Plight of the kereru: Supporting material for approaching iwi regarding kereru management

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Abstract

The Department of Conservation (DOC Wanganui) Whanganui Area Office identified a need for an approach (method or tool) to address the plight of kereru by cooperatively co-managing populations with communities and iwi. To achieve this, DOC Wanganui secured funding from the Department's Science Advice Fund to develop a package of resources and an approach to begin communication with local iwi, at the marae level. Landcare Research combined this funding with resources from the PGSF-funded programme for Restoration of Biodiversity on Private Land to assist with the development of the resources, planning for the approach to marae, and monitoring of the success of the process in developing ongoing collaboration between iwi and DOC. This report includes documentation on aspects of approaching iwi with a view to improving links and working cooperatively on conservation management issues. It contains supporting material for a presentation on the plight of the kereru.

Keywords: collaboration, communication, conservation, iwi, kereru, partnership

1. Introduction

Landcare Research, in conjunction with the Whanganui Area Office of the Department of Conservation, developed an approach to begin a kōrero with the iwi of the Wanganui district regarding the declining population of kereru.

This report includes information used to develop a package of presentation materials for communicating with communities and iwi regarding the plight of kereru. It also includes information on ways to go about initiating a process of collaboration and partnership, particularly with iwi.

This report provides background to the accompanying PowerPoint presentation on the 'Plight of the kereru'. The report and presentation can be left with the iwi or community groups along with a poster on the causes of decline of the kereru in the last 2000+ years, a series of A4 information brochures providing more details about projects aimed at increasing kereru populations, an A3 colouring in poster for children, and a copy of *Bush vitality - a visual assessment kit. Managing the seasons for the years* (Janssen 2004).

2. Background

This project was initiated by DOC Wanganui. The situation facing kereru is but one of many issues associated with maintaining and enhancing biodiversity that crosses the borders of land managed directly by the Department of Conservation. The success or otherwise of efforts to reverse the decline of kereru is highly dependent on the actions of many groups other than DOC itself.

Currently kereru are reasonably low on DOC's priority list because many other species are more threatened through having smaller populations or being more susceptible to pests. However, declining populations of kereru are a concern because they are one of the key fruit dispersers for native forest systems, and the only species capable of dispersing the largest fruits.

A reduction in kereru numbers, and the possible loss of kereru populations from particular areas, is also of concern to tangata whenua, as they see kereru as one of their taonga and would like to be able to harvest them as a traditional food. However, at current population levels, harvesting kereru is not sustainable. Without pest management, kereru populations are unlikely to ever recover to levels where sustainable harvest may once again be feasible. Whilst a possible aim of kereru recovery work could be to have enough to hunt, kereru are currently protected by a law that prohibits hunting. Thus, DOC's aim at the moment is to halt the population decline and prevent local extinction.

To achieve this, DOC Wanganui decided to invest effort in developing a relationship with local communities and iwi that would lead to joint efforts to protect and enhance local populations of kereru. Addressing the issues surrounding kereru management has the potential to both promote species viability and develop working partnerships with key communities.

DOC Wanganui secured funding from the Department's Science Advice Fund to develop a package of resources and an approach to begin communication with local iwi, at the marae level. Landcare Research combined this funding with resources from the PGSF-funded programme for Restoration of Biodiversity on Private Land to assist with the development of the resources, planning for the approach to marae, and monitoring the success of the process in developing ongoing collaboration between iwi and DOC.

3. Objectives

- To develop an approach, tool or method to work with communities and iwi to improve collective understanding of the issues facing kereru and impacting on populations. The ultimate aim is to work cooperatively to enhance local kereru populations.
- • To trial and refine information exchange between DOC staff, communities and iwi. This objective is ongoing, but will begin with hui/ meetings where DOC staff present information on the plight of kereru. The processes of involving participants, addressing conflicting views, and building shared understanding will be reviewed and evaluated through working with staff from Landcare Research's Collaborative Learning for Environmental Management group.

A sub-goal for DOC Wanganui is to raise its profile and get to know iwi and other key communities.

4. Methods

We discussed a possible way of approaching iwi with DOC staff, using experience from similar initiatives elsewhere. This included reviewing DOC Wanganui's current and past interactions with iwi, what was known of successful approaches elsewhere, and who was likely to be the staff member carrying out the initial contact work.

We reviewed current available information on kereru, and where possible specific information relevant to the Wanganui district (see list of source material in references and Appendix 1).

We collated stories of successful initiatives that involved both tangata whenua and DOC in kereru management. These stories involved interviews with participants in projects including Northland Motatau pest management work, and Banks Peninsula kereru research by Ngai Tahu (see list of sources in Appendix 1).

5. Plight of kereru

5.1 Information on kereru

The New Zealand pigeon (*Hemiphaga novaeseelandiae*) has different Maori names in different parts of New Zealand; kereru, kuku, kukupa or parea (Taylor 1996; Millener & Powlesland 2001). 'Kukupa' is generally used north of Whangarei, while 'kereru' is most common throughout the remainder of the North Island and South Island, and 'parea' is restricted to the Chatham Islands.

There are three known subspecies of New Zealand pigeon. *H. novaeseelandiae* of mainland New Zealand is the predominant subspecies. The other two are the species *H.n. chathamensis* (Millener & Powlesland 2001) of the Chatham Islands and the subspecies *H.n. spadicea* of Norfolk Island, which became extinct in the nineteenth century through habitat destruction and by predators (Pierce 1993).

The kereru is a large (550–850 g) fruit-eating pigeon with a habitat range from coastal forests to montane forests spanning the length of New Zealand (Clout et al. 1986). Its general morphology is that of a typical pigeon, having a relatively small head, a straight soft-based bill, and loosely attached feathers. It also displays typical pigeon behaviour, including drinking without raising their heads to swallow, a wing-threat display, hitting with the wing when threatened, a diving display flight, a 'bowing' display, ritualised preening and 'billing' during courtship (Falla et al. 1979; James 1995).

Kereru prefer lowland forests dominated by podocarps and species like tawa, taraire, kohekohe, hinau and puriri (see Appendix 2 for scientific names of plants). However, they can now also be found in bush patches on farmland, in gardens eating plums and cherries, and in parks in cities. Their breeding and wintering distributions are similar but birds will move long distances to good sources of fruit or foliage outside the breeding season. The annual range was thought to be around 25 km (Clout et al. 1986, 1991), but recently, radio-tagged birds flew 50 km during a good tawa-fruiting season (Pureora, R. Powlesland pers. comm.) and are known to have travelled from Invercargill to Stewart Island and back again; 20 km over water (R. Powlesland pers. comm.). There is strong evidence that individual kereru will return to the same areas every year for breeding and feeding, although the timing may vary (Clout et al. 1991).

Berries are the kereru's favourite food all year round; what they eat depends on availability in the region. Check with your local DOC office or regional council as to what and when things fruit or flower in your patch. A reference for the Wanganui Area would be Janssen (2004, p. 171–174). Where available, kereru eat puriri in the summer and autumn, miro in the autumn and winter, and taraire, kohekohe, five-finger and nikau in the winter and spring. Karaka, kahikatea and other berries also supplement their diet where available. During the late winter when there are few or no berries, leaves and shoots provide sustenance, but during early breeding season nitrogen-rich foods (e.g. kowhai leaves, clover, willow) are sought out, even in areas where berries are available all year round (Dijkgraaf 2002).

5.1.1 Breeding

Nesting usually occurs in spring or early summer. Although it is not completely certain, kereru appear to be reasonably faithful to their partner but will re-pair when one of the pair dies. Their mating is characterised by spectacular aerial displays, by both sexes but particularly males, close to the time of egg laying. These flights are associated with nesting and territoriality.

Kereru lay one egg per nesting attempt. Both adults brood the rather long, narrow, white egg during the 28-29-day incubation period, with the female sitting through the night and morning, and the male taking over from midday until the evening. They can attempt to nest several times in a season, if the nest fails or if key fruit species have particularly abundant crops (James 1995; Bell 1996; James & Clout 1996).

Apart from emperor penguins and flamingos, pigeons and doves are the only birds to produce food for their chicks. They feed their chick crop-milk, a protein-rich, cottage-cheese-like secretion from the crop wall, for their first week. Following this, as chicks grow, regurgitated foods form an increasingly large share of the diet. All going well, the chick will leave the nest at the age of 4-5 weeks in the North Island, or 6-7 weeks in the South Island. Usually it will spend another 7 days or more with its parents in the area of the nest before it becomes fully independent (Pierce 1993) but it can stay with its parents for up to 3 months (Heather & Robertson 1996).

5.1.2 Role in seed dispersal

Kereru play a key role in the regeneration of native forest by dispersing seeds of trees and shrubs such as miro, tawa, karaka, puriri and taraire, which are too large to be dispersed by other birds (Dijkgraaf 2002). It is possible that kereru have been the sole effective dispersers of the largest (smallest diameter >10 mm) tree-borne fruits for the last 2 million years. Few other animal species were capable of reaching tree-borne fruit, had a gape wide enough to swallow the fruits, or had digestive systems gentle enough to pass the seeds through unharmed (Dijkgraaf 2002). It is unclear how effective other species, including some of the moa species and giant rails, were at this seed-dispersing role, but we do know that kereru are the only remaining seed disperser for many large-fruited tree species (Dijkgraaf 2002).

