TREATY ISSUES

JANET OWEN

Traditional Harvest and Protected Natives

How to allow harvest while preserving protected species.

Recent legislation giving effect to the principles of the Treaty of Waitangi, along with the expectations by iwi Maori that rangatiratanga will be both recognised and respected, are key factors behind recent requests to exercise traditional harvest rights. The implications of the Treaty, different cultural values and questions of sustainability of harvest are all here to be taken into account in considering such applications.

Requests have been wide-ranging, and have included birds such as titi (sooty shearwater), kereru (wood pigeon) and toroa (northern royal albatross); totara and kauri for traditional carving, including making of waka; a wide variety of medicinal plants; materials for weaving, such as pingao, harakeke (flax), kiekie, kiwi and other bird feathers; and whalebone for carving.

The Treaty guarantees Maori "the full exclusive and undisturbed possession of their Lands and Estates Forests and Fisheries and other properties which they may collectively or individually possess so long as it is their individual wish and desire to retain the same in their possession . . ." Few would dispute that native species harvested and treasured by the Maori are

KERRY GEMMILL

covered by the Treaty. What is more contentious, perhaps, is whether taonga were included in the sale of land, as well as perceptions of the extinction or depletion of living taonga from the effects of introduced predators, pests and disease. Maori, in general, view the large-scale destruction of forests, wetlands and other habitats as anathema to conservation. Many believe that in allowing, and in some cases facilitating, habitat destruction on a large scale the Crown has defaulted on its responsibilities as a Treaty partner.

Some also interpret the Treaty to require active restoration of depleted or degraded habitats and species and, where appropriate, restoration of taonga to a level sufficient to allow sustainable harvest.

On the other hand, in the exercise of kawanatanga under the first article of the Treaty, DoC, in administering legislation for the protection of native species on behalf of the Crown, has a responsibility to ensure their continued protection and survival.

DoC is required in section 4 of the Conservation Act to give effect to the principles of the Treaty of Waitangi. This is complemented by specific provisions for the traditional harvest of plants—the director-general may authorise any person taking any plant from the conservation estate intended to be used for traditional Maori purposes (Section 30(2)).

In contrast, the Wildlife Act 1953 contains no such explicit reference to the Treaty principles. Section 53 of the Act makes provision for persons to take protected species under a permit. This includes absolutely protected species such as toroa and kereru, as well as partially protected species such as titi and oi.

In practice, permits to take absolutely protected live birds have usually been issued only for scientific and captive breeding purposes, although permits to hold kiwi feathers for making of feather cloaks and the like are regularly issued. Legal opinion is that, provided the basic objective of the Act can still be achieved (that is, the conservation values and benefits afforded by

protected status of the species), then discretion can be exercised and applications to take species for other purposes (specifically, traditional cultural uses) could be granted.

A similar absence of reference to the Treaty and traditional harvest applies to other acts administered by DoC, largely reflecting the era in which the legislation was drafted. In some cases the taking of plants or animals may be severely restricted, as for example from within strictly protected natural areas like national parks.

DoC's policy on applications for traditional Maori harvest is in its formative stages. Some guiding principles are:

- the protection of the resource is of prime importance, and this may mean declining some applications
- where a species is not under threat and some resource is fully protected, sustainable levels of harvest may be considered
- assessment of applications is fully consultative between the iwi and the department
- alternative sources of materials and, where appropriate, substitutes should be considered
- the end use should be a traditional cultural use and not for commercial gain
- minimum impact harvest techniques should be used
- the use should not be wasteful.

The example of totara harvest illustrates current thinking. Totara is sought by Maori for construction of canoes and for carving. The resource is scarce and the best and most abundant source is the Whirinaki forest in the Bay of Plenty. Ngati Whare and DoC have developed a process for considering applications which gives both partners responsibilities in decision-making.

The principal elements of the process are to: avoid certain areas such as national parks and ecological areas; review the appropriateness of applications; allocate timber from standing dead and fallen trees fairly and in a sustainable way; protect the forest from excessive impact and rehabilitate where necessary; provide for the future resource, including by replanting; and recover direct costs to the department.

When an application is successful, selection of totara must be made from trees in the order of fresh, naturally fallen first, old naturally fallen second, and dead standing last. Live totara are not harvested from DoC's forests. Low-impact harvesting techniques are used to minimise damage to the site.

An active planting programme is included in the budgeted costs of harvest. The programme is maintained by the department although all parties are actively involved in silviculture.

> Live totara are not harvested from DoC's forests.

The fundamental concepts of species protection and sustainability, which Maori and pakeha share, underwrite any decision on the traditional harvest of species—even though each community may ascribe different cultural values to the resource.

The conservation of species can only be determined through a sound knowledge of the species, including its population size and distribution, reproduction and survival characteristics and way of maintaining (or even enhancing) the population in the process.

For native species regarded as taonga and from which a traditional harvest is practised, the Treaty of Waitangi confers a special position on Maori. The Treaty also charges the Crown with ensuring the appropriate legal protection and management of the species. It is balancing the two sides of this equation, with adequate information about the population dynamics of the resource, that is the challenge.

In line with the principles of the Treaty DoC is seeking to achieve joint decision-making on any allocation of the resource, with the partners assuming shared and singular responsibilities in the process.

Janet M. Owen is Director, Protected Species at the Department of Conservation, Wellington.

Chapter 10

Harvesting of New Zealand native birds by Maori

RAURU KIRIKIRI[1] and GRAHAM NUGENT[2]

Since humans and two accompanying mammals (the Polynesian rat and dog) first arrived in Aotearoa (New Zealand) c. 1000 years ago nearly half the original avifauna has become extinct. About 30% of the native bird species had disappeared before European settlement c. 200 years ago. European settlement caused a new wave of habitat losses, and the introduction of many more mammalian competitors and predators, initiated a new wave of extinctions and reduced many populations of the remaining species to low levels. The colonial government progressively prohibited harvesting in the name of conservation for all but a handful of native bird species. Pre-European Maori (the first New Zealanders) had, by 1800 AD, developed a systematic, highly regulated, and sustainable (in the short term, at least) harvest system, but this harvest culture was virtually extinguished by colonial law and Maori were largely alienated from any role in the management of bird populations, in spite of guarantees in the 1840 Treaty of Waitangi that ostensibly protected such rights. Some Maori now seek to re-establish harvesting rights, but face strong opposition from predominantly European conservation groups. Key issues in the debate are whether Maori should have absolute rights in deciding how native birds should be managed, whether the goal of management should remain purely one of preservation for all currently protected species, whether any harvest would be sustainable given the precarious state of many bird populations, and whether contemporary Maori society has sufficient power to re-establish traditional regulatory controls. Despite the inevitable resistance from the predominantly urban and largely non-Maori population, we argue that restoration of Maori harvesting rights could provide significant cultural and conservation benefits.

Key words: Maori, bird harvesting, indigenous peoples, conservation, utilisation

INTRODUCTION

The original inhabitants of Aotearoa (New Zealand), Maori, were once able to harvest any of the native bird species in Aotearoa, but are now legally prohibited from doing so. Before European settlement, many Maori, particularly in southern and inland areas, were primarily hunters and gatherers who relied on two main food baskets, the forest and the sea (Best 1977). Since 1865, however, access to the forest food basket in particular has gradually diminished by legal prohibition to the point of virtual elimination (Galbreath 1989), and the bird harvesting culture that went with it has all but disappeared.

In recent times, Maori, like indigenous peoples throughout the world, have sought to revitalise their culture, and to assume an authoritative role in the maintenance and development of that culture. Re-establishing the historically strong links between the people and the natural environment has been an integral part of that struggle (Te Puni Kokiri 1993a). Some Maori see re-establishment of the right to harvest native birds as one way of expressing their "Maori-ness" – that desire is driven as much (if not more) by the cultural and spiritual significance of the practices associated with harvest as by the actual need for food (King 1994). Not surprisingly, the potential re-establishment of such harvesting rights is vigorously opposed by conservation organisations (e.g., Atkinson 1993), and faces the inertia of a legislature controlled largely by non-Maori.

