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# RARE BITS

THE NEWSLETTER ABOUT THREATENED SPECIES WORK

*This newsletter is produced primarily as a vehicle for information exchange between departmental staff involved in threatened species recovery and ecological restoration programmes. In recognition of wider interest, however, "Rare Bits" is also provided to non-departmental groups on request. The newsletter's informal style may occasionally lead to misunderstandings for some of those readers. Views expressed by the authors are not necessarily those of the Department of Conservation.*

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## FEATURE ARTICLE

### South Island kaka research

*from Ron Moorhouse*

Last summer was a watershed for kaka research in Nelson Lakes National Park. We've finally monitored enough nesting attempts to answer the key question of our research: can predator control reverse the decline of kaka?

Baseline research by DSIR/Landcare in Big Bush Conservation Area documented the previously appalling productivity of kaka there in the absence of predator control. Only 2 of 20 nesting attempts monitored over an 11-year period were successful, producing just 4 young. Over the same time period 4 of 7 radio-tagged females were killed on the nest by predators, probably stoats.

Three season's data has now been collected since the beginning of predator control in the Rotoiti Nature Recovery Project (RNRP) area, literally just over the road from Big Bush. In the first season of our study a poison bait-station grid was in place to control rats and possums, but, because Fenn trap-lines for stoats were not yet in place, we used aluminium tree 'bands' and a ring of Fenn traps around each nest to protect these from stoats.

All four nests monitored that season were successful, fledging 12 young. While they seemed effective, the localised nest protection measures we used that season are relatively impractical because you need to know where the nests are before you can protect them. Once Fenn trap-lines were established we stopped localised nest protection so that we could evaluate this more widely applicable method of stoat control in combination with the existing bait-station grid.

Six of the 8 nesting attempts completed since the establishment of Fenn trap-lines have been successful. The 2 nests that failed did so because of predation on nestlings and eggs, no female birds were killed. Even without including our first season's data, the difference between these results and the DSIR/Landcare data is so great that probability of it occurring by chance is only about 1 in 1000. To exclude the possibility that we had struck years of unusually low predator numbers we concurrently monitored kaka nesting success at Lake Rotoroa (20 km from the RNRP area) where there was no predator control. At the same time that most pairs were nesting successfully at Rotoiti, 9 of 10 nesting attempts at Lake Rotoroa failed due to predation on eggs, nestlings, or nesting females. The probability of this difference in nesting success between the RNRP area and Lake Rotoroa being due to chance is about 1 in 100.

From the population perspective it is the predation of nesting females that is the most damaging. Last summer alone we lost 3 of 5 nesting females to predators at Lake Rotoroa.

**Department of Conservation**
***Te Papa Atawhai***

The RNRP area is a net producer of kaka, a marked turnaround from the appalling productivity figures recorded by DSIR/ Landcare in the absence of predator control. Excluding last season's fledglings which are still at risk of predation and those that we can't find, 17 (61%) of the 28 fledglings radio-tagged at Rotoiti in the previous two breeding seasons are still alive at present.

Although about a third of the young fledged have been lost to predators, more than enough have survived to compensate for adult mortality which is low (1 of 5 radio-tagged females at Rotoiti has died in 3 years, apparently of natural causes). However, we may have to increase the size of the protected area if we are to achieve a local recovery of kaka. At present, most of the young produced within the RNRP's boundaries disperse into surrounding unmanaged habitat where they are unlikely to breed successfully.

Since kaka bred in only 6 of the 11 years DSIR/Landcare worked in Big Bush we've been fortunate that there has been breeding every year we've been working at Rotoiti. The DSIR/Landcare research revealed that nesting only occurred when beech seed was available. I thought there had been pretty big beech mast the previous summer but last summer's beech-seed crop was bigger still. This probably explains the unprecedented productivity of kaka last summer. A female nesting just outside the RNRP boundaries produced a clutch of 8 eggs, twice the usual clutch size. Two females resident in the RNRP area are currently renesting after fledging young earlier this year and another female at Rotoroa was killed on the nest attempting to do the same thing. Attempts to raise a second brood in the same season have not previously been recorded in kaka.

In January 1999 we transferred 4 female kaka from Whenua Hou (Codfish Island) to the RNRP area in an effort to increase our sample size. One of these nested last summer – only a year after her release. Unfortunately, her eggs and a recently hatched nestling were preyed on, probably by rats, but the fact that she nested so soon after her release is evidence of the adaptability of kaka to different habitats. Three of these birds left the RNRP area after their release but remained local. One subsequently died but the other 3 are alive and well. Since only 1 settled within the RNRP boundaries it looks like it is possible to reliably transfer adult female kaka into an area of several thousand hectares but not of several hundred hectares.

We now have robust evidence that the RNRP is working for kaka. If there is breeding next season we plan to use time-lapse video gear to identify predators so that we can target these more effectively.

## SPECIES ROUNDUP

### WETA

*from Andrea Booth (Northland), Jason Roxburgh (Waikato), and John Lyall (West Coast)*

***Transfers***

Auckland tree weta have recently been released on Limestone Island; a 40-ha scenic reserve in the upper Whangarei Harbour. After first listening for weta over several nights, weta were deemed absent, probably owing to a century of habitat removal, industrial activity and the presence of rats.

Following the removal of rats and the planting-up of the island over the last 10 years, it was considered viable to release the weta into old remnant puriri trees that could provide suitable roosting sites. On-going monitoring of breeding success will consist of artificial roost sites, built by science students from Whangarei Boys High School, and lengths of bamboo capable of hiding juvenile weta.

The Middle Island tusked weta (MITW), previously only found on Middle Island (Mercury Island Group), now has two new homes. Over a 2-week period, 150 4th instar MITW were released onto Red Mercury and Double Islands. These islands are figured to give the weta their greatest chance of establishing new populations, and will also indicate the optimal habitat of this species.

The weta were welcomed to their new home by kaumatua of Ngati Tamatera, and have been monitored over the last few weeks. A perspex cover was designed for the weta released onto Red Mercury, to stop the risk of predation by little spotted kiwi. Most weta have since vacated their perspex motels.

A few critters were released into a purpose built enclosure on Red Mercury, and these animals will be monitored to assess whether breeding occurs. At the time of the release, many of the 'transferees' had started to moult, so they will be released when they have completed moulting, and when the weather gets a bit warmer.

Surveys for *Deinacrida talpa*, an alpine species, continued this summer with four trips above the bushline along the Paparoa Ranges locating a couple of new sites. This followed on from last year's survey, which extended the known range north, and south along the range. No further work is planned.

### DACTYLANTHUS

*from Bec Stanley (Auckland), Paul Cashmore (Bay of Plenty), and Graeme La Cock (Wanganui)*

***What's new?***

Two new sites for *Dactylanthus taylorii* were located by Graeme Atkins, Sid Marsh, and volunteers on Hauturu in April. This brought the number of known areas on Hauturu to 6, widely scattered over the whole island. The research group was attempting to use kiore gut contents as a survey technique, because possums, pigs, and rats are used on the mainland. It didn't end up being a useful technique – we were surprised by the early flowering this year and so the survey was a bit late, and also kiore seemed to chew the *Dactylanthus* quite finely and it was not visible in the stomachs. The new populations were located by the old 'look at the ground' method.

A recent historic record of *Dactylanthus* was followed up in the Waitakere Ranges with no success. The plan is to use the possum gut content technique next year if funding allows.

