OVERSIGHT HEARINGS ON NATIONAL ENVIRONMENTAL POLICY ACT

HEARINGS

BEFORE THE

SUBCOMMITTEE ON FOREST AND FOREST HEALTH

OF THE

COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

JULY 30 AND AUGUST 4, 1998, WASHINGTON, DC

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OVERSIGHT HEARING: NATIONAL ENVIRONMENTAL POLICY ACT PARITY

THURSDAY, JULY 30, 1998

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

The Subcommittee met, pursuant to notice, at 10:11 a.m., in room 1334 Longworth House Office Building, Hon. Helen Chenoweth (chairman of the Subcommittee) presiding.

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

Mrs. CHENOWETH. [presiding] The Subcommittee on Forests and Forest Health will come to order.

The Subcommittee is meeting today to have an oversight hearing on H.R. 4345, a bill to authorize the continued use on national forests and other public lands of the alternative arrangements that were approved by the Council on Environmental Quality for a windstorm damaged National Forests and Grasslands in Texas.

Now under rule 4(g) of the Committee rules, any oral opening statements of hearings are limited to the chairman and the Ranking Minority Member. This will allow us to hear from our witnesses sooner and help members keep to their schedules. Therefore if other members have statements, they can be included in the hearing record under unanimous consent.

This hearing will focus on H.R. 4345. This bill is a result of the decision in March of this year by the Council on Environmental Quality, CEQ, to grant alternative arrangements under the National Environmental Policy Act. The CEQ reducing the fuel load, the CEQ allowed for the expedited treatment of East Texas National Forests after they had experienced a very severe windstorm and blowdown on February 10. Immediately after the windstorm, the National Forests and Grasslands in Texas, the office responsible for management of the three national forests damaged in the windstorm, consulted with the CEQ for an alternative arrangement under NEPA. 40 CFR 1506.11 provides for such alternative arrangements in emergency situations. The Forest Service believed that the time period needed for a traditional NEPA analysis would negatively affect wildlife habitat, private property, and the overall conditions of the forest itself. Now specifically, the Forest Service was fearful that failure to act expeditiously would result in severe wildfires, bark beetle infestations, and loss of subpopulation of red-cockaded woodpeckers. Katy McGinty, the chairman of the CEQ,

sent a letter to the Forest Service on March 4 granting the expedited NEPA process.

The CEQ should be commended for this decision. Ron Hufford, of the Texas Forestry Association, wrote in a letter to the Subcommittee: "the granted waiver has been a proactive initiative that has allowed the removal of down timber to an effort to reduce future insect and disease epidemics as well as reducing the fuel loading in the most severely impacted areas.

The February 10 storm was brief but devastating and left the issue of the health of the National Forests in question. The waiver has allowed the professionals to respond to this emergency in a timely manner." And I'd like to submit this letter for the record. Photos of the blowdown are in the members' folders along with the photos of other catastrophic events on other national forests.

[The information follows:]

Helen Chenoweth

105TH CONGRESS
2D SESSION

H. R. 4345

IN THE HOUSE OF REPRESENTATIVES

Mrs. CHENOWETH (for herself, Mr. BOYD, Mr. PETERSON of Pennsylvania, Mr. CANNON, Mr. MCINNIS, and Mr. ROGERS) introduced the following bill; which was referred to the Committee on _____

A BILL

To authorize the continued use on national forest and other public lands of the alternative arrangements that were approved by the Council on Environmental Quality for windstorm-damaged national forests and grasslands in Texas.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. FINDINGS.

The Congress finds the following:

(1) Natural catastrophic events in February 1998 created potentially dangerous fire and insect

1 infestation conditions in areas of national forests
2 and national grasslands in Texas.
3 (2) On March 10, 1998, the Council on Envi-
4 ronmental Quality waived certain requirements
5 under the National Environmental Policy Act of
6 1969 to expedite the removal of "dead, down, and
7 severely root-sprung trees where mortality is ex-
8 pected" in those areas, by approving alternative ar-
9 rangements for that removal in accordance with part
10 1506.11 of title 40, Code of Federal Regulations.
11 (3) The Council on Environmental Quality,
12 which is the Federal agency responsible for monitor-
13 ing implementation of the National Environmental
14 Policy Act of 1969, should be commended for ap-
15 proving those alternative arrangements, which help
16 prevent the wildfires and insect and disease infesta-
17 tions often associated with dead and dying trees.
18 (4) Numerous catastrophic forest conditions
19 similar to, equal to, or worse than the conditions for
20 which the Council on Environmental Quality ap-
21 proved the alternative arrangements exist on na-
22 tional forest and public domain lands throughout the
23 nation.
24 (5) Treatment equivalent to that provided
25 under the alternative arrangements is warranted and

needed on other national forest and public domain lands throughout the United States.

SEC. 2. WAIVER OF NEPA REQUIREMENTS FOR TREATMENT OF DEAD, DOWNED, AND SEVERELY ROOT-SPRUNG TREES.

(a) IN GENERAL.—The Secretary of Agriculture may remove dead, downed, or severely root-sprung trees in areas described in subsection (b) in accordance with the alternative arrangements approved by the Council on Environmental Quality for National Forests and Grasslands in Texas, as set forth in a letter from the Chairman of the Council on Environmental Quality to the Deputy Chief of the National Forest System dated March 10, 1998.

(b) AREAS DESCRIBED.—The areas referred to in subsection (a) are the following:

(1) Approximately 20,000 acres of blowdown forest in the Routt National Forest, Colorado.

(2) Approximately 700 acres of blowdown forest in the Rio Grande National Forest, Colorado.

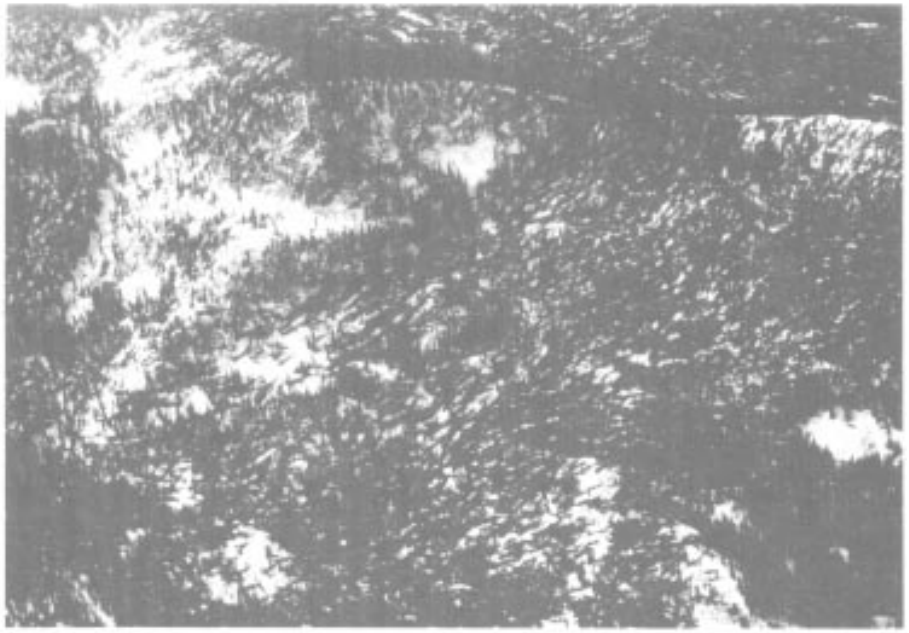
(3) Approximately 50,000 acres of bark beetle infested forest in the Dixie National Forest, Utah.

(4) Approximately 25,000 acres of insect and fuel-loading conditions on National Forest System lands in the Tahoe Basin, California.

1 (5) Approximately 28,000 acres of fire-dam-
2 aged, dead, and dying trees in the Malheur National
3 Forest, Oregon.
4 (6) Approximately 10,000 acres of gypsy moth
5 infestation in the Allegheny National Forest, Penn-
6 sylvania.
7 (7) Approximately 5,000 acres of severely ice
8 damaged forests in the White Mountain National
9 Forest, New Hampshire, and the Green Mountain
10 National Forest, Vermont.
11 (8) Approximately 10,000 acres of severe
12 Mountain pine beetle damaged forests in the Pan-
13 handle National Forest, Nezperce National Forest,
14 and Boise National Forest, Idaho.
15 (9) Approximately 10,000 acres of severely ice
16 damaged forests in the Daniel Boone National For-
17 est, Kentucky.
18 (10) Approximately 15,000 acres of fire-dam-
19 aged, dead, and dying trees in the Osceola National
20 Forest and Apalachica National Forest, Florida.
21 (c) OTHER FORESTS.—
22 (1) REQUIREMENT TO REQUEST ALTERNATIVE
23 ARRANGEMENTS.—The Secretary of Agriculture or
24 the Secretary of the Interior, respectively, shall
25 promptly request the Council on Environmental

1 Quality to approve alternative arrangements under
2 part 1506.11 of title 40, Code of Federal Regula-
3 tions, authorizing removal of dead, downed, or se-
4 verely root-sprung trees on any national forest or
5 public domain lands where premature mortality is
6 expected as a result of catastrophic forest conditions.
7 (2) CONSIDERATION OF REQUESTS.—Upon re-
8 ceipt of a request under paragraph (1), the Council
9 on Environmental Quality shall promptly consider
10 and approve or disapprove the request.
11 (3) REGULATIONS.—The Chairman of the
12 Council on Environmental Quality shall, by not later
13 than 180 days after the date of the enactment of
14 this Act, issue regulations—
15 (A) governing the approval of alternative
16 arrangements under part 1506.11 of title 40,
17 Code of Federal Regulations, pursuant to re-
18 quests under paragraph (1); and
19 (B) establishing criteria under which those
20 requests will be considered and approved or dis-
21 approved.

EAST TEXAS WIND STORM -- SABINE NATIONAL FOREST
February 10, 1998
102,000 acres



COLORADO WIND STORM -- ROUTT NATIONAL FOREST
October 25, 1997
20,000 acres

Mrs. CHENOWETH. H.R. 4345 lists a number of other national forests that have experienced catastrophic events of a similar magnitude as the East Texas blowdown, recommending that they also be granted expedited processes under the NEPA process. The bill also requires the CEQ to develop and issue regulations concerning the use of alternative arrangements on national forests. This is crucial because the CEQ currently has no consistent requirements for the use of alternative arrangements.

It is important to note that this bill does not override or change any environmental law. It merely recommends that the CEQ consider granting expedited NEPA processes to other national forests that have suffered catastrophic events and that need expedited remedial treatment. Although the CEQ has granted alternative arrangements only thirty times since 1980, many of the these were in response to situations of similar or even lower severity than the ones listed in H.R. 4345.

For example, one alternative arrangement was for the BLM and the Forest Service to implement erosion control efforts after the Eighth Street fire in the hills above Boise, Idaho. Another alternative arrangement was for the aerial spraying of pesticides in Idaho to combat migratory grasshoppers. We know and agree that these were legitimate circumstances for using expedited NEPA processes. We also know that forest conditions in specific areas across this country are in need of accelerated management in order to prevent costly and preventable environmental and economic catastrophes. In some areas, this may mean the removal of dead and dying trees.

Unfortunately, it has become politically incorrect to harvest trees on Federal lands, for any reason, even when it is scientifically the most appropriate means for protecting wildlife habitats, soils, and private property. Hopefully, we can get beyond the political aspects of this issue and have a serious dialogue on the merits of using expedited NEPA processes in critical forest areas.

Now, when the Ranking Minority Member comes in, I will recognize him for his statement.

And now, I'd like to introduce our first panel of witnesses: Ted Ferrioli, Oregon State Senator from John Day, Oregon; L. Earl Peterson, Florida State Forester, Division of Forestry from Tallahassee, Florida; Cara Nelson, Consulting Ecologist, Natural Resources Defense Council from San Francisco, California; Larry Hill, Director of Forest Policy, The Society of American Foresters from Bethesda, Maryland.

Let me remind the witnesses that under our Committee rules, they must limit their oral statements to five minutes, but that your entire record will appear in the permanent record—your entire statement. We will also allow the entire panel to testify before we begin questioning the witnesses.

I would like to recognize my colleague, Allen Boyd, from the great State of Florida, and ask if he has opening statements.

[The prepared statement of Ms. Chenoweth follows:]

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

This hearing will focus on National Environmental Policy Act Parity and H.R.4345. This bill is a result of the decision in March of this year by the Council

on Environmental Quality (CEQ) to grant "alternative arrangements" under the National Environmental Policy Act (NEPA). The CEQ allowed for the expedited treatment of East Texas National Forests after they had experienced a severe windstorm and blowdownon February 10th. Immediately after the windstorm, the National Forests and Grasslands in Texas, the office responsible for management of the three national forests damaged in the windstorm, consulted with the CEQ for an alternative arrangement under NEPA. 40 CFR 1506.11 provides for such alternative arrangements in emergency situations. The Forest Service believed that the time period needed for a traditional NEPA analysis would negatively affect wildlife habitat, private property, and the overall conditions of the forest itself. Specifically, the Forest Service was fearful that failure to act expeditiously would result in severe wildfires, bark beetle infestations, and loss of a sub-population of red-cockaded woodpeckers. Katy McGinty, the Chairman of the CEQ, sent a letter to the Forest Service on March 4th granting the expedited NEPA process.

The CEQ should be commended for this decision. Ron Hufford, of the Texas Forestry Association, wrote in a letter to the Subcommittee: "The granted waiver has been a pro-active initiative that has allowed the removal of down timber in an effort to reduce future insect and disease epidemics as well as reducing the fuel loading in the most severely impacted areas. The February 10th storm was brief but devastating and left the issue of the health of the National Forests in question. The waiver has allowed the professionals to respond to this emergency in a timely manner." I would like to submit this letter for the record. Photos of the blowdown are in the Members folders along with photos of other catastrophic events on other national forests.

H.R. 4345 lists a number of other national forests that have experienced catastrophic events of a similar magnitude as the East Texas blowdown, recommending that they also be granted expedited processes under NEPA. The bill also requires the CEQ to develop and issue regulations concerning the use of alternative arrangements on national forests. This is crucial because *the CEO currently has no consistent requirements for the use of alternative arrangements*. It is important to note that this bill does not override or change any environmental law—it merely recommends that the CEQ consider granting expedited NEPA processes to other national forests that have suffered catastrophic events and that need expedited remedial treatment. Although the CEQ has granted alternative arrangements only thirty times since 1980, many of these were in response to situations of similar or even lower severity than the ones listed in H.R. 4345. For example, one alternative arrangement was for the BLM and Forest Service to implement erosion control efforts after the Eighth Street Fire in the hills above Boise. Another alternative arrangement was for the aerial spraying of pesticides in Idaho to combat migratory grasshoppers. We know and agree that these were legitimate circumstances for using expedited NEPA processes. We also know that forest conditions in specific areas across the country are in need of accelerated management in order to prevent costly and preventable environmental and economic catastrophes. In some areas this may mean the removal of dead or dying trees. Unfortunately, it has become politically incorrect to harvest trees on Federal lands—for any reason—even when it is scientifically the most appropriate means for protecting wildlife habitat, soils, and private property. Hopefully, we can get beyond the political aspects of this issue and have a serious dialogue on the merits of using expedited NEPA processes in critical forest areas.

BRIEFING PAPER

Oversight Hearing on Fire Suppression

SUMMARY

Various forest and weather conditions have greatly increased the vulnerability of America's forests to wildfire. In recent years, the total number of wildfires, including the number of large complex fires, has increased dramatically. The costs associated with fighting these fires has risen proportionally, representing hundreds of millions of tax-payer dollars annually. These efforts also require an ever-increasing need for well orchestrated communications and cooperation among volunteer and municipal fire departments, State forestry agencies, and Federal agencies with wildfire management and suppression responsibilities. The purpose of this oversight hearing is to review these and other factors that influence the effectiveness of government efforts in wildfire preparedness and suppression.

BACKGROUND AND ANALYSIS:

Already this year, nearly two million acres have burned, many of those occurring in the well-reported fires in Florida. At a Forests and Forest Health Subcommittee

hearing last week, Earl Peterson, the State Forester of Florida, gave high marks to the coordinated fire fighting efforts in his state but did suggest that better coordination would have been helpful in the ordering and distribution of equipment. He also said that better long-range planning would help in order to more effectively station people and equipment in areas of highest risk.

The GAO recently reported that wildfire preparedness and suppression expenditures by Federal land management agencies are at all time highs—over $4 billion for the last five years. Given the recent comments by the Chief of the Forest Service that approximately 40 million acres of agency lands are at a high risk of catastrophic fire, there is little question that these high costs are going to persist—and very likely continue to increase—for the next couple of decades. As wildfires become larger, hotter, and more numerous it is not only becoming more expensive to suppress them but the logistics of organizing communications and coordination among the various state and Federal agencies is becoming exponentially more complex. The National Interagency Fire Center (NIFC) in Boise, Idaho serves as "The Pentagon" for these suppression efforts. Located at the NIFC is the National Interagency Coordination Center (NICC), whose primary mission is the cost-effective and timely coordination of national emergency response. It is through NICC that all agency requests to mobilize personnel and equipment across regions are managed.

WITNESSES

Our nation's ability to prepare for and suppress wildfires is of extreme importance, not only because these efforts represent such a huge cost to taxpayers, but because without a maximum effort, property, and most importantly, lives will be lost. The intent, then, of this oversight hearing is to discuss the effectiveness of our preparedness and suppression efforts, and to try to answer a number of questions, such as:

- What did we learn from the Florida fires? In retrospect, what could we have done better, and conversely, what worked well? What rehab efforts are underway in the aftermath of the fires?
- How do we fund the various suppression activities? Do we spend too much in some areas and not enough in others? Are we adequately monitoring costs? Are we utilizing cost control measures such as contracting out certain activities to private enterprise?
- How accurately are we predicting the location, timing and severity of wildfire occurrences? What technologies and computer modeling are being used?
- How effective is interagency cooperation—at every level?
- What agencies or organizations are responsible for staffing levels, employee training, equipment availability, public education, maintenance of facilities, fire management planning. Who, ultimately, is responsible for suppression efforts, and does this vary by land ownership?

WITNESSES

A witness list is attached

STAFF CONTACT

Doug Crandall at ext. 5-0691

STATEMENT OF HON. ALLEN BOYD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. BOYD. Thank you, Madam Chairman. I do have a statement for the record that I'll ask unanimous consent that be included in the permanent record of this——

Mrs. CHENOWETH. Without objection.

Mr. BOYD. [continuing] and I'll have a brief oral opening statement, if I might

Mrs. CHENOWETH. Yes.

Mr. BOYD. I want to thank you, Madam Chairman, and the other members of this Subcommittee for allowing me the privilege of sitting as part of this panel and to participate in this hearing. I also want to thank you, Madam Chairman, for calling this oversight hearing on "alternative arrangements" that have been granted by the CEQ for emergency situations under NEPA.

As my colleagues are aware, the State of Florida has recently experienced a series of severe wildfires that have burned over half a million acres and destroyed homes and timber with aggregate value of somewhere in excess of a quarter of a billion dollars; that's over $250 million dollars.

In the Second Congressional District, which I represent, a majority of the affected acreage is on Federal lands; primarily two national forests. District Two has the entire Apalachicola National Forest within its borders and also encompasses part of the Osceola National Forest. The wildfires burned thousands of acres of timberland within these national forests. That's the reason I am here today is to listen and learn about alternative arrangements.

I look forward to the testimony of our witnesses today and, particularly, Earl Peterson, who is a long-time friend and head of the Division of Forestry in the State of Florida.

But I also want to, Madam Chairman, at this time take this opportunity to say a public thank you to all the folks from around the Nation that sent their firefighters to Florida. I wish you could see the outpouring of gratitude in the State of Florida for the folks that came from all over to help us save our timberlands and our homes. And as you know, as a result of the efforts of those people from all over the Nation, we survived this disaster without any loss of life, and we're very grateful for that.

Thank you, Madam Chairman.

[The statement of Mr. Boyd follows:]

STATEMENT OF HON. ALLEN BOYD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Madam Chairman, first of all, I want to thank you and the other members of this Subcommittee for allowing me the privilege of sitting as part of this panel and to participate in this hearing. I would also like to thank you for calling this oversight hearing on a very important, and it would appear, under used tool that the Council on Environmental Quality (CEQ) has in its tool box to use under the National Environmental Policy Act (NEPA).

As my colleagues are aware, the state of Florida has recently experienced a series of devastating wildfires that burned approximately 500,000 acres, having an aggregate value of more than $276,000,000. A large majority of the land affected in the state is located on private and state lands. However, in the Second Congressional District, which I represent, a majority of the affected acreage is on Federal lands.

The Second Congressional District is located in the panhandle of the state, running from Panama City in the west to the middle of the Osceola National Forest in the east. It has the entire Apalachicola National Forest within its borders and also encompasses part of the Osceola National Forest. The wildfires have burned approximately 20,000 acres in the Osceola National Forest. Between 4,000 to 5,000 acres are classified as Wilderness Areas and most of this wood is either hardwood or cypress. Of the 15,000 acres not classified as Wilderness, over 10,000 acres are pine plantations. In the Apalachicola National Forest, a large majority of the 20,000 plus acres that were adversely affected lie within a Wilderness Area.

As you can imagine, time is of the utmost importance when we are trying to salvage this timber. In my experience as a steward of our land, in the warm and humid climate of Florida, sawtimber must be removed within a 45 to 60 day period after being destroyed by fire. Otherwise, it loses all its economic value and can only be left to rot and fall to the ground. Pulpwood will last for a longer period of time; however, the pulpwood market is currently depressed due to a glut in the pulp market, and the Asian financial situation. That is why I am here today to listen and learn about the "alternative arrangements" that have been granted by the CEQ for emergency situations under NEPA.

I look forward to the testimony of our witnesses today, especially Earl Peterson, our State Forester from Florida. Working together, I believe we can take another positive step in our stewardship of our federally owned natural resources.

Mrs. CHENOWETH. It was a very startling disaster and I am also very grateful that there was no loss of life, but it is quite remarkable to be able to see the kind of response to national disasters that we saw in this case and have seen in the past. And I share that feeling of gratitude with you. We were even busy in Boise deploying equipment, and planes, and men to the fires. And——

Mr. BOYD. Men and women also.

Mrs. CHENOWETH. Women, that's right. Absolutely, and they're tough. So it's a joy—not joyous circumstances at all that we come together, but it's a pleasure to have you join us today.

As this the normal process here, we ask that all of our witnesses be placed under the oath. It's a normal process in this Subcommittee and I believe all of you have received a notice from the Committee that that is our process. And so, if you wouldn't mind standing and raising your hand to the square.

[Witnesses sworn.]

The Chair recognizes Senator Ferrioli.

STATEMENT OF TED FERRIOLI, STATE SENATOR, STATE OF OREGON, JOHN DAY, OREGON

Mr. FERRIOLI. Thank you, Madam Chairman. I appreciate the opportunity to be here today to testify in support of H.R. 4345.

My name is Ted Ferrioli. I reside at 111 Skyline Drive, John Day, Oregon. I'm the Executive Director of Malheur Timber Operators in John Day, and I am the State Senator from Senate District 28.

Madam Chairman, Senate District 28 begins in the outskirts of Portland and the Gresham area, and it goes across all of parts of 11 counties in Oregon all the way to the Idaho borders. So, we are neighbors in a sense. The population there is 100,000 people in my district. It's 17,500 square miles. So the population density in my district is .17 persons per square mile. So, I'm very glad to see this rather large crowd of people here today.

I'm here today to testify about the rather dysfunctional response by the Forest Service under the current National Environment Policy Act to a catastrophic event that occurred in our district referenced the Summit Fire, which occurred on the Long Creek Ranger District on the Malheur National Forest.

The Summit fire was caused by lighting. It started August 13, 1996 and it burned for 24 days across 37,961 acres of forestland. It killed or damaged approximately 300 million board feet across those 38,000 acres. Very shortly after the fire was put out, the Summit Fire Recovery Project became the top priority of the Malheur National Forest under direction of Forest Supervisor Carl Pence. Mr. Pence made that the top priority pulling in staff from the other ranger districts on the Malheur National Forest and endeavored to conduct a rather extraordinary outreach process to bring in people to view the fire, to communicate with interested parties and the stakeholders. As a matter of fact, tours were conducted for Members of Congress, Oregon Governor John Kitzhaber's Citizen Eastside Forest Health Advisory Task Force, environmental organizations, Forest Products industry representatives, and representatives of the National Marine Fisheries Service, and the U.S. Fish and Wildlife staff.

Throughout the period of planning, this forest-planning staff received continuous assurances from the regional office that the Recovery Project was on track for a speedy recovery. On August 27, almost a year later, Forest Supervisor Pence signed a Record of Decision that created a Recovery Project treating approximately 9,500 acres—about a third of the fire area which would have produced a 100 million board feet of salvage.

Of course the Record of Decision was immediately appealed by the environmental community in what we refer to as a "cookbook" type of appeal.

Despite the unprecedented communication between the Malheur National Forest Planning Staff and the Regional Forest Planning Staff, Regional Forester Bob Williams informed Carl Pence that Williams could not support the Record of Decision, and gave Mr. Pence two choices: either he would remand the project back to the forest; or Mr.Pence could voluntarily withdraw the plan. Since voluntary withdrawal gave more options for remediation, Mr. Pence chose the latter option.

In fact, during the next 6 months, the Malheur National Forest Planning Staff completely rewrote the DEIS, the Environmental Impact Statement, making major revisions, including a development of a water resources management plan which is not required by rule or by statute. And then formal consultation with the U.S. Fish and Wildlife Service for a Bull Trout and informal consultation with the National Marine Fisheries Service for Steelhead. Although at that point in time, neither of those species were a listed species.

On July 12, 1998, more than 23 months after the fire, a new Record of Decision was issued calling for the salvage and rehabilitation of approximately 6,600 of the 38,000 acres burned with an output of approximately a 50 million board feet.

During the intervening months, of course, the insects, and bluestain fungus, and checking severely reduced the value of the salvageable timber. In fact, if the salvage project had been conducted in August of 1997, it would have produced about $6.9 million in revenue for the Federal Treasury, 25 percent of which would have gone to schools—local schools, and for the roads funds in the counties. Today, if the project was operated, or will be operated, it will be worth approximately one-sixth of that value or about $1.1 million. So we saw a 600 percent reduction in the value of that project over a 23-month period.

Madam Chairman, the cost of suppression for the Summit Fire was $25,400,000, the moral equivalency of a war. The cost for the original Draft Environmental Impact Survey was $1.2 million. The Supplemental Draft Environmental Impact Statement that was ordered costs about $356,000. The project will put out $1.1 million worth of salvageable materials. The math simply doesn't work out.

Madam Chairman and members of the Committee, while the NEPA process may be well adapted to long-term projects or proposed management actions that are not time-sensitive, it's very clear to us that the NEPA process is especially inappropriate for time-sensitive projects like fire-recovery projects where rapid deterioration and the loss of value is a predictable outcome of delay.

There are three suggestions that I would like the Committee to consider. One is that if alternative arrangements are to be used in this type of arrangement or this type of emergency as they were for the blowdown in Texas, that those alternate arrangements be clearly modelled and clearly delineated so that there is a easily accessible mechanism for their approval.

The second, if we are to make the NEPA process work, we need to also provide an expedited appeal and litigation process to resolve conflicts in a timely manner. If we had shorter statutory appeals processes, and a shorter judicial appeal process, we could not only have heightened access for citizen appeals and litigation, but we would also have timely resolution. And that's a critical factor.

The other thing is, Madam Chairman, we should modify the NEPA process to add the full consideration of the economic values affected by Federal decisionmaking. At present, NEPA requires the full disclosure of the environmental values and considerations, but does not disclose the economic impacts to local communities, and the economic values and considerations in Federal decisionmaking. And to be effective, we believe that NEPA needs to fully disclose the economic impact on local communities.

Our experience has shown that catastrophic events require a planning response that preserves the net asset value of the resources, not only to sustain our communities that depend on natural resource outputs, but simply to capture the maximum value to pay for the cost of planning, and to pay for the cost of rehabilitation of resources damaged by wind, insects, disease, and wildfire.

Thank you, Madam Chairman.

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

Mrs. CHENOWETH. Thank you very much, Mr. Ferrioli, and the Chair will yield to Mr. Boyd to introduce Mr. Peterson.

Mr. BOYD. Thank you very much, Madam Chairman.

I didn't know I was going to get this opportunity, but I'm very pleased. I don't have a bio of Mr. Peterson in front of me. I can tell you from personal experience that's he's been a public servant in Florida for all his professional career and I—what 30 years, Earl

Mr. L. EARL PETERSON. Forty years.

Mr. BOYD. Forty years. Oh, my goodness, and within the last six or 8 years been named head of the Division of Forestry which is under the Department of Agriculture in the State of Florida. I've had the chance to, before I was in public life, work with Earl Peterson on many occasions in their job working with timber and landowners, and they do a great job under his leadership. And I'm very pleased to welcome Earl Peterson.

STATEMENT OF L. EARL PETERSON, FLORIDA STATE FORESTER, DIVISION OF FORESTRY OF TALLAHASSEE, FLORIDA

Mr. L. EARL PETERSON. Thank you, Congressman Boyd, members of the Committee.

It's a pleasure to be here today and I particularly want to say also how appreciative we are for the assistance that came from throughout the country in our recent siege of wildfires. The Federal agencies, the U.S. Forest Service, the sister-state agencies throughout the country, were more than generous in their resources. With-

out them, it certainly would have not been possible to come through this with the success story that we had, and with the safety record that we're so proud of.

I'm also pleased to be here to talk a few moments about how the Florida Division of Forestry manages its timber resources and in particular how we deal with emergency salvage operations when struck by natural disaster.

The Florida Division of Forestry is one of the largest land management agencies in the State of Florida. We have been managing state forest lands for over 60 years and presently co-manage about a million acres while at the same time we are the lead manager on about 740,000 acres.

We have 36 state forests, approximately 55 percent of which is suitable for pine silviculture, timber production, if you would. An active forest management program occurs on this pine acreage and includes prescribed burning, reforestation, and timber sales. Trees have grown to an old age on state forests for a number of reasons, two of which are to provide a natural ecosystem that is rapidly disappearing from the State and also to provide a special experience for the public sector who visit state forests in order to enjoy a large number of resource-based outdoor recreation activities. Our state forests represent an investment by the citizens of Florida, and that investment should produce both a natural resource heritage for the future and an economic return.

The practice of sustainability is a cornerstone in the management of our timber resource. By using current forest inventory data, we insure that state forests are not overcut and that the growth will continue to exceed yield on an annual basis. Trees are harvested through a number of silvicultural techniques, including improvement thinnings, restoration harvests, and the latter being the removal of offsite species that the naturally occurring species can be restored to a particular site.

In a well-managed state forest, foresters from the division strive to keep the trees in a healthy condition using such management tools as prescribed burning and improvement thinnings, which I have previously mentioned. However, due to natural processes beyond our control, unexpected and undesirable tree mortality sometimes occurs in any natural forest system. Examples are lightning——killed trees, mortality from wildfires, insect and disease outbreaks, and windstorm damage.

Because this is a natural process, if the level of tree mortality is considered light, then sometimes no action is taken. The resulting dead snags provide homes for wildlife and help create biological diversity in the forest system. However, when tree mortality reaches levels where there is significant economic loss or there is the potential for insect and disease spread, then we salvage or do sanitation harvests and initiate a process to recoup the monetary losses and reduce the based on the threat to spread to disease or insects.

Although prompt action is often taken to salvage timber that has been damaged or killed at moderate levels or in limited areas, there is no question that the Division of Forestry will take appropriate action when major tree mortality events take place. This statement is clearly exemplified by October 1995 Hurricane An-

drew which made a direct hit on Blackwater State Forest, which is Florida's largest state forest with 189,000 acres. Within six months, we had salvaged 95 percent of the damaged timber, which was approximately 50 million board feet of sawtimber.

In the spring and summer of 1997, Florida experienced the worst outbreak of southern pine beetle in our history. This infestation was centered in Marion and Levy County area of Central Florida. Loblolly pine was the major species being killed, but it also moved into slash pine and longleaf pine. The insect was indiscriminate in attacking trees across all ownerships. The Division of Forestry took a lead role in taking actions to control the insect outbreak plus the salvage that followed and worked with other agencies as if we carried this out. And at the same time, we did them on our state forests in two locations.

Finally, the State of Florida had just gone through one of the most serious outbreak of wildfires in our history. Approximately 500,000 acres burned between June 1 and late July. Of this, there was a total of about 260,000 acres of commercial-pine timberland. A conservative estimate is that 2,600,000 cords of damaged or fire-killed timber will require salvage in the next few months. Besides being directly involved in the total salvage effort, the Division has approximately 14,000 acres on state forests; Tiger Bay State Forest; and Lake George State Forest in Volusia County. Once the wildfires were controlled, we immediately moved toward damaged appraisal and initiating salvage sales on these state forests. In 2 weeks, we sold four salvage sales and have plans to sell four more during the third week.

The time is of essence in selling salvage timber, especially sawtimber. In Florida's warm climate, dead sawtimber must be utilized within a few months or it will deteriorate where it will be worthless except for pulpwood. Pulpwood will only last a few months longer. Because of this short timeframe, we expedite the bid process and only give potential bidders a week or less to submit their bids for sale. Emergency salvage sales of this nature are almost always sold on a per unit basis, which means we sell it by the ton. A performance bond of $5,000 or more is usually required to insure sale compliance.

A few key points for salvage operations conducted by the Division of Forestry are that they are done in a rapid fashion to insure maximum economic return, eliminate waste and to prevent the spread of pathogens or insects that might kill additional timber. All potential bidders are given a chance to bid on every sale so that no one could be accused of unfair sale practices, and ongoing sales are administered closely working with the loggers comply with division personnel.

The Division of Forestry is fortunate to have the latitude to make these decisions about procedures and conditions for silvicultural applications, such as reforestation and timber harvesting.

Thank you.

[The prepared statement of L. Earl Peterson may be found at end of hearing.]

Mr. PETERSON OF PENNSYLVANIA. [presiding] The Chair thanks the gentleman from Florida. With the name Peterson, you've got to be OK.

[Laughter.]

Mr. L. EARL PETERSON. Thank you.

Mr. PETERSON OF PENNSYLVANIA. I'm Congressman Peterson from Pennsylvania temporarily filling in for the Chair. The chairman had to leave for a few moments.

At this time, I recognize Cara Nelson, Consulting Ecologist, Natural Resources Defense Council for her testimony. Welcome, and good morning.

STATEMENT OF CARA NELSON, CONSULTING ECOLOGIST, NATURAL RESOURCES DEFENSE COUNCIL

Ms. NELSON. Thank you. Thanks for the opportunity to participate in this hearing. I'll be testifying against H.R. 4345.

I work both as a research forester and as a consulting ecologist for Natural Resources Defense Council. Natural Resources Defense Council is a national non-profit environmental organization dedicated, among other things, to the protection of forest resources. My work for NRDC is largely focused on issues related to fire and fuels management in the forests of the Interior Columbia Basin in eastern Washington and Oregon.

This morning, I'd like to share my views on what I believe to be one of the most critical issues facing forest managers today; how, when, and where to experiment with forest restoration activities and the related topic of requirements for environmental review of these projects.

As strategies are developed and implemented for protecting the fire and insect resiliency of Federal forests, it is critical that adequate attention is devoted to environmental review and that opportunities for restoration are not subverted by lack of careful planning or information, or overemphasis on short-term economic goals.

I'd like to stress three primary reasons why comprehensive environmental review is needed for all treatments that justify commercial harvests of dead, dying, and overstocked trees as forest health measures.

First, there is a lack of scientific consensus about the efficacy of thinning, salvage, and fuels treatment for improving fire resiliency or ecosystem integrity. Surprisingly, little empirical research has been conducted on the impacts of these treatments on fire behavior. In spite of hypothesized benefits, the handful of studies that address these issues, as well as anecdotal accounts and analysis of recent fires, suggest that removal of dead, dying, and overstocked trees may not reliably reduce fire intensity or severity. In fact in the Pacific northwest, three recent studies of the relationship between thinning, fuels treatment, and fire behavior all found that treatment actually exacerbated fire conditions. In all cases, unmanaged stands had the least severe fire effects.

The second reason that thorough environmental review of management actions is so important is that the type of harvest practices employed, as well as the manner in which they are executed, influence environmental conditions and fire and insect hazard. Thinning, salvage, and fuel treatment are all sufficiently vague terms that treatments can vary widely in both the techniques used and the residual stand conditions.

For example, in Van Wagtendonk's model-base study of six different approaches to fuel reduction in the Sierras, and this study was part of the "snap" process, only one was predicted to reduce the number of acres burned or fire intensity below that of untreated stands. Findings such as these provide evidence that a careless or thoughtless approach to restoration treatments is likely to result in more harm than good.

Third, in addition to the speculative nature of claimed ecological benefits from removal of dead, dying, and overstocked trees, there is ample evidence that persistent adverse impacts can and do result from salvage and thinning. These impacts include: the loss of snags; down logs and closed canopy habitat conditions that are required by many wildlife species; damage to soil integrity; creation of sediment which may eventually end up in our streams; increased mortality of residual trees due to pathogens and mechanical damage; and then most importantly, increase near-term fire hazard due, primarily, to logging slash.

These downsides to salvage and thinning need careful, conscientious evaluation and must be squarely presented to the public, sister agencies, Congress, and ultimately, decisionmakers if a responsible judgment is to be made about where, how, and at what level experiment with logging base approaches to reducing fire and insect hazard. Failure to analyze and disclose the environmental risks associated with these treatments may result in continued ecosystem degradation and may prevent the adoption of ecologically sound approaches to management.

In conclusion, sound scientific support does not exist for broad or generalized inferences that emergency logging operations will ameliorate fire or insect risks in our Nation's forest.

I hope that my testimony will help dis-sway the Subcommittee from proceeding with legislation that would abrogate the existing NEPA process in the name of forest health emergencies. Thank you again for the opportunity to appear and present this testimony.

[The prepared statement of Cara Nelson may be found at end of hearing.]

Mrs. CHENOWETH. [presiding] The Chair now recognizes Mr. Lawrence Hill, Director of Forest Policy of the Society of American Foresters.

Welcome, Mr. Hill.

STATEMENT OF LAWRENCE HILL, DIRECTOR OF FOREST POLICY, SOCIETY OF AMERICAN FORESTERS, BETHESDA, MARYLAND

Mr. HILL. Thank you, Madam Chairman, and Committee. I really appreciate the opportunity to be here today to testify on this piece of legislation.

As director of Forest Policies for the Society, I represent our 18,000 members who constitute the scientific and educational association representing the profession of forestry in the United States. Our primary objective is to advance the science, technology, education, and practice of professional forestry for the benefit of society. That's a small "s." We are ethically bound to advocate and practice professional forestry consistent with ecologically sound principles. I am especially pleased to submit comments on H.R.

4345 and wish to thank the Committee for its continued support of professional forestry and especially its continued support of some of SAF's priorities.

H.R. 4345 highlights a key provision of the National Environmental Policy Act and we support that provision. The regulations issued by the Council on Environmental Quality in 1978 provide for alternative arrangements to normal NEPA procedure in an emergency situation. The CEQ regulations state: "where emergency circumstances make it necessary to take an action with significant environmental impact without observing the provisions of these regulations, the Federal agency taking the action should consult with the Council about alternative arrangements. Agencies and the Council will limit such arrangements to actions necessary to control the immediate impacts of the emergency. Other actions remain subject to NEPA review.

In addition to this direction, we understand that individual Forest Service and BLM units are required to consult with their respective Washington offices about emergencies that may result in a request for an alternative arrangement from CEQ. Additionally, Federal agencies seeking alternative arrangements should provide CEQ with a complete description of the needs for such an arrangement at the time of the request.

These provisions are worthwhile and allow for a rapid, yet cautious, response to situations that clearly should be treated as emergencies. The environmental laws of the Nation are some of the most comprehensive in the world, yet at times they can slow actions intended to mitigate harm to the environment. The wisdom of the authors of these laws, and particularly NEPA, and regulations is clearly shown in the emergency provisions. At times, the environment is better with action than with inaction.

What appears to be absent from the alternative arrangement procedures granted by CEQ is some sense of direction and criteria for how and when these procedures should be granted—excuse me—and when these procedures should be applied. The best person to determine whether the situation warrants alternative arrangements from CEQ is the on-the-ground manager. The people intimately involved in the day-to-day management of a forest know what the situation is, and how quickly it needs correction. The additional guidance CEQ is required to develop under this bill should provide land managers in all the Federal land-management agencies with a better understanding of when and how they should request these expedited procedures. Therefore, SAF supports the provisions of the bill. This guidance would also ensure that directions are made consistently over time, and that all parties interested in the decisions have a clear understanding of how and why they were made.

We cannot comment on the specific locations of the National Forests for which this bill requests that CEQ and the Forest Service develop alternative arrangements under NEPA. However, we are encouraged that the bill merely requests, and does not require, the Forest Service to develop alternative arrangements for these areas. Although SAF has heard from some of its members that there are many locations in the national forest and public domain lands that are in need of emergency treatment, and we believe the decision to

seek alternative arrangements from CEQ should rest with the agencies and the on-the-ground managers on a case-by-case basis.

Thanks again for this opportunity to testify and I, as the others, would be pleased to answer questions.

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

Mrs. CHENOWETH. Thank you very much, Mr. Hill, and we look forward to your answers to some of our questions. I do want to let you know, Mr. Peterson, had to step out, momentarily, but will be back very shortly.

Chairman is going to step out of order and with unanimous consent I'm going to issue a statement. Because this issue is so very important to the northwest, to those of who live there, and work there, and actually see on the ground the devastating affects of the lack of decisionmaking ability for one reason or another.

And I'd like to address my comments to Ms. Nelson. In your testimony, you criticized reports of successful fire-hazard reduction as being almost entirely anecdotal. You then cited as an example the thin stand in Tiger Creek in the Boise National Forest, which survived the 1992 Foothills fire. I can tell you that the Subcommittee visited that site last year and the Boise Forest explained to us why that particular stand survived.

Let me explain that to you. It was only because the thinning had removed enough material between the larger pine trees to eliminate the fire ladder that had previously existed, and when the fire reached that stand, it dropped to the ground, burning the ground fuels but not reaching the crowns of the trees. The evidence was very compelling and, as expected, only in this area was the fire similar to historical fire behavior for the Boise National Forest.

You then said thinning was not effective at reducing fire intensity and severity on Rabbit Creek fire also in the Boise National Forest where some 200,000 acres burned in 1994. I must point out that it sounds like your observation is anecdotal.

As you didn't cite any scientific reports or other explanations for your conclusions, however, assuming your description of this fire is correct, which it is not, I must point out that many other factors influence how fire burns including the intensity of the vegetation, and so on. In fact, I am told by forestry experts that thinning tree densities are substantially the reason why forest fire don't crown.

I would appreciate if you could provide me with additional information on the Rabbit Creek fire from your perspective, scientific, actual information such as the type of thinning that was done, the fire weather, and other factors that influenced the fire behavior in that particular fire.

Thank you very much.

The Chair recognizes Mr. Boyd for questions.

Mr. BOYD. Thank you, Madam Chairman.

Maybe I should open up with a question of Mr. Peterson about some of the practices that you use—the State of Florida uses and you're authorized by the State through its legislature to use. And I noticed in your testimony that you said sawtimber must be utilized within a few months. Can you be more specific on that timeframe, and also is that different in Florida, and why?

Mr. L. EARL PETERSON. Yes, sir.

Florida's climate makes it very conducive to an early beget of blue stain. Sawtimber depends on the time of year, but within 30 to 45 days, you need to move that out or it will become less valuable and have to revert to pulpwood because of the inset of blue stain and other deteriorations. That time would be greater in the winter, of course, when weather is not so warm and humid.

Mr. BOYD. So, this is the time of the year that it would be most critical?

Mr. L. EARL PETERSON. Absolutely. Yes.

Mr. BOYD. There's another problem we have in the south they don't have in other places and that is the southern pine beetle. What happens in terms of outbreaks of southern pine beetle after fire damage?

Mr. L. EARL PETERSON. Well, the stress occasioned by the fire on trees often make them very susceptible to the infestation of the southern pine beetle and, of course, when that occurs as we have learned from experience, it spreads and it's imperative that you get in and remove the damage of the infested trees, along with a buffer, all around them to limit the spread and further destruction of the forest.

Mr. BOYD. OK, let it be noted in the record that we did have a severe outbreak of southern pine beetle in the Osceola National Forest within the last couple years.

Madam Chairman, I've spent all of my professional life in agriculture and part of that has been the—I'm a timber owner. I'm a land owner that has plant some virgin pines on it and also planted pine plantations. And I've spent all of my professional life managing that for, basically, three things: one is aesthetic value; two is wildlife habitat; and three is also economic production. They are not in conflict with each other. I can tell you. And so, I think the things that I've read, and I want to turn to Ms. Nelson now, if I might. I didn't get through all of your testimony because I didn't get a copy of it until I received it when I got here, but I read part of it.

Ms. NELSON. OK.

Mr. BOYD. And I must tell you that I'm somewhat shocked because it goes against everything that—the years that I've spent in the business, it goes against what we know to be true and what works. And I want to read to you. Well, first of all, let me ask you this question and then I'm going to read part from your testimony. I guess I understand from your testimony that you feel like there should be one, no thinning in any national forest land.

Ms. NELSON. No, that's not true.

Mr. BOYD. OK, that's not true.

OK, second, you feel there should be no fuel treatments.

Ms. NELSON. No, that's not true either.

Mr. BOYD. That's not true. OK.

Ms. NELSON. I feel that we must be very careful in implementing both thinning and fuels treatments, and I've cited in my testimony—there is a long list of citations of studies that have been done that show that the way in which fuels treatment is conducted makes a large difference in the resultant insect and fire hazard in the residual stand.

Mr. BOYD. Well, I guess I didn't get to the part where you said that thinning or fuel treatment might be OK. I mean, I just read the part where you were making the case that it increased fire risks. So, then would it also be safe to say that you would be against any salvage operations in damage—whether that be fire damage?

Ms. NELSON. Same answer to all three of those questions is that——

Mr. BOYD. OK.

Ms. NELSON. [continuing] with all of these treatments, they need to be designed for specific reasons on specific sites and carefully conducted. And that's why environmental review is so important.

Mr. BOYD. But I gathered from your testimony that the length of the environmental review would be so long that in the case of Florida here, where we have, there would be no value to the salvage operation

Ms. NELSON. If the sales are being conducted for forest health reasons or environmental reasons, then if that's the case, then I don't see any emergency reason to proceed. Now, if the primary objective of the sale is economics, then I think that should be clearly stated and that there may be a need to, on a 6-month time period, you know, recover economic value. However, with the case in Texas, from my understanding and again—you know, I'm not familiar with the forests down there, but from the record, the record states that the purpose of the sales was to protect the surrounding resources and—you know, the ecological integrity of the stand. And there's no reason to expedite the removal of trees for that purpose.

Mr. BOYD. Madam Chairman, I notice my red light comes on, but I would ask unanimous consent to have additional time since we don't seem to have a large crowd here on the Committee.

Mrs. CHENOWETH. Please proceed Mr. Boyd.

Mr. BOYD. Thank you, Madam Chairman.

Well, for the record, let me tell you that the 15,000 acres that burned in the Osceola National Forest here in the last sixty days that was outside of the wilderness area—there's about 5,000 in the wilderness area, 15,000 outside the wilderness area, primarily was pine plantations. I spent several hours with Marcia Carney, who is the State Forester for U.S. Forest Service, last weekend touring those sites and talking with her about what her vision was for what should be done. And she and I agreed that those pine plantations would best be salvaged and replanted in longleaf pine. By the way, those are slash pines. Those are pine plantations which, obviously we—when I say plantations, I mean man planted them. But if you don't do a salvage operation pretty quickly, those logs will fall over a period of time and make reforestation, rehabilitation almost impossible. So, I want that to be shown as part of the record, that if you don't get in there in some reasonable period of time and do the salvage operation, then reforestation and rehabilitation becomes very difficult.

Now, I want to turn to the other members and I know you probably have not had a chance to read Ms. Nelson's statement, and I want to ask you to consider this statement. And I read from Ms. Nelson's statement on page two, third paragraph: "results from a study of the effectiveness of fuels treatment on previously non-har-

vested lands in the Bear-Potato Analysis Area of the Wenatchee National Forest, Washington provides evidence that harvest treatments may increase risk of fire damage. In this study, the Forest Service evaluated the effects of past fuel treatments on fire severity. Before wildfire in 1994, approximately 2,021 acres of the fire that had not been previously logged were treated for fuels with mechanical removal and/or prescribed burning." And then she goes on to describe using percentages that says those areas that had fuel treatments prior to the fire had greater damage than those that did not have fuel treatments prior to the fire.

Mr. Hill, let me ask you. What would be your reaction to that statement?

Mr. HILL. Well, I'd have to wonder what some of the fire conditions were at the time the experiment was conducted: you know, wind temperature; was the fuel spread; was it piled for burning; or just exactly what happened—I'm really not familiar with that particular study.

Mr. BOYD. But you certainly couldn't make a statement carte blanche—a general statement across the board that land that had fuel treatments on it was more likely to be—have a higher mortality in case of fire, could you

Mr. HILL. That's correct.

Mr. BOYD. OK. Thank you very much, Madam Chairman.

Mrs. CHENOWETH. Thank you, Mr. Boyd.

I have some questions for Mr. Ferrioli.

In your discussion and in your testimony, you discussed how appeals and litigation can be used to slow or stop Forest Service discussions, but often it seems that just a threat of a lawsuit seems to stop everything.

Mr. FERRIOLI. Oh, thank you, Madam Chairman.

It has been our experience that the Forest Service is extremely risk adverse, and it seems that even the mention of an appeal can send our planners into a paroxysm of self-analysis, and it seems to make the process very protracted. In the case of the Summit Fire Recovery Project, there were numerous instances where members of the environmental community said in response to proposals in scoping "If you do that, we'll sue you." And I believe that made the agency very, very careful to the point of even dereliction of their duty to be timely.

We heard today that there's a great concern that a revision of the NEPA process might make planning thoughtless or careless. Planning does not need to be thoughtless or careless to be timely, and that's the biggest problem. When the agency is so averse to appeals or lawsuits that they fail to carry out their duties which are serving the people and protecting the land by moving forward on these projects, the communities definitely suffer.

In the case of the Summit Fire Recovery Project, what should have probably taken 6 months, took 24 months. We still have not seen the end of it. The appeal that was filed is one that we've seen templated and used in dozens of other appeals. The response from the agency is as if they've never seen this kind of an approach before. They treat every appeal the same. Anybody that's willing to invest in a word processing program and a $.32 stamp can virtually bring a planning process to a halt.

And in the case of the deterioration that Mr. Boyd mention, I can assure him that although his concern with southern pine beetles, we must have Yankee pine beetles in the Oregon area——

[Laughter.]

[continuing] because our pine beetles attack with the same kind of ferocity. We have the same blue stain, and checking, and deterioration—very rapid deterioration of our pine stocks.

I'll just show for illustration purposes, this is a blue-stained log. It's about 33 inches in diameter. After 24 months, you can see that the blue stain almost approaches the center of the heartwood. This log would have been relatively valuable if harvested within 6 months of the fire. Today, it has deteriorated to the point where it is just about pulpwood.

[Photograph.]

The same thing with this particular piece. This round is about 33 inches in diameter. You can see that the round is almost split all the way to the heartwood. Blue stain goes right to the heartwood, and there is ample evidence of pine bore beetle damage to this wood.

[Photograph.]

I do believe that there's a coefficient between environmental concerns and economic concerns, and it seems that there's a desire on the part of some folks in the environmental community to completely disconnect environmental considerations from economic considerations. But one of the things that we need to focus on is the kind of damage that we see as a result of these fires.

This is a devastated, class-one stream in the Summit Fire Recovery area. It is habitat to bull trout, and it's habitat to steelhead. This is approximately 24 months after the fire. You can see that we still have exposed mineral soils. You can see that the treatments that should have been done in this area which would have been reducing the standing wood to lower the risk of reburn have not been done; that we have not had reforestation; and that the native vegetation has not returned to this area. This is after 24 months.

So I would submit to you that the failure to take appropriate and timely action can contribute to a long-lasting environmental degradation that does effect and impact species like steelhead, bull trout and other anadromous species. This is just one of the riparian areas that were devastated by that fire.

Mrs. CHENOWETH. Senator Ferrioli, it seems down at the Forest Service does treat fire when it's actually occurring. It's an emergency, and then after the fire is over, it's no longer an emergency.

Mr. FERRIOLI. Madam Chairman, if I could comment?

We had 24 days of very intensive fire response. We spent a million dollars a day putting that fire out. At the end of the Fire Recovery Project, we should have had about 3 to 6 months, a period of time for scoping, planning for the recovery project and implementation. Due to the inexplicable responses of the Forest Service to the idea that they might have an appeal or the idea that somebody might sue, we saw that process protracted to 24 months. It just seems that the moral equivalency of war is what we bring to putting the fire out. We spent 24 months and about $1.7 million in planning for rehabilitation. To date, we've done nothing on the

ground. So, you could say that there is a tremendous race for fire suppression and then an interminable process for planning and recovery.

And in the meantime, we see continuing resource degradation. The community stands to lose significantly. We have about 600 jobs at stake in keeping the mills open in our community. Our schools are already on a 4-day school week. The value of this project has dropped six-fold, meaning there will less dollars for schools, and roads in the counties. And the volume under contract in our community is between 3 and 6 months.

So, we literally have a situation after the fire where the Forest Service seems to be engaged in a round-robin of planning while the community's needs are not met and environmental degradations pile up.

Mrs. CHENOWETH. Thank you, Senator.

Ms. Nelson, you mentioned that there were some times when forest restoration or thinning is acceptable. Are you referring to the Van Wagtendonk Study of 1996?

Ms. NELSON. I'm not referring that study as an example of when treatments would be called for. I used that study as an example that the way in which a treatment is done, meaning the techniques—specific techniques that are used have variable effects. So, for instance in that study, one of the treatments that was part of the experiment was lop and scatter and——

Mrs. CHENOWETH. Lop and scatter

Ms. NELSON. [continuing] lop and scatter. It's a standard fuel-treatment practice.

Mrs. CHENOWETH. Would you explain for the record what lop and scatter is?

Ms. NELSON. Sure. It's an approach where the materials, tops of trees and branches, are scattered around the site, and this is a standard fuel treatment. The other kinds of treatments that were investigated by Van Wagtendonk—we have some model-base study prepared as part of the Sierra, Nevada Ecosystem Project, included prescribed burning, chipping, I believe. I think there were six treatments in all, and lop and scatter came out as the results of study indicated that lop and scatter on these stands would increase flame land and rate of spread of the fire.

Mrs. CHENOWETH. Of course——

Ms. NELSON. Now, the reason that I mentioned the study in the first place was not to say that fuel treatment should not be done, but that environmental review is important because, you know, in the Sierras and those areas we would want to make sure that lop and scatter treatments are not being done on that site.

Mrs. CHENOWETH. You do admit in your testimony that this model was constructed, but this has never applied in a natural setting

Ms. NELSON. Well, the treatments have been applied in a natural setting, and I think why, as Mr. Hill mentioned in his response——

Mrs. CHENOWETH. Now let me back up here.

Ms. NELSON. OK.

Mrs. CHENOWETH. I want you to answer my question because in your statement and let me quote to you——

Ms. NELSON. Yes.

Mrs. CHENOWETH. [continuing] "given that the studies' conclusions are based on models that have not been tested in natural settings, results must be interpreted cautiously."

Ms. NELSON. Yes, and that's how I view, as a scientist, I take a very cautious view on when and how much inference you can make from scientific studies. Now the interesting thing with this topic in general is that there are very few studies that have been conducted at all. So, this is the reason that we need to rely on modelling studies. If there were results from on-the-ground studies, that would provide further——

Mrs. CHENOWETH. So, we have a heavy fuel-load situation, and the only thing that you recommend in order to avoid the heavy fire that damages the soil creates a crowning effect is lop and scatter?

Ms. NELSON. The only thing that I recommend?

Mrs. CHENOWETH. Recommend, the thinning?

Ms. NELSON. Oh, no. You must have misheard what I said previously. I said lop and scatter increased rates of spread and flame land. So that would not be a good technique——

Mrs. CHENOWETH. Alright.

Ms. NELSON. [continuing] in these particular forests in the Sierras.

Now, I don't say that there's one approach that I would recommend or not recommend in every situation. My point is that there is no blanket prescriptions that we can use for all stands, number one. And No. 2, that using the wrong treatments can result in higher risks because of activity fuels, as Mr. Hill mentioned previously. Activity fuels is the main problem with the implementation of treatments.

Mrs. CHENOWETH. Let me ask you.

Ms. NELSON. Yes.

Mrs. CHENOWETH. Given a situation where there has been 9 years of drought, the forests are stressed because of lack of moisture, there is heavy fuel load on the forest floor, what kind of thinning techniques would you recommend, specifically?

Ms. NELSON. Well, I would need to know more specifically about the stand than what you just told me. However, I would, No. 1—would not do anything on an emergency basis. And No. 2, I think the most important thing about this whole topic is that there is a need for more information about where to go with this incredibly large problem that we have as forest-free community.

Mrs. CHENOWETH. Thank you very much.

Mr. Peterson, the Subcommittee is having a hearing on fire readiness next week, and since we have you here now, we'd like to have you talk freely about the fires in Florida. I'd like for you to please feel free to share any important lesson learned. From your perspective with the Committee, and for the permanent record, I'd really like for you to elaborate on where you think we are most effective. Where you think we're the weakest, and on the quality of our equipment, people, and the communications And finally, I'd like to ask you what do you think we need to do to be better prepared for similar or worst occurrences in the future, God forbid

Mr. Peterson.

Mr. L. EARL PETERSON. Thank you, Madam Chairman.

Those are profound questions. If I can—but before I do that, if I might. I would just like to say that my experience with the Federal land managers are that they the people at the ground level would like to move more expeditiously and effectively in dealing with situations such as fire, disease, insects outbreak, but because of the fear, because of the threat of challenges, they feel their hands are tied. That things just have been said here today—the classic example which I have is 1995 when Opal hit Blackwater, we got our 50 million border feet out within six months and our neighbor across the way, the Conecult National Forest, they were only able to begin by the time we got through.

So, I think the local managers for the Federal agencies are very interested in being more aggressive in dealing with these problems, but they just feel like the process won't permit it.

The fires in Florida have been a challenge that I think has been well met by all. It's one of those things, Madam Chairman, that I don't think any state can meet either staff or equipped for that magnitude in that complexity of fire. I think there has to be a lot of lessons learned from this and I wish I had this opportunity about 3 or 4 weeks from now because the fires have barely stopped, and we are now in the process of critiquing, evaluating, and what went well, and what didn't go quite so well.

I will say that it was a classic example of good working relationships between, local, State, and Federal agencies. We had personnel in the state from every state except two, and most of those probably except for the southeast were Federal employees. We had about 5,175 out-of-state people in Florida at one time or another during this siege.

Bringing in those people and that equipment is a challenge of monumental proportions. I think there needs to be a better coordination between the ordering agencies to be sure that the right equipment is ordered. I think it also needs to refine the process so that there is not duplication, for example.

In Florida, if you say I'm going to send ten dossiers, you really haven't helped me. You've got to send me ten dossiers that are low-ground pressure, white track. So, there's much room to refine the process of ordering to avoid duplications. We also had and I would hasten to say that I'm not suggesting that any of these are major problems except they just bear our attention. I think we need to solidify the resource-ordering process more closely than we have in the past so that we centralize to avoid the duplication; to avoid the wrong resources being ordered. That's an area I think we can.

Certainly within the State of Florida, there's some things that we will do different, but I think also, Madam Chairman, that this is a classic example of what, particularly the southern group of State Foresters, has been saying for a number of years and that is catastrophic fires are not, and should not, be considered unique to any one region of the country. It's a matter of time. It's a matter of time when any one region can have it and our policy, our strategies, and our operational designs should be developed along those lines, not overcommitted to any one region of the country.

