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COMMENTARY

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'New forestry' better way to cut up the pie

Alternative logging methods offer compromise

(EDITOR'S NOTE: Jerry Franklin was recently described by The New York Times as "the nation's foremost expert on ancient forests." He spoke at the "Oregon's Forests in 2010" conference held in Eugene in February. At the invitation of The Register-Guard, he drew on those remarks to write this article. A 1959 forestry graduate of Oregon State University, Franklin is chief plant ecologist for the U.S. Forest Service Pacific Northwest Research Station and is the Bloedel professor of ecosystem analysis in the College of Forest Resources at the University of Washington.)

By JERRY FRANKLIN

THE CURRENT DEBATE OVER the fate of the remaining old growth forests focuses almost exclusively on "dividing up the pie" — deciding how many acres should be devoted to commodity production and how many to preservation.

Presumably, commodity lands would be managed "intensively" for high yields of wood fiber. Preserved lands would be totally withdrawn from timber cutting. The interested parties apparently feel that their objectives can be achieved only with such an exclusive division of lands. Production of commodities and preservation of ecological values are assumed to be incompatible. Unfortunately, we in the forestry profession have done a poor job of providing convincing evidence to the contrary.

Limiting the debate in this way is unfortunate. Society needs commodities from forest lands. But society also wants and needs to have amenities and ecological values maintained. These latter concerns are expressed in a variety of ways including laws to protect endangered species. Many also want an emphasis on long-, rather than short-term, perspectives in resource stewardship and on maintenance of more options in the face of major future uncertainties, such as potential global climatic change.

Are there alternatives to the stark choice between tree farms and total preservation? I believe that ecological research on forest ecosystems and landscapes is providing us with the basis for such alternatives. In the last 20 years we have just begun to understand the incredible complexity of forest ecosystems, including the importance of many previously ignored "parts." For example, standing dead trees (snags) and down logs contribute to the long-term productivity of forests and streams and provide critical habitat for wildlife, from microbes to birds and mammals.

Landscape ecology reveals relationships between forest stands and management activities at the level of river drainages. Problems, such as "fragmentation" of forest areas into small, vulnerable pieces by cutting practices, have emerged from such studies. We also understand much better how nature "regenerated" her forests following catastrophes, such as wildfire, windstorm and volcanic eruption. Such natural events typically leave behind much larger "legacies" of energy, nutrients, physical structures (for example, snags) and even living organisms for the young forest ecosystem than do most cutting practices.

Such knowledge can be the basis for a kinder and gentler forestry that focuses equally on commodities and ecological values. Such a "new forestry" uses ecological principles to create managed forests that are superior to those created under common current forestry practices in simultaneously providing for commodity (especially wood production) and non-commodity values (such as forest wildlife). Ironically, we have

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finally begun developing a sound ecological basis for the often-maligned concept of multiple-use forestry!

Stands with a high level of structural diversity are essential to maintenance of many ecological values, including numerous species of wildlife. One reason that old growth forest ecosystems are so valuable as wildlife habitat is the varied structures of such forests — trees of all sizes, down logs on the forest floor, large snags and multilayered leaf canopies that extend from crown to ground. One objective of new forestry is creation of managed stands which have higher, often much higher, levels of structural diversity than under current practices. Retaining more down wood, snags, and wildlife trees at the time a forest is cut is a demonstrated way of achieving this objective. Logs are needed to maintain stream productivity and fisheries, too.

Leaving some large green trees behind may be another valuable approach to creating structurally diverse managed forests on many cutover areas. In this way, new forests are created that have a mixture of tree sizes, including some of the larger, older trees. Retaining large green trees can yield numerous ecological benefits in terms of ameliorating site conditions and providing refuge and habitat for many animal and plant species that might otherwise be eliminated from cutovers.

There is even evidence that predominantly young stands that inherited significant components from old growth stands, such as large live trees and snags, may fulfill the habitat requirements of species such as the northern spotted owl; on the Olympic Peninsula owls are known to live in multi-age stands of this type created by wildfire and by wind storm.

It is feasible to leave large trees behind on cutover areas. Foresters often use shelterwood cuttings to assist in regeneration: a number of large trees, often eight to 16 per acre, are left behind to reduce climatic extremes and provide seed. Similar densities of large "leave" trees could be left through the next growth cycle or rotation rather than being removed after five to 10 years as is the case with shelterwood. Such an approach should not be confused with "selection" forestry in which only individual or small groups of trees are removed.

New forestry is also concerned with overall effects of practices at the level of river and large stream drainages. Most managed landscapes, in order to provide adequately for ecological values, must include significant and well-distributed areas reserved from logging; these would be sites that have special ecological value, such as streamside corridors, research sites, and areas of unstable soils. Functionally, these would provide islands rich in biological diversity within a matrix of lands dominantly committed to some level of timber production. Cutting patterns — size and location of cutovers — would be an important consideration.

The system of dispersing small clearcuts through a forest matrix, which is currently in widespread use, can divide or "fragment" the remaining forest into patches that are too small to provide habitat for some animal species and are vulnerable to windthrow; dispersing cuttings also has substantial economic costs. Aggregating cuttings in large blocks may be a better alternative in some circumstances, especially if cutover areas are treated so as to retain more structural diversity.

Such modifications of stand and landscape level activities actually are being tried? Research and pilot testing of such concepts are under way at numerous locations by the U.S. Forest Service and the Washington Department of Natural Resources. Some practices, such as providing for snags and down logs, are being widely adopted while others, such as retention of large green trees and clustering or aggregating of cutover areas, are in early stages of exploration. The H.J. Andrews Experimental Forest and Blue River Ranger District on the nearby Willamette National Forest are leaders in developing and implementing such innovative practices.

A shift in agenda is needed. Industrial users must recognize that society views our forest lands as more than just agricultural lands with a slow maturing crop, and it expects more of them. There needs to be more acknowledgment in the forestry profession that what is good for wood fiber production is not always best for other forest values. Conversely, conservationists must begin moving away from preservation as the sole solution for many societal objectives. Reserved lands are needed to preserve many ecological values but most of our forest lands, particularly highly productive and ecologically diverse sites, will be used for commodity protection. Hence, management of these commodity lands is critically important to all of us.

Incorporating our ecological knowledge into management systems for the compatible production of commodities and protection of ecological values is critical. Such a "new forestry" concept should occupy a central place in the current debate as the basis for sharing at least some of the pie, rather than dividing it.