FORESTRY, FISH AND WILDLIFE — OUR JOINT RESPONSIBILITY¹

By P. J. BANDY²

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The attitude of the North American society towards its environment and its resources has evolved dramatically since colonization and has ultimately attained a level of ecological appreciation which appears unique. A brief resumé of some of these changes in attitude and corresponding managerial approaches may serve to focus attention upon some of the resource problems of today.

In the early phases of exploration and settlement, the resources of this continent must have seemed limitless. Competition for space, forest products, wildlife, water, and recreational opportunity, resulting from an approach to the limitations of supply and demand, was unimaginable. It is not surprising that, under such conditions, the exploitation and development of our resources was left to the industrious. The need for an orderly, planned development and utilization did not exist.

Probably the first realization that the resources of North America were limited was associated with the exploitation of wildlife. With increasing localized human populations and an increasing demand for wild meats and hides, early administrators were faced with local food shortages brought about by the indiscriminate and unregulated slaughter of wildlife. For the first time in North America, one resource, or more correctly, one product of our land resource was placed in jeopardy and with it the welfare of those who were dependent upon it. As a result, early administrators were forced to pass regulations governing the harvest and utilization of wildlife. For this purpose, regulations governing hunting seasons, bag limits and laws designed to restrict the interstate transportation of meat and hides were imposed.

Perhaps if the North American society had continued to be dependent upon a supply of wild meat, an ecological approach to our land-based resources would have arisen much earlier. However, with the extension and improvement of agriculture, the importance of wild meat and hides in the economy of North America declined. Instead, wildlife gradually increased in importance as part of a rapidly expanding recreational industry. With increasing human populations and a rapidly rising demand for recreational hunting, competition between users led to more numerous conflicts which were resolved by further protection. More and more regulations were promulgated to restrict the activities of the consumer.

During this period, wild lands were being consigned and utilized for many purposes, many of which were inimical to wildlife production. However,

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² Wildlife Research Biologist, B.C. Fish and Wildlife Branch, University of British Columbia.

with a rapidly diminishing resource base, management still considered only restrictive measures bearing on utilization, rather than the development of a managerial system involving the production aspect.

It is my understanding that foresters also realized early in the history of North American development, that the utilization of forest products had reached an exploitation rate which was beyond the capabilities of natural production. As a result, some forms of management were evolved which were designed to protect the future of the industry. The concept of sustained yield forestry came into being, involving primarily the regulation of the harvest. As you are familiar with this history, it need not be expanded here. But it is essential to recognize certain common elements in the history of wildlife and forest management. First, management, even of the most elementary type, was not evolved until an appreciation of production limitations had been gained. Secondly, an ultra-conservatism pervaded the early managerial systems, some aspects of which are still apparent today. Thirdly, early regulations, and I might add, most of our present ones, were designed to be effective at the resource user level and not at the production level. And last, but not least, governments became involved in the management of our renewable natural resources.

This leads me to a point which I feel is very significant today. With the advent of wildlife and forest management, two separate government agencies were established and charged with the administration of two different but interrelated products of what is most often the same land unit. Once started, and as other areas of resource conflict became apparent, divided responsibilities proliferated at government levels. Legislative acts and administrative agencies were established to deal separately with many aspects of the total environment of Man. Acts governing land, forests, water, grazing, agriculture, fisheries, wildlife and a host of others were passed, each charging one or another agency with administrative and managerial functions in inter-related spheres of our natural resource field.

No one can deny that such governmental activities have produced results, for we now reap the benefits of the most affluent society ever known to exist. But, we are becoming aware that we have reached certain limitations in the effectiveness of our resource management, imposed by governmental structure and divided responsibilities.