I think generally speaking because of difference in terrains, the difference in fuel loads that the equipment issue is one that is a little more regionalized than others. To have people expected to

come to Florida—or to the southeast I should say, with equipment and training that is applicable to the west or to the northeast is not always a good fit. So maybe a little more diverse training would be in order for that. I'm sure that's true. I told someone this morning that probably the most common phrase I heard was "my God, it's green. It's burning," and that's not normally heard throughout the country.

The wild and urban interface, a terrific part in Florida, and certainly in some other states. We spent and inordinate amount of time, and energy, and resources steering fires around communities. That, admittedly, added to the acres burned, but each day the team set their priorities, and each day the priority was a protection of life, and residence, and property.

I would also add that the working relationship between the State agency, and the Federal agency, and in this case, the Florida Division of Forestry and the U.S. Forest Service was excellent. Bearing in mind, when you bring in a type–1 overhead team, you get a big team and that's what you need at a time like that.

The Forest Service, from day one and every day thereafter, reminded us that we were the lead agency. They were there to help, and I never saw that change That was generally true of everyone that was there. Our sister agencies and State Government, they did not try to second guess or preempt what the forest agencies thought was the best strategies. We were, indeed, dealing with wildfires in most cases. The local fire departments did an excellent job helping us protect communities, residences, and those type things.

I think one of the lessons learned are reminded, it was probably already there, but it brought it into sharp focus that there needs to be a responsible, prescribed fire program. Now that has some issues on the other side that cannot be ignored, but particularly in the areas in and around communities and subdivisions, there has to be major fuel reduction efforts, and I think you will see us in the State of Florida put forth a great deal of effort in that regard.

When you go Palm Coast and you see 48,000 acres of one-time woodland sprinkled with 5,000 homes and you see some homes burned and some saved, and you know there's a difference there. You wonder what it is. It's probably a difference and coincidence for sure, but fuel reduction is part of the answer there. There has to be more dispensibles based by the homeowners. They have a responsibility here.

The wild and urban interface is an enormous challenge in Florida, not just in Palm Coast. We put water with our helicopter on 45 homes in a subdivision in southwest Florida earlier in the year.

So, these are some of the things—I might have rambled a bit here, but we're going to fine tune these. We are going to critique these. I think also something for us to work on and I know my Federal counterparts are certainly amenable to this, and that is how can we be more cost effective in firefighting. It's not cheap. It's not cheap, but when you have life and property at risk, you go get the fire out and then you try to come back and figure out how you can do it better and more cost effective next time.

So, I would, again, thank all of those who helped us in this undertaking. It's quite an experience. We'll get it back together at

some point in time, and I'm not sure if it'll be the same old routine as far as fire preparedness goes.

[The prepared statement of Mr. L. Earl Peterson may be found at end of hearing.]

Mrs. CHENOWETH. Thank you, Mr. Peterson. That was very instructive and informative to us.

I do want you to know that I have put together a bill and dropped it about six months ago on the urban-interface-wildland fire suppression, and it deals directly with this issue, and it was put together on the recommendation of foresters from the Forest Service in the field. And so, I look forward to your looking at it. I look forward to Florida's support on this very important bill. It does affect that very critical area.

Mr. L. EARL PETERSON. We look forward to doing that.

One thing that I neglected to say. I think FEMA came to Florida. They were very involved. I think it was a learning process for them and us. I suggest that I think that they will be doing this. That they look more to being supportive in prepositioning and getting resources in place ahead of an urgent need, and indeed they did that in this case. It's something that they are not accustomed to. It was a new experience for them, but I will commend them for their efforts, but I think one of the things that we all have to do is be alert to the weather, the climates.

You see, Madam Chairman, what we had here was a coming together of a unique situation, with drought indexes, with fuel loadings, with fuel moistures, with climatic conditions all at one time, and those fires were spotting a quarter to a half a mile. So, that was just a terrible situation, but I think we all need to be more prone to preplan, to preposition to move our resources closer to where the area at risk may be before the catastrophe occurs.

Mrs. CHENOWETH. Fire suppression is so important, but fire prevention is also very important.

Mr. Peterson it has come to my attention that you even had to deal with some arson activities down there during those fires.

Mr. L. EARL PETERSON. We always have and I'm sure each state does a certain amount of arson activity. There was a period of time there that it seemed like that on a few days that the larger part of our starts, as we would refer to, were by arsonists. Then there was those fires that began—were human caused by carelessness, and then there was that period of time where the majority of were lightning caused. These fires were, in large part, in what we call a lightning belt. So, we had all of the above, but certainly arsonists was part of it.

Mrs. CHENOWETH. Thank you, Mr. Peterson.

The Chair recognizes my colleague, John Peterson.

Mr. PETERSON OF PENNSYLVANIA. I thank the chairman.

I would like to ask a question to Ms. Nelson. I was pleased to hear that you are not opposed to thinning and salvage, and you probably had the chance in the recent years to look at a number of sites where this has been proposed. Could you share with the Committee a site where maybe you would have blessed a thinning and salvage cut

Ms. NELSON. Well, for instance, I think there are some cases where epidemic levels of beetles might require removal—say it was

mountain pine beetle of large diameter trees, certain number on a site, to prevent spread into adjacent stands.

Looking at the flip side of that, for instance, the Texas exemption that just occurred. In that case, I would not be in support of removal because, from my understanding and again I have not visited those sites and I have just reviewed those materials in the record, there was no epidemic. The removal was intended as a risk-avoidance measure in case there were epidemic levels of infestations at some future time. And I think in balance there, the environmental damage associated with the salvage operation, which would occur, would outweigh the potential benefit at some point in the future if there did in fact—if the stand did, in fact, reach epidemic levels of southern pine beetles.

Mr. PETERSON OF PENNSYLVANIA. So you wouldn't support it for economic reasons? I mean, to salvage the value of the timber that was there?

Ms. NELSON. Well, let me just say that I work as a scientist. I consult with NRDC, but I work as a research scientist and so I wouldn't comment on whether a sale should go forward for any particular reason. However, in the Texas example, the justification was an environmental one for forest health or protection of forest purposes.

Mr. PETERSON OF PENNSYLVANIA. And you disagreed with that?

Ms. NELSON. Yes, I don't think that that was a valid justification at that point in time.

Mr. PETERSON OF PENNSYLVANIA. This question may not be on this particular issue, but I guess for perspective, you know, half of the soft-wood timber owned in America is owned by the Federal Government. Do you support greencuts for economic reasons or for thinning or do you support cutting of timber on public land, personally

Ms. NELSON. On all public lands? You mean——

Mr. PETERSON OF PENNSYLVANIA. No, selected—I mean, almost all of it is locked up. There's about 20 percent that we actually practice forestry on of the land owned by the Federal Government, but do you——

Ms. NELSON. If you're asking me whether I would support a zero-cut policy on Federal lands, I would say, no.

Mr. PETERSON OF PENNSYLVANIA. You don't support zero cut?

Ms. NELSON. Yes.

Mr. PETERSON OF PENNSYLVANIA. OK, so on some situations you would. Is the only exception in a salvage area?

Ms. NELSON. No, I would support thinning and fuels reductions as well, but I'm a little uncomfortable even broaching the subject because I tend to try to avoid large policy matters like this and just think in terms of the science and the ecology involved. And so, I would support the removal of live trees, and a thinning for fuel reduction if I felt that that treatment would accomplish ecological objectives.

Mr. PETERSON OF PENNSYLVANIA. OK. Last year I was out with the Speaker and the group that toured a number of states in the west and we flew over a 600,000 acre burn that had had a very heavy fuel load; I thought was the most devastating ecological disaster I had ever seen. You know, 600,000 acres where there wasn't

anything green left; where the hillsides were sliding into the valleys; where the silt was unmeasurable. Wildlife not existent. Everything, everything had been killed. I'm sure insects were killed there. It took a long time to recreate a normal ecosystem, and I haven't seen Florida yet, but I hope to. When you have that kind of a fire, some may call it natural, but there's nothing much natural left when the fuel loads high and it burns with intensity. It destroys all life. It destroys plant life. In some places I'm told the soils are barren for many years, and so you're going to have huge amounts of siltation. And the ecological system is just destroyed and, I think some of those could have been prevented. I'd be interested to know, have you ever flown over a large area like that?

Ms. NELSON. Yes, I have, and I've worked in many of them. I've been doing forestry research for the last 10 years. I agree that fuels reduction is important. My concern is that commercial sales often exacerbate fuel problems. And so, I'm concerned——

Mr. PETERSON OF PENNSYLVANIA. How does that——

Ms. NELSON. How does that work

Mr. PETERSON OF PENNSYLVANIA. I guess I don't understand that.

Ms. NELSON. But what ends up happening——

Mr. PETERSON OF PENNSYLVANIA. I'm from the east. Our forest is different from yours. So, I understand the eastern forest better than I do the western forest.

Ms. NELSON. Yes, let me explain this to you. One, of the primary reasons why management can have the affect of increasing fuel loadings and then increasing hazard from future fires is that slash ends up on the ground, and managers don't have a good way of really dealing with that because in commercial sales the emphasis is on removing the live tree bowls.

So, for instance, if you do a thinning, and a thinning as I said is a vague term and all different kind of things that can be done, the emphasis is on removing the larger trees and in the west often times the most fire-tolerant trees. What happens is the resulting trees have thinner bark. They're, you know, more flammable. They're a less fire-tolerant species. The height-to-life crown is lower, so crowning is more like to happen. And there's abundant fine fuels on the ground, and it's the fine, slashy fuels that really are the problem with fire spread.

So, those are reasons why if a thinning is not conducted properly and, in fact, many of the thinnings that are done in eastern Washington and Oregon fit the pattern that I just mentioned, then you end up with a stand that may be of greater fire risk. And even though the thinning purportedly was done to alleviate fire hazard.

Mr. PETERSON OF PENNSYLVANIA. Would anyone else on the panel like to grab that issue I mean, those of you that—I think you all deal with softwood forests. I'd be interested to hear your——

Mr. FERRIOLI. Madam Chairman, Representative Peterson, I am not a forest scientist, but I would like to take exception with a couple of comments that I've heard.

First of all, there is a prescription that won't allow harvest of trees larger than 21 inches diameter at breast height. It's called the eastside forest screen. So, we don't see the removal of large timber in almost any site on the eastside forest.

Secondly, the lop and scatter system of slash removal is very seldom used in my experience. Mostly it's bunch and burn which means that slash other than the large woody debris that left in profusion on those sites for nurse logs and for ecological function—most of the slash is gathered up and during the wet time of the year it's burned. So that we reduce the fuel loads for standing trees, then we reduce the fuel loads that would be residual fuel loads other than the large woody debris that serves an ecological function.

So, it has been my experience that when we can get the Forest Service to do fuel-load reductions, and that is a rarity, that the prescriptions that are used to reduce the fuel loads actually do leave a far lower risk of fire. And if I could use a couple of photos to illustrate, this is an area where we have about 800 stems per acre. Actually, in this area it's about 60 percent dead. It was a beetle kill. There also was a fire that moved through here that did a lot of this tree mortality. This is the before picture of the Summit fire where the fire was in an area that was left untreated; where the fuel loads were not reduced. This is the after picture. This is part of the 38,000 acres that burned, and, as you can see, this is a devastated ecosystem. The ecosystem function here will be suppressed and reduced for generations. Fuel load reduction at this point in time could have prevented a hard burn, a more serious ecological disruption of the area. It was not done, and it has not been done. It's not been a regular feature of management in an intensive way for a long period of time. We really have ourselves to blame for that.

Fire suppression for a long period of time has allowed fuel loads to grow in our forests—in the pine forests of eastern Oregon and eastern Washington. The remediation of that is not to run around with a drip torch and just burn everything. The remediation of that is careful fuel loading and fuel load reductions on a systematic basis across that landscape followed by the reintroduction of slow, low-intensity, creeping fires, cleansing fires. We seem to want to go from the problem that we have, which is fuel load increases and relatively high stocking levels that are stressed, immediately through the process of devastating fires, to a process where we've reestablished a fire in the ecosystem. You can't get there from here. You need to go through the intermediary process of reduction of those fuel loads.

It seems to be a problem for many in the environmental community, because the bi-product of the reduction of fuel loads is supportive of timber-dependent communities, and the support of timber-dependent communities is something that's very close to local government. I particularly worry about that. I want to sustain the community. I can't sustain the community unless I sustain the ecosystem. I can't get income from the landscape unless I do fuel load reductions, and, therefore, there's no surplus to reinvest in ecosystem functions. The two are coefficient, and it seems like there are some folks in the world that want to completely disconnect the ecosystem costs which are high. Ecosystem management is expensive, and they want to disconnect the ecosystem costs with sustaining the local economy which produces the surplus for reinvestment. You can't take the two apart; they're coefficients.

And, so I would say to you just that the fuel load reduction regimes that we would like to see implemented in the intermountain west would, to a great degree, fire-proof our forests; lower the danger of catastrophic fire, and allow the reintroduction of low-intensity creeping fires. It seems like we all want to get to the same place, and that is where fire has an integral part in the ecosystem, but we're being prevented from allowing that to happen, and the intermediary tool is actually salvage logging and fuel load reductions.

Mr. PETERSON OF PENNSYLVANIA. Ms. Nelson, do you want to respond?

Ms. NELSON. Yes, I would agree with what you said about your last statement about where we want to go, however, I don't agree that salvage and thinning will get us there unless prescriptions are done very differently than they are currently being done, and the reason is because, as you mentioned, right now, the Forest Service is not investing in the following up to the commercial activity which is dealing with activity slash, and I think as long as these commercial activities result in high levels of activity slash, then we're going to be exacerbating the problems that we have.

Mr. PETERSON OF PENNSYLVANIA. Mr. Peterson, is Florida that much different. I know it's not as old a forest, but would you care to respond to that?

Mr. L. EARL PETERSON. In many cases, in Florida, there is very little slash left in the logging operations. I believe that, in fact, that there needs to some organized way of reducing the fuel loads there, but many of our harvesting operations leave behind very little slash. Those that do is, generally, as he indicated, is piled and burned effectively in preparation for reforestation. So——

Mrs. CHENOWETH. Would the gentleman yield?

Mr. PETERSON OF PENNSYLVANIA. Sure.

Mrs. CHENOWETH. Thank you. I wanted to ask Ms. Nelson a follow up with regards to the prescriptions that you indicated that have not been properly employed, especially with regards to followup. I wonder if, for the record, you could be more specific about the prescriptions that you were talking about? What given situations do you think that there can be thinning and what kind of thinning and what kind of follow up?

Ms. NELSON. Well, again, I wouldn't want to specify—I mean, it's hard to be specific about——

Mrs. CHENOWETH. But that's what we're asking—excuse me—that's what we're asking you for, specifics. We can't meet——

Ms. NELSON. Right, and that——

Mrs. CHENOWETH. Wait a minute, let me finish, please, if you don't mind. We can't meet your needs unless you help us understand specifically.

Ms. NELSON. And I was just about to do that. It's hard in the absence of a landscape and a specific forest example to talk in general, but I would have to say is that we need to be focusing on removal, in general, of small diameter material from the forest. These are the flashy fuels. These are the things that are, say in, below six-inch diameter. But when I was talking of large, I was speaking of trees that are much smaller than 20 inches still fit into my large category. So, that is what I think the emphasis should be

on: removal of the very small stuff out there that's the flashy fuels. I think that thinning and salvage prescriptions that focus on removing the large fire-tolerant species will only create further problems.

Mrs. CHENOWETH. I understand that, especially in a green forest, and the thinning of the smaller diameter, low-level fuel load is very important, but given the example that Mr. Ferrioli used, where there was a huge stand of diseased timber that had been infested with insects—bark beetle, I think he said—60 percent of it was destroyed. It was large diameter timber, and so it was very susceptible to a very, very hot fire that devastated stream beds, and, like he said, will take generations to recover. How would you recommend, specifically, that the Forest Service and the local people deal with something like this?

Ms. NELSON. Well, I think that with bark beetle epidemics, they're tied to climatic factors, and they've occurred naturally in forests for long periods of time, and I think it's not possible to entirely remove mortality from bark beetle epidemics. In some cases, I think it may appropriate to remove or, say, the mountain beetle on large diameter trees to prevent spread into other areas, and I think it's just a case-by-case basis.

Mrs. CHENOWETH. So, in some cases, it's appropriate to remove those trees.

Ms. NELSON. Yes. And under epidemic situations, but, again, I don't think it's appropriate to, in every case, focus on removal of large diameter trees to prevent, number one, risk of the infestation if there's just endemic levels, and, second, I don't think it's possible to completely reduce mortality from epidemic levels of bark beetles. I also think that we have to be careful about the adverse effects of removal activities post-disturbance. So, after windthrow or fire, these stands are particularly sensitive. Post-fire stands are very sensitive in terms of soils and sediment into streams and already taking a large hit, and I think we want to be very careful about increasing degradation of those stands.

Mrs. CHENOWETH. Are you familiar with the Knudsen-Vandenberg funds?

Ms. NELSON. Yes.

Mrs. CHENOWETH. And those are specifically targeted for restoration, aren't they?

Ms. NELSON. Yes.

Mrs. CHENOWETH. Yes, they are. So, I think that has been provided for, but, Mr. Ferrioli, do you have any followup?

Mr. FERRIOLI. Thank you, Madame Chairman. Only that it's been my experience, again, from personal observation that fuel load treatments are done after recovery projects and after salvage removal, so that by the forester's estimation and the project estimation that there is no increase in risk for fire for reburn. As a matter of fact, part of the prescriptions would be to lower the fuel loading for the fires which are flash fuels, so that they do not present a risk. So, I'm not familiar with the regime that Ms. Nelson's describing. What I've observed for myself on the ground following green sales and salvage sales is that we see fuel load reductions that would by far reduce the risk of reburn or the risk of catastrophic fires.

Mrs. CHENOWETH. I do have to say that this has been extremely interesting to me, and while I've asked some very pointed questions, I do want to say—and I will yield to Mr. Boyd—but I do want to say that the exchange that has gone here has not only been interesting to me but will serve as a very valuable, permanent record, because until we can really understand how each other is thinking, can we really reach a successful conclusion. And I think that we're all very, very interested in making sure that our environment is protected for future generations, not only from one standpoint, but from a variety of balanced prescriptions and uses. So, although I have focused my questions primarily at Ms. Nelson and Mr. Ferrioli, I want to thank both of you for your very interesting and informative answers and for your time here.

And before I yield to Mr. Boyd, I do want to ask Mr. Hill a question about the Society of American Foresters. Has your organization done any studies or are you aware of studies on the effects of fuel treatments on fire?

Mr. HILL. The Society of American Foresters hasn't done studies themselves—ourselves, but many of the members are involved with agencies that are doing such work, particularly, the Forest Service. We have a position of statement on fire management that points to the seriousness of the urban-rural interface problem. But the question, directly, is no, we have not done any studies ourselves.

Mrs. CHENOWETH. Thank you very much. The Chair yields to Congressman Boyd.

Mr. BOYD. Thank you very much, Madame Chairman. I, too, have found this very interesting and want to thank all the panel members. I don't want this to become a beat up on Ms. Nelson meeting, but, Ms. Nelson, I listened to your testimony, and it's obvious to me that you oppose salvage operations or thinning or fuel treatments for reduction of fire danger; at least I've been unable to gather from your comments any specific instances where you would think those were OK. But what I do want to do here is tell you that in your remarks you describe the results of study of the Bear-Potato Analysis Area by the Wenatchee National Forest—I have a copy of that study here. Is that the study was referenced?

Ms. NELSON. I can't see it from where you are, but——

Mr. BOYD. The Environmental Assessment Bear-Potato Analysis Area of the Tyee Fire Recovery Area?

Ms. NELSON. Yes.

Mr. BOYD. OK. You cited only one portion of that study; the part that compared the effects of fuel treatment with no fuel treatments in areas that had not been harvested. Then, you concluded that harvest treatment may increase the risk of fire damage, but since you were describing non-harvested areas, your conclusion appears to be misleading, if not, inaccurate, and I want to read to you the conclusion that the Forest Service wrote in the study that you quoted from: "From this initial review of harvest fuel treatment on the fire effects of the Tyee fire, there may be an indication that harvested land had a better chance to burn black when compared to non-harvested land. However, the reader should be reminded that many factors were not included in this review; factors like the timing of the fire; intensity of the smoke column; weather; type of fire; head or backing fire; terrain; aspect and slope are all impor-

tant in the resulting fire effect on a piece of land. This review only considered whether an area was harvested or not or fuels treated or not." And it continues: "However, since a treated and non-treated harvested area from the same time period—1971 to 1994—would have an equal possibility to be burned at roughly the same time, the figures in table 2—which you did not cite—are a good indication"—I'm still quoting from the conclusions—"are a good indication that fuels treatment in a harvested area did reduce the fire effect." Let me say that again: "The figures in table 2 are a good indication that fuels treatment in a harvested area did reduce the fire effect.

What is not as clear, however, is whether a harvest itself influenced fire behavior in any way. Perhaps, the largest study that included modeling weather, time of day, et cetera, could more accurately answer this question, but this is the best conclusion possible given the time and the resources for this study."

Madame Chairman, I would submit a copy of this environmental assessment that was quoted——

Mrs. CHENOWETH. Without objection, so ordered.

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

Mr. BOYD. [continuing] for the record, and I would also say, Ms. Nelson, that on several occasions I've heard you refer to the science and technology on at least a few occasions I've heard you refer to being a scientist, and I would submit to you, Ms. Nelson, that a scientist would not come before this congressional committee and cite a scientific fact, just a portion of an environmental assessment to draw a certain conclusion, and I'm very sorry about that. I yield back.

Mrs. CHENOWETH. Thank you, Mr. Boyd. With that, I want to say this panel is excused. Thank you very, very much for your time and all the effort that each and every one of you have made to be here. You have been before the panel for nearly 2 hours, and I very much appreciate the expertise that you've brought to the record.

The Chair now asks that Chief Mike Dombeck, Chief of the U.S. Forest Service in Washington, DC; Mr. Robert Joslin, Deputy Chief, National Forest Service in Washington, DC, come forward along with Rhey Solomon, Deputy Director, Ecosystem Management, Forest Service, U.S. Department of Agriculture, Washington, DC. It's my understanding, Mr. Solomon, that you are simply accompanying Mr. Joslin and the Chief, right

Mr. SOLOMON. To my knowledge, yes.

Mrs. CHENOWETH. You do not have a prepared testimony.

Mr. SOLOMON. I have no prepared testimony.

Mrs. CHENOWETH. Welcome back. It's been a long time since either one of you have been before the Committee, and we are looking forward to your testimony on this particular issue, and, as usual, we ask that all witnesses be sworn in. So, I wonder if you might stand and raise your hand to the square?

[Witnesses sworn.]

Chief Dombeck.

STATEMENT OF MICHAEL DOMBECK, CHIEF, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, DC

Mr. DOMBECK. Thank you, Madame Chairman. I'd like to start by saying to Congressman Boyd and our State forester, Earl Peterson, I just really commend the heroic efforts of the citizens of your State, the State employees, and the many Forest Service employees, BLM employees, and other Federal fire fighters that participated in the really tough situation you had in your State, and I think it's just absolutely phenomenal that they did the job that they did with a minimal amount of human injury and under the tremendous loss we had, and I think that demonstrates the effectiveness of the skills of our employees, and the fact is we in the United States do have the most effective and efficient wildland firefighting mechanism in the world. The incident command system is something that's been emulated and used in many, many cases, and it's something that we need to continue to improve upon and analyze every situation which we do.

Now, to the topic at hand: environmental analysis and NEPA compliance in emergency situations on national forest system lands, and my written testimony incorporates the concerns and comments of both the Forest Service and the Bureau of Land Management. As has been stated here numerous times, the National Environmental Policy Act is our basic national charter for protection of the environment. It establishes policy, sets goals, and provides the means for implementing policy. The regulations issued by the Council of Environmental Quality in 1978, which implement NEPA, provide for alternative arrangements to the normal NEPA procedure in emergency situations.

The Forest Service and CEQ have used emergency provisions in the CEQ regulations three times, and BLM has used the alternative situations five times, and we're prepared to discuss those Forest Service situations if you wish, Madame Chairman. Generally, alternative arrangements are initiated where a clear emergency to human health, safety, or the environment is present, and the actions proposed is environmentally significant as defined by the CEQ regulations. Often, actions proposed to be taken in emergency situations do not arise to the environmental significance level, and, therefore, do not require alternative arrangements. For these situations, the Forest Service follows its normal NEPA procedures.

The Forest Service and BLM believe that the procedures we use for requesting alternative arrangements to NEPA compliance for emergencies work. The existing authority is appropriate and adequate to administer our Nation's national forests and other public lands. We appreciate the Committee's interest in alternative arrangement provisions for NEPA, and we understand the Committee's desire to use extraordinary processes more broadly. We'd be happy to discuss any questions you have, Madame Chairman, Congressman Boyd.

I have with me, Deputy Chief of the National Forest System, Bob Joslin, who not only has worked on the ground level, the field level of the Forest Service in all parts of the country, including the South, but also administers the programs of the National Forest System, and Rhey Solomon is our Deputy Director of Ecosystem

Management and is our technical expert when it comes to NEPA, the appeals process, and those kinds of things. So, we hope that between the three of us, the dialogue will be helpful, and we can be as responsive as possible to your questions.

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

Mrs. CHENOWETH. Thank you very much, Chief. The Chair recognizes Mr. Joslin.

Mr. JOSLIN. Madame Chairman, I did not have any statement to make. I come with the Chief to answer any questions that I can for you and the members of the Committee, and I appreciate the opportunity to be here.

Mrs. CHENOWETH. Thank you. Well, then I'll begin with questioning, and I'll direct my questions to the Chief. How many times has the Forest Service applied for alternative arrangements

Mr. DOMBECK. Three times.

Mrs. CHENOWETH. About three times. And can you cite those times and specific occurrences?

Mr. DOMBECK. Yes, the first situation was Bull Run Lake near Portland, Oregon, and the purpose of that was for protection of domestic water supplies. The second time was the situation that you mentioned in your opening statement, Madame Chairman, the Eighth Street fire in Boise, and the third time was the removal of the blowdown damage in the red-cockaded woodpecker habitat in east Texas, and that was a situation where I personally toured to view the work in progress and was very, very pleased with what I saw just a few months ago.

Mrs. CHENOWETH. As you know, NEPA was written with the understanding that there are times when expedited processes are needed. Also, the National Forest Management Act was written with that in mind and even uses mandatory language that requires the Secretary to move through the processes so we can remove the timber that can create an explosion of disease or insect infestation. And this is just common sense.

What doesn't make sense to us is that the Forest Service doesn't see the need to ever use these expedited processes other than the three cited that were allowed for in the law. Apparently, there must be some reason, and we need to be able to try to resolve this, because, as I review the law, the law says the Secretary shall do certain things, and I know it's frustrating for you, Chief, not to be able to see your agency move quickly. We've had discussions about this, and I know how you feel, I believe. Would you state and advise us, for the record, why you're unable to follow the NEPA requirements as well as NFMA requirements for moving very quickly?

Mr. DOMBECK. Well, let me answer that question in a couple of parts. Concerning the alternative arrangements, as I understand it—and Rhey is more of an expert in this area—that the criteria that are used are the threat to human health and safety and violation of law is the two criteria that we apply when we ask for alternative arrangements. The second part of the question regarding the slowness of the process, I think we have to go a long way to find anyone that isn't somewhat frustrated by that, and I have continually instructed the Forest Service, and, in fact, of my time as a

BLM employee, likewise, that BLM—we have to be relentless about simplifying the procedures that we have. That doesn't mean that they be simplistic or not based on science or in any way not comply with the letter of the law from the standpoint of NEPA or the public involvement process and that type of thing. And this is something that there has been progress made in some areas, and I would cite one example and that's the section 7—rather, the consultation process with regards to the Endangered Species Act when Jack Ward Thomas was Chief and I was the Director of BLM. We gathered and looked for alternatives to streamline that process, and, basically, what we did in that situation was took a process that was a serial process and changed it to a parallel process, and it reduced the time frames by almost half. And, in fact, as a result of that effort, we reduced the backlog of ESA consultations by—a backlog of about 1,200 consultations to 0 in just a matter of—what's it, about 2 or 3 years, Bob?

Mr. JOSLIN. Yes.

Mrs. CHENOWETH. And, Rhey, I wanted to ask you since the Chief referred to you and with your permission, Chief.

Mr. DOMBECK. Yes.

Mrs. CHENOWETH. The Chief made mention of the two criteria—human health and life—and adhering to existing law as the criteria under which the Forest Service moves ahead on a expedited basis, and I'm specifically referring the National Forest Management Act in section 1611. Let me read that into the record, because it says nothing in the subsection of this section: "Nothing in subsection A of this section shall prohibit the Secretary from salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow or other catastrophes or which are in imminent danger from insect or disease attack. The Secretary may either substitute such timber for timber that would otherwise be sold under the plan or, if not feasible, sell such timber over and above the plan volume period."

Now, it seems under existing law that we've moved to other law and forgot the existing law that the Congress passed in the Forest Management Act. Can you help explain that?

Mr. SOLOMON. Well, Madame Chairman, in response to that, the way the Forest Service and all agencies in government have implemented the procedures of NEPA is we believe that we can do better decisionmaking by looking at environmental considerations that NEPA requires us to look at and integrated that into our processes. The provisions under NEPA that require the emergency provisions are really aimed for immediate emergencies and only working with the Council on Environmental Quality for the immediate problem of that emergency, and——

Mrs. CHENOWETH. Mr. Solomon, I asked you about the National Forest Management Act, and you're talking about another Act. I read to you from the Forest Management Act and asked you for your opinion with regards to what I read. It gives a clear indication that you can move ahead. I don't want to interrupt your thinking, but I want us both to be focused on the same thing, and then we can move to whatever else you'd like to focus on.

Mr. SOLOMON. And we believe we can move with compliance with that law through the normal NEPA process.

Mr. DOMBECK. I'd like to add to that and that we do grant emergency exemptions of stay from the administrative appeals process, as was the situation with the Summit Fire, and I will agree that that is a situation that—in fact, the regional forester is looking at very, very closely as to the instructions that Regional Forester Williams gave them out here, as he told me, was the fact that we've got to get this moving as quickly as we can understanding that it's a situation that's beyond us, but then take a very close look at that situation and what could have been done differently, as we will be involved in similar situations in the future. So, I would just add that we do grant stay for administrative appeals on occasion for emergencies, specific situations.

Mrs. CHENOWETH. Like what kind of emergencies?

Mr. DOMBECK. Well, the Summit was an example, and I might ask Bob if he might be aware of other situations.

Mr. JOSLIN. In particular, the Summit situation, the regional forester had come in and requested exemption of the stay that we have in effect which is up to a 45-day timeframe after the decision is made, so that they could go ahead and get on with that project and not go through another winter and another spring run-off as they already had to do as a result of what happened. So, rather than the—the forest supervisor also requested that, and, as a result, we agreed with him and granted him that exemption of that stay process.

Mrs. CHENOWETH. Senator Ferrioli showed us some very telling and graphic pictures of a bark beetle kill over 60 percent of the standing trees, obviously, had already died from bark beetle, and it doesn't take a rocket scientist to realize that even the green-appearing trees had been infested with bark beetle. Why are we not seeing—in terms of prevention of catastrophic fire and destruction to the watershed—why aren't we seeing more implementation of 1611 prior to fires occurring?

Mr. JOSLIN. Well, one of the things that we've talked about with you before—and I think that he explained that very well—that we have 40 plus million acres out there at risk of national forest lands that we do need to be taking a look at to see what we can do as far as reducing those fuels as he so well laid out in the Summit situation.

Mrs. CHENOWETH. But, Mr. Joslin, I'm growing increasingly impatient with this agency just taking a look, while our forests burn. I mean, I have been hearing that for years, and I see no on-the-ground change. You have had my personal respect, but I am saying to you that this—I am, personally, and this Committee is growing increasingly impatient with the fact that all we hear from those who may presumably oppose active on-the-ground fire prevention techniques, we're going to study it more; we want to look at it. We can't have that in this country any longer, because this agency has been given one of the Nation's most valuable resource, and we're losing it. I mean, Mr. Ferrioli testified to the fact that to fight that fire cost $25 million. He testified to the fact that when you add the environmental studies and the legal costs and so forth, that fire, alone, cost $30 million. Now, if you had to bear the burden of all of that on timber sales, your timber sales would look even worse than they do now, and it must be a source of embarrassment to see

that the timber fund is now in the red, and we're not even applying all that could be applied against the timber fund sales. I don't mean to sound impatient, but I am. I want to see on-the-ground activity. I mean, out in the Northwest and now down in Florida, we are hurting. We have hundreds of thousands of acres of burned timber; hundreds of thousands of acres of devastated timber. What used to be magnificent stands of green timber that protected our watersheds and our streams are now being destroyed because of an inability to crash through and do exactly what the Congress said we should do; not rearrange what the Congress but exactly what the law states very simply that should be done.

Mr. JOSLIN. Madame Chairman, if I could, and I'd refer to Congressman Boyd's State of Florida and Earl Peterson, we have three national forests down there—we mentioned the Osceola and Appalachicola, and we also have the Ocala—and Congressman Boyd mentioned the acreages burned down there. I think that the Ocala National Forest is probably had more management for a longer period of time than any of the other national forests. Those things are going on there. We had a total, I believe—and Earl can probably verify that—383 acres is all that burned there, and I think if you have an opportunity to see that forest that it is one that's had some intensive work done as you're referring to. So, I understand your impatience. We have that impatience too, but there are some places where we are doing some of those things.

Mrs. CHENOWETH. Well, I look forward to seeing more results also in the Northwest.

Mr. DOMBECK. Madame Chairman, I'd like to just make a couple of points that I think are important—Senator Ferrioli also commented on this—and that's that our fastest growth program is fuels treatment. In fact, we've gone from treating about .5 million acres a year to a 1.5 million acres a year, and we're ratcheting up our skills and pushing the budget in that direction and have had good support for that from the environmental community as well as the timber industry to do the thinning work, and we'd like to be up to about 3 million acres per year on the national forest system lands.

So, it's a program that we're not just looking the other way. We're continuing to push that, although there's a level of impatience there that we're not moving fast enough, and the magnitude of work in the urban wildland interface is very, very important. What we have to do is we have to do it in a way where we can maintain and build credibility and build a support base and move toward lighter on the land technologies. People are more and more opposed to soil disturbance activities, and the industry and the agency and other entities continue to see great strides in improvement of technologies, and we've got to increase the rate of application.

Mrs. CHENOWETH. Chief, I'd have to share with you and share on the record the fact that each individual forest used to be responsible for making sure that the fuel load was reduced in their forest plan and that disease and insect infestation were taken care of. But when we have centralized planning and we have goals involving a certain number of acres and we expand those goals, that takes the authority away, it would appear, from the unit managers, that they are not able to implement the necessary programs that

would prevent the emergencies that we're now dealing with. The horse is probably out of the barn in many of these areas, and, like Senator Ferrioli testified, it's going to take generations for, even with active management, for the forest to be rehabilitated. And I think part of it comes back to the fact that, Chief, you testified in your statement, you stated that rarely do these events constitute an emergency. Since the law is so clear as to what must be done and it isn't even—it's mandatory language; it uses the word "shall." When you're involved in windthrow or disease or insect infestation or burns. The law has dealt with those as an emergency, because it gave you the expedited ability. What do you—don't you agree with that or what do you believe constitutes an emergency?

Mr. DOMBECK. Well, as I indicated earlier, I believe the definition of emergency—and let me ask Rhey to verify this—is basically derived through the NEPA process. Is that correct

Mr. SOLOMON. It's been derived by——

Mr. DOMBECK. And by CEQ regulations.

Mr. SOLOMON. [continuing] by the 30 cases that CEQ has approved over the years have helped define what the nature of what they define as an emergency under the definition of NEPA.

Mrs. CHENOWETH. You know what we've seen here is through an agency that was not created and authorized by the Congress, we've see case law at whatever level of the courts that may have been rendered defining what an emergency is when the Congress defined already, and I just read it to you in 1611 when and how you must move in an expedited procedure; 1611. It is so clear, and it's being ignored, and my frustration, Chief, even with your legal folks, this is not pushed in terms of defending the Forest Services actions such as on the Malheur when they needed to get in and get that destroyed timber out. We're not seeing it come from the legal folks in terms of the defense that is needed, and when we start relaying decisions emanating from CEQ or other laws and ignore what is directly written as your responsibility, no wonder we lose in court, and no wonder we compound the problem. It creates so much frustration, I know, for you as well it does for me.

I'd like for you to take another look at this 1611 Rhey, and I would like to meet with you on it and discuss it with you.

Mr. SOLOMON. I'd gladly do that.

Mrs. CHENOWETH. Congressman Boyd.

Mr. BOYD. Thank you, Madame Chairman; I can't wait. First of all, I think, gentleman, I know that we'll welcome you here, and I know that you're the messenger more so than the policymaker in this case. I want to disclose for all here some of my biases on this issue, and I want to do that by way of telling you what our situation is in the second congressional district or in north Florida. Mr. Joslin referred to three national forests in Florida which I'm all intimately familiar with; two of them reside in the district that I represent, and I worked for a couple of summers in college in the other in Ocala National Forest. Mr. Joslin, it's a beautiful area. It has some wonderful natural springs, natural resources in it that I spent many days, hours swimming and diving in.

But the Appalachicola National Forest is totally contained within the Second Congressional District that I represent. It's about 565,000 acres of forest land. Actually, it was private land in the

early 1900's; it was totally cut over, timbered out. The Federal Government bought it, and over the last 75 years or so—I don't know those exact numbers, but I assume it's about 75 years—has rebuilt and regrown into a wonderful, wonderful national forest that contains the world's largest populations of red-cockaded woodpecker, and many of us are very proud of that.

The Osceola National Forest is about 157,000 acres around Clean Lake City in Jacksonville. About half of that is contained in the Second Congressional District, and it contains probably the largest population of black bear left in the State of Florida which we also are very proud of and we manage and protect very carefully. Having said that, I can tell you that some of the practices we put in place in the last few years, after we established the world's population of the red-cockaded woodpecker, then we began to change the silvicultural practices which enabled us to establish that, and mostly had to do with how we managed that forest, and, as we were making those changes, which, actually, were ratcheting down the cutting, timber cutting, almost to zero, we did two things to alleviate the hardship on the local government. Obviously, there's several hardships, one has to do with ad valorem taxes to that government in which they fund their local governments and their schools, and the other, of course, is the economic activity in the local community.

We did two things: we put in place a PILK Program, Madame Chairman—which I'm sure you are familiar with, the payment of lower taxes—which works fairly well, but we also put in place a 25 percent program which we said to the community to replace what we've taken away from you, we're going to give you 25 percent in revenue of what we cut off of that land. Well, guess what over a period of a few short years after that, we ratcheted that cutting down to almost zero, and so it's our school system which was collecting—I have a school system which probably has 1,000 students in it, very small; maybe 1,500. Ten years ago, it was collecting in the neighborhood of $400,000 and now collects about $50,000. It's a very significant impact on that school system. So, I say that only to lay out my biases relative to some of these issues.

Now, Chief Dombeck, if I could, go to a question and that is the specific criteria that must be present for you to apply for an alternative arrangement under NEPA—and I think you've answered that there was three instances that must—one of three that must exist: human health issues, human life, or a violation of law. Did I get that right

Mr. DOMBECK. Yes.

Mr. BOYD. OK. And that's been applied for three times, I think you answered, in the history of its existence.

Mr. DOMBECK. Yes.

Mr. BOYD. What was the Texas situation I mean, which one of those criteria was present to enable us to use the alterative arrangement in the Texas windstorm earlier this year

Mr. DOMBECK. I believe two of the three. No. 1, in working with the Fish and Wildlife Service on the red-cockaded woodpecker situation, we would have received the jeopardy opinion on damage to that habitat if the trees would not be removed, and, second——

Mr. BOYD. Let me interrupt you there. That you would have received damage to the RCW population

Mr. DOMBECK. That's correct.

Mr. BOYD. And, so that would fall under a threat to human health, human life, or a violation of law?

Mr. DOMBECK. Violation of law.

Mr. BOYD. So, it doesn't have to be mankind violation of law, it could be God's violation of law. Is that what I hear you saying?

Mr. DOMBECK. Well, I believe, I would interpret that to be the our ability to apply a management action to mitigate a situation; in this case, to avoid a jeopardy opinion on the red-cockaded woodpecker.

Mr. BOYD. OK. Even though the fact that it was a disaster—what we call an act of God, I think would be the proper term—that would fall under your category of violation of the law. Is that what I hear you saying And that was the criteria you used to apply there to make sure that we got this done.

Mr. DOMBECK. I'm not going to be the one to pass judgment on an act of God and a violation of law, but the fact is that the management activity that we could apply could enhance red-cockaded woodpeckers habitat or prevent damage.

Mr. BOYD. What was the second criteria?

Mr. DOMBECK. The second criteria was safety from the standpoint of the roads were basically impassible and with all the trees that were down. So, there was the need to get in there and to clear trees from the roads, so the roads would be passable.

Mr. BOYD. But safety wasn't one of the three criteria—I'm sorry; didn't mean to interrupt.

Mr. DOMBECK. From the standpoint of human safety.

Mr. BOYD. Human safety wasn't one of the criteria that you mentioned. I don't know if those are written in stone or written in regulations or law or what, but human health, was that——

Mr. DOMBECK. Health and safety.

Mr. BOYD. OK, health and safety. Well, I'm very pleased that the folks in Texas had that opportunity to do what would seem to be the naturally right thing to do and that is go in and salvage and rehabilitate the forest area, but it seems like we certainly stretched the application of the criteria in that example, and it just leads me to wonder if we shouldn't revisit the criteria themselves and figure out if there are not other situations, for instance, the forest; the burns that we've had in Florida. And my next question really leads to that. Do you see any of those criteria that we can use to apply the expedited process in Florida, so that we don't lose the salvage operation

Mr. DOMBECK. Well, what I would do is I would rely on Marcia Carney, the Forest Supervisor, and the district rangers that work there to make that determination and then to come forward if they believe that emergency exists.

Mr. BOYD. OK. Well, that gives me some comfort, because I had an opportunity—she's new, as you know, in our State, and I had an opportunity to spend some time with her last weekend, and I think she's a very professional and reasonable person who will consider all of the criteria.

We had 20,000 acres burn—Madame Chair, do I have additional time? We had about 20,000 acres burn in each of our national forests. In the Appalachicola, actually, it was all wilderness with the exception of about 15 acres, as you know. It's interesting how that came about. Actually, those two fires started simultaneously on the same day, and we went in the non-wilderness area with our—you did with your equipment and put that fire out, and it burned 15 acres. On the wilderness side, you couldn't go in to prevent—to stop the fire, and, as you know, it burned up about 20,000 acres of the wilderness, and my question is this: Is that what we anticipate or want to do with our statutes relative to the wilderness or do we have any waiver process relative to the rules in our wilderness like we do with the alterative arrangement that would allow us to react to that kind of situation to prevent the fire from spreading throughout the whole wilderness or do we consider that natural and we're comfortable letting it go ahead and burn?

Mr. JOSLIN. Congressman Boyd, what we've done in the wilderness, in particular, Florida's been a leader in that, because the State forester, Earl Peterson, and his folks, and the U.S. Forest Service have a long history there, and prescribed fire and fire management, as you well know, has been an important part of the ecosystem down there. We have plans for each one of those wilderness areas that spells out how we'll deal with fire; whether if it's a man-caused fire, we'll deal with it one way; if it's a natural fire that's caused by lightening may be dealt with another way, but there are always provisions there. If we're having threats to external areas, the fire going outside of the wilderness, prescriptions are all set up there, and there are provisions, yes, if we need to get in there with caterpillars or whatever we need to get in there as far as suppression; that are provisions that the regional forester can authorize their use in connection with fire suppression activities in a wilderness.

Mr. BOYD. If I might, Madame Chairman, continue? You do have a legal authority to weigh those rules.

Mr. JOSLIN. Yes, we do.

Mr. BOYD. Do you have any indication of whether this was man-started in the Appalachicola National Forest or was it natural?

Mr. JOSLIN. I do not know that. We can find that out, but I, personally, I don't know whether that was created by lightening or it was arson or——

Mr. BOYD. Well, let me answer what I believe, and this is from having talked to the people that are on the ground down there and the location that it started. Both of those started on the highway, and they're reported to be arsonist, arson-started, and, of course, on one side the road was non-wilderness and the other side was wilderness, and we had 15 acres burn in the non-wilderness and the 20,000 acres burn in the wilderness. So, I don't have clear proof that it was arsonists, but the people who are there fighting the fires say that that's what it was.

Mr. JOSLIN. Well, I'm sure that they have conducted an investigation there to try to determine the cause of it, but, as I say, I personally don't know. I haven't talked with anyone or seen——

Mr. BOYD. So, does your flexibility in the rules that you have, when it's man-started does it allow you to—is that the situation where you would be allowed to take the equipment in to stop it?

Mr. JOSLIN. Where it says started by man, we would take aggressive action to suppress that fire.

Mr. BOYD. But that wasn't done in this case?

Mr. JOSLIN. Now, I don't know whether it was or wasn't.

Mr. BOYD. And that really brings me to a point. One of the things that I have learned and I've become convinced of after talking to the people on the ground and Marcia Carney and others, is that we really need to give our folks on the ground more authority to react quickly, and, obviously, you're going to have to react very quickly in that case, because that fire, I think, burned about 4,000 acres the first day. But we really need to give them more authority, and one of the things I would encourage you and Madame Chairman, this Committee, to work on is to make sure that our people on the ground have more authority to react quickly in those kinds of emergency situations.

Madame Chairman, I'm sure I have other questions, but I'm going to stop there in the interest of time.

Mrs. CHENOWETH. Thank you, Mr. Boyd. I do want to let you know you are welcome to submit to us any questions you would like for us to submit to the witnesses. We usually keep the record open for 10 working days. And, so I'd be happy to work with you on that.

Mr. BOYD. Well, thank you, Madame Chairman, on behalf of the people that I represent who are really taking a beating in some of the counties where 75, 80 percent of their land is in the national forest. Sometimes, I don't want to go home on the weekends, because I know what's going to happen. They're going to beat on me. I get beat on every weekend from folks are affected by the activities or they go on in the national forest. And we really are proud of the world's largest RCW population, and we need to protect that, but we also need to take into consideration the needs of the humans who live in that area and who helped rebuild that forest from the time that it was cut 75 years ago. So, I'll close with that.

Mr. JOSLIN. Congressman, if I could, I know that Liberty County is one of those down there in your area that's heavily impacted.

Mr. BOYD. Well, I'm grateful that you know about Liberty County, because you're right. That's a county that I don't go into that I don't come back with many battle scars, wounds.

Mrs. CHENOWETH. I do want to also mention and announce that this Committee will be holding hearings in Florida on the fire suppression, fire prevention activities that are needed. And, Mr. Boyd, I want to invite you to be a part of that process. You are more than welcome to join us in your area and we're there to make sure that we hear from your constituents as well. So, thank you for joining us today.

I wanted to ask the Chief, it's my understanding the Forest Service wins 98 percent of all appeals upon administrative review. Isn't that correct, about 98 percent?

Mr. DOMBECK. Let me ask Rhey.

Mr. SOLOMON. Madame Chairman, are you talking about the appeals that are reversed or remanded v. those that are upheld? Is that what you mean?

Mrs. CHENOWETH. I'm talking about those that are upheld.

Mr. SOLOMON. Yes, it's about 90 percent of those, now, are upheld by the reviewing officer at the higher level.

Mrs. CHENOWETH. And, then, of those 2 percent that go on up and are appealed on up, you win about 98 percent of the 2—or you win about 98 percent of those cases in the higher courts too.

Mr. SOLOMON. Well, no, I'm talking the administrative appeal process which is different than the litigation, the court process.

Mrs. CHENOWETH. I understand, Mr. Solomon, that it is different. I had moved from the administrative process. Of those 2 or 10 percent that are then appealed on into the court system, the Forest Service wins about 98 percent of those cases appealed into the district courts or on up into the higher level of the appellate courts.

Mr. SOLOMON. No, those are not the statistics that I have seen. The ones I have seen of recent cases is more around 60 percent.

Mrs. CHENOWETH. That's still not a bad win ratio, and, golly, with that in mind, I used to work on cases also before I came to the Congress. That's not a bad win ratio, and it makes me wonder why the Forest Service is so reticent to challenge the legal challenges that are threatened. For instance, in the Oregon situation, we've had the same type of situations in Idaho. We're seeing it all over. Why is the Forest Service so reticent to move ahead under 1611 or under the authority that Congress have given because of a threat of lawsuit Why aren't you being more aggressive in defending the law and defending your agencies?

Mr. DOMBECK. I would like to see the specific numbers myself, because I have not seen them recently. But what we see is that we see the most controversial come to the surface. As I look at the number of decisions that are made, for example, through the NEPA process each year, we have over 13,000 decisions are made either through the environmental impact statement process, environmental assessment process or categorical exclusion process. In fact, I appreciate the compliment, because like Congressman Boyd, some days in the Natural Resource Management business, we don't get many compliments, but the fact is we do have a good track record on the decisionmaking process, and the ones that come to the surface are really the ones that are the most controversial, and we need to focus on those and try to bring a resolution on those as well.

Mrs. CHENOWETH. Chief, I know the feeling. There are some days even Congressman just all we hear are the complaints. So, I certainly can sympathize with that, but in Senator Ferrioli's testimony he said that with regards to the fire that he testified to in the Malheur—no, it was on the Malheur, yes—that the litigation that was brought in was, I think he termed it cookie cutter; you know, a 32 cent stamp type of appeal. And, so since the Forest Service deals probably in a large number of these, each one—I guess, common sense would just say you'd be getting used to dealing with some of these cookie cutter-type objections that come in. Isn't that true?

Mr. DOMBECK. Well, I guess I relied on the judgment of the regional forester and the staff in Oregon on that decision, but I'm not sure—do you have any additional information on the——

Mr. JOSLIN. I would say that what he referred to on the stamp was in regard to a filing of the administrative appeals, and in that particular case, it was the judgment of the regional office folks that there were some significant gaps in the initial environmental impact statement that was prepared and that the regional forester felt that the folks needed to go back and boost that up, recognizing full well that we'd have to go through a winter and a run-off as we have suffered so far going through but recognize that in order to make that decision that he would need to do some more work on it. So, that's where it came out back to the forester supervisor for redo.

Mrs. CHENOWETH. While I haven't had a chance, and normally you wouldn't you expect me to review your pleadings, nevertheless, in section 1611, subsection b, as I read into the record, the law clearly defines fire as being a catastrophe which is an occurrence that rises even beyond an emergency. It's a catastrophe. And then in the next line where the law deals with insect and disease attacks—attacks of disease and insects, it's a lower standard. But the law is pretty clear about how the Forest Service should deal with fire. It defines it as a catastrophe, and so, I guess that's why I get very frustrated, and I think we heard the frustration from Senator Ferrioli that we just hear, "Oh well, we have to stop all the presses and stop everything from moving ahead and restoring to the sustained yield standard that the law requires; that we must under Knudsen-Vandenberg funds and authority begin to restore the forest," everything comes to a screeching halt, and the law could not be more clear, and whether we are pleading the law or what, I don't know, but based on your track record and based on the clarity of the law and the standard by which the law declares fire to be, we should be moving ahead not with carelessness at all, but with, I think, more determination.

And I think that I'm just reflecting the frustration that we're all beginning to feel, and I hope that in Florida they don't have to go through the frustration of not seeing restoration projects and removal of fire destroyed timber and the years of having to face that everyday. And then you guys have to come up here and face me and the Committee. But my frustration level is growing much, much more intense, and I guess I would like to ask the Chief why the Texas situation was so different. It was windthrow which is not described in the law as catastrophic; fire is. But windthrow, this was a situation, and there was some windstorm and ice, disease and insects, of course, did set in eventually, but why was that dealt with differently than the other situations that we all have to face?

Mr. DOMBECK. Well, let me just repeat the two criteria that I talked about with Congressman Boyd. The human health and safety. The human health, in this case, windthrow, roads blocked throughout a fairly extensive area where people lived and they have to get into those areas. Secondly, the red-cockaded woodpecker situation. In a sense, the Endangered Species Act worked in reverse of the way most of us are used to seeing it work, and

the fact is the way to prevent reduction of the red-cockaded woodpecker habitat——

Mrs. CHENOWETH. I'm giving you lots of time.

Mr. DOMBECK. [continuing] going in there and removing the trees around the clusters benefited the red-cockaded woodpecker. So, there were those two criteria, and I believe that's—so, there are a lot of significant differences between the Summit sale and the blowdown from that standpoint.

Mrs. CHENOWETH. I want to yield to Mr. Boyd, but I want to ask you, Chief, yes, we have the red-cockaded woodpecker down there, but we had steel hen; we had bow trout; we have endangered species all over the place in the Northwest, and the kind of pictures that Senator Ted Ferrioli showed us, it's patently obvious that that did not constitute habitat for any of those endangered species. In fact, the picture of the stream was devastating. I mean, there was no stream habitat left; nothing to shadow and shield those spawning salmon. Let me read again in section 1611 that "Nothing in subsection (a) which requires that you manage the forest under a multiple yield, sustained yield basis—I mean, that's clear what the law says, and NEPA nor the Environmental Protection Act took that away. In fact, the Environmental Protection Act made this entire Act a part of that Act by reference; it didn't change it. And it says "Nothing in this section shall prohibit the Secretary from salvage or sanitation of harvesting of timber stands which are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect and disease attack, period." It doesn't say anything about another set of criteria that you, alone, are dealing with your decisionmaking. I mean, that seems to be the standard while the standard that is patently clear, and the law is being ignored.

I don't mean to fuss about this, but as a Congressman, I cannot ignore this, and I think your feeling of success and your level of frustration would be less, feeling of success would be a lot of greater if we could simplify the focus of where your protection is. I guess I become very frustrated again when I see other criteria that you're making decisions that departs from the actual law. Chief, do you have any comment with regards to that?

Mr. DOMBECK. Well, the—again, I think we've said—and I certainly understand your frustration and can feel your frustration—the alternative arrangement does not circumvent NEPA. What it does is it expedites the activity——

Mrs. CHENOWETH. Yes.

Mr. DOMBECK. [continuing] and that's a very important point. The criteria for that alternative arrangement are what I've stated as the health and human safety, the violation of law criteria, and I would certainly be happy to, as the case in the Boise situation and the Texas blowdown situation, just like with the Summit situation, we're going—and the whole Florida fire situation that Earl Peterson commented, we're going to be taking a look at these in detail from the analysis and take a look at where are the problems. What can be done better What can be done different

what can we learn from this that we can apply to a situation in the future to avoid this kind of concerned frustration as we move forward.

Mrs. CHENOWETH. Let me say I'm very glad that you're going to do that, but I want you to apply that same criteria and dedication to the Malheur and the Boise and all of the areas that have suffered the catastrophe that we all have as defined in 1611. Mr. Boyd.

Mr. BOYD. Thank you, Madame Chairman. Chief, I want to follow up on the Texas situation at some risk here of hurting my own particular situation, because what I want to ask you at the end is—and I want you to consider this—is there opportunity for us to get an expedition of the NEPA process in Florida and—but don't answer right now, because I want to address the issue in Texas again. How many acres were in the blowdown in Texas

Mr. DOMBECK. Let me——

Mr. BOYD. We can turn to Mr. Joslin.

Mr. JOSLIN. We had approximately 103,000 acres.

Mr. BOYD. How many million board feet?

Mr. JOSLIN. Trees blew down in various degrees.

Mr. BOYD. How many million board feet of timber were harvested?

Mr. JOSLIN. That's still in process. It was estimated that the latest estimate I got from the forest supervisors there was about 225 million. The sales that they have up and what two or three that are left to put out would salvage about half of that, a little over 100 million.

Mr. BOYD. All right. Now, I want to consider this. We used the three criteria that you talked about. No. 1 is human safety, and you said the roads were an example. If human safety was the issue and the roads were blown over, you'd just clear the roads. You wouldn't go in and harvest 103,000 acres, and, second, the RCW. You're going do nothing for the RCW by removing the salvage timber, because RCW is going to have to have a standing tree. That RCW colony is going to have to move another location, and it won't be able to come back to that area for years until you're able to rehabilitate and reforest. And, so I guess I'm sort of making a case against myself here, but I'm making a case for having the law changed. I'm making a case in support of Mrs. Chenoweth's legislation here that those criteria—and they're not in the law evidently—need to be changed.

Now, there, obviously, were political considerations here, and I'm sure that you're not able to—I know that you're not able to come forward and say that as a witness to the congressional panel. But what—it's just too broad of an application of the human safety issue to say that because the trees are blown down the road, we've got to go harvest 103,000 acres, and it's too broad of an application of the RCW issue to say we've got to harvest because the RCW population is in danger. It's not going to be less endangered because you harvested, because those RCW, the way I understand it, at least in Appalachicola, they have to have a standing tree to be in, and you can't replace that standing tree over night.

So, now, I want to go back to my question. Can we apply the alternative arrangement to the fire in Florida?

Mr. DOMBECK. Based upon the request that we get from the field, we'll look at every situation, so the answer to that, can you apply—can you request—can they request it? Absolutely, yes.

Mr. BOYD. Would Ms. Carney be the proper person to make that request?

Mr. DOMBECK. Yes.

Mr. BOYD. OK.

Mr. DOMBECK. What I'd like to just to clarify one point on the red-cockaded woodpecker situation there is now the—I'm everything but a technical expert of red-cockaded—a technical expert on red-cockaded woodpeckers, but the technical experts tell us—and I'd be happy to arrange a more detailed briefing for you on that—but the fact is that the actual removal of the downed trees and there's a—every, sort of, permutation of small areas where everything is down on the ground to where just there are some trees are bent over and some areas where there are clumps left, and it's sort of this sort of mosaic that they're dealing in, and when the Fish and Wildlife Service reviewed the quality of the habitat for the red-cockaded woodpecker, those kinds of things they take in a situation and clearly one of the criteria involved benefit to the increased enhancement of the survival of red-cockaded woodpecker colonies, and I'd be happy to arrange for a——

Mr. BOYD. I'm no technical expert either, so we probably have about the same amount or lack of knowledge, if you will, but I can tell that they apply in cases where we've had private lands where we've found RCW and they came and took jurisdiction and that in cases where wanted to cut that timber, we had to physically move those RCW, because once you cut that timber or once it's on the ground, that RCW cannot survive there; it has to move. I mean, I'm no technical expert, but you don't have to be an expert to know that they live inside of a hole in the tree, and if it's on the ground, they won't survive there.

Mr. DOMBECK. Can you add to that?

Mr. JOSLIN. Yes, one of the things that I just—quickly, if I could, Madame Chairman—one of the things there that we learned when we had the hurricane that hit the Francis Marion National Forest a few years ago was inserts that we put in there, because you're correct that they have to have cavities. We immediately started doing some of that and had birds that came to those. The other part that's critical over there too is the removal of that material to reduce the risk of fire in not only the clusters but also in the foraging areas, and that's very critical in connection with red-cockaded woodpeckers.

Mr. BOYD. Thank you very much. I wish Ms. Nelson was still here to hear that, but she's, obviously, gone. No she's not, there she is. She slipped back in, thank you.

Mrs. CHENOWETH. Mr. Boyd. Congressman Boyd, I hate to interrupt you, but I have just gotten word that the procession for the slain officers is now crossing the 14th Street Bridge, and they will be arriving at the Lincoln Memorial just momentarily, and I know both of us are required at other places, and so, with that, I do want to say under these sad circumstances, we're going to need to adjourn the meeting, and, as usual, the record will remain open for

10 working days. If any of you wish to supplement your testimony, you are welcome to. We will be submitting additional questions, and I do want to let you know that the procession will be on the Hill very shortly. With that, this hearing is adjourned. Thank you.

[Whereupon, at 12:52 p.m., the Subcommittee adjourned subject to the call of the Chair.]

[Additional material submitted for the record follows.]

