWETH. I wondered where they got that.

Dr. TAYLOR. But, I think a lot people feel that the conditions for the owl are as good now as they could possibly be.

Mrs. CHENOWETH. By the way, I heard that from the agencies.

[Laughter.]

Dr. TAYLOR. Maybe they have better data than I have. The owl is a long-lived species and, as such, is not really vulnerable to too many short-term oscillations. There's no question but that—the primary variation in its life history has to do with its apparent failure to breed in wet springs. This year, for example, has been wet in California, and, so far, we're not seeing owls calling or showing evidence of breeding. And, evidence suggests that they may be able to go for a couple of years with complete failure to breed, but they live so long that they recover in the good years.

Mrs. CHENOWETH. And, they live how long?

Dr. TAYLOR. Oh, people are talking about 15–20 years, sometimes, as a maximum life span.

Mrs. CHENOWETH. Based on the models that the agencies have been operating within, can a stable but fluctuating population meet the Fish and Wildlife Service's test today for recovery?

Dr. TAYLOR. I don't think so. The only test that I have seen was in the draft recovery plan, and that test was so stringent, that I don't believe we will ever, ever get the data that will meet that test, no matter how stable the owl population is.

Mrs. CHENOWETH. I see that my time is almost up, and I do want to yield to Mr. Faleomavaega.

But, specifically, if you were to change the models and the tests to make it reflect a more accurate population, how would you do that, specifically?

Dr. TAYLOR. The original demographic model, which Dr. Boyce referred to, only has three simple equations in it. There's a new generation of models, of computer-simulation models based upon individual models—owls of individual—pardon me—it's based upon the aggregation of models of individual owls in the computer. There are different ways of doing this. I think this new generation of models has a lot to offer. Unfortunately, very little attention has been given to getting the data that will make that generation of models operational.

Mrs. CHENOWETH. The Chair yields to Mr. Faleomavaega.

Mr. FALEOMAVAEGA. Thank you, Madam Chairman, and I want to thank the gentlemen for their testimonies.

I feel a little, somewhat intimidated by the caliber of the witnesses that we have. I'm just a little country hick from some little dinky island out there in the middle of the Pacific. I'm trying to have some sense as a layman and trying to understand the scientific issues affecting the fate of the status of the spotted owl in California. As a layman, I also have come to understand that even scientists disagree among themselves as to what is the truth, if we're looking for the truth or the facts on this issue. And, it seems that for now, some 8 years later, that we've taken another turn in examining and reviewing this issue. I want to thank you, Madam Chairman, for doing this because it is needful. And, hopefully, that we might come out with some viable solutions to the problems that are before us.

As I said earlier about even disagreements among the scientists, or even in the scientific community, I'm reminded of a story that was told to me about the $10 billion industry that our country now has in conducting open-heart surgeries. For about $50,000 a pop that a surgeon would gladly cut into your chest, and do a bypass operation. Only to find out that in recent years that medical doctor who graduated from Harvard Law School, and, of course, this is not new information or a discovery by this doctor about this amino acid called EDTA, that, for much cheaper costs, in clearing your clogged up veins and arteries—the process is now called "killation" and that the American Medical Association frowns and literally opposes any use of this, a fact that has been proven. Many of the people who have taken this EDTA amino acid—it has done wonders for them—and they didn't have to pay for a $50,000 heart surgery operation because of this.

So, I'm a little puzzled here, gentlemen, because I'm sure that we have also members of the scientific community among the agencies that are going to be testifying this morning. So, we have this sense of disagreement. If I heard correctly, and correct me if I'm wrong, I think, Dr. Irwin, you say that spotted owls tend to become prolific when there's logging operations. Has that been a true observation?

Dr. IRWIN. I'm sorry. Would you repeat that, please?

Mr. FALEOMAVAEGA. That spotted owls tend to become more prolific when there's logging operations?

Dr. IRWIN. That's not a general conclusion that anyone shares, I believe. And, if it's attributed to me, it would certainly apply only to a few areas in the eastern Cascades, where it had nothing to do with clear cutting. It was partial cutting, apparently, and maybe previous fires that created a condition under which spotted owls, in managed forests, are doing better than those in more extensive, late-successional forests that have not been managed. That is true.

Mr. FALEOMAVAEGA. What is the total population of the spotted owl now in the area in question?

Dr. IRWIN. I don't know.

Mr. FALEOMAVAEGA. Gentlemen, have you conducted any studies recently, Dr. Taylor or Dr. Boyce?

Dr. TAYLOR. Well, I gave you a statistic estimate of 1,800 pairs of owls in California and a probable estimate of about 5,000 total owls. I think that's reasonable and conservative for the State of California.

Mr. FALEOMAVAEGA. And, this is the only reason the spotted owl survives or exists, or does it exist in other areas of the country?

Dr. TAYLOR. No. It's just one of three states. I think California has a very large population, probably equal to that of Oregon, but it's one of the few places where we've got the kind of statistics—data available that allow you to make that kind of projection.

Mr. FALEOMAVAEGA. Dr. Boyce?

Dr. BOYCE. If you sum Bob's numbers with the agency numbers for Oregon and for Washington, you'll come up with approximately 12,000 owls, I believe.

Mr. FALEOMAVAEGA. Am I taking correct here that you currently have a basic disagreement on how the Fish and Wildlife and the Forest Service go about doing this scientific studies—exactly in determining what the fate and the status of the spotted owl has become, let's say, for the past 8 years, since we've taken this issue now since 1990 and it's to the forefront. Dr. Irwin?

Dr. IRWIN. I would like to respond to that. I wouldn't say it's a basic disagreement. I would say that there are some differences in opinion on how to go about that kind of research. And, my suggestion is that, the spotted owl issue has been cast in simple terms as old growth versus the owls, and I think that's been a very problematic dichotomy. Really, the issue is much more complex than that, and habitat is much more complex than simply trees.

Mr. FALEOMAVAEGA. Well, Dr. Irwin, by expressing that opinion, it seems to me that there is disagreement in terms of your friends here among the Federal agencies which have taken the issue at heart. But, no, I appreciate your sharing that with us.

Dr. Taylor?

Dr. TAYLOR. If I could pose a question that I think you would agree would be nice to have an answer to—well, I could pose several—How much cutting would cause owls to fail to breed? That would be an interesting thing to know.

Mr. FALEOMAVAEGA. Good question.

Dr. TAYLOR. How much cutting would cause, say, a 10 percent reduction in adult survival. That would be good to know. Or, how much cutting would cause owls to pick up stakes and move somewhere else. We don't have answers to any of those three questions. Not only that, there is no research going on or planned that will answer those questions.

Mr. FALEOMAVAEGA. I think, basically, Dr. Taylor, my time is up, I know, but here's the basic issue of the problem that we're faced with. At first there was indiscriminate logging, then, I think the Federal Government's come about and said we've got to do a more planned methodology in doing logging so that we don't create erosion. And, then the here in the question right in the middle of the whole thing is the spotted owl being involved in this. As I understand it, I think it was last year or a number of years ago, that there were 167 million cubic board feet worth of logging that has been done. So, it isn't that the logging has stopped. We're still cutting logs but in a more planned and a more systematic way, so that we don't indiscriminately cut the logs at the expense of erosion and causing other ecosystem or environmental harm.

And I, for one, believe in a balanced approach to this whole thing about development, and, at the same time, also make sure that our

ecosystem is kept safe, and make sure also that animals like the spotted owls and others are also protected. Now, whether or not 5,000 owls or 1,600 owls is a relative safe number to say, well that's all we need to have the owls to survive. I don't know, because I'm not a scientist. But, I think this is the crux of the issue that we're looking at.

And, I think even from our friends who are in the logging industry, I don't think there's any problem that we should conduct logging, but doing it in such a way that doesn't detrimentally affect the environment. And, if it means that killing 5,000 owls, than maybe that's another question that you may want to add to the questions that you raised, and I appreciate your raising that issue. Maybe our friends in the Federal agencies will help us with that.

Dr. Boyce?

I'm sorry, Madam Chairman, but could I have one more question of Dr. Boyce?

Dr. BOYCE. Well, I'd just like to make the point that I think that scientists work with available information and existing data, and the available information and existing data are changing all the time. And, I think that it's very important that the Federal Government have in place the institutional capability to be flexible, to be able to adjust their management schemes when new information becomes available. And, it's not clear to me that we have that flexibility. I think that there's a lot of institutional inertia. We have a complex bureaucracy that has developed associated with the northern spotted owl and the existing management assessment plan, and so forth. It becomes very difficult to change the way in which the management is going on, as new information becomes available.

Mr. FALEOMAVAEGA. I appreciate your comments, gentlemen, because I, for one, do not appreciate sometimes the bureaucratic hassle that we go through in trying to get a check or social security check to that constituent out there. But, at the same time, I think there's got to be a balanced approach to the situation. Now, I'm all for logging. I think the industry's got to survive. Americans need it. I don't know, necessarily, about exporting it to other countries, but for our own local consumption demands, I think it's needful.

So, gentlemen, I want to thank you for your testimony. Thank you, Madam Chairman.

Mrs. CHENOWETH. Thank you, Mr. Faleomavaega.

Gentlemen, I want to ask a personal favor of you. I do have some more questions, but our Assistant Secretary of Agriculture, Jim Lyons, has managed—he has another appointment, so I want to be able to bring him on so we can hear from him. Do any of you have a plane that you have to catch, or could you wait until we've heard from Mr. Lyons and the third panel, and then we will probably be calling you back.

Thank you very much.

The Chair now calls for our—and I'm just going to ask Mr. Lyons to come up—our Under Secretary, U.S. Department of Agriculture. Thank you, so much, for your patience, and I know that you do have another appointment, Mr. Lyons, so we'll——

Mr. LYONS. I sincerely apologize, Madam Chairman.

Mrs. CHENOWETH. Well, that just never happens, but it did today. So, I wonder if you could stand and——

Mr. LYONS. Oh, yes. But, of course.

[Witness sworn.]

Mrs. CHENOWETH. Please proceed. Thank you.

STATEMENT OF JAMES LYONS, UNDER SECRETARY OF AGRICULTURE, U.S. DEPARTMENT OF AGRICULTURE

Mr. LYONS. Thank you. I appreciate this opportunity to appear before the Subcommittee, and I would let you know that the witnesses who accompany me will remain and be able to address the substantive questions that the Subcommittee may have as the hearing continues.

I do want to thank you for this opportunity to address the Committee, to discuss the impact and status of the northern spotted owl on national forests. I'm accompanied by Bob Williams, who's the regional forester from Portland, region 6, and Marty Raphael, scientist with the Forest Service's Pacific Northwest Research Station, who was intimately involved in the efforts to put together the President's Northwest Forest Plan. I'm also pleased to appear with representatives of the U.S. Fish and Wildlife Service today.

One of the reasons we faced the problems in the Pacific Northwest at the beginning of this decade was in large measure because many Federal agencies had difficulty speaking with each other, let alone appearing on the same dais to discuss issues, and I'm glad to say that, over time, we have developed, I think, good solid working relationships among the Federal agencies who have some role or jurisdiction in addressing issue like the spotted owl. And, I think that's all to the betterment of the resource and the people that we serve.

The Committee asked a number of questions, and I'll try to briefly address some of those and offer some insights into others.

One obviously important question is how is the owl doing. We refer to the testimony here of our colleagues from Fish and Wildlife Service, the answer being, it's probably too soon to tell. Spotted owl is a long-lived species in a forest environment that changes slowly. Its populations may be affected by unique events and conditions from one year to the next that are, in part, unrelated to forest management. Thus, the data from the first years of the Northwest Forest Plan are not sufficient to give us confidence in any trend with regard to population dynamics for the owl. We, along with many, are looking forward to the results of the analysis next year that will give us our first scientifically credible look at recent trends.

The Northwest Forest Plan, though, is not just a plan for spotted owls. As you know, Madam Chairman, we tried to write plans for the northern spotted owl, as was attempted late last decade, and we found that they didn't work. In fact, we know that they won't work. In 1988, and again in 1992, the Forest Service issued guidelines for the management for the habitat specifically for spotted owl. Both times, Federal courts ruled that our efforts were not adequate, and, in fact, enjoined timber sales in spotted owl habitat. The Bureau of Land Management encountered similar difficulty in

its attempts to put together strategies to harvest timber on the O&C lands that they administer in Oregon.

New timber sale offerings on Federal forests in northern spotted owl country came to a virtual halt at the turn of the decade. Timber workers in timber-dependent communities, already impacted by changes in the industry, by automation, and alternative markets and reorganization, were further impacted. Congressional efforts, such as section 318 of the 1990 Appropriations Bill, while they sought to provide relief, in fact, only provide limited relief.

In spite of these efforts, the gridlock that affected the region, primarily western Washington and Oregon, and northwestern California, continued. That led, in large measure, to the President's efforts, the President's Forest Conference in Portland, the subsequent efforts of the FEMAT team chaired by former Forest Service Chief Jack Ford Thomas, with the adept leadership of Marty Raphael, to the development of the President's Northwest Forest Plan.

The Northwest Forest Plan is not just a plan for ensuring the viability of northern spotted owl. It provides significant protection for streams, riparian areas, water quality, and fish, fortunate that we did so given the current status of listings or potential listings for cut-throat and coho trout as well as bull trout over to the interior.

The Northwest Forest Plan provides a system of old-growth and late-successional reserves, with a multitude of benefits to species that depend on old-growth forests. And, through the northwest economic adjustment initiative, the plan also provided help to communities who were suffering through the transition that was occurring in that region of the country.

Two months after the plan's release, the court injunctions were lifted, clearing the way for agencies to offer new timber sales and for other management actions to take place for the first time, really, in 3 years. It was the acceptance of the President's Northwest Forest Plan by Judge Dwyer that really was the key to opening up new opportunities for management and fiber production in the Pacific northwest.

Now, as you know, the plan applies only to Federal lands managed by the Forest Service and the BLM in the range of the northern spotted owl. It doesn't apply to state, private, or tribal lands. However, I should note that the plan has a significant effect on those lands in that, in assuming responsibility for protecting critical habitat—or I should say key habitats; critical habitat is a specific definition. Key habitat's for owl, murrelet, and other species, protecting critical watersheds. We then allowed private land owners, working with Fish and Wildlife Service and the National Fisheries Service to go about the business of developing habitat conservation plans, which have been extremely important for providing certainty for private land owners with regard to the future management of their lands. Plum Creek Timber Warehouse and other companies, including the State of Washington, have successfully completed habitat conservation plans, which will provide them greater certainty for the management of their lands and for the production of timber, both for their stock holders and, in the State of Washington, for the benefit of the beneficiaries of those lands.

The Committee asked us to provide information on the costs incurred by local governments or private entities to comply with Fed-

eral requirements—I'll finish in one minute, Madam Chairman—I should point out, of course, the Northwest Forest Plan doesn't impose any additional requirements on local governments or private entities, which directly cause them to pay any cost. To the contrary, I would suggest that if there were no Forest Plan, if we were facing the gridlock that was faced a decade ago, there would only be negatives for the communities. The benefits of the Northwest Forest Plan were the clearing away of the gridlock that existed, the ability to move forward with Federal timber sales, and also, the benefits that I just mentioned that accrue to private land owners who could build HCP's tiered to the protection strategies that were incorporated in the President's Forest Plan for Federal lands.

I want to emphasize two points, in closing, that I think are critically important, Madam Chairman. That is, this issue of owls and old growth is much larger than a focus on single species. That's the reason the President's Forest Plan dealt with a multitude of species. That's the reason that we used an ecosystem approach in trying to devise strategies to deal with the conundrum we faced in managing those resources for the long-term benefits of all Americans in the communities impacted. The Forest Plan was more than an owl plan. It was a plan for salmon, for watershed restoration, and for the economic assistance of communities that were in transition.

The Administration, I believe, has lived up to its commitments on all aspects of the Forest Plan, meeting the probable sale quantities that were called for in the plan in terms of fiber production from Federal lands, providing economic assistance to the impacted communities, and providing other support to the counties that were necessary.

I think the testimony that was presented in the previous panel highlighted the need for peer review and monitoring of science and the effects of management strategies. To get a good picture with regard to success of the President's Forest Plan, as well as long-term demographic trends for owls, peer review is critical, given the differences of opinion that might exist within the scientific community. And, that's why we went through a peer review process with the President's Forest Plan.

And, obviously, monitoring is critical as well. However, to this point in time, our monitoring is inadequate to give us a sense of whether or not the owl is improving in its status or not, and more information is going to be needed. We do subscribe to adaptive——

Mrs. CHENOWETH. Mr. Lyons, I'm sorry there was a sentence I didn't hear very clearly. Right now your monitoring is inadequate to give what?

Mr. LYONS. The information we glean from monitoring is inadequate to make a judgment with regard to whether or not the owl is improving in its status and whether or not changes in the President's Forest Plan could be made in response to the needs of the owl and other species. I'd suggest to the contrary, the concerns raised about salmonettes amplify the need for aquatic strategy that is part of the President's Forest Plan and the watershed restoration activities it calls for.

We do believe in adaptive management, Madam Chairman. I think that was one of the basic tenets of Jack Ward Thomas' ten-

ure, and I think one of the legacies he that leaves. A focus on scientifically based approaches to resource stewardship. And, we should change management as we have new scientific information and as monitoring gives us some sense of where we're doing well and where we're not. Unfortunately, as I just mentioned, I don't think the data provided are adequate, thus far, to make those judgments, and so I would suggest that what we need to do is stay the course until we have the information necessary to make changes in management strategies as the science would dictate.

I appreciate, again, this opportunity to appear before you this afternoon.

[The prepared statement of Mr. Lyons may be found at end of hearing.]

Mrs. CHENOWETH. I know the President's plan is not just for the owl, it's for many other things, but the northern spotted owl is a listed species and in large part, because of the President's plan, we need to determine whether the assumptions and decisions made in that plan are producing the desired or expected results for the owl and, if not, why not.

Are they, is the President's plan producing for the goal that we had with regards to restoring the viability of the population of the owl?

Mr. LYONS. The honest answer to that, Madam Chairman, is time will tell. And I think that both representatives of the Fish and Wildlife Service and Dr. Raphael, can speak more clearly to that. The Northwest Forest Plan included, for the first time, a rather detailed and descriptive monitoring program to in fact address those questions.

And we are implementing that monitoring program, but given the long lived nature of the owl and the slow change that occurs in the ecosystems of that region, we frankly need more information and more time to know whether or not we are achieving our goals with regard to the owl.

Mrs. CHENOWETH. So the assumptions and decisions made for that plan, we don't know if they are producing the desired results and so we are still stuck in the process. Right?

