

Wildlife Survey and Enhancement Options

Whangawehi Wetlands Mahia



**Prepared for the Whangawehi
Catchment Management Group
by
Hans Rook and John Cheyne**

November 2016

Wildlife Survey and Enhancement Options Whangawehi Wetlands

Introduction

This report has been prepared for the Whangawehi Catchment Management Group to assess the existing wildlife values of the Whangawehi wetland complex, located off Mahia East Road, Mahia and explore options on how to enhance those values. The wetlands are located on Taharoa Trust land, owned and farmed by Pat and Sue O'Brien, Mahia East Road, Mahia. The property can only be described as a model of sustainable farming that also encapsulates conservation values.

This report relates to a range of wetland bird species and particularly so for the Nationally Critical Australasian bittern/Matuku that were originally known to live and breed here within living memory (pers com Pat & Sue O'Brien).

Ninety per cent of New Zealand freshwater wetlands have been destroyed by wetland drainage and of the few remaining many are still threatened by drainage and modification. On the lower Eastern North Island, only 2% now remain. The Whangawehi Wetland needs to be carefully managed in order to retain and enhance the values of this wetland.

All the remaining wetlands in the Wairoa/Mahia area are biodiversity hotspots and Whangawehi wetland is very much an important component of these remaining wetlands. Without doubt, the Whangawehi Wetlands can be enhanced with simple and inexpensive management actions.

Background

The Whangawehi Catchment Management Group was formally started in 2010 but this vision was initiated many years prior to this. It is a vision that encapsulates local people, organisations and also people from outside that Mahia area.

The main focus is conservation and management of a whole raft of values that also encompass wise and sustainable land use. It is already producing those anticipated aims and will continue to do so in the years ahead.

This project is visionary and ahead of its time. It is a living blueprint for the future that can also be applied right across New Zealand to address a whole raft of those self-same issues.

The Whangawehi Wetlands are approximately 30 hectares in size and well fenced to exclude stock. Today less than 1% of formerly open water now exists due to heavy surface encroachment by invasive water plants. Previously partial lowering of the original water levels has occurred to allow stock grazing however the Whangawehi Catchment

Management Group's more recent objectives have been to return this wetland to what it once was.

A great deal of infrastructure such as dam walls, overflow pipes, dewatering pipes etc has already been completed which only needs some fine tuning to achieve this objective.

On-going mammalian pest control is already in place and this only requires minor adjustment to help achieve better results.

Bird Survey

A brief survey of the bird species that inhabit the wetland complex was completed by Hans Rook, John Cheyne, Nicolas Caviale - Delzescaux and Lucie Pitaurd and Louise Matrat (visiting French research students) on 12 and 13 November 2016.

A list of bird species recorded is attached as Appendix 3.

Although play back calls of Spotless crane were played at some sites, time constraints did not allow us to do this more thoroughly. The habitat is certainly suitable for both Spotless and Marsh crane. Fern bird has recently been observed by the research students.

While bittern have been recorded historically in the wetland there is an excellent chance they will return once the condition of the wetlands is improved.

The diversity and number of wetland bird species will also increase as habitat management work recommended in this report are implemented.

Matuku kurepo (Australasian bittern)

Very few New Zealanders today have observed this very rare, secretive bird or even know it exists. It has been very much a forgotten species until recent times. Matuku were very well known to the old people and hold special significance to Maori.

Matuku are in serious trouble. Listed as globally Endangered by the ICUN (International Union for Conservation of Nature), Matuku are only found in New Zealand, Australia and, until recently in New Caledonia. Matuku are so rare they now have the highest New Zealand conservation threat ranking (nationally critical) which is higher than Blue duck/Whio (Nationally Vulnerable), North Island Kokako (Recovering) and North Island Brown kiwi (Nationally Vulnerable). Nationally critical is the same conservation threat status allocated to Kakapo, Takahe, Shore plover and Black robin.