STATEMENT OF TED FERRIOLI, STATE SENATOR, OREGON STATE SENATE

Madam Chairman, Members of the Committee, the purpose of my testimony will be to illustrate the current, dysfunctional response of the Forest Service under the National Environmental Policy Act (NEPA) to catastrophic events, illustrated by circumstances of the Summit Fire, located on the Long Creek Ranger District, Malheur National Forest in Grant County, Oregon.

The Summit fire was caused by lightning on August 13, 1996. Over 24 days, the fire burned across 37,961 acres of mixed conifer forestlands, damaging riparian and roadless areas, leaving a mosaic of fire-killed timber estimated at approximately 300 million board feet.

After reviewing the likelihood of appeal and litigation, Malheur National Forest Supervisor Carl Pence ordered preparation of an Environmental Impact Statement (EIS), a costly and intensive procedure authorized under NEPA. At the same time, Mr. Pence elevated the Summit Fire Recovery Project to the top priority for the forest, set a deadline of September 1997 for its completion and discontinued planning efforts for most other management activities on the Malheur. Mr. Pence also called for temporary assignment of most district planning personnel to the recovery project.

During the draft phases of the Summit Fire Recovery Project, Malheur National Forest Planning Staff engaged in an extraordinary process of outreach and involvement with the community. Orientation tours of the fire area were contacted for Members of Congress, Oregon Governor John Kitzhaber's Citizen Advisory Panel on Eastside Forest Health, environmentalists, forest products industry representatives, Forest Service Regional Office staff, representatives of the National Marine Fisheries Service and U.S. Fish and Wildlife Service staff.

Throughout this period, Malheur National Forest Planning Staff and the community received assurances from Region 6 Planning Staff that other than "minor concerns," the Recovery Project was "on track."

On August 27, 1997, Forest Supervisor Carl Pence signed a Record of Decision that was immediately appealed by the environmental community using what can be described as a "cookbook" appeal. The alternative selected by Supervisor Pence would have treated approximately 9,500 acres, producing an estimated 108 million board feet of salvage.

Despite unprecedented communication between Malheur National Forest and Region 6 Planning Staff, Supervisor Pence was notified that Regional Forester Bob Williams could not support the Recovery Project. Supervisor Pence was offered two choices, either have the Record of Decision (ROD) remanded to the Malheur National Forest, or voluntarily withdraw the ROD. Since voluntary withdrawal offered more flexibility for remediation, Pence chose the latter option.

Over the next six months, Malheur National Forest Planning Staff rewrote the Summit Fire Recovery Project and prepared a Supplemental Environmental Impact Statement. Major revisions to the project included development of a Water Resources Management Plan, Consultation with U.S. Fish & Wildlife Service for Bull Trout, Informal Consultation with National Marine Fisheries Service for Steelhead and revision of the proposed treatment in riparian areas.

On July 12, 1998, more than 23 months after the Summit Fire, a new Record of Decision was issued calling for salvage and rehabilitation of approximately 6,600 acres producing about 50 million board feet of timber.

During the intervening months, insects and blue stain fungus have infested the stands and sever checking has occurred significantly reducing the value of salvageable timber. The project, if conducted in August 1997, could have produced $6,912,000 according to the Final Environmental Impact Statement (page 2-21). Today, if operated as proposed, the project will produce approximately one sixth of that amount, or $1,150,000 according to the Final Supplemental Environmental Impact Statement issued July 12, 1998 (page S-6).

The cost of suppression for the Summit Fire was $25,400,000. Planning for this project cost approximately $1,209,893 for the original DEIS and additional $356,432 for the Supplemental DEIS.

Madam Chairman and Members of the Committee, while the NEPA process works well for proposed management actions that are not time-sensitive it is wholly inappropriate for management actions in areas devastated by windthrow or infestations of insects and disease. The NEPA process is especially inappropriate for fire recovery projects where rapid deterioration and loss of value is the predictable outcome of delay.

Madam Chairman and Members of the Committee, you know that a healthy economy and a healthy ecosystem are coefficients in the equation of sustainability. The NEPA process was intended to disclose elements of critical thinking and analysis

leading to decision-making. Instead, it has become bureaucratized to the point where it threatens both the ecosystem and local economies. In reviewing the NEPA process, I would suggest three actions that could be of immediate benefit:

- *Require the Council of Environmental Quality to provide an easily accessible mechanism for approval of "Alternative Arrangements."* The use of "AIternative Arrangements," as was done in March, 1998 for salvage of nearly 300 million board feet of blowdown in Texas should become a model for meeting NEPA requirements when treating catastrophic fire, dead, downed and severely root-sprung trees whenever these conditions occur.
- *Provide an expedited appeal and litigation process to resolve potential conflicts in a timely manner.* Creating a shorter statutory appeal process with final adjudication, followed by brief judicial appeal period with a statutorily mandated deadline for final adjudication would not only provide heightened access for citizen appeals and litigation but timely resolution, as well.
- *Modify the NEPA process to add full consideration of economic values affected by Federal decision making* At present, NEPA requires full disclosure of environmental values and considerations but does not disclose economic values and considerations in Federal decision making. To be effective, NEPA must also feature full disclosure of economic considerations so that parties affected by Federal decisions will have assurance that the cost, benefits and affects will be fully disclosed.

These amendments to the NEPA process would greatly reduce delays in processing time-sensitive recovery projects following windthrow, infestations of insects and disease and catastrophic fire.

Our experience has shown that catastrophic events require a planning response that preserves the net asset value of the resource, not only to sustain communities that depend on natural resource outputs, but also to capture the maximum value to pay for rehabilitation of resources damaged caused by wind, insects, disease and wildfire.

STATEMENT OF L. EARL PETERSON, DIRECTOR, DIVISION OF FORESTRY, FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

MADAM CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Good morning, and thank you for the opportunity to tell you how the Florida Division of Forestry manages its timber resources and in particular how we deal with emergency salvage operations when struck by natural disasters.

The Florida Division of Forestry is one of the largest land management agencies in the State of Florida. We have been managing state forests for over 60 years and presently co-manage an additional half million acres of other public land. All of these tracts are managed under the multiple-use concept, which includes timber production.

There are 36 state forests managed under the Division's direct guidance and the land base of these tracts exceeds 740,000 acres. Approximately 55 percent of this total (410,000 acres) is suitable for pine silviculture. An active forest management program occurs on this pine acreage and includes prescribed burning, reforestation and timber sales. Trees are grown to an old age on state forests for a number of reasons, two of which are to provide a natural ecosystem that is rapidly disappearing from the State and also to provide a special experience to the public sector who visit state forests in order to enjoy a large number of resource-based outdoor recreation activities. Our state forests represent an investment by the citizens of Florida, and that investment should produce both a natural resource heritage for the future and an economic return.

The practice of sustainability is a cornerstone in the management of the timber resource. By using current forest inventory data, we insure that state forests are not overcut and that growth will continue to exceed yield on an annual basis. Trees are harvested through a number of silvicultural techniques, including improvement thinnings and restoration harvests, the latter being the removal of off-site species so that the naturally occurring species can be restored to a particular site.

In a well-managed state forest, foresters for the Division strive to keep the trees in a healthy condition using such management tools as prescribed burning and improvement thinnings, which I previously mentioned. However, due to natural processes beyond our control, unexpected and undesirable tree mortality is continually occurring in the natural forest system. Examples are lightning killed trees, mortality from wildfire, insect and disease outbreaks and windstorm damage.

Because this is a natural process, if the level of tree mortality is considered light, then oftentimes no action is taken. The resulting dead snags provide homes for wild-

life and help create biological diversity in the forest system. However, when tree mortality reaches levels where there is significant economic loss or there is the potential for insect and disease spread, then salvage and/or sanitation harvests are initiated to recoup monetary losses and to reduce the threat of additional tree mortality.

Although prompt action is often taken to salvage timber that has been damaged or killed at moderate levels or in a limited area, there is no question that the Division of Forestry will take action when major tree mortality events take place. This statement is based on recent occurrences on Florida's state forests. In October, 1995, Hurricane Opal made a direct hit on Blackwater River State Forest, which is Florida's largest state forest at 189,000 acres. Within 6 months we had salvaged an estimated 95 percent of the damaged timber, which was approximately 50 million board feet of sawtimber.

In the spring and summer of 1997, Florida experienced the worst outbreak of southern pine beetle activity in the history of the State. The infestation was centered in the Marion and Levy County area of Central Florida. Loblolly pine was the major species being killed but considerable slash pine and longleaf pine also died. The insect was indiscriminate in attacking trees across all ownership lines including state parks, state forest, national forest, municipal, forest industry and lands owned by private individuals. The Division of Forestry took a lead role in taking actions to control this insect outbreak plus salvaged all infested timber in Goethe State Forest in Levy County and spearheaded salvage efforts on other state-owned lands.

Finally, the State of Florida has just gone through the most serious outbreak of wildfires to have occurred in recent times. Approximately 500,000 acres burned between June 1st and early July. Of this total an estimated 260,000 acres is commercial pine timberland. A conservative estimate is that 2,600,000 cords of damaged or fire-killed timber will require salvaging in the next four months. Besides being directly involved in the total salvage effort, the Division of Forestry had approximately 14,000 acres burn on Tiger Bay and Lake George State Forests in Volusia County. Once the wildfires were controlled, we immediately moved toward damage appraisal and initiating salvage sales on these 2 state forests. In two weeks we sold 4 salvage sales and had plans to sell 4 more during the third week.

Time is of the essence when selling salvage timber, especially sawtimber. In Florida's warm climate, dead sawtimber must be utilized within a few months or it will deteriorate to where it can only be used for pulpwood. Pulpwood will only last a few months longer. Because of this short time frame we expedite the bid process and only give potential bidders a week or less to submit their bid for a sale. Emergency salvage sales of this nature are almost always sold on a per unit basis, which means the wood is sold by the ton. A performance bond of $5,000.00 or more is usually required to insure sale compliance. Foresters spend considerable time administering the sales to insure all loads are accounted for and that all conditions of sale are being followed.

A few key points for salvage operations conducted by the Division of Forestry are that they are done in a rapid fashion to insure maximum economic return, eliminate waste and to prevent further spread of pathogens or insects that might kill additional timber. All potential bidders are given a chance to bid on every sale so that we cannot be accused of unfair sale procedures, and ongoing sales are administered closely to insure loggers comply with the conditions of sale.

The Florida Division of Forestry is fortunate to have good latitude in making decisions about procedures and conditions for silvicultural applications, such as reforestation and timber harvesting. We have the responsibility and authority to utilize the best known science for taking inventory, projecting growth and yield, and scheduling harvests based on site productivity and ecosystem requirements. Internally, we have administrative procedures to ensure good business applications, provide equitable bidding processes, and satisfy audit scrutiny. However, during times of emergency as previously described, we are allowed to accelerate that process in order to minimize economic losses.

BID PROCEDURE FOR WILDFIRE TIMBER SALES

TIGER BAY AND LAKE GEORGE STATE FORESTS

JULY 15, 1998

Based on conversations with Rene' Ash (who talked with Mike Gresham), we can expedite the timber sales on these two state forests. I agreed with her that we would implement the following procedure:

(1) Fax or E-Mail a written sale specifications sheet to all interested bidders for each timber sale. We can also fax a sale map and bid form.

(2) Give prospective bidders two days (or some other predetermined time) to fax their completed bid form back to Tiger Bay State Forest Headquarters.

(3) Waive the need for a minimum acceptable bid. Analyze the returned bids to make sure all bidders can meet the conditions of the sale. Contact the high bidder and confirm their bid and try to negotiate a higher price if the opportunity presents itself. If the top 2 or more bids are similar, or if there is no distinct winner, contact the bidders with the highest bid and negotiate the best price from one of them. Analyzation of bid results and any negotiations will be coordinated between TBSF/LGSF staff and State Lands Section staff.

(4) Prepare the approval memorandum to L. Earl Peterson and obtain his approval of the recommended high bidder.

(5) Waive the 3 day posting period if the successful bidder can start logging immediately. Otherwise, post the results for 3 working days.

(6) Overnight 4 copies of the executed timber sale agreement to the State Lands Section. We will deliver it to Mike Gresham's office the day it is received and notify TBSF Headquarters once it is fully executed.

By: John O'Meara

NORTHEASTERN UNITED STATES -- ICE STORM
January 5 - 10, 1998
18 million acres

As a general rule, all requests for ground disturbing activities not covered under the management plan must be reviewed by the Field Operations and Forest Management Bureaus.

(6) **Public Use** - All new lands shall be available for public use as described in the Land Management Advisory Council interim management guidelines and subsequent 5 Year Forest Resource Management Plan. Prior to opening a state forest for general use, a State Forest Use Permit can be issued to allow limited public use unless otherwise mandated.

(7) **Assistance** - These start up procedures are intended as a guide to field units. Field units should contact the appropriate Division of Forestry Bureau for additional information and assistance.

500.107 **State Forest Use Permit**. - A use permit, Form SN 4228, must be secured from appropriate state forest personnel by any organized group for use of state forests or other public lands managed by the Division of Forestry. The permit will be completed in duplicate, with one copy given to the group representative and one copy retained at the administering office as a record assuring that dates and groups do not overlap. A supply of Form SN 4228 should be kept at each state forest administering office.

500.108 **Sale Of Timber On Managed Lands**. - Timber on State Forests and other State Lands shall be sold according to the following procedures:

(1) The timber to be sold shall be marked and tallied and its volumes shall be computed using the applicable International 1/4" Form Class Volume Table for sawtimber from the handbook "Tables For Estimating Board-Foot Volume of Timber" and the applicable Hawes Pulpwood Volume Table for pulpwood. The Saw Tally and Pulp Tally computer program can be used to determine timber sale volumes. The tally interval selected should provide a separate product volume estimate that is within ±5% at the 95% probability level.

(2) Timber to be clear-cut may be cruised with a 10 factor prism rather than marked and tallied. The volume estimate for each product class should be within ±10% at the 67% probability level. All prism cruise timber sales must be approved by the Chief, Forest Management Bureau in advance.

(3) A bid package shall then be prepared and forwarded to the Forest Management Bureau for review. The bid package will generally include a bidder acknowledgement form, legal ad, bid form, sale area map, sample sale agreement, cruise summary, marking rules, and timber sale prospectus. When the review is completed, the Bureau will notify the field unit of any changes necessary and the bid opening date and time.

(4) The field unit will prepare the final copy of the bid package and mail the bidder acknowledgement form, bid form, map, cruise summary and timber sale prospectus to all prospective timber buyers in the area. At the same time, the legal advertisement will be printed in one edition of a local newspaper of general circulation. The day in which the legal ad is published must be at least eleven (11) days prior to the bid opening. It is not necessary to put a legal ad in the newspaper unless the sale is in excess of $10,000.00 in value.

(5) Sealed bids are invited which shall be opened in the Division of Forestry State Office, 3125 Conner Boulevard, Tallahassee, Florida 32399-1650. A minimum acceptable bid will be set by the Forest Management Bureau and approved by the Director, Division of Forestry. The minimum will be sealed and opened in conjunction with the bid opening.

(6) The agreement form used shall be the current version of the State Land Timber Sale Agreement (form SN 4233).

(7) A performance bond of 10 percent of the bid price, rounded to the nearest dollar, will be required to accompany each bid.

(8) After the bids have been opened, the Forest Management Bureau will advise the field office and all bidders of the results of the bids. The bonds shall be returned to all but the high bidder. A bid tabulation with the recommended award will be posted for review at the location where bids were opened (bulletin board in Room 271 of the Conner Building) and will remain posted for a period of 3 work days. After posting, the Forest Management Bureau will prepare a memorandum to the Director, Division of Forestry recommending either acceptance of bid or rejection of all bids depending on the bid results.

(9) When approval has been received from the Director, the Forest Management Bureau shall advise the buyer by letter that his bid has been accepted, and that he should sign the agreement and make payment on the sale.

(10) Four copies of the agreement will be signed by the buyer and then forwarded to the Forest Management Bureau with the appropriate sale payment. The Bureau will have the agreement executed for the Department by the Director, Division of Administration.

(11) Copies of the agreement will be distributed as follows: original to buyer, original to field office, original to Director, Division of Administration, original to Forest Management Bureau and a copy to Finance and Accounting.

(12) Once the buyer has had a pre-sale meeting with the local timber management forester and has received a completely executed copy of the agreement, he may proceed with cutting the sale.

(13) Any deviation from the above-listed timber sale procedure must be approved by the Chief, Forest Management Bureau in advance.

500.109 **Removal of Small Volumes of Timber from State Lands** - Because of storms or other natural damage to timber, the Division of Forestry (DOF) often has small volumes of timber requiring salvaging on the lands under its management. This timber often needs immediate removal or its value will be lost. This means there is not adequate time to follow the DOF's normal timber sale procedure which can often take three months from preparing the bid package to initiating the harvest of the timber sale.

In other situations the DOF often has a small amount of timber needing removal because of construction or some other activity. In either case described above the timber volume is usually a small quantity and there is not enough timber to justify the expense of a normal timber sale or to motivate potential buyers to bid if the normal timber sale process is followed.

This section applies to timber sales having a predetermined value of less then $11,000.00. The Division of Forestry Director can approve these small sales without obtaining prior approval from the Assistant Commissioner. For emergency sales that are expected to exceed $11,000.00, the normal timber sale procedure will be followed or the Director, Division of Administration should be contacted for approval.

To be able to sell this timber in a cost-effective manner and to obtain the maximum obtainable revenue, the following procedure has been developed:

(1) When a field unit deems it necessary to hold a salvage sale for a small amount of timber on state lands, the State Lands Supervisor in the Forest Management Bureau will be contacted to discuss the applicable measurements and volume tables to be used. Once these have been determined, the field unit will do the applicable work.

(2) Local timber buyers who have expressed an interest in purchasing small volumes of timber are to be notified of the timber to be sold by the DOF field unit responsible for the sale. Generally, a minimum of three (3) and a maximum of five (5) potential buyers should be contacted.

(3) It is recommended that a time and date be set for interested buyers to view the sale area with a DOF representative.

(4) A bid opening time and date are to be set and bids are to be opened in a designated DOF field office with at least two (2) DOF representatives present. Bids are to be sealed with the amount of the bid in writing and the bidder's signature being required. The time and date of receipt are to be written on the sealed bid envelope by a DOF representative.

(5) Generally, timber will be sold lump sum, but if conditions warrant, it can be sold per unit. A performance bond is not required for a lump sum sale but is strongly recommended for a per unit sale.

(6) A minimum acceptable bid will be determined before the bid opening by consultation between applicable field unit personnel and Forest Management Bureau staff. This minimum will be sealed and opened in conjunction with the bid opening.

(7) A bid tabulation with the recommended award will be posted for review at the location where bids were opened and will remain posted for 3 work days. This bid tabulation will include the minimum acceptable bid, the name and address of bidders, their bid amounts, and the signatures of 2 DOF representatives who witnessed the bid opening. A copy of this bid tabulation is to be sent to the Forest Management Bureau.

(8) The Director, Division of Forestry will approve the high bidder after the posting period.

(9) The successful bidder will be required to sign a State Land Timber Sale Agreement (4 copies). This Agreement will be signed by the Director, Division of Administration, for the Department.

(10) A list of conditions is to be prepared in writing at the initiation of the bid process and distributed to all prospective bidders along with a bidder acknowledgement form. This list of conditions is to include the following information:

(1) Reason for sale.
(2) The name of the sale.
(3) The estimated timber sale volume, if applicable.
(4) A map of the sale area with the estimated acreage.
(5) The time, date and location of the bid opening.
(6) The length of the Sale Agreement period.
(7) Also, the below-listed statements are to be included in the list of conditions:
  (A) A minimum acceptable bid will be set, sealed, and opened in conjunction with the bid opening.
  (B) Bidders are to submit a signed and sealed bid.
  (C) The successful bidder will be required to sign a State Land Timber Sale Agreement and make payment in full (if the sale is lump sum) within 10 days of the bid opening.
  (D) In cases of a tie for high bid, the successful bidder will be determined by a random drawing.
  (E) The volume information is not guaranteed. Bidders are to satisfy themselves as to the volume and value of timber for sale prior to bidding.
  (F) The DOF reserves the right to reject any and all bids and to waive any irregularity in bids received.

500.110 <u>Illegal Activities</u> - Every Division of Forestry employee has an obligation and responsibility to report to their supervisor any knowledge or evidence concerning illegal activities occurring on managed lands. If such illegal activities are life threatening, they should be reported immediately to the nearest available law enforcement authority.

All illegal activities will be documented by using the Investigation Report and a copy sent to the Deputy Chief of Field Operations.

STATEMENT OF CARA RITCHIE NELSON, CONSULTING ECOLOGIST, NATURAL RESOURCES DEFENSE COUNCIL

Good morning, Madam Chairman, and thank you for the opportunity to appear and address the Subcommittee on Forests and Forest Health on the subject of emergency exemptions from the National Environmental Policy Act (NEPA) for salvage sales, and your discussion draft bill. My name is Cara Nelson. I have over ten years of professional experience researching the effects of management on forest ecosystems. For the last 4 years, I have worked both as a staff and a consulting ecologist for the Natural Resources Defense Council (NRDC). NRDC is a national, nonprofit environmental organization dedicated, among other things, to the protection of forest resources. During this time, my work has largely focused on issues related to fire and fuels management in forests of the Interior Columbia River Basin in eastern Washington and Oregon. My educational background includes a B.S. in Ecology from the Evergreen State College in Washington State and a Masters degree in Forest Ecology from the University of Wisconsin, Madison. In addition, I am in the process of completing a Ph.D. in Forest Ecosystems Analysis at the University of Washington's College of Forest Resources in Seattle.

In summary, despite persistent calls for emergency "forest health" treatments, current scientific understanding of forest ecosystems and data from past salvage projects do not provide a basis for aggressive post-disturbance logging. There is very little solid scientific support for claims that salvage and other removal of commercial timber for "restoration" purposes effectively restores fire resilience or ecosystem integrity. On the contrary, significant scientific evidence demonstrates that serious, adverse impacts can and do result from salvage and commercial thinning. For these reasons, careful design, analysis, and environmental review of post-disturbance management activities are especially important. Broad "emergency" exemptions from NEPA, as proposed in the discussion draft of July 7, 1998, would severely undercut this environmental review, thereby *decreasing* the likelihood of effective restoration of forest ecosystems and *increasing* the likelihood of continued forest degradation. A case in point is the recent NEPA exemption to expedite salvage logging on Federal forestlands in Texas, authorized after the February 1998 windstorms. The Forest Supervisor requested that emergency action be authorized to address concerns about wildfire and southern pine beetle damage. Hovever, the scientific record does not support that emergency waiver.

Very little empirical research has been conducted on the impacts of salvage, thinning, and fuels treatment on fire behavior. In spite of hypothesized benefits, the handful of studies that address these issues, as well as anecdotal accounts and analyses of recent fires, suggest that removal of dead, dying, and overstocked trees does not reliably reduce fire intensity or severity. In fact, in some instances treatments intended to reduce fire intensity and hazard may have the opposite effect.

For example, at least three recent studies of the relationship between thinning and impels treatment and fire behavior found that treatment exacerbated fire conditions. The results of one of these studies, conducted by Huff et al. (1995) in the Interior Columbia River Basin in Washington and Oregon, suggest that all logging, including thinning, tends to increase fire Howard: "In general, rate of spread and flame length were positively correlated with the proportion of area logged. *All harvest techniques* were associated with increasing rate of spread and flame length . . . [emphasis added]." Thinned stands generally were positively correlated with fire intensity as measured by rate of spread and flame length.

Similarly, results from a study of the effectiveness of fuels treatment on previously non-harvested lands in the Bear-Potato Analysis Area of the Wenatchee National Forest, Washington provides evidence that harvest treatments may increase risk of fire damage. In this study, the Forest Service evaluated the effects of past fuel treatments on fire severity (U.S. Forest Service 1995). Before wildfire in 1994, approximately 2021 acres of the fire area that had not been previously logged were treated for fuels with mechanical removal and/or prescribed burning. Forty three percent of areas that were treated to reduce fuels experienced high mortality, compared with 37 percent of the areas that were *not treated* for fuels. Only 10 percent of the areas treated for fuels experienced low mortality, suggesting that fuels treatment on non-harvested lands may increase the risk of high severity fire.

There is also evidence from a study conducted in the Klamath region of California that stand density reduction through harvest treatments may not result in lower fire intensity and severity. Weatherspoon and Skinner (1995) found higher levels of crown scorch in thinned stands than in adjacent stands that had not been thinned. Unmanaged stands had the least severe fire effects.

Reports of successful fire hazard reduction focus on thinning of small diameter trees, but are almost entirely anecdotal. For example, thinned ponderosa pine for-

ests in Tiger Creek, a 2,500-acre drainage on the Boise National Forest in Idaho, are reported to have survived the 1992 Foothill Fire with minimal tree mortality (Blatner et al. 1994). However, this anecdotal evidence is of limited utility, especially when counter-examples are readily available. For example, thinning was not effective at reducing fire intensity and severity during another fire on the Boise, the Rabbit Creek fire, which burned roughly 200,000 acres on the north fork of the Boise River drainage during the summer of 1994. The burn created a mosaic of forest conditions. Some open ponderosa pine stands, considered to be fire resistant, were destroyed. Some stands considered highly susceptible did not experience high intensity burns (Peter Kolb, pers. com.). I am only aware of one study in which thinning was found to moderate fire behavior. During the 1994 Tyee fires, Wenatchee National Forest study stands that were thinned to below a specified crown bulk density burned at lower intensity and with less severe effects than stands that had not been thinned (Agee 1996).

Results of a recent modeling study in Sierran forests indicate that the type of "restoration" treatment employed, as well as the manner in which it is executed, will influence environmental conditions and fire hazard. In that study of six different "restoration" treatments that involved harvesting, only one treatment technique was predicted to reduce the number of acres burned or fire intensity (Van Wagtendonk 1996). Given that the study's conclusions are based on models that have not been tested in natural settings, results must be interpreted cautiously. However, findings such as these provide evidence that a careless or thoughtless approach to "restoration" treatments has a greater probability of increasing degradation and fire damage than of decreasing it.

Though a number of factors, some listed below, help to explain how salvage and thinning can exacerbate fire risks, one is worth singling out here. A natural divergence exists between what increases the profitability of logging operations and what might reduce fuel loading. Typically, rates of spread and intensity of forest fires are most affected by so called 'fine fuels,' the small branches, tree tops, and needles that have no commercial value. Unless careful and commercially unattractive treatment of these fuels is undertaken, removal of larger trees not only does not get at the primary engine of future fires, it concentrates fine fuels into potentially explosive "logging slash."

With respect to arguments about the need for salvage and thinning to reduce threats from insects, the scientific literature is more complicated. What is clear is that any credible claim about potential beneficial impacts from logging would have to account for numerous site-specific factors. These include (1) tree species composition, age and size structure, and spacing, (2) the biology, ecology, and population levels of the insect species that occur or are predicted to occur on the site, including the interactions among species, (3) the nature and extent of disturbance events, and (4) local climatic conditions. Thus, generalities about the need for and potentially desirable effects of salvage and thinning treatments across sites and/or conditions are not scientifically responsible. Detailed, specific, expert review and analysis are needed, and blanket solutions should not be expected to be successful.

In addition to the speculative nature of claimed ecological benefits from removal of "dead and dying" trees, scientific evidence demonstrates that persistent, adverse impacts can and do result from these practices. These impacts include:

- loss of snag and down log habitat required by many wildlife species (Thomas 1979, Bull 1994) and soil organisms (Amaranthus et al. 1989);
- simplification of forest structure (FEMAT 1993);
- increased soil erosion and compaction (Klock 1975, Marton and Hare 1990);
- loss of important sources of nutrients and organic material, with the concomitant reduction of long-term productivity (Jurgensen et al. 1990; Graham et al. 1994);
- increased near term fire hazard due to high loads of fine fuels (needles, branches, and tree tops) associated with the removal of large stems; and
- increased spread of non-native plants into burned areas (Harrod 1994).

Other post-disturbance practices, particularly active planting and seeding of non-native species, also have been shown to be detrimental (Taskey et al. 1989, Amaranthus et al. 1993). In short, by removing important structures and exacerbating stresses caused by natural disturbance, post-disturbance logging and other management activities impair the ability of ecosystems to recover (Beschta et al. 1995).

Similarly, although our current understanding of the ecological effects of "forest health" thinning is incomplete available evidence indicates that thinning operations, even when carefully conducted, can and do result in significant adverse ecological impacts, including:

- reduced habitat quality for sensitive species associated with cool, moist microsites or closed canopy forests (FEMAT 1993);
- damage to soil integrity through increased erosion and compaction (Harvey et al. 1994, Meurisse and Geist 1994);
- creation of sediment which may eventually be delivered to streams (Beschta 1978, Grant and Wolff 1991);
- increased mortality of residual trees due to pathogens and mechanical damage (Hagle and Schmitz 1993);
- increased near-term fire hazard, due to (1) addition of high levels of activity fuels (Fahnestock 1968) that may influence fire behavior for up to 30 years (Huff et al. 1995, Wilson and Dell 1971), (2) decreases in height to live crown ratios, mean diameter sizes, and bark thickness, resulting from removal of large diameter rather than small diameter trees, and (3) creation of warmer, drier microclimatic conditions (Countryman 1955, Rothermal 1983);
- dependence on an excessive number and density of roads (Henjum et al 1994, Megahan et al. 1994).

In the preceding paragraphs, I have discussed how (1) there is a lack of scientific consensus about the consequences of harvest-based "restoration" treatments, (2) in many instances, these treatments may increase fire severity and intensity, (3) some treatments have a greater probability of reducing fire intensity and severity than do others, and (4) commercial salvage and thinning have significant environmental downsides. These downsides need careful, conscientious evaluation and must be squarely presented to the public, sister agencies, Congress, and ultimately decision-makers, if a responsible judgment is to be made about where, how, and at what level to experiment with logging based forest "restoration." This is particularly true given the indisputable role that past logging and 'professional expertise' has played in degrading Federal forests.

Post-disturbance logging should be subject to stronger restrictions and environmental review procedures than those governing other logging and management activities. Additional guidelines are necessary because (1) post-burn soils are generally more sensitive to degradation than other soils, all else being equal (Perry 1995) and (2) protection of post-burn habitats may be critical for maintaining viable populations of species that rely on snags and coarse woody debris or are sensitive to watershed degradation (Beschta et al. 1995). Prior to treatment, there should be a full analysis of the potential for increased fire hazard and the short and long term effects of restoration treatments on soils, pathogen transmission, and terrestrial or aquatic species. Failure to analyze and disclose the environmental risks associated with these treatments may result in continued ecosystem degradation and may prevent the adoption of ecologically sound approaches to management of degraded stands.

The NEPA exemption that the Forest Service was granted due to a perceived emergency need for tree removal to control southern pine beetle populations and wildfire after the February 1998 Texas windstorm is an excellent example of the danger of emergency exemptions. Although the record does not support an ecologically valid need for emergency actions, the exemption short-circuited meaningful environmental analysis that could have influenced management decisions and prevented activities that are likely to further damage remnant stands.

A primary reason for the Forest Service's request for the exemption was concern over southern pine beetle (SPB). However, the Forest Service's Environmental Assessment (EA) for the Texas windstorm tree removal project recognizes that although SPB may invade individual damaged trees, there is no increased threat to the forest resource base of an SBP epidemic as a result of the windstorm: "Previous large-scale storm damage in pine forests across the south has resulted in little or no increase in SPB activity over expected levels ... Storm damage does not initiate or increase the severity of SPB epidemics, but may shift the distribution of infestations, as stands previously classified as high hazard may become low hazard stands due to storm impacts ... In stands where a large percentage of pine overstory was blown down, SPB infestations initiated in leaners or other susceptible pines have little chance to spread (Clarke and Starkey 1998)". Furthermore, removal of large down material will not affect population densities of SPB, as this species generally does not attack downed logs. Because the agency failed to show an impending risk of SPB epidemic as a result of the storm, its position that lack of access for beetle control due to dead and dying trees constitutes an emergency situation is unfounded.

In addition to concern over southern pine beetle damage, the Forest Service also justified the need for expedited tree removal as wildfire protection. However, the Forest Service's proposed tree removal activity is not likely to reduce the flammability of these stands. Removing large stems of standing and downed wood this sum-

mer will not mitigate the primary fire hazard created by the large volume of fine fuels. Large coarse woody debris retains moisture, requires more energy to ignite and combust, and may reduce fire spread by smoldering rather than burning. While large debris has relatively low flammability, the increased loading of fine fuels (needles, tree tops, and branches), generated both from the storm as well as from the salvage operations, directly contributes to higher rates of fire intensity and rapid fire spread. Effective treatment of small diameter fine fuels would be a more reasonable approach to increasing fire resilience than removal of large diameter standing dead and downed trees.

Despite the importance of fine fuels to fire behavior, the Forest Service's emergency activities do not include an adequate plan for their treatment. Although the two action alternatives described in the EA do provide for fuel treatment activities, these alternatives do not specify that activity fuels must be addressed in all areas where tree removal occurs. In addition, the EA does not evaluate the environmental impacts associated with different fuel reduction techniques. Furthermore, the EA proposes using lop and scatter treatments that may actually exacerbate fire behavior. Research by Van Wagtendonk (1996) in the Sierran forests suggests that lopping and scattering fine fuels may be among the least effective fuel treatment methods and may result in stands with significantly higher rates of fire spread, fireline intensities, and flame lengths than both untreated stands and stands treated using other techniques.

The Texas tree removal project is not likely to have a beneficial effect on insect or fire risk or hazard. Moreover adverse effects associated with the removal of a substantial number of large diameter standing dead and downed trees, inadequate treatment of fine fuels, and adverse impacts of harvest practices suggest that salvage activities may substantially degrade remnant stands. Had further environmental review of proposed actions been conducted, there might have been an opportunity for the development and adoption of more ecologically sound management alternatives.

In conclusion, sound scientific support does not exist for broad or generalized inferences that emergency logging operations will ameliorate fire or insect risks in our nation's forests. If anything, the opposite is true. I hope that my testimony will help dissuade the Subcommittee from proceeding with legislation that would abrogate the existing NEPA process in the name of "forest health emergencies." Thank you again for the opportunity to appear and present this testimony. I would be pleased to answer any questions the Subcommittee may have, within my area of expertise.

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Education

B.S. Ecology. 1990. The Evergreen State College, Olympia, Washington.

M.S. Forestry. 1996. University of Wisconsin, Madison.

Ph.D. Forestry. Degree anticipated 1999. Ecosystem Science and Conservation Division, College of Forest Resources, University of Washington, Seattle.

Professional Experience

1994-present: Ecologist, Natural Resources Defense Council, San Francisco, California. Develop and promote plans for ecological management of forests in the Interior Columbia Basin (on staff through 1995, consulting from 1995 until present).

1995-present: Research Assistant, Ecosystem Science and Conservation Division, College of Forest Resources, University of Washington. Conduct research on the ecology, demography, and physiology of late-seral herbs native to mid-elevation forests of the western Washington Cascades.

1991-1994: Research Assistant, Botany Department, University of Wisconsin-Madison. Conducted research on the decline of eastern hemlock *(Tsuga canadensis),* white cedar, and Canadian yew *(Taxus canadensis)* in the upper Midwest.

1988-1991: Forest Ecology Consultant, Olympia, Washington. Conducted research related to protection of old growth forest stands on national forests in Washington and Oregon based on ecological significance, for implementation of Forest Service Land and Resource Management Plans.

Grants, Honors, and Awards

1998: Washington Native Plant Society grant for research on the physiological and demographic consequences of timber harvest for late successional forest herbs.

1994: Leopold Chapter, Society for Conservation Biology, Conservation Award.

1995: Co-author of USDA competitive grant to study declines in hemlock, cedar and yew in the upper Midwest.

1992-1993: Graduate scholarship in Conservation Biology from the Pew Charitable Trust Foundation and the University of Wisconsin.

1992: USFS North Central Forest Experiment Station grant to study hemlock regeneration failure.

1991: National Audubon Society Distinguished Service Recognition.

Professional Societies

Society for Conservation Biology Society of American Foresters
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STATEMENT OF LAWRENCE HILL, DIRECTOR OF FOREST POLICY, SOCIETY OF AMERICAN FORESTERS

Madam Chairman, my name is Larry Hill. I am the Director of Forest Policy for the Society of American Foresters (SAF). The more-than-18,000 members of the Society constitute the scientific and educational association representing the profession of forestry in the United States. SAF's primary objective is to advance the science, technology, education, and practice of professional forestry for the benefit of society. We are ethically bound to advocate and practice land management consistent with ecologically sound principles. I am especially pleased to submit comments on the NEPA Parity Act. I wish to thank the Committee for its continued support of professional forestry and its continued support of SAF's priorities.

The NEPA Parity Act highlights a key provision of the National Environmental Policy Act (NEPA) that SAF supports. The regulations issued by the Council on Environmental Quality (CEQ or Council) in 1978 provide for alternative arrangements to normal NEPA procedure in an emergency situation. The CEQ regulations state:

> *Where emergency circumstances make it necessary to take an action with significant environmental impact without observing the provisions of these regulations, the Federal agency taking the action should consult with the Council about alternative arrangements. Agencies and the Council will limit such arrangements to actions necessary to control the immediate impacts of the emergency. Other actions remain subject to NEPA review. 640 C.F.R 1506.11)*

In addition to this direction, we understand that individual Forest Service and BLM units are required to consult with their respective Washington offices about emergencies that may result in a request for an alternative arrangement from CEQ. Additionally, Federal agencies seeking alternative arrangements should provide CEQ with a complete description of the needs for such an arrangement at the time of the request.

These provisions are worthwhile and allow for rapid yet cautious responses to situations that clearly should be treated as emergencies. The environmental laws of this nation are some of the most comprehensive in the world, yet at times they can slow actions intended to mitigate harm to the environment. The wisdom of the authors of these laws and regulations is clearly shown in these emergency provisions. At times, the environment is better with action than with inaction. Unfortunately, procedures developed with the best of intentions to protect the environment have resulted in some harm.

What appears to be absent from the alternative arrangement procedures granted by CEQ is some sense of direction and criteria for how and when these procedures should be applied. The best person to determine whether the situation warrants alternative arrangements from CEQ is the on-the-ground land manager. The people intimately involved in the day-to-day management of a forest know what the situation needs, and how quickly it needs correction. The additional guidance CEQ is required to develop under this bill should provide land managers in all the Federal agencies with a better understanding of when and how they should request these expedited procedures. Therefore SAF supports these provisions of the bill. This guidance would also ensure that these decisions are made consistently over time, and that all parties interested in the decisions have a clear understanding of how and why they were made.

We cannot comment on the specific locations in the National Forests for which this bill requests that CEQ and the Forest Service develop alternative arrangements under NEPA. We are, however, encouraged that the bill merely requests, and *does not require,* the agencies to develop alternative arrangements for these areas and public domain lands. Although SAF has heard from some of its members that there are locations in need of emergency treatment, we believe the decision to seek alter-

native arrangements from CEQ should rest with the Forest Service and its on-the-ground managers on a case-by-case basis.

Thank you for this opportunity to testify. I would be pleased to answer any questions you may have at this time.

BIO SKETCH
LAWRENCE W. (Larry) HILL
July 1998

Currently, Director, Forest Policy, Society of American Foresters

Native of Rochester, NY. Alexandria, VA, resident.

Graduate, 1950 New York State Ranger School, (SUNY), Wanakena, NY

Veteran, US Navy (Seabees), 1951-1955.

Graduate of University of Michigan, School of Natural Resources, BS in Forest Management (1958); MS in Forest Influences (Watershed Management) (1959).

Joined USDA Forest Service in 1959, serving subsequently in Ohio, California, Puerto Rico, and Washington, DC, with assignments in Research, State and Private Forestry, National Forest Administration, and Programs and Legislation.

Twelve years in Puerto Rico, including stints as Research Forester, Supervisor of the Caribbean National Forest, and advisor to the Commonwealth Secretary of Natural Resources in forestry, fish, and wildlife matters.

IN WASHINGTON, DC:

President's Council on Environmental Quality (Public Lands Staff), 1975-1977.

Assistant Director of Land Management Planning staff, Office of the Deputy Chief, USDA Forest Service, 1977-1984.

Staff Assistant to the Deputy Chief, National Forest System, 1984-1989.

Retired from Forest Service in December 1989. Served as USDA/FS Volunteer in 1990.

ABOUT ACTIVITY with the Society of American Foresters:

Active Member of SAF since student days at University of Michigan. several committee appointments and assignments at local and national SAF levels.

Policy Consultant to SAF, February, 1990 to March, 1991.

Currently (since March 1991), Director of Forest Policy, SAF national headquarters

Elected SAF FELLOW in 1990

CIVIC AFFAIRS:

Member of Governor's Agricultural Non-point Source Pollution Initiative Committee, State of Maryland; SUNY (Syracuse) College of Environmental Science and Forestry Foundation Board of Directors; SUNY Ranger School Alumni Association Board of Directors.

Society of American Foresters
Federal Grants-USDA and USDI
1994-1997

Agency	Grant Number	Date	Amount	Description
USDA-Forest Service	CCS-2-12-94-00-029	28-Sep-94	$ 4,000	Assist in the planning of the 6th National Wildemess Conference
USDA-Forest Service	94-6-196	30-Aug-94	$ 8,000	Certified Forester-survey
USDA-Forest Service	97-MOU-003	30-Sep-97	$ 15,000	Increase the understanding about impacts of forest fragmentation on the economy. ecology and its inhabitats
USDA-Forest Service	97-MOU-013	30-Sep-97	$ 15,000	Forest Fragmentation Roundtables-Chesapeake Bay
USDI-BLM	1422P850-A6-0020	21-Aug-96	$ 5,000	Leadership Academy
	Modification 01	1-Mar-97	$ 5,000	Leadership Academy
	Modification 02	12-Sep-97	$ 15,000	Video conference

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STATEMENT OF MIKE DOMBECK, CHIEF, USDA FOREST SERVICE

MADAM CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to join you to discuss your legislation for alternative arrangements for environmental analysis and NEPA compliance in emergency situations on the National Forest System. My testimony also incorporates the concerns and comments of the Bureau of Land Management (BLM).

The National Environmental Policy Act (NEPA) is our basic national charter for protection of the environment. It establishes policy, sets goals, and provides the means for implementing the policy. The regulations issued by the Council on Environmental Quality (CEQ) in 1978 which implement NEPA provide for alternative arrangements to the normal NEPA procedure in an emergency situation. The CEQ regulations state:

> *Where emergency circumstances make it necessary to take an action with significant environmental impact without observing the provisions of these regulations, the Federal agency taking the action should consult with the Council about alternative arrangements. Agencies and the Council will limit such arrangements to actions necessary to control the immediate impacts of the emergency. Other actions remain subject to NEPA review. (40 C.F.R. 1506.11).*

The Forest Service NEPA procedures supplement this guidance by instructing Forests to consult with th Washington Office of the Forest Service on emergencies, other than fire, that may require consultation with CEQ about an alternative arrangement. The BLM also requires Washington Office and Departmental clearance prior to requesting alternative arrangements with CEQ.

Examples of Emergencies

The Forest Service and CEQ have used the emergency provision in the CEQ regulations on three occasions, and the BLM has used it five times. My testimony will highlight the Forest Service's examples.

Due to severe drought in the summer of 1992, the City of Portland requested permission from the Mt. Hood National Forest to pump 1.7 billion gallons of water from Bull Run Lake to meet the emergency needs of the City for domestic water supplies. The Forest Service believed that such action would create increased sediments within the drinking water supply as well as reduce lake levels sufficient to kill fish and significantly alter the ecology of the lake.

CEQ concurred with the Forest Service that an emergency situation existed, and agreed that the Forest Service could proceed with a drawdown of the lake prior to NEPA documentation. The alternative arrangements were for the Forest Service to prepare an Environmental Assessment (EA) after the emergency action was taken. An EA was prepared during the drawdown period, but after the initial action was begun.

Pumping of Bull Run Lake began on September 12 and continued until September 28, 1992. Approximately 0.5 billion gallons were pumped from the lake during that period. Much needed rain fell during late September through early October removing the need for further emergency withdrawals. The lake began to fill to pre-emergency levels by mid-October.

In 1996, the Forest Service and Bureau of Land Management (BLM) found it necessary to take immediate action in the Cascade Resource Area and the Boise National Forest in Idaho. These areas included multiple watersheds adjacent to the City of Boise. Over fifteen thousand acres of Federal, state, and private lands were burned in the human-caused Eighth Street Fire which started on August 26, 1996. After the fire was extinguished, immediate rehabilitation was needed to minimize the threats to human life and property, deterioration of water quality and loss of soil productivity that could have resulted from flooding, mudslides and debris torrents from the burned area. The area was critical because of its location in a key watershed which functions as the primary ground water recharge area for the Boise Front aquifer, the source of groundwater wells for municipal use for the City of Boise and other municipalities. In addition, increased runoff potential threatened buildings and homes immediately below the burned area.

Application of the emergency NEPA provisions to the Eighth Street Fire was supported by a combination of unique circumstances. First, recent historic events showed the potential for damage. Fires in the same general area in the 1950's followed by a moderate rainstorm resulted in flooding of a large portion of Boise, including the downtown corridor. Second, local and state governments were consulted and supportive of the actions proposed. Third, the project received extensive public review and support. Finally, as would have been required under NEPA, alternative treatments were discussed and potential impacts to wilderness and threatened or endangered species were reviewed.

This year, the Forest Service again requested alternative arrangements with CEQ for emergency actions to restore immediately portions of the approximately 103,000 acres of forested lands on the National Forests and Grasslands in Texas damaged by the February 10, 1998, windstorm. The windstorm caused varying degrees of damage. The agency believed it would take up to six months using normal NEPA procedures before actions would be initiated to restore the damaged ecosystem including red cockaded woodpecker and bald eagle critical habitat. This delay could have resulted in further habitat loss for these threatened and endangered species by potential fires and bark beetle attack. The Forest Service was concerned that delayed action would critically impact 1998 success rates with the red-cockaded woodpecker and bald eagle nesting habitat, and we were also concerned that the delay would cause undue risk to adjacent private property from potential fire and insect damage.

Alternative arrangements initiated with CEQ concurrence are only appropriate when a clear emergency to human health, safety or the environment is present, and the action proposed is environmentally significant as defined by the CEQ regulations. Often, actions proposed to be taken in emergency situations do not rise to the environmental significance level, and therefore, do not require alternative arrangements. For these situations, the Forest Service follows its normal NEPA procedures.

Generally, there are three components of a proposal by the Forest Service to CEQ for an alternative arrangement. First, the public is provided an opportunity to comment on the project. Second, the environmental analysis that goes into the decision making process is documented. And third, there are provisions for monitoring and adjustments as we proceed with the project, including an evaluation of the project once it is completed. The BLM follows similar procedures and such review is well documented as in the case of the Eighth Street Fire.

In each of the three cases where this alternative arrangement was requested, a catastrophe had created an emergency situation requiring immediate and significant action. Each case clearly demonstrates interagency coordination and agreement regarding the urgency of the need for immediate action and clear disclosure to the public of that need. There was also strong support from involved State and Federal agencies for the proposed activities.

Numerous catastrophic events occur each year affecting National Forest System and other public lands. Rarely, however, do these events constitute an emergency. The fact that only three referrals for alternative arrangements have been made by the Forest Service to CEQ since 1978 is evidence that such referrals are only done in unique circumstances. I am proud that these alternative arrangements were well coordinated with CEQ and allowed for a quick response.

Discussion of Legislation

While the Forest Service recognizes the catastrophic nature of some of the events described in the bill, we do not support the approach of elevating these areas to an emergency status which would require alternative arrangements for NEPA compliance because they are not emergencies. The NEPA requirements have been valuable in integrating environmental considerations into agency planning for the past 30 years. The Forest Service has only used the alternative arrangements three times in the last 20 years, demonstrating that this provision is not necessary for a broad array of projects.

In conclusion, the Forest Service and BLM believe that the procedure we use for requesting alternative arrangements to NEPA compliance for emergencies works. The existing authority is appropriate and adequate to administer our nation's 192 million acres of National Forests, and other public lands. We appreciate the Committee's interest in the alternative arrangements provision of NEPA, and we understand the Committee's desire to use this extraordinary process more broadly. But, we believe the current process is working well. Thank you, Madam Chairman, I would welcome any questions the Subcommittee may have.

SUBCOMMITTEE ON FORESTS AND FOREST HEALTH
BRIEFING PAPER
Oversight Hearing on:
National Environmental Policy Act Parity
July 30, 1998

SUMMARY

This hearing will focus on "alternative arrangements" granted by the Council on Environmental Quality (CEQ) for emergency situations under the National Environmental Policy Act (NEPA) -- as CEQ granted for the expedited treatment of East Texas National Forests after it experienced severe blowdown early this year. Specifically, this hearing will discuss proposed legislation which would require the CEQ to develop and issue regulations concerning the use of "alternative arrangements"on national forests. The legislation also lists a number of national forests that have experienced catastrophic events of a similar magnitude as the East Texas blowdown, recommending that they also be granted expedited processes under NEPA.

BACKGROUND

On February 10, 1998, an exceptionally strong windstorm damaged 103,000 acres of Forest Service land in the Sabine, Angelina, and Sam Houston National Forests. This windstorm damaged 297,000,000 board feet of timber. Some of the damaged areas were also home to red-cockaded woodpeckers, a federally listed endangered species.

The National Forests and Grasslands in Texas (NFGT), the office responsible for management of the three national forests damaged in the windstorm, consulted with the CEQ for an alternative arrangement under NEPA. 40 CFR 1506.11 provides for such alternative arrangements in emergency situations. The NFGT believed that the time period needed for a traditional NEPA analysis would negatively affect the forest, the wildlife, and private property. Specifically, the NFGT was fearful that failure to act expeditiously would result in severe wildfires, bark beetle infestations, and loss of a sub-population of red-cockaded woodpeckers. The CEQ agreed that these conditions qualified as an emergency situation. The CEQ required the USFS to prepare an environmental assessment, undergo a consultation under the ESA, specify that only downed, dead, or severely root-sprung trees be removed, and hold some form of public involvement process. This process allowed activities to begin months sooner than would have been possible under the normal NEPA process. It should be noted that the CEQ has no consistent requirements for the use of alternative arrangements.

ANALYSIS

The CEQ has granted alternative arrangements thirty times since 1980. Of those thirty cases, the CEQ has granted only three alternative arrangements to the USFS. The majority of alternative arrangements were granted for immediate public safety or public health concerns. The Texas situation is the only alternative arrangement ever granted that allowed for the removal of timber. There are several other national forests, however, that should probably be granted similar treatment. For example, this past Spring approximately 20,000 acres of forest were blown down in the Routt National Forest in Colorado. Other forests that are listed in the bill and that have had similar catastrophic events recently are the Rio Grande National Forest in Colorado, the Dixie National Forest in Utah, the Tahoe Basin National Forests in California, the Malheur National Forest in Oregon, the Allegheny National Forest in Pennsylvania, the White Mountain National Forest in New Hampshire, the Green Mountain National Forest in Vermont, the Panhandle National Forest in Idaho, the Daniel Boone National Forest in Kentucky and the Osceola National Forest in Florida. In these and other areas, forest managers are concerned with the possibility of insect infestations spreading to adjacent forests, wildfire, and additional loss of wildlife habitat.

While the NEPA and CEQ's own regulations provide for the use of alternative arrangements in just such cases, the forest Service has not requested, and the CEQ not granted, this authority.

WITNESSES

A witness list is attached

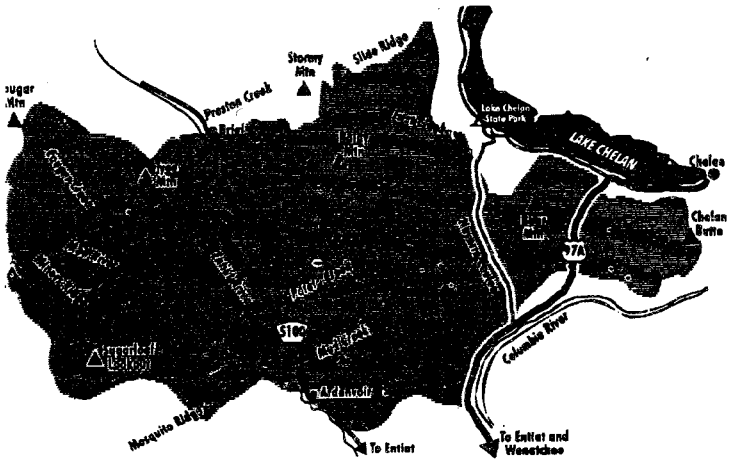
STAFF CONTACT

Doug Crandall 5.0691

Environmental Assessment

Bear-Potato Analysis Area
Of the
Tyee Fire Recovery

Chelan and Entiat Ranger Districts
Wenatchee National Forest



Appendix A

Initial Review of Silvicultural Treatments and Fire Effects on Tyee Fire

This paper is the initial review to see if past silvicultural treatments had any noticeable results on the fire effects caused by the Tyee Fire. Due to the short time frame many factors that effect fire behavior were omitted. The historical harvest activities and fuels treatments date back to post 1970 salvage (1971-73). The historical fire occurrence dates back to 1965. Precommercial thinning dating to 1970 were mapped but due to the time limits were dropped from the report's analysis.

Method:

Through the use of Moss ,R6MAP and the present GIS layers (harvest activities, fuel treatment, fire occurrence and thinning) in the computer, four maps were created for each fire effect (black, brown, green and open). Each fire effect was divided up into polygons (area) by the four GIS layers. Only U.S. Forest Service lands were viewed. Due to the way the computer works with the removal of slivers as polygons were created the original total of the fire effect areas do not add exactly to the total of the layered polygons The open fire effects map was not completed due to technical difficulties.

Results: see tables.

Discussion:

Table #1 is the break down of the fire effects and silvicultural treatments by the computer. It was from this table's data which the other tables were created.

From Table 2 it would appear that a piece of land was at greater risk of being left brown; if not black, had a harvest activity taken place on it when the Tyee Fire arrived. However, when viewing the fire effects maps I have noticed that a large portion of green is in Cougar Creek area (last to burn) and a large portion of the black area is where the Tyee Fire was in the first two weeks. Two major fire characteristics not cover by this review are the weather and elevation.

Table 3 looks at the results fuel treatment may have had on the fire effects of the harvested areas. Although it only covers 13% of the land and the last 23 years, the table does indicate treated harvested area had a better chance of remaining green or brown than nontreated areas. In the Potato/Gene Creek area where the largest black polygon/area exists, there were a number of untreated harvested stands that were scheduled for prescribed burning. Because these harvested areas were midslope they most likely added to the fire intensity in the two drainages. Unlike in Table 2, the arrival of the Tyee Fire in the fuels treated/nontreated areas would have a narrower time frame when compared to the whole fire.

The results of Table 4 are similar to the results of Table 2 and fuels treatment in the nonharvested areas seems not to work. Once again the area treated maybe the results of where and when the Tyee Fire arrived at these sites. Since the treated acres of the nonharvest area is so small (3%) the adjacent fuels in the nontreated areas and what the fire behavior (plus smoke column) was at the time of the fire would be an important factor to review.

Table 1. Silvicultural Treatments & Fire Effects on USFS land only

(The Open Fire Effects was omitted from this report.)
Total of the three fire effects in review, 80787 acres

fire effect (FE)		rounded acres	% of FE	
Black (#3)	HA T F	222	0.7	HA = harvest
30540 acres	HA T NF	2630	8.6	NHA = non harvest

(38% of total area)	HA NT F	52	0.2	T = fuel treatment
	HA NT NF	1425	4.7	NT = no fuel treatment
				F = Wildfire occur
	NHA T F	26	0.1	NF = no wildfire occur
	NHA T NF	846	2.8	
	NHA NT F	3924	12.8	
	NHA NT NF	21413	70.1	
	total	**30538**		
				diff. of 2 acres or 0%
Brown (#2)	HA T F	299	1.0	
31460 acres	HA T NF	3531	11.3	
(39% of total	HA NT F	43	0.1	
area)	HA NT NF	1143	3.7	
	NHA T F	9	0	
	NHA T NF	943	3.0	
	NHA NT F	4990	16.0	
	NHA NT NF	20213	64.8	
	total	**31171**		
				diff. of 289 acres or 1%
Green (#1)	HA T F	6	0	
18787 acres	HA T NF	794	4.3	
(23% of total	HA NT F	1	0	
area)	HA NT NF	56	0.3	
	NHA T F	0	0	
	NHA T NF	193	1.1	
	NHA NT F	1723	9.4	
	NHA NT NF	15486	84.8	
	total	18259		
				diff. of 528 acres or 3%

Table 2 Harvested/ Nonharvest Land

Total harvest in review - 10202 ac. or 13%
Total nonharvest in review 70585 ac. or 87%

	total HA	total NHA
	acres (%)	acres (%)
Black	4329 (42)	26209 (37)

Brown	5016 (49)	26155 (37)
Green	857 (8)	17402 (25)

Table 3 Fuels Treated/Nontreated on Harvested Land

total harvested area 10202 acres

treated area 7482 acres 73%
nontreated area 2720 acres or 27%

	HA T acres (% of T)	HA NT acres (% of NT)
Black	2852 (38)	1477 (54)
Brown	3830 (51)	1186 (44)
Green	800 (11)	57 (2)

Table 4. Fuels Treated/Nontreated on Nonharvested Land

total nonhavest area 70585 acres

treated area 2021 acres or 3%
nontreated area 67749 acres or 96%

	NHA T acres (% of T)	NHA NT acres (% of NT)
Black	876 (43)	25337 (37)
Brown	952 (47)	25203 (36)
Green	193 (10)	17209 (24)

Conclusion:

From this initial review of harvest/fuel treatment on the fire effects (intensity) of the Tyee Fire, there may be an indication that harvested land had a better chance to burn black when compared to nonharvested land. The reader should be reminded that many factors were not included in this review. Factors like the timing of the fire, intensity of the smoke column, weather, type of fire (head or backing), terrain, aspect and slope are all important in the resulting fire effect on a piece of land. This review only considered if an area was

harvested or not/ fuels treated or not. Also the fact that silvicultural records before 1972 are not available in GIS makes this review incomplete Records going further back would change the acre/percentage figures.

However, since a treated and nontreated harvest area from the same time period(1972-94) would have an equal possibility to be burnt at roughly the same time, the figures in Table 2 are a good indication that fuels treatment in a harvested area did reduce the fire effect (54% black and 44 % brown for harvest areas that didn't receive fuel treatment, vs. 38% Black and 51% brown for areas that did). What is not as clear however, is whether the harvest itself influenced fire behavior in any way (42% black and 49% brown for harvested areas vs. 37% balck and 37% brown for unharvested areas). Perhaps a larger study that included modeling weather, time of day, etc, could more accurately answer this question, but this is the best conclusion possible given the time and resources for this study.

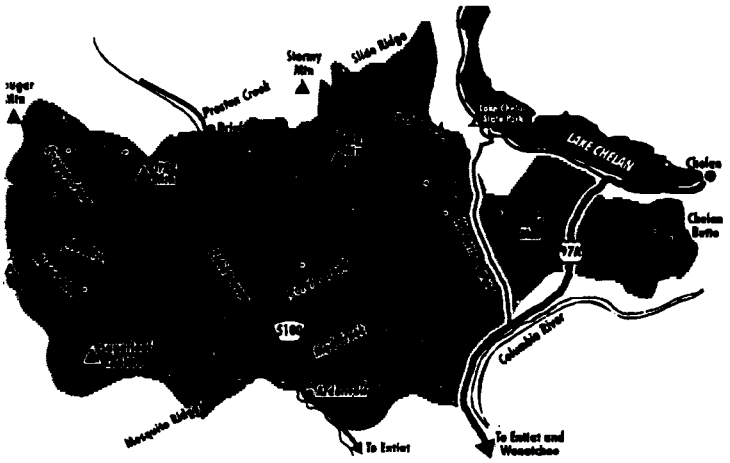
Entiat Forest Technician

Andrew C. Hoder

Environmental Assessment

Bear-Potato Analysis Area
Of the
Tyee Fire Recovery

Chelan and Entiat Ranger Districts
Wenatchee National Forest



OVERSIGHT HEARING ON FIRE SUPPRESSION

TUESDAY, AUGUST 4, 1998

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

The Subcommittee met, pursuant to notice, at 10 a.m. in room 1334, Longworth House Office Building, Hon. Helen Chenoweth (chairman of the Subcommittee) presiding.

