Number 45
June 2002

RARE BITS

THE NEWSLETTER ABOUT THREATENED SPECIES WORK

Contents

FEATURE ARTICLE

1080, CEREAL BAITS AND TOMTITS

From Ralph Powlesland, Ian Westbrooke (Science and Research Unit) & Nic Etheridge (Tongariro/Taupo Conservancy)

The tomtit is one of the most vulnerable forest birds to aerial 1080 possum poisoning operations. However, the impact of such operations using cereal baits on tomtits has been inconsistent. Dead tomtits were found after an application of Wanganui No. 7 baits (5 kg/ha, 0.15% w/w 1080) in the Hunua Ranges in June 1994. In contrast, none of 14 colour-banded tomtits and no dead unbanded tomtits were found following an application of Wanganui No. 7 baits (5 kg/ha, 0.10% w/w 1080, 6 g baits) in Pureora Forest in August 1998. Thus, when funding became available to monitor tomtit mortality during another aerial 1080 cereal-bait operation that was being organised by the Tongariro/Taupo Conservancy, we were keen to take full advantage of the opportunity.

One objective of the study was to obtain further information on the level of mortality of colour-banded tomtits during the cereal-bait operation. In addition, because of the high cost of capturing and banding tomtits, a second objective was to determine the suitability of using distance sampling and transect territory counts as alternative methods of monitoring tomtit populations during 1080 operations. The study took place in Tongariro Forest during winter-spring 2001. We had three study sites: one non-treatment and two treatment. Male tomtits were captured and colour-banded in the non-treatment and one of the treatment sites. In addition, 20 transects in each site were marked out, each transect being 250m long with a gap of 100m between successive transects. This was a sufficient number of transects per site to obtain the necessary minimum of 50 detections per sampling effort for distance sampling. Also, because transects were marked with numbered tapes at 50m intervals along their lengths, they provided a means of estimating the number of territorial males present along each.

Two kg/ha of non-toxic prefeed cereal baits were aerially distributed over the 19,980 ha operational area on 13 and 14 September 2001, except for c.600 ha of water-supply catchment which was ground treated. On 19 September, the toxic cereal baits (3 kg/ha, 0.15% w/w 1080, 12 g baits) were distributed. The pre-operational RTC for possums was 6% + 1.5%, and the post-operational result was zero for the area

where the baits were distributed aerially.

Table 1: Summary of results for the three methods of measuring the impact of the possum poison operation on tomtits, with 95% upper confidence bound

Method	Point estimate	95% upper confidence bound
Banding	7%	28%
Distance sampling	3%	36%
Territory occupancy	2%	8%

There were 15 banded tomtits (not trained to approach observers for a food reward) in the non-treatment and 1 treatment study site. Post-operational monitoring resulted in 15 being seen in the non-treatment site, and 14 in the other. Thus, 6.7% of the banded tomtits disappeared, possibly as a result of poisoning, during the operation. Statistical analysis shows that there would not have been a loss of greater than 28% of tomtits (Table 1). From the distance sampling data, we estimate that there was a reduction in density of the tomtit population by 3%, and a statistical analysis shows that the maximum reduction would have been 36% (Table 1). A comparison of results for the pre- and post-operational territory counts shows little change, with 38 of 60 transects exhibiting no change, and none changed by more than 1. Overall, the pre-treatment average number of territories per transect was 2.37. The post-treatment result indicates that the loss of tomtits would not have been greater than 0.2 per transect, which is a maximum of 8% of the average transect count (Table 1).

These results show clearly that the tomtit population in the Tongariro Forest study sites suffered little, if any, mortality during the 2001 1080 cereal-bait operation. This is in contrast to two results for carrot-bait operations at Pureora in 1996 (15 kg/ha, 0.08% w/w 1080) and 1997 (10 kg/ha, 0.08% w/w 1080) when 100% (n = 5 colour-banded tomtits) and 79% (n = 14 colour-banded) of tomtits disappeared respectively. Thus, our study provides evidence that cereal-bait operations with low sowing rates have little, if any, immediate negative impact on tomtit populations, and should be taken into account when planning aerial 1080 operations. The gap in our knowledge is whether 1080 carrot-bait operations at low sowing rates (2-3 kg/ha), now commonly used, would also have a minimal impact on tomtit populations. This would best be filled by paired comparisons of cereal- and carrot-bait trials in a series of field operations.

CONSERVANCY NEWS

NORTHLAND

From Lisa Forester, Nick Conrad, Adrian Walker, Steve McManus, Andrea Booth, Richard Parrish, Emma Neill, Katrina Hansen.

Coprosma spathulata aff. *hikurana*

In 2001 Peter de Lange and Peter Heenan[1] named *Coprosma spathulata* aff. *hikuruana*, a new subspecies restricted to the serpentinised zone at North Cape. Only around 50 adult

[1] NZ Journal of Botany:39(2) 217-223

plants and no seedlings were ever recorded. A recent survey has found 73 plants, including 9 seedlings and 2 juveniles, so it appears that recruitment is less of a concern.

Atriplex hollowayi

Caring for around 70 plants of the annual herb Holloway's crystalwort (*Atriplex hollowayi*) on Far North Beaches has hopefully enhanced the seedbank this year. The plant is now so restricted and in such low numbers that stock, wild horses, and chance summer easterly storms are an extreme threat to its survival. Te Paki staff have had a summer-long struggle trying to erect horse-proof temporary fences. A calm summer and vigilance by staff paid dividends with a good seedset. One hundred and fifty nursery-grown plants were planted out but few survived. Planting methods will be reviewed next year.

