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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 RESTORATION OF LAND- LOCKED KOARO

From Kim Young, Bay of Plenty
Conservancy.

The Department is currently in the process of preparing recovery plans for several suites of native fish including the "large galaxiids." These comprise shortjawed kokopu (*Galaxias postvectis*), giant kokopu (*Galaxias argenteus*), banded kokopu (*Galaxias fasciatus*) and koaro (*Galaxias brevipinnis*). Typically, these species form part of one large diadromous¹ the population for each species respectively. However the draft Recovery Plan recognises that land locked populations of all of these species, except shortjawed kokopu, may be genetically distinct.

Land-locked populations of koaro, or "native trout," were once abundant in the lakes of the Central North Island and formed part of their natural character. Pre-European harvest in both its juvenile (whitebait) and adult (kokopu) form comprised an important food resource for local Maori and contributed to their cultural identity as an inland lakes' people. Since the

introduction of recreational trout species to these lakes in the late 1880's, and common smelt (*Retropinna retropinna*) in the early 1900's, the abundance of koaro has dramatically declined, to the extent that the species is now considered rare. Indeed despite intense recreational fishing pressure, very few locals or visitors to the central North Island have ever laid eyes upon the elusive koaro.

Recently, an opportunity for a collaborative project between the Department and local Maori to restore the natural character of a lacustrine ecosystem has arisen through an interest to re-establish a native koaro fishery. At present, this project is in its conceptual stages, however some biological and ecological research has taken place to unravel the life history of land-locked populations to provide information for future restoration and management decisions.

During July 1999 to February 2001, I studied the life history of lake and stream koaro in Lake Tarawera and Lake Okareka. Both lakes are part of the Tarawera Lakes group, a subgroup of the Rotorua Lakes situated in the Central North Island, and were known to contain both lake and stream fish. Fyke netting was used to sample lake fish on a monthly basis from January 2000 to February 2001, and seasonal two-pass reduction electric fishing at five sites in the tributary streams took

¹ Spending part of its life cycle in the sea and the other in fresh water, e.g., going to sea to spawn.

place in April, July and November 2000, and February 2001. All fish larger than 70 mm total length were tagged with a passive implant transponder. Spawning season and location, together with size and growth of lake and stream fish were determined, and movement of lake fish within the littoral zone was also investigated. The main purpose of the study was to establish the role that tributary streams played in the life-history and maintenance of lake populations of koaro, and explore the possible effects of recreational trout and common smelt on koaro populations.

Some very interesting and surprising results were found.

Firstly, lake and stream koaro appear to belong to distinct populations indicated by differences in size, growth rate, spawning time, locality, and return of lake and stream koaro to respective habitat types. Secondly, while the life history of stream koaro has remained similar to that of its diadromous counterparts, landlocked lake fish by contrast, were found to have adopted a completely different life history where spawning takes place in the lake itself. Finally, the abundance of koaro in both Lake Tarawera and Lake Okareka was low when compared with lakes where trout or common smelt were absent. Also the abundance of post-whitebait koaro (greater than 45 mm total length, coloured and patterned) in both tributary streams studied, was also low where rainbow trout (*Onchorhynchus mykiss*) were proportionally present in greater abundance.

Given the above, koaro juveniles and larvae are most likely subject to competition and predation by a combination of rainbow trout and

common smelt in lakes and streams. It was concluded that any proposed restoration programmes for land-locked koaro needs to enhance the survival of these life stages, and manage the combined effects of trout and common smelt in both lake and respective tributary stream habitats.

It is envisaged that any restoration project will be long term by nature. The above study forms only part of a very small step on a large staircase to success for a project that will be implemented in a series of phases. Each phase will require clear definition within spatial and temporal boundaries, according to ecological feasibility and social acceptability and setting of restoration targets.

CONSERVANCY NEWS

NORTHLAND

From Andrea Booth, Richard Parrish and Adrian Walker

Argentine ants

An infestation of Argentine ants has recently been found in the Urquharts Bay adjacent to Bream Head Scenic Reserve. Left unchecked, these ants will eventually make their own way to the reserve, where they have the potential to cause major damage to this ecosystem. The main impacts include competition with native species (i.e. kiwi and insectivorous birds, lizards, invertebrates), and direct predation of invertebrates. Staff have almost completed a survey to determine the extent of the infestation, and so far it appears the

ants have not reached the reserve boundary. The ants are not widespread in the farmed areas, but they have been making their way towards the reserve via a couple of narrow scrubby gullies. The best option for control will be determined once the full extent of the infestation is known.

Tuatara Survey - Chickens Islands

Following the spectacular results from Lady Alice Island (West Bay) last March ([Rare Bits 42](#); where 43% of tuatara seen were juveniles compared with less than 2% prior to removal of kiore), a survey of Coppermine and Whatupuke Islands was recently carried out. Coppermine Island had kiore removed in 1997. Our survey revealed 15% were juveniles, which is a very good result in just 4 years.

On Whatupuke Island, where kiore were eradicated in 1993 (8½ years ago), the result was exactly the same as Lady Alice Island: 43%. In South Cove, on Lady Alice Island, the result was only around 3%, which suggests that results can vary greatly over a single island. South Cove has relatively dense forest and faces south, so perhaps does not possess ideal tuatara nesting areas. Perhaps the young being produced elsewhere will migrate into these areas in time.

Results of body condition are still being analysed, but there seems to be a significant improvement in the length:weight ratio, which suggests the animals are in prime condition. These responses were expected, but nobody expected them to occur so soon.

Kokako

Puketi

The first steps toward a captive rearing programme for the recovery of Puketi kokako is now well on its way, with the chicks from Tiritiri Matangi now moved from their Puketi Forest aviary home of the last two months, to Hamilton and Auckland Zoos. The chicks were farewelled from Puketi on the 14 March and welcomed to Auckland and Hamilton Zoos in ceremonies attended by Ngati Toro the tangata whenua of Puketi, Ngati Whatua and Ngai Tai of Auckland, Tainui of the Waikato and Ngati Paoa of the Hauraki Gulf. They will each be joined at the zoo by a male kokako from Puketi. The Kokako Recovery Group and Iwi have sanctioned this work in an attempt to breathe new life and blood into an all male population in Puketi Forest.

Mataraua

The 2001/02 kokako breeding season was a slow one in Mataraua. Three nests were found in late November and early December; one of these produced two chicks, the other two nests failed, and the cause was unable to be ascertained due to safety standards involving tree climbing. Rodent monitoring, however, yielded satisfactory results and possum catches were low - harriers are thought to be responsible for many nest failures in this area. Signs of breeding activity from the seven confirmed breeding pairs were minimal after this. In March, however, a post operation survey found two chicks with one of the pairs that had previously had a failed nest. This doubled the known chick output for the season. A survey of the Waima population found a pair and a single bird with lots of scope for

more in-depth surveying. So at the end of the season we have nine pairs in Mataraua (seven known to have nested before), and one pair in Waima.