5.2 Risks to kereru populations

The status of many kereru populations is uncertain (Mander et al. 1998, in Innes 2004) (see Box 1 for example of population study findings). A 1993 survey in Northland indicated a 50% decline in 14 years (Pierce et al. 1993), and studies at three other mainland sites suggested adult mortality rates exceeded recruitment from reproduction (Clout et al. 1995a). A 12-year survey in the Wanganui Conservancy indicates that if the current downward trend remains unchanged then the local kereru population may be extinct in 30-40 years (A. van Meeuwen–Dijkgraaf pers. comm.). Recently DOC classified the kereru as in 'gradual decline', meaning that its population is expected to decline by '5-30% …in the next 10 years due to existing threats, and the decline is predicted to continue beyond 10 years' (Molloy et al. 2002; R. Hitchmough, DOC Wellington, pers. comm., in Innes 2004). Internationally, the species is classified 'near threatened' (Birdlife International 2000, in Innes 2004).

Kereru breed very slowly. A pair may breed only every 2-3 years, but can breed every year in areas with plentiful food. They build flimsy nests that get knocked out of the tree during a high wind, and sometimes the egg falls through the gaps between the nesting materials.

Kereru will not nest if key species fail to fruit or have only small fruit crops (e.g. hinau, taraire, tawa, miro, nikau). They typically only have one egg per clutch, and due to predation, starvation and falling from nests, most clutches fail. In a Marlborough study, the mean fledging success rate was only 0.24 juveniles per breeding pair per season, or just over 1 chick per 10 adults (Clout et al. 1995b). Over 90% of individuals seen in the autumn-winter are older birds rather than juveniles (Pierce 1993).

In the past, kereru would have been preyed upon by falcon, harriers and perhaps other predatory birds. However, the introduction of predators such as rats, possums, stoats, ferrets and cats has exposed them to a great deal more predation now. From egg stage to maturity, kereru are exposed to significant pressure from predation and competition for food sources. Eggs and chicks are taken by stoats (*Mustela erminea*), brushtail possums (*Trichosurus vulpecula*) and ship rats (*Rattus rattus*). Female birds sitting on the nest at night may also be killed. When adult birds feed on shrubs close to the ground they are also susceptible to being killed by stoats and cats. Goats, possum, deer, pigs and cattle all contribute to browse and destruction of forest tree species and consequent reduction in available food sources. Possums and rats like the same fruits that kereru do, and for some species, e.g. kohekohe and taraire, they will totally destroy the crop before the fruits are ripe enough to attract kereru. For other species, e.g. miro, kahikatea, matai, tawa and tawapou, the amount of fruit produced is reduced, up to 100-fold for some species (Dijkgraaf 2002).

It is reasonable to expect that large birds such as kereru would normally be long lived (6-10 years, Heather & Robertson 1996; 20-30 years, R. Powesland pers. comm.), so that the low breeding rate is offset by the number of chicks that a bird can produce over its long lifespan. However, adult kereru populations in the wild are impacted by predation. Birds in an authoritative study in Marlborough survived for an average of only 5-6 years, dying mainly as a result of ground predators (Clout et al. 1995b). However, one of the study birds was found 10 years after it was banded (Clout et al. 1991; Clout pers. comm.), indicating that they can live considerably longer if they can avoid predation.

Control of mammalian pests, especially brushtail possums, ship rats and stoats is considered the key management action to help kereru populations recover, because this minimises predation of eggs, chicks and adults, and maximises the availability of fruit (Pierce & Graham 1995; Mander et al. 1998). Predation is the main driver of population decline, although food supply may determine how many breeding attempts are made (Innes 2004).

5.2.1 Harvesting

Because the harvesting of kereru for food is currently an illegal activity, it is difficult to determine what contribution this makes to declining kereru populations (but refer to Appendix 3‘Taumarunui pigeons targeted by poachers’ and ‘Greedy poachers leave pigeons to rot’). In the past, kereru were hunted by Maori using snares and traps. Kereru typically seem unafraid of humans, which makes them a comparatively easy target for hunting. They become especially thirsty while eating berries like miro, something Maori traditionally used to their advantage in hunting them as they would place drinking troughs with nooses beneath miro trees (Best 1977). Modern hunting of kereru is more likely to involve firearms and the kill consequently may be higher than traditional methods would have secured.

Currently, conservation management professionals regard harvesting of kereru as unsustainable. Given current kereru breeding rates, hunting will hasten local extinctions. Furthermore, they consider that unless management (especially pest management) is

undertaken, kereru populations are unlikely to ever recover to levels where sustainable harvest may once again be feasible (Dijkgraaf 2002; A. van Meeuwen-Dijkgraaf pers. obs.). In fact, without pest management the outlook for kereru is a gradual decline to extinction even if no hunting were to take place.

Box 1 Example of population study findings
Kukupa at Taitokerau (Pierce et al. 1993)
In 1979 a survey of kukupa populations was undertaken in six forests throughout Taitokerau. This survey was repeated in 1993 and revealed that the numbers of kukupa had fallen on average by 50%. Greatest declines were in Russell, Raetea and Omahuta forests all of which sustained three- to five-fold reductions in kukupa numbers over the 14 years. In Taitokerau, kukupa have high fledgling failure rates with only 15% of nests producing fledglings on average. The low success of kukupa nests is mirrored elsewhere. At Wenderholm near Warkworth an 18-month study revealed 100% failure at 20 nest sites and only one juvenile was seen in what otherwise seemed a healthy-looking population. All the nests failed at egg stage with the majority showing signs of predation by rats, possums or stoats. After rat control began, five fledglings were produced from 11 nests (Clout et al. 1995a, b).

5.3 Management to improve kereru populations

5.3.1 Reducing nest predation – increasing mokupuna

Of primary importance to the task of increasing the health and viability of kereru populations is reducing nest predation, particularly by ship rats and possums. Work at Motatau illustrated the importance of working with both these predators (Innes et al. 2004).

> *We suggest that managers wishing to boost kukupa nesting success to near maximum levels must reduce possums to trap-catch rates below 5%, and ship rats to tracking rates below 5% for the duration of the breeding season.* Innes et al. (2004), on the basis of research at Motatau, Northland.

Best results come from keeping pest numbers at this level for as many seasons as possible. Numbers will NOT be boosted if pest numbers are higher than this. In other words, if it is not possible to maintain trap-catch rates at 5% or below for every season, it is better to put in a full control effort for only half the number of seasons rather than to halve the control effort evenly over the whole time.

Possums can be temporarily controlled over extensive areas by 1080 poison operations (Pierce 1993). By timing operations to ensure numbers of possums are reduced by early spring, impact can also be made on ship rats that will last for several months. As a result by October or November, the time of year when kukupa nesting peaks, predation pressure will have been significantly reduced (Innes et al. 2004). In smaller areas, possums and rats can be controlled by a combination of poison bait stations and/or traps. Similarly stoats and weasels can be controlled in small areas by trapping, already used in areas of intensive management for kokako (Pierce 1993). If the branches of a tree touch no others, it may be possible to keep mammals out by banding the tree (Pierce 1993), but this is rarely possible.

Managers and groups undertaking pest control face a common problem of too few resources to maintain pest control on an annual basis. However, pest numbers (depending on the species) will build up in varying periods of time and longer-lived bird species can make headway in between pest population peaks. Although kereru are relatively long lived it is still important to look at nesting success over their lifetime, not just annually, and if resources are

limited pest control may be able to be reduced to a 3-year cycle (J. Innes pers. comm.), or to when fruit production looks likely to trigger a breeding year (Dijkgraaf 2002).

Innes et al. (2004) also make this suggestion to help reduce the cost of rat control by targeting only the best breeding seasons.

> *In good fruiting years, more kukupa attempt breeding and the breeding season is longer (Clout et al. 1995b; Mander et al. 1998). Pierce & Graham (1995) found that taraire and puriri (*Vitex lucens*) between them contributed to more than 75% of kukupa diet in winter (taraire), spring (both species) and summer (puriri) in their Northland study. At Motatau, 1999-2000 was a poor breeding season with few breeding attempts and a late (October) start, compared with the following 'good' season that started in July 2000. This correlates with poor fruiting of taraire in 1999–2000 compared with 2000–01 (unpubl. data), so taraire fruiting could be used as a signal for rat control.*
>
> *In other areas tawa (Beveridge 1964; West 1986), kohekohe (Court 1985; Dijkgraaf 2002) rimu (Norton et al. 1988; Norton & Kelly 1988; Warburton et al. 1992) Matipo,* Myrsine chathamica *and Hoho* Pseudopanax chathamicus *(Powlesland et al. 1994, 1995,1997; Grant et al. 1997) could be the triggers.*

5.3.2 Improve food supply

Bush clearance and the introduction of browsing and grazing mammal pests (particularly possums, rats, goats, deer, and cattle wandering in from unfenced farmland) have depleted the habitat of kereru and the species they rely on to survive. Increased fruiting of key species such as taraire in Northland can also affect the length of the kereru breeding season and the number of attempts kereru will make to successfully rear young (Innes et al. 2004).

