S. HRG. 108–10

SW FOREST HEALTH ACT; BENTONITE MINING IN WYOMING; PUEBLOS OF SANTA CLARA; AND MT. NAOMI WILDERNESS

HEARING

BEFORE THE

SUBCOMMITTEE ON
PUBLIC LANDS AND FORESTS

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

ON

S. 32 **S. 246**
S. 203 **S. 278**

FEBRUARY 27, 2003

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PETE V. DOMENICI and JEFF BINGAMAN are Ex Officio Members of the Subcommittee

CONTENTS

STATEMENTS

APPENDIXES

APPENDIX I

APPENDIX II

SW FOREST HEALTH ACT; BENTONITE MINING IN WYOMING; PUEBLOS OF SANTA CLARA; AND MT. NAOMI WILDERNESS

THURSDAY, FEBRUARY 27, 2003

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

The committee met, pursuant to notice, at 3 p.m., in room SD–366, Dirksen Senate Office Building, Hon. Larry E. Craig presiding.

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

Senator CRAIG. Good afternoon, everyone. The Subcommittee on Public Lands and Forests of the full Energy and Natural Resources Committee will be convened.

I want to thank each of and all of you for coming to the hearing today. As Senator Bingaman comes in, our ranking member; and as the chairman of the committee, Senator Domenici, comes in, I will certainly recognize them. They are hoping to attend.

I know that Senator Domenici is delayed at another meeting. We expect Senator Ron Wyden also to be here, who is my ranking on the subcommittee. We have worked closely together over the years on forestry issues and other public land resource issues and he has shown his intent to be here today.

This afternoon, we will receive testimony on a number of important bills. And I want to thank each of you for coming to testify today, especially those who traveled from out of their States here to your Nation's capitol.

I will be asking the chairman and the ranking member to give their statements as they come, and Senator Wyden, if he is able to make it.

Due to our late start—and there is the ranking member now—and the travel schedule of the governors, I want to ask each of you to keep your statements as short as possible. Governor Gutierrez of the Santa Clara Pueblo in New Mexico and Governor Gonzales of the San Ildefonso Pueblo in New Mexico are here to testify on S. 246, Senator Bingaman and Senator Domenici's bill to provide that certain Bureau of Land Management lands will be held in trust for the Pueblo of Santa Clara and the Pueblo of San Ildefonso in the State of New Mexico. Certainly, welcome to both of you.

I also want to recognize Dr. Wally Covington of Northern Arizona University, who is here today to testify on S. 32, Senator Kyl's bill to establish institutes to conduct research on the preservation and restoration of fire dependent forests and woodlands in the interior West.

We will also be examining two other important legislative proposals, including S. 203, Senator Enzi's bill to open certain withdrawn lands in the Big—in Big Horn County, Wyoming to—yes, there we go—to locatable mineral development for Bentonite Mining in S. 278.

Senator Bennett's bill to make adjustments to the boundaries of Mount Naomi Wilderness area. I have Senator Bennett's statement for the record. He, I believe, will be unable to attend. We will be accepting a certain—a number of statements on these bills that we will include in the record of other members.

Finally, it is good to see Jim Hughes, the Deputy Director at the Bureau of Land Management, and Jim Reaves, Director of Education Management and Protection Research, the U.S. Forest Service, are here today to provide our subcommittee with testimony on these bills on behalf of the administration. So welcome to all of you.

After opening statements, we will ask all of you to come to the table. I understand that some of the governors will need to leave early to catch flights, so we will attempt to expedite it so you do not miss those flights. We all understand how important that is, so, again welcome to all of you.

And before we open up for testimony and invite you to the table, let me turn to our ranking member, Senator Bingaman, for any opening comments he would have.

[The prepared statements of Senators Domenici, Smith, and Bennett follow:]

PREPARED STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator Craig, Thank you for allowing me to make this statement, I will limit my comments to S. 246.

I want to welcome both Governor Denny Gutierez, of the Santa Clara Pueblo, as well as Governor John Gonzales, of the San Ildefonso Pueblo. Thank you both for making the long trip to Washington, DC.

S. 246 is a bill to provide that certain Bureau of Land Management land shall be held in trust for the Pueblo of Santa Clara and the Pueblo of San Ildefonso in the State of New Mexico.

In 1988 the Bureau of Land Management declared approximately 4,484 acres located in the eastern foothills of the Jemez Mountains, including a portion of Garcia Canyon, to be "disposal property."

The Garcia Canyon surplus lands qualify for disposal partially because the track is an isolated piece of land almost inaccessible to the public.

It is bordered on three sides by the reservations of Santa Clara Pueblo and the Pueblo of San Ildefonso, and by U.S. Forest Service land on the remaining side. The only road access consists of unimproved roads through the two Pueblo's reservations.

I understand that currently there are no resource permits, leases, patents or claims affecting these lands; nor is it likely that any significant minerals exist within the Garcia Canyon transfer lands.

The Garcia Canyon surplus lands constitute an important part of the ancestral homelands of the Pueblos of Santa Clara and San Ildefonso.

Based upon these boundaries, about 2,000 acres of the Garcia Canyon surplus lands is within the aboriginal domain of the Pueblo of San Ildefonso. The remaining 2,484 acres are in Santa Clara's aboriginal lands.

The BLM and Interior Department for years have supported the transfer of the land, provided the Pueblos agree upon a division of the Garcia Canyon surplus lands.

In response, the two Pueblos signed a formal agreement affirming the boundary between the respective parcels on December 20, 2000.

The Pueblos of Santa Clara and San Ildefonso have worked diligently in arriving at this agreement.

They have garnered supporting resolutions from Los Alamos, Rio Arriba and Santa Fe Counties, and the National Congress of American Indians. They have also obtained supporting letters from the National Audubon Society's New Mexico State Office, the Quivira Coalition and the Santa Fe Group of the Sierra Club.

This unique situation presents a win-win opportunity to support more efficient management of public resources while restoring isolated tracts of federal disposal property to Tribal control.

We want to secure Congressional authorization to transfer control of these lands to the two Pueblos, with legal title being held in trust by the Secretary of the Interior for each of the Pueblos for their respective portions of the property.

I urge you to support this legislation.

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

Mr. Chairman, I appreciate your holding today's hearing on S. 32, introduced by Senator Kyl, which would establish research institutes to examine the prevention of wildfires and restoration of fire-affected ecosystems in the Interior West. I fully agree with the aims of this legislation, namely to reprioritize the roles of science, scientific application, and partnerships with universities in the broader discussion of forest health and rehabilitation.

The increasing success of appeals and litigation of fuels reduction and salvage operations lead us to believe that there is an imminent need for additional and more comprehensive scientific principles to defend active forest health management on public lands. In response to a domino series of such appeals in Oregon last year, Congressman Walden and I requested that the Oregon State College of Forestry and the Institute for Natural Resources develop a balanced and comprehensive report concerning the restoration of post-fire ecosystems. Since then, Dean Hal Salwasser has been working with his faculty, federal agencies, conservation groups and private forest land owners to respond to our request. Dean Salwasser recently prepared a detailed analysis outlining a work proposal, funding needs, and scope. I would ask that a copy of his proposal be entered into the record.

I look forward to working with Senator Kyl and my other colleagues on this Committee toward creating the scientific underpinnings needed to effectively implement the National Fire Plan and the Western Governor's Strategy.

PREPARED STATEMENT OF HON. ROBERT F. BENNETT, U.S. SENATOR FROM UTAH

I thank Chairman Craig, Senator Wyden and the Subcommittee on Public Lands and Forests for holding today's hearing on S. 278, the Mount Naomi Wilderness Boundary Adjustment Act. I appreciate the Senate moving forward with this important legislation so quickly. I also welcome the support of Representative Rob Bishop, who has introduced companion legislation in the House of Representatives.

The legislation the subcommittee will consider today will revise the boundaries of the Mount Naomi Wilderness in order to remove incompatabile uses from the wilderness area and to better reflect the topography of Mount Naomi.

Included in the Utah Wilderness Act of 1984, the Mount Naomi Wilderness is one of Utah's largest wilderness areas at over 44,000 acres. It is a very scenic area and contains some of the best examples of alpine terrain in the intermountain west. There are large populations of moose, elk, and deer. It is an area truly worthy of its designation.

Unfortunately, the boundaries were drawn in such a way as to have some unintended consequences. Running through the wilderness is a utility corridor, containing a major electricity transmission line. This power line serves the residents of Logan and the whole south end of Cache Valley. Because of restrictions in the Wilderness Act of 1964, maintaining and repairing the power line will be very difficult in the future.

Also impacted by Mount Naomi's boundaries is one of Utah's most popular hiking and mountain biking trails: the Bonneville Shoreline Trail. The Bonneville Shoreline Trail, when completed, will be over 250 miles in length. Starting in Nephi and heading north into Idaho, the trail will follow the shoreline of ancient Lake Bonne-

ville. The alignment of the trail is planned to go through a small part of the Mount Naomi Wilderness. While hikers and equestrian users would be permitted to use this section of the trail, mountain bikers would be prohibited under wilderness restrictions. The city of Logan has tried to work to change the alignment to adjacent private property to no avail.

This legislation would redraw the boundaries of the Mount Naomi Wilderness to allow for the power line to be accessed and properly maintained and would allow continuity in the use of Bonneville Shoreline Trail by all outdoor enthusiasts. The acreage of this wilderness area would not change, thirty-one current acres would be excluded and thirty-one new acres would be added. The newly added lands will be managed pursuant to the Utah Wilderness Act of 1984.

This legislation was originally offered in the 107th Congress by former Representative Hansen. It passed the House of Representatives but was never acted upon by the Senate. Because of the common interest in protecting this area from inconsistent uses and because of the need to properly maintain the transmission line, S. 278 has garnered the support of the city of Logan, Cache County, and the United States Forest Service. In light of the benefits provided by and community support for S. 278, I look forward to working with my Senate colleagues to pass this legislation this year.

Again, I thank Chairman Craig and Senator Wyden and the Subcommittee on Public Lands and Forests for holding today's hearing on the Mount Naomi Wilderness Boundary Adjustment Act.

STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

Senator BINGAMAN. Well, thank you very much, Mr. Chairman. Thank you for holding the hearing. I want to briefly speak about the two bills that are of particular interest to my State this afternoon—the people in my State.

S. 246, as you indicated, is a bill that Senator Domenici and I have co-sponsored. It is very important to the Pueblos of Santa Clara and San Ildefonso. I am very happy that the governors of those two pueblos are here to speak to us today, Governor Gonzales and Governor Gutierrez. And I look forward to hearing their views.

During the 107th Congress, we did pass this legislation, or essentially a bill identical to this legislation, through the Senate by unanimous consent. As far as I know, there is no opposition.

The Bureau of Land Management has worked with us in the development of this bill, and I think they believe this is an appropriate transfer, so I hope we can proceed on that. In my view, the pueblo has done a tremendous job of helping to craft this legislation.

The other bill I would mention is the one you mentioned that Senator Kyl has, S. 32. I know Dr. Covington is here to testify on that bill. It would establish three wildfire prevention research institutes in the Southwest. I think this is a very, very important initiative.

We have a very serious problem in our State as does Arizona and all of the Southwest, and, of course, your State as well, with the problem of wildfire. We need to deal with it in a more effective way than we have. I hope this initiative will help us to do that, so thank you very much for having the hearing.

Senator CRAIG. Well, thank you very much, Senator. Now, I would ask all the witnesses if you would please come to the table and take your places.

[Pause.]

Senator CRAIG. Usually out of courtesy, we offer the administration the opportunity to testify first. But today because of timing

and recognition of some folks needing to get to an airport, we are going to turn to our two governors first and ask them if they would proceed with their testimony on the legislation. And we will simply do it by order of your seating.

And so I would ask you, Governor Gutierrez, if you would start with your testimony please.

STATEMENT OF DENNY GUTIERREZ, GOVERNOR, SANTA CLARA PUEBLO, ESPANOLA, NM

Governor GUTIERREZ. Thank you.

Senator CRAIG. And pull the microphone up to you, and there should be a button on the face of it down on the stand to activate it. Thank you.

Governor GUTIERREZ. Honorable Chairman Craig and members of the subcommittee, good afternoon. I wish to thank you for holding this hearing on S. 246 and inviting Santa Clara Pueblo to testify. I ask that the full text of my written comments be entered into the record.

I am Denny Gutierrez, governor of the Pueblo. I have with me, Lieutenant Governor Edwin Tafoya, former Governor Gilbert Tafoya, Lance Monitor, Jeff Lyon, and tribal consultant Elvin Warren.

And the Clara Pueblo strongly supports S. 246 and greatly appreciates the efforts of Chairman Domenici and ranking member Bingaman to secure passage of this legislation.

I proudly represent the 2,500 members and residents of Santa Clara Pueblo, a federally recognized Indian tribe. We are situated in northern New Mexico on just over 51,000 acres of land in trust or restricted fee status, stretching from the Rio Grande Valley to the Jemez Mountains.

We have resided in this region since time immemorial. S. 246 will support more efficient management of public resources while restoring control of approximately 4,484 acres of isolated surplus Federal land to the Pueblos of Santa Clara and San Ildefonso.

I am happy to say that the proposed transfer enjoys wide and diverse public support. This includes the Department of the Interior, State BLM officials, the Governor of New Mexico, the counties of Santa Fe and Rio Arriba, in which these lands are located, and the neighboring county of Los Alamos, the National Congress of American Indians, the Sierra Club, the National Audubon Society, the Wilderness Society, and the Quivira Coalition. Copies of documents demonstrating this support have been submitted along with our written testimony.

Part of the reason for this overwhelming support is that in 1998—1988, the U.S. Bureau of Land Management determined that the lands at issue were difficult and uneconomic to manage as part of the public lands and decided to dispose of them. They reached this decision after extensive public consultation.

This land is isolated and almost inaccessible to the general public. It is surrounded on three sides by the reservations of Santa Clara Pueblo and the Pueblo of San Ildefonso, and by U.S. Forest Service lands on the remaining side.

The only road access consists of unimproved roads through the two pueblo reservations. These factors have resulted in minimal or no public usage of his land in recent decades.

It does not contain any significant public values or natural resources. Currently there are no resource permits, leases, patents, or claims affecting this land.

The Clara Pueblo continues to hold original title to about 2,484 acres of this land. Our ancestral boundaries are defined by geographical landmarks, cultural sites, and other distinct places where traditional Tewa-language names and locations have been passed down in our pueblo through the generations.

These lands continue to hold important cultural and natural resources for our pueblo. The proposed legislation contains provisions that protect any valid right of way lease, permit, mining claim, grazing permit, water right, or other right or interest of a person or entity other than the United States on these lands that is in existence before the date of enactment of this act. However, to our knowledge there are no present lease or permit holders within these lands.

Further, the legislation contains provisions to promote stewardship, conservation, as well as our traditional and customary uses of the property, which our pueblo include but not are limited to, hunting, livestock grazing, gathering and harvesting natural materials for personal and community use as well as to produce products for trade or sale, and cultural practices.

Finally, no new commercial developments will be allowed on these lands after transfer to the two pueblos. The return of these 2,484 acres to Santa Clara Pueblo will enable us to better control our resources in the area, protect our culture, and provide for our future generations.

In closing, I ask the subcommittee for favorable and expeditious consideration of S. 246 and welcome any questions you may have. Thank you.

[The prepared statement of Governor Gutierrez follows:]

PREPARED STATEMENT OF DENNY GUTIERREZ, GOVERNOR, SANTA CLARA PUEBLO, NEW MEXICO

Honorable Chairman Craig and members of the subcommittee, my name is Denny Gutierrez and I am the elected Governor of Santa Clara Pueblo, a federally recognized tribe located in northern New Mexico. It is an honor to appear before this Subcommittee today to discuss the reasons the Pueblo of Santa Clara strongly supports S. 246. The Pueblo thanks you, Mr. Chairman and Members of the Subcommittee for holding this hearing. We would also like to express our sincere appreciation to our senators, Chairman Pete Domenici and Ranking Member Jeff Bingaman, for their leadership in crafting and introducing this legislation to restore to our people an important part of our ancestral lands which are currently identified for disposal by the federal government. We also thank Representatives Tom Udall and Heather Wilson for sponsoring the companion legislation H.R. 507.

I am here today proudly representing the 2,500 members and residents of Santa Clara Pueblo. Santa Clara maintains both a traditional and constitutional form of government: our Constitution was adopted in 1935 pursuant to the Indian Reorganization Act. We are also the only Self-Governance tribe in New Mexico. We are situated about twenty-six miles north of Santa Fe. Annually we are fortunate to receive thousands of visitors from around the United States and the world who seek our traditional Blackware and Redware pottery. Until the devastating Cerro Grande Fire we welcomed tens of thousands of people to experience the breathtaking Puye Cliff Dwellings, our ancestral village that is also a National Historic Landmark.

For millennia the people of Santa Clara have known the Jemez Mountains as our home. Since about the 1300's our ancient community—which we call Kha P'o

Owingeh in our native Tewa language—has stood at the confluence of the Rio Grande River and a small river of great importance to us, the Santa Clara Creek. Our people have lived in the region for thousands of years. Prior to settling in this village, our ancestors occupied Puye and several other pueblos and cliff dwellings just nine miles to the west on the Pajarito Plateau that fans out east from the Jemez Mountains. The boundaries of our ancestral homeland are defined by geographical landmarks, cultural sites, and other distinct places whose traditional Tewa-language names and locations have been known and passed down in our Pueblo through the generations.

Currently, Santa Clara Pueblo holds just over 51,000 acres of our ancestral homeland; comprised principally of two patented Spanish land grants and an Executive Order Reservation created in 1905 by President Theodore Roosevelt. This land base stretches from an elevation of 5,540 feet in the Rio Grande Valley to 10,761 feet in the heights of the Jemez Mountains.

Unfortunately, Santa Clara Pueblo has suffered the loss of our ancestral lands located outside our reservation. S. 246 will partially address this loss by declaring that all right, title and interest of the United States in and to two separate but adjacent tracts of land in New Mexico currently identified for disposal by the Bureau of Land Management, totaling approximately 4,484 acres, shall be held by the United States, subject to valid existing rights, in trust for the federally-recognized Indian Pueblos of Santa Clara and San Ildefonso, respectively. These lands (hereinafter, "the Garcia Canyon surplus lands") are located in the eastern foothills of the Jemez Mountains in north central New Mexico, and include portions of Garcia and Chupadero Canyons. They are situated in Township 20 North, Ranges 7 and 8 East, N.M.P.M. We are attaching as Exhibit 1* a map showing the location of the Garcia Canyon surplus lands.

The proposed transfer enjoys widespread support in New Mexico and even from some national organizations. The Administration supports this legislation, Mr. Chairman, as is evidenced by a June 20, 2002 letter by U.S. Department of Interior Assistant Secretary Rebecca Watson [attached hereto as Exhibit 2]. Linda S.C. Rundell, the State Director of the U.S. Bureau of Land Management's New Mexico State Office provided a letter dated February 24, 2003, which expressed support for legislation transferring the Garcia Canyon surplus lands to our two Tribes [attached as Exhibit 3]. These followed a previous letter of support dated May 18, 2001 from Rich Whitley, the Associate State Director of the U.S. Bureau of Land Management New Mexico State Office [attached hereto as Exhibit 4].

The State of New Mexico also supports the transfer of these lands to our Pueblos, as evidenced by the letter from Governor Bill Richardson dated February 18, 2003 [attached hereto as Exhibit 5]. Rio Arriba County, in which 3/4 of the land is located, adopted Resolution 2002-15 on August 30, 2001 supporting the transfer of these lands to the two Pueblos [attached hereto as Exhibit 6]. The remaining 1/4 of the land is situated in Santa Fe County, who similarly adopted Resolution Number 2002-35 on March 27, 2002 in support of the proposed transfer [attached hereto as Exhibit 7]. The neighboring County of Los Alamos also approved a resolution, Number 02-03, supporting the land transfer [attached hereto as Exhibit 8].