Davallia

Annual monitoring of *Davallia* at Onekura Bluffs in Puketi Forest is complete, with an increase recorded in frond densities. A full 10 year resurvey is programmed for 2003.

Dactylanthus

The Puketi forest Dactylanthus site was visited in early April when the majority of the caged plots appeared to have new bud development with no evidence of disturbance. Old seed set was still observable. By early May, half the plants had flowers and buds at different stages of development. Some of the flowers had been partly eaten, and some buds had been totally eaten.

Te Paki pupuharakeke

Five colonies of the Te Paki pupuharakeke (flax snail) are being managed for rodents by a trapping operation. Each operation is over a 150m diameter circle containing 57 trapping tunnels with two rat traps per tunnel, and four mouse traps. Tunnels are 25m apart on a 50m grid. Indexing is done every three months to check the impact on rodent numbers in the trapping site. Trapping has been carried out for three months now, and indexing is now due. This operation is new to the Department, and everyone is very keen to see what impact it has on the rodent population.

Puketi Kokako

In mid March, two adult male kokako were caught in Puketi Forest and each has joined a hand-reared juvenile female kokako being held at Auckland and Hamilton Zoos. The new pairs have settled in and are doing well. Advice will be sought from the Recovery Group about the safe placement of any offspring from these pairs. Sites identified as potential options are; Hen Island, Motukawanui Island, and Puketi Forest in descending order of priority.

Short jawed kokopu

Short jawed kokopu have been located in Puketi Forest, Mangamuka Gorge, and Herekino Forest. All are new site records for this species.

Pateke/Brown Teal

At Mimiwhangata Coastal Park, the managed pateke population are on the verge of another breeding season. Transmittered females (n=29) will be

followed through the breeding season and nesting attempts, hatching rates, and duckling survival at fledging time monitored. Survival rates of all transmittered birds (n=38) will be an outcome measure of intensive predator control. The trapping regime was extended over the past year with adjacent landowners agreeing to predator control on their land. The number of pateke recorded during the annual flock count was 197, roughly double that recorded in 2000. This is an encouraging response, which may be attributed to current management practises.

Robust skink/Matapia gecko

Thirty robust skinks and 41 Matapia Island geckos were transferred from Matapia Island to Motuopao Island in 1997. Monitoring was carried out in March 2002, nearly 5 years later. Three robust skinks were caught over 80 trapnights. Two were adults from the original release and the other is a juvenile born on the island. No Matapia Island geckos were seen from 2.5 hours spotlighting. This is not surprising as we have had very little success spotlighting for Pacific geckos on Lady Alice Island. We will now try using artificial 'gecko homes' (sunken pitfall traps filled with rocks).

Fairy terns

New Zealand fairy terns had the most productive season on record with a total of eight chicks fledged (six in Northland and two in Auckland). To maximise productivity, eggs were swapped between nests at Papakanui Spit in the Auckland Conservancy and the two Northland Conservancy sites of Mangawhai and Waipu. Katrina Hansen of the Whangarei Area Office coordinated a hectic summer cross-fostering eggs between and within the three breeding areas. Auckland zoo provided incubation facilities for the eggs. The end result was three fledglings at Waipu, three at Mangawhai and two at Papakanui Spit

AUCKLAND

From Jonathan Boow and Rosalie Stamp

Kakabeak

Recent monitoring of kakabeak (*Clianthus puniceus*) on Moturemu Island has revealed that only five of the original individuals planted in August 2001 have survived. Unfortunately the surviving plants were in poor health, being subject to some form of insect attack.

Foliage samples were therefore sent to Roger Crabtree, a diagnostic entomologist at Forest Research. The analysis showed that plants had a significant amount of fungal growth, although no pathogenic fungi were detected. There were also at least three types of insect attack: leaf mines caused by the fly *Liriomyza clianthi*; a silvering effect probably caused by thrips; and chewing by some other unknown insect. Roger suggested that these attacks may be due to an underlying cause rather than being the cause of poor health. Stress from drying or root damage, increased shading from overgrowing trees, or some other sudden change, may alter the plant's condition and make it more attractive as a food source. Alternatively,

overcrowding of a pest species on some other neighbouring plants may result in a spillover effect. A planting project with more rigorous monitoring is planned, and this will hopefully identify the key causes of decline for kakabeak plantings on Moturemu.

On a brighter note, there are a number of seedlings that have germinated from the natural seedbank on the island. These are in a natural tree gap that has been kept open by trimming back native foliage (pohutukawa and houpara). The seedlings are still small but have survived the summer.

Dotterel count

Over 350 New Zealand dotterel were counted in the Auckland Conservancy in March with most of the counting being carried out by OSNZ.

Frog monitoring

Research into the development of a monitoring technique for Hochstetters frogs has just begun on Great Barrier Island.

Teal transmitterised

Transmitters are currently being fitted to brown teal on Great Barrier Island with great support from Northland Conservancy, so that information on nests and mortality can be investigated.

WAIKATO

From Leigh Marshall and Tertia Thurley

Frogs and Chytrid

Waikato Conservancy has been identified as the lead conservancy for the response to the chytrid fungus currently affecting Archey's frog. Staff have been busy drafting the "Chytrid Fungus Management Plan" which will guide the Department's response nationally. The transfer of Archey's frogs into captivity for safe guarding against chytrid has been delayed and is likely to occur in July. Meanwhile, populations of introduced frogs on the Coromandel have been surveyed for chytrid fungus. No infected frogs or tadpoles were found and the introduced frogs appear to be slowly recovering from crashes two years ago.

