

**Statement of Laura McCarthy, Forest Trust**  
**Before the Senate Committee on Energy and Natural Resources**  
**Regarding Forest Health, Fuel Reduction, Insects, Fire and**  
**S. 1314, S. 1352, and H.R. 1904**  
**July 22, 2003**

Mr. Chairman and members of the Committee, thank you for the opportunity to testify today. I have worked for the U.S. Forest Service as a firefighter and a NEPA planner, and I now direct the policy program at the Forest Trust in New Mexico. The Forest Trust operates several programs that include consulting forestry on private lands, a research center, and technical assistance to forest-dependent communities.

Western forests are adapted to wildfire. It is important that our efforts to reduce fire risk leave room for fire to play its natural role. If we replace fire suppression with another, widespread and uniform set of practices, then 50-100 years from now we may find out that we have created a new, unintended forest crisis. I don't think anyone wants to make that mistake and I will explain the basis for our concerns in this testimony.

**Research on Fuel Reduction Treatments**

We need to take action that is based on the best information we can gather. At the same time, we must be realistic about the certainty of the information we have before us. Ever since the Forest Service proposed fuel reduction treatments in the Southwest, the Forest Trust wanted to understand the scientific foundation for the hypothesis that fuel reduction treatments will modify fire behavior in overstocked forests. Over a four-year period we examined more than 250 research papers covering prescribed fire, mechanical thinning, a combination of thinning and fire and commercial logging. The primary findings were:

1. The current research is, in general, inconclusive with respect to the effectiveness of mechanical thinning in changing wildfire behavior. This is because study methods and research results vary greatly. Only one quantitative empirical study has been completed.
2. The effectiveness of prescribed burning in changing post-treatment wildfire behavior is clearly demonstrated in many studies.
3. The limited number of studies that investigated the effectiveness of thinning and prescribed burning in combination produced equivocal results. More research is needed before firm conclusions can be reached.
4. We found no published scientific research on the positive effects of commercial logging on post-treatment fire behavior.

These and other findings in the Forest Trust report led us to conclude that a significant investment is needed in basic and applied research to provide a credible scientific basis for the design, implementation, and evaluation of alternative treatment methods. As an example of the kind of research that is needed, the literature review showed that tree density, which is the main variable controlled by foresters through thinning, is only one

of several factors affecting fire behavior. The distance from the ground to the base of the tree crown, and the amount and arrangement of surface vegetation and dead woody material, also play important roles, although research has not yet provided information about how these interrelated factors alter fire behavior. Currently, fuels management focuses on reducing tree density and not on influencing the other factors that affect fire behavior.

The Forest Trust surveyed the prescriptions in use for ponderosa pine fuel treatments in the Southwest and found that about half of the thinning prescriptions focused only on tree density. Many of these prescriptions did not include specifications for modifying crown base height, surface vegetation, or dead materials. The survey also found many excellent prescriptions from projects in places like Flagstaff, Arizona where the Ecological Restoration Institute is located. Yet most public lands do not double as research forests. The simplicity and lack of variety of the prescriptions in use, coupled with the tenuous scientific support for tree density as a factor that significantly influences fire behavior, is therefore cause for concern.

What this means for legislation: H.R. 1904, S. 1314 and S. 1352 seek to expedite fuel reduction treatments because of the social imperative to reduce the wildfire risk to communities. Since there is inconclusive evidence that thinning alone will reduce fire risk, we have an opportunity to use the expedited treatments to help forest managers test specific combinations of thinning and prescribed fire treatments through rigorous experimentation that develops site- and weather-specific data. In addition, we need to require that research, experimentation, and adaptive management are integrated into our national fuels reduction program. Only by doing so will we be able to determine which fuel treatments are effective and where they should be employed. Science and adaptive management will also help us identify and cease ineffective practices.

### **Insect Mortality and Wildfire Risk**

The wildfire situation is complicated by the interaction of wildfire, drought and insects, whose populations have reached epidemic proportions in many states. Western bark beetles are native insects that grow to epidemic levels about twice per century, corresponding with natural cycles of drought. The current epidemic of bark beetles is exacerbated by past management — the same practices that increased the risk of catastrophic wildfire. The narrow range of treatments prescribed for a wide variety of forest ecosystems in the last century simplified many forests, thereby weakening the forests' resilience to natural increases in insect populations.

As with thinning, we need to use the best information available to us. Unfortunately, we know even less about beetle-wildfire interactions than we do about the effects of thinning on fire behavior. The correlation between beetle-kill and increased fire risk is not well quantified in the scientific literature, and the results of recent studies are equivocal. For example, a 2003 study in the journal *Ecology* noted that little quantitative research has been conducted to test the hypothesis that insect mortality increases fire risk. The study looked at subalpine forests in Colorado and produced results that “do not support the

long-standing notion that insect-caused mortality increases fire risk.” The study found no increase in the number of wildfire ignitions, but did not look at increases in fire severity because of the difficulty of controlling experimental variables such as weather.