In March staff were shown a new *Dactylanthus* site on the edge of the southern part of Whirinaki Forest Park adjoining Kaingaroa pine compartments. Thirteen clumps were found growing in the narrow regenerating shrub margin

## SPECIES ROUNDUP

of horopito with scattered marbleleaf, wineberry, and broadleaf. There was clear evidence that *Dactylanthus* collection for woodroses had occurred at the site. Staff returned to the site in May and erected signage in the hope of discouraging further collection activities.
Wanganui Conservancy decided to take the idea of following up historical records to the limit - searching for *Dactylanthus* at the site where Rev. Taylor first found it. Unfortunately everybody in conservancy and the area office who had any link to the project had to be away during the crucial planning phases, so it was left to Keith, a teacher on a year's scholarship with DoC, to arrange the site visits with the farmers. We'd even lined up Avi to give a talk to the botanical group the night before.
Keith opted to tell the farmers that we were looking for woodroses, so he was surprised by the reply of "Oh you mean *Dactylanthus* - we've got some". True enough there was this marvellous population pretty close to where Taylor is thought to have first found it. It was great to have Randel Springer, the historian who figured out where Taylor probably found it, on our site visit, along with hunters and field staff and Avi. I think the secret to this kind of trip is to have a population there to start with.

***Monitoring***

Monitoring of *Dactylanthus* flowering at Te Kopia and Pukerimu shows moderate flowering this season with low levels of rat damage. At Te Kopia, even with low possum numbers following last winter's 1080 operation any uncaged flowers were still destroyed.

## CONSERVANCY NEWS

### NORTHLAND

***from Andrea Booth, Tom Herbert, Steve McManus, Lisa Forester, Nicky Syddall, and Gerry Brackenberry.***

***Invertebrates***

Staff have been carrying out surveys for the Northland species of the moth *Notoreas*. This is an undescribed species of brightly-coloured diurnal moth found only in coastal habitats. Its caterpillars feed on sand daphne *Pimelea prostrata*. Until recently it was known only from a handful of sites from West Auckland north to the coast west of Waipoua Forest. Last November staff found caterpillars at two sites in the Far North: these were reared by Brian Patrick (Otago Museum) and confirmed as being the Northland *Notoreas* species. This was welcome news because these records have extended the range of *Notoreas* significantly, and both sites are on protected land. Staff are continuing to search for new sites, and are also recording threats at each site. These include weed invasion and habitat destruction by stock and vehicles.
A new exotic wasp has been discovered in the Far North, and identified by Jo Berry (LandCare Research) as *Radumeris tasmaniensis*; a scoliid wasp known from Australia and New Guinea. The wasp has so far been found at two sites; both of which are sand dune areas dominated by spinifex. In Australia, this wasp parasitises the larvae of scarab beetles, with the very large female wasps tunnelling into the ground until they find the larvae. None of the wasp's Australian host species occur in New Zealand, so DOC staff are currently surveying the sites to determine which scarab species are present. They will also be searching for scarab larvae that have been parasitised by the wasp.

### *Kokako*

A pre-season survey of known breeding pairs found 11 pairs still holding the same territories. A new pair was discovered holding a territory between the Waima and Waipoua populations. There were only 3 nesting attempts this season: 1 failed owing to a suspected harrier predation; 1 was suspected to have infertile eggs (and was also suspected to have been preyed on by a harrier); and the third was successful. This nest was from our most successful known breeding pair, and produced 2 chicks. These chicks were translocated to Puketi, and were the only known kokako chicks to be produced in Northland this year. Unfortunately, predators killed both chicks within 2 months of their release. The poor nesting results in our area were consistent with the poor breeding season experienced nationally this year.

### *NZ falcon record*

A dead NZ Falcon was recovered from a property in the lower Waiare Valley, near Kaeo at Easter this year. The bird had been dead for a few days by the time the property owner found it on the back porch of his house. The last record of a NZ falcon in Northland was of a single bird near Russell Forest in the early 1990s.

### *Threatened plants*

The autumn plants survey season has yielded some interesting records. There are now three sites for *Schoenus carsei* in Northland, now staff have their eye in for it! Another *Baumea complanata* site has been found, this time north of Dargaville, bringing the total to four sites in Northland from Te Paki south. *Grammitis magellanica* supsp. *nothofageti* was found in Warawara Forest, a significant northern extension of the range of this plant. Three more sites for a possible new upland hebe, *Hebe* aff. *acutiflora* (Waima yellow) have been found - Warawara, Maunganui Bluff, and Maunguru Range (central Northland). Most interesting is Karen Riddell's find of a strange tree near Waima, which is thought to be close to *Cunonia*, a genus which would be new to New Zealand. Most Cunonia's are from New Caledonia.

Kaitaia Area and Conservancy staff, accompanied by two '*Hebe*' experts from Te Papa museum, have discovered a new location for the very rare *Hebe perbella*; previously known from only two sites. Just after one of the group stated that "it should be in this forest", staff discovered the *Hebe* growing literally at their feet in Warawara Forest. A healthy population was found with many of them in flower - a beautiful deep lilac colour. Plants were found growing alongside tracks and locations that people would have repeatedly walked past in recent times.

## AUCKLAND

The past summer season in the Auckland Conservancy fauna programmes produced the annual array of disasters and triumphs for the staff involved in management. A few of the more notable highlights were the best ever breeding season for hihi (stitchbirds) on Tiri, a bad season for Hunua kokako but good for Tiri kokako, and the challenges of the wind and tides for fairy tern at Papakanui.

### *Kokako*

*from Oliver Overdyck and Jason Taylor*

The Hunua kokako project with ARC continued this year along with this season's mainland predator control challenges. Only 2 of the 4 pairs attempted to breed and both nests were lost in incubation. Four Mapara females were transferred in last season, and although 1 had paired with a resident

male she had been killed during winter by a stoat. The other 3 females were resident around the core population for 10 months then disappeared just prior to breeding season. Although they had spent much time near other birds none of the male/male pairs split to take advantage of the female presence. At the end of this season 1 male, Hudson, disappeared and has been replaced by Ting, a Hunua bred bird, in the pairing with Hall. This brings the total population in Hunua to 19 birds including 5 male/female pairs.

The 1 breeding pair of kokako on Tiri again fledged 2 chicks this summer. The other single males on the island continue to be visible to the public as does the family group. Rei, a subadult from last year's nest success, was found killed by a harrier, and a second adult, Te Karere, disappeared around the same period.

### *Fairy tern*

*from Lester Bridson and Sara Gibbs*

This season proved to be the most successful season for fairy tern nationally for a number of years. Papakanui Spit site also successfully fledged 2 chicks to contribute to the national total of 7 this season. High winds and the mobile nature of the west coast dunes proved a challenge with one dune moving 4 m in approximately 6 hours.

### *New Zealand dotterel*

*from Shaarina Taylor*

This summer one pair of dotterel from the Shoal Bay group proved their adaptability by deciding to nest on a grassed island surrounded by motorway on-ramps. Great protection from predators but not so hot when the mowers came through. However, the goodwill of Transit, Serco, and the local council plus vigilant monitoring by local OSNZ rangers enabled the birds to fledge 1 chick.

### *Hihi*

*from Jason Taylor*

The Tiritiri Matangi Island population of hihi put on an impressive show this season. A concentrated management regime of feeders, nest box management, and fostering (where needed) assisted in making this the most successful year yet. For the first time there were successful third clutch fledglings. An impressive total of 62 chicks were successfully fledged this season. A post breeding survey (February) brought the total population to 72 birds - a significant increase on the February 1999 count of 47 birds.

### *Argentine ants*

*from Chris Green*

Whilst on a routine trip to Tiritiri Matangi Island at the end of March Chris Green discovered an extensive ant trail on a tree near the wharf. Specimens taken were subsequently identified as Argentine ants. Surveys of the island have revealed a semicircular distribution covering about 10 ha, or 5% of the island, and centred on the wharf. It appears likely that the species has been on the island for at least a year, possibly up to 2 years.

Landcare Research currently has a contract with the department to study aspects of the ant and has been testing a new ant bait from Western Australia. After discussing the invasion with Landcare and several overseas researchers, Auckland Conservancy has decided to attempt an eradication of the ant from Tiritiri. Even though it was late in the season it was initially thought that the ants might still be susceptible to baiting. However, recent tests in early June have shown this may not be the case so the eradication will proceed in spring. Interim measures are in place to prevent its spread from Tiritiri to other islands

via stores and equipment on board supply vessels. See "Other Bits" for more information.

