



QEII National Trust
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International Year of Biodiversity | Focus on Coromandel | Diversity of Covenants

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Helping you protect the special nature of your land



QEII National Trust
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QEII Trust helps landowners to protect significant natural and cultural features on their land. Features include:

- Landscapes
- Wetlands
- Cultural sites
- Coastlines
- Archaeological sites
- Forests and bush remnants
- Tussock grasslands
- Streams
- Geological features
- Wildlife habitats

Landowners throughout New Zealand voluntarily protect nearly 93,500 hectares of their land through QEII registered covenants (or protection agreements). QEII Trust also helps by contributing funds for covenant projects and advising landowners on managing their covenants.

QEII Trust also owns 29 properties, which collectively protect 1,686 hectares of significant habitat. Most of these have been gifted to the Trust. Effective stewardship of these properties is greatly assisted by local communities and management committees.



COVER PHOTO

Monitoring the condition of a kiwi chick at Jean and Duncan Macky's covenant near Whangarei. See page 12 for more about this covenant.
Photo: Malcolm Pullman

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2010 International Year of Biodiversity

Biodiversity is life Biodiversity is our life

2010 is the International Year of Biodiversity which celebrates life on Earth and the value of biodiversity.

Biological diversity – or biodiversity – means the number and variety of all plants, animals, fungi and microorganisms, the genes they contain and the ecosystems on land or in water where they live.

It is estimated New Zealand has more than 80,000 native animals, plants and fungi. Although we have one of the most diverse areas of biodiversity in the world, we also have one of the highest percentages of threatened species.

QEII covenants help to safeguard New Zealand's biodiversity by protecting our unique natural heritage in perpetuity for future generations to enjoy. This *Open Space* magazine celebrates the diverse habitats and wildlife protected by covenants and the inspired and dedicated people who work together to protect our rich biodiversity.

The images in the 2010 International Year of Biodiversity logo reflect aspects of the world's biodiversity: fish, water, birds, people and plants.

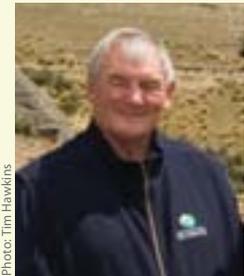


Photo: Tim Hawkins

'QEII is uniquely placed to advance the protection in perpetuity of threatened environments on private land. Protecting and enhancing our biodiversity involves us all: landowners, the community and government.

By working together, our generous covenantors and their keen supporters are helping to protect New Zealand's unique natural features forever.'

– Sir Brian Lochore
QEII Chairperson



Natural features protected by QEII covenants include forest remnants, wetlands, shrublands, grasslands and threatened species habitats.



Olearia odorata shrubland in Central Otago was protected on Oliverburn Farm in 2009. See page 14.



Rare and threatened native species are protected by QEII covenants on private land throughout New Zealand.



Kaharoa Kokako Trust monitors the threatened kokako (Nationally Vulnerable) near Rotorua. See page 32.



QEII works with so many inspired and passionate people who are creating a legacy for future generations.



The wide range of people committed to protecting our biodiversity is celebrated on pages 16-18.



When required, covenants are fenced to exclude stock from bush and wetlands. This helps to improve water quality in catchment areas.



The significant Snowdon wetland in Canterbury has been protected for 25 years. See page 5.

For more details, visit the International Year of Biodiversity website www.cbd.int/2010/welcome or Department of Conservation www.doc.govt.nz

Classic open space covenant in Canterbury with significant ecological and landscape values



Photos: Loralee Hyde

Over 100 covenantors and representatives from Environment Canterbury, Selwyn and Hurunui District Councils, Fish & Game and the Department of Conservation enjoyed a visit to **High Peak Station** in the Windwhistle-Lake Coleridge area on 18 November.

They were invited for lunch with QEII directors and staff and for a walk through the 94ha covenant that has protected a braided shingle riverbed, sedgeland, tussockland and shrubland on the station since 1996.

Settled in 1856 and owned by the **Guild family** since 1973, High Peak Station is a 3,676ha high country farm and private game estate in the Malvern foothills running 3,800 deer, 6,000 sheep, 550 cattle and 1,100 game animals.