Fencing of bush areas as well as goat and deer culling and possum and rat trapping can contribute greatly to the recovery of browsed vegetation (see Innes' research including photo points of before and after pest control and fencing; Innes (2004)). This means that controlling ship rats and possums BOTH decreases predation and increases food supply, thus having a double good effect on kereru populations. At Wenderholm Regional Park, the aim was to eliminate possums and rats during the spring and summer whilst kereru were at peak breeding (Denyer 1993; Greene 1994; Lovegrove 1996; Nicolaou 1996).

Replanting and protection of specific trees is also a possible action to contribute to the long-term improvement of kereru populations. Dijkgraaf (2002) suggests taraire, tawa, puriri, miro, kohekohe and nikau are particularly important to kereru and may be locally depleted by browsing pests. Pate, five-finger and pigeonwood are fast-growing species (with fruits preferred by kereru) that can be easily planted.

5.4 Simple stories of what people are doing

5.4.1 Improving kukupa breeding at Motatau, Northland

'Kukupa a pest in orchards throughout Northland'
Vision expressed by Kevin Prime, Ngati Hine

In 1996 a 4-year research-and-management partnership involving tangata whenua (Maori landowners), DOC, and researchers at Motatau, Northland, was aimed at improving the

population of kukupa. The vision for the project came from Te Runanga o Ngati Hine, who were formally recognised by DOC as co-managers of the forest, in 1994. Ngati Hine wished to increase kukupa numbers and to restore the overall health of Motatau Forest. DOC undertook to fund and organise annual pest control in the forest. Landcare Research, a Crown research institute, facilitated the initiation of the project and monitored its outcomes for vegetation, kukupa and other birds.

How did it start? Who 'discovered' the problem? Why did people get interested?

DOC Northland had long-standing concerns about the decline in kukupa numbers. Research had shown a dramatic reduction in populations in many areas (Pierce 1993) and the taking of kukupa for customary harvest was more conspicuous in Northland than elsewhere. At this time the Northland Conservancy was the only office that had appointed a poaching control officer.

At the same time, Kevin Prime of Ngati Hine wanted to ensure the survival of bird species including kukupa and kiwi so his children and grandchildren could have the same experiences he had as a child. The temporary employment of a Ngati Hine person at Landcare Research, Lincoln, initiated personal contact between Manaaki Whenua staff (Graham Nugent, Oliver Sutherland, Rauru Kirikiri, John Innes) and Ngati Hine, including Kevin Prime. A brief hui led to the development of a proposal, which was based on kokako work that had been successful in the previous decade. Kevin Prime was also a member of the Northland Conservation Board, which facilitated the collaboration of DOC on this project.

What did they decide to do?

Through a combination of PGSF-funded research via Manaaki Whenua, on-the-ground support by DOC, and practical work by Ngati Hine, steps were taken to remove pests preying on kukupa nests and monitor the effect this had on the successful rearing of kukupa fledglings.

The basic framework for the approach was provided by Manaaki Whenua. They used bait stations on a 150 m × 50 m grid throughout the 350-ha study area to kill brushtail possums and ship rats. Once pest control was carried out, both pest and kukupa populations were monitored. Doing this meant that even 'failures' helped the project partners learn what was happening with kukupa and pest populations.

DOC responded to the possibility of working with Ngati Hine and Manaaki Whenua by changing their priorities for pest control to include the Motatau area. DOC provided bait and bait stations, and experienced people to work alongside Ngati Hine who carried out the pest control contract.

Manaaki Whenua monitored kukupa nesting success, bird numbers, predator abundance and changes in foliage density. Most of the research fieldwork was carried out by a Manaaki Whenua person (trained graduates – Roger James, Rachael Bell, Mike Thorsen, Kerry Borkin) with one Ngati Hine person who had local knowledge but no formal training in wildlife science (Daryl Johnson).

Some assistance in catching kukupa came from Dave Wills, and Claude and Andrew August who were experienced catchers of kukupa for DOC at Whirinaki Forest near Murupara. Most nests were located by following birds fitted with radio transmitters.

At the same time fences were erected to exclude cattle, and some goat culls were also carried out to improve the feeding and breeding habitat for kukupa.

What happened? How did they know it was helping? Any key events?

Ship rats and brushtail possums were targeted annually throughout Motatau forest from 1997 to 1999, with various toxic baits. (All control aimed to have these pests reduced to low numbers by October or November each year, the time of year when kukupa nesting peaks.) Pest numbers were initially (1997) knocked down with 1080 (sodium monofluoroacetate). Low numbers were then maintained with brodifacoum until a DOC policy change in January 2000 precluded its use at Motatau. In 2000, control focused mainly on possums through the use of baits with cyanide and cholecalciferol. This allowed the researchers to examine the nesting outcome for kukupa when rats alone were abundant. Some stoats, ferrets (*Mustela putorius*) and feral cats (*Felis catus*) would have been killed by secondary poisoning when 1080 and brodifacoum were used to target possums and ships rats (Gillies & Pierce 1999).

Innes et al. (2004, p. 56) wrote:

> *A total of 44 kukupa nests were found, between 4 and 16 nests each year. All 13 nests located between September 1996 and October 1997* [i.e. the first and part of the second year] *(before pest control) failed at the egg stage, mostly due to predation. Three of another four nests found during late October – early December 1997, after pest control started, also failed. One was abandoned after a full-term incubation, one chick died for unknown reasons, and one egg was eaten by an unidentified predator. A chick fledged from the fourth nest, but only after 6 possums were trapped at the tree base during nesting. Sign left at nests, especially crushed infolded eggshell pieces (Brown et al. 1996) suggested possums were responsible for most predation in the first 2 years of the project.*
>
> *In 1998-99, however, when both possum and rat indices were less than 4%, all seven located nests successfully fledged young. Few breeding attempts were made in 1999-2000 and only four nests were located, of which one succeeded, two were abandoned, and one was eaten by an unknown predator.*
>
> *In 2000-01 ship rats had become abundant (Mean October-January tracking rate 34%), but possum numbers remained low (7% trap-catch rate in October 2000; 3% in January 2001). Although the greatest number of nests (16) were found in that year, two-thirds (69%) of them failed, mostly at the egg or early chick stage and (according to remaining sign) due to ship rat predation* [see Table 1
>
> *Time-lapse video cameras filmed the conclusion of eight nesting attempts. Possums scared sitting females off three nests and ate the eggs; a ship rat ate one egg when the female did not return to incubate one night; one egg was dislodged from its nest during a storm event; two nests were abandoned after full-term incubation; and one fledged a kukupa after possum traps were set around the nest tree.* [Parentheses added]

Table 1. Results from monitoring of nests

Date	Nests	No. fledged	Pest control
1996–97	6	0	None
1997–98	11	1	Trapping at the actual nest site
1998–99	7	7	
1999–2000	4	1	
2000–01	16	5	
Total number of nests found = 44			

Monitoring clearly indicated that nesting success of kukupa was related to pest control activity and could be improved by reduction in pest numbers.

Photos taken at the time of annual observations showed a significant increase in vegetation density over the period 1996-2001. Possum trappers and local Ngati Hine reported substantial increase in the size of kukupa flocks. Formal 5-minute counts showed kukupa numbers had more than doubled and there was also an increase in display diving activity.

What then and what's happening now?

In March 2002, a hui was held to wind up the Motatau project. However, a new and larger restoration project has emerged from this one conceived by Kevin Prime of Ngati Hine. The collective committee of the three partners in this work last met in September 2003 to discuss expanding the restoration area to link several native remnants as well as farmland. The focus species for this new project will include kukupa but also kiwi, pateke (NZ brown teal), tuna (eels), kewai (freshwater crayfish), and medicinal plants.

Important aspects of this project

Kevin Prime was a key person in this project. He had a long-standing active interest in the environment. For instance he had run pest control operations on his property and had rigorously upheld a rahui on the Motatau area.

The family-based nature of the project was also important. Margaret and Kevin lived at the base of the area where the work took place and provided much support to those working in the field.

DOC had been prepared to come on board, changing the local priorities for their pest control because of the value they perceived in working in partnership with Ngati Hine and Manaaki Whenua.

Key contacts

Kevin Prime, Ngati Hine
John Gardiner, Area Manager, DOC Whangarei Area Office.
John Innes, Manaaki Whenua

5.4.2 Kaupapa kereru

How did it start? Who 'discovered' the problem? Why did people get interested? What did they decide to do?

Kaupapa kereru is the youngest of the initiatives that we are recording. It was started by local members of the runanga around Banks Peninsula, who were concerned at the dramatic drop in kereru numbers from when they were young. Bill Gillies from Rapaki, who has since passed away was the main voice for this concern.

