

FOREST ECOSYSTEMS MANAGEMENT IN IDAHO

4. AG 8/1:103-41

est Ecosystems Management in Ida...

HEARING

BEFORE THE

SUBCOMMITTEE ON SPECIALTY CROPS
AND NATURAL RESOURCES

OF THE

COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

AUGUST 20, 1993
BOISE, ID

Serial No. 103-41



REINVENTION OF DOCUMENT
NECESSARY

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CONTENTS

	Page
LaRocco, Hon. Larry, a Representative in Congress from the State of Idaho, opening statement	7
Prepared statement	9
Peterson, Hon. Collin C., a Representative in Congress from the State of Minnesota, opening statement	6
Rose, Hon. Charlie, a Representative in Congress from the State of North Carolina, opening statement	5
Prepared statement	6

WITNESSES

Andrus, Cecil D., Governor, State of Idaho	1
Prepared statement	55
Arno, Stephen F., research forester, Intermountain Research Station, Forest Service, U.S. Department of Agriculture, Missoula, MT, and Robert Steele, project leader, Intermountain Research Station, Forest Service, Boise, ID	15
Prepared statement	69
Everett, Richard L., science team leader, eastside forest ecosystem health assessment, Wenatche Forestry Sciences Laboratory, Forest Service, U.S. Department of Agriculture	13
Prepared statement	59
Foruria, Lou, president, WCIW No. 2816, United Brotherhood of Carpenters and Joiners of America	50
Prepared statement	125
Gehrke, Craig, regional director, Idaho office, Wilderness Society	43
Prepared statement	119
Groen, Cal, chief, natural resources policy bureau, Idaho Department of Fish and Game	30
Prepared statement	81
Malany, Herbert S., chief forester, Boise Cascade, Corp	27
Prepared statement	74
Neuenschwander, Leon F., professor and associate dean, research and international programs, college of forestry, wildlife, and marine sciences, University of Idaho	38
Prepared statement	115
Oliver, Chadwick D., professor, silviculture and forest ecology, college of forests resources, University of Washington	34
Prepared statement	90
Partridge, Arthur D., professor, plant pathology, college of forestry, University of Idaho	50
Prepared statement	129
Sampson, Neil, executive vice president, American Forests	46
Tuttle, Merritt E., Division Chief, Environmental and Technical Services Division, Northwest Region, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce	31
Prepared statement	83

FOREST ECOSYSTEMS MANAGEMENT IN IDAHO

FRIDAY, AUGUST 20, 1993

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SPECIALTY CROPS
AND NATURAL RESOURCES,
COMMITTEE ON AGRICULTURE,
Boise, ID.

The subcommittee met, pursuant to call, at 9 a.m., in the Gold Room, Idaho Capitol Building, Boise, ID, Hon. Charlie Rose (chairman of the subcommittee) presiding.

Present: Representative Peterson.

Also present: Representative LaRocco.

Staff present: Keith Pitts and Alexandra Buell.

Mr. ROSE. The House Agriculture Subcommittee on Specialty Crops and Natural Resources will please come to order.

We are here today to conduct a public field hearing, and the subject is ecosystems management and applicability of new forest and forest health techniques for forest ecosystems management in Idaho.

We have a large panel of experts and people who want to testify. We are very honored that the Governor of your State will be our first witness today. I am going to let him, if he will, make his opening remarks even before I make my opening remarks.

So if you will honor us with your statement, Governor, we thank you for allowing us to use this great capitol building.

STATEMENT OF CECIL D. ANDRUS, GOVERNOR, STATE OF IDAHO

Governor ANDRUS. Thank you very much, Mr. Chairman.

If I might, before we get to the formalities of an actual hearing, I would like to express my appreciation to an old friend coming back to visit. The people of Idaho do not know of our personal relationship. I have been in Charlie's district in 1977, 1978, and 1980, I guess, and probably some other times, to help out with some of the problems in North Carolina.

I told the distinguished Congressman that it was more than 15 years ago that I wanted him to visit the great State of Idaho, and now that you are here, Congressman, I can announce to you and the world that I have fulfilled all of my desires in public office, and I will not run for reelection.

So seriously, the public out here, we don't have an opportunity to know of men like you and Congressman Peterson from Minnesota, the dedication that you have. I have been a proponent of

term limitations, but I would say if they were all like Charlie Rose in North Carolina, I would change my mind.

Mr. ROSE. You are very nice. Thank you.

Governor ANDRUS. Now, if I may be more formal, Mr. Chairman, I would ask unanimous consent that my entire comments be submitted for the record, and I will be brief in my capsulation.

Mr. ROSE. So ordered.

Governor ANDRUS. Again, thank you, Mr. Chairman, and Congressman Peterson, for being here with Congressman LaRocco to propose, as he proposes, his legislation that we know as H.R. 229.

I would just say to you, sir, that this legislation is both necessary and urgently needed. I support the bill. The administration supports the LaRocco legislation.

Insect infestation continues to plague our woods. The combination of 6 years of drought, before we had any relief, brought about an increased mortality rate that is totally unacceptable.

We have had dead and dying timber. We have had catastrophic wildfires. We had the fire storms of the Lowman area in 1989, and just last year we had, just east of this city where we are seated, a 250,000-acre rangeland and timber fire that blackened millions and millions of board feet of timber, as well as destroying the range.

It is time that we had man not leaving all management to mother nature, because man's intrusion into the ecosystems has caused problems that man and man's science must be involved in correcting.

I would submit to you, Mr. Chairman, that the forest is more than just trees. Too many people see the trees and think of that as a forest, a wilderness, a woodlot, or whatever they choose, but the timberland of this State and other States, as you know from North Carolina and your district, provides the watershed that is absolutely necessary for other ingredients. It provides a shelter for wildlife. It provides the water quality for the fisheries in our streams. It provides all of those things, including forage for livestock grazing.

So the forests are very important. As we have watched our forests become devastated by disease and fire, we recognize something has to be done. That is why I congratulate Congressman LaRocco for coming forward with this legislation, and I would submit to you that, yes, you are going to hear some controversial statements that the Boise National Forest is using this type of current management as an excuse to harvest timber. Well, the State of Idaho has forestlands in the same area.

We increased our cut from 17 million board feet a year to 27 million board feet a year the past 3 years, taking out basically the infestation from insects, the dead and dying timber, and the salvaging of fire.

You must move fairly rapidly to salvage that wood fiber for commercial uses, not only to sustain an industry, but also to avoid wasting it, and thereby we can save the green stems for future years. That is exactly what we have been doing. The timberlands are very valuable to us in many respects.

I would just say to you that generally I agree with the management philosophy of the Boise National Forest in this regard, even

though it has been accused of accelerating the cut. In my testimony that I submitted to you we elaborate on that point.

I would point out to you, however, as we support that management technique, we are also advocating that some areas be left without man's intervention so we can compare the two and, down the road, fine-tune Congressman LaRocco's legislation to see that what we are doing is right.

There is one provision within the bill that I must speak to, and that is the shared receipts that we have from timberlands to our counties. That is a very important part of this legislation. I hope that it won't be dropped out and that it will be maintained on the gross figures of the sales because many of our counties, as in your States, rely upon those receipts for the maintenance of local units of government.

Out here, unlike some of yours, we have a tremendous amount of federally owned land that is not on the tax base. Those receipts have to be protected, and the Congressman from Idaho's First Congressional District realizes that. He included it in the legislation, and I hope it continues.

I think with that, Mr. Chairman, I would probably cease my formal testimony and make myself available to you and your colleagues for any questions you might have, and submit the balance of my testimony for the record.

[The prepared statement of Governor Andrus appears at the conclusion of the hearing.]

Mr. ROSE. Thank you, Governor.

In my own experience, the problems of local units of government having large units of Federal land in the county, and the fact that they don't pay any local taxes because of that, is something that I am very sensitive to. We have two large military bases in eastern North Carolina and they don't pay any property tax, yet the county is supposed to educate the children. And so the Government has paid a type of impact aid to the local school unit to help them have the resources to educate their children in the public school.

That is similar to what you are talking about, sharing the receipts from the sales of timber with the local units of government.

Governor ANDRUS. Yes, sir.

Mr. ROSE. I thank you very much for being here. I don't have any further questions.

Representative Peterson.

Mr. PETERSON. I was just wondering if Congressman LaRocco was saying that 62 percent of your land was Federal land. Is that correct?

Governor ANDRUS. Sixty-four, depending on who runs the numbers.

Mr. PETERSON. Do you have counties that are totally Federal land?

Governor ANDRUS. Not totally, but running 95 percent. If you want to look into Idaho County on the east side of that county—our largest county—it is all Federal forestland. You get down into Owyhee County, Congressman, that runs with the BLM and the public in excess of 90 percent.

We have many examples of that, where the alluvial valley floor and the prime land was picked up either under desert entry or the Homestead Act many years ago, and the rest is Federal.

Mr. PETERSON. I assume there is something in lieu of taxes paid?

Governor ANDRUS. We receive receipts from some of those. Also Public Law 80 in impact aid, we would see some of that. We have a distribution formula of State funds to public schools that picks up some of that. But if you would take away the 25 percent of these to the counties, they would be in deep, serious trouble.

Mr. PETERSON. Thank you.

Mr. ROSE. Congressman LaRocco.

Mr. LAROCOCO. Governor, thank you for being here and for your testimony. I find it to be a great honor to be on this side of the desk while you are testifying. I can say I think your testimony is going to have a great impact on the Agriculture Committee and the Natural Resources Committee, not only because you are CEO of Idaho's public lands, but because of your former position as Secretary of the Interior.

One of the main goals of this legislation is to make Government more efficient, to take in Government authorities. If you have any extemporaneous comments on what we are trying to accomplish through tying together these authorities with the Secretary of the Interior and with the Secretary of Agriculture and allowing them to declare this forest emergency so they can move ahead to test management, fire suppression, reforestation, salvage, that would be appreciated.

Governor ANDRUS. Let me briefly touch upon that.

I had a visit with the President of the United States earlier this week on some of the western issues. We talked about not only the forest, but the rangeland. I have talked to his Chief of Staff since then, the Department of Interior officials, my colleagues in the Governors' Conference. You are absolutely right. We can't stand out there alone, one pitted against the other. Not only are our lands intermingled, but society relies upon the proper and wise use and productivity of these lands.

I meet annually with all the supervisors of the national forests. I have a working relationship with the Director of the BLM. We are trying to bring the State experts, if you will, and the Federal experts together before we make a decision to see that we are in harmony.

I think that your legislation provides that provision whereby the State, through the elected Governor, would have that opportunity to participate in it.

And, very candidly, Mr. LaRocco, I know the Boise National Forest has been criticized by some, but again, if the people knew all the work that went on behind the scenes to determine where you would use helicopter logging so you would not put the roads in an area that would endanger the water quality, what they did with the cross vaulting on hill sides, what they did with the straw to keep the sediment from washing into the streams, they worked hard to improve that.

We worked with them, and I think your bill institutionalizes what we are trying to do informally. And for future generations, I think that is a wise move, Congressman.

Mr. LAROCO. Thank you very much, Governor.

You have mentioned there are going to be some controversial statements about the bill. The intent is to bring everybody together in a formal hearing, hear what they have to say, fine-tune this legislation, and hopefully improve it.

Governor ANDRUS. Congressman, I don't know how you bring about such controversy. I have been in politics 30 years and I have never been in a controversial situation.

Mr. LAROCO. It is amazing how you have avoided that.

Mr. ROSE. That is why you are such a joy to work with.

Governor ANDRUS. Your eminence, if I may be excused.

Mr. ROSE. Yes, sir. You have other things to do.

Thank you. We appreciate you being here.

Let me go back now to my opening statement. I didn't want to keep your Governor from doing the taxpayers' State work while I was reading my opening statement.

OPENING STATEMENT OF HON. CHARLIE ROSE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Mr. ROSE. I want to thank all of you for attending this meeting. We are basically here because of your Congressman, Larry LaRocco. The key element that I would like to stress about this legislation is the emergency nature of it.

Everybody knows that there are things that must be done to change the way in which we manage our forest resources, but Congressman LaRocco has asked the Secretaries of Agriculture and Interior to declare that a forest health emergency exists on Federal lands under their jurisdiction, so that we don't let things move as usual in Washington, but to carry out an accelerated forest health improvement program steps that will prevent further forest damage and reduce the risk of disastrous wildfires on these lands and implement management strategies.

He is pushing it to the head of the line by putting it that way, and I think that is what is called for. It is clear the Idaho forest ecosystem is stressed. Ecosystems that for centuries have depended on fire for rejuvenation and general forest health have been denied because of successful attempts to control forest fires.

Policies that for decades seemed wise and in the interest of forest health may have yielded an overabundance of tree species that cannot be adequately supported in their current condition. This difficult situation has been further exacerbated by years of drought that have made competing stands of ponderosa pine and Douglas-fir even weaker and more susceptible to disease and pest infestations.

It is time to look to the future. Congressman LaRocco's bill asks us to do that. In my opinion, many of the issues raised in this bill about forest health are important components of ecosystems management.

I have basically made the comments that I have here and I will put the rest of my statement in the record.

[The prepared statement of Mr. Rose follows:]

PREPARED STATEMENT OF HON. CHARLIE ROSE

I thank everyone for attending this special meeting of the House Agriculture Subcommittee on Specialty Crops and Natural Resources. In particular, I'd like to thank Congressman Larry LaRocco for inviting us out to Idaho. Congressman, I commend you for your leadership in seeking a solution to the tenuous and potentially explosive condition of forests in Idaho.

Even to a forestry layperson like myself, it is clear that the Idaho forest ecosystem is stressed. Ecosystems, that for centuries, have depended upon fire for purification, rejuvenation and general forest health have been denied an important component of their livelihood by our successful attempts to control and suppress forest fires. Fire suppression policies that, for decades, seemed wise and in the interest of forest health, have yielded an overabundance of tree species that are not, and cannot be, adequately supported in their current condition. This difficult situation has been further exacerbated by years of drought that have made competing stands of ponderosa pine and Douglas-fir even weaker and more susceptible to disease and pest infestations.

In recent years, from coast to coast, we have seen examples of how generally accepted forest practices have done great disservice to forest ecosystems. Clearly, Idaho has seen its share of such miscalculations, shortsightedness and neglect.

However, now is the time to look to the future. In my opinion, many of the issues Congressman LaRocco has raised about forest health are important components of ecosystems management.

I think the concept of ecosystems management challenges all of us to rethink how our natural resources are to be maintained, utilized and protected. The debate and the ultimate implementation of ecosystems management will be met with skepticism; nonetheless, the issue should be engaged and ecosystems management must be implemented.

This fall, the subcommittee will begin working with all interested parties to begin the arduous task of defining, funding and implementing ecosystems management on all Federal lands. Certainly, forest health is a cornerstone to such a policy.

In closing, Larry, I want to assure you that I will work closely with you, the administration, the environmental community, industry, and labor groups to expeditiously craft a comprehensive policy to address the immediate and the long-term forest health concerns of the intermountain west. I appreciate your leadership on this issue.

Mr. ROSE. You have heard our first witness. Before we continue with the witnesses, I am going to give Congressman Collin C. Peterson an opportunity to make any opening statement he would like to make.

OPENING STATEMENT OF HON. COLLIN C. PETERSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MINNESOTA

Mr. PETERSON. Mr. Chairman, I am not going to take a whole lot of time. I just want to thank Congressman LaRocco for inviting us to his State and for the work he has been doing on this issue, and on the whole issue of the future of the forest industry in this country.

I have a district that has some forest products industry, but not to the extent you do in Idaho. We do have Boise Cascade in my district to some extent.

I don't claim to be an expert. That is one of the reasons I wanted to come out to this hearing, so I could learn more and see your State. I have never been to Idaho before, so I appreciate the opportunity and look forward to hearing the testimony.

Again, I wanted to thank you for the work and leadership you have provided on this issue.

Mr. ROSE. Mr. LaRocco.

**OPENING STATEMENT OF HON. LARRY LaROCCO, A
REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO**

Mr. LaROCCO. Thank you, Mr. Chairman.

If I may make an opening statement. First I want to say it is very important we bring Washington, DC to the field and to the constituents, instead of having people travel all the way back there.

As you can tell, this subcommittee is lean and mean. We don't have a calligrapher on this subcommittee. Everything is home grown here. We did it this morning.

Let me make a formal statement, if I may, Mr. Chairman. First of all, thanking you for coming to Idaho to conduct this field hearing on my legislation, H.R. 229, and on forest health as it applies to ecosystems management in Idaho.

Because 62 percent of Idaho's land is under Federal management, I believe I speak for many of the people in this room when I express how important it is to have the chairman of the Agriculture Subcommittee on Specialty Crops and Natural Resources with oversight of national forest issues visit our State.

I also want to thank Congressman Peterson for taking valuable time to fly in from his district in Minnesota to hear firsthand the testimony to be presented here today.

I also appreciate the work of Steve Mealey and the Boise National Forest staff for taking the subcommittee staff and my staff on a tour of areas being treated for forest health problems yesterday.

Mr. Chairman, I believe 1993 marks a watershed year for a major public policy shift in forest management. As in the past, watersheds are the result of widespread change in public attitudes, actions, as well as changes in natural conditions, and require responsiveness on the part of policymakers.

For example, a major policy shift followed the controversy over clearcutting on the Monongahela National Forest in West Virginia, which led to enactment of the National Forest Management Act in 1976.

Another policy shift resulted in increasing and conflicting uses on national forests during the 1950's and 1960's. As a result, the Forest Service had a real need for striking a balance, and Congress gave the agency a tool to accomplish that in the Multiple-Use Sustained Yield Act.

Today, one phenomenon foreshadowing a major policy change is that many forest systems are on the verge of collapse due to years of overeffective fire suppression and turn-of-the-century logging practices. This pattern of historic use and management has been brought to a crisis by recent drought conditions.

Pest problems have increased due to the many weakened trees. And as trees continue to succumb to these attacks, forests become virtual tinderboxes ready to explode into disastrous wildfires.

With the current fuel loads, wildfires are capable of setting the ecological clock back to zero. Even the most fire-resistant, old-growth ponderosa pines, currently mixed in with ailing firs, are at risk, particularly if flames climb to the top of the trees and race through the crowns.

Under present conditions, fires pose a tremendous hazard to the many communities, homes, and people that have located in forested

areas in recent years. On one windy day alone in 1991, more than 90 wildfires destroyed 112 homes in the inland Northwest.

Another factor aligning with forest health concerns to precipitate a policy change is the evolution of the spotted owl debate and the listings of large numbers of fish and wildlife under the Endangered Species Act. And, converging with the unraveling of forest systems of the West is the development of ecosystem management, which may be more a consequence of change than a cause.

As multiple-use was to the 1960's, ecosystem management is being explored as a solution to today's natural resource management problems. Ecosystem restoration action is needed to reduce the risk of catastrophic wildfire and to repair watersheds and restore the natural dynamics and resilience of forest systems.

The Natural Resources Committee continues to explore the parameters of ecosystem management. As a member of that committee, I attended a workshop in May at the Black Butte Ranch south of Bozeman, Montana. That workshop brought together scientists and members of the committee to explore informally the issues and challenges associated with ecosystem management in the northern Rockies.

Last year, as many of you are aware, I introduced the National Forest Health Act of 1992 to bring focus to and begin a dialog on the issue of forest health. With the bipartisan cosponsorship of 30 Members of the House of Representatives, I was able to steer that legislation through the full Agriculture Committee. And, in this Congress, I continue to stir the pot by reintroducing that bill approved by the Agriculture Committee as H.R. 229.

I think we have spoken a lot about the bill, and I would just ask unanimous consent, Mr. Chairman, that my full statement be made a part of the record.

I look forward to this testimony today. I think we have a broad array of witnesses that will give us, I think, a good glide path toward moving this legislation through Congress. I welcome that testimony.

I know some of it is going to be critical of this legislation, but we need to hear how people feel about this legislation, whether it be critical or supportive, because I think it is part of the legislative process that we hold these hearings, we take in all points of view, and hopefully we can work together and manage our forests in a more efficient manner.

With that, I will conclude and just say thank you again for being here.

Mr. ROSE. Your full statement will be a part of the record. Thank you, Congressman.

[The prepared statement of Mr. LaRocco follows:]

STATEMENT OF
THE HONORABLE LARRY LAROCCO
on
H.R. 229, the National Forest Health Act of 1993

Boise, Idaho
August 20, 1993

Mr. Chairman, thank you for coming to Idaho to conduct this field hearing on my legislation, H.R. 229, and on forest health as it applies to ecosystems management in Idaho. Because 62 percent of Idaho's land is under federal management, I believe I speak for many of the people in this room when I express how important it is to have the Chairman of the Agriculture subcommittee with oversight of national forest issues visit our State.

I would also like to thank Congressman Peterson for taking valuable time to fly in from his district in Minnesota to hear, first hand, the testimony to be presented today.

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Mr. Chairman, I believe 1993 marks a watershed year for a major public policy shift in forest management. As in the past, watersheds are the result of widespread change in public attitudes, actions, as well as changes in natural conditions -- and require responsiveness on the part of policy-makers.

For example, a major policy shift followed the controversy over clearcutting on the Monongahela National Forest in West Virginia -- which led to enactment of the National Forest Management Act in 1976.

Another policy shift resulted from increasing and conflicting uses on national forests during the 50's and 60's. As a result, the Forest Service had a real need for striking a balance, and Congress gave the agency a tool to accomplish that in the Multiple Use Sustained Yield Act.

Today, one phenomenon foreshadowing a major policy change is that many forest systems are on the verge of collapse due to years of over-effective fire suppression and turn-of-the-century logging practices. This pattern of historic use and management has been brought to a crisis by recent drought conditions.

Pest problems have increased due to the many weakened trees. And as trees continue to succumb to these attacks, forest become virtual tinderboxes ready to explode into disastrous wildfires.

In central and southern Idaho, the Payette and Boise National Forests are experiencing catastrophic damage from insect and disease attack. Both forests are dying significantly faster than they are growing. The statistics are startling and telling.

On the Payette's timber land, average mortality is 407 board feet per acre, while growth is only 248 board feet. Mortality figures on the Boise are even worse. Since 1988, the Forest has lost more than 400,000 trees on more than 1 million acres of affected forest.

With the current fuel loads, wildfires are capable of setting the ecological clock back to zero. Even the most fire-resistant old-growth ponderosa pines, currently mixed in with ailing firs, are at risk, particularly if flames climb to the top of the trees and race through the crowns.

Under present conditions, fires pose a tremendous hazard to the many communities, homes and people that have located in forested areas in recent years. On one windy day, alone, in 1991 the more than 90 wildfires destroyed 112 homes in the Inland Northwest.

Insect-damaged riparian areas, which provide habitat for native fish and threatened salmon, carry enormous fuel loads and face the potential of extreme post-wildfire erosion.

Another factor aligning with forest health concerns to precipitate a policy change is the evolution of the spotted owl debate and the listings of large numbers of fish and wildlife under the Endangered Species Act.

And, converging with the unraveling of forest systems of the West is the development of ecosystem management, which may be more a consequence of change than a cause. As multiple-use was to the 60's, ecosystem management is being explored as a solution to today's natural resource management problems. Ecosystem restoration action is needed to reduce the risk of catastrophic wildfire, and to repair watersheds and restore the natural dynamics and resilience of forest systems.

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Just two weeks ago, I joined the committee for a workshop on ecosystem management in the Everglades where water is the key issue, as it is in Idaho because of drought conditions. Similar workshops and hearings will help the Committee identify steps

that Congress may wish to initiate to overcome the legal and institutional barriers to sound ecosystem management.

National Forest Health Act

Last year, as many of you are aware, I introduced the National Forest Health Act of 1992 to bring focus to and begin a dialogue on the issue of forest health. With the bipartisan co-sponsorship of 30 members of the House of Representatives I was able to steer that legislation through the full Agriculture Committee. And, this Congress, I continue to stir the pot by reintroducing that bill approved by the Agriculture Committee as H.R. 229.

My bill authorizes the Secretaries of Agriculture and Interior to carry out forest health improvement programs, in consultation with state and federal fish, wildlife and cooperative forestry experts, in an effort to reduce further damage to forest resources and promote management of sustained, diverse, and healthy forest ecosystems.

These lands are to be recognized as a forest health emergency for a specific length of time, until conditions favorable to forest health are restored. And, at the request of the Governor of an affected state, adjacent state and private lands can be included in the emergency areas and become eligible for federal assistance to address forest health problems.

Another measure included in my bill is a provision for multiple-year contracts where the focus is on long-term outcomes, not outputs. The fiscal year '92 and '93 appropriations bills for the Forest Service directed the agency to test this new "land stewardship contract" approach to federal timber sale contracting on several western national forests including the Idaho Panhandle. And the agency is experiencing success.

In addition to the potential for enactment, the introduction of legislation generates spin-off benefits which bring focus and clarity to an issue, which has certainly been the case with my forest health bill.

2. Report results from hearings:

In response to my legislation, this Subcommittee, under the direction of former Chairman, Harold Volkmer held three hearings on forest health, one in Coeur d'Alene on Memorial Day of last year. The testimony received during those hearings should not, in my judgement, be lost or set aside because it continues to provide a foundation upon which to build.

For example, primarily in response to hearings on my legislation, a forest health report was released in May by the Chief of the Forest Service. The introduction to the report states, "During the hearings, members of Congress asked how the

forests recently damaged by drought, pest epidemics, and wildfires will be restored and how similar damage will be prevented elsewhere."

The report further states, "The strategic goals and actions in this plan support the new emphasis on ecosystem management in the National Forest System, ... will help strengthen Forest Service cooperative programs and provide for better coordination and assistance on forest health problems, ...and will lead to better integration of forest health considerations into agency planning and decision making."

Also, in response to questions raised at the Coeur d'Alene hearing, the Forest Service indicated that in FY91, 28 percent, or 270 million board feet of the 980 million board feet of timber to be offered for sale in Region One was affected by appeals. Of that, 26 percent, or 70 million board feet of the timber sale volume appealed were salvage sales.

But, from the environmental community, I heard concerns about any attempt to stymie public participation or short-cut environmental documentation.

So, over the months following the hearings, with the help of Neil Sampson and his capable staff at American Forests, I worked closely with environmental, timber, and labor leaders for a balanced and equitable process which would allow public participation, but within a time frame sensitive to the rapid deterioration of timber in the forest.

With this attempt to resolve the forest health issue in the 102nd Congress, it was the first time in many years that leaders of the Audubon Society, The Wilderness Society, the National Wildlife Federation, the Sierra Club, the American Forest and Paper Association, and the Brotherhood of Carpenters, met in the same room together. And, while we were not completely success, I am hopeful that through symposia and other similar forums, we will develop a solid solution.

In conclusion, health problems on western forests are complex, have developed over decades, and many predict it will take decades to solve the problems. Both natural conditions and public opinion play a role in formation of new forest management policy, scientists will keep finding new ways to address these concerns, and public officials and decision-makers should not be afraid to heed science and govern.

And now, in 1993, the stars seem to be realigning for yet another major change in forest management policy. During the next few hours, I hope to gather information to help Congress and the Administration to move ahead, with the involvement of all affected parties, to direct land management agencies on forest health and ecosystem management. I look forward to the testimony.

Mr. ROSE. Our first panel is composed of Dr. Richard Everett, the science team leader, Forestry Sciences Lab, State of Washington. He is accompanied by Dr. Mark Jensen. If you all will please come up to the table now.

Dr. Mark Jensen is a regional soil scientist, U.S. Forest Service, region I; Dr. Wendel Hann is a regional ecologist with the U.S. Forest Service, region I; Mr. Patrick Bourgeron, is a western regional ecologist with the Nature Conservancy in Denver; Dr. Steve Arno, research forester, U.S. Forest Service, Intermountain Station; and Dr. Robert Steele, project leader, U.S. Forest Service, Intermountain Station, in Boise. He is accompanied by Steve Mealey, the Forest Supervisor from Boise National Forest.

Thank you all for being here and for giving us the benefit of your wisdom on this subject area. I would point out to you that we are here to hear what you have to say, but if you choose to summarize your statement or to hit the high points, all of your statement will be made a part of the record. We have a rather large hearing group to go through. Anything you can do to shorten that would be appreciated. But please don't cut out anything that you think is of absolute importance that we hear with our own ears.

Dr. Everett, we appreciate you being here. You may proceed.

STATEMENT OF RICHARD L. EVERETT, SCIENCE TEAM LEADER, EASTSIDE FOREST ECOSYSTEM HEALTH ASSESSMENT, WENATCHEE FORESTRY SCIENCES LABORATORY, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, ACCOMPANIED BY MARK E. JENSEN, REGIONAL SOIL SCIENTIST, REGION I; WENDEL J. HANN, REGIONAL ECOLOGIST, REGION I; AND PATRICK S. BOURGERON, WESTERN REGIONAL ECOLOGIST, THE NATURE CONSERVANCY

Mr. EVERETT. Thank you, Mr. Chairman and members of the subcommittee. You have our full testimony, so I will simply summarize the next 5 minutes.

First, I thank you for this opportunity to discuss forest health issues in the forests of Idaho and Washington. Also, we welcome the opportunity to discuss the onset of sustainable ecosystem management presented in H.R. 229, the National Forest Health Act.

With me today, from the Forest Service, I have Dr. Mark Jensen, regional soil scientist; Dr. Wendel Hann, regional ecologist from Region I; and Dr. Patrick Bourgeron, western regional ecologist, the Nature Conservancy.

The information on forest health in Idaho has been presented to this subcommittee by numerous experts, and more expert testimony will follow today. Declining forest health is widespread in the interior forests of the Pacific Northwest. The recently completed forest health ecosystem assessment as requested by Speaker Foley and Senator Hatfield reports on similar problems in eastern Oregon and Washington.

Forest health problems are not restricted to disease or insect damaged trees, but cover a broad spectrum of issues that include, but are not limited to, erosion, livestock grazing, excess forest fuels, fisheries, water quality, air quality, wildlife habitat, and sensitive plant and animal species.

Although we do not discount the seriousness of the current forest health situation, we suggest it is simply the symptom. Managing for sustainable forest ecosystems is the long-term issue that must be addressed. Ecosystems are dynamic. Forests in the interior Northwest are subject to an array of natural disturbances, such as fire, disease, insects, drought, flood, and severe windstorms.

I wish to emphasize the next sentence specifically. The conservation of disturbance effects is as important as the conservation of unique habitats and species in designing sustainable ecosystems. Human expectations and values are an integral part of sustainable ecosystems.

Sustainable ecosystems are defined as the overlap of the biological capacity of the system with the values and expectations of the public, and the technology and economic capability to achieve that desired state.

The findings of the site assessment suggest that past management practices and accompanied forest response have adversely impacted the sustainability of forest ecosystems. They all treat the disturbance processes and landscape characteristics. Fire suppression has significantly altered the fire regimes in those forests that historically burn frequently but with low intensity.

Timber harvest practices have significantly altered species composition, forest structure, and increased forest fragmentation. All eastside forests are not threatened by insects or disease, nor are they all at immediate risk for catastrophic fire.

Declining forest health varies across the landscape in extent and intensity. Large-scale insect outbreaks and disease epidemics are evident in many watersheds, but they are also absent in others.

Disturbance regimes, fire, insect, and disease have been significantly altered by effective fire suppression on sites prone to frequent, low, and moderate to severe fires. Ecosystem management is suggested as a means to improve forest health. We describe that in volume 2.

