

**Testimony of Dr. William Wallace Covington, Regents' Professor  
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<http://www.eri.nau.edu>

Before the House Resources Committee  
U.S. House of Representatives

**Hearing to Discuss the President's Healthy Forests: An Initiative for Wildfire  
Prevention and Stronger Communities**

September 5, 2002

Chairman Hansen, and members of the Committee, 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 Wally 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 of forest health at NAU since 1975. Throughout my career I have applied my academic skills to real world problems. I chair Arizona Governor Jane Dee Hull's Forest Health/Fire Plan Advisory Committee and am a member of the National Commission on Science for Sustainable Forestry.

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 health, and natural resource conservation.

I am founder and director of the Ecological Restoration Institute located in the Office of the President, Northern Arizona University. The ERI is recognized as the national leader in forest restoration-based fuel reduction technology transfer, outreach, in-service education, public information, and mission oriented research for forest restoration. The Institute and its partners in federal, state, private, and NGO sectors have the talent and expertise in place and are applying it to get operational scale forest health restoration treatments on the ground. Working with partners, the Institute has built strong local, state, regional, and national support for restoration-based fuel treatments.

## **WE MUST ACT INTELLIGENTLY NOW WHILE CONSIDERING THE IMPACT OF OUR ACTIONS ON THE FUTURE**

What is needed today is clear thinking. Fuzzy thinking can be a major threat to marshalling the nation's resources to address the critical problem in time to prevent catastrophic losses that will affect generations to come.

There is plenty of blame to share over the current state of our forests. This hearing is intended to go beyond the blame to solve the crisis. It is my role and obligation as a scientist and as a professional forester to bring honest, objective, facts and informed recommendations to this committee. I will attempt to do so in this statement.

My testimony will focus on the science of forest restoration and how to reverse the trend of increasing catastrophic wildfires in the dry forests of the West by implementing science-based forest restoration treatments.

### **WHAT MUST BE DONE**

- 1. We need to act swiftly and with great care so that future generations do not inherit yet another forest management crisis. The best way to do this is by following a scientifically rigorous, environmentally responsible, and socially and politically sound approach. Such an approach must begin with careful definition of the problem.**
  - a. Large, catastrophic stand replacing fires are natural in chaparral, lodgepole pine, spruce/fir and other forest types. We can do little to change that.
  - b. Such fires are not natural in the ponderosa pine and dry mixed conifer forests and are a major threat to ecosystem integrity and sustainability
  - c. According to a 1999 GAO report over 90% of the fire suppression expenditures were spent in the frequent fire forests of the West.
  - d. There is abundant relevant scientific research in the ponderosa pine type that began in the 1890's and continues today that provides a sound scientific framework for implementing the science and practice of restoration. We have solid information about presettlement forest conditions, 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.

## **2. The problem is complex**

- a. It's not just about drought—we have always had periodic droughts and always will, but the forest has never had the fuel loads that exist today
- b. It's not just about houses burning—although the loss of a home is tragic, houses can be rebuilt in months. However, ecosystems take centuries, and watersheds millennia
- c. It's not just about crownfires—crownfires in ponderosa forests are just the latest in a long series of symptoms of failing ecosystem health, other symptoms include disease and insect infestations and before that the loss of native biodiversity, the decline of watershed function, and increased erosion and sedimentation
- d. It's not just about too many trees—it's about too few old-growth trees and far too many younger trees
- e. It's not about cutting trees—it's about thinning forests (as opposed to logging) and implementing a range of techniques to restore ecological integrity and create a long term solution
- f. It's not about 40-acre stands or a quarter mile strip around a town—it's about greater ecosystems that have become so degraded and fragile that they are no longer sustainable, and a liability rather than an asset to present and future generations