Mr. LYONS. Well, I would characterize it as monitoring change. Over time that information will tell us whether or not we are achieving the success that we sought.

We obviously believe that we are and that is why we are implementing the plan as prescribed.

Mrs. CHENOWETH. You mentioned the Northwest Economic Adjustment Initiative in your statement. What has happened to those communities most impacted by the owl litigation and the President's plan. Do you know?

Mr. LYONS. On a community by community basis, I'd have to provide you more information. Information would indicate that the process that was set up in the CERT, the Community Economic Revitalization Team, that operates in the region has been quite successful in helping communities diversify their economies, helping them find resources to invest in infrastructure improvements, and in helping mill workers and others associated with the timber industry who were impacted retrain for other jobs or engage in other

activities that may not be directly related to timber extraction but certainly are related to forest management.

Mrs. CHENOWETH. Secretary Lyons, you were here when Congressman Herger testified and he testified to the fact that they have had an enormous increase in welfare recipients and as high as 20 percent unemployment. Do you think that that really is something that we can point to as a success in the affected communities? The human habitat.

Mr. LYONS. I guess my point, Madam Chairman, is that any job loss is a terrible loss. However, many things, many changes affecting that region are part of the dynamic that affects employment in the area. Mill closures can be a function of Federal timber supplies but also can be a function of changes in competition, changes in markets, and changes in other circumstances, and we've seen that throughout the region.

I would not try and draw a correlation between the owl plan, if you will, the President's Forest Plan, and the segment that affects owls and employment levels because I think it has just been illustrated by the economic analysis that was done for the plan that was extremely detailed that it's difficult to draw those correlations.

Overall, and this is obviously a general statement, but overall the economy in that region of the country is quite strong. What's driving it, though, is not the industries that have traditionally been critical to that region but other industries, communications, recreation, tourism. Growth in that region is tremendous.

And so, one need to look at the entire picture to understand what impacts the Forest Plan has had on the region.

Mrs. CHENOWETH. Have the agencies been keeping track and also assessing the quality of the forest health?

Mr. LYONS. I'd like Mr. Williams when he comes up to talk——

Mrs. CHENOWETH. Within the adoptive management plans?

Mr. LYONS. [continuing] for him to talk about the specific methods that are being used to assess the changes.

Mrs. CHENOWETH. Secretary Lyons, let me ask you this, and then I know you have another meeting and I will be presenting more questions to you in writing.

But we tend to, with these subjects that tend to get frustrating, we tend to deal with processes. And indeed you can imagine we are a bit frustrated because at the beginning of this whole process we heard a quote from a gentleman by Andy Stahl who said something like, and I will paraphrase the quote, something like if we did not have the owl, we would have had to have found another species to accomplish our goal.

Knowing that, it makes us wonder if we can ever reach the goal of owl recovery. We have heard testimony that the population of the owl is indeed three times what it was first determined it should be, to establish a viable population.

So, can you give us, Secretary Lyons, hard goals that we can adopt, not only management plans and so forth, but until we have those goals, the process just takes a life of its own and we never really reach, finish the job.

Can you help us there?

Mr. LYONS. Well, I'll try and address that question and I think you and I are strongly agree it's product, not process, that matters in the end, that matters in the lives of the people that we serve.

Mrs. CHENOWETH. Right. Well said.

Mr. LYONS. That's what's critical. I can't speak to Mr. Stahl's motives or his comments, that is not my desire nor my aim.

Our goal is to ensure the sustainability of all the resources, all the goods and services that come from the National forests so as to ensure that the communities that are dependent upon those National forests can in fact themselves be sustainable, can be diverse, and can be resilient as they move into the next century.

Our goal is good solid land stewardship based on the best science available. As I indicated in my statement, the reason there is a need for peer review of studies, such as the demographic studies that were mentioned earlier is because there is disagreement about the adequacy of the data, the sufficiency of the data, and the findings.

I think that is the way we need to get at these issues and we have discussed the role of science and policy many times in this room, you and I, and I think that's probably the best foundation we have to work from.

I would suggest that that is the way to chart a course, recognizing every step of the way that the decisions we make with regard to the management of the National forests impact people's lives as well.

Mrs. CHENOWETH. But I would like to know what are the hard goals. I mean is it two times viable population? Three times? Does it mean certain types of patterns of growth in certain areas that we need to—what are the hard goals?

Mr. LYONS. Well, those need to be set by the people who have expertise in the demographics of spotted owls and I don't so I have to subscribe to the recommendations that come out of that expertise based upon peer review, and that's what we are going to stand by.

By statute, the Fish and Wildlife Service has the responsibility and the authority to help judge what is required to ensure that species are not listed as threatened or endangered and by law the Forest Service has the responsibility to maintain the viability of those species.

So I think our scientific experts have a responsibility to work jointly to determine that.

We obviously set some goals for a wide range of outputs and concerns with regard to the Forest Plan and believe that we set some goals for fiber production that were consistent with our legal requirements to maintain viability.

We have lived by those fiber production goals, as well as the goals we set for the work we would do with other communities.

I think that is the best answer I can give you given my limited expertise and I would suggest that perhaps other panelists might be able to address that question more directly.

Mrs. CHENOWETH. I do want to say that as a net result of the listing of the spotted owl as a threatened species, we've seen a shift in production to meet the market demand for wood products from the west to the east, and that has been a very interesting major

shift. We have seen it decline in the west, we've seen small businesses who actually go in and compete in these timber sales, and they can compete to help keep prices down, and they are the small businesses that by and large cannot always afford to establish HCP's or don't even have the means to do so, and so they are not looked on favorably by the agencies.

I think you, and us too, need to look at the overall picture of whether we are keeping the entire nation open? Are we establishing the goals that we both have for the national health of the forest? And are we, actually, helping the bigs get bigger and crushing the competitive nature that has always existed in the woods product industry.

I think it is an interesting challenge that those of us who work in setting public policy need to deal with and I have never publicly or even privately addressed this with you as directly as I am today.

But I feel very strongly about it. Do you have a comment?

Mr. LYONS. I do, Madam Chairman. I believe it is critical that we look at the entire set of industries that are affected by the National forest system, not only the wood products industry but other industries that are impacted.

I believe we need to look at trying to sustain a vibrant wood products industry, big and small, and being a good Democrat, I tend to focus on the small guys first, but that doesn't bias my decisions, I would assure you.

But I believe it is critical that we recognize the role that we play in maintaining fiber for many communities and for many mills and do our best to address those.

Secretary Glickman and I testified this morning before Chairman Regula of the Interior Appropriations Subcommittee on matters related to this subject and Secretary Glickman indicated that the resources, the full resources, of the Department of Agriculture, including not only those in Forest Service, but in Extension and the rural development agencies are working toward trying to assist communities in dealing with not only change but in sustaining their economies and their communities and that is a concern obviously not just in the Northwest but, as you know, in the Columbia River basin as well.

I would join you in efforts to trying to ensure that that occurs and commit to work with you to achieve that goal.

Mrs. CHENOWETH. Thank you very much.

Mr. LYONS. Thank you.

Mrs. CHENOWETH. And I hope you make your appointment in time. Thank you.

Mr. LYONS. Thank you.

Mrs. CHENOWETH. The Chair recognizes the next panel, although I guess we'll hear simply, not simply, but only from Gerry Jackson, Assistant Director, Ecological Services, of the Fish and Wildlife Service, U.S. Department of the Interior.

With Mr. Jackson is Bob Williams, who is from my neck of the woods, Regional Forester, Pacific Northwest Region, Forest Service, USDA in Portland, OR; Martin Raphael, Ph.D., Chief Research Biologist, Pacific Northwest Region, Forest Services, U.S. Department of Agriculture, Olympia, WA; and David Wesley, Assistant Re-

gional Director, Ecological Services, Fish and Wildlife Service, U.S. Department of Interior, Portland, OR.

Gentlemen, I wonder if you might rise and raise your hand to the square. Your right hand.

[Witnesses sworn.]

Mrs. CHENOWETH. Mr. Jackson.

STATEMENT OF GERRY JACKSON, ASSISTANT DIRECTOR, ECOLOGICAL SERVICES, FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF THE INTERIOR, WASHINGTON, DC; ACCOMPANIED BY DAVID WESLEY, ASSISTANT REGIONAL DIRECTOR, ECOLOGICAL SERVICES, FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF THE INTERIOR, PORTLAND, OREGON; BOB WILLIAMS, REGIONAL FORESTER, PACIFIC NORTHWEST REGION, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, PORTLAND, OREGON; AND MARTIN RAPHAEL, PH.D., CHIEF RESEARCH BIOLOGIST, PACIFIC NORTHWEST REGION, FOREST SERVICES, U.S. DEPARTMENT OF AGRICULTURE, OLYMPIA, WASHINGTON

Mr. JACKSON. Thank you, Madam Chairman. Thank you for this opportunity to discuss the status of the northern spotted owl and the President's Northwest Forest Plan.

I have submitted my written statement for the record. Therefore, today I would just like to highlight the success story that we believe is evolving in the Pacific Northwest as it relates to the northern spotted owl.

Let me tell you why I consider this an evolving success story.

When the spotted owl was listed as a threatened species, there was a great uproar, there were charges that unemployment would skyrocket, and the timber industry would be destroyed. Gridlock soon ensued and tensions were high.

As you now, President Clinton convened a summit in Portland, OR, in April 1993, to discuss this problem. He subsequently asked the Federal agencies to develop a plan that would be scientifically based, protect the environment, and support a sustainable timber economy.

One year later, a plan was produced, a record of decision was issued and implementation commenced. Because of this thoughtful planning process the predicted crisis did not occur and today, for example, Oregon is still the nation's top timber producer, the jobless rate is less than 5 percent, new high-tech industries are drawn to the region, and the robust economy is moving away from one dependent upon resource extraction to one that is more diverse and healthy.

In a New York Times article published in 1994, Mayor Bill Morrisette of Springfield, OR, was quoted as saying, and I quote, Owls versus jobs was just plain false. What we've got here is quality of life.

Mr. Mike Burrell, a timber mill owner in Medford, OR, who charged that the listing of the owl would create another Appalachia said, we had an awful lot of new industry and that surprised me.

He said people moving to the area are bringing jobs with them.

These things did not happen by accident. This administration took a long, hard look at what needed to be done to help the region through these changes.

Many of the reforms we in the Fish and Wildlife Service have made to the Endangered Species Act, such as streamlining of the consultation process of the Federal agencies, and the development of habitat conservation plans, with no surprises and safe harbor agreements for States and private property owners have been very instrumental in helping communities cope with the impact of the listing of the owl.

With the help of these reforms, landowners of all sizes are now managing their lands with the conservation of species in mind. For example, Plum Creek Timber Co. is managing their lands to compliment the Forest Plan and enhancing their land for a variety of species, including the spotted owl, the grizzly bear, and the marbled murrelet. Their HCP maintains current levels of old-growth forest and ensures that all species have adequate habitat.

In exchange, Plum Creek continues to manage their land for timber production with assurances from us that no additional regulatory restrictions will be placed upon them for the species covered by that agreement.

Rick Holly, president of Plum Creek, said, again, I quote, this plan will serve as an example of how to protect the diversity and the health of ecosystems while giving businesses that rely on natural resources the predictability that they need to serve the important interests of their employees, communities, customers, and shareholders.

Today there are 13 HCP's that cover 3.3 million acres in the range of the spotted owl. We are also in the process of developing a rule under section 4(d) of the Endangered Species Act that will provide relief for take of northern spotted owls for thousands of private landowners. And we expect to finalize the 4(d) rule this summer.

We have made great strides in the way the Federal and the State government agencies have worked with each other over the years to achieve the goals of ecological and economic health.

A strategy has been implemented to protect the owl and its habitat as well as continue to support the timber programs of the Federal and the State agencies and private landowners.

Working together, we have reduced resource conflicts and, in many instances, we have avoided most problems by working collaboratively.

We have cut the consultation time line, for example, under the Endangered Species Act by more than half.

The Forest Plan provides a sound framework for the recovery of the northern spotted owl. But it will take time. Without the Forest Plan, the decline in old-growth habitat would have continued until the owl disappeared as well as many timber-related jobs.

The spotted owl did not become threatened with endangerment overnight.

And it will not recover overnight.

Based on the best available science at this time, the owl population, throughout its range, continues to decline due to loss of habitat. But, over the next 50 years, the spotted owl habitat har-

vested under the Forest Plan is expected to be replaced by habitat regenerating within protected reserves.

As habitat inside the reserves improves, the amount of habitat rangewide, and therefore owl populations, will stabilize and eventually increase.

Thus, Madam Chairman, the success story is in the making, proving that when we join together to create a long-term plan that will protect threatened species and the economy in the region, we have a situation where everyone wins.

Again, I thank you for the opportunity to present my testimony and we would be pleased to answer any questions you or any other members of the Committee may have.

[The prepared statement of Mr. Jackson may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much, Mr. Jackson, and I want to thank all of the gentlemen for joining Mr. Jackson at the witness table.

I have several questions that I do want to ask you.

Based on Mr. Herger's testimony, you heard his testimony that unemployment has reached as high as 20 percent, and more people are having to rely on welfare, and it's put an undue burden on the school systems with regards to having to expend more money to provide meals for children and so forth.

Don't you feel that that is pretty clear demonstration that this program has, indeed, been hard on communities that, while it may not have created Appalachia, in Medford, OR, but it has created some real hardship on some counties.

Mr. JACKSON Madam Chairman, I'd agree with that assessment. I think the facts do speak to that. I think, however, that overall I think it's a fair statement to say there is a very robust economy in the Northwest.

There are, as was mentioned previously, Secretary Lyons in fact mentioned that there are many activities or influences that may attribute to that.

I guess what I would like to say is that there was a period of time at the rate that habitat was being harvested, at the market itself, that timber jobs were probably subject to decline and the President's Forest Plan is an attempt to try to stabilize not only the ecosystem within the range of the spotted owl but also to provide for a sustainable yield of timber and other products from our force, to find that balance between healthy environment and healthy economy.

Mrs. CHENOWETH. Do you know in the original studies that led to the listing of the threatened species in June 1990, to what degree were the studies done? By that, I mean, were the studies conducted originally on second-growth timber? And, second, were they conducted across the entire range of the listing, the habitat?

I had seen some maps once that showed that studies have been done very close to roads which would not indicate that there was a real accurate count of the numbers of owls in those early years.

Can anyone address that for me?

Mr. JACKSON. Yes, I'll let my colleagues from the Forest Service add to what I say, but when we listed the owl in 1990, it was based, again, on the best available scientific information at the

time. I'm not aware that the counts that were made at that time were made in the vicinity of roads, but what I would like to say is that the issue was not so much numbers of owls, and it was raised previously here.

The owl numbers that we had in 1990 are much lower than the owl numbers that we count today, but what is important is the aspect of population trend. And in 1990, and leading up to that, we were seeing a rapidly declining habitat base and we had information that was indicating that population trends of owls were declining and in addition to that, and, again, when we list a species it is, again, based on the best available biological and scientific information.

And so, all of the information that was available to us at that time indicated that indeed the species was in trouble and needed to be protected by the Endangered Species Act.

Mrs. CHENOWETH. Mr. Jackson, can you tell me if, in those early studies, they also did the same kind of analysis on second-growth timber? The maps that I looked at were actually Fish and Wildlife Service maps and it did indicate sightings that were next to, it didn't necessarily mean freeways or State highways, but sightings that were next to roads where they could access the back country by vehicle.

So, were there studies done originally also in the second growth areas?

Mr. JACKSON. Madam Chairman, if you don't mind, I would like to maybe pass that question to Dr. Raphael who, at that time, was involved in some of those studies and maybe could elucidate a little more.

Mrs. CHENOWETH. Dr. Raphael?

Dr. RAPHAEL. Thank you. Much of the primary information on the demographics of the northern spotted owl that went into the listing process was from five of these large demographic study areas that had accumulated enough data at the time to permit a credible analysis.

Those five were scattered in various parts of the owl's range and almost all of them were on managed forest lands, on lands managed by the Forest Service or the Bureau of Land Management. Because they are in these managed landscapes, there was a mixture, probably on each of those study areas, of both second-growth and mature forests. And because they are managed landscapes, there certainly was a road network in each of the study areas that would allow the extraction of the harvest that had taken place in the past.

Mrs. CHENOWETH. I do want to say, for the record, how much I appreciate the companies who have established HCP's. They are also the companies that are beginning to help inform the public in the manner that adds to the educational challenge that we have ahead of us together to bring the American people into this problem for, hopefully, a solution.

I believe that when we bring the American people in, pull everybody together, pulling the same load, that we can actually accomplish a lot more with a lot less frustration on your part and our part too. So I do, for the record, want to express my gratitude for

companies like Plum Creek and Weyerhauser and the larger companies who have established HCP's.

But in the Pacific Northwest there is some estimate of how much private land will be permanently preserved for the protection of various endangered species, including the spotted owl. Isn't that the case?

Mr. JACKSON. If I heard you correctly, you said a certain amount of habitat would be preserved for the spotted owl and that is true.

But let me also mention that virtually every habitat conservation plan that we now negotiate with the companies, we have expanded also beyond looking at just spotted owls too. We are looking at multispecies habitat conservation plans. And so oftentimes it is not so much as a particular amount of acreage that is sort of set aside in perpetuity. What we are trying to do is promote management of the landscape and so in many of these HCP's, you will actually see elements of the landscape moving around. In other words, there will be old-growth habitat that will be in different places at different times over extended periods of time.

So that owls, marble murrelets, and other species can essentially move about that landscape, thus allowing those timber companies to harvest timber and other products.

Mrs. CHENOWETH. So, actually, we can see over a period of time the HCP's actually moving? I mean there may an HCP located in a certain area for say 30 years and then it moves as the landscape dynamics have changed. Is that correct?

Mr. JACKSON. Well, what I was referring to is mostly within a given habitat conservation plan, dependent upon, and each one of these is different, and each one is case specific, but, what I'm saying is that, maybe the habitat management within that footprint of that land ownership is shifting over a period of time so that that habitat remains productive and protective for those species who depend on it, but at the same time, allowing a certain amount of harvest to come off that land.

Mrs. CHENOWETH. Off of the HCP's.

Mr. JACKSON. Correct.

Mrs. CHENOWETH. Yes. That's good.

In the East, there are a number of forest-dependent species that are listed as endangered including the Indiana bat and the Delmarva fox squirrel.

How many HCP's have you completed for those endangered species and how much land will be set aside as habitat for those species?