AUCKLAND

From Jonathan Boow and Rosalie Stamp

Hidden *Colensoa*

David Agnew and other staff members from the Great Barrier Area Office have recently resurveyed for koru (*Colensoa physaloides*) on Rakitu (Arid) Island, which lies off the north east coast of Great Barrier Island. Rakitu Island is the only known site in the conservancy for koru, where 13 plants were previously known from a very steep rocky site. Area Office staff were monitoring these plants and decided to search further down the steep face, where they found a narrow gully running down to a rocky shore. This search revealed the hidden population, estimated to be around 600 plants! It appears the steep and barren terrain has protected the gully from a century of grazing from sheep, cattle and goats. Rakitu Island has recently become a Scenic Reserve and the area is now fenced. The plant was in flower when visited in February.

Mawhai

A recent survey of the northern coast of Little Barrier Island has discovered two small populations of the native cucumber or mawhai (*Sicyos australis*). Both populations consisted of large individuals covering an area of 5x5 metres. Unfortunately the weed Mexican devil was found growing near

to one of the sites; this will hopefully be targeted for control in the near future. Other larger mawhai plants were seen along the coast. Also a new small population of the shore spurge (*Euphorbia glauca*) was found growing amongst flax behind the boulder beach. This consisted of 10-12 adult plants. A number of other previously known shore spurge populations were also observed.

Fissidens

The aquatic moss *Fissidens berteroi*, which is found in a flume in Onehunga, is being monitored by bryologist Dr Jessica Beever. In New Zealand this moss is known to grow only in this flume, one other site in Auckland where its status is uncertain, and under two bridges in the Wairarapa. There are several other records, but all date prior to the 1930's. Some water is drawn off upstream of the flume, so sprinklers are required to keep this aquatic moss wet during times of high uptake. These sprinklers are maintained by Watercare Services who draw the water from the culvert. Despite occasional problems with these sprinklers the system appears to be working. The *F. berteroi* is doing well; it is more extensive than when last checked in detail a year ago. It is growing well along the concrete walls of the flume as well as on several loose pieces of rock on the floor and on basalt blocks that form part of the western wall of the flume. Spore-bearing capsules were observed on the moss.

Kokako

Jeannie Preddey, Hazel Speed and Rosemary Gatland (Auckland Regional Council) are thrilled to report that eight

kokako chicks have fledged in the Hunua Ranges and there is still one nest to go. This is the best season yet with all five pairs breeding.

The Tiritiri Matangi Island kokako population has finished breeding now, after two of the three breeding pairs produced three chicks. Two of these (females) went to Puketi Forest and were raised in an aviary there. Next week, one of them will go to Auckland Zoo and the other to Hamilton Zoo where they will be paired with Puketi males, which will be caught later. The aim of this is to preserve the Puketi gene pool as much as possible, as it is believed that there are no longer any female Puketi birds left in the wild.

Hihi

There were 71 hihi nests on Tiritiri this year producing 103 fledglings. Ian Fraser and Sandra Jack were kept extremely busy with cross fosterings, mite infestation control and supplementary feeding. University students, volunteers and Tiritiri Supporters provided invaluable help during the busy times. The first fourth clutch on Tiritiri was recorded as well as a clutch of six eggs. Five chicks were taken to Mt Bruce to continue the captive breeding for release programme there.

Takahe

There were three chicks produced this season and all are ready to be banded.

Tuatara

Richard Griffiths has also reported the thirteen juvenile males, which were

hatched at Victoria University, are now ready to return to Hauturu Island.

WAIKATO

From Jason Roxburgh, Leigh Marshall and Tertia Thurley.

Dactylanthus

The big news of late on the threatened plant front is finding *Dactylanthus* in the Tapu-Coroglen area on Coromandel Peninsula. The first clump was found by a group of DOC and Victoria University staff whilst doing frog monitoring. A follow-up search by conservancy staff subsequently found another three clumps. All have been caged, and are being monitored to see when they flower. Publicity from this find has turned up a few new leads from people having seen or collected *Dactylanthus* from other areas on the Peninsula in the past, and these are also being followed up.

Kiwi

We are fast approaching having caught 250 stoats at Moehau Kiwi Zone, but numbers are dropping off as we extend out to the full coverage intended. So far we have had three out of twelve chicks predated, and have had two eggs from an abandoned nest hatched by Rainbow Springs (many thanks to Claire and Carol). One was released back in Moehau in March and the other is due for release soon and will add to our monitored chick pool.

Meanwhile, in the middle of rural Waikato, kiwi chicks from Tongariro Forest are thriving. Warrenheip is 14 ha

of regenerating bush enclosed by the latest in predator-proof fencing. The Exclosure fence was developed by the landowner and has proved effective at keeping out mammalian predators. Over the past few months, three abandoned kiwi eggs have been hatched at Rainbow Springs and the chicks transferred to Warrenheip. The chicks will be returned to the Tongariro Forest once they have reached the target release weight.

Pycroft's petrel

Graeme Taylor and team (BRU) are due to return in April from Cuvier Island where they have been releasing Pycrofts petrels. This is year two of a three-year project to take petrels from Red Mercury to re-populate the sea-bird depleted Cuvier. This years release of 100 birds has been a success with 95% survival of translocated birds. The team will return to Cuvier next year to release some more petrels and monitor the success of the project.

New Zealand dotterel

A combination of stormy weather and egg predation has not been good for New Zealand dotterel at Opoutere this season. In the worst year since a fulltime ranger has been employed at Opoutere, only six chicks fledged from 20 pairs. The early season nest predation was most likely from aerial predators and ceased when nests were covered. In contrast, dotterel at Waikawau Bay did well this season, with nine chicks fledged from 11 pairs, five fledging before the warden began. The small population at Waikawau Bay is looking with the number of pairs slowly increasing over the past few years.

Kokako

Hamilton Zoo is very excited to have recently received a kokako pair from Northland for captive breeding. The male was caught from Puketi Forest and has been paired with a female from Tiritiri Matangi Island. The Kokako Recovery Group is hopeful that the two will produce many offspring that can then be released back up north.

Meanwhile, out in the bush, contractors and Maniapoto Area staff are conducting a post-breeding census of kokako at Mapara, primarily to find out rates of female mortality over the breeding season. Over the previous few seasons of no predator management, there has been a high rate of female loss (presumably due to stoats taking nesting females). With predator control resuming this year, we are hoping for good female survivorship. Several juveniles have also been sighted so far.

Birds and other critters in Pureora

It was a bumper breeding season for North Island robins in Pureora this year. The fledgling success of pairs in Waipapa, an area controlled for possums and rats, was 82%. Predictably, things were not so good in the unmanaged Waimanoa with only 33% of pairs successful. The kaka crew from Science and Research were busy monitoring kaka over the breeding season at Waipapa/ Waimanoa with kaka breeding success following similar trends. Pureora Field Centre staff have also monitored kereru, weta, bats and leafroller over the summer and the results are in the pipeline.

Frogs

Things are fairly gloomy on the frog front. Chytrid fungus has been positively identified from dead frogs in the main Archey's populations on the Coromandel and the King Country. Plans are afoot to capture 50 Archey's frogs from the King Country in April to begin a captive population as a safeguard against their possible extinction in the wild. Precautions are being taken throughout the Conservancy to minimise risk of people spreading chytrid when moving between sites by disinfecting gear and vehicles. Public are also being requested not to go into certain areas where frogs are found. Fortunately, no dead Hochstetter's frogs have been found infected with chytrid. We're keeping our fingers crossed.