Mrs. CHENOWETH. The Subcommittee on Forests and Forest Health will come order.

The Subcommittee is meeting today to hear testimony on fire suppression. Under rule 4(g) of the Committee rules, any oral opening statements in hearings are limited to the chairman and the Ranking Minority Member, and this will allow us to hear from our witnesses sooner and help our members keep to their schedules. Therefore, if other members have statements, they can be included in the hearing record under unanimous consent.

This Subcommittee has held several hearings on wildfire issues, usually with a focus on forest health conditions and forestry practices. But today, we are going to take a close look at the activities surrounding firefighting itself, mostly from the aspect of interagency coordination and cooperation. How well do the various State and local agencies work together? How well do they work together with the Federal agencies? Who is responsible for staffing levels, employee training, fire forecasting, equipment availability, and all other aspects of wildfire preparedness and suppression?

We will examine that today, as well as, what did we learn from our experiences in the State of Florida? These are the types of questions that we will be exploring today.

I am very happy to welcome to this Committee my colleagues Corrine Brown and Allen Boyd who are both here representing their good State, the State of Florida, who just recently experienced the devastating fires down there. So we are very happy to welcome them and concentrate today, focusing on what happened in Florida.

This is an extremely important and timely topic for a number of reasons: first, because it represents a huge cost to the American taxpayer. The GAO reports that Federal land management agencies spent over $4 billion in the last 5 years in firefighting activities, and this doesn't include the military costs of borrowed personnel and equipment, the costs to our States, or the costs in regards to the loss of private property.

This issue is important, however, not just because of the costs in terms of dollars, but for the costs in terms of wildlife habitat that

is lost, and most importantly, for the loss of human lives, which we have experienced in the West in firefighting. We have a moral responsibility to make sure that we are doing absolutely everything we can to effectively prepare and fight wildfires, and I am looking forward to working with the agencies in this regard.

[The prepared statement of Mrs. Chenoweth follows:]

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

This Subcommittee has held several hearings on wildfire issues, usually with a focus on forest health conditions and forestry practices. Today, we are going to take a close look at the activities surrounding firefighting itself, mostly from the aspect of interagency coordination and cooperation. How well do the various state and local agencies work together? Who is responsible for staffing levels, employee training, fire forecasting, equipment availability, and all the other aspects of wildfire preparedness and suppression? And what did we learn from our experiences in Florida? These are the types of questions we will be exploring today.

This is an extremely important and timely topic for a number of reasons: First, because it represents a huge cost to the American taxpayer. The GAO reports that Federal land management agencies spent over four billion dollars in the last five years in fire fighting activities—and this does not include the military costs of borrowed personnel and equipment, the costs to states, or the costs in regards to loss of property. This issue is important, however, not just because of the costs in terms of dollars, but for the costs in terms of wildlife habitat lost, and most importantly, for the loss of human lives. We have a moral responsibility to make sure that we are doing everything we can to effectively prepare for and fight wildfires—and I am looking forward to working with the agencies in this regard.

BRIEFING PAPER

SUMMARY

Various forest and weather conditions have greatly increased the vulnerability of America's forests to wildfire. In recent years, the total number of wildfires, including the number of large complex fires, has increased dramatically. The costs associated with fighting these fires has risen proportionally, representing hundreds of millions of tax-payer dollars annually. These efforts also require an ever-increasing need for well orchestrated communications and cooperation among volunteer and municipal fire departments, State forestry agencies, and Federal agencies with wildfire management and suppression responsibilities. The purpose of this oversight hearing is to review these and other factors that influence the effectiveness of government efforts in wildfire preparedness and suppression.

BACKGROUND AND ANALYSIS:

Already this year, nearly two million acres have burned, many of those occurring in the well reported fires in Florida. At a Forests and Forest Health Subcommittee hearing last week, Earl Peterson, the State Forester of Florida, gave high marks to the coordinated fire fighting efforts in his state but did suggest that better coordination would have been helpful in the ordering and distribution of equipment. He also said that better long-range planning would help in order to more effectively station people and equipment in areas of highest risk.

The GAO recently reported that wildfire preparedness and suppression expenditures by Federal land management agencies are at all time highs—over $4 billion for the last five years. Given the recent comments by the Chief of the Forest Service that approximately 40 million acres of agency lands are at a high risk of catastrophic fire, there is little question that these high costs are going to persist—and very likely continue to increase—for the next couple of decades. As wildfires become larger, hotter, and more numerous it is not only becoming more expensive to suppress them but the logistics of organizing communications and coordination among the various state and Federal agencies is becoming exponentially more complex. The National Interagency Fire Center (NIFC) in Boise, Idaho serves as "The Pentagon" for these suppression efforts. Located at the NIFC is the National Interagency Coordination Center (NICC), whose primary mission is the cost-effective and timely coordination of national emergency response. It is through NICC that all agency requests to mobilize personnel and equipment across regions are managed.

Our nation's ability to prepare for and suppress wildfires is of extreme importance, not only because these efforts represent such a huge cost to taxpayers, but

because without a maximum effort, property, and most importantly, lives will be lost. The intent, then, of this oversight hearing is to discuss the effectiveness of our preparedness and suppression efforts, and to try to answer a number of questions, such as:

- What did we learn from the Florida fires? In retrospect, what could we have done better, and conversely, what worked well? What rehab efforts are underway in the aftermath of the fires?
- How do we fund the various suppression activities? Do we spend too much in some areas and not enough in others? Are we adequately monitoring costs? Are we utilizing cost control measures such as contracting out certain activities to private enterprise?
- How accurately are we predicting the location, timing and severity of wildfire occurrences? What technologies and computer modeling are being used?
- How effective is interagency cooperation—at every level?
- What agencies or organizations are responsible for staffing levels, employee training, equipment availability, public education, maintenance of facilities, fire management planning. Who, ultimately, is responsible for suppression efforts, and does this vary by land ownership?

WITNESSES

A witness list is attached

STAFF CONTACT

Doug Crandall at ext. 5-0691

Mrs. CHENOWETH. I will depart from any normal procedure here and I would like to recognize, without objection, Mr. Boyd and Ms. Brown for any opening comments that they may have.

STATEMENT OF HON. CORRINE BROWN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Ms. BROWN. Good morning and thank you, Madam Chairperson, for holding this meeting. I am grateful for the opportunity to offer testimony today.

As you know, Florida has suffered from disastrous wildfires, the worst that we have had in 50 years. More than 500,000 acres have burned in Florida over the past 2 months, and the economic impact has been incredible. Firefighters from across the country have helped us out in Florida, and we are grateful for their efforts. The coordinated effort was exceptional. I know that there were many nights that the agency chiefs did not even begin to conference with each other until 2 or 3 in the morning, and I talked to several of them during that time. They did a yeoman's job, and we in Florida are proud that all of the agencies were so successful.

For the purpose of this morning's hearing, I have contacted several of the fire chiefs from Florida who know best how the response to their natural disaster actually worked, and I would like to submit my full remarks for the record. I would like to take this opportunity to highlight some of the issues that they have raised to me.

For the most part, the fire chiefs said that the coordination between local, State and Federal agencies worked exceptionally well. This was by far the most common response that I have heard. There were very few problems they shared, but those that they shared I will share with you today.

It appeared that the No. 1 problem involved communications between all of the parties involved. There was no communication link established specifically for the firefighters' efforts, so we had many firefighters carrying several radios at a time in order to maintain a line of communication. My understanding is that each depart-

ment worked with equipment that was not compatible, so there was no single frequency to use.

Another problem involved liability. I understand that some of the firefighters brought in from other parts of the country were actually not allowed to assist because they did not have a red card, which can only be received after a week-long training session. I was told that most of the firefighters participating didn't hold this particular card.

Also the most useful resource was the helicopters because they saved valuable time, although there were not always enough helicopters on hand. This was the resource most in need.

Finally, because it was always the local team that responded for the first several hours to any emergency, there is a big need for additional training and resources at this level. I have heard from several chiefs that more direct funding to local communities to better prepare for these emergencies would be beneficial to the communities.

Many of our local firefighters had to fight the wildfires in gear that was made for structural fires. This caused a frequent occurrence of heat exhaustion for those who didn't have the light gear to fight the fire outside.

In closing, I would like to say that our firefighters were, for the most part, pleased with the U.S. Forest Service and were incredibly grateful for the nationwide assistance.

Thank you for the time and the attention that you are providing this morning for this meeting, and I have more lengthy comments that I would like to submit to the record.

Mrs. CHENOWETH. Without objection, so ordered. I thank you, Ms. Brown. Those were very interesting comments.

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

Mrs. CHENOWETH. The Chair now recognizes Mr. Boyd.

STATEMENT OF HON. ALLEN BOYD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. BOYD. Thank you very much, Madam Chairman. I would like to submit my written statement which is more lengthy than the one I will give orally.

Mrs. CHENOWETH. Without objection, so ordered.

Mr. BOYD. Thank you for allowing me to participate in this hearing, and thank you for calling this oversight hearing on Federal fire suppression activities and efforts which obviously, as Ms. Brown has stated, is a very timely issue in our State due to the recent wildfires that have affected Florida. The State of Florida has experienced wildfires that burned over half a million acres, destroyed 125 homes, timber and property with an estimated dollar value loss of nearly $400 million.

Unlike Ms. Brown's district, where most of the fires were on State and private land, in the Second Congressional District, which I represent, the majority was on Federal lands. District Two has the entire Apalachicola National Forest within its borders, and also encompasses part of the Osceola National Forest. The wildfires have burned thousands of acres of timberland within these national forests. The reason that I am here today is to listen to these panel experts about suppression efforts and activities.

I would be remiss if I did not at this point express the gratitude of all of the people of the State of Florida for the efforts made on their behalf to put out the fires by firefighters from all over the Nation. There was not a Friday that I did not go through my airport in Tallahassee when I didn't bump into dozens and dozens of firefighters coming in from all over the country. This happened 6 or 7 weeks in a row, and I want the rest of the country to know how grateful we are for your assistance in coming and putting out those fires, or else our damage would have been much greater.

I look forward to the testimony of the witnesses today, and I believe, working together, we can take another policy step in the stewardship of our wonderful natural resources.

Thank you, Madam Chairman.

Mrs. CHENOWETH. Thank you, Mr. Boyd. We have tried to take numerous steps to try to prevent the kind of catastrophe that we saw in Florida and have seen in California in the past. I welcome your participation.

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

Mrs. CHENOWETH. Now I will introduce our first panel.

The Chair welcomes Mr. Barry Hill, the Associate Director of Energy, Resources and Science Issues for the General Accounting Office; and Mr. Hill is accompanied by Linda Harmon, Assistant Director, Energy, Resources and Science Issues, also from the General Accounting Office.

As explained in our former hearings, it is the intention of the chairman to place all outside witnesses under the oath. This is a formality of the Committee that is meant to assure open and honest discussion and should not affect the testimony given by witnesses. I believe all of the witnesses were informed of this before appearing here today, and they have each been provided with a copy of our Committee rules.

Now if the witnesses—Mr. Hill and Ms. Harmon, if you would please stand and raise your arm.

Mr. Hill.

STATEMENT OF BARRY HILL, ASSOCIATE DIRECTOR, ACCOMPANIED BY LINDA HARMON, ASSISTANT DIRECTOR, ENERGY, RESOURCES AND SCIENCE ISSUES, GENERAL ACCOUNTING OFFICE

Mr. HILL. Thank you, Madam Chairman. We are pleased to be here and to have the opportunity to discuss wildfire activities and expenditures of the major Federal land management agencies, that being the Forest Service, the Bureau of Land Management, the National Park Service, the Bureau of Indian Affairs, and the Fish and Wildlife Service. If I may, I would like to briefly summarize my prepared statement and submit the full text of my statement for the record.

Mrs. CHENOWETH. Without objection, so ordered.

Mr. HILL. First, let me discuss the amount of funds spent on wildfire preparedness and suppression activities, and then I will discuss the assistance provided to state firefighting efforts.

Federal land management agencies spent about $4.4 billion on wildfire activities for fiscal years 1993 through 1997. Of this amount, $2.1 billion was spent for preparedness and $2.3 billion for

suppression. Wildfire preparedness activities are those actions taken before the onset of a wildfire. These activities include providing fire management programs through training, planning, staffing and providing firefighting equipment. Wildfire preparedness also includes programs to reduce flammable materials on the forest floor, such as fallen trees and dry underbrush.

As you can see from the chart on my immediate right, total expenses for wildlife preparedness increased from $371 million in fiscal year 1993 to $483 million in fiscal year 1997. During this period the Forest Service spent the most, $1.4 billion, followed by the Bureau of Land Management at $350 million.

The largest preparedness expenses were for personnel, $1.2 billion, while the second largest expense category was for services and supplies, $541 million.

Suppression activities include actions taken to put out wildfires, including the use of firefighting personnel and equipment. For fiscal years 1993 through 1997, the land management agencies spent about $2.3 billion on wildfire suppression. As shown by the other chart that we brought, wildfire suppression expenditures varied greatly, depending on the number and intensity of wildfires during a given year, and ranged from a low of $187 million in fiscal year 1993 to a high of $858 million in fiscal year 1994.

Of these five Federal land management agencies, the Forest Service spent the most on wildfire suppression for this period, about $1.7 billion, followed by the Bureau of Land Management at $360 million. The largest expense category was for services and supplies, about $1.2 billion, while the second largest expense category was for personnel at $941 million.

Now, allow me to discuss Federal assistance to states.

For fiscal years 1993 through 1997 the five land management agencies provided assistance to state and local firefighting efforts through cooperative agreements, provided grants valued at $83 million and loaned excess Federal property worth about $700 million. The activities covered by these grants and cooperative agreements include fire prevention, environmental education, training, and developing procedures for fighting fires. The Forest Service administers two grant programs that provide funds for states for wildfire preparedness activities: the Rural Fire Prevention and Control and the Rural Community Fire Protection programs. Both programs are matching programs; that is, the entities receiving the grants must match them in dollar amounts or in in-kind contributions. For fiscal years 1993 through 1997, the Forest Service provided a total of $69 million to the states through these two programs.

The Forest Service also manages the Federal Excess Personal Property Program which loans excess property to state and local firefighters. The types of excess property range from shovels to helicopters. Most of this property are trucks that can be readily converted to tankers or pumpers. Other common items loaned include generators, pumps, fire hoses, breathing apparatus and personal protective clothing.

During fiscal years 1993 through 1997, the Forest Service loaned excess Federal personal property valued at about $700 million to states for use in wildfire preparedness activities.

Madam Chairman, this concludes my statement, and I would be happy to respond to any questions that you or other members may have.

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

Mrs. CHENOWETH. Thank you.

The Chair yields to Mr. Boyd for questions.

Mr. BOYD. Thank you very much, Madam Chairman, and just a couple of questions to clarify what we have before us.

Mr. Hill, the chart that you have closest to you there, the preparedness portion of that, I assume, is fire prevention activities such as prescribed burning and any other kinds of activities. Would you be prepared to go into a little more detail about that or would I need to ask somebody from the Forest Service?

Mr. HILL. I don't have a breakdown of those expenses. It would certainly include planning, staffing, putting equipment in place; and it would also include some fuel management efforts as well.

Mr. BOYD. Prescribed burning?

Mr. HILL. That's right.

Mr. BOYD. Do you derive anything from this in terms of the money spent on the preparedness side compared to the suppression side? Obviously, the number of fires that we have are directly related to the weather and other activities, primarily weather. But do you derive anything from the figures in terms of relation between preparedness and then losses or suppression, cost of suppression?

Mr. HILL. Well, as you can see, in preparedness, there is more stability. There has been an increase over the 5-year period because you can plan for those level of activities a little better than for the suppression costs, which basically you are at the mercy of Mother Nature.

You have good fire years and bad fire years. And as you can see by the other chart, 1994 and 1996 were particularly bad fire years which would drive those suppression costs up. But there has been an increase over the 5-year period for the preparedness costs, which shows you that there are increased efforts at fuel management and prescribed burns in order to reduce the risk of catastrophic fires, which drive costs up when they do occur.

Mr. BOYD. Mr. Hill, I assume that your conclusion would be, and it is not too scientific, but when we have done a better job with preparedness, the suppression costs go down, which they have appeared to do over the last 4 years?

Mr. HILL. There is no question that the better you do on the preparedness, presuppression end of it, the better off you are going to be in terms of minimizing the catastrophic fires. But I should say that the inventory of fuel that is on the floor now—I think the Forest Service estimates it at 39 million acres—that needs fuel management efforts, and so there is still a lot to be done on that front.

Mr. BOYD. Madam Chairman, one more question if you might indulge me?

Mrs. CHENOWETH. Certainly.

Mr. BOYD. There are no figures on rehab after wildfire. Do you have anything to share on that, and the costs?

Mr. HILL. They are included in the suppression costs. I don't have any on hand. I will defer to Ms. Harmon and see if she has anything.

Mr. BOYD. I'll tell you what, why don't we wait for her statement.

Mr. HILL. She will not have a statement.

Mr. BOYD. Then can you answer that?

Ms. HARMON. What we have from the Department of Interior, which does not include the costs associated with the Forest Service, for the period of 1993 to 1997, was approximately $52 million.

Mr. BOYD. In rehabilitation?

Ms. HARMON. Right. That would be included in the suppression costs.

Mr. BOYD. Thank you.

That you, Madam Chairman.

Mrs. CHENOWETH. Thank you, Mr. Boyd; and we will return for another round of questions, if you have them for the GAO.

Mr. Hill, your staff is also in the process of doing a pretty comprehensive evaluation on the question of forest health conditions as related to many things—fire suppression and fire preparedness and so forth—but based on your preliminary observations, do you see a continuation of current fire trends and the associated costs in fighting the fires that we have had to deal with in the last 7 years?

Mr. HILL. It is certainly hard to predict that because a lot of that is dependent on weather conditions that you are going to face, but certainly that trend seems to be continuing. And the trend is caused by years and years of suppressing natural wildfires, which in the past 7 or 8 years Federal land management agencies have come to realize perhaps was not the best wildfire management technique to be using.

So there are a lot more of the prescribed burns, mechanical clearings, efforts to reduce the fuels that are laying on the forest floors right now, particularly in the western portions of the country, which seems to have the biggest buildup of those fuels on the floor right now.

Mrs. CHENOWETH. Mr. Hill, your charts are very interesting and certainly very telling. We have also heard the number $4.4 billion for the overall expenditures over the last 5 years. In your best sense, how accurate do you think the figures are that we are using? Are you able to get the information that you need to give us an idea about how much is really being spent under these emergency conditions?

Mr. HILL. I can't say I have a lot of confidence in those numbers. The numbers we are presenting are the numbers that we were provided and were obtained from the Federal land management agencies themselves, and we have not had an opportunity to verify that data.

I think it is further complicated by the fact that when you have these joint cooperative efforts and the Federal and state and local governments are sharing equipment, sharing resources, and basically whatever able bodies you can have go in there to fight these fires, it is sometimes difficult to sift through the costs and come up with some firm figures.

Mrs. CHENOWETH. How accurately do you think they are monitoring the costs, and what do you think we can do to help you to

be able to get a better understanding of the exact costs? What needs to be done in terms of the kind of expenditures that are made during these emergency conditions in terms of analyzing costs?

Ms. HARMON. I think it is important to take a look at what is the process that both the Forest Service and the Department of Interior use to expend some of the money. What are their contracting procedures? Are there enough controls in place to ensure that the proper costs are being recorded and being reported?

Now, so far, we really haven't done any work in that particular area, but I think that would be something that would be very important, is taking a look at what are the processes and how are the funds being expended by the various agencies.

Mrs. CHENOWETH. That particular subject is of great interest to me, so I look forward to working with you on that.

Mr. Hill, in your opinion, are the land management agencies spending sufficient resources on land wildfire programs and are they, in your opinion, expending them efficiently?

Mr. HILL. It is hard to give a concrete answer in that we really did not audit or assess the spending levels; and it is also particularly hard when you consider the total costs involved in wildfire, including the preparedness activities and suppression activities, as well as fuel management and rehabilitation costs.

What we do know, though, is that there does seem to be a problem with the fuel loads on the forest floors; and Congress has responded, in all fairness, to that by increasing the appropriations provided over the last 5 years. And the land management agencies continue to increase their efforts on the presuppression fronts. However, when you want to determine the adequacy of funding, as Ms. Harmon mentioned, you have to look at how efficiently and effectively they are spending the money in terms of personnel, equipment—where are they deploying it? It is a difficult question that certainly warrants further investigation.

Mrs. CHENOWETH. Along that line of thinking, Mr. Hill, does the Federal Government train the local and State firefighters? Are they involved in that training and preparedness aspect?

Mr. HILL. The Federal Government works with the states, and they put on national firefighting training courses. They have established a committee in which the states participate. These courses are put on at a national level, and the states do send their staff to attend these courses, but they do reimburse the Federal Government for the full cost of the training. However, I might mention that they are allowed to use the grant money to pay for some or all of these training costs.

Mrs. CHENOWETH. The Chair now recognizes Mr. Schaffer from Colorado for questioning.

Mr. SCHAFFER. Thank you, Madam Chairman.

I have a number of questions. Just in terms of the mechanics of suppressing and putting out forest fires, in the aftermath of these forest fires, what kind of exchange takes place between your operation and the Forest Service as a whole? Are there lessons that we learn in fighting fires that help us with respect to management?

Mr. HILL. I am not sure I understand your question. In terms of GAO's feedback that we get from the Federal land management agencies?

Mr. SCHAFFER. The fuels buildup information, what happens with that kind of information if we are able to determine, for example, that management and reduction and potentially hazardous fuel levels have a financial benefit to the American people from a suppression perspective, what happens? Does that information—is it packaged or compiled in a way that is useful for land managers within the Forest Service?

And a secondary question, in your estimation, is it ever utilized in an effective way?

Mr. HILL. I can't give a firm answer to that; we have not looked at the program in that depth. But they do go through a planning process where they run various models based on fires that have occurred, fuels that are on the ground; and their budget requests and the equipment and the staff that they deploy are based in large part on these yearly plans that they put together. Now, how adequate those plans are, we have not investigated that at this point.

Mr. SCHAFFER. Let me ask then, in terms of an assessment of preventable expenditures of what could have been saved through sound land management practices, has the GAO ever taken any kind of look at which fires may have been preventable and how much might have been saved if we had been able to successfully prevent forest fires from occurring, again in the aftermath of analyzing certain fires that may have occurred recently?

Mr. HILL. GAO has never done that, to my knowledge. You might want to direct that question to the Forest Service and Department of Interior people.

Mr. SCHAFFER. In your report and in your testimony you indicated that the Forest Service manages the Federal Excess Property program that loans excess Federal property to State and local firefighters. Does the Forest Service have adequate controls over this equipment so it knows how much equipment is loaned to which States and is it able to get the equipment back when the States no longer need it?

Mr. HILL. We have not looked at the specific controls that they have in place in regard to this particular program. It should be noted, though, that they have had difficulty in—they have in the past and currently have difficulty in terms of the adequacy of their controls over inventory accounting of property, plant and equipment. Whether this particular excess property is included in that category or not, we are uncertain at this time.

Here again, I think—you should ask that question to the Forest Service officials. But they have had difficulty and continue to have difficulty accounting for all of their plant, property and inventory.

Mr. SCHAFFER. Let me go back to the previous question that I asked and try it from a somewhat different angle; and that is, just when it comes to suppression costs, it varies pretty greatly from year to year. Is there any way to be able to determine or statistically discover any methods that might be utilized in stabilizing these costs for a year-to-year period?

Mr. HILL. I think the greater the investment you make in the presuppression area, the preparedness area, in terms of reducing

that fuel on the ground, then the better chance you have of avoiding the large catastrophic fires.

I think we have learned over the last 7 to 10 years that these forest wildfires are a natural occurrence in our nation's forests, or in any forests, for that matter, and if you suppress them or presuppress them to the point you don't have them, when you do have a fire it is a large, catastrophic fire which destroys the forest. So the more you clear out that fuel, hopefully, the more control you will have over the suppression.

Mr. SCHAFFER. That issue really seems to be a key one in my mind. If there has not been any assessment of what we might save through sound forest management practices, removing excessive fuel buildup, also in the resource cost, ahead of time, in many other areas of government we are able to take legislation to the floor and have some idea of what the taxpayers may realize in savings if we take a certain preventive action up front; and it sounds to me like there has been no analysis on that basis, at least as far as GAO is concerned.

What would it take, in your mind, to move that process forward?

Mr. HILL. Well, I think you are going to have to get a good assessment as to what the situation is in our nation's forests, and we have not looked at what the Forest Service and other Federal land management agencies have done. We know that there is a problem out in the interior west—eastern Washington, eastern Oregon, Idaho, western Montana. There is a significant problem out there that they are trying to deal with.

On the other hand, I think the southeast has been dealt with perhaps a little more effectively in terms of there have been more presuppression activities which have occurred that have prevented major fires. Obviously, Mother Nature does not always cooperate, as witnessed by the fire which occurred in Florida recently.

Mr. SCHAFFER. Thank you, Madam Chairman.

Mrs. CHENOWETH. Thank you, Mr. Schaffer.

Your comments were very interesting, Mr. Hill, and I think it is a very interesting time that we are living through. Certainly the urban interface with the wildland areas is something that we need to look at very, very carefully, because these were the areas that Ms. Brown specifically referred to where there is a greater potential in losing private property, homes and a threat to human life.

While we were fortunate in Florida not to lose lives, Mr. Boyd indicated in his opening statement that there were 125 homes lost; and in recent California fires, there have been hundreds and hundreds of homes lost.

And so I know that the GAO is involved in doing a much greater in-depth study, especially based on what we are all learning here today, and I hope that we can concentrate first on that urban wildland interface; and, of course, moving into the situation where weather conditions, drought conditions, rain forest conditions, typical geographic conditions will lend itself to protecting an area from devastating forest fires as well as the fuel load on the forest floor or preventing them through Mother Nature's conditions. Certainly, Florida was ripe for that, and I look forward to hearing from our State Forester from Florida.

But based on what we are hearing today, Mr. Hill, I do look forward to working with you and putting our entire staff at your—if you need them, just call. This is a very, very important issue to us all, and I believe it is a very important national issue.

I always appreciate your good work, Mr. Hill, and I thank you for being with us. And Ms. Harmon, thank you very much.

So with that, I will recognize the second panel which is only one witness, but we have been looking forward to hearing from Mr. James Garner, the State Forester, Virginia State Department of Forestry in Charlottesville, Virginia.

Mr. Garner, welcome. As is normally the situation here and as was explained in our—to our first panel of witnesses, we normally ask our witnesses to be sworn in, so I wonder if you might stand and raise your hand.

[Witness sworn.]

Mrs. CHENOWETH. Mr. Garner, please proceed.

STATEMENT OF JAMES W. GARNER, STATE FORESTER, VIRGINIA DEPARTMENT OF FORESTRY, CHARLOTTESVILLE, VIRGINIA

Mr. GARNER. Thank you, Madam Chairman. I am Jim Garner, State Forester of Virginia, and I am here today representing the National Association of State Foresters. I served as President of the association in 1995, and I have served both as a board member and as chairman of the association's fire protection committee. I appreciate the opportunity to discuss the wildfire suppression efforts in the United States.

I have attached, for the record, a report entitled, "Managing Forests, Managing Fire: A Report to the Congress on the Status of Wildfire Management in the United States." This was a cooperative effort of the National Association of State Foresters and the American Forest & Paper Association.

The Department of Forestry is the primary agency for wildland fire control in the Commonwealth of Virginia. Like my colleagues in other State forestry agencies, we work closely with local fire departments, State agencies and Federal wildland fire agencies, including the USDA Forest Service.

We also work through an interstate compact agreement to share resources in times of critical need, and in my view, these relationships are a model of intergovernmental cooperation. There are few key points worth noting.

First, the local fire departments are the first line of defense against wildfire in this Nation. Volunteer departments predominate in the rural areas, and it is critical that they be well trained, staffed and equipped to provide that initial attack on wildfires.

The southern region of the United States, as was demonstrated dramatically in Florida, experiences more fire starts than any other part of the Nation. An effective network of trained local departments, however, helps keep the costs down by catching these fires when they are small. More importantly, as housing developments encroach into our forests, the jobs of these firefighters become more dangerous complicated and more expensive.

The second important feature is the well-trained and -equipped firefighting crews across the country that can be dispatched as

needed. This is due to careful coordination by regional coordinating centers, interstate fire compacts and, when necessary, through the National Interagency Fire Center, NIFC, in your own home State of Idaho, Madam Chairman.

During the recent fire situation in Florida, every State except two had firefighters, equipment or overhead teams in Florida. My department sent four bulldozers, two Hummers and 42 people with all of the support equipment. We were also the leaders of a task force of fire department engine companies that went to Florida. We were assigned in northeast Florida and placed under a unified command under the direction of the Florida Division of Forestry.

Thanks to the efforts of the National Wildfire Coordinating Center, NWCG, the State and Federal firefighting agencies all train using the same standards and basically on the same equipment, so this allows our resources to use and be familiar with each other when we meet somewhere across this Nation.

The third part of our effort is the State Foresters working closely with USDA Forest Service on several programs which keep this front line of defense active and well prepared: the State Fire Assistance Program and the Volunteer Fire Assistance Program. Both are managed by the USDA Forest Service Fire and Aviation.

And third, the Federal Excess Personal Property Program, which you have heard mentioned previously and in which we cooperate with the U.S. Forest Service.

I think the Excess Property Program is the most innovative of the three. Through a cooperative agreement with the Forest Service, provided by the Cooperative Forestry Assistance Act, State Foresters are able to screen property, primarily former military equipment, at the excess level and not the surplus level. This equipment, which ranges from aircraft to trucks to mobile command centers to clipboards, is reconditioned either by the State or by the local fire departments and put directly in service protecting homes and property from wildfire.

Last year, in Virginia, we were able to get $116,000 worth of excess property, which we turned over to local fire departments.

Two points of the Excess Property Program are worth bearing in mind. By using the program, we are greatly extending the life of vehicles and other equipment which the taxpayers have already paid for. States and localities add value to this equipment, and there is a tremendous pride in keeping their equipment in service. There is a—on the report that I mentioned, on page 15, there is a picture and an example of one of those trucks that was used by a small community in Virginia.

The last point I would like to make, Madam Chairman, is that we will never rid this Nation of wildfire. We can, however, take prudent steps through programs that we have mentioned to cut costs and save lives and property. We can manage our lands to reduce fire dangers. However, as the events have shown in Florida, sometimes many factors will come together which will nullify the positive impact of prescribed burning and proper forest management.

The growth of the wildland-urban interface, which in and of itself causes numerous complicating factors, has turned what would have been a straightforward firefighting task into a tremendous exercise

of emergency management. And until Mother Nature changes the weather pattern, the only thing that stood between the citizens of Florida and the wildfire was our national firefighting force. And situations like Florida push those forces to the limit.

We appreciate your support and we look forward to working with you and the rest of the Committee to see that these programs are supported. Thank you very much.

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

Mrs. CHENOWETH. Thank you, Mr. Garner. Your testimony was very interesting, and I very much appreciate your comments about the imminent concerns that we have over the wildland-urban interface.

We do have some legislation pending before this Congress, that has made its way through this Committee, that would help take care of that, and so I would like to work with you personally on that particular legislation. It was suggested by the Forest Service, and it deals with a new form of management, an overall landscaping management, rather than a contract-by-contract management.

So I think it is very forward looking, and I look forward to hearing your thoughts about it.

Mr. GARNER. Thank you.

Mrs. CHENOWETH. I do want to say that your comments about the book put out by AF&PA are good. I noticed in here that there was a comment delivered by Department of Interior Secretary Bruce Babbitt in Boise, Idaho, where he stated, "By using all of the tools that we have—carefully thinning excess young trees, igniting prescribed fires, managing land for fire, controlling invasive and exotic weed species—we must take steps to reduce the fuels."

And Jack Ward Thomas in a hearing in Boise, Idaho, on August 29, 1994 made this statement and I think he really wraps it up. Fires are "too hot, destructive, dangerous and too ecologically, economically, aesthetically, and socially damaging to be tolerable. We cannot, in my opinion, simply step back and wait for nature to take its course."

I think that is very interesting, plus the comparative pictures that are in this book. It is very instructive. Thank you very much.

The Chair recognizes Mr. Schaffer for his comments.

Mr. SCHAFFER. Thank you, Madam Chairman. I have a number of questions.

You mentioned the importance of interstate agreements in firefighting. How often do you send crews out of State?

Mr. GARNER. Normally, we have at least one crew going somewhere out of State once a year. We, a week after Florida, sent a task force to Texas.

Mr. SCHAFFER. Is Virginia typical of other States in this regard, do you think?

Mr. GARNER. Yes, I think so. We are all available to help each other.

Mr. SCHAFFER. Where do you typically send your crews?

Mr. GARNER. In the past, most have been going to the Western States, but 2 years ago we sent a large contingency to Texas with equipment when Texas had their problem in 1996.

Mr. SCHAFFER. Is the training adequate so that firefighters trained in the Southeast, for example, are well prepared to fight forest fires of different types, say, in the Northwest or Southern California?

Mr. GARNER. I don't think training is ever totally adequate. We do the best we can. We try to prepare them to fight fires safely and know what is going on, but I don't believe that we are ever adequately trained to where I sleep all night when it is dry.

Mr. SCHAFFER. You asked the Committee to help ensure that programs for wildland supplier programs are adequately supported. How are out-of-State programs funded?

Mr. GARNER. If it is through one of the compacts; the receiving State reimburses the sending State for expenses.

Mr. SCHAFFER. Does a State agency have to pay all of its crew expenses when crews are sent out of State? Or if your State receives help, do you have to cover all of their costs?

Mr. GARNER. Yes, sir.

Mr. SCHAFFER. Do the State-Federal assistance programs you mentioned help cover these costs?

Mr. GARNER. They help.

Mr. SCHAFFER. Are they adequately funded?

Mr. GARNER. No, sir.

Mr. SCHAFFER. Can you give us some sense of scale?

Mr. GARNER. It is relative. Florida, I doubt that they have even totaled up the bill yet, and that is on a scale of 10, and to other States it might be on a scale of 1.

Every case and every summer and every spring is going to be different, and I don't have a good answer except that when it happens to us in Virginia, I doubt that I have enough in my budget to handle it.

Mr. SCHAFFER. Are within-State operations adequately funded?

Mr. GARNER. Probably not.

Mr. SCHAFFER. Do the agencies have sufficient personnel?

Mr. GARNER. Probably not.

Mr. SCHAFFER. Let me continue on some other questions that I have been waiting to ask you.

You mentioned the challenges of the wild and urban interface and how serious an issue that is. Can you elaborate on that?

Mr. GARNER. In my opinion, it is probably the most serious thing that has faced us in the wildfire arena in my 40 years of work, because when you place homes and property and lives in the forest, you immediately shift tactics of how you approach the fire. Instead of trying to drop back to what would be a safe fire line, you go immediately to protect homes and people and their property, and that puts you in harm's way in a different manner. Therefore, the training that I had in the agency, growing up in the agency, is no longer valid; and the technology—we have to grasp the technology.

Mr. SCHAFFER. Does any one agency bear the responsibility for the wildland-urban interface initial response?

Mr. GARNER. Generally, it is the State forestry agencies in the States that are predominantly private land. But that is a cooperative effort with the local fire department. It can't be done by one single group.

Mr. SCHAFFER. The Federal policy is consistent with what you just described. Do you think that is an appropriate policy and one that ought to be maintained?

Mr. GARNER. I believe so, yes, sir.

Mr. SCHAFFER. Are local agencies and fire departments adequately prepared for that challenge?

Mr. GARNER. No, sir.

Mr. SCHAFFER. And should there be some Federal response in addressing that level of preparedness that you just described, or is this one that ought to be left to the States?

Mr. GARNER. I think we need some help. We need help and expertise and new technology and funding when the individual State needs it.

Mr. SCHAFFER. Thank you, Madam Chairman.

Mrs. CHENOWETH. Thank you.

Mr. Garner, Mr. Schaffer's questions are ones that—as you have ascertained by now, are ones that the chairman is concentrating on, and while I still have you on the witness stand, I wonder if I might ask you to work with your other State Foresters in cooperation with this Committee to make sure that the Congress can pass legislation which will focus on that critical urban-wildland interface problem that we have.

Will you work with me and other members of this Committee and our staff?

Mr. GARNER. Yes, ma'am. We are at your disposal.

Mrs. CHENOWETH. Do you share with me the belief that time is not on our side; that it is something that we need to deal with probably in a manner which will bring us results by next year?

Mr. GARNER. Yes, ma'am. Please do.

Mrs. CHENOWETH. It is very interesting that in my State of Idaho right now our former United States Secretary of Interior, Cecil Andrus, former Idaho Governor, is on television right now in paid spots by the Bureau of Land Management urging people to be very, very careful in making sure that fires are not set carelessly because we have such a high, heavy fuel load because of the cheat grass that can be grazed in the springtime, but after July it turns very brown and brittle and heavy and creates such hot fires that even 2 years ago we lost lives fighting just grass fires.

So as you can imagine, that is a concern that I share even with the former Secretary of the Interior, Mr. Andrus. So I look forward to working with you very closely on this issue.

Mr. GARNER. Thank you.

Mrs. CHENOWETH. Mr. Boyd.

Mr. BOYD. Thank you very much, Madam Chairman.

Mr. Garner, thank you for coming today.

I want to take a slightly different direction with my questioning, and first of all tell you that our State Forester Earl Peterson was here testifying before this Committee, and I want to take this opportunity to thank you personally on behalf of the people from the State of Florida for what you did.

You remarked in your previous remarks that you had sent as many firefighters as you could turn loose into Florida, and much of our destroyed property was on private and commercial timberlands. And the 126 homes that were destroyed, I am sure

that we would have more destroyed if it wasn't for the efforts of the folks from around the country, including those from Virginia that came, and I just want to promise you if the shoe is ever on the other foot, that we will do our part in seeing that we share our resources, too.

Thank you.

Mr. GARNER. Thank you, sir.

Mr. BOYD. I wanted to take a direction here which is a little bit different. I am sure that Virginia is like most other States in that publicly held forest lands come under—I mean, there is a great deal of pressure to change the silvicultural practices and harvesting practices which have been traditional, once they come into public ownership.

What management tools or silviculture practices are you using in the Commonwealth of Virginia to keep your forest healthy and to keep fire suppression down?

Mr. GARNER. Are you referring to forest management practices?

Mr. BOYD. Exactly.

Mr. GARNER. We are heavily promoting thinning, particularly as it relates to area around the interface. By reducing the number of stems, you have reduced the opportunity of fire to travel from treetop to treetop. We have an active program going on now with developers that we try to thin.

The prescribed burning program, we need to promote that and to enhance it and encourage it more. The national forests in Virginia started last year; they really have gone big guns on this.

Mr. BOYD. I am referring mostly to timber—to forest land that is in your jurisdiction, State forests, and what you do in your State forest.

Mr. GARNER. Thinning. Mostly thinning because part of our State forest is in the hardwood—on the hardwood sites, and therefore, we have to be very judicious how we prescribe burning hardwoods.

In many of our pine stands, we have started an active program of thinning and burning the understory. We are not quite as flat nor as pine-oriented as your State, Mr. Boyd, so therefore we deal mostly with smaller acreages, even in our State forest. But we are actively trying to get a prescribed burning program up and running in our State forest.

Mr. BOYD. So you have an active thinning program which is a very important management tool in terms of keeping your forest lands healthy?

Mr. GARNER. Absolutely.

Mr. BOYD. Mr. Garner, we heard testimony here last week from one of our witnesses that—and she tried to make the case that thinning, particularly thinning and even prescribed burning was not a practice that would assist in management of the possibility of fire. In other words, it didn't necessarily cause a situation that you would have less fires.

Would you care to comment on that from your perspective as a lifelong forester? You are certainly not in the position that you are in without having some scientific expertise in terms of forest management.

Mr. GARNER. If I understand your question, it was, will thinning and active management connected with prescribed burning reduce fire?

Mr. BOYD. That is it.

Mr. GARNER. It will reduce the impact of the fire and severity of fire, and it gives you a fighting chance of stopping the fire when it is unwanted. I can't imagine why it wouldn't work.

Mr. BOYD. OK. That was sort of my reaction, too. I wanted to make sure that I got the expert's reaction.

One of the things that we recognized with the fires in Florida, in those areas where we had not prescribe-burned, and these were on private lands or State lands, we did not prescribe-burn because of public pressure around highways and around developments—and you are nodding and smiling. You are familiar with that kind of a situation?

We immediately recognized when we got into this terrible drought situation and the fires broke out, that the worst fires were in those areas where we had not prescribe-burned. Actually, since they were in the areas that were highly populated, that is where we lost our homes.

What are you doing in Virginia to deal with that kind of situation and that public pressure that comes from not to prescribe-burn?

Mr. GARNER. Not much more than your State Forester, unfortunately, because of the public reaction to the smoke, the fear of fire, the lack of understanding of prescribed burning is out there, and I think the biggest thing we can do is have support from members from your Committee—you certainly have more visibility than a State Forester—to say that it is OK, and it is a necessary thing for the forest health, and it is a necessary thing for the protection of their own property, and that we as professionals can and do know how to manage the smoke.

Mr. BOYD. Well, I hope that we will do some followup and bring some data, some statistics from our own experience that will be helpful to States all around the country.

I have one more question, Madam Chairman, if you will indulge me.

Mrs. CHENOWETH. Please proceed.

Mr. BOYD. Do you have a national forest in Virginia?

Mr. GARNER. One.

Mr. BOYD. Do you think giving increased flexibility to the local or State Forester who is in charge of that national forest is helpful in terms of managing or reacting to these kinds of situations like we had in Florida?

Mr. GARNER. Of course, that is an administrative decision over another agency, but I am one who believes in pushing decision-making right down to the lowest possible level because that is where you solve problems.

Mr. BOYD. Thank you very much, Mr. Garner. One thing that we learned from the fires in Florida on our national lands was, once the fire started and the local, on-the-ground forester had no authority to make decisions on how to deal with that, once it went up to the chain and came back, 24 to 48 hours had passed. We had fires

that were burning upwards of 4- and 5,000 acres a day, once they started, so that was the point that I wanted to make.

You've answered it very succinctly, I think, in terms of lowest—push the decisionmaking down as low as you can is the proper way to respond?

Mr. GARNER. Yes, sir.

Mr. BOYD. Thank you.

Mrs. CHENOWETH. Thank you, Mr. Boyd.

The Chair recognizes Mr. Peterson from Pennsylvania.

Mr. PETERSON. Welcome, Mr. Garner. I am from Pennsylvania to the north of you; and I am sure that you have worked with Jim Grace, our forester from Pennsylvania.

I come from the finest hardwood forests in America, northern tier Pennsylvania, where oak and cherry doesn't get any better than that, and I don't find many people willing to argue with me about that.

What do you think about the Forest Service recently stepped-up burn program of the hardwood forests, especially where they are trying to favor oak and hickory stands?

Mr. GARNER. I think it is a great thing.

Mr. PETERSON. You think it is working well?

Mr. GARNER. They are just getting started in our State, but I think it is needed. And if we want to maintain the CC composition and the diversity of the complex, I think it had to be.

Mr. PETERSON. When I was growing up, I was one—where I come from, they are not really mountains, but they are hills. I was one hill away from a stream where there was a railroad track, and every year there was a prescribed burn where the steam run locomotives would spew out sparks, and if you had a dry spring, we had smoke all spring for a week or two until those fires would be put out; and it is one of the finest oak forests in the region from that.

How do you work with volunteer fire companies? I come from the most rural part of Pennsylvania, most rural district east of the Mississippi, and volunteer fire departments are a vital part of fighting fires. Do you have some plan of working with your volunteers?

Mr. GARNER. Yes, sir. As I noted in my remarks, in our opinion, and I think this is true of all of the State Foresters in the South, the local volunteer fire departments are a front line of defense. They are the first out. They keep the acreage small. They are out there day and night, and we couldn't—I would be afraid to go back to Virginia without them.

Mr. PETERSON. Do you somehow help them with State resources in funding?

Mr. GARNER. The biggest help that we give them is trucks, houses, equipment. That has got to be one of the most beneficial programs in the relationship between Federal Government and the State government. We have a small grant program that is administered by the U.S. Forest Service through the States. It is small one, but you can take a rural company and give them a few dollars, and you have seen what they can do.

Mr. PETERSON. I am going to be meeting in a few weeks—and the Allegheny National Forest, which is 550,000 acres, is in my dis-

trict, and 20 fire departments are asking to meet with me, that are part of the forest and who fight fires there. And they have never been able to use the resources from the timber cuts; the 25 percent that goes back, that is not allowable use.

Would you support language changed to the Federal level that part of that money could go back to those fire departments to help them?

Mr. GARNER. I will come back to the way that I answered Mr. Boyd's question: Push the decision to the lowest level, and let the localities decide. At least give them the opportunity to have the flexibility.

Mr. PETERSON. It would be an allowable use for the local department if they wanted to buy equipment or provide training, because volunteer firefighters are a breed of their own. They give their lives. It is almost a religion with them.

If you teach them—fighting structure fires is altogether different than fighting forest fires, and I wonder if we concentrate enough on teaching them how to fight forest fires or giving them the tools?

Mr. GARNER. We don't.

Mr. PETERSON. See, they are a resource not on the payroll 52 weeks a year. A little money buys you an awful lot with volunteer fire departments. Would you recommend that we in Washington look at making sure that where the fires are in the districts, that the volunteers are a more integral part and receive the training and equipment that they need?

Mr. GARNER. Yes, sir. Part of the Forest Service budget has a line for the volunteer fire assistance program which I think needs your support.

Mr. PETERSON. You would suggest expanding that?

Mr. GARNER. Yes, sir.

Mr. PETERSON. OK. How do you determine what funds and staffing levels you need for a given year?

Mr. GARNER. Hmm, I guess a lot of it is determined by our fire history and the acres that in Virginia I am responsible to protect. But the new factor has been, now, how many homes are in those acres that were not there years ago.

And so you look at history and you know your resources. You know the availability of other outside fire resources. It is an art, not a science, as to how you determine how well prepared are we. Then take what we have and focus on training and focus on outside resources, outside of government, the forest industry, volunteer fire departments, schools and universities. Any warm body you can find, and then train and equip them.

One of the biggest concerns that I have is giving them personal protection equipment. We all need to address that.

Mr. PETERSON. We have 50 senators in Pennsylvania and 250 house members, and we had about six people that gave a damn what was in the forest service budget, that even looked at it, that wouldn't scream—that would scream if there were cuts or kept flat-funded for a decade.

Do you find that in your State?

Urban America loves the forest. They love to travel and hike in the forests, but they don't want to spend any money making sure that they are whole?

Mr. GARNER. I think that there are only a few in the legislature who look at and understand and appreciate the forestry package in any budget.

Mr. PETERSON. Thank you very much.

Mrs. CHENOWETH. Mr. Garner, I want to conclude with just a couple of questions and followup with the line of questioning that Mr. Boyd began. And I would also yield to him after I finish these two questions for any additions that he may wish to make.

As a State Forester in Virginia, take a situation that I have been informed about that occurred in Florida, and I ask you, as a State Forester, to speak not just for Virginia but for the association or for other State Foresters who have been highly trained in terms of not only firefighting but State forestry and silvicultural science.

Mr. Garner, I have been informed that in Florida there were two fires that occurred almost simultaneously. Both occurred opposite of each other on a—across from one another on a road. On one side of the road there was an area that had more access and it could be accessed by multiple agencies, and so they lost a total of 18 acres in this area.

On the other side of the road, it was a wilderness area and fire could only be fought by the Federal Forest Service, so we had a turf question here. And while on one side of the road they lost 18 acres, on the other side of the road in a wilderness area where tourists like to come and view the wilderness, we allowed a situation to develop where the result was that 20,000 acres burned.

So we look at the difference between 18 acres in an area that was more easily accessible and probably by more than one agency. On the other side, it wasn't accessible and only one agency can handle it.

My question is this. Given that scenario—and that is tragic; I think anyone would have to admit that is tragic—and even though Florida's vegetation recovers more quickly than the east slope of the Cascades and on into the Rockies, because we are drier out there, nevertheless, it still takes its toll for several years. The landscape will never look the same.

And so, given that scenario, wouldn't it be better if there could, ahead of time, be developed a cooperative agreement so that those agencies, whether it is the State or local agencies, are able to access any fire within the borders of the State to try to suppress it and contain it before it develops into such a huge fire that it is very destructive?

Is that an area that we in the Congress should be looking at, more agency cooperation between the State and the Federal Forest Service, so that if—as a State Forester who has command and control of fire suppression over your own State lands, if you could also be given the ability to, under some sort of contract, be able to contain fires on Federal land? Would you look favorably at that, or what would your thinking be, Mr. Garner?

Mr. GARNER. I would look favorably at that as one State Forester, and I suspect that many of my colleagues would also.

The wildernesses east of the Mississippi are a lot different than the wilderness in your area because they are smaller, they are more fragmented; and there is a tremendous—normally, a tremendous population around those smaller wildernesses. And so, there-

fore, whether it be insect, disease, fire, whatever, the impact of eastern wilderness spills over into the private arena, and that can be threatening, as we have seen with both fire, insect, and disease.

The lack of flexibility, the lack of the agencies to be able to deal with whatever is going on in that particular wilderness is really hamstringing all of us who are interested in natural resources, and I use that in its broadest context—forest health, for whatever endangered species.

It could be in the case that you outline simply because the fire could not be contained, we may have lost an endangered species that that land had been set aside to protect. And so policy issues sometimes need to rest with the man on the ground, or the woman on the ground, with the expert.

And what fits West Coast doesn't fit East Coast in all cases when we are dealing with natural resources, and I think there is a real danger there.

Mrs. CHENOWETH. I do want to yield to Mr. Boyd, but I do want to say, in every case, whether it is the East Coast or the West Coast, the destruction of endangered species habitat is very sad when we are not able to contain fire or prepare ahead of time by removing unnecessary fuel load that—to see it destroy not only the habitat but the species itself.

Another thing that you touched on, and I do want to elaborate, is the fact that in Florida and in the Eastern States your wilderness designations are more fragmented and they do abut up to multiple-use and sometimes urban interfaces. And so, you know, in order to protect private property and human lives, as well as protect endangered species and their habitat, I do think that we need to be a little more forward looking in terms of looking ahead to prevent these very, very hot fires. And I do want to say that prescribed burnings under the proper conditions are very important, and—but I believe it has to be the proper conditions.

Mr. GARNER. Yes, ma'am.

Mrs. CHENOWETH. With that, I will yield for a couple more minutes to Mr. Boyd, if he has any final questions.

Mr. BOYD. I think you have asked the pertinent question, Madam Chairman, but let me just say to Mr. Garner and also to the next panel, because I think we would want to ask them some questions about this particular issue so they may prepare; the scenario that you just described, Madam Chairman, happened in the Apalachicola National Forest in Florida, which is in the Second Congressional District, and we believe that the fires which were both started adjacent to a highway running through the national forest were started by an arsonist, and the fire actually on the nonwilderness side we put out after it burned 15 acres.

The fire on the wilderness side, according to the numbers that I have in front of me, which are from the State of Florida, burned 24,600 acres.

Again, we believe that since they were both started on the highway simultaneously, in the same area, that it was arson. We don't have solid proof of that, but I want to thank you, Mr. Garner, for your fine presentation.

Mr. GARNER. Thank you.

Mrs. CHENOWETH. Mr. Garner, I just have one final question that I need to ask you while you are here.

How do you, as a professional manager, manage the smoke when you prescribe-burn on your State lands?

Mr. GARNER. Let me kind of qualify that first.

In Virginia, we have very few acres of State lands; 77 percent of the forest land in Virginia is owned by private individuals such as yourself. So we do a lot of burning for the private landowner, but smoke management is all formulated on weather conditions as well as the fuels of the floor, depending on the objective that you want to accomplish.

An understory burn for reduction of habitat, you don't need the intensity of fire as you do after a logging job to clean up the slash. You have to know your mixing height and your whole spectrum of atmospheric changes that is going on.

Is the smoke going to go up and dissipate, down and dissipate? Be careful that you don't burn in the fall of the year because at night you get an inversion and you get a lot of smoke on the road, which is dangerous.

We start with the weatherman, who predicts as best he can what the weather conditions are going to be; and knowing what that smoke will do under that given set of weather conditions is critical in managing not only the smoke, but the fire as well.

So we just don't go out and light a match and turn around and pick up a cup of coffee and watch it burn. It is a scientific process.

Mrs. CHENOWETH. Mr. Peterson?

Mr. PETERSON. Mr. Garner, if groups like the Sierra Club and Heartwood win the argument that they are making of zero cut on public land, what will happen to our public forests?

Mr. GARNER. I think that they will sit there and be used by a few for their own benefit, and that a lot of stewardship of natural resources will go to waste.

I think that as a second part of that, our products that we demand from the forest have got to come from somewhere and we, as a nation with the scientific and professional know-how and the climate to have productive forests, do we say that we lock up ours and then do we go to some undeveloped Third World country that can ill afford an ecological disaster because they don't have the resources? Is that right, that we lock up a resource that we know how to manage and know how to care for, and push that which—we are not going to change our need for forest products, I don't think, in this country.

As long as the demand is there, the wood has got to come from somewhere, and I think this Nation has the scientific and professional ability to nurture all of our natural resources without putting an ecological disaster on some other nation.

Mr. PETERSON. Coming from the East, I thank you, and we deal with more hardwoods than we do softwoods, but that varies up and down the coast of this country. But it is a product that we can be producing. Many of the outdoor sports deal with land where some timber has been marketed or some thinning has been done. In our area, we had the tornadoes in 1985 which took down mile-wide paths of mature oak and cherry trees, just twisted them apart and laid them on the ground. The thick forests that have grown there

and the wildlife species that we didn't see before, because it is the kind of habitat that they need, it is interesting to watch that grow; and that is 20, 30 feet high a decade later, and the creatures that now use that as their home, it has been interesting to watch.

All of that happens, but the point that I want to make is that we have a very strong argument made in this country by groups that want zero cut on public land, and I thank you for your testimony on that.

Mrs. CHENOWETH. Thank you, Mr. Garner, for your instructive and informative testimony.

Mr. GARNER. Thank you for having me.

Mrs. CHENOWETH. I thank you for this information, and it is a permanent part of our record. And I do want you to know that our record will remain open for 10 working days. Should you wish to add anything to your testimony, my staff would be happy to work with you on that.

With that, again I want to thank you for your valuable time here and I will now call the third panel.

Mr. GARNER. Thank you, Madam Chairman.

Mrs. CHENOWETH. As they are taking the witness table, I want to say that our third panel will be comprised of Wally Josephson, Wildland Fire Specialist, Office of Managing Risk and Public Safety, U.S. Department of the Interior; Janice McDougle, Associate Deputy Chief for State and Private Forestry, Forest Service; and Ms. McDougle is accompanied by Denny Truesdale, Assistant Director of Fire Management for Operations, Forest Service, U.S. Department of Agriculture.

You have all been here many times before, and so I will administer the oath.

[Witnesses sworn.]

Mrs. CHENOWETH. We open our testimony with Mr. Josephson.

STATEMENT OF WALLY JOSEPHSON, WILDLAND FIRE SPECIALIST, OFFICE OF MANAGING RISK AND PUBLIC SAFETY, U.S. DEPARTMENT OF THE INTERIOR

Mr. JOSEPHSON. Madam Chairman and members of the Committee, I appreciate the opportunity to appear before you today to discuss the Department of Interior's planning and budgeting process of the wildland management program. The Bureau of Land Management, the National Park Service, the Fish and Wildlife Service and the Bureau of Indian Affairs and are four land management agencies within the Department of Interior with fire management programs. These agencies work in close cooperation on budgeting, planning and implementation activities related to fire management.

The Department's Wildland Fire Management Program is guided by the principles and policies of the Federal Wildland Fire Management Policy and Program Review, adopted by the Secretaries of Agriculture and Interior in December 1995. The program ensures the capability to provide a safe and cost-effective fire management organization. Fires are suppressed at minimum cost, considering firefighter and public safety and benefit and values to be protected consistent with resource objectives.

Funds for the Department's Wildland Fire Management Program are appropriated to the Bureau of Land Management and are made available by allocation to the National Park Service, Fish and Wildlife Service and the Bureau of Indian Affairs. The Department's Wildland Fire Management Program is composed of two activities—wildland fire preparedness and wildland fire operations.

Fire preparedness involves the readiness and capability of the Department to suppress fire in a safe and cost-effective program. Staffing levels, training, fire planning, equipment, maintenance facilities, prevention activities and the interagency coordination all fall within the category of fire preparedness. The fire management plan is the guide for budgeting and managing wildland fire preparedness activity. The primary analysis tool of the fire plan is an economic marginal cost analysis, combined with a threshold analysis which is used to determine the most efficient level, which we call MEL. MEL represents the funding necessary to provide the most cost-efficient and technically effective fire management program that meets land management objectives while minimizing the total cost of both suppression and resource damage associated with wildland fire.

The fire operations portion of the program funds the development and implementation of the emergency suppression, emergency rehabilitation, hazardous fuel reduction operations, and fire severity programs. Emergency suppression includes all management actions taken to suppress wildland fires in a safe and cost-effective manner. Emergency rehabilitation is carried out to prevent any further land degradation and resource damage to lands impacted by unplanned wildland fire or suppression activities.

Rehabilitation funds are also used to reduce any residual public health and safety risk that may result from wildland fires. Hazardous fuel reduction operations use fire and mechanical treatments as management tools to reduce fuel loadings and restore fire to its natural role in the ecosystem.

Commercial activities, such as timber harvest and small wood product sales, are used whenever commodity production can be used in an environmentally sound manner to achieve the same objectives.

Wildland fires occur unexpectedly and create an emergency in which firefighters must respond rapidly to minimize risk and damage. Despite public expectations, when the combination of excessive fuel buildup, steep topography, extreme weather conditions, multiple ignitions and extreme fire behavior occur, it is impossible to immediately suppress all fires. Firefighter and public safety must best be met with the adequate preparation and interagency coordination of supplies and services and safe, but aggressive implementation of fire control tactics provide for our ability to suppress fires.

To meet these needs, the BLM, in cooperation with other DOI bureaus, the Forest Service and the National Weather Service, maintains and operates the National Interagency Fire Center at Boise, Idaho. The NIFC provides logistical support through its coordination center for the coordinated movement of suppression resources when local capabilities are exceeded. Response to requests are based upon the concepts of closest forces and total mobility

which seek to dispatch the closest available qualified resource regardless of agency affiliation.

We were asked by the Committee to identify both jobs well done and lessons learned as a result of the wildfires in Florida. While review of the past actions may lead to improvements, Florida fires did not indicate a major need to revamp our procedures. The Department of Interior and the coordination center, for the most part, served primarily as a support function. Most of the Florida fires, including most high profile and highly publicized fires were under the control of the State.

Madam Chairman, I would like to thank the Congress for the direction and support that you have provided us in the Department of Interior. This concludes my statement.

Mrs. CHENOWETH. That you, Mr. Josephson. Very interesting.

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

Mrs. CHENOWETH. And now the Chair recognizes Janice McDougle.

STATEMENT OF JANICE McDOUGLE, ACCOMPANIED BY DENNY TRUESDALE, ASSISTANT DIRECTOR OF FIRE MANAGEMENT FOR OPERATIONS, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Ms. MCDOUGLE. Thank you, Madam Chairman and members of the Committee. I am Janice McDougle, Associate Deputy Chief for State and Private Forestry, with responsibility for fire and aviation, forest health and cooperative forestry programs. I am accompanied today by Denny Truesdale, who is our Assistant Director for Fire and Aviation Management for Operations.