Ecosystem management is an experiment. With uncertainties of ecosystems characteristics and function, and also public values and expectations, an adaptive management approach is required that recognizes these uncertainties and requires that the current biological and social knowledge base be stated, that is, sustainable ecosystem management strategy be developed and then continually tested and adjusted as new information becomes available.

A myriad of disturbance processes create and maintain ecosystems in a constant state of shifting vegetation patterns across the landscape. These patterns have historically provided the habitat that supports species and processes that people value in forest ecosystems. The use of natural or historical ranges of variability in ecosystems attributes provides a reference point, but only a reference point for evaluating sustainability of current forest ecosystems.

Disturbance effects that create and maintain ecosystems also provide insight into the potential resource flows that can be derived from forests in the process of maintaining desired ecosystems.

There are opportunities to improve forest health and sustainability of ecosystems through management activities: The use of silviculture practices when appropriate to remove excess small di-

ameter timber, and also to reduce fuel loading and restore historic stand structure; the reintroduction of fire and other ecological processes into forest ecosystems in a manner that reduces hazard for catastrophic fires, insect and disease outbreak, and conserving the long-term site productivity and biodiversity of the forests.

In summary, several desirable management concepts are found in H.R. 229, the National Forest Health Act, including forest management for ecosystems as well as commodities to conserve future biological options and meet future public values and expectations; the use of historical conditions as management reference points; the retention of deadwood as legacies for future forests; and combining multiple-management practices into a coordinated effort to improve forest health and sustainability of ecosystems.

Improved forest health depends upon the development of sustainable ecosystems and the designing of landscapes for positive cumulative effects from each management activity. Forest health projects should represent the immediate step in long-term planning to provide for sustainable ecosystems. The planning process will require inventory and analysis of information on current historical potential landscape conditions at several hierarchical landscape scales.

We support accelerated investment in ecosystem management and the short-term forest health projects that support the long-term objective. Comprehensive inventory and analysis is required to evaluate where the two activities are in unison.

That concludes our statement. We welcome any questions you may have.

[The prepared statement of Mr. Everett appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much, Dr. Everett.

I take it that your accompanying party is available for questions, mainly.

Mr. EVERETT. They certainly are.

Mr. ROSE. Do any of you have your own statements?

[No response.]

Mr. ROSE. We will now turn to Dr. Steve Arno, Research Forester, U.S. Forest Service, Intermountain Research.

I believe you have a combined statement with Dr. Steele?

Mr. ARNO. That is correct.

Mr. ROSE. Dr. Steele is the Project Leader, U.S. Forest Service. You will read together or separately?

Mr. ARNO. We would like to split it.

Mr. ROSE. All right. Go right ahead.

STATEMENT OF STEPHEN F. ARNO, RESEARCH FORESTER, INTERMOUNTAIN RESEARCH STATION, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, MISSOULA, MT; ROBERT STEELE, PROJECT LEADER, INTERMOUNTAIN RESEARCH STATION, FOREST SERVICE, BOISE, ID; ACCOMPANIED BY STEVE MEALEY, FOREST SUPERVISOR, BOISE NATIONAL FOREST

Mr. ARNO. Thank you, Mr. Chairman, and members of the subcommittee, for this opportunity. I would like to read the back-

ground information for this statement, and Dr. Steele will proceed with the recommendations.

As far as an overview, what I am going to state in fairly simple words, I hope, is repetition in the sense of something that is now widely recognized, but hasn't been in the past, and we still have to cope with it, and that is that in Idaho, as in much of the Western United States, east of the Cascade Mountains, we have a vast area of national forest whose ecology is closely related to the changes in the role of fire.

It is a semiarid region, and prior to 1900, fires burned unchecked every year through summer and early autumn for months at a time, covering millions of acres, over a landscape that was not tilled, was not irrigated, it was not developed, and therefore fire was able to spread over vast areas.

The Lusan Tar expedition found when they came through the area in the early 1800's that there were 10 large wildfires they reported on at the time of their passage.

The Intermountain Research Station scientists and other scientists have studied the historic frequency of these fires by dating annual growth rings associated with fire wounds on ancient trees as well as charcoal layers deposited in ponds.

I have an exhibit here which I would like to pass to the committee which is a cross-section of a ponderosa pine. It shows a typical sequence of fire wounds on this tree.

Between 1559 and the early 1900's, there were 21 different fires that scarred that tree, and there were several other fires that didn't scar the tree but scarred nearby trees. Evidently the fuels were so light that even though this tree was already scarred, not every fire was recorded on it.

This is the kind of thing we find in every Western State that has these inland semiarid forest types. This record of frequent fire goes back at least a couple of thousand years. The fire wounds that were recorded in these kinds of forests are at intervals of 5 to 30 years. This high frequency of burning maintained low levels of fuel, and fires then burned mainly along the ground rather than in tree crowns.

This kind of fire generally killed only small trees and the fire susceptible species. So it perpetuated open park-like stands of fire-resistant trees, ponderosa pines, for instance. These species and those kinds of open stands are very resistant to insect and disease problems.

At higher elevations, where there is poor moisture, fire was also playing a role, but it was more of a crazy quilt pattern. Fires occurred at longer intervals, between 40 and 150 in 200 years, and left a mosaic on the landscape of fire-killed trees, as well as nonlethal underburned areas in between.

The fire-adaptive species were favored by this crazy quilt pattern of fire.

Since the early 1900's, fire suppression has become effective at controlling the low and moderate intensity fires. It isn't effective in controlling severe fires. Because we can control the low and moderate intensity fires, this has led to the development of dense stands of trees which are now highly vulnerable to disease and insect epidemics.

Ironically, they now have fuel buildup which makes them susceptible to severe wildfires. I have here a photo comparison of a site which is viewed in the early 1900's and the 1920's and 50 years later, and you can see the thickening of forest fuels in a formerly open stand by the 1920's. There were already Christmas-tree-like conifers approaching, but by the 1900's, we have a very dense stand, much more than the fuel and much more living tree volume than the site can sustain.

Then I have another photograph of the 1980's and 1990's condition of many of these forests. The dense understory trees are hit by a variety of insect and disease problems, and they are dying, and wildfire is now ever more of a threat, because we have a wall of fuel in an ideal arrangement for burning under very severe conditions.

The Forest Service is now taking a broader view. As we are trying to initiate management of the forest's ecosystems, some activity by insects and disease is a normal part of the ecological process; but when the insect and disease activity levels exceed the normal range of variation for a particular ecosystem, then a forest health problem exists.

The historic range of fire intervals has now been greatly exceeded in the drier forests where ponderosa pine once dominated. This ecosystem makes up a major portion of the Boise National Forest and is extensive in Idaho and neighboring States.

The Boise National Forest has recently experienced record levels of several tree-killing insects such as Douglas-fir beetle, western pine beetle, fir engraver beetle, and Douglas-fir tussock moth.

I would like to point out, Dr. Steele will carry on the presentation, but there has been one publication by the Forest Service that deals with forest health in the Blue Mountains, "A Management Strategy for Fire-Adapted Ecosystems," that gives technical advice for this kind of situation, and in an ecosystem management fashion or viewpoint.

I would just like to pass that on to the subcommittee.

[The publication is held in the committee files.]

Mr. STEELE. Mr. Chairman and members of the subcommittee, thank you for this opportunity to talk about the forest health problem in Idaho as it relates throughout the West. I am going to simply conclude this testimony with some statements about how we can fix this problem.

Mr. ROSE. I don't want to interrupt to ask questions, but what you might talk about as we go along here is what policies did we follow that made that happen in the first place. Just kind of so we have that in—fixing the problem I want to know about, but I also want to know how it happened in the first place.

Go ahead.

Mr. STEELE. Mr. Chairman, in terms of how it happened in the first place, Dr. Arno's testimony talked about the role of fire and how the natural processes worked.

Mr. ROSE. When was the decision made to change, and why?

We can put you under oath, if you want to, if you don't want to testify without—I am being facetious, of course. Go ahead.

Mr. STEELE. There really was no decision. It was just an accumulation of activities over time that has resulted in the problems we

have. They largely stem from the accumulated effects of fire control which has interrupted the natural processes, as Dr. Arno has described, and some of the logging practices that took place in the early days, by removing the early species and leaving climax and other disease susceptible species.

Mr. ROSE. So in this picture right here, you would have said that these beautiful trees were then cut down?

Mr. STEELE. Yes, sir. That was the case.

Mr. ROSE. That was kind of the start of it?

Mr. STEELE. That plus the control of these frequent low intensity fires that were coming through on a 10 to 30-year cycle, and not only reducing the amount of fuels thereby preventing large destructive fires, but also keeping the stand in an open condition, such as the photograph here, as far as maintaining stands in this kind of condition, which keeps them in a situation so that with the low fuel loadings, fires are not able to burn destructively very often in these conditions.

We also have evidence of recent studies that show these open grown trees, there are fewer of them on the site, each one has more space, sunlight, nutrients, and moisture. They are able to resist insect attacks more readily.

Mr. PETERSON. Mr. Chairman.

Mr. ROSE. Yes, sir. Go ahead.

Mr. PETERSON. Why did people start stopping this burning? Because the population started to—houses started to be built? Why were they putting out these fires? What happened there that changed?

Mr. ROSE. Let me ask it another way. Was there clearcutting?

Mr. STEELE. In the early days, there was not clearcutting. The clearcutting came a little later.

To answer Mr. Peterson's question, the fires were, I think, perceived as bad.

Mr. PETERSON. By whom?

Mr. STEELE. By the people who were settling the country.

Mr. PETERSON. What time would this have been?

Mr. STEELE. This would have been starting in the late 1800's and then on into the early 1900's, then we began organized fire control, and from that time on, fire control activities began to become effective by controlling these low to moderate intensity fires.

Mr. PETERSON. And they perceived them as bad because they threatened—

Mr. STEELE. Threatened homes and timber.

Mr. PETERSON. But now you are saying they are not bad?

Mr. STEELE. We are saying they still threaten homes. We do need to control fire. What we are saying is that the interruption—the consequences of the interruption of the fire cycle has resulted in dense stands that are now more resistant to—more susceptible to insects and disease and devastating wildfire, whereas in that photograph, that stand condition was much less susceptible.

Mr. PETERSON. But at the time—

Mr. STEELE. They didn't understand that.

Mr. PETERSON. They didn't understand that?

Mr. STEELE. Yes, sir.

Mr. PETERSON. So we have developed this situation.

Mr. STEELE. Yes, sir.

Mr. ROSE. Do you want to add a quick answer?

Mr. ARNO. Yes. I have studied quite a bit of the history of this fire problem that we have gotten into, and I think more than anything it was concepts of European forestry that were brought to this country by Gifford Pinchot and others in the late 1800's, that fit fairly well for human forests, human environment forests, but they didn't work well in the semiarid interior West, which had this frequent fire situation.

There was also a lot of indiscriminate burning going on, and there was no fire control technology. Today we have a technology for using fire in a prescribed fashion and doing what we want to with fire. That kind of technology did not exist in the early days.

I think there are a whole variety of reasons that fire was viewed as an alien factor. People in Europe were not used to fire in their forests. That is where forestry was born and has evolved over a long time period.

However, over the last few decades, there has been virtually, I believe, a very strong consensus that we see that, as you have heard many speakers here today already say, that fire is necessary in these western forests, but that it has to be a prescribed fire in the sense that we have to be able to control that fire.

Mr. STEELE. I have one more comment, Mr. Chairman.

There are other ways to treat this sick ecosystem besides just using fire. We can compensate the ecosystem by thinning the stands either commercially or precommercially so as to create a stand composition and stand density similar to that last photo we just showed, to get back to what nature has shown us to be a more healthy, more resistant model for these particular dry forests.

Mr. Chairman, I think my time is about up. My full testimony is on the record.

[The prepared statement of Mr. Arno and Mr. Steele appears at the conclusion of the hearing.]

Mr. ROSE. Thank you.

Mr. LaRocco.

Mr. LAROCCO. Can I follow up on what Dr. Steele was just saying?

With silvicultural practices to thin, at what time would you enter a stand that has one species as a result of prior fire or prior logging activities? At what point are you talking about this thinning operation?

Mr. STEELE. Congressman, I think the key here in terms of deciding when to enter the stand would be determined by the stand condition. We are using the term "normal range of variability" nowadays as a model for—or a guideline for deciding when a stand needs some management help. If the stand condition has proceeded successional beyond that which was maintained normally by the recurring fires, in other words, it has become more dense and has a stronger component of the late seral climax species, which are more susceptible to insects and disease, then we would say it is time to do something with that stand, to turn it back to the last photo, similar to the last photo, so it is within its normal range of variability again, and remains healthy.

Mr. PETERSON. Mr. Chairman—

Mr. ROSE. We are really through with the panel, and now it is time for questions, so the field is open.

Mr. Peterson, the field is yours.

Mr. PETERSON. If I could, I don't claim to understand a whole lot about this, but as I understand what is happening now, because we don't have as much fire or whatever, we have dead trees and we have other kinds of less desirable trees that are in these stands, and evidently they are not—how do you go about getting those dead trees and getting those other trees out of there?

Is it economically viable to do that? Do people want to do that? Do you have to force them to do it? What is the process? If you can't burn it, is there some way you can do this, or does the current policy stop you from doing this?

Mr. STEELE. I would defer that question to Mr. Mealey here.

Mr. MEALEY. Congressman, I understand your question to be the process for salvaging trees.

Mr. PETERSON. Well, that, and also maybe cleaning them out before they are dead.

As I understand it, there are some problems getting that accomplished. I just want to better understand what the situation is, whether people want to do this or whether you have to entice them to do it.

Mr. MEALEY. Let me give a couple of examples. I have been on this forest about 2 years, and we have salvaged about 300 million board feet of dead and dying trees. Those probably died without killing very many with powersaws, I might add. Most of those trees have been harvested with the use of helicopters.

The point here is that the values of the trees are such that they can be harvested, even dead and dying trees can be harvested economically without growth.

The point here is that access is minimized, access difficulties are minimized both environmentally and from a construction standpoint because of increased values and because of the strong demand for these resources. That has been our experience in the last couple of years. I would have to say that it is principally a result of market value of the product.

So our principal method, 80 percent of that volume, has been extracted by helicopter systems, so access hasn't been a significant problem.

As far as green trees are concerned, using thinning methods to do precommercial thinning and commercial thinning, we are not into that mode as strongly as I would like to be, frankly. Much of our precommercial thinning will be done in plantations that were made in the last decade or so, so access is not a difficulty.

As far as commercial thinning is concerned, again, we have opportunities to thin using technology, aerial technology, helicopters, and again, this is a function of market price.

We didn't discover thinning in 1993. On this forest, 10 to 15 years ago, there was an effort to thin the forest. The base rates then were \$6 to \$8 per thousand. It simply couldn't be done economically. Today the same products can be sold for \$300 to \$400 per thousand. Frankly, folks are eager to buy any sales that we offer. And again, the technologies that are available make that very feasible.

Mr. PETERSON. Mr. Chairman, if I could just follow up, if it is feasible and if the market is there, is it happening? Are you going to be able to go in and thin this out, clean out the dead and dying timber and fix this problem?

Mr. MEALEY. We have a very strong intent to do that, Congressman. I want to say I have in front of me a little brochure that outlines the Boise forest health strategy. There are three pieces to that strategy. The first is to salvage dead and dying trees, and because of the magnitude of the problem, that is what we have been doing the last couple years.

Mr. PETERSON. How much of the forest, 10 percent or—

Mr. MEALEY. I will say in the last 5 years probably 500,000 trees have been killed by bark beetle, perhaps 250,000 acres have been defoliated by tussock moth, and perhaps more dramatically, in the last 5 years some 56,000 acres per year are burning in wildfires.

Now, the previous average, the previous 30-year average was 3,000 acres per year. So something has gone haywire here, you can tell, dramatically and radically. What we have been doing here in the last couple of years is dealing with salvage, dealing with dead and dying trees. It is a function of workforce and how much you can put on the market and salvage quickly.

This last year, the Boise Forest will have salvaged approximately 180 million board feet. Much of that is off the Foothills fire salvage, some 300 million board feet were killed by fire. We have sold about 130 million board feet to this point at a value of some \$45 million. In terms of getting that thing done, that means I start—it isn't like a green sale program where you have a pipeline.

The more important thing is dealing with the green stands that are still alive. We do that through commercial and precommercial thinning. Because of our efforts at salvage, we haven't moved into that. We wanted to go there next, aggressively.

Mr. PETERSON. Do you have an estimate, how much of the problem you have solved?

Mr. MEALEY. From the standpoint of the salvage, how much of the dead trees have we actually salvaged? I would say as far as the high-quality commercial value that we could do in an environmentally sensitive way that meets the standards of law and the public's tolerance and our professional responsibility, I would say probably 85 percent.

I think we have gotten a big dose of it. But yesterday, I want to say, we made a flight with the staff that is all here, a great trip yesterday. We flew from Lowman in the helicopter due south back to prairie. I was shocked at the amount of new dead trees I saw. So it looks like we are in for another round as we go look at it.

Mr. ROSE. Thank you.

Let me get to a broader question than just salvaging. I am sure that is something you have worked on a lot, but I want to know, is there a forest health emergency? What do we do about it, and how do we assure people that by using the term "forest health emergency," we are not trying to just return to old forest practices with a new name on top of it, which I think we will talk about after you all take your seats.

Do you like Congressman LaRocco's approach to it?

Mr. JENSEN. The bill is fine. It is in how we assess emergency status and health. To do that we have to fully embrace the scientific concepts that underlie ecosystem management. These are summarized in the volumes which Rich Everett has provided to the group here.

There were 120 scientists from across the country which worked on this particular project. I think the scientific basis is there to do it.

What is missing from our discussion right now is scale. I am very concerned about the scale here. What is a disturbance, what is a health problem at one scale is not a health problem at another scale. In fact, it may be necessary. So it is critical that we look at these systems, our problems today. If we look at water quality in the inner mountain, great basin areas, it is because we have traditionally done all our treatments looking at timber stands.

We have never backed up to understand the concepts of those treatments, logical watershed boundaries to define the ecosystem.

Now we have problems with sedimentation. We never would have detected that if we continued to look at the stands. The same thing applies with forest health. Within a watershed you may have disease problems. At that scale, you would say you have a health emergency. But if you look at a broader regional river basin context, a certain percentage of that landscape did have insect and disease, creating a young habitat that was critical for certain species.

There is no discussion of scale in this bill, and there are major implications as to how we make this statement of emergency. I am very concerned that if that is done strictly at a district level of the Forest Service, we are going to have the same problems we have had in the past. We are not providing the proper context to make that assessment.

Mr. ROSE. Can it be made in a bigger context?

Mr. JENSEN. It certainly can. That is why we need to start organizing.

As Dr. Everett emphasized, there is a process that has not been discussed that is critical to making sure we are in fact improving ecosystems. The current language, and we all agree with the principles, historic availability ranges give us an initial template to assess sustainability. But how do you know that?

You can justify a lot of bad practices by taking one or two points, like taking those particular photos and looking at one snapshot, one point 56 years ago, current, and say, based on this, we need to do treatments. It is much bigger than that. You have to look at some different scales, regional scale, down to forest level-type scales, down to district scale, tiered analysis, feeding down to identify where the problems are on a statewide basis.

Mr. ROSE. That is a very helpful comment. I would also observe that when you put the word "emergency" in a bill, to people with concerns that you and environmental people have, the word "emergency" is sort of a signal that says we are going to suspend the normal administrative safeguards that are usually in place in forest rules and regulations, and that causes some problems.

Would you care to speak to that, or anybody here, would you care to talk about that suspension of normal administrative—

Mr. MEALEY. Mr. Chairman, I would like to take a quick shot at your first question, and then an answer—take a shot at answering that one. You ask, is there an emergency? That is clearly, as you find out, a subject of debate.

Mr. ROSE. I think the greater emergency, I feel, is get Mr. LaRocco's bill passed, you understand. Whether it keeps—I don't want the safeguard system wrecked. He doesn't either. But by calling it an emergency, I think we can get it through the House a lot quicker, and I think we want you to tell us how you feel about, if there is an emergency, where is it. Go ahead.

Mr. MEALEY. It is my opinion that the Boise National Forest and I will limit my comment to that forest area which I have some responsibility and knowledge for, has conditions that are occurring which haven't occurred before, and that is we have gone from a fire regime which was high frequency, low intensity, to a frequency that is high frequency, high intensity.

In regard to the Foothills fire last year, we can talk for hours about the effects of it, but as I said before, the dramatic effects are that 30 years average in wildfire acreage was 3,000 per year from 1955 to 1985. Something is wrong. Is that an emergency? I think it is. We have had in the last 5 years half a million trees killed by bark beetles.

In the same period, we have had a quarter million acres defoliated by tussock moth. This tells me that we have something we have to deal with. I don't frankly need a whole bunch more data to tell me that. I think there is an emergency.

Mr. ROSE. Do you like our bill's approach to deal with it?

Mr. MEALEY. I think it does that in a thoughtful way. I don't want to say I don't want to collect data in a thoughtful way. That is an important thing to do, and I am a trained scientist and believe that. But there are some things happening out there on the ground that haven't happened before, think.

Second, how are we going to respond to that? Is it going to be business as usual? Is this a Trojan horse, just to do the same old practices we have done in the past? That is what I wanted to respond to. Right now in the Boise National Forest we have two draft environmental impact statements. That is not accurate.

We have one environmental assessment completed on the logging gulch timber sale, which is a green sale near an inventory area, and the other one is Spruce Creek, which we are about to finish up the environmental impact statement.

These are different habitat types. One is Douglas-fir, the other is grand fir. They are very different ecosystems, but our culture isn't business as usual. We are going in on acres, on up to 3,000 acres, and we are practicing a low intensity silviculture. We are going to take Douglas-fir and grand fir and select for more resilient species of ponderosa pine.

We are going to enhance habitat for bull trout. We are doing that in silvicultural ways we have never done before. I am also pleased to say we got through the appeal period with no appeals from our folks in Idaho. A lot of folks who weren't wild about that program are in the room.

We did have two appeals, both from Montana. So we can work together and figure out how to solve these things silviculturally, and we have already demonstrated that.

It is not business as usual. It is a very different approach to management of stands. No clearcuts, except in a few cases.

Mr. ROSE. Dr. Everett, did you have a comment?

Mr. EVERETT. Just if we approach this as an emergency situation, our response should be an opportunity to invest in the sustainability of future forests. It is an opportunity, and we ought to recognize that. We should build for long-term forests.

Mr. ROSE. Do other members have questions?

Mr. LAROCOCO. Dr. Jensen, you had mentioned dealing with the scale issue. You are the scientist, and we are the lawmakers, but do you feel that this bill or any legislation can address the scale issue, and then make it reasonable to the land managers on the ground if we move ahead in this regard? Do you think we can address that scale?

Mr. JENSEN. Yes, and we are currently doing that on a number of national forests. What Rich is talking about, it is critical. In our previous planning we had static notions of landscapes. We assumed when we scheduled allowable sale quantity, we said, here is a volume, and we scheduled out over the next 50 years.

Well, landscapes change. Ecosystems are not perfectly predictable. We have had fire, insect, disease. It has been difficult to meet some of those projections. Another key factor is that ecosystems operate at different scales. To understand your activities at one scale you have to look up one scale. So for a district doing timber sales, working with forest health, you at least need to work with, at a minimum, how do those activities contribute to the health of a watershed.

Then for other issues, say, for grizzly bear, northern Rocky Mountains, we need to look at the effects of our activities if we are going to start doing forest health. What that means is viability of species that use larger regional scales. That is being recognized in the Forest Service. The Forest Service is looking at developing that currently.

I met last week with our Washington office, new ways, prototypes for forest plans to recognize different levels of planning and analysis. I think that is critical if we are going to come up with a strategy for assessing health. I am very concerned if it is done at a small scale and we run around to do a lot of projects under forest health, we are going to miss the picture at larger scales, and species that operate at larger scales.

So we need to have a coordinated effort here to tier analysis down, and we are currently staffed to do that. I think the scientific community, the management community, and the products industry are ready to work together to make that happen. My colleagues here probably have more comments.

Mr. HANN. I would like to summarize three points in response to the groups of questions I have heard here. I think one is that I would like to emphasize, I don't think the scientific community blames the fire suppression organization for the situation. We had to control fires to protect people and their property. But what we didn't do in the scientific community and management is we did

not plan how to manage the biomass that would accumulate as a result of fire suppression.

So that was just a lack of knowledge at that time. I think a second point in response to some of the questions is that if we look at salvage, salvage of dead material itself does not necessarily improve the health of the system. It is the management of the live vital mass that creates the stress that is important. So if we want to be proactive, we probably need to put higher emphasis on management of the live material that is under stress.

And third is just this emphasis of what Dr. Everett and Dr. Jensen have said. I think this bill is similar to NEPA in scale, and it is very excellently written at the stand of site level. However, we have no solid direction, when we look at the very broad volume, regional-type level, when we look at some of these bills that direct our management. And I think we will bring in that need to connect these regional biome scales to that site-specific scale.

Mr. ROSE. So you would say that this bill could be an important part of the overall answer, but you are concerned about areas of a broader area that it doesn't cover; but what it does cover you think it covers well?

Mr. HANN. I think this bill, in emphasizing a sustainable ecosystem, is on the cutting edge of science today, and it could be a landmark bill if it would bring in this connection of the regional biome-type scale to the progressive selection of projects for improvement of forest ecosystem health.

Mr. ROSE. Thank you.

I want to ask Mr. Patrick Bourgeron from the Nature Conservancy, you represent the Nature Conservancy and you are part of the science team that developed these reports.

Mr. BOURGERON. Yes.

Mr. ROSE. Have you had a chance to look at Congressman LaRocco's bill?

Mr. BOURGERON. Yes, I did.

Mr. ROSE. What is your opinion?

Mr. BOURGERON. I have the same comments as Dr. Jensen and Dr. Hann, which is it is a very good bill at the local and landscape level. You address very well the issue of managing stands and then small landscapes. There is no connection with higher levels of ecological organization. That is possibly a result of the way we have been looking and the way—Dr. Arno said rightly that the forestry is coming from Europe.

It is the idea of managing systems that had been impacted for up to 2,000 years, and have been fragmented for a long time, and that are still complex but work on a much smaller scale.

When you look at some of the descriptions this morning, you have to go back to the notion of ecosystem management. Ecosystem management, at least the way we look at it, is the management of systems to satisfy social values with economy constraints and ecological constraints we have. The functioning of ecosystems goes all the way from the square inch all the way to the globe.

That is very practical. That is what is happening in the Northwest, that is what is happening in southern California and internationally, that is the problem. So if you can make the link to higher ecosystem functioning, and link that with higher levels of plan-

ning, regional, national as well, then you will be in very good shape.

Mr. ROSE. So we have the potato from Europe, and that worked pretty good out here, but the forest systems maybe need to have Mr. LaRocco's bill imposed on it so that—

Mr. BOURGERON. As Dr. Jensen said, that is something we have to deal with. It is what we call adaptive management, which is another issue. The whole issue of fire suppression is an issue of control. It is the issue that things come and go over large areas, and as Dr. Jensen said, if you try to get the same output over more than 20 to 30 years from the same site, you may be in trouble.

We are not adaptive to that in terms of economics, because people don't want to travel more to log trees, and I would not like that either, and we are not adaptive to that in terms of responding in terms of economic values.

Mr. ROSE. Thank you.

Any other comments or questions?

Mr. LAROCOCO. I would just say this issue that was brought up I believe by Dr. Jensen on live material under stress is a very important issue, because right now this bill is being characterized by some people as just a salvage sale bill, which is nowhere even close to where I think this bill is written presently and where we want to go with it, because I think you brought up a very important issue there, this whole scale issue, and these comments are critical to this subcommittee and to me in terms of fine tuning it.

Dr. Jensen.

Mr. JENSEN. Just one last comment on one of the key factors when we are looking at systems and we are assessing health, and that is what we are proposing to do. I focused in on how are we going to consistently make assessments of health, and that is a major scientific question right now, what is a healthy system.

I think we need to be fairly consistent as we move forward. We will adapt as we understand systems. But currently there are three things if you are going to look at a piece of ground and say if it is good or bad that you need.

One is an understanding of the environmental constraints. What is the relationship of that vegetation to the soils, the geology, the climate, what species can be there given those constraints.

The second are biotic processes. Those need to be considered. Species migration, evolution, extinction. These are all related to different scales and different time events. Those have major implications to different levels of planning. We look at different features at different levels of planning. They all tier together.

The third, which is really critical, which you talk about in your bill, are the processes, to maintain the processes that the species evolved with, fire being one process. So we need all three to know what is happening on the site. And I think it is absolutely critical that we integrate that knowledge.

If we take just one component and look at frequency of fire independent of species migration and the other things that happen to explain what you see on the ground, we are going to miss the picture. So we fully support your discussions in here of historic ranges of variability. We think it is critical.

The major factors, we have interrupted the processes that maintain diversity in landscapes, fire being one example. Flooding is another one. Sedimentation is another one.

So you are on the right track. I think there is a little more that could be added to this. You bring it fully into ecosystem management. And we support the bill, we like what we see here. We would like to see more dialog with other people related to this.

Mr. ROSE. Thank you.

Mr. Arno, briefly.

Mr. ARNO. One final comment. I think there is a danger in studying these problems to death. We have an example here of something that Supervisor Mealey has been planning, and this is management of the live trees in these stands, with silvicultural cutting.

I would like to pass this up there. Thinning and use of prescribed underburning. This was first recommended in a detailed article in 1943 by Harold Weaver.

He had to have a disclaimer. He was a Government forester, and for 20 years he had to run a disclaimer under his articles that said, we need to apply prescribed fire and silviculture to get into more of an ecosystem management approach. He didn't use those words, but his detailed descriptions of managing these semiarid forests were just what we are talking about today.

That started in 1943. He was on the bandwagon ever since. He picked up a few advocates as time went on. We are doing this work on an experimental basis here and there. Several of us are involved. But I think there is great danger in trying to get all of the scientific information and feel comfortable before we will do anything. There is a great deal we know needs to be done, and the science is there.

Mr. ROSE. Thank you all very much. It has been very helpful to us, both for this piece of legislation and for greater education about the work that you do in the Northwest.

Thank you, gentlemen.

I want to call Mr. Herb Malany from Boise Cascade to come up and take a seat. I am taking him out of order because he has a tight schedule. I would like to ask the following to come up: Mr. Jerry Conley, Idaho Fish and Game; Mr. Tuttle, NMFS, Seattle; Dr. Chad Oliver, college of forest resources, University of Washington; and Dr. Leon Neuenschwander.

Herb is with Boise Cascade and has a tight schedule. We will hear from you and ask some questions.

**STATEMENT OF HERBERT S. MALANY, CHIEF FORESTER,
BOISE CASCADE CORP.**

Mr. MALANY. That would be fine, or I can wait until the end of the panel.

Mr. Chairman, Mr. LaRocco, and Mr. Peterson. I am Herb Malany, chief forester of Boise Cascade's timberlands in Idaho. I have worked in this area for a lot of years. I have had the opportunity to make a lot of management mistakes and also do a lot of things that turned out right.

