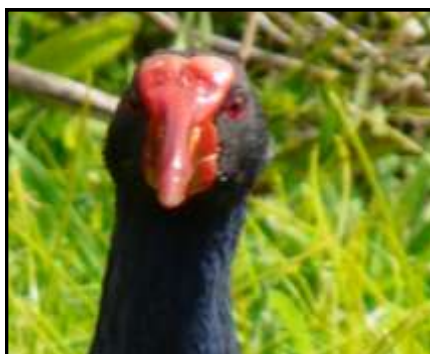




TAWHARANUI OPEN SANCTUARY SOCIETY INC.  
Newsletter No. 42. Sept. 2012



Three pairs of Pied Stilts have returned to the lagoon for nesting.



**A study is underway at Tawharanui to determine if the pukekos' frontal shield relates to hierarchy within their communities.**

## Chairman's Report

This quarter's newsletter contains an article By Matthew Bloxham on the ecology stream and the proposed introduction of giant kokopu. Although the introduction of giant kokopu is exciting the most pleasing aspect of the proposal is the fact that the stream is in good enough condition for the introduction to be even considered.

The stream is much modified primarily (photos page 4) as a result of work performed to create the dam required to ensure an adequate water supply for the park and farming operations. Despite this modification of the stream subsequent riparian planting and exclusion of stock has allowed the stream to recover over a relatively short space of time. We are used to seeing and hearing the rewards of our plantings with the increasing bird population but the improvement in aquatic life is less obvious to the casual observer. Nonetheless improvement in water quality and aquatic life resulting from riparian planting is just as important as the creation of further bird habitat and contributes to the improving biodiversity of the Tawharanui Sanctuary. Hopefully our further plantings will make additional contributions.

Congratulations to the nursery team who earlier this year bagged their 100 000<sup>th</sup> tree. Without this enthusiastic group TOSSI's contribution to the sanctuary would be very much less. Not only is the achievement of 100 000 trees remarkable it has been achieved while maintaining a very high standard of individual plants. This year's planting days have been very successful with more than 100 volunteers turning out on each of the five planting days. Of course the weather was generally kind but factors in our control also helped. The planting days appear to have earned a reputation of being enjoyable, well organized and capped off by a well presented lunch. Thanks to all who have been involved, including the International Student Volunteers and nursery team who helped with plant transport, park rangers for their driving skills and the catering team for providing the enjoyable "post match function." Finally thank you to all members who have attended and made the planting days so successful. Steve Palmer Chairman