Sir Brian acknowledged the contributions QEII covenantors make, saying in his time as chairperson he has been fortunate to meet many generous people who have protected New Zealand's natural and cultural features in perpetuity. 'James and Anna Guild are typical of the landowners who look after their land for future generations,' he said.

James Guild explained how the flats along the Selwyn River protected by the covenant are valuable assets in the farm production system, particularly for lambing. 'Light grazing helps to control exotic grasses and we make sure stock don't damage the banks,' he said. 'The covenant management plan is a highly pragmatic way of conserving the natural vegetation.'

Miles Giller, the local QEII representative, described the covenant's significant ecological values. 'Protecting this outstanding landscape is a wonderful example of why QEII was established and a testament to the vision of those who drafted the open space protection legislation,' he said.



Top left: Sir Brian Lochore and Miles Giller welcomed covenantors and other guests to the gathering at High Peak Station.

Middle left: The High Peak Station covenant protects a classic landscape of terminal moraine in a glacial valley. James Guild explained how the area is managed to enhance conservation values along with farm production.

Bottom left: Guests enjoyed a walk through the covenant that protects grey scrub species including matagouri, *Muehlenbeckia ephedroides*, the nationally threatened *Olearia lineata* (pictured), *O. bullata* and the native broom *Carmichaelia torulosa*.



Inset photo: Ian Platt

For more about the High Peak Station covenant visit [www.openspace.org.nz/Covenants/Covenant Stories](http://www.openspace.org.nz/Covenants/Covenant%20Stories)

Sharing knowledge about diverse Canterbury habitats

Forest remnants, manuka and kanuka shrublands, wetlands and tussock grasslands are just some of the natural features protected by covenants in Canterbury. In November, QEII directors and staff found out about the biodiversity values protected by three quite different covenants.

Remaining remnant of original Canterbury Plains kanuka

South-west of Ashburton at Lovetts Road, one of the last remnants in the area of the original Canterbury Plains vegetation of kanuka, manuka and matagouri was protected by **Arthur and Shirley Harris** with a 2.6ha covenant in 1988. The kanuka is an undescribed species, adapted to both cold winters and hot summers and characterised by a small stature and very small leaves, flowers and seed capsules.

A project led by Val Clemens and Edith Smith from the Ashburton Community Conservation Trust is enhancing the covenant which is now owned by **Ashburton District Council**. With funding from Environment Canterbury and Honda TreeFund, the group has transplanted 2,500 locally sourced kanuka seedlings into adjoining pasture. This significant contribution to preserving the area's biodiversity was acknowledged by QEII in November.



Photo: Courtesy of the Ashburton Guardian

Sir Brian Lochore and Brian Molloy discussed the management of the kanuka covenant with Val Clemens.



Photo: Loralee Hyde

Red tussock *Chionochloa rubra* along High Peak Road is protected by the **Selwyn District Council** with a 7.9ha Landscape Protection Agreement. Brian Molloy shared his knowledge about the tussock with Sir Brian Lochore and others from the Trust.

Significant riparian wetland on Snowdon Station protected for 25 years

Two covenants totalling 48ha protect the outstanding Snowdon wetland in the headwaters of the Selwyn River. The first covenant was put in place by **Tony and Nicky Tripp** in 1984.

'This wetland is very near to what we would call an original ecosystem,' explained Brian Molloy, QEII High Country Regional Representative. 'Although modified by introduced plants, it is an excellent example of a natural range of primary wetland plant communities. The covenant has not been grazed for over 20 years. With the sympathetic management by the Tripp family, there is now vigorous and healthy growth of all plant species.'



Photo: Brian Molloy

At Snowdon, drainage from the surrounding mountains is impeded by glacial moraine and hard greywacke bedrock, forming the wetland. The covenants protect *Carex secta*, red tussock, sedge tussock *Schoenus pauciflorus*, cutty grass *C. coriacea*, and flaxes and rushes in the wetland and silver tussock and matagouri over exotic grasses in the bordering dryland.



Photo: Loralee Hyde

Along with covenantors Nicky and Tony Tripp and Roy Veronese, Brian Molloy described the features of the Snowdon wetland to QEII directors and staff.