I would like, Madam Chairman, to submit my formal testimony for the record and briefly summarize my remarks.

The wildfire suppression program in the United States is in partnership with a broad array of Federal agencies, State, tribal and local government and private companies. Its first priority is in protecting human life. When a fire occurs, we respond immediately. We implement attack strategies. We identify additional resources needed, and we expand the organization, as needed, to protect people and property.

Several factors influence an effective and safe fire suppression program, including the expansive wildland urban interface, hazardous fuel conditions, the increasingly broad array of partners involved in suppression, and the increased role for the Forest Service in providing international assistance.

We have an outstanding track record. The Federal firefighting agencies have consistently suppressed 98 percent of all wildfires during initial attack; only 2 percent of all fires account for the greatest cost and the most acreage burned. The five Federal Wildland Fire Management Agencies: the Forest Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service and Bureau of Indian Affairs, are strengthening the common features of their respective wildland fire management planning processes.

Initial attack analysis and planning are the backbone of our success. The National Fire Management Analysis System is a model

we use to identify the most efficient firefighting organization. Developed locally to determine what mix and distribution of initial attack resources will provide a cost-effective fire suppression program, the results of the local analysis are aggregated into the national program. This assures the most responsive organization possible.

When initial attack fails and local resources are not capable of controlling one or more wildfires, we shift to extended attack and assign national resources such as incident management teams and interagency Hotshot crews, and large airtankers.

In 1998, the Federal agencies are fully staffed for the fire season. We have adequate resources in every region for effective suppression, assuming that this is, and will be, an average year. The Florida effort affirmed the value of a prescribed fire program to create more fire tolerant ecosystems and better protect homes and improvements. It also reinforced the value of our safety program. In Florida we even had to educate crews from other regions of the health and fire threats unique to Florida.

The Forest Service's fire suppression program is professional. It is responsive to the concerns and needs of partners, and it is based on the continuous study of historical fire occurrences and risk. We are very proud of this program, its value to the public and the firefighters who work endless days and get great satisfaction from the protection of people and resources.

Madam Chairman, this concludes my remarks, and I would be happy to answer any questions.

Mrs. CHENOWETH. Thank you Ms. McDougle.

[The prepared statement of Ms. McDougle may be found at end of hearing.]

Mrs. CHENOWETH. And the Chair recognizes Mr. Schaffer, the gentleman from Colorado.

Mr. SCHAFFER. Thank you, Madam Chairman.

Ms. McDougle, when it comes to the controlled burns, what kind of resources do you find that you need to devote to helping—assisting in managing these controlled burns? Is there any——

Ms. MCDOUGLE. You are talking about our fuels program? Is that what you are talking about?

Mr. SCHAFFER. On those occasions when we increase—for example, we increased rather dramatically, to the extent of about 400 percent, the amount of public lands that are slated for controlled burns. When we do that, I assume that there is some kind of prevention-suppression personnel that are needed to help contain and maintain and make sure that those burns are controlled.

I guess my question is, how much in the way of personnel do we consume in managing controlled burns?

Ms. MCDOUGLE. Acres are identified by our field personnel. We don't do that out of the Washington office.

We estimate that in fiscal year 1999 we will treat about 1.4 million acres out there nationally just within the Forest Service. But fuels treatment is an interagency priority, and other land management agencies will do that as well. By the year 2005, we estimate that we will be burning up to about 3 million acres a year—treating 3 million acres a year, and that is probably as much as we can do with smoke considerations.

Mr. SCHAFFER. Let me ask you, in Colorado, for example, there are stakeholders who are constantly negotiating how many acres might be subject to active management. To your knowledge, have administrative appeals of forest plans or timber sales made action necessary to prevent dangerous fires?

Ms. MCDOUGLE. I am not clear what you are asking. Can appeals apply to all of our ground disturbing activities? That is just part of the process. Beyond that, I am not sure.

Mr. SCHAFFER. There are proposals to expand the acreage that would be under a managed category. As long as there are administrative appeals pending, presumably there is not much in the way of management that takes place on those occasions. Is this as a result of the policies of the departments that we are unable to go ahead and begin managing these lands for fire prevention in ways that might——

Ms. MCDOUGLE. I can't speak to specific activities in Colorado, but my overall answer is no.

Mr. SCHAFFER. The last part of your answer?

Ms. MCDOUGLE. My overall answer is no.

Mr. SCHAFFER. You don't believe that there are any?

Ms. MCDOUGLE. I really would prefer to speak to specifics, but I am not sure what you are talking about here.

Mr. SCHAFFER. You are not sure about the impact of the administrative appeals process on the ability to begin managing land?

Ms. MCDOUGLE. We have been living with administrative appeals process for many years, so I am struggling here.

Mr. SCHAFFER. Do you believe it has any delay at all on our ability to engage active management plans that might be useful in suppressing or preventing wildfires?

Ms. MCDOUGLE. The process itself is not new. Maybe the number of appeals you are getting out there may have changed, but the process, we have lived with. We factor it into our day-to-day activities, and it is applied much broader than what you are talking about here.

Mr. SCHAFFER. So you don't believe that the length of time that these appeals take to be resolved has any impact?

Ms. MCDOUGLE. It depends on how many you get. Some, you get few and some you get lots. It varies from decision to decision.

Mr. SCHAFFER. What steps are we taking to better predict where forest fires are likely to occur?

Ms. MCDOUGLE. There are about 40 million acres that are at high risk for fires, big fires. We will have those numbers refined later on this fall and have a clearer idea of where they are. We also already have a map, a national map, that lays out across ownership those areas that are at high risk for mortality from insect and disease; and once we are able to merge that information, it will help us tremendously in determining our priorities.

Mr. SCHAFFER. Thank you, Madam Chairman.

Mrs. CHENOWETH. The Chair recognizes Mr. Boyd.

Mr. BOYD. Thank you very much, Madam Chairman.

Ms. McDougle, I want to express my appreciation to the folks that work for you, all of the way down to the last firefighter. Certainly we don't have any quarrel with them. They do an outstanding job, and I know that is under your leadership and we are very

grateful. We are not always pleased with the policy sometimes, and that is primarily what I want to discuss today.

I am not mean or bad or anything, I want you to know that, but I do have some very serious questions about the policy.

First of all, I want to lay out the situation that we have in north Florida. One of the reasons that I ask Chairman Chenoweth, and she agreed to let me come sit because—we have three national forests in Florida, two of them are in the Second Congressional District, the Apalachicola National Forest, southwest of Tallahassee, and the Osceola National Forest, which is between Tallahassee and Jacksonville and Gainesville.

The Apalachicola National Forest is a very special place. You may or may not know that it contains—I forget the exact acreage—almost 600,000 acres. It was actually a piece of land that was clearcut back in the early 1900's, in those days when we did some silly things in terms of our natural resources. But through a sensible management program over the last 70 or 80 years, we have managed to rehabilitate that and bring it back to a vibrant, live forest that today houses the world's largest red-cockaded woodpecker population, and we are very proud of that.

There have been—for your information, there has been a lot of controversy in north Florida about forest management practices there, primarily—well, basically how we manage it and how we have cut the timber. As you may know, there has been a restriction of timber cutting in the last few years; it has almost come down to nothing. Even though the fact that the plan we have been on for the last 70 or 80 years had gotten us to a very good point to wildlife habitat and a natural setting that we are very proud of in the last 10 or 15 years, we suddenly want to change that. And it has created some real problems in some of the communities that I represent, primarily with the local governments in terms of the tax revenue that they have been receiving.

As you know, we put in place two programs to offset those abnormal tax issues for the local communities. One was the PILT, Payment in Lieu of Taxes, Program, which still exists, and the other was a 25 percent program. But most of the people that you talk to about the 25 percent program, they will kind of laugh at you and say, the Federal Government really pulled one over on us; they said, we are going to give you 25 percent of everything that we cut, but then they reduced the cutting to practically nothing. And we have school systems—I have one school system which is in deep trouble because of the loss of those funds. I give you that as kind of a background to let you know where I am coming from.

I have spent all of my professional life in agriculture. Part of that was forestry management. I managed for three specific purposes. One was for aesthetic value, economic production and wildlife habitat. I believe they are not incompatible. I believe they are compatible, and I have struggled understanding this great debate that we have going on between the extreme environmental community and the extreme economic community, if you understand what I mean.

Ms. MCDOUGLE. Yes, I do.

Mr. BOYD. Now, I get to the questions, and thank you, Madam Chairman, for indulging me on that. I wanted everybody to understand the lay of the land.

The situation that was described earlier about the two fires that started on the highway, what is your reaction to that? First, if you will, just give me your reaction and then let me ask some specific questions.

Ms. MCDOUGLE. My understanding of that situation was that it was not—it was not described to me as a wilderness issue. It was described to me as swamp burning and the inability to get equipment, heavy equipment, into the area, and it was also a safety issue. And that is why the decision was made to let it go.

Mr. BOYD. If it was described as a swamp issue, someone inaccurately described it. One side of the road was wilderness—and we can look at the maps afterwards—and the other side was not. Because of the inability of the person on the ground to understand what authority they had or didn't have, then we had a situation that burned about 24,000 acres. And actually at the end of that it was beginning to threaten some populated areas on the west side.

So that really leads me to the issue about the authority that people have on the ground, and I have had this discussion with Ms. Marcia Kearney, who is your new national State Forest Supervisor, and I spent some time 2 weeks ago looking and observing the burned areas.

One of the things that I would like to see come out of this is more flexibility for the people on the ground who need to make decisions quickly, because it has to come to your office. It takes 24 to 48 hours. You have got something that is totally out of control by then. In 48 hours, those fires had burned 10,000 acres.

Give me your reaction to more flexibility on the ground.

Ms. MCDOUGLE. The things—and Denny can speak to the command issue. When things come to us, we send them back. We don't try to second-guess decisions out there. We can't. And we entrust our incident commanders with responsibility and authority to do the right thing.

And so, yes, people do come to us. We do get calls, but we send them to the field.

Mr. BOYD. Madam Chairman, if you will indulge me for one more question, then I will quit for the time being.

Under what circumstances are the wilderness rules—could we have gone in and stopped that fire with all resources that we had available when we first discovered it? Are there within the law provisions which allow us to waive rules?

Ms. MCDOUGLE. For a big fire, sure.

Mr. BOYD. Who would have to make that waiver?

Ms. MCDOUGLE. I am not sure, but we believe that the regional foresters have the authority to make that call.

Again, we don't.

Mr. BOYD. That is not what the regional foresters are telling me, and that is something that maybe we can work together on, to clarify that authority.

Ms. MCDOUGLE. OK.

Mr. BOYD. My point is that there ought to be clear rules about when we can use that waiver, and we ought to give that authority either to the local forester in charge of that forest or your State Forester who can be there in a matter of hours under any circumstances. Maybe that is something that we can work together

on, because it definitely—in this case, we burned about 24,000 acres that probably could have been prevented.

Madam Chairman, I will defer any other questions until later on if we have more time.

Mrs. CHENOWETH. All right, Mr. Boyd.

Mr. Peterson.

Mr. PETERSON. Mr. Josephson, we heard from the Forest Service that they estimate that 40 million acres of their land are at risk for catastrophic fires. What would be the figure on the land that you manage?

Mr. JOSEPHSON. I don't have a figure at this time, but I can provide one in the future.

Mr. PETERSON. That is not a figure that you have heard talked about? Is there is a process for developing one?

Mr. JOSEPHSON. Yes, we are in the process of coming up with a figure.

Mr. PETERSON. Do you think that it is sizable, like the Forest Service?

Mr. JOSEPHSON. I am sure that it is significant in acreage, yes.

Mr. PETERSON. Is there a plan being developed to shrink it? It seems like 40 million acres, one agency that is at risk for catastrophic fire, that is a destructive fire.

Mr. JOSEPHSON. Yes. We are trying to set in place a program to manage the fuels and reduce the fuel loading.

Mr. PETERSON. But as has been discussed here, there have been some policy shifts in the last few years that some feel make it really impossible to manage the fuel load. You can't remove fuel without cutting it or doing something with it. If we are moving toward a zero-cut policy, and there has certainly been a lot of evidence toward that, how do you manage the fuel load if, above you, decisions are being made that we are not going to cut trees?

Mr. JOSEPHSON. I think you have to look at each situation and develop a plan to manage that particular piece of ground, and it has to be done at the local level.

Mr. PETERSON. But we have already found out that local people are not making those decisions, are not allowed to make those decisions.

Mr. JOSEPHSON. At least for the Department of Interior, the local manager is the one who develops the fuel management program and the plans to modify the fuels on the ground.

Mr. PETERSON. And then he has to get approval from Washington?

Mr. JOSEPHSON. No, it is generally the next level higher which signs off on the approval.

Mr. PETERSON. The regional?

Mr. JOSEPHSON. Depending on the agency, whether it is regional or State level.

Mr. PETERSON. If I can switch to Ms. McDougle.

I don't mean to sound harsh, because it is not personal, but there are those who give your agency just A-pluses in fighting fires and moving fast and working hard and coordinating; but they give very bad grades on the efforts to minimize fires.

Do you find policies that you have no control over prevent you from really doing that job?

Ms. MCDOUGLE. I am not sure that I understand what you are saying. What do you mean, efforts to minimize fires?

Mr. PETERSON. You admit you are 40 million acres at risk for catastrophic fires?

Ms. MCDOUGLE. Yes.

Mr. PETERSON. There are many who feel that the Forest Service is failing at carrying out the role to lower that number and to prevent these catastrophic fires by doing what is necessary.

Ms. MCDOUGLE. I think that our acres targeted for reduction in our budgets reflect just the opposite, and Congress has been very supportive in supporting our budget increases to do that. And we are—yes, we are meeting the targets which we have identified.

Mr. PETERSON. That may be more current, but I am speaking of historic, in the last few years. Are you—you have had an increase in the last year or two?

Ms. MCDOUGLE. Yes.

Mr. PETERSON. So you are shifting policy and coming back to the burn policy?

Ms. MCDOUGLE. I think we know more about fire ecology now, and that is not unique to the Forest Service. That is true of all land management agencies. We have capped fire out of the ecosystem, and now we are paying for it. We thought that was the right thing to do at the time, and now we are learning differently. I don't think that it is a matter of being irresponsible; it is how much science we know about fire ecology, and we know more now.

Mr. PETERSON. I agree, but there are those who believe that never in the history of these agencies has there been as much influence from nonscientists who are in powerful policymaking decisions. Many feel that they have veered from science to political agendas, and that the Forest Service and the Department of Interior have not been able to manage, that sound science has been moved away from; and we are finding that didn't work.

Ms. MCDOUGLE. That hasn't been an issue in fire.

Mr. PETERSON. You don't think policies from leaders of this country have had an impact in preventing catastrophic fires?

Ms. MCDOUGLE. The Forest Service is not out here by itself making these calls and establishing these priorities.

I think the fire business among the agencies is probably one of the best models of how this should work, and it works very, very well.

Mr. PETERSON. Well, I would agree with you once we have the fire. Many people do not agree with you in preventing those fires, and I will conclude with that.

Mrs. CHENOWETH. Ms. McDougle, I am going to continue on that line of questioning, because we do have some very specific concerns about how the U.S. Forest Service reacts in its decisionmaking processes with those who are on the ground, those who are at the site of the fire, and the decisions that are made.

I do want to read the following questions, because they were questions that were submitted to me by Congresswoman Tillie Fowler, whose district also was impacted very heavily by the fires; and this goes to the line of questions that Mr. Peterson was involved in, and that is the Forest Service activities and decisionmaking on the ground when the fire is in process.

Ms. Fowler submitted the following question:

During the Florida fires, a Super Scooper aircraft, a can Canadair CL–215 firefighting aircraft was sent down from North Carolina to help fight the fires. Unfortunately, this asset was not properly used during the Florida fires. Although it is able to successfully complete over nine drops of water each hour, it was only used efficiently for 1 day. It spent 3 days on the ground and at least 1 day flying on the same schedule as the slower tankers.

Why was this firefighting aircraft used so inefficiently? And the fires began on Memorial Day weekend and the Super Scooper was not brought into those fires until a month later, when it only had to come from North Carolina. What was the reason for the delay in requesting this aircraft and bringing it down to Florida?

Finally, although the company that makes this aircraft is based in Canada, it does have production facilities in the United States, and we should, as a matter of fact, be able to use any aircraft available to us that would be more responsive in terms of its capabilities in putting out large fires like the one that we have been referring to in the wilderness areas.

There seemed to be to Mrs. Fowler and to the people in Florida and the reports that the Congressmen there have gotten there seemed to be some resistance from the Forest Service to bring in these aircraft to fight the fires.

What was the reason for the objections to the use of this aircraft?

Ms. McDOUGLE. Madam Chairman, I am going to let Denny Truesdale respond to that since he was down there. But I would like to say that I had several personal conversations with Ms. Fowler, not specific to the Super Scooper, but to the availability of helicopters, and I immediately called the incident commander and said, talk to this lady and he did.

So we were responsive to her in a number of ways, but as to—and I know that the State Forester for Florida was the one who initially requested the Super Scooper.

Mrs. CHENOWETH. Therein lay the problem.

Mr. Truesdale, please proceed.

Mr. TRUESDALE. Thank you. I tried to take notes as you went through the questions, but if I miss one, please refresh my memory.

The first question regarded the efficiency or, in the Congressperson's words, the inefficiency when she asked the question. That was a very complex situation down there in Florida. I have talked to the State Forester, Earl Peterson, and I believe, according to his information, there was more firefighting aircraft in the State of Florida working at one time than has ever occurred in the history of firefighting within the State. Combine that with the smoky conditions, the weather conditions which make it very difficult to fly, and the inefficiencies of all kinds of aircraft, whether they are the large retardant bombers used extensively in the West, the small, single-engine airtankers which are similar to crop dusters, those sorts of things that are used throughout the East very effectively; and so inefficiencies are bound to occur under those situations because of the inability to fly.

The aircraft itself had some difficulty getting pilots that were approved by FAA to fly in the U.S., and I believe FEMA was able to

work with the FAA and get those pilots certified to work in Florida for that emergency. That took a few days in the delay.

We believe that the mix of aircraft which was ordered by the incident commanders on the ground, both Federal, State and local firefighters, needed to match the local conditions there; and we had that full range of aircraft there, including the loan of the Super Scooper from North Carolina. We still had many other aircraft available in the West that, because of the congestion of the air space there, we were unable to move into Florida. And we feel that the Canadian aircraft is a good product that, in some circumstances, has a very effective use in places in the United States; and it is used within the United States in such circumstances.

Mrs. CHENOWETH. Thank you, Mr. Truesdale. I am not sure that we got the answer that we were looking for with regards to how the question was framed.

It seems only logical that if air congestion of a number of aircraft was the question, if you have one aircraft that can do 10 times the work of other smaller aircraft, that we would utilize that one aircraft, especially when we have a wilderness area, for instance, that is on fire, we can only fight it from the air, there are 24,000 acres that ultimately were lost.

This appears to be the situation of maybe some turf battles. I hope that didn't happen. But it gives every appearance of being.

So for us, for the American people, Mr. Truesdale, I would love—I would not just love it, I would ask that you submit to this Committee and to Mrs. Fowler and to the rest of the congressional delegation a complete report on how aircraft were deployed and utilized, who was in control, who were making the command decisions down there, and who was cooperating with whom in terms of how the Federal and the State foresters were cooperating with one another.

It will be very instructive to us in the future because I hear the same complaints in Boise sometimes. Aircraft are brought in and they are embargoed right there in Boise, and they cannot be used by their owners for other purposes and they sit on the ground. So this would be a very good opportunity to bring more understanding as to the problem that Mrs. Fowler has pointed out, and it will enable all of us to be able to avoid that problem in the future.

Even though it is a Canadian aircraft, there should have been very little reason for it to be used only a minimal amount of time; and there should have been very little reason for it to have taken a month for it to be called from North Carolina. So naturally the Committee has questions about it, and so we do look forward to a more detailed report.

Do you have any comments with regards to the detailed report that this chairman is asking for?

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

Mr. TRUESDALE. No.

First of all, we will be happy to respond to your request. We are in the process with the State agencies, the other agencies who responded, in looking at the entire mobilization down there, the process that brought the people from throughout the United States, as well as some of the individual fires; and we will add that into our list of items that we need to review and report back to you.

I probably was not very clear in some of my earlier statements here, and let me add just one more comment.

Even though the CL–215 is an aircraft, an airplane, it is most comparable in firefighting use with the large helicopters, the Sikorskys, the Sky Cranes, what we call Type 1 or heavy-lift helicopters; they drop at approximately the same speed. Although helicopters can actually hover, they usually maintain some forward speed. They fly slowly and have quick turnaround times. They can use the same water sources that the Super Scoopers use. They are more maneuverable than aircraft because they can be directed more precisely because of their ability to fly so slowly.

My comparison with the need for the incident commanders to make a decision on the type of aircraft was a tradeoff for a similar category in dropping ability between the Type 1 aircraft and the Canadian aircraft. The Type 1 helicopters we have, I don't know what the numbers are, but 20, 30, 40 are on contract throughout the United States. There were numerous Type 1 helicopters in the State of Florida dropping both for the Forest Service on Federal fires, for the State on State-protected fires; and I think they were also used cooperatively with the counties. So our comparison would be more with the Type 1 helicopter than with the 2,000-, 3,000-gallon water retardant aircraft.

Mrs. CHENOWETH. Thank you, Mr. Truesdale. I look forward to receiving that report within 30 days.

Mr. TRUESDALE. We will get you a report within 30 days. The completeness and the specificity that you asked for, I am not sure that all of the reviews will be completed by that time, but within 30 days we will let you know the status of the information that we have. Thank you.

Mrs. CHENOWETH. Within 30 days I would like to see in the report the evidence that you have worked with the State forester in trying to find out where the breakdown was or what is perceived as a breakdown.

So I would like to see in that report within 30 days the fact that you have coordinated with the State and what your report is.

I will also be working through Mr. Boyd to receive a like report from the State forester.

Would you be willing to assist the Committee in that, Mr. Boyd?

Mr. BOYD. Absolutely, Madam Chairman.

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

Mrs. CHENOWETH. All right.

I have a couple more questions. It has been mentioned in the newspaper, Mrs. Fowler also wanted us to mention this, that perhaps the command structure for fighting the fires was in a state of confusion throughout some of the time that the fires were burning, and the communication between coordinating agencies was not all that it should be during an emergency situation. This was her last comment, and I do—would expect that in the report you will be able to respond to these concerns and what we can do in the future to improve it.

Now, going back to some of my questions, I have two questions for you. What role did we play this year in the fires in Mexico and last year in the fires in Indonesia, Ms. McDougle?

Ms. McDOUGLE. Well, Denny Truesdale accompanied a group to Mexico, so I would like for him to speak to that.

Mrs. CHENOWETH. All right.

Mr. TRUESDALE. I will go to Indonesia first. I did not go to Indonesia. The assistance to Indonesia was a combination of Department of Defense, U.S. military assets, aircraft, the C–130's and MAFFS units—and I didn't come prepared with the acronym, but it is Mobile Aviation Firefighting Systems or something. It is the systems that slide into the C–130 which drop retardant, which make cargo-carrying aircraft retardant aircraft, and we supplied a few technical experts and personnel to assist the Indonesian Government in utilizing those aircraft, and we may have provided some other technical advice.

But for practical purposes, that was the extent of the assistance to Indonesia.

Mrs. CHENOWETH. What about the fire in Mexico this year?

Mr. TRUESDALE. The fire in Mexico this year was a little more extensive. The Mexican Government requested technical experts in the same issue we have just been talking about, the use of helicopters and aviation resources to fight fires and assist with planning, fire detection and mapping, that sort of thing. And then the use of the incident command system and the coordination process we use to manage fires.

We sent approximately—and when I say "we," it is the interagency wildfire community. This included State of Texas employees, government of Mexico employees, Department of Interior employees, not just the Forest Service. We sent approximately 100 people to Mexico over about a 6-week period to assist them.

The fires in Mexico, while related to the fires in Florida because of the commonality of the weather—extreme drought and the fact that fires had not occurred in Florida for 50 years—this was the worst, as Mr. Boyd stated. The same is true with Mexico except in the states of Chiapas and Oaxaca, and some of the areas down there, fires had never occurred to that extent in the history of the people down there. There is a wide range of reasons for that, which I am not an expert on, but because of the remoteness of the area—unlike Florida, Chiapas and Oaxaca are extremely mountainous and remote—and the use of helicopters was needed to get people to the fires and the use of the infrared mapping aircraft was necessary to assist the Mexican and the Guatemalan Governments in locating where the fires were.

Mrs. CHENOWETH. Did we deploy personnel like our Hotshots down there?

Mr. TRUESDALE. No. All of the firefighters, the people like the Hotshot crews that go out and fight the fire were Mexicans. They did not request any assistance, just the technical assistance and those activities already described.

Mrs. CHENOWETH. Mr. Truesdale, I will address this question to you or Ms. McDougle, whoever wishes to answer it.

Our Hotshot crews are the pride of the Forest Service, and as you know, Hotshot crews were deployed out of Boise into Florida even.

And as you know, the Boise Hotshot crew, which is in my mind the premier of the premiers, was put on hold, and I have a lot of

my Hotshots in Boise counting needles on trees and doing landscape gridding, and I am not one bit happy about it; I am a very unhappy camper about that.

I do want assurance from you, Ms. McDougle, that our Boise Hotshot Crew will be up and operating full speed again in a very short period of time. I would like to know how soon we are going to get them up and operating and get those very highly skilled and highly trained men back doing what they have been trained to do instead of counting needles and laying out landscape grids.

Ms. MCDOUGLE. We believe that they will be back next year. We don't think that we can do it any sooner than that, and as I understand, the investigations are still ongoing. So we have to let that play out, and then we can regroup.

Mrs. CHENOWETH. You know, let me just say for the record that this is very frustrating for me. There was an incident that could have been a criminal violation that happened between a couple of people, but that is absolutely no excuse for doing away with one of the best Hotshot crews in the Nation. The program should go on while investigating with regards to the conduct of two people who probably, or may have, conducted themselves inappropriately, that investigation should go on uninterrupted; and I have given the Forest Service several months' time and have urged the Congress to stay out of this, but I am growing increasingly impatient if I continue to hear that because of an ongoing investigation, because of the violation that two people were involved in, that that is not sufficient reason to give me—not to give me dates specific and times as to the degree that we are going to see this very, very important Hotshot crew reinstituted.

I am, as you can tell, growing increasingly impatient. I want to know dates. I want to know when those people are going to be back to work doing what they have been trained for. When will you have that answer for me?

Last time I asked for direct answers, I said, "Close of business by tomorrow or I am going to have subpoenas ready." I am not prepared to do that yet, but I am getting awful close, because Boise has had a tremendous amount of fire. We have an area there where 600,000 acres have burned, and the fires on the Boise foothills threaten our homes every other year.

Ms. MCDOUGLE. Well, Madam Chairman, I believe that we have been responsive to your capability in Idaho. We have supplemented what you have there. No, it isn't the Hotshot crew, but in terms of the equipment and the people that we have deployed to your State for this season, I thought that you were satisfied with what we have done today.

Now——

Mrs. CHENOWETH. I have been satisfied to date, but I do want to open it up again to find out when it is that we will have these people back on duty.

Ms. MCDOUGLE. I understand. And I am not convinced that it is two people. I don't know how this is going to turn out. I don't know who, if anybody, is going to be indicted. I know that it is out of our hands; it is in the Justice Department.

We have no control over it, so I am not comfortable at this point in time in moving ahead with that until I have some assurances

that I am doing the right thing with the right people; and that is all that I am saying. I understand your desire, and I believe that we can be responsive to it in a way that you desire. But I am just not comfortable right now, because I don't know how this is going to play out. I have no idea.

Mrs. CHENOWETH. I just want us together as a Congress and as an agency to always keep the goal in mind, and I think we would have to agree on the fact that government's ultimate responsibility is to make sure that necessary services are fulfilled and—necessary services being fighting fire; and when we see skilled people who are not under indictment being laid off to count needles on trees, that does not make me very sanguine at all.

Ms. MCDOUGLE. I understand.

Mrs. CHENOWETH. So the program has to go on. Ms. McDougle, I know you share that with me, the fact that that necessary program is gone.

So I look forward to staying in touch with you and your staff on that as we proceed.

Ms. MCDOUGLE. I would be happy to.

Mrs. CHENOWETH. Thank you very much.

Ms. MCDOUGLE. You are welcome.

Mrs. CHENOWETH. I would like to ask the gentleman from Colorado if he has any other questions.

Mr. BOYD. Thank you, Madam Chairman. I want to shift gears for just a minute.

Mrs. CHENOWETH. The gentleman from Florida. Please proceed.

Mr. BOYD. Ms. McDougle, do you agree with the press accounts that forest roads greatly assisted in the suppression of fires in Florida?

Ms. MCDOUGLE. I am sorry?

Mr. BOYD. Do you agree with the press accounts that forest roads greatly assisted with the fighting of the fires that we had in Florida?

Ms. MCDOUGLE. I don't know that. I have not seen those press accounts, but we do—we are aware that that access to fires is very important, yes.

Mr. BOYD. Mr. Truesdale is shaking his head, yes. I guess that means that you agree with those press accounts.

Mr. TRUESDALE. Yes. Again, I am not familiar with the specific ones, but roads are a very effective barrier many times in fighting fires.

Mr. BOYD. Having seen the—partially seen the fires in the Osceola National Forest, I can assure you that they were the key in us preventing the spread of that into private lands and into populated areas.

Ms. McDougle, I have had discussions with Mr. Peterson, who is our State Forester with your people, Ms. Kearney, who is your State Forester in the national forests of Florida, the people who came in from other States, the local firefighters, and I think overall that most everybody agrees that the coordinated effort that was made in Florida was good, and I want to lay that out, that we feel that way.

I think any time that you do, that you experience—have a new experience, and in Florida that was something new for us. We

haven't had a spread of wildfires of that magnitude in Florida since I can remember in my lifetime, so we are breaking new ground down there. Any time you break new ground, obviously you make some mistakes, and obviously you want to evaluate what happened and how you can do it better next time.

I have had this discussion with Mr. Peterson. As a matter of fact, Mr. Peterson came before this Committee last week and, overall, he gave high marks to the coordinated efforts that were done in Florida; and a lot of that was done through your office and the folks that work for you.

However, he did say that he felt that better coordination could be done in the area of equipment ordering and placement and that kind of thing, and that there was an ongoing evaluation with your folks. Also, long-range planning in order to more effectively pre-position people and equipment, particularly when we got into the situation where the fire started breaking out.

And I have had these discussions with Ms. Kearney, and it is something I think that you all have learned and I am sure that is going to be a part of your evaluation process and your report. So I won't ask any questions about that. I think that you all, I am sure that you all will have that evaluation process done, and you will get a report to us, and it will be a very positive thing for all of us.

Rehab efforts, I want to talk about rehab efforts, rehabilitation. Mr. Peterson stated before this Committee that rehabilitation efforts on State lands had begun even prior to the time that all of the fires were out. Salvage timber sales, for example, were already being prepared and he was about to let bids on salvage timber sales.

What is the status of rehab efforts on our national lands?

Ms. McDOUGLE. We sent a team down—yesterday, in fact—to take a look; we sent our technical experts on that, to take a look at it. I think Osceola is probably the only one where there could be some salvage opportunities, but we don't know that yet. We will be meeting with our forest employees and Marcia Kearney, who is the Forest Supervisor for the national forest of Florida, as well as Mr. Peterson, to come up with some assessment of salvage opportunities.

Mr. BOYD. Well, I think that is a pretty good analysis of an update, because I talked to Mr. Lawrence, who is an Osceola National Forest forester, probably 10 days ago—this is after all the fires were out—and he explained to me at that time that August 3rd would be the date that the assessment team came in. That was yesterday. You said they went in, and it would take them at least a week to 10 days to do that work, and then we had a NEPA process to go through.

I can tell you, Ms. McDougle, that in Florida when all of that is done, said and done, 60 days from now, there won't be any need for any salvage rehabilitation effort because the timber will be of no value, because that is the way it is in the Southeast; with our high humidity, we get the blue stain. And, you know, we haven't started this process.

The fires have been out for a month now. We are today beginning our assessment. We are going to do that assessment for 10 days,

and then we are going to go through a 45-day NEPA process, and then we might as well not have done all that.

So my question to you is, is there something to be learned from this? Can we work together to change this process somehow or another, so that the rehabilitation effort will mean something to us?

Ms. MCDOUGLE. Oh, I don't know if the process needs changing or if we need to better engage those who have regulatory authority over some of these things, like we did for the Texas blow-down effort and others. There was some real partnership that occurred with, for example, CEQ and the Forest Service in that effort; and that was a forest health issue, and it worked.

So I think you just need, the folks you need to get involved, involved as soon as possible, and work something out that is meaningful. We do have red-cockaded woodpecker habitat down there that has been destroyed. There is a need to move urgently if that is at all possible, but I understand that the market has bottomed out down there.

Mr. BOYD. Well, the market on the pulpwood side has bottomed out and probably not much there, but on the sawn timber side—and of course the pulpwood can stand for a long period of time, but on the sawn timber side, that is where our timing is of the essence; and the markets are still holding up pretty good because we can move that pretty far away at a reasonable cost.

So my question to you is, who is it—and you suggested that we work with the appropriate people. Tell me who the appropriate people are.

Ms. MCDOUGLE. First, we need to wait for the assessment to be completed to see what they really need. I don't know that yet.

Mr. BOYD. When will the assessment be completed?

Ms. MCDOUGLE. They are working on it now. I don't know. I can get back to you with that.

Mr. BOYD. OK. Mr. Lawrence told me it would take a week. Is that——

Ms. MCDOUGLE. I won't second-judge that. I don't know. It just depends on how much they are looking at.

Mr. BOYD. So then, next week sometime we could get back together and figure out who we need to go to to expedite?

Ms. MCDOUGLE. We can give you some sense of how long it is going to take to finish that this week, so we can do that.

Mr. BOYD. Thank you very much.

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

Mrs. CHENOWETH. Mr. Schaffer.

Mr. SCHAFFER. Thank you, Madam Chairman.

I want to followup on that quickly, because in addition to the 60 days of assessment and evaluation that goes on, as this administrative appeals process that I mentioned in our last round of questioning, because that is the next stage that tends to tie up salvage operations for timber sales and so on, and the appeals process, the duration has nothing to do with how many appeals there may be.

It is a consistent process in every single case. When this timber is dead or is dying, the time for analysis, decisions and the appeals, and sometimes the litigation that you pile on top of that, can be so long that you lose any value in the timber.

Let me ask, do you agree with that? Previously you said you didn't agree or didn't believe that the administrative appeals process had any impact on the ability to treat damaged acreage, and so you have heard an immediate example in Florida.

And again, Congressman Boyd's example didn't really contemplate the appeals process where some environmental group, I guarantee, is going to come and submit—because somebody, I am sure, thinks that cinder-coated pieces of wood out in the middle of a dead forest is somehow useful and needs to stay as it is. But once that occurs, you are talking about I don't know how many months, but a long, long time.

I want to ask you one more time. Do you believe that there is some need to review or evaluate the appeals process at the administrative level?

Ms. MCDOUGLE. I don't think you should look at the appeals process in and of itself, alone, as a stand——

Mr. SCHAFFER. Let me just stop you there, because we agree on that point. I am talking about the total duration of time an immediate evaluation, which can take up to 60 days including NEPA process, and then an appeals process established that exists beyond that.

So let's not look at it in and of itself, let's look at it in its totality.

Ms. MCDOUGLE. The Secretary of Agriculture already has a committee of scientists taking a look at recommendations to totally overhaul our planning process. I presume that that is one of the things that they are looking at as well, although I have not seen the result of their work.

They are slated to be done in a couple of months, I believe, but I am not absolutely sure on that. I think early fall they will have completed their work, and I would suggest that we give that process an opportunity to play out to see if they have done something for us.

Mr. SCHAFFER. Let me move on to some other questions.

One is, I would like to get a sense for where we are headed with budget requests, with budget outlays, and what is the value of a dollar we spend in your agency on suppression and preparedness for the public.

Let us talk in terms of trends. Where do you see the conditions across the country? Are we—it is my sense that we are seeing more volatile lands, more conducive to wildfires. Do you agree with that assessment?

Ms. MCDOUGLE. I just testified that we believe we have about 40 million acres that are at high risk of catastrophic fire.

Mr. SCHAFFER. Is that more than the previous year, more than previous years, if you can take a look at where we have headed over a longer period of time?

Ms. MCDOUGLE. We are in the process now of refining that number. It could be more, it could be less. I don't know yet.

Mr. SCHAFFER. Have we done these kinds of analyses 5 years ago, 3 years ago?

Ms. MCDOUGLE. Not as well as we are doing them now.

Mr. SCHAFFER. So do we have any sense whether there are more or less volatile wildlands that are susceptible to wildfires today than, let's just say, last year?

Ms. MCDOUGLE. We have a better sense of where they are.

Mr. SCHAFFER. Well, what is that sense?

Ms. MCDOUGLE. Intermountain West.

Mr. SCHAFFER. No, I mean what is the sense of which direction we are headed? Are our national forests becoming more volatile, susceptible to wildfires, or less?

Ms. MCDOUGLE. Well, I would say, probably more, because fuels are continuing to buildup.

Mr. SCHAFFER. Has there ever been any effort to try to quantify the value of the 40 million acres? For example, I know how many acres that is, but in terms of the value of those acres to the American people, not just in resource value, but also in the cost of putting out wildfires in those areas, has there ever been any kind of analysis if we spend a dollar up front how much are we going to save potentially in the coming year?

Mr. TRUESDALE. If I may, sir, part of the analysis that we use in our budget, that Mr. Josephson talked about also for the Department of the Interior, uses a model that gives us a benefit cost of protecting the national forests. And the benefit is that if we are at the most efficient level organization, if we put a dollar—if we spend a dollar on protection, the presuppression organization, we are saving a dollar in suppression costs in resource damages. And that model has been used for 10, 15 years in order to determine an efficient level of budgeting for our presuppression organizations.

So we do the benefit cost from that sort of side of it.

Mr. SCHAFFER. In terms of various agencies, different Federal agencies, State agencies, and private lands, do we have any kind of an analysis of where our fire—our wildfire problems are worse and where they seem to be more easily contained or controlled, or maybe prevented altogether?

Mr. TRUESDALE. A combination of things. With the 40 million acres that Janice just described that are at risk, the individual fire histories, most areas, including States and some local organizations, have fire history maps that they have used to determine lightning patterns, for example, or patterns that become obvious when you look at them, but where the roads go through the forests, where people have access where fires may start, where people live, where the wildlife interface is.

Mr. SCHAFFER. How about on an agency-by-agency basis? And the reason I ask—I will stop, because I have expired my allotted time here.

This Subcommittee did a field hearing in Idaho and Oregon, and one of the things that made a big impression on me was that I didn't realize that forest fires sometimes stop along a straight line and the only difference between where the fire burned intensely and where it stopped was that the Forest Service owned the land that burned to the ground and private interests owned the ground that is still green.

And what it suggests to me is that—right along the property line is where the fire stops, and what it suggests to me is that your job changes from property owner to property owner across the country. So this 40 million acres, can you tell me whether the majority of these acres are Federal lands and whether they are managed by the Forest Service or BLM or some other Federal agency, or by

State-held lands, or whether it is possibly owned by private lands? My sense, without having done the research, is that the greatest risk of wildfires is on Federal lands, federally managed lands, and I guess I want to get a sense of whether I am close to the mark or whether we know that at all.

Ms. MCDOUGLE. That 40 million acres is Forest Service lands only.

Mr. SCHAFFER. So this is all forest that you have estimated here?

Ms. MCDOUGLE. Yes.

Mr. SCHAFFER. OK. Step away from the 40 million then, and in terms of where our greatest risks of wildfires are across the country, do we know what category of ownership those lands fall into?

Mr. TRUESDALE. Well, if you look at the State of Florida, for example, the risk that occurred over the past 2 or 3 months, if you use acreage, 12.5 percent was national forest system's land and the rest was private or perhaps some other Federal lands down there. But the majority in Florida impacted State and private landowners instead of national forest systems.

In the West, probably just in some parts of your State, for example, where the majority of a particular area is Federal land, then the risk would be higher on the Federal. But in Florida, the risk was highest on the State lands.

Ms. MCDOUGLE. And to add to that, the State of Florida has one of the most aggressive fuels treatment programs in the country. Florida burns about 2 million acres a year. To give you some sense of Forest Service, for instance, we burn about 1.2 million acres a year, nationwide. Florida burns about 2 and still, they have this problem. Had they not had this aggressive fuels effort ongoing to the State, it could have been a lot worse than it was.

Mr. SCHAFFER. Thank you, Madam Chairman.

Mrs. CHENOWETH. Mr. Peterson.

Mr. PETERSON. Mr. Truesdale, would you share with the Committee the value of our volunteers and how we can help them?

Mr. TRUESDALE. I agree with the State forester from Virginia that they are an extremely valuable part of the fire protection throughout the United States. We—from a Federal agency standpoint, we rely on them also as partners in fighting fires on national forest system lands.

The Department of the Interior—I know Wally will say the same thing—uses volunteer and State organizations, and we have found that they have been very effective as the initial attack on many, many wildland fires throughout the wild-urban interface, even on Federal lands.

Mr. PETERSON. What do we currently do to help them be prepared and equipped, because—well, next week, in the next 2 weeks at some point in time, as soon as I get a clear date, I am going to be meeting with 20 volunteer fire departments that protect the INF, and they are looking for help.

What should I tell them?

Mr. TRUESDALE. The two programs that were outlined in the GAO report that provide assistance, one, primarily to the State forester to assist in developing the training, communications equipment, those sorts of things for the organizations and the Rural Volunteer Fire Program, a program that specifically funds small rural

volunteer fire departments; the Federal Excess Personal Property Program where those groups are able, through the State forester—and I apologize, I don't know your State forester, but he runs a very good program, I am sure—to manage that program that brings those Federal assets down to those volunteer areas.

I think those are some of the best programs that we have at our disposal to assist those folks not only in training and education to help them make that transition from a structural fire department to a wildland, but also to get the equipment, which is different.

I believe Ms. Brown in her statement said, one of the biggest problems they had in Florida, or maybe not the biggest, but one of the problems they experienced in Florida were the structural firefighters that, in many cases that you are speaking of, did not have the lightweight, no-mix fire protection clothing that they should have had for fighting wildland fires, and making that transition not just simply to use their structural protection equipment, but have specialized training. That is a very big help to those areas.

Mr. PETERSON. So State foresters administer those programs?

Mr. TRUESDALE. Yes.

Mr. PETERSON. Back to the issue of prevention, the Forest Service uses an example—I don't have the numbers from the other agency, but you used to cut about 12 billion board-feet a year, and you have about—plus salvage, which was—2 to 3 billion board-feet is what I have been told. Currently, you are cutting about 3 billion board-feet a year, which includes salvage. And people tell me that we really don't cut much green timber anymore, salvage dominates the program.

I guess the question I want to ask, with that direction we are heading in, do you really have the ability to thin out forests that are overcrowded and impacted by insects and disease and drought?

Ms. MCDOUGLE. We are currently working on an effort to do just that, to deal with that issue, as well as the fuels issue. The problem is, we have done all of the easy stuff and what is left in there is the small-diameter wood that we don't have good markets for.

Our Madison, Wisconsin, lab is working and has done a lot of work, for instance, in Southeast Alaska with the communities to develop—help them develop markets for the small-diameter wood. And we are putting together for our—as we work on our fiscal year 2000 budget, a real initiative we believe, not only to deal with the forest health issue, but to create jobs in these communities.

Mr. PETERSON. But still, my question was a little different than that.

I asked you, with your cut being about 3 billion board-feet a year in your average salvage—that is, after the fact; that is, after timber has died for some reason, or dying, has historically been there—does that allow you—the amount of timber you are cutting per year, does that allow you to thin forests that need thinning?

Ms. MCDOUGLE. In addition to that, sure, if we get the budgets to do so.

Mr. PETERSON. But you don't—if, you are not getting them presently?

Ms. MCDOUGLE. Well, I don't know that. I don't know that.

Mr. PETERSON. Well, how about last year?

Ms. MCDOUGLE. Well, last year we did not have this initiative, and we have been involving the administration in the development of it, and so we think that there will be support this time.

Mr. PETERSON. Mr. Josephson, would you like to speak to BLM land and the Interior Department?

Mr. JOSEPHSON. I would have to defer to the BLM. If you would ask that question, we will be glad to get back to you with an answer.

Mr. PETERSON. Would you get that information for me?

Mr. JOSEPHSON. Be glad to.

Mr. PETERSON. I have no further questions.

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

Mrs. CHENOWETH. In followup to Mr. Peterson's line of questioning, actually in the Congress we have increases for Forest Service funding every year, so I urge those of you who have to take the hard questions here in this Committee to look to your administrative heads to make sure that the money we allocate is properly spent on those very necessary programs.

It is not always easy to be here in front of the Committee when the buck stops with you, but I appreciate your candid answers, and I look forward to receiving your reports.

I do want to say, Mr. Josephson, I am not going to let you off the hook. I do have some questions for you. Your expertise is in fuels management and fire; isn't it?

Mr. JOSEPHSON. Wildland fires, that's right.

Mrs. CHENOWETH. Wildland fires. I do want to say, in Idaho, right where we have the National Interagency Fire Command Center that deploys information, as well as personnel and equipment, all over the United States and sometimes, when it is required, beyond our borders, we have a situation that is developing that I mentioned earlier that has required our former Secretary of the Interior, Cecil Andrus, former Governor Cecil Andrus, to take to the airwaves with BLM public service spots admonishing people that because we have 400 percent fuel load in the cheat grass to be very careful about making sure that there is no human-caused fire. Well, that is good, but that is only a small part of the problem.

No. 1, we do have a 400 percent fuel load in that cheat grass that not only occupies the landscape south and east and west of Boise, but also north where fires that start can move very quickly into private land, and as we have seen in the past, move onto public Federal Forest Service land.

So when I was back there this weekend, we had the oddity of having rainstorms in August in Boise, which is normally very arid and dry. But when we have dry rainstorms or thunderstorms move through our areas, we take an awful lot of lightning strikes, and that is when so many of our fires are started in that cheat grass area.

Now, cheat grass, as you know, contains a certain chemical composition and a certain oil that when it burns, once it dries out, it burns very, very hot, and winds begin to perpetuate their own weather system because of the fire, and so it becomes a massive fire.

As you know, Mr. Josephson, when fire begins on Federal land, if it moves to State land or to private land, there is no liability on

the part of the Federal Government as to whether they have properly tried to contain the fire early on in order to prevent it moving onto someone else's land. But if fire starts on private land or State land, if it moves into the Federal land, then the Federal Government has been given the authority to hold those people liable who did not contain the fire properly when it was on their private land or State land. That seems to be a situation that is way, way out of balance.

So with that in mind, Mr. Josephson, wouldn't it be advisable for the Secretary to be given the authority to control those fuel loads while they are still controllable? For instance, in the interface between urban and wildland areas, wouldn't it be advisable for the Secretary of Interior to be given the authority by Congress to take care of those fuel loads, either by mowing or grazing or plowing fuel breaks, or whatever it is, around the areas so that fire would not move from the Federal land on to other lands, so fire will not move so quickly that we lose lives like we did a couple years ago? Would you agree that that is a proper authority to be given from this Congress to the Secretary?

Mr. JOSEPHSON. I believe the authority is already at the local level, and they can do interface work with the local communities; and if that includes plowing around the communities or doing prescribed burns in local areas, that is an option they can do at this time.

Mrs. CHENOWETH. Perhaps they can, but it has not been spelled out clearly enough in the law that they are willingly using it, and that is why we have seen the fires in that very area that contains the National Interagency Fire Command Center. I mean, it is just ironic that right there in Boise, Idaho, we have had tremendously destructive fires. And so—because it has not been spelled out perfectly clearly that the Secretary has this authority to make those on-the-ground decisions, it has not been done; and so, therefore, we have lost property and we have lost lives with fires that began in those flatlands where there was a high fuel load of cheat grass.

And this, we are—we are naturally very concerned because of the 400 percent increase in the growth of cheat grass; and it has not been contained when it could have been, in the springtime, either by mowing or grazing or whatever it might be that the Secretary determines would be the proper method to control the fuel load.

So would you be willing to work with the Congress and a lot of people nationwide who are interested in making sure that that interface is protected? Would the BLM be willing to work with us on achieving that goal?

Mr. JOSEPHSON. Yes, we would be willing to work with you to protect the local communities.

Mrs. CHENOWETH. And to control the fuel load that does buildup, in large part because of weather, either drought conditions or heavier than normal water years when we have a heavier fuel load? Will you work with us to control those fuels?

Mr. JOSEPHSON. Yes.

Mrs. CHENOWETH. Thank you very much, Mr. Josephson.

Before I close the hearing, I want to yield for another question from Mr. Boyd.

Mr. BOYD. Again, I thank the chairwoman for holding this hearing. I am glad that you have those questions for Mr. Josephson. I certainly didn't want him to feel like he had been slighted by this panel.

Ms. McDougle, I have one final question before we do close. Can you tell me that the United States Forest Service will seek alternative authorities for the Florida fire like they did in Texas?

Ms. MCDOUGLE. No, I can't tell you that, because I don't know what the need is yet. I have to wait until the field people identify them, and then we will take a look and see what is needed to do that. But I have not seen what they have identified yet; it has not been submitted.

I assure you that I will get back with you later on this week and let you know when we can expect something.

Mr. BOYD. OK. So that is the assessment team that is in there now doing that work, that went in yesterday, that Mr. Lawrence told me should take a week or so?

Ms. MCDOUGLE. Yes.

Mr. BOYD. OK. That is a reasonable answer, and if you would, if we could communicate later in the week as that assessment team does it work, that would be helpful, because I would like to work with you to do what is best for the health of that national forest.

Ms. MCDOUGLE. Understood.

Mr. BOYD. And that includes salvage efforts before those stems rot. And I would like to be able to help you do that. Thank you.

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

Mrs. CHENOWETH. I want to thank the panelists very much for your valuable time. We have held you here for a long time.

This has become an issue that is no longer just contained in the Pacific Northwest or the Southwest, but is now a nationwide problem. So we probably come together more often and for longer, extended periods of time than we had hoped for.

But, again, thank you for your time. I look forward to the reports being submitted to us, and I do want to remind the witnesses that we will have additional questions for you that we will submit in writing, and the record will remain open for 10 working days should you wish to add anything to your testimony.

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

Mrs. CHENOWETH. With that, again I want to thank you, and the hearing is now adjourned.

[Whereupon, at 1 a.m., the Subcommittee was adjourned.]

[Additional material submitted for the record follows.]

STATEMENT OF JAMES W. GARNER, STATE FORESTER, COMMONWEALTH OF VIRGINIA, REPRESENTING THE NATIONAL ASSOCIATION OF STATE FORESTERS

Good morning, I am Jim Garner, State Forester of Virginia, and I am here this morning representing the National Association of State Foresters. I served as President of the Association in 1995, and have served both as a member and chairman of the Association's Forest Fire Protection Committee. I appreciate the opportunity to discuss the role of the States in wildfire suppression and management, and to share our perspective on how the system works and how it could be improved. I have attached a copy for the record of a report, entitled *Managing Forests, Managing Fire: A Report to the Congress on the Status of Wildfire Management in the United States.* This report was a cooperative effort of the National Association of State Foresters and the American Forest and Paper Association. It lays out in layman's terms the basic structure of interagency cooperation and highlights the roles of local fire departments in fire suppression, and I commend it to your attention.

The Department of Forestry is the primary agency for wildland fire control in the Commonwealth of Virginia. Like our colleagues in other State Forestry agencies, we work closely with local fire departments, other State agencies, and the Federal wildland fire agencies including the USDA Forest Service and agencies in the Department of the Interior. We also work through interstate agreements to share resources in times of critical need. In my view, these relationships are a model of intergovernmental cooperation. There a few key features worth noting.

First, local fire departments are the first lines of defense against wildfire throughout the Nation. Volunteer departments are predominant in rural areas, and it is critical that they be well trained, staffed, and equipped to provide initial attack on wildfires. The southern region of the United States, as was demonstrated dramatically by the recent events in Florida, experiences more fire starts than any other region. An effective network of trained local departments, however, helps keep costs down by catching most fires when they are small.

For instance, in Virginia we had 1,242 fire starts last year, but thanks to early and aggressive suppression, our average fire was only 4 acres. Without well-equipped and trained local departments, our average fire size, and the costs of suppression, would be much higher. Right now, in Texas, local fire departments are coping with literally hundreds of starts each day, and they have in many cases avoided large, expensive "project" fires.

There are over 26,000 rural volunteer fire departments in the United States. To convert these small departments into full time, paid firefighters would cost over $30 billion. More importantly, as housing developments encroach into wildlands, the jobs of these firefighters become more dangerous, more complicated, and more expensive.

The second positive feature of our cooperative program is that trained and well-equipped wildfire fighting crews from across the country can be dispatched wherever they are needed. This is due to careful coordination by regional coordination centers, interstate fire compacts, and, when necessary, through the National Interagency Fire Center (NIFC) in your home State of Idaho. During the recent fire situation in Florida, every State except two had firefighters, equipment, or overhead in Florida. My Department sent four bulldozer units, 2 Hummers, and 42 people with support vehicles to Florida. They were assigned to fires in Northeast Florida, and were placed under a unified command under the direction of the Florida Division of Forestry. Thanks to the efforts of the National Wildfire Coordinating Group (NWCG), States and Federal firefighting all train our crews using the same standards and similar equipment. This enables firefighting resources to be used throughout the country, and helps states with frequent wildfires by giving their crews on the ground, practical experience.

When a fire year becomes extremely busy, State crews and equipment can make up a large portion of the resources that are dispatched nationally. In 1996, for example, every State dispatched at least some overhead personnel to fires out of State. It is also important to keep in mind that many, if not most, of the firefighters who make up State fire crews are also volunteer firefighters in the communities.

Third, the State Foresters work closely with the USDA Forest Service on several programs that help keep our front lone of defense well equipped and trained. Three programs help us achieve this; the State Fire Assistance Program and the Volunteer Fire Assistance Program, both managed by the USDA Forest Service's Fire and Aviation Management staff, and, third, the Federal Excess Personal Property Program (FEPP), which we cooperate with the Forest Service in implementing.

The FEPP program is perhaps the most innovative of the three. Through a cooperative agreement with the Forest Service provided for by the Cooperative Forestry Assistance Act, State Foresters are able to screen property, primarily former military equipment, at the Excess level, rather than the surplus level. This equipment,

which ranges from aircraft to trucks, to mobile command posts to clipboards, is reconditioned either by the State or by local fire departments and put directly into service protecting homes and property from wildfire. On average, about $140 million worth of FEPP is annually distributed to the State. For instance, in Virginia, we acquired $116,000 worth of equipment through the FEPP program last year.

Two other points about FEPP are worth bearing in mind. By using this program, we are greatly extending the useful life of vehicles and other equipment that the taxpayers have already paid for. States and localities add value to FEPP and have tremendous pride in keeping the equipment in service. Second, by allowing State forestry agencies to screen at the Federal level and distribute the equipment in their States, it is put to more effective use than would be the case if the nation's thousands of fire departments had to sift and screen through all of the items that are put on the excess list annually.

The last point I'd like to make is that we will never rid this Nation of wildfire. We can, however take prudent steps through the programs I've discussed to reduce costs and protect lives and property. We can manage our lands to reduce fire dangers by thinning overstocked forests and carefully using prescribed fire. However, as events in Florida have shown, sometimes many factors will come together to create a dangerous and complicated wildfire situation. Unprecedented drought all but nullified the positive impacts of prescribed fire use and careful forest management. The growth of the wildland urban interface, which in and of itself is caused by numerous, complicated factors, turned what would have been straightforward fire fighting tasks into tremendously expensive exercises in emergency management. And until Mother Nature changes the weather pattern, the only thing standing between the citizens of Florida and the fires was our national fire fighting forces. Situations like Florida can push these forces to the limit.

We appreciate your support for wildland fire management, and we look forward to working with you and the rest of the Committee to see that the programs that help with this effort are adequately supported.

NATIONAL ASSOCIATION OF STATE FORESTERS

The National Association of State Foresters (NASF) has been-awarded the following Federal Grants and Cost Share Agreements:

1. Federal Award Grant No. 98-G-037 was awarded on January 12, 1998 in the amount of $15,000 to NASF from the State and Private Forestry Deputy Area of the USDA Forest Service.
2. Federal Award Grant No. 98-G-032 was awarded on December 8, 1997 in the amount of $251,000 to NASF from the State and Private Forestry Deputy Area of the USDA Forest Service.
3. Federal Award Grant No. 98-G-039 was awarded on January 12, 1998 in the amount of $10,000 to NASF from the State and Private Forestry Deputy Area of the USDA Forest Service.
4. Federal Award Grant No. 98-G-038 was awarded on January 12, 1998 in the amount of $10,000 to NASF from the State and Private Forestry Deputy Area of the USDA Forest Service.
5. Federal Award Grant No. 95-G-201 was awarded on October 5, 1995 in the amount of $20,000 to NASF from the State and Private Forestry Deputy Area of the USDA Forest Service.
6. Challenge Cost Share Agreement No. #08-98-S&PF-CCS-01 was awarded on July 15, 1998 to NASF from the Southern Region of the USDA Forest Service.

Any further information concerning the above five Federal Award Grants may be directed to NASF at the above telephone number.

STATEMENT OF WALLACE JOSEPHSON, WILDLAND FIRE SPECIALIST, DEPARTMENT OF INTERIOR, OFFICE OF MANAGING RISK AND PUBLIC SAFETY

Madam Chairman and members of the Committee, I appreciate the opportunity to appear before you today to discuss the Department of the Interior's planning and budgeting processes for the Wildland fire management program. The Bureau of Land Management, the Bureau of Indian Affairs, the Fish and Wildlife Service, and the National Park Service are the four land management agencies within the Department of Interior with fire management programs. These agencies work in close cooperation on budgeting, planning, and implementation activities related to fire management.

The Department's wildland fire management program is guided by the principles and policies of the *Federal Wildland Fire Management Policy and Program Review,*

adopted by the Secretaries of Agriculture and the Interior in December, 1995. The program ensures the capability to provide safe, cost-effective fire management by providing appropriate planning, staffing, training, and equipment. Fires are suppressed at minimum cost considering firefighter and public safety and benefits and values to be protected, consistent with resource objectives. The Wildland fire program also recognizes that fire is a critical natural process and must be integrated into resource-management plans and activities at a landscape scale, across agency boundaries, based on the best science and technology available. Whether discussing prescribed fire or emergency suppression of uncontrolled wildland fire, let me emphasize that the protection of human life and public safety is *the* number one priority in all aspects of the wildland fire management program.

Funds for the Department's Wildland Fire Management Program are appropriated to the BLM and are made available by allocation to the Park Service, Fish and Wildlife Service, and Bureau of Indian Affairs. A small portion is also allocated to the Office of the Secretary for program coordination activities. The Department's Wildland Fire Management Program is composed of two activities, Wildland Fire Preparedness and Wildland Fire Operations, which I will summarize.

Wildland Fire Preparedness

Wildland fire preparedness involves the readiness and capability of the Department to provide safe, cost effective fire management programs. Staffing levels, training, fire management planning, equipment availability, provision and maintenance of support facilities (such as air tanker bases and supply warehouses), prevention activities (such as public awareness and education), and interagency coordination all fall within the category of fire preparedness.

The Fire Management Plan is the guide for budgeting and managing the wildland fire preparedness activity. The primary analysis tool in the Fire Plan is an economic marginal cost analysis combined with a threshold analysis which is used to determine the Most Efficient Level (MEL). MEL represents the funding necessary to provide the most cost-efficient and technically effective fire management program that meets land management objectives while minimizing the total cost of both suppression and resource damage associated with uncontrolled wildland fire. In other words, given the workload of an average annual fire season, we determine the most efficient organization and estimate the cost of supporting that organization at the least total cost to the taxpayer. Fire planning and the calculations of MEL are updated annually to reflect such things as changes in resource objectives, values to be protected, land acquisition, increasing human-caused fire occurrence associated with population growth, especially in the wildland/urban interface, continued hazardous fuels build-up, and the current year's field conditions. Fire Plans are developed by local field offices and aggregated at the Washington office to identify national needs.