In 1981 there were thought to be less than 1000 adult birds in both New Zealand and Australia and fewer than 50 in New Caledonia (C.C. Ogle and J Cheyne 1981). However, recently the population in Australia has declined significantly and the New Caledonia population is thought to have disappeared (pers com Colin O'Donnell).

New Zealand is therefore an extremely important place for Matuku and the long term survival of this bird depends on how we manage our few remaining wetlands in this country. We owe this to our old people, tamariki, mokopuna and generations of New

Zealanders not yet born. Matuku is the rarest heron in the world and it is estimated that the population in New Zealand today is only around 750 – 800 birds.

We know that until recent times Matuku once lived and bred in the Whangawehi Wetlands and consider that it could eventually sustain five breeding territories, once habitat enhancement work is complete.

When we take all the above values into consideration it becomes very clear that Whangawehi is a very special Taonga that has local and regional significance just for Matuku alone. That is not taking into consideration other bird species that could frequent this very special place. It can be very easy to take these values for granted and overlook their significance.

Matuku are an iconic wetland species and any management initiatives implemented for them will also benefit other wetland birds. They are a flagship species for wetland conservation.

Conservation of Matuku and other wetland birds nationally should focus on the restoration of water levels, water quality and aquatic food supplies, predator control, reed bed management, maintaining regional wetland networks and minimising human disturbance at sensitive times.

Human disturbance into and around wetlands with walkways and cycle ways can create unnecessary disturbance. The result is birds deserting the wetlands. Matuku have also been known to desert eggs and chicks under pressure of human disturbance.

Recommendations are provided on improving habitat and mammalian predator control.

Wildlife Habitat Requirements

Water birds require many specific conditions to meet their seasonal needs throughout the year and these should occur in the right proportions. The main requirements are as follows:

- Permanent Water
Permanent water alone is not sufficient without some or all of the following.
- Shallow Water
Waterfowl and wading birds do most of their feeding in shallow water areas less than 0.4 meters deep. This is because plant and animal food is more abundant because of physical factors and is more accessible to wading and swimming birds alike. Seasonally flooded shallows produce more food than those permanently covered in water.
- Sloping Margins
Sloping margins are preferred by water birds allowing them to walk out of the water to rest or enter the water for food.
- Loafing Spots
Open margins, low lying mud banks and half submerged logs provide ideal places where waterfowl can rest and sun themselves.

- Irregular Edge
As the edge of a wetland area provides most of the best places for feeding, loafing and shelter, the more irregular the edge, providing a longer length, the better.
- Islands
Islands provide additional edge as well as the least disturbance for nesting and loafing sites.
- Ground Cover
Patches of tall grass or low bushy shrubs close to, or within a wetland, provide good nest sites. Ideally the extent of this type of cover should be about 50/50 open water, vegetation.
- Overhead Cover
Trees such as some willow species e.g. Weeping willow overhang the water and provide cover for young birds before they can fly. Such trees or groups of trees also provide essential cover for moulting adults at a time of the year when they are flightless and thus most vulnerable to predation. Sedges, rushes or other emergent vegetation growing in the water also provide essential escape cover as well as secluded breeding and resting areas.

The Whangawehi wetland already has many of the above requirements. The potential to create much bigger areas of shallow open water to benefit water bird species especially the nationally endangered Matuku is a very real and exciting possibility.

Wetland Enhancement Recommendations

Wetland 1



Photograph 1

This large wetland area would be enhanced by raising water levels a further 350mm above the level in the photograph 1, together with judicious control of the invasive plant *Isolepis prolifer* to create a 50/50 mosaic of open water/vegetation. This would result in a large increase of shallow, open, ephemeral water for many wetland bird species and particularly so for Matuku. Raising the water level will also reduce the opportunity for *Isolepis* to reinvade the area.