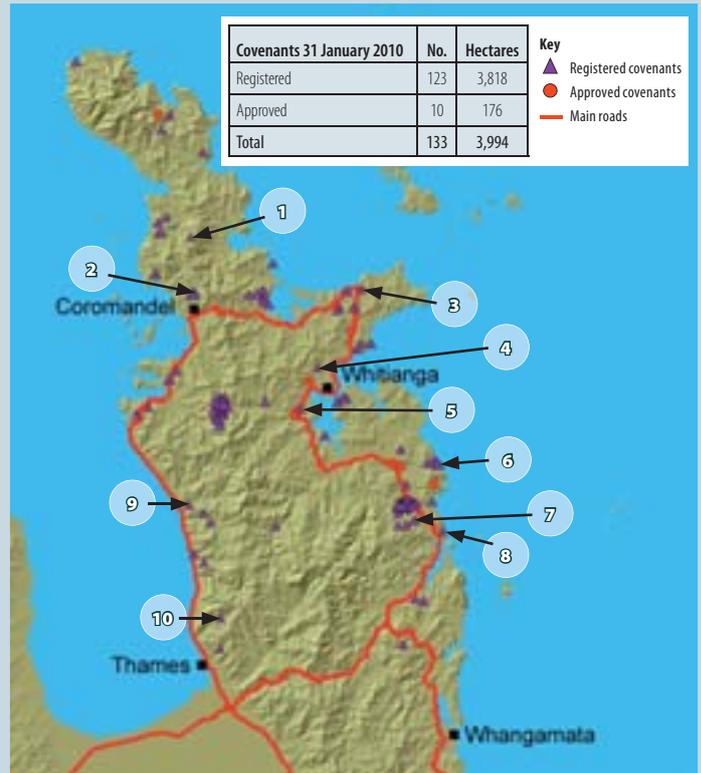
Coromandel Peninsula

'The Coromandel is well known for its beaches, pohutukawa and the rugged bush backdrop,' says **Hamish Kendal**, QEII Regional Representative. 'Our covenants protect a variety of forests from the coast to the hills, but also wetlands, coastal landscapes, pā sites and other historical features.'

'The Coromandel is a hot spot for threatened species and many such as kiwi, Hochstetter's and Archey's frogs, kaka, pateke, bitterns and fernbirds benefit from covenanted habitat. Covenants also protect examples of under-represented ecosystems, particularly coastal forest, alluvial forest, wetlands and dunelands although there are many opportunities to protect other remnants and to restore sites.'



Covenantor **Linden Moyle** with QEII Regional Representative **Hamish Kendal** at Te Mata River adjacent to **Linden and Richard Moyle's 5ha** covenant. The semi-coastal podocarp and kanuka forest was protected in 2007. The large pines have now been cleared and the bush is responding well.



- | | |
|---|--|
| 1. Neville Evans
Podocarp-broadleaved forest | 6. Lin and the late Charlotte Wallace
Coastal forest and wetland (see page 29) |
| 2. Driving Creek Wildlife Sanctuary
Predator proof wetland | 7. Rick Turner
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Semi-coastal podocarp and kanuka forest |
| 5. Daphne and William Rea
Alluvial forest | 10. NZ Native Forests Restoration Trust
Broadleaf forest and shrubland |

Regeneration in alluvial forest remnant undisturbed for 35 years

On an alluvial terrace of the Kaimarama River near Whitianga, the only remnant of semi-coastal alluvial podocarp-broadleaved forest remaining in the Tairua Ecological District was protected by **John and Kathryn McLeod** with a 2.2ha covenant in 2006. The McLeod family has farmed the area for several generations and the covenant is now owned by John's niece and her husband, **Daphne and William Rea**.

The remnant has been fenced off from stock for 35 years and there is healthy regeneration in the forest. With contributions from QEII, Environment Waikato and the McLeods, the fencing has been upgraded to ensure stock will continue to be excluded in the future.



Far left: Just off SH25 south-west of Whitianga, the protected alluvial forest remnant borders the west bank of Whangamararo Stream.

