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FOREST MANAGEMENT FOR MINIMUM CONFLICT

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ABSTRACT

Conflicts in forest management result from fear among user groups that specific management practices will jeopardize their interests while ostensibly favoring others. This paper emphasizes improvement in understanding of various practices so that groups will not become alarmed unnecessarily over inconsequential matters and will participate in compromise management options that deliver optimum ratios of benefits to all parties.

Examples are outlined to illustrate that spotted owls and timber production may be compatible on a given acre, that productive alternatives can be found to using repellents or shooting large numbers of game animals to safeguard forest regeneration, and that intelligent use of DDT or 2,4,5-T may well be ecologically the safest way to live with some forest pest problem.

Public acceptance of forest practices needed for maintenance of resources exposed to constant pressure requires an educated public. I propose that information on conservation and resource management–and not tied to user interests–be promoted at all educational levels, beginning with elementary schools and extending to graduate schools and legislative bodies.

INTRODUCTION

Most conflicts in forest management arise from disagreement over management objectives, over whether or not management tactics are in support of objectives, or over whether or not alternative practices have been given equal consideration as means of achieving the same objective. Conflicts of these types are not uncommon between forest managers and wildlife interests.

Little dispute over the desirability of good habitat for wildlife has arisen. Abundant, high-quality water and continued supplies of wood are needed, obviously, and all of these should be produced by an environmental management scheme that is compatible with our definition of a nice place to live. Thus, all resource interests start off with the same general objective, but differ primarily in their outlook on priorities of specific benefits.

The purpose of this paper is to illustrate that often several possible approaches to management may serve multiple priorities with a minimum of compromise. Public acceptance of alternatives depends substantially on public education, but also on willingness of resource managers to accept change and innovative approaches to management. I cite several examples of specific conflicts to illustrate the general point.

THE SPOTTED OWL

The spotted owl has been the focus of a "do-don't battle" between the forest industry and conservationists. Wildlife biologists have pointed out that this species depends on old-growth timber for its habitat. Representatives of the forest industries have observed that growth of mature stands is slow, and that setting aside spotted owl preserves large enough to sustain the species within prime timber producing areas would be excessively costly in terms of commercial forest land taken out of production. The only alternatives given serious consideration in this controversy include short-rotation, even-age management–or no harvesting at all. Lip service has been given to selective harvesting in old-growth. Fundamental to the controversy is the definition of acceptable spotted owl habitat, on the one hand, and on the other, the question of who is to pay the cost of maintaining the owl, if sacrifices in wood production are necessary.

Resolving the conflict will require that the range of suitable habitat be defined, and whether or not harvesting methods can be applied that leave habitat within this range. At this time, we can not say how wide a range of conditions would be acceptable for the owl. Voelker (4) has elaborated some concepts of long-rotation management that should help the timber producers adapt to more flexible management schemes, however. He found considerable evidence in the literature that rotations of 120-140 years could be managed without significant loss of value increment. He was able to demonstrate that the small reduction in growth with longer rotations would be offset by less frequent reforestation costs and higher value products resulting from production of large timber. The principal cost of such management is interest on investment in growing stock and taxes that accrue on it. He concluded that an appreciable percentage of our prime timber lands would be adaptable to this type of management, without designating it as wilderness or preserve. In view of the availability of the information Voelker used, it is surprising that this concept hasn't received more attention.

Should long-rotation silviculture be adaptable to owls (and biologists must yet define their specific needs), the remaining question is: How are society and industry going to resolve the carrying costs? With timber priced at $175 per thousand board feet and interest at 10 percent, the costs are considerable. Appropriate resource specialists should evaluate the incentives for adopting such an approach and cooperate in appeals to legislative bodies for special measures in which society would share the cost of defining and maintaining a specialized habitat.

BROWSING DAMAGE

Deer and elk damage to young plantations is a matter of great concern to foresters. The forest industry has appealed to the Oregon Wildlife Commission, on occasion, to help reduce numbers of animals in damage-prone areas. The Wildlife Commission has scheduled some special hunts, but generally reminds us that hunting pressure within the limits that the public will accept has little effect on populations. Moreover, we probably have no way to focus hunting pressure adequately to relieve damage problems substantially, even if permissive rules were acceptable to the public. So large amounts of money are spent on fencing, repellents, and replanting, all for the specific purpose of growing pure stands of Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) even though populations of animals remain chronically high.

Reforestation specialists only have to ask the question, "Is conventional Douglas-fir management necessary?", to open up a whole new series of approaches to the browsing problem. Browsing is typically severe on Douglas-fir and ponderosa pine (*Pinus ponderosa* Laws.) among our native conifers. Other coniferous species grow very well; on some sites they do better than either of the preferred species. Most are less attractive to browsers. Use of large Douglas-fir seedlings also reduces vulnerability to browsing when this species is mandatory for some reason (2). The incentives for choosing the various alternatives to 2-year-old Douglas-fir or ponderosa pine planting stock are clear enough so they they justify trial use on a major scale. In fact, this approach may be more profitable under a variety of circumstances, including those where deer are not the limiting factor in regeneration success (1).