Kaupapa kereru comprises members from DOC, Lincoln University, Canterbury University, Manaaki Whenua and local runanga representatives. Takarei Norton from Ngai Tahu is the project coordinator. There are also research students involved in the project.

What happened? How did they know it was helping? Any key events?

Work so far has been on two fronts:

- increasing scientific knowledge of kereru in the area and
- increasing public awareness and appreciation of kereru.

Local schools have been involved with the group, which has developed a calendar survey to get children and their families involved in recording kereru movements around Lyttelton Harbour.

The group thinks that the main cause for the decline of kereru was lack of food and predation. They have tagged 15 kereru and MSc student Maaike Schotborgh has been monitoring their movements around the harbour. This work helps understand the seasonal movements, diet, mortality and nest location of kereru. Another Masters student, Te Ari Prendergast, is looking at the impact of predators on kereru numbers. He is using artificial nests to see what species are preying on nests in areas where kereru are known to breed. It is early days yet, but so far it looks like rats and possums are the main threat to nesting birds, with over half of the artificial nests subject to predation. He will be trying to monitor kereru nests with video cameras to see if these get preyed on.

What then and what's happening now?

Already two of the 15 radio-tagged kereru have been killed by predators in the same patch of poroporo. Surveys of this site have found another seven kereru, which appear to have been preyed on by either a cat or a stoat.

Key contacts

Takerei Norton at Te Runanga o Ngai Tahu in Christchurch.

5.4.3 Pureora & Waipapa.

How did it start? Who 'discovered' the problem? Why did people get interested? What did they decide to do?

The Pureora and Waipapa forests have a long history of research. The Forest Service was interested in the effects of logging on plants and animals in the forest. The Wildlife Service and Landcare Research wanted to know about how many birds there were in the forest and how many rats, mice, ferrets, stoats and weasels were in different types of forests and forests with different logging histories.

Waipapa and Pureoa are considered to be prime pieces of forest with interesting vegetation types. A decision was made to implement the maximum practicable possum and rat control in these areas to improve the kokako population. By this stage, people also knew that possums, rats and stoats also affect the number of kaka, robins and kereru in forests. So, when the pest control was started, these species were also monitored to see what would happen.

Kaka were monitored because they were becoming very rare on the mainland. North Island robins were included because rats can badly reduce their numbers. Kereru, along with kokako, are very important in spreading the larger seeds around the forests, so they were monitored too.

'DOC staff working on these species included Phil Bradfield, Terry Greene, Alan Jones, Ralph Powlesland, Alan Saunders, and Hazel Speed.

What did they decide to do?

They decided to implement a rigorous pest control programme for possums and rats. Over the last 8 years this has been achieved partially through two aerial 1080 drops that were undertaken by the regional council to reduce possum Tb vectors. DOC welcomed those aerial drops as they helped reduce pest numbers. In the years between aerial drops DOC staff operate an extensive network of baitstations on a 150 m × 150 m grid. Both rats and possums find and eat the baits.

The birds were monitored in a number of ways. Robins can be trained to come to mealworms, and so you can count individuals identified by their colour bands attached to their legs. The number of kokako pairs are counted every 3 years or so. The number of kaka and kereru were estimated in the area (using distance sampling).

Who did it?

The kereru and kaka monitoring was started by Terry Greene (DOC) and other Waipapa staff are continuing with it.

What resources were used?

The pest control operation is a very intensive one using lots of bait stations that are refilled regularly and there are occasional aerial 1080 operations to reduce Tb vectors. The type of bait in the stations is changed regularly so that possums and rats do not get bored or wary of the taste.
For the kereru monitoring they are using trained people that are good at estimating distances and can use a rangefinder (a pair of binoculars that can tell you how far the thing is that you are looking at). This information is then put into a computer program that estimates bird numbers in that area.

What happened? How did they know it was helping? Any key events?

They've had stunning results. They have estimated up to 3500 kereru in the 1200-ha core ecological area of Waipapa and can often see flocks of 200 or more kereru flying around. The number of kereru can vary greatly with seasons but in Waipapa you can see many kereru in the autumn. Kokako numbers have increased from 16 pairs in 1999 to 44 pairs in 2003. It is estimated that 800 kaka now live and breed in Waipapa, which is by far the largest flock in the North Island.

What then and what's happening now?

In the past the bait stations have been filled every year. This is going to change. DOC is going to introduce 'pulse management' where half the block (1500 ha) is treated one year and then the other half (1500 ha) in the following year. This will reduce costs, especially labour costs, and maximise the area receiving pest control. Doing it every other year will still give the birds enough protection to be able to breed and survive now that pest numbers are already low.

The local iwi have been very supportive as they can see that the forest and the bird life in the forest have improved markedly.

Key contacts

Phil Bradfield
Programme Manager – Biodiversity
(07) 878 1059
PO Box 38, Te Kuiti

Terry Greene - can tell people more about the monitoring of kereru
Scientific Officer
(03) 3713785
PO Box 13049, Christchurch
5.4.4

6. Working with iwi

6.1 Basic principles of communication and collaboration

Successful biodiversity management, particularly on private land, depends on the coordinated actions of land managers, communities and agencies. The situation facing kereru is one of many that crosses the borders of land managed directly by DOC. Consequently, the success of efforts to reverse the declining trend in kereru populations depends on the actions of many groups other than DOC itself. Work to increase the involvement of iwi in addressing the plight of kereru is therefore a good situation to examine the different roles of communication and collaboration.

6.1.1 Communication can be seen in different ways

Communication is often referred to as technology transfer, education, or awareness raising. Here, information flows in one direction, and the receiving audience are treated as if they are empty vessels waiting to be 'filled' with new ideas. Common examples are campaigns urging people to kill pests, save energy, minimise waste or some such. However, it is difficult to gauge the success and long-term effects of such programmes. To bring about a change, much more is often required such as addressing the capacity, barriers and opportunities for the target group to adopt new practices. Raising the awareness of a community about a particular issue may be only part of the effort needed to facilitate action to change or improve the situation.

Even in a relatively straightforward communication exercise, knowing about the audience is of primary importance. Audiences or recipients of information are people with their own goals and existing beliefs about the issue. They may even *want the communicator to change*

as much as he or she wants THEM to change! They will react differently depending on how a message is communicated, and will often hear only the parts of a message of most interest to them. They will weigh up the value of changing their actions as a result of the new information against a wide range of other influences. They will almost certainly have valuable information that can help the communicator work better with them. Thus, two-way communication is important. This requires as much time listening and finding out about the needs and knowledge of others as in giving them information. Often, in practice, this feels like spending *more* time listening and finding out than giving advice or information (Horn c2002)

6.1.2 Planning communication

Communication is something we all do all the time and, perhaps because of that, it is not always clear that it needs some thought. Different strategies are needed for different levels of engagement. As a general rule, the more you want end-users to engage with your information (i.e. the more complex it is), the more you will have to engage with them. Greater participation and uptake of information might require attention to building the networks through which information can be passed on and by which more people can become involved.

Different forms of communication do not occur in isolation. Awareness raising and getting-to- know-people may be ways of building a profile, which then creates a demand for more detailed information. Likewise, when a relationship is well established it may be possible to rely on simply sending out written information, and if the recipient needs more they will request it. Such an approach is unlikely to be successful before a relationship has been established.

See Section 8 for questions to assist in planning a communication approach.

6.1.3 Barriers and opportunities for information uptake

A common barrier to information uptake is resistance to change. This resistance can come from a number of different sources. Common ones are:

- Fear of losing one's identity or mana by admitting one was wrong
- Dislike of the person/agency disseminating the information
- Misunderstanding of the implications of the information
- Lack of peer support for the change
- Lack of personal or physical resources to change.

Research tells us that *change is NOT a linear process*. It is more like a series of cycles in which people learn a bit, and then apply that learning in a range of different situations. Their first attempts at applying their learning may fail. We all need time, repetition and feedback to gradually use new information. The more complex the information, the more iterations and the more two-way communication is needed before different parties can understand each other.

How we all use information depends on the context within which we work, as well as our propensity to change and seek out new and better ways to do things. Figure 1 illustrates some of the factors affecting information use.

