# Enhancing biodiversity preservation on privately owned land: An analysis of New Zealand's policy approach

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**KEYWORDS**

New Zealand Environmental Policy, Biodiversity, Landowner Incentives

**ABSTRACT**

A large amount of New Zealand's critical remaining habitat for endemic species is located on private land. In its biodiversity strategy, the government proposes several types of economic incentives to encourage voluntary conservation by private landowners. This research investigates the factors affecting the likely response by landowners to those incentives, with a particular focus on the overall potential efficacy of the biodiversity strategy in preventing additional biodiversity loss. A case study approach is used to examine the application of the principal policy tools proposed in the strategy, and regional variations in policy implementation are considered.

The analysis suggests that the government's initiatives are not likely to achieve the desired result of 'no net loss' of biodiversity. Additional incentive measures are needed, particularly where larger areas of vegetation are concerned. The current voluntary approach favours individual landowners who already have a preference to conserve. Those who do not are excluded by the current policy approach, leaving large areas of native vegetation vulnerable to destruction or neglect.

## New Zealand and Biodiversity

The nations of the world adopted an international convention for the conservation of global biological diversity in Rio de Janeiro in 1992, which has now been ratified by more than 160 nations, including New Zealand. As part of its commitments to the convention New Zealand has developed a Biodiversity Strategy through which they hope to maintain biodiversity and, in places, restore it within a twenty-year time frame.

Many New Zealand species are endemic, meaning that they are not found anywhere else in the world. All of our indigenous terrestrial non-avian vertebrates are endemic, as are 90 per cent of our insects and marine molluscs and 80 per cent of our vascular plants. Evolution through a long period of isolation created a unique flora and fauna. When New Zealand was colonised our species had no adaptations to help them cope with the foreign species that were brought. Exotic species have preyed on and displaced many New Zealand plants and animals. New Zealand's history of mass extinction has lead New Zealand to have one of the worst records for biodiversity loss in the world. Today the most important proximate causes in New Zealand for biodiversity loss are the effects of introduced pests and weeds on New Zealand's indigenous biodiversity and habitat destruction/modification through the removal, fragmentation and degradation of ecosystems. Since human arrival, New Zealand has seen 63% of its land area converted into farms, exotic forests, settlements and roads (Ministry for the Environment, 2000). At least 90% of former wetlands have been drained or degraded (Ministry for the Environment, 1997).

Although New Zealand's conservation lands represent 30% of our total land area it is usually situated in high country where biodiversity values are low. Productive lowland areas are poorly represented in the conservation estate. This has lead to biodiversity values on private land being eroded. Privately owned land cannot be ignored when conserving biodiversity because it contains much of the country's most productive and ecologically important ecosystems. At present New Zealand has about 1.5 million hectares of indigenous forest and half a million hectares of inland wetlands outside of the public conservation lands. Substantial amounts of other important types of habitat (for example coastal wetlands, tussocklands) are also found on private land.

At present New Zealand's approach to the protection of natural heritage on private land has been largely voluntary. The Government has emphasised the encouragement and empowerment of landowners to voluntary protect and manage biodiversity on their land. The Government does however provide some direct assistance to landowners to help cover the costs of protection and management (Government of New Zealand, 1997). In New Zealand it is seen as important to gain the co-operation of landowners. Generally it is considered that landowners have the

responsibility to express a duty of care to not destroy biodiversity resources, but costs involved in active management, such as fencing, should be provided by government as recognition of the public benefit that is received (Ministerial Advisory Committee, 2000).

This research looks at one aspect in the process of biodiversity policy implementation, the incentives that landowners have to preserve biodiversity on privately owned land. It is felt that this is an important area of research as landowners have control of what happens to much of New Zealand's biodiversity resources and are influenced by the incentives available to them. To illustrate the principles involved a case study of wetland biodiversity conservation on privately owned farmland is used. The landowner's economic incentives and disincentives for preserving the wetland on a farm scale are studied. As environmental policy is implemented at a regional scale, comparisons are made with other localities, taking into consideration their policy approaches to biodiversity preservation. The Westcoast, Canterbury and Waikato regions are used for these comparisons. The proposed government action for biodiversity preservation are then critically analysed to see if landowner incentives are likely to be affected and if incentives will be sufficient to maintain and preserve the biodiversity values present.