This paper briefly describes the history of harvesting of native birds in Aotearoa, the harvesting practices of the pre-European Maori, and the effects of European colonisation. Ways in which Maori regulated their harvests to ensure sustainability are outlined. Finally we identify and briefly discuss the issues likely to be raised by any attempt to re-establish wider bird harvesting rights for Maori.

HISTORY OF HARVESTING

Maori people settled in Aotearoa some 1000 yrs ago. Archaeological evidence indicates that because there were no terrestrial mammals other than two species of bat in the country those early settlers relied heavily on birds, fish, and sea mammals for food (McGlone 1989). By about 1500, however, the use of birds and sea mammals had declined dramatically, suggesting over-exploitation by a burgeoning human population. The largest and most vulnerable bird species disappeared, most notably the 11 species of moa (large flightless ratites). Approximately 30% of the bird species present before human settlement became extinct before 1800, with most of those extinctions probably occurring in the first few centuries of Maori occupation (Holdaway 1989). It is likely that after the initial spate of disappearances, the rate of extinction declined as the fauna and flora moved at least part way toward a new equilibrium that incorporated the effects of sustained harvesting by Maori and predation by kiore (the Polynesian rat;

[1] Manaaki Whenua – Landcare Research, PO Box 31-011, Christchurch, New Zealand.

[2] Correspondence author: Graham Nugent, PO Box 31-011, Christchurch, New Zealand.

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Rattus exulans) and kuri (the Polynesian dog; *Canis familiaris*) both of which were brought to Aotearoa by Maori (Holdaway 1989).

European colonisation began in earnest after 1840, and brought many new alternatives to traditional Maori foods (crops such as potatoes and corn, and domesticated mammals such as cattle and sheep). In addition, they brought a host of new mammalian predators and competitors that established wild populations (King 1990). These included rats (*Rattus rattus*, *R. norvegicus*), cats (*Felis catus*), stoats (*Mustela erminea*), weasels (*M. nivalis vulgaris*), ferrets (*Mustela furo*), Australian brushtail possums (*Trichosurus vulpecula*), deer (six species), goats (*Capra hircus*), and pigs (*Sus scrofa*). A variety of new birds, insects, and plants were also intentionally or unintentionally introduced. Widespread land clearance for pastoral and other forms of agriculture saw huge areas of forest replaced by grasslands. Before settlement by Maori, about three quarters of the country's 26 million ha were forested, (McGlone 1989), compared with just one quarter today. Burning by pre-European Maori contributed significantly to this decline (McGlone 1989).

The additional non-human predation pressure, renewed habitat losses, and new bird harvesting techniques (principally the use of shotguns) that followed European colonisation initiated a new wave of reductions in bird population, leading to the extinction of some species and to a long list of threatened species (Holdaway 1989). The huia (*Heteralocha acutirostis*) is probably the most widely known example of species that became extinct in the aftermath of European colonisation. This species was highly prized by Maori as a food source and for spiritual and ceremonial reasons – the white-tipped black tail feathers were often worn as a mark of nobility and are still worn on ceremonial occasions by some Maori today. Unfortunately the huia also became keenly sought after by European collectors of skins because the species was strongly sexually dimorphic, females having a long slender curved bill and males a slightly shorter, straighter, and much more stout bill. Consequently many were killed in the name of science, adding to traditional harvests by Maori. In 1892 Sir Walter Buller, one of New Zealand's most eminent 19th century ornithologists, reportedly saw only a single huia in an area where they had once been plentiful. He lamented the species' decline, but, incomprehensibly to modern conservationists, promptly shot the bird anyway (Szabo 1993). Although saddened by the demise of native species, he and most of his contemporaries believed that the eventual displacement and extinction of native species was inevitable, and that the collection of the last few specimens for scientific purposes was justifiable and appropriate (Galbreath 1989).

The rapid decrease in numbers of many species caused much concern about the fate of native birds, and, from 1865 onward, a simple and largely legislative approach to conservation saw limits placed on the harvesting of native birds, mainly by the declaration of reserves, and by the prohibition of harvesting (Galbreath 1989). By 1955 this had extended to absolute protection of all but a handful of species. On the mainland, harvest of three species of native duck, and pukeko (a native swamp hen; *Porphyrio*) is still permitted, but only under European-style game management rules of limited harvest seasons, limit bags, and use of shotguns only (i.e., there is nothing uniquely Maori about the harvesting and management of these species). Only two species of seabird, i.e., the titi (sooty shearwaters; *Puffinus griseus*) and the oi (grey-faced petrel; *Pterodroma macroptera*), are still harvested and managed mainly by Maori. These species aside, Maori no longer have a legal right to harvest or manage any native birds on mainland Aotearoa: gamebirds are managed by Fish and Game Councils, with little if any Maori input, and all other native birds on all lands are now protected and managed by the New Zealand Department of Conservation.

Some harvesting of protected species of birds has continued despite the legal prohibition (Atkinson 1993, King 1994). Many of the harvesters are Maori, and some are motivated by a desire to continue the use of what are seen as Maori foods (King 1994). Others, not all Maori, take and sell birds with little regard to cultural significance or the principle of sustainability. The species most commonly taken is the kereru (native wood pigeon; *Hemiphaga novaeseelandiae*), and its numbers are in severe decline in many places, the combined result of habitat degradation, mammalian predation and competition, and continued hunting. Although some Maori continue to harvest, other Maori consider any further harvest should be halted (Barrington 1994, King 1994).

One of the key motivations for re-establishment of harvesting rights is associated with the immense importance to Maori of maintaining tribal and individual mana (prestige or standing in the eyes of others). Maori also place great store on hospitality, which includes the provision of the finest food, and a tribe's mana is greatly enhanced by an ability to provide sought-after traditional foods.

TRADITIONAL HARVEST PRACTICES AND REGULATION

The fullest written description of pre-European bird harvesting practices is provided by Best (1977). Our summary partly follows that account, but also draws directly on traditional knowledge. At the time of European settlement, Maori relied heavily on native birds as a food source, particularly the tribes in southern regions where the colder climate prevented the growing of the sub-tropical crops Maori brought from tropical Polynesia, and the inland tribes (of which there were relatively few) whose access to the sea was limited. With few other terrestrial sources of animal protein apart from the kiore (introduced for that purpose; Roberts 1991), Maori harvested and ate virtually all species of bird, even the smallest. The larger forest birds such as the kereru and kaka (a parrot; *Nestor meridionalis*) probably provided the best energy and protein return per unit of harvest effort for forest birds, although ease of harvest may sometimes have favoured smaller birds.

Birds were speared, netted, snared, trapped, or taken as young from the nests or burrows. Harvesting of birds was strictly regulated. It was seasonal, mostly the winter months for forest species, and only certain people (those skilled as hunters) were permitted in harvesting areas. The methods of catching birds were based on an intimate knowledge of the birds, their behaviour and feeding habits, and, for forest species, the location, flowering and fruiting times of the trees and shrubs they fed on. Harvesting rights were clearly delineated and were passed from father to son, more or less as a property right within well established guidelines. Areas from which birds were taken were jealously guarded, and any transgressors did so at their own peril. With no written language, knowledge of bird behaviour and ecology, and of harvesting methods, rights, and regulations was passed verbally between generations as part of the immensely strong oral tradition for which Maori were (and still are) renowned (Best 1977, Simmons 1973).

Pre-European Maori believed they shared a common ancestry with forest trees and birds, and that their spiritual gods were as real as objects held in the hand. The most important of the main Maori gods (of which there were six) was Tane, the father of trees and birds. His protection, and that of other gods, was considered absolutely essential to ensure that birds remained abundant and harvestable. The first bird killed during any harvesting expedition into the Great Forests of Tane was always laid aside as an offering to Tane, after which the hunters had his tacit approval to catch birds for themselves.