Mr. JACKSON. On the Delmarva fox squirrel we are actually still in negotiation with various land owners and, again, the habitat conservation process is a applicant-driven process. We promote that type of management scheme.

On the Indiana bat, a similar situation. I can't tell you exactly how many. We don't have any that I am aware of for those species at this time.

Some landowners have indicated that they are interested in developing a habitat conservation plan and oftentimes this is the normal process where we will engage in a certain amount of dialog educating the landowners, property owners, as to what is a habitat conservation plan and what will be the expectations and so on and

so there is a certain amount of time that goes on before they actually apply for a permit and at that time, and the big difference, for example, in how we're doing business now versus 5 years ago, is that we are much more proactive now in working with landowners.

Five years ago, if you looked nationwide at the number of habitat conservation plans that we had, we probably had about a dozen nationwide and that was since 1983.

Just in the last 5 years, we have completed well over 200 habitat conservation plans nationwide, in fact the last number I saw was 225 completed habitat conservation plans.

We're actively involved in negotiating on somewhere in the neighborhood of 150–200 plans now, at this point in time.

It is a huge success story. You've probably heard from many of the private landowners. We have very recently published a no-surprises rule which basically says a deal is a deal, that we are not coming back for another bite of the apple.

We have instituted what we call a safe harbor program which is very applicable in the Northwest so that landowners do not have to be fearful of owls or other species moving onto their habitat. And a great example of that is in the Northwest where many private landowners were concerned that at some point in time they were going to wake up and an owl was going to be on their property and they were terrified that that then would in some way impede their ability to manage that land and so, while it was happening, and I spent a lot of time in the Northwest meeting with landowners, a lot of small landowners, and they will tell you that they were harvesting timber at 45 years because they were afraid to wait any further.

While obviously that wasn't doing the species any good so we really had to get creative in terms of finding ways to provide those landowners with those types of incentives.

For example now, if the landowner voluntarily agrees to engage in a conservation plan with us, now landowner may allow his trees to grow, 55, 65, 75, 80 years, whatever they want. If an endangered species moves in on them, there are no additional restrictions. All we're asking that they maintain that certain baseline.

We're seeing a lot of this in the East. The Delmarva fox squirrel habitat, the Indiana bat habitat has tremendous potential for that, tremendous success stories in the Southeast with the red cockaded woodpecker. In fact that is where we really started applying these safe harbor type concepts and some of these now innovative reforms.

And so, I understand there is a lot of concern, maybe confusion over why we don't see a lot of habitat conservation plans in the East versus the West, and quite frankly we are trying to promote more of those in the East but, again, it is an applicant-driven process. We're working with Champion, we're working with Georgia–Pacific, we're working with a lot of the developers in Florida, for example, sea turtles, other species, to do that.

Mrs. CHENOWETH. Let me ask you, Mr. Jackson, the criteria that you have established in your contracts with private ownership in HCP's, can we logically apply those same criteria to the public lands?

Mr. JACKSON. To the public?

Mrs. CHENOWETH. To the public lands. Have a major HCP on the public lands.

Mr. JACKSON. Well, habitat conservation plans, by law, are geared toward private lands. And the equivalent to that with Federal lands is through the section 7 consultation process. And in many ways, not in a technical sense, you could look at the Northwest Forest Plan as, and I have to be careful here, like a small HCP, a small Habitat Conservation Plan for the Federal lands. Because it has many of the same types of elements in it.

But the straight answer to your question is that habitat conservation plans are geared toward the private landowners.

Mrs. CHENOWETH. What I'm driving at, again, are hard targets. I mean when is enough, enough. What would you say, with regards to the population of the owl, when is that enough? I mean we've heard testimony today that the owl population has reached three to four times the amount needed to establish a viable population base.

In terms of landscape patterns, old growth versus open areas for prey-based habitat. When is, what are the hard targets? What are we working for specifically? And don't, please try not to answer me with just a process.

Mr. JACKSON. Well, I'm going to try to give you a real straight answer because this would apply to many of our species. What we are trying to achieve, basically, are well-distributed populations throughout the range of a species. And we're trying to establish a stable or increasing population. For a period of time where we feel that then we can withdraw the protections that are in place because of the listing, we would then put into place a monitoring program that then would keep a finger on the pulse of those population trends over a period of time to make sure that we didn't, for some reason, take a backslide.

The demographic, or population trend data, is critical to that process. We have a draft recovery plan. It was mentioned earlier as to why we don't have a final recovery plan. A recovery plan is optional. If the Secretary determines that there are other plans in place, and essentially we have made the decision at least at this point that with the President's Forest Plan, habitat conservation plans, 4(d) rule data that will come to us from these population trend studies, that package should tell us when we've achieved success.

As I understand it, there is an interagency effort ongoing right now to assess population trend data. They will be meeting sometime at the end of this year and probably reporting out at the beginning of next year. I also believe it is an open process to industry. I know industry biologists have participated in the past.

And I'll just use this as an opportunity to say that we welcome, we welcome scientific information and we encourage industry to come forward and the universities, and anybody who has good solid scientific peer review information for us to use because we have an open-door policy when it comes to using the best available science and we welcome it.

Mrs. CHENOWETH. Mr. Jackson, you've also heard it testified to that the agency models do not reflect the cyclical changes in the population of the owl due to natural conditions such as wet springs.

Do you, in your opinion, feel that the model is flexible enough to reflect those things or are you looking to continue to improve that?

Mr. JACKSON. Madam Chairman, I am going to defer again to Dr. Raphael on that question, if you don't mind.

Dr. RAPHAEL. The models that we're using to project the past population trends of the owl rely on data on the productivity of the owl which is accumulating numbers of young that are produced every year in all of the sites that are being monitored and this is thousands of sites.

So it does take into account this year-to-year variation which is a fact of the owl's life. Reproduction does vary with things like climate.

Those models take into account not only the year-to-year variation in the numbers of young produced, but also, more importantly, year-to-year variation in the survival rates of the adults and it's the survival rates of the adults that really determines with far more importance how well that population is doing at the time.

But the models do take into account the kind of variation that the previous panel mentioned.

Mrs. CHENOWETH. Let me ask you, Dr. Raphael, or Mr. Jackson, if in the best of all worlds, we could show that throughout the landscape of where the owl is, the impact of the spotted owl is applied, if we could show that there has been an increase in the population, if we could show that there is a pattern of landscape that is conducive to the stable viability of the population of the owl, should that not be sufficient to delist the owl as threatened?

Mr. JACKSON. I'll answer that question. If we can achieve a stable population or an increasing population over time, and the habitat conditions are such and the regulatory situation is such that we can begin to recover that owl and delist that owl, for sure.

That is our goal, the goal of the Endangered Species Act is to recover species and that is foremost in our thoughts and you are exactly right.

Mrs. CHENOWETH. Since the owl has been originally listed, we thought the owl could only survive in old-growth forests and now the habitat has spread, so we know that the pattern of landscape lends itself to a continuing population of the spotted owl, is that not true?

Mr. JACKSON. I think the science is still solid in saying that an owl is an old-growth dependent species. But, for sure, owls do use second-growth habitat. They don't necessarily use it for nesting, however they may use it for dispersal. They may use it for feeding. They may use it for other aspects of their life cycle. And we're learning a lot. We also know that owl populations in Northern California, for example, and the habitat use is different than those in Oregon and those in Washington.

That I agree, that is true.

Mrs. CHENOWETH. And is it not true with regards to the impact of fire in the landscape, that there is likely to be more fire in the old-growth timber that is not managed, than in the second-growth timber that is managed. So aren't we putting at more risk the nesting habitat of the spotted owl by not managing?

Mr. JACKSON. Well, in a minute, I'll defer over to my Forest Service colleagues, but——

Mrs. CHENOWETH. All right. He's gotten off awful easy over there.

Mr. JACKSON. Really. Suffice it to say, I guess, that, you know, we work very collaboratively with the Forest Service and with the Bureau of Land Management and, dependent upon the type of activity, it is not something that, we're not opposed to it for sure. Obviously we want to maintain the right forest conditions, whatever they are. And that is something that from a forest management standpoint, I think maybe the Forest Service might want to add to that.

Mrs. CHENOWETH. Mr. Williams?

Mr. WILLIAMS. A large portion of the spotted owl habitat is on what we call the west side and we don't have severe fire situations there so in the bulk of the area that we're talking about we're not faced with the problem you've mentioned. However we do have some spotted owl habitat on the east side of the Cascades, but traditionally we're having more problems there because of the past exclusion of fire and thickening of stands, which can be either old growth or young stands. We get a lot of ingrowth of species that normally would have burned had we just let fire run its course.

So we do know we have an increasing fire problem but it is not directly related to whether it's old growth or a second-growth stand.

Mrs. CHENOWETH. I see.

Dr. RAPHAEL. May I add to something to that?

Mrs. CHENOWETH. Yes.

Dr. RAPHAEL. One of the features of the Northwest Forest Plan is a recognition that there are higher risks for fire on those east side forests that Mr. Williams just mentioned. And so there are provisions in the plan to allow for management within those stands to reduce the risk for fire by managing fuel loads or managing forest structures in other ways to try to lower the risk of those catastrophic fires.

Mrs. CHENOWETH. Mr. Williams, let me ask you. We were told on numerous occasions that the Clinton Forest Plan for the Northwest had a built-in mechanism through study and experiment with new forest management techniques. How many of what are called adaptive management plans have been undertaken? And how many have been submitted to Fish and Wildlife Service for their approval? And how long has the approval process taken?

Mr. WILLIAMS. The plans for the 10 adaptive management areas, we've completed plans for eight of those. The plans go through an interagency review; it's not strictly a Fish and Wildlife Service review, but the Regional Ecosystem Office reviews the plans with an interagency team of people.

I don't have the figures here on whether all eight of those have, in fact, been approved, but I believe they have. At least eight of them have been done. We have over 300 research and monitoring projects under way within those adaptive management areas, and we are in the process of planning additional actual manipulation of habitat within those areas.

Mrs. CHENOWETH. Mr. Williams, from the outside looking in, it seems that the President's Forest Plan is not meeting all of its goals.

It hasn't come close to producing a billion board feet of timber and it has not used the adaptive management process as was intended.

It has, for all practical purposes, quit the monitoring of the owl, and the Forest Service continues to manage by legal threat from the environmental community. How can we get some common sense back into this process so we can together reach these goals?

Mr. WILLIAMS. I'm not sure that I can respond to all of those points. As far as the timber program——

Mrs. CHENOWETH. Let me, let me say that I think you probably should if you can.

Mr. WILLIAMS. I will do the best that I can. As far as the timber program, we've reported in testimony before that it would take a period of time to increase our production because we were starting from essentially a standstill position. We have done that and in 1997 the Forest Service offering of timber sales, was the amount that we had established as our probable sale quantity.

We had 694 or 696 million board feet, I believe was the Probable Sale Qualty and we produced 705 million borad feet. We did that in the face of having to deal with the recision bill, salvage bill riders, that we had 2 years ago which actually absorbed some of the material, some of the sales that we had prepared for use in meeting the targets of the Northwest plan. That was a considerable setback for us, but we did overcome that as we went forward.

As far as the adaptive management areas, as I pointed out we have eight of the 10 plans done. We put our priority on trying to meet the timber sale program. That was clearly the message that we were being given as far as the things that were most important to the public. We first went out trying to get on top of meeting the goals, which included doing watershed assessment and we've been able to do the watershed assessments and move up to the point now where we're at a stable level of flow of timber sales. So I think from a priority standpoint we did the important things first and now we're moving into the adaptive management areas.

I will, in addition, point out that in some of the late successional reserves, we have established projects on those areas where it appeared that thinning or other kinds of treatments would actually help enhance and move us toward an old-growth condition that would benefit the old-growth dependent species.

So I feel that we have moved forward and are doing a good job of implementing the intent of the Northwest Forest Plan.

I hope that answers all of the points that you made, ma'am.

Mrs. CHENOWETH. It didn't, but I will ask some questions in writing.

Mr. WILLIAMS. I'll be glad to try again.

Dr. RAPHAEL. Could I add one more point to that?

Mrs. CHENOWETH. Yes.

Dr. RAPHAEL. I think the items you mentioned had to do with monitoring.

Mrs. CHENOWETH. Yes.

Dr. RAPHAEL. The fact is we have established a very comprehensive monitoring plan. That's gone forward over the last couple of years in the planning effort and now it is ready for implementation. It's a very strong plan dedicated to the spotted owl but also

to some of the other species that are of concern, the marbled murrelet, late successional, old-growth forest systems.

That plan is under way and it is being very strongly supported and it should produce results over the next years.

Mrs. CHENOWETH. Thank you.

I wanted also to ask Mr. Williams what percentage of saw timber did the plan say it would provide?

Mr. WILLIAMS. The plan predicted a given amount of PSQ, probable sale quantity, which was recognized as an estimate that would have to be adjusted as Forest Plans were adjusted, and then it estimated there could be as much as 10 percent other material in addition to the saw timber, so the initial estimates were saw timber estimates with simply an estimate that it could be as much as 10 percent in addition.

Mrs. CHENOWETH. How much of the timber volume offered out of that plan was saw timber?

Mr. WILLIAMS. I don't have that figure, I believe it was in the neighborhood of about 85 percent.

Mrs. CHENOWETH. OK.

Mr. WILLIAMS. We can supply that for the Committee.

Mrs. CHENOWETH. Would you?

Mr. WILLIAMS. Yes, we can.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. All right.

Mr. Wesley. Do you have anything you'd like to add for the record?

Mr. WESLEY. No, not at this time, thank you very much.

Mrs. CHENOWETH. I want to ask you, Mr. Jackson, what will the monitoring plan that we've been talking about actually measure, and let me ask you my second question so it will frame it better. Will it look at the relationship between the owl populations and management activities?

Mr. JACKSON. I'd say the answer is a simple yes. It's intended, I guess what I'll say about monitoring in general. If you don't know where you're going, any road will get you there and it's one of the lessons that we, for example, in the Fish and Wildlife Service, one of the lessons that we have learned is that monitoring is fundamental to making good decisions and one of the goals of monitoring for the Forest Plan is to one day be able to develop those correlations between habitat and species' health in terms of population trends, so that we're not having to count every species or to measure their population trends over time so the monitoring is basically an attempt to kind of check the pulse of the health of that system and it is, absolutely, critical to not only the implementation of the plan, but also the effectiveness of the plan.

Mrs. CHENOWETH. OK. Gentlemen, Mr. Williams, do you have anything you would like to add for the record?

Mr. WILLIAMS If I could add on the monitoring point, there are essentially three kinds of monitoring. We're focusing on two of them at the front end. The first one is implementation monitoring. I'll just offer a brief comment on that and then suggest that Dr. Raphael could comment on the effectiveness monitoring.

Implementation is a rather simple straightforward check to see if we're doing what the plan says we should do. We initiated that

in 1996, again did it in 1997, and are planning to continue it on into 1998.

We did a statistical sample, looked at 40 timber sales in 1996, in 1997 we looked at 40 more timber sales. We also looked at several road projects and several rehabilitation projects to ask the question have we done what the standards and guidelines in the plan say we should do.

In each of those cases we have found anywhere from 96 to 100 percent completion of those standards and guidelines. In the few cases where we did not, usually it was missing it by a few feet. Where we were to have a buffer of 150 feet, we maybe had 130 because of some reason that needed to change it.

So essentially we're very close to 100 percent which we think is, for all practical purposes, full implementation of the standards and guidelines and we're very pleased with it.

Perhaps Dr. Raphael could add a little bit on the effectiveness monitoring.

Mrs. CHENOWETH. Dr. Raphael.

Dr. RAPHAEL. Effectiveness monitoring really is a test to see if the plan is having a desired effect. And the desired effect, in this case, in relation to the spotted owl, is whether the owl is achieving a stable or perhaps increasing population.

For the monitoring, effective monitoring for the spotted owl, there are two major components. One is to continue these demographic studies so we can look at population trends in the owl by marking individuals on these large study areas, evaluating their survival from year to year, and looking at numbers of young produced and then that data, using some models, to determine whether the population is stable.

The other component is tracking the amount and the distribution of habitat for the owl. That one will be based in part on large-scale satellite-based images, but we'll need to do a lot of work to determine which components of those satellite images really define suitable spotted owl habitat.

Collecting that information, we'll be looking for all sources of data and studies that can contribute to our understanding of spotted owl habitat which you know has changed over the past several years as Larry Irwin and others have noted earlier.

So, we'll look at the habitat data and we'll try to link the habitat data to the survival and productivity of the owls. It turns out we can predict survival and productivity from measurements of the distribution and abundance of habitat, then we'll shift to a reliance on periodic assessment of habitat conditions and ease off on the necessity to band and mark owls every——

If models don't work, then we'll continue with the demographic studies and use those as the backbone of the monitoring process.

Mrs. CHENOWETH. Interesting.

Mr. Jackson, to you have anything to add to the record?

Mr. JACKSON. I would just say again, just reiterating that going back to the earlier question of when will we have achieved success in the recovery of the owl. I think that is just a great example of how we will use that monitoring data to help us get to that point.

Otherwise, we'll never know and we have to look at it in terms of both habitat and the population trend and if we're successful in

developing our models, we'll get to a point in time, hopefully sooner rather than later, where we can then just start looking at habitat correlations to make those types of determinations which will be a much more cost-effective, cost-efficient process.

Mrs. CHENOWETH. Mr. Wesley, do you have anything to add to the record?

Mr. WESLEY. No. I think Gerry covered it, thank you.

Mrs. CHENOWETH. You are the most reluctant witness we have had in a long time.

[Laughter.]

Mrs. CHENOWETH. But I want to thank you gentlemen very much for your time and the effort that you have made to be here and to add the valuable information that you have to the record.

We will have additional questions we will be submitting in writing and the record will remain open for 10 days, so if you wish to supplement your testimony, you are welcome to do so.

With that, I want to say you're dismissed and I thank you, again, very much.

[The information referred to may be found at end of hearing.]

I would like to call back our second panel, Dr. Mark Boyce, Dr. Robert Taylor, Dr. Larry Irwin, and Sean Cosgrove.

Gentlemen, as you know, you are still under oath and I appreciate your waiting.

I have a question first for Dr. Irwin.

I have a photo here from an area within the Columbia River Basin that was provided to us by CH2M HILL in some previous testimony and it shows the extent of riparian corridors and how little of the ridge top is actually outside of the corridors. So under the Interior Columbia Basin ecosystem management plan, as you can see, the areas that are tied together by the white marks between the red dotted lines are the areas that fall under riparian zones and are considered the riparian corridors.