## New Zealand's policy structure

New Zealand has a devolved policy structure. Local Government is guided by the Resource Management Act 1991 (RMA), which is the principle legislation governing the use of New Zealand's land, air, water, ecosystems and built environment. The RMA's single purpose is to promote sustainable management of our natural resources. Although the RMA defines roles and responsibilities in respect to resource management at three levels of government (central, regional and local) an underlying assumption is that governing bodies that are closet to resources are the most appropriate to govern the use of those resources (Jones et al, 1994). It is the fundamental aim of the RMA to decentralise responsibility for resource management, taking responsibility from central government, and placing it firmly in the hands of local authorities. As a consequence local government has major policy functions with regard to the protection of the environment. The RMA is descriptive in nature. With regards to biodiversity, regional councils have discretion as to whether they use regulatory or non-regulatory measures and what other policy instruments are employed. This has lead to a variable response to the problem of biodiversity loss. Experience has shown that some regional councils have done well in the task of biodiversity preservation and others have fallen short of expected results.

The Government's response to declining biodiversity is set out in broad terms by the 'New Zealand Biodiversity Strategy", released in February 2000. The Department of Conservation

(DoC) and the Ministry for the Environment led the development of the Strategy. The Biodiversity Strategy was written with the intention of creating a strategic framework for action, by establishing national goals to 'turn the tide' on New Zealand's declining biodiversity. The Strategy prioritises actions and identifies the key government organisations that will implement them, however it does not prescribe how the specified actions will be undertaken. The New Zealand Biodiversity Strategy deals with all threats to New Zealand's biodiversity across land, water and marine areas. It sets out priority actions for these environments across both private and public lands. The government wants to halt the decline in New Zealand's indigenous biodiversity and, in places, restore it within a 20-year time frame. A total funding package of $185 million will be spent over the next five years.

The 'biodiversity and private land' report was written to specifically address the effects of private land management on biodiversity. A Ministerial Advisory Committee made recommendations and then the government responded to these by drawing up policy initiatives. One of the government's initiatives is the formation of a National Policy Statement. The purpose of a NPS is to state policies on matters of national significance that are relevant to achieving the purpose of the RMA. Local government planning documents such as regional plans can not be inconsistent with a NPS. Funds have been set aside from the New Zealand Biodiversity Strategy funding package to implement a number of the initiatives.

Government initiatives for improving biodiversity on private land include the creation of a biodiversity advisory service for landowners. Its purpose will be to raise awareness, encourage biodiversity conservation and provide advice. A contestable fund will be established to ensure that the service is put in place in the most efficient and effective way possible. The organisation responsible for delivery of the fund will vary regionally. The government organisation that is seen as being able to accomplish the task most effectively and efficiently will be chosen. Potential contenders include the QE2 National Trust, the Landcare Trust, the DoC and regional and/or district councils or some combination of these agencies. A committee will be established to administer the fund for the advisory service, comprising representatives from the existing funding bodies, local government, the Ministry for the environment and the DoC. Funding for the biodiversity advisory service will begin in the 2001/2002 financial year, $3.6 million will be spent over four years.

A fund aimed at improving the condition of biodiversity will also be established. The condition fund will be used to extend the base of community effort in biodiversity management. The fund will be available for the management of biodiversity on private land. The same committee that

will allocate the biodiversity advisory committee service will also allocate the condition fund. Over four years beginning in 2001/02 $6.5 million will be allocated.

There will be funding increases for existing protection mechanisms. This will increase the extent of formally protected areas. The Nature Heritage Fund, Nga Whenua Rahui, and QEII National Trust will receive a funding package of $30.5 million over the next five years to 2004/2005.

## Incentives

Economic incentives are just one of the policy instruments used in biodiversity conservation. It is acknowledged that other instruments are important for a policy to succeed, but focus for this research will be predominantly on incentives. Economic incentive approaches have been used in the United States and Europe since the mid-1970's (Titenberg, 1990). The use of economic incentives to protect the environment is perhaps best known for the control of pollution. Many countries have adopted the "polluter pays principle' and require industries to pollute less.

The growing importance of economic incentives as a policy tool for biodiversity conservation can be seen in its prominence during conference proceedings of the Convention of Biological Diversity. Many workshops on the design and implementation of incentive measures have been undertaken. The role of incentives is to improve decision making related to both the public and private aspects of biodiversity (Convention of Biological Diversity, 2001). An important role that incentive measures play is the removal or correction of some of the underlying causes of biodiversity loss. Binning and Young (1997) conclude that if the role of private land conservation is going to be significantly enhanced, then consideration will need to be given to mechanisms that encourage greater numbers of landholders to participate.