New staff member

A new staff member has joined the Technical Support Unit at the Conservancy. Leigh Marshall has taken over from Chris Smuts-Kennedy as TSO fauna. Chris has retired from DOC to do some contract work and spend more time with his bees. Leigh did her Masters thesis on grand and Otago skinks in the tussock grasslands of Otago and has worked on a broad range of bird, mammal, frog and invertebrate projects in New Zealand, Australia and Antarctica.

BAY OF PLENTY

From Paul Cashmore and Kim Young

Mistletoe (*Peraxilla colensoi* & *P. tetrapetala*)

A big survey effort was put in this summer for flowering throughout Whirinaki Forest Park. Two teams tackled either end of the park simultaneously. The result was new *P. colensoi* plants found in Te Hoe, Skips-Rogers Hut area and throughout the Moerangi Stream area. It was confirmed that all plants known in these areas are *P. colensoi*, on silver beech hosts.

The most significant opportunistic finds of the season however were the discovery of *P. tetrapetala* – probably on *Quintinia serrata* – in both Tuwatawata and in Otupaka Ecological Areas (on opposite sides of the park). The Otupaka find was made by Landcare staff during monitoring work. Both these areas have had recent possum control and this is the first positive confirmation of *P. tetrapetala* in Whirinaki. *Peraxilla colensoi* was also found in Tuwatawata at the same time.

Mawhai

A follow up site visit was made to the mawhai (*Sicyos australis*) site discovered at Otamarakau in May 2001, to assess population changes. The population occurs in a pine forest, which has been pruned and thinned two months ago. This had not greatly affected the mawhai plants with vigorous regrowth noted. The weed contractor who found the original population also showed DOC staff two

more nearby sites, all within the same forest. It was estimated over 100 plants are present in total and probably increasing. On the visit we were accompanied by Catia Delmiglio (Auckland University) who is studying *Sicyos*. A check was also made on the one successful *Sicyos* planting site at Ohope which has been sustaining itself from seedlings for several years now.

Cyclosorus and *Thelypteris*

DOC staff have been working with Fish and Game and Wildland Consultants staff over past month continuing resurvey of populations of *Thelypteris confluens* and *Cyclosorus interruptus* in several of the Rangitaiki Plains wetlands which have not been checked for several years. Awakaponga Wildlife Management Reserve was surveyed with a total of 93 *Cyclosorus* plants found surviving in amongst a reed sweet grass infestation. In Awaiti Wildlife Management Reserve water levels were still high, however several healthy clumps of *Cyclosorus* were found at both the original sites in the wetland. At Bregmans Wildlife Management Reserve, a few clumps of *Cyclosorus* and *Thelypteris* were noted in amongst a heavy reed sweet grass infestation. It appears that numbers of both species have declined in the latter two wetlands since early 90's, probably as a result of weed competition at Bregmans and higher water levels at Awaiti.

Pterostylis micromega

Another survey using volunteers was undertaken in early February for the elusive *Pterostylis micromega* record (1984) from the Lower Kaituna wetland. No plants were found,

however several new sites for royal fern (*Osmunda regalis*) – a major weed threat to the wetland – were discovered and treated.

Myriophyllum robustum

Staff checked on the population found several years ago on the Mamaku Plateau. The lake was almost dry when checked in February but the population was still thriving in stream inflows to the lake, and so appeared able to handle this type of summer conditions.

Freshwater fish

The freshwater fisheries team has been busy over the last few years with several projects. A survey of the Whirinaki River tributaries for shortjaw kokopu and other native fish revealed that the two hydroelectric dams constructed on the Rangitaiki River in the 1950s and 1960s have completely impeded passage, and no native fish except eels were encountered.

A shortjaw kokopu survey in the headwaters of the Kaituna River is currently being undertaken and is likely to be completed in April this year. Results to date suggest that the Kaituna Falls located about mid way along the length of the Kaituna River acts as a natural fish passage barrier with no native fish being found in tributaries surveyed to date.

A collaborative project between Te Arawa (tangata whenua of the Rotorua Lakes) and DOC to restore a population of lakelocked koaro in one Rotorua Lake is currently being undertaken under the umbrella of Maturanga Maori supported by STIS. Project goals and objectives are being developed,

and surveying of potential sites is currently being undertaken. Implementation of the project will require management of trophic levels at a lake scale.

A three-year shortjaw kokopu habitat monitoring program of three sites in the Eastern Bay of Plenty is nearing completion with summer monitoring of fish numbers to be completed. To date, fish numbers have remained very low with only two and three individuals per site being observed during spotlight monitoring, and no juvenile fish encountered. A report will be completed by the end of April and results presented in the next Rare Bits edition.

TONGARIRO/TAUPO

From Peter Morton

Rangataua Kaka

With the assistance of Alan Jones from Terry Greene's Kaka team, two kaka nests have been detected in Rangataua Forest, both in early incubation. Staff will monitor them as they run the stoat/possum/rat gauntlet over coming months. This work is to monitor kaka nesting success in an area without pest control, to provide a comparison with other managed areas such as Waipapa.

Tongariro Forest kiwi sanctuary

Four months after an effective possum and rat knock-down by a 20,000-ha aerial 1080 operation over Tongariro Forest, stoats reappeared in the centre of the forest and began killing kiwi chicks. So far five of the 11 chicks have

been predated, and all in the centre of the treatment area. Surviving kiwi chicks are being left in the wild in the hope that stoat density will not recover quickly enough to make their fate certain. Unfortunately only one of the 11 monitored chicks hatched early enough in the season to get the full benefit of the aerial knock-down. Its September hatch date has allowed it to reach well over 1000 grams now, so it is relatively safe from re-invading stoats. It is hoped that other unmonitored chicks from this same early (first clutch) cohort have also benefited as only 12 of an estimated 40 breeding pairs currently carry radio transmitters in the Sanctuary. However, all other monitored chicks hatched after November are still at risk. Rodent numbers remain surprisingly low, with the same tracking index recorded in February as in December (< 2.0%).

EAST COAST/HAWKE'S BAY

From Dave King

North Island weka project

One of the aims of this project is to monitor juvenile survivorship of North Island weka in two separate study areas on the East Cape Peninsula. The first area is in the Motu Valley, between Gisborne and Opotiki where trapping for mustelids, cats and possums takes place. The second area is in the Whiti-kau Valley about 20 km north of Motu. This area is un-trapped and serves as a control to measure the success of the trapping regime.

The breeding season for North Island weka in the Motu and Whiti-kau areas began in July 2000. Transmitters were attached to six female weka from each

study block, which enabled nesting activity to be monitored with minimal disturbance to the birds.

To date all of the female weka have made at least one nesting attempt. Eleven of these 12 nests have produced between one and three chicks. The twelfth pair has made two known attempts at nesting, but the first was abandoned due to a disturbance event and second was abandoned during heavy rain.

Presence and absence of individual chicks from each nest has been monitored using a combination of several methods. Video surveillance was used at feeding stations, chick sign - including chick prints and down - was searched for, and calls between parent birds and chicks were listened for. Depending on the area it was also sometimes possible to scope the birds from a distance.