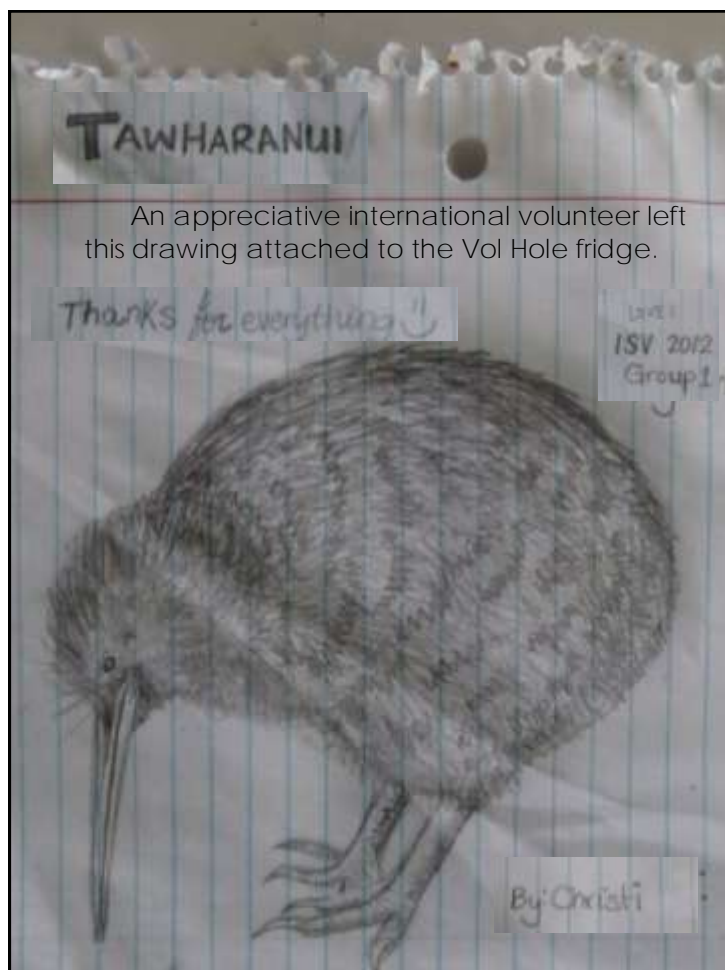
### Looking forward 2013

Now that we have almost completed this years planting, preparations are beginning for the planned plantings for 2013. As many of you will know this year's planting focused on Anchor Bay and two small areas on the South Coast. Both plantings were relatively self contained. However, the Anchor Bay planting especially

Next year's planting will be the start of a more extensive planting in the M16 area which is at the western end of the park, close to the west end of the pest proof fence. The area is around 8 ha and will take 4 years of planting to complete. Once completed it will connect with a planting carried out over a number of years by Keith Edwards and our own plantings in the Twin Hills area. Overall this will create approximately 16ha of new bird habitat.

The M16 area consists of a large gully of potential wetland together with smaller areas of hillside. At the head of the gully there is a small remnant of mature forest including puriri, totara and kahikatea. The majority of our planting will be with colonizing plants namely manuka, flax, cabbage trees together with sedges. Planting of the M16 gully will lead to further improvements in water quality in the small gully stream which drains into the campground and lagoon wetlands. The improvement in water quality will be achieved by reducing run off and producing shade for the waterways.

Although the major focus for planting over the next four years will be the M16 area additional small plantings will also be undertaken and the first planting next year is likely to be in the newly fenced off area near the Mangatawhiri wetland. Steve Palmer Planting Manager



## Open Sanctuary Coordinator Update

Rangers and neighbours of Tawharanui Regional Park were lucky to witness a southern right whale and calf in Jones Bay in the gloaming of Saturday August 24<sup>th</sup>. Departing park visitors stopped to see what had attracted the attention of the small gathering and got to share this rare treat. The mother and calf had been doing the rounds of the inner Gulf over the previous week with various sightings made from the north shore and elsewhere.

Another marine mammal currently enjoying the shores of Tawharanui is the NZ fur seal. Individual animals have been sighted on both north and south coasts, ranging from youngish pups to older males. These whale and seal sightings do not reflect the specific management of Tawharanui Open Sanctuary but are good reminders that we are connected with the wider world.

It serves us well to remember this connectivity and to be ever mindful that our actions or inactions have effect beyond our immediate focus. Boundaries mean little to birds and some of our resident and returning species are wide ranging. Kaka and kereru travel vast distances between feeding, roosting and nesting sites but even modest detail of these movements are unknown. A University of Auckland study has been initiated to place satellite transmitters on these birds, including some from Tawharanui, to help better understand where and when these birds move around the region. This in turn may inform management actions required to ensure their safety throughout their lifecycle. Seabird species range even further and transcend international boundaries meaning we have to work together as a global community to safeguard the birds that nest in burrows at Tokatu Point.

On a local connected level it is great to see the Takatu Community Landcare Project starting to gain momentum. On a wet Sunday in late July the woolshed hosted a good turnout of peninsula locals keen to help improve their local environment. This community led group has responded to calls to become coordinated to tackle a raft of local environmental threats. A strategic plan has been drafted for discussion and key target pests include stoats, possums, climbing asparagus, woolly nightshade and moth plant. Great news as all of these are targets of the Tawharanui Open Sanctuary and we welcome any extra effort that can reduce these pests and improve the safety of those plants and animals that disperse beyond the fence.