Are there similar conditions in the areas that you have studied, Dr. Irwin?

Dr. IRWIN. It's very interesting that you present that picture there. It looks very much like some of the study areas that we have on the eastern slope of the Cascades in central Washington for our spotted owl work. And we find in general, in pictures like that, we see evidence of previous fires, we see evidence of some of the forest health problems associated with insect pests and forest diseases, which I can see in that picture from here. We can also see evidence of previous timber harvesting. It looks like, perhaps, some selective harvesting has occurred.

Where we find owls in a landscape like that is right within those riparian corridors that you describe. Particularly where they put their nests, toward the lower end of the slopes and when they are traveling at night to search for prey they spend a great deal of time in those riparian zones for foraging as well.

Mrs. CHENOWETH. Basically the owls prey base is primarily what?

Dr. IRWIN. Like all of us, I suppose to make a living.

Mrs. CHENOWETH. It's what?

Dr. IRWIN. To make a living, I suppose.

Mrs. CHENOWETH. What does it usually prey on? Rodents?

Dr. IRWIN. In those landscapes, it feeds on northern flying squirrels, primarily, and sometimes a wood rat that lives on the ground or part of the time in trees.

Mrs. CHENOWETH. Dr. Taylor, have you had a chance to look at this?

Dr. TAYLOR. Yes, I have.

Mrs. CHENOWETH. Do you have any comment to make?

Dr. TAYLOR. I don't really think it has much to say about owls, to be honest.

It seems to me that owls, like all predators, are highly tuned in to where their prey live. This is a forest owl and it needs forest and I don't think there's any denying that.

But having said that, the key element of the natural history is where are its prey. And that is going to depend upon where you are.

Northern flying squirrels are very important up in the areas where Dr. Irwin works. In the areas where I work, overwhelming prey is the dusky footed wood rat. The dusky footed wooded rat does not like old growth forests.

Mrs. CHENOWETH. Dr. Boyce? Would you like to comment on what this photo shows?

Dr. BOYCE. I don't really don't have any comment about that photo.

Mrs. CHENOWETH. All right. Mr. Cosgrove? Do you have any comment?

Mr. COSGROVE. No, thank you.

Mrs. CHENOWETH. OK. Dr. Irwin, would you distinguish the comments Dr. Taylor made from your comments, primarily by you were addressing one type of prey while Dr. Taylor obviously was addressing another.

Dr. IRWIN. Definitely, that does seem to be the case. As we grade from Washington on into California, and particularly in mixed coniferous forests we see a much more preponderance of the wood rat in the prey base for the spotted owl.

Mrs. CHENOWETH. I see. Thank you very much.

Dr. Taylor, to what extent does fire threaten the future of the northern spotted owl in California, and does fire pose a greater or lesser threat to owl habitat than logging?

Dr. TAYLOR. Fire, as it historically has affected these forests, has been a frequently appearing phenomenon that came in and cleared out underbrush; maybe, every once in a while, flared up into the canopy and opened a, cleared out a patch of larger trees. And then went on.

That kind of fire, I think, would be good for the owl, I think in general. It would provide, in California it would provide openings, it would allow some regeneration of hardwoods in temporary clearings that would provide food for prey species.

Unfortunately the situation we're in in much of California now is that we've protected these forests from fires for so many years that they are choked with fuels and fires that start now all too frequently get into the canopy and cause fire storms, complete destruction of the forest, and these holocaust-type fires remove all of the elements of habitat that spotted owls need.

I don't think there's any question but that the kinds of fires that have been typical in California in the last 20 years have been harmful for spotted owls rather than helpful.

Mrs. CHENOWETH. Mr. Cosgrove, I see that you have a number of concerns with the Northwest Forest Plan. With regard to the northern spotted owl, how do you think the plan should be changed to provide for just this one species, just this spotted owl.

Mr. COSGROVE. Well, the interesting thing about the Northwest Forest Plan is it was developed not just for one species. Across a three-state region, it is a little hard to justify having one plan that size for one species.

It is my understanding that the spotted owl will still do quite well in old-growth habitat. We, of course, would like to see that protected for a wide range of varieties. If there is one general issue that we could address to improve owls population, owl habitat, and the species, I think we would have to look at that in the context of a greater plan overall.

Mrs. CHENOWETH. Tell me, in your opinion, what kind of monitoring do you think is necessary?

Mr. COSGROVE. As far as management in the Northwest Forest Plan for timber activities, I think it is very important to monitor across the landscape, and say across the region, individual forests, and, of course, in a selected area for any type of timber harvesting activity or other development takes place.

Mrs. CHENOWETH. Do you believe, can you give me your personal opinion about what kind of timber sales do you think should be executed off of the public lands in the Northwest?

Mr. COSGROVE. Yes, my organization supports the protection of old-growth forests, ancient forests, supports the protection of forested watersheds, municipal watersheds, the restoration of damaged watersheds. We do not support the continued timber harvesting in roadless areas.

There is pretty large amount of managed forest out there. Some of it does need to be addressed as far as thinning. As I believe it was Mr. Williams said they are looking at some pretty innovative ways of habitat and other habitat development. Specifically some things I've heard about the Olympic National Forest.

We do support those kind of things.

Mrs. CHENOWETH. You don't like clear cutting, though, do you?

Mr. COSGROVE. Generally, no.

Mrs. CHENOWETH. Right. Tell me, what would you recommend in the case of certain diseases such as root rot that we find in some of the species?

Mr. COSGROVE. One of the problems that we have in the Pacific Northwest is root rot with the port orford cedar, which is, as I understand it, caused by a fungus that is spread by, in a large amount by logging activity and on the wheels of motorized vehicles and these kind of things.

In that particular instance, I think it would be a good idea to do what we can to not spread that fungus.

Mrs. CHENOWETH. To do what? I'm sorry.

Mr. COSGROVE. To do whatever we can to not spread that root rot fungus. That would probably curtail, that would probably mean curtailing logging activity, motorized traffic, and what have you.

Mrs. CHENOWETH. Thank you, Mr. Cosgrove.

Dr. Boyce, could you explain what you meant by institutional barriers?

Dr. BOYCE. Institutional barriers are complex and diverse. For example, if a person's job depends on the government operating under status quo, that person will be very resistant to change. Likewise, if a bureaucracy exists, to perform a particular function, it will resist any activity that threatens its future existence. The established bureaucracy for dealing with the northern spotted owl has exactly this sort of inertia that makes it difficult to find new and creative ways to manage spotted owls differently.

And I would just refer you specifically to the streamlining documents that were submitted as part of the government's collection of papers to go with the written testimony from the government scientists.

Mrs. CHENOWETH. I'm not through with you yet.

Aren't you concerned that logging in adaptive management areas would jeopardize the future of the northern spotted owl?

Dr. BOYCE. My concern is that the long-term future of the northern spotted owl will be jeopardized if we do not perform the management experiments that have been suggested for the adaptive management areas. We should not continue to manage under ignorance. I'm absolutely confident that will do a better job of management if we have better and more complete data. A better understanding of how these systems work.

And that is the express purpose of the adaptive management areas.

Mrs. CHENOWETH. Well, gentlemen, I've kept you for quite a while. I want to thank you very much and ask if any of you have anything you would like to add for the record.

Yes, Dr. Taylor.

Dr. TAYLOR. A great deal of talk has centered on these large study areas where the demographic models that are supposed to allow us to detect trends in the population. Last fall I gave a paper at the wildlife society annual meeting on a topic that I think has gotten very little attention but is increasingly bothering me about these demographic models.

The quality of the estimate of the population trend depends on the quality of the model. I've built a lot of models as a professional. I think modeling is important and it is a powerful tool, but models scare me somewhat because they can be wrong, really dramatically wrong sometimes. And scientists, and particularly managers, ought to be very sensitive to the need to find out how good a model is before you put a whole lot of reliance on the kind of predictions it makes.

There is a general kind of principal in science that says the simplicity of a model has to do with how easy it is to show that it's wrong. The paper I gave last fall was, I tried to examine the simplicity by that sense. That is, the ease of falsifiability of the various models of spotted owls.

The conclusion I reached is that the demographic model, while it is structurally very simple, is nearly impossible to falsify. It is nearly impossible to prove it wrong in principal. And if that's the case, it suggests that we are going to be basing for a long time into

the future our assessment of the status of the spotted owl on a model whose reliability, the reliability of which we do not understand.

And it seems to me that this is a very dangerous kind of thing to do. I don't see any effort or interest on the part of those who fiddle with this model, and those who develop it, in assessing whether it is right or wrong.

Mrs. CHENOWETH. That's very interesting. I would like to pursue this further with you.

Mr. Cosgrove, do you have anything you would like to add to the record?

Mr. COSGROVE. I would just like to thank you for, commend you for your interest in the data of the spotted owl and the management of our forests in the Pacific Northwest. I hope that you can extend this and look into the Northwest Forest Plan and how it deals with a number of issues, particularly salmon, drinking water supplies, recreational opportunities, and these kinds of things.

Mrs. CHENOWETH. Thank you.

Mr. COSGROVE. Thank you very much.

Mrs. CHENOWETH. Dr. Irwin?

Dr. IRWIN. Thank you Madam Chairman. I do have one final comment. It relates to the question of adaptive management and perhaps adds to the comments that Bob Taylor just made. That, I heartily recommend approval and support of the effectiveness monitoring plan that Dr. Raphael mentioned earlier.

However, it is not clear at all if the monitoring plan as approved continues, that if the owl population is demonstrated to continue to be declining, we will not know for sure whether it was the plan, the Northwest plan that caused that, or something else. And the same thing is true, really, that even if the population shows up to be stable, we won't know for sure if it's the plan that did that.

I think there needs to be some more discussion of the monitoring plan in terms of adaptive management because, let's say, for example, the strategy turns out to be incorrect. What do we adapt to? Where do we go from here? And the way we're headed now, the only thing that could happen would be increased restrictions on forest management.

If we develop a process for thinking about the system in terms of multiple operating hypotheses, using adaptive management areas, we could test simultaneously more than one of these, so that if the current strategy proves not to be the optimal one we would have some other options to go toward.

I appreciate your comment. Thank you.

Mrs. CHENOWETH. Very interesting. Thank you very much.

Dr. Boyce, do you have anything you'd like to add?

Dr. BOYCE. Yes, thank you. I think that it is very difficult to evaluate the effectiveness of landscape scale management. I don't believe that the adaptive management areas by themselves are probably adequate in size to do that very effectively or efficiently.

And, in general, designing schemes to evaluate the effectiveness of landscape scale management is a very difficult challenge, but I believe it needs to be tackled. I think there are some opportunities by using data from the new HCP's that are being implemented and hopefully we can see enough variation across the landscape in dif-

ferent management schemes to know how well they are working in the future.

Mrs. CHENOWETH. Thank you, Dr. Boyce. Again, gentlemen, I want to thank you for your time.

And, as I have said earlier, the record will remain open for 10 days, should you wish to supplement or change your testimony. Work with my staff, Ann Heissenbuttel, and with that, this hearing is adjourned. Thank you.

[Whereupon, at 4:26 p.m., the Subcommittee adjourned subject to the call of the Chair.]

[Additional material submitted for the record follows.]

STATEMENT OF BILL PAULI, PRESIDENT, CALIFORNIA FARM BUREAU FEDERATION

The California Farm Bureau Federation represents more than 75,000 member families, many of whom are timber families directly impacted by the listing of the Northern Spotted Owl. This listing has had a serious impact on our economies while doing little to actually restore and preserve the species.

In 1990, when the Fish and Wildlife Service decided to list the species, the agency contended that the bird was being driven to the brink of extinction due to the harvesting of old-growth timber, which the owl is purported to depend on for survival. Total numbers of owls in the three-state region were speculated to be at 3000-4000 pairs, with fewer than 600 pairs actually counted in the Northern California Region. As of 1996, the California Forestry Association's coordinated research with the California Department of Fish & Game found 2262 known owl sites in California with an estimated 1,800 breeding pairs of spotted owls from surveys of 50-60 percent of the region. The projected total population of northern spotted owls in California, based on this research, is a range of 4450 to 8500.

Studies show that the survival of the owl is not linked directly to old-growth forests. Northern Spotted Owls are known to thrive in many kinds of second-growth, "managed" forests where trees average as small as 15″ in diameter. One of the largest habitat conservation areas in the President's Northwest Forest Plan is located in Indian Valley near Hayfork, California. It is considered "one of the very best places" for owls to live. Indian Valley is also one of the most intensely managed lands in Northern California having been logged for over three generations.

Furthermore, in lowland forests along California's northern coast, the presence of old growth trees is considered far less important than the presence of wood rats, a primary source of food. Where wood rats are abundant, owls are abundant even when other habitat features are considered marginal. Conversely, where habitat is considered prime, old-growth forests, but wood rats are not present, owls are rarely found.

Using this scientific evidence, the California Forestry Association petitioned the Secretary of the Interior, in October 1993, to de-list the northern spotted owl in California. In August 1994, this petition to de-list was denied.

Today, we are still living with the impacts of the Northern Spotted Owl listing. Our national forests are poorly managed, with one in every six trees dead or dying. Last year, only 12.66 percent of the total timber harvested in California came from public lands. Under current conditions, approximately 177 million board feet of merchantable timber will be left to rot and or burn each year. Federal timber sales in the Klamath Province have been at the lowest level since 1953. In the last 2 years for which we have data harvest declined from 181.6 million board feet in 1953 to 145.4 million board feet in 1993 and 113 million board feet in 1994. Timber sales in the California portion of the Klamath Province from 1983–1988 totaled 3,709.6 million board feet. From 1989, the year the owl debate heated up, to 1994, sales have totaled 1,307.5 million board feet—a 35 percent decrease, and the threat of a catastrophic forest fire has never been greater.

Communities whose culture is intertwined with timber management are being replaced with ghost towns. Families continue to suffer because parents aren't working. Perpetuating the injunctions and bans on timber harvests will not save the owl or the environment, it will only compound the pain being inflicted on the working class and continue the demise of rural communities in California, Oregon, and Washington.

In 1988, more than 110 mills were operating in California. From 1988 to 1994, 4,745 mill jobs were lost. In 1990, 1 year after the owl was officially listed, 13 mills closed, leaving 1,208 people unemployed. Today, 61 mills remain in operation. In the California portion of the Klamath Province, more than 31 mills have closed leaving more than 3,000 people unemployed. In 1990 alone, 9 mills in the California portion of the Klamath Province closed, leaving 821 people unemployed. While unemployment rates nationwide continue to decline, in northern California, they steadily increase. Many Trinity County school districts have more than 96 percent of their students living at or below the poverty level.

Forests can be protected and sustained in a manner which preserves species, restores timber jobs and restores the dreams and heritage of these suffering communities. The scientific data concerning spotted owls must be acknowledged and utilized. When protective measures are advanced, local economics must be considered. The U.S. Fish and Wildlife Service must seriously consider the new findings concerning spotted owl numbers and habitat requirements and make appropriate adjustments. The Northwest Forest Plan must be amended to promote the kind of habitat the owl truly needs—second-growth, managed forest ecosystems. The damage currently being inflicted on the timber industry, rural communities and the owl

itself is unacceptable. Corrective actions, based on sound science, must be taken immediately.

STATEMENT OF DR. MARK S. BOYCE, VALLIER CHAIR OF ECOLOGY AND WISCONSIN DISTINGUISHED PROFESSOR, UNIVERSITY OF WISCONSIN–STEVENS POINT

Madam Chair and members of the Subcommittee, I am honored to have the opportunity to present my thoughts on the importance of recent research on the northern spotted owl for the management of forests in the Pacific Northwest. My name is Mark S. Boyce. I received Masters and Ph.D. degrees from Yale University and had a NATO postdoctoral fellowship at Oxford University. I currently hold the position of Vallier Chair of Ecology and Wisconsin Distinguished Professor in the College of Natural Resources at the University of Wisconsin–Stevens Point in the largest undergraduate natural resources program in the United States. I have recently completed a 3-year tenure as editor-in-chief for the *Journal of Wildlife Management* which is The Wildlife Society's research periodical. I serve as President of the Wisconsin Chapter of the Wildlife Society, and Vice President for Sciences of the Wisconsin Academy of Sciences, Arts and Letters.

I have published about 150 scientific papers and six books including *Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources* (1997, Yale University Press; with Alan Haney), *The Greater Yellowstone Ecosystem: Redefining America's Wilderness Heritage* (1991, Yale University Press; with Robert B. Keiter), and *The Jackson Elk Herd: Intensive Wildlife Management in North America* (1989, Cambridge University Press). I have conducted research on spotted owls since 1987, when I was asked by the National Council for Air and Stream Improvement (NCASI) to review the USDA Forest Service's Draft Supplemental Environmental Impact Statement on the northern spotted owl. Subsequently I have studied spotted owls in Oregon and Washington with research funded primarily by the USDI Bureau of Land Management and NCASI. I am coauthor with Joseph S. Meyer and Larry L. Irwin on a peer-reviewed monograph on spotted owl habitat ecology that recently has been accepted for publication in *Wildlife Monographs,* and will appear in print this summer.

I wish to speak about some highlights of our research on spotted owls, and the ramifications of this research for management of forests in the Pacific Northwest. Despite the fact that our research speaks to important aspects of spotted owl habitats, I am concerned that our research will see little application because there exists so much inertia in the current forest management plan. Thus, a general issue that I wish to address is the importance of accommodating science in management, and how government must have the flexibility to change when new scientific information becomes available.

As a population ecologist, I believe that I am well qualified to speak to the issue of management of the northern spotted owl because it was a population model for spotted owls that structured the design for management of the Pacific Northwest forests. The principles for this model were outlined initially by Russell Lande in 1987, and subsequently were expanded into computer simulation models used by the Interagency Scientific Committee (ISC) as well as President Clinton's Forest Ecosystem Management Assessment Team (FEMAT; see Lamberson et al. 1992. *Conservation Biology* 6:505-512; Noon & McKelvey 1996. *Annual Reviews of Ecology and Systematics* 27:135-162). These models predicted that isolated patches of habitat would be less likely to be occupied, and they predicted that forest edge had deleterious consequences for the owls. We designed our research to evaluate the underlying premise that dispersal by owls was key to determining the location of owl territories and how frequently these territories were actually occupied by owls. In addition, we designed research to evaluate the hypothesis that the location and juxtaposition of timber harvests resulting in forest fragmentation were shaping the distribution and habitat occupancy by spotted owls. Likewise, we studied how the extent of forest edges in an area influenced territory locations and site occupancy. But we found no evidence that isolation, edge, or fragmentation influence owl occupancy and distribution. Instead, our results indicated that the distribution and site use by spotted owls could be attributed entirely to habitat losses, primarily loss of old growth forests. And given the documented declines in old growth habitats, declines in the owl population could be attributed solely to loss of these habitats.