Occasionally these methods provided data on the number of chicks present in each nest, but more usually they only reliably provided presence and absence. Very rarely, they provided information on cause of death. In an attempt to further ascertain causes of chick mortality several chick transmitters were purchased. These will be attached to chicks after the next round of breeding.

When the chicks are a few months old, they are usually large enough to carry adult-style transmitters. Six chicks from each study block are currently being caught and will have these transmitters attached to them. The transmitters have a battery life of 14 months and chick survival will be monitored throughout this time.

Last season, five juveniles from the Whitikau and six from the Motu area had transmitters attached to them. Only one of the Whitikau juveniles is still alive. Of the four dead birds, three were predated by stoats and the other was either predated or scavenged by a cat. From the Motu area, three juveniles are still alive. Of the other two birds, one had wandered two kilometres beyond the trapped area and was predated by a stoat. The signal from the other bird has never been picked up and I suspect that the transmitter was faulty. Although the sample size is small, these results suggest that the trapping regime in the Motu area is effective.

WANGANUI

From Nic Peet, Graeme La Cock and Rosemary Miller

Whio Survey and translocation

Whio (blue duck) numbers along 16 km of the Manganuioteao River were assessed in November 2001 as part of ongoing monitoring work and in preparation for the translocation of birds to Mount Taranaki in early 2002. The intrepid survey team donned thick wetsuits, helmets, flippers and white-water sleds and hurtled off down-river through numerous rapids and freezing snowmelt. It appears to have been excellent breeding season for ducks on this river, the team counting 13 pairs with 36 juveniles and a further four lone adults.

With productivity high on the Manganuioteao it was decided, in consultation with Tamahaki the local

iwi, that up to five juveniles could be removed to Mount Taranaki. The plan was to supplement these birds with five from the Whakapapa River and also with captive-reared ducks. In the end a poor breeding season prevented any birds from being taken from the Whakapapa. However three juveniles were caught on the Manganuioteao in early January and were released on Mount Taranaki. These birds have been joined by seven captive-bred juveniles released on 27th February. All the birds are fitted with radio transmitters and are regularly monitored on foot and from a fixed wing plane.

Kokako

A few remnant kokako are apparently still hanging on in Taranaki. Members of the New Plymouth branch of OSNZ recorded two birds singing at Tawhitiraupeka trig, North Waiaanga, and staff from the DOC office in New Plymouth have subsequently seen a single bird at the same site.

New Zealand Robin

A recent census of the reintroduced New Zealand robin population at Paengaroa Mainland Island revealed that the eight known breeding females survived the breeding season with a further female being located at the end of the season. Five adult males are also known to be present and approximately 16 chicks were produced this year. The original reintroduction and subsequent monitoring has involved staff from the Palmerston North Area Office working in collaboration with staff and students from Massey University.

Heaps of herps

DOC staff from Stratford and Whanganui Area Offices, accompanied by herpetologist Tony Whitaker, spent a week in December searching out reptiles and amphibians in south Taranaki and north Whanganui. New sites were found for several species including goldstripe gecko (*Hoplodactylus chrysosireticus*), forest gecko (*Hoplodactylus granulatus*), copper skink (*Cyclodina aenea*) and common skink (*Oligosoma nigriplantare polychroma*). Of particular note was the discovery of two new sites for speckled skink (*Oligosoma infrapunctatum*) at Waiinu and Patea. These latest discoveries to have extended the known range of the species westwards.

January has seen two records of striped skink (*Oligosoma striatum*) in central Taranaki. This is one of New Zealand's least known reptiles. One animal was found in a garden and the second in a pile of firewood. Attempts are underway to locate more animals at the two sites. Bait trials are in progress with a small captive population at Mount Bruce to try and improve trapping success in the wild.

A recent search for small-scaled skink (*Oligosoma microlepis*) in a small area of the north-western Ruahines around the confluence of the Whakaurekou and Mangatera Rivers proved unsuccessful. However eight unidentified geckos were spotlighted on rock-faces and in riverine scrub.

Patchy productivity of *Ranunculus recens* at Manaia

We (Graeme La Cock, Jim Clarkson and Colin Ogle (retired)) did our annual

monitoring at Manaia. Numbers at the original population are down. We only found about 50 plants. A 50x50 cm site that we marked out two years ago now has no plants, compared with 27 juveniles and three adults then. But there are other adults outside our monitoring sites that had good seed set. Some seed was collected and sent to Robyn Smith at Percy's Scenic Reserve for propagation.

The transplant sites haven't fared any better. Twenty-odd seedlings were found in one 5x5 cm patch where an adult had been the year before. There were also two seedlings just below this clump. But that's all that's left from the original plantings at four 50x50 cm sites.

More of a worry is that we spotted Chilean rhubarb (*Gunnera tinctoria*) on the cliffs just below the original site.

Range extension for *Pimelea* (a) (CHR 495025; Turakina)

The Wanganui Museum Botanical Group found some more of this *Pimelea* further (1-2 km) up the coast from the site where the Wellington Botanical Group had rediscovered it over Easter (2001). Also Nick Singers thinks he might have found it up past New Plymouth in an earlier life (his consulting days). We'll have to follow up on this record.

Cook's scurvy grass

New Plymouth staff found about 35 plants of Cook's scurvy grass on Saddleback Island in February, and about a dozen young and healthy plants on Moturoa Island. Area staff hadn't seen Cook's scurvy grass at Moturoa in

recent years, and numbers appear to be up at Saddleback. So either the population of Cook's scurvy grass at the Sugar Loaf Islands is increasing, or survey techniques have improved. Material was collected from Moturoa for the DNA study.

WELLINGTON

From John Sawyer, Karen Barlow and Colin Miskelly.

Plants of conservation concern

The Wellington Plant Conservation Network (WPCN) met in late Feb at Otari. Over 30 attended the meeting and discussed a range of conservation projects including: a Forest and Birds project to grow plants for Wellington City; local horticulturalists' success in growing rare and endangered plants; the work of the Wellington Regional Council and the Department of Conservation to protect the region's rarest plants; and WWF's plant conservation education project. A presentation was also made about the new threatened plant list for Wellington resulting from the Department's new threat classification system.

New discoveries

Local expert botanist Pat Enright discovered a population of the rare fern *Doodia mollis* in the southern Wairarapa. This is the first record of the species for Wellington, and the most southerly record in the country. The Wellington Regional Council have found another *Peraxilla tetrapetala* in the Hutt Valley at Silverstream.

Monitoring

Peter Griffen is now re-surveying and monitoring threatened plant sites in Poneke Area and using that information to improve conservation of plant populations. The following species have been surveyed: *Mazus novaezealandiae* subsp. *novaezealandiae* at Makara (type locality). Approximately 115 plants (more than past surveys) were found. That increase may be due to low grazing impacts (no cattle in sight) resulting in improved habitat condition. *Pimelea aridula* at Pipinui point (approx. 30 plants found - all survived burning of areas of coastal habitat last year in a very dry summer. Cattle grazing is evident, and goats were seen in the vicinity. Naturally occurring *Muehlenbeckia astonii* at Turakirae/Wainuiomata coast have all been re-located.

Restoration

Euphorbia glauca (sourced from captive breeding populations Mana Island) have been planted on Matiu/Somes Island last winter. Forty individuals were planted and 10 were still surviving as of December 2001.