The use of incentive measures is becoming increasingly popular in New Zealand although a voluntary approach is still largely advocated. The Biodiversity Strategy and subsequent 'biodiversity on private land' document has lead to an increase in incentives available to private landowners. As it is in its infancy there is yet to be any formative analysis undertaken. Also since the timeframe of the Biodiversity Strategy is lengthy summative analysis is inappropriate at this stage. This research looks at the proposed government incentives and what they are likely to mean for the preservation of biodiversity on private land.

## Case Study: Identification of incentives to preserve a wetland

Omanuka Lagoon, is chosen for the case study to be conducted, it is situated in the Manawatu sand dune country – a region whose wetlands once spanned thousands of hectares. Today

Omanuka lagoon is about 50acres in size. The lagoon provides habitat for a small number of rare or declining bird species, such as fernbirds, dabchicks, bitterns, and marsh crakes. Omanuka has many native plant species present, although like other wetlands in the area, Omanuka lagoon has been greatly modified by drainage and the ingress of alien plants and animals. Despite its drastic changes, the lagoon is now considered one of the best of those remaining. The lagoon is not identified as a priority area by the Department of Conservation but is listed in the Manawatu District Plan as a category A site that confers the highest level of protection to it.

**Location**

40°20'S, 175°19'E. In dune country on the Manawatu coast about 30km west of Palmerston North, North Island.

**Physical Features**

Palustrine and Ephemeral wetlands constitute the majority of the wetland area. Palustrine wetlands are wetlands that have little open water and an abundance of emergent vegetation. Ephemeral wetlands are wetlands in which water lies on the surface for only part of the year (Colin Ogle, 1997). Omanuka Lagoon is a single open body of water surrounded by ephemeral wetlands.

The water in the lagoon comes from the surrounding catchment area. There is one outlet drain on the southern side halfway down the length of the lagoon. This controls the amount of water in the lagoon. For instance if the outlet drain were deeper the lagoon would become shallower. The outlet drain is used to alleviate flooding of surrounding land in winter. Nutrients enter the wetland from surrounding agricultural land runoff.

**Climate**

The climate is one of warm summers and mild winters. The mean annual rainfall is 940mm, falling mostly in the winter months. Summer droughts are common. This can be seen as being reflected in the rise and fall of the water level.

**Vegetation**

Aquatic vegetation is minimal with species such as Common Duckweed, *Lemna minor* and Pacific azolla, *Azolla filiculoides*. Shallow water and nutrient runoff from surrounding farmland has provided ideal growing conditions for Raupo, *Typha orientalis Pres* that has now proliferated. Around the lagoon margins is *Eleocharis sphacelata* which is a native sedge. Also found around the lagoon margins is the endemic sedge *Carex secta*. Moving out slightly further from the water edge in New Zealand flax, *Phormium tenax* and many Cabbage trees, *Cordyline australis* and *Carex Virgata* an endemic tussock. Also scattered shrubs such as Toetoe, *Cortaderia richardi*

and Pohuehue, *Muehlenbeckia complexa*. Patches of willow are along the Southern side of the lagoon, also Radiata pine.

**Noteworthy fauna**

Rare species present include fernbirds, dabchicks, bitterns, and marsh crakes. Once abundant at the wetland but now only occasionally seen are the brown teal *Anas aucklandica chlorotis* and grey duck *Anas s.* superciliosa. Paradise ducks, pukekos and the New Zealand shoveler also inhabit the wetland. The aggressive mallard duck is now a prominent bird species after displacing many native duck species.

**Identification of causes of pressure on Omanuka Lagoon**

The wetland could easily be drained. The wetland area is around 20 hectares (about 50 acres). Drainage would entail enlarging the width and depth of the outflowing drain. This would take a bulldozer approximately one day's work. Therefore the cost of drainage is minimal and the wetland area would transform to become grazeable pasture. The ease of drainage is clear when looking at surrounding land that is in agricultural production. If the district was not constantly drained it would revert back to wetland.

There are many exotic species present at Omanuka Lagoon, which are displacing native plants and animals. Due to nutrient enrichment from runoff from surrounding farmland, raupo has spread, reducing the amount of open water. Willows are also displacing other native plant species. Raupo, willows and other exotic plants need to be controlled to keep an adequate area of open water and the surrounding native vegetation from being disturbed. Exotic species need to be managed but it is not necessary or practical to achieve total eradication of most alien species. Some native ducks are being displaced by the aggressive mallard duck, which competes for nesting sites and food. Pests, such as mustelids and cats, also negatively impact birdlife.

Although the wetland is fenced stock have access to the wetland at certain times during the year. Grazing stock trample the perimeter of the wetland causing the pugging of soil in winter and consequently many plants die. Stock also supply unwanted nutrients to the surrounding land. Pollutant runoff from surrounding farmland enters the wetland creating unwanted plantlife.