In addition, the National Congress of American Indians, the oldest and largest national organization of American Indian and Alaska Native tribal governments, approved Resolution #SPO-01-083 supporting legislation to return the Garcia Canyon surplus lands to the two Pueblos [attached hereto as Exhibit 9]. In addition, we have received a letter of support dated April 11, 2002 from the Sierra Club, the National Audubon Society and the Quivira Coalition [attached hereto as Exhibit 10]. The Wilderness Society has also expressed its support for our efforts in a letter dated October 17, 2002 [attached hereto as Exhibit 11].

One reason for this widespread support is that in 1988 the Bureau of Land Management (hereinafter "B.L.M."), pursuant to the Federal Lands Policy and Management Act (43 U.S.C. 1707 et seq., hereinafter "F.L.P.M.A."), declared these 4,484 acres to be "disposal property." The Taos Resource Area Management Plan identified lands for disposal that it considered "scattered and isolated" and where the B.L.M. concluded that transferring these lands out of its control may help ". . . achieve more efficient management and utilization of public resources" (p. 2-11, 1-6). Further, these lands met the specific "disposal criteria" that include disposing of land that ". . . because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands." The designation of the Garcia Canyon surplus lands as disposal as part of the B.L.M.'s land use planning process involved extensive consultation with the public, permittees and lessees and relevant federal and state agencies.

*The exhibits have been retained in subcommittee files.

The Garcia Canyon surplus lands qualify for disposal partially because the tract is an isolated tract of land almost inaccessible to the general public. It is surrounded on three sides by the reservations of Santa Clara Pueblo and the Pueblo of San IIdefonso, and by U.S. Forest Service land on the remaining side. The only road access consists of unimproved roads through the two Pueblos' reservations. These factors have resulted in minimal or no public usage of the Garcia Canyon surplus lands in recent decades. They have also complicated proper supervision of the tract by the B.L.M.

The Garcia Canyon surplus lands do not contain any significant public values or natural resources. The tract is characterized by steep canyons and occasional flat mesas with pinon and juniper trees and sparse gramma grasslands coverage. While limited pumice mining occurred there during the 1960s it is unlikely that any significant minerals exist within the Garcia Canyon surplus lands. Currently there are no resource permits, leases, patents or claims affecting these lands.

The Garcia Canyon surplus lands contain a limited amount of poor quality forage for livestock, and have not been actively grazed for over fourteen years.Although the area was permitted for grazing after World War II to an absentee rancher, repeated droughts, lack of water sources and difficulty with maintaining trails to the mesa tops made grazing the area almost impossible, such that the allotment was frequently left ungrazed or undergrazed and never held more than 31 cows in one year. Finally, in December of 1989 the B.L.M. cancelled the grazing permit for non-use. We understand that the B.L.M. currently does not intend to issue a grazing permit for the Garcia Canyon surplus lands.

Yet to our Pueblo the Garcia Canyon surplus lands constitute an important part of our ancestral homelands. Based upon our traditional boundaries, approximately 2,484 acres of the Garcia Canyon surplus lands are Santa Clara's aboriginal lands. The remaining 2,000 acres is within the aboriginal domain of the Pueblo of San IIdefonso. Our two Pueblos retain "aboriginal" or "Indian title" to our respective portions of the Garcia Canyon surplus lands and through the proposed legislation are hoping to finally gain legal recognition of that title. Under American law, "aboriginal title" is the right of Indian tribes to their aboriginal lands. Good against all but the United States, aboriginal title may be extinguished only by Congress, and then only where Congress' intent to extinguish aboriginal title is "plain and unambiguous."

During the time of Spanish and Mexican administration, Santa Clara Pueblo was recognized as occupying and controlling a much greater area than is represented by our current landholdings, including the Garcia Canyon surplus lands. In 1763, New Mexico Governor Tomas Velez Gachupin further guaranteed Santa Clara Pueblo's exclusive ownership of the Santa Clara Canyon and surrounding lands totaling approximately 90,000 acres by issuing to Santa Clara the "Canada de Santa Clara" land grant. This well-documented Spanish land grant included the 2,484 acres of the Garcia Canyon surplus lands currently sought for transfer to Santa Clara Pueblo.

The United States acquired jurisdiction over this area by the 1848 Treaty of Guadalupe-Hidalgo, which required the government to respect the property rights of the inhabitants of the territory, including the Pueblos. For a number of reasons, including ignorance of Spanish land laws, failure to consider the actual land records in the possession of the archives of Nuevo Mexico and potentially fraudulent land transactions, however, the United States actually recognized only a small fraction of the lands subject to Pueblo ownership. In 1850 the United States' agent for Indian Affairs negotiated a treaty with the Pueblos promising that the United States would protect the Pueblos' ownership of property, but the Senate never ratified that treaty. In 1854 Congress created the office of the Surveyor General, who was instructed to determine the private property rights in New Mexico held pursuant to Spanish and Mexican law. The Surveyor General was instructed to rely on the documents in the Spanish and Mexican archives.

In the case of our Pueblo, this was not done. Santa Clara Pueblo received confirmation of the Santa Clara Pueblo Grant, totaling approximately 17,369 acres of land primarily in the Rio Grande Valley. In addition, the United States through its territorial officials acted to protect some of what it saw as Pueblo lands outside the Pueblo Grant. In 1852 U.S. Indian Office agents removed an American settler from the upper portions of the Santa Clara Canyon. In 1882 Santa Clara Pueblo petitioned the Surveyor General for confirmation of the "Canada de Santa Clara" grant, totaling about 90,000 acres, including the approximately 2,484 acre Santa Clara portion of the Garcia Canyon surplus lands. The Pueblo's petition was supported by Indian Agent Ben M. Thomas, New Mexico Surveyors General Clarence Pullen and George W. Julian, and A.J. Sparks, Commissioner of the General Land Office. However, for reasons that remain obscure, Congress never acted to confirm the grant.

In 1891, Congress created the Court of Private Land Claims to provide an alternative to the cumbersome and much abused process of congressional confirmation and patent. Santa Clara presented its claim for the Canada de Santa Clara Grant to the Court in 1892. Lacking the resources to fully prosecute the claim and facing procedural disadvantages, however, the Pueblo faced an uphill battle in the Court. Moreover, the Court relied on a compendium of Spanish and Mexican laws that was compiled by the lawyers working for the government. The government succeeded in defeating about 94% of the claims presented to the Court.

The record of the Santa Clara claim shows how aggressively the Court dealt with even meritorious claims. While the Court confirmed Santa Clara's title to the "Canada de Santa Clara" grant on September 29, 1894, it ignored the specific details of the grant boundaries as set forth in the grant document, disregarded controlling principles of Spanish land law, and accepted a highly restrictive survey of the grant. Thus, of the 90,000 acres presented for confirmation, the Court confirmed only 473 acres, in a narrow strip at the bottom of the canyon. Many assessments of the settlement of the Santa Clara's Canada Grant claim have found it to be unjust and potentially fraudulent, including a 1904 report by C.F. Nester, a U.S. Indian Inspector and various documents produced by the Congressionally-created Pueblo Lands Board.

Having been deprived of the bulk of its Spanish land grant by the Court of Private Land Claims, the Pueblo sought relief from Congress and the President of the United States. Those efforts were at least partially successful when, on July 29, 1905, President Theodore Roosevelt by Executive Order created the Santa Clara Reservation that included about 33,000 acres of the land within the original Canada de Santa Clara Grant. However, no part of the Garcia Canyon surplus lands was included in the Executive Order Reservation.

Santa Clara Pueblo brought action against the United States pursuant to the Indian Claims Commission Act (60 Stat. 1040, 25 U.S.C. 70, et seq.), Pueblo of Santa Clara v. United States, I.C.C. Dkt. No. 356. The I.C.C. had been created on August 13, 1946 specifically to rule on all Indian claims against the United States arising before the passage of the act. The Pueblo's purpose in petitioning the I.C.C. was to regain land they claimed and to utilize the I.C.C. proceedings to convince the Congress to assist with this restoration. However, the I.C.C. Act was later interpreted to provide only for monetary compensation and not for confirmation of title.

The Santa Clara claim was settled in 1988 in a manner that preserved Santa Clara Pueblo's aboriginal title to its ancestral lands in the Garcia Canyon surplus lands. That year, the Pueblo and the United States reached an agreement whereby the Pueblo agreed to accept monetary compensation for 5,309 acres of its aboriginal lands, and it dismissed its claims for compensation as to the remaining 26,230 acres of the claim. That disposition of the claim left the Pueblo's aboriginal title to the remaining lands, including the Santa Clara portion of the Garcia Canyon surplus lands, unextinguished.

Santa Clara Pueblo has continued to assert its claims to this land and has continued to use this land for a variety of economic and cultural purposes. The B.L.M. recognizes this fact, and states in its Taos Resource Area Management Plan that "[l]ands administered by the BLM . . . are contiguous with several Indian pueblos . . . [including] Santa Clara. . . . Much of the adjacent public land is traditionally used by these pueblos for wood gathering and religious purposes" (p. 2-14). Pueblo livestock grazed on the lands before the United States erroneously assumed jurisdiction over the land pursuant to the Taylor Grazing Act in the 1940's. Gathering of cultural materials by our Pueblo is ongoing. Finally, the Pueblo continue to care for cultural sites located within these lands as we have for centuries.

The current situation presents a unique opportunity to support more efficient management of public resources while restoring to tribal control isolated tracts of surplus federal land. The B.L.M. currently seeks to dispose of the Garcia Canyon surplus lands and Santa Clara Pueblo seeks to have these lands returned. In addition, the B.L.M. and Interior Department for years have supported the return of the land to Santa Clara Pueblo and San Ildefonso Pueblo, provided the Pueblos agree upon a division of the Garcia Canyon surplus lands. In response, the two Pueblos signed a formal agreement affirming the boundary between their respective parcels on December 20, 2000 [attached hereto as Exhibit 12].

Santa Clara Pueblo believes that federal legislation to restore these lands is warranted in this case because the Garcia Canyon surplus lands are identified for disposal by the federal government, there are no other parties interested in acquiring these lands, the two Pueblos maintain aboriginal title to these lands and control the only vehicular access and the B.L.M. supports the transfer of the lands to the two Pueblos. In addition, the proposed legislation contains provisions that protect any valid right-of-way, lease, permit, mining claim, grazing permit, water right, or other

right or interest of a person or entity (other than the United States) on these lands that is in existence before the date of enactment of this Act. However, to our knowledge there are no present lease or permit holders within these lands. Further, the legislation contains provisions to promote stewardship conservation as well as our traditional and customary uses of the property, which to our Pueblo include but are not limited to: hunting; livestock grazing; gathering and harvesting natural materials for personal and community use as well as to produce products for trade or sale; and cultural practices. Finally, no new commercial developments will be allowed on the Garcia Canyon disposal lands after transfer to the two Pueblos.

Above all, the return of these 2,484 acres to Santa Clara Pueblo will enable us to better control our resources in the area, protect our culture, and provide for our future generations. By owning and managing these lands, we will be able to prevent any use or development of these lands that might permanently damage these sensitive lands and their resources, upon which our community depends. We are deeply committed to maintaining these lands in a natural state and conserving them for their hydrological, ecological, and cultural values consistent with our traditional and customary uses. Santa Clara has a proven track record of protecting and managing the lands currently in our reservation.Finally, the transfer of these lands will demonstrate an effective policy with regards to working with Indian tribes and Pueblos to achieve both tribal self-governance and effective, cooperative protection of the environment.

In conclusion, we request that you favorably report this legislation and support its passage by the United States Senate this year. On behalf of the people of Santa Clara, I thank you, Mr. Chairman, and the members of the Subcommittee for the opportunity to testify on S. 246.

Senator CRAIG. Governor, thank you very much.

Now, let me turn to Governor Gonzales.

STATEMENT OF JOHN GONZALES, GOVERNOR, SAN ILDEFONSO PUEBLO, SANTA FE, NM

Governor GONZALES. Thank you, Mr. Craig, Mr. Bingaman. First of all, I would like to just on a personal note extend my welcome from—or my best wishes from my wife Carla Gonzales, who used to be known as Carla Hiagle, a member of the Nez Perce Nation to you, Mr. Craig.

Senator CRAIG. Yes. Give her my best, Governor.

Governor GONZALES. I will.

Senator CRAIG. Yes.

Governor GONZALES. I will. Thank you. And she lives in San Ildefonso Pueblo now, so she is going through cultural shock.

[Laughter.]

Governor GONZALES. Honorable Chairman Craig and the members of the subcommittee, good afternoon. I am John Gonzalez, the governor of San Ildefonso Pueblo. Thank you for holding this hearing on Senate S. 246, and inviting San Ildefonso to present to the subcommittee why the pueblo believes this bill is in the best interest of the United States and San Ildefonso and Santa Clara Pueblos. I ask that the first text of the written comments be entered into the record.

I have with me from San Ildefonso Pueblo, our first lieutenant governor, Timothy Martinez, if I could please recognize him.

Senator CRAIG. Certainly. Welcome.

Governor GONZALES. And Councilman Sean Hughes.

Senator CRAIG. Welcome.

Governor GONZALES. We want to thank Chairman Domenici and ranking member Bingaman on the pueblo's behalf for their sponsorship and additional efforts to secure passage of this legislation. Our pueblo certainly appreciates that support.

The lands between—excuse me. I do not want to cover what Senator—excuse me—Governor Gutierrez has covered, so I will skip over some parts of my testimony.

San Ildefonso Pueblo's tie to this part—to its part of the—this tract goes back to before recorded history. Before the arrival of the Europeans on this continent, the pueblo had exclusive use and responsibility for a much larger area of land.

We cared for the land and the land cared for us. Now, the United States recognizes our beneficial title to a much smaller area. Senate S. 246 will return a portion of the pueblo's heartland to it.

The procedures used for the creation of the national forest and the application of the Taylor Grazing Act to Federal lands may have legally changed the pueblo's relationship to these lands as a matter of Federal law, but these Federal acts could not change the fundamental nature of the pueblo's tie to the lands within the pueblo's world view.

S. 246 contains limits on how the pueblo can use the land to be placed into trust for its benefit. The legislation gives back to the pueblo its ability to actively manage the land for conservation purposes, as well as continued traditional and customary uses.

It does not permit new commercial development on the land. These limits are consistent with the pueblo's own view of its responsibilities to the land.

On behalf of my pueblo, I ask the subcommittee and the Congress to—for favorable consideration of S. 246, and make myself available to any questions you may have about S. 246. Thank you very much.

Senator CRAIG. Governor, thank you very much.

[The prepared statement of Governor Gonzales follows:]

PREPARED STATEMENT OF JOHN GONZALES, GOVERNOR, SAN ILDEFONSO PUEBLO, NEW MEXICO

Honorable Chairman Craig and Members of the of the Subcommittee, I am John Gonzales, Governor of the Pueblo of San Ildefonso and I appear before you today to testify in favor of Senate Bill 246 (S. 246).

PURPOSE

The purpose of this proposed legislation is to declare that all right, title and interest of the United States in and to separate tracts of land in New Mexico currently identified for disposal by the Bureau of Land Management totaling approximately 2,000 acres and 2,484 acres shall be held by the United States, subject to valid existing rights, in trust for the federally-recognized Indian Pueblos of San Ildefonso and Santa Clara, respectively.

SUPPORT FOR THE PROPOSED LEGISLATION

This legislation is supported by the U.S. Department of the Interior, though the Assistant Secretary of the Interior for Land and Minerals Management, and the New Mexico Director of the United States Bureau of Land Management. The New Mexico Counties of Rio Arriba and Santa Fe, where the Garcia Canyon lands are located, and the nearby County of Los Alamos support this legislation because it is most likely to provide better management of the Garcia Canyon lands. In addition, the likelihood of better management of these lands has garnered the support of the Sierra Club, the Audubon Society and, the Wilderness Society and the Quivera Coalition. Copies of these support documents have been provided to our Senators, and can be provided to the Committee upon request.

BACKGROUND

In 1988 the Bureau of Land Management (hereinafter "B.L.M."), pursuant to the Federal Lands Policy and Management Act (43 U.S.C. 1707 et seq., hereinafter

"F.L.P.M.A.") declared certain lands in Township 20 North, Ranges 7 and 8 East, N.M.P.M. to be "disposal property". These 4,484 acres (hereinafter, "the surplus lands" or "Garcia Canyon tract") are located in the eastern foothills of the Jemez Mountains in the northern part of New Mexico. The surplus lands comprise one tract, enclosing 4,484 acres in the eastern Garcia Canyon and Chupaderos Canyon area (hereinafter "the Garcia Canyon tract"). A map depicting the location of the surplus lands and the division between the Pueblos of San Ildefonso and Santa Clara is attached.

The B.L.M. Taos Resource Area Management Plan, dated October 1988 ("Plan"), states that the surplus lands were identified for disposal ". . . through the Bureau's land use planning process . . . [and] must meet the criteria established in Sections 203 and 209 of FLPMA" (Plan, p. 2-15). These lands met the specific "disposal criteria" applicable where the land, ". . . because of its location or other characteristics, is difficult and uneconomic to manage as part of the public lands." The Taos Resource Area Management Plan identified lands for disposal that it considered "scattered and isolated" and where the B.L.M. concluded that transferring these lands out of its control may help ". . . achieve more efficient management and utilization of public resources" (Plan, p. 2-11, 1-6). The B.L.M.'s land use planning process designating the surplus lands "for disposal" involved extensive consultation with the public, permittees and lessees and relevant federal and state agencies.

The surplus lands qualify for disposal because they are isolated tracts of land virtually inaccessible to the general public. The surplus lands are surrounded on three sides by the reservations of Santa Clara Pueblo and the Pueblo of San Ildefonso with U.S. Forest Service land on the remaining side. Due to this, the only road access to the surplus lands consists of unimproved roads through the two Pueblos' reservations. Altogether, due to these factors there has been minimal or no public usage of the surplus lands in recent decades, and these factors create complications for proper supervision by the B.L.M.

Further, the surplus lands do not contain any significant public values or natural resources. Steep canyons and occasional flat mesas covered with pinon, juniper trees and a sparse gramma grasslands coverage make up most of the tract. While limited pumice mining occurred during the 1960s, it is unlikely that any significant minerals exist within the surplus lands. Currently there are no resource permits, leases, patents or claims involving this tract.

The surplus lands contain a limited amount and quality of forage for livestock but have not been actively grazed for over a decade. After World War II livestock grazed on these lands under a permit held by an absentee owner, C. Earle Miller of Downington, Pennsylvania. B.L.M.'s file at the Taos Field Office shows that this area was difficult to graze due to repeated droughts, lack of water sources on the mesa tops, difficulty with maintaining trails to the mesa tops, and limits on use of lower parts of the tract in the absence of good precipitation, a rare occurrence in the desert southwest. In an attempt to ensure the parcel was grazed, in 1970 Mr. Miller informed the B.L.M. that he wanted to lease his permit to Abel Sanchez, the Governor of San Ildefonso Pueblo. The B.L.M. discouraged this lease and it was not completed.

Two years later the B.L.M. threatened to cancel Mr. Miller's permit after three consecutive years of non-use. The Pueblo of San Ildefonso continued to be involved in Mr. Miller's cattle operations, and in fact managed those operations under contract during the mid-1970s. After this arrangement ended, the allotment was frequently left ungrazed or undergrazed and never held more than 31 cows in one year. Finally, in December of 1989 the B.L.M. notified Mr. Miller that it was canceling his permit because he "did not meet the mandatory qualifications of actively grazing on public land in conjunction with a livestock business." The Millers continued to have a good relationship with the Pueblo of San Ildefonso and in their Will bequeathed their five-acre property adjacent to the Garcia Canyon tract to the Pueblo of San Ildefonso. The B.L.M. currently does not intend to issue a grazing permit for the Garcia Canyon tract.