Kokako monitoring through an aerial 1080 carrot operation

Kokako in the Mangatutu Ecological Area (one of the 14 Key Sites identified in the Kokako Recovery Plan) are to be monitored during an aerial 1080 carrot operation being undertaken by the Animal Health Board. Survival of kokako through an aerial application of 1080 carrot has only been monitored once before, when all of the monitored kokako survived. The Kokako Recovery Group advised that further operations need to be monitored before carrot can be considered safe for kokako populations. Rachel Lander, Petrina Duncan and Melinda Goudie have begun territory mapping kokako pairs at Mangatutu, which is the first stage of

preparation for the 1080 application due later in the year.

Mahoenui Giant Weta

The Mahoenui Giant weta only have one significant population, which survives in a gorse-covered reserve in the King Country. Over the years the weta have been translocated to various sites in an effort to establish a second population. A recent visit to Maniapoto from Greg Sherley (Principal Regional Scientist, Central Region) back to his old haunt gave the opportunity for Area and Conservancy staff to visit several past release sites, and to reconsider the alternatives for weta monitoring at Mahoenui. Weta were found at one of the four release sites visited, and difficulties of monitoring insects amongst gorse over sometimes steep terrain became apparent once more.

BAY OF PLENTY

From Keith Owen and Paul Cashmore.

New Discoveries - *Alepis flavida*

This mistletoe species was discovered for the first time in the conservancy in March. Two very large plants were spotted on a red beech on a high ridge south of the Lower Matakuhia Hut in the remote Waipunga Forest at southern end of Whirinaki Forest Park. No other *Alepis* plants were noted along this ridge although flowering had long finished. While this species hasn't been found during many recent *Peraxilla* surveys in Whirinaki it is hoped that along with recent *Alepis* discoveries in the adjoining Ureweras further *Alepis* plants will be found in the area.

Tuatara

A census of the introduced tuatara population on Moutohora (Whale Island) took place in February 2002. Thirty-two adults (20 females/12 males) were released there in October 1996 from nearby Moutoki Island. The recent census located 8 adults (25% of the released population) and 3 juveniles. This was the first record of any offspring since the introduction some 5 years ago. None of the adults had transmitters on them so it's not surprising that few adults were found. We feel that most of the adults still survive there, as over the 5 years since release almost every animal has been caught at least once and one of the recently caught animals had not been seen since the release.

Kokako

Mokaihaha Ecological Area

Eighteen pairs are present. In the control area 8 pairs produced 9 chicks in the first year of treatment.

Kaharoa/Onaia

The Kaharoa Kokako Trust reports that there are at least 16 pairs and 1 single present in the managed area.

Manawahe

Jeff Hudson reports that 10 pairs and 4 singles are present plus 10 chicks fledged this year from this privately owned and managed area.

Rotoehu

Laura Molles, a Waikato University researcher has at no cost to DOC recently completed the re-survey of the core area of the Pongakawa E.A for kokako that shows 21 pairs present. This is down from the 1996 census.

Opuiaki E.A

Funds have been secured next year to start on the overdue control of possums and rats to improve health of the forest and fauna (including kokako, kaka and robin) in this key area.

Kiwi

Whakatane

Three adult males and 1 juvenile bird are being monitored at Ohope Scenic Reserve. Forty seven stoats and 10 cats were trapped in the reserve. Both female kiwi released onto Moutohora (Whale I) from the reserve are doing well.

Surveys show kiwi at Waiotane S.R (5 males/3 females) and Awakeri Forest (2 males/1 female).

Whirinaki Forest Park

The kiwi work is progressing well in Tuwatawata E.A and 10 pairs are being monitored. A 1ha predator proof enclosure is being built for release of juveniles.

NZ dotterel

On Matakana Island Bubby Murray reports that we had another very good breeding season (period 3 Sept 2001-28 March 2002) with 39 chicks fledged (from 68 hatchlings) from 34 known pairs. A post breeding census on Tauranga Harbour and Matakana Island in March 2002 recorded 250 birds a record for the harbour. With only 4 banded adults left on Matakana it has become very difficult and frustrating to identify individuals and to determine where the unbanded adults and juveniles go at the end of the breeding season.

Witana Murray reports trapping 50 cats, 21 stoats, 237 possums, 36 rats, 115 mice and 1 dog on the island.

There was a poor outcome from Ohiwa Harbour where only a few juveniles were raised but at Maketu they had a good season with a number of chicks fledging.

Hochstetters Frog

An intensive survey of Otawa Forest revealed one discrete population and two small outliers each with a few frogs. The main population lies very close to an area where a quarry exists, is potentially under threat and will require monitoring.

EAST COAST/HAWKE'S BAY

From Brendon Christensen

Most northern record yet for Hawke's Bay Tree Weta (*Hemideina trewicki*)

During the last six years (1996-2002), members of the Boundary Stream Mainland Island Project (BSMIP) team have found over 30 Hawkes Bay tree weta (*Hemideina trewicki*) within the upper forested slopes of the

Maungaharuru range; within the Boundary Stream Scenic Reserve, and Cashes Bush Scenic Reserve. These records expand the recorded distribution to approx. 32km north from Blowhard Bush at the edge of the Kaweka Forest, previously the most northern record for this species.

The Hawkes Bay tree weta were found in a number of different habitats, including the vegetation types of; Kamahi, Mixed Broad-leaf, Kanuka, and Red Beech forests. The BSMIP tree weta monitoring programme accounted for the majority of observations (25+), with general species observations and the lizard house monitoring programme only finding two Hawkes Bay tree weta in the upper areas of the Boundary Stream Scenic Reserve, and three in the Cashes Bush Scenic Reserve. Only one Hawkes Bay tree weta has been found in the main part of the Boundary Stream Scenic Reserve, and this was found dead on the walking track.

