

March 10, 2005

Honorable Richard Devlin, Chair
Ways and Means Subcommittee on Education
S316

RE: Public Testimony for Statewide Public Hearings

Good Morning, Mr. Chair and Members of the Ways and Means Subcommittee on Education. I am Hal Salwasser, Dean of the College of Forestry at Oregon State University and Director of the Oregon Forest Research Laboratory. Thank you for this opportunity to share with the Committee the purpose, mission, priorities, and impacts of the Oregon Forest Research Lab, or FRL as many call it.

FRL and the Oregon Forest Sector

Oregon's forest managers, forest products manufacturers, and policy makers depend on leading-edge science, technology and innovations developed at FRL to enhance their competitiveness in domestic and global markets and devise rational policies for the public good. The foundation of Oregon's forest sector competitiveness is our superior environmental, economic, and social performance in protecting our Living Legacy of 28 million acres of forest—45 percent of the State's land area—and keeping it productive, diverse, and resilient for such important forest values as fiber, clean water, abundant native fish and wildlife, recreation, tourism, and atmospheric processes. FRL scientists serve Oregon in 3 distinct ways: First, the science and technologies they produce are the foundation for sustainable and profitable management of forests and manufacturing plants. Second, doing FRL research and bringing it into the classroom transforms the lives of students and helps produce work ready graduates full of new ideas and entrepreneurial spirit. Third, FRL results feed directly to more than 35,000 family forest owners and 2,000 manufacturers through direct outreach and through OSU's Forestry Extension program. My focus here today is on our research and technology development, the first of these values that FRL delivers to Oregon.

The Oregon Forest Research laboratory was established by this legislature in 1941, as the state's forest research agency to directly aid Oregon's forest sector and protect our forest assets for their many benefits. For more than 60 years, FRL faculty, working closely with colleagues in federal, state and private research agencies, have conducted multi-disciplinary, problem-solving research on tree genetics, nurseries, reforestation, young stand management, soils, water quality, forest productivity, forest fish and wildlife, forest ecology, forest protection from fire and pests, forest-climate interactions, tree harvesting and log transport, manufacturing efficiency, value-added wood products, and forest products marketing. Along the way they have also pioneered in new forest product development, forest policy, forest resource economics, forest planning, forest recreation, and landscape-scale ecosystem assessments. Oregon citizens have benefited through FRL-influenced forest policies and practices that sustain some of the world's most productive and diverse forests and innovative forest-based businesses that have been strengthened through economic and land-use tribulations. FRL is one of very few "full-service," comprehensive forest R&D operations in the nation and world.

Oregon's forest sector in 2005 is vital, vibrant and among the world's most productive and competitive. It produces \$12.6 billion in annual economic activity for the state and directly supports 85,600 family-wage jobs, 80 percent of which are in rural communities. Forest-based recreation and tourism add another \$2 billion and tens of thousands of jobs. The forest sector creates more than 50 percent of the employment base in 42 percent of Oregon's counties and generates more than 25 percent of the traded sector economy in 22 of Oregon's 36 counties. Since Oregon's forests cannot be outsourced or moved to a lower cost country, they are an abiding and sustaining source of well-being, wealth, economic vitality and social infrastructure for our state. Oregon remains the largest state producer of softwood solid wood building materials to the largest wood building nation in the world and we enjoy a reputation for superior quality and service in our products. Our forests protect water quality, watersheds, and native fish and our forest products manufacturers set the standard in efficiency, technological innovation, and environmental performance.

However, the global marketplace is rapidly becoming highly competitive and Oregon is a high-cost fiber producer. Our species, land productivity, manufacturing efficiency and proximity to domestic markets offer a competitive edge for the moment. But that edge may well be transitory without investments to secure to our future. A recent OFRI study concluded that the health of our forests is tied as much to the economic health of communities and landowner communities as to the breadth of our conservation actions.