Photograph 2

Recommendations:

- Raise the top of the dam wall to accommodate a 350mm lift in water levels above the level in photograph 1 at the boundary of the O'Brien and Ormond properties.
- Control of *Isolepis prolifer* to create a 50/50 mosaic of open water/vegetation.
- Install a large bore overflow pipe into the solid bank between the electric fence and small manuka bush shown in photograph 2 and extending out long enough past the dam wall to avoid scouring of the dam face.
- Plug the present outlet with good clean soil/clay and existing unsuitable material placed on top of the dam wall.
- Install a dewatering pipe on hard ground below the level of the proposed overflow pipe to provide for partial temporary dewatering in future for habitat management purposes. Detail on this is fully explained in the following section for Wetland 2 and is the same for this wetland.

Wetland 2



Photograph 3 Dam wall and stock access lane.

This wetland can be improved following similar work to wetland 1 by raising the water level and upgrading the outlet pipes to provide for temporary dewatering for habitat management purposes and management of a higher water level.

Recommendations:

- Leave the existing green PVC pipe in its present position and fit a large rubber plug at both the upstream and downstream ends of the pipe to allow for future partial temporary de-watering for habitat management purposes.
- Scrape off vegetation off the existing surface of the dam wall to allow new material to key in and avoid leakage. Increase the height of the dam by another 500mm using adjacent earth material.
- Installation of a suitable overflow pipe placed 200mm above the water level shown in photograph 3 and placed in solid ground away from the dam wall at the base of the slope. The pipe to be positioned on either the far or near side.



Photograph 4 Upper Part Wetland 2

Photograph 4 clearly shows the encroachment of both Raupo and *Isolepis prolifer*. Virtually no open water exists above the dam wall and crossing point shown in photograph 3.

What is required here is the judicious application of suitable herbicide to clear the Raupo and *Isolepis prolifer* to create a 50/50 open water, cover mix with an irregular edge to the wetland. This would provide better habitat and increased length available for feeding, loafing and shelter of wetland birds.

Raising water levels by 200mm above the level shown in photograph 3 would raise water levels across the entire wetland.

Recommendations:

- Application of suitable herbicide to clear Raupo and *Isolepis prolifer* to create a 50/50 open water, cover mix to make an irregular edge to the wetland in order to provide shallow ephemeral water habitat and increased length.
- Raise water levels by 200mm above the level shown in photograph 3 to allow levels in both wetland arms to be raised creating additional water bird habitat.

Wetland 3 (near Sue O'Brien's garden)

Where once open water occurred, this is now a solid mat of *Isolepis prolifer*. With judicious application of a suitable herbicide to the *Isolepis*, this in turn would open up some magnificent habitat for Matuku and many other wetland birds. There is also an opportunity for de-watering this wetland for management purposes the same as for wetlands 1 and 2.

Recommendation:

- That a PVC pipe with a rubber plug at both the downstream and upstream end be installed well below the bottom of the existing culvert pipe and for the same reasons as for Wetland 1 and 2.
- Judicious herbicide control of *Isolepis prolifer* be carried out in late summer when wetland is dry.

Habitat Management – Plant Issues

Isolepis profiler

Isolepis profiler has invaded all wetlands to a point where very little open water exists on any of the wetlands. Limited stock grazing to control this aggressive plant comes with the inherent risk of losing valuable stock at these sites. Grazing can be used to a limited degree at sites which are shallow and hard bottomed but this will only apply to limited parts of the wetland only.

The best option is the judicious application of a suitable herbicide when the wetlands have been dewatered and dried out. Suitable sites were discussed on site with Pat and Sue O'Brien and Nick.

Weeping Willow (Salix babylonica)

This tree provides magnificent overhead cover for waterfowl, particularly young birds, from aerial predators like harrier hawk. It is the first willow to leaf up in the spring and provides thick, drooping overhead protection from predators. Weeping willow does not sucker and spread like other willow species in New Zealand. Under no circumstances should crack willow (*Salix fragilis*) or grey willow be used.