Another striking feature of traditional harvest practices were the prerequisite rituals aimed at ensuring good harvests. There were a great many rules to be observed – things that had to be done and unlucky acts to be avoided if hunters were to be successful. As examples, specific words might be entirely banned during the hunting seasons and cooked food could not be carried while hunting. The great number and the detailed nature of these rules indicate clearly that hunting success was by no means assured; not surprising considering the relatively simple techniques used, the small size and alertness of the target species, and the dense forest habitats in which much harvesting took place. The harvest rules undoubtedly represented the inter-generational compilation of those actions thought to have affected hunting success on previous occasions. Although some of the rules may have been irrelevant it is likely that, overall and in combination, they would have significantly enhanced hunting success.

The regulation of harvest was achieved mainly by a combination of tapu (religious restriction) and rahui (temporary ban) imposed and administered by rangatira (tribal chiefs) and tohunga (experts in the lore relating to natural resources). Fear of divine retribution generally ensured near-absolute compliance with tapu and rahui, and provided a highly effective enforcement system. If divine retribution failed, more down-to-earth measures like muru (confiscation of resources) were enacted.

Pre-European Maori believed all natural things possessed a mauri (life force) and that they were inextricably interconnected by this and, for living things, a common ancestry in which humans also shared. Many Maori retain this belief system, and therefore take a holistic view of the environment and environmental management (James 1993; Te Puni Kokiri 1993b). There has been some tendency to interpret the highly regulated traditional harvest systems as evidence of a "western" conservation ethic, but that is true only to the extent that it was conservation for human use, i.e., the system was designed to maximise the harvest rates and size by ensuring that birds were undisturbed and that harvests took place at times of the year when birds were easily harvested and in best condition for eating (or possibly more importantly for food preservation). Maori relied heavily on a method of preserving foods such as birds and kiore in their own fat, so most harvests were timed to coincide with peak fatness. The harvest system was therefore much more akin to game management than to conservation, if conservation is interpreted solely in the preservationist's sense as the altruistic management of bird species for their own good rather

than for the good also of the harvesters. Although even as late as the 17th century some bird species may still have been vulnerable to the long-term flow-on effects of habitat modification and predation caused by Maori, kiore, and kuri (Holdaway 1989) it seems self evident that for the most commonly harvested birds the harvest system in place at the time of European settlement would have been sustainable unless harvesting techniques or human population size changed dramatically, because these species had already survived 800 years of harvesting.

ISSUES

The inevitable debate over harvesting rights is likely to centre around four main issues:

Sovereignty and the Treaty of Waitangi

Under the 1840 Treaty of Waitangi Maori ceded to the Queen of England the right to govern Aotearoa. In return the Queen guaranteed Maori the full, exclusive, and undisturbed possession of their lands, forests, and fisheries and all other taonga (treasures, including valued natural resources such as birds). The Treaty imposed a duty on the Crown to recognise Maori interests (including things like bird harvesting) and to actively protect them (Joseph 1993), not by unilateral, monocultural, and largely legislative measures, but by consultation and with allowance for self regulation and self determination. The series of laws enacted since 1862 to conserve bird species have effectively prevented Maori from exercising their traditional rights and is at odds with the principles of the Treaty of Waitangi.

In recent years, Maori have been increasingly successful in arguing for recognition of their rights under the Treaty. The most notable example to date is the so-called Sealord deal in 1993, in which the Crown purchased Aotearoa's single largest fishing company for Maori as part settlement of their claim to a share of all marine fisheries. The desire to re-establish bird harvesting rights is another Maori effort to reassert rangatiratanga (sovereignty) over natural resources. In this context, the question is not so much about whether or not harvest should be permitted, but about who has the right to decide. Some Maori would prefer to forgo traditional harvest rights in an attempt to ensure the survival of bird species (King 1994, Barrington 1994), but, in our opinion, even they would likely prefer far greater involvement of Maori in the control and management of native birds.

Even if Maori were to regain some control of the management of native birds, some species would undoubtedly continue to decline in number rather than recover because of habitat loss and competition from or predation by introduced mammals. To conserve these species and to restore all bird populations to harvestable levels would require huge expenditure. Who should pay? Arguably, the Treaty imposed a duty on the Crown to protect harvesting rights, but it has failed to do so and so should bear responsibility for putting matters right. Ultimately, however, it is also logical to argue that users of a resource should pay for its management where that management was aimed at ensuring continued use. In America, for example, the harvesting of native deer and other species generates huge revenues, much of which is directed at the protection and retention of both the harvested species, their habitats, and the other species that occupy those habitats, providing major benefits for conservation.

The legal impediments to restoration of wider harvesting rights do not seem immense. The Conservation Act already directs that the Department of Conservation acknowledge the principles of the Treaty of Waitangi. Recently a one-off decision was made to allow the taking (for ceremonial reasons) of juvenile toroa (albatross; *Diomedea spp.*) blown off their nests in the Chatham Islands (Robertson 1991). Although no take actually occurred, this decision conclusively demonstrates that wider harvesting rights are achievable within the present legislative framework. Practically, the main difficulty therefore appears to lie in overcoming anti-harvesting attitudes within the present management system. However, for many Maori, the restoration of former harvesting rights by way of discretionary delegation of present legal powers would be, at best, just a first step. Transfer of at least some independent decision-making role would be required to truly restore their mana as kaitiaki (guardians for future generations) of native birds, and that would require legislative change.

Cultural differences: conservation vs utilisation

It is likely that much debate will centre around the appropriateness of utilising bird populations at a time and in a society where alternative food sources are plentiful and the bird resource is relatively scarce. Individual views are likely to reflect cultural heritage.

Pakeha (European New Zealanders) do not have a long history of widespread reliance in Aoteroa on native birds as food. Generally, the larger, more productive, and domesticated crops, birds, and mammals they brought with them were sufficient. The predominantly Pakeha conservation movement has its primary roots in a series of campaigns to save

threatened bird species, and (in our opinion) has a preservationist approach that tends to emphasize the western perspective which separates humans from the natural forest environment. In this view, "nature" is seen as occurring principally in the network of reserves and wild places beyond the developed lands in which native species survive only if human interference is minimal or solely protective. Conservationists therefore tend to shun the human utilization of native natural resources, including harvesting, as a conservation concept.

For Maori, the relationship with native flora and fauna traditionally was and still is far less separatist; this is not just a reflection of their longer history in New Zealand, but also as a reflection of their world view of humans as part of the natural environment. In essence, Maori lived the broad principle now encapsulated in the term "conservation of biodiversity", i.e., by safeguarding the environment of which humans are a part, people improved their own chances of survival. Use of any natural resource was permitted provided it was respectful use. Respectful use is conveyed by the word manawhenua; a form of sovereignty over the land containing that resource that implied control but also imposed kaitiakitanga, a responsibility on the users of the resource to protect it for future generations. Thus for Maori the very right to harvest placed on them a duty to care for and protect natural resources from "within" the ecosystem. This contrasts with what we see as the much more "isolationist" approach apparently favoured by Pakeha conservationists whereby all human influences other than protection or restoration are seen as adverse, and are therefore minimised or eliminated.

This cultural difference is also reflected in the range of attitudes to introduced animals. Pakeha conservationists typically have a clear, simple vision: native is good, introduced is bad. That principle is enshrined in legislation such as the *National Parks Act* which requires eradication (as far as possible) of all introduced species (although in practice introduced species such as trout and wild horses that are of particular value to Europeans are excluded). For many Maori, we believe the distinction is generally less clear cut and more pragmatic. Introduced animals such as stoats or wild cats that add little or nothing useful to the environment and detract heavily from its value as a source of food and shelter, or damage its integrity in its own right, are seen as candidates for control or removal (Mason 1989). If, however, an introduced animal, such as the wild pig, is perceived to have relatively few adverse effects on the native biota and yet provides a useful source of food, its presence is seen by some as a worthwhile tradeoff. Some less conservation-oriented Pakeha, such as big-game hunters, share this view.