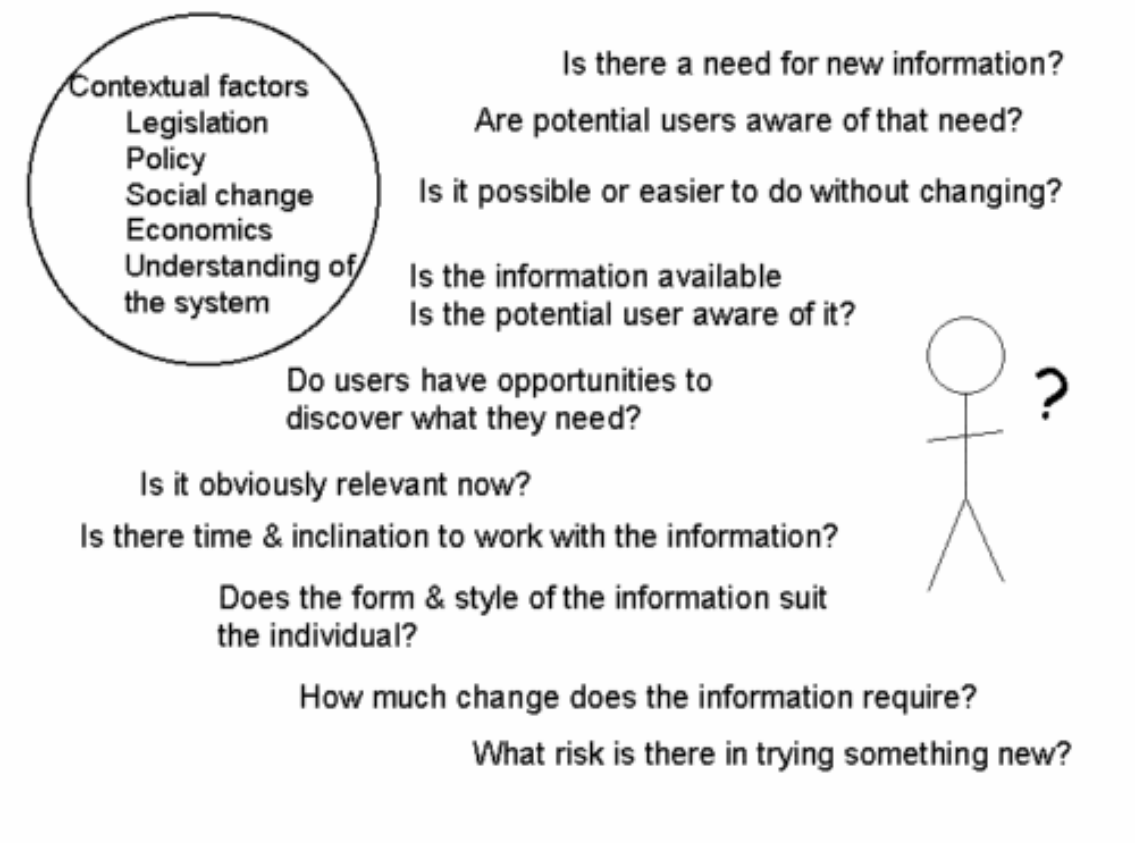

Figure 1. Barriers to listening (Horn c2002)

6.1.4 Collaboration

The idea of government agencies and communities collaborating to develop conservation management strategies is not new. Many examples of partnerships exist in various forms in a number of countries. Successful approaches are those that have been individually tailored to each situation. However there are some common elements that make these collaborative approaches work (Allen et al. 1998a).

The principal distinction between collaboration and communication is that the central issue in communication is the *exchange of information* between two or more groups or individuals, and the central issue in collaboration is the *relationship* between two or more groups or individuals. In trying to improve communication, areas of concern are the effectiveness of the medium of information exchange, how the information is received, and what consequences or actions occur as a result. Collaborations refer to situations in which some or all of the relevant stakeholders are substantially involved in management/decision-making activities (Allen et al. 1998b). The areas of concern for collaborations, therefore, are the basis and durability of the partnership, which communication plays a role in influencing.

Furthermore, implicit in the term partnership is the concept of common good: the trust that it is possible to follow a course of action that harmonises different interests while responding, at least to some extent, to all of them. Typically such arrangements are consensus-based with decision-making power being shared in some way among the various stakeholders (Allen et al. 1998a, p. 9).

Establishing and implementing a collaborative process can be viewed as having three principal stages, although these stages overlap and may be revisited many times (Fig. 2).

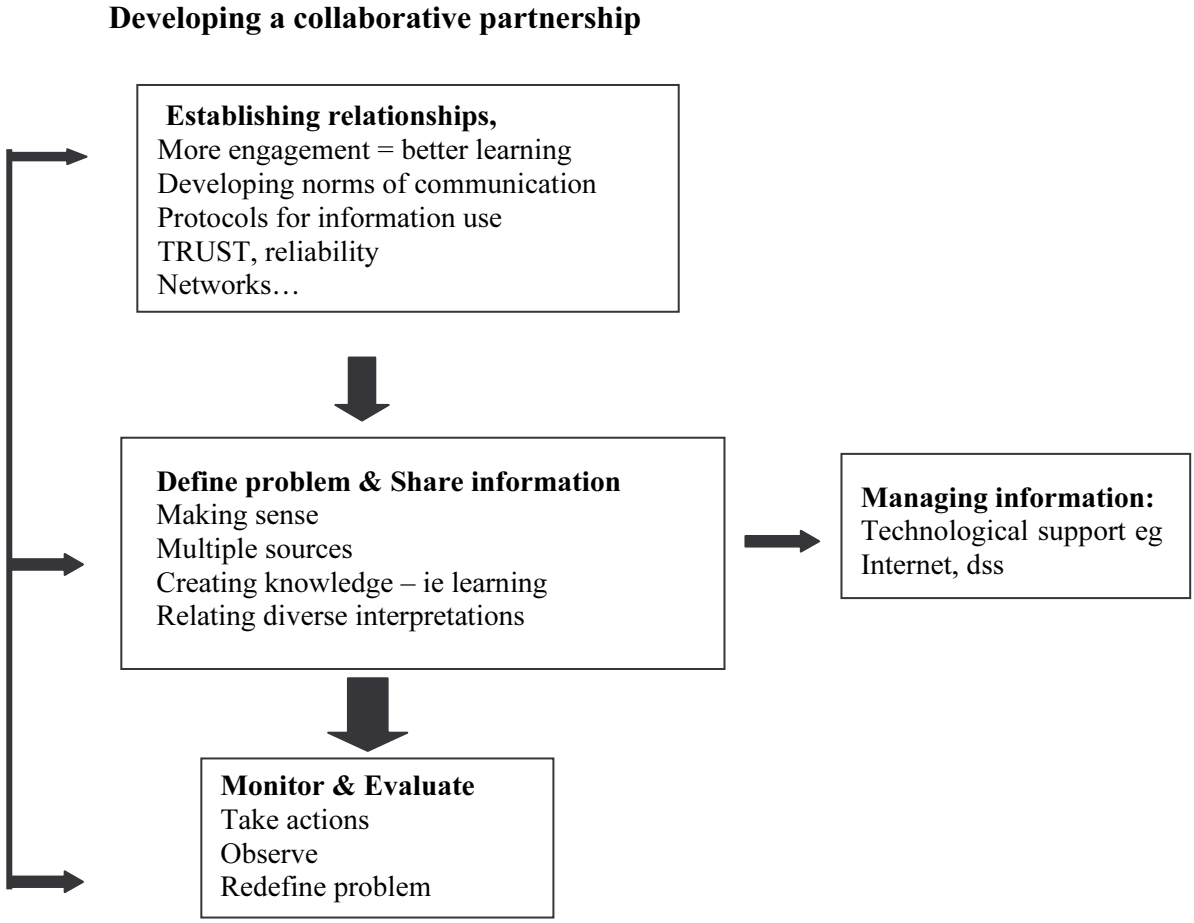

Figure 2. The different phases involved in establishing a conservation partnership (adapted from Allen et al. 1998a, p. 9)

6.1.5 Stage 1 – Establishing relationships

The foundation of any successful collaborative or partnership approach is the development of relationships that make it easy for people to talk about their needs, share information and work together (Allen et al. 1998a). In the first stage of the collaborative process the initiating party sets out to identify the stakeholders and build up a healthy personal and working relationship with them. Establishing trust is one of the main reasons why successful participation processes take time. Furthermore one of the most important influences on community attitudes towards an agency is previous experience; past events may have to be reprocessed if progress is to be made. Consequently while this phase of the process may seem to take forever and to make little gains in terms of the desired objective at the root of the collaboration, it can seldom be cut short. It may involve the following:

- Dealing with seemingly tangential issues that affect the trust between the parties (for an example of this see the story of DOC gaining access to farmlands in the Waitaki Basin (Allen et al. 1998a)).

- Casting the net several times to bring in different stakeholders
- Taking steps to resolve historical conflicts
- Being prepared to be the first to bring together parties who have not usually met
- Finding the common ground, and not leaping too soon, or holding on too closely to your preferred plan of action.

6.2 Specific collaboration issues for Maori

The general principles of relationship building for collaboration apply across communities, both Pakeha and Maori. However, there are a number of key building blocks of effective collaborative work with Maori that are distinctive or at least require further emphasis.

Garth Harmsworth of Manaaki Whenua has written a discussion paper on developing collaborative research with iwi, based on more than a decade of experience in environmental research collaboration. The section of this paper on 'successful ingredients for developing relationships with iwi and hapu has been reproduced in the box below.

Box 2 Successful ingredients for developing relationships with iwi and hapu - the Manaaki Whenua experience (directly quoted from Harmsworth (2001), pp. 12–13)

A number of key steps or 'ingredients' form the basic building blocks of effective collaborative research with iwi. These have been drawn from [a] Ngati Porou case study … and from experience working with iwi over the last 10 years, and can be used as guidelines in developing relationships or partnerships with iwi to set up collaboration.