We basically have been practicing what I understand to be—and everybody has their own definition of ecosystem management in this area for the last 20 years at least. Our lands have never been

under what you call business as usual. We have spent a lot of time learning how to manage our forests under an uneven age selective harvest system.

We didn't realize at the time we were doing it, but we have fairly much emulated what the forest was in this area prior to the fire suppression that started at the turn of the century. We are returning their stands back to that level. It will probably take us 60 years at three entries before we get our forests back in that healthy condition.

The management regimes we follow basically remove 20 to 30 percent of the standing trees at each entry. We feel that we will have to reenter these stands on a 20- to 30-year reentry cycle, depending on the quality of the stands.

In the last 3 or 4 years, we have been working with our contractors to be sure that we protect the amenity values for the public, and we believe they are very important, water quality, riparian zones, and we have developed some very unique ways of logging. Historically, because of gravity, everything has gone down to the creeks, and just basically decimated, in early days, the draws. Later on we moved over 5 feet and still put an awful lot of sediment in the streams.

Today we take all the logs up the hill and away from the streams. In steep ground we don't get within 150 feet to 200 feet of the draws. So when you talk to me about protecting riparian areas, I don't understand the problem anymore. We have solved the problem. We don't operate very heavy equipment close to streams or we put a light hand on the forestland when we are close to streams.

We have learned how to protect habitat for the birds. Overstory trees or snags are left. When we get all done with this, on a lot of tours I find the public accepts and likes the way we operate on our lands.

Our stands have been managed on a selective harvest basis for the last 30 years. Today it is very easy to see what we have.

Yesterday I was given the opportunity to spend the day with staff and Supervisor Mealey. You have to see what I saw yesterday to understand the magnitude of the problem.

As a land manager who is trying to do what I think is responsible, it really makes you sick to see what we saw.

We have some serious problems in this forest. I had the opportunity to attend a forest health conference several months ago that was put on as part of the forest health initiative. In listening to the scientists there, I missed the first part of the first panel, but I learned at that conference, we have studied these problems to a great degree, and the scientists told us what we need to do to manage this forest in the proper way for today's standards anyway.

I think one of the things, in closing, is that I do know, and I want to underscore, and I do preach, that I think Mr. LaRocco is on the right track with his bill, but I do want to say I feel there is a very urgent need to do something, whatever it is, to regain forest health. I agree with the remarks at the end of the last session, we have also got to look at the green trees and their stocking levels.

At the turn of the century we had 20 to 30 trees per acre. We now have stands exceeding 800 trees per acre. The numbers are just over the capacity of the land to sustain the forest.

I think you have my comments there. With that, I will quit. Thank you.

[The prepared statement of Mr. Malany appears at the conclusion of the hearing.]

Mr. ROSE. Thank you. Your whole testimony will be made a part of the record.

But you do like the bill H.R. 229, and we appreciate you coming. Congressman LaRocco.

Mr. LAROCOCO. Mr. Malany, I understand you have to scoot out of here to get some sort of an award. Exactly what is that? Are you getting a little recognition for what you do?

Mr. MALANY. Yes. Our company gives out an annual award for environmental practices to some entity in the company. We have, I believe, something like 20-some-odd thousand employees. There are 16 of us in our department, so pretty small entities can apply, and we won this award this year. The president of our company is going to give us this award this afternoon.

I do have time—I would be glad to answer questions. Our process is unique.

Mr. ROSE. I have an International Paper Company, I also have Weyerhaeuser, Georgia Pacific, Federal paper plants, and a lot of other things in my district in eastern North Carolina. They tell me that forest practices vary widely between timber companies who manage their own timber on their own property. But you don't own your own stands of timber out here, do you?

Mr. MALANY. Boise Cascade owns about 200,000 acres of timberlands in southwest Idaho. They are intermingled or adjacent with the Forest Service lands.

Mr. ROSE. Do you have the patchwork problem out here, Mr. Malany?

Mr. MALANY. We are kind of forcing that in this particular area. The lands I believe were gathered in under the Timber and Stone Act, and the predecessor company, which by the way was a Weyerhaeuser holding company at one time, gathered in the forestlands that are close to the valley floors. So our lands are really quite contiguous. They are in blocks, but they are not all patchwork.

Mr. ROSE. Any other comments or questions?

[No response.]

Mr. ROSE. Well, thank you very much. You are welcome to stay as long as you can before you have to catch a plane. You may catch some more questions by doing that.

But we are going to have our third panel, starting with Mr. Cal Groen.

You are here representing the Idaho Department of Fish and Game? All of your statements will be a part of the record. Make what comments you want to make, it is up to you, including reading the whole thing if you want to.

Go ahead.

**STATEMENT OF CAL GROEN, CHIEF, NATURAL RESOURCES
POLICY BUREAU, IDAHO DEPARTMENT OF FISH AND GAME**

Mr. GROEN. Thank you, Congressmen Rose, Peterson, and LaRocco, for conducting this field hearing and allowing the Idaho Department of Fish and Game to assess forest health and H.R. 229.

I am Cal Groen, chief of the natural resources policy bureau for the department, representing director Jerry Conley.

The Idaho Department of Fish and Game is required by State law to ensure that the State's resources are "preserved, perpetuated, and managed."

Although the department does not have regulatory authority over many habitat activities, we do serve a significant role in reviewing and commenting on actions that may affect fish and wildlife resources in the State. The department reviews, evaluates, and responds to 600 to 900 proposals annually that could impact fish or wildlife.

The opportunity to review this bill is greatly appreciated and is significant in that 70 percent of Idaho is in public ownership.

The recent 7-year drought in Idaho has exerted tremendous stress on all biological systems. These systems include trees, fish, wildlife, water quality, which are all dependent on the maintenance of critical levels of soil moisture and streamflow. It appears that the prolonged drought is now over. We must be cautious and not base our entire forest health management strategy on a dramatic event such as the Foothills fire and the drought.

The drought, although it seemed to have lasted a long time in human perspectives, was merely a blip in time from the standpoint of ecosystems. If we can learn from it, we are making progress.

Looking back in our rearview mirror, it is generally agreed that past management practices on national forests have contributed to our forest health emergency. Fire suppression and high grading of commercially valuable timber species have tended to accelerate succession toward climax. Climax forests are more susceptible to fire, insects, and disease. No one considered some of the consequences of this management direction.

To once again think we have a simple answer for a complex ecosystem and move full scale into salvage and thinning may be repeating some of our past mistakes. Forest succession often spans several generations of man which makes it difficult for people to visualize forest dynamics. Ecosystem management and forest restoration is a new field we must cautiously move into.

We must remember that a sincere desire to implement good forest management brought us to our present forest health concerns.

We cannot achieve our desired future conditions overnight. We must move slowly and humbly into the future of our public lands.

Congressman LaRocco's legislation lays out a process and safeguards this cautious approach, we believe. This legislation recognizes multiresource values, such as retaining snags, and encourages a wide range of future uses, and authorizes coordinated forest health improvement projects that carry out both product and non-product-related management actions.

In the past, too many projects were based solely upon commodity considerations. Making sale volumes and revenues secondary and

justifying the harvest of live trees are necessary steps to a healthy forest ecosystem.

Important aspects of this legislation are basing the declaration of forest health emergency upon sound science, compliance with environmental laws, and expanded public comment opportunity. Preserving the appeal and judicial processes and providing two new opportunities for public comments are necessary and especially refreshing in view of recent attempts to curtail and exclude public comments from salvage or timber sales.

Stronger language for coordination and consultation with other management entities such as Idaho Fish and Game is encouraged, especially when looking at questions on wildlife and water quality issues.

Past efforts to include multiresource efforts have failed due to the lack of funding and monitoring. Funding support is welcome from salvage sales and K-V funds for both product and nonproduct treatments. Appropriate consideration to these values is long overdue. Necessary monitoring is necessary to see if the prescribed treatments are working as intended.

I recommend that control areas that receive no treatments be set aside for comparison to treated areas. Excluded roadless areas may serve as partial controls for long-term monitoring.

In summary, careful and thorough work must be done to define what healthy forest ecosystems are. And management strategies must be designed to produce sustained, diverse, healthy forest ecosystems that seek the full range of ecological variability and biodiversity.

Forest health must become more than merchantable tree health and include fish, wildlife, water quality considerations. A healthy forest will have many different appearances or succession stages. A recent report from the Society of American Foresters states more emphasis must be given to protecting wildlife and diversity in forests across broad landscapes. A question of scale, again.

It recommends an ecosystem approach that would base logging on protection of wildlife, water quality, and overall ecologic health.

H.R. 229 has the legislative elements to accomplish overall ecological health if properly implemented.

Thank you.

[The prepared statement of Mr. Groen appears at the conclusion of the hearing.]

Mr. ROSE. Thank you, sir, very much.

Mr. Tuttle.

STATEMENT OF MERRITT E. TUTTLE, DIVISION CHIEF, ENVIRONMENTAL AND TECHNICAL SERVICES DIVISION, NORTHWEST REGION, NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. TUTTLE. Thank you, Mr. Chairman and Congressmen Peterson and LaRocco, for the opportunity to address the important issue of the health of Idaho forests and their shared role in assuring healthy runs of salmon.

I am Merritt Tuttle, Chief of the Environmental and Technical Services Division, Northwest Region, National Marine Fisheries Service, Portland, Oregon.

Various Federal statutes give the National Marine Fisheries Service the role of providing leadership and expertise for the protection, conservation, and recovery of anadromous fish throughout the full extent of their range.

I am here today to provide an assessment of the overall health of national forests as salmon habitat in Idaho, and the applicability of management strategies authorized in H.R. 229, the National Forest Health Act, to the national forests in Idaho.

The Department of Commerce is reviewing H.R. 229 and has not taken a position at this time on the bill. H.R. 229 calls for an expedited review of forest health, improvement programs under other applicable environmental laws, and from scientific input from other agencies. The National Marine Fisheries Service is currently working closely with other Federal agencies to ensure that section 7 consultations under the Endangered Species Act are conducted in a comprehensive and timely manner.

Should H.R. 229 be enacted, the National Marine Fisheries Service would work with the Forest Service and Bureau of Land Management to ensure that any forest health improvement program is consistent with the Endangered Species Act.

Although you have requested that I comment on the forests of Idaho, my office is concerned with the health of forests as anadromous fish habitat in Washington and Oregon as well.

The definition of forest health can vary, depending on your interest and expectations. To people interested in harvesting trees, the definition may involve sustained yield of timber. To other interests, the definition of a healthy forest involves a variety of watershed functions and forest outputs such as timber products, aesthetics, wildlife, and fish.

To us, the definition of a healthy forest includes all of these functions, especially those for fish. Forest streams are where the salmon's life history or life cycle begins, first with the spawning, then with the incubation of eggs, the emergence of fry, and the rearing of smolts; thus the forest serves as a nursery for juvenile salmon. The general health of the forest ecosystem determines the number of smolts, or seaward migrants, that the watershed is capable of producing.

National Marine Fisheries Service's approach to the conservation of Snake River salmon, listed under the Endangered Species Act, is based on an ecosystem management approach.

Therefore, I will focus my comments on characteristics of watersheds. These are critical building blocks of the salmon's ecosystem.

Idaho once had an abundance of salmon, and many of its residents, including the Indian tribes, used these fish for subsistence, trade, and income. Now, however, Idaho's wild salmon are listed as threatened and endangered species. The Endangered Species Act, obligates all Federal agencies, including in the case of forests those responsible for Federal land management, to use their authorities to conserve endangered and threatened species of wildlife so that they can be recovered to the point of no longer requiring the protection of the Endangered Species Act.

In addition to working toward the recovery of these species, Federal agencies are required to ensure that, at a minimum, their actions are not likely to jeopardize the continued existence of the listed species. The National Marine Fisheries Service's role in this strategy is to provide professional advice to those action agencies as to how they can best meet their endangered species obligations.

A team of scientists appointed by the National Marine Fisheries Service is currently developing a plan designed to lead to the recovery of the listed Snake River salmon species. National Marine Fisheries Service will consider their advice in adopting a recovery plan that will provide guidance to the Federal action agencies, including the Forest Service and Bureau of Land Management, to meet their obligation and work toward the recovery of listed species.

In the meantime, however, to evaluate the impacts of listed salmon in Idaho, the Northwest region of National Marine Fisheries Service is currently providing professional advice to the Forest Service and BLM and other action agencies through what are commonly called section 7 consultations. These are under the Endangered Species Act.

These consultations cover four major sectors that led to the salmon's decline.

These four sectors, referred to as the four H's, are hydropower, harvest, habitat, and hatcheries. These four sectors are an integral part of the Pacific Northwest. Unhealthy watersheds are a part of the habitat sector.

Depressed stocks of salmon are not unique to the rivers of Idaho. During the past few months, various petitioners have requested that National Marine Fisheries Service list several other stocks of salmon in coastal Oregon and Washington for Endangered Species Act protection and recovery.

Although unaffected by hydropower development, these salmon populations are also in decline. In coastal watersheds of Oregon and Washington, intensive road construction and timber extraction in these watersheds are linked to reduced salmon production. Recent reports stemming from President Clinton's Forest Conference recommend sizable changes in the way forests are currently managed.

Land management agencies now recognize this need to change forest management. Scientific evidence supports a new approach which places emphasis on ecosystem-based management.

For example, human impacted river systems have lost 50 to 75 percent of the large pools during the last 50 years. Large pools are critically important to salmon since they function as resting and hiding areas for adult fish prior to spawning, are preferred rearing areas for juveniles, and serve as refuges during periods of drought and winter icing.

While the quality of spawning and rearing habitat has diminished in managed lands, anadromous fish population have remained constant or have improved in wilderness areas. The watersheds in these areas continue to sustain productive habitats for salmon despite impacts from natural forces. We must learn to manage in a manner which mimics those watersheds that have remained productive despite fires, droughts, and other natural forces.

Managing the ecosystem at the watershed level will improve salmon runs and expedite the Endangered Species Act consultations. Watersheds must be protected if we are to sustain Idaho's salmon. We are urging a sound ecosystem-based approach to forest management, utilizing science and state-of-the-art restoration techniques. This can help recover threatened and endangered salmon and help prevent additional species from being listed.

This approach can reduce the complexity of consultations for endangered species such as salmon and expedite ESA consultations on all forest activities.

Thank you for asking me to appear before you. I would be pleased to respond to any questions.

[The prepared statement of Mr. Tuttle appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much.

Next is Dr. Chad Oliver from the University of Washington's College of Forest Resources.

STATEMENT OF CHADWICK D. OLIVER, PROFESSOR, SILVICULTURE AND FOREST ECOLOGY, COLLEGE OF FOREST RESOURCES, UNIVERSITY OF WASHINGTON

Mr. OLIVER. Thank you very much.

Mr. Chairman and members of the subcommittee, I have given you a long statement, and I will extract from that.

I agree with much that has been said before, many parts of it. I would like to put some of it in perspective. I have studied the forests in the Rocky Mountain region, Pacific Northwest, most other places in the country and other parts of the world, and find very similar patterns here as to elsewhere.

What I would like to first do is talk about a perspective on the policies of managing lands. Then I would like to get into a little bit of discussion of ecosystem management in detail. Then I can make some specific comments on the bill.

Our policy of managing forestlands can be looked at with three different approaches. Originally we had the commodity-based approach, and then two other approaches, the natural reserves approach and the landscape management approach, which I, and I think many people here, interpret as the ecosystems approach.

Now, these are very different in their practices, their philosophies, their costs, and their outcomes.

The commodity-based approach is what we had historically, and this was partly based on such ideas as the impending timber shortage which was expected in this country, and which historically has occurred at past times in this country.

Therefore, the emphasis was to provide those commodities that looked like they would be in short supply. Consequently, foresters would enter each stand and both extract wood and manage it in a way that would produce the maximum timber in the future. Let me give you an example.

Do each of you have a copy of my statement? If you look at the next-to-the-last page, figure 2 back there, going back a little bit into ecological concepts, if you look at A, the changes in stand structures, this is just an example of some of the changes in forest structures.

After a disturbance, you have it growing from an open condition to a closed condition to then one that gets more open later on. What we know now—and I will touch on this a little later—we know that some species require each of these structures to live in, and if we begin to have any of them in short supply, we begin to lose species.

With commodity management, the objective was maximum timber production, which meant you didn't try to preserve all the structures, you just preserved those that were most efficient.

Now, if you had highly productive lands, then you would often do something like clearcutting, because that would then allow you to grow a very productive new forest. In areas that were marginal for being economically efficient at managing, you would either do selection cutting or what often became "high grading" instead, removing just the best trees and leaving the others.

Also, if you couldn't economically justify thinning the stand, you let it grow overly dense.

Many places around here have these overly dense stands, because that was most efficient for commodity production. The multiple use started moving away from this; however, there was still some concerns with funding.

Now, the shortcomings of this management approach, of course, is that it doesn't maintain all the structures across the landscape, and therefore would get into trouble when we shifted the values to want to maintain all of these different structures and species; we aren't necessarily getting them. Those areas that contained structures that basically had a lot of insects or fires, and that we couldn't economically afford to do much harvest in—ended up having the forest health problems we have now.

Now, the second approach: When people started becoming more concerned about all of the structures, all the processes, they began looking at it from two perspectives. Ecologically, we originally had not appreciated the significance of large fires, and mainly thought our forests existed in a relatively stable condition.

As we began to understand that disturbances did occur, our first concept was that the disturbances were somewhat benign; and we thought if we just set-aside areas and preserved them, we would have a stable condition. This was based partly on philosophical perspectives that humans shouldn't try to interfere in these natural processes, that left to themselves they exist in a steady state that is basically a balance of nature and that the commodities that were provided from these will be provided elsewhere.

What we are finding is that natural disturbances are actually much larger than we had anticipated. They occur periodically and infrequently, so we don't have the historical records of them. However, what we found from the Yellowstone fire was that that size area wasn't enough to maintain a strong balance of structures, if we are going to go to the reserve system.

So the other thing that is happening is we are finding ecologically that nature doesn't exist in this, balance of nature.

Figure 1 at the back of your paper shows an article written after an Ecological Society of America meeting, in which one of the ecologists is quoted as saying: "The balance-of-nature concept makes nice poetry, but it is not such great science."

Mr. ROSE. Do you agree with that?

Mr. OLIVER. Yes, I think this balance of nature on relatively small scales doesn't occur—it is poetry, but not good science.

What happened, though, is that we no longer have the large expanses of forest. We intervene them with cities, rural communities, farms, et cetera. This does two things: Natural disturbances that take over a large area will wipe out some of these. We also have made it where the species can't really migrate the way they did before, and we have smaller areas of forests.

Now, if we are going to put together the reserve policy, we will find we will be going to larger and larger areas, and we may find that we are better off instead doing an alternative system I will suggest, and using the excess money to look at preserving other areas in other places, or maintaining the ecological values.

The reserve system, the costs of this, are often hidden in that you reduce the primary productivity of the area, you reduce employment, you get higher wood costs, and you shift to harvesting of timber in other regions of the country or the world, and also substitution from steel, brick, aluminum, et cetera.

The other thing is it is not proven, and I frankly think these large reserves aren't going to maintain the balance perspective. I think modern science is bearing out that they won't.

The third approach is the landscape management approach, which is different than the reserve approach in that it says, let's try to maintain across a landscape area some balance of the different structures that were found there naturally.

Now, exactly what that balance is, we don't know. We know that it fluctuates, and this is where the adaptive managements would become important. Also, I would caution us about a couple of things. Whereas the management—the fire prevention and the dense stands and the selective cutting—have exacerbated our present imbalance of structures in this region, I think we will find that very large natural disturbances happened anyway, so that I don't think we can blame everything on just pure past management. We would have these disturbances anyway.

Rather than look at what the natural range of variation is and use that as the only criteria to maintain within, we find that the disturbances fluctuate over quite a large scale, so we can use that as a first guidepost, but we would probably want to maintain structures so that we don't get too large of a natural fire or too large of a single insect outbreak.

Now, this is not business as usual, because it is maintaining structures that may not be the most economically efficient for commodity production. On the other hand, it is removing commodities in thinnings where you have too dense stands, and by clearcutting, where you need open areas where you have a lack of those.

Now, what we are looking at then is maintaining these balances of structures in some balance over our admittedly smaller landscape areas. Now, what we would do is use our various silvicultural operations to mimic these. This gets to be—where we have a shortage of a certain structure than exists there, we would save that structure, recognizing that it wouldn't be there permanently because of natural disturbances. We would increase the amount of it where it didn't exist through our silvicultural manipulations. We

would protect it, and if it blew over or burned up, we would try to replace it as efficiently as possible.

Right now, we have an imbalance in the Northwest. I like your definition of forest health in the bill in that it did not say no insects, because we will probably find that insects are very important for certain birds. It is just that we want to maintain a balance of them so they don't get out of hand.

An interesting thing is if one is to do ecosystem management in terms of landscape management, what we would be doing is looking at certain thinning and burning operations which would not be paid for by the cost of the commodities you extracted alone. However, the cost of doing it would be reduced by extracting these commodities. What we are looking at is a joint production of both products and the ecosystem values. So it would be a cost.

One reason we haven't done it in places in the past is because we have been accused of having below-cost timber sales. If it is not economical, if you are looking at it in terms of maintaining an ecosystem balance, you may want to do it.

Now, it is true we don't know what the target balance of structures would be. On the other hand, we do know that many of our areas are very much out of balance, and we could be moving toward putting them in balance, shifting them away from their extremes, right now while we do adaptive management and learn more of what the balance is.

Now, this is what I defined as the concept of ecosystem management using our silviculture to mimic disturbances, to protect from natural disturbances, and to help recovery from disturbances where they have created an imbalance. This system can be done. The actual techniques, it would use the whole variety of techniques from this various green tree retention, selective cutting, maintaining or creating snags, controlling fires, having controlled fires, clearcutting, thinning, pruning, planting—whatever it takes; but it would have to be on an area by area basis rather than a central planning, central control approach.

I do have a couple of comments specifically on this bill, if you have a couple of minutes for me to say that. I think it is a very positive step toward managing across the landscape to maintain all the structures. I think it does do a joint—it is a very scientifically sound, proactive approach that has a joint production of forest protection, maintenance of diversity, local employment, and production of ecologically sound forest products.

A couple of things I would suggest is that I realize that there are certain things that have to be done immediately, and they should be, but I would encourage moving away from declaring an emergency and going in on some type of a pulse basis and going back as quickly as possible, making this a more standard process, so that the management process occurs at all times, through joint production of ecosystem values and helping pay for them through the removal of excess forest products, that you basically keep the forests in this balance on a constant basis rather than on a constant emergency basis.

The concerns I have about the emergency basis are that it will cost more to run during an emergency and fix things up than if you

had started early and kept the stands in healthy balances to begin with.

A second thing is, we can tell way ahead of time when we are going to have a forest health emergency. You asked when do we know. We know very long ahead of time. We knew what was going to happen in Yellowstone. We are very much anticipating a similar problem on the Coconino Plateau, because we know those stands are overcrowded—not that they are unhealthy now, but if they are not thinned, they will grow larger, become overcrowded, and become much of a disease and fire problem in the future.

So we can go in way ahead of time and protect against that instead of doing it on an emergency basis. More of a steady management concept, keeping these forests out of that emergency basis, will also help keep a more stable employment labor, rather than having a quick pulse and then a movement out.

One last point that I don't want to say would happen here, but historically has happened in most places in the world when a similar policy has been enacted, so that people are not allowed in the forest except when an emergency occurs. The emergency practice of salvaging trees that have been burned and weakened but still alive to prevent spread of insects is biologically sound. However, you don't want such policies to give the local people a lack of interest in preventing wildfires.

Basically, this attitude among the local people has occurred in many places in the world where they didn't have a stake in preventing the fires. If they only salvage after it's burned, it changes their perspective on the forest.

A couple of other things. Overcrowding of trees has been a very common cause of this weakening. The large scale of natural disturbances, you referred to the natural range of variability. Given that we have our forests in smaller areas now and—in between them we have settlements and humans and others, we may want to have slightly less variability than occurred naturally.

I wanted to compliment you on your definition of forest health. One thing I think is good is the expansion of the K-V money uses. I am not sure of the exact present condition, but I may want to have the K-V money used not just on the stand it came from, but applied to a much broader approach.

I hope these have been helpful.

[The prepared statement of Mr. Oliver appears at the conclusion of the hearing.]

Mr. ROSE. All right. Excellent.

Dr. Neuenschwander.

STATEMENT OF LEON F. NEUENSCHWANDER, PROFESSOR AND ASSOCIATE DEAN, RESEARCH AND INTERNATIONAL PROGRAMS, COLLEGE OF FORESTRY, WILDLIFE, AND MARINE SCIENCES, UNIVERSITY OF IDAHO

Mr. NEUENSCHWANDER. Mr. Chairman, members of the subcommittee, thank you for the opportunity to testify at this hearing. My name is Leon Neuenschwander. I represent the University of Idaho as the associate dean for research and international programs in the college of forestry, wildlife, and marine sciences.

I am a forest and range ecologist, and I will speak from that expertise.

As you have heard this morning, the condition of many of the forests in eastern Washington, eastern Oregon, and southern Idaho, is in decline. The Forest Service, the Bureau of Land Management, the State of Idaho, and private lands are affected by occurrence of insects and disease. Some people call this a health problem, as if the symptoms could be treated as medical science treats human patients.

I don't believe we know enough about forest ecosystems to do that with the comparable degree of confidence. But we need to develop the knowledge on how to improve forest conditions, because the long-leaf pine forest-types such as ponderosa pines will continue to decline and give way to more and more shade-tolerant tree species, and will become even more threatened by wildfire, insects, and disease.

Extensive landscape ecosystem management with silvicultural alternatives and prescribed fire is needed to restore forest conditions and prevent further forest decline.

Dead and dying trees from insects and disease provide fuel for wildfires. Catastrophic stand replacement by wildfires are increasing in the northern Rocky Mountains. In some locations, dead and dying forests have recently been subject to catastrophic fires.

For example, in the Blue Mountains of Oregon, some of these include Joseph Canyon, Tepee Butte, Dooley Mountain, and there are more.

A well-known example was the fires in Yellowstone National Park in 1988, and the Foothills fire near Boise in 1992. In the past, and I fully expect in the future, the dead and dying forests set the stage for catastrophic fire by increasing the amount of understory plants as well as the dead woody material to support these intense and fast spreading fires.

That will cost more to suppress, limit resource options, and create economic loss. I believe the decline in the forest condition is related to both natural processes and management policies, especially at the exclusion of fire. Some of the natural processes include forest succession, moving toward more dense forests with more shade tolerant trees.

For example, ponderosa pine is being replaced with Douglas-fir, white fir, or grand fir. This change in species composition includes more trees that are more susceptible to insects and disease, especially under drought conditions. There has also been an increase in biomass and density of trees, and in some locations, tree numbers and biomass have exceeded the carrying capacity of the site.

Historically, a combination of wildfire, drought, insects, and disease have regulated these natural successional processes, and generally favor seral trees like ponderosa pine. For 6 of the last 7 years, forests in Idaho, eastern Oregon, and Washington have been subject to drought conditions. Historically, fire has occurred often.

As you heard from Steve Arno, that is every 7 to 25 years in the ponderosa pine-type in southern Idaho. These fires remove small trees, but the large trees generally survive. Most of the fires to date have been suppressed and fire no longer plays a natural role

in reducing the stocking levels and favoring the large seral forest species.

In fact, fires today are often of high intensity and frequently wipe out large areas of trees. This pattern was historically present, but seems to be more extensive today. Even so, the total number of acres being burned is substantially less than what it was before the turn of the century when we began to fight forest fires.

The fires are killing many of the large ponderosa pine that survived the surface fires of the past. Old-growth ponderosa pine is more at risk of being killed by fire today than ever before.

This is occurring at a time in which the natural regulators of insects and disease, such as forest birds, parasitic insects, and even other critters, may be in decline.

Forest management research is needed so we can understand what some have called forest health issues, and to understand them as an ecosystem process. Insects, disease, and fire are a part of these natural processes. However, these factors are out of balance and appear to be changing the forest ecosystem at this time.

I think Dr. Oliver explained what out of balance was; not all of the structural stages are present.

If global climate change occurs as some have predicted, this will create a more serious problem for forest management activities in the health of the forest in this region. I feel that an urgent need is to focus on sustaining productive forests and work to prevent low growth and high mortality rates that are now occurring in the northern Rocky Mountains.

We can do this only by addressing the condition of the forests' ecosystem as a whole, and in addition to treating the symptoms of forest decline. Dead and dying trees on the national forests, BLM lands, State lands, private lands, represent an economic loss to Idaho.

Salvage of dead and dying trees should be considered and executed in such a way as to guarantee the future productivity and maintenance of the forest ecosystem. Some scientists have studied the forest ecosystem conditions—well, scientist versus studied the forest ecosystem conditions for decades.

Even with this extensive knowledge base, we do not have conclusive answers. There are many different opinions and views, all supported in part by research. However, the bulk of the research has not addressed issues dealing with forest health as an ecosystem process.

I hope we do not have to treat forest conditions in a state of decline as emergencies, or wait for forest health emergencies to occur before we manage forest ecosystems for sustainable productivity. Forest health is a condition of the forest, and is not only scientifically complex, but highly emotional. We at the University of Idaho can assure you we will do our part to help address these needs.

Please consider that you need the long-term science based solutions to forest ecosystem productivity in addition to the short-term treatment of the visible symptoms of forest health problems.

Thank you.

[The prepared statement of Mr. Neuenschwander appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much. That completes all the panel's statements.

Are there questions? Congressman LaRocco.

Mr. LAROCO. Dr. Neuenschwander, what forest management activities do you believe are needed to increase forest health and return the number of acres of dead and dying trees? Do you have anything in mind that would be guidance for us here?

Mr. NEUENSCHWANDER. It has been said by others before me, and I completely agree, the most important thing is reduce the stocking level, and do that with a set of thinning treatments, some kind of— and followed in most cases, if we are looking at the ponderosa pine, dead fir zone, followed by the use of prescribed fire. Reducing the stocking levels is the most important thing.

Mr. LAROCO. We have heard a lot about density, I guess that is what you are addressing, right?

Mr. NEUENSCHWANDER. Right.

Mr. LAROCO. Dr. Oliver, thank you very much for your comments. I look forward to reading your testimony in its entirety. You have done a lot of work, and I appreciate that.

To Cal Groen, two populations of bull trout and one population of butterflies, I guess, were lost in the Foothills fire. Do you see that other similar losses are at risk with the forest system that strongly appears to be outside its range of variability?

Mr. GROEN. Yes, we are going to have other species at risk. I want to reiterate the point that I see different appearances, many different structures, so that we have to have that type of diversity on the lands. Some are saying if we selective cut, that is good for elk. That is too simplistic. We need lots of different appearances. For example, north facing slopes would have a difference in appearance. One glove is not going to fit all in this. We need the biodiversity and the many different structures.

We are losing some of our natural regulators, like Neotropical birds. Studies show they do a good job on insects, a lot better job than we do. So we have to consider all those needs.

Mr. LAROCO. As Dr. Neuenschwander said, if the decline of forests in this region are happening, if there is a decline, then you would agree that that places more species at risk through catastrophic wildfires based on the amount of fuel that is available, the density of the stands, and other factors? What you are concerned about are the species out there?

Mr. GROEN. And water quality. And Foothills was a big situation. Yet when I testified, I think we had to keep our eyes on this broad landscape approach, much broader approach than individual timber sales.