Wildfire behavior in forests that have sustained insect mortality is also not well understood. For example, experienced foresters in the Southwest concur that the fire risk in insect-killed piñon pine trees decreases in 2-3 years, as soon as the needles have dropped, a phenomenon that is also true for Englemann spruce. In contrast, insect-killed ponderosa pine trees become more flammable, because the insects stimulate pitch to concentrate in the tree boles and flammability remains high until the pitch decomposes. The differences in fire behavior of various tree species affected by insect mortality are not well quantified. Forest managers need this information to know when and how to develop treatment plans and to anticipate areas of higher fire risk after insect outbreaks.

Field experience also tells us that thinning to reduce fuel loads could inadvertently spread bark beetles in areas with live trees. Thinning, to foresters, means the cutting of live trees to reduce forest density and to increase the resilience of the remaining forest. Thinning generates substantial slash, and the attraction of bark beetles to slash is well documented. The timing of thinning and the treatment of slash during a beetle epidemic are critical. As a result, some Districts in the Southwest are adding controls on the timing of slash disposal to their contracts and prohibiting thinning during the insect breeding season.

Preemptive salvage of trees that may face insect mortality is an old practice, but it will not solve our problem. To foresters, salvage means the cutting of dead or damaged trees to recover their economic value. Preemptive salvage means cutting or thinning trees before they are damaged to obtain economic value, with a secondary benefit of lowering overall stocking and improving forest resilience. However, preemptive salvage that we have conducted in the past, in Western forests with spruce bark beetles and in Eastern forests with spruce budworm, has had poor results. The salvage harvests in these examples removed most, if not all, of the trees of economic value, including the sources of seed and shade for future regeneration. The forests in these examples did not regenerate adequately and the preemptive salvage depleted the long-term timber supply.

Preemptive salvage in areas affected by western bark beetles that are in drought conditions will likely fail. The freshly cut trees, presence of slash, and current conditions of overstocking and drought will allow the insect populations to increase and kill the rest of the stand, and could make regeneration difficult in the face of continuing drought.

What this means for legislation: H.R. 1904 includes both research and categorical exclusions for preemptive salvage of trees in areas that are, or may be, vulnerable to insect attack. The salvage could minimize economic losses, but it also may increase the intensity of the insect problem by creating new breeding grounds in the slash. A more reasonable solution, found in S. 1314, is to make funds available for information gathering programs on native and non-native insects that impact large areas of forest and to apply this information to the local management of insect-infested areas.

## Condition Class

The national-scale fire regime condition class data should not be used to locate local projects to reduce forest fuels. Fire regime condition class was developed by the Forest Service, Rocky Mountain Research Station for the purpose of “providing national-level data on the current condition of fuel and vegetation.” Examples of national-level data are: (1) summaries of the total acres at risk of wildfire; and (2) total acres of forests that have missed two or more natural cycles of fire. The scientists who developed the national-scale data explicitly state in their report and on their web site that the data are not accurate at the scale used to locate projects to reduce forest fuels. Yet this is exactly how most of the legislation that has been introduced would use condition class.

The Forest Trust tested the accuracy of condition class using the published national data and maps of current vegetation on the Santa Fe National Forest. Our test corroborated the authors’ concern that condition class may be inaccurate at the project level. Thus, use of condition class to site projects may result in significant errors that will allow many high-risk forests to be overlooked while low-risk areas are treated.

Instead of using national condition class data to decide which areas of forest need fuel reduction treatments most and where to expedite NEPA, we should be using the process of priority setting that has come out of the Western Governor’s Association 10-Year Comprehensive Strategy and Implementation Plan. Steps to carry out the priority setting actions in the Implementation Plan are already underway. The Departments of Agriculture and Interior, National Association of State Foresters, and National Association of Counties signed a memorandum of understanding in January 2003 to jointly develop a process to identify and prioritize fuel reduction treatments. The National Association of State Foresters is close to finalizing standard criteria for identifying high risk communities and high priority projects across the nation. These criteria will enable the states to produce collaborative plans in a short time and to involve all levels of government and interested stakeholders in deciding which forests should be treated each year. The process will be led by the states and will not be encumbered by NEPA. Projects on federal land that are selected as priorities will be subject to NEPA, but the review process should be smoother because of the public support for high priority projects.

What this means for legislation: H.R. 1904 will allow NEPA exemptions for hazardous fuel reduction projects in condition classes 2 and 3. The proposal has two problems. First, the national condition class data are not accurate enough to be used to determine project locations. If condition class is used to decide where projects should be expedited, planners will be faced with the difficult decision of correcting the data by hand, or waiting three or more years for the next iteration of more accurate condition class data. Second, there is not sufficient funding to meet all of the fuel reduction needs in condition class 2 and 3 forests. The projects that are easiest to get through NEPA will be the first to be funded. The link between NEPA exemptions and condition class in H.R. 1904 will create a de facto priority setting process that will make irrelevant the Comprehensive Strategy, and efforts at collaboration and planning at the state and local level.