In the past, each agency proliferated a growing list of "do's" and "don'ts" aimed specifically at its own clientele. Because of the lack of a holistic ecological approach to our environment and perhaps because of parochial attitudes toward specific areas of interest, conflicts arising from the unilateral development and management of our resources were either ignored or resolved in favour of those who were politically most astute. However, as conflicts grew in intensity, some agencies were forced to protect their interests by incorporating rules or regulations into their statutes extending beyond the original terms of reference. A pertinent example is found in Section 33, Subsection (3) of An Act Respecting Fisheries. There it stipulates that, "no person engaged in logging, lumbering, land clearing, or other operations shall put or knowingly permit to be put, any slash, stumps or other debris into any water frequented by fish or that flows into such water, or on the

ice of either such water, or at a place from which it is likely to be carried into either such water".

When this section was incorporated into a legislative Act, it was clearly recognized that certain activities in one field of resource utilization were injurious to the productivity of another. But, in the resolution of the problem created by conflicting interests, a law was incorporated into one Act thereby affecting the managers and resource users governed by a separate Act.

In recent years a change has taken place in the resolution of some resource conflicts. Certain segments of the public are becoming more insistent that legislation be broadened in scope. For example, the public is now demanding that wildlife be recognized legislatively as a *bona fide* user of the so-called range resource. They are not, however, attempting to establish the necessary legislation in the Wildlife Act, thereby affecting those governed by the Grazing Act. Instead, they are attempting to have the Grazing Act modified so that wild grazing animals, as well as domestic ones, fall within the scope of the Act. I think this is significant because it exemplifies a more direct method of resolving resource conflicts than is represented by the example from the Fisheries Act. Furthermore, it is symbolic of a growing awareness of the interrelationships between different aspects of our land-base resources. And it is also important because it denotes an attempt through legislation to broaden the area of responsibility of a government agency to correspond with the concepts of multiple use, integrated management and the totality of our environment.

If, in the future, the older form of conflict resolution is followed, by modifying legislation so that it materially affects the management of resources governed by another act, it is possible that certain practices may be legislated out of existence, even though these practices may not always be inimical to the interests and needs of the other resource. Thus, in the modification of one act by another, a large measure of inflexibility is introduced which is undesirable in modern resource management. Furthermore, attempts to modify legislation in this way can only serve to strengthen, rather than weaken, the parochialism of government agencies.

If, on the other hand, the new trend continues, it would seem that eventually, legislative terms of reference for a variety of government agencies, such as Forestry and Wildlife, Grazing and Wildlife, or Forestry, Fisheries and Water, may assume greater and greater similarities. Such a course would also seem undesirable because of obvious difficulties of jurisdiction. Instead, a totally new system seems necessary in order to develop, administer and manage all our natural resources in such a way that conflicts are minimized and in order to meet the changing needs of society. To work, such a system would have to be based on sound ecological principles, free of unnecessary competition between managers and specialists and must be responsive to both economic and sociological needs.

To most of us today such a dramatic change in resource management would seem unrealistic or perhaps Utopian. However, the regional management of our resources, based upon the capability of land and water to produce a variety of products, is becoming much more of a reality. For example, in Washington State the wildlife agency, on lands under its juris-

diction, is faced with the responsibility of total resource development and integrated management. This agency must, therefore, concern itself with and manage; wildlife, fish, recreation, forestry, grazing and even the production of certain agricultural crops. On Federal lands, the Bureau of Land Management deals with similarly integrated management systems, while the National Forests have been for many years concerned with integrated uses on lands falling within its jurisdiction. These uses include forest production, non-consumptive recreation, hunting, fishing and the grazing of domestic stock.

We in British Columbia are still a long way from integrated resource development and utilization. It is essential, however, that all resource managers become aware of the need to integrate in such a way that conflicts of interest are minimized, and the total productivity of our natural resources is enhanced. We are no longer dealing entirely with resource management at the consumer level but we are becoming more and more involved with management at the production level. Agencies established to be effective at the consumer level are ineffective at the production level because either they have no authority over the basis of production, or more than one agency share a sometimes conflicting responsibility for the same resource base. For example, the Lands Branch of some provinces has no responsibility for the management of the wildlife resource utilizing Crown lands. In contrast, Fish and Wildlife Branches are responsible for the management of fish and wildlife stocks, yet usually have no direct authority over the lands and waters which produce these stocks. At the production level, such divisions of responsibility are obviously inefficient. It is, therefore, essential from the very nature of our archaic managerial structure that integrated forms of management be evolved which will minimize conflicts and loss and maximize productivity and benefits.