Mr. LAROCO. Mr. Tuttle, it is good to see the National Marine Fisheries Service in Idaho. I have just finished a tour of my district and some people think you are a stealth agency. It is good to see you in person, in the flesh here.

Do the sections of the bill that deal with NEPA and other things meet your needs for consultations? Is there anything that should be added that takes in this new situation where you are looking over the shoulder of every land manager just about in the State of Idaho now, because of the listing?

Mr. TUTTLE. I think the sections in the bill do a fairly good job with that. Our concern is looking at the broader picture, rather than getting into a case by case, timber sale here, timber sale there approach. We need to look at a watershed and make sure that when we worked over the watershed with the Forest Service or BLM, that there will be improved salmon production in that watershed.

So if we can go by the broader approach, we are better off.

Mr. LAROCCO. I know you are not here to make a commitment on all of this, but if we moved ahead on forest health activities in those areas, and your position is to increase the habitat for salmon, are you confident that the two are compatible, that we can move ahead with forest health activities in those areas? Whatever they may be, and I am not talking about just salvage here, because this bill is broader than that, but is it your new role that you are going to be shaking your head no and saying these forest health activities can't move on?

Mr. TUTTLE. I think there are ways we can accomplish the goals of saving the salmon as well as forest health. We have seen the helicopter logging. We have seen the use of straw bales to stop siltation on slopes. In some cases, roads are being put to bed, roads that were scars on the landscape that were bleeding silt into the streams, and that silt has a choking effect on salmon eggs and the productivity of aquatic life.

So there are ways to address those kinds of problems. I don't see it as a matter of saying no to forest health activities. I see it as a matter of working together, solving the problems, and moving on.

Mr. LAROCCO. Once again, you feel the language in the bill properly allows for your role as the language now stands?

Mr. TUTTLE. As I saw it, it did. I am not making a comment, though, for the Department of Commerce. I made that fairly clear in my opening statement.

Mr. LAROCCO. But as you read it?

Mr. TUTTLE. Yes.

Mr. LAROCCO. Because we are looking for ways to fine-tune this. We are trying to realize obstructions, deal with them, and move on. So, Mr. Chairman, I think this panel has been very helpful.

Mr. Malany, I certainly appreciate your testimony, the work you have done. I have done a lot of work with Dave Van DeGraaff, I have seen his work on the ground, I have seen the way the Boise Cascade managers operate. I appreciate your being here. Congratulations on your award.

Mr. MALANY. Thank you.

Mr. ROSE. Thank you all very much.

What is the condition of the salmon now, say, down in the mouth of the Columbia River? I have four coastal counties in my district in North Carolina. I subscribe to a magazine called National Fisherman. In the current article, current issue there is a big article about salmon, those people who trawl for salmon. I think you have done something to pretty well shut that down; is that right?

Mr. TUTTLE. We have cut back substantially on the fisheries.

Mr. ROSE. On the trollers?

Mr. TUTTLE. On the trollers as well as the gill netters in the Columbia system, and some of the Native American harvest as well.

The reason for that is because we found that each of those four sectors that I mentioned earlier, harvest, hydropower, habitat, and hatcheries, needed to make improvements in order to bring these salmon back or stop their decline.

That is why we have substantially cut back on the harvest of fish.

Mr. ROSE. Thank you all very much. We appreciate your presence. We got some good information from all of you.

Our last panel consists of Mr. Neil Sampson, executive vice president, American Forests; Mr. Lou Foruria, president, WCIW No. 2816 of the United Brotherhood of Carpenters and Joiners of America; Mr. Craig Gehrke, regional director, the Wilderness Society; and Dr. Art Partridge, professor of plant pathology, college of forestry, University of Idaho.

Mr. Gehrke, why don't you lead off here. We will make your whole statement a part of the record. We would like you to summarize, or whatever you would like to do.

STATEMENT OF CRAIG GEHRKE, REGIONAL DIRECTOR, IDAHO OFFICE, WILDERNESS SOCIETY

Mr. GEHRKE. Thank you, Mr. Chairman.

My name is Craig Gehrke. The Wilderness Society is based in Washington, DC.

Mr. ROSE. What is in Seattle?

Mr. GEHRKE. We have a regional office in Seattle. All the Western States have regional offices that address the single State they are located in.

Mr. ROSE. I have some friends that work in Seattle. I don't know whether you are aware of them or not.

Go ahead.

Mr. GEHRKE. I appreciate the opportunity to come and testify for you. The forest health issue has dominated national forest management discussions for the past several years. People are very concerned about the long-term health of the forests and all the resources there, not just the trees, but also the water quality, the wildlife, plant communities.

It has also been a very emotional issue. Over the last couple of years we have been hearing that leaving trees in the forest—leaving dead trees in the forest is a waste and that bad, very large fires go through the watersheds and subsequently destroy the fisheries. But I think a lot of folks have evolved to the point where they know that nothing is really wasted in an ecosystem.

If a tree dies out there, it falls over and rots in the ground, it replenishes the soil. While it is standing, it provides habitat for different species. I would like to point out that in the Panhandle Forest in Idaho, they recently surveyed the water quality and found it is declining out there. The Forest Service tied that to logging and roadbuilding.

In fact they found that the watersheds up in the St. Joe River were some of the best water quality they have. Those are the same ones that burned in the 1910 fire, which is the largest fire this region has ever seen.

The direction we need to go with forest health is to where a lot of the people testified today have mentioned, and that is called eco-

system health. It is true that the forest ecosystems in Idaho are under stress. There is no question about that. It is not just related directly to insects and disease, though. It is also linked to some of the activities that man has done to the forest.

The most important thing we can do is make sure the Forest Service avoids past mistakes in assuming we now know exactly what to do to fix forest health and go about to effect a single cure. Ecosystems are very complex and varied. The strategies to mimic these processes will be no less complex and no less varied.

Unfortunately, the Wilderness Society doesn't support H.R. 229, the National Forest Health Act. We think the idea of declaring forest health emergencies and forest health programs is a step backward from ecosystem management, and it is likely to create a siege mentality within the Forest Service that they have to get out and do something.

Mr. ROSE. I reacted to that before you talked about the emergency nature of things. But you basically do support ecosystems management as the approach that should be taken.

Mr. GEHRKE. That is correct.

Mr. ROSE. But you say you worry about calling them an emergency. Isn't that mainly because of your concern about procedural matters?

Mr. GEHRKE. Correct.

Mr. ROSE. Go ahead.

Mr. GEHRKE. We are afraid by having emergencies declared, by having a setup that, like I said, presents a siege mentality, there would be the temptation to cut corners in forest management, and that is the last thing we want to do at this point. We think there needs to be a careful, thoughtful approach to national forest management, one that involves as many agencies as possible.

We are very concerned about the provision that, as I read it, would suggest that section 102 subsection 2 of the National Environmental Policy Act wouldn't apply to the declaration of the emergency or the forest health program. This section is a very important part of the environmental analysis, in that it requires alternative actions to be developed, short-term or long-term effects to be identified, irretrievable commitments be identified, and also consult other agencies, bring them into the process early.

I think you want to do that with forest health management, including the urgency of declarations. I think H.R. 229 suggests that part of NEPA not apply to the program subsequently developed.

It is also confusing to me in the legislation whether or not the administrative appeal process would apply to the emergency declaration or the forest health program. I think it is quite clear that if a forest plan amendment is required, that it would be an appeal possibility. However, a forest plan amendment is not acquired to implement an emergency, there would not be an appeal process.

The forest plans are broad documents. You talked about the Boise Forest plan. They have been salvaging almost 100 percent of their timber harvest under salvage. That was not seen in the forest plan, yet they have been able to do that. They have seen no need for an amendment.

So like I said, forest plans are very broad, very programmatic. I think by saying you don't have an appeal opportunity unless you

have made your forest plan, that is effectively saying there is not going to be an appeal possible.

Mr. ROSE. The whole business of salvage is a pretty hot issue with your group.

Mr. GEHRKE. It is very hot. We have worked with the Forest Service on a lot of salvage sales. Some of them we have been very pleased with how the Forest Service goes about them. We are not against salvage. We are against salvage all across the forest on a broad landscape. We would not go in and salvage in all places.

Mr. ROSE. What is your understanding of what is being done with the salvage material?

Mr. GEHRKE. Salvage is just the extraction of commercial value of dead trees, as far as I am concerned.

Mr. ROSE. What use do you see that being used for?

Mr. GEHRKE. Lumber products, whatever.

Mr. ROSE. Chips?

Mr. GEHRKE. After the logs leave the forest, I don't trace them anymore. They are basically down the road, as far as I am concerned.

Mr. ROSE. All right. Go ahead.

Mr. GEHRKE. There was a recent Forest Service publication they put out about the strategy for forest health. In that document they stressed the need for adequate NEPA analysis. I would just like to read that briefly to you. It says, "Forest pest suppression activities require supporting environmental analysis. Conducting a NEPA analysis on a planned basis avoids the higher costs incurred when these analyses are done on an emergency basis and would allow for rapid responses against low-level but increasing populations of a threatening pest. Preparation of program-level or broad-scale NEPA documents also facilitates early communications with the public."

I think if you are going to deal with ecosystem health you don't want to leave out any steps of NEPA. You want to go through it by the book. I mentioned earlier, and I will just conclude to say, I do agree that Idaho's national forests are under stress right now. A lot of them are unraveling. Part of it is from insects and disease, but a large part is from our past forest practices. Idaho's national forests already have a road system six times the size of the State highway system.

Each year these roads put sediment into our streams and fragment wildlife habitat. Fish and game now questions the long-term viability of cutthroat trout in Little North Fork. Statewide, fish and game estimates that 11 percent of blue ribbon cutthroat trout is left. We have lots of problems on our forests. Those are emergencies in my mind also. But I don't think we need—what I think is needed is ecosystem management.

The opportunity is here for the Forest Service to really get into it and not just talk about it more. I am afraid that H.R. 229 would diffuse that. People will focus attention on, quote, emergencies. I am afraid the whole attitude of the bill, whether or not it is intentional or not, is going to foster short-term programs without looking at the long term, and that is not going to solve these problems.

What I think does need to happen is that the Forest Service through the appropriations process does need additional funding to

develop fire management plans to put fire back in the ecosystem. They need to look at landscape level planning, not emergencies, not forest health programs. They need to step back and look like they are looking at the entire Payette drainage, what is happening further down as it drains into the larger rivers.

I think the Forest Service may be inching toward that on their own. It is slow. I think they need direction probably through the appropriations process to speed up ecosystem management, to define it, to get going on it. But nevertheless, I believe that H.R. 229 would diffuse that. I don't think this legislation is needed. I think that what they need is a long-term solution that the scientists in the Forest Service are prepared to try to implement.

Thank you.

[The prepared statement of Mr. Gehrke appears at the conclusion of the hearing.]

Mr. ROSE. Mr. Sampson, executive vice president, American Forests, Washington, DC.

STATEMENT OF NEIL SAMPSON, EXECUTIVE VICE PRESIDENT, AMERICAN FORESTS

Mr. SAMPSON. Thank you, Mr. Chairman.

I am Neil Sampson, executive vice president of American Forests, we are a citizen conservation organization. It is great to get back to Idaho. I left an office in this building 20 years ago. That was as a fourth-generation Idahoan whose great grandparents got here in 1850. So it is good to be back. It is not good to see some of the things we see, but it is good to be back.

There are a couple of comments that I would like to make. My statement is before you, and I ask that it be inserted in the record. Let me focus on a few things that perhaps add a little breadth. We talked this morning about the change in fire histories. Mr. Peterson asked about what caused this. I would like to only put in the record three things that weren't mentioned.

Our predecessors virtually eliminated the effect of Native Americans on this land. Native Americans used fire in their management considerably, and it made a considerable change. Settlers brought in millions of sheep and cattle and grazed out all the fine fuels that would feed the ground fires. They plowed up the valleys, which had historically carried the fires from one mountain to another.

We changed this landscape a great deal. We have changed the forests a lot, not always with forestry. So we have a situation that is very different. Three years ago I was asked by the Secretaries of Agriculture and Interior to chair a national commission on wild-fire disasters that stemmed from legislation written in the House Agriculture Committee, and was given the charge to take a look at this.

The original question asked was, do we have a fire suppression and control problem? Our studies, which took us all over the country, but mainly in the west, discovered that that really wasn't the problem. What we had was a land problem. We had major regions where forest and grassland systems were going far out of range, as you heard this morning. It is not just Idaho. It runs from here to Mexico. There are major systems where conditions are out, way out of their standard range.

It was not just drought that caused the current problem. I want to hasten to say that. We have heard about the drought triggering forest dieback, and it certainly did. But the drought in the 1930's and the 1960's didn't trigger those same effects. We are at a decade unlike those we have ever known. We are 100 to 120 years after the initial impact of settlement, which saw farming move into these areas. These forest stands have had that long to get into the condition they are in today.

In the 1960's drought, when I was working around this State doing hydrology and watershed studies, we didn't see this kind of impact on forests. But you have to understand that the forests were nowhere near as thick. The canopies were nowhere near as large. There was not anywhere near as much demand on soil moisture or soil nutrients.

The physics of getting water and nutrients from dry soil to the top of a 50-foot tree are very different than the physics of getting water and nutrients in similarly dry soil to the top of a 90-foot tree.

This event has happened in a particular time. It happened in time and space both, and you have heard about that. The conclusion today, from many people, is that disaster wildfires are almost certain to come to much of this area at some point in time. The vision of a Yellowstone event complete with houses, towns, and businesses is pretty frightening, particularly to those people with houses backed up against a piece of forest that is so overly laden with fuels there is not a chance to stop a fire once it gets started. Those people have great fears, and rightfully so.

So we are looking at what we think is not just a major financial risk, but I want to also point out there are major environmental risks. You have heard about fires this morning that are far more intense than the natural range of events. That has implications for soils and watersheds as well as trees and other species. When we see soils with the soil carbon burned out, so far as we can tell, to 12 and 14 inches deep, and watersheds destroyed almost totally for at least a short time, you can have so much site change in just that little short time, that you are at great risk of getting back the forest you had there before.

When fire takes all that organic matter out of those soils, make many of those soil layers hydrophobic for several years, so they don't take water at all, it converts a watershed into a complete run-off machine. This can change that site so that you just have a very difficult time reinventing a forest under any circumstances, by nature or by human assistance.

I hasten to remind you that the forests we are looking at, many of them, including the Boise, are on the edge of a desert. It doesn't take much change on the Boise before you have sagebrush, not trees. That is the situation we face.

Of course, the issue is, what do you do now? I love this notion about long-term studies and things. I am a scientist, and I look at that too, but when you are a land manager, and have facts in your face, what do you do now and what do you do next, and where does that take you in the long term?

The second major thing we discovered is that this situation is counter intuitive to a lot of the forest issues with which folks are used to dealing. We use the term forest health not because we are

so sure scientifically we know what health is, but because it conjures up the notion of treatment. And what these forests need is not timber sales, not salvage sales. They need treatment, and that need differs from site to site and place to place.

You have heard plenty about this this morning. We use the health notion to conjure up the idea that these forests need treatment, they need help. That includes fuel reduction, burning, changes in grazing, roads fixed or closed, riparian areas restored, a lot of things besides just the removal of forest products. You have heard a lot about that.

There are at least some market opportunities that can help pay for that work, and that is a pretty good opportunity.

Mr. LaRocco took the leadership on this issue a year ago when we testified. I want to commend him for the leadership he exerted in getting us all together to talk this whole situation out. Yes, we use the term "emergency." We weren't trying to create a bunker mentality. We were trying to change business as usual. Business as usual clearly wasn't doing it. If there had been a better word, we would use it. If there is a better word today, I would be willing to change.

What we are trying to do is hasten the switch to ecosystem management, build a bridge between business as usual, which wasn't working, and a set of practices which now science and a lot of public opinion tell us are going to be a lot better.

We have to change the culture, the practice, the budgets, the appropriations, and a whole lot of other things that have caused us to be where they are at. To do that you have to say "whoa" loud enough to get the folks back in Washington to look hard enough to see what needs to be changed, and to get the folks in the agency to agree that something needs to be changed.

I would be happy to change the bill if there is another way to accomplish the same thing, but it has to happen. We can't just keep muddling along doing old paradigm forestry under these circumstances. In spite of the issues that still must be resolved in H.R. 229, I happen to think it offers one of the best opportunities available for Congress to help the Forest Service into a new era of stewardship on public lands, an era consistent with the demands of an environmentally demanding public and a real opportunity for these forests to produce jobs and products while being operated in an environmentally sound manner.

I said before, as a fourth-generation Idahoan, I am personally gratified that you brought this hearing to Boise to listen to testimony about this situation. What we have going on out here is different than what is happening in a lot of other places. All the forests in the world are not Pacific old-growth forests, despite what we see in the newspapers. This is a different problem and it needs different attention.

The forests in this region are crying out for help. The people that live within them are at significant risk. Our public Treasury is at significant risk. They talk about 257,000 acres burning here in 1992. We should also talk about \$22 million in fire control and rehabilitation; \$900 an acre that was spent on the Foothills. We could have done preventive work on a fair corner of the forest with \$900 an acre. I wish we had been able to do it.

In the testimony last year, we held forth, and were castigated for holding forth, Pollyannaish visions. I testified we could bring the forest products industry and the environmental community together and make mutual cause for the first time in recent memory on a forest management issue.

To my great satisfaction, with Mr. LaRocco's leadership, we darn near achieved that goal. We made great strides. Our friends in the environmental community, including the Wilderness Society and other organizations, as well as in the forest products industry, were able to come together. And we worked out a lot of problems. We are a lot closer to where we want to be right now with H.R. 229, in my judgment, than we were last year when we started with H.R. 4980.

We would like to urge the Congressmen on this subcommittee to not give up now. You are on the right track. Events have proven you right. One of the participants in last year's marathon said, "I hope we don't have to do that again." My advice to him was, I hope he keeps his credit card and his airplane tickets handy, because, Congressmen, I hope we do it.

I hope you take this bill in front of you, refine it in ways we have heard about today and will hear about more, and begin to move it as a bridge to a new era in national forest and public land management.

Thank you very much.

Mr. ROSE. Thank you very much.

We are running out of time, and I want Mr. Foruria to go next, and then Dr. Partridge, but Mr. Gehrke, can you all, can the Wilderness Society—how far apart would you say you and Mr. Sampson are? Is there any room to work there? Does your organization just believe that—I mean, the name Wilderness Society does not imply managed forest practices, you understand. Let's just sort of get that out.

If you all don't want any forests touched for any purpose, that is fine. The Forest Trust Organization that I have met with has more of a managed forest approach.

Mr. GEHRKE. We do a lot of work on forest management, so we have been involved in this. I would still say, of course we can talk with Mr. Sampson, we talk with Congressman LaRocco. I still in my heart don't think legislation is needed. I still think that the goal of this is to get more attention on the ground and to address ecosystem management. That can be done through the appropriation process. I don't think you need freestanding legislation.

Mr. ROSE. We in the authorizing committees don't like to hear a lot of things being done, you understand, by the appropriators. We know that has become popular and fashionable in Washington.

Mr. GEHRKE. And quicker.

Mr. ROSE. Well, sometimes, sometimes. But we—all right. Well, it is Steve Whitney that I am thinking about.

Mr. GEHRKE. He is my counterpart in Seattle.

Mr. ROSE. He doesn't like the way I vote. He is my friend, but he probably wouldn't be any happier than you would be with managed systems.

Mr. Foruria.

**STATEMENT OF LOU FORURIA, PRESIDENT, WCIW NO. 2816,
UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF
AMERICA**

Mr. FORURIA. Good morning, Chairman Rose, Representatives LaRocco and Peterson. I am a native Idahoan.

At this time I would like to—I am going to make this short. I don't want to take too much of your time. I want to thank Representative LaRocco for letting me come before you and testify.

I have been representing the forest products workers for several years. I have seen our future threatened by the Federal Government, how they are mismanaging the forest and the public lands in Idaho. We do have a problem on the forests. And I can attest to that. But I will cut this short.

I strongly support Representative LaRocco's bill, H.R. 229, the National Forest Health Act.

I feel Representative LaRocco's bill is going to be a balanced approach to this issue on the forests. I strongly support it.

Idaho residents are also concerned about timber jobs in Idaho, we are concerned about the wilderness. The forest health salvage issues, the effects on endangered species, right on down the line. You have my testimony so I won't read all of it.

I just want to say in closing, I believe like the majority of Idahoans we must find a reasonable balance, a balance that guarantees the health of our forest and of our subcommittee, enables Idaho residents to continue to provide a future for their families and communities.

I thank you.

[The prepared statement of Mr. Foruria appears at the conclusion of the hearing.]

Mr. ROSE. We thank you very much for bringing us this testimony. It will all be printed in its entirety in the record, together with the letter that you have sent to us from your president, Randall Ambuehl. Tell him thank you for letting you come. We appreciate what you had to say.

Mr. FORURIA. Thank you, Mr. Chairman.

Mr. ROSE. Dr. Partridge, professor of plant pathology, college of forestry, University of Idaho.

**STATEMENT OF ARTHUR D. PARTRIDGE, PROFESSOR, PLANT
PATHOLOGY, COLLEGE OF FORESTRY, UNIVERSITY OF IDAHO**

Mr. PARTRIDGE. Thank you.

I have given you an outline of my thoughts. I am going to highlight them rather than spend a great deal of time with you. I want it stated at the outset that I have severe reservations about the bill, although I think it has a lot of potential. However, I think the bill has been generated using Forest Service data and is greatly erroneous in terms of its impact statements.

There are indeed disease and insect problems here in the Northwest. They are not imminent. Let me tell you now that most diseases take decades to develop. Most insect populations take decades to evolve. They don't happen overnight and you don't cure them overnight. If that is the intent of the bill, it won't work. It never is going to work.

I don't think that is the intent, but that is the apparent intent. These things take ages to work. I have indicated some of the things that have happened before in what I have given you. I am not going to go through those.

Also I want you to notice that a direct attack on an insect or disease problem in a forest in the United States has never worked. You can't name me one disease or one insect population that has been controlled by direct attack, whether it be spraying, silviculture, or anything else. It has not worked.

We have to go to ecosystem dynamics and we have to recognize these things as a part of an ecosystem, that fungus is there because it fits there. It is not put there accidentally. And if it causes a root disease, it also does other things as well. It provides feed for other animals and other deposits. It also provides that that tree goes back into the ecosystem, becoming part of that soil, developing a soil which is friable and dynamic, that absorbs moisture.

This is not something to destroy. If you destroy that fungus in the ecosystem, you destroy the ecosystem. So we have to watch that viewpoint when we talk about health of forests.

I think if you are going to have this sort of a plan, and the Forest Service is going to oversee it, it is kind of like the fox in the henhouse. You have to watch it.

I think you want to put some strong provisions in here to watch it. I represent the environmental community, not the University of Idaho here. I represent them because I have seen a change in philosophy here that disturbs me.

The salvage bill has been misused greatly since it was introduced. I went to a place just the other day, a root rot center, where the salvage bill is being used. They were cutting—

Mr. LAROCO. Dr. Partridge, excuse me for interrupting, but there has been no bill passed.

Mr. PARTRIDGE. I know that. I shouldn't have said that that way.

Mr. LAROCO. You were not referring to my salvage bill.

Mr. PARTRIDGE. I said that wrongly, if I did. But in the name of salvage, put it that way. The salvage concept, I should say, has been misused. Excuse me if I misled you.

Mr. LAROCO. When you said "your," you were looking right at me.

Mr. PARTRIDGE. I was thinking about what I testified to about that bill. I am sorry.

Anyway, the concept has been greatly distorted, and the place I went to the other day, there was a root rot center that they wanted to manage, and in order to manage it they are trying to encompass another area equal in size of green timber. This is why I don't trust the Forest Service in this bill.

I think if you are going to implement this you need some strong external control. One of the things I see that is particularly bad is that you have diagnosticians in the Forest Service who do not know their business. I say that, and I will stand up and say it to any one of them. I will take them out in the woods and show them.

You have some excellent people there. But you have a system now that uses inventories. Do you know what those inventories consist of? Mostly seasonal personnel who go out with a sheet of paper and mark the things that happen to be on that sheet of

paper. If the problem is not on the piece of paper, it does not get marked. If the person is incapable of diagnosing it properly, it is not properly diagnosed.

So what you are looking at, the—in my opening remarks I said the data base is faulty. The inventory data is not reliable. That needs to be changed if you are going to make this work.

You need an inventory that truly represents what is happening on the ground. It has to be a systematic thing. On top of that, you need to retrain these people so that they truly can diagnose. Most foresters cannot diagnose forest health problems. That is a very important point. I don't want to go on and on. I think it is all written down here. I don't think there is a need to talk about it in great detail.

Thank you for listening to me.

[The prepared statement of Mr. Partridge appears at the conclusion of the hearing.]

Mr. ROSE. We are glad to have your comments. All of your statements will be made a part of the record.

Are there any questions for the members of the panel?

Mr. LaRocco.

Mr. LAROCO. Thank you, Mr. Chairman.

I have to say that, Craig, I am admonished all the time by my friends in the environmental community to use science. We had panelists up here who without exception said we were on the right track in this bill. I think it is important, Mr. Chairman, that you realize—I don't know what paragraph it is, the Wilderness Society does not support this legislation, and I understand that.

But the Wilderness Society helped write this legislation. They sat there with Neil Sampson and members of the timber industry and labor and helped develop this. To the extent we could draw out representatives of the environmental community to say where the pitfalls were and where we should fine-tune this legislation, we listened and tried to move forward.

But it is important to recognize, Mr. Chairman, that the Wilderness Society does not support this legislation. I wish that you had put "as written," "not yet," "we hope to," "perhaps," "down the road," "you are on the right track," "we hope to see you again soon." But you didn't say that.

Instead, this is a pretty sharp indictment of the legislation. But you either legislate or you retreat when you know that the facts present problems. I think that the forests are unraveling. I think we are in a crisis situation. Whether it is an emergency, as Mr. Sampson has said, or whatever, I intend to move along. I invite everybody to help me move along.

Mr. Chairman, I am happy that we can hear all this, because we as legislators have to make a decision whether we just stop dead in our tracks, before a problem that is plain as a hand before our face, or whether we move on. And we did have some productive sessions. I remember when people were in my office together and they were just amazed they were sitting in the same office together, because the forest issues have become so emotional and polarized, people couldn't believe they were in the same room talking about issues of common interest; and that is, productivity of our forests, proper management, and so forth.

I have always thought this legislation was a vehicle to bring people together rather than tear us apart, to move us down the road, to see where areas of concern were, where we could legislate together, recognize problems and go forth. It is not like I am thrown for a loop over the testimony of the Wilderness Society. I think we just have to recognize that I am receiving mixed signals.

There have been some hard feelings with the environmental community and me because I said they had been in the room together, and that we had worked on this, but at various stages I have been asked not to introduce the legislation, and I introduced the legislation. Then I was asked not to take it to markup, we took it to the markup, and we are still moving.

Mr. ROSE. Will the gentleman yield?

Mr. LAROCO. Of course.

Mr. ROSE. I think everybody needs to understand that Washington doesn't deal very well with problems where the various interests involved in the issue are at each other's throats. In agriculture, you hear a lot of testimony about dairy farmers from all over the country, how much power they have in Washington. It is basically because they have ironed out their regional differences and try to work together.

That may not be the best example for this particular problem, but I really share Congressman LaRocco's concern. I think the creative thing for us to do is to continue to try to reason together. There is really a new sort of dynamic here. George Miller, who chairs the former Interior Committee, he came 2 years after I did. We have been buddies for a long time. We don't always agree on every issue. That is just not the nature of Congressmen. But we try to work together to come up with compromises.

We have been able to do that, and I hope that—I am tempted to get a debate going here about salvage. But maybe we could do that in an atmosphere in Washington where we can take our shoes off and just talk about these things to see if there is a place that we can all work together. But the Natural Resources Committee and the Agriculture Committee, are going to try to work our problems out among ourselves, and interest groups, whatever their side might be, should not assume anymore that if you get something out of the Agriculture Committee, it is going to be automatically opposed when you get over to the Natural Resources Committee, or that we are going to automatically oppose anything that comes out of their committee.

It is not helpful in any area of Government where there is a problem to have gridlock or polarization. We have heard a lot about gridlock. It is more helpful when we can try to reconcile our differences and take different points of view.

I am not always happy with the Forest Service. I am not going to get into a discussion about how they have used C-130's for fire-fighting. We had a hearing on that the other day. I continue to be on their case.

But I thank you all for coming. Let's continue this dialog in Washington. And we will.

I want to thank Congressman LaRocco for being brave enough to start the process.

Michael Jordan is from my constituency and he has often pointed out to me that you would never have any successful basketball goals unless you kept trying, until you got it right. I say, let's keep trying on this until we can get it right. I hope we can do something that is in the best interests of all the people of America.

Thank you all very much for being here. This hearing is adjourned.

[Whereupon, at 12 noon, the subcommittee was adjourned, to reconvene, subject to the call of the Chair.]

[Material submitted for inclusion in the record follows:]



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Remarks by Cecil D. Andrus
Governor of Idaho
before the
SUBCOMMITTEE ON SPECIALTY CROPS AND NATURAL RESOURCES
Congressman Charlie Rose, Chairman
Statehouse, Gold Room
Boise, Idaho
August 20, 1993

For Delivery: 9:00 AM

Thank you, Congressman Rose, for chairing this hearing, which is of tremendous importance to the forests and therefore the economy of Idaho.

I also appreciate the attendance of Congressman Peterson in this hearing on Congressman Larry LaRocco's "National Forest Health Act."

I believe Congressman LaRocco's legislation is both necessary and urgently needed, and I support the bill. Forests in the Pacific Northwest -- from the Blue Mountains to Yellowstone Park -- show evidence of stress from inordinately high tree mortality.

Insect infestation continues to plague our woods. Until this year's relief, we experienced seven years of below normal precipitation. A longtime policy of total fire suppression without appropriate prescribed burning has added fuel to the forest floor.

The combination of drought, insects and stressed and dead timber has made our forests more vulnerable to large, catastrophic wildfire. We've experienced more and more of them in Idaho.

Events on the scale of the 1989 Lowman firestorm and the complex of fires in the Boise and Payette National Forests, and the 250,000 acre foothills fire east of Boise in 1992 used to be the exception, but today they have almost become the rule.

Specific examples of each of these menaces can easily be found in southern Idaho forests, particularly in the Boise National Forest. Dead and dying stands are widespread from bark beetle, tussock moth, and of course burning of wildfire.

A forest is more than just trees, and skeptics have pointed out that the discussion of forest health seems to dwell on tree health. I would argue that while these arguments need to be heeded. The biological functions provided by trees -- water and soil retention, shade and ground cover -- are critical to the maintenance of fish and wildlife species that populate our forest, streams and rivers. If the trees are more vulnerable to widespread and catastrophic mortality, the other forest values are equally at risk.

In response to the increasing tree mortality in southwest Idaho, both federal and state foresters have begun to change strategy.

In 1989, the state Department of Lands increased its annual harvest from state lands in this area from 17 million board feet annually to 27 million board feet. This three-year step-up salvaged 30-million board feet of dead, dying and diseased timber before we scaled back to previous levels.

