

CONSERVATION OBJECTIVES IN PASTORALISM

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Abstract

1. New Zealand, because of its geographic isolation, **harbours** unique biological qualities.
2. Human occupation inevitably disrupted this natural order.
3. Gradual degradation of these natural qualities can easily go unnoticed and unchecked.
4. The bulk of our nature reserves are on land unsuited to agriculture, whereas **the** significance and vulnerability of our total natural heritage requires a reserve network representing **all** land classes.
5. To ensure protection of vital natural areas they must be of viable proportions and segregated from incompatible uses.
6. There are practical and spiritual reasons for nature conservation which offer beneficial options for land use.
7. A wide range of conservation measures is available to the landowner.

Keywords: farm tourism, land management, multipurpose, nature conservation, reserves.

INTRODUCTION

As the last major **temperate** region of the world to be occupied by mammals, New Zealand supports a distinctive biology. This resides in its forests and grasslands, relics of an ancient southern continent from which New Zealand began to separate over 80 million years ago. These Gondwanic biological relics have run the gauntlet of glaciation, Polynesian burning and hunting, and latterly the advent of European animals and farming technology. This last phase has brought fundamental change. Within decades, burning, milling, grazing and predation had depleted (or mined) the biomass stocks that had accumulated in dry forest, scrub, tussockland and topsoil since the Ice Age. Stock numbers crashed on unimproved rangelands (O'Connor and Kerr 1978). Subsequently the need to rejuvenate naturally leached and pastorally exploited (O'Connor 1982) soils with legumes and fertiliser was acknowledged, and aerial topdressing extended pasture development into more difficult country. The earlier profits, combined with later development subsidies, raised false expectations of economically sustainable productivity. Cycles of clearance and reversion in some areas suggest insufficient attention has been paid to the question of a break-even point in pastoralism on marginal land. Both agriculture and nature conservation are losers in these circumstances.

Today there is wider appreciation of environmental values, although few of our contemporaries have enjoyed New Zealand's pristine riches. Deer, rats, gorse, etc., have seen to that. Even the scientist can be deceived by the extent of change (Meurk 1982: 57, Mark & Baylis 1982: 74). In just 6 generations, over 20 million ha (75% of New Zealand) has been biologically modified or transformed.

My purpose is to examine the deficiencies of New Zealand's reserve system and explore ways of satisfactorily mixing conservation and farming.

STATE OF RESERVES

Is 4.6 million ha of outstanding National Parks and reserves (17% of New Zealand) not enough? Our complacency is shaken when we consider that 68% of Japan retains indigenous **forest** cover, and that protective status in New Zealand is traditionally given only to land devoid of commercial value (DSIR 1980). Much of this, including Specially Protected Areas, is now seriously depleted (eg Mark & Baylis

1982). Land which supported the most productive native **communities** also grows the best pasture or crops. Thus our most valuable natural systems are poorly protected, being most profitably turned to agriculture — eg lowland tussock grasslands made up 29% of pre-European Otago, but occupy only 0.1% of the province's reserves (Allen 1978). Moreover, Scott (1979) forecast that in 100 years time, New Zealand's forests will have diminished from an initial 30% to 10% (of environmental space), tall tussockland from 35% to **12%**, and short tussockland from 25% to 8%. Most native remnants will be floristically impoverished and confined to steepland.

The claims on land use today are diverse and options are limited by the scarcity of critical natural systems and by established patterns of development and tenure.

WHY RESERVE?

As the overwhelmingly dominant species it would be easy for us to further reduce the natural assets of New Zealand. Apart from a moral obligation to exercise wise stewardship over our domain, there are good practical and social reasons for biological conservation:

1. The science of natural systems will be thwarted if vital biological links and contexts are wanting.
2. The country benefits from soil and water conservation, pollution buffers, genetic reservoirs, and from benchmarks' against which land processes can be monitored and corrected if necessary.
3. Teaching biology by textbook is a poor substitute for learning from living systems.
4. We are aesthetically, culturally and recreationally uplifted by our surroundings. We derive an identity from the distinctiveness and diversity of our environment. The farmer who fences a natural habitat has a poignant historical, scientific, educational and agricultural statement on his land.
5. There is dollar-potential in foregoing some productive capacity. Supply and demand will dictate higher property value associated with conservation covenants. More tangible is the scope for extending the already successful farm-tourism model to meet the international thirst for natural history experience. Diverse rural landscapes embody a treasure-trove of marketable natural history. But the "value-added" principle needs to be applied here as to other commodities. Every patch of forest, shrubland, tussockland or wetland, lost in the blur, speeding past the bus window, is also a lost opportunity — to describe, interpret and sell our natural heritage to the tourist via books, cards, slides etc.. If we can entice the visitor to pause we will have earned that extra value, generated goodwill and more overseas trade, and educated ourselves. However, the discerning traveller will come to see novelty and authenticity, not a pale imitation of an English countryside.