In addition to the growing emphasis upon management at the production level there is a growing awareness of the complex interrelationships between various aspects of our environment. For example, where once the activities of loggers in some remote wilderness would have gone unnoticed and where once the results of logging were considered only beneficial there is a realization that one change begets another and that not all "progressive" changes are ultimately and entirely beneficial.

From an ecological point of view, it is now realized that the removal of forest cover has a much more dramatic and proliferating chain-reaction effect than was envisioned in the past. Logging, in addition to creating jobs, harvesting essential wood fibres and creating a profit for the industrious, has a much more widespread effect of both a beneficial and a detrimental nature. On the one hand, logging has been instrumental in the expansion of the wildlife resource and in the provision of access roads. On the other, logging has resulted in the pollution of air and water, debris on beaches, damage to boats and an increase in the numbers of insurance claims arising from such accidents.

Logging practices have also resulted in more subtle changes in the environment affecting the productivity of other resources. For example, large-scale clear-cutting practices in our watersheds have caused a hitherto unrecognized deleterious effect upon water and energy budgets and have eventually affected

animals, plants, and humans far removed from the actual cutting site. With clear cutting the water-holding capacity of the soil is reduced, thereby increasing the run-off rate. In turn, rapid run-off not only increases soil erosion and siltation at the site but creates a set of feast or famine water conditions in adjacent streams and rivers. Furthermore, warmer waters resulting from decreased summer run-off and colder waters in winter directly affect the productivity of streams and lakes for fish, aquatic organisms and plants. Still further removed from the actual logging site, increased siltation resulting from erosion can and does have an effect for miles downstream upon the quality of water used for a multitude of purposes. As an extreme example, increased siltation of coastal waters, resulting from certain land use practices along the Fraser River has been blamed for a reduction in the distance which radio signals from Victoria can travel at a given output strength. Furthermore, increased spring run-off from a logged watershed can create downstream flood hazards which did not previously exist.

One could describe many such chain-reactions resulting from logging or for that matter, other uses of land. The essential point to recognize is that alterations in our environment have far-reaching effects upon other aspects and that while some effects are beneficial others are detrimental to the productivity of other resources. It is essential to recognize also that these effects are associated with costs and benefits. Moreover, through the unilateral development and management of our resources, the largest costs have frequently been borne by other resources and by the consumers of other resources.

From the managerial and from the ecological points-of-view, it is obvious that the management of our natural resources requires integration. Under the present system, North American society will never reach truly efficient levels of resource development at higher levels of demand because our managerial systems suffer from built-in inadequacies. If we were able to completely discard our present systems and were subsequently able to construct a system designed to efficiently develop and manage all our renewable resources in an integrated fashion, there would be no question of jurisdiction and responsibility, no lack of flexibility to meet new needs, and no difficulty in minimizing overall costs. However, it is unlikely that such a dramatic alteration will occur. What is more reasonable to seek is an enlightened managerial personnel which recognizes the totality of the natural resource picture and the totality of sociological requirements.

Because of the close relationship between wood and other products of our wild lands, fish, fur, fowl, water and recreation, we as foresters and wildlife managers share a particular responsibility for the integration of our management systems. By jointly shouldering our responsibilities to the resources and to our clients (many of whom are the same) we stand a better chance of increasing our overall operating efficiency. By integrating our management systems we will be able to more effectively harvest and utilize the products of our wild lands for the benefit of the industrialist as well as the recreationist. Through joint, rather than unilateral development, we will be able to follow the dictum of the economist by maximizing all benefits and minimizing all costs.