New Zealand only has 10% of its natural wetlands remaining. If we do not preserve wetland areas, which have been affected by exotic species the cumulative nature of this action could lead to the total area of wetlands that presently remains to be reduced even further.

## Identification of incentives and disincentives for preserving the wetland area

The owners of the wetland have four choices when deciding the fate of the wetland area on their farm: to drain the wetland, to actively preserve the wetland, to leave the wetland unmanaged, or place under a covenant. These alternatives represent production verses preservation choices. Although there are legal restraints on the use of the wetland, these choices are all considered possible outcomes. An examination of the incentives and disincentives the landowners face to preserve their wetland area may prove instructive in determining how others in a similar situation may react.

Local government, the Department of Conservation and Fish and Game New Zealand (F&GNZ), QEII, and the Nature Heritage Fund are the main organisations that provide incentives to landowners to preserve native vegetation. First the incentives and disincentives that the landowner has to preserve the wetland is examined. Then these organisations influences on the landowners incentives will be looked at.

If the wetland area were left in its present undrained state the largest direct benefit to the owners would be the waterfowl shooting that currently takes place. It is difficult to place a value on the benefit that the landowners receive from duck shooting. A 1988 survey conducted by Nugent showed that respondents that held firearms licences reported spending an average of $851 each on hunting in 1988 (gross expenditure). This is about $1,110 in today's dollars, giving a rough estimate that can be placed on the value of gamebird hunting for the landowners. Aesthetic benefit is also gained from the wetland.

Omanuka Lagoon could be easily be put into agricultural production. If the area is drained it could provide additional acres for agricultural production. The surrounding land which was originally wetland after drainage was transformed into 'prime coastal dairy country'. If the wetland were drained it would be used for dairy production. The local Dairy Company has classified the district as 'Manawatu sands country'. Milk solids is on average 325 kilograms per cow for this district (Kiwi Co-operative Dairies Limited). The payout this season (June 2001-2002) is $5.20 per kg of milk solids. The landowners run on average one cow per acre. If the wetland area is drained they could potentially graze an additional 50 cows. Therefore the foregone annual revenue from the area is approximately $84,500. This amount does not include expenses incurred from the 50 extra cows. The landowners at present milk a herd of 600 cows. The main infrastructure necessary to enable milk production is already present. Additional costs if the herd is enlarged may include, additional labour, possible enlargement of dairy shed to cope

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with increased milk volume, extra stock races, fencing and water troughs, purchase of more shares in the dairy factory (the dairy factory requires that milk suppliers hold shares proportionate to the amount of milk produced). After taking into consideration the costs incurred with the extra cows there would certainly be a large profit.

Under the Resource Management Act, all water is vested in the Crown, regardless of what land it is flowing over or through, and nothing can be done to natural water unless a special provision is made or a consent is given. If someone wants to divert water from a waterway then a permit must be obtained. Where an application to divert water is granted that would cause water levels in a wetland to decline below naturally occurring levels, there are conditions that the permit holder must meet. The Regional Council also has an objective to preserve the natural character, of wetlands and their margins and protect their ecological, cultural, intrinsic and amenity values from inappropriate use and development. (Manawatu Wanganui Regional Council, 1998). The Manawatu District Council policies have to be in line with that of the Regional Council so they also promote such policies.

Regulation from the regional plan would apply if the landowners were to lower the water level of Omanuka. At present there is no monitoring scheme in place for wetland quality. The regional council is reliant on public awareness leading to complaints if a wetland is being adversely effected. If no complaints are lodged then the regional council would not be aware of any changes that may have occurred. The problem is magnified if wetlands are situated in remote locations because only landowners will see damage to a wetland. Some consents are gained for diversion of water from wetlands but there are no monitoring procedures in place to ensure that consented activities do not adversely effect the ecological functions of the wetland. There have been no prosecutions to date for the diversion of water from wetlands, although drainage throughout the area has occurred.

The wetland is currently maintained for game bird hunting and aesthetic benefits. These benefits seem small when compared to the foregone profit production would bring. At present some maintenance is undertaken to ensure that the size of open water is kept at its present size. Because the current reason for maintaining the wetland is for duckshooting there is no incentive for the landowner to undertake any other maintenance such as pest and weed control other than raupo which threatens the water area available for shooting. It has been expressed by many that preserving an area for gamebird hunting is very different to preserving an area for conservation reasons.

The land the wetland is situated on represents a huge opportunity cost to the landowner. The case study landowner has chosen to maintain the wetland, but it is easy to see why other landowners facing production versus preservation choices would be economically driven to want to convert such land into production.