### *Threatened plants*

*from Bec Stanley*

A natural spring in the industrial area of Onehunga is an unlikely threatened plants site, but it just happens to be 1 of 4 sites in the country for the rare aquatic moss *Fissidens berteroi*. This summer water which fed the spring was required to supply Auckland's drinking water, and consequently the habitat of the moss was not supplied with water. Some quick action involving the regional council, WaterCare Services, Landcare Research bryologist Dr. Jessica Beever, and the local council resulted in some spring-side meetings. A temporary hose system was established in time, we hope, to save the moss. A deluge of rain followed a few weeks' water supply, and the flow has now been restored.

One single plant of mawhai *Sicyos australis* has been relocated at Otuataua Stonefields, a recently protected reserve on the Manukau Harbour. One plant was located here 5 years ago, but it died. This individual is in another area of the Stonefields, and seed was collected as a safeguard and sent to the Regional Botanic Gardens.

A covenant within the Carter Holt Harvey managed forest at Woodhill was visited in May to inspect what was once our largest mainland population of *Pimelea tomentosa*. Unfortunately fallow deer browse was extensive, and only 4 plants were relocated. Management of the deer is by a committee of recreational deer hunters, however, it seems it is not to the level where the threatened plants and the deer can co-exist.

## WAIKATO

### *Hauraki Area*

*from Jason Roxburgh and Lance Dew (Project Kiwi)*

### *Lizards*

Time has been spent recently on Middle Chain Island (Alderman Group) surveying lizards. Middle Chain is the only one of the five islands in the group to have had rodents present, and we are working to identify what species are missing so they can be reintroduced. Surveys are timed to coincide with the main seasons, and this trip found only Duvacel's gecko. Earlier ones have found several other species.

### *Kiwi*

Kiwi monitoring at the Coromandel Call Scheme sites is underway, with specific emphasis on Whenuakite, near Tairua. An animal pest contractor has offered his company's services for predator control at Whenuakite to protect kiwi, and we are intensively monitoring the birds to map territories. Once this is done we will delineate an area, and the predator control can begin.

Good news on the Kiwi Zones' front with the release of new funding for the five proposed Kiwi Zones. With one of the zones located at Moehau, Hauraki Area and Waikato Conservancy Offices will be busy places over the next 12 months, with staff getting the proposal into action.

### *Project Kiwi (Kuaotunu Kiwi Sanctuary)*

*from Lance Dew, Project Kiwi Field Team Leader*

Kiwi Enclosure: The kiwi chick rearing enclosure was formally opened on 19 February, and Tester, a 2-week old chick, was liberated into the enclosure to test the 'kiwi-proofing' of the internal sub-division fences. Unfortunately, Tester died in strange circumstances several weeks after release.

The body was sent to Auckland Zoo for necropsy. Despite its unusually low weight and wasted appearance, the chick had been feeding. An unusual odour was detected in the chick's crop, and the zoo staff were interested in getting a toxicology report on the gizzard contents. DoC has offered funds for the test. Tester was from a 2-egg clutch, but its sibling (21 days older), was killed by a stoat about the same time.

Transit NZ: We have been working alongside Transit NZ with our kiwi work since August 1997. Transit carried out intensive kiwi monitoring as part of the RMA consents process for the widening and sealing programme on State Highway 25 between Whitianga and Kuaotunu. Several kiwi pairs interact with this stretch of highway, and 1 pair's territory straddles it. Sub-adult kiwi have been recorded crossing the road, and kiwi chicks have lived on its margins. Only 1 kiwi was placed at [minimal] risk during the roadworks programme, which took place over a 6-month period. In this case the female was relocated on the day she was at risk.

Trapping update: Since 1 July 1999 we have caught only 26 stoats, making it a fairly quiet season. We made a change from real hen eggs to plastic eggs prior to the start of the 'busy' season, and monitor the performance of this new bait by continuing to use our Conibear traps baited with fat as a 'control'. The NZ Conibear traps, on their raised kiwi safe sets baited with raw fat, have been our best trap set. However, most of the stoats caught recently were in Fenn traps baited with plastic eggs. We have reservations about relying totally on the plastic eggs (or any one bait for that matter) and may introduce other baits to the traps at intervals throughout the year to cater for any dietary variations stoats may have. Recently a shipment of Fenn traps arrived from England, and will be used to extend our trapping area to approximately 3500 ha.

***Weka***

Project Kiwi applied for a transfer permit to release weka from Pakatoa Island into the core area of Kuaotunu in the Coromandel. Weka were present there as recently as 15 years ago and would be a welcome addition to the species list at Kuaotunu. Tony Beauchamp is organising the transfer, which should proceed once the proposal is accepted.

***Threatened plants***

*Pimelia tomentosa and P. arenaria*: Several sites for these two species were visited and reassessed for threats. Most of the threats are weed related, and are being controlled through current weed control workplans, or through simple fencing.

*Lepidium oleraceum*: A large population of *L. oleraceum* on the Matariki Islands (Manaia Harbour) was revisited, and the kikuyu grass threatening parts of it was controlled. This will allow the species to expand into new habitat and ensure its survival on the islands.

## BAY OF PLENTY

***from Paul Cashmore, Keith Owen, and Andy Blick***

***Ophioglossum petiolatum***

Staff went to survey the newly discovered population of the adders tongue fern (*Ophioglossum petiolatum*) (Category O) in Whirinaki Forest Park recently. Because it was getting late in the season some plants had begun to die off with many of the fertile spikes absent or dying. The common *O. coriaceum* is also present in this population which makes identification more difficult, especially towards this time of year. We did confirm that there are probably thousands of *O. coriaceum* plants present in the area, however, we were only able to identify

a few *O. petiolatum* plants. A resurvey during summer will be required to confirm *O. petiolatum* numbers. Threats to the population will be further investigated, in particular, the effect of deer browsing on the population.

***Mistletoe***

Further *Tupeia antarctica* plants have been located at Taumata Scenic Reserve while investigating road realignment proposals. Approximately 6 new plants were found close to the proposed realignment in addition to the 50+ plants already known from the area.

A new local host for *Ileostylus micranthus* has been found at Okere falls. In addition to the known *Ileostylus* specimen growing on hawthorn a young plant was discovered hosting on a *Muehlenbeckia australis* vine. Another *Ileostylus* plant has also been found on the edge of Lake Tikitapu.

***Pittosporum turneri***

Staff have recently remonitored the health of the *Pittosporum turneri* population in southern Whirinaki. This annual survey again showed an absence of any mature adult foliage or any seedlings.

***Opuiaki Ecological Area bird survey***

A bird survey of the above area has just been completed. The primary focus of the survey was to determine the distribution and approximate density of North Island kokako, and to carry out a survey for juvenile kokako. Eighteen indigenous and 6 introduced bird species were recorded within the survey area. Four threatened species - NZ falcon, NZ pigeon, North Island kaka, and North Island kokako - were recorded. A total of 48 kokako comprising 13 pairs and 22 singles was detected during the survey. No juveniles were found. North Island kaka were uncommon, while only one record of NZ falcon was obtained. Trap catch indices showed 23 possums per 100 trap nights. As in other parts of the North Island, the distribution and numbers of North Island kokako and North Island kaka have shrunk since the early 1970s.

***Whirinaki fernbird***

Te Kooti composed a waiata called "Te Tangi o te Matuhi" (the call of the fernbird). Recently this waiata was the focus of a CD and book . On the CD is a John Kendrick recording of a fernbird call which was used to conduct a small fernbird survey before and after an Animal Health Board 1080 aerial carrot drop in the Whirinaki .

A road, crossing a frost flat, was used as access to monitor birds living in the monoao dominated shrublands on either side. Three evening surveys (in February, April, and May) were conducted prior to a 10 kg/ha carrot operation. Totals for these were 12, 10, and 8 individual birds. Timing was found to be critical, the response to taped calls being best between sunset and dark.