This year the state timber harvest in southwest Idaho is exclusively salvage of dead or stressed timber, while the green sales will be postponed until future years.

Boise National Forest specialists have articulated and demonstrated a need for a forest health strategy. The greatly increased timber harvest levels in recent years result from an aggressive attempt to capture the value of fire-killed, bug-infested timber that must be harvested within a year before losing its economic value.

The Boise National Forest also sees a need to move beyond just the salvage effort -- toward thinning the existing stands that are overstocked compared to the historic conditions that existed in the forest.

Generally, I agree with the management philosophy on the Boise, and I believe the lessons we have learned can be applied to other troubled forests in our region.

Implementation of thinning and other methods to improve timber stands need to include the necessary monitoring so see if these strategies work as intended. I recommend that we also identify sites where no management is being applied so that we can compare the treated areas to a control forest.

I believe that Congressman LaRocco's legislation will help the Boise and other at-risk forests in the Northwest. This legislation provides for use of multi-year contracts for silvicultural treatment of timber stands, and gives the Forest Service some needed flexibility to dip into both the salvage sale fund and the Knutson-Vandenberg Act (KV) monies to accomplish forest health improvements.

The provision to protect the shared receipts that go to counties is necessary because we have county governments with limited tax bases due to federal land ownership.

The legislation also mandates the governor be consulted before a forest health emergency can be declared. I hope my testimony today indicates that the state of

Idaho will be a constructive and active participant in the implementation of a forest health strategy.

An important aspect of this legislation is the recognition that strategies for forest health improvement will have to comply with existing laws that govern the national forests, including the Endangered Species Act and the Clean Water Act.

I hear voices of concern that the Boise National Forest is moving too fast and that other forest values will fall to the wayside in a too aggressive and thinly veiled plot to increase the annual cut. But I believe that the mechanisms exist to design these timber sales and other forest health treatments so that roads do not harm wildlife or water quality.

These values must be protected -- in the name of forest health and for many other good reasons.

The Forest Health Act is a positive first step in changing how we should think about our forests. We don't have to view the resources in the extreme context of the total devastation of clearcuts against what the Forest Service calls "even-aged silviculture."

Nor should we have the attitude that only Mother Nature can repair a sick forest. Science and management can be strategically employed to make a difference.

As the National Forests shift toward ecosystem management, man will be part of the equation, and the demand for the resources by our ever increasing numbers must still be part of the picture.

This time, we can move forward with the knowledge that we may not know all there is to know, but that we can make adjustments to our practices and improve the resiliency of the federal forests.

--the end--

STATEMENT OF
RICHARD L. EVERETT
SCIENCE TEAM LEADER
EASTSIDE FOREST ECOSYSTEM HEALTH ASSESSMENT
WENATCHEE FORESTRY SCIENCES LABORATORY, FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

Before the
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture
United States House of Representatives

Concerning the Health and Productivity of Idaho's National
Forests and the creation of sustainable forest ecosystems

August 20, 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for this opportunity to discuss forest health issues in the inland empire forests of Idaho, Oregon, and Washington. Also, we welcome the opportunity to discuss concepts of sustainable ecosystem management presented in H.R. 229, "National Forest Health Act." I note that my discussion today of H.R. 229 focuses only on the scientific aspects of the ecosystem management concept. It does not address other policy concerns or issues the Administration may have with the bill. With me today I have Dr. Mark Jensen, Regional Soil Scientist, Dr. Wendel Hann, Regional Ecologist, USDA, R1, Forest Service, Missoula MT, and Dr. Patrick Bourgeron, Western Regional Ecologist, The Nature Conservancy, Denver, CO.

Previous reports to this subcommittee by George Leonard, Associate Chief of the Forest Service, Clair Beasley, Deputy Regional Forester, Intermountain Region; and Chris Risbrudt, Deputy Regional Forester, Northern Region; in May and June of

1992 and information presented today by other speakers describe forest health problems of Idaho forests. Declining forest health is widespread; the recently completed forest ecosystem health assessment requested by Speaker Foley and Senator Hatfield reports on similar problems in eastern Oregon and Washington.

* Forest health problems are not restricted to disease or insect damaged trees, but cover a broad spectrum of issues that include but are not limited to roading, livestock grazing, excessive forest fuels, fisheries, water quality, air quality, wildlife habitat, and sensitive plant and animal species.

* Although, we do not discount the seriousness of the current forest health situation, we suggest that it is only the symptom, and managing for sustainable forest ecosystems is the long-term issue that must be addressed.

FINDINGS OF THE EASTSIDE FOREST ECOSYSTEM HEALTH ASSESSMENT

Over a hundred scientists from across the Nation participated in a recent assessment of forest health in eastern Oregon and Washington (Volume III, Assessment), and the development of a framework for ecosystem management (Volume II, Ecosystem Principles and Applications) and restoration of ecosystem structures and processes (Volume IV; Restoration) to address the long-term solution of creating sustainable, forested ecosystems. Here are the key findings of our study.

Ecosystems Are Dynamic:

* Forest ecosystems are in a constant state of flux with or without human intervention.

Forest types, extent, and location on the landscape have changed dramatically in response to global climate change, species immigration and extinction, aboriginal use of fire,

natural disturbance effects and more recent fire suppression and timber harvest activities.

Forests of the interior northwest are subjected to an array of natural disturbance effects such as fire, insect, disease, drought, flood, and severe wind storms.

* Disturbances are required to initiate stand renewal and to maintain the historical range of variability in landscape patterns that support wildlife habitat, ecosystem processes (hydrologic and carbon cycles), and species viability.

* The conservation of disturbance effects (the dynamic nature of forests) is as important as the conservation of unique habitats and species in designing sustainable ecosystems.

Human Expectations and Values Are An Integral Part of Sustainable Ecosystems (Volume II):

Prior to European settlement, Native Americans used fire to create open park-like forest stands to meet their cultural needs. Early European settlers changed forest and associated aquatic ecosystems through their use of livestock and their timber harvest activities.

* People are not only a component of sustainable forest ecosystems; their participation is required if forests are to meet multiple resource demands and conserve future options in sustainable ecosystems.

* Peoples' expectations of forests in the interior northwest have changed dramatically and often.

Forest management emphasis has shifted from watershed protection, to livestock grazing (sheep then cattle), to timber production, to an emphasis on multiple uses, and now to sustainable ecosystems.

We hypothesize that peoples' expectations and values are expressed on the landscape, and sustainable ecosystems are achieved by integrating peoples' expectations with the biological and physical capabilities of ecosystems.

Forest Management Practices and Forest Health (Volume III):

Past management practices and accompanying forest responses have adversely impacted sustainability of forest ecosystems by altering disturbance processes and landscape characteristics.

- * Fire suppression has significantly altered the fire regimes in those forests that historically burned frequently but at low intensity. Currently much of this type burns infrequently, but with severe intensity and greater extent.

- * Timber harvest practices significantly altered species composition, forest structure, and increased fragmentation of landscapes. The high level of timber harvest and roading contribute to the disruption of hydrologic regimes, and declining fisheries habitat.

- * Livestock grazing significantly altered riparian vegetation and hydrologic processes and contributed to a decline in water quality and fish habitat.

Forest Health Assessment (Volume III):

- * All eastside forests are not threatened by insects or diseases, nor are they all in immediate risk of catastrophic fire.

Declining forest health varies across the landscape in extent and in intensity. Large-scale insect outbreaks and disease epidemics are evident in many watersheds but absent in others.

- * Tree densities, fuel loads, vertical and horizontal fuel continuities, and fire hazards have increased in many watersheds, and decreased in others.

- * Change in insect and disease hazard severity could not be shown to be significantly different than historic levels at the river basin scale, but hazards were significantly changed in some watersheds.

In many stands we have tree densities beyond the carrying capacity of the land, with subsequent increases in disease and insect attack and potential for catastrophic fire.

* Disturbance regimes (fire, insect and disease) have been significantly altered by effective fire prevention and suppression on sites adapted to frequent, low and moderate severity fires.

Historically, late seral forests occupied less than 30% of the landscape, and we have significantly reduced their extent through timber harvest. Through fire suppression we have significantly reduced the extent of early seral stages as well. The extent of middle-aged forests has increased.

* Landscape characteristics of reserved areas, such as roadless or wilderness, have also changed over time.

Vegetation patch size has increased, with increased homogeneity and a buildup in fuels and fuel continuity across the landscape. Reserved areas are subject to the same disease, fire, and insect hazards of more intensively managed forests, but fewer management tools are available to correct the situation.

* Land management practices have simplified fish habitats and reduced aquatic habitat quality by reducing the frequency and diversity of pools, reducing large wood debris, increasing fines in stream bottom composition and reducing water quality.

Ecosystem Management Principles (Volume II):

* Ecosystem management is an experiment, with uncertainties in ecosystem characteristics and function and public values and expectations.

The biology and ecology of ecosystems will never be completely understood as they are constantly evolving, and public values and expectations of forests will change over time. An adaptive

management approach requires the current biological and social knowledge base be stated and a sustainable ecosystem management strategy be developed and then continually tested and adjusted as new information becomes available.

Forest ecosystems of the interior northwest are dynamic, complex and heterogeneous.

- * A myriad of disturbance processes create and maintain ecosystems in a constant state of shifting vegetation patterns across the landscape.

- * These patterns have historically provided the habitat to support species and processes that people value in forest ecosystems.

- * The use of the natural or historical range of variability in ecosystem attributes provides a reference point for evaluating sustainability of current forest ecosystems.

This information is used to accurately define the historical range of disturbance effects, disturbance type, intensity, extent and frequency across multiple hierarchical landscape scales.

Disturbances occur at different spacial and temporal scales; a hierarchical landscape evaluation is required to correlate disturbance effects to desired or historical landscape patterns.

- * A forest health problem at one scale may be within historical limits of the next higher scale. Forest planning, including forest health projects, needs to occur at scales above the proposed activity.

- * Disturbance effects that create and maintain ecosystems also provide insight into potential resource flows that can be derived from forests in the process of maintaining desired ecosystems.

We hypothesize that public expectations and values can be reflected in alternative landscape designs. Sustainable ecosystems can be achieved by integrating peoples' expectations with the biological and physical capacities of ecosystems.

* Landscape designs must reflect a hierarchical landscape ecology approach where ecosystems are nested one within the other such that positive cumulative effects can be derived from the highest to lowest hierarchical levels.

A "coarse-filter" approach to conservation biology is recommended which maintains vegetation patterns at desired or historical levels that provide for desired species and ecosystem processes. In other words management should focus on maintaining intact ecosystems. The need for a "fine-filter" approach (i.e. managing for each species or process independently) would be reduced over several decades as sustainable ecosystems are created.

Restoration of Ecosystems (Volume IV):

There are several opportunities to improve forest health and sustainability of ecosystems through management activities. H.R. 229, the "National Forest Health Act," suggests combining numerous management activities such as salvage logging, thinning, reforestation, fuels management, and insect and disease suppression in a coordinated effort to improve forest health and sustainability in ecosystems. Scientists writing in the Restoration Volume (IV) made similar suggestions including:

* Use of silviculture practices when appropriate to remove excess small diameter timber to reduce stress on remaining trees, reduce fuel loading, and restore historic stand structure.

* Reintroduction of fire and other ecological processes to forest ecosystems in a manner that reduces hazard of catastrophic fires and insect and disease outbreaks and conserves long-term site productivity and biodiversity.

* Mimicing of desirable disturbance effects through management activities when the historical disturbance is no longer possible.

* Conservation of biodiversity by leaving forest structure legacies for wildlife, using harvest practices that improve the gene pool of forest species, closure of unneeded roads to protect wildlife and fisheries habitat, wildlife and livestock management to protect riparian and aquatic systems, and control of noxious weeds to protect native plant communities.

* Equal attention is needed on the dynamics of dead and live biomass components. In many systems the answer to providing long-term sustainability is in harvesting some of the live material, which is under stress, and conserving much of the dead material for nutrient cycling and habitat values. Consequently, salvage operations must provide for sufficient dead material to maintain the health of stands and ecosystems.

Summary:

Several ecosystem management concepts are found in H.R. 229, including holistic forest management for ecosystems as well as commodities, use of historical conditions as management reference points, retention of deadwood as legacies of future forests, and combining multiple management practices into a coordinated effort to improve forest health and sustainability of ecosystems. These concepts are similar to what we concluded in our ecosystem study.

* Our study concluded that a holistic approach to managing for all ecosystem attributes as well as commodities provides a means to conserve future biological options and meet future public values and expectations.

We suggest the use of historical conditions only as a reference point for management, as forests naturally change over time,

and historical conditions may not meet current or future public needs.

- * The key point is to use historical conditions as a reference point for previously sustainable systems and describe the extent of disparity with current conditions and the potential risks involved.

- * Improved forest health depends upon the development of sustainable ecosystems and the designing of landscapes for positive cumulative effects from each management activity. Positive cumulative effects occur when the decision at one ecosystem level is based on the needed action in the next higher level as referenced to the historical or otherwise desirable range of variability.

We would caution that a long-term ecosystem management approach is needed to manage for improved forest health. Current forest health problems are significant, but urgency to resolve current issues should not detract from long-term ecosystem management goals.

- * Forest health projects should represent the immediate steps in long-term planning to provide for sustainable ecosystems.

- * The planning process will require inventory and analysis of information on current, historical and potential landscape conditions at several hierarchical landscape scales.

- * Information is not available at many of the higher landscape scales and is required for a sound planning and decision processes that feed back to lower scales including individual forest health projects.

Historically, societies' expectations of interior forests and forest resources have changed often and dramatically over time.

- * A major goal of forest health projects and ecosystem management should be to conserve all future management options such that we sustain the biological capacity to meet future and different societal expectations.

An adaptive management approach is required in ecosystem management as our knowledge of ecosystems and public expectations will always be imperfect.

* There are many management uncertainties associated with societal expectations and ecosystem potentials, but when learning is part of management, then rapid evaluation and redirection of management activities is possible.

* For this reason of uncertainty, we are compelled to suggest that landscape management designs must be flexible and conservative.

* When ecosystems are managed conservatively, that is, below maximum resource output levels, they are buffered against surprise events and error in management decisions.

Our findings support the need for investment in ecosystem management and short term forest health projects that support the long-term objectives.

* Comprehensive inventory and analysis is required to evaluate where the two activities are in unison.

That concludes our statement. We welcome any questions which you may have.

STATEMENT OF
ROBERT STEELE
PROJECT LEADER, CONIFER ECOLOGY
INTERMOUNTAIN RESEARCH STATION, FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
AND
STEPHEN F. ARNO
RESEARCH FORESTER, PRESCRIBED FIRE PROJECT
INTERMOUNTAIN RESEARCH STATION, FOREST SERVICE

Before the
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture
United States House of Representatives

Concerning the Health of Natural Forests in Idaho and the
Applicability of Management Strategies Authorized in H.R.229

August 20, 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to discuss the health of National Forests in Idaho.

OVERVIEW

In Idaho and in much of the western United States east of the Cascade Mountains, the health of national forests is closely related to changes in the role of fire. In this vast semi-arid region, prior to 1900 fires burned unchecked through summer and early autumn. Intermountain Research Station scientists have studied the historic frequency of these fires by dating the annual growth rings associated with fire wounds on ancient trees and charcoal layers deposited in ponds. In the extensive dry forests where ponderosa pine once was the predominant species, these fire wounds recorded fire intervals which averaged 5 to 30 years. This high frequency of burning maintained low levels of fuel and the fires burned mainly along

the ground rather than in the tree crowns. This kind of fire generally killed only the small trees and fire susceptible species. It perpetuated open parklike stands of fire resistant ponderosa pine and western larch. These tree species are also resistant to many of our insect and disease problems.

At higher elevations where there is more moisture, the historic fire pattern was more complex. Fires occurred at longer intervals, generally between 40 and 150 years, and left a mosaic of fire-killed trees and nonlethal underburns.

Fire-adapted tree species were favored. These fire-mosaic forests composed of seral species tend to be more resistant to insect and disease epidemics than are dense late seral and climax forests which now dominate many of these sites in the absence of fire.

Since the early 1900's, fire suppression has become effective at controlling low and moderate intensity fires. This has led to development of dense stands of drought-stressed trees which are highly vulnerable to insect and disease epidemics. Ironically these forests are now more susceptible to severe wildfires.

THE FOREST HEALTH PROBLEM

The Forest Service is now taking a broader view of the effects of fire, insects, and disease as we are trying to initiate management of forests as ecosystems. Some activity by insects

and disease is a normal part of the ecological process. But, when the insect and disease activity levels exceed the normal range of variation for a particular ecosystem, then a forest health problem exists. The historic range of fire intervals has now been greatly exceeded in the drier forests where ponderosa pine once dominated. This ecosystem makes up a major portion of the Boise National Forest and is extensive elsewhere in Idaho and neighboring states. The Boise National Forest has recently experienced record levels of several tree-killing insects such as Douglas-fir beetle, western pine beetle, fir engraver beetle, and Douglas-fir tussock moth.

FIXING THE PROBLEM

Solving the forest health problem will require an ecosystem management approach. Management practices must match the ecological capabilities of each site in order to create and maintain healthy forests. This is the focus of ecosystem management. The understanding of ecological capabilities is derived from the scientific study of the processes that maintained a given forest type during past centuries. Forest commodity production and fire management activities need to accommodate these natural processes.

The harvesting of dead and living trees is among the treatments that, if applied carefully, could help meet goals of ecosystem management, but timber harvesting alone will not address the fundamental problems of forest health. A more holistic

addressing of forest health will require the development of ecosystem management as a multidisciplinary approach guided by the best science and silvicultural knowledge and the freedom to adapt this knowledge to their local situations.

Fortunately, because most of Idaho's forest health problems are related to the human interruption of natural fire cycles, the problem can be fixed. The basic approach is to compensate the ecosystem for the lack of recurring wildfire. This can be achieved in several ways:

1. Identify high-hazard landscapes rather than individual stands as the first priority areas for remedial forest health treatment.
2. Create a mosaic of stand conditions at the landscape level that represents the normal range of variation for the ecosystems involved.
3. Favor the early seral tree species in silvicultural activities in order to develop insect and disease resistant stands, while ensuring desired ecosystem condition.
4. Thin stands on a commercial and precommercial basis so as to restore stocking densities and species composition to pre-fire control conditions that were more resistant to insect attacks.
5. Use prescribed fire to help maintain ecosystems that historically experienced frequent low intensity fires,

thereby reducing fuels and preventing stand-destroying wildfire.

This completes our testimony. We will be happy to address any questions that you may have.

NATIONAL FOREST HEALTH ACT

HERBERT S. MALANY
CHIEF REGION FORESTER
BOISE CASCADE CORPORATION
SOUTHERN IDAHO TIMBER REGION

THANK YOU FOR THE OPPORTUNITY TO EXPRESS MY THOUGHTS ON CURRENT FOREST HEALTH PROBLEMS ON THE NATIONAL FORESTS IN SOUTHWESTERN IDAHO.

I HAVE BEEN A PRACTICING LAND MANAGER FOR THE BOISE CASCADE CORPORATION FOR OVER 30 YEARS IN SOUTHWESTERN IDAHO.

I AM A MEMBER OF THE IDAHO FORESTS PRACTICES BOARD AND THE COMMITTEE DEVELOPING METHODOLOGY FOR DETERMINING CUMULATIVE WATERSHED EFFECTS IN IDAHO.

OUR TIMBERLANDS EMPLOYEES AND HARVEST CONTRACTORS HAVE DEVELOPED SILVICULTURE PRESCRIPTIONS AND HARVEST PRACTICES THAT PROVIDE THE INCOME NECESSARY FROM THE SALE OF OUR FOREST PRODUCTS TO PAY ALL OPERATING EXPENSES AND PROVIDE A VERY NICE RETURN TO THE OWNERS OF OUR CORPORATION. IN ADDITION TO PAYING ALL OUR OVERHEAD, PLANTING, SILVICULTURE, ROAD CONSTRUCTION, ROAD MAINTENANCE AND HARVESTING EXPENSES OUR FORESTS ARE MANAGED TO PROVIDE A SUSTAINED YIELD AND TO PROVIDE, PROTECT AND IMPROVE THE AMENITY VALUES THE FOREST PROVIDES.

WE HAVE DEVELOPED UNEVEN AGED OR SELECTIVE HARVEST PRESCRIPTIONS. 20% TO 30% OF THE TREES AND 40% TO 50% OF THE VOLUME IS REMOVED EACH ENTRY. THIS SYSTEM REQUIRES ENTRIES EVERY 12 TO 20 YEARS. THE FREQUENT ENTRIES:

PERMIT US TO REGULATE THE SPECIES COMPOSITION, DIAMETER DISTRIBUTION AND DENSITY IN OUR STANDS.

PREVENT OUR FOREST FROM BECOMING STOCKED WITH OLD - DECADENT TREES OR OVERSTOCKED WITH YOUNGER TREES.

PREVENT THE INSECT AND MORTALITY PROBLEMS THAT ARE PLAGUING ON THE NATIONAL FORESTS.

ALLOWS US TO IMPLIMENT NEW IDEAS, PROGRAMS OR PROCEDURES THAT WILL IMPROVE OUR FORESTS HEALTH, PRODUCTIVITY AND AMENITY VALUES

WHEN OUR HARVEST TREATMENTS ARE COMPLETED, THE TREATED STAND CONTINUES LOOKS LIKE A FOREST, IE., THE TREATED STANDS RETAIN THE VISUAL LOOK OF FORESTLAND THE PUBLIC IS DEMANDING, WATER QUALITY IS MAINTAINED OR IMPROVED AND THE RIPARIAN AREAS ARE PROTECTED. BY PREVENTING THE FOREST FROM BECOMING VERY DENSE, MORE SUN LIGHT IS ABLE TO REACH THE FOREST FLOOR. AS A RESULT, THE AMOUNT OF SHRUBS FOR FORAGE AND HIDING COVER FOR BIG GAME ANIMALS IS INCREASING. HABITAT FOR OUR FEATHERS FRIENDS IS RETAINED BY LEAVING SNAGS AND LOW QUALITY MERCHANTABLE TREES. OUR TREATMENTS PROVIDES ALL THE ABOVE AND OUR FORESTS ARE HEALTHY AND RESILIENT.

IN RECOGNITION OF THE EXCELLENT TIMBERLAND PROGRAM WE HAVE DEVELOPED. OUR DEPARTMENT WON BOISE CASCADE CORPORATIONS 1992 ENVIRONMENTAL AWARD. ONLY ONE AWARD IS GIVEN EACH YEAR.

I WILL DISCUSS THE FOLLOWING:

1. CURRENT FOREST HEALTH CONDITIONS IN SOUTHWESTERN IDAHO
2. HOW WE GOT HERE
3. THE CHANGES NECESSARY IN SILVICULTURE PRESCRIPTIONS, HARVEST TECHNICIS AND PROFESSIONAL ATTITUDES THE ACCOMPLISH THE PROGRAM
4. HOW LONG THE PROGRAM WILL HAVE TO LAST
5. WHAT THE PAYBACK FOR THE EFFORT WILL BE

1. FOREST HEALTH CONDITIONS ON NATIONAL FOREST LANDS IN SOUTHWESTERN IDAHO

AS YOU HAVE BEEN TOLD MANY TIMES, THE PINE - MIXED CONIFER FORESTS ON THE DRY EDGE OF THE FOREST ECOSYSTEMS RANGING FROM NORTHEASTERN WASHINGTON, THROUGH EASTERN OREGON, INTO SOUTHERN IDAHO BACK UP

TO SALMON AND MISSOULA, MT. HAVE BECOME OVERSTOCKED DUE TO THE EXCLUSION OF FIRE AND LACK OF LAND MANAGEMENT ACTIVITIES FOR 100 YEARS. TODAY, THESE FORESTS ARE STOCKED WITH PHYSIOLOGICALLY OLD TREES AND THICKETS OF THE REGENERATION, POLE AND SMALL SAWTIMBER SIZED TREES THAT ESTABLISHED AFTER 1890.

NATURE EXCESSIVELY OCCUPIES ALL GROWING OR CARRYING CAPACITY OF ALL ECOSYSTEMS WITH SOME TYPE OF PLANT OR ANIMAL. THE APPROACHING OF THE TOTAL UTILIZATION OF AVAILABLE MOISTURE AND NUTRIENTS HAS BEEN GOING FOR THE LAST 100 YEARS. THE LACK OF MOISTURE FOR THE LAST SEVEN YEARS PUSHED THE FORESTS OVER THE CARRYING CAPACITY OF THE SITE AND NOW THE PIPER IS BEING PAID WITH DEVASTATING MORTALITY AND CATASTROPHIC FIRES.

WE KNOW THE CARRYING CAPACITY ON SOME STANDS IN BOISE CASCADES FORESTS WERE EXCEEDED PRIOR TO THE CURRENT DROUGHT BY THE INCREASE IN INSECT ACTIVITY AND MORTALITY. THE CURRENT HIGH LEVEL OF MORTALITY ON NATIONAL FOREST LANDS IS NATURES WAY OF REBALANCING THE FOREST TO A LOWER MOISTURE LEVEL.

TODAY, THE RESULT OF NOT ENOUGH WATER TO GROW ALL THE EXISTING TREES IS:

IN PURE PONDEROSA AND DOUGLAS FIR STANDS - OLD TREES HAVE BEEN KILLED BY BARK BEETLES, YOUNG TREES HAVE BEEN KILLED BY BARK BEETLES.

IN MIXED DOUGLAS FIR - GRAND FIR STANDS - WESTERN SPRUCE BUD WORM HAS BEEN EATING THE NEEDLES FOR YEARS. RESULTING IN DEAD REGENERATION, POLES, TREE TOPS AND FINALLY DEAD TREES.

2. HOW WE GOT HERE

FROM CARBON RINGS ON 300 AND 400 YEAR OLD TREES IN SOUTHWESTERN IDAHO, WE KNOW THE FIRE FREQUENCY IN SOUTHWESTERN IDAHO WAS EVERY 10 TO 15 YEARS UNTIL 1890 AND THEN THE OCCURRENCES STOPPED. FROM COMMENTS INCLUDED WITH TIMBER CRUISES OR VOLUME ESTIMATES MADE ON THE CORPORATIONS LANDS AROUND

1916, WE KNOW THE FOREST LANDS FROM NORTH OF BOISE TO MCCALL, IDAHO CONTAINED 20 TO 40 TEN INCH OR LARGER DIAMETER TREES PER ACRE, THERE WERE FEW DOWNED LOGS WOODY MATERIAL AND LITE BRUSH ON THE FOREST FLOOR, THE FIRE HAZARD WAS LOW AND THE LANDS WOULD MAKE EXCELLENT GRAZING AFTER HARVEST. THE LANDS WERE ESSENTIALLY A PINE GRASS LANDS OR SAVANNAH.

TODAY, INSTEAD OF 20 TO 40 TREES/ACRE, WE HAVE UPWARDS TO 800 YOUNGER TREES/ACRE IN ADDITION TO THE REMAINING OLD TIMERS ON NATIONAL FOREST LANDS.

THE TREES THAT WERE LARGE IN 1890 ARE NOW 100 YEARS OLDER AND **PHYSIOLOGICALLY** OLD. THE SUCCESSFUL FIRE PREVENTION PROGRAM HAS ALLOWED NATURAL REGENERATION TO FLOURISH AND PERMITTED THE FORESTS TO INCREASE STOCKING LEVELS UNTIL THE CARRYING CAPACITY OF THE ECOSYSTEMS HAS BEEN EXCEEDED.

TODAY, THE RESULT OF 100 YEARS OF EXCLUDING NATURES MANAGEMENT PRESCRIPTION - FIRE - PLUS THE ABSENCE OF STAND MANAGEMENT ACTIVITY ON NATIONAL FOREST LAND BY MAN IS A SICK AND DYING FOREST.

3. THE CHANGES NECESSARY IN SILVICULTURE PRESCRIPTIONS, HARVEST TECHNICIS AND PROFESSIONAL ATTITUDES THE ACCOMPLISH THE PROGRAM

THE BOISE NATIONAL FOREST HAS APPROXIMATELY 600,000 ACRES OF SUITED TIMBER BASE. 10 TO 12,000 ACRES PER YEAR RECEIVE A SILVICULTURE TREATMENT. AT THE CURRENT RATE IT WILL TAKE 55 YEARS TO COVER THE FOREST, OR ONLY 10% SUITED LAND BASE WILL BE TREATED IN THE PROPOSED 5 YEAR EMERGENCY PERIOD UNDER THE CURRENT FOREST PLAN.

THE ANSWER TO RETURNING OUR NATIONAL FORESTS TO A RESILIENT AND HEALTHY CONDITION IS NOT DECLARING A 5 YEAR FOREST HEALTH INITIATIVE THAT IS ONLY GOING TO HARVEST DYING AND DEAD TREES. THE PROGRAM MUST BE ONE THAT WILL NEVER ENDS AND MUST ENCOMPASSES ALL FOREST VALUES.

THE FOREST IS A LIVING ENTITY, JUST AS YOU ARE AND AN ECOSYSTEM IS GOING THROUGH THE CHANGES, JUST AS YOU

DO.

AT THIS TIME IN OUR HISTORY, THE ONLY WAY TO RETURN OUR NATIONAL FORESTS ECOSYSTEMS TO HEALTH AND RESILIENCY, PROVIDE LONG TERM HIGH VALUE EMPLOYMENT AND FOREST COMMUNITY PRESERVATION, AND PROVIDE THE PRODUCTS AND AMENITIES VALUES THE PUBLIC ENJOYS FROM THE FOREST IS THROUGH MANAGEMENT OF THE NATIONAL FORESTS BY HUMANS, NOT NATURE.

THE PUBLIC, IN MY OPINION, DOES NOT WANT THE FOREST TO CONTINUE ON THE PRESENT COARSE OF WASTING VALUABLE COMMODITIES AND CATASTROPHIC BURNING WITH NO EFFORT TO PROVIDE THE MATERIAL AND AMENITY VALUES OUR SOCIETY NEED AND DEMANDS.

THE PUBLIC, IN MY OPINION, IS NOT GOING TO PERMIT CLEAR CUTTING AS THE PRIMARY HARVEST PRESCRIPTION OR ALLOW RIPARIAN AREAS, STREAMS OR WATER QUALITY TO DEGRADED.

THE PUBLIC, IN MY OPINION, DOES WANT THE PRODUCTS THE NATIONAL FOREST PRODUCES, THEY WANT THE NATIONAL FOREST TO CONTINUE TO LOOK LIKE A FOREST WHEN TREATMENTS ARE COMPLETE, AND THEY THE EMPLOYMENT THE NATIONAL FORESTS PROVIDE.

IN ADDITION TO MANAGING OUR FOREST LANDS, I HAVE BECOME A PROFESSIONAL TOUR GUIDE DEMONSTRATING THE RESULTS OF OUR LAND MANAGEMENT PROGRAM AND DISCUSSING OUR PHILOSOPHIES WITH MANY PEOPLE. I ALWAYS RECALL ONE LADY WHO IS ACTIVE IN ONE THE LOCAL PRESERVATION CLUBS. AFTER THREE OR FOUR STOPS SHE CAME UP TO ME AND SAID, "I AN GOING TO HAVE TO RETHINK MY WHOLE THOUGHT PROCESS ON TIMBER HARVESTS, WE HAD BEEN TOLD THE ONLY WAY FORESTS COULD BE MANAGED WAS BY CLEARCUT AND I DON'T LIKE THEM, I HAVE NO PROBLEM WITH THIS TYPE OF TIMBERLAND MANAGEMENT".