Sustainability

The great fear of Pakeha conservationists is that the removal of the present prohibition on harvesting could add an additional mortality factor that would tip threatened species into oblivion. The kereru epitomises their concerns. The species is harvested easily with shotgun or rifle, has a low reproductive rate, and suffers intensely from competition with and predation by introduced mammals. It has disappeared in some rural areas, but may be holding its own in others, sometimes in spite of illegal harvests. To conservationists there seems little point in re-establishing a harvesting right if the species cannot stand any additional mortality factors.

This simplistic view assumes that Maori cannot identify when a species is in need of conservation and would not be capable of putting in place a protective management system, an assumption to which Cox and Elmqvist (1993) apply the term ecocolonialism. As we have noted above, however, even before European settlement Maori recognised that from time to time restrictions on harvesting (rahui) were necessary to allow stocks to rebuild. Further, there is no fundamental reason why Maori could not combine the best elements of current wildlife management with elements from their own management systems to conserve and, where sustainably possible, utilise bird species.

The heart of the issue seems to be Maori involvement in and control of the management system, rather than the goals of management per se. We suspect opposition by some ecologists and conservationists to the concept of Maori-oriented management systems may well be driven as much by a unspoken desire to protect "their" current role as the principal guardians of threatened species as it is by concern for the birds themselves.

Control

Another key question is whether Maori could actually re-establish the level of regulatory control they once had, even if permitted to do so. Opponents of bird harvesting argue that they could not. In pre-European Aotearoa control was mediated through a complex tribal structure and customary practices in which the concepts of reciprocity and fear of divine retribution were greatly respected. That control has weakened as Maori became Christianised and increasingly urbanised; many might now not accept the re-introduction of traditional tribal controls.

A counter argument is that Maori culture is not fossilised. It continues to develop and could easily combine elements of Maori culture with elements of the existing enforcement system to achieve a workable approach to bird management. If harvest were legitimised, but only limited harvests were possible, birds would most likely be taken only for special occasions of great cultural significance. Continued casual or illegal harvesting would degrade the cultural value of the formal harvests, creating a powerful motivation amongst Maori to combat illegal harvests.

CONCLUSION

Although the legal obstacles might not be great and the government has shown considerable willingness to recognise Maori rights to control of natural resources, strong public resistance to increased bird harvests is inevitable.

The predominantly non-Maori population is largely urban, with no strong links to a bird harvesting culture other than the European "game-management" model that has been in place through most of this century. Many would find the concept of eating native birds (long the emblem of the conservation movement) repugnant. Coupled with this, concerns for animal welfare have seen the rise of an anti-hunting lobby that vociferously opposes bird harvesting of any sort, traditional or modern.

Overcoming this resistance will not be easy. Despite the apparent protection of harvest rights under the Treaty of Waitangi, any solution will require compromise between the extremists (King 1994). Such a solution is likely to see Maori and Pakeha sharing management responsibility, hybrid management systems combining tapu and rahui with "western" legislation, conservation of species as the primary goal, and the harvesting of selected species only where that is demonstrably sustainable. We argue that such a solution would re-establish the manawhenua (the right to manage and care for a resource that is imparted by use) that has been virtually extinguished by the alienation of Maori from their lands and forests. It would increase Maori links with and commitment to their natural environment, and, in our opinion, have considerable conservation and cultural benefits.

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"Cultural issues of biodiversity; the sustainable use of indigenous plants and animals"

Henrik Moller
University of Otago

Today's Seminar

- Clearing the decks
- Pakeha and Maori perspectives; common ground and conflicts ?
- Ecological Realities and Practicalities
- Traditional Environmental Knowledge cf Science
- Ways that science might help
- Examples from NZ (especially Titi, and Kereru)
- Partnerships overseas
- Summing up
- Questions and discussion

Clearing the decks !

- I am a Pakeha, a conservationist, and a scientist

.... so my messages are directed mainly to Pakeha and scientists

.... I do not speak for iwi

- A collective iwi voice has not been heard on these issues yet

.... NZ Conservation Authority paper starts on that process

.... Manaaki Whenua FfRST research starting

- So, in this seminar we have to play "what if iwi want" scenarios
- I will concentrate on science but must acknowledge the underlying politics and power issues at times
- Characteratures offered are generalisations of the extremes
- Fear of appearing racist could kill discussion; judgements of racism will reduce listening; so lets try for an honest and open discussion of the issues

Customary Use
(Tikanga Maori O Mahinga Kai)

- traditional practices, times and places for harvest
- of great social and cultural significance
- "Maori Science"
- enhancement and spreading of breeding stock
- most of the management centres on closing off areas from harvest ("rahui")
- conservation for future use

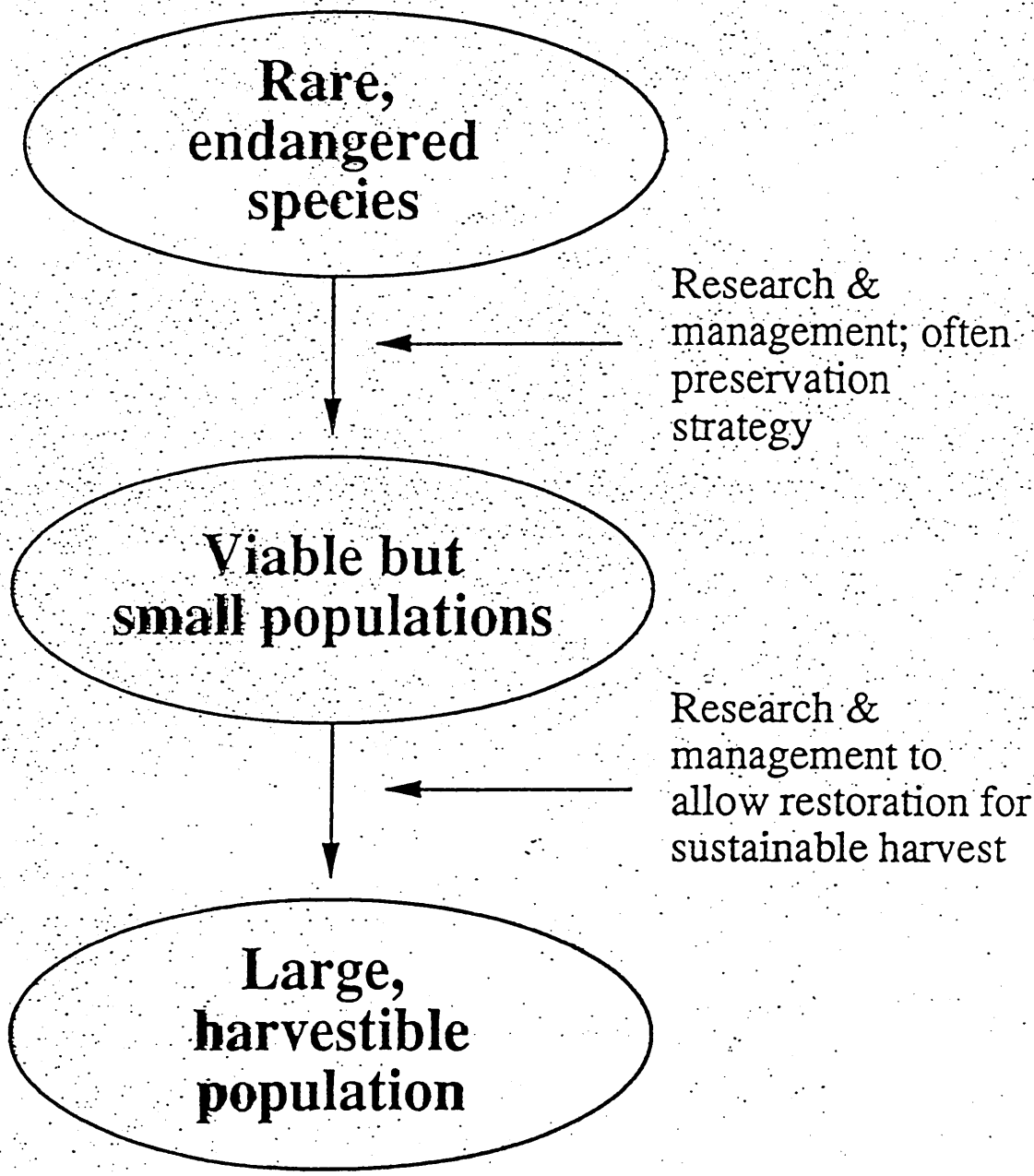
Pakeha Perspectives?