## **Communities**

From our experience in New Mexico and with community-based forestry partners in other parts of the United States, we have learned that people in forest-dependent communities care about three things: (1) protecting their homes and property; (2) obtaining living-wage employment in the forest; and (3) restoring the health and resilience of both their communities and forests. H.R. 1904 makes the assumption that removing barriers for forest industry by increasing access to wood will improve local economies and help pay for fuel reduction work. Yet this assumption is too simplistic. We have learned from past experience that forest-based economic developers encounter many barriers including contracting procedures, consistent supply, and investment in value-added processing. To address the needs of people in the rural West, we need legislation that directly benefits economically disadvantaged, forest-dependent communities.

What this means for legislation: S. 1314 and S. 1352 both contain provisions that will stimulate local economic development and create markets for the by-products of hazardous fuel reduction. The essential components of legislation to benefit rural communities are: (a) an emphasis in the hazardous fuel reduction program on projects that benefit small businesses that add value to small diameter wood and woody debris; (b) consistent use of local preference and best value contracting; and (c) equal priority in the ranking process for poor communities that do not have the economic resilience (such as homeowner's insurance and investment assets) to survive a wildfire.

## **Environmental Review**

H.R. 1904 addresses the "process predicament," as it has been called by the Forest Service, despite several studies to the contrary. The General Accounting Office and Northern Arizona University published studies indicating that appeals are not causing significant delays to project implementation. In fact, there is increasing evidence that insufficient funding for hazardous fuel reduction projects that are "NEPA ready" is the cause of delays. Our research staff has repeatedly been told by District personnel in New Mexico and Arizona that projects that cleared NEPA, and were therefore on our list to survey, were on hold because of insufficient funding. Our experience, coupled with the studies about the appeals, leads us to conclude that expedited NEPA procedures will not result in significant increases in the rate of fuel reduction treatment. Rather, we fear that the changes to NEPA in H.R. 1904 will trigger a public backlash and weaken social acceptance of fuel reduction treatments, causing additional delays.

The appeals process is also important to communities, although they use it differently than other interest groups. Residents use the NEPA process to communicate their concerns to agency personnel about projects that will affect areas of forest they care about. Communities use the possibility of appeal as leverage to assure their concerns are heard. In one New Mexico example, a number of residents in Lama were upset with a Forest Service proposal to thin forest adjacent to their community in order to protect the town of Questa, 5 miles to the northeast. Nearly all of the forest south of Lama had

burned in the 1996 Hondo Fire, and the residents worried that the proposed new thinning would ruin the little forest they had left. The Forest Service had difficulty understanding Lama's concerns at first, but the NEPA process meant they had to listen. Eventually, and with the aid of a Collaborative Forest Restoration Program grant, the community and Forest Service found a solution that would protect homes in Lama and Questa and preserve the forest values at risk.

What this means for legislation: The NEPA exemptions in H.R. 1904 will protect most hazardous fuel reduction projects from appeal, eliminate the development of alternatives in environmental assessments, and limit judicial review. The unfortunate fallout from these provisions of H.R. 1904, which are intended to speed up "process," will be to weaken public trust, erode social acceptance of hazardous fuel reduction, and clog the courts with disputes that could be resolved in 90 days through the current appeals process. The provisions for expedited process in H.R. 1904 should be scaled back to limited modifications of appeal procedures and the use of categorical exclusions in community protection zones and municipal watersheds.

### **Short- and Long-Term Objectives**

The Forest Trust believes that first and foremost, communities must be protected from catastrophic wildfire. Accordingly, most hazardous fuel reduction funds should, in the short-run, be allocated to protect communities. The funding ratio should be re-authorized at specified intervals to ensure that there is a shift to forest restoration treatments as community protection is achieved. The level of funding allocated will determine the rate of transition from community protection to forest restoration.

Keeping forests healthy will require an up-front investment in fuel reduction and restoration and a commitment to managing future fuel accumulations. Some scientists estimate that 15 years after thinning and slash disposal, new forest growth will create fuel accumulations that are back up to the pre-thinned level. A regular program of prescribed burning and wildfire use, coupled with thinning in some instances, will maintain fuel loads at normal levels and prevent natural fires from becoming catastrophic. This management strategy is essential to contain fire suppression costs over the long-run. If we do not require and fund these maintenance treatments, the current federal investment in hazardous fuel reduction will be lost.

What this means for legislation: Allocate the majority of fuel reduction funding for community protection and the remainder to restoration of wildland forests. Review and re-authorize the percentages periodically. State flexibility should be built into the percentage allocation, as in S. 1352, so that restoration projects in wildland forests are not excluded where they are needed. H.R. 1904 and S. 1352 do not address the need for maintenance treatments to prevent excess fuel accumulation after the initial fuel reduction activity. A section on long-term maintenance, as in S. 1314, requiring managers to plan prescribed fire and wildland fire use in treated areas, is essential to restore natural fire regimes and to ensure that future generations do not find themselves saddled with the same fire problem we face today.