ANCESTRAL PUEBLO TIES TO THE LAND

The Pueblos of Santa Clara and San Ildefonso have long-standing ties to the surplus lands. These lands are important parts of their ancestral homelands which they have used and occupied since time immemorial.

These Pueblos are two of the Tewa-speaking federally-recognized Indian Pueblos of New Mexico. Both Pueblos have occupied and controlled the areas where they are presently located since many centuries before the arrival of the first Europeans in the area in 1540. From time immemorial, the two Pueblos have used and possessed their ancestral homelands in the Jemez Mountains, Pajanto Plateau, and Rio

Grande Valley. The boundaries of these homelands are defined by geographical landmarks, cultural sites, and other distinct places whose traditional Tewa names and locations have been known and passed down in each Pueblo through the generations. Federal Bureau of Ethnology Studies done in the early 1900s documented these traditional Tewa names and which Pueblo was associated with a particular landmark. HARRINGTON, *The Ethnogeography of the Tewa Indians,* 29th Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1907-1908. Based upon these boundaries, about 2,000 acres of the Garcia Canyon tract is within the aboriginal domain of the Pueblo of San Ildefonso and the remaining 2,484 acres, more or less, of the Garcia Canyon tract are in Santa Clara Pueblo's ancestral homeland.

Spanish and Mexican governments recognized these Pueblos as occupying and controlling a much greater area than their current land holdings. The rights of Indians to their traditional lands was emphasized in the *Recopilacion de leyes de los Re vnos de las Indias* of 1680, a condensation of some 100,000 royal pronouncements on Indian affairs after 1492. Through these laws, the Pueblos and tribes retained possession of the lands belonging to them. Pueblos were also entitled to additional lands if needed and Pueblo holdings were protected from encroachment by Spanish settlers and livestock. San Ildefonso Pueblo's western lands were the setting of one of the most thoroughly documented lawsuits brought by the Spanish crown's representative during the colonial period. The "Protector of the Indies" prevailed over several persons seeking to take over these lands. The records of this lawsuit have survived as part of the Spanish Archives of New Mexico (SANM).

Accordingly, both Pueblos retained their aboriginal ownership and use of the surplus lands throughout the Spanish and Mexican periods as a matter of Spanish and Mexican law. In addition, in 1763 New Mexico Governor Tomas Velez Cachupin further guaranteed Santa Clara Pueblo's exclusive ownership of the Santa Clara Canyon and surrounding lands totaling approximately 90,000 acres by issuing the Pueblo the "Canada de Santa Clara" land grant. This well-documented Spanish land grant included the 2,484 acres of the Garcia Canyon tract.

The United States acquired jurisdiction over the area pursuant in 1848, but to date has recognized less than one-half of the Pueblos' original land bases. The failure to recognize the true extent of the Pueblos' lands was the result of many factors, including ignorance of Spanish land laws, failure to consider the actual land records in the possession of the archives of New Mexico and potentially fraudulent land transactions.

Pursuant to the Treaty of Guadalupe-Hidalgo (as put into effect by the *Surveyor General Act of July, 22, 1854,* Ch. 103, 10 Stat. 308), the United States was obligated to protect the Pueblos' rights to these lands and the cultural resources on these lands. *See State of New Mexico v. Aamodt,* 618 F.Supp. 993 (D.N.M. 1985). Specifically, property rights were not affected by the change in sovereignty and jurisdiction (*Tameling v. U.S. Freehold & Emigration Co.,* 93 U.S. 644 (1876)). In 1850 the United States' Indian Agent, James S. Calhoun, entered into an agreement with the each Pueblos promising that the United States would protect the Pueblos' ownership of property. This agreement was never ratified by the Congress of the United States. In 1854 Congress gave the Surveyor General instructions on determining the property in New Mexico held pursuant to Spanish and Mexican law. The Surveyor General was instructed to rely on the documents in the Spanish and Mexican archives.

In the case of the Pueblo of San Ildefonso, this was not done. The lands now referred to as the San Ildefonso Pueblo Grant were recognized and the Pueblo was given a patent to the grant lands, but not other lands within the Pueblo's aboriginal boundary, including lands west of the San Ildefonso Pueblo Grant, even though the Pueblo's ownership was clearly recorded in the Archives. Small areas were returned to the Pueblo in the twentieth century. In 1905 the Federal Jemez Forest Reserve was created, but the Garcia Canyon lands were not included within that Reserve. Congress explicitly recognized and reserved for the Pueblo's use a small area in 1929, located directly west of the present San Ildefonso Grant, but it did not include the Garcia Canyon lands. In 1949 Congress recognized San Ildefonso's Sacred Area reservation, southwest of the grant, approximately one-fifth of the lands the United States acquired for the Pueblo in the 1930s. At one time the United States contemplated granting the Pueblo of San Ildefonso grazing leases for the Garcia Canyon Lands in exchange for the failure to recognize all of the Pueblo's sacred area. The Bureau of Indian Affairs' Pueblo Agency rejected this suggestion because allowing the Pueblo to use its own land was not giving them anything in exchange for the other lands.

The Pueblos of San Ildefonso and Santa Clara have continued to assert their claims to this land and have continued to use this land for a variety of economic

and cultural purposes. The B.L.M. recognizes this fact, and states in its Taos Resource Area Management Plan that "[l]ands administered by the BLM . . . are contiguous with several Indian Pueblos . . . [including] Santa Clara [and] San Ildefonso. . . . Much of the adjacent public land is traditionally used by these Pueblos for wood gathering and religious purposes" (p. 2-14). Pueblo livestock grazed on the lands before the United States erroneously assumed jurisdiction over the land pursuant to the Taylor Grazing Act in the 1940's. Gathering of cultural materials by the two Pueblos is on-going. Finally, the Pueblos continue to care for cultural sites located within these lands as they have for centuries.

PROPOSED TRANSFER

The current situation presents a unique opportunity to support more efficient management of public resources while restoring to tribal control isolated tracts of surplus federal land. The B.L.M. currently seeks to dispose of the surplus lands and the Pueblos of Santa Clara and San Ildefonso seek to have these lands returned. In addition, the B.L.M. and Interior Department for years have supported the return of the land to the two Pueblos, provided the Pueblos agreed upon a division of the Garcia Canyon parcel. In response, the two Pueblos signed a formal agreement affirming the boundary on December 20, 2000.It reads:

AGREEMENT TO AFFIRM BOUNDARY BETWEEN PUEBLO OF SANTA CLARA AND PUEBLO OF SAN ILDEFONSO ABORIGINAL LANDS WITHIN GARCIA CANYON TRACT

This Agreement is entered into this 20th day of December, 2000, by and between the Pueblo of San Ildefonso, a federally recognized Indian tribe, and the Pueblo of Santa Clara, a federally recognized Indian tribe (hereinafter collectively referred to as the "two Pueblos").

RECITALS

WHEREAS, the two Pueblo each claim and possess unextinguished aboriginal title to a portion of the lands within a tract of land presently administered by the United States Bureau of Land Management (hereinafter referred to as the "Bureau of Land Management"), consisting of approximately 4,484 acres, situated within Sections 22, 23, 24, 25, 26, 27, 34 and 35, T.20 N., R. 7 E., and Sections 19 and 30, T. 20 N., R. 8 E., NMPM, which tract is enclosed by the heavy blue line on the map attached hereto as Exhibit A (and which tract is hereinafter referred to as the "Garcia Canyon Tract"); and

WHEREAS, the Bureau of Land Management has designated the Garcia Canyon Tract as surplus land, available for disposal, and officials of the Bureau of Land management now support restoration of the Garcia Canyon Tract to the two Pueblos, subject to a clear definition by the two Pueblos of the location of the boundary between their respective aboriginal areas; and

WHEREAS, the two Pueblos agree as to the location of the boundary line through the Garcia Canyon Tract between their respective aboriginal title areas, and wish to enter into this Agreement so as to clearly affirm this agreement and to establish a means for locating the boundary on the ground so that these lands may be restored to the two Pueblos.

NOW THEREFORE, the two Pueblos hereby agree as follows:

1. The red line shown on the map attached hereto as Exhibit A, through the Garcia Canyon Tract, accurately depicts the boundary between the two Pueblos' respective aboriginal title areas within the Garcia Canyon Tract, at the scale of that map.

2. The lands to the north of the red line within the Garcia Canyon Tract, which are designated on Exhibit A as "Tract A", consisting of approximately fifty-five percent (55%) of the total acreage of the Garcia Canyon Tract, are agreed to be lands subject to unextinguished aboriginal title of the Pueblo of Santa Clara, and the Pueblo of San Ildefonso hereby and forever disclaims any right, title or interest in or to the lands within Tract A.

3. The lands to the south of the red line within the Garcia Canyon Tract, which are designated on Exhibit A as "Tract B" consisting of approximately forty-five percent (45%) of the total acreage of the Garcia Canyon Tract, are agreed to be land subject to the unextinguished aboriginal title of the Pueblo of San Ildefonso, and the Pueblo of Santa Clara hereby and forever disclaims any right, title or interest in or to the lands contained within Tract B.

4. The following procedures will be used for establishment of the boundary line between Tract A and Tract B on the ground:

A. Each Pueblo shall designate a land specialist and such other staff or officials as the Pueblo deems appropriate to represent that Pueblo in locating the line on the ground (which persons are collectively referred to hereinafter as the "Pueblo Representatives").

B. The Pueblo Representatives shall meet and travel to the Garcia Canyon Tract, utilizing such equipment as they deem appropriate, properly calibrated so as to yield equivalent results for the representatives of each Pueblo, so as to establish on the ground the angle points of the red line shown on Exhibit A, in such a manner that a line joining the points established by them divides the Garcia Canyon Tract in accordance with the provisions of this Agreement.

5. Once the Pueblo Representatives have agreed that the angle points of the boundary line are located on the ground such that a line joining those points divides the Garcia Canyon Tract between the two Pueblos as provided in this Agreement, they shall take care to mark each such point on the ground precisely and prominently, physically and with agreed upon GPS coordinates, and shall prepare a written description of the line utilizing such coordinates, the distances from one point to the next, and a description of the physical monumentation, which description shall be signed by the governor of each Pueblo and attached to the original of this Agreement as Exhibit B.

6. The Pueblo Representatives shall then transmit the description of the line as arrived at, by the procedures set forth herein, to the Office of Cadastral Survey of the Bureau of Land Management, U.S. Department of the Interior (hereinafter referred to as "Cadastral Survey") for performance of the official survey. The two Pueblos agree to authorize the Cadastral Survey to make any necessary minimal corrections to the line and the monuments—wit the assistance and concurrence of the Pueblo Representatives—so that the final surveyed boundary line accurately reflects the proportionate acreage described in this agreement. The two Pueblos agree that the establishment of a line on the ground, by the Cadastral Survey, that joins the angle points established by the Pueblo Representatives as set forth herein, shall be and constitute the agreed upon boundary line between the two Pueblos' aboriginal title areas through the Garcia Canyon Tract for all purposes.

7. The two Pueblos agree to work cooperatively so as to obtain expeditious transfer of the lands within the Garcia Canyon Tract into trust for the two Pueblos respectively, such that Tract A would beheld in trust by the United States for the exclusive use and benefit of the Pueblo of Santa Clara, and Tract B would be held in trust by the United States for the exclusive use and benefit of the Pueblo of San Ildefonso, either by administrative or by congressional action.

8. Once the Garcia Canyon Tract lands have been placed in trust for the two Pueblos, respectively, in accordance with the provisions of this Agreement, the two Pueblos agree that they will undertake to construct a suitable fence along the boundary line as established herein and will equally share the cost of the materials and labor for such fence.

9. Nothing herein shall be deemed to have any effect whatsoever on any aboriginal title claims of either of the two Pueblos with respect to lands outside of the Garcia Canyon Tract.

10. In the event of any dispute arising between the two Pueblos with respect to the matters set forth herein, the two Pueblos agree that their respective governors and lieutenant governors shall meet in an effort to resolve the dispute. In the event that such efforts are not successful, after a reasonable period of time, the two Pueblos agree that they will request assistance of the Federal Mediation Service to resolve the matters in dispute.

PUEBLO OF SANTA CLARA	PUEBLO OF SAN ILDEFONSO
s/Denny Gutierrez, Governor	s/Perry Martinez, Governor
12/20/00	12/20/00

Since the agreement was signed, representatives from each Pueblo worked together to establish the boundary on the ground, thereby allowing for survey of each tract.

CONCLUSION

S. 246 is not a give-away of public lands. It is proposed legislation that recognizes that transfer of one tract each to the United States Secretary of the Interior for the benefit of San Ildefonso and Santa Clara Pueblos, with the Pueblos given responsibility and stewardship of these lands. This is in the public interest because it proposes the best use of these lands.

San Ildefonso Pueblo believes that federal legislation is justified in this case because the surplus lands are identified for disposal by the federal government, there are no other parties interested in acquiring these lands, the two Pueblos maintain aboriginal title to these lands and control the only vehicular access and the B.L.M. supports the transfer of the lands to the two Pueblos. The proposed legislation contains provisions that ensure that no private property rights are adversely affected and there are no present permit holders within these lands. Furthermore, the legis-

lation contains limits on how these tracts can be used by the Pueblos. Commercial development is prohibited once the land is transferred to the Secretary for the benefit of the Pueblos. The lands will be managed to preserve cultural and traditional uses.

Senator CRAIG. What I am going to do now for sake of time—Jim, you have testimony specific to this legislation, do you not?

Mr. HUGHES. That is correct.

Senator CRAIG. But the Forest Service does not. Okay.

Why do you not give us your testimony specific to this? Then we will ask Senator Bingaman if he has any questions. And then I would suggest to both of you governors you are free to leave if you need to. At that point, I have got a couple of questions or you might wait. Senator Domenici does plan to be here, but then again if you—if you are running up against time that you would miss an airplane, we will understand that and you are free to leave.

So, Jim, why do you not proceed? Jim Hughes, Deputy Director of the Bureau of Land Management, Department of the Interior. And just, if you would, be specific to this legislation only. Thank you.

STATEMENT OF JIM HUGHES, DEPUTY DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR

Mr. HUGHES. Mr. Chairman, Senator Bingaman, we thank you for the opportunity to comment on this bill today.

Senator CRAIG. Is your mike on, Jim?

Mr. HUGHES. Hello?

Senator CRAIG. There you go. Thank you.

Mr. HUGHES. The Department generally supports S. 246, but believes the subcommittee should consider some minor modifications to the bill.

The BLM has identified approximately 4,480 acres described in the legislation as available for disposal and believes the adjacent pueblos of Santa Clara and San Ildefonso would be appropriate holders of this land. S. 246 divides the parcel by conveying approximately 2,480 acres of BLM land to the Pueblo of Santa Clara and about 2,000 acres to the Pueblo of San Ildefonso.

The Department is concerned, however, that while S. 246 would be convey the land that is the subject of a land claim, the bill does not settle any future claims for these lands managed by the BLM.

S. 246 should be modified to include a provision for the Pueblo San Ildefonso to relinquish any claim under docket number 354 in the U.S. Court of Federal Claims, and a provision to waive any future claims by the Pueblo of Santa Clara regarding these lands. And I know some people have read that a different way, but we are just talking about the 4,000—as I understand it, the 4,480 acres in the bill. I know there are some other lands that may be involved in those claims. This would provide finality to long-standing land claims on this parcel.

Mr. Chairman, the Department looks forward to working with the committee on these bills. Thank you for the opportunity to testify before you today. I would be pleased to answer any questions that you have or other members have.

Senator CRAIG. Jim, thank you very much.

[The prepared statement of Mr. Hughes follows:]

PREPARED STATEMENT OF JIM HUGHES, DEPUTY DIRECTOR, BUREAU OF LAND MANAGEMENT

Mr. Chairman, and members of the Subcommittee, thank you for the opportunity to appear here today to discuss S. 203, a bill to open certain withdrawn lands in Big Horn County, Wyoming, to locatable mineral development for bentonite mining and S. 246, a bill to provide that certain Bureau of Land Management land be held in trust for the Pueblo of Santa Clara and the Pueblo of San Ildefonso in the State of New Mexico. The Department of the Interior generally supports the intent of S. 203, but has some concerns about how the bill would be implemented. The Department generally supports S. 246, but would like to work with the Subcommittee to make some modifications.

S. 203

Executive Order 7491 of November 14, 1936, withdrew over 3,500 acres of public land in Big Horn County, Wyoming, from settlement, location, sale or entry, and reserved the lands for use by the War Department as a target range. These lands remain withdrawn and reserved under the jurisdiction of the Secretary of the Army for target range purposes, and are currently used by the Wyoming Army National Guard. The most recent review and rejustification of this withdrawal occurred in May 1984 and concluded that mining operations could not be allowed in the area because of the concerns with small arms training. S. 203 would open approximately 40 acres of this withdrawn land for bentonite mining.

The BLM has no objection to the mining of bentonite on this parcel, however, the BLM is concerned about some ambiguity in S. 203, in its current form. As written, it is not clear whether the lands will be opened to bentonite location under the 1872 Mining Law, which would require BLM to record and regulate the location of the claims. Secondly, it is unclear whether the actual mining of the bentonite will be managed by the Secretary of the Army or the BLM as the bill does not appear to return the lands to the public domain by revoking the withdrawal. We would also prefer to draw a more narrow exception for this parcel than the broad sufficiency language the bill currently provides.

Bentonite may either be a "locatable mineral" under the 1872 Mining Law or valued as a "common variety mineral" and salable under the Materials Act of 1947. The Department of the Interior recommends that language in S. 203 be modified to direct the BLM to use the authority of the Materials Act of 1947 to allow for a competitive sale of the bentonite on this parcel. The BLM currently has the authority to sell common variety bentonite off the parcel with the consent of the Department of Army, and subject to their operations. It is our understanding, however, that the bentonite on this 40 acre parcel may be of a locatable nature. Location and discovery of a valuable mineral under the 1872 Mining Law allows the claimant the right to apply for patent of the lands. While there remains in force a legislative moratorium on the issue of patents for surface lands, a locatable claim could create a future property interest in minerals that could conflict with the Department of the Army's ability to use the land. Therefore, we could not support this bill if it allows the minerals on the site to be mined in a way that would complicate any future military use of the land.

Should the withdrawal be modified or revoked, and the lands placed under BLM management by this bill, it is important that an examination of the use of the proposed withdrawn lands be completed before a decision can be made to open them to bentonite mining. Without additional statutory direction, if the proposed use is acceptable , an amendment to the existing resource management plan would need to be completed and the 40 acres of withdrawn lands placed back into the public domain. Subject to any existing 1872 Mining Law claims, the BLM might need to complete a process of opening the land in an equitable manner to all claimants.

S. 246

The Department of the Interior generally supports S. 246, but believes the Committee should consider modifications to the bill. The BLM has identified the approximately 4,480 acres described in the legislation as available for disposal. The BLM agrees that the adjacent Pueblos of Santa Clara and San Ildefonso would be appropriate holders of the land.

The two Pueblos have a long-standing interest in acquiring this parcel. The parcel is bordered on the north by the Santa Clara Pueblo, on the south by the San Ildefonso Pueblo, and on the west by National Forest lands claimed as aboriginal holdings by the two tribes. In 1988, the BLM's Taos Resource Management Plan identified the parcel as difficult and uneconomical to manage and determined it

suitable for disposal. Currently there are no known resource permits, leases, patents or claims affecting these lands.

S. 246 would divide the parcel by conveying approximately 2,480 acres of BLM land to the Pueblo of Santa Clara and about 2,000 acres to the Pueblo of San Ildefonso. Again, the BLM believes the Pueblos would be appropriate owners of the land, and would support placing them in trust to be used for traditional and customary uses, or to be used for stewardship conservation for the benefit of the Pueblos. The Department is concerned however, while this legislation would convey land that is currently or has recently been the subject of a land claim, the bill does not settle any future claims for lands managed by the BLM. The bill should be modified to include a provision for the Pueblo of San Ildefonso to relinquish any claim under Docket No. 354 in the United States Court of Federal Claims and a separate provision to waive any future claims by the Pueblo of Santa Clara with regard to these lands. This would provide finality to long standing land claims.