With these Hawkes Bay tree weta populations found on the Maungaharuru range, additional populations may also occur in more northern locations such as the Ahimanawa Range, and the forests at Tataraakina.

WANGANUI

From Nic Peet, Graeme La Cock, Rosemary Miller

Coastal herbfields

The coastal moth *Notoreas* 'Taranaki' appears to be benefiting from work carried out by Jm Clarkson from the Stratford Area Office. Management of the coastal herbfields, where its host plant *Pimelea urvillena* grows, has continued with exhaustive hand weeding occurring. Moths have been found for the first time at one of the managed sites. In general, recruitment of new plants appears to have been good this season. A propagation and planting trial is in its early stages. Plant survival will be monitored and moth use of any new plants assessed.

Of concern in the herbfields, is a low number of observations of the threatened *Crassula peduncularis.* Further attempts will be made to locate this species next summer.

Melicytus drucei

Two plants were found on the main cone at Mt Egmont. This is the first record of the plant from the main cone.

Ranunculus recens

Robyn Smith got to plant out some of the *Ranunculus recens* she'd propagated in a trip to the army country. In all about fifty plants were added at the known site and one other that was also planted last year. The original population is battling, with horse sign through the seepage area. There were hoof prints in the 50 x 50 cm monitoring plot. Most of the plants that were planted out last year have survived, but there was no evidence of propagation from these plants yet.

Snails

Powelliphanta traversi tarauensis.

Recent work by Don Ravine (Palmerston North Area Office) and Liz

Raeburn (contractor) has added greatly to the conservancy's knowledge of the threatened snail *Powelliphanta traversi tarauensis*. Three discrete populations of this snail are known from the headwaters of the Kahuterawa Stream (T24 341 784) and two sites in Wellington Conservancy. Recent work has focussed on improving knowledge of the snail's population and distribution around the first site.

Live snails, empty shells, and shells showing signs of rodent predation were found around Kahuterawa Stream with snails found as low as 220m (previously only recorded between 460-610m). Snails appeared to prefer flatter areas with a covering of leaf litter or areas on slopes where fallen tree fern fronds created a build up of litter. The highest densities of snails were found along the side of a track where deep litter build up occurred and moisture was high from seepage from the slopes above. Snails were commonly found under the cover of parataniwha (a herbaceous perennial).

Searches of bush remnants on a nearby farm, Gordon Kear Forest and in nearby areas of the Tararuas failed to locate further snail populations.

A report has been produced and will be used to help design future monitoring of the snail population and investigations of the impact of introduced predators.

Powelliphanta 'Egmont'

This years work has been aimed at completing transects for the long-term monitoring of this threatened snail – no mean feat in leatherwood scrub. Transects revealed a small number of live snails and empty shells. Data are currently being analysed but numbers appear similar to previous years. One shell showed signs of predation by a mustelid (probably a stoat).

Kiwi declining on Mt Taranaki

Whilst data are still being analysed, 'walk-though' surveys of North Island brown kiwi in Egmont National Park have produced worrying results. Areas known to hold several pairs of birds from previous surveys have revealed only the odd bird. Of key concern was the absence of any birds on the western side of the mountain where 10 km of track were walked with no birds recorded.

Fishy Tales

Two populations of giant kokopu have been located east of Inglewood, with populations being suitable for studying spawning activity. Spawning activity has been regularly monitored. Fishy looking eggs were discovered, but further analysis revealed that they were of slug origin.

Taranaki Regional Council has made great progress in protecting one of the most important mudfish populations in central Taranaki. The small privately owned wetland has been fenced. Weed removal and fringe planting are planned.

WELLINGTON

From Helen Gummer, Aalbert Rebergen, Bruce Dix,

New site for tree daisy *Olearia gardnerii*

Area staff found the critically endangered tree daisy *Olearia gardnerii* at a new site in Wairarapa, in the Tauweru River catchment. Because of the find, the Wairarapa *O. gardnerii* 'population' has jumped from five trees (at four locations) to 20! This is the first site where natural regeneration of the species appears possible. The 15 trees are found on three farms and negotiations with the landowners and farm managers have started to achieve some form of protection. This could range from individual tree protection to legal protection of the habitat.

On one of the farms the first *Coprosma obconica* for the Wairarapa and the second for the North Island was found. Five individuals of this shrub were located in a relatively small area. At the same site were other rare plants including *Pittosporum obcordatum* (third Wairarapa site, 10-20 plants, all but one < 2m tall!) and 30+ *Coprosma pedicellata*. The latter species was also found at a new site near the Wainuioru River (50+ individuals).

Other important Wairarapa discoveries include sites with *Coprosma virescens*, *Teucridium parvifolium* and *Mazus novaezelandiae*. In addition, *Crassula ruamahanga* was found among other turf species on the river bed of the Wainuioru River, near Rocky Hills.

Whale strandings

Wellington Conservancy experienced two strandings of the enigmatic pygmy sperm whale recently. The first was of a mother and calf pair at Waitarere Beach, near Levin. Concerned locals re-floated the metre-long calf, not realising that it was dependent on its mother. The calf came ashore again nearby, dead, a day later. The mother was in very poor condition and died on the beach before she could be euthanased. Her condition prompted Massey University's director of wildlife health to speculate on the possible cause of her starvation. She was also pregnant with a foetus in its first trimester of development, which is interesting from the point of view of population modelling.