FRL Mission and Vision

So, we are not resting satisfied, in Oregon or at FRL. To stay ahead of the world and retain our current market advantages of superior economic and environmental performance we can and must do better. Our vision at FRL is to be the world's premier forest resource academic institution and our reason is simple: we expect to be the education, research, and outreach engine for the world's premier forest sector. And our view of this forest sector is all inclusive: we appreciate and address forest values from forested wilderness to tree farms; forest products from wood and water to wild things and wild places; forest uses from jobs and recreation to learning and subsistence; and forest and mill owners from industry and families to government agencies and citizens at large.

Mr. Chair, let me take a few moments to describe some of the amazing innovations currently flowing to Oregon's forest sector from FRL scientists. I highlight just six to give you a flavor or our transforming impacts; I could easily tell you about dozens more.

Amazing Innovations at FRL

Oregon has long led the nation in regulating forest practices to protect water quality. However, policy makers considering revisions to these regulations currently depend on out-dated scientific studies on the environmental effects of forest management practices on the environment. Much of this science was developed more than 30 years ago when large machines pushed the first roads into natural old-growth forests and removed very large trees, often skidding them along the ground and through stream channels. Logging systems and road construction and management practices have evolved considerably since that time.

Contemporary forest practices occur from an existing road network and involve use of smaller machines, moving smaller trees that were often planted for the purpose of growing wood. We need new science that evaluates the environmental effects of these current forest practices in order to craft laws that protect water quality and aquatic habitat, and promote the economic vitality of Oregon's forest sector. Hinkle Creek in Douglas County is giving us that science. But the watershed science of today is not at all like that of the 1960s. Scientists at Hinkle Creek, led by Dr. Arne Skaugset and a team that includes cooperators from ODF, ODFW, USGS and OSU's College of Agricultural Sciences, are studying soils and water chemistry, native fish, the foods fish eat, amphibians, riparian vegetation and their responses to contemporary forestry practices through use of remote sensing technologies and new high-tech research tools. While states around us suffer from regulatory creep based more on emotions than science, Oregon will have the data to know if its forest practices are "too hot," "too cold," or "just right." The **Watersheds Research Cooperative** is one of five innovation initiatives opened by FRL in 2004 to directly assist Oregon's forest sector address the challenges of the 21st Century.

To assist with planning the management of our state forests in western Oregon and their pioneering innovations in landscape-scale forest management, FRL faculty, led by Dr. John Sessions, are using a combination of remote and field based data to model, monitor, and adapt complex management scenarios that protect water and the full range of native fish and wildlife in working forests that include sustainable flows of wood and recreation. These scenarios offer the state science-based alternatives to Coast Range federal forest plans that achieve temporary environmental protections at the expense of community and economic sustainability and perhaps even at the expense of long-term environmental protection.

One of the challenges for certified forest products, tracking logs from the woods to the marketplace, is being tackled by FRL scientists, led by Dr. Glen Murphy, using the unique aromas that individual organisms possess. Electronic "aroma trackers" are under development to apply a scent "signature" to a log as it leaves the forest, a signature that can be detected in lumber from that log all the way to its point of sale. Not only will this aid in "chain of custody" programs but has the potential to allow improvements in value recovery from the original log, each one percent of which is worth approximately \$130 million to Oregon's economy.

Work is now underway to strengthen our research and outreach efforts in wildland fire science and ecosystem health and restoration. Two new faculty hires -- one primarily via endowed funding and one via partial replacement of a retired faculty member—anchor this program and enhance our ability to collaborate with other campus-based faculty as well as with scientists in external agencies. We are working closely with federal forest managers in central Oregon to capitalize on the landscape and conditions created by the recent B&B Complex Fire (summer 2003). This involves establishment of "outdoor learning laboratories" where students and tour groups can observe, measure, and assess the changes brought about by this major fire. The project will provide an excellent backdrop for educational, research, and demonstration work in this fire-prone area of central Oregon.