- not recently from hunter gatherer society
- many Pakeha conservationists are harvest prohibitionists
  - animal rights
  - preservationists
- resource users have been "the enemy" of conservationists
- Pakeha's are searching for identity and their own "Turangiwaewae", and finding it in our amazing plants and animals, and wild places
- plants and animals part of Pakeha's mana
- conservation <u>for intrinsic value</u>, not for use

Pakeha Perspectives?

- mistrustful that harvest will cause endangerment
- denial of Maori spiritual/philosophical commitment to conservation
- anger about extinctions caused by Maori harvesters in the past
- don't want conservation resources diverted away from threatened species work
- "if you want to hunt, kill the introduced species!"

Conservation Conflict & Common Ground



Ecological realities and practicalities for sustainable harvests

- a few species are growing strongly
- trends unknown for many species
- many species have small, fragmented populations
- indigenous biota often have low reproductive rates
- signals need for extra care!
- harvest will have to be coupled with restoration; it therefore will have to be focussed on particular, small areas
- bio-control of pests is the only long term option
- islands offer short term opportunities to minimise risks

Islands and Protected natural areas

- eg. Crown Titi Islands, Takapourewa debate
- drilling holes in lifeboats?
- conflict overseas centres on their use
- areas where key mahinga kai resources are intact; risks of harvest are minimised there
- "competition" for a limited resource; eg. F&B call for a national islands conservation strategy
- "indirect effects" other than the harvest
  * avoidable
  * reversable
- few islands and they are small

Present Options for Sustainable Use

Harvests will have to be relatively small to be sustainable in the immediate future

A few species on mainland and a few islands offer short-term options at minimal expense

Restoration work is needed to extent places where harvest can occur; and to new species

What if iwi wish to harvest native animals and plants?

Will iwi want to guide harvests entirely by their "traditional environmental knowledge"?

"Traditional Environmental Knowledge"

- knowledge of local environment learnt and taught by aboriginal peoples to sustain themselves
- recently recognised and valued by western scientific community; rapidly growing area of research
- "folk ecology"/ "ethno-ecology"/ "indigenous knowledge"/ "customary law"/ "lore"/ "knowledge of the land"
- "**traditional** environmental knowledge" irks some because it could imply that it is not changing
- includes system of classification; a set of empirical observations; self-management that governs resource use
- sustainable use is at its core?

Characteristic of "Traditional Environmental Knowledge" and "Western Science"

(Usher '86, Oscherenko '88, Johnston & Ruttan '91, Berkes '92, Johnson 92, Wolfe *et al* '92)

T.E.K.	Science
Oral	Written
Observation and hands-on experience	Taught and learned in abstraction
Inanimate objects have "life force"	
Humans not superior; kinship; interdependent (Whakapapa)	Humans seen as having a right to control
Holistic (Kotahitanga)	Reductionist
Intuitive; emphasis on emotional involvement	Analytical; emphasis need to separate oneself from what is being observed

T.E.K.	Science
Qualitative	Quantitative e.g., trend analysis, surveys, mathematical modelling
Data collected by resource users; inclusive and discursive	data collected by researchers; selective and deliberate accumulation of facts
Diachronic (long time series in one place)	Synchronic (short time series over large area)
Explanations often spiritually based; checked, validated, and revised daily, seasonally, and annually	Generates and tests hypotheses; establishes theories and general laws as its explanatory base

Science has the following fundamental assumptions:

- **Reductionism:** understanding complex phenomena by breaking down data and reassembling them in different ways

- **Objectivism:** the belief that the observer must deliberately seperate herself/himself from that being observed

- **Positivism:** the belief that what is measureable is scientifically real, and what is scientifically real is measureable

- *Even scientists that recognise T.E.K.*
  "..... seek to recognise their[own] categorizations in native systems, and apply their[own] typologies to what they think indigenous knowledge systems are. Few western scholars are able to accept indigenous knowledge as valid in and of itself"

  Wolfe et al 1992

Will iwi invite partnership with science to guide harvests?

- demanding involvement of science denies tino rangitiratanga
- will science be available?
  - * diversion from non-harvest issues
  - * $$
  - * time
- unfair to expect iwi to manage in the absence of science or restorative management ?
- reconciling world views in basis for decision making
- teething problems as partnership models are developed
- mutually rewarding
- less conflict
- 4 hui so far have cautiously welcomed science

Assuming that iwi want science to be involved alongside Traditional Environmental Knowledge

..... how can science help ?

..... what should be measured ?

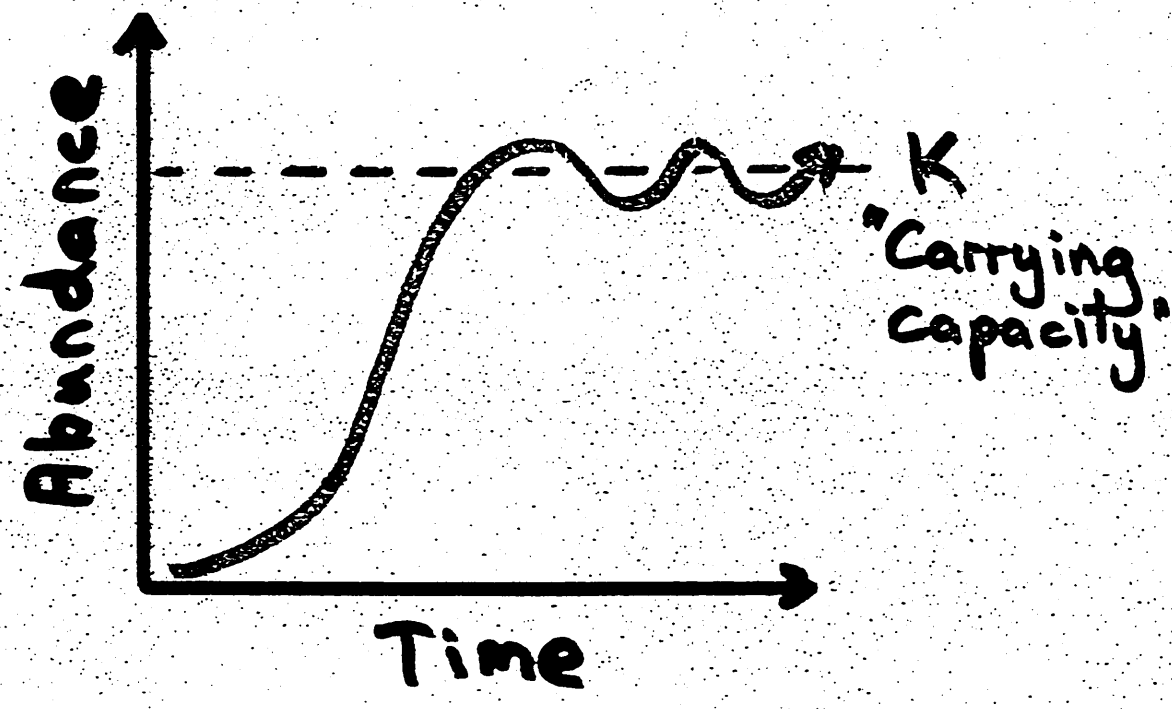
..... who should do the research ?

..... how can partnerships be established ?