A scattering of trees around shallow water with gently sloping land edges would be excellent at other wetland margins throughout the entire wetland. Weeping willow is easily grown by cutting poles and putting them into moist ground several metres landward of water margins.

Bamboo Spike-Sedge (Eleocharis sphacelata)

This wetland plant and other sedges were used by Maori for floor mats in early times. No plants of this species were observed in the main Whangawehi wetland area but it may well have occurred here in the more recent past or be present in small patches and worthy of further searching. Some patches of it were observed in a small wetland across the road.

If it is not present at Whangawehi it would be well worth trying to transplant small clumps. These would need to be covered with wire mesh to discourage pukeko from uprooting and destroying the plants until this plant is established.



Photograph 5 Bamboo spike sedge (*Eleocharis sphacelata*) growing on small pond at a property adjacent to the Whangawehi Wetlands. It is the tall dark green reed in the centre.

Predator Control

Along with wetland habitat protection and management, control of mammalian predators is now recognised as also being very important for many species of wetland birds.

Matuku are ground nesting birds making them extremely vulnerable to predation by introduced mammals. Their nests are constructed on floating platforms in shallow water that are well hidden in thick vegetation however chicks can be vulnerable to predation by cats, mustelids and rats. Documented evidence exists of adult birds being taken by cats.

Hans Rook has extensive experience in successfully trapping predators at Ahuriri Estuary and he provides the following advice.

It would be desirable to set up an extended predator trap line. I would certainly recommend the yellow Timms traps for feral cats and mustelids. The use of poison around wetlands should be avoided as Matuku feed on, among other things, mice and rats and therefore are susceptible to secondary poisoning.

We have long suspected that greater predation occurs during the breeding season when female bittern are vulnerable while sitting on nests with eggs and with young. Evidence is starting to emerge at Te Whanganui-a-Orotū (Ahuriri Estuary) that concentrated and sustained trapping of feral cats and the other suite of predators in the last three years has resulted in an increase in female and juvenile bittern being observed since trapping work was initiated.

Timms Traps

Personal experience suggests that it is not necessary for the entrances to Timms traps to be modified so cats can place their heads into the traps. Large cats have been taken in unmodified traps.

The only modification I have made is to cut a rectangular section out of the back of the trap and replaced with wire mesh. This seems to provide better air circulation inside the trap which prolongs bait life. Cats may feel more comfortable if they can see right through the trap as well.

Traps are better placed in the shade as this reduces sweating of dehydrated rabbit bait and subsequent rapid deterioration of the baits.

Snails consuming dehydrated rabbit bait seem to be a problem especially during moist periods and where the trap is located near long grass. Slug poison inside the traps would help overcome this problem.

Movement of traps, especially a cat when it pushes its head into access the bait, will deter predators from entering the trap.

Using a plastic wine cork or similar, with a hole drilled into the centre and then cut into thirds, slipped up the bait rod after the bait is on will stop the bait slipping off.

Secure the trap by pushing a wire pin through the hole on the lip on the side of the trap on an angle and pointed away from you. Place a second wire pin through the hole on the other side of the box pointed in the opposite direction. Secure both pin loops parallel to the plastic lip at the base of the trap. Check for movement and adjust to make the trap secure.

Drill a hole through the plastic lip at the base of the trap and tie some heavy braided line through this and attach to a tree root, branch, post or some other anchor point. Cats react violently when trapped and pins and traps can be wrenched off trap sites if the trap is not secured. If traps are set in steep country this ensures they do not move and roll off down the bottom of the gully.

Dig over a small area of dirt near the trap and break this soil up into fine tilth. Cats are drawn to freshly turned over ground in order to urinate and defecate.

Add a drop of tuna oil to the turned over soil and also smeared around inside the surface of the entrance to the trap.

Place an egg or plastic hen starter egg inside the trap as a visual attractant for mustelids. Occasionally cracked eggs are used as they release a scent whereas whole eggs do not.