Eight days after the poison drop the road was re-surveyed. Nine birds were noted as responding to the calls. At this stage it appears that 1080 has had a limited effect on the fernbirds living in this frost-flat . It is intended to continue monitoring call rates at least twice more in the coming months.

This information has already been useful in advising agencies involved with a large TB possum control programme in the Rangitaiki/Kaingaroa area.

## EAST COAST/HAWKE'S BAY

***Boundary Stream Mainland Island***

*from Steve Cranwell*

The reintroduction of North Island brown kiwi into the Boundary Stream Mainland

Island continues with the release of a second bird. The weight of the 2 birds at release have been 1150 and 850 g respectively. Over the 2 + months since Ari's liberation he has continued to fluctuate around the release weight. At 850 g it is believed Raina will adapt more quickly whilst being sufficiently large to fend off the unwanted attentions of stoats. A third release occurred at the end of May. The bird released, Kohu, was 1000 g. The condition and movements of all birds will continue to be monitored.

In an effort to enhance the effectiveness of predator control regimes a couple of experimental initiatives have been added to the suite. Trapping for mustelids has been supplemented with a purpose-designed poison egg/trap box, which delivers 1080 injected hen eggs for stoats and a Diphacinone Ferret paste. Changes in trapping rates, tracking tunnel indices, and autopsy results will be used to assess the effectiveness of this method. A rodent-based form of Cholecalciferol (Feracol) is being trialed in a section of the reserve as a means of achieving sustained rat control. The toxin will be evaluated over the next couple of months for its effectiveness in maintaining rats below a 5% tracking tunnel index.

## WANGANUI

*from Tim Holmes, Graeme La Cock, and Rosemary Miller*

### *Celmisia "Mangaweka"*

In the last issue we reported germination failure in the seeds that had been collected. A request was received for more seed, so Henry Dorrian collected some of the remaining scraps. We now have over 50 specimens to plant out later this year, thanks to Robyn Smith at Percy's Reserve.

### *Blue ducks released in Egmont National Park*

Intensive monitoring of the released birds has been regularly undertaken. Some of the captive-reared birds have been lost through starvation, not from a lack of food resource. We assume the birds starved because they did not know how to forage for aquatic invertebrates. Other birds have succumbed to predation from stoats or ferrets, and one of the wild-caught birds was run over by a car (can you believe it!). All the captive birds lost weight initially, which resulted in transmitter harnesses becoming loose. Without harnesses monitoring of the birds required significantly more effort. All the casualties occurred within the first 4 weeks of release, and there have been no further losses since then. This implies that the remaining birds are true survivors, although the threats to adult birds from introduced and native predators remain.

Despite the losses to date the results are encouraging. The knowledge gained from the experiment enables us to refine future releases to significantly increase survival chances, which will ultimately assist in re-establishing a population of blue ducks.

### *Powelliphanta "Egmont"*

Additional surveys have been undertaken this year resulting in some minor range extensions. Re-surveying has turned up similar numbers of snails compared with a survey done 5 years previously. This indicates that the population is stable.

### *Short-jawed kokopu*

The 6-monthly tagging of the short-jawed kokopu was conducted at our two study sites. Seventeen fish were caught of which 12 were recaptures and 5 were new fish to the area. Growth rates appear to be greater than in the past with 1 fish having grown 25 mm since November 1999.

Surveys for spawning sites were conducted, following last year's significant find of a koaro spawning site, and three fish 'nests' were discovered. Evidence suggests that these sites might belong to short-jawed kokopu. Eggs have been collected and will be sent for genetic analysis to confirm which species they belong to. If any of these sites are confirmed to be short-jawed kokopu it will be the first spawning site ever discovered for this species! Watch this space!

## WELLINGTON

*from Shaun O'Conner*

### *Chatham Islands staff development programme*

The overall season results achieved for the Chathams offshore islands threatened species programmes on South East and Mangere Islands are highlighted below. These achievements are in large part due to the dedication and hard work put in by contract workers Helen Gummer on South East and Tertia Thurley on Mangere. Both these skilled operators co-ordinated the hands-on fieldwork and supervised staff development participants on 5-weekly team rosters on each island through the season.

The following people participated in the staff development programme and share a stake in these results: John Neilson, Brenda Oldfield, Maureen Burgess, Sylvia Watson, Mike Brown, Roger Elliot, Babara Couden-Oches, Mike Bell, Fiona Bancroft, Phillipa Gardener, Sid Puia, Clayton Ross, Don Merton, Thelma Wilson, Jaap Jasperse, Henriette Beikirch, Pete Shaw, Eddie Te Huia, Emma Ross, Adrian Couchman, James Smith, Jim Searle, Shelly Harvey, Bruce McKinley, Mark Kearney, Phil Crutchley and Richard Parrish. Thank you all! Thanks also to the area office team and conservancy office technical support team for assisting this busy and demanding programme.

### *Black robin*

The black robin season was a mixed one with an average season on South East and a poor season on Mangere. The established intensive monitoring technique (following all breeding attempts/banding all fledglings) on South East was down-scaled to include trialing 'distance sampling' as a measure of population density and health and also following a sample of pairs to keep an eye on productivity. Incidental sightings of banded robins were also recorded over the season. A total of 116 banded individuals were sighted between September and March over 99/00. Productivity of 14 pairs was monitored from 3 selected habitat types with results of 18 fledglings reaching independence. Productivity was 64% (chicks fledged from eggs laid) from the monitored sample. Twenty-eight yearlings (from the 116 sightings) were recruited into the population.

On Mangere Island intensive monitoring continues in tandem with the new distance sampling technique for calibration. The population started the season on par with previous years with 48 birds in the available robin bush habitat. However, productivity was only 16% with 8 fledglings reaching independence. Egg and chick failure was very high, clutch sizes small, and the season finished early with moult underway by late December/early January. Last year 24 chicks reached independence from the same area of habitat. Potential threats such as introduced predators and disease was not apparent. Perhaps a crash in food supply is responsible? Seventeen yearlings were recruited into the population on Mangere. Preliminary analysis of the

distance sampling trial has shown a higher estimate of density than the actual known population figures. The friendly nature of robins (having been habituated to humans feeding mealworms) is the likely cause and is being grappled with by Rod Hay of SRU.

### *Forbes parakeet*

Forbes parakeet received serious attention this season on Mangere Island with the start of a combined field ecology and nuclear DNA study on the species and its hybridisation with Chatham Island red crowned parakeet. Efforts concentrated on capture and banding for mark/recapture research, erecting nest boxes, location and monitoring of natural and artificial nests, collection of genetic material for the DNA work, and collecting baseline morphometrics and photographic records of plumage variations (hybrid index) from Forbes, red-crown, and hybrid parakeets. Sixty-six adults and 39 nestlings were individually colour banded and the above information collected. Nest monitoring revealed a very low hatch rate (30%) but high fledging success (chicks fledged from eggs hatched) at 47% compared to other parakeet species. Nest boxes in the revegetating Douglas Basin shrubland recorded a second year of very high egg infertility at over 50%. The total parakeet population (both species and hybrids) on Mangere was estimated at between 500-700 birds, with the real question still being – how many hybrids are there? Researchers at Victoria University have found that hybrids may be cryptic in plumage variation, which potentially undermines the current hybrid-rating index. Nuclear DNA markers are therefore urgently needed to identify the real extent of hybridisation and its threat to Forbes parakeet.

### *Chatham Island petrel*

Progress in Chatham petrel recovery was outstanding this season. A total of 59 new Chatham petrel burrows were found through a combination of telemetry (49 burrows) in November/December, and as the season progressed by random search (3 burrows), following adults (6) and chicks (1) as new birds on the ground. Total active burrows for the season was 120, with 100 going on to show breeding behaviour. The breeding burrows returned a success rate of at least 72%. A total of 301 Chatham petrels were 'processed' this season, 228 recaptures and 73 new birds. As a comparison, in the 1998/99 season, 72 active burrows were known, 54 showed breeding behaviour and achieved 78% breeding success. Telemetry and random searching in 98/99 found 7 new burrows. The 98/99 season, however, was a quite one on the prion front. This season saw a return to a more typical/ average prion year with large numbers returning to the island during the prospecting period and competing with Chatham Island petrels for breeding burrows. Prion counts peaked in Woolshed Bush at 483 birds in March, with the most intense prospecting period (in terms of higher counts) being late February to mid April. As this pattern emerged and with the higher number of new burrows to protect this season, extra staff were recruited through the staff development programme to form protection teams to patrol the petrel burrows at night and cull prions interfering with Chatham Island petrel burrows.