Our results are specific to southwestern Oregon where essentially the owl habitat has not been fragmented sufficiently for there to be any effect of landscape patterns on owl distribution and occupancy. If the landscape were substantially more fragmented and habitat patches were much more isolated than is presently the case,

we cannot rule out the possibility that fragmentation might be a significant contributor to patterns of spotted owl distribution and site occupancy.

Another important result from our research is that in southwestern Oregon, some of the best spotted-owl habitat occurs when old growth is adjacent to young pole-timber stands. Research by Sakai and Noon (1993, *Journal of Wildlife Management* 57:373-382) indicates that our observation is attributable to the importance of dusky-footed woodrats that are produced at a higher frequency in young-aged stands. This would argue for the importance of having logging dispersed amongst owl habitat areas, in contrast with the large old-growth reserve concept, but so far this has not been found to be the case.

We developed new models focused on owl habitat called resource selection functions. These habitat-based models do an excellent job of predicting the observed distribution of owls and we believe that habitat models like ours should be used in evaluating what constitutes owl habitat in the Pacific Northwest. Furthermore, we believe that our habitat-based models could be used effectively to evaluate forest management alternatives.

Our results have vast implications for the management of the Pacific Northwest forests for spotted owls and timber production. First, the ability of the owls to disperse appears sufficient to ensure colonization of habitat patches given the scale at which the landscape is currently fragmented in southwestern Oregon. Therefore, our results lead us to question the justification for the strategy of managing for large blocks of old growth in Habitat Conservation Areas (HCAs). Indeed, our results lead to the hypothesis that a greater total population of spotted owls could be maintained on the landscape if smaller blocks (on the order of 1–2 square miles) of old growth were more widely dispersed across the landscape. This way we could maintain owls more broadly across the landscape supported by rodents emerging from shrublands and pole timber stands. Perhaps the FEMAT approach to managing Pacific Northwest forests is optimal. But we do not know this, and we will never know if we do not evaluate it when presented with new information.

On the Olympic Peninsula, woodrats are not as important a component of the diet as in Oregon. Yet research on habitats of spotted owls from the Olympic Peninsula indicated that the habitat model that we derived for SW Oregon was about equally effective for Olympic Peninsula owls. Larry Irwin has found similar results on Plumb Creek lands on the east slope of the Cascades of Washington. Our habitat models for the northern spotted owl appear to have widespread application, i.e., they apply under a variety of habitat situations.

Our results are typical of science in general, i.e., we test hypotheses about how nature works. Research is designed to test hypotheses. When we reject the hypotheses we must revisit the hypotheses and develop new ones. This ponderous slow process by which science works ensures that we have reliable knowledge. But when science is applied to the management of natural resources, it also requires that we have the flexibility to alter management to take advantage of new information. This interface between science and management is called adaptive management. Scientists first develop a hypothesis about how we think the system works, often framed in a mathematical or computer model. Then we design management experiments that can test this hypothesis.

For example, we might hypothesize that selective cutting regimes could hasten the recovery of old growth characteristics. To evaluate such a hypothesis, we need to design selective harvesting experiments in areas where the consequences to spotted owls can be monitored and the result of the experiment evaluated.

This raises my primary concern about current forest management in the Pacific Northwest. Now that the plan developed by President Clinton's Forest Ecosystem Management Assessment Team (FEMAT) is largely in place, we seem to have little opportunity for changing the management plan. Furthermore, even though the FEMAT plan and the previous Interagency Scientific Committee (ISC) plan called for adaptive management, implementation of adaptive management has been slow in coming. In some instances the U.S. Fish and Wildlife Service has not granted permission to perform experimental management on areas that were established for the express purpose of conducting adaptive management, i.e., Adaptive Management Areas (AMAs). Certainly we can never evaluate the consequences of forest management if we do not continue to monitor spotted owl populations.

Madam Chair and members of the Committee, I urge you to do what is necessary to ensure that the USDA Forest Service and the USDI Fish and Wildlife Service work together to ensure that adaptive management protocols are implemented on each and every adaptive management area that was set aside by FEMAT. Carefully planned logging on these sites cannot threaten the persistence of the northern spotted owl on the short term. And on the long term, these experimental management exercises can only work to ensure the long-term viability of the owl. Without adher-

ence to adaptive management protocols, we will never find creative solutions to the difficult forest management situation in the Pacific Northwest. Only through experimental management on AMAs and careful monitoring of owl populations can we expect to move out of the current management gridlock. I am convinced that scientific management can provide solutions so that we can have owls, old grown forests, logging, anadromous fisheries, and people in the forests of the Pacific Northwest.

Our current government contains institutional barriers to the implementation of adaptive management. I believe that we can do a better job of scientific management. But overcoming these institutional barriers is an enormously complex task. Therefore I would like to encourage Congress to enlist the support of the National Research Council to design institutional mechanisms that would facilitate adaptive management.

Thank you for the opportunity to express my views.

INFLUENCE OF HABITAT ABUNDANCE AND FRAGMENTATION ON NORTHERN SPOTTED OWLS IN WESTERN OREGON

Joseph S. Meyer, Department of Zoology and Physiology, University of Wyoming, Laramie, WY
Larry L. Irwin, National Council of the Paper Industry for Air and Stream Improvement, Stevensville, Montana
Mark S. Boyce, College of Natural Resources, University of Wisconsin, Stevens Point, Wisconsin

Abstract: Current management for the northern spotted owl (*Strix occidentalis caurina)* is largely driven by metapopulation models or individually-based models that assume the success of juvenile dispersal in a fragmented landscape is a primary factor determining the future existence of spotted owls in the Pacific Northwest. We tested hypotheses about fragmentation by comparing sites known to be occupied by spotted owls with random sites to determine if relationships existed between landscape indices and spotted owl presence and productivity in western Oregon.

From a total of 445 known spotted owl sites within the Bureau of Land Management's (BLM) checkerboard patterned lands in western Oregon, we randomly selected (1) 50 long-term data sites to determine if landscape characteristics influenced site occupancy or reproduction, (2) 50 random owl sites to evaluate possible biases in the long-term data sites, and (3) 50 random landscape locations for comparison with the 50 random owl sites.

BLM staff classified from aerial photographs the mosaic of forest successional stages within a 3.4-km-radius circle surrounding each of the 150 sites. From these mosaics, we calculated several indices of landscape characteristics and forest fragmentation for 0.8-, 1.6-, 2.4-, and 3.4-km-radius circles. Results were combined with data on occupancy and reproduction to test the null hypotheses that landscape characteristics did not affect site location, site occupancy, or reproductive success of spotted owls.

Landscape indices did not differ between long-term owl sites and randomly selected owl sites, indicating little bias in our sample of long-term data sites. Landscape characteristics at random owl sites differed significantly from those at random landscape locations. Differences were greatest for 0.8-km-radius circles surrounding the study sites, suggesting that site selection by spotted owls may be most strongly affected by landscape characteristics within a 0.8-km-radius circle (≤ 200 ha). Statistically significant differences also were found for radii up to 3.4 km, but most of those differences did not contribute significant new information beyond the differences existing in the core area of the circles.

Random owl sites contained more old-growth forest, larger average size of old-growth patches, and larger maximum size of old-growth patches than occurred in random landscape locations, for all circle radii ($P < 0.01$). Additionally, random owl sites contained less young-age forest within 0.8-km-radius circles than did random landscape locations. However, amount of clearcut forest did not differ between random owl sites and random landscape locations.

None of the forest fragmentation indices except size of old-growth patches was strongly related to site selection, none was strongly related to frequency of occupation of sites, and only fractal dimension was moderately related to reproduction. Instead, the major influences of landscape pattern were related to amount of habitat. Amount of habitat dominated in resource selection probability functions (RSPF) for western Oregon, and these RSPF's can be used to predict the probability that a given landscape mosaic will be a suitable spotted owl site.

STATEMENT OF DR. ROBERT J. TAYLOR, CONSULTING WILDLIFE ECOLOGIST

The purpose of this hearing is to assess the status of the northern spotted owl, the impact of national forest management activities on owl populations since enactment of the President's Forest Plan, and the impact of the owl on management activities within the area of the President's Forest Plan. My remarks will be limited to California, since that is the primary locus of my expertise.

The status of the northern spotted owl

The answer to this question is best addressed by describing the evolution of knowledge about this species over the last decade. Well before the spotted owl was proposed for listing, the California Department of Fish and Game had established a data base for owl observations. By the mid 1980's all Federal and state agencies had accepted this data base as the repository for their survey information. The CDF&G accepted the responsibility for establishing the accuracy of these data and inferring from them the spatial pattern of spotted owl territories. All researchers involved with spotted owls now agree that this is the single most reliable source of population-wide data in California.

At the time of the spotted owl status review in 1989, the state data base contained information on about 500 pairs of owls. These were thought to constitute the majority of the total population. Owl observations were heavily clustered on national forests, with a light scattering on private lands. Scientists thought the owl population was becoming increasingly patchy as its required old-growth habitat slowly disappeared. The few owls known to occupy second-growth forests on public or private lands were considered to be outcasts from good habitat, living in population sinks where survival and reproduction were low. An abortive attempt by the California Department of Forestry and Fire Protection to craft a statewide habitat conservation plan in 1992 reflected this kind of thinking. That plan assumed that owl habitat was very patchy and that survival of this species required an elaborately designed system of habitat refuges on both public and private lands.

We know now that these initial impressions of the size and extent of the spotted owl population did not reflect the ecology of the spotted owl so much as they reflected incomplete and biased survey data. Data on private lands were largely absent at the time the listing decision was made. Intensive surveys of private industrial forests began in 1989, have continued to the present, and now represent some of the better information in the state's data base.

The number of breeding pairs in California can be arrived at by consideration of the following information. About half the forested land in the owl's range is in national forests; the remaining half is divided among private industrial forests, small private holdings, a state demonstration forest, and various state and national parks and BLM holdings. Not all of these lands have been surveyed for owls. The percentages surveyed are as low as 40 percent for nonindustrial private lands and as high as 90 percent for some private industrial forests. The percentage of suitable national forest lands surveyed is approximately 50 percent.

As of the 1996 field season, approximately 2,500 spotted owl territories had been identified in California. About half of these lie in the national forests, and half lie in the other public and private holdings. Not all sites are occupied every year; estimates of occupancy range from 78 percent to 95 percent, depending on location. The percentage of occupied sites held by breeding pairs (some territories are held by a solitary male) appears to vary between 40 percent and 90 percent. I have combined these statistics to estimate the number of breeding pairs in California at approximately 1,800. The cumulative error is such that the number could be as low as 1,500 and as high as 4,000. In addition there should be as many juveniles and unpaired adults as breeding pairs.

The spatial pattern of these territories shows complete coverage of the surveyed forested portion of northwest California. Spotted owls are found breeding in habitats ranging from redwood forests to east-side pine forests in the north. At the southern end of their range in Marin, Napa, and Sonoma counties they commonly nest in hardwood dominated stands. Since clear-cutting has not been a common method of logging in California, patch cutting and individual-tree selection have produced an enormous variety of managed forest types in the spotted owl's range. All of these appear to be occupied by owls. Although various habitat studies suggest that owls prefer dense stands of large trees, banding studies have not shown any difference in survival and reproduction between owls living in relatively undisturbed old growth and in managed second growth.

Assessment of the trend in this population is difficult. One of two adjacent demographic study areas in Humboldt County shows a slight decline. The other shows constancy. Modeling of the entire California population is in an early stage. The one

model that has been applied shows stability of the population for plausible values of unmeasured parameters.

To summarize, the scientific theory that dominated the President's Forest Plan, that the spotted owl population was headed toward a precarious existence in a limited number of refuges, has not proved robust to new information gathered on private forest lands. The spotted owl appears to be more flexible in its use of forest habitats and its population more robust than originally thought.

The impact of national forest management activities on owl populations since enactment of the President's Forest Plan

The primary management impact of the President's Forest Plan has been to stop nearly all logging in the four national forests within the northern spotted owl's range in California. What effect this has had on the component of the owl population living on the national forests is difficult to assess since the President's Plan was implemented shortly after the Forest Service put a nearly complete stop to monitoring activities. At its best Forest Service monitoring was never particularly good. The use of inexperienced crews and the frequent failure to follow standard survey protocols placed the reliability of government data below that of industry-gathered data. Even those data ceased to come in after the 1992 field season. Once the owl was listed and the President's Forest Plan was in place, the research branch of the Forest Service seemed to direct the bulk of its attention to the California spotted owl, a subspecies not yet listed under the Endangered Species Act.

One can only speculate about the effects of an aging and increasingly homogeneous forest on owl populations. My own speculation is that the trend will be worse for the owl, as its preferred prey in more open forests, the dusky-footed woodrat, is replaced by the smaller and less-common flying squirrel. If fire were allowed to regain its historical frequency in the national forests, then it might provide habitat for woodrats to compensate for the absence of man-made openings.

The impact of the owl on management activities within the area of the President's Forest Plan

The change in management of public land is clear; logging is a small fraction of what it was 10 years ago. How much of this can be attributed to concern for spotted owls is difficult to know. While the owl served as the poster child for the President's Forest Plan, the FEMAT team generalized the issue far beyond this one species.

The change in the management of private land has been more complicated. Because of the decline in timber harvest on the national forests, the value of the remaining mature timber on private lands has increased. The combination of increased value and the looming threat of greater regulatory control has tended to accelerate cutting on many private land holdings. Timber owners that formerly maintained owl habitat in excess of that demanded by the state are increasingly pushing the limit.

The other major impact on private land is a concentration of the forest industry into fewer larger land owners. A total of 64 lumber mills have closed in northern California in the last 10 years, a number of these small, family-owned operations. The large companies that survived this revolution in the industry have more resources to put into regulatory issues, are less dependent on public timber, and have seen the values of their lands soar. How this shift will play out on forest management is not yet clear. Optimists think that private forest management will fall increasingly into professional hands. Pessimists believe that return on investment will increasingly win out over good forest stewardship.

Conclusion

Given the dramatic shift in what scientists know about spotted owls, one would think that the original regulatory standards for habitat could be modified somewhat on both public and private lands. But nobody on the Federal or state level is prepared to move on this issue without an indication from the U.S. Fish & Wildlife Service that such a move is acceptable. The Service, in turn, seems unable or unwilling to do anything on a programmatic level. Six years after the publication of a draft recovery plan, no final plan has appeared. Four years after the Service initiated Section 4(d) rules for private lands, no rule has been published.

To be fair to the Fish and Wildlife Service, there is some residual disagreement among scientists as to what all this new information means. The lack of a unanimous voice on such a contentious issue may be one factor in the Service's timidity. If any action one takes can be assaulted in a courtroom by an articulate spokesman for an alternative, the bureaucratic mind is tempted to take no action. Unfortunately no institutional mechanism exists by which scientists can be forced to reconcile their differences, short perhaps of a government-sponsored review.

STATEMENT OF DR. LARRY IRWIN, SENIOR SCIENTIST FROM NCASI, INC.

I am a Principal Research Scientist with the National Council of the Paper Industry for Air and Stream Improvement, or NCASI, which is a non-advocate, non-profit research and environmental management organization. We conduct research that seeks to reveal cost-effective options for managers to blend environmental values with economic goals. Most of the research that we undertake is conducted in cooperation with scientists from other organizations or institutions. Some 60 percent of the research funding for the Western Wildlife Program, which I manage, is provided by the forest products industry; the remaining 40 percent comes from Federal, state, or private organizations.

I was educated at the University of Montana, University of Minnesota, and University of Idaho, completing my PhD degree in 1978. Before coming to NCASI, I was a professor at the University of Wyoming for 8 years, and I currently hold faculty affiliate appointments at Oregon State University and the University of Montana. My professional experience involves 24 years of scientific inquiry on the topic of interactions between wildlife populations and habitats. That experience has involved research on habitat dynamics and populations of large mammals as well as songbirds and predatory birds. I began field investigations on Spotted Owls in 1986, and currently supervise owl research projects in Washington, Oregon and California. I have written or co-authored about 85 scientific publications, including journal articles, several book chapters and 3 book-length monographs. About 15 publications involved Spotted Owls.

From October 1989 through spring 1990 I served as a technical advisor/observer to the Interagency Scientific Committee, or ISC (also known as the Thomas Committee) to Address the Conservation of the Northern Spotted Owl. My purpose today is to discuss four topics relative to scientific information that has been gathered since the owl was listed as a threatened species:

A. Spotted Owl population trends;
B. Linking owl population trends with habitat conditions;
C. Risks of large-scale wildfires; and
D. The value of manipulative, adaptive management experiments.

Spotted Owl Population Trends—. There is new information about trends in Spotted Owl populations, especially as those trends may relate to habitat conditions. wildlife scientists combine estimates of annual survival rate with data on reproduction to arrive at population trends. Survival rates cannot be accurately measured, so they are estimated indirectly by computer-based analytical models. The models translate data from repeated observations of individually identifiable, leg-banded owls. Model output from combined data from several studies has been interpreted to mean that annual adult female owl survival may be declining, and that it may be declining at an accelerating rate. If the declining survival-rate estimates can be accepted, and if they were linked statistically with measures of habitat conditions, they would certainly be cause for concern.

On the other hand, re-observations of owls at their nest sites do not defend the computer projections. One possible reason for the disparity is that the models may not account well for the ways that Spotted Owls are actually sampled in the field. It is well known that female owls are only rarely captured and banded (i.e., sampled) unless field crews first find their associated males. For example, a recent study demonstrated that computer models that do not account for male-dependent sampling of females could result in incorrect interpretations. And another study suggested that the computer models may be overly pessimistic because they do not account for owls that emigrate from study areas. That study suggested that population trends may be under-estimated by 3–13 percent.

Consequently, NCASI scientists developed a method that accounts better for the ways that owls are sampled, and under some conditions, also accounts for emigration. When we entered the data in the analytical models, we found evidence that adult female owl survival rate has been relatively stable since 1990 along the eastern slope of the Cascade Mountains in Washington. This information, which has been submitted for formal publication, suggests there is reason to be optimistic about owl population trends in that area.

Linking owl population trends with habitat conditions—. We know now that relationships between Spotted Owl populations and forest conditions are much more complex than previously believed. Old forests provided a reasonable starting basis for predicting where we might find Spotted Owls, so naturally, old forests formed the backbone of the conservation strategy. However, after the owl was listed, it soon became apparent that there was more to the owl/forest relationship than old forests, because many private timberlands without extensive old-growth forests were found to contain Spotted Owls. For example, we found 55 sites occupied by Spotted Owls

in a western Oregon landscape that contains less than 10 percent mature and old-growth forests.