THERE ARE FEW SECRETS OR NEW THINGS TO LEARN BEFORE THE FOREST SERVICE CAN BEGIN THE LONG TREK BACK TO A HEALTHY FOREST. THE BASIC RESEARCH HAS BEEN DONE ON HOW TO MANAGE THE FOREST, PROTECT WATER QUALITY, INCREASE FORAGE AND COVER FOR WILDLIFE.

PRESCRIPTIONS WILL REQUIRE FREQUENT ENTRIES THAT INITIALLY REMOVE THE DEAD, DYING, DISEASED AND HIGH RISK TREE AND MUST COMPLIMENT, ENHANCE AND PROTECT THE OTHER IMPORTANT VALUES OF FOREST LANDS.

THE NECESSARY CHANGES ARE:

A. SPECIAL INTEREST GROUPS - THE NATIONAL FOREST LAND MANAGERS ARE GOING TO HAVE TO DEMONSTRATE THEY CAN CHANGE FROM THEIR PAST PRACTICES OF TREATING ONE ACRE TO THE MAXIMUM, IE., CLEARCUTTING, AND THEN ALLOWING THE REST OF THE FOREST TO DIE. THAT THE PRACTICE THE NEW FORESTRY REALLY MEANS USING A LIGHT TOUCH ON LAND AND IT DEVELOPS A HEALTHY FOREST, AND PROTECTS OR IMPROVES THE OTHER IMPORTANT VALUES AND USES THE FOREST PROVIDES.

WHEN IT IS DEMONSTRATED TO THE INTEREST GROUPS THEY HAVE ACCOMPLISHED THE ABOVE, I BELIEVE THE PUBLIC WILL SUPPORT THEM TO THE DEGREE THAT DISRUPTIVE AND COSTLY REDOS, APPEALS, LAWSUITS OF TODAY WILL BE A THING OF THE PAST.

B. PROFESSIONAL ATTITUDES - THE PERSONAL AGENDAS, INTRIGUES, TURF WARS, ETC., OF THE DIFFERENT PROFESSIONS ARE GOING TO HAVE TO END AND "DOING THE RIGHT THING" TO ACHIEVE FOREST HEALTH IS MADE EVERYONES MISSION WILL HAVE TO PREVAIL.

C. SILVICULTURE TREATMENTS - THE FOREST LAND MANAGER, WITH ASSISTANCE FROM OTHER LAND MANAGEMENT SPECIALISTS, MUST PRESCRIBE TREATMENTS THAT BEGIN THE LONG TERM SOLUTION OF THE FOREST HEALTH PROBLEM.

D. NEW LOGGING METHODS - SINCE 1990, NEW AND EXCITING METHODS ARE BEING DEVELOPED THAT ARE CHANGING THE TRADITIONAL WAY OF LOGGING TRACTOR GROUP. TREES ARE BEING LINE SKIDDED UPHILL AWAY FROM WET AREAS INSTEAD OF DOWN TOWARD THE RIPARIAN AREAS WITH TRACTORS AS HAS BEEN TRADITIONALLY DONE.

THE INDUSTRY HAS LEARNED THEY HAVE TO "DO THE RIGHT

THING" IN ORDER TO BE ALLOWED TO PURCHASE NATIONAL FOREST TIMBER.

THE INITIAL TREATMENT SHOULD ONLY HARVEST DEAD, DISEASED, HIGH RISK TIMBER AND THIN ONLY AREAS THAT WILL EXPERIENCE MORTALITY BEFORE THE NEXT ENTRY.

THE AREAS TREATED MUST BE DESIGNED TAKING ADVANTAGE OF THE LOGGING SYSTEMS THAT HAVE BEEN DEVELOPED IN THE LAST TWO OR THREE YEARS. THESE SYSTEMS TAKE LOGS UP HILL TO THE RIDGES AND AWAY FROM THE STREAMS AND RIPARIAN AREAS INSTEAD OF THE TRADITIONALLY METHOD OF GOING TO THE STREAM.

4. HOW LONG THE PROGRAM WILL HAVE TO LAST

TO BE SUCCESSFUL AND TO ACHIEVE AND MAINTAIN A HEALTHY AND RESILIENT FOREST, THE NATIONAL FOREST IS EMBARKING ON A LAND MANAGEMENT PROGRAM THAT IS GOING TO BE EXCITING, CHALLENGING, AND NEVER ENDING.

BECAUSE FORESTS ARE DYNAMIC AND ALIVE, JUST LIKE PEOPLE, THEY ARE CONSTANTLY BEGINNING, MATURING, GROWING OLD AND DYING. EACH AGE HAS DIFFERENT REQUIREMENT.

AND BECAUSE EACH OF THE THESE STAGES IS ALWAYS GOING ON, WE CANNOT GO OUT FOR FIVE YEARS, WORK LIKE HELL, AND SAY THE JOB IS DONE. TO BE SUCCESSFUL, A CONSTANT PROGRAM MUST BE DEVELOPED THAT TREATS ENOUGH ACRES OF THE FOREST EACH YEAR TO INSURE THE TREES ARE NOT ALLOWED TO BECOME OVERSTOCKED AND THE CURRENT PROBLEMS ARISE BEFORE THE NEXT TREATMENT IS PLANNED.

5. WHAT THE PAYBACK FOR THE EFFORT WILL BE

A HEALTHY, RESILIENT NATIONAL FOREST SYSTEM WHERE THE THE MANAGED FOREST WILL LOOK LIKE A FOREST - NOT A CORN FIELD - AMENITY VALUES PROTECTED OR ENHANCED AND EMPLOYMENT IN LOCAL RURAL COMMUNITIES RETAINED PLUS THE GOODS AND SERVICES THE FOREST PRODUCES AND PROVIDES WE ALL WANT CONTINUE TO BE PRODUCED.

IDAHO DEPARTMENT OF FISH AND GAME TESTIMONY
On H.R. 229, the "National Forest Health Act"
Before the House Agriculture Subcommittee on Specialty Crops and
Natural Resources
August 20, 1993 in Boise, Idaho

Thank you Congressmen Rose, Peterson, and LaRocco for conducting this field hearing and allowing the Idaho Department of Fish and Game to assess the overall health of National Forests in Idaho and the applicability of management strategies authorized in H.R. 229, the "National Forest Health Act" to National Forests in Idaho. I am Cal Groen, Chief of the Natural Resources Policy Bureau for the Department.

The Idaho Department of Fish and Game is required by state law (Idaho Code Section 36-103) to ensure the State of Idaho's fish and wildlife resources are "preserved, perpetuated and managed..." Although the Department does not have regulatory authority over many habitat activities, it does serve a significant role in reviewing and commenting on action that may affect the fish and wildlife resources of the state. The Department reviews, evaluates and responds to 600 to 900 proposals annually that could impact fish and wildlife resources. The opportunity to review H.R. 229 is greatly appreciated, and is especially significant because 70 percent of Idaho is in public ownership.

The recent seven-year drought in Idaho has exerted tremendous stress on all biological systems. These systems include trees, fish, wildlife, and water quality, which are all dependent on the maintenance of critical levels of soil moisture and stream flow. It appears the prolonged drought is over now. We must be cautious and not base our entire forest health management strategy on a dramatic event such as the foothills fire and the drought. The drought, although it seemed to have lasted a long time in human perspectives, was merely a "blip" in time from the standpoint of ecosystems. If we can learn from it, we are making progress.

Looking back in our rear view mirror, it is generally agreed that past management practices on the natural forests have contributed to our forest health emergency. Fire suppression and the high grading of commercially valuable timber species have tended to accelerate succession toward climax. Climax forests are generally more vulnerable to fire, insects, and disease. No one considered the long-term consequences of this management direction. As a result, some areas, such as southern Idaho forests, are more susceptible to defoliator infestations and high-intensity wildfires.

To once again think that we have a simple answer for a complex ecosystem and move full scale into salvage and thinning may be repeating our past mistakes. Forest succession often spans several generations of man which makes it difficult for people to visualize forest dynamics. Ecosystem management and forest restoration are a new field that we must cautiously move into. We must remember that a

sincere desire to implement "good forest management" brought us to our present forest health concerns. We cannot achieve our desired future condition overnight. We need to move slowly and humbly into the future of our public lands.

Congressman LaRocco's legislation, the "National Forest Health Act," lays out a process and safeguards this cautious approach. This legislation recognizes multi-resource values such as retaining snags, encourages a wide range of future uses, and authorizes coordinated forest health improvement projects that carry out both product- and non-product-related management actions. In the past, too many projects were based solely upon commodity considerations. Making sale volumes and revenues secondary and justifying the harvest of live trees are necessary steps to a healthy forest ecosystem.

Important aspects of this legislation are basing the declaration of a forest health emergency upon sound science, compliance with environmental law, and expanded public comment opportunity. Preserving the appeal and judicial review processes and providing two new opportunities for public comments are especially refreshing in view of recent attempts to curtail or exclude public comment from salvage and timber sales.

Past efforts to include multiple-resource elements have failed due to the lack of funding and monitoring. Funding support is welcomed from salvage sales and Knutson-Vandenberg Act funds for both product- and non-product-related treatments. Recreation, wildlife, watershed restoration, and protection have been short changed in the past, and appropriate consideration to these values is long overdue. Necessary monitoring is essential to see if the prescribed treatments are working as intended. I recommended that control areas that receive no treatment be set aside for comparison to treated areas. Excluded roadless areas may partially serve as controls for long-term monitoring.

In summary, careful and thorough work must be done to define what healthy forest ecosystems are, and honest management strategies must be designed to produce sustained, diverse, and healthy forest ecosystems that seek the full range of ecological variability and biodiversity. Forest health must become much more than merchantable tree health and include wildlife, fish, and water quality considerations. A healthy forest will include many different appearances or successional stages. A recent report from the Society of American Foresters states that more emphasis must be given to protecting wildlife and diversity in forests across broad landscapes. It recommends an ecosystem approach that would base logging on protection of wildlife, water quality, and overall ecological health. H.R. 229 has the legislative elements to accomplish overall ecological health if properly implemented.

TESTIMONY OF
MR. MERRITT E. TUTTLE
ENVIRONMENTAL AND TECHNICAL SERVICES DIVISION CHIEF
NORTHWEST REGION, NATIONAL MARINE FISHERIES SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

BEFORE THE

COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON SPECIALTY CROPS
AND NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

BOISE, IDAHO
AUGUST 20, 1993

Thank you for the opportunity to address the important issue of the health of Idaho forests and their shared role in ensuring healthy runs of salmon. I am Merritt Tuttle, Chief of the Environmental and Technical Services Division, Northwest Region, National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Various Federal statutes give NMFS the role of providing leadership and expertise for the protection, conservation and recovery of anadromous fish throughout the full extent of their range from the forests to the ocean and back again.

I am here today to provide an assessment of the overall health of national forests as salmon habitat in Idaho and the applicability of management strategies authorized in H.R. 229, the "National Forest Health Act" to national forests in Idaho.

The Department of Commerce is reviewing H.R. 229 and has not taken a position yet on the bill. However, we note that the term "forest health" as defined includes elements of ecological variability which we believe would also promote the maintenance of healthy populations of fish and wildlife resources, as well as the other uses identified in the bill. H.R. 229 also calls for the expedited review of forest health improvement programs under other applicable environmental laws and for scientific input from other agencies. NMFS is currently working closely with other Federal agencies to ensure that our section 7 consultations under the Endangered Species Act (ESA) are conducted in a comprehensive and timely manner. Should H.R. 229 be enacted, NMFS would work with the Forest Service and Bureau of Land Management (BLM) to ensure that any forest health improvement program is consistent with the ESA by not jeopardizing any listed salmon and does not contribute to the decline of the important salmon populations of the Northwest.

Although you have requested that I comment on the forests of Idaho, my office is concerned with the health of forests as anadromous fish habitat in Washington and Oregon as well. The definition of forest health can vary, depending on our interests and expectations. To people interested in harvesting trees, the definition may involve a sustained yield of timber. To other interests, the definition of a healthy forest involves a variety

of watershed functions and forest outputs such as timber products, aesthetics, wildlife, and fish. To NMFS, the definition of a healthy forest includes all of these functions, especially those for fish. Forest streams are where the salmon's life cycle begins, first with the act of spawning, then the incubation of eggs, the emergence of fry, and the rearing of smolts. Thus the forest serves as a nursery for juvenile salmon. The general health of the forest ecosystem determines the number of smolts the watershed is capable of producing.

NMFS' approach to the conservation of Snake River salmon, listed under the ESA, is based on ecosystem management. We recognize that forest conditions are vital components of watershed quality and salmon abundance. Therefore, I will focus my comments on characteristics of watersheds. These are critical building blocks within the salmon's ecosystem.

Historically, watersheds throughout the forests in Idaho produced an abundance of salmon. The Journals of Lewis and Clark identify drying racks and fish traps for salmon in Idaho which attest to the abundance of salmon they encountered along their journey. Data collected by the U.S. Fish Commission during the late 1800's further documents an abundance of salmon in Idaho. These studies report that thousands of pounds of sockeye salmon were commercially harvested and dried each year. These salmon

provided food for miners working in Warren and Idaho City, Idaho. Idaho had an abundance of salmon and many of its residents, including Indian Tribes, used these fish for subsistence, trade, and income. Now, however, Idaho's wild salmon are listed as threatened or endangered species.

The ESA obliges all Federal agencies, including in the case of forests those responsible for Federal land management, to use their authorities to conserve endangered and threatened species of wildlife so that they may be recovered to the point of no longer requiring the protection of the ESA. In addition to working toward the recovery of these species, Federal agencies are required to ensure that, at a minimum, their actions are not likely to jeopardize the continued existence of the listed species. NMFS' role in this strategy is to provide professional advice to these action agencies as to how they can best meet their ESA obligations.

A team of scientists appointed by NMFS is currently developing a plan designed to lead to the recovery of the listed Snake River salmon species. NMFS will consider their advice in adopting a recovery plan that will provide guidance to the Federal action agencies, including the Forest Service and BLM, to meet their obligation to work toward the recovery of the listed species.

In the meantime, however, to evaluate impacts on listed salmon in Idaho, the Northwest Region of NMFS is currently providing professional advice to the Forest Service and BLM, and other action agencies, concerning the listed salmon, through what are commonly known as "section 7 consultations." In such a consultation the Federal agencies consult with NMFS to ensure that actions they conduct, authorize, or fund are not likely to jeopardize the continued existence of threatened or endangered species or destroy or adversely modify their critical habitat. These consultations cover four major sectors that lead to the salmon's decline. These four sectors, referred to as the four H's, are hydropower, harvest, habitat, and hatcheries. These four sectors are an integral part of the Pacific Northwest. Unhealthy watersheds are part of the habitat sector.

Depressed stocks of salmon are not unique to the rivers of Idaho. During the past few months, various petitioners have requested that NMFS list several other stocks of salmon in coastal Oregon and Washington for ESA protection and recovery. Although unaffected by hydropower development, these salmon populations are also in decline. In coastal watersheds of Oregon and Washington, intensive road construction and timber extraction in these watersheds are linked to reduced salmon production. Recent reports stemming from President Clinton's Forest Conference

recommend sizeable changes in the way forests are currently managed.

Land management agencies now recognize this need to change forest management. Scientific evidence supports a new approach, which places emphasis on ecosystem-based management. For example, fish habitat surveys conducted in Idaho and Oregon about 50 years ago described relatively undisturbed watersheds. A recent comparison of those surveys done in Marsh Creek, a tributary to the Middle Fork Salmon River, and the Grande Ronde River indicates that human-impacted river systems have lost 50 to 75 percent of the large pools during the past 50 years. Large pools are critically important to salmon since they function as resting and hiding areas for adult fish prior to spawning, are preferred rearing areas for juveniles, and serve as refuges during periods of drought and winter icing.

While the quality of spawning and rearing habitat has diminished in managed lands, anadromous fish habitat in wilderness areas has remained relatively constant or has improved during the same period. The watersheds within these wilderness areas continue to sustain productive habitats for salmon despite impacts from natural forces. We must learn to manage watersheds in a manner that mimics those watersheds that have remained productive, despite fires, droughts, and other natural forces.

Managing the ecosystem at the watershed level will improve salmon runs and expedite ESA consultations. Watersheds must be protected if we are to sustain Idaho's salmon. We are urging a sound ecosystem-based approach to forest management, utilizing science and state-of-the-art restoration techniques. This can help recover threatened and endangered salmon and help prevent additional species from being listed. This approach can reduce the complexity of consultations for endangered salmon and expedite ESA consultations and all forest activities.

In summary, I would like to close with three brief reflections:

1. A healthy forest ecosystem is based on healthy watersheds which are vital to salmon.
2. Restoring watersheds must begin now because it may take decades for some watersheds to begin to recover and for the number of salmon to increase.
3. Restoring watersheds improves the likelihood of salmon recovery, which combined with other actions, can result in delisting of threatened or endangered species and eliminate the need for future listings.

Thank you for the opportunity to appear before you. I would be pleased to answer any questions you may have.

STATEMENT OF
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Before the
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture

United States House of Representatives

A field hearing on ecosystems management and the applicability of new forestry and forest health techniques for forest ecosystems management

August 20, 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

This statement will be divided into three parts:

1. A perspective on differing policies for managing forest land;
2. A detailed description of a proactive approach to ecosystem management;
3. Specific comments on H.R.229 (103rd Congress, 1st Session).

Parts #1 and #2 will serve as background for the specific comments (part #3).

**PART #1: PERSPECTIVE ON POLICIES FOR MANAGING FOREST
LAND**

Policies for managing forest land can be grouped into three approaches. These approaches are based on historical and/or current scientific principles, philosophies of life, and practicalities:

1. The commodity-based approach;
2. The "natural reserves" approach;
3. The "landscape management" approach.

The Commodity-based Approach

Historically, forests in the United States and elsewhere have been managed with a policy of producing specific products--timber, grazing, minerals, water, etc.--and controlling undesirable natural catastrophes (fires, floods, etc.).

Philosophical background

The attitude toward natural process was that human activities were not powerful enough to overwhelm natural processes--but that humans could sway natural processes to gain specific commodities and values.

Active management of forests was for timber because of the expected "impending timber shortage." This "timber shortage" had actually occurred in some places in North America--with serious hardships. With timber management as an objective, "old growth" forests were considered undesirable, since their timber was rotting faster than it was growing; consequently, meeting the timber management objective meant replacing these unproductive trees and stands with efficiently growing, young stands.

This timber production policy shifted to maximum efficiency of extraction of trees, and maximum efficiency of regrowth in plantations where it was economically feasible. In areas where it was not economically efficient to regrow trees, management was often various forms of uneven-aged harvesting to avoid the costs of establishing plantations combined with protection from forest fires.

Northern Rocky Mountains

Many of the stands in the northern Rocky Mountains are of low productivity, so the optimum management was often uneven-aged cutting. Other stands grew as even-aged following very large fires in the early 1900's or before; these stands were overly crowded but not thinned because it was, again not logistically or economically worthwhile based on timber production. The consequences have been many uneven-aged stands infected with defoliating insects, and many even-aged overcrowded stands susceptible to bark beetles.

These conditions of high insects and diseases and impending fires has been exacerbated by management; there is increasing evidence that these (and other forests) periodically developed conditions which created large outbreaks of insects and diseases and subsequent fires even before European settlement.

Funding

The stated policy of commodity production was changed to "multiple use" several decades ago; however, funding for active management of forest stands (e.g., K.V.funding) and building of roads was still largely allocated based on the potential to produce timber. Consequently, timber production remained an extremely active objective of management. Prevention and fighting of fires were also actively funded, since fire was believed harmful to many forest values. Funding for active management has slowly both increased and shifted to support other values.

Shortcomings

Commodity management has been very effective in producing its objectives--so much so that plentiful, inexpensive wood is taken for granted by most U.S.citizens. On the other hand, a diversity of stand structures for sustaining biodiversity and other values were often not maintained. In stands where production of timber was only marginally economical (in many parts of the northern Rocky Mountains), the stands often grew to very unhealthy conditions and became prone to insects and fires.

In recent years, timber management has been increasingly adjusted to accommodate other objectives as well.

The "Natural Reserves" Approach

National Parks and wilderness areas have been managed with the general policy of avoiding human intervention to provide natural conditions, patterns, and processes. Recently, this policy has been advocated for managing other federal lands as a means of ensuring adequate habitat for "old growth" species.

Philosophical Background

It seems based on a combination of several philosophies:

- that humans can not/should not try to interfere with natural processes to promote their values--even biodiversity or saving endangered species;
- that humans do not understand enough to intervene in natural processes;
- that forests exist in a "steady state"; therefore, free of human intervention, there will be a natural "balance of nature" which will maintain the various environmental values;
- that commodities formerly provided by the forest will be provided from somewhere else.

Setting aside of "reserve" areas has not resulted in a natural "steady state." As the Yellowstone Fire and other natural events has shown, natural disturbances often occur over very large areas; and the forest does not necessarily return to a "steady state." (See newspaper article at end of statement.) The response by those still advocating "reserves" is to advocate increasing larger and more "reserve areas."

Northern Rocky Mountains

Such reserves in the northern Rocky Mountains would become susceptible to periodic fires. Historically, these fires have spread over hundreds of thousands of acres in a single season. It is incorrect to assume the present susceptibility of stands in the region to insects, diseases, and fires would not have occurred without previous management practices; in fact, large outbreaks and fires occurred even before intensive colonization by Europeans.

Funding

The costs of a "reserve" policy are often hidden. Since there is no active management, there is no "up-front" costs of management. The costs of "reserves" are often:

- a reduced primary production base for the region and nation's economy;
- reduced employment opportunities;
- higher wood costs because of the reduced supply;

--a shift to more intensive harvesting of timber from other regions of the world, as well as substitution of more polluting steel, aluminum, brick, and concrete for wood.

Shortcomings

It is still not proven that increasingly large reserves will be effective in maintaining "old growth" features, or any other natural balance of species and processes.

The "natural reserve" approach--when practiced on a large scale--is based on the outmoded concept of the "balance of nature." Over the past few years, ecological theory has shifted from a concept of a "climax" (or "old growth" or "ancient" forest) as being a stable entity to the recognition of small "gap phase" disturbances to the recognition of very large disturbances (e.g., hundreds of thousands of acres).

The lack success with small reserves has led to pressure for increasingly larger reserves--a "central control" approach to policies. Such reserves often exclude local people from obtaining any benefit from the forests--thus alienating them. Historically, rural land use policies have rarely been effective which do not have the support of the local people.

Where increasingly large reserves are imposed, the costs of these reserves becomes very high. It is probable that the amount of money spent (or income foregone) on these reserves could ensure more global biodiversity by being spent on "landscape management", described below.

The large reserve area is being modified by advocating a managed "matrix" of forests between the reserves.

The "Landscape Management" Approach

The landscape management approach has been advocated as a means of ensuring all patterns, processes, species, and habitats are maintained over an area. This approach uses to active management to mimic, avoid, and mitigate the effects of large natural disturbances. Over each smaller landscape area, it maintains (or creates where necessary) a fluctuating

balance of all structures and processes which are found naturally over the very large landscape.

Philosophical Background

Landscape management seems to be based on several philosophies:

- that natural processes are indifferent to human values; however, by wise management, humans can gain many values from nature--including biodiversity and commodities;
- that change will proceed--not necessarily to the benefit of humans--without or without human intervention; therefore, waiting before intervening may be worse than active intervention;
- that natural processes are neither in a steady state, nor will they maintain the various human values if left untouched by humans;
- that various human values (including biodiversity) can best be ensured by managing natural systems.

Landscape management recognizes that the forests are constantly changing in structures as a result of disturbances and regrowth. Each forest stand structure and process is important for some species; consequently, it is important to maintain all structures and processes if all species are to be maintained (Figure 2). This maintenance of all species, structures, and processes in some form of fluctuating balance corresponds to the term "forest health" in H.R.229. Insect outbreaks are natural and probably helpful to some species (e.g., migrating birds); therefore, "forest health" should not imply elimination of insect outbreaks. Rather, the size of the outbreaks would be managed to avoid their becoming so large that other patterns and processes are excluded.

Since forested landscapes occupy smaller areas than they did before populations increases of the past two centuries, the variety of patterns and processes need to be maintained over smaller areas than was done naturally. Consequently, it will probably be necessary to manage for a variation in patterns and processes which fluctuates less extremely than the "natural variation." (See pg. __, H.R.229.) In addition, the very large natural disturbances would destroy human property in non-forested areas; therefore, the sizes of disturbances would be controlled as much as possible.

Landscape management would use silvicultural operations to mimic many natural processes. Landscape management recognizes that human well-being (above the subsistence level) is beneficial to humans and the landscape. Wood removal (and production of timber) and employment would be byproducts and additional benefits of ecosystem management, but would not be the driving objective of management. Employment and wood products from these silvicultural operations would provide local people with a value from the forest and therefore an interest in maintaining it. The wood products produced in this way would substitute for steel, aluminum, brick, concrete, or wood from other regions of the world where forests are managed in a less environmentally sound manner.

Landscape management would leave some areas as "temporary" reserves (lasting from several decades to several centuries). These reserves would be of several types:

- areas where a certain structure (e.g., old growth) exists in such small amounts that all remaining stands with this structure are needed to maintain a balance of structures.
- areas where structures, processes, or species exist for which little is known of their requirements (e.g., riparian areas). Since nothing is permanent in nature, these "reserves" would not be expected to last forever; as more information is learned, active manipulation would occur to ensure more of the critical structures occur. These reserves would be restricted to individual stands or very small landscape areas.

Northern Rocky Mountains

The northern Rocky Mountains contain a large number of insect-infested, overly crowded stands in even-aged and uneven-aged conditions. Lacking in many areas are open areas, open park-like stands, and stands with very large trees. Very large fires will occur barring human intervention, resulting in unplanned destruction of human property and very large open areas lacking dense forests. Landscape management would use timber harvesting, thinning, and prescribed fires to produce a variety of structures which provide a variety of habitats, help protect the remaining forests from catastrophic fires, and provide a flow of wood and employment for local and global well-being.

Funding

Thinning and even-aged management is probably not economically justifiable on the basis of timber returns alone in many parts of the northern Rocky Mountains where such practices are needed. If timber production were considered the objective of the silvicultural operation, the sale would be considered "below cost"; however, the income from selling the timber will help reduce the cost of the silvicultural practice. In this way, joint production of timber and biodiversity will reduce the cost of maintaining biodiversity, increase employment, and provide for ecologically sound timber products. The cost of biodiversity then becomes the amount the sale is "below cost." (In both economics and ecology, the same saying is true: "There is no such thing as a free lunch.")

The cost of this landscape management will probably be less than "natural reserves" when all considerations of the benefits from landscape management are considered: increased productions of goods and services, reduced unemployment, increased tax base, reduced costs of forest protection and restoration.

Shortcomings

The two criticisms of landscape management are:

1. We do not know if management can create the structures, patterns, and processes required by all species.

In response, we are even less certain that doing nothing will create the necessary structures, patterns, and processes at the correct times and places.

2. We do not know the most appropriate patterns of stand structures to manage for.

In response, most landscape areas contain extremely imbalanced stand structures at present which we know are not sustainable. There is some knowledge already; therefore, forest managers can begin correcting this imbalance by reducing the large amounts of excess structure while increasing the structures in short supply. It will take a long time before these extremes are corrected; meanwhile, more information can be learned about the desired patterns.

PART #2: A PROACTIVE APPROACH TO ECOSYSTEM MANAGEMENT

A Definition of Ecosystem Management

For this testimony, I shall define my concept of Ecosystem Management. It is similar to the one described by Salwasser, MacCleery, and Snellgrove (1992. "New Perspectives for Managing the U.S. National Forest System" Report to the North American Forestry Commission, 16th Session, Cancun, Mexico, February, 1992). It is similar to the one incorporated into the recently completed Eastern Oregon and Washington Forest Health Report (requested by the U.S. Senate and House of Representatives, and chaired by Dr. Richard Everett of the U.S. Forest Service). It is very similar to the concept of managing across landscapes, which I described in a statement before the Subcommittee on Forests, Family Farms, and Energy of the Committee on Agriculture, United States House of Representatives, March 11, 1992. It is very similar to the "coarse filter" approach to management, whereby species are protected by trying to maintain a balance of all possible habitats to keep species from becoming endangered, rather than waiting to focus management on individual species after they have become endangered.

Basically, ecosystems management attempts to maintain the full balance of natural patterns, processes, and species across a landscape area--for example a watershed or other geographic subunit. This management is distinctly different from many historical management approaches which focussed on producing specific commodity outputs. In ecosystems management, the focus is on maintaining a balance of processes; commodity outputs can be a byproduct of maintaining this balance, but not the primary goal. For example, in a balanced forested ecosystem, a certain amount of timber can be removed to maintain the balance; however, a need for a specified amount of timber would not dictate the management practices.

It is also different from traditional management, since it attempts to maintain all patterns, processes, and species across the landscape rather than only maintaining those of immediately perceived benefit.

Our understanding of forests and other ecosystems has changed dramatically during the past few decades (Figure 1). Rather than staying in

a relatively stable condition--a "steady state"--ecosystems change dramatically through various disturbances and regrowth. Consequently, a wide range of patterns and processes across the landscape--some of them quite disastrous--can occur and still be natural.

Ecosystems management would attempt to manage natural patterns and processes well within their natural range of fluctuations so that no single pattern or process becomes so large that it excludes other patterns, processes, and species. Within this narrower range of fluctuations, management would still have a variety of options.

To give a specific example, Figure 2 shows one classification of forest development patterns following stand-replacing disturbances. As can be seen, the forest develops through a series of structures. Each structure is suitable for some species but not suitable for others. Ecosystems management would attempt to maintain all species, patterns, and processes across a landscape area. Specific patterns, processes, and species would naturally move within the landscape area rather than be confined to one place, since forests are disturbed and regrow.

The amount of any given pattern and process fluctuated quite widely in natural conditions; and there is evidence that these fluctuations were necessary for survival of many species. Ecosystems management, however, would maintain minimal amounts of all patterns and processes while allowing fluctuations. The old concept of the "balance of nature" still holds, however, so that too much of one pattern, process, or structure necessarily excludes other natural patterns, processes, or structures.

Ecosystems management would not be a rigorous adherence to completely natural processes. Natural processes were often extremely catastrophic, with extremely large natural disturbances--windstorms, fires, and volcanic eruptions--covering tens to hundreds of thousands of acres. Within a given area, some of these natural patterns and processes were so large that they excluded other natural patterns and processes--causing local extirpation of species, for example. Such large-scale processes also disrupt human lives and economies, reduce availability of many resources for human use, and necessitate use of more environmentally damaging products (e.g., steel, aluminum, brick, concrete, and plastic) as substitutes for wood.

Much of ecosystems management will involve using silvicultural operations for several purposes:

- to mimic natural disturbances;
- to protect areas from natural disturbances where the size, time, type, or location of the disturbance is undesirable; and,
- to help a landscape recover a balance of patterns, processes, and species when an undesired natural disturbance occurs.