Mr. Chairman, the Department looks forward to working with the Committee on these bills. Thank you for the opportunity to testify before you today. I would be pleased to answer any questions that you or the other members may have.

Senator CRAIG. Now, let me turn to Senator Bingaman for any questions he might have.

Senator BINGAMAN. Yes. Thank you very much, Mr. Chairman. Let me ask Mr. Hughes, I am trying to understand this suggestion, which is new in—as I do not recall this being discussed in the last Congress when we did this bill.

Mr. HUGHES. Correct, right.

Senator BINGAMAN. But the suggestion is that we should require the Pueblo of San Ildefonso to relinquish any claim to this 4,400 acres, is it?

Mr. HUGHES. That is my understanding.

Senator BINGAMAN. Under docket number 354, in the Court of Claims.

Mr. HUGHES. Yes.

Senator BINGAMAN. Now, is this land that is part of what is being transferred?

Mr. HUGHES. Yes.

Senator BINGAMAN. It is for——

Mr. HUGHES. Yes.

Senator BINGAMAN. So why would—I mean if we are transferring this to the Pueblo, sir.

Mr. HUGHES. They are not receiving all 4,480 acres, sir.

Senator BINGAMAN. Oh, so there is some land that is not the subject of this——

Mr. HUGHES. That is my understanding. That is what the Justice Department has indicated.

Senator BINGAMAN [continuing]. Legislation that they are being asked to essentially disclaim any right to.

Mr. HUGHES. Some of the land goes to the other Pueblo that I think may be involved in this—their claim.

Senator BINGAMAN. Oh, so it is that San Ildefonso is being asked to give up a claim for land that is being transferred to Santa Clara, is that what is happening?

Mr. HUGHES. That is—the Justice position, we were made aware of this this morning. And Justice says they want to work with us and the committee to make sure, you know, that this is all resolved.

Senator BINGAMAN. Yes. I am not very well prepared to ask you questions about this because, as I say, I just heard about it. Let me ask both governors to give us their views as to this, if you are

clearer as to what it is the BLM is suggesting here, and if so, if you have a view on it.

Governor GONZALES. Mr. Bingaman and Mr. Craig, the suggested modification is strongly opposed by San Ildefonso Pueblo. The legislation—the bill as proposed adequately addresses all the issues that are involved in this particular transfer to include any reference to anything else other than this particular parcel interferes with other matters that—and other negotiations that we have been involved in—we at San Ildefonso Pueblo has been involved in, so—and to avoid confusing the issue here, I would rather that we just perhaps maybe not refer to docket 354 or any other part of the—of San Ildefonso land claims, because all it does is confuse the issue.

The only thing that we are here to talk about is this particular tract of 4,484 acres of BLM legislation that everybody is supportive of. There is no record or no indication of anybody opposing this from any entity whatsoever. So to include any modification would—as I indicated would confuse the issue here.

Senator BINGAMAN. Governor Gutierrez, did you have a point of view here?

Governor GUTIERREZ. I am on the same side as Governor Gonzales. He clearly states on the bill that this acreage that is identified in this bill is what we are looking at, nothing more.

We are not relating to any other properties that might be out there in our original lands, so this is the only parcel of land that we are speaking to at this time, the 4,480-some acres that is mentioned in this bill.

Senator BINGAMAN. Okay. Let me just clarify here once again with Mr. Hughes. My understanding is that the Assistant Secretary Rebecca Watson and State Director, Linda Rundell, have both written letters to the pueblos expressing support for the transfer of land that we are talking about in this bill.

As far as I know, this is the first time this has been raised.

Mr. HUGHES. I believe that is correct, Senator.

Senator BINGAMAN. Okay. So this is a new position that we are hearing about?

Mr. HUGHES. Yes. And I think it can be worked out. I think what the issue the Justice Department is trying to raise is they want to make sure this land is clear of all claims, you know, when it is transferred to the pueblos, and that it is off—it is not involved in any future action.

Now, as I say, Justice informed—well, the Justice Department in discussions asked us, you know, they handle the Indian claims issues and so I am sure we can work this out to the satisfaction of everybody and with the understanding of everybody.

Senator BINGAMAN. Okay. Did you have another comment, Governor Gonzales?

Governor GONZALES. Mr. Craig and Mr. Bingaman, the legislation as it currently reads does address the issue, what Mr. Hughes is raising in regard to the claims to this particular property. And it does adequately address that, so that is why we are suggesting that there be no modification to this bill whatsoever.

Senator BINGAMAN. And is that your position, as well, as I understand it, Governor Gutierrez?

Governor GUTIERREZ. Yes. That is correct. On the legislative bill, it clearly states how this agreement came about between the two pueblos in coming forth in drafting up this legislation on that piece of property.

Senator BINGAMAN. Okay. Well, I think we will have to get to the bottom of this, Mr. Chairman, and try to figure out the basis for this in order to understand where it comes out. Thank you very much.

Senator CRAIG. Well, thank you, Senator Bingaman. I concur with you. We will work with all parties here to see if we cannot resolve this to everybody's satisfaction to make sure that once this land is transferred, it is done so in appropriate fashion for both of the pueblos.

Again, governors, thank you very much. You can remain at the table, if you wish. Senator Domenici, I still believe, plans to be here and may have questions of you.

Governor GONZALES. Could you just extend our regrets that we could not——

Senator CRAIG. Well, of course, if you have got to leave, we clearly understand.

Governor GONZALES. Please—thank you.

Senator CRAIG. Catching a plane in a snowstorm is—has high priority especially snow in Washington, D.C., yes.

Governor GUTIERREZ. We want to get out before the storm hits.

Senator CRAIG. Good plan.

Governor GUTIERREZ. And once again I want to thank you.

Senator CRAIG. Thank you both very much. Jim, let us go ahead and proceed with your full testimony now, if you would, on all of the bills and then we will move to you, Jim, and work our way—Jim and Jim, and work our way down the table to Dr. Covington. Please proceed, Jim.

Mr. HUGHES. We are also here to discuss S. 203, a bill to open certain withdrawn lands in the Horn County, Wyoming, to locatable mineral development for bentonite mining.

The BLM has no objection to the mining of bentonite on this parcel, however BLM does have some concerns with S. 203 in its current form. As written, we need some clarification whether the lands will be opened to bentonite location under the 1872 mining law, which would require BLM to record and regulate the locations of claims.

Secondly, it is unclear whether the actual mining of bentonite will be managed by the Secretary of Army or the BLM, as the bill does not appear to return the lands to the public domain by revoking the withdrawal.

On both of these issues I have talked to staff. I think it can be worked out with some direction to us, a little clearer direction.

We could not support the bill, however, if it allows minerals on the site to be mined in a way that would complicate future military use of the land. The Department therefore recommends that S. 203 be modified to direct the BLM to use the authority of the Materials Act of 1947 to allow for the competitive sale of the bentonite on this parcel.

Again, on this bill we want to work with the committee to find a way to get it done. We also, you know, listen closely to what the Defense Department has to say regarding future use of this land.

Senator CRAIG. Super. Jim, thank you very much. We have just been joined by Senator Kyl.

Jon, why do we not allow Jim Reaves to go ahead and then just before Dr. Covington starts his testimony, if you have any opening comments specific to the institutes, we will approach it that way. Fine.

Then let me turn to Jim Reaves, Director of Vegetation Management and Protection Research, U.S. Forest Service, U.S. Department of Agriculture. Jim, welcome.

STATEMENT OF JIM REAVES, DIRECTOR, VEGETATION MANAGEMENT AND PROTECTION RESEARCH, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. REAVES. Thank you. Mr. Chairman and members of the subcommittee, thank you for this opportunity to appear before you today. I am Jim Reaves, Director of Vegetation Management and Protection Research. With me today is David Cleaves, the National Program Leader for Fire Systems Research.

I would like to present the administration's views on S. 32, the Southwest Forest Health and Wildfire Prevention Act of 2003, and S. 278, the Mount Naomi Wilderness Boundary Act.

I am also glad to see Dr. Covington here today. He is a renowned expert on ecological restoration. I am glad to be here with him.

S. 32 would establish three institutes in the interior West that would promote the use of adaptive ecosystem management to reduce the risk of wildfires and improve the health of forests and woodland ecosystems. We support the intent of S. 32 to institutionalize research on adaptive management processes and ensure that sound science research products reach and are utilized by land managers in the field.

We have some concerns regarding how the bill is currently drafted and would like to work with the sponsors on modifications to the bill. We commend Senator Kyl and the other sponsors of the bill for recognizing the importance of research needs in this particular area.

During 2002 fire season, nearly 73,000 fires burned 7.2 million acres and damaged or destroyed 3,000 structures. While most of this fire damage was in the West, the potential for significant property losses and resource impacts from wildland fire degradation of forest health occurs in many other parts of the country. The issue and problems of fire and fire fuel managements are truly national in scope.

Forests where fire has been excluded are also at increased risk from insect, disease infestation and invasives, and can experience significant shifts in composition away from the most desirable tree species for wood products or wildlife.

Congress recognized the need for scientific information and tools to support fuel and fire management programs by establishing the Joint Fire Sciences Program in 1998 and provided funds for the national fire plan in 2001.

Research conducted under both the Joint Fire Sciences Program and the National Fire Plan addresses national and regional priorities and receives national level oversight to ensure coordination, applicability of products and accountability.

Since its inception, the Joint Fire Sciences Program has partnered with 45 universities and funded 178 research projects in 43 States, Puerto Rico, and the District of Columbia. Similarly, the National Fire Plan funds supports research in all 50 States, including 329 cooperative studies with 56 universities, non-government organizations, and private sector partners across the country. More than one-third of the National Fire Plan in the first 2 years of the program has been invested with universities and partners.

We agree that many problems need to be addressed on a regional basis, as outlined in S. 32. We also believe that the scarcity of funding for fire research relative to the problem demands a national perspective and national oversight. In particular, the measure appears to create an expectation that affected agencies will be required to provide allocations to the centers without regard to overall budgetary constraints and lead to a further diluting of scare fire research funding.

We think that S. 32 should not only address problems of fire in the interior West, but also address this issue nationwide. There are several changes we would like to recommend and we would like to share with—I will share only a few with you today.

The Senate should participate in meeting the national needs on complex problems and permit the Departments latitude in the identification of optimal locations for establishment of the centers created under this bill; ensure accountability through ongoing monitoring and periodic evaluation of funded activities; build on existing fire research and technology transfer capacity to avoid unnecessary duplication of efforts. We would like to work with the subcommittee as it further considers S. 32.

[The prepared statement of Mr. Reaves follows:]

PREPARED STATEMENT OF JIM REAVES, DIRECTOR, VEGETATION MANAGEMENT & PROTECTION RESEARCH, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. Chairman and members of the subcommittee, thank you for the opportunity to appear before you today. I am Jim Reaves, Director, Vegetation Management & Protection Research. With me today is David Cleaves, National Program Leader for Fire Systems Research. I would like to present the Administration's views on S. 32 the Southwest Forest Health and Wildfire Prevention Act of 2003 and S. 278 the Mount Naomi Wilderness Boundary Adjustment Act.

S. 32 THE SOUTHWEST FOREST HEALTH AND WILDFIRE PREVENTION ACT OF 2003

S. 32 would establish three institutes in the interior West that would promote the use of adaptive ecosystem management to reduce the risk of wildfires and improve the health of forest and woodland ecosystems. We support the intent of S. 32 to institutionalize research on adaptive management processes and ensure that sound scientific research products reach, and are utilized by, land managers in the field. We have some concerns regarding how the bill is currently drafted and would like to work with the sponsors on modifications to the bill. We commend Senator Kyl and the other sponsors of this bill for recognizing the importance of research needs in this area.

A trend that has become increasingly apparent during the last few years is that wildland fires, especially in the West, are becoming larger and burning hotter. These fires are increasingly more difficult to control and cause much more environmental damage. During the 2002 fire season nearly 73,000 fires burned 7.2 million acres and damaged or destroyed 3,000 structures. While most of this fire damage

was in the West, the potential for significant property losses and resource impacts from wildland fire and degradation of forest health occurs in many other areas of the country. The issues and problems of fire and fuel management are truly national in scope.

In addition to the direct damage caused by wildfires, harmful non-indigenous plant species such as cheatgrass invade burned over areas, predispose them to even greater fire risk, and threaten healthy ecosystems and biological diversity. Forests where fire has been excluded are also at increased risk from insect and disease infestations; and can experience significant shifts in composition away from the most desirable tree species for wood products or wildlife.

We agree with S. 32 that meeting these challenges effectively and efficiently requires a solid foundation in scientific knowledge and the ability to rapidly convert new scientific insights into technology and tools. We also agree that more research attention should be given to fire and forest health, not only in the interior West, but also throughout the US.

CURRENT FIRE RESEARCH

Congress recognized the need for scientific information and tools to support fuel and fire management programs and established the Joint Fire Science Program (JFSP) in 1998. The JFSP is a partnership of six federal wildland management and research organizations represented by a 10-member Governing Board that oversees and manages the program. Since its inception the JFSP has partnered with 45 universities and funded 178 research projects in 43 states, Puerto Rico, and the District of Columbia.

Beginning in 2001, additional research funds were made available through the National Fire Plan. National Fire Plan research, led by 78 research teams in the Forest Service regional research stations addresses firefighting, fuels management, restoration and rehabilitation, and community preparedness to directly support the goals of the Ten-Year Comprehensive Fire Strategy. The NFP-funded research teams support research in all 50 states, including 329 cooperative studies with 56 universities, non-government organizations, and private sector partners across the country. In addition to university partnerships, both the JFSP and the NFP are working with State and local agencies, not-for-profit groups such as Tall Timbers Research Station and The Nature Conservancy, as well as several for-profit companies. More than one third of the NFP funding in the first two years of the program has been invested with universities and other partners.

Research conducted under both the JFSP and the NFP addresses national and regional priorities and receives national level oversight to ensure coordination and applicability of products. Funds are allocated competitively with the involvement of fire managers and other users in the determination of needs and the selection of projects. Accountability is assured through annual progress and accomplishment reports. The strength of the two programs is their ability to design their research with the help of managers in the agencies and to deliver research results and tools through established training programs and other mechanisms.

S. 32 focuses on the problem of fire research in a portion of the interior West. However, wildland fire risks and forest health concerns are national in scale and growing in size and complexity. We agree that many problems need to be addressed on a regional basis. We also believe that the scarcity of funding for fire research relative to the problem demands a national perspective and national oversight. In particular, the measure appears to create an expectation that affected agencies will be required to provide allocations to the centers without regard to overall budgetary constraints, and lead to a further diluting of scarce fire research funding. Oversight and coordination are necessary to assure that critical diversity of scientific talent and critical funding masses be directed at problems for the protection of all regions and minimize disruptions to other ongoing research endeavors.

RECOMMENDATIONS

We think S. 32 should not only address the problem of fire in the interior West, but also address this issue nationwide. This approach would enhance existing collaborative efforts to investigate and develop management tools that would enable public and private land managers to manage fires and prevent the spread of invasive species throughout the Nation.

Some changes we recommend for S. 32 include:

- Clarify the definition of adaptive management and the scope of work of the centers relating to forest and rangeland ecosystems research;
- Ensure that research comports with criteria related to quality, relevance and performance;

- Participate in meeting national needs on complex problems and permit the Departments latitude in the identification of the optimal locations for the establishment of the centers created under this bill;
- Provide federal research and land manager oversight of the program, including setting of priorities and direction, to lead to selection of projects and products that are awarded on a merit-based, competitive, and peer reviewed process;
- Ensure accountability through ongoing monitoring and periodic evaluation of funded activities;
- Build on existing fire research and technology transfer capacity to avoid unnecessary duplication of efforts and resources;
- Improve coordination of existing federal, state, university, and private research capacity, and establish non-federal cost-share requirements; and
- Utilize and improve existing authorities for centers of excellence such as Cooperative Ecosystem Studies Unit program and the granting programs of the Cooperative States Research, Education, and Extension Service.

We would like to work with the Subcommittee as it further considers S. 32.

S. 278 MOUNT NAOMI WILDERNESS BOUNDARY ADJUSTMENT ACT

The Department supports S. 278, a bill that would adjust the boundary of the Mount Naomi Wilderness in the Wasatch-Cache National Forest in Utah. We believe the boundary adjustment will create a higher level of wilderness value by improving the area's solitude, scenery, and pristine qualities. We supported similar legislation that was considered during the 107th Congress.

The boundary adjustment would exclude approximately 31 acres of land currently part of the Mount Naomi Wilderness and, subject to with valid existing rights, would add 31 acres to the wilderness area. The bill also requires the Secretary to manage the 31 additional acres pursuant to the Utah Wilderness Act of 1984 (Public Law 98-428).

This adjustment would allow for the alignment of the Bonneville Shoreline trail, which is a multi-county recreational trail. The trail is designed predominately for heavy non-motorized use, which does not conform to use as a wilderness trail. The boundary adjustment would also eliminate the need for a power line easement within the wilderness area, which is also a non-conforming use.

This concludes my statement and we look forward to working with the Subcommittee. I would be happy to answer any questions you may have.

Senator CRAIG. Jim, thank you very much for that testimony.

Now, let me turn to Senator Kyl, the primary sponsor of S. 32 for any comments and opening comments you would like to make and then we will turn to Dr. Covington for his testimony.

STATEMENT OF HON. JON KYL, U.S. SENATOR FROM ARIZONA

Senator KYL. Thank you, Mr. Chairman. I will just be very brief, because having an expert like Dr. Covington here—I appreciate the comments just made as well about his expertise—is an opportunity for us. And so we do not need to regurgitate what we think we have learned from the likes of Dr. Covington.

Let me just say that in all of the years that I have been in the Senate, one of my priorities has been the restoration of forest health, because I have learned from Dr. Covington why that is necessary, how it can be done, and I have tried very hard to find ways to advance the goal. This legislation is but one of the pieces of that puzzle to enable us to continue the fine research that he has been engaged in and expand that to other States and regions in the general area as well.

So that is the reason for the legislation, and I assure my friends from the Department of Agriculture, does not take anything away from the research and planning that they do, the funding would be in addition to, and so we are not going to try to compete for scare resources.

I think it is a real good bang for the small amount of bucks that would be involved in it, and would generate the kind of ideas that have now pretty much become accepted around the West as the way to try to restore our forests to their health.

So that is the genesis of the legislation and you have, I think, already introduced Dr. Covington or provided his qualifications, and so I will not go into that again. But it is a real delight to have him here.

It is always educational for me to visit his sites, his research sites, and I try to get other people to do that. The Secretary of the Interior was up, for example, going to the site. We had, I think, the rainy day of the summer, so maybe we will have to come back in order to get a little bit more rain.

But I have also taken advantage of Dr. Covington's presence here to try to set up some other meetings today and tomorrow with other members who can come to appreciate what he has to offer. And we will be doing that too.

Thank you very much for holding this meeting, Mr. Chairman. I appreciate it very, very much.

Senator CRAIG. Senator Kyl, thank you very much.

Dr. Covington, any of us who have spent time with forestry issues, forest health issues in the Senate and with this subcommittee, have in part become a disciple of your effort and the work you have done. And certainly Senator Kyl has been a loud and most appropriate advocate of it, so we are pleased you are before the subcommittee today and we appreciate your testimony. Please proceed.

STATEMENT OF DR. W. WALLACE COVINGTON, REGENTS' PROFESSOR AND DIRECTOR OF THE ECOLOGICAL RESTORATION INSTITUTE, NORTHERN ARIZONA UNIVERSITY

Dr. COVINGTON. Thank you very much, Senator Craig and members of the subcommittee. I really appreciate this opportunity to testify on behalf of this bill. My name is Wally Covington. I am Regent's Professor of Forest Ecology at Northern Arizona University and Director and Founder of the Ecological Restoration Institute in Arizona.