Spring has sprung and as ever a busy time for the park and open sanctuary. Take the time to reconnect and show off this marvel to family and friends. Show it off with pride as it is thanks to the hard work of TOSSI members and supporters that we have what we currently enjoy.

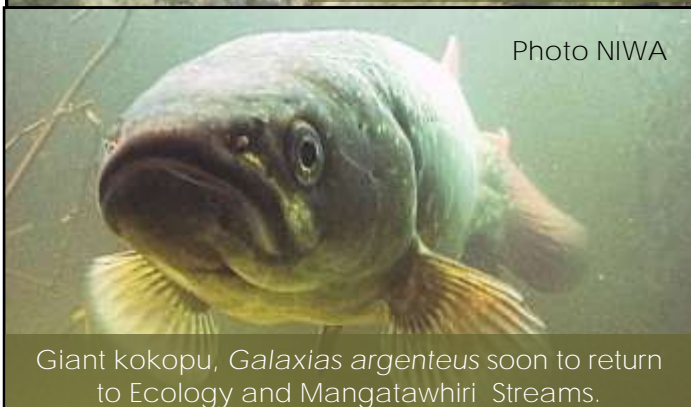
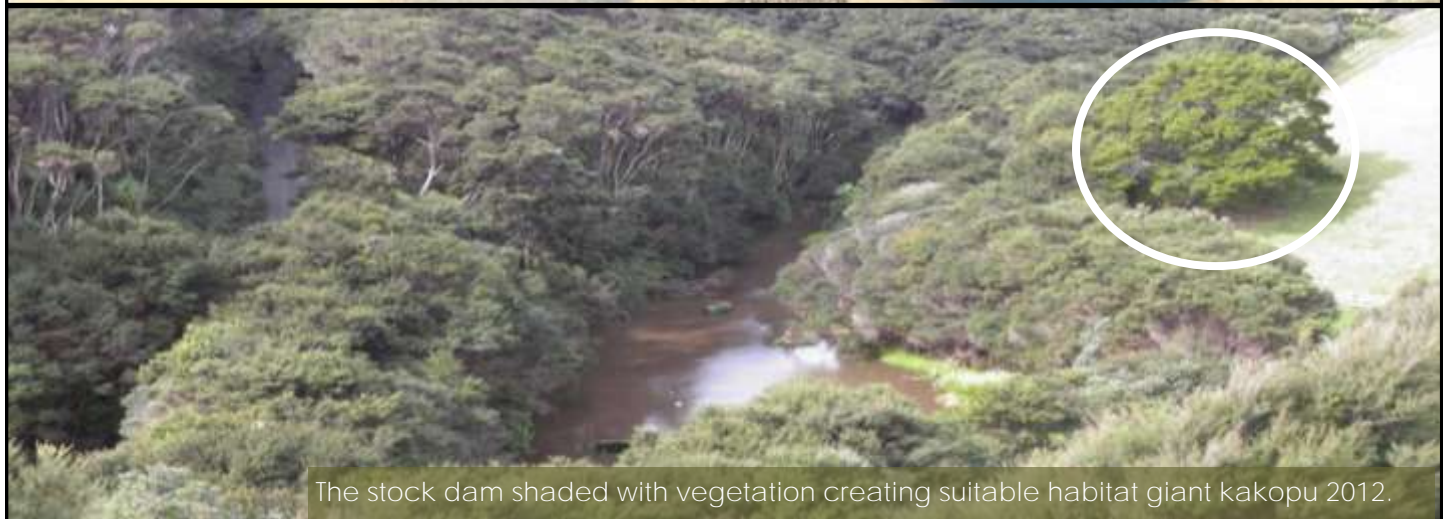
Matt Maitland I can be contacted at [matt.maitland@aucklandcouncil.govt.nz](mailto:matt.maitland@aucklandcouncil.govt.nz) or 09 426 1200