National Wildlife Centre (Mount Bruce)

After a very slow start to the season, 15 shore plover chicks were produced. Two clutches were removed for artificial rearing to boost production. These juveniles will soon be released onto Portland Island. The 10 pairs of Campbell Island teal have had an enforced break from breeding, while we await the outcome of the Campbell Island rat eradication.

Hihi (stitchbird) have had a difficult season, with four adults succumbing to aspergillosis. However, three locally bred chicks survive, along with three "orphaned" chicks from Tiritiri Matangi that have been hand-reared. Surplus birds not required for breeding stock will be released onto Kapiti Island to boost numbers.

The resident kokako pair (a captive bred female and Taranaki male) made two unsuccessful nest attempts this season before the female died of age-related conditions in December (at 15 years old). Five other kokako from Mangatutu were caught and brought to the NWC in August. These birds, plus our resident single male make up three pairs for the 'breed on site and release into Mt Bruce forest' programme. Not surprisingly, no offspring were produced from these pairs as they had new mates and captive life to get used to. We hope for some action next season.

The wild kaka population at Mt Bruce continues to grow. As the one captive pairs' genes were over-represented among the releasees, they were transferred to Wellington Zoo and a new pair brought in. This pair has produced four fledglings and a second brood of three young chicks. All juveniles will join the wild population once they are independent. It has been the most productive year so far for the wild kaka population. Six pairs attempted to breed, producing nine surviving offspring. Of the six nest sites, four females chose artificial predator-proof boxes, making it much easier for staff to monitor chicks. All chicks were measured and weighed during the nestling stage to determine parameters for sexing chicks in the field. The two natural nest sites were

unsuccessful – one was breached by a stoat, which killed two chicks, and one nest was abandoned. Despite predator control over 75ha, two adults, two chicks and two fledglings have been lost; stoats look to be the main culprits. The population stands at 19 adults and nine juveniles.

Six striped skinks were transferred to the NWC in August to allow experiments to guide recovery actions - mainly bait preference and trap design. Striped skinks are dubbed New Zealand's most elusive skink as they are so hard to find in the wild, possibly as a result of inadequate trapping techniques. Only one female is held at NWC, and no breeding occurred this season.

Fairy prion chick transfer

Forty fairy prion chicks were transferred from Takapourewa (Stephens Island) to Mana Island in January, to develop and test techniques for larger transfers planned for the next two years. All 40 chicks fledged successfully 2-14 days after arriving on Mana. The birds were hand-fed by contractor Rex Williams and teams of volunteers from the Friends of Mana Island Society (FOMI) and the Ornithological Society. Half the birds were fed a krill-based diet, and half were fed pureed sardines, with the latter diet proving to be the best nutritionally and logistically. This project (funded by FOMI) is intended to restore burrowing seabirds to Mana Island as part of the overall ecological restoration of the island, and builds on the successful transfer of diving petrel chicks in 1997-99.

NELSON/MARLBOROUGH

From Jan Clayton-Greene, Mike Aviss, Hans Stoffregen, Shannel Courtney and Cathy Jones

After last year's record-breaking drought, we experienced the wettest spring and summer on record. This appears to have affected a number of plants and birds. Fantails have taken a conservancy-wide dive, and even island populations have been affected. On Takapourewa Island, they have been found drowned in stock water troughs.

Hutton's shearwater

The boundaries of the Hutton's Shearwater colonies in the Kowhai Valley have now been recorded by GPS in an attempt to detect future changes in the colony extent.

Limestone wheatgrass

Limestone wheatgrass has been re-monitored in the Leatham Valley including a recent transplant site. So far, the results are not outstanding with only one seedhead found in the new site, but as the plant is only obvious when seeding it is hoped that more plants are present. A second naturally occurring site near the original quarry has now been confirmed, as well as a new population of *Teucrium parvifolium* discovered.

Cheeseman (CHR 84742; Chalk Range)

A survey of historic locations of *Cheeseman* "Chalk Range" within Isolated Hill Scenic Reserve failed to find any plants, indicating that this

plant is in a critical state with only a few plants known on the nearby Chalk Range.

Myosotis (b) (CHR 386966; Mt. Tapuaenuku)

On a more encouraging note a survey for *Myosotis* "Tapuaeo-Uenuku" found a population of the plants at about 2,200 m above sea level.

Muehlenbeckia astonii

Survey of one of the historic records of *Muehlenbeckia astonii* in the Awatere failed to turn up any plants, but an enthusiastic landowner from the Grassmere area found a specimen on his neighbour's property. Between them they have three plants and both landowners are keen to put *Muehlenbeckia* back into the local landscape as hedgerows.

Invertebrates

A survey within the Tone Conservation area discovered a new location for gingham moth (*Gingidiobora nebulosa*). Following up a sighting from last year the team also found live specimens of the Kaikoura weta (*Deinacrida parva*).

Weka

Weka are having a good breeding season in the Sounds Area after being devastated by the drought in many places, including Port Underwood and Mt Richmond Park. Full recovery is still some time away.

Pigmy button daisy

Re-monitoring the pigmy button population in the Rai Catchment has shown that despite the drought there has been recovery close to predrought numbers, although grass competition is proving to be the main threat now. Many plants are flowering prolifically.

Mistletoe

Scarlet mistletoe (*Peraxilla colensoi*) has been recorded in the Sounds for the first time for many years flowering on Mt Stokes and in Kenepuru Scenic Reserve.

Takahe

Two chicks have survived to over 50 days on Maud Island, which is a good effort in a summer of massive rainfall.

Eric, hung up by his leg in a sheep netting fence, would have died if Steve had not found him and administered some TLC. Fences were also responsible for Albert's death previously, fuelling debate about whether to take sheep and fences off Maud Island altogether.

Mohua

The last surviving female mohua from Mt Stokes, rescued in 1999 just before ship rats wiped out the rest, has finally bred on Nukuwaiata.

The 27 mohua from the dart Valley also released Nukuwaiata in October 2001 have been hard to monitor. Their secretive habits and the difficult terrain have resulted in only nine individuals being positively identified from colour bands.

Marble and limestone bits

Parahebe aff. *cattaractae* (CHR 324810; NW Nelson) (aka *P.* aff. *cattaractae* "hairy")

A survey for an unnamed *Parahebe* in limestone country along the North-West coast has picked up 12 new populations (of c. 650 individuals). Its preferred habitat is under overhangs on mossy tufa formed by redeposited limestone. Beforehand, *Parahebe* aff. *cattaractae* "hairy" was only known from a handful of plants at three sites, and listed as "data deficient". This is by far the largest and most range-restricted of the New Zealand *Parahebe* species.

Melicytus (a) (CHR 355077; Matiri Range)

Another 87 nationally endangered *Melicytus* (a) "Matiri" have been found during further survey under limestone ramparts on the western end of the Matiri Plateau. As with previously found plants, they are all heavily browsed, with indications of a past catastrophic population decline. Hares and possums are strongly implicated.

Moonwort

Yearly moonwort (*Botrychium lunaria*) monitoring on the Hoary Head and Owen massif marbles, has confirmed similar numbers to last year, allaying fears that last year's drought may have had a significant impact. The total population of moonwort now stands at 130 - still nationally critical.