That information directed our studies somewhat, and we subsequently found that suitable Spotted Owl habitat involves multiple and interacting environmental factors, not just age or growth stage of forest. These additional factors include undergrowth vegetation, standing and fallen dead trees (or snags), and attributes of the physical environment. That old-growth, by itself, is weakly correlated with owl reproductive success is explained below, as there are implications for owl conservation and management.

Since 1990 I have supervised a research project that spans most of the length of the eastern slope of the Cascades Range in Washington, extending from the Canadian border to the Oregon border. The area contains perhaps one-third of the Spotted owls in Washington. There, about 25 percent of over 100 Spotted Owl nest sites that have been sampled occur in old-growth forests. The remainder occurs in forests that are in intermediate stages of forest growth, owing to past forest fires and previous selective timber harvesting. The area contains several Federal late-successional reserves (or LSRs) that were set aside from timber harvesting to protect Spotted Owls. These late successional reserves were initially proposed to be set aside by the Thomas Committee in 1990. Subsequently, the reserve network was expanded by the President's Northwest Forest Plan in 1993. It was assumed the LSR set-asides would contain Spotted Owls that should be doing well because the areas have the most extensive mature and old-growth forests.

However, the assumption proved to be incorrect. In our study, reproductive success by Spotted Owls is not statistically correlated with amounts of old-growth forests. In fact, we found that Spotted Owls within non-reserved areas, where there is about *50 percent less* old-growth forests, produce twice *as many young* owlets as owls living in reserved forests along the Cascades crest. This seemingly contradictory pattern has been consistent since 1990. It is related to differences in forest types, past forestry practices and to the physical environment. In the areas where owls produce the most young, it seems that productive soils, less annual precipitation, and less rugged topography probably translate into greater abundance and availability of the owl's food base. The result is that owls in such areas are more productive than anywhere else, despite those areas having less old-growth forests. Therefore, more factors than age or growth stage of forest are needed to make reliable predictions about reproductive success among Spotted Owls.

Risks of large-scale wildfires—. After the Spotted Owl was listed in 1990, we documented evidence of a high potential for extensive wildfires to devastate owl habitats in the eastern Washington Cascades, where forest health has deteriorated significantly. The same appears true for the eastern Oregon Cascades and the Klamath Region in southern Oregon and northern California. In 1992, scientists concluded there also was high wildfire likelihood in many areas occupied by the California Spotted Owl in the Sierra Nevada Range. The risks are highest in areas where dense, undergrowth trees create "ladder" conditions that allow small fires to reach forest canopies and escalate into landscape-scale wildfires. Such an event occurred in 1994, when over 200,000 acres burned along the eastern slope of the Washington Cascades. There, some two dozen owl sites were consumed in the fires. Therefore, we know now that we have what scientists call a "wicked ecological problem": "How can we protect Spotted Owls in forested areas with high probability of non-natural, large scale wildfires?"

The points discussed above have several ramifications. First, forest planners would be well-advised to be cautious about relying only on maps of the most extensive old forests to locate reserve areas for long term owl conservation. Second, owls have apparently colonized forests that have re-grown after previous timber harvests that left standing dead and downed trees. Third, preserving a network of the oldest forests may not be optimal in the long run for Spotted Owls in fire-prone areas. What we might consider doing about these topics is my fourth point, described below.

The value of manipulative, adaptive management experiments—. There are significant opportunities for developing compatibility between Spotted owls and forestry. For example, it should be possible to re-condition forests in fire-prone areas and yet maintain the owls. And it should be possible to create suitable Spotted Owl habitat more generally in judiciously managed forests. In each case, forest managers who choose to do so would need to account for the appropriate vegetation structures, in relation to the physical environmental features described above. Indeed, knowing that suitable owl habitat had been created fortuitously, or by default, in some managed forests, the Thomas Committee suggested that forest managers should be able to produce it by design.

Note that this doesn't mean that scientists are certain about how to provide for a viable population of Owls in managed forests over the long term. However, there is sufficient to point us in the right direction. Creating and maintaining Spotted Owl habitat after clearcut timber harvesting most likely cannot be done in less than 30–40 years in most Douglas-fir forests. Given that, the issue in such forests is partly one of scheduling forest treatments over time and across the landscape, which forest managers know how to do. And it is partly an issue of how much structure to leave behind, as well as where to put the structures. In forest types where less-intensive forestry practices, such as partial timber harvesting, may efficiently be used to reduce the risks of fire, it may well be that owls will continue using the treated stands. Or perhaps there will be a short hiatus, after which the owls reuse the treated forest stands. In fact, several scientists have indicated that they believe that carefully-applied partial cutting would not degrade habitats in the short term and that such treatments may well improve habitat conditions for owls over the long run.

Developing the potentials of either method for accommodating Spotted Owls in managed forests requires more development. Both topics require manipulative forest experiments designed to test several promising options simultaneously. Such active "adaptive managements" requires linking research with monitoring to point out the optimal direction for management. To our knowledge, adaptive management activities indicated by the Thomas Committee in 1990, including developing silvicultural programs compatible with Spotted Owls, have yet to become operational. Indeed, Federal monitoring and research programs for Spotted Owls have been significantly reduced.

In summary, then, there is significant information on Northern Spotted Owls that applies at levels of forest stands to landscapes. However, there seems to be no formal mechanism for infusing new scientific information into decision-making processes. Therefore, I respectfully suggest that the Subcommittee on Forestry of the House Resources Committee consider impaneling a body of scientists, perhaps through the National Research Council, to review the information, to evaluate barriers that seem to impede rapid application of useful information, and to recommend actions that could improve conservation and management for Northern Spotted Owls.

Further, and mindful of the need for judicious budgeting, the following specific suggestions are proposed:

1) Support increased funding for Spotted Owl research, especially that which links monitoring of Spotted Owl population trends with habitat conditions and environmental attributes.

2) Encourage the research programs to emphasize rapid development and application of silvicultural methods that are both compatible with Spotted Owls and will reduce risks of wildfire in fire-prone forests.

3) Enable adaptive management programs that could support a suite of conservation strategies that protect Spotted Owls across a landscape mosaic of managed and unmanaged forests. Such programs should contain provisions for regularly updating Federal agency staff to promote rapid application in management.

STATEMENT OF JAMES LYONS, UNDERSECRETARY OF AGRICULTURE, U.S. DEPARTMENT OF AGRICULTURE

Madam Chairman and members of the Subcommittee: Thank you for the opportunity to address the Committee to discuss the impact and status of the northern spotted owl on National Forests. Today I am accompanied by Robert Williams, Regional Forester for the Forest Service's Pacific Northwest Region, and Dr. Martin Raphael, scientist with the Forest Service's Pacific Northwest Research Station.

I am pleased to appear with representatives of the U.S. Fish and Wildlife Service today. Many of the concerns your Committee raised deal with the listing, status as a threatened species, and recovery of the northern spotted owl. These issues, with their basis in the Endangered Species Act, are the special responsibilities of the Fish and Wildlife Service.

That said, I hasten to add that the Forest Service works very closely with the Fish and Wildlife Service in managing the National Forests. This is especially so in the Pacific Northwest where advice by the Fish and Wildlife Service, in concert with several others, assists us in managing the National Forests and Bureau of Land Management forests under the 1994 Northwest Forest Plan. In addition, we are working closely with them to monitor both the compliance with, and the effectiveness of, the Northwest Forest Plan. And, through our Research arm, our several

agencies are jointly studying the population, habitat, and trends of the northern spotted owl.

How is the owl doing? We refer to the testimony here of our colleagues in the Fish and Wildlife Service: It's too soon to tell. The spotted owl is a long-lived species in a forest environment that changes slowly. Its populations may be affected by unique events and conditions from one year to the next that are unrelated to forest management. Thus the data from the first years of the Northwest Forest Plan are not *now* sufficient to give us confidence in any trend. We, along with many, are looking forward to the results of the analysis next year that will give us our first scientifically credible look at recent trends.

The Northwest Forest Plan is not just a plan for the spotted owl. We tried writing plans just for the spotted owl, and they didn't work. In 1988 and again in 1992 the Forest Service issued guidelines for the management of habitat specifically for the spotted owl. Both times Federal courts ruled that our efforts were not adequate and enjoined timber sales in spotted owl habitat. The Bureau of Land Management (BLM) encountered (procedurally different but) similar difficulty in its attempt to harvest timber on the lands it manages in Oregon.

New timber sale offerings on Federal forests in northern spotted owl country came to a virtual halt at the turn of the decade. Timber workers and timber dependent communities, already impacted by automation, alternate markets, and industry reorganization, reeled. Congressional efforts, such as Section 318 of the 1990 Appropriations Bill, granted some short term relief. In spite of Section 318 and other efforts "gridlock" had arrived in the forests and rural communities across western Washington, western Oregon, and northwestern California.

On April 2,1993, President Clinton convened the Forest Conference in Portland, Oregon to address the human and ecological needs served by Federal forests of the Pacific Northwest and northern California. Based on the Forest Conference, the President asked his Administration and Federal professionals to create a science-based forest management plan built on five goals: 1) adhere to the Nation's laws, 2) protect and enhance the environment, 3) provide a sustainable timber economy, 4) support the region's people and communities during economic transition, and 5) ensure that Federal agencies work together. An interagency interdisciplinary team of expert scientists assessed proposals for management of Federal forests in the range of the northern spotted owl. The team produced a report which was used as the basis to develop alternatives. A Record of Decision was issued April l994, which amended the planning documents of 19 National Forests and 7 Bureau of Land Management (BLM) Districts. The Record of Decision sets standards and guidelines, including land allocations for management of Federal lands within the range of the northern spotted owl.

The Northwest Forest Plan is not just a plan for ensuring the viability of the northern spotted owl. It provides significant protections for streams, riparian areas, water quality, and fish. It provides a system of old-growth and late-successional reserves with a multitude of benefits to species that depend on old forests. And, through the Northwest Economic Adjustment Initiative, the Plan also was a foundation of help to communities to cope with, and benefit from, economic transition.

Two months after the Plan's release, the court injunctions were lifted, clearing the way for the agencies to offer new timber sales and other management actions for the first time in 3 years. Since then, Federal agencies' decisions have continued to prevail in subsequent legal challenges, allowing the Northwest Forest Plan to move forward.

The Plan applies only to Federal lands managed by the Forest Service and the BLM in the range of the northern spotted owl. The Plan does not apply to state, private, or tribal lands. While not issued as the final owl recovery plan required by the Endangered Species Act, the Plan does provide comprehensive management direction for the Federal lands that will enhance recovery efforts for the owl. It will also enhance the recovery efforts for other listed old-growth dependent species (such as the marbled murrelet), and for listed fish species by managing for healthy, sustainable forest and riparian ecosystems in the Northwest.

What does it cost to manage for the northern spotted owl? This is an important question. We do not believe it possible to isolate those aspects of the Northwest Forest Plan (nor aspects of the Forest Plans which preceded it) which can be attributed to spotted owl management alone. Because the benefits which accrue to owl habitat and populations also accrue to many other species and forest conditions, one can not say what it costs to manage for the owl. Many of our management actions which benefit the owl are done for reasons independent of the owl—to comply with laws, to ensure a diversity of habitats, or to ensure the sustainability of our forests for multiple use.

The Committee asked us to provide information on costs incurred by local governments and/or private entities to comply with Federal requirements related to the northern spotted owl. The Northwest Forest Plan imposes no requirements on local government or private entities which directly cause them to pay any costs. (The Fish and Wildlife Service has authority for programs for species recovery on non-Federal lands.)

The Committee also posed the important question of the Federal, state, and local revenues foregone due to owl management requirements. This is another unanswerable question, and unanswerable for two reasons. First, the Northwest Forest Plan requires a number of management actions which benefit a number of species and environmental conditions—one can not say what portion is attributable to spotted owls. Second, the Northwest Plan enabled an increase in timber harvest activity from the period of "gridlock" preceding it. We all recognize that current timber sale levels are far below those of the mid- and late-1980's—but they are above those of the early-1990s. In this context, the Forest Plan has enabled revenues to be gathered which would have been foregone without the Northwest Forest Plan.

Research on the spotted owl and monitoring have improved our understanding through studies on population trends (demographics) and habitat conditions. Trends in spotted owl populations are not easily attributed to any single factor but are a complex interaction between changes in habitat, climate, food sources, and abundance of competing species. Hypotheses regarding any of these various factors can only be tested with reliable, long-term demographic data.

In 1994, Federal District Judge Dwyer upheld the Northwest Forest Plan approach but explicitly emphasized that it would hold up to legal scrutiny only if the Forest Service and BLM monitored the effects of the plan on key wildlife species. As a result, the Forest Service and BLM have maintained and supported a comprehensive monitoring plan for the spotted owl. Continuation of spotted owl research (in particular, modeling the relationship between habitat and populations) and monitoring is a critical component in understanding the complexities of ecosystems while we adapt management strategies to achieve desired forest management objectives.

In 1997, an interagency Effectiveness Monitoring plan was developed. This monitoring plan emphasizes the need for continuing monitoring efforts underway. Owl demography studies are summarized annually for each of the individual study areas, but a combined range-wide analysis of all the data from the different study areas (a "meta-analysis") is only done every few years. The last such analysis was conducted in 1993. The next interagency scientific analysis is scheduled for December 1998.

Demographic monitoring studies have proved invaluable for determining trends of owl populations; habitat trends alone do not yet provide this information. The northern spotted owl populations appear to be declining in some areas, but may be stable in others. Much remains to be learned about why owls occupy specific sites, and how restoration and management can help return owls to sites or maintain their occupancy. Several studies have helped develop new forestry methods—selective thinning to speed the growth of tree girth, creation of cavity trees, etc.—that might speed restoring late-successional forests as spotted owl habitat.

We have provided the Committee with a list of scientific publications on the spotted owl from 1994 to the present. This list of publications includes research done in cooperation with the Forest Service, other government agencies, universities, and cooperating research organizations.

The Forest Service allocates funds within the structure outlined by the Congress's appropriations committees. Our funding structure does not include an "owl management" category. Because of the ecosystem management approach of the Northwest Forest Plan, we organize our work according to key components of ecosystem management, such as watershed analysis and riparian restoration. As such, it is not possible to provide an exhaustive set of costs related to a single species, such as the northern spotted owl.

Forest management for the multiple purposes prescribed in the Northwest Forest Plan requires careful thought before acting. The Plan calls for several types of analysis which are closer to the ground than the large scale Plan. Between 1995 and 1997, we completed 283 watershed analyses representing 55 percent of Northwest Forest Plan watersheds. All initial analyses will be complete in three years. These analyses set the stage for a variety of projects including watershed restoration, timber sales, recreation projects, and management of roads and trails. Watershed restoration activities include repairing or obliterating roads, stabilizing upland areas and restoring stream channels and banks. Watershed analyses currently cost between $90,000 and $100,000 each.

Late Successional Reserves total nearly 7.5 million acres within the Northwest Forest Plan area; Reserves help provide a distribution, quantity, and quality of old-growth forest habitat sufficient to avoid the extinction of associated flora and fauna such as the northern spotted owl. Assessments for 75 percent of the acres of Late Successional Reserves will be finished by the summer of 1998. There are ten Adaptive Management Areas identified in the Northwest Forest Plan; they have over 300 research and monitoring projects underway. Eight of the Adaptive Management Areas have completed plans.

This completes my testimony. I would be happy to answer any questions you may have or to provide you with any available information on this topic.

ForestWater Alliance

People working for healthy watersheds

900 17th Street NW, Suite 300 • Washington, D.C. • 20006

Thursday, March 18, 1998

- *California Wilderness Coalition*
- *Citizens for Better Forestry*
- *Coast Range Association*
- *Earthjustice Legal Defense Fund*
- *Gifford Pinchot Task Force*
- *Headwaters*
- *Klamath Forest Alliance*
- *LightHawk*
- *National Audubon Society*
- *National Wildlife Federation*
- *Northcoast Environmental Center*
- *Northwest Ecosystem Alliance*
- *Oregon Natural Resources Council*
- *Pacific Rivers Council*
- *Pilchuck Audubon Society*
- *Portland Audubon Society*
- *Siskiyou Project*
- *The Wilderness Society*
- *Umpqua Watersheds*
- *Western Ancient Forest Campaign*
- *Western Environmental Law Center*

Testimony of Sean Cosgrove, Legislative Coordinator for the ForestWater Alliance, on "The Status and Impacts of the Northern Spotted-Owl On National Forests"

Madam Chairman and Members of the Committee:

I want to thank you for the opportunity to testify here today. The coalition that I represent consists of 21 national and grassroots organizations from western Washington, Oregon and northwestern California. These groups have a long history of involvement in management of Northwest National Forests and, together, represent over 100,000 citizens from the region.

For decades in the Pacific Northwest, the federal government has been in the business of selling off ancient forests from our public lands. Throughout the 1980s, the Forest Service allowed ancient forests to be logged at a phenomenal rate. By 1987, the timber industry was logging an estimated 170 acres of old growth -- the equivalent of 129 football fields -- each day. The draft Forest Management Plans at that time called for the continued liquidation of old growth forests.

By the early 1990s much of our National Forests in western Washington, Oregon and northern California were a tattered maze of clear-cuts and logging roads. Ancient forest stands that previously covered the region have been left in scattered remnant stands. The practice of clear-cutting old growth forests has not only harmed forest-dwelling species such as the Northern spotted-owl, but has also seriously damaged salmon streams and degraded watersheds that provide drinking water to many people in the Northwest.

Several forest species and salmon runs were on the brink of extinction. Continued illegal logging of ancient forest eventually

Phone: (202) 429-2602 • Fax: (202) 429-2610 • E-mail: fwasean@igc.org

led a U.S. federal court to stop old growth logging until a plan was devised to protect the Northwest's ancient forests and salmon streams for the future. This injunction and the need to provide better, scientific management led to the creation of the Northwest Forest Plan.

The Northwest Forest Plan was heralded by the Clinton Administration as the plan that would protect and recover ancient forests, salmon populations and numerous other forest-dwelling species. However, since this plan was put into effect in May of 1994 it has fallen short.

Four years after President Clinton's Northwest Forest Plan went into effect, Forest Service personnel are exploiting loopholes in the plan to clear-cut in streamside reserves, log on steep, landslide prone slopes, log in ancient forest reserves, log in unprotected wilderness and log in watersheds that provide communities with drinking water.