The landowner and many other farmers in the district actively manage the level of the water in the wetland by draining in periods of high rainfall. The outflow drain is made deeper at certain times of the year to alleviate flooding. Drainage of this sort, even if only seasonal determines the extent of the surrounding ephemeral wetlands. Ephemeral wetlands are very vulnerable to decline because they are considered as areas of boggy land. Little information has been disseminated to improve landowner knowledge about such areas.

The case study landowner is aware of the restrictions present in relation to altering water levels or diverting water. Many other landowners spoken to were not aware of the restrictions present. If known many landowners do not know how such laws affect their circumstances.

No monitoring of the wetland is undertaken, so even if it were altered or degraded no authority would be aware of any modification. Even if it were established that the wetland had been drained or degraded it would be unlikely that any legal action would be taken. Thus regulation has very little impact on land use decisions.

### Incentives offered by government organisations

The Regional Council provides an animal pest control service for rabbits, rooks, goats and possums. Ratepayer funded operations for possums and goats are targeted to protect High Value Environmental Areas (HVCA's). The Council has identified 240 HVCA's, totalling 32,500 hectares. The Council also offers a user pays pest control service for possums, rabbits and goats in areas not targeted for ratepayer funding, although this has yet to be requested by any landowner. The budget for the Regional Pest Management Strategy work in 1999-2000 was $642,000. The Regional Council has also adopted an implementation policy to assist the landowners with possum control if they agree to retire HVCA's from grazing (Manawatu-Wanganui Regional Council, 2000). Omanuka has not been identified as a HVCA.

Environmental Grants are made available to 'help take care of the land' (Manawatu-Wanganui Regional Council, 2001). Environmental grants are allocated amongst other things to protect and enhance natural habitats, where typically 25% to 50% of the costs can be met. Fencing is an example of what costs can be covered by the grant. The Council makes provision for up to $300,000 per year towards Environmental Grant projects. A sum of $191.000 to 224 different

projects was allocated through environmental grant projects during 1999-2000. In the 1999-2000 year 1,200 hectares of land in the region were protected (Manawatu-Wanganui Regional Council, 2000). 2001 was the first year that the fund was taken up to full capacity, this may reflect changing community awareness. Information provision for biodiversity is also a function the Regional Council has. The Regional Council also provides advice to individuals and groups on request.

In October 1998 the Heritage Incentive Strategy was adopted by the Manawatu District Council. The Strategy has four parts, heritage incentives grants, rates remission, policy heritage awards and possible council purchase of heritage places. These parts are all included in the combined fund to be called the 'Heritage Improvements Fund'. The total funding available for these projects is $73,000. Assistance can be received for bush remnants, wetlands and other significant natural areas through "Heritage Incentive Grants". Monetary grants help pay for fencing and retirement of bush remnants. The Community Funding Subcommittee would deal with such applications. In general assistance is considered if the area is identified in the Proposed Manawatu District Plan. A greater amount of assistance is available for the more important sites. E.g. places which are listed as Category A under the District Plan, vs Category B. Up to $500 can be received for a significant natural area listed in category A. Omanuka Lagoon is classified as category A, so it would be eligible for up to a $500 contribution. The policy for the Heritage incentive strategy is in place but the fund has not been publicised so the programme is not yet operational. The Manawatu District Council plans to continue support for the heritage incentive strategy.

The District Council must ensure that its policy objectives are in line with the Regional Councils. The District Plan must not be inconsistent with the Regional Policy Statement. The District Council has identified Significant Natural Areas in its district plan. The Council's policy is to ensure that the important natural features and ecosystems are protected and enhanced. The District Council in general employs a voluntary approach to Biodiversity conservation.

Monitoring is undertaken for resource consents. If an activity that needs a resource consent is detrimental to a site that has been identified as a significant natural area then consent for the proposal may be refused, or conditions would be imposed on the consent to help avoid, remedy or mitigate the effect of the proposal.

The Department of Conservation is the government agency with primary responsibility for the conservation, and advocacy for, New Zealand's indigenous biodiversity. The Department's conservation responsibilities are largely focused on the conservation of public land.

Responsibilities that relate to private land are the general promotion of biodiversity management and the securing of areas that represent the full range of natural diversity on private land by providing incentives for voluntary protection. If an area has been identified by the Department as a Recommended Area for Protection (RAP) it is given a higher ranking in ecological significance.