Photo Keith Edwards



# Potential habitat for giant kokopu



## Giant kokopu returning to Tawharanui

With a little bit of help from Tawharanui planting volunteers, Ecology Stream Dam atones for the past. **Farm ponds constructed in streams (online ponds) can have pervasive impacts on a stream's ecology at a range of levels.** The stock water pond created in Ecology Stream in 1987 is no exception. Giant kokopu used to occupy Ecology Stream, but disappeared from the catchment soon after the dam was constructed. Now twenty five years after their disappearance, Auckland Council are preparing to reintroduce giant kokopu into **this and into another of Tawharanui Regional Park stream's.**

Giant kokopu (*Galaxias argenteus*), the largest of the kokopu species, is regarded as a nationally threatened species and its rarity led to the DoC introducing whitebait fishing regulations aimed at reducing exploitation of giant kokopu whitebait in the fishery (Bonnett et. al. 2002).

In part recognition of the decline of giant kokopu and other threatened freshwater native fish species in the Auckland Region, Auckland Council has formulated priority actions for species needing management to be viable in fifty years time. On an individual species level, this includes assessing the applicability and feasibility of reintroducing endangered species into previously vacated home ranges in an effort to build resilience in the population. **Opportunities to 'piggy back' restoration efforts for freshwater species on existing terrestrial species recovery programs on Auckland Council administered parkland such as Tawharanui holds certain appeal,** particularly where this may result in flow-on benefits for freshwater species.

But to do be certain of success, we have to be sure that the target streams are entirely suitable for giant kokopu. The Ecology Stream dam was installed at a time when the negative impacts from online ponds on **downstream environments were less well known.** Online dams such as Ecology Stream's can create many issues for native fish, most notably impacts on habitat and water quality and on fish passage. Because of their openness and high exposure to sunlight, conventional stock water ponds often become super heated in summer. Pond temperatures may increase by up to six degrees above normal summer maxima which themselves may already be marginal for native fish communities. As well as creating marginal in-pond habitat for native fish and aquatic invertebrate species, temperature affects generally also extend well downstream of a pond's footprint. Ecology Stream's original dam setting was an open pastoral landscape, and one in which the dam received little shade. Despite this, the proposal to return Giant Kokopu to Tawharanui's Ecology Stream is focussing not so much on the stream but on the dam itself. Whether by design or coincidence, the farm pond was configured in a way that would later lead to improvements in habitat quality thanks to a large dollop of help from planting volunteers. For one, the pond is relatively narrow and in the intervening years, strong growth of pond side plantings have helped shade the dam and increase its habitat potential for giant kokopu. We have Tawharanui's very first planting volunteers to thank for that says Matt Bloxham, from Auckland Council's Biodiversity unit, who is leading the project. Thanks to the plantings, the dam has in effect developed habitat attributes similar to a wetland's, giant kokopu's preferred environment.

Giant kokopu occupy slow moving lotic systems close to the coast. A sit and wait predator, kokopu occupy deep pools with abundant overhanging vegetation and large woody debris which it uses to surprise passing prey items. Overhanging vegetation has re-established around the pond edge and woody debris have begun accumulating on the bed, so the dam has become ever more suitable for giant kokopu habitation.

Native fish such as giant kokopu, long fin eels and banded kokopu (the latter species is still present in Ecology Stream in good numbers) are diadromous, which means they spend part of their life cycle in the ocean, returning to freshwater as juveniles. Although giant kokopu has a predilection for coastal sites, this diadromous species is able to traverse natural barriers as juveniles to reach its preferred upstream habitat. A dam can create a formidable barrier for upstream migrants particularly where unsympathetic dam outlet structures are built. Undersized, perched or vertical culverts (sometimes called drop pipes), used individually or in combination can defeat even the most determined climbing fish species.

Rather than creating an overland flow path for migrating fish, a drop pipe was chosen for the dam outlet in Ecology Stream. It has taken in excess of 25 years for climbing conditions inside the pipe barrel to reach a point where all climbing species could pass over the stand pipe. In this time the inside surface of the drop pipe has become festooned with moisture trapping moss and bryophytes which climbing fish key into as they climb and this allows them to scale even vertical surfaces. Moss might not have developed inside the standing pipe were it not for the fact the dam is relatively narrow and riparian plantings have cast sufficient shade over the standing pipe, which itself is situated close to the dam edge.