I have with me two additional people. I have Diane Volsik, who is associate director of the institute, and Jim Gauz, who is a professor at the University of New Mexico. And Jim was actually my major professor when I was a graduate student at the University of New Mexico, so we go back almost 30 years in these endeavors.

I will testify that we need to design and apply science-based treatments immediately and at very large scales that simultaneously reduce the threat of wildfire and restore forest ecosystem health.

I will further testify that conventional structures that we now have in place do not supply the kind of support that managers and local community groups need to design these treatments and get them on the ground.

And finally, that the proposed institutes are essential in providing that kind of support so we can get on with the business of restoring forest health before we have additional half million acres fires, and the likely event that we will lose firefighter lives, but civilian lives, if the trends continue unabated.

I do not need to tell you that the increase in fire size, frequency and severity has long been predicted and it is frightening. It is staggering what is occurring now.

The intersection of drought, especially in the Southwestern United States, the dead—with the dead trees caused by these unprecedented bark beetle outbreaks is causing fuels to accumulate at the landscape scale, which will result in years of catastrophic fire behavior.

The scale and quality and pace of our efforts to prevent these kinds of calamities is wholly unacceptable. It is unconscionable that we are allowing this to continue. We have to move forward with treatments on a scale at least of the Hayman fire, the Rodeo/Chediski fire of last season, on the scale of 100,000- to 500,000-acre treatment. And we must begin immediately.

We cannot wait for conventional research to answer questions that need to be answered. And instead what we have to do is work in—as Jim Reaves was saying—work in an adaptive management approach collaboratively learning while doing.

The institutes are needed for a variety of reasons. One is that we need—instead of conventional—our conventional kind of vulcanized support for these, we need to have comprehensive integrated support. We need support that brings researchers together to answer the questions that need to be answered so we can design the treatments to synthesize the information that we now have available through years of Forest Service Research and university research.

We need to couple that with aggressive knowledge transfer, transfer of knowledge directly to the people that are trying to design and implement these treatments. And then finally, we need researchers and managers working hand-in-hand with community-based groups to make these treatments a reality on the ground.

This gap in support that now exists can be resolved by these restoration institutes. We have proven this to be the case in Arizona. It has been very effective in working in getting 600,000 acres planned, 150,000 acres treated at a time that other entities are working on the scale of a few hundred acres.

The institutes will work not in competition with conventional Forest Service research or university research, but rather be complementary with them. It is not that we will do different research, but what we are suggesting is an integration of practitioners, researchers, and community oriented folks in the institutes themselves. This is what we have in Arizona, and this is what has been very effective. And I think it is about time to wrap up here, so I will do that quickly.

First, you know, I just in sum say that much good research is being done and has been done. However, the conventional research and technology organizations alone are not adequate. We need something unconventional, something new, a different approach to do this.

University institutes have a great deal of latitude, and they have the needed creativity and adaptability to work with the local groups that need to get this done. This is not to say that we do not need the national focus that is looking at the big problems. But that alone is inadequate.

We need local support to develop local solutions to local problems. And that concludes my formal remarks. Thank you very much.

[The prepared statement of Dr. Covington follows:]

PREPARED STATEMENT OF DR. W. WALLACE COVINGTON, REGENTS' PROFESSOR AND DIRECTOR OF THE ECOLOGICAL RESTORATION INSTITUTE, NORTHERN ARIZONA UNIVERSITY

Chairman Craig, and members of the Subcommittee, thank you for this opportunity to testify on a subject of personal importance to me and of critical importance to the health of our nation's forests and the people and communities that live within them.

My name is Wallace Covington. I am Regents' Professor of Forest Ecology at Northern Arizona University and Director of the Ecological Restoration Institute. I have been a professor teaching and researching fire ecology and restoration management at NAU since 1975. I am a member of the National Commission on Science for Sustainable Forestry, the Society of American Foresters, the Society for Ecological Restoration, and other professional organizations dedicated to science based conservation of natural resources.

I have a Ph.D. in forest ecosystem analysis from Yale University and an M.S. in ecology from the University of New Mexico. Over the past 27 years I have taught graduate and undergraduate courses in research methods, ecological restoration, ecosystem management, fire ecology and management, forest management, range management, wildlife management, watershed management, recreation management, park and wildland management, and forest operations research. I have been working in long-term research on fire ecology and management in ponderosa pine and related ecosystems since I moved to Northern Arizona University in 1975. In addition to my publications on forest restoration I have co-authored scientific papers on a broad variety of topics in forest ecology and resource management including research on fire effects, prescribed burning, thinning, operations research, silviculture, range management, wildlife effects, multiresource management, forest ecosystem health, and natural resource conservation.

My testimony will focus on the need to establish fire and forest ecosystem health restoration institutes in Arizona, New Mexico, and Colorado and how these institutes will make major contributions to reducing the threat of unnatural wildfire in the dry forest types of the West.

In summary, I will demonstrate that:

1. To provide a long-term, comprehensive solution to the unnatural wildfire and forest ecosystem health crisis we need to design and apply science-based treatments that simultaneously reduce the threat of wildfire by treating the cause of the crisis—degraded forest ecosystem health.
2. A gap exists between getting what we know into the hands of land managers, communities and other stakeholders that influence treatment design.
3. The proposed institutes, with a clearly defined mission of producing and providing relevant science for land managers, are essential to restoring forests and reducing the risk of unnatural crown fire.

BACKGROUND

The increase in fire size, frequency and severity in ponderosa pine ecosystems over the last 10 years is staggering. In 1994 I was senior author on a review paper that stated that we could anticipate accelerating forest ecosystem health problems including exponential increases in the severity and extent of catastrophic fires. I also predicted that there was a 15 30 year window of opportunity to avoid the disaster by restoring forests. Despite the fact that I had predicted recent fire size and severity, the fire seasons and huge unnatural fires of 2000 and 2002 have me shocked me to the core. Clearly time has run out for our dry forests.

The intersection of the drought in the Southwest with dead trees caused by bark beetles, and steadily increasing fuels is setting the stage for another disastrous fire season, and many more to come. The fire behavior exhibited by the Biscuit, Rodeo/Chediski, Viveash, Hayman, and Cerro Grande fires make suppression efforts exceptionally challenging and demonstrates that there are limits to our ability to fight them. The fuels and extreme fire behavior in combination with the ongoing expansion of home sites in wildlands threaten civilian and firefighter lives, property, and sustainability of the nation's natural resources.

The scale and rate of our efforts to reduce fire risk in the West are inadequate to solve the problem. Equally disconcerting is that in some cases treatments provide

only short-term protection because they are not designed to address the underlying problem of forest ecosystem health. Observations from the Rodeo/Chediski and Hayman fires suggests that extreme fire behavior was reduced when the fires hit thinned and burned areas. Unfortunately, the treatments were too small to stop these fires. Treating 100 to 500-acre units is hardly a solution to fires at the scale of 50,000 to 500,000 acres in size.

We must begin now to implement large-scale, comprehensive forest ecosystem health restoration treatments that provide adequate, long-term protection to our forests. To do this effectively the treatments must be informed by good science that lead to effective treatments. However, many of the land managers, community members and other stakeholders lack the scientific information in a form useful for project planning, implementation and monitoring. It is the goal of this legislation to fill this gap.

WHY THE INSTITUTES ARE NEEDED

1. To provide a long-term, comprehensive solution to the unnatural wildfire and forest ecosystem health crisis we need to design and apply well supported science-based treatments that simultaneously reduce the threat of wildfire by treating the cause of the crisis—degraded forest ecosystems.

I would like to begin by clarifying that when I use "restoration treatments" I mean management actions in an intact forest that are a cure for declining ecosystem health and unnatural crown fire. By restoration treatments I do not mean just fuel treatment I mean comprehensive restoration of forest health. Restoration is also distinct from "rehabilitation" that describes management actions after a fire has severely burned an area. I believe the bulk of our efforts today should emphasize fighting fires before they occur by treating forests, not closing the barn door after the horses are out. In my opinion, once a ponderosa pine forest has burned severely we have failed.

There is abundant scientific research that began in the 1890's and continues today that provides a sound scientific framework for implementing the science and practice of restoration. However, most of that research is not in a form readily accessible to practitioners, policy makers and concerned citizens. We have solid information about forest conditions prior to Euro-American settlement, changes in fire regimes over the last century, deterioration of overall ecosystem health, and ecological responses to thinning and prescribed burning the key elements of any attempt to restore ecosystem health in ponderosa pine and related ecosystems. We know that current overcrowded stands of trees do not sustain the diversity of wildlife and plants that existed a century ago. We know this by examining the data of early naturalists and scientists. We also know this to be true from primary research. Scientists that have compared biological diversity of overstocked stands stands that have had decades of fire exclusion—with open, park-like stands that have not had severe fire regime disruption, have found greater plant diversity, greater insect diversity, and greater bird diversity. Similar studies have also found greater old-growth tree vigor and resistance to insect attack in open, park-like stands stands similar to those present before settlement. We also know that stopping ecologically based forest restoration that includes thinning, is not saving the forest as some would like you to believe, but only contributing to its demise and causing severe losses to the wealth of species that depend on it.

Tragically, many treatments are designed to achieve socio-political acceptance rather than lead to the restoration of forests. To manage intelligently, treatment design should begin with solid science. Social tinkering will certainly play a potentially dominant role, but it should be done with an explicit understanding of the consequences. A good example of this is the frequent desire by some environmentalists and those oriented to commercial use to leave more trees than natural conditions would support. One hundred years of research shows that in the drought prone Southwest the land can only support 25 to 60 trees per acre depending on the site. The cost of leaving too many trees includes increased fire risk, loss of grasses and shrubs and their associated wildlife, and increased susceptibility to bark beetle and disease infestation.

As a college professor I believe that when given good information most people will make the right choices. To recap, we have solid information about forest conditions prior to Euro-American settlement, changes in fire regimes over the last century, deterioration of overall ecosystem health, and ecological responses to thinning and prescribed burning the key elements of any attempt to restore ecosystem health in ponderosa pine and related ecosystems. We know that current overcrowded stands of trees do not sustain the diversity of wildlife and plants that existed a century ago.

2. A gap exists between getting what we know into the hands of land managers, communities and other stakeholders that influence treatment design.

The Ecological Restoration Institute works directly with land managers, community partnerships and other stakeholders to assist in the design and implementation of science-based treatments. After several years of work in the field we know that the integrated services we provide including applied research, monitoring, translation and transfer of scientific knowledge is appreciated and effective. There are many research programs doing good research. However, what distinguishes what the institutes will do versus these programs is that research is defined by what managers need to know and actively transferred to the people doing the work on the ground in forms that are readily accessible.

In the next several years we will be treating forests at an unprecedented rate. If we use restoration approaches to reduce the threat of wildfire we will improve forest ecosystem health and simultaneously provide long-term fire risk reduction. If we merely cut trees we can reduce the risk of fire in the short-term but are leaving future generations with degraded forests.

To progress with treatments intelligently land mangers, stakeholders and communities must understand what science tells us the forest needs. To keep pace with the current problem treatments must be applied, tested and refined in an adaptive management framework or more simply a "learning while doing" mode (as opposed to waiting for perfect scientific certainty). This means that each treatment will be comprehensive enough to improve forest ecosystem health and build on the knowledge of previous actions while also incorporating new research findings. It includes monitoring and active reassessment of each new treatment. Active monitoring has the dual benefit of providing good information to design effective treatments and some assurance to land managers, and other stakeholders such as environmental groups, that treatments achieve the desired outcomes.

3. The proposed institutes, with a clearly defined mission of producing and providing relevant science for land managers, are essential to restoring forests and reducing fire risk.

What is sorely needed now is the capability to support the design and testing of site-specific prescriptions in ongoing operational landscape scale treatments. Research to date indicates that alternative fuel reduction treatments (e.g., diameter caps for thinning) have strikingly different consequences not just for fire behavior but also for biodiversity, wildlife habitat, and tree vigor and forest ecosystem health. Treatment design should be based on what is needed to maintain health and reduce catastrophic fire.

The institutes will create the knowledge to help solve the unnatural wildfire problem

Significant scientific information exists to initiate the process of restoring degraded forests. However, research gaps still exist in understanding landscape scale treatments on wide-ranging animals, watersheds, the restoration of native plant diversity, and the response of fire to different treatments. The institutes will continue to develop research based on what land managers and other stakeholders need to know to solve the problem. In addition, the institutes will help in the design and implementation of monitoring that can inform an adaptive management approach.

The institutes will translate the knowledge so it is accessible to managers

We have a solid body of scientific information to design and test large-scale forest restoration that will protect people, communities and the forest. This knowledge and emerging research findings will be translated and synthesized into a variety of communication tools so that science-based recommendations are immediately useful to managers and others who want to solve the crownfire problems of the West.

The rigorous use of science to design treatments will help build quality and credibility for the treatments. Experience in Arizona has shown that the probability of success is greatly enhanced if collaborators are supported by a comprehensive university-based restoration institute.

The institutes will transfer knowledge to practitioners, while simultaneously educating the land managers of the future

Through field training, community outreach, and continuing education the institutes will transfer knowledge and receive important feedback about what land managers and other stakeholders need. Many other more informal activities will also help transfer knowledge to the ground.

Central to any institute will be the integration of students into all aspects of forest restoration. At the Ecological Restoration Institute students across disciplines

are actively engaged in classroom and field research. In addition, we strive to put them into real life management situations so they emerge from college with practical knowledge of how to be effective professionals. We are graduating a workforce that understands the need for ecological restoration, resource sustainability and the demands of society.

CONCLUSION

Time has run out. Inaction is taking, and will continue to take, us down the path to unhealthy landscapes, costly to manage. Scientifically-based forest restoration treatments, including thinning and prescribed burning, will set us on the path to healthy landscapes, landscapes like the early settlers and explorer saw in the late 1800s.

State level, university based forest ecosystem health restoration institutes are essential for filling the knowledge gap that limits managers and collaborative groups from implementing treatments at the scale and pace demanded by the current forest ecosystem health crisis.

Thank you very much for asking me to appear before the Committee.

Senator CRAIG. Doctor, thank you very much.

Let me turn to Senator Kyl to offer the first questions, if you would?

Senator KYL. Mr. Chairman, thank you for that courtesy. Let me see if I am a good student here. First of all, since he brought his teacher, I can ask Dr. Covington if I passed the test now.

I think I learned that because our forests today so much of the time are so choked—the phrase that Dr. Covington taught me was the dog hair thicket. For those who do not know what it means, it is——

Senator CRAIG. Full of fleas, right. All right.

Senator KYL. The trees are so close together, they are all old and snarly and very close together, a dog cannot run through without losing half of his hair.

Well, the older tree here is not the big tree that I am holding in my right hand, but the smaller tree here. This tree is older—excuse me, this tree here is older, yet much smaller, because it was one of literally hundreds if not thousands of trees in the acreage in which it was located all competing for the same nutrients and water and sunlight and the soil, and crowded together, trying to push each other out of the way for what they could get.

Here is a tree in a much more open environment, where the forest was thinned and there had been prescribed burning, and as a result the tree grew to be the size in a very short period of time—I believe this tree is less than 100 years old. And it shows what can happen when we open up the forests and permit the trees to grow the way they used to grow when we had healthy forests. Now, have I got that right, Dr. Covington?

Dr. COVINGTON. Right.

Senator KYL. Okay. So the basis for the research that you have been pioneering is to establish that through this thinning process with appropriate prescribed burning, we can restore the forest to their previous healthy condition.

Dr. COVINGTON. Correct.

Senator KYL. Now, you have also taught me that a lot of this is fairly site specific, and so I have been to your research plots and you have mentioned to me that this is perhaps a little different than it might be in New Mexico or in Colorado or certainly in the much faster growing States such as Senator Craig lives in in Idaho. But in Senator Bingaman's State and mine, we are going to be

more on the edge of the environment with a lot hotter climate, less water, and a more fragile environment where we really have to watch it in order to make sure that our forests are healthy. Do I still have it right?

Dr. COVINGTON. Right.

Senator KYL. Okay.

Dr. COVINGTON. You are on a roll.

Senator KYL. Well, and that being site specific, you have also gone out and very carefully measured the results of the research so that you can calculate how much more pitch content the trees have, thus to fight off bark beetle, how much more protein content the grasses have—there did not even used to be grasses, if you have got a big canopy covering up the forest floor—all of the different species of butterflies, and birds, and other animals that can move into the forest demonstrating its healthy quality, but that each of these depends on a fairly site specific situation, which is the kind of research that your institute is oriented to do, is that right?

Dr. COVINGTON. That is correct.

Senator KYL. And so—and therefore in conclusion, that rather than trying to prescribe some one size fits all program, what I—one of the things that I have learned from you is that you really have to go to each site and ask the question and what is the healthy thing to do here?

One particular area may have a carrying capacity that is far greater in terms of trees than another, and it could stand higher diameter trees and lower diameter trees. Another site may only be able to carry a few trees perhaps of higher diameter. And it will be different from State to State and certainly even within a forest from area to area. Is that further right?

Dr. COVINGTON. Yes, correct.

Senator KYL. And so I make this point to illustrate the fact that as we tried to craft legislation last year, there was a real effort to kind of focus on a one-size-fits-all kind of system.

Some said, "Well, let us have a diameter cap on the thinning." And I kept saying, "No. No. No." It may be in some areas—if you were to ask Dr. Covington he would say, "Boy, in this place, do not cut anything over 16 inches," but he may not.

He may say, "Look, this area can only sustain 200 trees, so let us pick out the ones we want, starting with the great big ones. But that may have to mean that we have to cut a few trees larger in diameter than 16 inches if those trees are in effect left over and are going to continue to compete." Is that further correct?

Dr. COVINGTON. Right.

Senator KYL. So what I am trying to suggest is through this kind of research at this kind of institute, that is site specific in the State of New Mexico, in the State of Colorado, and in the State of Arizona, at least in our area of where the great Ponderosa pine forest of the Southwest is located, we should be able to get it right. But it may not be research that we would necessarily want to apply in a State like Idaho or the State of Washington, or certainly in the Southeast United States.

Let me just, if I could for the recorder, I think you will have to answer audibly rather than nodding your head.

Dr. COVINGTON. Yes.

Senator KYL. Okay.

Dr. COVINGTON. Sorry.

Senator KYL. Just two other quick—is my time up, Mr. Chairman?

Senator CRAIG. We will tolerate the dialogue a bit longer because I happen to agree with you.

[Laughter.]

Senator KYL. Just two quick things.

Senator CRAIG. Surely, go ahead.

Senator KYL. This is illustrative. And I think that we obtained these from you, Dr. Covington.

Dr. COVINGTON. Yes, that is right.

Senator KYL. You described them. But what a wonderful name of this location, Horse Thief Basin, in Arizona. And it reveals what condition of the forest?

Dr. COVINGTON. Yes. This is bark beetle kill that occurred last season, and you can see 80 to 90 percent of the trees are dead in here. This is—unfortunately the way the bark beetle population dynamics work, this literally is the tip of the iceberg. There should be about eight to ten times as much mortality next year as we had this year. And this is throughout northern Arizona and New Mexico and Colorado as well, and Idaho, for that matter.

So what happens when we have that kind of fuel condition and a fire comes through? It is when we get fire behavior that makes last year's fires look highly desirable compared to when it is burning through——

Senator KYL. Because these dead trees are more prone to burn.

Dr. COVINGTON. Right. They are more prone to burning with very dynamic fire behavior.

This is the Rodeo/Chediski fire. You can see the burned area lower left. You look in the upper right, that is an area that had a restoration thinning. It is called treated. And you can see the fire came up to that, went out, and then burned around it and burned on the backside of it for thousands of more acres.

Currently when you fly over the Rodeo/Chediski fire, and I know you have seen this too, Senator Kyl, is you see these little green islands. The green islands are the ones that got treated before the fire. The rest of it is a black charred landscape.