Whenever efficiencies can be gained, Interior agencies enter into cooperative agreements with other Federal, state, Tribal, and local governments to exchange protection responsibilities and share scarce resources. Preparedness resources are established in advance of fire emergencies based on analysis of historic needs to ensure our "readiness to respond."

Wildland Fire Operations

The Wildland Fire Operations portion of the wildland fire management program funds the development and implementation of the emergency suppression, emergency rehabilitation, hazardous fuel reduction operations, and fire severity programs. Emergency suppression includes all management actions taken to suppress wildland fires in a safe and cost effective manner. Emergency rehabilitation is carried out to prevent any further land degradation and resource damage to lands impacted by unplanned wildland fire or suppression activities. Emergency rehabilitation funds are also used to reduce any residual public health and safety risks that may result from uncontrolled wildland fires. Hazardous fuel reduction operations use fire and mechanical treatments as management tools to reduce fuel loadings and restore fire to its natural role in the ecosystem. Commercial activities, such as timber harvest or small wood product sales, are used whenever commodity production can be used in an environmentally sound manner to achieve the same objectives.

The organizational structure developed during the fire planning process is based on the average annual workload because it is not cost efficient to develop a fire organization for the most severe fire season that occurs in a decade. Therefore, when abnormal conditions do occur, suppression funds can be used upon request to increase local preparedness capabilities. Such extraordinary capabilities may include a temporary increase in firefighters or fire engines, propositioning of personnel and equipment in areas of abnormally high risk, or standby aircraft availability.

The overall goal of wildland fire operations is to protect natural resources for defined management objectives and to preserve their capability to contribute goods, services, and amenities to the Nation. For fiscal year 1999, DOI's budget request of just over $140 million dollars for wildland fire operations is based upon the last ten-year average for emergency suppression and rehabilitation, plus an addition for projected hazardous fuel reduction projects.

Coordination and Dispatch of Suppression Forces

Uncontrolled wildland fires occur unexpectedly and create an emergency in which firefighters must respond rapidly to minimize risk and damage. Despite public expectations, when the combination of excessive fuel build-up, topography, extreme weather conditions, multiple ignitions, and extreme fire behavior occur, it is impossible to immediately suppress all fires. Firefighter and public safety, and the ability to contain the spread of fires, can best be met only with adequate preparation ahead of time, excellent interagency coordination of personnel, supplies and required services, and safe but aggressive implementation of fire control tactics. To meet these needs, the BLM, in cooperation with the other DOI Bureaus, the Forest Service, and the National Weather Service, maintains and operates the National Interagency Fire Center (NIFC) in Boise, Idaho. NIFC provides logistical support for the coordinated movement of suppression forces when local capabilities are exceeded. Other national services provided by NIFC include a cache for firefighting supplies, equipment and radios, a technical support group for communications, remote sensing programs, and the National fire training development center.

The National Interagency Coordination Center (NICC) resides at NIFC and is staffed jointly by the BLM and Forest Service. NICC sits at the top of a three-tiered firefighting coordination pyramid. When activity warrants, NICC operates 24 hours a day, seven days a week. NICC is also an "all-risk" coordination center, and can provide support in response to other emergencies such as floods, hurricanes, and earthquakes.

The three-tiered coordination system operates under established ordering protocols. Federal, state, and Tribal dispatch centers located throughout the United States generally receive the first requests for personnel, equipment, and supplies in response to emergency situations. When local dispatch offices can no longer fill requests, they turn to one of eleven Geographic Area Coordination Centers (GACCs) to fill the requests. When GACCs can no longer meet the requests, either because they are supporting multiple incidents or are competing for resources, requests for equipment and supplies are referred to the NICC. NICC coordinates supplies and resources across the entire United States, and also has the authority to obtain or provide support for incidents in foreign countries. When the nation's fire business involves multiple geographic areas and resources are no longer plentiful, the National Multi-agency Coordinating Group establishes national priorities for personnel, equipment, and supplies. Response to requests is based upon the concepts of "closest forces" and "total mobility" which seek to dispatch the closest available qualified resource, regardless of agency affiliation. The Fire Center and its NICC component are recognized around the world as a premier organization for wildland fire management and the coordination and dispatch of resources, supplies, and technical knowledge in support of emergency situations.

Florida Support

We were asked by the Committee to identify both jobs well done and lessons learned as a result of the recent devastating uncontrolled wildland fires in the state of Florida. Review of the total Federal response to the Florida fires has barely begun. Wildfire season typically shifts around the nation in response to seasonal weather patterns. As is illustrated this year, fires in Florida have been followed by extreme conditions in Texas and Oklahoma. It appears the fire season is following the typical pattern and severe fire control conditions are shifting to the Northern Rockies, the Pacific Northwest, and the Great Basin states. Our focus at this time of the year is staying ahead of the curve. While review of past actions can always show us potential for improvement, the Florida fires did not indicate a major need for changing our programs or processes. The DOI and NICC, for the most part, served primarily in a support function. Most of the Florida fires, including most of the high profile, highly publicized fires, were under the control of the State. The NICC, with the support of both the military and private sector, did an excellent job of coordinating the transportation of western crews and equipment to support their actions.

Conclusion

Madam chairman, I would like to thank the Congress for its direction and support for interagency coordination and collaboration in regard to the overall Federal fire

management program. We continue to strive to conduct an integrated, intergovernmental approach to the management of wildland fire, as endorsed by our 1995 fire management policy program and review. It is our belief that we provide world class capabilities for the suppression of uncontrolled wildland fire. We hope to extend this highly successful approach into our prescribed fire program as well.

This concludes my statement. I'll be happy to answer any questions the Committee may have.

Additional copies of this report may be obtained from
the Bureau of Land Management's Office of Fire and Aviation
at the
National Interagency Fire Center
Attn: External Affairs Office
3833 South Development Avenue
Boise, Idaho 83705-5354

(208) 387-5150
or
(208) 387-5457

WASHINGTON

THE SECRETARY OF AGRICULTURE

THE SECRETARY OF THE INTERIOR

MEMORANDUM

To: Acting Director, Bureau of Land Management
Chief, USDA Forest Service
Director, National Park Service
Director, U.S. Fish and Wildlife Service
Deputy Commissioner, Bureau of Indian Affairs
Director, National Biological Service

Subject: Federal Wildland Fire Policy

We are pleased to accept and endorse the principles, policies, and recommendations in the attached Federal Wildland Fire Management Policy and Program Review Report. These principles and policies provide a common approach to wildland fire by our two Departments. We look forward to the endorsement of these principles and policies by our Federal partner agencies, including the Federal Emergency Management Agency, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the Department of Defense, so that we have a truly Federal approach to wildland fire. We invite our partners in Tribal, State, and local governments to endorse these principles and policies in order to promote an integrated, intergovernmental approach to the management of wildland fire.

The principles and policies of the Report reiterate the commitment all of us have made to firefighter and public safety. No resource or property value is worth endangering people; all of our actions and our plans must reflect this commitment. Our second priority is to protect resources and property, based on the relative values to be protected. We must be realistic about our abilities to fight severe wildfire. As natural resource managers we must make prudent decisions based on sound assessments of all the risks. Good management reduces the likelihood of catastrophic fire by investing in risk- reduction measures; good management also recognizes when nature must take its course. The principles and policies of the Report, along with the recommended actions, will improve our collective ability to be better wildland fire risk managers.

The philosophy, as well as the specific policies and recommendations, of the Report continues to move our approach to wildland fire management beyond the traditional realms of fire suppression by further integrating fire into the management of our lands and resources in an ongoing and systematic manner, consistent with public health and environmental quality considerations. We strongly support the integration of wildland fire into our land management planning and implementation activities. Managers must learn to use fire as one of the basic tools for accomplishing their resource management objectives.

By this memorandum we are directing that you assume the responsibility for the implementation of the principles, policies, and recommendations in the Report. Implementation should be a matter of high priority within your bureaus and should:

- Be consistent with the nine Guiding Principles contained in the Report.
- Occur on a joint, interagency basis wherever possible to ensure the consistent application of policy.
- Involve a broad spectrum of program areas, including resource managers, agency administrators, scientists, and planners, as well as the wildland fire management staffs.
- Address local, interagency, integrated planning as a critical means of ensuring that on-the-ground implementation is as effective as possible.
- Coordinate with other Federal agencies, including the Federal Emergency Management Agency, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the Department of Defense.
- Ensure coordination with Tribal, State, and local partners.
- Recognize the results of the wildland-urban interface project sponsored by the Western Governors Association.

We request that you prepare a joint, integrated strategy for implementing the Report by no later than March 1, 1996. At a minimum this strategy should describe the priorities, timeframes, responsibilities, leadership, and the participation of other Federal agencies and non-Federal partners and cooperators. Each of you should designate a senior official, with the authority to ensure implementation, to work in concert with the two Departments to guide overall implementation of the Report.

We recognize that complete implementation of all of the recommendations will take some time. Priority should be placed on educating and informing employees of the philosophy, principles, and policies of the Report and on examining how quickly and efficiently we can update resource and land management plans to incorporate wildland fire considerations.

Secretary of Agriculture

Dec 20, 1995
Date

Secretary of the Interior

December 18, 1995
Date

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USDA Forest Service

Claudia Schechter, Co-Chair
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FEDERAL WILDLAND FIRE MANAGEMENT

POLICY & PROGRAM REVIEW

FINAL REPORT

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EXECUTIVE SUMMARY

The challenge of managing wildland fire in the United States is increasing in complexity and magnitude. Catastrophic wildfire now threatens millions of wildland acres, particularly where vegetation patterns have been altered by past land-use practices and a century of fire suppression. Serious and potentially permanent ecological deterioration is possible where fuel loads exceed historical conditions. Enormous public and private values are at high risk, and our nation's capability to respond to this threat is becoming overextended. The goals and actions presented in this report encourage a more proactive approach to wildland fire to reduce this threat.

The Departments of the Interior and Agriculture, together with Tribal governments, States, and other jurisdictions, are responsible for the protection and management of natural resources on lands they administer. Because wildland fire respects no boundaries, uniform Federal policies and programs are essential. And, as firefighting resources become increasingly scarce, it is more important than ever to strengthen cooperative relationships.

The Federal Wildland Fire Management Policy and Program Review was chartered by the Secretaries of the Interior and Agriculture to ensure that Federal policies are uniform and programs are cooperative and cohesive. This report addresses five major topic areas, presents nine guiding principles that are fundamental to wildland fire management, and recommends a set of thirteen Federal wildland fire policies. While unique agency missions may result in minor operational differences, having, for the first time, one set of "umbrella" Federal fire policies will enhance effective and efficient operations across administrative boundaries and improve our capability to meet the challenges posed by current wildland fire conditions.

Public input and employee review have provided the foundation upon which many of the policy and program goals and actions contained in this report are based. Initially, broad policy and program issues were presented for comment. These initial comments sharpened the focus and were used in preparing a draft report. The draft was then made available for both internal and external comment. More than 300 comments were received and used in preparing these final policy and program conclusions.

Following are some of the key points made in this report:

- Protection of human life is reaffirmed as the first priority in wildland fire management. Property and natural/cultural resources jointly become the second priority, with protection decisions based on values to be protected and other considerations.

- Wildland fire, as a critical natural process, must be reintroduced into the ecosystem. This will be accomplished across agency boundaries and will be based upon the best available science.

- Agencies will create an organizational climate that supports employees who implement a properly planned program to reintroduce wildland fire.

- Where wildland fire cannot be safely reintroduced because of hazardous fuel build-ups, some form of pretreatment must be considered, particularly in wildland/urban interface areas.

- Every area with burnable vegetation will have an approved Fire Management Plan.

- Wildland fire management decisions and resource management decisions go hand in hand and are based on approved Fire Management and land and resource management plans. At the same time, agency administrators must have the ability to choose from the full spectrum of fire management actions — from prompt suppression to allowing fire to function in its natural ecological role.

- All aspects of wildland fire management will be conducted with the involvement of all partners; programs, activities, and processes will be compatible.

- The role of Federal agencies in the wildland/urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. No one entity can resolve and manage all interface issues; it must be a cooperative effort. Ultimately, however, the primary responsibility rests at the State and local levels.

- Structural fire protection in the wildland/urban interface is the responsibility of Tribal, State, and local governments.

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- The Western Governors' Association will serve as a catalyst to involve State and local agencies and private stakeholders in achieving a cooperative approach to fire prevention and protection in the wildland/urban interface.

- Federal agencies must place more emphasis on educating internal and external audiences about how and why we use and manage wildland fire.

- Trained and certified employees will participate in the wildland fire program; others will support the program as needed. Administrators are responsible and will be accountable for making employees available.

- Good data and statistics are needed to support fire management decisions. Agencies must jointly establish an accurate, compatible, and accessible database of fire- and ecosystem-related data.

The success of the actions recommended in this report depends upon four things: Every agency administrator must ensure that these policies are incorporated into all actions. Fire professionals must work with agency administrators to make the policies work on the ground. Managers and staffs must actively implement the recommendations and work with their constituents to ensure success. And every employee of every agency must be committed to follow through on the ground.

Finally, agencies and the public must change their expectation that all wildfires can be controlled or suppressed. No organization, technology, or equipment can provide absolute protection when unusual fuel build-ups, extreme weather conditions, multiple ignitions, and extreme fire behavior come together to form a catastrophic event.

To effect the recommended changes and to achieve the consistent Federal policies reflected in this report, the Steering Group recommends that all agencies be directed to develop implementation plans that include actions, assignments, and time frames.

INTRODUCTION

The Federal wildland fire management community has, for many years, been a leader in interagency communication and cooperation to achieve mutual objectives. While many policies and procedures are similar among the agencies, some significant differences may hinder efficient interagency cooperation. Because it is prudent to manage consistently across agency boundaries, uniform cooperative programs and policies are critical to efficient and effective fire management. Policies and programs must incorporate the wisdom and experience of the past, reflect today's values, and be able to adapt to the challenges of the future. They must be based on science and sound ecological and economic principles and, above all, must form the basis for suppressing and using fire safely.

While continual improvements are inherent in the fire program, the events of the 1994 wildfire season created a renewed awareness and concern among the Federal land management agencies and our constituents about the impacts of wildfire. As a result of those concerns and in response to specific recommendations in the report of the South Canyon Fire Interagency Management Review Team (IMRT), the Federal Wildland Fire Management Policy and Program Review was chartered to ensure that uniform Federal policies and cohesive interagency and intergovernmental fire management programs exist. The review process was directed by an interagency Steering Group whose members represented the Departments of Agriculture and the Interior, the U.S. Fire Administration, the National Weather Service, the Federal Emergency Management Agency, and the Environmental Protection Agency. The Steering Group received staff support from a core team representing the Departments of Agriculture and the Interior. During the review process, the core team gathered input from teams of internal and external subject-matter experts (see Appendix II).

The Federal agencies referenced throughout this report are the five principal fire/land management agencies, including the Forest Service (FS) under the Department of Agriculture and the Bureau of Land Management (BLM), National Park Service (NPS), Fish and Wildlife Service (FWS), and Bureau of Indian Affairs (BIA) under the Department of the Interior. The term "Federal wildland" as used in this report recognizes that Indian trust lands are private lands held in trust by the government and that Tribes possess a Nationhood status and retain inherent powers of self government. It is also recognized that, in addition to the five principal Federal land management agencies that have participated in this review, the Department of Defense and other Federal entities also manage a significant amount of wildland and may choose to adopt the fire management strategies and policies contained in this report.

Early in this review process, internal and external ideas were sought and broad program management issues were identified. The review was announced and input was requested in the Federal Register on January 3, 1995. At the same time, letters were sent to approximately 300 individuals and organizations across the nation and employee input was sought through internal communications within the Departments of the Interior and Agriculture. Subsequently, Steering Group members met with national stakeholders, the Western Governors' Association, and employees to get additional, more focused input; they incorporated input resulting from the Environmental Regulation and Prescribed Fire conference held in Tampa, Florida, in March 1995; and they individually continued to network with their constituents.

The draft report was published in its entirety in the *Federal Register* on June 22, 1995, and a 30-day public comment period was announced. Copies of the report were mailed to a greatly expanded audience, including those who commented early in the review process. The full report was also available on Internet. At the end of the 30-day comment period, the Steering Group had received a significant number of requests to allow additional time for comments. In response to those requests, the comment period was reopened, closing for a second time on September 25, 1995. In total, 308 comments were received on the draft report. An independent contractor completed a content analysis of the comments; the resulting report and individual responses were used in the preparation of this report.

A number of related reviews and studies form a broad foundation of technical, professional, and scientific assessment upon which the recommended policies, goals, and actions contained in this report are founded, including:

- Final Report on Fire Management Policy; USDA/USDI – May 1989.

- Rural Fire Protection in America: A Challenge for the Future; National Association of State Foresters – 1991.

- Oversight Hearing: Fire Suppression, Fire Prevention, and Forest Health Issues and Programs; Committee on Agriculture and the Committee on Natural Resources, House of Representatives – October 4, 1994.

- Report of the National Commission on Wildfire Disasters; Sampson, Chair – 1994.

- Western Forest Health Initiative Report; USDA Forest Service – 1994.

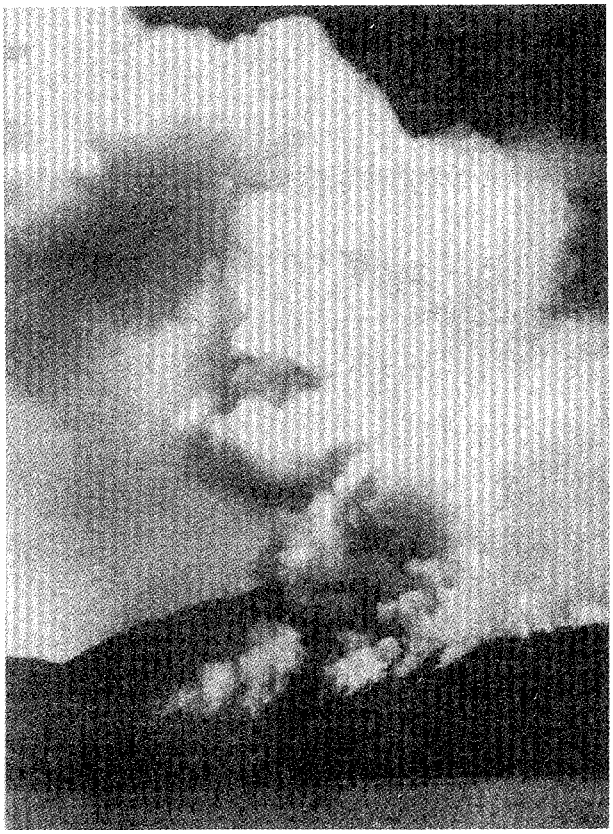
- Fire Management Strategic Assessment Report; USDA Forest Service – 1994.

- Fire Management and Ecosystem Health in the National Park System; USDI National Park Service – September 1994

- Report of the Interagency Management Review Team, South Canyon Fire; USDI/USDA – October 1994.

- Bureau of Land Management Fire and Aviation Programwide Management Review Report; USDI BLM – April 1995.

Communication and collaboration are highlighted throughout this report. The planning, implementation, and monitoring of wildland fire management actions will be done on an interagency basis with the involvement of all partners. The term "partners," as used in this report, is all encompassing, including the Federal land management and regulatory agencies; Tribal governments; Department of Defense; State, county, and local governments; the private sector; and the public. We believe there is no option to this renewed emphasis on public participation. Although initially time consuming, this approach will lead to a long-term payoff, including an increase in public safety, reduced costs and losses, and a wider acceptance of the important role that wildland fire plays in the management of our public lands.



Wildland fire at Warm Lake, Idaho. *(Photo courtesy of National Interagency Fire Center.)*

GUIDING PRINCIPLES & POLICIES

The following guiding principles are fundamental to the success of the Federal wildland fire management program and the implementation of review recommendations. The proposed Federal policies shown on the following pages were developed as a part of this review. These "umbrella" Federal policies do not replace existing agency-specific policies but will compel each agency to review its policies to ensure compatibility. Individual agency policies will be reflected through the land and fire management planning processes.

GUIDING PRINCIPLES

A. ***Firefighter and public safety is the first priority in every fire management activity.***

B. *The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.* Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.

C. *Fire management plans, programs, and activities support land and resource management plans and their implementation.*

D. *Sound risk management is a foundation for all fire management activities.* Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.

E. *Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.* Federal agency administrators are adjusting and reorganizing programs to reduce costs and increase efficiencies. As part of this process, investments in fire management activities must be evaluated against other agency programs in order to effectively accomplish the overall mission, set short- and long-term priorities, and clarify management accountability.

F. *Fire management plans and activities are based upon the best available science.* Knowledge and experience are developed among all wildland fire management agencies. An active fire research program combined with interagency collaboration provides the means to make this available to all fire managers.

G. *Fire management plans and activities incorporate public health and environmental quality considerations.*

H. *Federal, State, Tribal, and local interagency coordination and cooperation are essential.* Increasing costs and smaller work forces require that public agencies pool their human resources to successfully deal with the ever-increasing and more complex fire management tasks. Full collaboration among Federal agencies and between the Federal agencies and State, local, and private entities results in a mobile fire management work force available to the full range of public needs.

I. *Standardization of policies and procedures among Federal agencies is an ongoing objective.* Consistency of plans and operations provides the fundamental platform upon which Federal agencies can cooperate and integrate fire activities across agency boundaries and provide leadership for cooperation with State and local fire management organizations.

FEDERAL WILDLAND FIRE POLICIES			
	DEPARTMENT OF THE INTERIOR	**USDA FOREST SERVICE**	**PROPOSED FEDERAL**
SAFETY	No wildfire situation, with the possible exception of threat to human survival, requires the exposure of firefighters to life-threatening situations.	Conduct fire suppression in a timely, effective, and efficient manner with a high regard for public and firefighter safety. Forest officers responsible for planning and implementing suppression action shall not knowingly or carelessly subordinate human lives to other values.	Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
PLANNING	Fire will be used to achieve responsible and definable land-use benefits through the integration of fire suppression and prescribed fire as a management tool.	Integrate consideration of fire protection and use into the formulation and evaluation of land and resource management objectives, prescriptions, and practices.	Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans must be consistent with firefighter and public safety, values to be protected, and land and resource management plans and must address public health issues. Fire Management Plans must also address all potential wildland fire occurrences and include the full range of fire management actions.
WILDLAND FIRE			Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, across agency boundaries, and will be based upon best available science. All use of fire for resource management requires a formal prescription. Management actions taken on wildland fires will be consistent with approved Fire Management Plans.
WILDFIRE	Fires are classified as either wildfire or prescribed fire. All wildfires will be suppressed. Wildfire may not be used to accomplish land-use and resource-management objectives. Only prescribed fire may be used for this purpose.	Wildland fires are defined as either a wildfire or a prescribed fire. Respond to a fire burning on National Forest System land based on whether it is a wildfire or a prescribed fire; implement an appropriate suppression response to a wildfire.	
USE OF FIRE			Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role.
PRESCRIBED FIRE	Prescribed fire may be utilized to accomplish land-use or resource-management objectives only when defined in prescribed fire plans.	Use prescribed fires, from either management ignitions or natural ignitions, in a safe, carefully controlled, cost-effective manner as a means of achieving management objectives defined in Forest Plans. Prepare a burn plan for all prescribed fire projects.	
PRESCRIBED NATURAL FIRE	Prescribed fire, designed to accomplish the management objective of allowing naturally occurring fire to play its role in the ecosystem, will be allowed to burn if provided for in a Fire Management Plan, a valid prescription exists, and the fire is monitored.	Allow lightning-caused fires to play, as nearly as possible, their natural ecological role in Wilderness.	
PREPAREDNESS	Bureaus will maintain an adequate state of preparedness and adequate resources for wildland fire suppression. Preparedness plans will include considerations for cost-effective training and equipping of suppression forces, maintenance of facilities and equipment, positioning of resources, and criteria for analyzing, prioritizing, and responding to various levels of fire situations.	Plan, train, equip, and make available an organization that ensures cost-efficient wildfire protection in support of land and resource management direction as stated in Fire Management Action Plans. Base presuppression planning on the National Fire Management Analysis System.	Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, and equipment.
SUPPRESSION	Wildfire losses will be held to the minimum possible through timely and effective suppression action consistent with values at risk and within the framework of land-use objectives and plans.	Conduct fire suppression in a timely, effective, and efficient manner with a high regard for public and firefighter safety.	Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.
PREVENTION	Wildfire prevention is an integral part of the total suppression program and ranges from public education to hazard reduction activities. Bureaus will develop and participate in interagency fire prevention cooperatives.	The objective of wildfire prevention is the cost-efficient reduction of fire suppression expenditures and damages from human-caused fires to levels commensurate with resource management objectives and fire management direction.	Agencies will work together and with other affected groups and individuals to prevent unauthorized ignition of wildland fires.

FEDERAL WILDLAND FIRE POLICIES			
	DEPARTMENT OF THE INTERIOR	USDA FOREST SERVICE	PROPOSED FEDERAL
PROTECTION PRIORITIES	The standard criterion to be used in establishing protection priorities is the potential to destroy: (1) human life, (2) property, and (3) resource values. (National Interagency Mobilization Guide, March 1995, NFES 2092.)	The standard criterion to be used in establishing protection priorities is the potential to destroy: (1) human life, (2) property, and (3) resource values. (National Interagency Mobilization Guide, March 1995, NFES 2092.)	Protection priorities are (1) human life and (2) property and natural/cultural resources. If it becomes necessary to prioritize between property and natural/cultural resources, this is done based on relative values to be protected, commensurate with fire management costs. Once people have been committed to an incident, these resources become the highest value to be protected.
INTERAGENCY COOPERATION	Bureaus will coordinate and cooperate with each other and with other protection agencies for greater efficiency and effectiveness.	Develop and implement mutually beneficial fire management agreements with other Federal agencies and adjoining countries. Cooperate, participate, and consult with the States on fire protection for non-Federal wildlands.	Fire management planning, preparedness, suppression, fire use, monitoring, and research will be conducted on an interagency basis with the involvement of all partners.
STANDARDIZATION	The National Wildfire Coordinating Group (NWCG) provides a formalized system to agree upon standards of training, equipment, aircraft, suppression priorities, and other operational areas. (Memorandum of Understanding, NWCG; II, Function and Purpose.)	The National Wildfire Coordinating Group (NWCG) provides a formalized system to agree upon standards of training, equipment, aircraft, suppression priorities, and other operational areas. (Memorandum of Understanding, NWCG; II, Function and Purpose.)	Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.
ECONOMIC EFFICIENCY	Bureaus will ensure that all fire management activities are planned and based upon sound considerations, including economic concerns. Bureaus will coordinate and cooperate with each other and with other protection agencies for greater efficiency and effectiveness. Wildfire damage will be held to the minimum possible, giving full consideration to minimizing expenditure of public funds for effective suppression.	Provide a cost-efficient level of wildfire protection on National Forest lands commensurate with the threat to life and property and commensurate with the potential for resource and environmental damage based on hazard, risk, values, and management objectives.	Fire management programs and activities will be based on economic analyses that incorporate commodity, non-commodity, and social values.
WILDLAND/URBAN INTERFACE	Emergency assistance may be provided to properties in the vicinity of public and Indian lands so long as Departmental lands or the public's interest is not jeopardized. Bureaus will develop and participate in interagency fire prevention cooperatives.	Structural fire suppression, which includes exterior and interior actions on burning structures, is the responsibility of State and local government. Structural fire protection from advancing wildfire within the National Forest protection boundary is the responsibility of State and local fire departments and the Forest Service.	The operational role of Federal agencies as a partner in the wildland/urban interface is wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. Structural fire protection is the responsibility of Tribal, State, and local governments. Federal agencies may assist with exterior structural suppression activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some Federal agencies have full structural protection authority for their facilities on lands they administer and may also enter into formal agreements to assist State and local governments with full structural protection.)
ADMINISTRATOR AND EMPLOYEE ROLES	Wildfires are considered emergencies, and their suppression will be given priority over normal Departmental programs.	Every Forest Service employee has the responsibility to support and participate in wildfire suppression activities as the situation demands.	Employees who are trained and certified will participate in the wildland fire program as the situation demands; employees with operational, administrative, or other skills will support the wildland fire program as needed. Administrators are responsible and will be accountable for making employees available.

ROLE OF WILDLAND FIRE IN RESOURCE MANAGEMENT

Understory burning in ponderosa pine on the Malheur National Forest in Oregon reduces competition from grass, brush, and small trees, allowing ponderosa pine to prosper. Wildland fire plays an important role in maintaining healthy forests. *(Photo courtesy of Mike Apicello, Forest Service, NIFC.)*

SITUATION

Historical Perspective

Long before humans arrived in North America, there was fire. It came with the first lightning strike and will remain forever. Unlike earthquakes, tornados, and wind, fire is a disturbance that depends upon complex physical, chemical, and biological relationships. Wildland fire is inherently neither good nor bad, but it is the most powerful natural force that people have learned to use. As an inevitable natural force, it is sometimes unpredictable and potentially destructive and, along with human activities, has shaped ecosystems throughout time.

Early ecologists recognized the presence of disturbance but focused on the principle that the land continued to move toward a stable or equilibrium condition. Through the years, however, scientists have acknowledged that equilibrium conditions are largely the exception and disturbance is generally the rule. Natural forces have affected and defined landscapes throughout time. Inasmuch as humans cannot completely control or eliminate these disturbances, ecosystems will continue to change.

Human activities also influence ecosystem change. American Indian Tribes actively used fire in prehistoric and historic times to alter vegetation patterns. In short, people and ecosystems evolved with the presence of fire. This human influence shifted after European settlement in North America, when it was believed that fire, unlike other natural disturbance phenomena, could and should be controlled. For many years fire was aggressively excluded to protect both public and private investments and to prevent what was considered the destruction of forests, savannahs, shrublands, and grasslands. While the destructive, potentially deadly side of fire was obvious and immediate, changes and risks resulting from these fire exclusion efforts were difficult to recognize and mounted slowly and inconspicuously over many decades.

Current Perspective

There is growing recognition that past land-use practices, combined with the effects of fire exclusion, can result in heavy accumulations of dead vegetation, altered fuel arrangement, and changes in vegetative structure and composition. When dead fallen material (including tree boles, tree and shrub branches, leaves, and decaying organic matter) accumulates on the ground, it increases fuel quantity and creates a continuous arrangement of fuel. When this occurs, surface fires may ignite more quickly, burn with greater intensity, and spread more rapidly and extensively than in the past. On the other hand, uses such as grazing can sometimes reduce fine fuels, precluding periodic surface fires that would typically burn in these areas. Without fire, encroachment of woody species may occur in some savannah and grassland ecosystems.

The arrangement of live vegetation also affects the way fires burn. For example, an increase in the density of small trees creates a multi-storied forest structure with a continuous vertical fuel arrangement. This

arrangement may allow a fire normally restricted to the surface to spread into the trees and become a crown fire. In addition to structural changes, vegetation modification resulting from fire exclusion can cause a shift toward species that are not adapted to fire (some of which are not native) and are therefore more susceptible to damage from fire. Fire exclusion sometimes favors non-native species in some fire-dependent areas, while in other areas fires may encourage non-native species. Fires in areas of altered vegetation and fuels can adversely affect other important forces within the ecosystem, such as insects and diseases, wildlife populations, hydrologic processes, soil structure and mineralogy, and nutrient cycling. Any of these components, if altered greatly by unusually severe fire, can seriously diminish the long-term sustainability of the land. In addition, effective protection from, and control of, these large fire events will likely be much more difficult.

Paradoxically, rather than eliminating fire, exclusion efforts, combined with other land-use practices, have in many places dramatically altered fire regimes (circumstances of fires, including frequency, intensity, and spatial extent) so that today's fires tend to be larger and more severe. No longer a matter of slow accumulation of fuels, today's conditions confront us with the likelihood of more rapid, extensive ecological changes beyond any we have experienced in the past. To address these changes and the challenge they present, we must first understand and accept the role of wildland fire and adopt land management practices that integrate fire as an essential ecosystem process.

While other techniques, such as mechanical removal, may be used to reduce heavy fuels, they cannot always replace the ecological role that fire plays. Fire not only reduces the build-up of dead and downed fuel, it performs many other critical ecosystem functions. Fire can recycle nutrients that might otherwise be trapped for long periods of time in the dead organic matter that exists in many environments with slow rates of decay. It can also stimulate the production of nutrients and provide the specific conditions, including seed release, soil, light, and nutrients, that are critical for the reproduction of fire-dependent species. For more extensive information about the ecological role of fire and current ecosystem conditions, refer to the documents listed in Appendix I.

PLANNING

Although ecological knowledge and theories have evolved relatively quickly, the scope and process of land management have had difficulty keeping pace. Ecological processes, including fire and other disturbance, and changing landscape conditions are often not integrated into land management planning and decisions. With few exceptions, existing land management planning is confined within individual agency boundaries and is based on single-program goals that are driven by agency missions and policies. Separate, incompatible planning systems can also preclude the ecosystem perspective in land management planning. This type of planning can result in an inefficient, fragmented, short-term approach to management that tends to ignore broad, interdisciplinary-based, long-term resource issues that cross agency boundaries. Land management agencies now recognize the need to break down these barriers and seek cooperative, ecologically sound approaches to land management on a landscape scale. One way to break down these barriers is to involve all interests, including the public, scientists, resource specialists, and regulators, throughout the planning process. Another is to establish a clear link for communication and information transfer between scientists and managers. These measures will help to ensure that management needs are met and that current science is used in land management planning at all levels.

Planning must also consider the risks, probabilities, and consequences of various management strategies, e.g., fire use versus fire exclusion. In a responsive planning process, management decisions must be monitored, integrated, and supported at each step. In order to carry out critical and effective "adaptive management" (a feedback approach to management that uses monitoring results to plan future actions), planners and managers need a nationwide baseline measure of ecological condition and a compatible method of assessing long-term ecological health by ecosystem type.

We must understand and accept the need to integrate wildland fire into land management plans and activities, and this integration must be reconciled with other societal goals, e.g., maintaining species habitat, producing commodities, and protecting air quality, water quality, and human health. Laws and regulations must consistently address long-term ecosystem processes and must guide agencies toward a common

goal. Information about the consequences of various management strategies is not currently available to assist in working toward and prioritizing simultaneous goals. Land management and regulatory agencies must interact and collaborate and must rely upon a continuous process of public involvement and feedback to achieve a balance of ecosystem and other societal goals.

Reintroduction of Fire

Several factors hinder the reintroduction of wildland fire on an ecologically significant scale. Even now it sometimes takes years to reach agreement about appropriate treatments and to take action. Land managers often feel the need to wait for scientific certainty before acting. This favors the status quo, impedes progress, and deters investigation of new techniques. In some ecosystems, little or no information is available about disturbance regimes, historical fire patterns, response to past management actions, and likely future responses. Information needed to reintroduce fire includes a well-planned, large-scale scientific assessment of current ecosystem conditions and the consequences of various management strategies.

Another constraint is that Fire Management Plans are not in place in all areas, thus precluding managers from taking advantage of the management options presented by wildland fires. Planning should consider all wildland fires, regardless of ignition source, as opportunities to meet management objectives. In areas where planning has determined a range of appropriate management actions for the use of wildland fire, there will be more opportunities to safely and cost-effectively reintroduce fire. This approach will also make suppression resources available for the highest-priority situations. All wildland fire management actions will continue to be based on values to be protected, fire and land management objectives, and environmental conditions. In many situations, such as fires occurring in highly developed areas or during particularly severe weather, immediate initial attack and prompt suppression will still be required.

An additional contributing factor is the increasing human settlement that encroaches upon wildlands (wildland/urban interface). Such development divides and fragments wildlands, making it difficult to apply ecosystem-based management strategies. This increases the risk of escaped fires and generates complaints about smoke and altered scenic values. In these areas, the use of fire may be limited in spatial extent and, even where fire introduction is desirable, progress may be slow.

Smoke is perceived as a factor that may affect land managers' ability to use larger and more frequent wildland fire for restoration and maintenance of fire-dependent ecosystems. Several Federal air quality programs under the Clean Air Act (CAA) regulate wildland fire emissions. The Environmental Protection Agency (EPA) is required to set air quality standards for pollutants that affect public health. States are then required to submit plans to ensure measures will be taken to meet those air quality standards. Local areas may also develop plans that may be more (but not less) restrictive than State and national standards.

In areas where air quality standards are violated, measures must be taken to reduce emissions. Emission control measures for fires that are used to meet management objectives include smoke management techniques that minimize and disperse smoke away from smoke-sensitive areas. Smoke from fires may also cause standards to be exceeded in communities miles away from the source. Currently, prescribed fires are not considered to be a significant cause of nonattainment, but with increased burning to reduce fuels and restore or maintain ecosystem health, this may change. In many areas, fire managers and local air quality authorities have successfully worked together to accomplish fire and land management objectives, resolve conflicts with smoke emissions, and avoid violation of air quality standards. With guidance from the national level to provide consistent interpretation, further cooperation at the local level will help to achieve a balance of air quality and other ecosystem goals.

Fire is a unique tool that land managers can use to complement agency missions and land management objectives. But in order to successfully integrate fire into natural resource management, informed managers, partners, and the public must build upon sound scientific principles and social values. Research programs must be developed to create this foundation of sound scientific principles. Before fire is applied on an ecosystem-scale, an understanding of historical fire regimes, as well as a knowledge of the current conditions of each system, is needed. Then all parties must work together in the land management planning and implementation process according to agreed-upon goals for public welfare and the health of the land.

EDUCATION

For many people, fire remains a fearsome, destructive force that can and should be controlled at all costs. Smokey Bear's simple, time-honored "only you" fire prevention message has been so successful that any complex talk about the healthy, natural role of fire and the scientific concepts that support it are often lost by internal and external audiences. A comprehensive message is needed that clearly conveys the desired balance of avoiding fires with adverse effects while simultaneously increasing ecologically beneficial fire.

The ecological and societal risks of using and excluding fire have not been adequately clarified and quantified to allow open and thorough discussions among managers and the public. Few understand that integrating fire into land management is not a one-time, immediate fix but a continual, long-term process. It is not an end in itself but rather a means to a more healthy end. Full agency commitment to internal and external information and education regarding fire and other ecological processes is needed. Adaptive and innovative fire and land management is severely limited when agency employees and the public misunderstand or remain skeptical about the role of fire.

THE TASK

The task before us — reintroducing fire — is both urgent and enormous. Conditions on millions of acres of wildlands increase the probability of large, intense fires beyond any scale yet witnessed. These severe fires will in turn increase the risk to humans, to property, and to the land upon which our social and economic well-being is so intimately intertwined.

RECOMMENDATIONS: PLANNING

GOALS

- Fire management goals and objectives, including the reintroduction of fire, are incorporated into land management planning to restore and maintain sustainable ecosystems. Planning is a collaborative effort, with all interested partners working together to develop and implement management objectives that cross jurisdictional boundaries.

- Clearly defined fire management goals, objectives, and actions are developed and updated in comprehensive Fire Management Plans. The use of fire to sustain ecosystem health is based on sound scientific principles and information and is balanced with other societal goals, including public health and safety, air quality, and other specific environmental concerns.

ACTIONS

Federal agencies will:

- use a compatible fire management planning system that recognizes both fire use and fire protection as inherent parts of natural resource management; this system will ensure adequate fire suppression capabilities and support fire reintroduction efforts.

- develop Fire Management Plans for all areas subject to wildland fires. These plans will:

  – use information about fire regimes, current conditions, and land management objectives as a basis to develop fire management goals and objectives.

  – address all potential wildland fire occurrences and include a full range of fire management actions.

  – use new knowledge and monitoring results to revise fire management goals, objectives, and actions.

  – be linked closely to land and resource management plans.

- develop research programs that provide a sound scientific basis for the integration of wildland fire into land-use and resource management.

- create a system for coordination and cooperation among land managers and regulators that explores options within existing laws to allow for the use of fire to achieve goals of ecosystem health while at the same time protecting individual components of the environment, human health, and safety. This system will:

  – allow for early collaboration during the process of developing new land management plans and provide a mechanism for incorporating input as existing plans are implemented or revised.

– encourage land managers and regulators to enter into agreements that set forth the actions each will take before and during the time fire is reintroduced in their area of responsibility.

• continue ongoing efforts to jointly develop compatible, ecosystem-based, multiple-scale, interagency land management plans that involve all interested parties and facilitate adaptive management. This process will:

– fully integrate ecological concepts that consider long-term dynamics and cross agency boundaries.

– effectively incorporate current fire-related information, including scientific knowledge, risk assessment, social and economic concerns, and public health considerations.

– ensure that existing land management plans are revised or updated to address the above actions.

RECOMMENDATIONS: REINTRODUCTION OF FIRE

GOAL

• Based upon sound scientific information and land, resource, and fire management objectives, wildland fire is used to restore and maintain healthy ecosystems and to minimize undesirable fire effects. Fire management practices are consistent for areas with similar management objectives, regardless of jurisdiction.

ACTIONS

Federal agencies will:

• expedite the decision-making process by jointly developing criteria for evaluating ecosystem condition by ecosystem type and for prioritizing areas for the reintroduction of fire to meet resource objectives and reduce hazards. This process will identify those ecosystems:

– where fire does not need to be reintroduced (fire is not a significant natural component, or the fire regime has not been altered).

– where fire is unlikely to succeed (fire would be adverse, such as areas significantly altered by fuel accumulations and species changes); determine appropriate, ecologically sound alternatives for these areas.

– where treatment with fire is essential or potentially effective (fire is needed to improve resource conditions or reduce risk and hazard).

• jointly implement ecosystem-based fire management programs to accomplish resource or landscape management objectives when consistent with land management plans. These programs will:

– strive to maintain the long-term integrity of the natural resources and minimize the undesirable effects of fire.

– address the highest-priority needs in ecosystem assessment, monitoring, and management and determine the appropriate scope of fire use, consistent with historical fire regimes, including extent, timing, and risks and consequences.

– use existing tools and develop new ones to address today's more fragmented landscapes and to enhance our ability to manage wildland fires of varying size and intensity.

– illustrate the management actions and their results by establishing or expanding fire management demonstration areas.

• conduct a collaborative fire research program to improve the predictive understanding of wildland fire and its relationship to ecosystem dynamics and to strengthen the technological capabilities and organizational framework necessary to sustain the role of fire in natural ecosystems.

RECOMMENDATIONS: EDUCATION

GOAL

• Clear and consistent information is provided to internal and external audiences about existing conditions, management goals and objectives, the role of fire in achieving these objectives, and alternatives and consequences of various fire management strategies. As a result, informed audiences participate fully in the land and fire management planning processes.

ACTIONS

Federal agencies will:

• establish an interdisciplinary team that includes all agencies, regulators, and other partners to design a consistent fire-role and -use message for decision makers and the public. This message will:

– describe and clearly explain issues such as ecosystem condition, risks, consequences (including public health impacts), and costs in open dialogue with internal and external constituents.

– be designed to maximize open communications and reduce polarization among conflicting interests regarding the use of fire.

• build on existing interagency efforts to develop and implement a strategic plan that educates the general public and agency personnel about the role of fire. As part of this effort, agencies will:

– develop and widely transmit a clear message about the important role of fire as a natural process and the risks and consequences of its use and exclusion.

– integrate this message into existing agency communication systems, agency and partner initiatives (such as forest health, ecosystem management, etc.), and all external outreach efforts, including television, magazines, newspapers, and public meetings.

– encourage, create, and coordinate partnerships to achieve consistency in messages, build public trust, and obtain public opinion.

– develop mandatory national and regional interagency training programs to instill in all employees an understanding of the role of fire in natural systems.

USE OF WILDLAND FIRE

Igniting a wildland fire using drip torches is an effective resource management tool. Here, fire is being used to restore critical wildlife habitat. *(Photo courtesy of National Interagency Fire Center.)*

SITUATION

BACKGROUND

The use of wildland fire to accomplish land and resource management objectives is referred to as prescribed fire, the deliberate application of fire to wildlands to achieve specific resource management objectives. Prescribed fires may be ignited either by resource managers or by natural events such as lightning. Wildland fire may be used to accomplish a number of resource management purposes, from the reduction of fuel hazards to achieving specific responses from fire-dependent plant species, such as the regeneration of aspen. Often, multiple fire protection and resource management benefits are achieved concurrently.

Prescribed burning is a well-established practice utilized by public and private land managers. In order to effectively use prescribed fire, land managers must prepare comprehensive burn plans. Each plan specifies desired fire effects; weather conditions that will result in acceptable fire behavior; and the forces needed to ignite, hold, monitor, and extinguish the fire. Generally, the practice of prescribed burning has been used on a relatively small scale and confined to single land ownerships or jurisdictions. Success has been built around qualified and experienced people, their understanding of plant communities and terrain conducive to the use of fire, adequate funding, a supportive public, and a willingness on the part of agency administrators to assume a reasonable amount of risk to achieve desired results.

Recent fire tragedies in the West have helped to focus attention on the need to reduce hazardous fuel accumulations. Many areas are in need of immediate treatment of both live and dead vegetation to prevent large-scale, high-intensity fires and to maintain their sustainability as healthy ecosystems. Fuel treatment may be achieved by mechanical, chemical, biological, and manual methods, including the use of fire. Strategic landscape-scale fuel management and fire-use planning, often integrating a variety of treatment methods, will be necessary to cost-effectively reduce fuel hazards to acceptable levels and to achieve both ecosystem health and resource benefits. Both naturally occurring fuels and hazardous fuel accumulations resulting from resource management and land-use activities must be addressed.

IMPLEMENTATION

Managing for landscape health requires expansion of cooperative interagency prescribed fire programs. Agencies must make a commitment with highly qualified people, from leader to practitioner, and provide funding mechanisms to conduct the program. Federal agencies must foster a work force that understands the role of fire and, at the same time, raise the level of public understanding. Public opinion and perception may limit increases in interagency prescribed fire programs if this is not achieved. Therefore, continued Federal efforts to work collaboratively with and educate private landowners, interest groups, and the media is paramount. Education efforts should focus on exposing the public to accurate information on the environmental, social, and economic benefits that result when prescribed fire is used; how natural resources may be maintained; and the risks involved, including those associated with not taking any action. Increased use of

wildland fire may also increase public exposure to smoke and reduced visibility. Understanding of the trade-offs involved is an important educational objective.

Recent concerns about potential climate change caused by increased carbon dioxide in the atmosphere have also raised questions about the potential impacts of increasing the use of fire. Current analysis suggests that the carbon dioxide released from prescribed fires is ultimately removed by the subsequent regrowth of vegetation. Lower-intensity prescribed fires emit far less carbon dioxide than high-intensity fires. Therefore, if the occurrence of high-intensity fires is reduced through an increase in prescribed burning, a net reduction in carbon dioxide emissions will be achieved. On the other hand, the effects of global warming and increased carbon dioxide on fire occurrence are still being determined. Possibilities include higher rates of fuel accumulation and a warmer climate with more days that favor the occurrence of wildland fire. This may mean it is even more important to increase the use of fire for ecosystem management and hazard fuel reduction. The policies described in this report are consistent with current concerns about climate change. In any case, information about changes in the atmosphere should be incorporated into the preplanning required by these policies.

Administrative Barriers

In the current atmosphere of downsizing and reduced budgets, agencies may not be able to maintain sufficient numbers of qualified personnel to accomplish broad-scale prescribed fire programs. Many of the employees who are most experienced in the application of prescribed fire are the same employees who are responsible for wildfire suppression. This can lead to competition for their time during the fire season. Administrative procedures also inhibit temporary hiring of personnel needed to conduct on-the-ground prescribed burning activities.

Current direction on hazard-duty pay also tends to limit the number of prescribed fire professionals. This direction restricts fire-related hazard pay to fire suppression activity within or adjacent to the perimeter of an uncontrolled wildfire, even though prescribed fire practitioners are exposed to as much risk, if not more, from smoke and other environmental factors than firefighters engaged in suppressing wildfire.

Retirement benefits have also been a factor in career choices involving prescribed fire. Recently, the BLM recognized that, based on 5 CFR 831.900 and 842.800, prescribed fire activity qualifies for primary coverage under special firefighter retirement. In some agencies, however, prescribed fire activity qualifies only for secondary coverage, resulting in a career choice limitation.

To provide optimal biological benefit to forests and rangelands, the timing and intensity of prescribed fire used for ecosystem maintenance should resemble a natural occurrence. Historically, fires were often very large; however, current land-ownership patterns, development, and the processes of funding and conducting prescribed fire are not conducive to replicating this process. For example, it is difficult to have a landscape-size project without involving lands of another ownership, and there are barriers to spending agency funds on non-agency lands. Further, planning, budgeting, and accomplishment-reporting processes do not encourage managers to plan large projects with multiple benefits, even when located entirely on agency-administered lands.

Lastly, there is no consistent method to determine the potential for a prescribed fire to escape, nor is there a mechanism to compare the values at risk from an escaped fire versus those at risk by continuing to exclude fire. When a prescribed fire does escape, the only way a private property owner can be compensated for more than $2,500 in damages is to pursue a tort claim against the Federal government. To prevail, the damaged party must prove negligence on the part of the agency. This cumbersome process leads to ill will between the managing agency and neighboring landowners, adversely affecting cooperation.

Risk Management

Because of the potential for unintended consequences, prescribed fire is one of the highest-risk activities that Federal land management agencies engage in. Escaped prescribed fires can result from poorly designed or poorly executed projects; they can also result from events beyond the control of those conducting the project, such as unpredicted winds or equipment failure. Currently, the stigma associated with an escaped prescribed fire does not distinguish between poor performance and an unfortunate consequence of unplanned events.

Although fire is used to accomplish resource objectives in many areas of the United States, other than in the South it is rarely used enough to improve ecosystem health or to reduce fuel hazards on a landscape scale. One reason for this is a lack of commitment to the use of fire. While land management agencies as a whole generally recognize the role of fire as a natural process, not all individual disciplines and managers fully understand or support this role. Some managers are unwilling to accept the risk of potential negative consequences associated with prescribed fire. Differences of opinion concerning the effect of fire on specific resources, such as cultural resources, water quality, air quality, and certain flora and fauna, can also impede the use of fire as a management tool.

RECOMMENDATIONS: IMPLEMENTATION

GOALS

- The use of wildland fire is accepted as an essential process in a fully integrated program to improve forest and rangeland health and to maintain wildland ecosystems.

- Wildland fuels are managed at levels consistent with wildland fire protection and resource management objectives identified in land and resource management plans.

- Agencies collectively and cooperatively develop and maintain an organization that can effectively plan and safely implement prescribed fire and fuel management programs.

ACTIONS

Federal agencies will:

- jointly develop programs to plan, fund, and implement an expanded program of prescribed fire in fire-dependent ecosystems.

- facilitate the planning and implementation of landscape-scale prescribed burns across agency boundaries. Seek opportunities to enter into partnerships with Tribal, State, and private land managers to achieve this objective where appropriate.

- require appropriate treatment of fuel hazards created by resource-management and land-use activities.

- conduct all prescribed fire projects consistent with land and resource management plans, public health considerations, and approved prescribed burn plans.

- implement the National Wildfire Coordinating Group (NWCG) interagency prescribed fire qualification and certification standards.

- train and maintain a qualified and adequate work force to plan and implement interagency prescribed fire projects safely and effectively, and make these personnel available when needed.

- jointly develop simple, consistent hiring and contracting procedures for prescribed fire activities.

- Conduct research and development on fuel treatment alternatives and techniques.

RECOMMENDATIONS: ADMINISTRATIVE BARRIERS

GOAL

- Administrative procedures support the accomplishment of prescribed burning programs and objectives.

ACTIONS

Federal agencies will:

- seek authority to eliminate internal barriers to the transfer and use of funds for prescribed fire on non-Federal lands and among Federal agencies.

- seek authority or provide administrative direction to eliminate barriers to carrying over from one year to the next all funds designated for prescribed fire.

- work with the Office of Personnel Management to acquire authority for hazard pay to compensate employees exposed to hazards while engaged in prescribed burning activities.

- clarify that prescribed fire positions qualify for primary coverage under special firefighter retirement and issue appropriate guidance to field offices.

RECOMMENDATIONS: RISK MANAGEMENT / SUPPORT

GOALS

- Risk of escaped prescribed fire is minimized through sound planning and execution.

- Agencies within the Departments of Agriculture and the Interior support employees when properly planned and conducted prescribed fire projects have unfavorable outcomes.

ACTIONS

Federal agencies will:

- jointly develop an assessment process for determining the probability of success and/or failure associated with the use of prescribed fire and evaluating potential positive and negative consequences. As a part of this process, the effects of not conducting the project will also be evaluated.

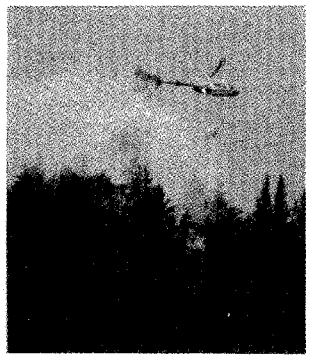
- jointly develop tools to identify, assess, and mitigate risks from prescribed fires.

- create an organizational climate that supports employees who implement a properly planned prescribed fire program.

- reevaluate prescribed burn planning and execution requirements to ensure adequacy of direction without unnecessary constraint.

Secretaries of the Interior and Agriculture will seek legislation providing for prompt reimbursement to private landowners for damages resulting from escaped prescribed fires originating on Federal lands.

PREPAREDNESS AND SUPPRESSION



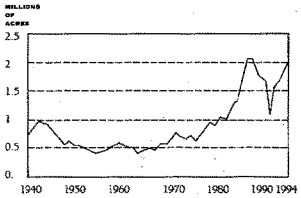
Helicopter with bucket fighting a wildland fire. Aircraft and other mechanized equipment are important tools in suppressing and managing wildland fire. *(Photo courtesy of National Interagency Fire Center.)*

SITUATION

The business of suppressing wildland fires is costly, time-consuming, and often dangerous to firefighters and the public. Wildland fires occur unexpectedly and create an emergency in which firefighters race to minimize harm to valuable resources or property. Despite public expectations, when the combination of excessive fuel build-up, topography, extreme weather conditions, multiple ignitions, and extreme fire behavior occurs, it is impossible to immediately suppress every wildland fire. Firefighters' safety and their ability to contain and limit the spread of fires can only be ensured by preparing well ahead of time, thoroughly examining various possibilities of fire numbers and sizes, and developing contingency plans to cope with them.

Our ability to plan for and suppress fires is negatively impacted by successes in the past. Almost one hundred years of fire suppression, coupled with other resource management activities, has altered the landscape and resulted in millions of acres of forests and rangelands at extremely high risk for devastating fires to occur. Already we are seeing the effects through an increase in the number of fires and acres burned, as shown in the table below. This trend, combined with a number of existing policies and procedures, impacts all aspects of interagency preparedness and suppression, including safety, planning, priority setting, and organizational response capability. In some cases, agencies are individually attempting to solve these problems. However, in light of diminishing work forces and funding, it is critical that Federal wildland fire management agencies work together and with cooperators to arrive at common solutions and successful strategies.

WILDFIRE TRENDS - ELEVEN WESTERN STATES
AVERAGE ACRES BURNED, 1940-1994



SAFETY LEADERSHIP

The environment of numerous and complex wildland fires and overextended firefighting resources has led to increased potential for compromising firefighter safety. Agency administrators and fire managers struggle to get the job accomplished, and while they focus on suppressing fires, sufficient attention may not be paid to safety. They may not provide adequate oversight to make sure employees are in good physical condition and adequately rested so they are mentally and physically prepared for the challenge of firefighting. As suppression actions increase, it becomes more difficult to ensure that all the necessary information to make good firefighting strategic decisions is shared.

Reorganization and downsizing efforts are compelling Federal agencies to look at new ways to accomplish their programs, including firefighting. Retirements and organizational changes have changed the demographics and experience levels within the fire program. In some cases, agency administrators and fire management officers do not have the same level of experience in fire management oversight as did their predecessors. Managers are rarely rewarded for success or given incentives to improve. Further, the demands created by more complex natural resource issues and multiple program priorities have diverted administrators' attention away from the fire management program. Lack of oversight and attention to preparedness can result in crisis decision making and safety failures. When fires become emergencies, public and political pressures may take precedence over suppression plans that are based on values to be protected and the best use of available firefighting resources.

Values To Be Protected and Preparedness Planning

Values at risk, or more clearly, values to be protected are a primary consideration when determining strategies for large-fire suppression. Only anticipated fire suppression costs and losses in values have been considered in these calculations, because in suppression operations, the objective as predetermined in land management plans and Congressional budget appropriation language is to suppress wildfires at the least total cost. While fire benefits have been considered in planning the fire suppression resources for budget allocations, positive benefits of fires have not been factored into the formulation or choice of suppression strategies.

Use of values-to-be-protected criteria in fire suppression has not been consistent across agencies, and the definition is too narrow without considering fire benefits as well. These practices contribute, sometimes significantly, to inflated fire suppression costs. The values-to-be-protected concept should be revised to reflect current recognition of the positive benefits of fire as compatible with agency land management objectives, as well as the need for a broader range of strategic suppression alternatives for large fires to hold costs in check and recognize limits of firefighting resources.

Preparedness planning is critical to ensure that imminent fire situations are recognized, that an appropriate level of fire protection is provided in support of land and resource management goals and objectives, and that appropriate priorities are established and actions taken. The absence of carefully developed and specific preparedness plans frequently results in poor decisions that lead to costly operational mistakes or unsafe practices during emergency situations. Another critical aspect of preparedness planning is development and implementation of wildland fire prevention plans. The objective of these plans, as demonstrated by the message of Smokey Bear over the past 50 years, is to prevent unauthorized ignition of wildland fire.

Protection Priorities

Standard criteria have been established to guide fire suppression priorities. These have been based on the potential for the fire to destroy: (1) human life, (2) property, and (3) resource values. Human life remains the first priority; however, the second priority of property over natural or cultural resource values is being questioned by fire managers and others. It limits managers' flexibility to consider low-value properties relative to higher-valued natural or cultural resources. Property protection is a significant contributor to inflated suppression costs as well as increased size of wildfires when limited suppression resources are concentrated to protect property. More flexibility is needed in assessing the relative values of property and natural/cultural resources in order to achieve economic efficiency.

Protection Capability

Differences in budget processes among agencies inhibit full cooperation. The most important issue is the separate funding requests for seasonal severity funding, where coordinated planning and funding for pre-positioning resources on a local basis is a critical part of preparedness. This requires shifting funds from emergency suppression to pre-positioning resources. Differences in the use of emergency firefighting appropriations among agencies also inhibit cooperation on prescribed fire actions. Standardization of budget processes and solution of some of these budget barriers will help to incrementally improve fire suppression capabilities.

RECOMMENDATIONS: SAFETY LEADERSHIP

GOAL

- Every firefighter, every fireline supervisor, every fire manager, and every agency administrator takes positive action to ensure compliance with established safe firefighting practices.

ACTIONS

Federal agencies will:

- establish fire management qualifications based on program complexity, and staff existing and future agency administrator and fire management vacancies with individuals who meet these qualifications and who are committed to accomplishing the total fire management program.

- develop appropriate tools (training, handbooks, job performance guidelines, planning documents) necessary to assist administrators and fire management personnel to develop and manage a safe and effective fire management program.

- through training, job details, or other methods, increase experience and fire qualifications of agency administrators and fire management personnel.

- enforce a system of accountability to manage a safe and efficient fire management program based on standard job performance requirements. These requirements should include items specifically related to safety and will recognize and reward success and provide disciplinary action for failure.

- establish partnerships with contractors; cooperators, such as rural and volunteer fire departments; and others, which encourage and assist them to adopt and implement Federal standards for training, qualifications, firefighting equipment, personal protective equipment, etc.