Initiating, building and maintaining a relationship with iwi

The most apparent ingredient is to build a meaningful relationship from the start. It is recommended that groups or individuals working with iwi have empathy towards Maori culture and have a cultural standard that makes them aware of cultural protocol and sensitivities. All possibilities of developing a relationship or partnership with iwi can be destroyed by not following protocols or the right procedures, by not understanding tikanga Maori, Maori concerns and issues, or by not talking to the right people from the start. It is therefore important to:

- identify immediately the right iwi organisation with whom to work. In some geographic areas this may involve talking to a wide range of iwi members, groups, and Maori organisations before narrowing down work with one group. It may involve talking to several iwi rather than just one. It is important at this point to have some understanding of whakapapa, Maori values, and to enter discussions with an open mind. For a scientist or researcher it is important to realise that this stage is at the bottom of a learning curve;
- identify key people to work with in the iwi or Maori organisation. Many of these may be working at the 'coal-face' rather than at the top of the organisation;
- be aware of cultural or political protocols, and have some understanding of inter-iwi and intra-iwi politics and relationships;
- have some understanding of, or identify, Maori issues, either within a geographic area or nationally;
- take a personal interest, much wider than the research interest, in the iwi, Maori organisation, or the iwi personnel being approached;
- set up and maintain regular contact and dialogue so the relationship may progress;
- maintain the relationship by regular networking and communication, personal visits, and regular contact (e.g. email, phone, letter);

- identify a common area of interest, e.g. an issue(s), or interesting research on which to focus;
- be willing to help iwi or individual iwi members, even before setting up collaborative projects, to access and disseminate information of particular interest, networking with other researchers, or other iwi, helping with iwi proposals for funding, etc.;
- demonstrate some long-term commitment to wanting to work with the iwi.

Importance of protocols and tikanga in developing relationships

In terms of protocols it may be necessary to visit iwi representatives, at the highest organisational level, when beginning a relationship, and giving an initial presentation to a runanga, trust board, incorporated society, council, committee, or staying on a marae. In many situations, this stage is a formal process when starting work with any iwi, before any collaboration or participation.

Presentations will involve mihi, and an essential part of any presentation will be to let people of a Maori organisation, especially senior members, know who you are - your identity, your whakapapa, what you are doing or intend to do, what your research interest is, who you would like to work with, how you intend to work with iwi, hapu, or other groups. It will generally follow tikanga, protocols and kawa set down by the iwi with whom you intend to work. It is often at this stage that the type and content of a memorandum of understanding or partnership (i.e. MOU or MOP) should be considered.

Manaaki Whenua has developed both MOUs and technical service MOUs at the beginning of most projects. In many cases a MOU/MOP will formalise the relationship between, for example, a CRI or university, and an iwi in terms of protocols, kawa, and assurance of the involvement of the right people. This sets the scene for follow-up hui, more informal discussion, networking, and initiating projects.

Presentations may be repeated at several hierarchical levels in an iwi to different audiences, down to the marae and individual level, or to a specific iwi group, and usually take place at different locations.

Understanding and characterising Maori issues

To understand iwi/hapu Maori issues and link these to potential research, more informal discussions often follow with a number of groups and individuals. To build a collaborative model it is important to listen carefully to iwi and individuals and to synthesise information without misinterpretation. It is also important to demonstrate a willingness to help and learn. Issues will be much wider than just research issues, and will involve understanding economic, cultural, political, environmental, social, and historical issues.

It is often useful to discuss iwi issues in a suitable environment where these issues have meaning, such as in the field, on a marae, or at an iwi- or hapu-designated office.

Issues need to be characterised and carefully defined from a Maori and scientific perspective. It is recommended at this stage that reciprocal visits be made between an iwi/hapu and other organisations intending to work with iwi.

It is important from a Maori point of view to ‘see’ and ‘feel’ the work place of, and be hosted by, potential collaborators.

Key Maori or iwi issues should then be documented. Issues should be discussed through formal or informal communication, such as a letter or email, and agreed upon, in terms of what had been discussed previously at hui or in the field.

6.3 Situation in Whanganui Area

The tangata whenua of the Whanganui area come from a number of different iwi groups. The relatiohship with these different groups varies both between groups and over time. The marae level has been targeted because these are people who usually never see, or hear from, a DOC officer, except perhaps when there is a conservation law enforcement issue. The idea is to take the presentation to the small, rural marae, where the greatest impact and strongest discussions on kereru and conservation are expected. It would be a good public relations opportunity as well as showing a DOC badge in forgotten areas.

The kuia and kaumatua from these areas have much influence when it comes to establishing rahui or protection for land or specific species. Without the support from these people there is little point in continuing with a programme such as this.

6.4 Issue of kereru management

Collaboration on management of kereru between a conservation agency and tangata whenua requires a coming together of values that have different origins, but are not entirely mutually exclusive. These distinct values for kereru cannot simply be described as a desire to harvest (for Maori) and a desire to conserve (for pakeha conservationists). Since 1921 the harvest of kereru has been prohibited by law (Wright et al. 1995) yet harvesting continues and many valuable resources that could be used in species enhancement work are instead diverted into policing poaching. To understand why Maori continue to harvest kereru it is important to put this act in context.

Wright et al. (1005) in their paper presenting the views of ecological scientists of Maori descent draw a comparison between the management of kereru and that of two duck species paera/grey duck (*Anas superciliosa*) and kuruwhengi/shoveler (*Anas rhyncotis*). All three species were traditionally harvested by Maori. However, decline in habitat, and increased pressure in the form of predation from, and competition with, introduced pests requires an active management approach be taken if the harvesting of all three species is to be possible. In the case of the duck species their guardianship has been placed in the hands of the Fish and Game councils. These agencies are supported by Government and empowered to resource their activities as caretakers of hunted species through licensing of hunters. Wright et al. argue that the kereru is comparable in vulnerability to paera but because it is less compatible with traditional hunting species for Europeans, it has not been recognised as a potentially harvestable species. Maori have not been given the mandate or the resources, in ways comparable to Fish and Game, to carry out the activities that would enable the kereru to be a sustainably harvested species.

This highlights an important contextual element in any partnership in kereru management. Pakeha conservation authorities may simply wish the numbers of kereru taken for harvesting to be reduced. To achieve this, they may hope to persuade Maori to enforce their own rahui within their communities (Pierce 1993). To Maori, however, this is an issue (among many) of the expression of their sovereignty. The concept of rahui only has meaning where guardianship is real and not token. A collaboration based on responding to the context for Maori of kereru management would be one that enabled Maori to take on full and meaningful guardianship of kereru, becoming actively involved in exotic mammal control, and working in partnership with agencies that have expertise in species management (as illustrated by the Rakiura Maori partnership with the Otago University regarding titi/sooty shearwater

management). Within this guardianship process, sustainable harvest would be possible (and a rahui lifted) when circumstances indicated population enhancement had been successful.

Working with Maori on kereru management is not, therefore, simply a matter of informing about the risks to kereru populations. This information should be combined with the creation of an opportunity for Maori to take active control, supported by flexible partnerships that offer an exchange of expertise, sharing of resources and reinstatement of kaitiaki.

6.5 How do you know if it is going well?

Intelligent communication means working with others, understanding the system, the networks of people in it, and using that knowledge to manage communication adaptively by *planning, acting, monitoring and reviewing results* in a pattern similar to that of any form of systematic management.

If you want to improve your communication and collaboration then doing more of the same thing may not be the best option. However, this is NOT to advocate wholesale sweeping changes to what you do either. It is better to make small well-considered changes and to monitor the effect that they have. That way you won't 'throw out the baby with the bathwater'.

7. Conclusions

This report provides support material for a PowerPoint presentation on the Plight of the kereru that might be used for approaching community groups including iwi. It also provides some thoughts about the nature of communication and relationship building and some options for thinking differently about these processes.

8. Recommendations

We suggest that it is well worth an investment in talking through and evaluating your approach to groups with this resource. The following questions provide a starting point for this kind of thinking. We recommend strongly that you talk with your Kaupapa Atawhai manager if you are approaching Māori groups or with someone who does community liaison work to reflect on your approach and think through what you expect to achieve through this approach.

Before the event

- What is your strategy for getting onto the marae?
- Who are your key contacts?
- What contacts do you need to make first?
- Do you know any local information for that marae about kereru?
- How might you help them find out?
- Where might you direct people?

During the approach

Here are some questions you might ask the people you are presenting to – are there others that might be of interest to them or to you?

- What birds have you seen over recent years?
- How do these observations fit with what is in this presentation?
- Do you see large numbers? When and where?
- Have you noticed any changes over the years?

If people do want to get involved, can you support them in pest management, monitoring and how would you do that. Other support that might be feasible and that might be useful include:
- Information about people, tools, funding etc.
- Skills training
- Going out with groups
- Getting help finding funding – who provides this kind of help?
- Any opportunities that you want to tell them about

Reflecting after the event
- How did you go getting onto the marae?
- Who was there?
- Would you say the information you presented was of interest and was being absorbed?
- What makes you feel that you did or didn't get much across?
- What were the reactions of the meeting participants?
- Were there any challenges to you, to DOC or to the information you were presenting?
- How did you react to these challenges?
- Would you react the same way next time?
- Did the groups offer any corroborating stories to support your information?
- When did those stories come out?
- Were you invited back or encouraged to talk elsewhere?
- How did the group react to the type of presentation?
- Would you say the presentation was pitched at the right level?
- What, if any, changes would you make?