The second stranding occurred near Te Kopi, in Palliser Bay, four days later. This animal also was alive when it came ashore and was re-floated by locals, without assessment. It too washed up dead a day later, not far from its original stranding site. The cause of this whale's demise was less clear-cut as it was in better condition than the earlier one.

This trend of re-floating sick whales prompted the conservancy to issue a press release, asking the public to wait until the Department had assessed stranded animals before rescue was contemplated.

Karori Wildlife Sanctuary Trust update

A team from the KWST spent up to a week on Kapiti Island mist-netting passerines for transfer to the Sanctuary in Wellington in May. Thirty bellbirds, 36 North Island robins and 30

whiteheads were released at the sanctuary to boost the numbers transferred last year. Eight North Island tomtits were also moved, although additional females will be required to balance the sex ratio of this species at Karori.

The bellbirds and whiteheads were flocked in aviaries on Kapiti prior to the transfer. Tomtits were held in single sex enclosures, whilst robins were caught on the day preceding the transfer and housed directly in the single compartments of transport boxes.

Tomtits and robins were released directly into the sanctuary on arrival and whiteheads in batches from temporary aviaries. Bellbirds, held in aviaries, were able to become familiar with tui-excluding supplementary feeders. By releasing females first, staff anticipate that these will settle close to the aviary containing the vocal males.

NELSON/MARLBOROUGH

From a large number of busy Nelson/Marlborough biodiversity staff

Lepidium banksii

Monitoring of peppercress survival was monitiored on two small islands, where it was introduced, in the Moutere Inlet. Its continued survival was surprising as recruitment has been very poor and weed competition severe. This perennial herb seems capable of surviving for several years once established.

Olearia polita

Negotiations with a landowner are progressing well to allow protection of a population of *Olearia polita* in the Wangapeka valley. At this stage it is clear that the landowner will allow us to secure this population, the final form that this will take is yet to be confirmed.

Hebe Speciosa

The only known colony in the South Island is at Titrangi in the Outer Sounds. This population was monitored in May andconfirmed that the decline is stabilizing at around 22 adults, with one loss over the last four years. Last year's drought, caused severe die-back but was not responsible for any deaths. There are numerous seedlings but there has been no recruitment into the adult population in recent years. Plant material was collected to ascertain the relatedness of this population to the North Island plants and hence whether it is native to the site. The outcome will determine the nature of our management of the species here.

Lepidium oleraceum

The population of Cooks scurvy grass on Haystack Island in the outer Pelorus Sound has had a surprise recovery from last year's drought. Despite 80% of the 60-strong population appearing dead a year ago, 30 are now producing healthy growth from basal stems, indicating an excellent ability to recover from extreme conditions.

South Marlborough threatened plants

A survey of the lower Awatere River terrace/cliffs failed to find any further *Carmichaelia vexillata* plants but did find another previously unknown *Muehlenbeckia astonii*. Monitoring of *Carmichaelia stevensonii* plantings in the Avon Valley showed low mortality in the last three years and good growth on many plants with a few showing remains of flowers.

The South Marlborough Threatened Plant Field Guide (85 species) has been printed, and preparations are underway for a launch on 30 August.

Kiwaia sp.

A survey of the Rarangi foreshore *Raoulia* mats failed to find any of the Cloudy Bay mat daisy jumper, *Kiwaia* sp. cf. *jeanae*. This is the second year we have failed to detect any of these flightless moths which are known from this site only. Their habitat was severely affected by the big drought of 2000/2001 and we are unsure whether the species has survived.

Galaxias argenteus

Two giant kokopu have recently been discovered in a small spring fed drain in Marlborough. This is exciting news as there are only a handful of records for this species from the east coast South Island - primarily as a result of the extensive drainage and modification of lowland freshwater habitats. Its also exciting as the fish are hanging on in a small modified drain and the potential exists for better managing such habitats to allow populations to increase.

Blue duck

A local community group calling themselves the Friends of Flora have completed their first season of stoat control along 8km of the Flora Stream with the intention of protecting all forest bird species with particular emphasis on blue duck. So far they have accounted for 17 stoats and a cat - a very unlucky cat. With a decreasing distribution of blue duck in the conservancy and, in the light of the Fiordland experience with stoat control, we are looking at possibilities for intensive site management to complement this work and ensure a future for whio, at least within Kahurangi National Park.

CANTERBURY

From Michelle Howard and Jack Van Hal

Hurunui Mainland Island Orange-Fronted Parakeets

Orange-fronted parakeets and yellow-crowned parakeets were monitored on a comparative basis as part of the orange-fronted parakeet recovery plan. By monitoring both species some answers to the question of why yellow-crowned parakeets are faring better then orange-fronted parakeets can be gained. The orange-fronted parakeet has recently been reclassified from a Category 2 specie to Category 1 – nationally critical.

In early June the orange-fronted parakeet team finished monitoring in the South Branch Hurunui valley for the 2001/2002 breeding season. They have

now returned to the city to over winter and relish the luxuries of home and office life and also to take leave (essential) prior to setting out for the next season beginning in October this year.

The results of the 2001/2002 parakeet breeding season were fairly positive. The monitored orange-fronted and yellow-crowned parakeet pairs attempted to raise two broods. Results show that the first nesting attempt produced both orange-fronted and yellow-crowned parakeet fledglings in March, the second attempt produced only yellow-crowned parakeet fledglings in May. The orange-fronted parakeet pair was successful in fledging seven chicks from their first nest but unfortunately the second nest was abandoned – it contained five late development stage eggs. The cause of the abandonment is not known and the pair did not appear to nest again.

There were two individual orange-fronted parakeets monitored. These two either did not breed or kept the whole affair well hidden - which this species can easily manage much to the frustration of the monitoring team, as neither partners or nests were seen.

