

The Tautari Wetland After Ten Years

Maungatautari comprises over 3,000 hectares of high-quality podocarp broadleaf forest in the central Waikato. It is now totally free of all introduced mammalian pests except mice, and its several altitudinal vegetation zones provide a range of habitats for many species of wildlife, including quite a number that are yet to be reintroduced. That in itself is extraordinary! But, apart from the many small forested streams, wetlands were not represented within the original boundary. So as the main fence was being built, Tao (Ted) and Carol Tauroa offered to make a 2.5-hectare gully with a half-hectare pond on their adjacent farmland available to the project. It was duly fenced off as a discrete sub-enclosure, and (unlike the main mountain but similar to the three other sub-enclosures) all pests including mice were removed. So the project now included a wetland, duly named Tautari. This essay describes how it has changed after its first decade of management, and discusses some possibilities for the future.

Best use

The gully was mainly rough pasture with a small patch of bush. A stream feeds into the pond, which has an outlet through a man-made dam. There was much discussion about its best use for the project, and following advice from both the Takahe and the Tuatara Recovery Groups, it was deemed to be a good display site for both of those species, as part of their reintroduction programmes to the mountain. Similar discussions have also been held with the Pateke (brown teal) Recovery Group, but progress has been somewhat slower with them.

The Tuatarium

Problem; takahe are known to eat lizards, and would no doubt do the same with juvenile tuatara – so we had to separate them in some way. Solution; a ‘Tuatarium’ (a name my wife Robin and I had used for our similar structure on Little Barrier Island). We chose the sunniest spot we could, on a reasonably workable slope, marked out an area of about 900 square metres – and Craig & Lance with many volunteers then built the Tuatarium fence, which is tuatara-proof on the inside (to obviously keep them in) and takahe-proof on the outside (to keep them out). Tuatara could potentially dig out, and the original plan included installing pitfall traps hard against the fence to trap tuatara hatchlings so they could be transferred to join the mountain population – so rather than a horizontal netting skirt at the base like the main fence, this fence has a buried vertical netting skirt, and that seems to be working.

Planting

Selwyn Mackinder (a trust board member at the time) invited Xanthe White (a well-known gardening writer and award-winning landscape architect) to visit and provide planting advice, and Karen Denyer (at the time an ecologist with EW) accompanied us on that inspection. A planting plan was developed, and (with some modifications) that has been implemented. Several truck-loads of wood chips were spread in the Tuatarium to create a mulch layer to help plants establish and to generate invertebrates for tuatara-food. Pat Williams and Bryan & Nanette Jenkin with their teams of volunteers have since done much planting and aftercare for wildlife habitat and aesthetics, and the current vegetative cover has developed surprisingly quickly. Rod Millar and other volunteers have controlled weeds like blackberry and willow.

Takahe

Our first pair of takahe were released there in 2006. They produced eggs in each of the following three breeding seasons, but none were successful. We suspected their somewhat heavier-than-ideal weight was possibly the reason (the volunteer caregivers at the time were a bit over-generous with the pellet feeding) – so the regime was duly changed to only feeding them enough to keep them habituated to the feeder for management purposes (there is ample natural food available), and they immediately produced their first chick in the 2009/10 breeding season. They subsequently produced chicks in nearly every breeding season until they were retired to a ‘display’ site elsewhere. There is now a new pair in there, which have also bred. Matthew Lark tells me that their recent weights and breeding outcomes might suggest that changes to pasture cover (e.g. weed encroachment) might be adversely affecting them, and some management might be required to address that.

Tuatara

After six years of difficult and protracted negotiations, 50 tuatara were finally reintroduced to Maungatautari in 2012. Twenty were released into the Tuatarium, primarily for display purposes, with the remaining 30 being released on the mountain to form the basis of a wild population. Our approved proposal was for 60 animals, so to meet that signed-off requirement (and the long-term genetic viability requirements) we still need to get another ten founders. Also, a significant problem for threatened species management in general is population fragmentation (which is why the Takahe Recovery Group regularly remove our young birds to add to other sub-populations, and provide us with new birds – to maximise the genetic potential of the whole population). Our tuatara population is now a ‘fragment’ of the general Cook Strait population,

and in addition to that we have even further fragmented our own embryonic Maungatautari population. So we will at least need to make sure our own two sub-populations operate as one by mixing animals between them, enabling 'normal' gene flow (as is planned for e.g. the kiwi in the sub-enclosures; where birds will be periodically swapped with the main-mountain population).

Our tuatara bred very soon after arrival, as some of the females were already gravid (as expected) when they were translocated from Stephens/Takapourewa Island. And they appear to have mated and bred here since release as well, with young being seen at both release sites. Some seem to use the artificial burrows that were provided, and some have dug their own. I am told that skinks (presumably copper skinks) have been seen in the Tuatarium, and they will be a useful food source for the tuatara. The fact that the skink population is surviving with 20 adult tuatara (top predators) in 900 square metres is interesting, and suggests that any tuatara hatchlings in there might have a chance of evading adults (which enthusiastically eat their own children) – but Robin and I did provide 50 artificial refuges to monitor for hatchlings and provide some protection from such predation. Bryan Jenkin tells me he has seen youngsters in these refuges, but not recently, and one wonders if they did fall prey to adults. If that pattern continues, it might be wise to move youngsters from there to join the mountain population where (a) predatory adults are much less dense, (b) the primary wild population needs boosting more than the display population does, and (c) the genetic potential in the wild population (which so far has only 30 founders) needs to be maximised.