RECOMMENDATIONS: VALUES TO BE PROTECTED & PREPAREDNESS PLANNING

GOAL

- Federal agencies maintain preparedness planning and suppression programs to prevent unacceptable loss from fire. Agencies implement consistent strategies based on estimates of suppression costs commensurate with values to be protected.

ACTIONS

Federal agencies will:

- define values to be protected, working in cooperation with State, local, and Tribal governments; permittees; and public users. Criteria will include environmental, commodity, social, economic, political, public-health, and other values.

- develop long-range interagency wildland fire management objectives, based on values to be protected, across geographic and agency boundaries.

- develop interagency preparedness planning based on established interagency wildland fire management objectives.

- develop interagency strategies to implement preparedness plans. These strategies must consider both initial-attack and extended-attack capability and should include the full range of available cooperator and contractor resources.

- develop consistent language to be included in budget appropriations, enabling the full spectrum of fire management actions on wildland fires.

- work together and with other affected cooperators, groups, and individuals to develop and implement fire prevention plans to prevent unauthorized ignition of wildland fire.

RECOMMENDATIONS: PROTECTION PRIORITIES

GOAL

- Firefighter and public safety is the first priority when managing wildland fire. Federal agencies have established protection priorities that recognize the relative values of property and natural/cultural resources to be protected.

ACTIONS

Federal agencies will:

- provide first for firefighter and public safety. Once people are committed to an incident, those resources become the highest value to be protected and receive the highest management considerations.

- protect property and natural/cultural resources secondary to firefighter and public safety.

- base the second protection priority on the relative values of property and natural/cultural resources when firefighting personnel and equipment are limited.

RECOMMENDATIONS: PROTECTION CAPABILITY

GOAL

- Federal agencies maintain sufficient fire suppression and support capability.

ACTIONS

Federal agencies will:

- use standard criteria to assess overall suppression and support requirements.

- examine and identify, on an interagency basis, employee availability at each organizational level, based on fire qualifications and other necessary skills to provide needed suppression and support. This will include planning for both initial attack and extended attack at the local level.

- develop and utilize, to the maximum extent possible, the concept of closest initial attack forces and interagency staffing for wildland fire suppression and support, optimizing the use of the Federal and non-Federal work force. Qualified contractors are a component to be considered in suppression and support planning.

- use an analysis and decision making process that considers, on an interagency basis, existing and potential fire severity; suppression resource commitment and availability; prescribed fire activity; environmental, social, and political concerns; and other pertinent factors.

- develop interagency severity plans to provide increased fire suppression capability in emergency situations, including accessing additional resources, pre-positioning resources, and training emergency firefighters.

- develop a standard interagency planning, budgeting, and staffing process.

WILDLAND/URBAN INTERFACE PROTECTION

Fire threatening homes in the wildland/urban interface. Flammable building materials and homes surrounded by dense vegetation create a dangerous fuel source and hazardous conditions. *(Photo courtesy of National Interagency Fire Center.)*

SITUATION

BACKGROUND

The wildland/urban interface is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (SAF, July 1990). It is synonymous with the term "intermix."

In reviewing current conditions, it is evident that wildland/urban interface fire protection and prevention is not a new problem, nor are the recommended solutions newly conceived. Many of the reports and recommendations generated in the aftermath of the wildfires that destroyed homes are very similar in content and substance. For example, documents created as early as 1960 and through the 1970's and 1980's all contain the same goals, i.e., "create a uniform hazard rating system" or "wildland fuels must be managed near structures."

The problem is not one of finding new solutions to an old problem but of implementing known solutions. Deferred decision making is as much a problem as the fires themselves. If history is to serve us in the resolution of the wildland/urban interface problem, we must take action on these issues now. To do anything less is to guarantee another review process in the aftermath of future catastrophic fires.

CURRENT STATUS

Wildland/urban interface protection is important to the Federal government because Federally managed lands are located adjacent to or among State lands and developed private lands. Past fire management practices have contributed to a build-up of highly flammable, decadent fuels on those Federal lands that are adjacent to private residential developments. The result is that fire hazards and risks, as well as the population, are increasing in the wildland/urban interface adjacent to many Federal lands. In these areas, Federal wildland firefighters are often called upon to assist local agencies. In some cases, Federal agencies are the only source of fire protection. Federal firefighting resources may also be asked to provide assistance where there is no direct threat to Federal lands, such as occurred on Long Island, New York, in August 1995. However, with limited amounts of money, time, equipment, and people, a fire burning in the interface currently demands the protection of scattered structures at the sacrifice of natural resources elsewhere. This represents a significant fiscal liability to the Federal treasury, State and local governments, and insurance carriers. There are often large unreimbursed costs to property owners as well. In addition, Federal response in the interface creates a safety concern, "spreading Federal firefighters thin" and placing them in situations for which they may not be adequately trained or equipped.

Recent fires such as the 1994 Tyee fire in Washington, the 1994 Chicken and Blackwell/Corral complexes in Idaho, the Southern California fire siege of 1993, and the 1991 Oakland Hills fire are clear examples of the complexity of protecting the wildland/urban interface.

Nearly every State has experienced wildland/urban interface fire losses, including the Pine Barrens in New Jersey, Piedmont in North and South Carolina, Palmetto in Florida, and Jack Pine in the Lake States.

The interface has become a major fire problem that will escalate as the nation moves into the 21st century. People continue to move from urban areas to rural areas. These new wildland/urban immigrants give little thought to the wildfire hazard and bring with them their expectations for continuation of urban emergency services. The National Fire Protection Association (NFPA) estimates that since 1985 wildfire destroyed more than 9,000 homes and resulted in the deaths of many firefighters and private citizens. It is estimated that in 1994 $250 - $300 million of Federal wildland fire suppression dollars were spent in protecting the wildland/urban interface. Since fiscal year 1970, the Federal Emergency Management Agency (FEMA) has provided approximately $64 million in fire suppression assistance grants to States for the suppression of fires on publicly or privately owned forests or grasslands that have threatened destruction that would constitute a major disaster.

Recent reports such as the National Commission on Wildfire Disasters Report (1993) and Fire In Rural America (1992) document the continued expansion from urban areas to rural areas. There is limited data to quantify the extent of the current or projected growth in the wildland/urban interface; however, it is clear from recent episodes that losses will continue to increase in the future.

Fire protection problems in the wildland/urban interface are very complex. Complicated barriers must be overcome to address them. These barriers include legal mandates, zoning regulations, fire and building codes, basic fire protection infrastructure, insurance/fire protection grading and rating systems, environmental concerns, and Fire Protection Agreements. Political, social, and psychological factors further complicate the problems. There is no one simple solution. Leadership and cooperation are essential.

The autonomy and multiple mandates of Federal agencies contribute to inconsistent and sometimes conflicting policies and procedures. Federal, Tribal, State, and local agencies, as well as the private sector, are all facing the wildland/urban interface protection issue. Even though past reports, reviews, and mitigation plans have articulated the problems and recommended solutions, many of the problems still have not been solved. We can no longer continue to study, but must have a commitment to carry out solutions.

The ability of the Federal agencies to provide leadership for solving interface protection problems is complicated because responsibilities extend beyond the Departments of the Interior and Agriculture. FEMA is directly responsible for providing Fire Suppression Assistance Grants and, in certain cases, major disaster assistance and hazard mitigation grants in response to fires. Fire Suppression Assistance Grants are provided to a State for the suppression of a forest or grassland fire on public or private lands that threatens to become a major disaster. The grants are provided to protect life and improved property and may include funds for equipment, supplies, and personnel. A Fire Suppression Assistance Grant is the form of assistance most often provided by FEMA to a State for a fire. The grants are cost-shared with States. FEMA's U.S. Fire Administration (USFA) provides public education material addressing wildland/urban interface issues, and the USFA's National Fire Academy provides training, primarily for structural fire service organizations. The Environmental Protection Agency (EPA) has regulatory responsibility concerning air quality, smoke management, and other environmental issues. The Department of Defense has direct suppression responsibility on military reservations and may also be tasked to provide suppression assistance.

But there is no central coordination, and there is no single policy that clearly defines the Federal land manager's role or requires agencies to take compatible actions in the wildland/urban interface. Only the National Park Service has specific structure protection responsibility, and only for their facilities on their lands. Current Federal agency mission statements and operational policies vary and generally restrict activity within these areas. As a result, Federal land managers and fire personnel are uncertain about their role. Further, personnel are often inadequately trained and equipped, but in practice they are expected to provide assistance.

Uncertainty over the role of Federal land management agencies in the wildland/urban interface is a barrier to effective fire protection. This was validated by public comments received during the public scoping process and from the comments received during the Draft Report comment period for this policy review. It is also apparent in current policies of the Federal land management agencies. There is a dichotomy between Federal policy

and expectations. Agency administrators' views on this issue cover the entire spectrum from "the Federal government has no business in the urban interface" to "Federal involvement is essential in the interface." This causes confusion and operational inconsistency both before and during suppression efforts.

Current Federal agency wildland/urban interface policies are limited to providing emergency assistance and training and cooperating in prevention efforts. But property owners and elected officials generally have a broader perception of Federal responsibility and consequently oppose Federal government withdrawal from wildland/urban interface fire protection.

Current Federal policy that protection priorities are (1) life, (2) property, and (3) resources limits flexibility in decision making when a wildfire occurs. Wildland suppression resources are often diverted to protect property with less value than adjacent or intermixed natural resources, and the safety of wildland fire personnel is compromised. Federal agencies' capability to fulfill their resource-protection responsibilities outside of the interface is weakened by commitment of firefighting resources before and during wildland/urban interface fires. Firefighter safety is threatened when they are placed in a position of operating beyond their training, experience, and equipment capabilities. In addition, after-action reports indicate that fire suppression resources are often "over-mobilized," which results in inefficient use and under-utilization. Generally, in emergency situations, protection agencies respond with more suppression forces than can be effectively managed in the interface.

Current protection programs and policies do not include all urban and wildland fire protection entities with statutory responsibility, which has led to inefficiencies in training and operations. Operations in the wildland/urban interface are not always well organized and safe due to inconsistent qualifications, performance standards, and experience among local, State, and Federal agencies and Tribal governments. Performance qualifications in the wildland/urban interface are divided between the structural and wildland fire certification systems, resulting in inconsistencies.

Primary responsibility for wildland/urban interface fire prevention and protection lies with property owners and State and local governments. Property owners have responsibility for compliance with State statutes and local regulations where they exist. These primary responsibilities should be carried out in partnership with the Federal government and private sector.

Public Perception of Risk and Fire Prevention

In general, the public does not perceive a risk from fire in the wildland/urban interface. Further, property owners believe that insurance companies or disaster assistance will always be there to cover losses. When people believe the government will protect them from natural hazards, the damage potential of a catastrophic event increases. Fire prevention efforts, official pronouncements, and media depictions of imminent risk have been shown to have little effect on those in danger (Beebe and Omi, 1993). The effects of public education efforts have not been significant when compared to the need. Unless a catastrophic event occurs, wildland/urban interface protection issues generate little interest. There is a widespread misconception by elected officials, agency managers, and the public that wildland/urban interface protection is solely a fire service concern.

Local incentives to property owners, State and local organizations, and the private sector are an effective way to reduce the overall involvement of the Federal government in the wildland/urban interface. The Federal government itself has few mechanisms to encourage incentives to resolve the problems in these areas. There are two programs delivered through the USDA Forest Service: Rural Fire Prevention and Control (RFPC) and Rural Community Fire Protection (RCFP) that provide cost-share grants to Rural Fire Districts. The annual Federal share of these programs has remained relatively stable, totaling approximately $16 million and $3 million, respectively. Renewed focus of these programs, emphasizing local solutions, is encouraged.

Effective fire prevention in the wildland/urban interface is critical because of the values at risk. Traditional fire prevention campaigns have not recognized the beneficial role of fire in the environment. However, wildland agencies are beginning to incorporate this message, while structural fire prevention activities generally exclude wildland fire and thus depict all fire as undesirable. This sends conflicting messages to the public, particularly where prescribed fire is a desirable fuels management tool in wildland/urban interface protection.

It has been suggested that adjustments to insurance company premiums are the key to providing mitigation activities or to reducing wildland/urban interface hazards. Insurance companies are not in a

position to provide large economic incentives to address issues locally through a change in the existing grading and rating criteria or by supporting prevention or hazard mitigation activities. There is poor communication within and among the insurance industry and fire service organizations. The insurance industry does not fully understand wildland/urban interface problems, and the public and the fire service do not understand the role of the insurance industry in the interface. Currently, Insurance Service Offices/Commercial Risk Services (ISO/CRS) grading and rating criteria do not reflect wildland/urban interface hazards or protection needs at specific risk locations. Because fire risk constitutes only a relatively small portion of the homeowner's insurance cost, premium-reduction incentives are not necessarily the answer. Insurance companies can, however, help with education, improvements in building code rating systems, and revised protection criteria in the wildland/urban interface. Antitrust laws prohibit insurance companies from working together to establish minimum insurance requirements, and in some States, laws such as the Fair Access to Insurance Requirements Plan (FAIR) give homeowners access to insurance coverage generally without regard to the wildland/urban interface.

It has also been suggested that Federal costs could be reduced by billing property owners for suppression costs. While Federal agencies may have authority to seek reimbursement for fire suppression services in the wildland/urban interface, the probability of successful collection is extremely low. This is due to broad tort laws related to responsibility and negligence, existing State fire laws regarding point of fire origin and determination of suppression responsibility, and what constitutes reasonable action and appropriate hazard mitigation. The corollary is that the government can be sued for fires that originate on Federal land and burn onto private property.

The current fire protection infrastructure, such as roads and water-delivery systems, is often inadequate for property and resource protection during fast-moving wildfires. The cost of improving the existing infrastructure would be staggering. During major fire operations in the wildland/urban interface, most structure loss occurs in the first few hours of an incident. This is often due to a lack of fire-safe vegetation management practices. These losses will continue until appropriate access, landscaping, and construction standards are implemented and enforced.

Hazard and Risk Assessment Process

Without a consistent process that assesses wildland/urban interface hazard and risk, values, and loss experience, it is difficult to prescribe appropriate mitigation measures. State and local communities perceive determination of hazard and risk -- as well as regulation in response to these issues -- as a local prerogative. Further, that regulation, through ordinances, is also determined by local governments. A nationally adopted hazard assessment model would likely lead to the implementation of options and alternatives that can be utilized in fire and building codes for new and existing construction. Developers, builders, and property owners generally oppose standards because they fear potential building restrictions and higher costs. Wildland/urban interface maps could be developed based on this uniform criteria.

Model Programs

Some areas of the country are facing wildland/urban issues collaboratively. These are model programs that include local solutions. Summit County, Colorado, has developed a hazard and risk assessment process that mitigates hazards through zoning requirements. In California, the Los Angeles County Fire Department has retrofitted more than 100 fire engines with fire retardant foam capability, and Orange County is evaluating a pilot insurance grading and rating schedule specific to the wildland/urban interface. All are examples of successful programs that demonstrate the value of presuppression and prevention efforts when combined with property-owner support to mitigate hazards within the wildland/urban interface. The International Fire Code Institute (IFCI) is developing an "urban-wildland" fire code.

Fire Protection Agreements

Current Federal agency wildland/urban interface protection policies do not lay out a clear, compatible, and unified role for the Federal land managing agencies. Consequently, some Federal agencies perceive they bear the heaviest burden in Fire Protection Agreements. Some administrators enter into agreements committing Federal firefighters, equipment, and money without understanding the implications of their actions. Still others are confused about the differences among Federal mutual-aid assistance, Fire Protection Agreements, and FEMA fire suppression assistance grants to States for declared fires.

PARTNERSHIPS

The key to solving the total wildland/urban interface problem rests with development of a unified, collaborative partnership among Federal agencies; Tribal, State, and local governments; and the private sector. This partnership should identify risks, hazards, values, and responsibilities. To be successful, the emphasis must be at the local level, supported by the States and coordinated with the Federal agencies. This fire protection and prevention issue cannot be solved by any one entity acting independently. Meanwhile, these long-term issues do not preclude Federal agencies from developing a compatible policy for wildland/urban protection on the lands they administer.

PROPOSED ROLE OF FEDERAL AGENCIES

The proposed role of the Federal land managing agencies in the wildland/urban interface is reducing fuel hazards on the lands they administer; cooperating in prevention and education programs; providing technical and financial assistance; and developing agreements, partnerships, and relationships with property owners, local protection agencies, States, and other stakeholders in wildland/urban interface areas. These relationships focus on activities before a fire occurs, which render structures and communities safer and better able to survive a fire occurrence.

The following protection priorities proposed in this report will guide fire planning and operations in the wildland/urban interface: 1) life and 2) property and natural/cultural resources based on relative values to be protected, commensurate with suppression costs.

Under the proposed policy, in emergency responses, the primary role of the Federal government is wildland firefighting. The Federal agencies may assist local protection agencies within the scope of Federal firefighters' training and experience. Often this involves working among structures. In these cases, attempting to protect the exterior of structures from fire is inevitable. Agreements should clarify respective roles and responsibilities regarding fire suppression in the wildland/urban interface. Federal, State, Tribal, and local agencies must share in the cost and allocation of suppression resources. The Federal government does not bear this responsibility alone.

In order to fulfill this proposed role, there must be training, qualifications, and equipment performance standards. Standards must be institutionalized within existing training curricula, qualifications systems, and equipment performance criteria.

In support of others, the role of FEMA in the wildland/urban interface is to encourage comprehensive disaster preparedness plans and programs, increase the capability of State and local governments, and provide for a greater understanding of FEMA's programs at the Federal, State, and local levels. FEMA provides Fire Suppression Assistance to States in response to fires on public or private land that threaten to become a major disaster, encourages the development and implementation of viable multi-hazard mitigation measures, and provides training to clarify FEMA's programs.

FEMA administers the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), which may provide assistance in response to a fire. First, a major disaster may be declared by the President when any natural catastrophe causes damage of sufficient severity and magnitude to warrant major disaster assistance. Such assistance supplements the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused by the event. Second, Fire Suppression Assistance Grants may be provided to a State for the suppression of a forest or grassland fire that threatens to become a major disaster on public or private lands. These grants are provided to protect life and improved property and may include funds for equipment, supplies, and personnel. Third, following a major disaster declaration, the FEMA Hazard Mitigation Grant Program provides for long-term hazard mitigation projects and activities to reduce the possibility of damages from all future fire hazards and to reduce the costs to the nation for responding to and recovering from the disaster. States must have an approved hazard mitigation plan in place to receive either a Fire Suppression Assistance Grant or a Hazard Mitigation Grant.

The USFA serves to provide information to the public and training and standardization for structural fire service organizations. It is a member of the National Wildfire Coordinating Group's (NWCG) Wildland/Urban Interface Steering Committee and provides impetus to continue programs that address the wildland/urban interface issue.

RECOMMENDATIONS: RESPONSIBILITY

GOALS

- Wildland/urban interface fire protection policies are compatible among Federal agencies and promote partnerships with Tribal, State, and local governments and the private sector.

- Federal agencies address wildland/urban interface protection needs occurring on and adjacent to Federal lands through collaborative planning, analysis, and cooperative action across agency boundaries.

ACTIONS

Federal agencies will:

- adopt an operational role in the wildland/urban interface that includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance.

- identify and fund, on a cost-share basis, high-priority fuels management activities on Federal lands adjacent to wildland/urban interface areas identified through a fire protection assessment process that considers relative values to be protected. These activities may involve adjacent non-Federal lands.

- lead by example in utilizing fire-safe standards at Federal facilities.

RECOMMENDATIONS: PREPAREDNESS

GOALS

- Fire Protection Agreements and partnerships are developed, approved, and promoted to clarify responsibilities and to provide for pre-fire hazard and risk mitigation activities and suppression preparedness.

- Firefighters are properly trained and equipped to ensure firefighter safety during wildland/urban interface operations.

ACTIONS

Federal agencies will:

- ensure that all wildland/urban interface areas are covered by Fire Protection Agreements; renegotiate existing agreements as needed to reflect a Federal responsibility that is compatible with Federal policy and to ensure that State and local responsibilities are apportioned appropriately. Agreements will address all partners in these areas.

- incorporate wildland/urban interface considerations into agreements, operating plans, land management plans, and agency Fire Management Plans.

- charge the National Wildfire Coordinating Group with:

  – identifying specialized skills and training that are needed by both wildland and structural fire agencies in the interface and incorporating those requirements into the Wildland Fire Qualification System to provide for safe and efficient operations in the wildland/urban interface.

  – developing operational curricula, in cooperation with the National Fire Academy, for protection in the wildland/urban interface.

  – implementing training through inter-agency systems and joint training activities and augmenting fire training not available at the State and local levels.

  – identifying and implementing equipment standards for wildland/urban interface operation.

  – identifying and establishing a data-collection mechanism, in coordination with Tribal, State, and local governments; insurance industry; National Fire Protection Association; and others, to better assess the nature and scope of the wildland/urban interface fire problem.

- increase emphasis on cost-share program assistance in the wildland/urban interface through the Forest Service State and Private Cooperative Fire Program, including training and equipping of State and local agencies. Assess and revise, as needed, other mechanisms to ensure funding is directed to agencies with wildland/urban interface responsibilities.

- educate agency personnel on Federal cost-share and grant programs, Fire Protection Agreements, and other related Federal programs so the full array of assistance available to States and local agencies is understood.

- participate in the development and execution of a national wildland/urban interface fire hazard mapping scoping study in cooperation with Tribal, State, and local governments and the private sector.

RECOMMENDATIONS: PUBLIC EDUCATION

GOAL

- An informed public understands the hazards and risks from fire in the wildland/urban interface and the prevention methods available to mitigate these hazards.

ACTIONS

Federal agencies will:

- increase communication with wildland/urban interface property owners, planners, elected officials, and others through education and awareness messages about the role of fire in wildland ecosystem health, inherent risks in wildland/urban interface areas, available prevention/protection measures, and Federal disaster assistance programs.

- expand programs, curricula, and distribution systems for wildland/urban interface educational materials in cooperation with structural protection agencies.

- support and participate in public education efforts in cooperation with the Insurance Institute for Property Loss Reduction (IIPLR) and fire and building code organizations.

RECOMMENDATIONS: PARTNERSHIPS

GOALS

- Public fire protection roles, responsibilities, and activities within the wildland/urban interface are identified through a partnership among Federal, Tribal, State, local, and private entities.

- Responsibility is focused on individual property owners and local, county, and State governments, in cooperation with Federal agencies, to reduce losses within the wildland/urban interface.

ACTIONS

Federal agencies will:

- utilize the recently rechartered National Wildland/Urban Interface Fire Protection Program, which includes the Department of the Interior, Department of Agriculture, FEMA's U.S. Fire Administration, National Association of State Foresters, National Association of State Fire Marshals, and National Fire Protection Association, to focus on wildland/urban interface fire protection issues and actions.

- utilize the Western Governors' Association (WGA) as a catalyst for involving State agencies, as well as local and private stakeholders, with the objective of developing an implementation plan to achieve a uniform, integrated national approach to hazard and risk assessment and fire prevention and protection in the wildland/urban interface.

- work with the States to develop viable and comprehensive wildland fire hazard mitigation plans and performance-based partnerships.

COORDINATED PROGRAM MANAGEMENT

The National Interagency Fire Center in Boise, Idaho, provides national-level wildland fire operational guidance and program coordination. *(Photo courtesy of National Interagency Fire Center.)*

SITUATION

The issues grouped in this section reflect the need for consistency across all aspects of fire management. They include accountability; measurement of program efficiency; organization; legal and policy analysis of programs, authorities, responsibilities, and liabilities; weather support; and data management.

Accountability

Most employees and many fire managers don't believe that fire accomplishments or failures, especially in suppression activities, can be measured. There is a widely held view that agency administrators are neither held accountable for failures nor rewarded for accomplishments. This aggravates the perception that agency administrators can give fire management planning, fire suppression, and fire-use activities a low priority without being held responsible for the consequences. Furthermore, there is a perception by employees that only political or public pressure affects agency administrators' involvement with fire.

This perception of a lack of accountability is increased by managers not speaking out in support of the fire program, not motivating employees to become certified and to be available for fire-suppression and fire-use duties, limiting forces available for regional or national mobilization, or de-emphasizing fire priorities. This perception is also exacerbated by agency administrators' broad interpretations and varying levels of implementation of policies requiring support of fire suppression activities.

Efficiency

A growing concern shared by Members of Congress, agency administrators, and the public is the cost of fighting large wildfires. Some critics believe expenditures are excessive and that the crisis nature of wildfire has led to imprudent use of personnel, equipment, and supplies. Others believe that firefighting practices are not as effective as some natural forces in bringing wildfires under control and that fire suppression efforts should take better advantage of weather, terrain, fuel, and other natural conditions. In the future there will be less tolerance for excessive expenditures on large-fire suppression. The costs and benefits of fire suppression activities must be analyzed. Analyses done so far have not resulted in improved practices or reinforced confidence in current suppression strategies.

Services provided by Federal agencies are being critically scrutinized, both internally and externally, to determine the relative priority of every program and its contribution to the agency mission and the public good. As part of that scrutiny, returns on investments in the fire program must be compared with returns in other programs. Every activity within the fire management program must be analyzed according to its economic efficiency. For example, presuppression activities such as prevention and preparedness must contribute to reduced suppression costs, and prescribed fire programs must show a return in improved or restored ecosystems or reduced suppression costs.

Agency administrators must be able to analyze program economic efficiency in order to establish the priority and scope of the fire management program. Current information on fire program benefits and costs are neither reliable nor consistent, and present program analysis methodologies are inadequate and inconsistent among Federal agencies. One dilemma is the question of what values should be included in such an analysis of diverse Federal wildlands. However, commodity, non-commodity, and social values all must be considered.

Organizational Alternatives

Each Federal agency currently maintains its own separate fire management organization, with qualified employees from other programs available as the fire situation dictates. Federal agencies and cooperators also share resources nationally; and, in some cases, local interagency fire organizations exist, contract services are used, or other innovative approaches, such as the Alaska Fire Service, are being developed or used to accomplish the fire management mission. The Federal fire work force is currently decreasing at an uncomfortable rate, particularly in key specialized skills. More aggressive examination and implementation of organizational alternatives are hampered by the inability to measure relative efficiencies among these alternatives.

Legal and Policy Analysis

Fire program activities and the increasing interconnection between fire activities and existing environmental, public health, and tort laws require inter-Departmental legal and policy analysis to ensure coordination and compliance. Consequences of prescribed fire activities, where fire is allowed to play a natural role or is introduced into the wildlands, may conflict with some interpretations of existing laws or regulations. Currently, these differences are identified independently by each agency and resolved on a case-by-case basis.

Weather Support

Fire weather forecasting is a sophisticated and long-standing tool used by fire managers. As fire behavior prediction techniques have improved and become paramount in wildland fire management, weather support has become a critical factor. Fire weather support is critical to firefighter and public safety and protection of public health. Maintaining the current capability as well as enhancing future services is essential to managing a safe and effective fire management program. In addition, longer-term fires demand forecasts beyond the six- to ten-day reliable range.

Fire weather services are provided on request by the National Weather Service (NWS) as a special program in that agency; however, increasing demands for weather support, especially spot fire weather forecasts, coupled with diminished resources in the NWS, have caused demands to exceed the existing capability. Pre-fire season predictions are often requested by managers in order to prioritize workloads. Long-range severity forecasts are commonly needed for pre-positioning suppression forces, but they are either not available or are unreliable. As agencies seek to increase the use of fire as a management tool, demands for spot fire weather forecasts and other services could far exceed present weather support capability.

Data Management

Accurate, organized, and accessible information about natural/cultural resources and fire activities is the basis for coordinated agency program decisions and is critical to effective and efficient program management.

Agencies have not achieved complete consistency in compiling, managing, and accessing fire information, which prevents a reliable, holistic view of the Federal fire program. Although some data, such as historical wildland fire patterns, response to past management actions, resource values, prescribed fire statistics, and hazard mapping have been collected, it is incomplete, difficult to use, and not portrayed consistently. In some cases, such as the wildland/urban interface, the types of data needed are only now being identified.

RECOMMENDATIONS: ACCOUNTABILITY

Goal

- Agency administrators and fire program managers conduct the fire management program in accordance with established policies, procedures, standards, and direction.

Actions

Federal agencies will:

- develop and utilize consistent fire management qualification standards and specific selection criteria for fire program managers.

- establish job performance standards for agency administrators and fire managers that clearly reflect the complexity and scope of fire management responsibilities.

- provide consistent and adequate training for agency administrators commensurate with their roles and responsibilities in fire management.

- ensure that agency administrators and fire program managers are held accountable for conducting the fire program in accordance with established policies, procedures, standards, and direction.

• ensure that trained and certified employees participate in the wildland fire program as the situation demands; employees with operational, administrative, or other skills support the wildland fire program as needed; and administrators are responsible, accountable, and make employees available.

• jointly manage fire use and suppression resources and activities to achieve accomplishment of both programs concurrently.

RECOMMENDATIONS: EFFICIENCY

GOAL

• A system is developed and used to analyze the relative efficiency of specific activities of the fire management program.

ACTION

Federal agencies will:

• jointly develop a standard methodology for measuring and reporting fire management efficiency that includes commodity, non-commodity, and social values. This methodology should specifically address, among other considerations, the costs and benefits of large-fire suppression.

RECOMMENDATIONS: ORGANIZATIONAL ALTERNATIVES

GOAL

• The wildland fire program is managed through the most efficient and effective organization available.

ACTION

Federal agencies will:

• develop criteria to be used in evaluating alternative fire management organizations. Some examples of criteria include: meeting land management objectives, reintroducing fire in the ecosystem, ensuring cost effectiveness, effectively dealing with wildland/urban interface fire protection, and using partnerships and cooperative relationships.

• use these criteria to analyze, with cooperators, a broad range of organizational alternatives on a national, regional, and local basis. Examples of alternatives include: a single Federal fire organization; contracts with States, private sector, Tribal governments, military, or combinations thereof; and status quo.

RECOMMENDATIONS: LEGAL & POLICY ANALYSIS

GOAL

• Federal agencies have a clear legal foundation for the various fire management policies and programs.

ACTIONS

Federal agencies will:

• jointly identify the legal context for reintroducing fire into wildlands and develop options for accomplishment. Options may include modifying regulations to address ecological processes where appropriate; exercising broader interpretations of policy; or resolving obstacles at regional and local levels, including those on non-Federal lands. Based on this interpretation, develop standardized agreements or new agreements that permit these activities.

• clarify and differentiate between agency liability and personal liability resulting from prescribed fire, based on legal review and interpretation of tort law.

• early in the process, involve public health and environmental regulators in developing the most workable application of policies and regulations.

The Secretaries of the Interior and Agriculture will direct the Office of the Solicitor and the Office of the General Counsel, in coordination with the Department of Justice and other appropriate Federal agencies, to conduct and publish a comprehensive legal review on wildland/urban interface fire protection to provide the legal foundation for Federal actions. This review will address:

• current authority under Federal laws such as the Organic Act, National Forest Management Act, Robert T. Stafford Disaster Relief and Emergency Assistance Act, and the Federal Land Policy and Management Act.

• the subjects of tort liability, budget authorities, cooperative agreements, mitigation activities, and natural resource protection/environmental laws.

RECOMMENDATIONS: WEATHER SUPPORT

GOAL

• Sufficient fire weather resources are provided to meet the total wildland fire management program needs.

ACTIONS

• The Secretaries of the Interior and Agriculture, together with the Secretary of Commerce, will assess current and projected requirements for fire weather products necessary to support total wildland fire management program needs.

• The Secretaries of the Interior and Agriculture, together with the Secretary of Commerce, will evaluate alternative methods, including non-Federal sources, to provide weather service to the agencies' fire management programs.

• The Secretaries of the Interior and Agriculture will seek commitment from the Secretary of Commerce to research and develop technology to provide accurate, long-range weather forecasts.

RECOMMENDATIONS: DATA MANAGEMENT

GOAL

• Federal agencies achieve a coordinated Federal fire information database that supports critical decisions related to the fire management program.

ACTIONS

Federal agencies will:

• standardize fire statistics and develop an easily accessible common database.

• jointly identify, develop, and use tools needed for ecosystem-based fire management programs with mechanisms to integrate fire-related databases with other systems. These tools will include:

– the collection of ecosystem-related data such as disturbance regimes, historical fire patterns, response to management actions, and others.

– consistent methods to track and access fire-use statistics and administrative costs.

– mechanisms to transfer and exchange fire management systems information.

• cooperate with Tribal, State, and local governments to establish a data-collection mechanism to better assess the nature and scope of the wildland/urban interface fire problem.

• take a lead role in the adoption of the National Fire Incident Reporting System standards for all fire agencies that operate in the wildland/urban interface and modify existing reports to reflect wildland/urban interface fire protection data.

• complete a national wildland/urban interface fire hazard scoping and mapping study in partnership with the Western Governors' Association; Tribal, State, and local governments; and the private sector.

APPENDICES

APPENDIX I: REFERENCES

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APPENDIX II: WORK GROUPS

FEDERAL WILDLAND FIRE MANAGEMENT POLICY AND PROGRAM REVIEW

STEERING GROUP

Dr. Charles Philpot, Co-Chair ..... USDA Forest Service

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STATEMENT OF JANICE MCDOUGLE, ASSOCIATE DEPUTY CHIEF, STATE AND PRIVATE FORESTRY, UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE

MADAM CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I am Janice McDougle, Associate Deputy Chief for State and Private Forestry with responsibility for fire and aviation, forest health, and cooperative forestry programs. I am accompanied by Denny Truesdale, our Assistant Director of Fire and Aviation Management for Operations. The wildfire suppression program in the United States is a partnership with a broad array of Federal agencies, state, tribal, and local governments, and private companies; its first priority is protecting human life.

As you requested, I will briefly discuss the highly organized and strategic approach of the Forest Service's wildfire suppression program. When a fire occurs, we respond immediately, implement attack strategies, identify additional resources needed, and expand the organization as needed to protect people and property.

BACKGROUND

The Federal Wildland Fire Management Policy resulted from a 1995 interagency review, which I have provided for the record. This policy is applied on all Forest Service and Department of Interior managed and protected lands and has four priorities: (1) firefighter safety and public safety is the highest goal; (2) we support the role of fire in restoring and sustaining healthy ecosystems; (3) we integrate fire management into land management planning, and (4) the policy stress of improving fire and aviation accountability within the Forest Service.

Several factors influence an effective and safe fire suppression program, including the expansive wildland/urban interface, hazardous fuel conditions, the increasingly broad array of partners involved in suppression, and the increased role for the Forest Service in providing international assistance.

ACCOMPLISHMENTS

We have an outstanding track record. The Federal fire fighting agencies have consistently suppressed 98 percent of all wildfires during initial attack; only 2 percent of all fires account for the greatest cost and most acreage burned.

We rely on strong cooperation with the states, providing equipment and funds to help states help us. The USDA cooperative fire program currently has more than $800 million in surplus Federal property on loan to state and local governments for use in fire suppression. USDA annually provides approximately $15 million in cost-share grants to strengthen state programs, and an additional $2 million to help train and equip volunteer firefighters in rural towns.

The Forest Service is a world leader in fire behavior and management research. We have an ongoing research program on the effects of fire on vegetation and wildlife, smoke management, and reducing fire hazard by finding markets for small diameter trees.

The five Federal wildland fire management agencies, the Forest Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service, and Bureau of Indian Affairs, are strengthening the common features of their respective wildland fire management planning processes. This structure is a nationally recognized decision-making, planning, operational, and logistics structure that all wildland firefighters understand, and use. It includes an incident commander and their operations and support staffs, providing a framework for wildland firefighters to respond to any incident. It has the flexibility to expand staff and organization as an incident becomes more or less complex.

INITIAL ATTACK

Initial attack analysis and planning is the backbone of our success. The National Fire Management Analysis System (NFMAS) is a model we use to identify the most efficient firefighting organization. Developed locally to determine what mix and distribution of initial attack resources will provide a cost effective fire suppression program, the results of the local analyses are aggregated into the national program. This assures the most responsive organization possible.

The NFMAS model takes local suppression resource productivity, historical fire occurrence, hazards and values at risk, interagency commitments, and fire management objectives, and projects estimated fire suppression costs and net changes to natural resource values. Wildland/urban interface areas become a priority for the commitment of resources because of the private property values at risk. The budget for the most efficient preparedness organization identified by the analysis is the one that results in the lowest program cost, including losses, over time. This information is provided to decisionmakers in the development of program budgets and the effects of alternative budget levels can be analyzed.

Once we identify the best mix of resources within available budget, forest supervisors provide the identified number of crews, engines, helicopters, or other initial attack resources, including airtankers needed to respond to the normal fire season. Average fire seasons have been established through our assessment and planning processes. That average season has a beginning and ending date, anticipated days of each kind of burning risk, as well as norms for the intensity with which a fire would burn.

Effectiveness of a suppression program is directly related to local fuel treatment efforts. The value of prescribed fire as a tool to change wildfire behavior was demonstrated in Florida where treated areas were defensible but fire crews had to retreat from flames in untreated areas.

When predicted or actual burning conditions exceed those we expect and wildfire ignitions are imminent, when fire season starts early, or extend beyond normal, local units can request additional funds from the Washington Office to increase their level of fire preparedness through our fire severity program, which allows for additional staffing for serious fire risk outside of the normal season.

EXTENDED ATTACK

When initial attack fails, and local resources are not capable of controlling one or more wildfires, we shift to extended attack and assign national resources such as Incident Management Teams, Interagency Hotshot Crews, large airtankers, and infrared detection aircraft to the fire.

We are conducting interagency studies regarding the national shared resources used in extended attack. We are assessing the most efficient staffing levels; best procurement methods of airtankers, medium and large helicopters, and smokejumpers; and the improvements we need to make to support facilities. Studies have been completed on the most efficient medium and large helicopters and large airtanker support needed for the national fire suppression program. The studies have also identified that the location and quality of base facilities is as important as the aircraft themselves. Other studies are underway that will provide managers with options for management of smokejumpers, helitack, and rappel crews as well as aircraft support and base locations. All will be used to improve the effectiveness and efficiency of the national suppression program.

NATIONAL INTERAGENCY PROGRAM

The protection of people and resources is very complex in today's world. Planning and coordination occur at all levels to assure the safe delivery of an interagency fire suppression program. The National Interagency Fire Center (NIFC) in Boise has dispatched over 35,000 people at one time in response to fires across the United States. NIFC, the heart of the national fire suppression program, serves as a coordination, dispatch, communications, and warehouse center for all wildland fire agencies. At the center, the Forest Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service, and Bureau of Indian Affairs are collocated and work closely with state and tribal foresters. Center directors serve as a national Multi-Agency Coordinating Group to improve technology, skills, equipment, integrate wildland/urban interface concerns, and program delivery, resulting in better suppression response and reduced costs.

THE 1998 SEASON

In 1998 the Federal agencies are fully staffed for the fire season. We have adequate resources in every region for effective suppression, assuming that this is, and will be, an average year.

Florida has experienced extreme fire behavior and significant losses to property and resources due to extended drought, which caused highly flammable fuels. In late May and early June, Florida got a highly unusual amount of dry lightning, and suffered its most severe fire season since 1985. At the request of State Forester Earl Peterson, we provided Federal assistance which at the peak, totaled 1200 fire managers, 27 Interagency Hotshot Crews, 22 suppression crews, 165 engines, 4 tractors, and 98 aircraft. The Florida Division of Forestry and the local Forest Supervisor established a unified area command structure to assist in prioritizing suppression efforts and suppressed almost a half million acres of wildfire in very complex environment with minimal losses ant injuries. The success this year can be compared to the losses in the 1985 fires when more homes and businesses were lost in a day than over the 1998 month-long siege. The Forest Service still has 75 personnel assisting in closeout of the Florida fires.

The Florida efforts affixed value of a prescribed fire program to create more fire tolerant ecosystems and better protect homes and improvements. It also reinforced the value of our safety program. In Florida, we had to educate crews from other regions of the health and fire threats unique to Florida.

The other high profile fire situation this year took place in Mexico and Central America. The U.S. Agency for International Development, Office of Foreign Disaster Assistance coordinated the U.S. response. Mexico requested the most assistance, including technical assistance, large helicopters, an incident management team, an infrared aircraft, 3,000 sets of personal protective equipment, and communications equipment. We also assisted Guatemala, Honduras, Nicaragua, and Costa Rica.

The 1998 fire season has occurred locally, with few situations where national incident command teams were dispatched in more than one region simultaneously. A total of 75,932 acres of National Forest System lands burned during the month of July which began with fire danger in the very high to extreme categories in Arizona, New Mexico, Texas, Georgia, Colorado, Utah, California, and Florida. In Florida the drought was one of the most severe experienced in the past 50 years, and firefighters battled on average of 70-80 new fires each day.

Three National Fire Prevention teams were active during the month of July in Florida, Utah, and Texas where team members worked with state, county, and local fire service organizations to reduce the potential number of human-caused fires.

Texas, Oklahoma, New Mexico, Nevada, Colorado, Southern Arizona, Washington, and Oregon are currently experiencing increased fire activity. The 90 day outlook indicates that the extreme southern tip of California, Arizona, Colorado, New Mexico, western Texas, and southwestern Utah are most likely to have increased fire activity because they are predicted to be warmer and drier than normal over that period. We will take actions needed to assure that adequate resources are available for dispatch within, and to, that region.

The remainder of the United States is experiencing fewer than normal wildfires for this time of year. More than one-half of the fires occurred in the southern part of the United States. In many areas, the lower than normal fire danger can be attributed to unusual spring rain and snow.

CLOSING

The Forest Service fire suppression program is professional, responsive to the concerns and needs of partners, and based on the continuous study of historical fire occurrence and risk. We are very proud of the program, its value to the public, and the firefighters who work endless days, and get great satisfaction from the protection of people and resources.

United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Forests
and Forest Health,
Committee on Resources,
House of Representatives

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FEDERAL LANDS

Wildfire Preparedness and Suppression Expenditures for Fiscal Years 1993 through 1997

Statement of Barry T. Hill,
Associate Director,
Energy, Resources, and Science Issues,
Resources, Community, and Economic
Development Division

GAO/T-RCED-98-247

Madam Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss wildfire expenditures of the major federal land management agencies: the Forest Service, the Bureau of Land Management, the National Park Service, the Bureau of Indian Affairs, and the Fish and Wildlife Service. As requested, we will present information on (1) the amount of funds expended on wildfire preparedness and suppression activities and the types of activities covered by these expenditures and (2) assistance provided to state firefighting efforts by the land management agencies. Our comments today are based on the two reports we issued to you and the Chairman of the House Resources Committee.[1] The information in those reports is based on financial and program data supplied by the federal land management agencies for fiscal years 1993 through 1997.[2]

In summary, the federal land management agencies:

– expended about $4.4 billion on wildfire activities for fiscal years 1993 through 1997. Included in this amount was about $2.1 billion for preparedness activities and about $2.3 billion for wildfire suppression. For both preparedness and suppression, the largest expenditure categories were personnel, and services and supplies, and

– for fiscal years 1993 through 1997, the five land management agencies provided assistance to state and local firefighting efforts through cooperative agreements, provided

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[1]Federal Lands: Information About Land Management Agencies' Wildfire Preparedness Activities (GAO/RCED-98-48R, Dec. 18, 1997) and Federal Lands: Land Management Agencies' Wildfire Suppression Expenditures (GAO/RCED-98-140R, Apr. 10, 1998).

[2]The report on wildfire preparedness activities covered the period fiscal years 1992 through 1996, because, at the time of that review, fiscal year 1997 data were not available. We have updated the preparedness data for this testimony to include the period fiscal years 1993 through 1997, which is consistent with the data in our report on wildfire suppression expenditures.

grants valued at about $83 million, and loaned excess federal property worth about $700 million.

Wildfire preparedness expenditures increased slightly during the reporting period because, by their very nature, they can be planned, while suppression expenditures varied greatly because they are directly related to the number and intensity of wildfires in a given year. For example, in fiscal year 1996, about 20,000 wildfires burned almost 4 million acres, resulting in total wildfire suppression expenditures of about $689 million; whereas, wildfire suppression expenditures declined to about $281 million in fiscal year 1997 when only about 14,000 wildfires consumed about 2 million acres.

I will now discuss, in detail, the major categories of wildfire expenditures by the federal land management agencies and the types of assistance provided to states.

WILDFIRE PREPAREDNESS AND SUPPRESSION ACTIVITIES

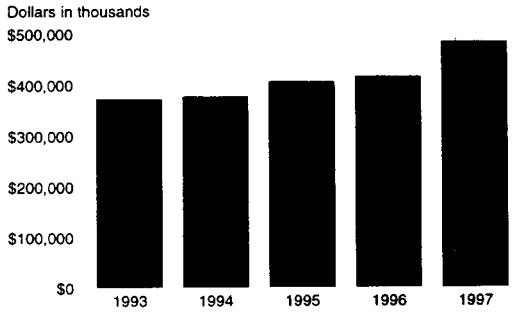
Wildfire preparedness activities are those activities undertaken before the actual onset of a wildfire. Such activities include the land management agencies providing fire management programs through training, planning, staffing, and providing firefighting equipment. Wildfire preparedness also includes programs to reduce flammable materials on the forest floor, such as fallen trees and dry underbrush.

Suppression activities include actions taken to put out wildfires, including the use of firefighting personnel and equipment. Suppression activities also include emergency rehabilitation following a wildfire. Various rehabilitation actions are carried out to prevent land degradation, resource losses, soil erosion, or other conditions or damage caused by wildfires.

For fiscal years 1993 through 1997, the land management agencies spent about $2.1 billion on wildfire preparedness activities. As shown in figure 1, total expenditures for wildfire

preparedness activities increased slightly during the period, from about $371 million in fiscal year 1993 to about $483 million in fiscal year 1997.

Figure 1: Total Wildfire Preparedness Expenditures for Fiscal Years 1993 Through 1997



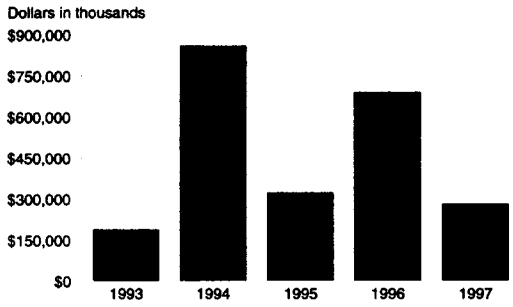
During fiscal years 1993 through 1997, the Forest Service, spent the most on wildfire preparedness activities, about $1.4 billion, followed by the Bureau of Land Management at about $350 million.

For this period, the largest preparedness expenditures were for personnel–about $1.2 billion. Personnel costs include salary and benefits for full-time employees and salaries for part-time employees. This includes permanent employees, as well as seasonal and temporary ones, hired in anticipation of actually fighting wildfires when they occur.

The second largest expenditure category was services and supplies–about $541 million. This category includes contracts for airplanes, helicopters, and personal services; maintenance contracts for equipment; office supplies; and fuel for vehicles and aircraft. As with some personnel expenditures, some expenditures for services and supplies were also made in anticipation of actually using them when wildfires occur.

For fiscal years 1993 through 1997, the land management agencies spent about $2.3 billion on wildfire suppression activities. The acreage consumed by wildfires varied greatly from year to year. Similarly, as shown in figure 2, total wildfire suppression expenditures varied greatly during the reporting period ranging from a low of about $187 million in fiscal year 1993 to a high of about $858 million in fiscal year 1994.

Figure 2: Wildfire Suppression Expenditures for Fiscal Years 1993 Through 1997



During fiscal years 1993 through 1997, the Forest Service spent the most on wildfire suppression activities, about $1.7 billion, followed by the Bureau of Land Management at about $360 million. For this period, the largest category of expenditures was for services and supplies–about $1.2 billion. These expenditures included the actual costs of aircraft for fighting the wildfires, the costs of contracts to maintain all types of equipment, the costs of feeding firefighting personnel, and the costs of fuel for vehicles and aircraft.

The second largest expenditure category was personnel–about $941 million. These expenditures included the hazard pay and overtime costs of permanent, temporary, and seasonal employees when they were actually fighting wildfires.

Other major categories of expenditures for both wildfire preparedness and suppression activities included: travel; rent, communications, and utilities; transportation of things; grants and claims; and equipment, land, and structures. (See app. I for details on the total amount of wildfire preparedness and suppression expenditures for each of the land management agencies, as well as, a description of the amounts of these expenditures by category for each agency.)

ASSISTANCE PROVIDED TO STATE FIREFIGHTING EFFORTS

All of the land management agencies enter into cooperative agreements with state and local entities for wildfire activities. In addition, the Forest Service has two grant programs to provide states with funds for wildfire preparedness activities and a program to loan excess federal equipment to state governments for firefighting purposes.

The activities covered by these grants and cooperative agreements include fire prevention, environmental education, training, and developing procedures for fighting fires. The agencies do not charge each other for these services. Federal and state fire agencies also work cooperatively through the Wildfire Coordinating Group to establish common standards on a wide variety of items,[3] such as position qualifications, training, communications, fire behavior predictions, and fire weather forecasting.

The Forest Service administers two grant programs authorized by the Cooperative Forestry Assistance Act of 1978 that provide funds to states for wildfire preparedness activities–the Rural Fire Prevention and Control and the Rural Community Fire Protection grant programs.[4] Both grant programs are matching programs, that is, the entities

[3]The Wildfire Coordinating Group consists of representatives from each of the federal land management agencies and state foresters.

[4]The Rural Community Fire Protection Program was originally authorized by the Rural Development Act of 1972. The Cooperative Forestry Assistance Act of 1978 repealed this provision of the 1972 act and authorized the Rural Community Fire Protection Program

receiving the grants must match them in dollar amounts or in-kind contributions. For fiscal years 1993 through 1997, the Forest Service provided a total of about $69 million to the states through these two grant programs.

Moneys from both of the above grant programs were used to enhance state and local firefighting capabilities. For example, Georgia received, in fiscal year 1997, about $428,500 to, among other things, update state, district, and county strategic fire plans; provide smoke management training to ensure that prescribed burning can continue; train and equip Georgia Forestry Commission personnel; and provide a basic rural fire protection course to local fire departments.

Similarly, in fiscal year 1997, Idaho received about $323,000 from the grant programs. Idaho used its moneys to, among other things, prepare a statewide fire report, pay for personnel at two dispatch centers, pay the state's portion of the cost of a fire retardant aircraft, provide personal protective fire safety equipment to fire districts, and train personnel in structural and wildland fire control techniques.

The Forest Service also manages the Federal Excess Personal Property Program,[5] which loans excess federal property to state and local firefighters. Under this program, administered by state foresters, excess federal property (generally from the Department of Defense) that can be used directly in firefighting or converted to firefighting use can be loaned to states. The types of excess property loaned range from shovels to helicopters; most are trucks that can be readily converted to tankers or pumpers. Other common items loaned include generators, pumps, fire hoses, breathing apparatus, and personal protective clothing. During fiscal years 1993 through 1997, the Forest Service loaned

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under the 1978 act.

[5]The Federal Excess Personal Property Program is authorized by section 203 of the Department of Agriculture Organic Act of 1944, the Federal Property and Administrative Services Act of 1949, and section 10 of the Cooperative Forestry Assistance Act of 1978.

excess federal personal property valued at about $700 million to states for use in wildfire preparedness activities.

From lists of excess federal property maintained by the General Services Administration, states identify excess property they want to borrow. The states are responsible for removing the excess property, refurbishing it, and keeping track of its location. When a state no longer needs the loaned property, it is returned to the Forest Service for disposal or re-loaned to another state.

According to the Forest Service, most of the excess property loaned to the states is in poor condition and requires extensive rehabilitation to convert it into firefighting equipment. The cost of converting the excess property is, however, much less than the cost to purchase new equipment, and the states use some of their grant moneys to rehabilitate the loaned property.

The loaned property can become important firefighting tools for local fire departments. For example, Wyoming state fire personnel, in November 1994, received 31, 2-1/2 ton trucks and two air compressors. Within weeks, one local fire department was able to use one of the excess trucks that had been converted into a 1,000-gallon wildland firefighting engine, and one Wyoming county built a compressed air foam system on an excess military truck at a cost of $58,000; purchasing a new commercial engine would have cost between $175,000 and $200,000.

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Madam Chairman, this concludes my statement. We would be happy to respond to any questions that you or other Members of the Subcommittee may have.

WILDFIRE EXPENDITURES, FISCAL YEARS 1993 THROUGH 1997

Table I.1: Land Management Agencies' Wildfire Expenditures, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$247,678	$260,200	$287,018	$287,906	$326,146	$1,408,948
Suppression	121,383	690,930	197,573	524,825	178,095	1,712,806
Bureau of Land Management						
Preparedness	68,707	61,493	66,998	66,880	86,410	350,488
Suppression	40,339	97,115	63,792	98,433	60,305	359,984
National Park Service						
Preparedness	15,427	15,344	13,559	19,465	18,584	82,379
Suppression	5,006	14,104	21,257	19,891	6,845	67,103
Bureau of Indian Affairs						
Preparedness	24,230	25,112	24,133	25,704	34,322	133,501
Suppression	18,969	52,417	37,753	43,510	32,770	185,419
Fish and Wildlife Service						
Preparedness	15,244	14,242	13,745	15,320	17,875	76,426
Suppression	1,616	3,281	1,675	2,643	2,685	11,900
Total*	**$558,599**	**$1,234,238**	**$727,503**	**$1,104,577**	**$764,037**	**$4,388,954**

Note: The suppression expenditures shown in this and all following tables include funds spent on both suppression and emergency rehabilitation activities.

*These totals do not include about $83 million in grants to states for wildfire preparedness activities.

Table I.2: Land Management Agencies' Wildfire Expenditures by Category, Fiscal Years 1993 Through 1997

Dollars in thousands

Expenditure category	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Personnel costs						
Preparedness	$218,180	$225,104	$240,232	$250,674	$292,540	$1,226,730
Suppression	79,180	338,484	141,614	264,605	116,832	940,715
Travel						
Preparedness	10,872	10,827	12,954	10,347	15,883	60,883
Suppression	3,876	27,453	11,728	24,778	6,017	73,852
Transportation						
Preparedness	4,832	5,125	5,314	4,651	5,242	25,164
Suppression	3,945	13,388	4,422	7,548	2,886	32,189
Rent, communications, and utilities						
Preparedness	11,324	13,434	13,443	15,326	16,578	70,105
Suppression	3,226	23,754	7,109	13,124	2,543	49,756
Services and supplies						
Preparedness	103,211	96,127	106,709	108,703	126,625	541,375
Suppression	94,274	456,857	147,217	363,817	140,145	1,202,310
Equipment, land, and structures						
Preparedness	17,464	17,242	19,412	18,549	23,593	96,260
Suppression	681	2,548	1,488	1,535	1,482	7,734
Grants and claims						
Preparedness	2,809	2,440	3,160	4,216	960	13,585
Suppression	933	1,473	6,453	4,935	5,404	19,198

Expenditure category	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Other[b]						
Preparedness	2,594	6,092	4,229	2,809	1,915	17,639
Suppression	**1,198**	**-6,110[c]**	**2,018**	**8,959**	**5,392**	**11,457**
Total[d]	**$558,599**	**$1,234,238**	**$727,502**	**$1,104,576**	**$764,037**	**$4,388,952**

[a]These totals do not include about $83 million in grants to states for wildfire preparedness activities.

[b]Other expenditures included, among other things: loans/investments, refunds, and internal transactions. Because these preparedness expenditures were relatively small, we combined them for reporting purposes.

[c]The negative amount reflects reimbursements fron state or local entities that could not be assigned an expenditure category related to the original expenditure.

[d]Totals sometimes do not exactly equal those in table I.1 because of rounding.

Table I.3: Land Management Agencies' Wildfire Expenditures for Personnel Costs, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$152,554	$158,152	$171,806	$179,138	$201,923	$863,573
Suppression	50,804	257,461	86,939	188,277	68,385	651,866
Bureau of Land Management						
Preparedness	40,107	40,252	40,956	42,329	48,108	211,752
Suppression	15,441	36,427	25,842	40,042	22,514	140,266
National Park Service						
Preparedness	8,219	8,754	9,450	10,769	12,435	49,627
Suppression	2,754	9,826	10,518	8,911	3,830	35,839
Bureau of Indian Affairs						
Preparedness	10,266	10,776	10,683	10,465	20,395	62,585
Suppression	9,400	32,562	17,132	25,609	20,367	105,070
Fish and Wildlife Service						
Preparedness	7,034	7,170	7,337	7,973	9,679	39,193
Suppression	781	2,208	1,183	1,766	1,736	7,674
Total	**$297,360**	**$563,588**	**$381,846**	**$515,279**	**$409,372**	**$2,167,445**

Note: Personnel expenditures include salary and benefit costs for full-time employees and salary costs for part-time employees.

Table I.4: Land Management Agencies' Wildfire Expenditures for Travel, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$7,017	$7,222	$8,981	$6,792	$10,613	$40,625
Suppression	2,719	23,176	8,636	20,723	4,260	59,514
Bureau of Land Management						
Preparedness	1,714	1,490	1,890	1,406	2,446	8,946
Suppression	338	2,425	865	2,455	920	7,003
National Park Service						
Preparedness	1,091	1,040	972	1,144	1,570	5,817
Suppression	176	560	861	659	306	2,562
Bureau of Indian Affairs						
Preparedness	414	465	492	433	477	2,281
Suppression	570	1,077	1,271	716	479	4,113
Fish and Wildlife Service						
Preparedness	636	610	619	572	777	3,214
Suppression	73	215	95	225	52	660
Total	**$14,748**	**$38,280**	**$24,682**	**$35,125**	**$21,900**	**$134,735**

Note: Travel includes the costs incurred while persons are on travel status, such as per diem and cost of transportation, lodging, and rental vehicles.

Table I.5: Land Management Agencies' Wildfire Expenditures for Transportation Costs, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$1,533	$1,740	$2,090	$1,772	$2,074	$9,209
Suppression	2,110	10,478	2,156	4,581	662	19,987
Bureau of Land Management						
Preparedness	1,868	1,842	1,759	1,340	1,932	8,741
Suppression	1,335	2,410	1,646	2,320	1,539	9,250
National Park Service						
Preparedness	412	364	395	480	490	2,141
Suppression	56	68	89	92	64	369
Bureau of Indian Affairs						
Preparedness	934	1,085	925	852	619	4,415
Suppression	442	432	532	554	619	2,579
Fish and Wildlife Service						
Preparedness	85	94	145	207	127	658
Suppression	2	0	-1	1	2	4
Total	**$8,777**	**$18,513**	**$9,736**	**$12,199**	**$8,128**	**$57,353**

Note: Transportation of things includes the costs to rent commercial vehicles, parcel post costs, and costs to transport household goods for a change of duty station.

Table I.6: Land Management Agencies' Wildfire Expenditures for Rents, Communications, and Utilities, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$9,222	$11,697	$11,719	$13,644	$14,609	$60,891
Suppression	2,220	18,493	2,774	8,485	1,172	33,144
Bureau of Land Management						
Preparedness	1,652	1,294	1,324	1,257	1,445	6,972
Suppression	760	4,292	2,520	2,738	723	11,033
National Park Service						
Preparedness	88	94	74	87	103	446
Suppression	13	380	1,359	582	346	2,680
Bureau of Indian Affairs						
Preparedness	238	261	197	216	255	1,167
Suppression	223	578	455	1312	292	2,860
Fish and Wildlife Service						
Preparedness	124	88	129	122	166	629
Suppression	10	11	1	7	10	39
Total	**$14,550**	**$37,188**	**$20,552**	**$28,450**	**$19,121**	**$119,861**

Note: Included in rent, communications, and utilities are charges for rent paid to the General Services Administration or commercial real estate operators, charges for telephones and other communication services, postage, computer and copier equipment rental, and utility charges.