Ecosystems management, therefore, involves maintaining a balance of patterns, processes, and species across an area through active management (Figure 3). This management would avoid the extremes of natural disturbances and, at least at first, attempt to maintain a fluctuating balance across smaller areas than was done historically in nature. Although much is not known about the appropriate pattern and range of fluctuations, ecosystems management can begin by correcting extreme imbalances which currently exist while more is learned. Ecosystems management should produce the byproducts of timber, fish, and other natural resources. Timber products, for example, also contribute to the quality of the global environment where they substitute for more polluting steel, aluminum, brick, and concrete.

Ecosystem Management Can Be Done

For several years I have taught mid-career and graduate/undergraduate courses where we have developed and refined ecosystems management principles, as I have described them above. Various students and I have incorporated them into several ongoing management projects--the Washington State Olympic Experimental State Forest, the Vashon Island (Washington) project, and the Mt. Everest Ecosystem project (Nepal).

It is not only conceptually possible to implement ecosystems management, we have realized that it is extremely difficult to achieve many management objectives--e.g., animal, riparian, and aquatic habitats--without an ecosystems management approach. An ecosystems approach allows an appropriate amount of fluctuations and variations in patterns and processes to occur simultaneously with a sustaining of all patterns and processes.

Our various implementation and training projects show it is possible to do ecosystems management; however, it requires a shift in thinking on the part of managers at all levels and a shift in other aspects of management as well. It is also a highly technical process, which requires skill, equipment, knowledge-based systems, and a dedicated organization.

Our experience with ecosystems management shows that the approach creates a great degree of consensus among frequently antagonistic groups. The approach first determines what possible alternatives and consequences are possible on a landscape, and then determines which will achieve the management goals in a "bottom-up" planning process.

The limitation to implementing ecosystems management is not the lack of silvicultural and forest management operations techniques. These techniques include:

- planting & other regeneration operations;
- thinning;
- pruning;
- fertilizing;
- weed control;
- controlled fire;
- clearcutting;
- shelterwood & seed tree cutting;
- green tree retention (very similar to shelterwood cutting);
- selective cutting;
- creation and maintenance of snags, "wildlife trees", and down logs;
- and others.

All of these techniques are useful AT THE RIGHT TIME AND PLACE in ecosystems management, since all of these have their counterpart in nature. (See Eastern Oregon and Washington Forest Health Report referred to earlier.) Large fires following windstorms, for example, created many structures similar to (or more severe than) clearcut areas; while other fires and windstorms created many structures similar to shelterwood, seed tree, and selectively cut areas.

The appropriateness of many operations needs to be assessed on a case-by-case basis. As examples:

- The stability of roads and their potential for causing siltation problems depends on the local soil conditions and how the road was built. Consequently, the desirability of constructing, maintaining, or removing a given road needs to be made within each local area.
- The size of each area to be managed depends on the local topography. For example, it does little good to restrict the area to be harvested to a small size if the surrounding forest will blow over soon afterward, anyway. Decisions here, too must be made at the local level.
- The need/use of fire also depends on the local ecological conditions. In some places, the forest will burn naturally if controlled fires are not done.
- Similarly, the current practice of avoiding management around riparian areas may be changed as more is learned about behavior of riparian and aquatic habitats. Siltation and other disturbances always have and will occur in these areas, since the Pacific Northwest is in an area of geologic uplift. As more becomes known, it may prove better to plan the times and distributions of these events through management than to let them occur naturally in an unexpected way. Riparian vegetation and forest structures may also be enhanced through various management practices.

For silviculture and management practices to be appropriately prescribed, there must be local flexibility. This can best be achieved by avoiding central planning, having directions be goal-oriented, and giving local managers the flexibility and resources to make site-specific decisions.

Many silviculture and management techniques are quite well known. There is a concern that bad management practices we have learned to avoid will reemerge in the name of "ecosystems management." For example, the practice of "high grading" may be resumed in an attempt to create uneven-aged stands if past knowledge and great care is not used. "High grading" can result from cutting the wrong trees when attempting to do "selective cutting." Foresters have worked hard to get away from "high grading" over several

continents during the past few decades. Much of the fire and insect problems in eastern Oregon and Washington are the result of "high grading."

A certain amount of concentrated research and development and mid-career short courses will help appropriate silviculture and management practices be implemented more effectively; however, the bottleneck to ecosystems management is not a lack of ability to do these techniques. Once the other bottlenecks are cleared, research and development on these operations could proceed quite effectively through "adaptive management."

Many of the operational techniques described above are presently not being used because they are not economically feasible under current accounting and funding allocation systems--even though the techniques may be desirable for ecosystem stability. (The funding systems will be discussed later in this paper.)

The major need for ecosystems management to be effective is to have a systematic way to determine the correct time and place to use the various silviculture and management operations. Any one technique used to excess or too infrequently may cause patterns, processes, and species to become extirpated from the area. Five specific forest management techniques are needed to promote ecosystems management:

- i. Much investment is needed in developing and obtaining highly technical decision support hardware and software, and specialists to service this equipment. This hardware and software will allow rapid processing and flow of information necessary for ecosystems management.
- ii. Forest resource managers at all levels will need to be trained in the fundamentally different way of viewing management and using the technical tools. The training will be needed for all members of local U.S. Forest Service I.D. (prescription issue identification) and E.A. (environmental assessment) teams, as well as managers at all levels. Such training has been occurring through various mid-career short courses, but could be increased.

- iii. Research and development will be needed to determine the target patterns and processes to be managed for across the landscape. This research will include "reconstruction" and "landscape" studies and "adaptive management" as ecosystems management is implemented.
- iv. As discussed above, research and development will be needed in developing and refining various silviculture and management operations.
- v. A silviculture/management infrastructure, including a strong component of monitoring, will need to be incorporated into the ecosystems management process and supported to maintain the effectiveness of ecosystems management. Once this infrastructure is built, it will probably prove very cost-effective.

It is sometimes suggested that we should wait until we have more basic knowledge before proceeding with any management. I disagree with this, since forests continue to grow and disturbances continue to occur, even when the decision is made to do no management. No management is an active decision to allow certain patterns and processes to occur which may exclude other patterns and processes across the landscape. Since we are beginning management with limited knowledge, we can begin ecosystems management by trying to avoid and correct the extremes of patterns and processes we presently find. We can adjust our targets and techniques with time and experience through adaptive management.

Local forest managers are generally moving toward ecosystem management anyway, since it appears to be a very effective way to sustain the various values of the forest.

The many alternative directions of management are intensive management for single values—preservation or timber production for example. These alternatives probably will not be effective since there are so many values from the forest that we can not provide single-use areas for each of them. In addition, the importance of the various values continues to fluctuate more rapidly than they can be grown as single uses.

Where no coordinated management is done, such as in subsistence agriculture in many parts of the world, many of the patterns, processes, and species are lost.

As more values are becoming threatened (e.g., fish, forest health, and clean air), it is a very effective way of maintaining those values which require large areas of diverse patterns and processes.

There are several thrusts which would help implement ecosystems management:

- i. Begin technical programs to develop the needed hardware and software to make ecosystems management planning efficient;
- ii. Begin providing this Decision Support and other hardware and software needed for ecosystems management to the local levels of the forests (even as it is being developed, rather than waiting until it is fully developed);
- iii. Begin training local forestry and other resource people as well as people at all levels of management in the concepts of ecosystems management. Mid-career short courses could be effective here;
- iv. Encourage ecosystems management to begin in a "bottom-up" approach, NOT a "top-down" central planning approach. Presently, state-of-the-art technology is beginning to allow the various ecosystem patterns and processes to be coordinated over areas of about 10,000 to 15,000 acres. Ecosystems management at this level could begin. Then, management over broader areas can be done through creative coordination among managers of these smaller areas. This "bottom-up" approach will also allow immediate identification and correction of currently hazardous conditions even before all decision support hardware and software is in place.

PART #3: 3. Specific comments on H.R.229 (103rd Congress, 1st Session)

H.R.229 is a positive step toward landscape (ecosystem) management. It allows a scientifically sound, pro-active, joint production of the various values of:

- forest protection from catastrophic disturbances,
- maintenance of a diversity of forest structures and processes;
- local employment;
- production of ecologically sound forest products.

One major suggestion is to change from an "emergency fund" to be instituted only at "times of crisis" to a constant fund to maintain the forests in a condition of health through constant manipulation of stands BEFORE they reach crisis stage. This constant management would be much more similar to landscape management. There are several reasons for this change:

1. The cost of proactive management of stands will be much less costly and much more effective than "emergency" measures after problems have begun.
2. A problem with declaring an emergency will be to identify when forests are in a condition of poor "forest health." For example, using technical "density diagrams" and "decision keys", silviculturists can recognize that a stand will become overcrowded and poor in vigor many years (even decades) before it actually becomes infested with insects.

As examples, foresters were predicting the insect outbreak in the Yellowstone in 1981. Similarly, an insect outbreak (and subsequent fire) can be expected in the ponderosa pine forests on the Coconino Plateau (Flagstaff, Arizona) based on the stand history and structure, although insects may not appear for several years or decades.

3. Relatively steady management activities in an area will be much more logistically efficient than working on an "emergency" basis, since relatively steady employment and flows of wood will maintain a trained labor force, equipment, and markets in the area. The

emergency basis will require unstable "booms" and "busts" of unemployment, equipment, and markets.

4. The "emergency" practice of salvaging burned trees to prevent spread of insects in the weakened trees is biologically sound. Sociologically, however, such policies have given the local people no interest in preventing wildfires. (This lax attitude among local people has occurred in many places in the world where they had no stake in preventing fires.)

Specific comments refer to lines of text:

pg. 2, ln. 13. Overcrowding of trees is a very common cause of weakening, resulting in windthrow, insect infestations, etc.

pg. 2, ln. 17 & 18. As discussed above, because of the large size of natural disturbances (and the currently fragmented landscape), you probably want to be concerned with conditions which are actually within the "natural range of variability." (For example, a million acre fire is within the range of natural variability, but probably not desirable.)

pg. 3, ln. 1. The forest health "emergencies" also are part of (and the result of) natural patterns and processes. (Management is not responsible for all of the emergencies.)

pg. 3, ln. 6. Suggest add words to read: "...substantial ecological and economic losses..." since loss of habitat is an ecological loss.

pg. 5, ln. 16. Good point.

pg. 8, ln. 8-10. This appears like a robust definition of "forest health." It is much better than an "insects are bad" perspective.

pg. 12, ln. 23-25. This ability to provide incentives to non-Federal lands is ecologically, managerially, and technically sound.

pg. 15, ln. 1 & 2. Putting this into and "adaptive management" framework will make the monitoring most efficient.

pg. 15, ln. 13-16. Are experts from academic institutions included in this? I suggest they be included.

pg. 18, ln. 18-20. This expansion of K.-V. money uses is a very positive step.

pg. 26, ln. 20 & 21. This forest health report is a good idea. Suggest use term "health" to describe distribution of structures across landscape.

(Attachments follow:)

THE NEW YORK TIMES

SCIENCE TUESDAY, JULY 31, 1990

New Eye on Nature: The Real Constant Is Eternal Turmoil

The 'balance' theory may be more poetry than science.

By WILLIAM K. STEVENS

In a revision that has far-reaching implications for the way humans see the natural world and their role in it, many scientists are forsaking one of the most deeply embedded concepts of ecology: the balance of nature.

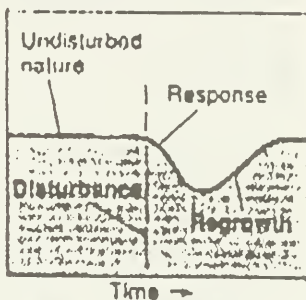
Ecologists have traditionally operated on the assumption that the normal condition of nature is a state of equilibrium, in which organisms compete and coexist in an ecological system whose workings are essentially stable. Predators and prey — moose and wolves or cheetahs and gazelles, for instance — are supposed to remain in essentially static balance. Anchovies and salmon reach a maximum population that can be sustained by their oceanic environment and remain at that level. A forest grows to a beautiful, mature climax stage that becomes its naturally permanent condition.

This concept of natural equilibrium long ruled ecological research and governed the management of such natural resources as forests and fisheries. It led to the doctrine, popular among conservationists, that nature knows best and that human intervention in it is bad by definition.

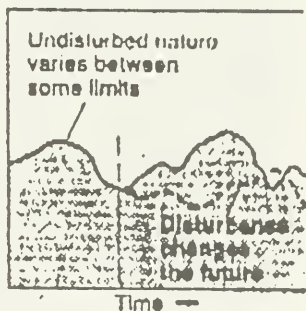
Now an accumulation of evidence has gradually led many ecologists to abandon the concept or declare it irrelevant, and others to alter it drastically. They say that nature is actually in a continuing state of disturbance and fluctuation. Change and turmoil, more than constancy and balance, is the rule. As a consequence, say many leaders in the field, textbooks will have to be rewritten

and strategies of conservation and resource management will have to be rethought.

Changing View Of Nature



In the past, ecologists assumed that nature undisturbed was a constant state to which ecosystems and populations of animals would return after disturbances like fires.



Many scientists now believe this model to be incorrect. Populations and ecosystems, they say, always vary within some boundaries and there is no "perfect" state to which their numbers and growth will return if they are disturbed.

Source: Daniel B. Botkin

The balance-of-nature concept "makes nice poetry, but it's not such great science," said Dr. Steward T. A. Pickett, a plant ecologist at the Institute of Ecosystem Studies of the New York Botanical Garden at Millbrook, N.Y. He was a co-organizer of a symposium that explored the matter yesterday in Snowbird, Utah, at the annual meeting of the Ecological Society of America, the nation's premier organization of ecological scientists.

While the shift in thinking has not yet produced a coherent new theory to replace the old one, Dr. Pickett characterizes what is going on as "a major revision of one of our basic assumptions of how the natural world works." The developing conviction that nature is ruled more by flux and disturbance is "becoming the dominant idea," he said.

"There will always be people who will cling to old ideas," said Dr. Simon A. Levin, a Cornell University ecologist who is the incoming president of the Ecological Society. "But certainly the center of mass of thinking" among ecologists, he said, has shifted away from equilibrium and "toward the fluctuating nature of natural systems. Some scientists now

say that ecological communities of plants and animals are inherently unstable largely because of idiosyncratic differences in behavior among communities and individuals in them. A super-aggressive wolfpack leader, for example, can greatly increase the pack's hunting efficiency and destabilize the ecosystem — just as the death of a pack leader can promote instability by causing the pack to disperse.

But even if ecological communities do display some sort of intrinsic equilibrium, many scientists believe, external disturbances like climatic change, year-to-year variations in weather patterns, fires, windstorms, hurricanes and disease seldom, if ever, give the communities a chance to settle into a stable state. In this view, the climax forest, the neatly symmetrical predator-prey relationship and the bumper fish population become transient conditions at best, even in the absence of human intervention.

Scientists are finding this to be true on many scales of time and space, from the glacial and global in the seasonal and local, and in parts of the world long considered the most pristine and stable like the tropical rain forests of South and Central America, for instance, or the north woods of

Canada and the northern United States.

In the natural landscape, "there is almost no circumstance one can find where something isn't changing the system," said Dr. George L. Jacobson Jr., who, as a paleoecologist at the University of Miami, studies ecological change as it is revealed in ancient sediments and rocks. And while there may be a tendency toward a stable equilibrium, he said, "It's never allowed to get there, so we might as well not expect it to exist."

In this developing new perspective, humans are emerging as just one of many sources of ecological disturbance that keep nature in a perpetual state of upheav. The question of whether humans should intervene in natural processes is moot, ecologists say, since humans and their near-human ancestors have been doing so for eons, and ecological systems around the world bear their indelible imprint.

The supposedly pristine rain forests of Latin America, for instance, owe some of their character to the intervention of humans who planted and transplanted trees and other plants throughout the jungle. And the supposedly unspoiled Serengeti plain of Africa, some ecologists are convinced, owes its tremendous abundance of grazing animals at least partly to human-set fires that created savanna habitats.

The real question, ecologists say, is which sort of human interventions should be promoted and which opposed.

One of the biggest human interventions, some say, is taking place now as people pour heat-trapping chemicals, mainly carbon dioxide, into the atmosphere. Many climatologists expect that this will cause the Earth's climate to warm significantly, causing especially widespread ecological dislocation.

The temperature of the earth has shifted up and down many times in past eons, ecologists point out, and ecosystems have always adjusted. But this human intervention, scientists say, threatens to force, in a century or less, vast climatic and ecological changes that have usually taken millennia. Ecologists fear that this time, ecosystems will not adjust rapidly enough to stave off catastrophe for many species.

Moreover, some ecologists say, people are eliminating some of the diversity of habitat — and therefore of species — that other natural disruptions create and promote. "We threaten that variability because we want to manage everything like cornfields," said Dr. Julie Donlan, a tropical ecologist at Tulane University. There is, she said, "a whole camp of us" opposed to this "harsh, homogenizing."

New View of the Balance of Nature Finds the Real Constant Is Turmoil

A Difficulty

Posing a Question: What Is Natural?

The new view of nature poses difficulties for conservationists and environmentalists who want to preserve things in their natural condition, sci-

entists say, since the question now becomes: If change is constant, what is the natural state?

What, for instance, is the natural condition of the Adirondacks, where a spirited argument is going on about whether "rough" fish like suckers, shiners and chubs should be killed and removed from some ponds to make way for trout. People on one side of the argument, citing a state policy that aims to "perpetuate natural aquatic ecosystems" in the area, say that the rough fish represent the natural condition and that the ponds should be preserved in that condition. Others say that at least some rough fish are descendants of hatchlings brought in by humans and that they have crowded out trout that flourished there earlier.

Is either of these alternative conditions "the" natural state? Or is the natural state the way the Adirondacks were when Europeans first arrived? Or, for that matter, the way they were in the millennium when the region was buried under an ice-age glacier. Or in the succession of different forests, animals and ecosystems that followed?

"Nature can be in many conditions," said Dr. Daniel B. Botkin, an ecologist at the University of California at Santa Barbara who is a leader of the reassessment effort. Because of that, he said, conservationists and resource managers will be required to analyze a given situation more carefully than in the past and then choose which natural condition to promote rather than simply insist that humans should not upset a supposed balance of nature.

"I think he's right," said Rupert Cutler, the president of the Defenders of Wildlife, a major conservation organization. He said that the shift in thinking "suggests that the responsibility for protecting nature will require a much higher level of intense application of science than it was ever assumed to require in the past."

Empty Theory

Observations Find No Neat Balance

In its classic formulation, the balance-of-nature concept holds that an ecosystem maintains a constant equilibrium and when disturbed, it returns to its former status when the cause of the disturbance is removed.

Many scientists now say it is clear that this is not the way things work.

"We can say that's dead for most people in the scientific community," said Dr. Peter L. Chesson, a theoretical ecologist at Ohio State University who took part in yesterday's symposium along with Dr. Pickett, Dr. Jacobson, Dr. Botkin and Dr. Denstow. The other participants were Dr. Margaret B. Davis, a paleoecologist at the University of Minnesota who helped organize the symposium and Dr. Judy L. Meyer, a stream ecologist at the University of Georgia.

Many observations of the behavior of animal populations in the wild, says Dr. Botkin, do not support the assumption of neat balance predicted by traditional ecological theory. One aspect of the theory says that when a population of animals moves into an area, it grows gradually to a level of abundance at which its environment will allow it to be sustained indefinitely, and then remains at that level. Another says that predator and prey populations in a given ecosystem oscillate in numbers, with one population at a peak while the other is at a low point and vice versa, thereby creating an equilibrium over time.

But in real life, says Dr. Botkin, "when you introduce a population to a new area it goes up and then crashes, and then it doesn't remain constant. The long-term numbers vary and are much lower" than predicted by the theory. Similarly, he said, a number of studies and observations, in the laboratory as well as in the wild, show that predator-prey populations do not oscillate stably and predictably. Instead, they either fluctuate wildly and unpredictably or the prey species is eliminated and the predator species dies of starvation. In one famous experiment, Paramecium microbes increased rapidly when predator microbes were introduced, they increased, too. But in the end, the paramecia were exterminated and the predators died of starvation.

Attempts to apply the classical equilibrium principle to the management of marine fisheries led in disas-

ter, according to Dr. Botkin. For years, he said, international regulators of commercial fishing determined allowable annual catches by calculating maximum sustainable yields according to equilibrium theory. The theory was such a poor guide, Dr. Botkin said, that population after population of commercial fish suffered catastrophic declines in the 1950's and 1960's and some have not yet recovered.

Managers of fisheries are trying to move away from that strategy now, he said, by analyzing the more complicated factors that actually determine fish populations. Among these, for example, are the environmental disturbances that largely determine the size of a given year's hatching of young fish. By estimating and keeping track of these varying "year classes," managers hope to adjust catch quotas year by year and avoid wiping out an entire class.

Some scientists are not quite ready to abandon entirely the concept of a inherent tendency toward equilibrium in ecosystems. A kind of equilibrium, they say, may exist on some scales of time and space.

Scale, in fact, may be very important. While there may be enormous, unbalancing disturbances and fluctuations among small populations in small ecosystems, says Dr. Pickett, the fluctuations may be dampened when the larger picture is considered, where a sort of medium-scale equilibrium might apply. An animal population that falls in one environment might not do so if allowed to range over a wider area. Dr. Botkin also said it is quite possible that while a given locality's ecology would change noticeably over thousands of years, there could be recurring similarities — and thus a kind of floating equilibrium — at medium-range time scales.

That, in fact, is what Dr. Chesson, the theoretician, postulates. There

may, for instance, be a limited range in which an animal population fluctuates over several hundred years. An equilibrium could be calculated by taking the average of the fluctuations. But it would be a "real mistake," said Dr. Chesson, to equate this with anything "remotely like" the classical idea of the balance of nature.

Constant Change

Outside Factors

Shape Ecosystems

Perhaps the most outstanding evidence favoring an ecology of constant change and disruption over one of static balance comes from studies of naturally occurring external factors that dislocate ecosystems.

For a long time, says Dr. Meyer of the University of Georgia, these outside influences were insufficiently considered. The emphasis, she said, was "on processes going on within the system," even though "what's happening is driven by what's happened outside." Ecologists, she said, "have blinders on in thinking about external controlling factors."

Climate and weather appear foremost among these factors. By studying the record laid down in ocean and lake sediments, scientists know that climate, in the words of Dr. Davis of the University of Minnesota, has been "wildly fluctuating" over the last two million years, and the shape of ecosystems with it. The fluctuations take place not only from eon to eon, but also from year to year and at every scale in between. "So you can't visualize a time in equilibrium," said Dr. Davis.

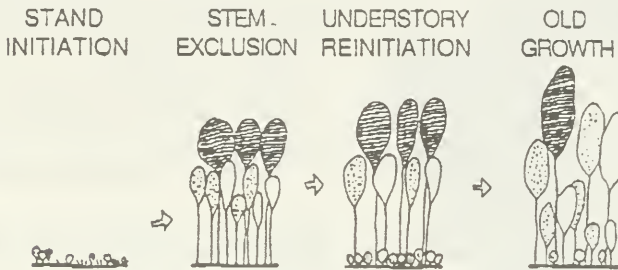
Dr. Jacobson said there is virtually no time when the overall environment stays constant for very long. "That means that the configuration of the ecosystems is always changing."

Figure 2A (after Oliver 1992b). Forest structures change after natural and human disturbances, as shown here simplistically (after Oliver 1981).

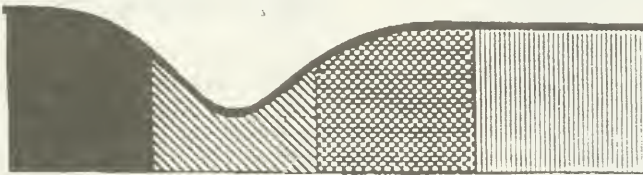
2B. Different plant and animal species are found in each structure, but all structures are necessary within a forest area to maintain biodiversity. (Vertical axis = number of mammal species; after Franklin et al. 1986).

2C. The structures change with age (shown here schematically for western Washington); however, the time before each structure was reached following a natural disturbance varied greatly.

A. CHANGES IN STAND STRUCTURES FOLLOWING DISTURBANCES



B. MAMMAL SPECIES UTILIZING EACH STRUCTURE



C. PRE-1850 WESTERN WASHINGTON FORESTS

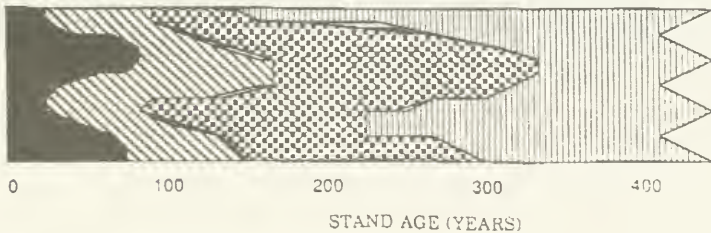
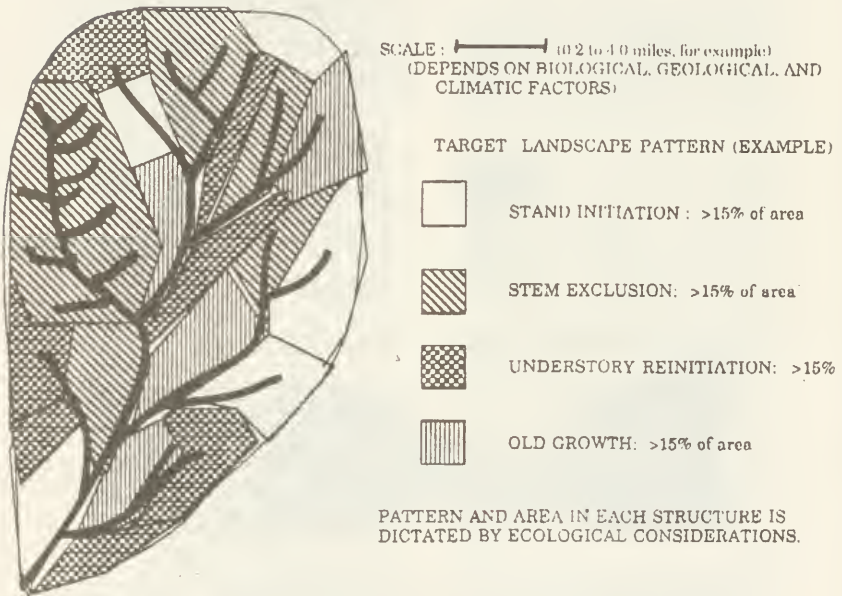


Figure 3. A targeted variety stand structures (Fig. 2) could be maintained in a dynamic balance across a landscape unit through silvicultural operations. The size of the landscape unit and each stand would be determined by scientists and professionals based on ecological, geomorphologic, and climatic processes as well as logistic considerations. Target spatial distributions of structures would also be defined by scientists.



Mr. Chairman. Members of the subcommittee. Thank you for the opportunity to testify at this hearing.

My name is Leon F. Neuenschwander and I represent the University of Idaho as the Associate Dean for Research and International Programs for the College of Forestry, Wildlife and Range Sciences. I am a forest and range ecologist and will speak from that expertise.

The condition of many forests in eastern Washington, eastern Oregon, and southern Idaho is in decline. The Forest Service, Bureau of Land Management, State of Idaho, and private lands are affected by the current insect and disease epidemics. Some people call this a "health" problem, as if the symptoms could be treated as medical science does with human patients. We don't know enough about forest ecosystems to do that with comparable degree of confidence. But we need to develop the knowledge of how to improve forest conditions because the long leaf pine forest types such as ponderosa pine forests will continue to decline and give way to the more shade tolerant tree species and will become even more threatened by wildfire, insects, and disease if we continue to manage these forest as we are currently. Extensive landscape ecosystem management with silvicultural alternatives and prescribed fire is needed to restore forest condition and prevent forest decline.

Dead and dying trees from insects, disease provide fuel for wildfires. Catastrophic stand replacements by wildfires are increasing in the northern Rocky Mountains.

In some locations dead and dying forests have recently been subject to catastrophic fire. For example, in the Blue Mountains of Oregon some of these fire areas include: Joseph Canyon, Tepee Butte, Dooley Mountain and others.

A well-known example was the fires in Yellowstone National Park in 1988 and the Foothills fire near Boise, Idaho. In the past, and I fully expect in the future, the dead and dying forests set the stage for catastrophic wildfires by increasing the amount of understory plants as well as the dead woody material to support intense and fast spreading fires. That will cost more to suppress, limit resource management options and create economic loss.

I believe the decline in forest conditions is related to both natural processes and management policies, especially the exclusion of fire. Some of the natural processes include forest succession moving toward more dense forest with more shade tolerant tree species. For example, ponderosa pine is being replaced with Douglas-fir, white fir, or grand fir. This change in the species composition includes more trees that are more susceptible to insects and disease, especially under drought conditions. There has also been an increase in

numbers and density of trees in these forests. In some locations, tree numbers and biomass have exceeded carrying capacity of the site.

Historically, the combination of wildfire, drought, and insects and disease, have regulated these natural succession processes and generally favored seral trees like ponderosa pine. For six of the last seven years, forests in Idaho, eastern Oregon, and Washington have been subject to drought conditions. Historically fires occurred often, that is once every 7 to 25 years in the ponderosa pine forests of southern Idaho. These fires removed small trees but the large trees survived. Most fires have been suppressed and fire no longer plays the natural role of reducing the stocking levels and favoring the seral forest species. In fact, the fires today are often of high intensity and frequently wipe out large areas of trees. This pattern was historically present, but seems to be more extensive today. Even so, the total number of acres being burned is substantially less than what it was before the turn of the century when we began fighting forest fires. The fires are killing many of the large ponderosa pine that survived the surface fires of the past. Old growth ponderosa pine is more at risk of being killed by fire than ever before. This is occurring at the same time that the natural regulators of insects and disease, such as forest birds, parasitic insects, and other critters, may be in decline.

Forest management research is needed so we can understand what some have called forest health issues and to understand them as ecosystem processes. Insects, disease, and fire are a part of these natural processes. However, these factors are out of balance and appear to be changing forest ecosystems at this time. If global climate change occurs as some have predicted, this will create even more serious problems for forest management activities and the health of forests in this region. I feel that an urgent need is to focus on sustaining productive forests and work to prevent low growth and high mortality rates that are now occurring in the Northern Rocky Mountain forests. We can do this only by addressing the condition of forest ecosystems as a whole in addition to treating the symptoms of forest decline.

The dead and dying trees on the national forests, BLM, state, and private lands represent an economic loss to Idaho. Salvage of the dead and dying trees should be considered and executed in such a way as to guarantee the future productivity and maintenance of the forest ecosystem. Future timber, wildlife, recreation, and water resource values must also be considered along with the economic loss, and the effects of salvage logging should be identified on a site by site basis in consideration of the socially determined desired future conditions with respect to these low timber values.

Scientists have studied forest ecosystem conditions for decades. Even with an extensive existing knowledge base we do not have conclusive answers. There are many different opinions and views, all supported in part by research. However, the bulk of the research has not addressed issues dealing with forest health as an ecosystem process. A first step in that

direction will be the forthcoming "Forest Health Conditions in Idaho" report by the CFWR Policy Analysis Group. We will need additional scientific information to fill in our information gaps, especially in the area of the effects of salvage logging on natural regulators (such as bird communities), on fire hazard potential, management future fire effects, on sustaining long-term forest productivity and on ecosystem processes.