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Appendix 1 List of source materials to take along to meetings

To leave behind after meeting

- CD with copy of PowerPoint presentation
- Paper copy of PowerPoint presentation
- A2 poster from Forest and Bird showing causes of decline of kereru in last 2000 years or so
- Half a dozen brochures from Forest and Bird emphasising the poster
- Copy of kukupa/kereru activity pack/kete mahi, in either English or Maori or copies of both.
- Copy of 'Plight of the kereru: Supporting material for approaching iwi regarding kereru management.'
- A4 information leaflets outlining project and with contact details on:
  - Motatau (Ngāti Hine, Landcare Research, DOC)
  - Banks Peninsula (Ngai Tahu - DOC - Lincoln University)
  - Pureora and Waipapa (DOC)
  - Whanganui area (DOC, AgResearch)
  - Wenderholm (Wildlife Service, Auckland Regional Council, Auckland University)
  - Trounson (DOC)
  - Boundary Stream (DOC)
  - Maungatautari (Communtity group, Waipa District Council, Maori and neighbours)
  - Bushy Park (Forest and Bird, DOC)

- Information leaflets on:
  - Nga Whenua Rahui
  - Horizons

- Copy of book *Bush vitality - a visual assessment kit. Managing the seasons for the years*. (Janssen 2004)

Other resources:

Landcare Research Discovery 2 (June/July 2002): Kukupa and kohekohe bounce back at Motatau.

Appendix 2 Scientific names of plant species providing food for kereru

Clover	*Trifolium repens*
Five-finger	*Pseudopanax arboreus*
Hinau	*Elaeocarpus dentatus*
Kahikatea	*Dacrycarpus dacrydioides*
Karaka	*Corynocarpus laevigatus*
Kohekohe	*Dysoxylum spectabile*
Kowhai	*Sophora microphylla*
Matai	*Prumnopitys taxifolia*
Miro	*Prumnopitys ferruginea*
Nikau	*Rhopalostylis sapida*
Pate	*Schefflera digitata*
Pigeonwood	*Hedycarya arborea*
Puriri	*Vitex lucens*
Taraire	*Beilschmiedia tarairi*
Tawa	*Beilschmiedia tawa*
Tawapou	*Pouteria costata*
Willow	*Salix* spp.

Appendix 3 Newspaper clippings/articles on kereru poaching and kereru success stories

Taumarunui pigeons targeted by poachers

News release
6 March 2000

DOC's Taumarunui Field Centre Manager, Graham Bell, says kereru poachers appear to be at work and if caught they will be prosecuted.

He says staff have found discarded kereru feathers throughout the Motutara Scenic Reserve about five kilometres north of Taumarunui.

"It's a huge reserve and our goat cullers have found feathers all over the place. The miro berries are ripe, attracting the kereru. These birds are totally protected and anyone caught interfering with them will be charged."

"Kereru play a major role in the regeneration of our forests. They're effective seed dispersers because of their mobility, and the wide range of fruit they eat. Kereru are one of the few remaining birds big enough to swallow the larger fruits such as karaka, tawa, taraire, and puriri," said Mr Bell.

"We are always vigilant for kereru poachers and are also considering surveillance cameras in strategic locations to identify offender."

Mr Bell said kereru are threatened in many places because of illegal hunting, predation and starvation. Rats, stoats, and possums eat kereru eggs and chicks, while competition for food (fruit) by possums and rats may also reduce breeding attempts.

"Kereru are facing enough problems surviving in a forest filled with introduced pests, without poaching adding to it. Without kereru to disperse its seeds, many native tree species may disappear from our forest altogether," he said.

Greedy poachers leave pigeons to rot

Wanganui Chronicle 14 July 2004

Department of Conservation staff have condemned the senseless slaughter of several native wood pigeons which were shot and left to rot near Taumarunui recently.

Taumarunui DOC staff were alerted to the presence of pigeon poachers after a member of the public reported finding piles of keruru feathers and the rotting carcasses of at least three adult birds near Te Maire, about 15 km from the town.

Keruru are a protected species and considered to be in national decline.

DOC biodiversity specialist Jim Campbell said poaching of keruru was especially prevalent between May and July, when native trees like miro produced berries that the birds like to eat. "While DOC staff are being especially vigilant over this period, we are also keen to hear from local landowners, tourists or the public who may see people entering reserves or bush areas with a rifle. Any information such as vehicle registration numbers or physical descriptions that will help us nail the poachers will be gratefully received," he said.

"We are disgusted at the senseless killing of these protected birds, which are facing enough problems fighting for survival against pests such as possums, stoats and rats, without poaching adding to it."

Mr Campbell said local tangata whenua, who were considered kaitiake (guardians) of the area, were also concerned about the poaching and would be speaking to their people.

"It's up to all of us as protectors of the keruru to do our bit to help catch those who threaten this taonga," he said.

Analysis of the dead birds confirmed they had been shot with a rifle, and would probably have flown some distance to die after being wounded by the poachers.

While it was impossible to know how many other birds had been killed and taken, Mr Campbell said the Department were following up on a number of leads.

"That means anyone we do catch will be prosecuted without hesitation."

Penalties for poaching an absolutely protected species can include jail terms of up to six months or a $100,000 fine. Poachers can also be fined up to $5000 for each wildlife head or egg found in their possession.

Restoring the dawn chorus to Maungatautari

http://www.teawamutu.co.nz/news/2003/03/10-maungatautari.shtml
Permission to publish article from Julie Milne

Story By Julie Milne

The $14 million Maungatautari Ecological Island project is unique in both its scale and the fact that it is totally community driven. Maungatautari is 3363 hectares of largely intact forest which is sufficient to support viable populations of many threatened species. Possums did not occur on the mountain until much later than in other parts of the Waikato. This makes Maungatautari the ideal setting for a project to restore the dawn chorus.

It has been flagged as a future international ecological project winner and was recently described by the CEO of Tourism Waikato John Rasmussen, as "the most important sustainable product for New Zealand tourism in 25 years".

The mission statement of the Trust managing the project is "to remove for ever introduced mammalian pests and predators from Maungatautari and restore to the forest a healthy diversity of indigenous plants, animals not seen in our lifetime".

The mountain is an extinct volcano located near the Waikato River, just south of Cambridge and between SH1 and SH3.

The project involves fencing two “cells” (referred to as enclosures) on either side of the mountain and once these are complete the entire 3400ha area of bush will be ringed with 47km of state of the art pest proof fence.

Both the 35ha northern enclosure and the second 65ha enclosure on the south side are now complete and the whole upper half of the bush-clad mountain is hoped to be ring-fenced by July/August 2006. The poison drop in the two enclosures has begun and the experts are confident of penetrating the dense leaf litter and eliminating the very last mouse.

It is anticipated that the reintroduction of species will begin during 2005, the first being the kiwi. It is predicted that the mountain could easily accommodate over 2000 kiwi.

Being strategically located between the two main state highways, visitor numbers have been estimated at between 87,000 to 100,000 per year by 2010/11 and it is expected to be self-sufficient by 2008.

In the long-term the mountain is likely to spawn a new industry including a café and possibly shops.
The tracks are of superior quality and wheelchair friendly and main tracks will be equipped with low lights so that people can undertake night walks.

The total enclosure will be fitted with a highly sophisticated monitoring system.

The top of the fence will include an electric wire and should a breach occur anywhere along the 47km - perhaps a fallen branch or tree - it will short the wire and send a signal that the breach has occurred and will identify exactly where it is. The system will be connected to both cell phones and landlines. The exterior of the ring fence will be patrolled on a weekly basis to ensure the security of the enclosure.

To date $4.1 million has been raised, most of it coming from Trusts, the most generous being Scottwood with $1.3 million and the Lion Foundation with $750,000 and solidly behind it are Mighty River Power and Carter Hold Harvey. Equally supportive are Environment Waikato, Waipa District Council and DOC. Further local body and central government funding is currently being sought.

The man behind the dream and the driving force in ensuring it became a reality, is David Wallace.
He and his wife Juliette bought their property at Karapiro (right across the Waikato River from Maungatautari) about 10 years ago and set about pest proofing their 16ha. Through trial and error and with the help of a bunch of experts he finally perfected what is now patented as the Xcluder fence. It is two metres high with an extending cowl along the top and about 300 mm of netting lays flat on the ground on the outside of the fence to defeat burrowing pests. Giant weta and kiwi were released at their property, Warrenheip, about two years ago and these are flourishing along with a range of other indigenous species.

The tourism implications for Maungatautari as such an accessible "mainland island" are huge. It will provide a unique and accessible asset for both local residents and overseas visitors seeking an authentic eco experience.

Maungatautari will be one of the very few places in the country where visitors will be able to experience, first hand, New Zealand as it was before man's arrival, complete with dawn chorus.