Titi as a fledgling example

Key population processes for harvest management

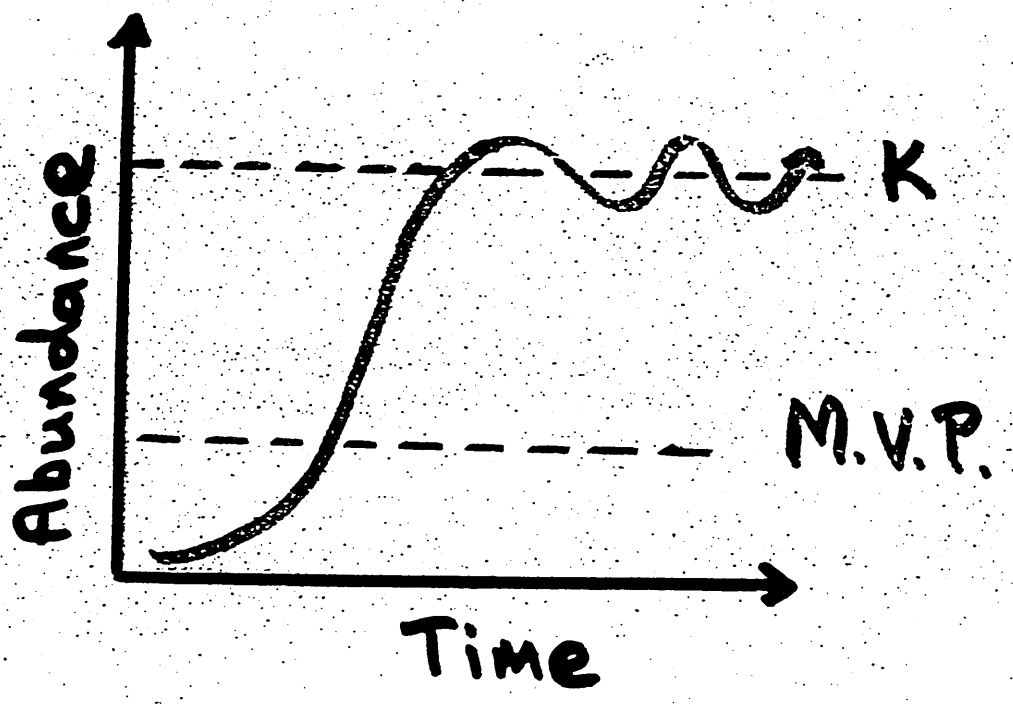
- is the population regulated?



- is the mortality imposed by the cull compensatory or additive?

- these are not known for indigenous species in New Zealand

Harvest above Minimum Viable Population size ... for an added safeguard



- target for harvest management to prevent localised extinction (when to impose a rahui)
- where and when to start harvests (eg. following restoration effort).

Experimental harvest management; Going around the onus of proof stand-off

- a long time is required to develop accurate harvest models based on "demographic predictions"
- this stalls iwi aspirations if it is the only approach taken
- experimental harvests (eg. at a variety of levels) on some areas and not others
- monitor & adjust
- "stopping rules"
- a demographic approach can provide first guesses; then the experimental approach can cross-check it

"Can PVA models using computer packages offer useful conservation advice? Sooty Shearwaters in New Zealand as a case study"

S. Hamilton and H. Moller
Department of Zoology, University of Otago, PO Box 56, Dunedin, New Zealand

Biological Conservation (in press, 1994)

Titi - Sooty Shearwaters

- *Puffinus griseus*
- petrels i.e., tube-nosed seabirds
- super-abundant on offshore islands
- burrow nesting in colonies
- mainland colonies declining?
- mainland restoration
- marine food failure events
- long lived, slowly reproducing; demographic models therefore particularly valuable, and vulnerability to harvest may be highest
- chicks harvested by Maori; one of the few ongoing harvests remaining in iwi control

Kia Mau Te Titi Mo Ake Tonu Atu
"Keep the Titi Forever"
Research Program

Aims

1. measure whether current harvest is sustainable

2. estimate maximum sustainable yield

3. estimate impact of modern technologies

4. establish methods and train iwi to run the programme

5. compare traditional Māori knowledge with western ecological science understandings

Building a Partnership

- mistrust at first
- lengthy discussions ... it takes time to find a consensus
- eventually a unanimous decision to invite the research
- birders offered to band titi
- a "cultural safety" contract
    * Rangitiratanga and tikanga seen as just as important as the science
    * protection for **both** "sides"
    * a learning experience for us all!
- media and politics

Restoration of mainland Titi colonies for harvest

- preliminary research project to scope methods and extant colonies
- research assistant from tangata whenua
- consultation with tangata whenua beginning in earnest now
- seeking collaborative research and management programme
  - * marae-based approach (adopt a colony)?
  - * tangata whenua to do predator control?
  - * tangata whenua to do research?
  - * social contract

Inputs

- Age at first breeding

  Richdale 1963

- % females breeding

  Richdale 1963 and Brooke 1990

- Mortality at colonies

  First year of our study

- Pre-breeder mortality

  Serventy 1967

- adult mortality

  Richdale 1963

- Maximum length of life

  Guessed

- Variation in mortality

  OSNZ Beach Patrol Scheme

- Frequency and intensity of "marine catastrophe"

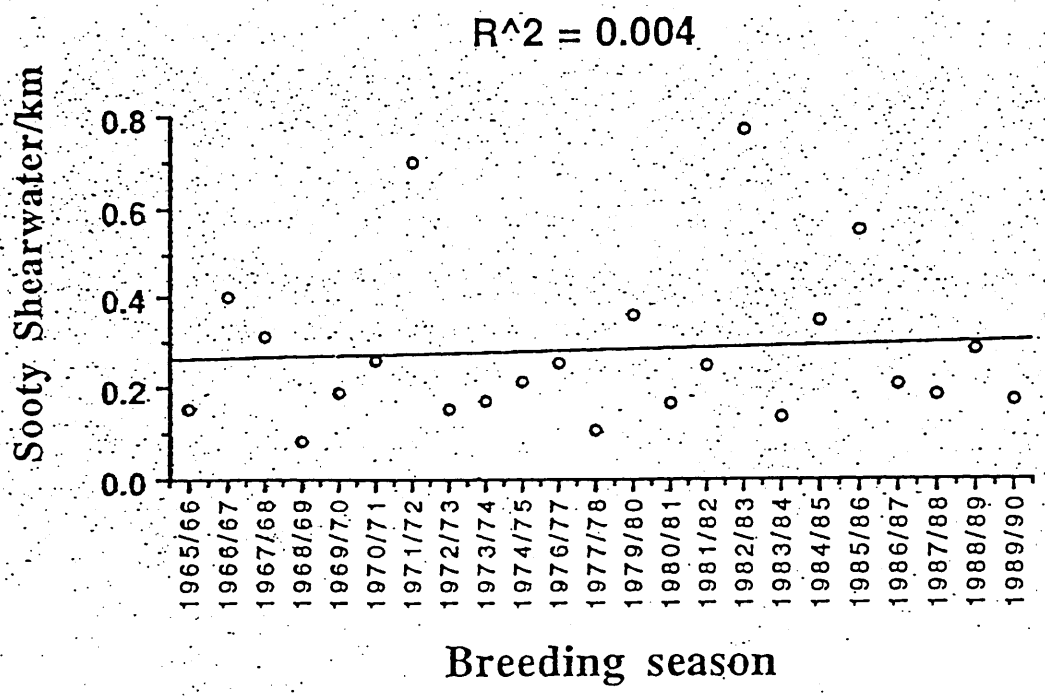
  OSNZ Beach Patrol Scheme

- Frequency and intensity of "adult predation catastrophe"

  Spatial variation in first year of our study

OSNZ "Beach Patrol Scheme"