Further observations in the valley have indicated that breeding has now finished and the parakeets are starting to flock for the winter period. Breeding behaviour may resume again in Spring. It is hoped that recruitment from this season's fledglings will provide a greater number of pairs for monitoring and more information regarding the breeding ecology of our very rare orange-fronted parakeet.

WEST COAST

From Chris Rickard, Dave Eastwood

Rowi

We have finally finished the 2001/02 rowi breeding season with the last chick detected in late May. It has been a mixed year with 55 eggs detected from the 48 adult pairs monitored. We have had relatively low hatching success with just 24 chicks observed to hatch. 20 of these chicks had transmitters fitted and were monitored for survival (four vanished prior to fitting transmitters). Six of the chicks are still alive and doing well in the wild. Three are well past the 1000g mark and three are nearing it. This represents the first significant natural recruitment since the program began in the early 1990s and represents a major turning point for the program. It is an indicator that the stoat control program, which has removed in excess of 540 stoats from the 10,000ha area, is at least partially successful. While this is a great start we are certainly hoping for greater things in the future. Stoats were implicated in at least 12 of the 14 kiwi chick deaths that occurred this year. It is hoped that as the program goes on stoat numbers will continue to lower as trapping techniques are fine tuned we are hopeful that with time we may be able to increase the kiwi chick survival rate to in excess of 50%. We are nearing the end of the massive job of changing in excess of 120 kiwi transmitters and readying ourselves for the next breeding season. The first eggs are due within the next month or so and so the cycle begins again.....

Blue duck

A study was conducted over the summer to see to what extent white-water recreational use of West Coast rivers (by kayaks and rafts) might be having on blue duck. Ducks were located in the mornings and followed all day. Their daily behaviour revolved around feeding in the early morning, resting, often out of the sun under the cover of large boulders, between about 9am to 5pm, and late afternoon feeding which continued until after darkness.

River users were not present on every river every day, but the more popular rivers were being used 2 or 3 times every week with kayaking more popular than rafting. Helicopters were used for access, with the first flights typically arriving at the launch-point from mid morning onwards. Down river trips took about 4-5 hours to complete, with most craft off the river by late afternoon.

Because the peak kayaking time coincided with the peak duck resting time, less than expected kayak/ duck interactions were observed. This may be good news for the ducks. However 2 boat passes out of 28 observed passes resulted in minor disturbance. One duck was disturbed by a raft which pulled into the river bank, even though the rafters never saw the duck either before or after they landed, and one pair of ducks were briefly disturbed when a raft passed about 15 metres from the river bank where they were standing. In addition one pair of ducks were briefly disturbed by a low-flying helicopter. These events did not disturb the ducks for more than a few minutes and did not displace them by more than about 10 metres in distance. The ducks resumed their former activity as soon as the craft had left, usually after a short preen.

One territorial dispute was also observed. This was a source of major stress for the birds, with lots of whistling and flying which continued for over 5 minutes.

This study will be repeated next spring when there are young ducklings on the river, and the potential effects of disturbance on family groups and survival are greater.

OTAGO

From John Barkla and Bruce Mckinlay

Hebe cupressoides

Several new sites for the 'Nationally Vulnerable' shrub *Hebe cupressoides* have been found over the summer through tenure review inspections and following up possible sightings. This has filled a few gaps in its distribution and follows the discovery of several new sites in the Mackenzie Basin. While most sites are small and relictual, they are helping to better define the ecological niche of this plant.

Sigaus childii

Trudy Murdoch of Central Otago area has completed the years monitoring of this grasshopper at two sites. The overall trend is one of fluctuating numbers at Crawford Hills and stable numbers at Manorburn.

Hemiandrus "Central Otago" weta

Trudy has also been pitfall trapping this threatened weta at Galloway where it occurs close to threatened inland Lepidiums. Although more were found this year than in previous years, numbers are still very low. A female was found for the first time. Searching of other sites revealed cave weta at Flat Top Hill and Aldinga Conservation Areas but surprisingly no weta from Pisa Flats and Bendigo in the upper Clutha.

Buff weka

Stu Thorne and Bruce McKinlay are continuing to get ready for this translocation which is programmed for the first half of September. Recent tasks have included developing a disease screening protocol.

Taiaroa Head

Bruce has also been looking at an AEE for more intensive rat and rabbit control at Taiaroa Head. This is part of a move by the Conservancy to implement a more comprehensive reserve management programme than has been the case in the past

.SOUTHLAND

From Wynston Cooper and Rosalind Cole

Porpoise Bay Hector's Dolphins

A small group of Hector's dolphins (maximum of 26 in 1995 – 1997) take up residence in Porpoise Bay each summer and autumn. These dolphins are part of a total population of about 50 known off the Catlins coast. It is suspected that this may be an isolated and possibly genetically distinct population.

When in the bay the dolphins spend most of their time in a small area at the southern end. They regularly enter the surf zone, often coming within 10 metres of the shore. This makes the bay unique in that nowhere else are dolphins known to spend so much time so close to shore without having been attracted by being fed by people (Dr Stephen Dawson pers. comm.)

The increasing visitor numbers and attempts to swim with the dolphins off the beach, the establishment of a commercial boat viewing operation, and concern at possible behavioural change amongst the dolphins led the department to initiate a study to determine what effects, if any, then levels of commercial and private activity were having. This was undertaken by Lars Bejder (a Masters student from the University of Otago) over the 1995/96 and 1996/97 summers.