The ForestWater Alliance compiled a report that provides a snapshot of Northwest National Forest management in 1997. Compiling information from federal fiscal year 1997 timber sales in the 17 National Forests and 6 Bureau of Land Management Districts in Washington, Oregon and California that are managed under the Northwest Forest Plan we found that the Forest Service logged over 7,000 acres of ancient forest, over 5,500 acres of forest in streamside reserves and over 7,800 acres of forest in ancient forest reserves. To compound the problem, more timber sales were sold in municipal watersheds and unprotected wilderness.

Threats to Ancient Forests

President Clinton's Northwest Forest Plan established ancient forest reserves on Northwest National Forests in an attempt to protect old growth forests. Many citizens thought the Northwest Forest Plan was doing just that -- protecting ancient forests for future generations of Americans to enjoy. Unfortunately, the plan still allows for 150 to 500 year old stands of forest to be clear-cut.

In 1997, one such timber sale was the Skeeter Timber Sale on the Gifford Pinchot National Forest. This sale is located in the headwaters of the Lewis River between Mt. Adams Wilderness and the Mt. St. Helens National Volcanic Monument, and adjacent to the Steamboat Mountain Research Area. The trees in this timber sale are up to 400 years old. This area contains habitat for numerous threatened, endangered, and sensitive species including bald eagle, peregrine falcon, gray wolf and others. The Lewis River supports one of the last remaining populations of bull trout on the forest. The Skeeter Timber Sale will log nearly 200 acres of ancient forest. By employing the most intensive logging techniques available, exceeding maximum clear-cut size requirements, and logging through wetlands, the Skeeter Timber Sale will increase flooding and erosion problems in the Lewis River.

Despite recognition that past logging and road building activities have fragmented the forest ecosystem and significantly degraded water quality, the Forest Service has sold nine timber sales in the Lewis River watershed since the adoption of the Northwest Forest Plan.

Threats to Northwest Salmon

Salmon are part of our national heritage and an important symbol of Northwest culture. Preventing salmon extinction means protecting the forest streams where these fish feed and lay their eggs. Logging and road construction can fill the streams with silt and eroded material that smother fish eggs and literally choke salmon.

The Northwest Forest Plan has failed to protect threatened and endangered salmon populations in several ways. First, although the plan initially provides for a minimum buffer size for all streams, this minimum may be reduced even further after watershed analysis. Second, although the plan calls for protection of steep and unstable soils as additional reserves, often these areas are not mapped and protected during the planning of timber sales. Lastly, although the plan identifies key salmon watersheds, logging and roadbuilding are allowed inside these areas.

The effect is continued degradation of salmon habitat, declining salmon populations and an impact on tens of thousands of fishing jobs.

Threats to Clean Drinking Water

Our federal forests provide many people with clean, clear drinking water. In Oregon alone, more than half of the population gets its drinking water from streams originating in federal forests. Logging and road construction in community and municipal drinking watersheds add erosion and silt to the drinking water. During winter storms the runoff from roads and clearcuts can turn clear streams into muddy torrents. In some instances this can place the drinking water supplies for whole communities in jeopardy.

In 1996, the North Santiam River was filled with silt and mud when heavy rains hit a landscape degraded by clearcuts and logging roads, causing many major landslides. Residents and businesses were forced to dramatically curtail water use and buy water from a neighboring community when muddy water threatened to destroy Salem's filtration system.

Many landslides have occurred since 1996, and many slides continue to bleed silt into Salem's drinking water supply. Despite these circumstances, four 1997 timber sales will log an additional 791 acres in the same watershed. Salem Mayor Mike Swaim, past Mayor Roger Gertenrich and several Salem city council members have sought to protect the watershed from federal logging plans, pending results of a Government Accounting Office investigation. Mayor Swaim comments, "*Every time they log off another timber sale in Salem's municipal watershed, I worry about our drinking water. What you see in*

a clear-cut is what you get in your drinking glass -- dirt." The government's response: double logging in the North Santiam watershed in 1998.

Choices For Our Future

The Northwest Forest Plan was an ambitious undertaking and it has made some improvements to federal forest management in the Pacific Northwest. However, the plan still allows for the destruction of ancient forest, the degradation of salmon streams and the development of unprotected wilderness. The Northwest Forest Plan allows logging and road construction in communities' drinking water supplies. The Northwest Forest Plan is full of loopholes that allow logging in ancient forest and streamside reserves. Some loopholes even allow for clearcutting straight across streams. In some areas, the last bits of ancient forest are being liquidated. Is this what Northwesterners thought they were getting when the forest plan was devised?

Four years after the adoption of the Northwest Forest Plan it is clear that residents of the Northwest want better forest protection. A recent poll conducted by the ForestWater Alliance shows that 72% of residents across the region want to see more federal lands designated as Wilderness. The time has come to honestly assess the problems with the Northwest Forest Plan and work together for better forest protection on our public forests.

We have a choice to make about the fate of our Northwest forests. What we leave for future generations depends on the decisions that we make today. We can continue with a plan that further degrades our forests and watersheds or we can seek out new solutions for the permanent protection of our ancient forests, salmon streams, unprotected wilderness areas and drinking water supplies. The choice is ours. The time to act is now.

THE NORTHWEST Oregonian 3/7/98

Detroit asks timber sale withdrawal

The city east of Salem opposes proposed logging in its watershed because of the threat to its drinking water

By CHERYL MARTINIS
Correspondent, The Oregonian 3/7/98

SALEM — The Detroit City Council recently passed resolutions asking the U.S. Forest Service to withdraw several timber sales proposed in the city's watershed.

Even though recreation has taken the upper hand economically in Detroit in recent years, the action marks a milestone coming from a city that is part of the timber-based economy of the North Santiam Canyon east of Salem.

It wasn't that long ago, as environmentalist Michael Donnelly pointed out Friday, that Detroit was part of "the No. 1 timber-cutting district in the United States." He was referring to the volume of timber sold in the Willamette National Forest, including the Detroit Ranger District, in the 1960s.

Today, the veneer mills that formerly operated in nearby Idanha are closed. Detroit, a year-round community of about 350, swells to thousands during the summer as campers pack themselves into nearby state and federal campgrounds, creating mini-cities of people who boat on Detroit Lake and hike through the woods. An increasing number of homes are sold as summer homes.

A major private employer is the Breitenbush Hot Springs Retreat & Conference Center. Once regarded by locals as a "naked hippie voodoo cult," it boasts 45 year-round employees and a parking lot that has gone from accommodating Volkswagen vans to BMWs, Donnelly said.

Still, Detroit's mayor says the council's March 3 vote shouldn't be interpreted as commentary on the owls-vs.-trees debate that has been played out nationally in these canyon communities. "It's not logging," emphasized Mayor Martha Millican, a retired U.S. Forest Service worker. "We simply want to protect our watershed."

In addition to logging's potential impacts on water, the city's letter to the Forest Service also raises concerns about fires, helicopter fuel spills near water sources and conflicts between timber management and recreation-wildlife. "The very best water quality comes from unroaded and unlogged areas," the letter said.

The resolution, approved by a 3-0 vote (with two councilors absent) asked the Forest Service to withdraw the proposed High and Dry, Windy Canyon and Bould Puppy timber sales from its 1998 offerings.

Noting that Detroit gets its water from the Mackey Creek and Breitenbush River watersheds, the city also asked the Forest Service to make water quality its top priority in managing the watershed.

The city also complained that it wasn't even notified of the timber sales, and Millican said officials had to rush to comment on the High and Dry sale. "They did not, in fact, get notice," said Rod Stewart, a supervisory forester in the Detroit Ranger District. "It was an oversight, a blunder on our part."

The Forest Service already has notified the city that it plans to revise its proposal for the High and Dry timber sale and will open a new, 30-day comment period. Environmental analyses of timber harvesting in Windy Canyon and Bould Puppy are pending. Once the studies are done, the public will be asked to comment.

Stewart, meanwhile, said that water quality already is a top priority in timber-sale planning. "It's inherent in everything we do from the very beginning," he said, adding that the High and Dry timber sale will involve mostly commercial thinning, all done by helicopter. "I'm not sure how we can make water quality a higher issue," he said.

Parts of the High and Dry and Windy Canyon sales involve "replacement timber" needed to make up for reductions in coastal logging to protect the marbled murrelet. The need for replacement timber will result in a sharp increase in logging in the Detroit district this year, but the volume remains within ranges allowed under President Clinton's forest plan, Stewart said.

At the same time that other cities are raising concerns about municipal watersheds, timber companies have voiced frustrations about delays in making planned forest sales available to loggers.

Rob Freres, of Freres Lumber Co. Inc., said he was surprised to hear of Detroit's action. He said that historically some of the town's residents have worked in mills throughout the canyon.

THE OREGONIAN, FRIDAY, FEBRUARY 20, 1998

Crumbling forest roads lead to trouble

If they are built poorly and are not maintained, they can cause landslides and erosion, experts say

By JONATHAN BRINCKMAN
of The Oregonian staff

The U.S. Forest Service last month cited a $10 billion backlog in road maintenance when it announced an 18-month moratorium on the construction of new roads.

It's not just bumpy rides for loggers, hikers, bikers, anglers, hunters and others who use the nation's 373,000-mile network of national forest roads that the agency is worried about.

Scientists see roads as the single-largest cause of landslides and erosion on forested land. Both send sediments into streams and rivers, which can hurt salmon and other fish.

All roads cause problems, but older, poorly maintained roads are by far the worst offenders. And only about 40 percent of the roads in national forests are adequately maintained, the agency estimates.

"Not all roads were created equal," said Mike Lohrey, water-quality program manager for the Forest Service's Northwest region. "We have a legacy of bad roads we have to deal with."

The basic reason that forest roads trigger landslides and erosion, scientists say, is that they run perpendicular to hillsides. That means they disrupt the flow of water, which normally runs straight downhill.

Roads act like channels, intercepting water and diverting it elsewhere. When the diverted water is added to a stream, it can overload that waterway.

Most roads have drainage ditches that become small streams during rains. Now some roads are constructed without those ditches to avoid creating waterways.

Water also flows along the road surface.

The most serious erosion occurs where streams cross roads. Culverts that carry the streams under roads can plug up, turning the road crossing into a dam. Water held back by the dam is often diverted onto the road surface, where it either flows down the road to another stream or flows off the road and creates a gully or landslide.

Sometimes so much water is held back by a plugged culvert that the newly created dam blows out, sending a slurry of water, mud and debris downhill.

Problems also are caused by the old practice of using material dug from the uphill road cut to buttress the downhill side of road. The fill is often steep and unstable, highly likely to wash away.

Roads are built differently now; material taken from road cuts is not dumped over the hillside. Instead it is trucked away to a more stable spot.

Problems caused by forest roads

Here are the three main ways roads put sediments in streams:

1) Intercepting subsurface flow:

Much of the water in forested areas flows downhill under the ground, where it seeps into streams without carrying sediment. Roads intercept subsurface flow, bringing it to the surface. The result can be sediment-laden streams.

2) Slides of roadfills:

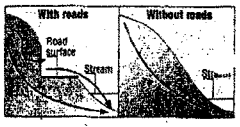
In older roads, the fill used to build up the downhill side of the road can collapse. The result can send thousands of pounds of sediment downhill.

3) Plugged culverts:

Too small or improperly maintained culverts can plug up with logs, branches, leaves or other debris. The resulting buildup of water is sometimes enough to cause an entire section of road to wash out.

Quicker runoff:

Studies have shown that water flows out of valleys with roads more quickly than from roadless valleys. Faster runoff picks up more sediment.



Sources: Beverly Wemple, Oregon State University; Wildlands CPR, Missoula, Mont.

The Oregonian

> *Not all roads were created equal. We have a legacy of bad roads we have to deal with.*
>
> **Mike Lohrey,**
> water-quality program manager,
> U.S. Forest Service's Northwest region

Fixing old roads is expensive and time-consuming:

- Stream crossings must be re-engineered, sometimes by installing larger culverts less likely to become plugged. Sometimes the culvert must be removed altogether and the road rebuilt so the stream flows over it, leaving vehicles sometimes facing water flowing over the road, which they then must ford.
- Old roads are regraded so water runs off immediately. Bars are added across the road to direct water off the road.
- The fill dumped beside old roads is removed.

The best way to deal with the worst offenders — such as roads cut across steep slopes above fragile streams — is sometimes to close them. The Forest Service sometimes obliterates such roads, ripping up the surface so it can absorb rainfall and planting vegetation.

"We've gotten a lot smarter about how to build roads," said Gordon Grant, a Forest Service research hydrologist.

"But roads in mountain areas require a constant investment in attention and money because they are prone to failure. You can't put them in and walk away from them."

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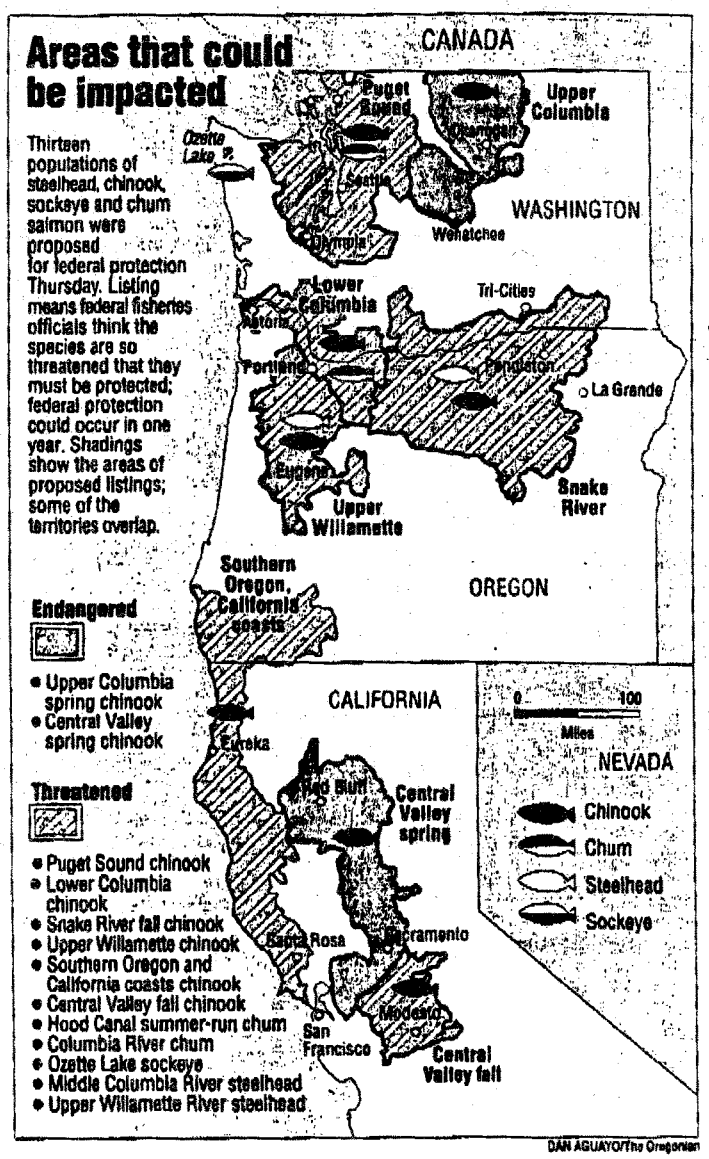
THE OREGONIAN, FRIDAY, FEBRUARY 27, 1998

Areas that could be impacted

Thirteen populations of steelhead, chinook, sockeye and chum salmon were proposed for federal protection Thursday. Listing means federal fisheries officials think the species are so threatened that they must be protected; federal protection could occur in one year. Shadings show the areas of proposed listings; some of the territories overlap.



Endangered

- Upper Columbia spring chinook
- Central Valley spring chinook

Threatened

- Puget Sound chinook
- Lower Columbia chinook
- Snake River fall chinook
- Upper Willamette chinook
- Southern Oregon and California coasts chinook
- Central Valley fall chinook
- Hood Canal summer-run chum
- Columbia River chum
- Ozette Lake sockeye
- Middle Columbia River steelhead
- Upper Willamette River steelhead

DAN AGUAYO/The Oregonian

Study: More landslides coming out of forests that have been clearcut

Tacoma 1/30/98

By Jeff Barnard
Associated Press Writer

GRANTS PASS — A study of landslides on forests in Oregon's Coast Range has found more slides coming out of clearcuts than out of forests that had not been logged for the past 100 years.

However, an update on the continuing study released Thursday by the State Department of Forestry failed to address whether clearcut logging affected the severity of landslides and noted that slides also occur in forested areas.

"Banning clearcuts will not ensure public safety," the department said in a news release. "As long as people are located below steep slopes and at the mouth of v-shaped canyons, their safety cannot be guaranteed during intense storms."

"Nobody is asking them to guarantee their safety," said Gordon Marvin, who lost his wife and three friends when a November 1996 slide roared through a house near the Douglas County community of Umpqua.

"What people are asking is not to exacerbate the situation and make it almost a sure thing."

The Association of Forest Service Employees for Environmental Ethics, which has been critical of state and federal logging practices, said the study was flawed because forestry officials did not report data on landslide size.

"We find that the biggest landslides come from logging roads," said Andy Stahl, the association's executive director. "The next biggest come from clearcuts. And the smallest slides are in the mature forests and right next to creeks."

Stahl said the study failed to ask an important question: "How do forest practices affect the danger to downhill landowners?"

The slide that killed Marvin's wife and friends came out of a clearcut logged 10 years earlier by Champion International. Marvin and his neighbors are suing the company.

Since the slides that killed a total of five people in 1996, the Legislature gave the state Board of Forestry authority to stop logging on private lands that pose a high risk of endangering homes and highways below.

At the behest of the governor, the Oregon Department of Forestry has developed a system to alert the public when heavy rains increase the risk of landslides. A map identifying high-risk areas will be ready in a year or two.

The study was done by scientists from Oregon State University and the Oregon Department of Forestry following intense storms in February and November 1996. The study area covered 52 square miles of the Coast Range from Clackamas County to Coos County. Crews walked 136 miles of streams, inspected 170 miles of roads and documented about 600 landslides.

The Department of Forestry said their study, the largest ever done, found three out of four sites on very steep slopes that had been clearcut in the past nine years had a higher rate of landslides than sites that had not been logged in the past 100 years.

"This suggests factors associated with clearcutting sometimes make a site more vulnerable to landslides," the department said.

The study is not expected to be finished and reviewed by other scientists until December.