For further details please write to P.O. Box 476 Cambridge or email mail@maungatrust.org or phone 07 8237455. For more information about the project log on to www.maungwatrust.org

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Bayer boost for Bushy Park

Monday, 14 June 2004, 1:51 pm

Press Release: Bayer NZ, Permission to use article from William Malpass, Bayer NZ. 14 June 2004, http://www.scoop.co.nz/mason/stories/SC0406/S00037.htm

Wanganui's Bushy Park forest reserve is well armed this winter for its ongoing battle against rats thanks to a donation of Racumin® rat bait by Bayer New Zealand.

The park, which is administered by a trust, is one of the finest remnants of lowland rainforest in the Wanganui area.

The trust's main aim is to restore the forest and reintroduce rare bird species such as the saddleback, kiwi and kokako. However, to do this it must eliminate pests such as rats, possums, mustelids, hedgehogs and magpies.

Bayer's Animal Health division product manager David Barnett says the company has a long history of supporting environmental and ecological projects around the world.

"We have been supplying Racumin to Bushy Park for three years now and over that time have helped provide the basis for an effective rat control programme. MORE… "It's fantastic to see one of our products not only working effectively, but also working in a way that is directly assisting the protection of endangered bird species."

Bushy Park Trust chairman Allan Anderson says Bayer's Racumin is used in conjunction with a trapping programme, which although effective has to be kept up continuously.

"Predator and pest control is ongoing – in fact never ending for even though pests may be removed, others move in. In spite of several barrier rings around the reserve some will always get through.

"That's why it's great to have the ongoing support of Bayer – without their donation of Racumin it would be much more difficult for us to control rats."

Mr Anderson says the park's predator control programme has been working well. The North Island robin (toutouwai) has successfully been reintroduced and there are plans to introduce saddlebacks (tieke) this year followed by kiwi next year.

The trust is also fundraising for a secure predator fence for the park, which it hopes to have completed by the autumn of 2005. It then intends to construct an incubation unit for kiwi eggs.

“Along with our other predator control measurements, Racumin has provided us with the springboard for the next stage. That is the construction of a fence, which will allow us to create a totally predator-free environment and thus an area significant in species recovery,” says Mr Anderson.

As well as supporting Bushy Park, Bayer New Zealand also sponsors the Whangarei Bird Recovery Centre where it has the Bayer kiwi incubation unit.

MORE… About Racumin®

Racumin is a unique rat bait specially designed to achieve fast, more effective rat and mouse control. It uses a first generation anticoagulant that causes death by internal bleeding, but has low risk of secondary poison of non-target animals such as dogs.

No other anticoagulant bait is faster at killing rats and mice. Because it is highly palatable to rodents uptake is fast with death occurring in as little as three days.

In comparison, bait with high toxicity but low acceptance will kill some rodents, but will leave enough to breed and continue a stable population.

Each Racumin bait is individually packaged in a small sachet designed to be used fully intact for easy handling and securing.

About Bayer

Bayer is an international, research-based group with major businesses in health care, crop science and high tech materials. Employing some 123,000 people worldwide, and almost 900 in Australia/New Zealand, the Bayer Group has a portfolio of over 10,000 products and operations in nearly all countries of the globe. Worldwide operations are managed from Group headquarters in Leverkusen, Germany.

Bayer has had a presence in Australia and New Zealand for more than 75 years, and has made a significant investment in local research and manufacturing. For more information on Bayer visit www.bayer.co.nz

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National education programme based on society's nature reserve

by YVONNE AIREY

Forest and Bird Magazine February 2002

http://www.forest-bird.org.nz/Magazines/02Feb/bushy.asp
Permission to reproduce article from Forest and Bird Head Office
Hundreds of New Zealand school students have this past year been part of a hands-on, Learning Experiences Outside the Classroom (LEOTC) programme, at the Society's Bushy Park Forest Reserve near Wanganui. The aim is to assist students at all primary, intermediate and secondary levels to develop 'environmental and scientific' skills and attitudes.

In 2001, the first of a three-year contract with the Ministry of Education, 1896 pupils have participated in the one-day LEOTC programme – 79 classes from 26 schools. An even greater number is expected in 2002.

The programme is no 'day junket' – every student who visits is tested on their knowledge of the history and fate of New Zealand's flora and fauna. Conservation is presented as a viable way to preserve our flora and fauna for future generations.

An interpretation centre details the plants, birds, insects and other animals to be found in this unique piece of rain forest and adjoining wetland. A nature trail contains informative plaques.

A trained secondary school teacher from Wanganui College, Terry O'Connor, is funded four days a week by the Ministry of Education to run the programme. On the fifth day, the Bushy Park Homestead and Forest Trust employs him on predator control, managing the property as if it were a 'mainland island'.

Trust board member Stan Butcher of Lower Hutt says this ‘forest ranger' role has helped toward ‘the virtual elimination of predators (possum, ship rats, mustelids, cats and magpies) from Bushy Park and, as a consequence. in August the Department of Conservation allowed the release of 28 North Island robin from the Waimarino Forest. Most appropriately, the first robin released has been named 'Stan'.

A distinguished life member of the Society and chair of Lower Hutt Forest and Bird, Stan Butcher first saw Bushy Park in 1981 and was 'captured by the place'. He ran a campaign to have it preserved and since 1994, the homestead of Bushy Park has been administered by a dedicated Trust.
Originally Bushy Park was the home of G Frank Moore who gifted the bush to the Royal Forest and Bird Protection Society in 1960, then the house in 1962, believing the Society would be best able to ensure the future preservation of his beloved bush. The Society has retained ownership of the actual bush, its ‘core business', and the historically registered Edwardian homestead on the property is now a licensed restaurant and offers commercial accommodation.

Bushy Park Forest Reserve

Bushy Park Forest Reserve is an 87-hectare lowland forest remnant next to the Rangitatau East Road, eight kilometres from Kai Iwi on the Wanganui to New Plymouth highway (SH 3).
Gazetted Protected Private Land in 1963, it is surrounded by farms each with residual areas of degraded bush.

The landform is an eroded marine terrace surface, 270–305 metres above mean sea level and consists of ridges, hill slopes, gully sides, gully floors, alluvial flats and wetland.

The forest type is relict podocarp-broadleaf with regenerating tawa and pukatea on gully sides and floors. Rimu, hinau and miro are found throughout on ridges and hillslopes.

Northern rata is found throughout the forest, including one listed notable tree "Ratanui", estimated to be somewhere between 500 and 1000 years old. At 3.67 metres in diameter, 11.6

metres in girth and standing 43.1 metres high, it is the largest known rata tree in New Zealand.

There is also an area of manuka, bracken, and grassland where a wetlands pond was developed in 1980.

DOC bird watchers to go door to door

Department of Conservation
Te Papa Atawhai

1 SEPTEMBER 2003

DOC BIRD WATCHERS TO GO DOOR TO DOOR

Conservation Department bird buffs are to go door to door in Taranaki from next week (SEPT 8) in a bid to find out more about two of our most recognisable native birds.

Bird researchers Kirsty Moran and Nik Joice will be knocking on doors of landowners within a 30km radius of New Plymouth during the next three months to try to find out more about the tui and kereru (native wood pigeon), as part of a three year DOC study. Despite both birds being among New Zealand's most instantly recognizable bird species, much is still not known about their behaviour and habitat preferences.

Ms Moran said the survey zone would stretch from Urenui in the north, down to Okato and Puniho in the south, and across to Midhurst and Tarata in the east.

"As well as talking to landowners, we're also keen to hear from the public to help us learn more about these birds. We would welcome any reports of tui and kereru nesting in the survey area and from anybody that puts out sugar-water for tui," she said.

Project leader Ralph Powlesland of DOC's Science & Research Unit, said a key objective of the study was to determine the seasonal habitats, food preferences and nesting success of tui and kereru in both urban and rural parts of Taranaki.

Answers sought included whether the birds flew long distances to reach seasonal foods, or if they stayed in familiar patches of forest. Scientists were also keen to learn more about their favourite foods, and if they transferred weed seeds into areas of native forest.

Researchers would also catch and colour band some tui and kereru, while others would be fitted with radio transmitters. This would help track the birds at regular intervals, particularly when nesting. The transmitter is attached by a harness, and does not harm the birds.

Department scientist Astrid Dijkgraaf said the study would complement a similar Southland study, which would give DOC a good information base about the status of the birds and provide valuable information about how best to look after them.

"If we know where they are going to find food, then we know what areas we need to protect to ensure they survive," she said.
"People can also attract tui to their gardens by leaving bowls of sugared water out – about 30g of sugar per 100ml of water a good mix. Any Reports of tui feeding at these bowls, especially colour banded birds, will greatly assist the study, she said.

Meanwhile, DOC and Crown Research Institute AgResearch will combine resources in Wanganui this week to survey the number of tui and kereru along a section of the Parapara Highway. Both agencies hope to use information from the survey to make suggestion on what trees farmers should plant to attract the birds.

ENDS/*For more information contact Department of Conservation on 06 348 8475.*