Perhaps it is the recognition of natural values by a market-orientated US Government which is finally persuasive. They will spend \$NZ 30 million securing a 20,000 ha tall prairie reserve from an original million **km²** that once awed the American pioneers (Edmonds 1986).

THE PNA PROGRAMME

Land-management departments are belatedly tackling the imbalance in our reserve system through The Protected Natural Areas (PNA) Programme. New Zealand

The usual remnants, in gullies and on rocky or **peaty** soils, are generally atypical and hence unsuitable as benchmarks for arable land.

has been divided into 268 Ecological Districts, each with its distinctive assemblage of soils, plants, animals and biological communities. The objective of the PNA programme is to inventory natural values in each District and identify gaps in the existing reserve network. It is intended that this exercise will provide the guidelines for protecting **all** of the diversity of our natural heritage thus preserving a distinctive living history, catering for the many interests outlined above, and providing a purpose behind our economic development.

LAND MANAGEMENT ON AN ISLAND

There are many perceptions and uses of land; ranging from the spiritual to the commercial. Some uses are mutually compatible, others are not. **Recognising** legitimate claims on land and resolving conflicts of use are functions of land management. There is a subjective element in this process. After all, we cover prime arable soils with suburbs, cemeteries, golf links, rugby grounds, race courses and cultural venues. We clearly value these activities above the forgone primary production.

Multipurpose management was a North American response to the dilemma of diverse attitudes to land. Is this experience relevant to us and if so, which aspects? Continents have long histories of mammal-plant co-adaptation, drought, fire and open country. Their fast growing trees and grasses, on relatively **unleached** and otherwise rich soils, quickly recover from catastrophe. Thus multipurpose land for recreation, nature conservation, timber and water production, game hunting and cattle grazing is largely viable.

But the concept in its crudest form does not easily translate to islands such as New Zealand and Hawaii (Juvik & Juvik 1984, Kardell 1985, Meurk *et al.* 1985). These two Pacific archipelagoes have mild, leaching climates with low, natural fire frequencies and absence of native land mammals. Their biota is unbalanced and vulnerable to repeated fire and mammal-predation because of plant palatability, weak regenerative attributes and/or large investments in slowly replaced biomass (big, sluggish organisms of low fecundity). These stocks are profitable to mine, but expensive or impossible to restore. In such environments, a multifaceted approach to land management is required, where **all** use-values are maximised by segregation of incompatible uses. This means neither that all the best land is preempted for farming, with the residue for conservation (O'Connor 1982), nor that land is reduced to the lowest common denominator by multipurpose mixtures of native and imported systems (O'Connor 1982: 102-103).

A rational conservation strategy will promote more, not less intensive agriculture — on land designated for that purpose by criteria such as those proposed by **Overmars** and O'Connor (1983). For instance **c.1%** of the richer classes of land should ideally be available for nature conservation. Half of that could be allowed to revert to a mature, climax state by excluding introduced plants and animals. The other half percent might be managed as a buffer between the core intensive conservation zone (above) and the 99% of Intensive agriculture. Of an original 1.8 million ha of yellow-grey earths and associated scrub-tussock in New Zealand, up to 1.78 million ha might be managed for optimal production, consistent with soil conservation. A 9,000 ha buffer could be lightly grazed and/or occasionally burnt (perhaps emulating a natural fire/bird-grazing regime), but not top-dressed, **OVERSOWN** or cultivated. This would permit some production, but preserve the native vegetation and soil structure, and a rich intertussock flora. The remaining 9,000 ha would be a core conservation zone (in fact split into several areas among the Ecological Districts). Likewise multifaceted forest management might provide light animal control in some areas for deer stalkers, moderate control for other recreationists,

and stringent control in smaller, representative zones for scientific/educational purposes. In the long term, deer might be most at home in pine plantations, managed to encourage suitable browse plants.

FARMING TOWARDS THE MATURE LANDSCAPE

Nature conservation is not a popular option when times are tough! But do we want a pastoral landscape, indistinguishable from those in other parts of the world, or a natural and cultural heritage that enriches our lives and provides purpose to our endeavours? I hope our answer will be to preserve a unique resource which will be prized by ourselves and the world.

What conservation measures are available? There is now a raft of options to suit individual tastes, ranging from gift or sale to the Crown to the increasingly popular Queen Elizabeth II National Trust covenants which accommodate various management preferences. Such arrangements should not be left to chance with such valuable resources at stake. We are all mortal, inclinations can change, and energetic young farmers may develop the patch of bush or drain the wetland that had been cherished by generations before. Farmers have a critical role to play in the overall conservation strategy as many of the rarest natural communities are now on freehold property and, for the reasons outlined above, are under-represented in the landscape and grossly under-protected. We must farm for sustainable profit, but I invite you to see some profit also in a varied and beautiful countryside — one that teaches us about life, environment and history.

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