The Nature Heritage Fund and Nga Whenua Rahui are independent funding organisations. The Nature Heritage Fund helps meet the cost of protecting areas of high ecological value by providing contestable finance for projects that protect ecosystems. Nga Whenua Rahui is a similar fund specifically designed to protect indigenous biodiversity on Maori land. Both funds provide finance and can negotiate the purchase of areas in need of protection for its clients. Both funds can also contribute to purchases made by local authorities or other agencies prepared to manage protected areas as reserves under the Reserves Act 1977. Where landowners want to protect natural areas, but not relinquish title these areas can be covenanted.

In effect the Nature Heritage Fund and Nga Whenua Rahui are the bank for the Departments work on private land. If there is an area that DoC would like preserved DoC must apply to the Nature Heritage Fund or Nga Whenua Rahui for funds. Both funds help meet the costs of preservation costs such as fencing and survey and legal costs for protection. Assistance with pest and weed control may be agreed to. Land titles of covenanted areas stay with the landowner. Usually up to 50% of costs (ie fencing materials) will be provided for a project.

RAP's automatically support an application for funding and other areas are considered on their merits. Omanuka Lagoon is not considered as a Recommended Area for Protection. Monitoring is undertaken annually to ensure that covenanted areas are being properly maintained and landowners are happy with agreements.

As a result of the Biodiversity Strategy there has been a large increase in funding for the Department of Conservation. A lot of this money has gone into jobs that could not be done in the past such as weed control and finding out about rare plants and animals. Nga Whenua Rahui and the Nature Heritage Fund have both received increases in funding to improve their effectiveness. This will allow for more areas to be protected.

Fish and Game New Zealand (F&GNZ) is the New Zealand Government's agency responsible for managing freshwater sportsfish fisheries and gamebird hunting. Many waterfowl species have habitats in New Zealand's wetlands and F&GNZ are committed to preserving as many wetland areas as possible. The Game Bird Habitat Trust board is a subsidiary of Fish and Game New Zealand. The trust is administered by Fish and Game but is its own entity. The New Zealand

Game Bird Habitat Trust Fund was established to help preserve wetlands. F&GNZ have introduced a New Zealand Habitat stamp programme, based on the very successful USA Duck Stamp programme. The Trust fund gets no government funding but takes two dollars off every game bird licence. $100,000 was raised in the 1999/2000 year. Game bird hunting is the only hunting for which, by law you must have a licence.

If an individual wants to help to protect a wetland he can either make an application to the Board himself or enlist the help of F&GNZ to help them with and application. The Board meets annually to decide how to allocate the money generated. Money goes primarily to fencing and earthworks it is also used for planting of native trees and spraying to control invasive species or overgrowth of raupo.

The Queen Elizabeth II National Trust is responsible under the Queen Elizabeth II National Trust Act 1977 for providing, protecting and enhancing open space, that is important due to aesthetic, cultural, recreational, scientific or social values. The trust has registered 1000 open space covenants, protecting over 40,000 hectares of land (Queen Elizabeth the II National Trust, 2002).

Open space covenants are the means by which protecting privately owned open spaces are protected. Land subject to a covenant does not become the property of the trust. Covenants are registered against the title and are binding on the present and all subsequent owners or leaseholders usually in perpetuity.

A covenant document defines the area to be covenanted, states the purpose of the protection and sets out activities that can and can not be carried out in the covenants area. The owner agrees unless prior arrangement with the trust, not to do things that would alter the appearance or condition of the land. The covenant document also specifies responsibilities for maintaining fencing and conditions of public access. Management of the area under covenant remains the responsibility of the leaseholder or owner. Management advises and assistance and services is offered by the trust. The landholder is visited around every two years to discuss management of the covenants.

Lack of available funds has meant that the QE2 trust can not meet the demand of landowners wanting to protect ‘open space’. Additional funding has been received as a result of the Biodiversity Strategy in addition to the current operating revenue of approximately 2.8 million. This initiative is likely to provide a conservation return.

When deciding which types of open spaces should get priority, consideration is given as to whether that type of ecosystem is well represented in protected areas already and how much of

that type of ecosystem exists. Wetlands usually receive high priority for protection. Fencing is usually required around wetland areas to stop damage from stock etc. Survey and legal costs are provided for as well as 50% of the owners overall cost of fencing etc is funded for.

### Current land owner incentives to preserve the area

The incentives offered by the government authorities identified help encourage landowners to conserve natural areas. Usually up to half of the financial costs of preserving the area are provided for. The landowner must still pay for the additional costs. Since such incentive measures have been utilised by landowners, such funds clearly have a role to play in increases landowner incentives to preserve biodiversity. However, many landowners would possibly not find the provision of around 50% of costs sufficient to warrant the financial outlay of the other 50% they themselves must provide. Only landowners that have a preference to conserve would be included in such policies. Labour costs are usually not included in the financial contribution made by the organisations, and this may further prohibit landowners who again will not receive sufficient benefit from the preservation project to justify the man hours spent.

