

## Sustainable Approaches for Mountain Forest Harvesting

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Mountain forests are valuable resources providing wood, water, and wildlife habitat, a wide variety of non-timber products, recreation and scenic quality. Meeting society's demands for wood products while maintaining and enhancing those scenic, protective and productive values requires skillful application of forest engineering operations and management knowledge.

Beginning in 1969 and approximately every three years, the accumulated knowledge and technology gained by experience and research of private industry, contractors, public organizations, universities and research organizations in the Pacific Northwest region of the USA, and other mountainous regions around the world, are disseminated at the *International Mountain Logging and Pacific Northwest Skyline Symposium*. The 13<sup>th</sup> Symposium, held in Corvallis, Oregon, USA from 1-6 April 2007, focused on sustainable approaches for mountain forest harvesting including technical, economic, environmental, and social issues with harvest planning, forest road management, and logging operations.

### Social Aspects of Mountain Forest Harvesting

Sustainable management issues and opportunities involving forest harvesting include changing workforce dynamics and cultures; the environment, forest biomass harvesting and utilization for energy and bio-based products, and applications of emerging technologies. A USDA Forest Service Research Paper characterizes today's loggers as "older, better educated, and more skilled; a large portion are self-employed, many work less than a full year, a substantial number have incomes below the poverty level; and mechanization will continue to affect the size and makeup of the labor force". In the next five to ten years, the forest operations workforce will experience significant retirements of salaried forest managers and woods workers. In the PNW region of the USA, there will be an increasing Hispanic participation in forest operations. Solutions to these programmatic issues include stronger efforts with recruitment, training and retention, family living wages, developing new training materials for different cultures, and safety management.

With increasing global demand for timber and other products from forests, mountain forests can grow trees and provide a multitude of resources for society. However in many mountain forest regions around the world, public attitudes

determine regulation of timberlands and the degree to which commercial forest management will continue in the future. Conventional and new forest harvesting and transport technology can be used to help solve forest management problems such as forest health and uncharacteristic wildfires, while at the same time, providing greater wood utilization for new markets, energy and bio-based products.

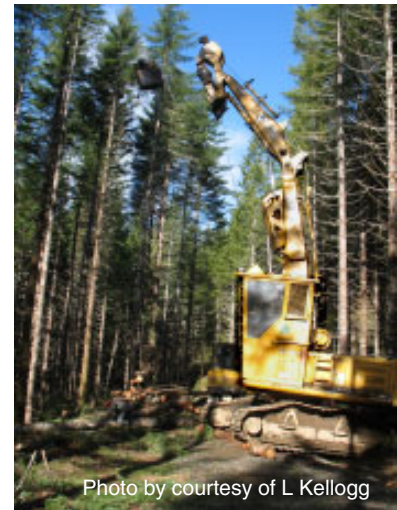


Photo by courtesy of L Kellogg

### Mountain Logging Technology and Innovations

New skyline logging technology has been developed for combined cable yarding and tree processing with a 2-3 person crew. Skyline thinning operation productivity and residual stand protection are improved when more time is spent on detailed logging operations planning and monitoring including skyline corridor layout, and field design of intermediate supports and tailtrees. More expensive logging technology including long-span skylines and helicopters fill an important niche in producing timber and protecting mountain forest resources. New harvest planning software and harvest operations assessments have been developed.

Forest road management in mountain forests is a critical aspect affecting the operational economics and the effectiveness in protecting soil and water resources. Transportation planning and decision analysis, often assisted with software and models, is applied to determine road standards, long term road management needs, and environmental risks and tradeoffs with forest road practices. Alternative road construction equipment and techniques have appropriate applications to meet sustainable management objectives.

The *International Mountain Logging and 13<sup>th</sup> Pacific Northwest Skyline Symposium* was organized and hosted by the Oregon State University, Department of Forest Engineering. Co-sponsors were [IUFRO 3.01.00](#) – Harvesting and Transportation Engineering, and Division 3; the Oregon Forest Resources Institute (OFRI), the Associated Oregon Loggers (AOL), and Oregon State University. For *symposium proceedings*, please contact: [feddept\(at\)cof.orst.edu](mailto:feddept(at)cof.orst.edu)

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