

Conservation Biology and Private Land: Shifting the Focus

In his *Conservation Biology* editorial, Richard Knight (1999) emphasizes the importance of considering private as well as public lands in addressing conservation issues and highlights the alarming changes that are occurring on private lands. Although he focused primarily on the United States, the points made by Knight apply to most other countries. Using New Zealand as a case study, I developed Knight's arguments to identify three issues we need to tackle if conservation biology efforts are to successfully conserve indigenous biodiversity on private land.

With around 30% of its land area within the public conservation estate, New Zealand has one of the highest protected land areas of any country (Anonymous 1997). Although this figure is impressive, it hides the bias toward upland mountainous areas and the relatively poor protection of lowland areas within conservation lands (Norton 1999). For example, less than 20% of lands below 500 m are part of the conservation estate, whereas some 50% of lands above 500 m are. The reasons for this upland-lowland imbalance are well known and result from the high value that lowland environments have for productive (economic) activities. But as a result, some ecosystem types have been almost lost from New Zealand. For example, in the northern New Zealand region of Waikato, the area of lowland wetlands declined by 84% from 1840 to 1976. Even in regions with a relatively high proportion of conservation land, lowland ecosystems are among the most affected by human activities. For example, the area of lowland alluvial forests in the Hokitika Ecological District of New Zealand's southwest has declined by 99.7% since 1840 (this region is otherwise well endowed with conservation land).

Not only has the total area of natural ecosystems decreased in much of lowland New Zealand, but the remaining remnants are often small, isolated, and modified. The effects of fragmentation have, of course, been extensively documented in New Zealand and elsewhere, but in New Zealand they are compounded by the pervasive influence of a substantial introduced biota. Estimates of the numbers of successfully established introduced species include 45% of all wild vascular plants and 32% of all wild terrestrial and freshwater vertebrates. Lowland New Zealand today is dominated by a new biota comprising a mixture of indige-

nous and introduced species. Despite the great changes that have occurred over much of this region, there are still lands with high conservation values in these areas, and for some species these are their only habitats. It has been estimated, for example, that 20% of threatened vascular plants occur only on private land and another 60% occur on both public and private land, with many having their largest populations on private land.

The importance of private land for nature conservation has been recognized in a number of recent New Zealand government initiatives. In particular, recent national legislation places the onus on government to consider both conservation and economic values in land-use planning in these areas. The purpose of the Resource Management Act of 1991, which affects the activities on all private land in New Zealand, is (section 5) "to promote the sustainable management of natural and physical resources." The act then defines sustainable management as

managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while:

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The Forests Amendment Act 1993 places a similar emphasis on integrating conservation and use values in private-production forests, where it defines the sustainable management of indigenous forest as (section 2) "the management of an area of forest land in a way that maintains the ability of the forest growing on that land to continue to provide a full range of products and amenities in perpetuity while retaining the forest's natural value."

These pieces of legislation represent a significant shift in government thinking away from the tradition of legally and administratively separating conservation (mainly public) and production (mainly private) lands and values to an approach that recognizes the importance of better

integrating these two value sets within the same landscape. This shift does not imply that we should open up conservation lands to productive uses such as forestry or grazing, which are generally prohibited under New Zealand legislation anyway. It does recognize, however, that on nonconservation lands we need to recognize the legitimate rights of private land owners to obtain an economic return from their land and at the same time recognize the responsibilities we have as a nation for sustaining indigenous biodiversity. These recent legislative developments provide some exciting opportunities for biodiversity conservation on private land.

Knight suggests that "Perhaps we have avoided confronting conservation on private land because we acknowledge that landowners have certain inalienable rights." The right that private landowners have to make a living from their land is of particular concern to landowners, and therein lies the challenge for conservation biologists and policy makers alike: devising new ways to manage these systems that accommodate both indigenous biodiversity and production values. These new approaches occur at both a policy level—how we provide appropriate incentives for indigenous biodiversity conservation (including compensation)—and at a more practical ecological level—how we actually manage indigenous biodiversity. Gunningham and Young (1997) suggest that the best approach for providing incentives for biodiversity conservation on private land might involve a mix of mechanisms targeted to the local situation, including motivational, voluntary, property-based, price-based, and regulatory instruments.

The New Zealand government is presently developing a biodiversity policy statement that will provide a national perspective on priorities, approaches, and guidelines for the conservation of indigenous biodiversity on private land which local government will be required to follow in preparing regional and district plans. This should go some way toward creating policies that will encourage private landowners to promote indigenous biodiversity on their land. The emerging emphasis within the national policy debate is on using nonregulatory instruments as much as possible, while recognizing that there remains a place for some regulation, especially in matters of national importance.

Although good progress has been made in developing incentives, our understanding of ecological processes in the highly modified ecosystems that dominate private land is still limited, with much research still being remnant oriented rather than landscape oriented. This situation has arisen because so much of conservation research has focused on public conservation land rather than on private land. This can be traced in part to the many natural-history programs focusing on charismatic species and remote places, which have helped shape recent generations of conservation biologists. Working with remnant species in muddy fields among cows can-

not match the appeal of working with a charismatic national icon in a remote wilderness area. This emphasis on conservation lands is evident in the New Zealand ecological literature, for example, where only 19% of 802 published papers (1968–1997) focused solely on nonconservation lands and another 16% considered mixed conservation-production systems. The other 65% of papers focused only on public conservation land. If we are to successfully conserve indigenous biodiversity on private lands, then we need to refocus our research efforts toward the most modified systems.

But it is not just the way we focus our research that is important, it is also the way we as conservation biologists interact with landowners. On private lands it is not some remote government agency that controls the land but a landowner or manager who usually lives on the land and knows it intimately. Knight said, "The hard things are done on the land, with honest conversations among stakeholders and property owners." This challenge is applicable to conservation biologists in all countries. Perhaps here we can draw some lessons from Australia, where there has been some success in getting scientists to sit down and communicate effectively with stakeholders and landowners (Saunders et al. 1995; Hale & Lamb 1997; Craig et al. 2000).

If we are to successfully conserve all of the biodiversity indigenous to a country then we must consider private as well as public land. Private land is important not only because of its indigenous biodiversity but also because it is the area where most of the human population lives, works, and plays, and it is here that most people encounter nature. But in conserving indigenous biodiversity in these areas, we need to recognize that many of the approaches toward biodiversity conservation used on public conservation lands will not necessarily work on private lands. We need to look for ways that better integrate indigenous biodiversity conservation with land uses such as farming, forestry, and urban dwelling, rather than separate them. To do this we require policy frameworks such as the New Zealand Resource Management Act that facilitate integration rather than separation of production and protection. We also need more research on the ecology of modified ecosystems, especially of landscapes comprising remnants and production systems, so that we have the knowledge necessary to successfully manage biodiversity in these areas. Finally, we require conservation biologists, whether policy analysts, advocates, managers or scientists, to work alongside and listen to landowners and managers rather than work in isolation from them. The challenge for conservation biology is to shift our focus—both in terms of the areas and problems that we work on and the ways we interact with landowners and local communities—so we can successfully conserve indigenous biodiversity on the unprotected lands that dominate the world's land surface.

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