### *Shore plover*

It was an average season on South East Island where storm events were responsible for failure of a significant number of nests, particularly on the northern coast. The breeding success of 14 pairs associated

with a colour-band trial on the northern coast was followed with 31-38% fledging success. The trial of double wrap-around colour bands sealed with solvent (tetrahydrafuran) has successfully completed 3 seasons.

One problem, picked up during the trial, was related to the habitat in Whalers Bay where mineral deposits on the rock terraces began 'growing' inside the band, sealing them to the legs. Bands were removed and will not be fitted to territorial birds in this habitat in the future.

Mortality of banded birds through the trial compares favourably with previous survival data from Alison Davis's study on the population. The breeding activity of 23 other pairs on the island was also followed early in the season as potential donors of chicks for reintroduction to Mangere Island. Unfortunately the reintroduction had to be postponed a week prior to transfer when the holding aviary on Mangere was destroyed by a storm, and staff lined up to provide avicultural care for the birds had to return to NZ. Another attempt will be made in the coming season.

The biannual census on South East has shown a significant sex imbalance in favour of males for a second season running. The banding programme over the next 3 seasons will aim to identify which theory on the bottleneck for females is evident.

### *Chatham Island oystercatcher*

Chatham Island oystercatcher recovery received a welcome boost with the beginning of a 4-6 year research project led by Peter Moore. It will investigate the causes of nest failure, assess the effectiveness of predator management via video surveillance, and research key population dynamics. The research is being run jointly with the management programme to streamline staffing, resourcing, and logistics. Richard Goomes and Georgie Hedley undertook the daily fieldwork. Management includes predator control, stock exclusion, and nest manipulation (protection from high seas) in 16 territories on the northern coast of main Chatham. Twelve unmanaged (non-treatment) territories were monitored on main Chatham as a measure of the effectiveness of the combined management regime in the managed territories.

Results have been very promising. In the managed territories 25 chicks fledged and reached independence from 16 pairs, and in the unmanaged territories no chicks fledged from 12 pairs. Results of the video surveillance showed that predator and disturbance events were 5 times greater in unmanaged territories versus managed territories. Three fatal predation events were recorded on video in unmanaged territories – 2 clutches of eggs were predated by a cat and 1 clutch of eggs predated by a weka. Several nests were lost to high seas in the managed territories despite shifting nests away from the wave zone. Numerous 'close calls' were recorded on video including cattle and sheep trampling, weka, and harrier disturbance.

The predator control regime focused on trapping which yielded 51 cats, 719 weka, 61 possums, 44 rats (despite not targeting rats), and 41 hedgehogs over 5 months. The overall capture index was 0.068 captures per corrected trap night.

Sixty seven oystercatchers have been colour banded in the last 2 seasons, including all fledglings from the managed territories in both years, to enable research on survival, dispersal, recruitment, and turnover of adults in breeding pairs. The total population stands at approximately 150 birds.

## CONSERVANCY NEWS

### *Taiko*

*from Mike Ogle*

Six taiko chicks have successfully fledged this season. This is the highest number of chicks known to have fledged since active management of taiko began. Transmitters were attached to all chicks before fledging. (Not all burrows have study holes for easy access so this required several nights waiting for chicks to come out - usually about 2am.) The transmitters were attached so that chicks could be monitored and relocated if they did not make the 4-6 km journey to sea. Three chicks made it successfully on their first attempt. Two were found outside their burrows once and returned to their burrows from which they later successfully fledged. One chick however failed to fledge twice. The second time it was found its weight (390 g) was below the previous lowest known fledging weight (400 g) and well below expected fledging weight (470-480 g). This chick was taken to the coast that evening and placed on a hill side, from which it confidently departed.

Two of this season's chicks were from previously known burrows, while 4 were from burrows located during the highly successful telemetry operation earlier in the season. A 7th egg was laid this season, also in a newly discovered burrow, but unfortunately failed just before hatching. The survival of all 6 hatched chicks through to fledging was thanks to the extremely determined effort put in by field staff to protect the breeding burrows from cats, possums, weka, and rats. A total of 92 cats was trapped from around the taiko burrows this season. We now have to wait for at least 4 years before this season's cohort of fledglings hopefully returns to the colony in the Tuku Nature Reserve and adjacent private land.

## NELSON/MARLBOROUGH

### *Fishy bits*

There was an outbreak of *Gambusia,* the mosquito fish, near Motueka - the first outbreak for the South Island. This species is a threat to indigenous fresh water fish values. The offending pond was treated with Rotenone poison, and at this stage we appear to have got them all. We will be doing more follow-up work soon to see if the species is in fact more widespread.

The survey for short-jawed kokopu in the Marlborough Sounds has now been completed with the discovery of 20 new populations using spotlighting and re-confirmation of 7 existing populations. A number of new giant kokopu populations were also discovered, and banded kokopu appear to be present in nearly all Sounds streams. Combined with last year's survey results from Abel Tasman, the top of the south is proving to be a stronghold for short-jawed kokopu. Over the last 2 years of survey work, a total of 282 fish have been recorded, which surpasses the entire national number of short-jawed kokopu recorded in the Freshwater Fish Database (220) up to 1996. We wait with interest the results of other conservancy systematic spotlight surveys!

Interviewing local eel fishermen led to the discovery of a number of new kokopu populations. The presence of giant kokopu in the river draining Waikoropupu Springs was a really interesting piece of information given the large salmonids that reside within this river!

### *Fowl behaviour*

Maudie, the matriarchal takahe from Maud Island, has had a rough year. She has been well and truly bashed up by her daughter-in-law and after an expensive sojourn with the vets is now

back in solitary confinement on the island. It seems there are two options for her – to pack her off to some safer location or to import some young stud to keep her safe and well served. Her time in town raised much interest from the media, which is continuing to follow her fate.

### *Buggy bits*

Survey work on Arapawa Island confirmed the presence of the protected, undescribed *Megadromus* beetle at several sites, as well as *Wainuia* and occasional *Powelliphanta* snails. However, in many areas these species are being heavily hit by pigs which have severely rooted large areas of forest floor, overturning large stones in the process. The invertebrates tend to be surviving where there is substantial bedrock outcropping that curtails pig activity.

A survey in the Cobb valley area showed that the isolated population of *Rhytida stephenensis* in Thorn Creek seems to be thriving under the cover of marble talus. Unfortunately the same cannot be said of the largest *Rhytida* species, *R. oconnori*, in the Canaan area north of Takaka Hill. Although large numbers of shells were found, including just beyond the area to which Murray Efford thought they might now be confined, almost all of them had been recently eaten by rats. A number of shells were found at typical rat 'husking stations', along with the remains of giant pill millipedes. Only a couple of live juveniles were found in 2 days' searching by three people.

Two searches of the Canaan area for rare ground beetles resulted in the finding of a quite dense but localised population of the large carabid *Mecodema costellum obesum*. A single specimen of the smaller *M. strictum* was also found.

In April, the Cloudy Bay foreshore area was searched for the undescribed mat daisy jumper, *Kiwaia* sp. This is a tiny brachypterous (reduced wings) moth which was discovered there only last year. So far this species is known only from a very narrow (20-30 m maximum) strip, less than 2 km long, just behind the active beach where it is associated with *Raoulia* mats. Thirty adults were counted in total. Potential habitat further south near Kekerengu was also searched without success. There is very little habitat left in Marlborough that this species could occupy.