Reasons always are advanced for not following through on alternative-management practices. Nursery managers say they can't grow good western hemlock (*Tsuga heterophylla* (Raf.) Sarg.) and true firs (*Abies* spp.), so no attempt is made to grow them; nurserymen also complain that large seedlings require too much nursery space. No seedlings available means no experience gained in the field, which means no demand in the nursery. Moreover, in the field, we are concerned about aphids, root rots, low commercial value of species, and so on, so nobody takes a chance there either. Perhaps resources for this type of developmental work ought to come from both game and timber interests, because of the potential value of the results to both groups. The limited experience with large stock and low-palatability species suggests that we can reforest at reasonable cost in the presence of abundant big game.

PESTICIDES

We have heard a good deal about pesticides. Most of what we hear in the press is negative, especially the effects of pesticides on wildlife. But all pesticides have their pros and cons, depending on how they are used and on the alternatives, along with *their* consequences. Let us consider DDT and 2,4,5-T as examples of pesticides receiving the worst press coverage, yet as having an important role in the resource manager's bag of tools. Without arguing for or against their use categorically, some remarks on use-related decisions are in order.

Wildlife biologists tend to react negatively to proposals to use DDT for insect control on large forested areas. This reaction typically is based on the concern that DDT will have a permanent effect on populations of some species of wildlife, principally certain species of birds. But other effects of DDT in the environment may not be permanent, even though residues may last several years. Moreover, restrictions in methods of use reduce the threat to some species.

Failure to use insecticides also has effects that can be gauged against effects of use. The tussock moth, for example, constitutes a big consideration in nonuse of pesticides, because it causes gross changes (both beneficial and detrimental) in wildlife habitat by killing trees. When loss of habitat has an effect substantially more permanent than loss of individuals within a population, incentives for having DDT available for use (presuming that it is effective) on an emergency basis come into focus. Rules can be worked out that minimize the harmful effects. One would not have to accept the inevitability of general use, if prior agreement is reached on the rules under which its use would be permitted. A total ban does not permit this flexibility.

The situation with 2,4,5-T is different from that of DDT. Little evidence has been found that 2,4,5-T is harmful to wildlife directly, when used as recommended. Objection to this chemical has arisen because of a production-related contaminant, dioxin, a highly toxic substance that causes birth defects.

Both 2,4,5-T and dioxin have been shown to be biodegradable, with half-lives of a few weeks to a few months (Personal communication. Dr. A. L. Young, Dept. of Life and Behavioral Sciences, U.S. Air Force Academy. 1973.). The amount of dioxin currently permitted in 2,4,5-T is 0.1 part per million. Although some organisms are damaged substantially by as little as one part per billion of dioxin, in laboratory solutions, field use is not likely to produce concentrations in animals above 3 parts per trillion, the detection limit of dioxin (Newton, M. 1973. Field tests of herbicide Orange for brushfield reclamation and conifer release. Unpublished file report. OSU School of Forestry.)

Consider the incentives for continuing to use 2,4,5-T. Few arguments oppose reforestation of cutover lands. Many millions of acres of cutover forest land are in such a stage of succession that reforestation is out of the question without some measure to suppress the brush (5). Once they agree on the need to replace brush with trees, resource managers must compare the alternative methods of achieving regeneration and brush control. Burning, scarification, and broadcast application of herbicides are the methods currently followed to control brush. Each method requires some trade-offs, but reforestation efforts without brush control generally are relegated to failure.

Failure to treat a brushfield sometimes means abandonment of the area as a timber resource. Abandonment or not, nontreatment tends to have a substantial effect in reducing or postponing timber production. Treatment by any means adequate for establishing Douglas-fir often will improve habitat for deer temporarily, providing some cover is left after treatment. Scarification leaves only the perimeter for cover. Burning may leave patches of unburned brush suitable for cover; however, in much of the prime timber-producing area, burning is not possible without pretreatment with chemicals. The application of 2,4,5-T leaves cover in the form of resistant species, and it frequently stimulates sprout development. Alternative herbicides tend to have the same general effect, but may require more chemical, or chemicals used may be more persistent. A combination of herbicide application and burning is intermediate between scarification and burning in its effect on the environment.

Regulatory rules are in reverse order to physical impacts of the practices they regulate. Use of 2,4,5-T is regulated strictly by the Environmental Protection Administration; it has high physiologic impact on target species, but little or no toxic impact on fauna, and no physical impact on soils and watercourses. Burning is regulated locally with respect to air pollution and responsibility of managers for escaped fires, but the impact is far greater than that of the nationally regulated 2,4,5-T. Scarification, the most severe physical disturbance to the site and its inhabitants, is essentially unregulated. Nontreatment may have the longest effect, for it prolongs the initial alteration, which in most instances converted the site from a coniferous forest to an entirely different, man-induced, forest community of long tenure.

I visualize three major needs, in the long run, for reducing conflict. The first is for wildlife managers and foresters to adopt temporary compromises in furtherance of mutually acceptable, long-term objectives. The second relates to the development of scientific concepts of management such that compromises are minimized and incorporation of these concepts into the undergraduate curricula of all departments of forest-resource management. Finally, the ultimate success of any such program will be dependent on an informed public. This will require education in resource husbandry in elementary schools and insistence on responsible journalism. In such an atmosphere, for example, foresters and wildlife managers should be able to agree on where to grow old timber, where to control brush, and how to resist the onslaught of tussock moths. Life requires a series of calculated risks. If we examine the evidence impartially, we should be able to keep risks associated with forest-managment practices to a minimum. Once we have agreed on our ordering of alternatives, we must have the fortitude to defend our conclusions before the public.

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