Amongst other things he found that:

- The dolphins showed a preference for a small area inside Porpoise Bay where they spend a high proportion of their time. This area, which is confined by a small reef system and the surf zone at the southern end of the bay, is also the preferred area for recreational swimming.
- The dolphins formed significantly tighter pods when the dolphin-viewing boat was present in the bay.

- The presence of swimmers also increased the probability of dolphins remaining in a tight state.
- There was no evidence that the then level of disturbance was impacting heavily on the dolphins but, considering the importance of Porpoise Bay to the animals, the potential for increased disturbance through an increase of tourism to the area, was cause for concern.
- The then level of impact should be acknowledged as being the cause of the limit of acceptable change. Those disturbance levels should therefore not be exceeded.

Prior to Bejder's research commencing the Southland Conservancy of the Department of Conservation had adopted a conservative approach to the issue of commercial marine mammal viewing permits at Porpoise Bay. The policy adopted was:

- One only Hector's dolphin boat borne viewing permit to be issued.
- No boat borne "swim with" activities permitted.
- No commercial shore based "swim with" operations would be permitted.

As a consequence of Bejder's findings the department initiated a major campaign aimed at informing the public of the sensitive nature of the dolphin population and establishing a set of guidelines for people wishing to swim at the bay. The principal message given in the various information sheets, signs and on-site interpretation panels is that there should be no attempt to approach the dolphins, rather that any encounter should be entirely at the dolphin's discretion.

Visitor numbers to the area have increased markedly from about 10,000 in 1993 to at least 40,000 in 2001, and current trends suggest that numbers could reach 100,000 per annum within another five years. There has also been a significant increase in the number of people trying to have an encounter with the dolphins - a situation encouraged by the word of mouth advertising of "free swimming with dolphins at Porpoise Bay" that is rife within backpacking circles, and the advocacy of such activity through past editions of backpacker magazines and guides such as Lonely Planet. None of this has had any regard to the department's guidelines.

Since Bejder's study there have been fewer dolphins recorded in the bay – a maximum of 10 in 1999/2000, 12 in 2000/2001, and 15 in 2001/2002.

Last year it was recognised that up to date information on the effects on the dolphins of human activities since the guidelines were established was needed to help the department in making its decisions on the renewal of existing commercial operation permits, decisions on any applications for new permits, and in reviewing the guidelines. As a consequence the New Zealand Whale and Dolphin Trust was contracted to study dolphin abundance and movements at Porpoise Bay over the 2001/2002 summer.

The study involved:

- The compilation of a photographic identification database;
- Mark - recapture analysis of the animals photographed to determine population size;
- Theodolite observations from the land overlooking the bay to track

dolphin groups with and without boats and/or swimmers present;
- Analysis of dolphin movement patterns with and without boats and/or swimmers present;
- Comparison with the data collected in the previous study by Lars Bejder.

Field work was completed by mid-March and a report on the effects of tourism on Hector's dolphins at Porpoise Bay, with advice on management options, is due to be completed by 31 May 2002.

The Department has initiated an investigation into the establishment of a marine mammal sanctuary centred on Porpoise Bay. This commenced with a very positive public meeting at Waikawa on 2 May 2002 attended by 100 members of the local community who braved a very wet and stormy night to be there.

ISLAND ROUNDUP

Three Kings Islands

At the Three Kings, the single Tecomanthe vine is growing and spreading out across the canopy vigorously. The single essentially female Pennantia tree also appears healthy and produced more fruit than recorded previously. Twenty-one ripe fruit were planted, and at some sites, the soil was turned over to create a disturbance effect.

Mercury Island Tusked Weta

The most exciting news from the Waikato must be the discovery of a juvenile Mercury Island Tusked Weta (MITW) on Red Mercury Island. MITW were only found on Middle Island, but over the last two years, captive reared MITW from Auckland Zoo have been released on neighbouring Red Mercury and Double Islands. The juvenile found in May is the first sign that MITW are successfully breeding at either site.

Mokoia Island

At the end of the breeding season on Mokoia Island there were 20 birds (5 males, 5 females and 10 fleglings). A decision has been made by the Conservator in consultation with the Mokoia Island Trust, to remove all remaining hihi from Mokoia and transfer them to Kapiti Island. The decision will mean that there is one less island with hihi on it. The reasons for the removal are the lack of an increase in numbers (since released in September 1994), the amount of staff resources needed to sustain their intensive management and the financial input required in managing them. The removal will take place this winter.

Motuora Island

OSNZ have a trip to Motuora coming up to band and record grey faced petrels. A 38 year old grey faced petrel has been found on Tiritiri Matangi Island, originally from Motuora.

Three kiwi have been released on to predator-free Motuora from Northland to grow big and strong before being returned to Northland.

Moturemu Island

Unfortunately, Norway rats have been found on Moturemu Island, which was previously free of them.

Kapiti and Mana Islands

Dave Barker and "Gus", assisted by Brad Edwards and other staff, have been monitoring the progress of brown teal released on both Mana and Kapiti Island. Eighteen birds were located on Mana including a recent brood of ducklings, and nine birds on Kapiti. All birds appeared to be in good condition. Teal are breeding well on Mana's new Waikoko wetland. An unbanded female caught on Kapiti indicates that breeding has occurred here in a previous season. Colour bands and old transmitters were also removed from adults where necessary. The Karori Wildlife Sanctuary is to be surveyed in June.

Stephens Island

To date, 180 adult frogs have been identified and tagged in the frog bank on Stephens Island. The monitoring started in 1997 so accurate figures are now emerging for the number, sex and age of the population under the boardwalks. Now we need to know whether frogs are evenly distributed across the frog bank if we are to get an accurate enough estimate of numbers to make a translocation to another site. Two additional board walks are being constructed to help improve our estimates. The total number of adults may be anywhere between 200 and 900 depending on how it is calculated.