### *Planning*

Considerable conservancy resources are being spent in the Environment Court battling a rash of new marine farming applications. The impact of existing and proposed mussel farms on king shags in the Outer Sounds has become a key issue and the pressure is on to quantify this effect. In Golden Bay the impact of inter tidal cockle harvesting on shorebirds is another concern.

### *Research*

The unprogrammed scientific advice fund has been used to good effect to get advice on a couple of management issues. Josh Kemp did some excellent research into the impact of stoats on Huttons shearwater during and after a heavy seeding of tussock. Belinda Studholme is reviewing what is known of the distribution and abundance of ship rats in South Island beech forests and how this might change between years. This work was prompted by the disastrous year for mohua on Mt Stokes following an irruption of rats.

### *Flora*

A recent South Marlborough survey has turned up a new record of *Muehlenbeckia astonii* and re-found *Carmichaelia vexillata* in the Awatere Valley. The latter hadn't been seen in Marlborough for over 60 years, and given

the modification of the area over this time was a pleasant surprise.

During an initial inspection of the newly acquired Rawhiti Cave forest in Golden Bay, area staff Simon Walls and Greg Napp discovered a small population of the critically endangered coastal cress *Rorippa divaricata*. It makes this site the second-known locality for *Rorippa* in the South Island, the other one being recently discovered along the Abel Tasman coast. Around 12 plants have been found, some of which are browsed - possums are implicated although goats are also present in the area.

This year's survey of the Te Tai Tapu coast turned up some excellent rare plant finds and coastal turf communities. The best populations in Nelson of creeping iris (*Libertia peregrinans),* sand tussock *(Austrofestuca littoralis*), and shore spurge (*Euphorbia glauca)* were found, along with one of the largest coastal cress populations in NZ - over 110 plants, as well as the only known wild plants of NZ spinach (*Tetragonia tetragonioides*) in the northern South Island.

Three more small populations of the critically endangered pygmy button (*Leptinella nana)* have been found during a survey for it along the Rai River. The total number of populations in the conservancy is now six, all along a 1-km length of the Rai - and covering a total area of no more than a table top. The biggest threats are weed competition and loss of riparian forest habitat. We discussed options for legal protection with Nicky Eade of Marlborough District Council because all of the populations are on road reserve administered by the council.

## WEST COAST

*from Paul van Klink, Jo Crofton, Chris Rickard, Ron van Mierlo, Megan Hieatt, and Martin Abel*

### *Weka monitoring*

Possum control is occurring in parts of the Karangarua and Copland Valleys; both of these valleys hold the southern-most populations on the mainland of western weka in the conservancy. As part of ongoing monitoring of the effects of 1080 on non-target species 15 adult weka were captured in the Copland Valley and had mortality transmitters fitted in December 1999.

Pre 1080 weka monitoring has been carried out every month to date. Four dead birds have been found in recent months. The first 2 birds found near the Welcome Flat hut were too decomposed to establish their cause of death. Two more birds found last week showed the cause of death was predation. Both had puncture wounds on the back of their skulls. Stoats are presumed to be the likely predator. Post-monitoring results will be presented in the next issue of *Rare Bits*.

### *Okarito kiwi*

A total of 20 adult pairs were monitored during the previous season, and we had the options of removing either eggs or chicks for Operation Nest Egg (ONE). Twenty-four eggs were detected and 11 removed for artificial incubation. Of the remaining 13 eggs, 8 hatched in the wild, and 5 failed to hatch. Overall, it has been a productive year with a low loss rate, probably owing to removing more eggs for incubation than in past seasons. The current group of 20 breeding pairs being monitored, however, is biased towards good producers. A number of non-productive adult pairs have been dropped from the management population.

This has been a successful year for released ONE birds. Currently a total of 17 ONE birds are now being monitoring. Two ONE birds are sheltering with wild birds of the opposite sex, and there seem to be some other potential pairings between ONE birds. We have yet not detected any breeding and are hoping for more success on this front in the upcoming breeding season. The oldest ONE bird (Moonshine) is now 4+ years old and has been in the wild for 3 years & 4 months.

Three ONE birds have died during the year. Bobbit and Claudette died as a result of territorial confrontations. Bobbit was almost certainly killed by another ONE bird while her parents killed Claudette. Cuba was hit by a car and killed. Two other juveniles lost their transmitters during the year because of harness failure. We hope that our new harness system will eliminate this frustrating occurrence.

***Freshwater surveys***

Indigenous fish surveys are underway around Franz Josef to improve knowledge about brown mudfish and other species' distribution in the area. So far this year, brown mudfish have only been caught as far south on the West Coast as Forks Pakihi, in South Okarito Forest. Previous records exist from here also. Efforts to locate this species further south continue. Banded and giant kokopu have also been caught in the Okarito Lagoon catchment, and at Three and Five Mile Lagoons. Earlier in the year healthy numbers of short-jawed kokopu were confirmed by spotlighting a section of Zalas creek, north of Franz Josef.

Wetland surveys of Three Mile, Five Mile, and Okarito Lagoons were undertaken this summer, mapping vegetation patterns, and noting fish, bird, plant, weed, and introduced mammal species present, as well as taking water samples, noting hydrology, probing peat depths, and identifying potential threats. This work contributes to a continuing West Coast wide effort to assess and quantify relative wetland values to decide future management priorities. Plant records of note for the summer include *Deschampsia caespitosa* at the northern end of Okarito Lagoon (last recorded there in the 1980s), *Drosera pygmea*, a new record for this species from South Westland - also at north Okarito Lagoon. *Korthasella* var. *clavata* was found at Five Mile Lagoon - parasitising *Coprosma propinqua*, well outside its known range at Castle Hill basin.

***Bats***

A follow-up survey in Paparoa National Park for short tailed bats, inland from Punakaiki failed to record any passes. We were attempting to reconfirm the very sparse records from the previous season.

## OTAGO

*from Bruce McKinlay, John Barkla, and Jack Van Hal*

***Mohua, Dart Valley***

Between October 1999 and February 2000 mohua nest monitoring occurred in the Caples and Dart valleys in the Wakatipu area. This was part of a stoat control study also involving the Eglinton Valley in Fiordland. The Caples was used as the control site, where no predator control was carried out. We hoped to find a significant difference between the valleys. The results were interesting.

Five diligent workers went out fully laden with mist netting and banding equipment into the respective valleys. After a couple of weeks of ropes and mist net hauling, we managed to band around 120 birds. Nest finding provided more challenges because several pairs of birds were found building up to 4 different nests on the same day! Eventually 72 nests were closely monitored, 37 spread over two

sites in the Caples and 35 throughout four areas in the Dart. Whenever possible trees were climbed to monitor nesting stages and measure nest holes.

Of the total 54 breeding females, all survived the season. A large portion of nesting did occur during the predation risk period, i.e. after December when the juvenile stoats leave their dens. There was a 69% success rate in the Caples and 80% in the Dart. There were various reasons for these nest failures including the November floods, abandonment, predation, and long tail cuckoo parasitism. Out of the 12 failures in the Caples and 8 in the Dart, 15 were owing to an unidentified predator, 2 were known to be long tail cuckoo predation and another 2 nests were victims of cuckoo parasitism but are not considered failures because the cuckoo nestlings were successfully fledged.

A long tail cuckoo was observed visiting one mohua nest at Upper Caples containing 2 nestlings. The cuckoo arrived immediately after the adult left the nest, entered the hole for about 30 seconds and crawled out backwards with a chick in its beak and promptly left the area with it. Upon re-inspection of the nest, only 1 nestling remained. The following day the other nestling was also gone and the nest empty. This pair did later have another nest which successfully fledged, but this observation may explain several of the other mysteriously emptied nests, at both egg and nestling stage, where there was no other sign of predation and/or disturbance.