Table I.7: Land Management Agencies' Wildfire Expenditures for Services and Supplies, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year 1993	1994	1995	1996	1997	5-year total
Forest Service						
Preparedness	$67,387	$66,203	$75,330	$73,841	$80,938	$363,699
Suppression	62,043	385,312	90,223	292,152	95,413	925,143
Bureau of Land Management						
Preparedness	20,080	13,865	18,909	18,441	25,687	96,982
Suppression	22,222	50,841	32,423	50,190	33,264	188,940
National Park Service						
Preparedness	4,043	3,104	1,449	3,460	2,928	14,984
Suppression	1,984	3,231	8,353	9,548	2,274	25,390
Bureau of Indian Affairs						
Preparedness	7,638	8,847	7,568	9,075	12,537	45,665
Suppression	7,378	16,655	15,836	11,301	8,504	59,674
Fish and Wildlife Service						
Preparedness	4,063	4,108	3,453	3,886	4,535	20,045
Suppression	647	818	382	626	690	3,163
Total	**$197,485**	**$552,984**	**$253,926**	**$472,520**	**$266,770**	**$1,743,685**

Note: Services and supplies include expenditures for, among other things, maintenance contracts on equipment; various contracts for airplanes and helicopters, personal services, and research; office supplies; fuel for vehicles and aircraft; and commercial printing and reproduction.

Table I.8: Land Management Agencies' Wildfire Expenditures for Equipment, Land, and Structures, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$6,986	$8,473	$12,570	$9,541	$13,452	$51,022
Suppression	239	1,627	736	650	214	3,466
Bureau of Land Management						
Preparedness	3,226	2,692	2,150	2,098	6,779	16,945
Suppression	237	712	478	676	1,165	3,268
National Park Service						
Preparedness	1,574	1,983	1,150	3,362	982	9,051
Suppression	10	20	70	93	28	221
Bureau of Indian Affairs						
Preparedness	2,545	2,218	1,662	1,201	41	7,667
Suppression	187	187	202	113	41	730
Fish and Wildlife Service						
Preparedness	3,133	1,876	1,880	2,347	2,339	11,575
Suppression	8	2	2	3	34	49
Total	**$18,145**	**$19,790**	**$20,900**	**$20,084**	**$25,075**	**$103,994**

Note: Equipment, land, and structure expenditures include: capitalized and noncapitalized equipment; easements; and buildings and other structures, such as roads.

Table I.9: Land Management Agencies' Wildfire Expenditures for Grants and Claims, Fiscal Years 1993 Through 1997

Dollars in thousands

Agency	Fiscal year					5-year total
	1993	1994	1995	1996	1997	
Forest Service						
Preparedness	$385	$622	$294	$372	$637	$2,310
Suppression	64	514	4,092	998	2,599	8,267
Bureau of Land Management						
Preparedness	60	58	11	8	13	150
Suppression	7	7	17	11	178	220
National Park Service						
Preparedness	0	4	68	162	56	290
Suppression	-1	-1	5	5	-3	5
Bureau of Indian Affairs						
Preparedness	2,195	1,460	2,606	3,462	2	9,725
Suppression	769	926	2,325	3,906	2,468	10,394
Fish and Wildlife Service						
Preparedness	169	296	181	212	252	1,110
Suppression	94	27	14	15	162	312
Total[a]	**$3,742**	**$3,913**	**$9,613**	**$9,151**	**$6,364**	**$32,783**

[a]These totals do not include about $83 million in grants to states.

Note: Grants and claims expenditures would include cooperative agreements and insurance claims.

(141205)

Managing Forests
Managing Fire

A Report to Congress on the Status
Of Wildfire Management in the United States

A Cooperative Project of
The American Forest & Paper Association and
National Association of State Foresters

Executive Summary

"It is senseless to have these woods burning up when we know what we can do to reduce wildfires."

Jim Lyons, Undersecretary of Agriculture for Natural Resources and Environment, August 5, 1994.

Wildfire is once again posing a major threat to human populations and natural ecosystems. In 1996, there were 96,363 wildfires in the United States that burned more than 6 million acres. The cost of suppressing these fires exceeded $1 billion.

In the wake of the 1996 fire season, the American Forest & Paper Association (AF&PA) and the National Association of State Foresters (NASF) undertook a thorough analysis of wildfire in the U.S. and commissioned a survey of the relevant scientific and technical literature (see paper by Dr. Neuenschwander, Dr. Greenlee and Mr. Gollberg of the University of Idaho on page i). The findings of our analysis, highlighted below, carry important public policy implications for Congress and for Federal agencies with responsibilities for natural resource management.

Among the highlights of this report are the following:

The unnatural accumulation of dead and dying trees, prolonged drought in the West, and the encroaching presence of human populations on forest and grass lands have created particularly dangerous conditions.

Rehabilitation of fire-damaged forests, and mitigation efforts to attenuate underlying conditions that give rise to wildfires, will require additional expenditures and close coordination among Federal, State and volunteer forestry and fire organizations.

Change is an inherent characteristic of forest ecosystems. Fire is a natural agent of that change.

Fire is neither innately destructive nor constructive. Whether fire is bad or good depends to a great extent on the landowner's management objectives.

However, wildfires of such severity that they fundamentally impair the productivity or even the existence of the forest are seldom compatible with any forest management objective, and therefore can not be regarded as beneficial.

The intense wildfires in 1996 were frequently of this nature. They resulted not only from a dangerous accumulation of brush, dead trees and other forest fuels, but also from extended drought and dry weather.

This accumulation unprecedented in size and severity in some places was in turn the product of very successful wildfire suppression activities over the past 80 years.

Conclusions

- Wildfires are going to occur regardless of how we collectively manage our forests. However, active forest management, including prescribed fire and thinning can reduce hazardous fuel loading and lessen the potential for catastrophic wildfire.

- Fire suppression in the United States requires an extremely well orchestrated level of cooperation between volunteer and municipal fire departments, State forestry agencies, and Federal agencies with wildfire management and suppression responsibilities. Agency and cooperative fire management programs must receive adequate Federal and State funding in order to protect the lives, property, and natural resources of Americans.

- The issue of wildland-urban interface is increasingly becoming the greatest concern among local, state and federal agencies that have a role in fire management and suppression. Forests, grasslands, farms and heavily populated developments are all located within the same locale, creating unique problems for fire management and suppression in these areas. The Long Island Fire of 1994 and the Card Sound Road Fire of 1996 in Dade County, Florida are vivid reminders that this problem is not going to go away.

- Wildfires are a national problem. A fire season such as the one in 1996 requires a commitment from every State to be prepared to aggressively fight wildfire within its own borders. A national mobilization effort will find New Hampshire fire crews battling wildfires in Montana, and equipment from Idaho on loan to Texas. This cooperative spirit must be augmented by adequate State and Federal funding.

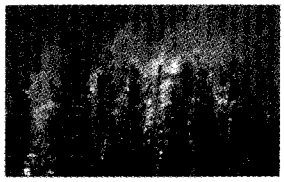


Photo credit: Terra Glass - NIFC

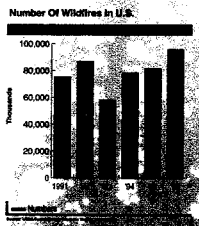
Despite the extraordinary ferocity of the 1996 wildfires that burned over 6 million acres, last year's fire season pales in comparison to the most severe fire season ever recorded. In 1930, more than 190,000 wildfires scorched over 52 million acres. Why then, is the 1996 fire season regarded by many fire experts as severe? There are two explanations: population growth and distribution, and the intensity of many of the fires occurring throughout the United States.

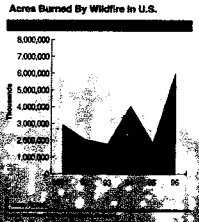
Wildfires now frequently occur in America's back yards.

In 1930, a very clear delineation existed between the urban centers of the United States and what was considered to be rural America. No longer. Over time, the population of the United States has doubled. Cities have grown into suburbs, and suburbs have blended in to what was once considered "rural", creating an extremely complex landscape that has come to be known as the wildland - urban interface. Forests, grasslands, farms are now intermixed with housing, businesses and other development, posing new challenges for fire management and suppression.

Fire is a particularly capricious agent of change in forested ecosystems. Fire is one of the most variable natural processes on Earth, as well as one of the most dynamic. It is not uncommon for wildfires to produce ground surface temperatures in excess of 1000 degrees centigrade, and flame lengths 100 feet high. The destructive capacity of wildfire is exacerbated when people choose to reside in ecosystems historically prone to fire, such as Oakland, CA and Dade County, FL. To do so is to make a conscious decision to co-exist with fire.

The intensity of many of the wildfires witnessed in recent years are of a magnitude seldom seen before. These intense fires, fed by an unnaturally high fuel load caused from years of aggressive suppression, forest disease, and grossly overstocked stands, are unhealthy, and are a source of extended environmental degradation once burned. Baked soils and trees killed by intense heat increase soil erosion. Wildfires in 1996 typically inflicted extraordinary damage on the forest ecology by sterilizing and baking forest soils. This substantially reduced their ability to support future stands of trees and greatly increased the potential for soil erosion and the





related damage to water quality. By contrast, whenever fire, either wildfire or prescribed fire, occurs in a healthy, well managed ecosystem, it often has a beneficial effect.

For a fire to occur, three elements must be present — a source of ignition, oxygen, and a fuel source. Resource managers, including foresters, fire professionals, and range conservationists, can manipulate these elements to guide fire to parts of the landscape where it is beneficial, and keep it from reaching areas where it would damage

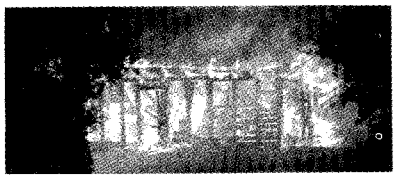


Photo credit: Los Angeles County Fire Department

resources, threaten lives, and destroy property. Sound forest management practices can lessen the frequency and intensity of catastrophic wildfire. However, no practical management or suppression strategy will ever completely eliminate the incidence of catastrophic wildfire. To this end, it is imperative to have a comprehensive fire suppression and protection strategy in place to guard against the loss of life, property, and natural resources.

The costs levied on society from wildfire are enormous from several perspectives. Since 1910, no less than 600 wildland firefighters have lost their lives. 1994 was a particularly deadly and tragic fire season. Fourteen firefighters perished when the South Canyon Fire swept up Colorado's Storm King Mountain and overran their fire line. Before the end of that fire season, another 20 firefighters lost their lives battling wildfire in the United States. The 1994 fire season forever galvanized the deadly consequences of wildfire in the collective mind of America.

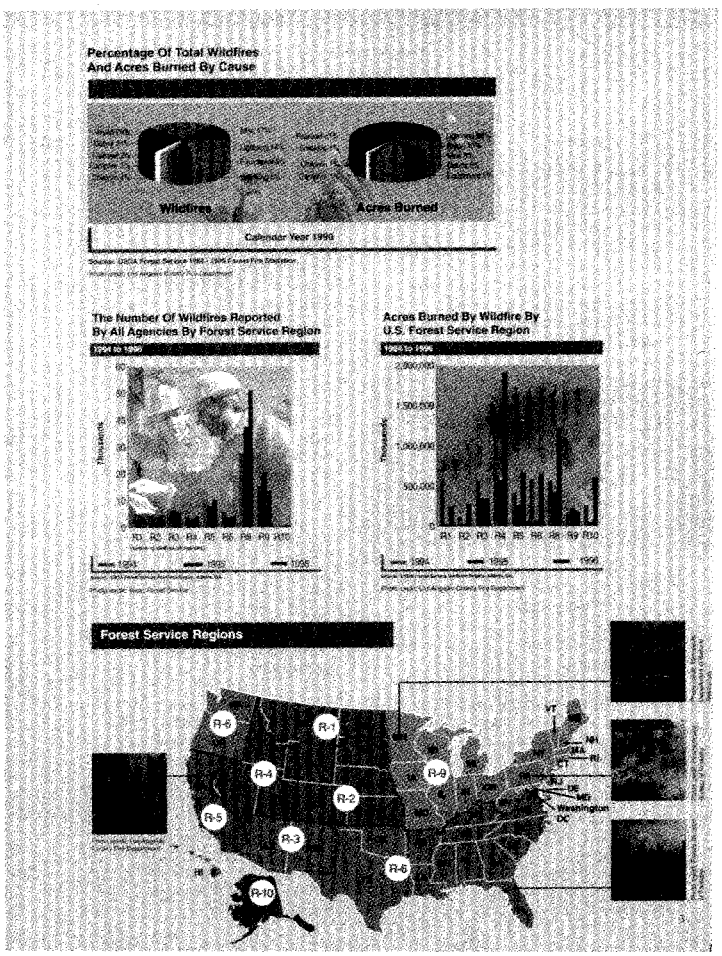
The human price paid does not end with the loss of life. A lifetime of memories and cherished possessions can be incinerated in a matter of minutes. In a series of wildfires that attacked the Redding, California area in 1992, 636 homes were destroyed. Another 25,000 Californians were left homeless before the wildfires of November 1993 had calmed.

Fighting wildfire is expensive to taxpayers too. For example: In 1992, six fires on the Boise National Forest, totalling 183,000 acres, cost $27 million to suppress (Mealey, 1994).

Some other interesting wildfire statistics:

- The two greatest causes of wildfire in the United States are human activity and lightning. A disturbing fact is that 26% of wildfires each year result from arson.
- More wildfires occur each year in the Southern United States than in any other region.
- However, the greatest proportion of the acreage burned by wildfires each year is in the Intermountain West.

It also should be noted that, few fires actually reach any substantial size in terms of acres burned. Oregon exemplifies the effective wildfire suppression programs that exist in the United States. In 1995, ninety-eight percent of all wildfires in Oregon were controlled at 10 acres or less (Oregon Department of Forestry, 1995). Albeit a small percentage of the total number of fires, it is those fires that reach catastrophic proportions, in areas with unnaturally high fuel loads, that create most of the environmental damage and expenditures each year.


Percentage Of Total Wildfires
And Acres Burned By Cause
Wildfires
Acres Burned
Calendar Year 1996
The Number Of Wildfires Reported
By All Agencies By Forest Service Region
1994 to 1996
Thousands
R1 R2 R3 R4 R5 R6 R8 R9 R10
1994
1995
1996
Acres Burned By Wildfire By
U.S. Forest Service Region
1994 to 1996
Thousands
R1 R2 R3 R4 R5 R6 R8 R9 R10
1994
1995
1996
Forest Service Regions
R-1
R-2
R-3
R-4
R-5
R-6
R-8
R-9
R-10
VT
NH
MA
RI
CT
NJ
DE
MD
Washington
DC
HI

"Do you want a little smoke on a periodic basis or a whole lot every once in a while?"

Jack Ward Thomas
Former Chief of the U.S. Forest Service
August 8, 1994

"It is senseless to have these woods burning up when we know what we can do to reduce wildfire"

Jim Lyons
Undersecretary of Agriculture for Natural Resources and Environment
Seattle Post-Intelligencer
August 5, 1994

"...too hot, destructive, dangerous, and too ecologically, economically, aesthetically, and socially damaging to be tolerable... We cannot, in my opinion, simply step back and wait for nature to take its course."

Jack Ward Thomas
Commenting on the fire situation in the Western U.S. in his testimony before the Senate Agriculture Committee field hearing in Boise, Idaho
August 29, 1994

"By using all the tools we have — carefully thinning excess young trees, igniting prescribed fires, managing land for fire, controlling invasive and exotic weed species — we must take steps to reduce the fuels"

Bruce Babbitt
U.S. Secretary of the Interior
in a speech at Boise State University
February 17, 1997

Active Forest Management Can Reduce The Incidents of Catastrophic Wildfire

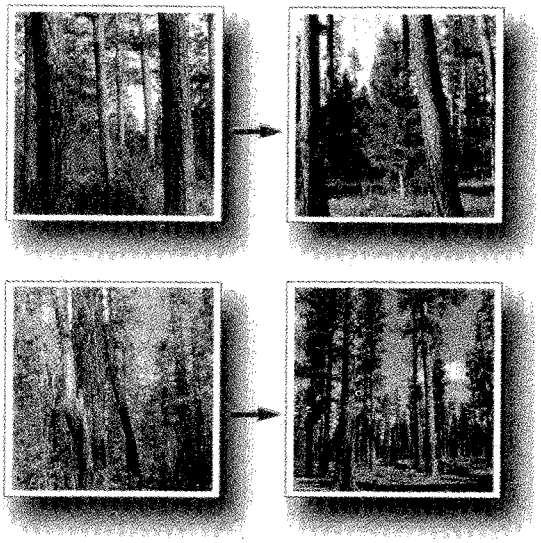


Photo Credits: USFS Tom Iraci

These photos illustrate the need to make fuels management prescriptions on a site-specific basis. All four photos are of ponderosa pine stands in Oregon. Both the top left and bottom left frames illustrate forests in need of fuels treatment. However, it is important to recognize that prescribed fire is appropriate only for the forest shown in the top left frame. In this forest, an experienced forester will be able to manage a slow moving, low-intensity ground fire that will leave trees undamaged while reducing the amount of excess fuels to an acceptable level. The forest pictured in the bottom left frame, contains too much underbrush and small trees to consider the use prescribed fire. The forester responsible for the sustainable management of this ponderosa pine stand prescribed the appropriate silvicultural treatment for reducing fuel loading in this stand — commercial mechanical thinning. Introducing fire into this stand before thinning would have created an opportunity for a more intense fire to occur. A ground fire in these conditions can easily use the understory vegetation as a "ladder", developing into a potentially lethal crown fire. In both stands, the fuel load was reduced to a manageable level using two different, yet beneficial, silvicultural tools - prescribed fire and mechanical thinning.

Managing Forests

Managing Fire

Photo credit: Los Angeles County Fire Department

Fires can never be completely avoided, however they can be managed. This entails a two pronged strategy: (1) Continued aggressive fire suppression to fight fires that damage resources, homes, property and threaten lives, and (2) more comprehensive and aggressive management of fuels to reduce the potential for catasirophic wildfires. This requires cooperation on a grand scale, and a significant up-front investment. Urban and suburban development into wildlands must be planned so as to minimize the danger to the lives and property of those who move there. Wildlands can be managed to bring fire back to the ecosystems that need them without damaging adjacent resources, but this must happen under managed conditions. This up front investment will more than pay for itself in the long run by significantly reducing the incidence and costs — both economic and environmental — of catastrophic wildfires.

Wildland — Urban Interface

Photo credit: Peter Andrew Rosch - Miami Herald

Wildfires occur in every part of the country every year. Whether these fires occur in remote wildlands or in areas with heavy urban and suburban development makes a difference in the techniques, equipment, and tactics used to suppress them. Some common elements include preparation, hazard reduction, and education.

Many people live in communities that are not technically rural — their homes are in what is known as the wildland-urban interface. The National Fire Protection Association (NFPA) defines this interface as an area where development and wildland fuels meet with no clearly defined boundary (Technical Committee on Forest and Rural Fire Protection 1991). Those who live in this interface as well as those who live in rural areas need their lives and property protected against the threat of uncontrolled, outdoor fires — commonly known as wildfires (Rural Fire Protection in America Steering Committee 1994, page 5).

Research Forester James B. Davis called the task of protecting lives and property in the urban-wildland interface "one of the most critical and elusive problems faced by wildfire protection agencies" (TriData Corporation, 1997). Now, ten years later, this problem continues. Today, the issue of wildland-urban interface is fast becoming the greatest fire-related concern among local, State and federal agencies today. In fact, of the 50 State foresters surveyed, 42 indicated that the urban-wildland interface was their largest concern for wildfire in the future. The nation's population is steadily increasing , and further expansion of residential areas into the Wildland-Urban interface is inevitable. Panoramic views, wildlife, fresh air, and solitude are just a few reasons that prompt people to locate in the more fire-prone areas outlying large cities. While the benefits are compelling, the risks from wildfire are often overlooked.

Wildland fire behavior is strongly influenced by vegetation type, terrain, and weather. Vegetation can be managed and modified, but as long as people choose to live in wildland areas, the threat of major catastrophes exist. Vegetation management as it relates to wildland fire refers to the total or partial removal of especially hazardous grasses, shrubs or trees. This includes thinning to reduce the amounts of fuel, removal of flammable plants or conversion to another type of less flammable vegetation. In addition to fire hazard reduction, vegetation management has other benefits. These include increased water yields, improved habitat for wildlife and open access for recreational purposes.

Due to the increasing concern regarding wildfire in the urban areas, many States and counties have implemented intensive education programs for their communities. Homeowners should be aware of the precautions they need to take to protect their homes and property. Fire prevention and awareness programs should communicate levels of risk to people living in wildlands. Many states are

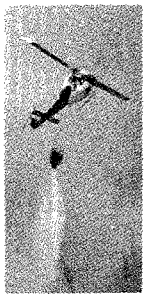


Photo credit: Peter Andrew Rosch - Miami Herald

A stubborn fire spreads blinding smoke through the desolate borderlands of deep South Dade County, Florida in 1996. For two days, Card Sound Road and U.S. 1 – the only road links between the Keys and the mainland – were choked shut for a time. Backups stretched from four to six miles. A Florida Division of Forestry helicopter dropped water on the inferno, which had consumed at least 3,200 acres.

Photocopies

Photo credit: Los Angeles County Fire Department

seeking education grants in order to keep people informed about the level of risk on or near their property and the importance of their participation in cooperative programs within their community. The responsibility for this risk education rests solely with the states, counties and local fire departments.

These cooperative programs are crucial if communities are going to succeed in fire prevention activities. In many cases, landowners and others in the community do not understand the need to manage fire prone landscapes. Landowners frequently are not aware of the need to reduce fuels on their property, to maintain defensible space around their home, and to build with appropriate materials. Many communities lack adequate fire organizations, especially when it comes to properly training and equipping their local fire companies to combat wildfire.

Education is critical for informing landowners of their important role in fire prevention, a role that is ultimately as important as the local firefighter's. Together they can implement the most effective and efficient program to prevent property loss and damage, and most important, save lives.

Interagency cooperation is also vital, particularly during suppression operations. During these wildfire incidents, State and Federal agencies protect homes and people as well as natural resources. The public cannot discern whether the nearest firefighting unit is funded from their local, State or Federal tax dollars. However, they expect the well trained, well equipped units to respond as quickly as possible.

Another challenge facing agencies responsible for wildland-urban interface coordination has to do with the distinction between preventing and suppressing wildland fires generally versus preventing and suppressing fires that threaten ecosystems, buildings and lives. Legal, political and environmental concerns make it difficult to use prescribed fire (fires purposely set to remove undesirable vegetation) to reduce fire hazards (J. Davis, 1986). Not only is this true of prevention techniques, but of the tools that are used during suppression operations such as the use of chemical retardants, aviation regulations and access, as well. These limitations make it also necessary to maintain communications with other agencies and local stakeholders affected by the different fire suppression techniques.

The inexorable increase of population pressures on wildland will exacerbate management and prevention problems for Federal, State and local agencies.

"Texas is the fastest growing state in the nation with most of this growth occurring on less than 5% of the land base. The growing population is resulting in reports of wildland-urban interface fires in all regions of the state. As an example, during two months in 1996, over 3,100 structures were saved by state and local resources. These structures had an estimated value of $158,000,000."

— Texas State Forester, James B. Hull

Interagency Cooperation

When wildfire strikes in remote forests with unnaturally high fuel loads, it still must be controlled to stave off resource damage and buy time until fire hazards can be reduced. This necessitates wildfire suppression activities that cross multiple agency jurisdictions and requires expensive equipment and highly trained personnel. It is no exaggeration to compare the annual battles against wildfire to a military operation. In fact, the military does get involved in these efforts on occasion.

While many of these fires take place on Federal lands, up to one third of the firefighters come from State agencies. A significant proportion of the bulldozers, trucks, helicopters, and other aircraft are also state-owned and operated. Any time a large fire needs to be suppressed, it is truly an interagency effort.

The National Interagency Fire Center (NIFC) in Boise, Idaho serves as "The Pentagon" for fire suppression and management efforts in the United States. Located at NIFC is the National Interagency Coordination Center (NICC), whose primary mission is the cost-effective and timely coordination of national emergency response for wildfire suppression. This mission is accomplished through highly coordinated planning, situation monitoring, together with timely communication among State and Federal agencies. These agencies include the Bureau of Indian Affairs, Bureau of Land Management, National Association of State Foresters, National Oceanic and Atmospheric Administration, National Park Service, U.S. Fish and Wildlife Service, U.S. Forest Service, and other cooperating agencies. It is through NICC that all agency requests to mobilize personnel and equipment across regions are managed.

During a national interagency mobilization effort, NICC kicks into high gear. NICC serves as a coordination center for ten Geographic Area Coordination Centers located in Milwaukee, Wisconsin; Atlanta, Georgia; Albuquerque, New Mexico; Broomfield, Colorado; Missoula, Montana; Fairbanks, Alaska; Portland, Oregon; Redding, California; Riverside, California; Salt Lake City, Utah; and Reno, Nevada. It is through this highly orchestrated effort that a "Hotshot" crew from New Hampshire will be mobilized and dispatched to Texas to help suppress a wildfire, a specially trained Dozer Operator from the Florida Division of Forestry is located and loaned to the Bureau of Land Management to work a fire in western Oregon, and a "Bambi Bucket" gets shipped from the National Fire Cache in Boise, Idaho on the NIFC complex—the functional equivalent of a national WalMart for fire suppression organizations—to a helicopter in Maryland .

America's wildland firefighters have earned a well-deserved reputation for professionalism. Their primary goal is to protect life, property, and natural resources. Due to the coordinated work of State forestry departments, rural volunteer fire companies, Federal agency and other wildland firefighters, the loss of life and damage to property

Virginia Department of Forestry Hotshot Crew on a fire line in Montana.

Photo credit: Virginia Department of Forestry

Eastern U.S. fire crews being transported to a wildfire situation on a charter Delta Airlines flight from the National Interagency Fire Center in Boise, Idaho.

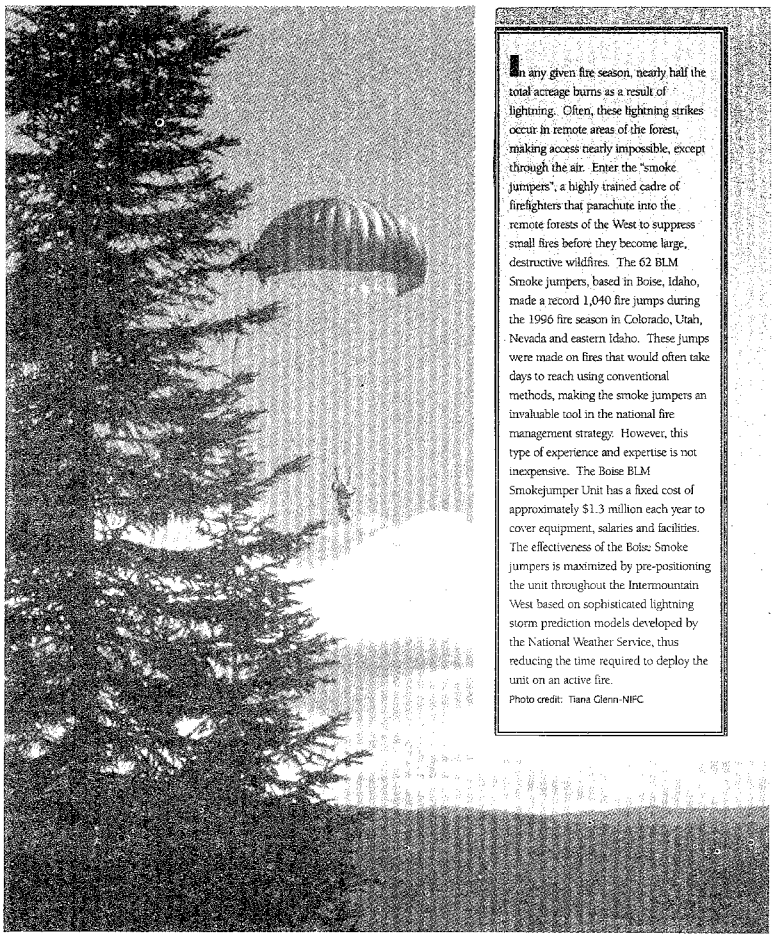
and natural resources due to wildfire has remained low.

Handcrews and Hotshot crews are the two most common types of fire suppression crews used in wildfire suppression operations. Many of these crews in the U.S. are comprised of employees of State forestry departments, while others are staffed by volunteers taking longer tours of duty. Handcrews generally consist of about 20 people whose primary responsibility is the construction of "firelines" around wildfires to control them. A fireline, which looks much like a dirt trail or road, is a strip of land cleared of combustible vegetation by hand with shovels, axes, "Pulaskis", fire rakes, and chainsaws.

Hotshot crews are also 20-person teams comprised of firefighters with the highest level of experience, and physical conditioning found in the firefighting cadre. These crews are specially trained in the use of suppression tactics, including backpack water pumps and specially equipped all-terrain vehicles. They are capable of working in remote areas for extended periods with little or no outside logistical support. These crews, also known as Type I crews, are cooperatively deployed wherever they are needed to attack wildfires when they first start and to suppress large fires in remote and / or high risk areas. (Adopted from the "On The Line of Fire" from the National Wildfire Coordinating Group).

The principle goal in wildfire suppression is to contain each fire quickly through initial attack. This means that the fire is contained within the first two hours by the first suppression units dispatched, without the addition of a significant number of personnel or additional equipment.

Often, the best way to contain a fire quickly is to use air tankers. These high-capacity aircraft are capable of delivering large quantities of water or retardant to a fire very quickly. A recent study



In any given fire season, nearly half the total acreage burns as a result of lightning. Often, these lightning strikes occur in remote areas of the forest, making access nearly impossible, except through the air. Enter the "smoke jumpers", a highly trained cadre of firefighters that parachute into the remote forests of the West to suppress small fires before they become large, destructive wildfires. The 62 BLM Smoke jumpers, based in Boise, Idaho, made a record 1,040 fire jumps during the 1996 fire season in Colorado, Utah, Nevada and eastern Idaho. These jumps were made on fires that would often take days to reach using conventional methods, making the smoke jumpers an invaluable tool in the national fire management strategy. However, this type of experience and expertise is not inexpensive. The Boise BLM Smokejumper Unit has a fixed cost of approximately $1.3 million each year to cover equipment, salaries and facilities. The effectiveness of the Boise Smoke jumpers is maximized by pre-positioning the unit throughout the Intermountain West based on sophisticated lightning storm prediction models developed by the National Weather Service, thus reducing the time required to deploy the unit on an active fire.

Photo credit: Tiana Glenn-NIFC

Photo credit: Tiana Bunn - NIFC

Steve Nemore, Chief of Operations for the Boise Smoke jumpers, a veteran of over 20 fire seasons, is shown wearing his heavily padded jumpsuit and parachute rigging prior to making one of 1,040 fire jumps the unit made in 1996. The equipment he is wearing is designed and manufactured by his unit at their base on the National Interagency Fire Center complex in Boise, Idaho in their "off time".

shows that a single plane can deliver around 3,000 gallons of retardant an hour to a fire, giving hand crews a great deal of assistance in combating large fires. This rapid response time is due in large part to the early detection of most wildfires, and the strategic deployment of air tankers at airports throughout the entire United States. However, there is a significant cost associated with the use of air tankers in fire suppression activities. Keeping these air tankers on call is expensive, ranging from $1,800 to $3,400 a day. Once they start flying, the cost of the operation runs between $1,200 and $3,200 per hour, not including the cost of the retardant. Despite the effectiveness of air tankers in initial attack and in large fire support operations, the expense of their deployment adds significantly to the cost of any suppression operation.

A Compelling Need for Cooperation

There is a compelling need for a national effort to deal with wildfire. It will require cooperation and a willingness to learn from experience and from recent research. The Federal government has a long history of working with the States and localities to prevent wildfire. State and private landowners have a strong record of safely using prescribed fire and fuels management to reduce wildfire hazards. Both of these efforts must be reinforced and extended to new areas of the country and new parts of the landscape. Some existing programs can help.

Oklahoma Native American Firefighter Program

In 1989, the Ouachita National Forest, on behalf of the US Forest Service Southern Region Office in Atlanta, Georgia, assumed the responsibility for the recruitment, training, equipping and mobilization of the manpower provided by the Cherokee and Choctaw Indian tribes of Oklahoma to fight wildfire in the United States. In the first year of the program, the Ouachita National Forest cadre trained 60 Native American wildland firefighters. This program has become a significant source of income for these Native Americans. These firefighters collectively spent 1,446 days on fire detail in 1989. In August of the 1996 fire season, fifteen Native American crews were dispatched to wildfires in the western U.S. after a full season of firefighting in the southern U.S. These experienced crews, including members of the Kiowa, Comanche, Chickasaw and Choctaw tribes saw action on the Buffalo Creek, Colorado fire, as well as fires in California, Montana and Oregon during that period.

Photo credit: Lorna Dewey Watson

G.I. Joe meets Smokey Bear

During the 1996 fire season, the second worst fire year in terms of acreage burned in twenty years, two battalions of military personnel (1,160 individuals) joined suppression efforts. Members of the 3rd Brigade, 4th Infantry Division from Ft. Carson, Colorado, were used on the Forks Fire on the Mendocino National Forest, the Park Meadow Fire on the Deschutes National Forest and the Summit Fire on the Umatilla National Forest. Likewise, the 1st Marine Expeditionary Force, 2nd Battalion, 5th Marine Regiment from Camp Pendleton, California was trained and mobilized to fight the Tower Fire on the Umatilla National Forest in Oregon. The deployment of military personnel to fight wildfires in the lower 48 contiguous states is made possible through a 1975 Memorandum of Understanding (MOU) between the Department of Defense and the Departments of Agriculture and Interior. This MOU establishes a Department of Defense policy that provides emergency assistance in the form of personnel, equipment, supplies, and fire protection services wherever the national fire situation reaches Preparedness Level V (critical) and exceeds the civilian resources available for deployment. Military personnel receive intensive fire suppression and safety training from qualified federal or state agency fire management personnel before being deployed, and are supervised by experienced "fire bosses". However, the use of military personnel in fire suppression is by far the most expensive personnel that can be utilized, due to the often complex support mechanisms required by the military. Moreover, the military personnel do not work free. The cost of their time and equipment is reimbursed from the land management agency fire budgets, making their use prohibitively expensive.

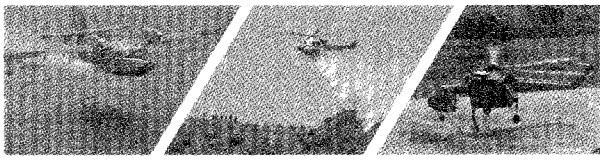


Photo credit: Los Angeles County Fire Department

Aircraft play a vital role in fire suppression.

The first are the cooperative fire programs of the Forest Service. These include the Rural Fire Protection and Control program, the Rural Community Fire Protection Program, and the Federal Excess Personal Property program. Of course, the Federal agencies, especially the Forest Service and the Bureau of Land Management, must manage fire on the lands under their jurisdiction. This must include more active land management and greater use of prescribed fire.

The Federal Excess Personal Property (FEPP) program is an important component of rural fire management. FEPP allows the Forest Service to acquire excess Federal property such as aircraft, pickup trucks, structural and wildland fire engines, welders, forklifts, trailers and generators

and loan it at no cost to State forestry agencies and local fire departments.

The 28,000 rural volunteer fire departments continue to be the first line of defense in the suppression of a wildfire. However, these important cooperators in fire management and suppression are often under-equipped to deal with wildfires in difficult terrain. Most rural volunteer fire department budgets come from donations and fund-raising events, making the purchase of specialized wildfire suppression equipment difficult. This is where the FEPP program comes in. Rural fire departments, working in cooperation with their State forestry agency, use their ingenuity to retro-fit excess Federal equipment and transform it into extremely effective fire fighting apparatus. Annually, over $100 million dollars of Federal equipment is given a "second chance" by State forestry agencies and rural fire departments through FEPP.

The Federal Excess Personal Property (FEPP) program is an important component of rural fire management. FEPP allows the Forest Service to acquire excess Federal property such as aircraft, pickup trucks, welders, forklifts, trailers and generators and loan it at no cost to State forestry agencies and local fire departments. The photographs to the right are "before" and "after" images of a initial attack "brush" truck currently in service with the Faber Volunteer Fire Company in rural Nelson County, Virginia. The Faber Volunteer Fire Company acquired this former military pickup truck with the assistance of the Virginia Department of Forestry through FEPP, and retrofit the vehicle with a tank and pump combination suitable for rugged, off-road fire suppression operations. This piece of apparatus is a source of pride for the Faber Volunteers who upgraded the vehicle and have won several local awards with this truck.

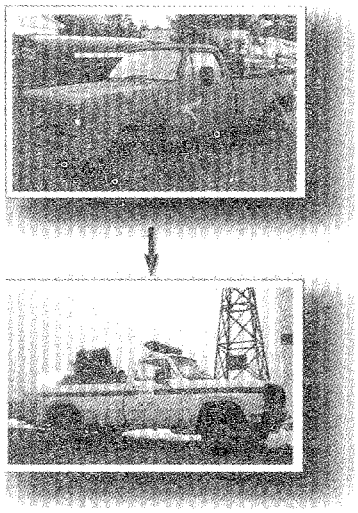


Photo credit: Virginia Department of Forestry

Annual Federal Appropriations

Two other components of the Forest Service Cooperative Fire Protection Program, the Rural Community Fire Protection (RCFP) program, and the Rural Fire Prevention and Control (RFPC) program are essential, cost-effective programs that enhance the rural wildfire defense structure. RCFP has been authorized since 1972 and funded at $3.5 million annually, until 1995, when it was reduced to $2.0 million dollars. This program provides matching funds to rural communities with populations under 10,000 people. Applications to the Forest Service from these communities for matching funds under RCFP exceeds $20 million annually.

RFCP provides technical assistance and matching grants to the State forestry agencies from the Forest Service. Much of this funding is used by the States to fund essential firefighter safety and

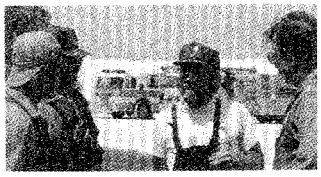


Photo credit: Randy Dorson of Fasmin

technical training. The benefits of this program become evident during a severe fire season such as 1996, when national mobilization efforts were undertaken to employ eastern and southern firefighters in western fire suppression operations. The advanced training in interagency coordination and strategic wildfire management funded through RFCP makes this type of multi-agency integration possible and effective.

Recommendations

- Congress and the Administration should support strong funding of Wildland Fire Management, and more specifically its Hazardous Fuels Reduction Program.
- The U.S. Forest Service should target this funding at those forests in greatest need of fuels treatment.
- Further, the Forest Service should use all appropriate silvicultural treatments, including commercial and precommercial thinnings and salvage, to reduce the hazardous fuel loads that threaten many of our forests. Treating grasslands will do little to remedy existing forest health problems.
- As such, the agency should report back to Congress a specific list of National Forests, by Ranger District, indicating where it intends to use these funds, and what silvicultural methods it proposes to use.

The Fire Preparedness account provides funding for basic fire organization and capability to prevent forest fires and assure initial attack on wildfires. This account has historically been underfunded. Based on the National Fire Management Analysis System (NFMAS) model, preparedness funding should approximate 90% of the most efficient level to effectively manage a normal fire season. Congress and the Administration must critically examine the need to fund the fire accounts at a level that enables the agencies to respond to the most severe of fire seasons without having to rely on emergency appropriations.

Similarly, the Cooperative Lands Fire Management program provides critical support to the State forestry agencies and to local, rural fire control districts. The program helps to protect over 1 billion acres of non-federal lands from

wildfire. It is important that this program receive continued support from Congress and the Administration. In 1996, the Federal agencies adopted a new fire policy that more accurately reflects their fighting capabilities and responsibilities. This policy calls for state and local agencies to take on a greater role in suppressing fires, particularly when it comes to protecting life and improved property in the wildland interface.

To assist in this transition to more local control, the Cooperative Fire program can enable states and localities to prepare for and cope with large fires that endanger lives and property. This program should be expanded to provide assistance to the nation's front line of defense—local fire departments which deal with wildfire in their communities and across the country.

Conclusions:

- Wildfires are going to occur regardless of how we collectively manage our forests. However, active forest management, including prescribed fire and thinning can reduce hazardous fuel loading and lessen the potential for catastrophic wildfire.
- Fire suppression in the United States requires an extremely well orchestrated level of cooperation between volunteer and municipal fire departments, State forestry agencies, and Federal agencies with wildfire management and suppression responsibilities. Agency and cooperative fire management programs must receive adequate Federal and State funding in order to protect the lives, property, and natural resources of Americans.
- The issue of wildland-urban interface is increasingly becoming the greatest concern among local, state and federal agencies that have a role in fire management and suppression. Forests, grasslands, farms and heavily populated developments are all located within the same locale, creating unique problems for fire management and suppression in these areas. The Long Island Fire of 1994 and the Card Sound Road Fire of 1996 in Dade County, Florida are vivid reminders that this problem is not going to go away.

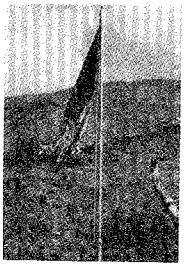


Photo credit: Los Angeles County Fire Department

- Wildfires are a national problem. A fire season such as the one in 1996 requires a commitment from every State to be prepared to aggressively fight wildfire within its own borders. A national mobilization effort will find New Hampshire fire crews battling wildfires in Montana, and equipment from Idaho on loan to Texas. This cooperative spirit must be augmented by adequate State and Federal funding.

The Scientific Literature - A Postscript

Many of the findings and conclusions of this report grew out of the following summation of the relevant scientific and technical literature on forest fire ecology commissioned by AF&PA and NASF from three renowned forest ecologists at the University of Idaho. Their work appears here unabridged as presented by the authors.

A SCIENTIFIC BASIS FOR THE REINTEGRATION OF FIRE INTO FORESTED ECOSYSTEMS IN THE UNITED STATES : A SUMMARY

By L. F. Neuenschwander, J. Greenlee, and G. E. Gollberg
University of Idaho — Moscow, Idaho

Fire Exclusion:

The goal of federal and state fire management agencies was and still is to suppress fires in order to protect resources, structures, property, and human lives (Neuenschwander 1996). It is useful to have a working understanding of some basic management terms. A prescribed fire is a fire that is burning within established management prescriptions; all fires that are out of prescription are called wildfires (Varley and Schullery 1991, pp. 108-109). A "risk" is a wildfire causative agent, such as, lightning, campfire, etc., whereas a "hazard" is a subjective rating assigned to a fuel complex (grass, litter, slash, etc.) that reflects its susceptibility to ignition, the kind of wildfire it would support (intensity), and/or the relative difficulty to suppress it (Deeming 1990, p. 97).

Wildland fire organizations effectively suppress fires. Only 1% or 2% of the U.S. fires exceed a 1,000-acre containment. However, the 1% or 2% burns tens of thousands of acres in a single event and account for most of the acreage burned (Neuenschwander et al. In press). Annual acreage burned in wildfires has increased in the Western U.S. since the 1970's (Arno 1996, p. 3) and suppression costs have been rising since 1985 . These upward trends affect the economic and intangible values derived from our forests. At present, wildfires consume a greater volume of wood than is harvested or grown in forests in the Western U.S. (Audair and Bedford 1994). Fire suppression tends to be self-defeating, since it results in the accumulation of fuel load and fuel connectivity for the next fire (Audair and Bedford 1994; Pyne 1982, p. 31). Forests are going to burn; it is just a matter of time (Walstad et. al. 1990, p. 3). Some stand-replacing wildfires are beneficial to the forests (e.g., lodgepole pine) that have evolved under those conditions. Other stand-replacing wildfires are detrimental to forests (e.g., ponderosa pine). These forests have evolved with a completely different pattern of fire that was more frequent, but less intense. In these forested types, opportunities exist for active management including prescribed fire and/or restoration thinning to reduce wildfire hazard.

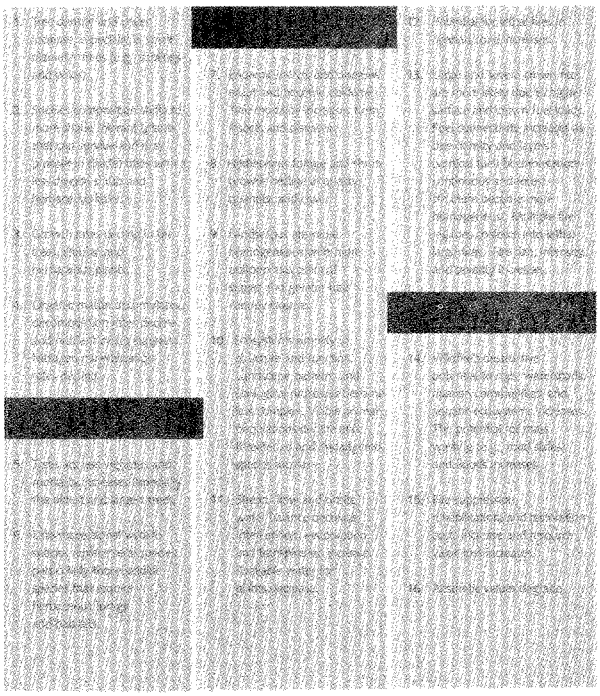
Fire Effects:

All ecosystems are dynamic. Species composition and structure change over time. This process of change whereby biotic communities replace one another and their physical environment changes over time is called succession (Kimmins 1987, p. 386). The product of succession, the sequence of plant, animal, and microbial communities that occupy a site at a given time, is called a sere (Kimmins 1987, p. 386). Seral stages are communities that occupy a point in time (Brewer 1994, p. 380). In theory, seral stages progress to some relatively stable community called a climax; however, the idea of a climax community is one of the most debated topics in ecology. Seral stages are described as either early or late, depending on the community and the point in time it occupies relative to the theoretical climax. Fire acts upon an individual seral stage, thereby affecting succession.

Soil

The effects of fire on soil vary with the properties and accumulations of the fuel, the type of soil, and the fire regime. Fire frequency, intensity, severity, and timing (e.g., the fire regime) are critical (McNabb and Cromack 1990; Pyne et al. 1996, p. 191). Fire recycles carbon and nutrients locked in the combusted organic material. Fire may affect soil structure, chemistry, infiltration, water storage capacity, and may lead to water repellence and erosion. These effects of fire are largely due to soil heating and the amount of organic material burned. If the soil organic material is consumed, fire can have a dramatic effect on physical properties, soil chemistry, water relations, microclimate, and the biological properties of the soil. If fire only removes

POSSIBLE CONSEQUENCES OF FIRE EXCLUSION (adapted from Weaver 1947; Heinselman 1978; Covington and Sackett 1984, 1986, 1990; White 1985; Steel et al. 1986; Barrett 1988; Keane et al. 1990; Mutch et. al. 1993; Covington and Moore 1994; Harvey 1994; Morgan 1994; Steele 1994):



the litter and does not disturb other organic layers, the overall effect is less severe. Water repellency can occur if the fire is intense and if the soils are dry and coarse (Pyne et al. 1996). However, soil heating is variable within and between fires and so are the effects (Wells et al. 1979; Agee 1993, pp. 152-166; Neuenschwander 1996; Pyne et al. 1996, pp. 191-196).

Fire increases the potential for erosion primarily through its effects on vegetation and soil (McNabb and Swanson 1990, p. 159). These effects depend on the fire's size (area of the watershed burned), its location (proximity to stream channels), the soil type, and the intensity and severity of the fire (Bechta 1990; McNabb and Swanson 1990, p.159; Agee 1993; pp. 167-174). Where water repellent soils are present, the erosion effects may be widespread. Rain interception, snow accumulation, snowmelt, the rate of infiltration, and water storage affect erosion potential.

Prescribed fires usually have minor effects on soils since their objectives are often to reduce surface fuels through a less intense and severe application of fire. One exception is burning large dense piles of slash over an extended period of time.

Water

Fire effects on water properties depend on the fire regime, the type of soil, climate, topography, and the type of water body (Wright and Bailey 1982, p. 24). Effects are highly variable. Pyne et al. (1996) describe physical (relating to the movement of water and sediments), chemical, (pertaining to the array of chemicals and nutrients released by the fire that enter waters), or biological (changes in the aquatic habitat) effects. Fire has a greater impact on smaller bodies of water (e.g. ponds, small lakes, and creeks) which have a lesser ability to moderate the heat from fire or dilute the physical and chemical effects of ash and eroded sediments (Minshall and Brock 1991, p. 125). However, creeks and rivers (flowing water systems) are more likely to be impacted than ponds and lakes (standing water systems) because they are generally subject to more exposure from runoff (Minshall and Brock 1991, p. 125). Direct stream effects are products of (1) increased water temperature due to the removal of shading vegetation, (2) channel scour due to the elimination of log debris, and (3) changing water runoff/sediment ratios due to increased overland flow and erosion (McMahon and deCalesta 1990; Pyne et al. 1996, p.197).

Aquatic biota

Fire can affect aquatic biota in a number of ways. For fish, sediment input following fires may reduce spawning habitat, smother eggs, prevent the emergence of fry (Cordone and Kelley 1961; Burns 1970; Cooper 1965, Phillips 1961), increase predation losses and reduce populations of preferred food including may, caddis, and stone flies (Moring 1975; Bjorn et al. 1977). Other impacts include increases in water temperature and the loss of large woody debris from stream channels (McMahon and deCalesta 1990, p.244). An increase in the incidence of fish disease is a common response to increased temperature (Fish and Rucker 1945). Invertebrate numbers may initially decrease and then gradually recover following fire (Minshall and Brock 1991, p. 129). When soils are moist, low intensity and severity prescribed fires combined with unburned buffer strips along streams should limit undesirable impacts upon aquatic habitat and fish populations (McMahon and deCalesta, 1990, p. 233).

Wildlife

Excluding tundra, wet coastal forests, and deserts, most wildlife habitat has some mix of vegetation that is likely adapted to fire (Peek 1986, p. 156). Fire affects animals both directly (smoke and heat) and indirectly (cover and forage). Direct effects of fire vary with the species' life history and mobility (Kimmins 1987, pp. 198 302). In general, most large vertebrates are rarely killed in fires and the effects on populations is minimal (Stoddard 1963; Phillips 1965; Vogl 1967; Bendell 1974 pp. 73-138; Vogl 1977; Wright and Bailey 1982, 49-71; McMahon and deCalesta 1990, p. 241; Pyne et al. 1996, p.190); however, high mortality can occur among small mammals (Chew et al. 1959) and immobile insects (Kimmins 1987, pp. 298-300). Carefully planned prescribed fires that consider size, season, location, intensity, and severity have a

minimal affect on mortality (McMahon and deCalesta, 1990, p. 242).

Indirect effects can either be short or long term, beneficial or detrimental, depending on fire intensity, size, frequency, and the particular animal in question (Peek 1986, p. 131). In the short term, fire may produce a sudden and drastic modification of habitat structure and microclimate (Wright and Bailey 1982, p. 49; Pyne et al. 1996, p.191), but in the long term, the landscape mosaic promotes diversity and population viability. Burned areas develop their own local microclimate that may affect wildlife in various ways. For example, blackened vegetation and soil may increase temperature and affect animal distribution (Pruitt 1959; Klein 1960), increased light and temperature may favor certain species while other species avoid the area (Gashwiler 1970; Hurst 1971; Beck and Vogl 1972), and humidity may also determine the local distribution of birds and mammals (Pruitt 1953; Henderson 1971). Cover may also be important for upland birds, waterfowl, and some nongame birds, and forage is crucial for native ungulates and other species (Peek 1986, p. 136). Fire killed trees (snags) and downed logs are essential to ecosystem structure and function. They provide habitat for a variety of species. Broken topped ponderosa pine, western larch, black cottonwood, aspen, and paper birch are all favored trees for nesting birds (McClelland et al. 1979). It is important to maintain a range of snag sizes in order to accommodate diverse species. Salvaging all large trees killed in wildfires or prescribed burns leads to the eventual loss of primary and secondary habitats for some cavity nesting birds (Thomas et al. 1979; Raphael and White 1984). Additionally, fire exclusion and the subsequent alteration of the fire regime is believed to be responsible for the listing of certain plants and animals under the Endangered Species Act (Fire Effects on Rare and Endangered Species and Habitats Proceedings 1995). Prescribed fire is a management tool used to increase the productivity of forage and cover species. It also promotes diversity among wildlife habitats on the landscape.

Air Quality

Both wildfires and prescribed fires produce smoke. Significant gasses produced include carbon dioxide (CO_2), carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NOx), and sulfur oxides (SOx). The quantity of smoke produced is a major economic, health, and safety concern in the western states (Bewysse 1994; Sandberg and Dost 1990; Grand Canyon Visibility Transport Commission 1996). Wildfires can substantially contribute to air pollution. One large wildfire may emit more smoke than all prescribed burns in state for an entire year (Sandberg and Dost 1990). Currently, prescribed fires may conflict with federal and state environmental laws when such fires degrade ambient air quality, impair visibility, or expose the public to unhealthy pollutants (Ottmar et al. 1995, p. 24). The ability to predict the amount of smoke produced by a prescribed fire and to compare prescribed fire versus wildfire smoke production may become key elements to successful prescribed fire programs.

The quantity of smoke produced depends on the vegetation cover type, structural stage, fuel type, and the intensity, severity, and size of the fire (Ward and Hardy 1991; Huff et al. 1995; Hardy In Press). With the upward trend in the intensity, severity, and size of wildfires, more smoke will continue to be produced (USDA Forest Service and USDI Bureau of Land Management 1994). Prescribed fires reduce the potential for wildfire severity (Biswell 1960; Sandberg and Dost 1990). They are generally lower in intensity, severity, and in total acres burned than wildfires. Prescribed fires can be designed to reduce total carbon emissions (Neuenschwander and Sampson, In press). Air regulatory agencies and the public must be informed about the tradeoffs between increased prescribed fire, inevitable wildfire, visibility impairment, and exposure to smoke before this issue can be resolved. Another benefit of prescribed fire is that burns can be planned to coincide with low pollution periods.

Fire Regimes:
In the West, fire has shaped ecosystems for millennia. Fire affects biodiversity, plant reproduction, vegetation structure and development, insect outbreak and disease cycles, wildlife habitat relationships, soil functions and nutrient cycling, gene flow and selection, and landscape dynamics. For humans, fire also has a variety of economic, recreational, and health costs and benefits associated with it. Most ecosystems below the subalpine zone have been highly influenced by and are adapted to recurrent fire (Wildland Resources Center Report No. 39 1996, p. 4.). Pristine forests were not undisturbed, but were subject to recurrent disturbances including fire, floods, drought, and windstorms (White 1979; Agee 1993, p. 1.; Forman 1995). For instance, the natural disturbance pattern that perpetuated precolonial oak forests are not fully understood, but fire seems to have been the common denominator in maintaining oak forests on upland sites (Healy et al 1997, p. 12). These types of disturbances are necessary to maintain ecosystem structure and functions that both create and support biodiversity (Morgan et al. 1994, p. 88). Many species are adapted not only to recurrent disturbance (Noble and Slatyer 1980), but also to particular disturbance regimes (Mutch, 1970; Morgan et al. 1994, p. 88). This includes a variety of pine communities (Wright 1974; Komarek 1967), chaparral (Biswell 1974), various shrublands, and grasslands (Wright and Bailey 1982).

The fire regime is a kind of guide for understanding fire's role and its effects in various ecosystems (Agee 1993). Fire regimes are used to characterize the features of historic fires found within an ecosystem type. Common elements used to describe fire regimes include frequency or return interval, severity, size, and pattern (Heinselman 1978; Kilgore 1978, 1985; Rykiel 1985; White and Pickett 1985; Covington and Moore 1994, pp. 155-157; Davis and Mutch 1994; Morgan et al. 1996, p. 3; Neuenschwander 1996; Pyne et al. 1996, pp. 173-180). These characteristics are influenced by climate, fire weather, vegetation, fuel type, topography, and ignition sources (Heinselman 1978; Clark 1988, 1990; Swetnam and Betancourt 1990; Agee 1993, pp. 8-19; Davis and Mutch 1994). Fire regimes are interpreted through the study of fire history. Fire ecologists use historical records, journal accounts, fire occurrence records, aerial photo analysis and interpretation, lake sediment analysis, tree-ring and increment core analysis, dating of fire scars, and inferences from stand age analysis to uncover an ecosystem's fire history (Pyne et al. 1996, p. 172). Fire history analysis determines the frequency of wildfires in a forest ecosystem over time (Arno 1980; Agee 1993, p. 12; Swetnam 1993; Davis and Mutch 1994; Johnson and Gutsell 1994; Pyne et al. 1996, pp. 171-180). This information forms the basis of the fire regime. Fire regimes do not describe the effects of all fires that occur within an ecosystem, but rather, the effects of the average fire for the ecosystem (Morgan et al. 1996, p. 3).

In addition, there are a number of human and non-human factors that can alter fire regimes. These factors are not necessarily acting independently of one another; instead, they often constitute elaborate feedback loops into one another and exhibit dynamic rate changes. For example, the introduction of the exotic species cheatgrass has altered the fire regime in some areas causing sagebrush, a native species, to decline (Pyne et al. 1996, p. 418). Additionally, regional climate affects fire regimes by altering fuel moisture content and the probability of lightning (Johnson et al. 1990). Fire exclusion in conjunction with human and non-human factors affect many, but not all, ecosystems. For some forested ecosystems, such as lodgepole pine and coastal Douglas-fir, fire exclusion has had a minimal effect. Affected ecosystems vary in the degree they have been altered. In 1995, Noss et al., described endangered ecosystems in the United States. They specified three categories of decline due to a change in structure. The categories were (1) critically endangered, >98% decline, (2) endangered, 85-98% decline, or (3) threatened, a 70-84% decline (Noss et al. 1995, p.51). Although most of the ecosystems identified by these researchers were in the Eastern U.S., they listed old-growth ponderosa forests in the Rocky Mountains, the Intermountain West and the eastside of the Cascade Mountains as endangered (Noss et al. 1995, p.51).

Unfortunately, some systems are very degraded

and may not recover (perhaps, western white pine and whitebark pine), while options still remain for others (ponderosa pine).

In some dry, mixed conifer forests, the objective may be to create more open stand structure. In dense stands, a silvicultural thinning treatment may be appropriate and necessary prior to fire reintegration (Biswell et al. 1973; Wright and Bailey 1982); however, this will not always be the case. In order to make these determinations, restoration goals need to be established. Fire history data will be invaluable to set goals and to help achieve them.

A recent report from the Sierra Nevada Ecosystem Project's science team summarizes comparisons between fire and silvicultural treatments as follows "Although silvicultural treatments can mimic the effects of structural patterns of woody vegetation, virtually no data exist on the ability to mimic ecological functions of natural fire" (Wildland Resources Center Report No. 39 1996, pp. 4-5). Where silvicultural treatments are required, we advocate a policy of thinning to protect large fire-resistant trees from a lethal wildfire by removing smaller trees below and around them, and burning the ground debris as necessary. With ponderosa pine, for example, the idea is to remove the ladder fuels and return the low intensity and severity fires, thus preventing high intensity and severity lethal wildfire. Wildfire is neither good nor evil and regardless of what we do, it will continue to have a role in nature. Prescribed fire can also play a role and begin to reintegrate fire into the landscape. Many of the potentially adverse effects traditionally associated with fire can be avoided by instituting carefully administered prescribed fire programs (Biswell 1989, pp. 199 227; Little 1990, p. 283). There are social (reduction in fire hazard, suppression costs, etc.) and ecological benefits (restoration of structure and function, habitat enhancement, etc.) from successful prescribed fire programs. Although the benefits from prescribed fire can be impressive, the most significant benefits of maintaining and/or restoring structure and function are generally delayed; only the costs are up front (Greenlee and Sapsis 1996).

Today we are at a crossroad. It is likely that without prescribed fire the trend towards larger, hotter, more expensive wildfires will continue. Prescribed fire is a possible alternative. Successful reintegration of fire into the landscape will require the commitment and cooperation of a lot of people. Ecologists and other scientists, natural resource managers, politicians, educators, and the public will be on the learning curve together.

Low intensity prescribed fire used to control fuel loading as part of an integrated forest management plan.

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POLICY & PROGRAM REVIEW

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