I hope, we do not have to treat forest conditions in a state of decline as emergencies or wait for "forest health emergencies" to manage the forests ecosystems for sustainable productivity.

Forest health, is the condition of forests, particularly when expressed in the vernacular of not only scientifically complex but also highly emotional. We at the university can assure you that we want do our part to address these needs. Please consider that you need long-term science-based solutions to forest ecosystem productivity in addition to short term treatment of the visible symptoms of forest health problems.

Suggested Questions for Leon F. Neuschwander

1. If the drought were to end would that solve the forest health problems?
2. What about "new forestry"? Will the new forestry activities and management practices reduce forest health problems?
3. If we stop all forestry management activities and harvesting of timber will the forests continue to have the vast areas of dead and dying trees?
4. What forest management activities are needed to increase forest health and return the number of acres of dead and dying trees?
5. Can we afford to let wildfires run their course? How can the natural role of fire be restored to our forests?
6. Do you agree in principle with the findings of congress and with purposes stated in Sec. 2, H.R. 229 - the National Forest Health Act.



THE WILDERNESS SOCIETY

IDAHO OFFICE

TESTIMONY OF CRAIG GEHRKE, REGIONAL DIRECTOR OF THE IDAHO OFFICE OF THE WILDERNESS SOCIETY, BEFORE THE HOUSE AGRICULTURE SUBCOMMITTEE ON SPECIALTY CROPS AND NATURAL RESOURCES REGARDING H.R. 229, THE "NATIONAL FOREST HEALTH ACT" AUGUST 20, 1993, BOISE, IDAHO

Thank your Mr. Chairman. My name is Craig Gehrke. I'm the regional director for the Idaho Office of The Wilderness Society. The Wilderness Society is a non-profit conservation organization based in Washington, D.C. whose mission is the wise stewardship of our public lands. Nationally the Society has over 300,000 members.

The Society has been intensively involved in national forest management issues for the past decade. My comments today will reflect my experiences with national forest management here in Idaho.

The forest health issue has dominated national forest management discussions for the past several years. People are rightly concerned about the long-term health and sustainability of all the unique resources found on the national forests. Too often that concern has been addressed by the management agency, the U.S. Forest Service, on management techniques which only address tree health, not forest health.

The health of the national forests has been an emotional issue as well. You will no doubt hear from the timber industry that leaving dead trees in a forest is a "waste," and that subsequent fires roaring through dead trees will destroy our watersheds and fisheries.

Yet even sixth grade biology students understand that nothing is ever wasted in diverse ecosystems. Dead trees provide homes for numerous species while rotting logs enrich the soil.

Claiming a desire to "save" the forest watersheds from fire is equally self-serving. Past observations do not support the contention made by some that fire will irreversible destroy watersheds. The Idaho Panhandle Forest recently documented a forest-wide decline in water quality and tied that decline to logging and roadbuilding. By contrast, the roadless watersheds of the upper St. Joe River provide some of the best remaining of high quality water on the entire Panhandle Forest. These are the

same watersheds that were burned by the 1910 fire, one of the largest wild fires in history.

There is a need to step back from the current debate over forest health and reconsider the ultimate goal of any forest health recovery plan. The ultimate goal should not be to expeditiously salvage log the maximum amount of dead wood from the national forests. Instead, the forest health issue presents the U.S. Forest Service with the rare opportunity to stop talking so much about ecosystem management and finally take steps toward implementation.

The question is not forest health but ecosystem health. It's true that the forest ecosystems in Idaho are under stress. In fact, our national forests are unraveling. But only in a few circumstances can that stress be traced back to the culprits the Forest Service would like the public to believe are responsible: insects, disease, and the drought. More often Idaho's forest ecosystems are stressed by management activities implemented by the Forest Service. It is important that the Forest Service avoid repeating past mistakes of assuming it knows exactly how to restore healthy forests and rush about thinning and salvaging - in essence, applying a single management scenario over vast landscapes. Ecosystems are complex and varied. Strategies to mimic ecosystem processes will be no less complex and no less varied.

Unfortunately, H.R. 229, the "National Forest Health Act," is a step backwards from ecosystem management. It encourages hastily developed strategies which will likely emphasize a salvage logging and thinning "business as usual" approach to the forest health issue. The Wilderness Society does not support this legislation.

H.R. 229 sets up a scenario where the Forest Service can declare a "forest health emergency" to provide for rapid adoption and implementation of a forest health program. What this really does is set up an opportunity for the Forest Service to declare a type of "martial law" on the national forests where administrative appeals and parts of the National Environmental Policy Act can be suspended to expedite salvage logging.

H.R. 229 cuts corners in national forest management. This is not the time to rush about under the guise of emergency declarations and implement hastily developed management practices designed to "cut the forest back to health." Management of the national forests must be to protect biological diversity and sustain functioning ecosystems across broad landscapes.

This requires a careful, thoughtful approach to national forest management, not an approach developed under the siege mentality of some forest health emergency. The current situation of forest health developed over several decades. There will not be any easy solutions. Management actions must be developed under the existing public participation process and environmental laws to ensure that the other resources on the national forests

are not trampled underfoot by poorly designed and hasty attempts to "fix" the national forests.

The Wilderness Society specifically objects to the following provisions of H.R. 229:

- The provisions which preclude administrative appeal of the emergency declaration and the forest health program unless found to be inconsistent with the forest plans. Forest plans are broad, programmatic documents which give land managers enormous discretion to approve many types of activities. Given this, it is extremely unlikely that the emergency declaration and the health program would be found to be inconsistent with the forest plan. Therefore, there will be no real option to administratively challenge the emergency declaration and health programs.

- The provision directing the Forest Service to by-pass sections of NEPA, specifically section 102(2). This section is the heart of an objective environmental analysis, requiring among other things that adverse environmental impacts be identified, alternative actions be developed, short-term and long-term affects of the alternatives be disclosed, and irreversible and irretrievable commitments of resources be identified. Insulating forest health programs from this section of NEPA cheats the public out of an honest, fair disclosure of the environmental impacts of these programs.

This section of NEPA also requires coordination with other management agencies, such as the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, as well as the Idaho Department of Fish and Game. H.R. 229 cuts out these management agencies from formal, effective participation in forest health programs. Given the fact that many other national forest resources are affected by forest health management actions, the involvement of these other agencies is crucial to assure protection of these other resources.

H.R. 229 would exempt enormous portions of some national forest timber programs from this section of NEPA. In 1993 100% of the timber cut on the Boise Forest has been salvage material. Over half the timber cut on the Nez Perce Forest has been salvage, over 60 percent on the Idaho Panhandle, and over one-third on the Clearwater. Salvage operations of this magnitude must be done under a full NEPA analysis.

A recent Forest Service publication supported the need for adequate NEPA analyses for forest health:

"Forest pest suppression activities require supporting environmental analyses. Conducting NEPA analyses on a planned basis avoids the higher costs incurred when these analyses are done on an emergency basis and would allow for rapid responses against low-level but increasing populations of a threatening pest. Preparation of program-level or

broad-scale NEPA documents also facilitates early communications with the public. (emphasis added).

- The definition of a "forest health emergency" existing where "forest conditions . . . are outside the natural range of variability for the forest site involved." Yet for most areas there exists only a few decades worth of knowledge of what constitutes the natural range of variability. Our national forests evolved over several centuries, and it is unlikely that the current conditions are the first time in history that these forests have experienced some level of disease and insects. Trying to define what constitutes a natural range of variability with only a relatively small sample of years is dangerous for the integrity of the ecosystem.

- H.R. 229 congressionally defines what constitutes an amendment versus a revision of a forest plan. This is inappropriate. The on-the-ground effect and the extent of the emergency declaration and the health program, not Congress, should determine whether or not a plan revision or amendment is required.

- H.R. 229 declares that only an environmental assessment will be used to prepare a NEPA analysis. The scope of the action should determine whether or not an EA or EIS is prepared.

H.R. 229 states that "current programs of the federal land management agencies are not able to respond rapidly and fully enough to meet the greatly increasing forest health emergencies . . ." A rapid response is exactly the type of response which must be avoided. Such a response encourages a Chicken Little "sky is falling" approach to forest health. By declaring forest health emergencies, suspending sections of NEPA and administrative appeal rights, and ordering only abbreviated environmental assessments be prepared as opposed to environmental impact statements implies that everything can be put to right in short order. This approach perpetuates the timber industry's view that we can't let a reasoned, thoughtful scientific approach to forest health restoration get in the way of salvaging dead trees. H.R. 229 is designed to short-circuit planning and do something -- anything -- immediately. Hasty actions to address forest health are not necessary, and in the long run will be counter productive.

The attitude that forest health starts and stops with salvage logging and more logging - as put forward through a glitzy media campaign here in Idaho paid for by the timber industry - is wrong. Unfortunately, H.R. 229 would let the Forest Service and the timber industry squeeze yet some more logs from the already over-worked and over-stressed national forests.

Idaho's national forests are unraveling, but not because of insects and disease. The forests are coming apart from the cumulative effect of past management actions. These actions have done more to destroy the integrity of the forest ecosystems than any so-called forest health crisis. For example:

- Idaho's national forests already have a road system over six times the size of the state highway system. These roads fragment wildlife habitat and annually pour tons of sediment into mountain streams.

- The Idaho Fish and Game Department recently determined that the river channel of the Little North Fork of the Clearwater River, once a prized blue ribbon cutthroat trout fishery, is "completely destabilized" by erosion from logging and roadbuilding. IDFG now questions the long-term viability of cutthroat trout populations in the Little North Fork.

- Statewide, the IDFG estimates that only 11 percent of the traditional range of westslope cutthroat trout is currently occupied. The primary cause of this decline is degradation of habitat.

- Forest Service status reviews indicate that the bull trout is in moderate risk of extinction in the St. Joe River drainage. Dwindling populations have led to petitioning of the bull trout for endangered species status.

- Over 70 percent of the streams on the Clearwater National Forest fail to meet even marginal standards to protect fish populations. One stream on the Clearwater is estimated to have as much as 9700 tons of accumulated sediment per mile of channel.

- Chinook salmon populations on the Clearwater are "on the threshold of extinction" according to the Forest Service.

- The Forest Service recently announced that it would not end livestock grazing practices that harm endangered populations of chinook salmon, even though many studies have found livestock grazing erodes stream banks, raises stream temperatures and dumps sediment into spawning and rearing gravel. The Forest Service claims it doesn't have the resources it takes to properly manage its grazing programs.

- The Targhee National Forest once boasted a 45-day elk hunting season, the longest on a national forest in the lower 48 states. Because of the loss of security cover by logging and greater hunting pressure due to increased logging road construction the current season is now limited to five days in order to maintain any kind of elk population.

- The Sand Creek elk herd used to have a six-week fall migration from Yellowstone Park to its winter range south of the Centennial Mountains. Now, due to lost cover and security from timber harvesting and roadbuilding, the herd races through the same area in 48 hours or less. Monitoring of radio-collared bull elk showed that in one area none of the collared bulls survived the migration.

- Two grizzly bear recovery areas on the Targhee National Forest are now being re-evaluated to see if they can

still support grizzlies at all because of the extensive loss of habitat within the units from logging activities.

In summary, H.R. 229 is unnecessary. There is no need for federal legislation to authorize the Forest Service to restore ecosystems stressed and fragmented by man's activities or by current levels of disease and insect infestations. The agency already enjoys more than enough management discretion to undertake forest restoration activities. Rather, what is needed is for the Forest Service to take a bold step towards ecosystem management by developing forest-wide plans which recognize the complicated processes that make up forest ecosystems and attempt to mimic those processes where needed to restore the health of the overall systems.

Such plans would include forest-wide prescribed fire plans to reintroduce fire as a natural component of Idaho's forest ecosystems. Rather than do "spot treatment" prescribed burns as money becomes available, each forest should adopt a forest-wide fire plan which allows fire to resume its natural role to the extent possible in the ecosystems.

There needs to be additional funding for the Forest Service to develop management strategies that recognize and incorporate the ecological significance of insects and fire. Not considering these factors in planning attempts will result in incorrect assumptions about forest health and in the eventual use of emergency measures that are usually more expensive and do not provide long-term solutions. Again, this component of forest ecosystem management can be achieved through the existing planning and appropriation and budget process. There is no need for special legislation like H.R. 229 to make it happen. All there needs to be the will for the Forest Service to think in terms of ecosystem management, not just in terms of tree health management.

Thank you for this opportunity to testify.

LOCAL UNION NO. 2816

United Brotherhood of Carpenters and Joiners of America

INSTITUTED AUGUST 15, 1881



ALWAYS DEMAND THE LABEL



EMMETT, IDAHO (23617), August 20, 1983

STATEMENT BY LOU FORURIA
 PRESIDENT, WCIW #2816 OF THE UNITED BROTHERHOOD
 OF CARPENTERS AND JOINERS OF AMERICA, EMMETT, IDAHO
 REGARDING WILDERNESS AND FOREST HEALTH, CONCERNING TIMBER JOBS
 AND HEALTH OF IDAHO FOREST.

GOOD MORNING, CHAIRMAN ROSE, REPRESENTATIVES, LaROCCO AND PETERSON.

MY NAME IS LOU FORURIA AND I AM THE PRESIDENT OF THE UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA LOCAL UNION #2816 IN EMMETT, IDAHO. I HAVE BEEN REPRESENTING FOREST PRODUCTS WORKERS FOR SEVERAL YEARS AND HAVE SEEN OUR FUTURE THREATENED BY THE FEDERAL GOVERNMENT'S MISMANAGEMENT OF OUR PUBLIC FOREST LANDS IN IDAHO. IDAHO RESIDENTS ALSO ARE CONCERNED ABOUT TIMBER JOBS, WILDERNESS, FOREST HEALTH AND SALVAGE ISSUES.

HEALTH OF THE FOREST _____ FOREST HEALTH DEFINES THE RELATIVE CAPACITY OF A FOREST TO SUSTAIN VALUES WHILE MAINTAINING INTEGRITY AS AN ECOSYSTEM.

A HEALTHY FOREST HAS THE VITALITY TO PERPETUALLY PROVIDE THE AMENITIES OF AESTHETICS, CLEAN AIR, CLEAN WATER, WOOD PRODUCTS, WILDLIFE AND FISHERIES HABITAT.

A HEALTHY FOREST CONTINUES TO PROVIDE FOR HUMANKIND TODAY WITHOUT COMPROMISING ITS ABILITY TO DO THE SAME FOR FUTURE GENERATIONS.

TODAY, I WOULD LIKE TO FOCUS ON SALVAGE ISSUES. A MAJORITY OF IDAHOANS BELIEVE SALVAGING DEAD AND DYING TREES IS NEEDED TO ASSIST IN THE PREVENTION OF FOREST FIRES AND TO IMPROVE FOREST HEALTH. OVERALL IDAHOANS FEEL BUILDING TEMPORARY ROADS IN ROADLESS AREAS FOR SALVAGING WOULD BE ACCEPTABLE AND SUPPORT SALVAGING IN ROADLESS AREAS IF IT CAN BE DONE WITHOUT BUILDING ROADS.

CURRENTLY, IDAHO FEDERAL FORESTS, SUCH AS THE CUDDY MOUNTAIN AREA, FACE A SEA OF DEAD AND DYING TIMBER THAT NEEDS TO BE REMOVED TO PREVENT FOREST

LOCAL UNION NO. 2816

United Brotherhood of Carpenters and Joiners of America

INSTITUTED AUGUST 12, 1881



ALWAYS DEMAND THE LABEL



EMMETT, IDAHO (83617), _____, 19__

FIRES AND TO IMPROVE FOREST HEALTH.

MANY FOREST IN IDAHO ARE SO DESPERATELY DRY THERE EXISTS A REAL AND DRAMATIC THREAT OF CATASTROPHIC FIRE THAT ENDANGERS ANIMAL LIFE, FOREST ECOSYSTEMS AND SURROUNDING COMMUNITIES WHERE OUR MEMBERS AND THERE FAMILI LIVE.

OUR STATE ALSO FACES A SEVERE FOREST HEALTH CRISIS, IN THE HORIZON SUN AREA, TENS OF THOUSANDS OF FEET OF DOUGLAS FIR ARE INFECTED WITH ROOT ROT IN COEUR d, ALENE, THE FERNAL RANGER DISTRICT HAS THE WORST ROOT ROT INFECTION OF ANY FORESTED AREA IN THE COUNTRY. SALVAGE OPERATIONS CAN HELP STEM THE CRISIS,

SALVAGE SALES ARE INCREASINGLY IMPORTANT AS TIMBER SUPPLY CONTINUES TO DWINDLE IN THE PACIFIC NORTHWEST AND NORTHERN CALIFORNIA DUE TO RESTRICT TIONS PLACED ON FEDERAL TIMBER SALES TO PROTECT THE NORTHERN SPOTTED OWL. SALVAGING CAN PROVIDE SOME TIMBER FOR PRODUCTION, EASING THE TIMBER DROUGHT AND KEEPING MILLS OPEN AND PROTECTING JOBS.

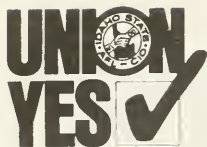
IN THE IDAHO PAYETTE AND BOISE NATIONAL FOREST, WHERE SPRUCE AND PINE TREES HAVE BEEN DEVASTATED BY SEVERAL SPECIES OF BEETLES, AN ESTIMATED 272 MILLION BOARD FEET OF TIMBER HAS BEEN KILLED. THIS IS ENOUGH TIMBER TO KEEP THREE OR FOUR SAWMILLS RUNNING FOR A FULL YEAR. REGRETFULLY, SOME SALVAGE PLANS ARE UNDER APPEAL AND NO TIMBER CAN BE RELEASED.

I BELIEVE, LIKE THE MAJORITY OF IDAHOANS, WE MUST FIND A REASONABLE BALANCE TO THE WILDERNESS ISSUE. A BALANCE THAT GUARANTEES THE HEALTH OF OUR FOREST AND THE HEALTH OF OUR ECONOMY, ENABLING IDAHO RESIDENTS TO CONTINUE TO PROVIDE A FUTURE FOR THEIR FAMILIES AND COMMUNITIES.

THANK YOU.

Lon Forina

(Attachment follows:)



IDAHO STATE AFL-CIO

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August 18, 1993

U.S. House of Representatives
 Committee on Agriculture
 Subcommittee on Specialty Crops and Natural Resources
 Room 1301, Longworth House Office Building
 Washington, D.C. 20515

Dear Chairman Rose and Members of the Subcommittee:

Thank you for requesting the comments of the Idaho State AFL-CIO regarding the overall health of National Forests in Idaho and the applicability of H.R.229, the "National Forest Health Act" to National Forests in Idaho.

In regard to the overall health of National Forests in Idaho, it runs the spectrum from excellent to poor, depending on the circumstances of the individual forests, which includes the management practices of the various Forest Supervisors. From a non-management practice standpoint, we see many areas with varying degrees of dead and dying trees due to insect and disease infestation, end of species lifecycle - in particular Lodgepole Pine as a first growth species in areas which have suffered a large fire, and fire killed timber.

The Idaho State AFL-CIO and its timber industry affiliates fully supports H.R.229, the "National Forest Health Act" and commends Congressman LaRocco for introducing it.

EXECUTIVE BOARD MEMBERS

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H.R.229 Testimony by Idaho State AFL-CIO

Page 2

We believe that while some dead wood needs to be retained, dead and dying trees should be removed for resource utilization rather than being allowed to decay and become useless and, in the case of infestation, to spread the insect or disease to healthy trees. More attention needs to be given to salvage and restoration rather than allowing the stands of dead timber to become the tinder box of forest fires, which in extreme instances will actually sterilize an area, preventing any regrowth.

We also believe that the Forest Service should begin an aggressive reforestation program, investment in which has been sadly neglected in recent years. We believe that such reforestation needs to be done within one year, with a maximum limit of two years, rather than the current five years, in order to allow the seedlings to grow before a shrub canopy develops and / or the soil structure decays, both of which can inhibit seedling growth.

In conclusion, we fully support the enactment of H.R.229 as introduced and believe that it is a step in the right direction of sound forest management for sustainable timber yields and offers the potential of reversing a decade of neglect of our National Forests.

Sincerely,



Randall Ambuehl
President

August 20, 1993

A. D. Partridge, Ph. D.

re: Congressional hearing on H. R. 229,
The National Forest Health Act., Boise, ID.

Congressman Larocco:

We read The National Forest Health Act (H. R. 229) that you propose and share your concern for our nation's forest health. We are professional foresters with demonstrated specific expertise and longstanding interests in forest health. We have published more than 60 articles about forest health, including 4 books. Our comments are based on 40 years of logging, diagnostic consulting, University-level teaching, research and observations from Maine to California including 30 years of detailed studies in the Inland Pacific Northwest. In measuring forest health, we have used PhD-level scientists and trained aides to examine more than 700 areas and destructively-sample more than 2500 randomly located trees, including at least 500 mature to overmature trees. The sampling included entire stems, crowns and root systems with concurrent inventories of all associated plants, fungi, and insects; plus soils measurements. Much of this was in cooperation with U. S. Forest Service Personnel. We do not find that forest health is in decline and our data corroborate this.

Here are some examples:

1. Our records show that during 1963 & 1964 root disease in the Inland northwest was actively killing trees at a rate of approximately 110 per 1000 trees per year of all ages and species. By 1970, this killing declined to approximately 8 per 1000 and again reached a high of almost 200 per 1000 in 1972. Then, after another period of declining loss, mortality reached approximately 90 per 1000 in 1980. By 1992 almost no new mortality was recorded (<3 per 1000). This is "biological periodicity" and occurs commonly among forest insect or disease occurrences. It is usually ignored in Forest Service estimates of loss.

2. Our records show that the killing of native western white pine by blister rust in 1963 was approximately 650 per 1000 of that species per year. Now natural selection has reduced that rate to approximately 130 per 1000 in the Inland Northwest.

3. Our records show repeated defoliation by spruce budworm in many areas now reduced to insignificant numbers. The Payette National Forest experienced several peaks beginning approximately 25 years ago, but currently the insect causes only local damage. Similarly we recorded the beginning of severe defoliation throughout northeastern Oregon beginning in 1979. This year (1993) Forest Service scientists declared this outbreak finished and we could find no evidence of significant damage.

Besides these examples, there are many other records of "outbreaks" by mistletoes, root disease, defoliators, and bark beetles during our tenure in the Northwest, but most often we see tree damage and mortality in some years only to return in following years and be unable to complete studies because of the lack of suitable symptomatic subjects. Our measurements and current

observations of these areas indicate that on most sites, problems develop, peak and subside without interference. In addition, severe cases show natural conversion to resistant species has occurred and continues to occur. Nature is far better at healing than we are.

Again, some corroborative examples:

1. During the early 1960s the U.S. Forest Service liberally applied actidione and phytoactin to white pines throughout the Northwest with assurance it would control blister rust. The result was total failure to control disease at enormous expense with no incurred accountability.

On the other hand, disease resistant white pine has appeared by natural selection on our forests. Specifically, these trees are genetically adapted by natural processes to resist not only blister rust but local root diseases and insects et al.

2. During the 1970s lindane was sprayed on lodgepole pine logs and stands to control mountain pine beetle infestations. Another failure. In fact, the oil-based insecticide did more damage to trees than did the insect. And this was followed by a series of silvicultural procedures of, at best, questionable value.

On the other hand, stands affected by mountain pine beetle, for the most part, have some residual lodgepole pine but often convert to the understory douglas fir or true firs present beneath the killed lodgepole pine. A natural seral sequence.

3. Tussock moth populations sprayed with insecticides declined at the same rates as unsprayed populations during 1970s build-ups.

4. Root disease plantations converted to "resistant species" by planting now show more current disease than those with natural reproduction and residual unaffected trees.

The list is almost endless but the point is: direct attacks on a "forest pest", an extremely costly procedure, rarely or almost never has worked to control long-term damage and probably never will. These are not ways to preserve forest health and often injure forest components other than trees.

It's important to state also that diseases and insects are normal parts of forest ecosystems and some are directly responsible for successional changes in plant composition. These and other living agents help return biomass to the ecosystem. Others offer a base for wildlife feed and nesting. Many are responsible for soil health, the basic building block for forest health. Diseases and insects are not, as often portrayed, always enemies and they are not causing "ecological collapse" and "large brushfields" as some officials have declared. The problems need to be managed, not controlled and they need to be recognized as important ecosystem components whose demise may result in forest decline. We refer to them as "the engines that drive forest succession."

Some more verifying examples:

1. When spruce budworm "outbreaks" occurred in the Northwest the first action was to spray. The spray, indeed, killed budworms, and along with the budworms many parasites including other insects and viral parasites, and it killed preying bird populations or

reduced their numbers. Thus, the system was tipped off-balance and budworm numbers built rapidly as insects can do without preying birds, large populations of parasites and predatory insects, or other natural barriers. The result was massive defoliation of a forest, that if left untouched would have rectified itself. Records show that in unsprayed areas the insect did relatively little damage throughout the same period.

2. Areas of douglas fir, grand fir and larch having "laminar root rot" was cut and "converted to ponderosa pine". The openings, created during a dry year changed the microflora by dehydration and heating of the soil and the "shoestring-rot" fungus thrived on wood residuals left on site. Then container-grown seedlings of ponderosa pine with tightly compacted roots were planted. The result was 70 % mortality of the pine within 6 years. In contrast, adjacent areas of uncut trees lost some firs but resistant white pines and some larch are coming in naturally. Conversion to ponderosa pine after removing douglas fir and grand fir is a common Forest Service recommendation at present. Also recommended is a 50-foot clearcut around each "root rot center" as a control. This, first tried on several diseases in the 1960s, is ineffective and can increase the impacted acreage by more than 80%.

This bill, as written, asks us to believe the these disease and insect occurrences all are potential emergencies that the Forest Service can avert with proper hasty action. This means a root disease center that was ignored as killing trees on the Panhandle National Forest for 30 years suddenly becomes a dire threat because the Forest Service says so. Also, this means these agencies suddenly have acquired the abilities to control forest problems that history shows they can not manage. Nothing in the record supports faith in these beliefs.

Now, as to why the agencies have not been able to manage disease or insect problems. This goes to the heart of your proposal and all forest health. They cant' manage because of a faulty information base and unsupervised, incorrect diagnostic procedures coupled with no accountability for misdiagnosis or mismeasurement. Presently, the information used to define and evaluate disease, insect or other forest problems relies heavily on "inventory" data. Information largely gathered by seasonal personnel with minimal training, often only 3 days. And it doesn't stop there. If the inventory form doesn't include a space to record a problem it never even gets noted. We found 3 important root-disease systems excluded from forms for the Panhandle National Forest. The present focus is on a few organisms in a forest ecosystem; those deemed spectacular, or dramatic, not necessarily the most common or most damaging. And when we go to the field with Forest Service technicians, silviculturists, or District Rangers most can not diagnose even the major basic problems correctly. As severely diseased trees are predisposed by poor or unstable soil, we find them declared to be primarily "root rot." When you ignore major problems by exclusion in inventory forms and training manuals and you have inept professionals, you can not assess "forest health." You will also find that the Forest Service has erected a

structure that permits everything to be done in-house, with in-house "experts" and in-house publication of information so that ideas or publications contrary to their design rarely are considered in the decision-making process. The insufficiencies are so far-reaching that full discussion at this point is impossible, but your bill to be effective and practical must provide for and require:

a. structured, rigorous pathological, entomological and ecological training and testing of all persons involved in diagnostics, recommendations, or silvicultural prescriptions. This best would be done by external agents not controlled by or allied with the federal agencies.

b. revision of all inventories to permit recording all pertinent or potentially pertinent data - not just what's obvious, spectacular or popular at the moment.

c. examinations of the diagnostic capabilities of and diagnoses by agency personnel to be done by highly qualified persons not assigned to or responsible to the federal agencies involved.

d. provision for timely, immediate appeals to the declarations based on expert evidence.

e. a shift in commitment by the agencies to quality diagnostics and quantifications that consider long time frames instead of the deliberately impressive but often erroneous quantities of numbers currently espoused.

The agencies, particularly the Forest Service, have shown an inability or unwillingness to change and will not improve without these safeguards. And, without these safeguards, your bill will cause unending challenges and litigation regarding declarations of forest health emergencies. As now written, under the guise of this bill, a few chewed needles or a pimple on a District Ranger's nose could be construed as a forest health emergency.

Over the years, after reviewing their harvesting plans to improve forest health, we find that their actions have resulted in current and probably future deterioration of the forests. We have witnessed and documented gross misdiagnosis of health problems, notably disease and insect agents. Furthermore, placing major emphasis and funds on managing poor, unproductive sites rather than superior sites is a money-wasting venture.

More important than any other omission is a lack of statement about anything but tree problems, while if indeed there is a decline in forest health it is in the health of forest soils. I'm sure the health of animals is equally important, and the health of forest economies and more. There is no protection for increasingly valuable mushroom or huckleberry crops or other valued vegetation which are equally susceptible to "forest pests?" Nor is there protection for water quality, another major and vital component of healthy forests and one often impacted by "silviculture." Much is missing from the proposed evaluation of forest health. These omissions, or superficial coverage, imply a severe lack of complete, sound data for making decisions to improve forest health.

It appears the intent is to protect only forest trees and products and to subvert potential appeals.

Additionally and very importantly the agency currently do not consider "forest stand recovery" a part of forest system dynamics. All forest systems are highly resilient and tend toward stability if left undisturbed. The current health situation is not a crisis, but is a normal ecological event. Indeed, there has been considerable mortality, but concurrently ecological reinforcement has been replacing the dying trees with genetically-superior, resistant species that historically populated the area. Even blister rust damage of white pine is being reduced by natural selection of resistant individuals without human intervention. We contend that abuses committed using this Act will disrupt this normal recovery.

What is even more disturbing to us is the likely future if emergencies are used to enter the "sick areas. Many are those with fragile ecosystems particularly soils which if manipulated by increased "silvicultural" activity will result in deterioration, not improvement, of forest health. Repeated entries, made to salvage trees in "disease centers," are known to disturb soil structure and soil microflora and stress residual trees which will only result in more timber harvesting, rather than improved health of the forest. Furthermore, contrary to popular concepts, harvesting dead trees does not usually remove pathogens or destructive insects. There are exceptions but, in general, cutting and especially species conversion by planting are not answers to pathogenesis. Predators of insect pests need these trees as refuges and breeding places. Dead trees harbor large numbers of beneficial organisms and decomposition enriches the soil and provides nutrients to the residual stand. As the Europeans have discovered, a "manicured" forest is a detriment to overall forest health.

In conclusion, we suggest that your act needs considerably more converse input from sources outside the federal agencies to assure preservation of the biological integrity and diversity of our forests which are the keys to forest health. It furthermore must include more than tree health if it is to be a true progenitor of current and future forest community and attendant forest workers' health. And it must be implemented with accurate, well-defined, scientifically sound documentation of the consequences. We further suggest a need for unbiased studies of the health of all forest components over time and relation to one another with natural recovery and resilience considered integral to forest health. We also reiterate a strong need for unbiased external reviewers from concerned industrial, Forest Service, academic and environmental sectors. Management must be based on documenting both deterioration and recovery, mapping the locations of biological agents involved in health problems, and considering progression during time in untouched and manipulated forests. Constraints proposed and others that should be added within the Forest Health Act must be strictly enforced by qualified external sources.



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