

MANAGING FOR THE LONG TERM

Although considerable progress has been made in developing a network of reserves¹ in New Zealand during the last decade, significant deficiencies still occur. However, it is important that areas already protected are not ignored; reservation is only the beginning, not the end-point for conservation. In this article Dr David Norton of Canterbury University's School of Forestry discusses some of the issues involved in the ecological management of reserves.

Some reserves are large (for example national parks) and, with the exception of some grassland and wetland areas, are unlikely to suffer directly from human impact in the near future. However, deer, goats, possums and other introduced animals threaten even the most remote areas, while climatic changes associated with the global increase in CO₂ will also affect them.

Most other reserves are small, especially in the more intensively developed parts of New Zealand (see figure one). These need scientifically-based management if they are to survive with most of their natural values intact. We should now be building on the ecological management already underway to ensure the long-term survival of all our reserves.

Why manage?

There appears to be much confusion over what is meant by managing reserves. Often this is seen as involving some form of exploitation, such as logging, but in fact that is only one type of management and others such as conservation management are essential.

Management can be divided into two broad categories: the "do nothing" or passive management approach, and the active intervention approach. In national parks, larger scenic reserves and ecological areas, the "do nothing" approach is undoubtedly most appropriate, with a few qualifications — introduced animal control, recreation planning, and monitoring come to mind. Smaller reserves or those containing sensitive communities like grasslands and wetlands will require the active management approach if the threatened species and communities they contain are to survive.

Is there any value in having small reserves? Some may doubt their value, but these small refuges may house the **only** examples of plants and animals formerly widespread in an area and are therefore of considerable scientific interest. For exam-

ple, two reserves totalling 4.9 hectares are all that remain of the grasslands and shrublands of the Canterbury Plains (once 300,000 ha in extent!)

There are two main reasons for active management. First, because they are often small and isolated (perhaps surrounded by farms), reserves are very vulnerable to windthrow and fire.² It is often difficult for a full range of native species to re-establish after disturbance in small reserves, either because there is too much competition from introduced plants or because there is no seed source left. Although many disturbances are caused by humans, some occur naturally. Windthrow has created havoc in some areas, while the death of adult kaikawa on Banks Peninsula probably resulted from natural causes. Nevertheless, small reserves often do not recover after they have been naturally disturbed because humans have eliminated the plants that would normally invade after disturbance or have introduced plants from outside New Zealand that take their place. One of the features of small reserves is that they mostly contain mature plant communities; disturbed or seral communities are poorly represented.

Secondly, we may need to actively manage when reserves contain vegetation that



Bankside Scientific Reserve, a pocket handkerchief grassland and shrub reserve (2.6 ha) on the Canterbury Plains has seen a marked expansion of introduced grasses since grazing ceased in 1969. Grazing and/or fire may be the best management strategy to ensure the survival of the remaining native plants.

is changing. Perhaps the best examples are grasslands which are developing into shrublands. In many instances these grasslands have been maintained for tens or even hundreds of years by fire and/or grazing. Because these areas were protected for their grassland values, continued grazing or managed fire may be necessary to maintain them.

Similarly, open pakihi in North Westland with its distinctive plants and the habitat it



Catastrophic damage from windthrow (above) and snowbreak are an integral part of beech forest ecology; disturbance is quickly followed by regrowth of young beech. However, in small forest remnants such as Torlesse Bush (below), extensive natural damage snowbreak has been followed by invasion by Old Man's Beard.