Senator KYL. Thank you very much for your indulgence.

Senator CRAIG. Well, thank you very much, Senator and Dr. Covington. I mean, we are all well aware and very concerned about the state of our forest's health right now, and especially in the great basin west and throughout the Southwest as we watch this tremendous buildup of wildfires.

I will ask you some questions, but let me turn to you first, Jim. We have seen more wildfires in the past fire season and we are, you know, spending more and more money to suppress these fires. I do not know what, we had a billion dollars last year——

STAFF. $1.4 billion.

Senator CRAIG. $1.4 billion?

STAFF. Yes.

Senator CRAIG. If we do not begin to go out into the forests and reduce the fuel loading, not just in the wildland urban interface,

could you describe for me what you think our Federal forests will look like, say, 25 years from now? Both Jims or—both Jims, yes, you can both answer that. I guess BLM has some forest responsibilities, too.

Mr. REAVES. Yes, Mr. Craig. If we do not begin to address these fires, of course, the fuel loading will—the fuels will increase and lead to more catastrophic fires. We all agree on that. What we are doing in our research to address this problem is we have in our developing models to look at this through visualization models.

Researchers can simulate these types of fires and get an idea of how the forest would look as they burn through these fires under various conditions.

The research we are doing now not only in the interior West, but all over the country is to look at these models and try to get a breadth and depth of information to provide information to the land manager and to the user to reduce the economic impacts and the damage to the forest.

So we realize this and are continuing to increase the technology in this area through these models and through developing demonstration projects on this to show what exactly fires can do under these conditions.

Senator CRAIG. Did you have any wish—any comment?

Mr. HUGHES. I think Senator, looking at what happened last summer and last spring tells us that our watersheds will be in danger if some of these fires burn so hot. The ground was actually sterilized. It will take years to recover in some cases.

The costs to local communities in lost tourism dollars, the economics in our rural areas will just be devastated if this stuff keeps going. I mean, I do not think anybody really questions that.

Senator CRAIG. And I think that for the record it is important to say that last summer certainly was a tragic summer, but it was not just last summer. It was the summer before and the summer before and the summer before. And we have seen this ramping up or escalation in total acres burned on an annual basis since—especially since the late 80's or I should say the late 90's, but—and I mean it is indicative of the growing problem.

And now we have this massive bug kill going on that is the result of a stressed forest environment and I am glad, Dr. Covington, you have mentioned Idaho. We have literally got tens of thousands of acres that are taking that color in Idaho, so it is a tremendous concern.

Dr. Covington, let me turn to you. On page 3, you said that in your opinion once the Ponderosa forest has been served severely, we have failed. You said that in reference to the need to complete restoration treatment. Could you explain what you mean, how long will it take areas like those burned in the Rodeo fire to recover, of the kind that the Senator just displayed on that—in that photograph?

Dr. COVINGTON. Yes. I would be glad to, of course, respond to that. First, you know, with the 25-year timespan easily half of our frequent-fire forests are going to look like that Rodeo/Chediski burn unless we get on top of this.

And what I mean by if we do not get in with preventative treatments, it is really closing the barn door up after the horses have

already gotten out. When you look at the amount of money you have to spend to set these burned areas, the least impacted of these burned areas, on a pathway to forest health, it staggers the imagination. It is at least 100 times what it costs to do preventive treatments once the area is burned.

And many of them for all practical purposes have a recovery period of probably measured on the order of 1,000 to 5,000 years. These are the severely eroded areas that occur in these big fires, and we have—I know Senator Kyl has been on the ground. You have seen this up in Idaho as well; Senator Bingaman, you have seen it in New Mexico, is severely eroded channeled landscapes. The soil is rapidly on the march to the seas again.

In those areas, there is really nothing, there is no amount of money you can spend to get them on the pathway to forest health. So prevention—just like in human medicine, prevention is the wisest investment of money. It is not recovery after the disaster has occurred.

Senator CRAIG. You also said that if we just cut trees to reduce the risk of fire in the short term, we will be leaving future generations with a degraded forest. Could you explain on that? What do you mean, and what must we do in your mind to avoid that future?

Dr. COVINGTON. Well, what I was getting at there, Senator Craig, is that if we just treat the symptoms of forest health, we are not getting at the underlying problem. In lots of—if you just go in and thin enough trees so you do not get crown fires, you do not thin enough trees to prevent bark beetle outbreak. You do not thin enough trees to prevent forest diseases from occurring and to restore healthy watersheds.

So this piecemeal approach will not work. We do not have enough money in the treasury to get in and treat each symptom as it shows up on here. We have got to get at the underlying problem, so just like going into see the doctor—you go in and you have got a 105-degree temperature, and he says, "Gosh, that is a heck of a temperature. Let us get that temperature down." If all he does is put you in an ice bath to lower your temperature and not get at the root causes of the disease, he has not helped you to heal as a patient. So that is what I was getting at in that part of the testimony.

Senator CRAIG. Thank you.

Senator Bingaman, questions?

Senator BINGAMAN. Yes. Thank you very much, Mr. Chairman, and thank you to all the witnesses. Dr. Covington, I was up in northern New Mexico visiting Tent Rocks Monument the other day, and one of the people from the BLM was showing me around. We were driving up there and looking at all of the bark beetle damage, all of the trees that have died from bark beetle infestation.

And I said, "What can be done to prevent this?" You were talking about prevention?

Dr. COVINGTON. Correct.

Senator BINGAMAN. I said, "What can you do to prevent this?"

He says, "Nothing, because once you see it, it is too late."

What can be done to prevent the loss of the rest of our forest in northern New Mexico or a lot of New Mexico, not just the north,

but particularly in northern New Mexico and a lot of the west from bark beetle infestation.

Dr. COVINGTON. Yes. It is very—interestingly the treatments, the same treatments that restore forest health and prevent crown fire prevent bark beetle infestation. So they—what—when we see those brown trees as—like you saw, it is too late. There is nothing you can do once they have been attacked by the beetle at that kind of level.

But the irony is, of course, that we have known this was going to happen for years. Foresters and ecologists have been predicting these bark beetle outbreaks, just as they have been predicting the crown fires that have occurred, the crash of forage, of herbaceous vegetation productivity. None of this is a surprise.

Senator BINGAMAN. You are saying that the thinning not only prevents the fires, but it also prevents the bark beetle outbreak?

Dr. COVINGTON. Yes, it does.

Senator BINGAMAN. And——

Dr. COVINGTON. And it does that by increasing the vigor of the trees. There is just a fixed amount of water and energy that is available on a particular area. If it is overstocked, then you run the risk of you do not have enough vigor to resist disease and insects. It is not just fire, but it is also biotic causes of death.

Senator BINGAMAN. Well, is it not the logic that flows from that now that the bark beetles have killed off half the trees or two-thirds of the trees or whatever in some of these areas, is there not enough moisture and resources, nutrients in the ground to sustain the few remaining live trees?

Dr. COVINGTON. Yes.

Senator BINGAMAN.Are they still at risk?

Dr. COVINGTON. Well, they are still at risk. Once bark beetles build up their populations to a high level, you can get so many—you can get such a large number of beetle attacks per square foot of bark that even a healthy tree cannot resist them. But for the trees that are—that do survive this intact, they will have been thinned. And if they do survive, then they ought to be able to grow rapidly.

Now, what we see in—unfortunately is with these huge attacks, there are not sufficient trees to start with again. What you would have to do is go in and cut down those trees, get them out because what they are going to do, of course, is you now have not just surface fuels, but you have red needles in the canopies of the trees. So when a lighting strike does occur or the errant cigarette butt or whatever it is that starts a fire, it burns and burns with a severity like we have not see in the Southwest yet.

Senator BINGAMAN. So you are saying that it is a very high priority, particularly in these areas that have been hit by bark beetle infestations that we get in there, cut out the trees that have died, and get them out of there?

Dr. COVINGTON. Yes. And to prevent the catastrophic landscape scale fires that we have seen in Idaho already.

Senator BINGAMAN. So comparing the—if we have a limited number—amount of resources, we have the choice of either thinning areas, I mean doing regular thinning like we always have talked about around here, of regular forest or thinning the areas that

have been most severely damaged by bark beetles. Would you say that the priority needs to be put on getting the bark beetle infested areas cleared out first or not?

Dr. COVINGTON. Boy, that is a tough call. In fact, on areas that have already been hit severely by bark beetles, that—they are almost like areas that have already been burned. So it would be—it would depend on the particular situation.

If in that Horse Thief Basin photo there, that one is a goner basically. There is not much we can do with—when the infestation is at that level. If——

Senator BINGAMAN. Yes, but you are saying there is going to be a fire that is going to be worse than any we have ever seen if that is hit by lighting?

Dr. COVINGTON. Yes. And that is highly probably.

Senator BINGAMAN. Yes.

Dr. COVINGTON. That is very likely to occur. The residual green trees that they—that are in there, some of those—I have walked through this area—and some of those are green but dead. You know, they still have—they are still green, but they are just oozing pitch and they have a very high level of bark beetle attack.

There are areas—this is one of the worst areas in Arizona. There are other areas where maybe 15 percent of that scene that you see there would be brown. And in those areas——

Senator BINGAMAN. You are saying that they are going to all look like this in another year or two?

Dr. COVINGTON. Yes. Yes. That is for that particular area.

So given limited resources, I—the scene that you are looking at there, I would probably write that one off as far as saving those live trees in there. I would look at just trying to prevent a landscape scale fire.

On other areas that are not yet infected with bark beetle, I would get in there and try to thin them down to the level that the tree's vigor can be increased to resist bark beetle attack. And we know this works.

Senator Kyl alluded to this from some of our research—from—that is now 10 years ago in which we saw that when we went in and thinned dense areas of Ponderosa pine, the residual trees started growing like teenagers. And they started producing pitch levels that would easily provide defense against bark beetles.

Senator BINGAMAN. Thank you very much, Mr. Chairman.

Senator CRAIG. Senator Kyl, further questions?

Senator KYL. Thank you. That last line of questioning of Senator Bingaman, I think, is particularly interesting, because there are some tradeoffs that are necessary. You all have budgets that you have to deal with all the times, and I—there are though decisions to make, I know. And then we have legislative ideas too.

And let me talk about some of the legislative ideas, because it seems to me that there might be some myths here, and maybe this is a good time to actually get to the facts.

One of the ideas that has been floating around is that we should give priority to what is called wildland urban interface, the point at which the bulk of the forest comes up to a community or a community of summer homes perhaps, some kind of urban environ-

ment. And that that should be a priority, that we have got to thin right around that area.

Another is that if you have a particular watershed, you need to be sure to thin there, because we do not want that to burn and destroy the streams that provide the water and so on.

There are others who say if you are concerned about endangered—or, in fact, all species, if you are concerned about the flora and the fauna of the forest, you cannot just focus on where it interfaces with something else, because that is where the fire could well start. And all of that could be burned up and you could destroy habitat for endangered species and so on.

Could you speak to—and then, of course, you have the downed timber, you have the burned that is subject to reburn, and you have the bark beetle that Senator Bingaman is talking about. Talk a little bit further—and all three of you are welcome to join in, but let me go first to you, Dr. Covington, about the kind of considerations that you give.

Obviously, if you could do it all, you would try to do it all. So the—what are some of the considerations that you engage in in deciding whether to give priority to one in a certain circumstance over another in another circumstance? And how should that be reflected in our legislation; in other words, is large-scale treatment really something that we ought to be focused on?

Dr. COVINGTON. Generally, greater ecosystem scale treatments, of what we—we need to be treating areas on the scale of the disturbances, so 100,000 to 500,000 acre units. I do not think it would be wise to develop some kind of a national categories of how you should implement these treatments. I think that is best done at the local level. So a local collaborative group, the local agencies and the local communities should get together and design their own priorities.

What is the urban wildland interface? How far out should that be? I do not think we should—just like with diameter caps, I do not think we can say it is a quarter mile, a half mile or seven miles out.

It is dependent upon the local situation. And the people that actually have to live with the outcomes of the decisions should have a lot of input into what those decisions are.

The urban wildland interface on a steep slope in the Southwest is going to have a different definition than on a flat slope in the Northern Rockies. So it—you cannot make hard and fast rules, I think, about that.

The same thing with key cultural areas of the landscape, municipal watersheds, critical watersheds. All of those areas have high priorities strategically locating these fuel breaks and prioritizing them, I think, has to be done on the project level. And that is one thing with the institutes that I think is very important.

The Joint Fire Sciences Program, the national work that the Forest Service is involved in is great work for developing general principles. But when it comes down to supporting these kind of local half million acre, million acre decisions, you need local expertise and it has to be customized to the problems that are being—that are brought up during the course of project design.

So no easy and fast treatment, but those elements that you just described—the urban wildland interface, critical wildlife habitat, municipal watershed, wilderness areas, national parks, these kinds of treasures, the keystone elements in the landscape—should be protected first and foremost.

But in the fullness of time and there is not a lot of time left—in the fullness of time we have to treat the entire landscape to get healthy landscapes, not just healthy patches left on for us to pass on to future generations.

Senator KYL. Did you want to add something else too?

Mr. REAVES. Yes. Thank you. We, too, believe that at the local level people should have—or communities should have the right tools to determine how to prioritize what is treated and what is not treated.

Much of our research is aimed at that. For example, we are doing research in southern Utah on fuels, fuels management projects where we look at alternatives of thinning. We look at pruning, and we are looking at various fuel treatments at the landscape level in these areas. And also this is going to be completed in 2003.

In addition to that, the Healthy Forest Initiative that the administration has put forth—put forward, as you are aware—what the administration is trying to do is reduce some of the rules and regulations to allow managers to treat and to move into these areas to reduce some of these catastrophic wildfires and provide those tools for them. And that is what we want to do. We want to provide those tools for land managers, not only in the West, but all over the country. Thank you.

Senator KYL. Thanks. I have one more question.

Senator CRAIG. Well, why do you not finish yours? I have got a couple; then we can wrap up.

Senator KYL. All right. Well, right on this last point, one—another one of the ideas that Senator Craig and I have heard expressed is that we should focus on categorical exclusions rather than the wide area treatment. And we have seen the effect of that, and I wanted to ask Dr. Covington about this in the Rodeo/Chediski fire.

We have three situations going on there. The White Mountain Apache Tribe is getting huge quantities of salvage timber as we speak off of their land. They have done their environmental work, but they are cutting a lot of timber, and are hoping to ameliorate the costs that they had suffered as a result of that huge forest burning on their land.

The Forest Service has divided theirs into two pieces basically. Under the law, they can categorically exclude certain areas around communities, roads, trails, camp sites, I think, and so on, and proceed with an accelerated plan there. And they are still studying, and hope to complete, I think, by May—and if I am wrong, let me know, but I think by May they are supposed to have the work done, all the environmental work done on all of the rest of the forest, which is by far the larger amount.

As soon as they noticed the proceeding on the area categorically excluded, Mr. Chairman, a group out of Santa Fe, New Mexico filed a lawsuit, stopped it dead in his tracks.

I hate to imagine what will happen when they conclude their work on the remainder of the forest in May and try to propose working on that. What I would like to ask about is the sole question of, A, whether we ought to focus just with categorical exclusions or whether that really solves everything; and B, this matter of salvage. Is it essentially similar to the situation with bark beetle, important to get that timber out when you can?

Start—start with you, Jim, and then Dr. Covington.

Mr. REAVES. We feel that we should not just focus on just categorical exclusion. We feel that there is a balance needed here and that we are using all of our research tools and management tools to help actively manage forests. And I think the chief has said that he is in favor of actively managed forests to produce more productive forests.

So on that note, Mr. Kyl, no, we are not saying just use only categorical exclusion.

Dr. Covington? Just in brief, regarding categorical exclusions, this particular 25,000 acres that the Apache National Forest is putting up, the lawsuit as I understand it, is saying that is far too large of an area for categorical exclusion, and that rather categorical exclusions should be used on 20- to 50-acre scale. And clearly if 25,000 acres is too big, then categorical exclusions cannot be used to solve this problem.

The other issue linked to utilization is if we are going to utilize either bark beetle killed or fire killed timber, it has to be done pretty quickly. And the pace of project design, NEPA document preparation, and getting an actual project on the ground is so slow that it is very difficult under current—our current situation, it is very difficult to see much utilization occurring outside of the reservation lands from the Rodeo/Chediski fire.

And I think that is unfortunate. One—when you—when we talk about greater ecosystem health, we have to realize that this includes human communities in the ecosystems. And healthy human communities after all are at the heart of why we are concerned about ecosystem health.

So to get those healthy human communities we have to look at this in a comprehensive holistic way, and it has to be done in a timely fashion. There just is not time.

If this were 40 years ago, we would have time to fool around with all kinds of stuff, but we do not have that time. We have got to do this in an adaptive management fashion. We have got to think big and we have got to act big. And we have got to do it right now.

Senator KYL. Thank you.

Senator CRAIG. Thank you very much, Jon.

Jim, I want your assurance Forest Service personnel will come up and meet with our committee staff and Senator Kyl's staff hopefully no later than next Wednesday so that we can move this bill along, consider your specific concerns about it.

Obviously, we are all concerned about dealing with this issue, and we know that you are all full bore at it. But we think a case can be effectively made for the legislation at hand. And so I hope we can have your assurances that we can work cooperatively to fashion a piece of legislation or adjust the Kyl legislation with some of your concerns in it.

Mr. REAVES. Yes, we would be glad to come up at your convenience to work with your staff and——

Senator CRAIG. All right. Also I would like to have you do something else. I know that every year you fly and photograph and we get a feel for this bug kill.

I would like to have a reasonably good guesstimate of total acres of infestation at this time, if you could come up with that figure on the forest and public lands—our forest preserves.

Mr. REAVES. Yes. We will provide that to you, Mr. Craig.

Senator CRAIG. Dr. Covington, while I might agree with you based on observation and knowledge of your reaction to the Horse Thief Basin that it is too late there. It is too late there, but that is a beautiful box of kindling wood sitting there, and what about the adjoining areas? I think Senator Kyl was speaking to that to some extent.

If that were to catch fire in the way that we have seen fires of the last year, it would not only take Horse Thief, it would take a lot of surrounding area with it. So instead of—and we know that dollars are short and time is short and tempers are short here also. We have still got a community of people out there that basically is in the burn mode and they do not give darn much care about anything and especially they have given no care for the human communities that you have spoken to that are at risk here also. What do we do? The edges?

Dr. COVINGTON. Well, your analogy of it being kindling on the landscape is a perfect analogy.

Senator CRAIG. Or I could say so many gallons of gas per acre. It is fuel. It is ignitable. It goes boom.

Dr. COVINGTON. And the fact that an area has bug kill—has been killed by bugs, by bark beetles and has the red needles in the canopy still puts at risk a greater ecosystem of a half million acres. So you can see a fire starting in Horse Thief Basin, going over the rim and burning up most of the Bradshaws on the scale of the Rodeo/Chediski fire.

And so in a sense if we do not do something about that, it really is negligence to the greater ecosystem to not do something about that kindling. And this is around communities throughout the Western United States.

The city of Prescott and Flagstaff is surrounded by huge bug kills and the—I—there is a very real possibility that Prescott will be the Show Low, which is the Rodeo/Chediski fire of 2003 or 2004. We are just not able to—currently we are not moving at the pace that we need to to get this kindling off the landscape.

Senator CRAIG. Well, I thank you for that. We have got examples of that all over my State, and they are building. And that is the bad news. And then we add bad news to it. We had Mark Rey up last week, I guess, to talk about—or a week before—to talk about the potential fire patterns of the coming season.

And I guess the good news is that the Southwest is in a little better shape. But it seems that we are migrating back to the Northwest again where we burned very heavily in the late Nineties. And we may be back in that scenario. We lucked out last year.