Due to state budget limitations in recent years, virtually all of our work in wildland fire and ecosystem health restoration is funded by external sources. We have secured grants, built

private gift endowments and fellowships to further this vital work. But to sustain momentum, we will need state resources to support this enterprise.

Beginning in 1990, Swiss Needle Cast (SNC) disease had severely infected Douglas-fir stands in the Oregon Coast Range. In 2004, aerial surveys identified nearly 177,000 infected acres. Stem volume growth losses in young (10-30 year-old) stands in this area averaged 23 percent and in some plantations were as high as 52 percent. In 1997, it was estimated that the impact of this disease on the growth of plantations was a 43 million board feet per year reduction, amounting to losses of \$10-15 million per year at current stumpage rates. In 1996, FRL scientists formed the Swiss Needle Cast Cooperative to conduct problem-solving research to better understand this disease and reduce its impact. This has been a highly successful collaboration between industrial and government foresters, pathologists, and silviculturists. Research results from the SNC Coop to date have: (1) developed models that predict site conditions where the disease will be most severe and where it would be wise to plant species other than Douglas-fir; (2) identified fungicides that are most effective in controlling spread of the disease; and (3) provided foresters with information on how to best manage stands at various levels of infection to maximize yields in the presence of the disease.

The SNC Research Cooperative is an example of the kind of collaborative, integrated, problem solving research that FRL will employ in the newly emerging Planted Forest Productivity and Value Enhancement program. The goal of the planted forest productivity program is to enable managers to choose the combination of genetic stock, nursery practices, site preparation, silvicultural tools and other management practices that will optimize productivity and value of planted forests and their sustainability over time; all critical to helping forest managers who choose to compete in global wood markets maintain their competitive advantage.

And now for the innovation that excites me the most. Engineered wood products such as plywood, glulam beams, particle board, and laminated veneer lumber have historically used formaldehyde-based adhesives to bond the wood into the product. Formaldehyde is a known human carcinogen. FRL scientist, Dr. Kaichang Li, has discovered how to make formaldehyde-free adhesives that mimic the way that fresh-water mussels attach themselves to rocks and piers. The process uses protein from soy beans. This “new glue” has been tested successfully in mill trials and an Oregon company is preparing to convert its entire operations to using this discovery. A patent is pending and the technology is now licensed for commercial application. If it works, and all signs are go so far, it could revolutionize the engineered wood industry, as companies scramble to maintain market share attainable only by those who free the environment from a nasty chemical and replace it with a product with superior strength and moisture resistance. “New Glue” is just one of the many innovations that will flow from the Oregon Wood Innovation Center we propose to open through FRL at OSU.

FRL Capacity Trends and Impacts

Mr. Chair, due to state budget declines in recent years and as reflected in the Governor’s proposed budget for 2005-2007, FRL has or will reduce its science capacity by 27 percent since 1999. This has direct impact on Oregon’s aspirations for forest health and economic recovery and especially on the roles that rural Oregon communities and businesses can play in a diverse, traded sector State economic portfolio. At FRL we are doing everything in our power to stem

this loss in capacity by generating non-state financial resources but our ability to leverage external resources depends on our base of state funding; as state funding declines, our ability to leverage external funds declines. I opened by telling you that FRL faculty also teach and engage in extending their knowledge to forest and wood products manufacturers. The potential for a 27 percent loss in FRL capacity since 1999, thus impacts far more than forest resource research in the state.

We also are beginning to use new metrics to keep track of our performance. For FRL these include: Research publications per FTE; Research funds leveraged through grants or contracts; Recognitions of FRL science through awards, presentations or patents; and New research projects initiated.

Thank you for this opportunity to tell the OSU and FRL story. I will be pleased to answer any questions you or the Committee might have.

Now, I am pleased to introduce two Oregon citizens who have traveled to Salem today to tell you how FRL programs impact their lives and businesses. Ray Jones of Roseburg Forest Products and Mike Barnes from Oregon Small Woodlands Association.

Sincerely,

Hal Salwasser, Director
Oregon Forest Research Laboratory