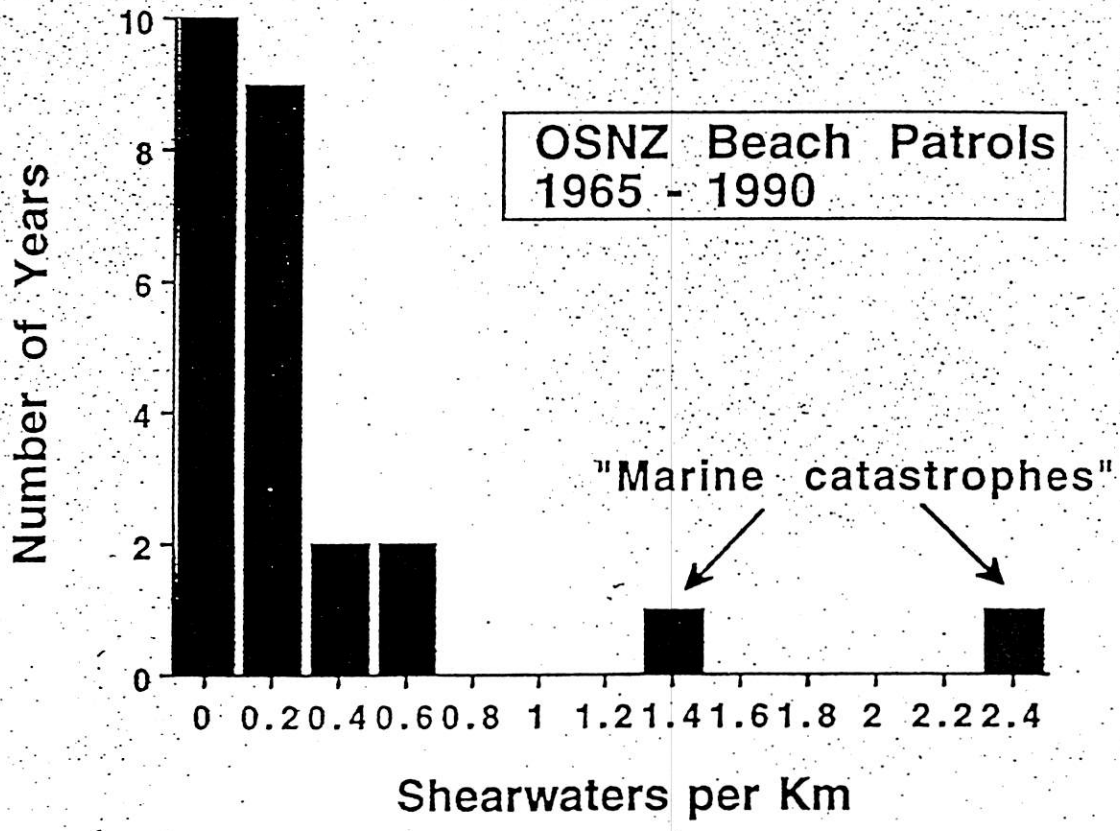
- same stretches of coast have been searched once a month for 25 years and all washed up dead birds identified and counted



- no long-term trend in Sooty Shearwater abundance

Variation in annual mortality

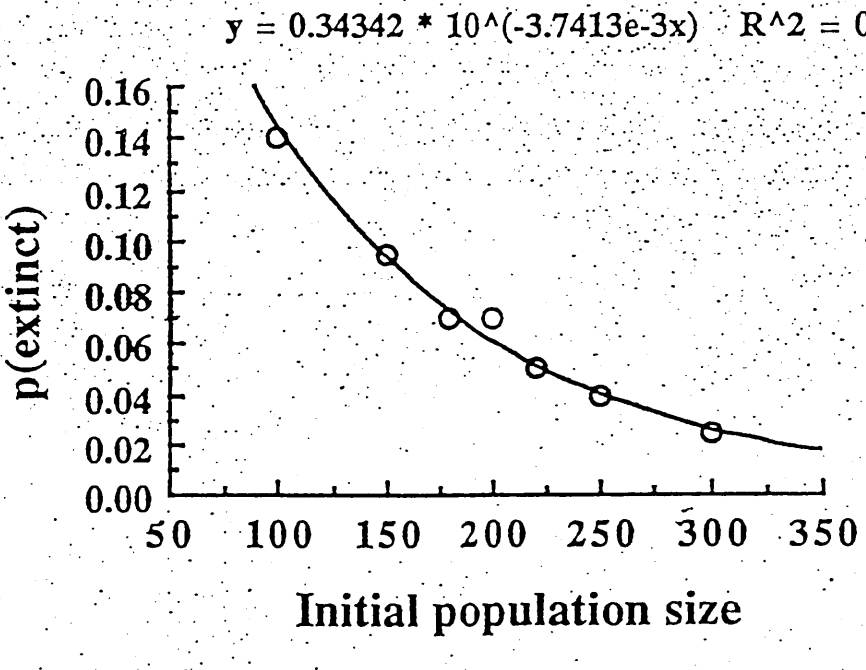
- Provided that an equal proportion of the birds dying at sea are washed up in different years, the variation in beach patrol counts will reflect variation in annual mortality



- Mean number of shearwaters per Km was scaled against the average annual mortality determined by mark and recapture *(Richdale 1963).*

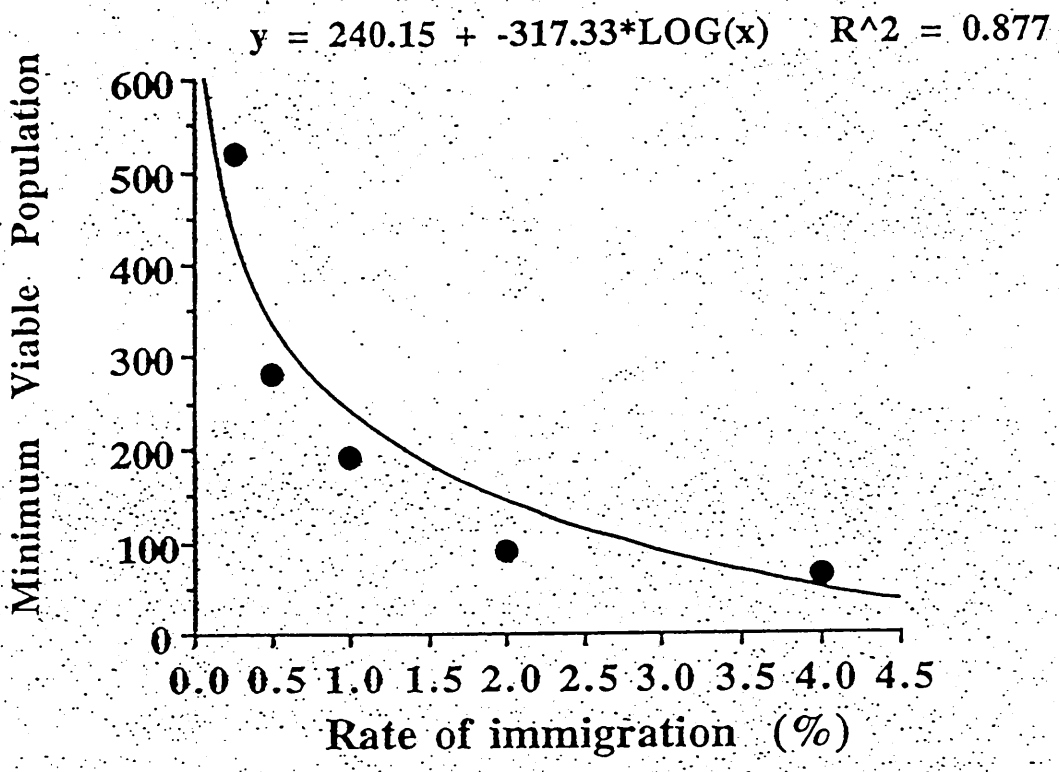
Simulations

- 100 simulations for each case
- stable age distribution and equal sex ratio assumed at start
- vary starting population size
- determine % populations extinct after 100 years



- Minimum Viable Population (MVP) is the starting population size where less than 5% go extinct after 100 years.