Unusual gecko record

A gecko caught on alpine marble in the Cobb valley, Kahurangi National Park,

is apparently similar to *Hoplodactylus* "Marlborough mini", with the closest record being on the Nelson Boulder Bank. Genetic work may shed light on its distinctiveness.

CANTERBURY

From Euan Kennedy, Kennedy Lange, Anita Spencer, Michelle Howard and Jack van Hal.

Leptinella filiformis

Leptinella filiformis is associated with the dry open indigenous grasslands of the eastern South Island. Until 1998 it was thought to be extinct but Dr Brian Molloy rediscovered it in the grounds of Hanmer Lodge. This population was taken into captivity while the lodge was redeveloped and replanted at the lodge in a ceremony led by Dr Molloy in August 2001.

Also in August 2001, 31 plants of *Leptinella filiformis* (propagated from the Hanmer Lodge stock) were planted out at Medbury Reserve. There were monitored in October; six had been destroyed and a further four damaged by rabbits. The rabbits were probably attracted to the plants by the newly disturbed ground when they were planted. Hopefully the unusually damp summer on the plains has ensured this population will become established enough to withstand further attention from the rabbits. The plantings at Medbury Reserve mean there are now two re-established populations of this small herb.

Cook's scurvy grass

Cook's scurvy grass had not been seen in Canterbury since 1921 despite thorough surveys. In December 2001, DOC and Lincoln University staff flew by helicopter to four rock stacks off the mouth of Akaroa Harbour and discovered about 200 Cook's scurvy grass plants were found growing in a 20 m² patch on the southern most stack.

In June 2001, DOC staff revisited the site and took propagation material, including seedlings and soil. These were successfully grown at DOC's Motukarara Nursery. In October 2001, 31 of these plants were planted on Quail Island in Lyttelton Harbour along a cliff beside a gull and tern colony. A visit by North Canterbury Area staff in December 2001 relocated 28 of these plants, all in good health and having grown considerably.

Iphigenia novae-zelandiae

Survey of ephemeral tarn turf habitats in the Ashburton Lakes area has revealed five new populations of *Iphigenia novae-zelandiae*. The *I. novae-zelandiae* numbers in the 10's of thousands, and monitoring will be established next year to determine population and habitat change. Two of the sites also contain the tiny tufted sedge, *Isolepis basilaris*.

Ischnocarpus novae-zelandiae

The Mt Somers populations of this cress species were remeasured in February. Demographic monitoring was established in 1999 and all known individuals are censused. Of seedlings that germinated in a trial weeding site, 92% have survived but demonstrate very slow

growth rates. On other sites, some plants have died but limited natural recruitment is occurring.

Luzula celata

The first re-measurement of monitoring plots in the Potts and South Ashburton Rivers revealed little change in the status of this tiny rush. Most individuals were still present but have fruited heavily this year.

Meliccytus flexuosus

A survey has begun at Peel Forest Scenic Reserve to identify the extent of the only known population of this species in South/Mid Canterbury. Only four mature individuals and 10 seedlings have been found so far.

Hurunui Mainland Island

Mohua

Mohua populations in the Hurunui Mainland Island have decreased significantly following a rat plague. In the North Branch, where up to 60 birds were monitored in past seasons, only one pair was relocated. In the South Branch, where a section of the valley is intensively monitored, the number of pairs declined from about 16 to two.

Over the last six seasons, mohua productivity and numbers were increasing as a result of stoat control, however rat plagues are a new phenomenon for DOC in the South Island with swift and catastrophic impacts. This season, two breeding pairs produced three fledglings each, and one pair produced one fledgling. This nearly doubles the population of

survivors - a small victory for mohua in the face of such adversity!

Orange-fronted parakeet

The 2001/02 orangefronted parakeet work commenced in September. The following four months were notorious for their lack of sunshine. Researchers spent a month surveying the study area and familiarising themselves with the parakeets. Very few were seen but this was not of great concern as very few parakeets of any kind were observed.

All previous nest sites were measured, numbered, and inspected for nesting activity each month. This sounds easy, but each inspection required rope-climbing and a lot of acrobatics. (To get some idea of the task, try looking into a letterbox and counting the letters while dangling on the end of a rope from a lamp-post!) No nests were found to be active.

Distance-sampling trials were conducted in both the Hawdon and Hurunui Valleys during December. The complicating factor we are grappling with, is how to count parakeets accurately while trying to distinguish between the different species. Both orangefronted and yellow-crowned parakeets are small, green and move quickly in the canopy. The only difference is that one has an orange bar over yellow on its forehead and the other a red bar over yellow.

For reasons we have yet to determine, parakeet numbers are well down overall on last season's. This may be either part of a normal population drop following a mast season, a consequence of parakeets being very quiet after the frenetic activity of last season when the population was boosted by a large

pulse of beech mast babies, or it may result from rat predation.

Since January, nine parakeet nests have been located, but only one belongs to an orange-fronted parakeet pair. Of these nests, one failed (revealing a dead female, which may have become egg-bound), and the remainder has nestlings at the moment. The earliest fledging is expected to occur in mid-March.

The orangefronted parakeet nest is significant for more than its valuable contents. It is the first nest recorded in the wild for which the final clutch size is known. (The only other orange-fronted parakeet nest discovered (from the Hope Valley) had the adults and eggs shifted into captivity before the clutch was completed.)

WEST COAST

From Phil Knightbridge, Dave Eastwood, Jo Crofton

Pterostylis cernua survey

Pterostylis cernua is a newly described greenhood orchid, first recorded in the Hokitika Area in 1995. Flowering is limited to the late November-early December period, and this is the only time of the year that it can be reliably identified. This year a two-week volunteer survey was advertised, and seven volunteers turned up complete with raincoats, which were useful in combating the near-constant rainfall that persisted over the entire period.

Pterostylis cernua was found at about 14 new locations. Each location

included a number of clusters within about a kilometre of each other, and each cluster consisted of between six and 200 plants. Most sites were on forest walking tracks or forest road margins. Most sites were damp, and were often associated with moss. Most sites were partly shaded by *Blechnum*, *Carex*, *Coprosma* or gorse. Plants were often in colonies.

Further locations were discovered in the Greymouth and Buller Areas but the species proved elusive around the Franz and Fox Glaciers. It appears that this species is more widespread than previously thought, and often occurs on public conservation lands.

Okarito Kiwi Zone

Rowi breeding season has finished; this season 54 eggs were laid so far this year (with 22 successful hatches = 40%), which is very poor, normally rowi achieve 60 % hatch rate out of monitored eggs. The last breeding check in February found kiwi are laying much later than previously thought.

Egg laying normally ceases in early January but this season six eggs have been laid after this time with the latest one due to hatch May 14.

Of the 22 chicks detected, eight are still surviving in the wild, aged between two weeks and four months. Fourteen have been found dead, and 12 of these are confirmed predation events. The biggest chick now weighs 942 grams and two others are greater than 700 grams. Three pairs of O.N.E. juveniles have laid eggs this season although there were no successful outcomes. Of the juveniles recently returned from Motuara Island at the end of January, one has been found dead of a suspected kiwi beating and two are currently AWOL.

There have been 446 stoats caught since trapping began (Figure 1), and there was an increase in the number of captures on the buffer during December and January that coincided with increased mortality of rowi chicks.