We are looking at methods to allow the population to spread naturally outside the present rock scree/bank, and continuing to look for the ultimate translocation site in the Marlborough Sounds.

Chatham Islands

Chatham petrel transfer

Forty-one Chatham petrel chicks were transferred from natal burrows on South East Island to an artificial colony in a predator-proofed covenant (Caravan Bush) on Pitt Island. Chicks were hand-fed sardine 'smoothies' via a syringe to complete growth and to maintain energy levels until they fledged. All chicks departed at sizes and weights considered appropriate for successful fledging. Of interest is the fact that many of these supplementary-fed chicks appear to have longer than average wings by fledging time, an indication that the blended sardine diet seems to be promoting good growth and development.

Monitoring with night-vision equipment revealed the amazing tree climbing ability of these fledglings seeking elevation for take-off to sea. Confirmation of chicks successfully scaling near-vertical kopi trees, and of chicks spending 'orientation' time in the canopy prior to fledging on later nights, has significantly contributed to our knowledge of this species' behaviour and habitat requirements.

Given that we know at least 30% of Chatham petrel chicks survive to return to their natal colony as adults, and if the last birds depart to schedule, we can hope to expect the appearance of around 12 prospecting individuals in 2004 and/or 2005 at Caravan Bush. The installation of a sound attraction system by two years time will also aid in

drawing these and other seabirds in to the new colony site.

This is the first year of the colony establishment project with three planned transfers of up to 50 chicks per annum. Poor weather at the Chathams prevented the full quota of chicks being moved this year.

A further 52 chicks are considered to have fledged from South East Island; this is an encouraging result given that the level of protection against competing broad-billed prions has been effectively halved this season. Credit is due to Rachel Johnston and other dawn patrollers, and to the designers of the neoprene 'burrow-flap' that appears to deter many of these unwanted visitors.

Taiko

The last of seven taiko chicks for the year had fledged by the end of May making this breeding season the most successful to date. One chick was released on the coast after several unsuccessful attempts to depart. An abandoned chick responded well to being hand-fed with sardines and was later returned to its natal burrow to fledge naturally. Another chick from a deep burrow was eventually caught on the surface after four nights of cold, patient waiting by staff at the burrow entrance. All chicks were banded and had transmitters attached to allow their departure to be monitored (and assisted if necessary).

Two cats have been caught in cage traps near the breeding burrows since the chicks started to emerge, showing how crucial it is to maintain trapping pressure throughout the full breeding season.

Anchor Island

Stoat traps were set on Anchor Island (1300 ha) in July 2001 after a three week pre-baiting period. Traps were checked twice during a six day trip in July. Nineteen stoats were caught during this initial trapping period. Traps were left baited and set after this first trip.

A team returned to the island in November 2001 and found another three stoats in the traps. All of these stoats were very decomposed and had probably been caught for some time.

The next trap service took place in February 2002 and no stoats were caught. If any females were still on the island we would have expected to catch some young animals. The island was checked again in May and again no stoats were caught.

Anchor Island is 1250m from Resolution Island but there are four stepping stone islands in this stretch of water which provide resting places for stoats. Traps on Anchor Island and four stepping stone islands will be serviced twice annually from now.

Clearing these islands of stoats is still very much experimental but seems to be relatively straight-forward and low cost. However there will need to be ongoing servicing to maintain stoat free status.

Stewart Island

The southern NZ dotterel's total breeding population exists only on Stewart Island. Over the last ten years the department has been protecting key dotterel breeding areas by using 1080 in bait stations to kill cats. This has

resulted in an increase from a low of about 60 birds, to 175 last season.

This years (2001/02) cat control has seen a further increase in dotterel numbers. The population has now grown to 205 – a 17% increase from last year. If this rate of population growth continues, we may have 240 birds within a year.

Codfish/Whenua Hou

A cloudy gecko (*Hoplodactylus nebulosus*) was recently found on Codfish Island/Whenua hou. Caught by island staff and subsequently identified by Rod Hitchmough, this a significant new record for the island post kiore eradication. Previous gecko sightings on the island are limited to two sightings of "gecko like lizards" and a sloughed gecko skin from the Hoplodactylus genus. Cloudy geckos had previously been thought to be restricted in distribution to a few of the Titi Islands and Zero Rocks of northern Stewart Island. The Codfish population of Cloudy gecko will significantly increase their chances of survival.

A green gecko of the *Naultinus* genus is also present on the island and no doubt as both populations recover after the removal of kiore (and weka in the 1980's) sightings of these two will become more common.

Rare Bits is issued four times a year by the Biodiversity Recovery Unit, Department of Conservation, Wellington.

Copy deadline for the next issue is:
30th August 2002.

Articles about threatened species management issues are welcome from anyone. Send them to:
The Editor
Rare Bits
Biodiversity Recovery Unit
Department of Conservation
PO Box 10-420, Wellington

Articles should be in Microsoft Word *format, either on a floppy disk or as an Email attachment (internet mail: sorchard@doc.govt.nz).*

The following word limits apply:
- *Conservancy News 800 words,*
- *Restoration Resumé 500 words,*
- *Island Roundup 1000 words,*
- *Other Bits 900 words,*
- *Feature Article 800 words.*

Articles should be clean (i.e., free of any formatting).

DOC staff can access issues of rare bits through the DME link from the BRU documents page on the Intranet. (Back issues of Rare Bits, prior to September 2001 can be accessed through the SRU Publications link on the Intranet.)