Research Outcomes

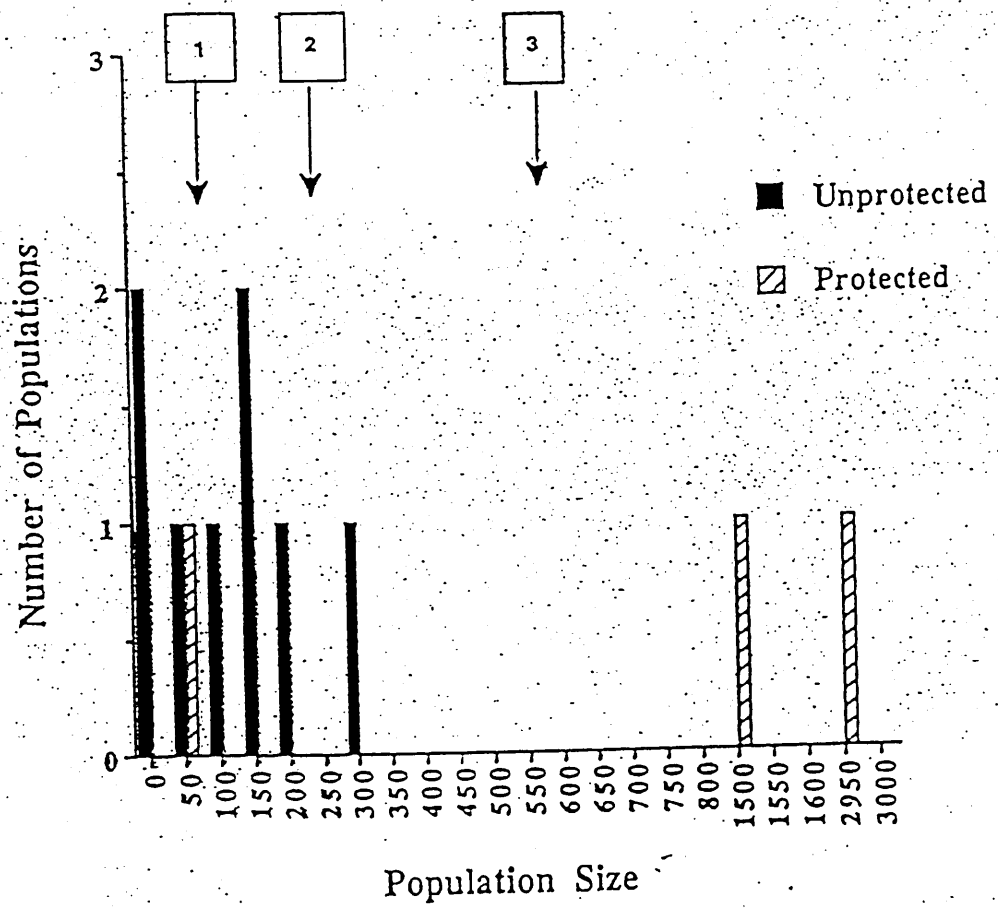


- immigration rate from offshore islands is an important determinant of outcomes

- genetic studies are now planned to measure immigration rates indirectly; methodologies and sampling regimes can now target 1%-2% immigration as the key threshold immigration rate.

PVA helps to manage risks

- harvest not sustainable unless immigration very high, or predators are controlled



- MVP 1 : high risk of localised extinction; low risk of "lost opportunity" for harvest

- MVP 3: low risk of localised extinction; high risk of "lost opportunity" for sustainable harvest

Outcomes from attempting a bicultural approach

- a new way of viewing conservation, and understanding resource conflicts
- future research directions, many of which support non-harvest conservation management
- involvement of science to support Treaty; involvement of iwi with science and hopefully buiding respect for it
- learning about traditional environmental knowledge
- partnership in Wildlife Management
- facilitation of harvest for iwi interests
- minimisation of risk of unsustainable harvest

Sustainable Kereru Harvests ... a thing of the past, or of the future?

Northland (Pierce, Atkinson & Smith 1993)

- 1993 numbers lower than in 1979
- greatest difference where hunting index highest and where possums in high density
- "although two sets of counts 14 years apart can not show population trends, they do give a reasonable measure of change over that time period" !

.... and we must expect these populations to fluctuate

Pelorus Bridge (Clout, Karl, Pierce, Robertson, submitted)

- demographic study has insufficient power to predict trend
  * 0.12 fledglings/year
  * mortality 0.17 /year (s.e.= 0.05)
  * 95% chance that the real growth rate lies between +5% and -14%
  * limits will be wider if error on fledgling rate was provided
  * no analysis of surveys of population trends

- predation the main cause of failure

Wenderholm (Clout, unpubl report)

- rodent poisoning inside the Reserve
- 28% fledged inside cf 13% outside
- predation 15% inside cf 92% outside
- n small and mainly of nests around the edge

Sustainable Kereru Harvests ... a thing of the past, or of the future?

- So, are Kereru really declining ?
  * no conclusive evidence that they are
  * no conclusive evidence that they are not
- Good reason for caution until science really can guide
- rapid resurgence if rodents controlled
- an issue for "Project 96" ?
- RHAs for kereru ?
- no evidence that poaching is driving any such decline; care needed not to oversell "evidence"
- but it won't help!
- iwi help to stop it

Examples of Co-management from overseas

North American Arctic

- 7 Co-management regimes
- whales, walrus, seals, caribou, murres, geese
- most underway < 10 years
- no firm conclusions on success or failure yet
- Osherenco (1988) concludes that the regimes for belugas and geese "improved communication and understanding" and "changed hunting practices to protect declining species"

Dene Customary Use in Canada

Reindeer management in Canada's Belcher Islands

Examples of Co-management from overseas

Morovo Residents, Solomon Islands

African Sahel (part of directing aid programmes)

Australia

* Government funded effort to commercialise use of wildlife by Aborigines

* muttonbirds

Co-management of Salmon Fishery in Washington, USA

(Pinkerton, 1992)

- 1974 Court ruling recognised management rights of "Treaty Tribes" and instructed Dept of Fisheries to co-operate and share information
- slow progress; plenty of conflict at first on basis of decision making
- 20 tribes forced Dept to manage/regulate on a watershed by watershed basis
- access to same data
- different analyses by tribes biologists lead to different management regimes
- political resistance; 5 officials sacked; rapid progress from then on
- co-management agreement adopted in court in 1985
  - *protection of habitat
  - *hatchery production
  - *setting harvest limits
  - *population/stock assessments shared
  - *polution control
- increased salmon runs (3x)

Pacific North West Deer Harvests

(Prof. W. Aney, pers. comm.)

- Yakama, Nez Perce, Walla Walla, Umatilla, Cayuse
- 1855 Treaty; went to reservation but retained right to hunt open and unclaimed areas
- tribal right, not an individual right
- conflict when individual Indian hunted closed areas or seasons; avoided prosecution
- each Tribal Council then adopted a "wildlife code"; agreed to prosecute all violations of their code
- agreed to allow State authorities to prosecute Indians where violation of rules in both State and Tribal codes
- conflicts with bow-hunters
- share data and trend assessments
- habitat protection area of active mutualism (especially vs Forestry)
- "from mutual mistrust to active co-management in 15 years"

Political Doorways

- listening and trust
- commitment to working out the conflicts
- more bicultural approach to conservation management as a whole
  * DoC
  * Conservation Movement
- debate on the wider risks of not "allowing" Customary Use
- power: who gets to decide

Waitangi Tribunal

- 11+ claims mention mahinga kai grievance
- all reserve right to add other issues to claim
- 2+ heard so far have upheld mahinga kai grievance
  - Ngai Tahu Report
  - Te Roroa Report
- the process is just now unfolding

Conclusions

- two peoples with different world views; some common ground; but some divergent philosophy
- iwi interests have been little researched; and little management has been dedicated to the "substantive Maori interest" so far .... despite the Treaty the Conservation acts direction, and that ca 15% of taxpayers are Maori
- outcomes (and levels of acrimony) may be very different according to whether science is invited into partnership by iwi or not
- we stand stronger together !
- research and management to support Customary Use will be expensive and slow
- many spin-offs for conservation in general from promoting sustainable harvests
- debate so far has centred on the demographic risks of harvesting; we should also consider the opportunities lost, and the risk of not involving iwi more in conservation
- debate so far has been largely emotional; that's OK by me, but then lets weigh both emotional sides of the debate; and lets be scientifically honest by not overselling "evidence" to block harvests
- developing working models will be slow and difficult

- overseas examples give inspiration
- Developing safe and vigorous Customary Use programmes is one small part of finding a bicultural approach to Conservation