A number of obstacles need to be overcome before a self sustaining population of giant kokopu will establish successfully in the pond and there will be many lessons learnt along the way. However what is encouraging is that while online ponds are potentially very disruptive to stream environments, the habitat potential of narrow ponds may be significantly improved with judicious planting and shading. Matt Bloxham AC Biodiversity



## Queens Birthday Planting Weekend 2 and 3 June



200 volunteers gathered over the weekend to plant the slopes at Anchor Bay behind the Sanctuary Info Hut.



Nursery volunteers Ray Blackburn and Colin Sargent planting some of the trees they have carefully nurtured.

## Planting Sunday 5 July



The steep hillside planting on the south coast.



Austin Pucket and his cousin eye the sausages.



Volunteers enjoy lunch on the south coast.





The planting area, stretching from behind the Sanctuary Hut around towards the dam, is completed.



Christine Brockes, a dedicated TOSSI nursery volunteer, sees the plants safely into the ground.



Alison Stanes TOSSI newsletter editor, (with new knees) and twin sister Heather Smith, resting on the plant day!



Prize certificates were hidden in plants. Vinod Insan and Bharpur Insan are presented with prizes by Steve Palmer and James Ross for planting the 999,998th and 999,999th plants grown from local seed and nurtured in the TOSSI Nursery.



Kara Stones is presented a prize by Mathew Vujcich Principal Senior Ranger from the Northern Sector, for planting the 100,000th plant.



## Sunday in the Park with TOSSI and this year's Planting Season

When the winter rains arrive, the TOSSI volunteers come out in force to plant the 20,000 specimens produced each year in the TOSSI nursery at Tawharanui. The 2012 effort saw the 100,000<sup>th</sup> seedling planted. Each of the four principal days this season attracted well over 100 participants and two areas, Anchor Bay and the South Coast, were well covered with potential new habitat for our increasing bird population. Among the groups represented were International Student Volunteers (ISV) from North America, Warkworth Boy Scouts, Oratia Air Scouts, the family of Louise Phillips who came for a memorial tree planting, Korean students, and the Green "S" group which consists of members of the Auckland Indian Community continuing the efforts of the Northern India based environmental activists.

Next year, TOSSI will be without support from ISV and will need to address the continuing depredation of some of our new plantings by the ever present rabbit population. This problem was solved in the nursery by careful fencing off of the outdoor stand-out areas, but this approach may not be practicable in the open fields now being re-vegetated. However a vigorous and sustained plant raising and planting program is a key TOSSI objective and this will continue. Seeds for next year are already into germination and 864 seedlings have been pricked out into the individual growing tubes. Steve Harrison



Korean volunteers have been seen at Tawharanui on two days helping plant trees.



The Auckland Indian Community volunteers helped plant as part of a world conservation effort.

## Removing Bone seed

August and September are months we welcome after the usual wet July. We all look forward to the appearance of kowhai and clematis in the park. However there will be a number of other plants that will be also flowering which are less welcome. Amongst these latter plants is bone seed, *Chrysanthemoides monilifera*. Originally introduced to New Zealand as a garden plant suitable for coastal sites it has now become a significant weed particularly on cliffs and wasteland. The flowering period is a good time to attack the plant as its distinctive yellow flowers make it very recognizable.

Several years ago TOSSI volunteers joined with Park staff in an attempt to control the spread of bone seed. There were significant numbers of quite large specimens that required sawing and treating the stump with Vigilant paste. Smaller plants are easily pulled out. The initial aim of this control was simply to prevent further spread. However over a number of years the result of the combined efforts was such that the possibility of eradication was raised. Complete eradication may not be possible as the seeds are long lived, remaining viable for up to a decade. We do, however, have sufficient control at this time to warrant further work aimed at the more inaccessible plants, which tend to be high on cliffs from where they drop seed to the lower slopes.