Landowners with larger areas to conserve may also be financially constrained from carrying out a preservation project. The larger an area is, the more expensive it is to conserve. Such incentive policies effectively discriminate against larger areas.

Many of the incentive grants are reliant on landowners approaching them for assistance. They are also seldom advertised. Again landowners that are not conservation minded or lack such information about the funding available will not use such incentive schemes. It is only in the last year that the Regional Councils Environmental Initiative fund has been used up to quota. This may be due to lack of advertisement about the fund or that there are not that many conservation minded landowners that are willing to spend the additional cost required to conserve an area.

New Zealand has many invasive species, so it is not sufficient to just fence an area to remove stock access. Continued active maintenance of an area is necessary to prevent native species declining. Since many areas of native vegetation are remnants, this maintenance is especially important. To ensure that the edge effect is minimised in bush areas it is recommended that the perimeter is planted to prevent the affects of light penetration and the weather having severe impacts. In a wetland, weeds such as blackberry or willows often need to be controlled. A landowner must be strongly motivated to spend labour hours and money in sustained maintenance of a conservation area. Consequently, many landowners do not undertake active maintenance of

areas, and many are left to deteriorate. Any successful biodiversity conservation policy must provide additional landowner incentives to preserve conservation areas.

Most smaller or less important areas, such as Omanuka, are not eligible for many of the funding programs. Prioritising of biodiversity values is a contentious issue. It is acknowledged that prioritising funds is necessary, but such policy approaches have the future impacts of letting smaller area values erode. This has a large cumulative impact on biodiversity as a whole.

### The governments initiatives impact

The advisory service and condition fund idea is still in its infancy. It is yet not known how such a fund will operate. Any additional incentives and advice that are offered are positive for native species. This is an initiative by the government that will have a positive benefit at ground level. However, the amount of money that will be allocated is small when divided by the 12 regions.

Increasing the funding available for the QEII, nature Heritage Fund and Nga Whenua Rahui will not affect the case study site as the landowner is reluctant to have outside influences control the use of the area. This may be a common perspective on the part of landowners. However, since there has been an over demand nationally for applications to such funds, this government initiative will definitely have a ground level impact and should be considered for continued growth.

### Comparison with other localities

The West Coast is mountainous and three quarters of the land area consists of indigenous vegetation. The crown administers a total of 91% of the regions land. Of the West Coasts indigenous forest 12.5% is situated on private land. Evidence indicates that there is little removal of the indigenous forest-taking place. This is partly due to the steepness of the slopes and the requirements of the Forest Amendment Act (Grey District Council, 1999) which regulates the milling of indigenous timber. Protecting native bush on the coast is a contentious issue. Since there is already 91% of the regions land under government control the West Coast people feel that this is more than adequate protection of the regions significant biodiversity values, and no more needs protecting. The Regional Council does not offer any incentives. Other than the mandatory requirements specified under the Resource Management Act the Council takes a largely non-regulatory approach to preserving biodiversity. Little monitoring is undertaken due to staff shortages.

The Canterbury region has seen a transformation from forest and shrublands to tall tussock, short tussock or flat leaved species. The vegetation and ecosystems of the Canterbury Plains are the most modified in New Zealand. The remnants of pre-European habitats exist in the foothills and on the Banks Peninsula. The Department of Conservation administers nearly 20% of the region's land. Attempts to protect special habitats, ecosystems and landscapes in the district plan resulted in considerable rural opposition, claiming a removal of property rights and denial of the right to farm. At the centre of this have been proposals to control land use in order to protect areas with special values. In some districts the issue has been fuelled by inadequate consultation with the rural community and the use of outdated data to identify sites. An Environmental Enhancement Fund annually provides $100,000 for conservation initiatives. Landowners can receive 50% of a projects cost. The are also Resource Management Awards that promote sustainable management of natural and physical resources in the region. Regulation is in place on the Kaikura East Coast and Port Hills to ensure that earthworks and vegetation clearance do not adversely affect the outstanding natural features or landscapes. Controls have been placed on earthworks and vegetation clearance. In the Canterbury Hill and High Country there are also control of fires. Little monitoring is undertaken to ensure that the regulation is met.