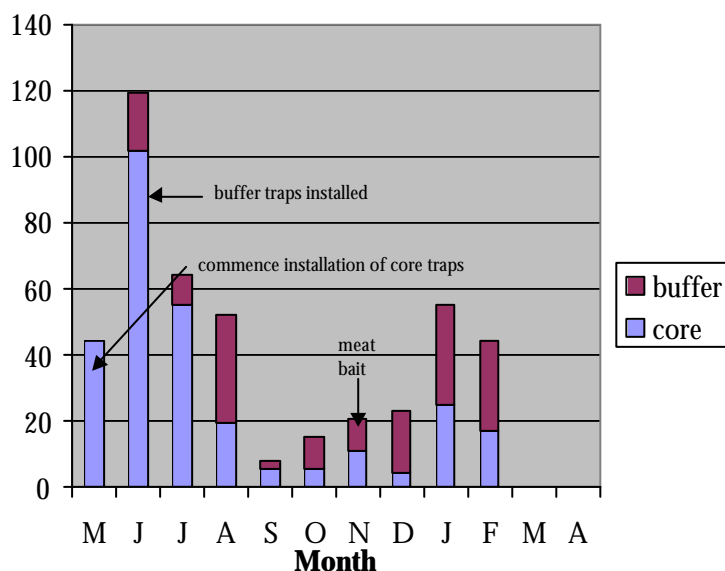
Beech mistletoes

The beech mistletoe *Alepis flavida* was recorded for the first time in the Arawhata catchment during a recent outcome monitoring field trip. This is just the third confirmed record of this species for South Westland. Possum control in this catchment appears to be benefiting mistletoe, with a good high altitude population of *Peraxilla tetrapetala* in full flower.

OTAGO

From John Barkla and Alison Evans

Figure 1. Stoat catches in the Okarito Kiwi Zone (2001/02).



Olearia hectorii regeneration success

Modest success in achieving some *Olearia hectorii* regeneration in the Catlins following knockdown of rank grasses with herbicides was reported in [Rare Bits 41](#). Following on from that Stu Thorne (Wanaka Area) tried a similar experiment on a recently fenced fragmented population of *O. hectorii* in the Matukituki Valley. In October 2001 he sprayed rank grass beneath and downwind of mature *O. hectorii* trees with the herbicide "Touchdown". This was applied at the rate of 60 ml/litre using a 10 litre knapsack sprayer. A visit in early February confirmed not only a good knockdown of the grasses but also fantastic regeneration of *O. hectorii* seedlings in virtually all sprayed areas. Many thousands of seedlings were present with many already 10 cm or more tall. Calculation of seedling density revealed an astonishing 4,675 seedlings per square metre over the most dense seedling carpets. Some seedlings have been removed and are being grown in a nursery situation for use in restoration projects in the valley. It seems that the combination of good knockdown of grasses, coinciding with *Olearia* seed fall, followed by a wet spring and early summer has led to this spectacular result. Although the experiment raises many questions about seedling survivorship, growth rates etc., (already drier summer conditions are causing large losses) the implications for *Olearia* (and other species/communities) management are likely to be significant.

Seed collection

Trudy Murdoch in Central Otago has been busy collecting seed of Inland

Lepidium species and dispatching them to 'safe havens' around the country. The plan is for ex-situ collections of known provenance to be maintained at several locations and for surplus plants to be available for restoration needs.

Seeds and propagules of a range of saline soil species have also been collected for nursery propagation. The most promising herbicides being tested by AgResearch for killing the weed *Plantago coronopus* will be tested against these to see which herbicide is the most *Plantago* specific.

Montigena novae-zelandiae

Monitoring of caged and uncaged scree pea plants on the Hawkdun Range is showing little impact on the plants by browsers. Few plants are flowering/fruitlet but monitoring in April might be more revealing.

Simplicia laxa

Recent monitoring indicates this rare grass is doing well at its stronghold on Castle Rock on the Old Man Range. The weed *Hieracium lepidulum*, which threatens its rock overhang habitat, is being successfully kept in check by periodic dabbling of herbicide (woody weed killer) on invading plants.

Deschampsia cespitosa

Tenure Review inspections have led to the discovery of several large populations of the rare grass *D. cespitosa* in the upper Wakatipu Basin. These double the number of previously known sites in the Conservancy and are by far the largest.

Scree skinks

Central Otago Area staff have been surveying new areas on the Hawkdun Range for scree skinks, without success so far. An interesting find was evidence of hedgehog predation of lizards at relatively high altitude on the range.

Moths in moss: a report on the sphagnum porina moth

Conservation of the sphagnum porina moth (*Heloxycanus patricki*) is considered to be a high priority in Otago. This moth is restricted to coastal and alpine moss bogs, mires and blanket bogs in eastern Otago and Southland. The moth is unusual, not only because of its association with peat bogs but also because adults emerge in the autumn on alternating years (e.g., 1999, 2001).

Heloxycanus patricki has poor dispersal mechanisms and activity is restricted by cooler temperatures at the time of adult emergence. It is medium sized (40-55 mm) with a distinctive white stripe on the forewings, over a yellowish-fawn or smokygrey background colour.

The larvae are thought to feed on sphagnum rhizoids and are rarely seen. At the time of adult emergence the pupae case is left protruding from sphagnum moss, making its presence relatively simple to record. The main threats to this species relate to its restricted distribution, poor dispersal ability and habitat destruction. Sphagnum bogs are threatened by conversion to agricultural land, competition from exotic grasses, stock and wild animal damage, sphagnum harvesting and recreational vehicle use.

Results from a survey conducted in April-May 2001 suggested that the moth was present in relatively large numbers at known sites. The highest relative abundance of pupae cases was recorded in the Teviot Swamp, Poolburn Reservoir and the Lammermoor Range with approximately one case collected per minute of search time. The lowest relative abundance was in the Lake Mahinerangi survey area, where snow cover made locating the pupae cases difficult. No new records of the moth were found in the Tahakopa survey area or in the Kaihiku Reserve, and the survey didn't expand the known distribution. The number of *H. patricki* pupae cases recorded may have been over-estimated by the presence of the moth *Aoraia* sp., which have similar pupae cases and share the same habitat.

Further conservation resources should be put into maintaining the sphagnum moss habitat necessary for the survival of these moths, particularly at lower altitudes. Actions could include controlling wild animals (pigs, deer and geese) in reserves, limiting stock grazing in areas containing sphagnum bogs, raising public awareness about the fragility of alpine ecosystems and limiting vehicle access to such areas.

SOUTHLAND

From Rosalind Cole, Brian Rance, Eric Edwards, Andy Roberts

Gunnera hamiltonii

Gunnera hamiltonii is a creeping, ground-hugging, herb endemic to Southland Stewart Island dunes.

Recently it was found that "doughgirl" (the female plant on Doughboy Bay), one of only six remaining original wild populations, was lost to coastal erosion. However several transplants have established, the largest (planted in 1995), has grown to 6.0×4.7 m in extent. The other find is that another wild plant found in 1998 flowered in cultivation, confirming it is a female plant.

The marram eradication project continues, with limited marram remaining on the southern dune area. This eradication will provide additional habitat for pingao, sand tussock and other threatened species.