By the end of the season we had 2 pairs of mohua raising one long tail cuckoo each. It's interesting to note that one nest was 70x45 mm which may be the smallest size recorded to be parasitised by a cuckoo. Long tail cuckoos were heard almost daily, all day long at Upper Caples, Lake Sylvan, Borer Flat, and Mill Flat. Several other bird species were also noted in the area. Kaka were heard regularly at Upper Caples from December onwards, also the very occasional kea, shining cuckoo at Mid Caples, and a pair of falcons living not far from the hut. Even blue duck were reportedly heard in the Kay Creek catchment. All-in-all a thoroughly interesting and enjoyable season was had by all involved.

### *Pittosporum patulum*

Wanaka Area and Conservancy staff spent a few days searching the mid and upper Hunter Valley (head of Lake Hawea) in May for *Pittosporum patulum*. It is in the adjoining Dingle Valley, and the Hunter was recognised as the most likely prospect for expanding its known range. Despite finding lots of ostensibly suitable habitat no new sites were found.

### *Tree daisies*

Stu Thorne from Wanaka Area has been surveying the lower and mid Matukituki Valley for *Olearia hectorii* to get an accurate census of the population and to identify the best sites for future management. Several hundred trees are known from the valley but many are lonely individuals or small groups out in farmland with little conservation prospect. The valley is a real "hotspot" for *Olearia* with 3 threatened species present (*O. hectorii, O. frangratissima*, and *O. fimbriata*) plus more common species including *O. odorata, O. lineata*. Not too far away at Hawea Geoff Rogers found a population of *Olearia fimbriata* with good survey prospects nearby.

### *Scree pea*

Jim Henderson from Central Otago Area has recently set up some small exclosure plots in one of our better *Montigena* (=*Swainsona*) *novae-zelandiae* sites on the Hawkdun Range. There's a strong suspicion hares are browsing it,

preventing seed production, so the exclosures (with non treatment sites) should help to clarify if indeed there is a conservation problem.

### *Odd finds*

Dean Nelson reports that two recent recoveries may be of interest. A Snares cape pigeon was washed up at Long Beach. It was banded as an adult male in November 1986. The other was a titi found dead at Taieri aerodrome, which was banded as an adult on Motunau Island on 24/10/76. Young birds don't return to their natal colony until 3-4 years old, so this one could be potentially 27+ years old.

### *Taiaroa Head*

Sharyn Hellyer has been working up trapping data from Taiaroa Head, and so far she has entered 104 months' data. The variety of trap types and sets used over the years is quite varied, as is the number of target animals. We hope to be able to identify much more closely where on the headland trapping is successful and for what type of predator and for which type of trap set.

## SOUTHLAND

*from Pete McClelland, Eric Edwards, and Lyne McFarlane*

### *Southern Island Area*

### *Rat eradication*

Following monitoring on Raratoka (Centre Is) and Putauhinu - the later being largely carried out by the muttonbirders on the island in April/May - no sign of rats has been detected. Both islands had Brodifacoum bait dropped on them in August 1997 to eradicate kiore, and it appears that this has been successful. Given that it is three breeding seasons since the drops and the islands are relatively small (88 and 144 ha respectively) we can now declare the eradication a success.

Recent trapping on Whenau Hou (Codfish Island) following the bait drops on that island in August 1998 also found no sign of rats. That eradication will not be declared a success until the initial proposed monitoring regime (i.e. trapping around kakapo feeding stations) can be put into place once the feeding programme starts up again (probably later this year).

### *Bird transfers*

The fernbirds which were transfered to Putauhinu from Whenua Hou as part of the preparations for the eradication on Whenua Hou and as part of the post eradication restoration on Putauhinu have done very well and are rapidly building up numbers. While the bait drop on Whenua Hou certainly knocked the fernbirds they are now starting to show their heads above the manuka again and with breeding confirmed this season, it currently appears that we will not need to transfer any birds back from Putauhinu.

Transfers of Stewart Island robins to Putauhinu and Meeweka (banded rail) to Kundy Island both as part of the ongoing restoration of those islands appear to have been successful according to the muttonbirders who reported breeding this year.

Another 12 Campbell Island teal have been released onto Whenua Hou and appear to be settling in well despite some boundary disputes with the locals.

### *Invertebrate surveys*

Campbell Island: Lowland sites were recently surveyed for large bodied weevils including ribbed weevil *Heterexis seticostatus* (Cat B) *and* weevil *Oclandius cinereus* (Cat I). There was no sign of ribbed weevil (common in the late 1940s). Hopefully populations remain on nearby islets or possibly at higher elevations. Only remains were

**CONSERVANCY NEWS**

found of *Oclandius cinereus*. It is likely it persists in low numbers on parts of Campbell Island and should respond well to planned Norway rat eradication.
Auckland Islands: Lowland sites were surveyed in the Port Ross area and Enderby Island for Auckland Island weevil *Oclandius laeviusculus* (Cat C) and again for *O. cinereus*. There was no sign of *O. laeviusculus*. Remains and one live individual of *O. cinereus* were found in Port Ross.
Snares Islands: Janice Molloy and team searched for Broughton Island weevil *Lyperobius nesidiotes* and found no sign on Northeast Island, but knobbled weevil *Hadramphus stilbocarpae* (Cat C) were noted. The adjacent Broughton Island is the only known site for *L. nesidiotes* and has not been surveyed for some years (possibly not since 1976).

***Lizards***

The recent discovery of *Hoplodactylus nebulosus* (the cloudy gecko) on Stewart Island/Rakiura increases the lizard fauna to 6 (*Hoplodactylus rakiurae*, *H. nebulosus*, *Oligosoma chloronoton*, *O. stenotis*, *O. nigriplantare polychroma*, *and O. notosaurus*). This species has only been recorded on outlying islands of Stewart Island/Rakiura. Research by Lyne McFarlane on *H. rakiurae* (Harlequin gecko) is still underway on Stewart Island with the first summer season completed. These geckos are being studied at two sites in the southern part of the island.

***Murihuki Area***

Visits to Tikore (Spensor Island), Tihaka (Pig Island), and Rarotoka (Centre Island) over the summer recorded 2 skink species (*Oligosoma nigriplantare polychroma* (Tikore) and *O. inconspicuum* (Rarotoka, Tihaka) and 1 gecko (*Hoplodactylus* "Otago", Tihaka). The geckos were found under the only rock slab on the island, possibly the only protected place from weka which are also present on the island. A 2-day survey in Garston searching for the elusive Garston skink revealed plenty of *O. maccanni* and a slough of a gecko. However the Garston skink still remains undetected.

**OTHER BITS**

## SUCCESSFUL BAT SKILLS WORKSHOP

*from Colin O'Donnell*

Twenty-six people attended a bat skills training workshop at Knobs Flat in the Eglinton Valley from 31 January to 4 February 2000. This followed a similar course in the North Island in 1988. The aim was to improve staff skills for bat survey, monitoring, and management in their areas. We were lucky that we had good weather and caught both species of bat (short-tailed bats and long-tailed bats). Training was combined with undertaking Science & Research Unit and Te Anau Area Office bat research and monitoring projects. The participants were able to see real applications of the work, and the work was useful to the department at the same time. The workshop was very intensive, with night work (usually 1900-0100 hrs) and day work (usually 0500-0900 and 1300-1800 hrs).
The main emphasis was on the key tasks that managers need to address in their areas, specifically:

- establishing if bats are present
- identifying the species present
- monitoring their population trends, and
- identifying key habitats for protection or management (roosting and foraging habitats).

All participants were trained in trapping bats (harp trapping and mist netting), handling bats (including measuring and weighing, banding (long-tailed bats only), attaching transmitters and taking wing biopsies), surveying bats (use of bat detectors, identifying species from their echolocation calls, undertaking transect surveys for long-tailed bats, using a variety of automatic detector systems, planning distribution surveys and long-term monitoring programmes), operation of infrared video equipment at roosts, radio-tracking bats (following active bats and finding roost sites), and tree climbing (demonstration only).

## ARGENTINE ANT – A NEW PEST?

*from Chris Green*

The Argentine ant is native of South America and has been invading overseas countries for more than 50 years, including North America, Hawaii, South Africa, and Australia. It was first recorded in New Zealand in 1990, just before the Commonwealth Games at the Games venue in Onehunga, Auckland. Since its arrival Argentine ant has spread to many areas in the Auckland Region, established itself in Waikato and Tauranga and has recently been reported from several Northland sites, Gisborne, and Christchurch.