You started burning very early, and fortunately enough, although we had a lot of starts, we got them out. We got some late

moisture, and it held us down. Thank goodness. But we still had the worst—I guess, one of the worst fire seasons ever.

And as I was telling Senator Bingaman whether we can treat a million acres a year or more if we were allowed to, the reality is we are still going to lose millions of acres a year for decades to come because we simply cannot get there. And we are not going to be allowed to get to some of it. So priorities are a reality and—that we have got to face. And certainly we hope that concepts like you are talking about in being able to employ and work cooperatively with the Forest Service may effectively broaden a base of understanding as well as a matter of treatment.

As we explained the need to the countryside, I think there was some awakening in the past season. So, Doctor, thank you very much for coming and spending time with us, being the advocate that you are and the scientist that you are in proving the points that you have made here so effectively. It is greatly appreciated at a time when truly our forested lands of the nation—not just in the Great Basin West, but throughout the country—are at risk today more than they have ever been.

Jim, as it relates to 203, we will work with you on the type of mineral involved here to make sure that we meet those qualifications. I am sure that Senator Enzi will want that and be willing to work and cooperate with it.

Jim, as it relates to 278, Mount Naomi borders Idaho. And we are very concerned that we can work closely with you and closely with Logan and Utah State University to make sure that this thing gets done the way we want.

We also understand there is a Lake Bonneville shore trail system there to be concerned with. We know that it is some acreages, and we ought not have a problem in dealing with that. So we will work cooperatively with you on that.

Mr. HUGHES. Thank you.

Senator CRAIG. Thank you all very much for your testimony and for building the record. We are in tragic situation with our forested lands, and I hope we can deal with them effectively.

Senator Kyl.

Senator KYL. Mr. Chairman, I just want to say thank you one more time. I hope that people other than people in Idaho appreciate your leadership. You know this subject. You have been an indefatigable worker in—behind the scenes to try to get legislation like this done in support of the President's program, which we are all very supportive of getting passed. And holding hearings like this one today is a critical step in that process, and I just really personally thank you for assisting us with the bill.

Senator CRAIG. Well, thank you very much for those comments. The committee will stand adjourned.

[Whereupon, at 4:20 p.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

RESPONSES OF DR. COVINGTON TO QUESTIONS FROM SENATOR DOMENICI

Question 1. Dr. Covington you've spent 27 years teaching and researching the Ponderosa forests of the Intermountain West. Over the course of these years you have to have seen dozens if not hundreds of fires. What is different about the fires we have experienced in the last couple of years?

Answer. What is different about today's fires is not that there are more of them, but that they are larger (often by a factor of 5-10) and more severe. The Rodeo-Chedeski fire was fully 100 times larger than the large fires of the previous decades.

Question 2. What resource values do you believe we are losing in these large fires?

Answer. All resource values (timber, range, recreation, watershed, and wildlife) are severely threatened by these large severe fires. Biodiversity losses are long term.

Question 3. How many years will it take, after these high intensity fires, before they can function as a forest ecosystem, in a way similar to how they functioned before the fires?

Answer. The severe fires we are now witnessing degrade soils and watershed. function. It will take centuries to millennia for these forests to approach natural structure and function.

[Note: Responses to the following questions were not received at the time this hearing went to press.]

QUESTIONS FROM SENATOR DOMENICI FOR DEPUTY SECRETARY GRILES

Question 1. IPAMS Testimony: IPAMS testified that their study, based on BLM's own data, shows that it takes, on average, 137 days to process a permit. They also spoke to the increasing concern of oil and gas production by ranchers and landowners as an issue they have "inherited".

Is IPAMS number an accurate estimate and if not can BLM provide a more accurate number?

What responsibility does an oil and gas leasee have with the landowner or grazing permittee that is not governed by BLM's administrative oversight responsibility of a lease?

Question 2. Lease Stipulations—The Wilderness Society presented some BLM tables on wildlife stipulation waivers from Wyoming.

How are these types of stipulations administered and under what circumstances are waivers granted or denied?

How would you explain that wildlife values are in fact being protected when waivers to stipulations are granted.

Question 3. The National Renewable Energy Laboratory identifies significant potential to produce solar, wind, biomass, and geothermal energy on Federal lands. The President's National Energy Policy also makes several recommendations regarding renewable energy on Federal lands—including a direction to DOI and DOE to re-evaluate barriers to increased renewable energy production.

Once a resource is identified, what are the barriers to production of renewable energy on Federal lands? Are these barriers any different from those faced by conventional energy projects?

Are there possibilities for co-production of renewable and conventional energy sources on a single lease, and has the Bureau studied that possibility?

Could reductions in royalty rates be useful in encouraging development of Federal renewable resources? What other legislative or administrative actions can be done to increase production of renewable energy from Federal lands?

How are leasing and access decisions treated for each of the renewable resources (geothermal, wind, biomass, solar, hydro) and is it easier to develop one resource over another?

What can be done to increase the ease of siting new transmission on Federal lands, to aid development of both renewable and conventional energy resources on Federal lands?

How difficult will this siting become with the increasing protective withdrawals placed on public lands by administrative determinations such as in wilderness study areas and the roadless rule?

Question 4. I&E Resources: It seems clear that BLM is in need of additional resources to oversee an expanding oil and gas program. The BLM budget request indicates there are over 94,000 existing wells and only about 150 employees for I&E work. This equates to over 600 wells per I&E employee.

How does the BLM I&E program currently handle this kind of workload?

Is this indicative of why surface owners and users are increasingly concerned about the impacts associated with oil and gas production?

With the public need to for increased production but also a public concern for protecting public resources, what will the Department need for monitoring and oversight for the increases in workload likely to occur in the future?

APPENDIX II

Additional Material Submitted for the Record

NEW MEXICO HIGHLANDS UNIVERSITY,
February 26, 2003.

Hon. PETE DOMENICI, CHAIR
Hon. JEFF BINGAMAN, RANKING MEMBER
Energy and Natural Resources Committee, Dirksen Senate Office Building, Washington, DC.

Re: [S. 32] Southwest Forest Health and Wildfire Prevention Act of 2003

DEAR SENATORS DOMENICI AND BINGAMAN: I appreciate the opportunity to offer the following statement for the Subcommittee on Public Lands and Forests hearing to be held tomorrow.

We at New Mexico Highlands University, wish to thank Chairman Pete Domenici and Ranking Member Jeff Bingaman for introducing the Southwest Forest Health and Wildfire Prevention Act of 2003 [S. 32]. This legislation, if passed, will provide a long-term mechanism for research, education and community outreach to address the wildfire problems in Arizona, Colorado and New Mexico.

We believe that it is necessary legislation and should be passed with dispatch. Given the catastrophic wildfires of the past few years and their effects on our nation's watersheds, this action should be among the Senate's highest priorities. The wildfires of 2000 and 2002 provided a wake-up to the entire country on the critical problems in the southwest. The continuing drought in the region only hastens the need to address ways to decrease the adverse effects of wildfires.

Further, we believe the best location for the Institute to be located in New Mexico would be New Mexico Highlands University (NMHU).

There are a number of compelling reasons for placing the New Mexico Institute at NMHU. NMHU is the only New Mexico University with a degreed Forestry Program. NMHU being located in the north central mountains of New Mexico, is ideally located to study fire prevention, forest health, forest restoration and the socioeconomics of wildland fire. Indeed, several of the recent tragic wildfires, including the Cerro Grande Fire, which devastated Los Alamos, were not far from campus. Our university has the expertise to address the pressing issues associated with fire and forest health issues. Finally, NMHU recently established the Watershed and Forest Institute. This project was founded to be an educating resource for professionals, policy makers and the wider New Mexico community through teaching, research and service.

NMHU believes in collaborative research and outreach. Working with like institutions gives the taxpayers a greater return on their investment. Senate Bill 32 produces a wonderful opportunity for the three Institutes established in this bill to work cooperatively, both with each other and with federal agencies. Highlands has recently signed a Memorandum of Understanding with the New Mexico State Land Office that provides state land for a University Experimental Forest. In 1999, a Natural Resources Board of Advisors with members representing the New Mexico Forestry Division, the U.S. Forest Service as well as other relevant agencies, organizations and individuals, was established which has helped guide the program design and direction for new curriculum programs.

Again, we enthusiastically support the intent of this legislation and applaud you for recognizing the importance of utilizing the universities in the designated states as a valuable element in solving this problem. We respectfully request The Southwest Forest Health and Wildfire Prevention Act of 2003 [S. 32] be amended in committee stating the Institute for the State of New Mexico be located at New Mexico Highlands University. This action will serve the legislative intent of the bill and will provide the citizens of New Mexico with an Institute at a University that is already

demonstrating a commitment to addressing these important issues even at a time when budgets are extremely tight.

Sincerely,

SHARON S. CABALLERO, EDD,
President.

STATEMENT OF HENRY CAREY, DIRECTOR, THE FOREST TRUST

This testimony is to provide the specific comments of the Forest Trust on the bill introduced by Senator Kyl, S. 32, The Southwest Forest Health and Wildfire Prevention Act. The Forest Trust is supportive of this bill because it addresses a critical need for research and applied management guidance to inform forest restoration and wildfire prevention activities. However, we have two concerns about the bill. First, that the Act does not contain a mechanism requiring the Institutes to seek feedback from stakeholders to assure that their research is relevant to forest and fire managers and other research constituents. Second, that the Act does not specify a competitive process for selecting the location of Institutes in New Mexico and Colorado.

The Forest Trust is a forest conservation organization based in Santa Fe, NM. The Forest Trust mission is to protect the forest ecosystem and improve the livelihoods of rural people. The staff of 15 includes 7 professional foresters who are actively engaged in forest management on public and private lands. The Forest Trust operates the Southwest Community Forestry Research Center as a branch of the National Community Forestry Center. This research organization is funded with a four-year $3.8 million grant from the U.S. Department of Agriculture for participatory research in forest-dependent communities.

The Southwest Community Forestry Research Center has conducted extensive outreach in New Mexico and the Four Corners region of Arizona, Utah and Colorado to learn the information needs of people in forest-dependent communities. On the basis of our outreach we strongly agree with the findings of S. 32 which state that scientific understanding of landscape scale treatments is limited and that rigorous, understandable, and applied scientific information is needed. The specific need for applied scientific information is correctly identified for three purposes: (1) the design, implementation, and adaptation of landscape scale restoration treatments and improvement of wildfire management technology; (2) the environmental review process; and (3) affected entities that collaborate in the development and implementation of wildfire treatment.

We are particularly concerned that the Institutes be set up to be responsive to the needs of land managers and stakeholders. We are also concerned that in New Mexico and Colorado, unlike Arizona, no single university stands out as the obvious choice to house the institute. Therefore, we suggest two modifications to S. 32 as follows:

Duties include Stakeholder Input. In order to fulfill the purpose of developing the practical scientific knowledge required to implement forest and woodland restoration on a landscape scale, the duties of the Institutes must include seeking input from land managers and stakeholders about their research needs. The research centers of the National Community Forestry Center, described above, have advisory boards composed of scientists and the research constituents. These advisory boards play a critical role in guiding the focus of the centers' research. Therefore, we suggest that Section 5(c) be modified to include a new 5(c)(3) for the formation of advisory boards to provide input to the Institutes. We suggest the following language: "The Institutes shall form an advisory board of scientists and research constituents to advise the Institutes on their annual research agenda and to assure that the research will be relevant to end users."

Location of Institutes. In New Mexico and Colorado no one university stands out as the clear leader in applied ecological research. Therefore, we believe that Section 5(b) should be modified to require a request for proposal process to allow universities to compete to house the Institutes in New Mexico and Colorado. A request for proposal process is necessary to ensure that all qualified universities have a chance to compete to house the Institutes. The requests for proposals should be reviewed by the Secretaries with input from stakeholders groups in each state.

Thank you for considering the comments of the Forest Trust on the Southwest Forest Health and Wildfire Prevention Act. The Act will address a critical need for research to inform forest restoration and wildfire prevention activities.

STATEMENT OF HAL SALWASSER, DEAN, COLLEGE OF FORESTRY; DIRECTOR, OREGON FOREST RESEARCH LABORATORY; INTERIM DIRECTOR, INSTITUTE FOR NATURAL RESOURCES, OREGON STATE UNIVERSITY

On July 10, 2002, Senator Gordon Smith and Representative Greg Walden of Oregon asked the College of Forestry and the Institute for Natural Resources at Oregon State University to "develop a balanced comprehensive report concerning the restoration of post-fire ecosystems." The request, asked to look not only at "immediate environmental effects of restoration activities, but also at both short- and long-term effects of not proceeding with cost-effective, post-fire restoration activity on local communities, future forest fire danger and forest health." The letter also asked to propose new studies if needed.

What follows is a description of how OSU is responding to the request. It will take some time to develop all of what the "report" asked for in the July letter, but there are many things in the works while that unfolds. Our faculty and students, working with colleagues in state and federal agencies, conservation groups and private forestland owners will simultaneously document the state of knowledge and technologies as it unfolds in periodic reports.

The first of these was recently published by the Oregon Forest Resources Institute (Fitzgerald, Stephen A. 2002. Fires in Oregon's forests: risks, effects, and treatment options). We will convene or participate in periodic conferences and workshops to bring the best thinking to bear on revising our understanding and priorities, two of these are already in planning for Spring 2003 and Fall 2003. Our scientists will also work directly with agencies in active adaptive management projects (i.e., continuous learning through science-based actions, research and monitoring) to solve specific, place-based problems created by fuels conditions or the aftermath of large fires. We will propose for Congressional consideration a focused, long-term, interagency research, development and application program for Oregon that could and we believe should be replicated in other western states if new funding tied to the National Fire Plan materializes.

CONTEXT FOR DECISION MAKING ON FOREST AND RANGELAND HEALTH TREATMENTS

It is clear to most scientists and forest managers that the most important steps in restoring forest and rangeland ecosystem health start well before a fire or other disturbance event occurs. Pre-fire treatments should not only contribute to reduced fire risk, but when the fires do occur they should be less intense, less dangerous to life and property, and less expensive to manage. They should also make post-fire restoration work unnecessary or less likely to cause unacceptable environmental damage. Therefore, pre-fire activities must be considered in developing an appropriate context for post-fire restoration.

On August 30, 2002, Dean and Institute Acting Director Salwasser visited with Dr. Don MacGregor of Decision Research in Eugene, Oregon to discuss this and several related projects. On September 4, 2002, he visited with leaders of the Forest Service, Bureau of Land Management and USGS in Portland. Subsequent input was solicited and received by forest ecologists (Nancy Diaz, Tom Atzet), decision scientists (Don MacGregor), forestland managers (Ross McKinley), and conservation scientists (Dominick DellaSala). This document reflects their input but I did not ask them for endorsement of all of its parts.

The following notes reflect findings related to the preliminary work requested in its larger context of decision making for comprehensive ecosystem restoration. We will continue with further review and refinement as we shape the first action items, site visits and science/management workshops planned for winter thru fall 2003 at OSU and elsewhere.

A FRAMEWORK FOR CONTINUOUS IMPROVEMENT

1. Link all Action Directly to the National Fire Plan, Joint Fire Sciences Program, and 10-Year Comprehensive Strategy Implementation Plan. The National Fire Plan developed and endorsed by federal agencies and the Western Governor's Association provides a blueprint for action related to forest and rangeland health and wildfire and the general processes to follow. The 10-year Comprehensive Strategy Implementation Plan has goals and tasks directly related to restoration. If these have been tailored to specific landscapes to form what amounts to an annual plan of work with specific objectives and measurable outcomes for both public and private lands that is a step that would not have to be done again.

As work progresses, we will try to determine the degree to which regional or local application of the Fire Plan and 10-year strategy has been done. One reviewer noted that virtually no guidelines exist for the development of local unit fire, fuel, or res-

toration management plans. As a result, we could find that almost anything could qualify as a fire., fuel, or restoration management plan. If so, a template or framework might be needed for local fire, fuel, or restoration management plan development.

2. Landscape-scale Ecological Assessments. Whether management actions under the Fire Plan are considered prior to or after fire, the fundamental challenges start with understanding the ecological characteristics and temporal and spatial dynamics of the forests and rangelands in question, at a landscape to regional scale not just stand-by-stand or watershed-by-watershed. This means the structure, species composition, patterns and history of events, and management actions and processes that caused those characteristics and their dynamics, including fires, droughts, insect and pest infestations, human activities, and climate change. Ownership is also an important variable.

Ecological characteristics vary widely across forest and rangeland types and conditions. A sustainable fuel management or ecosystem restoration strategy must build from this understanding appropriate to ownerships, types, and conditions. Just considering the potential impacts of action or no action at the site, stand, or watershed scale is not ecologically meaningful in dynamic landscapes. Nor is restoring a forest condition to fire-resilience, only to let it lapse again into a high-risk fire-prone forest.

There is potential to add value to existing programs by describing how a landscape-scale ecological assessment could be done in an expeditious manner. Such an assessment would form the foundation for the collaboration process described below. Especially important would be the characterization of events and actions that influenced existing conditions and trends and characterization of risks and actions that influenced existing conditions and trends and characterization of risks and uncertainties posed by those conditions and trends. USGS/BRD/ITR-2002-0003 "Research Plan for Lands Administered by the USDI in the Interior Columbia Basin and Snake River Plateau" has been suggested for review.

3. Collaboration on Desired Future Conditions. Given the above understanding, managers engage affected people, e.g., citizens, neighbors and other state and federal agencies, to determine the desired conditions and rates of healing processes for forests and rangelands in the landscapes in question. These conditions must account for water quality, fish and wildlife habitats, wood yields, aesthetics, soil fertility, forest and rangeland productivity, and economic and community contributions desired from the area as well as the vulnerability of the lands to future fires, drought, invasive species and pest epidemics, vulnerabilities that put the other wildland values and uses at risk.

It is also important to link the development of desired future conditions to state plans for watershed health, such as the Oregon Plan for Salmon and Watersheds and to land management plans of federal and state agencies, tribes, and private landowners.

Desired future conditions will differ widely and by ownership and forest type: from what is appropriate in wilderness areas to the wildland-urban interface, with private lands whose goals include the production of wood or other natural resources included. What this means is that there cannot be a "one-size-fits-all" set of guidelines or principles to use everywhere, for either fire risk reduction or desired post-fire conditions or the management actions to achieve them. For this reason we do not consider it useful or appropriate to try to revise or rewrite papers on general principles or guidelines for specific practices to apply across the landscape. At best, such guidelines should only address things to think about when planning projects and should never prescribe generic activities or lack thereof. Rather, we will work on procedures to follow for site and landscape specific activities that address problems at hand.

The fundamental step in determining appropriate management actions is to clearly describe the problem(s) to be solved. If there is no problem—that is desired conditions will be met by nature's processes without management actions—the fuel reduction or restoration task is over. There must be compelling reasons for action, and those reasons could be ecological social or economic.

4. Develop Regional and Local Restoration Objectives (and Priorities). Based on desired future conditions, what the specific problem is, and processes and priorities for where to take action, especially the reduction of risks to private property, communities, watersheds and other resource values, and conditions and processes that will restore ecosystem resilience and productivity, the management job is to remove impediments to those conditions and return ecological processes and management actions that will sustain the desired conditions and their social contributions in the most cost effective and economically beneficial way. These amount to the objectives for which management actions or lack thereof would be designed.

Existing federal forest plans set objectives for desired conditions based partly on goals for water, fish, wildlife, wood, and old forest structure and partly on the ecological understandings, management technologies, and citizen expectations of the 1980s and 1990s. In many cases, these plans did not account for risks posed by wildfire, drought, pests, or climate change, as we now understand them. Nor did they account for some of the knowledge and technologies now available. Furthermore, we need new knowledge and technologies for use in management situations that differ greatly from traditional timber sales. In some cases, such as where large fires burned this year, ecological conditions assumed by those plans may now warrant reassessment of roles to be played by recently burned landscapes. Consequently, forest plans might be out of date with today's risks, knowledge, new conditions, and new technologies.