We can certainly assume that tuatara will be successful at some level on Maungatautari, but we can't predict how successful. They need relatively open (sunlit) ground for nesting, as eggs laid in bush nests simply don't hatch. Maungatautari is of course mainly forest, but perhaps there are enough open ridge tops, tree-fall light wells and slip faces to provide good nesting sites. And of course there is the edge around the inside of the fence. Females will travel some distance to find such sites. Although their relationship with mice here is yet to be discovered, it has the potential to become the largest population of Cook Strait tuatara anywhere in terms of area occupied (and MEIT still intend to eradicate mice when that becomes possible) – and that makes its genetic foundation pretty important.

Kokopu

In 2007 the late Chas Mitchell provided some giant and banded kokopu from his Raglan whitebait farm, and they were released into the southern enclosure stream and the Tautari Wetland pond. Subsequent monitoring showed that both survived for some time afterwards, but no breeding has been proven (although an apparently gravid banded kokopu was observed in the southern enclosure). John Polstra (volunteer) undertook monitoring every six months for some years following, and in 2012 he observed several kokopu in the pond, one being at least 300mm long and another 400mm – i.e. these had to be adult giant kokopu. They are stunningly beautiful fish, and could be quite an attraction for guided night-walkers. It is possible that they could breed in the marshy head of the pond and the feeder stream, and juveniles ('whitebait') could get through the upper grill and into the stream on the main mountain. Further monitoring could reveal if this is happening.

Other wildlife

Some years ago a pair of dabchick arrived on the pond and looked very much like they were preparing to breed there. Then there was only one, and a patch of feathers on the bank suggested a harrier or falcon had taken the other. The remaining bird then disappeared, and none have been reported there since. But dabchicks are mobile and other pairs could arrive and attempt to breed there in future

A few years ago I was visiting the Tuatarium and heard a spotless crake call from the edge of the pond below. On the mainland this species is secretive and lives in dense wetland vegetation, but on some pest-free islands it is a forest-dwelling species and can be quite tolerant of human presence. Maungatautari (especially the mouse-free sub-enclosures) might be similar enough to a pest-free island for this species to operate there in island mode, and it is on our list of species that might possibly reintroduce themselves (along with fernbirds; both these species can live in forest and are more mobile than they appear). I haven't heard them again, but there's plenty of time.

The changes

Last Sunday (17th) Robin and I visited the Tautari Wetland, to just wander around and observe the changes. The takahe family were in their usual place above the Tuatarium and bush patch, looking very much at home. The plantings have mostly done extraordinarily well. The stream between the pond and the top fence used to be treeless and almost completely choked with weed growth, and our plan included planting shrubs and small trees densely along its banks to shade the weeds out, cool the water, and make it generally more suitable for kokopu – and easier for visitors to see them at night. That has been achieved along much of its length, and more of the same will definitely improve it further. Swamp maire could be considered for the edges of the marshy delta where the stream enters the pond – it produces both flowers

(useful for nectivores) and fruit (great for fruit-eating birds) through much of the year. The small bush patch includes a mature kamahi that obviously flowered well last summer, and it actually still had some open flowers – valuable especially for bellbirds. There is also a mature hinau, which was carrying the heaviest crop of large fruit that I have ever seen on this species anywhere – still unripe, but in winter kereru will gorge on them, kaka will crack them open for the seed kernel, and even kiwi will eat the fallen fruit on the ground (that was discovered in the 1970s in Northland from gut analysis of road and dog-killed birds). It must have been spectacular when in flower last summer, and tui and bellbirds would have been visiting the dense clusters of large apple-blossom flowers. Much karamu (*Coprosma robusta*) has been planted, and there were female plants everywhere with heavy berry crops – it is one of the best species of all for feeding birds from late summer and well into winter. The whole area was alive with tui and bellbirds and even a kereru was feeding on it, and the Tuatarium boardwalk and fence rails were plastered with bird droppings loaded with its small coffee-bean seeds (it is related to coffee).

We saw one tuatara, looking very healthy. Prolific shrub growth now obscures some sight lines for observing tuatara, and also views of e.g. the pond from the platform. This is great for bird habitat, and we appreciated that on the day. It is perhaps not so good for tuatara which like to sunbath, and need to lay their eggs in sun-warmed ground. Some more open ground remains on the higher parts, and that might be sufficient if kept open.

Overall, the Tautari Wetland is hardly recognisable from when it was just rough farmland. Saddleback have been seen in there, but Bryan Jenkin's trial nest boxes in the bush patch have not yet been used. Species like whiteheads and tomtits are likely to expand into there and breed. Giant kokopu could significantly add to a night-walk experience with tuatara, and we might get brown teal in there one day (they are quite active at night). The two non-breeding kiwi currently in there could add to a night experience, and the pond is sure to be a prime feeding area for long tailed bats. This wetland project is already quite remarkable, and it can only get better.

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