Argentine ants are small (2-3 mm long), are a pale, honey-brown colour, and cannot spread by flying, only by walking or being carried. The ant is particularly successful because it develops large multi-nest colonies with huge numbers of workers that swamp food sources. Like most other ants they feed on nectar, and similar sugary, sweet foods, as well as protein-based foods such as insects. Overseas research has shown that after these ants invade a site most other ant species disappear and many other insect groups suffer a significant decline.

Argentine ant has several attributes that make it much more successful than other ants. A key feature that sets the species apart from most other ant species is that workers from neighbouring Argentine ant colonies co-operate with each other. Thus when a new food source is located, such as a tree coming into flower, all surrounding nests will be able to partake. Because it is a very active, fast moving ant it often locates new food sources ahead of other species and can thus more efficiently dominate all available sources in the area occupied. The species also features a highly developed chemical defence secretion, which will force the retreat of most other ants, even when these other species are much larger than Argentine ants. Thus, despite their small size, Argentine ants frequently win one-on-one contests.

Unlike virtually any other ant species in New Zealand Argentine ant trails feature huge numbers of ants, moving in a stream up to 5-6 ants wide, like a busy six-lane motorway. These huge trails can be seen frequently moving up trunks of flowering trees, where the ants feed on nectar from flowers. They are also well known to exploit or 'farm' honeydew from other insects such as scale insects, aphids, and mealy bugs. The sheer numerical superiority of the species tends to lock up these food resources and prevent other fauna feeding on them. This has implications for many species of invertebrates, lizards, and birds that would normally feed on nectar and honeydew. As well as being extremely successful competitors they are predators of many other invertebrate groups and there are even reports of them killing recently hatched chickens and invading broken eggs.

The species is also unusual in the manner in which new nests are formed. Most other ant species spread when special

winged queens are produced. Each queen will leave the nest, mate then fly to a new area and start a new nest by herself. Argentine ant nests however typically feature many co-operating queens and a new nest is formed when a queen takes a group of workers and walks to a new site, a process called 'budding off'. A single queen, by herself, is unable to start a new nest. Thus, if left to themselves, Argentine ants can only spread relatively slowly into new sites. However, budding off allows new nests to form very quickly. There can also be high densities of nests, all of which co-operate to form huge super-colonies.

Nests are formed between any two surfaces close together. They prefer dry sites, under cover, usually on or close to ground, such as under concrete or other objects, in or under pot plants, or between any close surfaces inside buildings, equipment, timber, stores etc. Argentine ant nests could therefore occupy places that could be uplifted and transported to new sites. Such passive movement by hitching a ride enables the species to move over great distances. To be successful the whole nest or at least a queen and a number of workers must be shifted.

Argentine ants can generally be recognised by their behaviour together with their brownish colour. Most native ants have slow moving ant trails and have relatively small nests with low numbers of workers. Exotic ants, which may behave like Argentine ants, are generally black. Therefore if the ant trails have large numbers of fast moving ants that are not black then they could be Argentine ants. This is particularly likely if these trails are moving on trees. The ants themselves are small, but not tiny, thin and have relatively long legs and antennae compared to other common ants.

Currently there are several studies under way in Auckland to determine if Argentine ant is likely to have such a severe impact on our native ecosystems as has been reported overseas. One is by Landcare Research and the second is a PhD student at Auckland University. While New Zealand has many exotic ant species these are largely confined to urban or developed areas and have not penetrated unmodified native ecosystems. Argentine ant may be an exception to this rule. Results of this research will be some years away. Unfortunately the ant has pre-empted this by invading Tiritiri Matangi Island in the Hauraki Gulf – see Conservancy News, Auckland, in this edition of *Rare Bits*. Currently Argentine ants cover just 5% of the island, and the Auckland Conservator has decided that the ant should be eradicated from Tiritiri. Thus, for the time being, we are regarding it as an unwanted pest on islands with high conservation values.

## ISLAND ROUNDUP

*from Ian McFadden*

Between the Kermadecs to the north and Campbell in the deep south there are more than 800 islands in and around New Zealand. During the past 15 years we have been able to eradicate rodents from most of those islands (of any size) which are included in the DoC estate. The last four islands on the current list are by our standards very large. Mayor Island is scheduled for this year, with the last three - Raoul, Little Barrier, and Campbell - during the next 4 to 5 years. The recent increase in DoC funding has provided the funds to carry out all four projects. Obtaining consents and solving any technical issues that may arise are all that remains before they too become rodent free.

After that there are several quite large islands in private ownership that might

warrant investigation. Within the DoC estate there is Auckland at around 56,000 ha which has pig, cats, and mice, and Antipodes at 2025 ha with mice. We then have to look into the 'too hard' bin where Great Barrier, Pitt, Chatham, and Stewart lie. In that group are also islands like Resolution which caused Richard Henry so much grief 100 years ago.

Richard Henry was the person responsible for translocating birds in an attempt to save them from the ravages of introduced predators. He was particularly concerned about the impact of stoats on kakapo and moved hundreds of the birds about Fiordland, releasing most of them on Resolution. However, his efforts were found to be in vain because stoats colonised the island in the early 1900s, and remain there today. The island is about to be visited with the purpose of evaluating our ability to remove stoats. We think it is worth considering, partly because it looks like we have been able to eradicate stoats on Chalky Island to the south. It might also be a more manageable option. The logic here is that reinvasion will be over water and will not be around the entire perimeter. This is because the Tasman Sea abuts the west side. It is, therefore, quite unlike the mainland where reinvasion of the entire perimeter can occur from adjacent areas with no physical or geographical barrier. Accordingly an island like Resolution might be a better option for the conservation dollars, and objectives.

If the project proceeds it will create another category of island refuge. Unlike the remote offshore islands, which require little or no maintenance, Resolution will need regular maintenance and might even need permanent staff, but the overall effort is likely to be substantially less than currently required for mainland islands.

On the local front, the only island scheduled for this year is Tuhua or Mayor. The intention is to remove Norway rat, kiore, and feral cats. Coincidentally, Raoul has the same composition of pest species, so results from Mayor will be directly relevant. The basic plan for Mayor is to apply bait aerially: once at 8 kg/ha by setting the bucket at 4 kg/ha and overlapping by 50% using differential GPS. The second application is a back up to be flown at right angles to the first, and will be at 4 kg/ha with a slight overlap. Because we want to monitor any secondary poisoning impact on cats a sample of 6 has been radio collared. Some people predict there will be very few cats killed by this method. This is because cats are quite tolerant of Brodifacoum (the poison used in the rat bait), and a cat would need to eat about 30 dead or dying rats to acquire a lethal dose of toxin. The follow up for the cats will be shooting, trapping, and poisoning with 1080 fish bait.

Whenua Hou was checked for rats in April. It is now two rat breeding seasons after the island was poisoned. There have been two reports of something rat like being seen during the previous 6 months, but both incidents were subsequently discounted as lizards, or birds (possibly fledgling blackbird). Eighteen lines of snap traps were set out under netting covers to prevent an inquisitive kakapo from having its neck broken. This random trapping was carried out over the entire island and yielded no rats. Nor was there any trap interference which could be attributed to rodents.

Supplementary feeding of kakapo will begin in October and this will suffice as further indication that kiore have been eradicated. Prior to this operation kiore were a nuisance about kakapo feeding stations eating spilt food and constantly

attempting to gain access to the feed stations. There was also a disease risk associated with kiore defecating in and about the feeding site.

If any kiore remain on Whenua Hou we expect them to appear at these sites.

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Please follow these word limits: Conservancy News 800 words, Restoration Resumé 500 words, Island Roundup 1000 words, Other Bits 900 words, Feature Article 800 words.
Articles should be clean (ie, free of any formatting) and any graphs or figures should be saved as TIF files.
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