## **3. There are solutions, and we can do it**

- a. To restore these degraded ecosystems, it is essential that we restore entire greater landscapes, and do so quickly—time is clearly not our ally
- b. We must do so in a systematic, scientifically rigorous fashion
- c. For protection of structures such as houses, the science seems pretty clear: use fire resistant materials, fire resistant landscaping and don't build too close to heavily fueled landscapes
- d. For protection of watersheds, critical habitat for humans and other animals and plants we have to think much bigger. Here we need to think and act at the scale of greater ecosystems—large chunks of the landscape that include not only wildlands but also embedded human communities. These greater ecosystems typically occur on a scale of 100,000 to 1,000,000 acres
- e. The treatments are straightforward, they include:
  - i. Retain trees which predate settlement
  - ii. Retain postsettlement trees needed to re-establish presettlement structure
  - iii. Thin and remove excess trees
  - iv. Rake heavy fuels from base of trees
  - v. Burn to emulate natural disturbance regime
  - vi. Seed with natives/control exotics

**4. There are many benefits from ecological restoration in these dry forest types beyond the reduction of crownfire**

- a. It eliminates unnatural forest insect and disease outbreaks
- b. It enhances native plant and animal biodiversity
- c. It protects critical habitats for threatened or endangered species
- d. It improves watershed function and sustainability
- e. It enhances natural beauty of the land
- f. It improves resource values for humans, not just for current, but also for future generations
- g. In cases where a road system is in place and small wood processing facilities are available, the trees removed can often help defray the cost of restoration treatments and provide jobs and income for local communities

**5. There are challenges to implementing restoration**

- a. It could be expensive in the short term, but it will save money and resource values over time
- b. It is important that we assure that trees that are removed are being removed for the purpose of restoring natural forest patterns and processes
- c. Political maneuvering over setting one-size-fits-all diameter caps can interfere with cost effective, ecologically sound restoration

**6. There are consequences if we fail to implement restoration based hazardous fuel reduction at the greater ecosystem scale**

- a. Piecemeal solutions will treat symptoms and not the underlying disease
- b. Scientific evidence supports the prediction that if we do not act quickly the number, size, severity, and costs of wildfires in the dry forests of the West will increase

## **RECOMMENDATIONS**

**1. Design treatments starting with solid science, set standards for effectiveness, and measure progress**

Research to date indicates that alternative fuel reduction treatments have strikingly different consequences not just for fire behavior but also for biodiversity, wildlife habitat, tree vigor and forest health. Treatment design should be based on what the forest requires to maintain health and reduce catastrophic fire. Science-based guidelines should be developed and become the foundation for treatments. In addition, they should be the criteria for evaluating the effectiveness of treatments. Guidelines will help guide managers and provide a base of certainty to those that are distrustful of land management agencies. The standard should be clear—if a treatment does not permit the safe reintroduction of fire and simultaneously facilitate the restoration of the forest it is not a solution.

**2. Reduce conflict by using an adaptive management framework to design, implement and improve treatments**

We can wait no longer. Solutions to catastrophic wildfire must be tested and refined in a “learning while doing” mode. Two of the barriers preventing the implementation of landscape scale treatments are the unrealistic desire for scientific certainty and a fear that once an action is selected it becomes a permanent precedent for future management. Scientific certainty will never exist and the past century of forest management demonstrates the need for applied research and active adaptation of management approaches using current knowledge. We should expand our environmental review process to provide approval of a series of iterative treatments, provided they are science based, actively monitored and committed to building from lessons learned and new information.

**3. Rebuild public trust in land management agencies by continuing to support a broad variety of partnership approaches for planning and implementing restoration-based fuel treatments**

The lack of trust that exists between some members of the public and land management agencies is the genesis for obstructionist actions. The only way to rebuild trust is to develop meaningful collaborations between the agencies, communities and the public. There are emerging models of various forms of collaborative partnerships working to reduce the threat of fire while restoring the forest for its full suite of values. Their success depends on meaningful community collaboration, human and financial resources and adequate scientific support to make well informed management decisions. Congress, federal agencies, universities, and non-governmental organizations must support these communities to help them achieve success.

We are at a fork in the road. Down one fork lies burned out, depauperate landscapes—landscapes that are a liability for future generations. Down the other fork lies healthy, diverse, sustaining landscapes—landscapes that will bring multiple benefits for generations to come. 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 explorers saw in the late 1800s.

**Knowing what we now know, it would be grossly negligent for us not to move forward with large-scale restoration based fuel treatments in the dry forests of the West. Inaction is now the greatest threat to the long-term sustainability of these western ecosystems.**

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