Use a visual attractant such as a feather and any new object or movement will work as an attractant to draw cats in to investigate. Bend a piece of wire about 750mm off the ground and attach a feather e.g. turkey, goose, swan with fishing line so that it moves in any slight breeze.

The old saying "curiosity killed the cat" should be considered when trapping for cats and using a multitude of methods certainly draws them in.

English Fenn Traps

English Fenn traps are considered by some not to be as effective as many other new traps such as the DOC 200's and 250's. There is a question as to whether that is actually the case as English Fenn's have proved to be very efficient in the past.

Like all traps they need maintenance every couple of years. Maintenance should be on a rotation with the recovered traps water blasted clean then dipped in a container of hot water with dissolved bees wax. The wax puts a fine coating over the metal surfaces resulting in an easier trap to reset and set off.

Many conservation projects are now discarding these fenns and it would be worthwhile enquiring as they may be available at no cost for your project.

Two fenns should be placed in each trap box, if the first trap does not provide instant kill the predator will certainly set off the second trap.

Safety catches on Fenn's can be a trap for those who may not be familiar with them, it is very easy for them to be flicked on to safe if they are not put into position with care. I have removed them from traps that I use.

Trap placement is important when setting up a trap line. It is imperative that traps are set up on likely travelling routes. Cats particularly do not like wet feet so placing the traps in and around approaches to dam walls and on the dam walls will certainly improve trapping rates.

Consider placing trap lines outside fenced off areas and in grazed pasture where cats and other predators would travel. The trap boxes are more prone to disturbance by stock however this can be largely overcome by placing the trap box hard up against a post and driving short sections of waratah, 30cm long, at the face of the trap box.

Haybarns and sheds such as those used for wool, killing and implements are excellent places favoured by feral cats.

Feral cats have large territories and some of the old DSIR research had recorded 28 hectares as an average territory size in Hawke's Bay.

Soft soil such as that found on farm tracks and fence lines should always be checked for predator sign when servicing traps. This will give a good indication as to what predators are around.

Toxoplasmosis is a disease passed on to sheep by feral cats and trapping work will assist the farming community by removing them.

Spraying herbicide at both ends of the trap boxes and around the Timms traps keeps the boxes clear of vegetation and allows the baits to be clearly visible to predators.

Predator trapping is a valuable management tool around wetlands and other conservation projects, however we must never lose sight of the fact that this work compliments the other important work enhancing water levels, maintaining the correct plant communities and the appropriate ratio of open water to vegetation.

Conclusion

Many of our rare wetland bird species are highly mobile and all that is required is to create the correct habitat conditions and they will certainly find them. Two exceptions are Fernbird, which are already present in low numbers, and possibly Brown teal. Brown teal would be worthy of consideration for the wetlands once habitat management work is completed and good sustained predator control is achieved across the catchment.

Attachments:

Appendix 1 Location map

Appendix 2 Aerial Photograph of wetlands

Appendix 3 Bird Survey

Appendix 2 – Wetland Margins



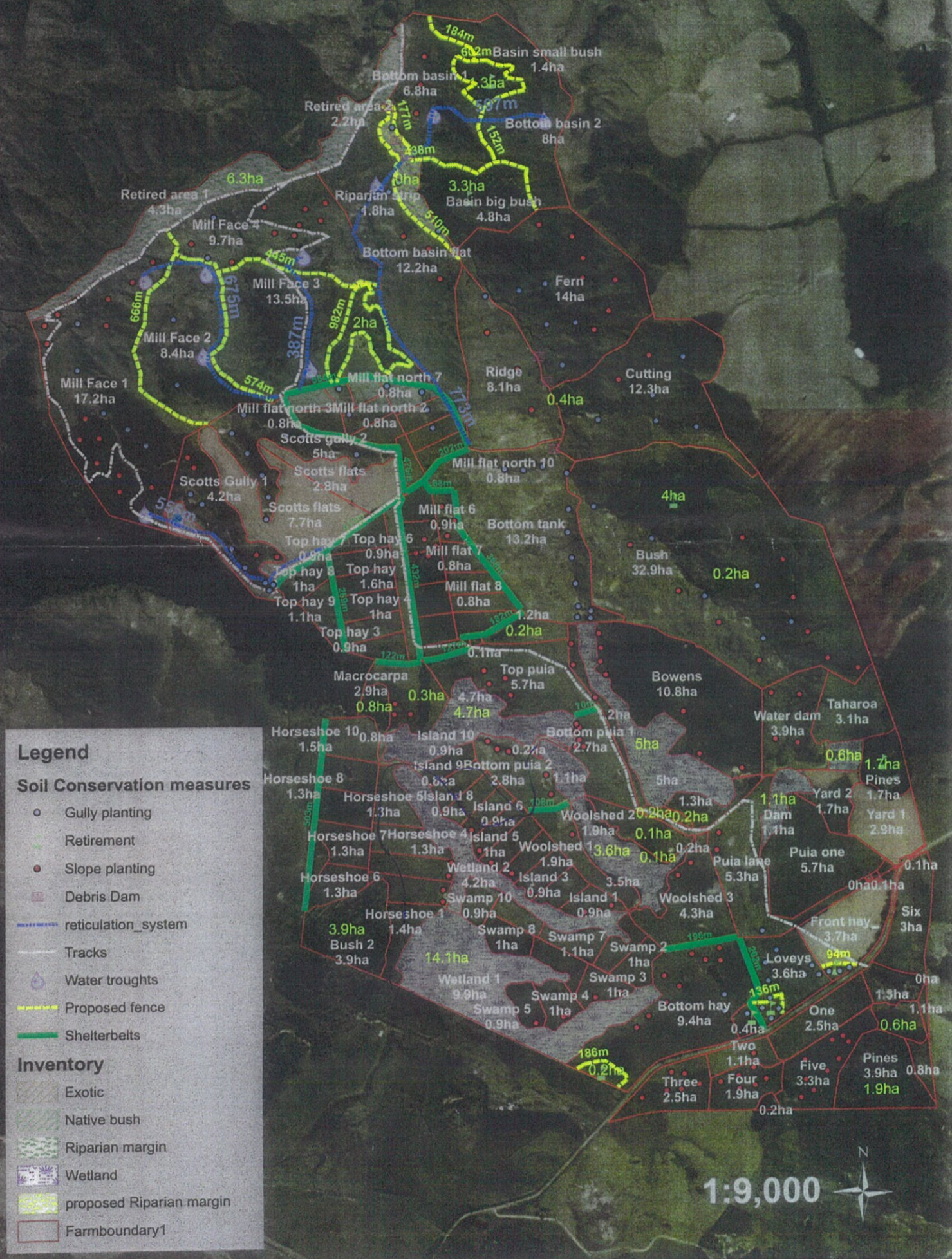
Wetland margin = 30 hectares

APPENDIX 3

Species	Maori Name	Frequency	NZ Status	Conservation Status
Australasian harrier	Kahu	Common	Native	Not Threatened
Australian magpie	Makipae	Common	Introduced	Introduced and Naturalised
Fern bird	Matata	4 (two pairs known presently)	Endemic	Not threatened
Grey duck	Parera	2	Native	Nationally Critical
Mallard duck		Present in low numbers	Introduced	Introduced and Naturalised
New Zealand fantail	Piwakawaka	Common	Endemic	Not Threatened
Paradise shelduck	Putangitangi	Present in low numbers	Endemic	Not Threatened
Pheasant	Peihana	Common	Introduced	Introduced and Naturalised
Pied stilt	Poaka	Common	Native	Declining
Pukeko	Pukeko	Common	Native	Not Threatened
Welcome swallow	Warou	Common	Native	Not Threatened

Only birds associated with wetlands have been recorded here. The presence of various introduced small birds such as blackbirds and thrushes have not been included in this survey.

Taharoa Trust Environmental programme



1:9,000