Today the Waikato region has 26% of its native vegetation remaining. Native forest covers 20% of the region. Less than 10% of indigenous wetlands remain. About 45% of the Waikato's native total land area is protected under the conservation estate. The Waikato Regional Council has an Environmental Initiatives Fund. The fund assists organisations, agencies and individuals with environmental projects. The fund provides a one off grant to projects which directly enhance and/or benefit the environment or provide environmental education. There is a maximum of $240, 000 allocated to the fund each year with up to $40,000 available for any one project. It is usual for the Council to contribute a third of the cost of a project. This can be anywhere from $2,000 to $11,000.

The Farm Environment Award is conducted annually by the Farm Environment Trust with support from the Regional Council and a number of farming industry sponsors. The purpose of the award is to encourage sustainable agricultural practices. The Sustainable Agriculture Education Strategy is a framework for farmers learning about the environment. The strategy identifies the most important resource management issues for farmer education, and prioritises ideas to promote sustainable agriculture. Environment Waikato supports four large community initiated possum control schemes, involving 140 landowners. Other than the requirements specified by the RMA and the Forest Act the Council takes in general a non-regularly approach to

biodiversity preservation. Monitoring is undertaken by using satellite photographs to identify changes in vegetation cover.

Geographical differences amongst the Regional Councils were quite variant. The West Coast region has large expanses of native vegetation compared with the other regions. The ratings base for the regions was also variable. Since the West Coast has a small population, the Regional Council has few funds available for conserving biodiversity and consequently no incentives are offered. Other localities have a larger ratings base which helps with providing finance with incentive projects.

The Regional Councils all have very different social conditions surrounding the protection of biodiversity. From the West Coast and Canterbury experience it is seen as important to have landowner cooperation when designing policy that will ultimately affect the property rights of landowners. Many landowners were adamant that they would not comply with involuntary restrictions placed on their land. This usually stemmed from their reluctance to being told what to do by the government.

The Hamilton Regional Council offers the most comprehensive assistance for landowners. This is because there are funds available and in general a good relationship between the Council and landowners. Also there is maintenance assistance for preserving natural areas, which is pertinent to ensuring remnant survival.

It would make a difference to the incentives available if my case study was situated elsewhere. If in the Waikato region it would receive the largest incentives and support. If on the West Coast no Regional Council assistance would be offered. Also Lake Omanuka would probably not be considered very significant on the West Coast due to there being many other wetlands in better condition. The case study landowner may be influenced by the different degrees of incentives offered.

The Manawatu-Wanganui region like other regions throughout New Zealand has been greatly modified. The region still has small remnants of the historical vegetation cover with regionally significant species. It is important that these remnants are maintained so that they do not disappear totally. Active maintenance needs to occur.

## Discussion

The proposed National Policy Statement, when implemented, is not likely to have a significant impact on the preservation of biodiversity on private land. There are so many regional differences both geographically and socially that any prescriptions will have to be written in a

very broad and general way to be all-inclusive. Such general prescriptions will lose the ability to have any real affect as they filter through political and financial constraints at the regional level. Further, most of the regional councils already fit the guidelines of the proposed National Policy Statement. Politically, councils are reluctant to act with vigour in biodiversity conservation. If regional councils do have to change their current approach to biodiversity preservation they fear this will have a negative impact from rural voters. For instance, if regulatory approaches are made mandatory then the Councils fear that this will alienate landowners. Unintended backlashes may also occur as a result of landowners ability to act pre-emptively to expected new regulations. When the Forests Act was implemented, many landowners with large areas of native forest went out and milled large areas of native forest before the law was finalised. Many fear that such a situation could reoccur if landowners are required to change their current approaches to biodiversity conservation.

The financial constraints are clear. Those councils with the most important, and greatest amount of, potential conservation land have the smallest rates base from which to fund biodiversity conservation. Most programs in New Zealand only have very modest funds available for incentives. Many of the funds emphasise the need to fence off areas to prevent stock access. This is a crucial first step but action needs to be followed by area maintenance such as weed and pest control. If areas are not maintained they will deteriorate, especially if they are smaller remnant areas. It is important that areas are actively managed and enhanced if they are not going to eventually disappear.

In conclusion, the Government's response to biodiversity is a good start but more incentives will have to be offered if landowners are to maintain their areas of native vegetation. This especially applies to landowners who are not conservation minded or have large areas to conserve. In New Zealand it is particularly important to gain landowner support because active maintenance is necessary. If a non-regulatory approach is taken to biodiversity management then landowners will have to have other incentives offered to ensure that it is in their interest to conserve. If New Zealand takes a non-regulatory approach to biodiversity management then incentives need to be offered to make it in landowner interests to conserve.

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