Last year the Auckland Council increased the weed budget available to Tawharanui and in response TOSSI offered to match the increase for three years as long as the Council's increased contribution continued. It will be this funding from TOSSI that will this year be used to employ contractors, using ropes, to target difficult to access bone seed plants. We hope this will bring bone seed numbers on the North coast down to very low levels. It is worth pulling out any small bone seed plants that you might see on your walks in the park even as you admire its pretty yellow flower. Steve Palmer





The rare pale flowering kumarahou *Pomaderris*



The more common golden flowering kumarahou, *Pomaderris kumeraho*.

## Native Kumarahou

Rodney locals and visitors may have admired a pretty spring flowering shrub on Takatu roadside or on the cutting near Big Omaha on Leigh Road. The plant is pale flowered kumarahou, *Pomaderris hamiltonii*, and occurs around Warkworth, Great Barrier Island and Kaiaua.

The type specimen was described and named by Lucy Moore, noted botanist and local resident. She named it after the Hamilton family, who were among the earliest settlers in the district. When she consulted William Hamilton (then Director General of the DSIR) about the name Lucy Moore joked that a farming family might not be flattered to have a plant of dry clay slopes named for them but the name, with its local links, was readily accepted.

The plant grows well on open roadside areas where regular weed trimming serendipitously assists its conservation (as noted by Auckland Council ecologist Rebecca Stanley). Long term survival of the species is precarious in these situations which is one reason for attempting to establish the pale flowered kumarahou at Tawharanui where it is likely to have occurred naturally before the area was cleared and farmed.

Plants can be raised from seed which has been soaked in hot water (90 degrees) to aid germination. The seedlings do not respond well to usual nursery conditions and we found that pricking them out into a mix of clay soil and small bark chips was best. We have raised about 100 plants and transplanted them into 10 sites of varying aspect at Tawharanui on clay slopes and bare slip areas. We thought it would be useful to know if seedlings could survive areas accessible to stock but sheep quickly provided a negative answer. To date the best survival has been on the side of the vehicle track leading to the South Coast water tanks from the Ecology Trail. We also plan to try direct seeding on similar areas and hope eventually to establish flowering self seeding populations of this local gem at Tawharanui. Penny Palmer



Unwanted yellow flowering bone seed is to be removed from the cliffs with the help of abseilers.



Marleen Baling was out spotting Geckos when she came upon a NZ praying manits distinguishable by the blue dot under the arm. The imported African praying manits does not have this spot. It is understood that the native praying manits is decreasing and being replaced by the introduced species.

Native Praying Mantis

# Pukeko. Research at Tawharanui- Investigating the Role of the Pukeko's Frontal Shield.

Pukeko are a visually striking bird. While most members of the Rallid family have cryptic colouration, (think of the brown, white and grey of the spotless crane and marsh crane), pukeko are instantly recognizable by their brilliant blue chest plumage and scarlet frontal shield atop their head. My research at Tawharanui investigates why pukeko are so colourful. Specifically, I am focusing on the role of the frontal shield in communication between different individuals. Our previous work suggests that the frontal shield is a 'badge of status'; pukeko show off their frontal shield when challenging an opponent, and dominant pukeko tend to have larger frontal shields than subordinate pukeko. In order to gain further insight into the role of the frontal shield signaling, I am performing an experiment where I will manipulate the apparent size of the frontal shield in some Tawharanui pukeko. Some pukeko will receive a treatment where part of their shield will be coloured black so that it appears as if they have a small shield. As a control, some birds will have part of their shield coloured red. After getting their 'make-up', I will be monitoring these pukeko to observe changes in behaviour, dominance status and levels of important hormones. If you are interested to hear more about the experiment, don't hesitate to stop me for a chat, or send me an email at [deycj@mcmaster.ca](mailto:deycj@mcmaster.ca)