After midnight: A rare moth comes out!

For only the sixth time, the moth *Asaphodes imperfecta* has been recorded. It was named from the Southland Plains forests in 1905 (by Alfred Philpott) and last found 20 years ago in wet mixed forest in eastern Fiordland at Lake Hauroko. Such forests have been studied often enough for their moth fauna, but *A. imperfecta* would seem to be naturally rare and uncommon. Thus at three minutes past midnight, deep in the forest of the Grebe River in Fiordland, only one individual was found. This was among 98 species of moth recorded (and many caddis). This may seem like good luck. However, there are a number of factors that account for the catch. For example, the season is important. The weather conditions were ideal: a hot day, an evening with no wind, cloud cover and temperature over 12°C at 2:00am! The site is 200 metres above sea level, and the forest has a diverse floral assemblage, including wet flush and seepages under the canopy.

Asaphodes imperfecta is only known from Invercargill, Fiordland and west Otago. There would seem to be secure habitats for the moth, however it is certainly not out of the woods yet. The host plant for the caterpillar is unknown and its population biology is yet to be studied.

Mohua

The mohua or yellowhead, is a threatened, endemic, forest passerine, inhabiting tall mature forests of the South Island. It is vulnerable to predation by introduced predators, and has declined in distribution and abundance since the arrival of Europeans to New Zealand. In recent years this decline has accelerated, and we are no longer sure whether mohua can be maintained on the South Island. Transferring this species to predator-free islands to safeguard it from extinction is therefore a high priority among the management alternatives considered by DOC. To ensure successful translocation and establishment of mohua populations on islands, the destination of the transfer has to be carefully selected to suit mohua habitat requirements.

Mohua occur mainly in beech forests on the South Island, but historic records show that they used to be widespread in lowland temperate rainforests before the introduction of predators. How mohua utilise lowland podocarp forest is poorly understood.

In October 2001, mohua were transferred from the Blue Mountains, in Otago, to predator-free Ulva Island in Paterson Inlet, Stewart Island. This island contains typical lowland podocarp forest. The success of the

transfer was closely monitored, and the results of survival, dispersal and habitat use are presented below.

Survival rate of mohua through the first summer was high (88%). The birds dispersed well across the entire island, and even colonised small neighbouring islands with stunted scrub forest. Mohua are capable of flight across respectable distances of open water, and this should be considered in future transfers.

No breeding was recorded in the first season. It was assumed that birds need more time to acclimatise to new habitat before breeding takes place. To maximise the reproductive output of the species, future transfers should be carried out after the breeding season to provide birds with ample time to get used to their new environment.

Mohua mainly used the larger structural elements in the podocarp forest, but also showed a clear preference for certain tree species. While rimu was the most commonly used tree species for foraging, miro (in spring) and rata (in summer) were equally important to the birds. Characteristic species of podocarp forest like Hall's totara and Kamahi appeared to be avoided.

Mohua spent about 60-80% of their time foraging, and foraging strategies differed between seasons. In spring, birds ripped through moss and bark to obtain food, and in summer, most prey was taken by gleaning from the foliage. While birds are able to survive in coastal scrub during the summer, winter food availability is suspected to be the limiting factor in this habitat. Further research is required on winter foraging ecology and habitat use before conclusions can be drawn on which

islands are suitable to sustain mohua populations.

ISLAND ROUNDUP

Korapuki Island

Thanks to the work of Dave Towns (S&R), the diversity of lizard fauna on Korapuki Island in the Mercury Group is a marvel to all who visit the island (including the recent "Rangers" TV crew).

A recent trip showed populations of re-introduced Whitaker's, robust and Suter's skinks were breeding and slowly colonising new areas of the island. These skinks have been re-introduced over the last ten years following the eradication of kiore from the island. Tree weta transferred from a neighbouring island are also doing well and making good use of the hundreds of artificial weta homes on the island.

Unfortunately, a large darkling beetle translocated from Middle Island does not seem to be doing at all well. None of the 50 translocated beetles were found, and it seems likely that they met their fate in the mouths of Duvaucel's geckos, which are abundant on the island.

Chatham Islands

The planned transfers of black robin and Chatham petrel to the Ellen Elizabeth Preece Conservation covenant on Pitt Island have been postponed following the recent discovery of storm damage to the cat-proof netting around the covenant. We are awaiting a report by the Xcluder fence designers before looking at options for repair.

There is better news from last season's Mangere Island shore plover transfer. Of the 15 juveniles transferred, five remain on the island and one pair bred successfully. Another 15 birds were transferred in January 2002. The breeding season is also progressing well for taiko, with seven chicks confirmed to date. Three new non-breeding burrows were found this year: two by telemetry and one by ground searching with a dog. The number of cats caught in and around the Tuku Nature Reserve this year is considerably less than for the last two years, possibly due to a combination of wet weather, and the high number of cats previously removed (over 160 in the last two years).

On Rangatira (South East) Island, the Chatham petrel recovery programme is having its best year yet, with 120 chicks in the managed burrows.

Kapiti Island

There have been 23 adult kokako identified this season, including six juveniles from last season. Seven pairs have made 12 nesting attempts, with five successful, four ongoing and three failed. Eight chicks have fledged from five nests (three nests had two chicks). One nest was apparently preyed on by an Australasian harrier hawk.

Hihi (stitchbird) feeders were kept open through the winter in an attempt to increase survival. At the end of last season nine adults (7f, 2m) and eight fledglings were sighted. In the Oct 01 survey, a total of 13 birds (9f, 4m) was identified. All seven of the females seen regularly this season have attempted to breed. Six nest sites (all natural) were monitored (including three new sites). The nest site for one female was not

located but her behaviour suggested that she attempted to nest twice. Overall eight nesting attempts were monitored, including two second attempts. At least 19 fledglings from six nests have been sighted post-fledging, of which 12 have been banded.

There are nine adult or sub-adult takahe on the island: four at Waiorua, three at Rangatira, one at Wharekohu and one that moves between Waiorua and Rangatira. The two breeding pairs or groups have each raised one chick.

Twenty brown teal have been released on Kapiti over the past two years. Of these, six are known to have died. Sue Moore monitored teal on Kapiti and Mana Islands over 2001/02. During her last visit to Kapiti in December 01 she located six teal on the Island; one at the North End, three at Rangatira, and two at Wharekohu. No breeding attempts by teal have been recorded on Kapiti, but teal on Mana successfully raised chicks this season. A survey for brown teal using a trained dog will be carried out within the next few months

Ornithological Society members have visited Kapiti on two occasions recently. The first was to complete the program of "post-rat" bird counts that was started in 1999. The second was to undertake kiwi call counts as part of the national monitoring scheme.

South Brother Island

Two unpleasant nights were spent on South Brother Island in Cook Strait after the weather turned nasty on the team. Tents took a huge battering from south-easterly winds, as the ridge-top camp site had only muttonbird groundsel, Cook's scurvy grass and native iceplant for a windbreak!

Duvacels gecko, heaps of common gecko, and all the commoner Sounds burrowing seabirds were found, along with the rare coastal daisy, *Kirkianella novae-zelandiae* f. *glauca*.

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

Copy deadline for the next issue is:

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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: atownsend@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.)