STATEMENT OF GERRY JACKSON, ASSISTANT DIRECTOR FOR ECOLOGICAL SERVICES, UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF INTERIOR, BEFORE THE SUBCOMMITTEE ON FORESTS AND FOREST HEALTH, HOUSE COMMITTEE ON RESOURCES, ON THE IMPACT AND STATUS OF THE NORTHERN SPOTTED OWL ON NATIONAL FORESTS

March 19, 1998

Thank you for the opportunity to discuss the impact and status of northern spotted owls on National Forests. I am accompanied by Mr. David Wesley, Assistant Regional Director of Ecological Services in our Pacific Regional Office in Portland, Oregon.

The Fish and Wildlife Service appreciates the opportunity to provide testimony before this committee on the northern spotted owl and the President's Forest Plan. The Forest Plan is a comprehensive, multi-faceted approach to managing forest ecosystems within the Pacific Northwest and Northern California. The Service is working cooperatively with Federal and non-federal entities to achieve the President's goals for ecological and economic health of our forest resources. Service actions to meet these responsibilities include 1) supporting Federal land-management agencies in implementing the Forest Plan through consultation, planning and technical assistance, 2) cooperating with non-federal landowners through habitat conservation planning; 3) developing a rule under section 4(d) of the Endangered Species Act (ESA) to provide relief for take of northern spotted owls for private landowners with small holdings; and 4) supporting local communities through the Jobs-in-the-Woods program. These responsibilities are among the highest resource priorities for the Service's Pacific Region.

The Service is an advocate of the Northwest Forest Plan as the key to resolving conflicts between issues, such as spotted owl conservation and timber production, in a way that brings more certainty to management of our Nation's forest resources. The Service has been involved with forest issues since the late 1980s when we were petitioned to list the owl as a threatened species. At the Committee's request we have provided copies of the major documents used by the Service in its listing decision including those that summarize owl status at that time along with an index of other supporting material which is archived.

The major points that supported the Service's listing decision focused on downward spotted owl population and habitat trends, and the lack of regulatory mechanisms to manage this species. Delisting of the spotted owl would require that we address the reasons for listing, i.e. that the spotted owl population is stable or increasing and that we have confidence in the regulatory mechanisms in place to protect the owl's habitat. These issues would have to be satisfactorily resolved across the range of the northern spotted owl, including both Federal and non-Federal lands.

Since the listing of the owl in 1990, the Service has been an active participant in interagency and inter-governmental planning efforts both to develop and implement a strategy for protecting and managing the spotted owl that would respond to the reasons for listing the owl as well as

continue to support the timber programs of the Forest Service, Bureau of Land Management, states, and private landowners. These efforts included designation of critical habitat for the spotted owl and preparing a draft owl recovery plan. These materials have also been provided at your request. As you are aware, litigation involving all of the key Federal agencies continued through the early 1990s. However, the focus of that litigation began to expand beyond the spotted owl toward forest ecosystem and biodiversity issues. The result by 1993 was a near shut-down of Federal timber sale operations due to court orders related to these larger issues.

The Service recognized, along with the other Federal agencies, that the northern spotted owl was not the only forest resource issue requiring consideration if we were going to resolve these conflicts. For example, the Service listed the marbled murrelet in 1992. As a result, the Service was a strong supporter of the President's 1993 effort to address existing and potential issues through development and implementation of the Forest Plan, a plan that would form the basis for owl recovery, contribute to recovery for other listed forest species, reduce future listings of species dependent on Federal forests, and contribute to overall forest ecological and economic health in the Pacific Northwest. The Service fully believes that this type of ecosystem approach is the most efficient and viable approach to resolving complex and large-scale issues, and one that in the long run will be considerably less costly than an approach that deals with only one issue or species at a time.

In response to this ecosystem approach to forest management, the Service has played a major role since 1994 in supporting the Federal land management agencies in implementation of the Forest Plan. The Service and these agencies have helped reduce resource conflicts relative to the ESA by bringing fish and wildlife resource issues to the forefront of the planning processes, thus greatly facilitating consultation and resource planning.

Our highest priority has been to expeditiously complete consultations under section 7 of the ESA on timber sales, including salvage, and Forest Plan activities. In March 1995, the Service, the Forest Service, the Bureau of Land Management and the National Marine Fisheries Service signed a Memorandum of agreement outlining consultation timeframes and formally "streamlining" processes for forest health projects and timber salvage.

As a result, consultation timeframes were greatly reduced in the Northwest, from over 135 days per consultation as provided by statute to an average of no more than 60 days for formal consultations and 30 days for informal consultations. More recently, we have been averaging 10 days for informal consultations and 32 days for formal consultations. We are also striving to take a programmatic approach to consultations aiming to reduce staff time and workload and achieving greater certainty in project implementation. Supporting documents relative to the streamlining process have been provided for your consideration.

We have also made a major effort to lessen impacts on private landowners. The Critical Habitat designation for spotted owls represented the first time the Service had utilized its authority to exclude areas from critical habitat for economic reasons. As a result, no Critical Habitat for the

owl was designated on private lands. Habitat Conservation Plans (HCPs), and our "No Surprises" and "Safe Harbor" initiatives can provide major benefits to landowners. Indeed, the two initiatives were in part based on experience with the spotted owl.

So far, our efforts in the non-federal arena have also been successful, resulting in more certainty for many non-federal landowners. We have completed or are working on 20 HCPs in the Forest Plan area. These plans will consider management prescriptions covering over 4,400,000 acres of forest habitats affecting the conservation of species using a multispecies landscape approach in Washington, Oregon and northern California within the range of the owl. Several additional plans dealing with owls and other species are in a preliminary development stage. A table summarizing HCP project activities was included in the documents delivered to this committee.

These plans include large and small public and private landowners, including the Washington Department of Natural Resources, benefitting the spotted owl, marbled murrelet, grizzly bear, gray wolf and many other species on 1,660,000 acres; Plum Creek Timber Company, benefitting the spotted owl, marbled murrelet, grizzly bear, gray wolf and other species on 170,00 acres in Washington State; the Murray Pacific Company, benefitting the bald eagle, grizzly bear, spotted owl, marbled murrelet, gray wolf and other species on 55,000 acres in Washington State; the Oregon Department of Forestry, benefitting the spotted owl, marbled murrelet and other species on 615,000 acres in Oregon; Coast Range Conifers benefitting the spotted owl and marbled murrelet on 110 acres in Oregon; two agreements with Weyerhauser benefitting the owl, marbled murrelet and other species on over 600,00 acres in Oregon; Louisiana-Pacific, benefitting the owl and various species of fish on 300,000 acres in California; and the Regli Estate, benefitting the spotted owl, the marbled murrelet and other species on 500 acres in California .

Landowners are generally pleased with their HCPs. The President of Plum Creek stated "This plan will serve as an example of how to protect the diversity and health of ecosystems while giving businesses that rely on natural resources the predictability they need to service the important interests of their employees, communities, customers and shareholders." Toby Murray, Vice President of Murray Pacific, noted "Approval of this Habitat Conservation Plan is proof that cooperative approaches between government and business can achieve substantial results for the environment and the landowner. We are all proud and excited with the new Habitat Conservation Plan we are signing because it provides excellent protection for fish and wildlife and gives us the certainty we need to operate our family business."

The intent of these HCPs is to strike a balance between impacts resulting from timber harvest and related activities, and the conservation of the owl and other species on non-Federal land. All of these HCPs are, to some extent, related to the Northwest Forest Plan, since most plan areas are adjacent to Federal land and were developed from an ecosystem perspective, including consideration of the conservation measures being implemented on nearby Federal lands. One intent of the Plan was to ensure that Federal lands contributed their full share for owl conservation, thereby easing the need for restrictions on non-Federal lands.

In order to encourage HCP development and manage the associated workload, the Fish and Wildlife Service and National Marine Fisheries Service have streamlined the HCP development and application process. This includes a number of improvements over the prior process. First, we have established a category of "low-effect HCPs" applying to activities that are minor in scope and impact. These HCPs receive faster handling during the permit processing phase. Second, we have provided clear guidance that has been subjected to public review to Service personnel and applicants about section 10 program standards and procedures. Third, we have established numerous mechanisms to accelerate the permit processing phase for all HCPs. Finally, specific time periods have been established for processing an incidental take permit application once an HCP is submitted to the Service. These are:

HCP With an Environmental Impact Statement.....less than 10 months;
HCP With an Environmental Assessment.....3 to 5 months; and
Low-effect HCP.....less than 3 months.

The joint Fish and Wildlife Service-National Marine Fisheries Service "No Surprises" final rule (February 23, 1998, 63 FR 8859) establishes a simple principle. The Federal Government will not require, without the consent of the permittee, the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water, including quantity and timing of water delivery, or other natural resources beyond the level otherwise mutually agreed upon for the species covered by the conservation plan. In other words, "a deal is a deal".

Our Safe Harbor agreements ensure landowners that they will not be penalized if they take voluntary additional conservation measures for listed species beyond those legally required, such as allowing timber stands to become "old growth" rather than cut them down before they could become owl habitat. Both of these tools are designed to provide private landowners with real-world incentives to work collaboratively with the Service in restoring declining and listed species.

The Service is requesting additional funding to accelerate implementation of these successful ESA reforms. We are requesting a $9.9 million increase for the consultation program, where we intend to further streamline the section 7 consultation program with other Federal agencies and to provide greater support to HCP development. We expect to be working on the development of an additional 100-175 new Habitat Conservation Plans during FY 1999. These new and existing HCPs will cover hundreds of listed, proposed and candidate species and encompass over 9.2 million acres.

We have requested an additional $5 million in fiscal year 1999 for a new pilot Safe Harbor landowner incentive grant program. Over one-half of all listed species have 80 percent of their habitat on private land. The new grant program will provide financial assistance to about 150 landowners with small landholdings that provide critical habitat for protecting species.

We are also active in the "Jobs in the Woods" program, in which we seek to hire displaced timber workers within the range of the spotted owl to carry out habitat restoration projects, in

voluntary cooperation with private landowners. We have to date received over $9.2 million for this program, which has employed 820 displaced workers in 36 counties. Accomplishments include over 140 miles of roads and trails rehabilitated; over 180 miles of steambank or riparian areas fenced; and over 2,200 acres of wetland and riparian habitat restored or enhanced. The President's budget request for fiscal year 1999 is $2.3 million, which would permit us to employ 210 displaced workers in these projects for the fiscal year.

As a result of our direct involvement in development and implementation of the Forest Plan, the Service strongly believes that the Forest Plan provides a sound framework for recovery of the northern spotted owl and a framework that focuses on Federal lands as providing most of the needs of the spotted owl population over its range. The President relied on this expectation when he directed the Service to develop a special 4(d) rule under the ESA to address regulatory restrictions on non-federal lands where found to be unnecessary or less important to spotted owl conservation. The Service intends to issue a final 4(d) rule for the spotted owl early this summer.

The Service does not intend to issue a final recovery plan for the owl, although we still utilize and regard as solid the biological analysis in the draft plan, because the Service believes that the Forest Plan, when added to the on-going HCP effort for non-Federal lands, outlines the necessary management tools for recovery, and that the information needed to address delisting will be provided through an interagency monitoring program that focuses on population and habitat trends. These conclusions are consistent with the biological goals for owls identified in the draft recovery plan and in previous reviews and assessments of the spotted owl, and in the monitoring plan developed for the species.

While we believe that the ultimate impact of implementation of the Forest Plan, as stated in its Record of Decision, will contribute significantly to recovery of the owl, we must remember that the owl is a long-lived species that dwells in a forest environment that changes very slowly over time. Accordingly, we are highly dependent on the continuation of a focused research and monitoring program carried out by the Federal, State and private research entities that will provide information to assess trends in the spotted owl population. Our actions and those of the other resource agencies will be guided by the results of this research and monitoring. The most recent range-wide analysis of demographic data on spotted owl population trends pre-dates the completion of the Forest Plan and indicated a continuing downward trend. These data were used in development of the Forest Plan in 1994 and in the Service's subsequent efforts to develop a special 4(d) rule. Because of the nature of demographic information, these results are only reported on a 3-5 year interval. The first results from spotted owl demographic or population trend studies conducted since implementation of the Forest Plan are due to be reported to the Service late this year.

Our expectations are that the population will continue to decline as habitat is lost. These losses will occur as habitat outside the "Late Successional Reserve" areas are harvested to support the local timber demand. However, without the protections under the President's Forest Plan, the

reduction of suitable habitat would have continued until all suitable habitat available for timber harvest, and thus all timber-related jobs dependent upon old-growth logging, would have been lost by the end of the century. Attachment 1 to my statement shows Forest Service data on owl population trends prior to listing. Over the next 50 years, the spotted owl habitat removed under the implementation of the Northwest Forest Plan is expected to be replaced by habitat regenerating within the protected reserves. As habitat inside the reserves improves, the amount of habitat rangewide, and therefore owl populations, will stabilize and eventually increase.

Because the Forest Plan takes a multispecies and multi-disciplinary habitat-based approach to resolving forest conflicts, we cannot separate precise impacts or costs to forest management that are specifically attributed to the northern spotted owl.

Included with my statement is a chart that summarizes the costs associated with our involvement in implementation of the Forest Plan on Federal lands (Attachment 2). However, the activities supported by these funds address all the Service's trust resources and technical assistance responsibilities related to Northwest forest areas, not just spotted owl issues. Examples include Service involvement in section 7 consultation streamlining, providing technical assistance on large scale planning efforts, and providing endangered species and other trust resources assistance to Forest Service ranger districts and BLM districts and resource areas to provide watershed and province level habitat and species contexts for streamlining timber activities planning.

The costs shown in the attached budget table for development of habitat conservation plans and the 4(d) rule are more specifically associated with spotted owls. Even in those cases, however, the Service is attempting to take a multispecies ecosystem approach that provides more certainty to landowners from effects of listing other species by using the Forest Plan as the basis for addressing their conservation. Thus, these costs are not solely attributed to the spotted owl.

The Service has not been provided specific information from local landowners or governments that summarize their impacts or costs. Because the ESA requires us to make decisions on listings and evaluations of agency actions solely on biological grounds, data on economic impacts cannot be part of the decision-making process. We accordingly have not burdened local governments, private businesses and landowners with requests for information we are precluded from using. However, we believe the results of our efforts to reduce impacts of listed species and provide certainty to landowners have had a positive impact on their activities with minimal costs.

Although the best available science was used to develop the Forest Plan, the concept of ecosystem management and our knowledge of what it means to species, forests, and society are still evolving. Thus, implementation of the Forest Plan will require a strong and long-term cooperative effort among the agencies in the Pacific Northwest to ensure we meet the President's ecological and economic goals, a commitment that the Service strongly supports.

The cornerstone of our efforts will focus on adaptive management not only for the spotted owl,

but for all species and issues that constitute the ecological and economic goals of this plan. For the spotted owl, this means relying on a long-term monitoring program that can track the trends in its population in a way that is meaningful to the Forest Plan. The Federal agencies have worked to develop a monitoring program that can reduce the costs and the time it takes to achieve useful results. This program will respond to the Service's needs relative to delisting the owl by focusing on the reasons for listing, that is, by focusing on population and habitat trends relative to forest management.

For the future, the Service intends to continue its active support for and participation in implementation of the Northwest Forest Plan to ensure that our legislated mandates and the President's ecological and economic goals are met, not just for the spotted owl but for all the species and issues affected by that plan. We will continue to work closely with the Forest Service and BLM to further improve and streamline the planning and assessment processes associated with the Forest Plan. The Service will also continue to actively work with non-federal landowners to develop habitat conservation plans, and to complete its commitment to reducing regulatory restrictions for owls through implementation of the special 4(d) rule in an expeditious manner.

This completes my formal testimony. I would be happy to answer any questions you may have.

ATTACHMENT 1

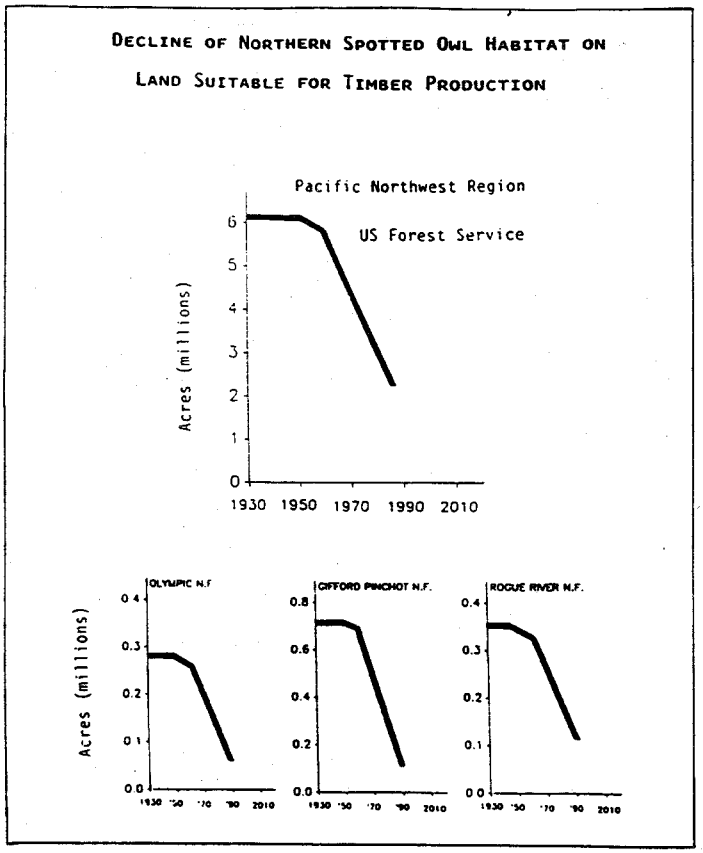


Figure 1. Decline in acreage of unprotected suitable northern spotted owl habitat on Forest Service lands also suitable for timber production. Based on information provided by the Forest Service (Pacific Northwest Region, Timber Management).

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Attachment 2

Fish and Wildlife Service Fiscal Year Allocations for Northwest Forest Plan Activities					
	FY 1995	**FY 1996**	**FY 1997**	**FY 1998**	***FY 1999 Presidents Request***
Resource Areas	Funding ($000)	Funding ($000)	Funding ($000)	Funding ($000)	*Funding ($000)*
Interagency Consultation and Coordination	9,953	9,232	9,532	9,865	*9,996*
Non-Federal Forest Activities - Habitat Conservation Planning - Endangered Species Act Section 4(d) Rulemaking	2,014	2,470	3,867	4,797	*4,928*
Jobs-in-the-Woods	3,513	2,376	2,376	2,376	*2,376*
TOTALS ($000)	15,480	14,078	15,775	17,038	*17,300*