The revision of land and resource management plans is a policy task that could run in parallel to the R&D work needed. The two tasks should be kept separate to minimize confusion between the political process of planning and the practical, learning process of actually restoring forests and rangelands through active adaptive management (to be described below).

5. Design Creative Management Alternatives and Assess Likely Consequences. There is always more than one way to meet objectives and reach desired forest and rangeland conditions. Thus, managers and affected people must consider the comparative risks to those conditions, uncertainties, and financial resources available to address those risks and uncertainties and how those might vary over time under a reasonable array of management alternatives. These management alternatives will include variable costs and actions based on knowledge and technologies not available or not well understood when reports were done in the mid 1990s. They will also entail the need for new technologies, more appropriate to the nature of the management challenges of fuels reductions or post-fire restoration.

Meetings in Eugene and Portland affirmed that assessment of risks and uncertainties under various alternatives is definitely a place where new scientific and technology work is needed. Vegetation management tools and contract protocols useful for timber sales in times past are not appropriate to the kinds of work to be done in the future, thus requiring research and development on harvesting technologies and contract mechanisms suited to small diameter trees, brush and low cost operations.

There is also a fundamental lack of structured science to understand the efficacy of pre-fire thinning on fire behavior and the effects of post-fire restoration on ecosystem recovery, including effects on future fires (Omi and Martinson 2002 is the exception). This includes effects of fire suppression activities on post-fire ecosystem recovery and the history of results with past management actions to avoid repeating mistakes. Anecdotal evidence abounds and we have more from this year's fires. One Portland participant suggested that a grand synthesis of what is known could help. This prospectus lists several major sources for such a synthesis. Several participants thought a Science Panel at a public forum such as a university, after the fires are out would be a good idea to share what is known and what is not known about restoration.

Several Portland participants cited the need for outreach and technology transfer of what is known. Retrospective studies could also help improve understanding but there is a large need for applied research to test out the unknowns. The Fire and Fire Surrogates research proposed under the National Fire Plan and Joint Fire Sciences Program would be logical places to look or expand from. Several participants in Portland said that new field studies are sorely needed. The RFP for the Fire Plan sought such studies but good proposals were lacking so funding went to stronger projects in other areas. There is very little science on post-fire salvage logging effects (hence the conservative approaches recommended by several recent studies and reports). It is not possible, nor desirable, to wait for more studies before taking management actions. Therefore the only way to do science-informed ecosystem restoration is to do the science as an integral part of active adaptive management (the final item in this list).

As with every choice people face, there are consequences of action and consequences of inaction regarding fuels treatments or post-fire restoration. An assessment should elucidate these consequences for each alternative with as much site specificity as possible for forest and rangeland health issues and for economic issues.

Forest and Rangeland Health Consequences of Action Alternatives and Inaction

Economic Issues

- Water quality as it relates to Clean Water Act standards and aquatic-species habitat
- Soil erosion effects on site fertility and sediments to streams

- Habitat conditions in the near and long term for listed species of native plants and animals
- Vulnerabilities to invasive species of plants or animals
- Vulnerabilities to insect and disease pathogens
- Likelihood of near and long-term vegetative recovery to desired stand and landscape conditions with regard to species composition and structure
- Near and long-term resilience and/or resistance of forests and rangelands to future disturbance events such as fire and storms
- Effects of the fire the ability of the federal agencies to achieve the objectives of the Northwest Forest Plan;
- Effects on road system management.

Economic Consequences of Action Alternatives and Inaction

- Risks posed by near and long term forest and rangeland conditions on adjoining property and residences related to future fire, insects, disease, or invasive species
- Local and regional capacity for future wildland and fire management
- Revenues to counties and local businesses produced or foregone
- Total value of marketable resources produced or foregone
- Social quality of life, recreation programs, aesthetics, as impacted by treatment, delayed treatment and no treatment, with special attention to the effects of brushfields replacing burned forests.

For each of these issues, consequences of delay in action for 1-3 years should also be explained.

6. Structured Decision Analysis. The next step, the one where gridlock seems to have set in, is to make decisions that strike appropriate balances when the risks to different resources conflict and uncertainty abounds, as is often the case when forests, fish, wildlife, water, air quality, and wildfire intersect. This requires a decision making process or protocol that explicitly arrays and evaluates risks, uncertainties, costs, and benefits for the different resources in question, that is it evaluates the likely consequences of the alternatives. Tradeoffs are inevitable in wildland resource decisions. Aversion to risk for one resource in the short run can mean acceptance of high risk to other resources or even high risk to the first resource at a later time. Science can only inform parts of the complexity that characterizes these decisions; value judgments and subjectivity must be openly described. Coping strategies for wicked problems (Roberts 2001) might be useful tools.

Honest and open characterization of tradeoff's and how subjectivity, uncertainty and risk are handled in decision-making are vital to public understanding and support. This step in particular is where oral agencies could benefit from new approaches. In the absence of structured decision analysis, the precautionary principle appears to be the deciding factor on risk—in the absence of certainty that proposed actions will not cause harm to a particular resource value in the short run or that they will improve future conditions, do not take the action. The line between hard facts, myths, and soft values is often difficult for publics and some scientists to see. This leads to inevitable debates over the meaning and interpretation of science. USGS is currently pursuing development of tools and skills in decision analysis with Dr. Larry Susskind and Consensus Building Institute.

7. Project Design. Once decisions are made, the key task is to design restoration, rehabilitation, or fuels reduction projects to gain an acceptable balance between their costs and the benefits returned, both broadly defined. Ideally, but certainly not in all cases, the management activities can generate revenues to cover parts or all of the costs of restoration. This would allow general treasury funds to be more broadly leveraged in getting more work done.

A Portland participant suggested that the old systems for planning, analyzing and costing out projects where commercial timber sales were the goal was not workable in the current context of ecological restoration with low to no commercial values to be gained. Traditional timber sale contracts are not very useful for restoration projects. Nor is the technology developed for use in timber sales where machinery had to accommodate large diameter trees and is thus over-designed for new work on smaller diameter materials. Designs for cost reduction rather than profit maximization are needed. Options for commercial use of restoration byproducts is also a possible area for new work. Further, new technologies for getting work done with less environmental impacts either exist or could be developed. These were not available when assessments of salvage logging and post-fire restoration were done in the mid 1990s. Suggestion was made to look at what Joint Fire Sciences Program has underway here. Also need to explore impacts of non-native plants used in post-fire rehabilitation projects.

Development of project templates to assist field managers in project design following direction from pending legislation regarding healthy forests might be needed to improve project quality and consistency with best knowledge and technologies.

8. Integrate Application (i.e., projects performed under the National Fire Plan's 10-Year Comprehensive Strategy Plan or proposed Healthy Forests Initiative) with Research, Development, Outreach and Monitoring. The final task is to integrate outreach, research, and monitoring into regional restoration strategies so that existing knowledge and technologies are effectively used, so that new knowledge and technologies are gained, and so that uncertainties can be reduced over time allowing for adjustments to improve the effectiveness and efficiencies of treatment activities. The integration of outreach, monitoring, research and adaptive management into comprehensive restoration strategies might require stronger central leadership and commitment to interagency action than agencies have envisioned to date. This is the substance of the suggested actions below.

The 8-step framework or procedure for forest restoration decision making described above provides a context for determining appropriate management actions both prior to and after fires; it replaces a one-size-fits-all approach that uses general principles or guidelines with ecologically-based site and landscape specific strategies that address the environmental, economic and social dimensions of our western forest and rangelands. But, to improve performance, it must also (1) lead to expedited decisions and resulting actions, (2) improve the effectiveness of public participation in planning and project implementation, and (3) create a learning process that ties project design (i.e., application) to monitoring, research, and active outreach (i.e., technology transfer). For long-term success, this process must be carried out at a regional or landscape scale so that individual projects have a suitable context and can be carved out without the costly and time consuming comprehensive analyses currently called for in each project. Further, these projects should be designed and carried out with the continuous improvement process in mind, i.e., they are linked to monitoring and research strategies. This could all logically become an integral part of implementing the parts of the National Fire Plan that deal with rehabilitation, restoration, hazardous fuels reduction, monitoring and research. It could also link to state plans for watershed health and their research and monitoring.

Any work on parts or all of the above framework will require teams of experts from both science and management in both public and private sectors relevant to the breadth of the work, most likely drawing from the fields of decision analysis, risk assessment, soils, water, fish and wildlife, forest ecology and restoration, fire ecology, silviculture, economics, logging and forest operations, roads, and sociology. The teams should be comprised of agency, private sector and academic scientists and managers to ensure both scientific validity and practicality of results. This would apply first, to the synthesis of existing knowledge, the retrospective studies (which will take several years), and the new R&D on efficacy of pre and post fire activities (this is probably a 10 year major Research, Development and Application program).

Suggested Course of Action

a. Facilitate scientist-manager interactions on recently burned areas to develop ideas for collaborative work that would address various aspects of the above framework. This has begun in Oregon, probably in all the other western states that experienced fires this summer as well. Clearer understanding of challenges and possible case-by-case work should emerge from these visits. An example of this is the November 16-17, 2002 visit to the Biscuit fire by OSU and FS scientists at the request of local federal agency officials.

b. Convene science and management workshops at one or more universities beginning winter or spring 2003 to synthesize existing knowledge and technologies pertinent to parts or all of the above framework (initial focus should be on post-fire restoration and decision analysis to integrate our state of knowledge and technologies with case applications to restoration following 2002 fires, e.g., Biscuit, Tiller, Hayman, Rodeo-Chediski, and others that provide distinct opportunities to evaluate and understand fire behavior in response to fuels treatments or post-fire restoration projects). Coordinate with a workshop being planned for Corvallis in mid-March 2003 by the Joint Fire Sciences Program and with the Risk Conference planned for Portland in November 2003 and other topical conferences being planned for the coming year. Funding is being secured for these workshops and conferences.

c. Based on products from the initial site visits and workshop syntheses and subsequent program results, develop protocols for place-based restoration strategies (i.e., no standard guidelines for use in all places) and carry out active and extensive outreach and technology transfer to give publics and managers access to and understanding of the state of knowledge and technology using Extension Faculty, State

Service Foresters, and federal agency technology transfer specialists. This would begin following the workshops, in 2003 and continue through 2015 if the following large-scale R&D proposal comes to being. Funding needed would depend on how aggressive the outreach program is. We opened discussion with the Oregon Forest Resources Institute in December 2002 to initiate the outreach education program in 2003.

d. See the attached FIRE prospectus for a bold proposal for a research, development, and application program that would require Congressional support to initiate.

e. Hold annual conferences to review and present progress. Publish periodic newsletters and hold regular field tours to convey new knowledge and technologies. Publish handbooks and field guides as new knowledge and technologies come on line.

The July 10 letter asked about other sources of information on the topic of post-tire ecosystem restoration. In addition to the report prepared by Dr. Beschta and his colleagues in 1995, there are excellent sources of information pertinent to the general subject of restoring ecosystem health, including the multi-volume Eastside Forest Ecosystem Health Assessment compiled in 1994 by Dr. Richard Everett of the Forest Service Pacific Northwest Research Station, a report done by Dr. Norm Johnson and colleagues for Governor John Kitzhaber in 1995, the Interior Columbia Basin Ecosystem Assessment in 1996, the 1996 Blue Mountains ecosystem health synthesis report edited by Drs. Ray Jaindl and Tom Quigley, the 1997 Sierra Nevada Ecosystem Project, a General Technical Report on the environmental effects of post-fire logging done by Forest Service Research in 2000, the book Mapping Wildfire Hazards and Risks edited by Neil Sampson, Dwight Atkinson and Joe Lewis in 2000, and a 25 chapter special issue of Northwest Science edited by Dr. Jane Hayes in 2001 that synthesized forest health and productivity issues in eastern Oregon and Washington. Private forestland owners should also be encouraged to provide results of their work. Recent studies from the National Fire Plan and Joint Fire Science Project could add new information. The proposed Winter-Spring 2003 science and management workshops would build from the foundation of these reports.

FIRE INTENSIFIED RESEARCH AND EDUCATION (FIRE) PROGRAM

Funding Requested: 10% of total federal appropriation each year to forest and rangeland health and fire management work, est. $8-12 million per year for 12 years.

Likely Sources of Federal Funds: Specific authorization in "Healthy Forests" legislation related to the National Fire Plan or Joint Fire Sciences Program through the USDA Forest Service and the USDI USGS, followed by annual appropriations under the National Fire Plan.

Summary: In 2002, between January 1 and September 27, 2,300 wildfires burned through 1,012,828 acres in Oregon. The total cost of suppressing these fires is still being determined but state costs are estimated to be over $59 million and costs to the USDA Forest Service and other federal partners will be in excess of $319 million. Although the loss of such resources as timber, property, and habitat for species at-risk (e.g., northern spotted owl) has not been estimated, it surely will be in the hundreds of millions of dollars. Moreover, many experts believe that "catastrophic" wildfire seasons such as the one just experienced will continue in the future at huge costs to society.

Although scientists nationwide are making important contributions to our understanding of fire science and related disciplines through the National Fire Plan (NFP) and the President's Healthy Forests Initiative (HFI), an intensified, long-term, focused research and education program tailored to local needs in areas with high wildfire risk is needed to fulfill the expectations articulated in the NFP and the HFI. The problems confronting local resource managers following the 2002 wildfire season are complex (e.g., the Biscuit Fire in Southwestern Oregon) and are likely to reoccur if steps are not taken to provide a focused research and education program tied directly to investments made in fuels treatments or post-fire restoration activities. To meet these challenges and minimize future catastrophic wildfires, resource managers in areas with high wildfire risk need scientists and educators to work in partnership with them to address local conditions and their specific needs in an adaptive management approach, learning by doing linked to research. The Fire Intensified Research and Education (FIRE) Program will meet this need.

Experiences in Oregon have demonstrated that programs integrating fundamental and adaptive research with extended education, conducted in close cooperation with local resource managers, can be very successful. A key ingredient to success is placing interdisciplinary teams (if scientists in local communities where problems are most pronounced. This facilitates cooperative; partnerships, sharpens research to

address local needs, and reduces the time necessary to implement research results. This was clearly demonstrated by the Forestry Intensified Research (FIR) Program (1978-1991) and the Coastal Oregon Productivity Enhancement (COPE) Program (1987-1999). These programs provide a model of interagency collaboration in research and education to meet the most pressing information needs of resource managers, regulators, policy makers, and operators. But the funding mechanism used in FIR and COPE, earmarks to federal appropriations that redirected existing research dollars to the university, is not desirable. Building on these successes of interagency science partnerships and proposing a different funding model, the FIRE Program will provide research-based information focused on local needs determined by local information users and scientists working together as managers solve actual problems. Like the FIR and COPE Programs, a FIRE cornerstone will be continuous involvement of resource managers, regulators, policy makers, and operators from diverse public and private organizations throughout the duration of the program. Unlike FIR and COPE, research funding would come from an authorized portion of total appropriations for fuels management treatments, fire management, and post-fire restoration work.

The Plan for the FIRE Program in Oregon is a model that could and should be replicated in other western states. In Oregon the model calls for the establishment of four interdisciplinary, interagency teams of scientists with one team located in each of the following areas: Southwestern Oregon, east slope of the Cascade Mountains, Northeastern Oregon, and Corvallis. The Corvallis team will conduct research requiring sophisticated laboratory and analytical facilities. Teams will conduct research as integral parts of fuels and post-fire work, thus facilitating the needed land treatments in a learn-as-you-go mode. Extended education programs will transfer knowledge and technology beyond where the research is occurring. Collaboration among teams will be essential. Strong ties with county extension natural resource agents and practitioners will be established to strengthen research and extended education programs. The FIRE Program will have a 12-year duration.

The Goal of the FIRE Program is to develop new information and technology as an integral part of addressing fuels, fire and post-fire management work. These practical, yet science-based knowledge and technologies for public and private forest and rangeland resource managers, regulatory agencies, policy makers, operators, and local manufacturers will enable them to better prioritize and understand potential management and policy options, and related risks, benefits, and costs associated with pre-fire management practices and post-fire restoration actions in fire-prone environments. Key elements of this goal are information tailored to local needs and the rapid communication of research results. To accomplish this goal, FIRE scientists will focus on five broad objectives.

- Develop information on fundamental aspects of fire ecology and the influences of fire, fire management, and restoration activities on biota, physical resources, and communities.
- Develop and evaluate pre-fire stand and landscape practices and technologies that change the probability, behavior, and subsequent adverse effects of stand-replacing wildfire in forest and rangeland ecosystems.
- Develop and evaluate stand and landscape practices and technologies for forest and rangeland restoration following wildfire. Such practices will promote long-term recovery of desired forest and rangeland conditions while minimizing short-term environmental degradation. This would also include the identification and evaluation of treatment cost recovery opportunities, such as harvest of fire damaged trees that are consistent with land management goals and community needs.
- Develop a decision-making protocol or process for structured decision analysis that describes and evaluates the different risks, uncertainties, costs, benefits, and other factors associated with various alternative technologies, management actions and policies.
- Shorten the time to communicate research-based information and insure it is user-friendly.

Partnerships and Collaboration for the Oregon Model: Oregon State University (OSU), the USDA Forest Service Pacific Northwest Research Station (PNW Station), and the USGS Forest and Rangeland Ecosystem Science Center (FRESC) have a long history of successful collaboration on large, integrated research and education programs involving multiple partners (e.g., FLR and COPE Programs). Research and education projects conducted under the FIRE Program will be integrated with ongoing OSU, PNW Station, and FRESC projects to avoid unnecessary duplication and broaden the scope and effectiveness of existing efforts designed to address fire-related issues. This is particularly true in the case of the PNW Station, which re-

cently expanded its fire research and development program in response to the NFP and the HFI. The FIRE Program will complement existing research and education efforts of all three organizations by adding a much-needed, long-term local dimension and intensifying the integration of research and education efforts with resource management actions. OSU partners will include faculty and students in the College of Agricultural Sciences and possibly the College of Science and College of Liberal Arts. There is also the strong likelihood of collaboration with OSU's Cascade Campus, Eastern Oregon University, Southern Oregon University, other state and federal agencies, and the private sector.

Matching Funds: Salaries of tenured/tenure-track faculty and permanent scientists, and infrastructure/facilities/equipment of cooperating OSU units and partner institutions (e.g., PNW Station, FRESC).

Relevance to OSU's Mission: This proposal is consistent with the University's mission. More specifically, it directly contributes to the three strategic goals for the University (i.e., statewide campus, compelling learning experience, top-tier university). OSU is recognized throughout the world as a leader in natural resources research, education, and public service. The FIRE Program will enhance this stature while addressing a serious Oregon problem.

Overall Value to Programmatic Goals: In addition to the three strategic goals for the University, the FIRE Program will directly address an important College of Forestry strategic goal: develop collaborative and interdisciplinary approaches to address complex issues through teaching, research, and extended education. The FIRE Program will also establish OSU as a leader in fire-related adaptive management research thus better enabling the University to broaden educational programs and increase enrollment.

Determination of Need for Phased-in Federal Funding: Given the magnitude of the problem, federal funds are needed to support the program. Initial funding in FY04 would be on the order of $8 million for the Oregon model. This funding would be administered by the cooperating agencies and would be in addition to appropriations already planned for fire-related research. The total amount would increase to a maximum of $12 million in FY06 and would be maintained annually through FY13. Starting in FY14, funding will decrease until a minimum of $8 million is reached in FY15. Funds would be allocated annually among the three principal organizations conducting the FIRE Program (OSU, PNW Station, FRESC).

Implementing Mechanism: The most appropriate approach to initiating this proposal is to work with the Oregon (and other western) Congressional delegation to obtain specific language in authorizing legislation related to the President's Healthy Forests Initiative. OSU should develop a common strategic approach to this initiative with the PNW Station and FRESC in Oregon and work with similar coalitions in other western states to obtain a network of "FIRE Centers" throughout the west.

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