I also wanted to mention that it is great to be back at Tawharanui! There are so many interesting and positive things going on at this park and I really appreciate being a (small) part of it. I am very thankful to TOSSI and the park staff (particularly Matt, Colin and Maurice) for making me feel welcome and facilitating my research. If you are interested in the findings from some of my work at Tawharanui in 2010 check out the following articles:

>*The Bird That Cares for Its Rival's Chicks*. New Scientist. [www.newscientist.com/article/dn21514](http://www.newscientist.com/article/dn21514)

>Dey & O'Connor. 2010. Evidence for a lack of egg recognition in the pukeko

(*Porphyrio porphyrio melanotus*: Rallidae). Notornis.

Cody Dey

Pateke. A flock of nine and sometimes together and sometimes split in two flocks, were seen happily accompanying paradise ducks on the stony shores of the lagoon. They were roosting together using the paradise ducks honking as warnings, moving into the lagoon lead by the paradise ducks. From afar the pateke looked like they could have been the juveniles of the adult Paradise ducks!

Pied stilts. Six have returned to Mangatawhiri Stream entrance. They have not been seen since they left immediately after their nests flooded last season. Two are already defending nesting sites used last year.

One is seen below meeting other species on the Tawharanui Lagoon. Alison Stanes



At the lagoon a pied shag looks a little ruffled meeting a pied stilt.



A pied stilt feeds along the edge of the lagoon with a pateke quietly cruising alongside.



A little black shag, a rare visitor to the Tawharanui lagoon, meets a pied stilt.



A male paradise duck overseas a flock of pateke as though they were his own juvenile ducklings!





Back row from left  
David Stone  
Sue Crawshay  
James Ross  
Ray Blackburn  
Ngarie Wallen  
Steve Harrison

Front row from left  
Patte Williams  
Steve Palmer  
Alison Stanes

TOSSI says thank you to Sharon Kast and Joe Crandle for years of energy contributed to projects while on the TOSSI committee.

### TOSSI Committee

Chair	Steve Palmer	09 422 6441
Vice Chair	James Ross	09 422 6760
Secretary	David Stone	09 528 5712
Treasurer	Ngaire Wallen	09 627 1526
Editor	Alison Stanes	09 524 0291
	Sue Crawshay	09 534 0414
	Steve Harrison	09 425 8500
	Patte Williams	09 425 9127
	Ray Blackburn	09 425 4995

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P.O Box 112 Matakana 0948

Email [secretary@tossi.org.nz](mailto:secretary@tossi.org.nz)  
Website: [www.TOSSI.org.nz](http://www.TOSSI.org.nz)

### Application form for NEW MEMBERS Tawharanui Open Sanctuary

Name(s): \_\_\_\_\_

Address: \_\_\_\_\_

Phone No. \_\_\_\_\_

E-Mail \_\_\_\_\_

Occupation \_\_\_\_\_

How did you hear about TOSSI?

Please tick how you would like to help:

- |  |   |
|--|---|
| <input type="checkbox"/> Planting/workdays         | <input type="checkbox"/> Bird Counts    |
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| <input type="checkbox"/> Monitoring Pests          | <input type="checkbox"/> Nursery        |
| <input type="checkbox"/> Predator fence monitoring |   |
| <input type="checkbox"/> Environmental educational |   |
| <input type="checkbox"/> Publicity/promotion       |   |
| <input type="checkbox"/> Art in the Woolshed       |   |
| <input type="checkbox"/> Other _____               |   |

Membership fee:

\$20 single membership \$ \_\_\_\_\_

\$30 Family membership \$ \_\_\_\_\_

Additional contribution (optional) \$ \_\_\_\_\_

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Address: \_\_\_\_\_

Amount of Gift membership(as above)\$ \_\_\_\_\_

Total amount enclosed \$ \_\_\_\_\_

Please make cheques payable to Tawharanui Open Sanctuary Society Inc. and return the completed form to:

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P.O.Box 112  
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The Pukeko Challenge, Anchor Bay 15 August 2012



The Challenge ended with a truce



Photos Alison Stanes