Left: A diverse range of species is regenerating in the covenant including cabbage trees, karaka, kahikatea, kohekohe, pukatea, miro and nikau.

Inset: White rata *Metrosideros perforata*.

Remarkable conservation advocacy

Barry Brickell has worked on his Driving Creek property just north of Coromandel since 1973, revegetating the landscape and running a railway through the forest covered hills. In 1994, the 23ha Driving Creek Railway covenant was put in place*. To develop a block of land next to the covenant, Barry set up the Driving Creek Wildlife Sanctuary Trust. Surrounded by a predator proof fence, the sanctuary was protected with a 1.6ha covenant in 2005.

'There has been astonishing growth in the sanctuary and the vegetation now forms a canopy over the area,' says Barry. 'There are

pateke with chicks on the lake and Hochstetter's frogs. With funding from the Lions we are building a herpetarium so we can bring back rare lizards.'

Hamish Kendal, the local QEII Representative, says the predator fence is outstanding, keeping all introduced animals out including mice. 'Barry's commitment to conservation is fantastic and this is a significant advocacy resource for visitors to the Coromandel.'

* See *Open Space* Issue 55, August 2002 or download under www.openspace.org.nz/Places to Visit



Photos: Piet Irwin

The predator proof fence and gatehouse at the Driving Creek Wildlife Sanctuary. For more details visit www.drivingcreekrailway.co.nz



Parent pateke and 'children' on the lake. They have had several clutches over the past 3 to 4 years.

Significant protection on White Star Station

At Amodeo Bay south of Colville, long time conservationist **Neville Evans** protected podocarp-broadleaved forest and kanuka shrubland on White Star Station with covenants totalling 388ha in 2007.

'The station is named after the White Star Company that had a gold mine here in 1860,' says Neville. 'Our family has farmed here since 1864 for six generations.'

The original settlers cleared the land of kauri and floated the logs down the streams to Colville for transport to Auckland. Farming gradually took over from timber. Near the summit of the lower coastal hills lying west of the main Coromandel Range, nearly half of the steep 1,260ha sheep and cattle farm has been retired from grazing over the past 50 years.

With groves of nikau alongside Wairore Stream and spectacular waterfalls, some of which are visible from the road, remnant kauri in the coastal forest are now approaching 0.8m in diameter. Northern rata reach above the canopy of maturing puriri, rimu, taraire, rewarewa, nikau and kahikatea.

Neville's son Zane and daughter-in-law Ngairé manage the station, running horse trekking, range-top walks and bush walks to the waterfalls. Visit www.colvillefarmholidays.co.nz for more details.



Photo: Hamish Kendal

Pristine water from the catchments on the extremely steep land protected by the Evans Family Bush covenants flows into the Hauraki Gulf. With a high potential for soil loss, protecting the vegetation also reduces the risk of erosion.

Prominent coastal landscape safeguarded from development



Photos: Hamish Kendal

To protect an outstanding landscape at the northern end of Tairua beach, **David Rushforth and Patrick Maenulein** put a 2.8ha covenant in place on their property in February 2009. On a steep headland, the vegetation is predominantly pohutukawa-broadleaved coastal forest on the seaward side with coastal shrubland further inland.

'The covenant provides a continuous green belt that's highly visible from Tairua and the sea,' says David. 'Our aim was to protect this area from future development.'

'The forest is at the southern end of the Whenuakite Kiwi Zone and bait stations in the covenant provide a buffer area. Since we purchased the property in 1999, we've noticed a big increase in the number of birds, especially tui and bellbirds. It's rewarding seeing more of them.'



Above: David Rushforth and Patrick Maenulein's landscape covenant wraps around the prominent headland north of Tairua beach. The area will remain as a natural backdrop to Tairua. The house site and garden on top of the headland are not in the covenant area.

Left: As a comparison, Paku Hill at the south end of Tairua beach is covered with houses.



Photo: Hamish Kendal

Native vegetation thriving after pine control

Richard and Linden Moyle's 5ha covenant was registered in 2007 as part of the sustainable development of their property at Te Mata. The semi-coastal secondary forest had many large *Pinus pinaster* trees within it.

The Moyles have had the pines carefully dismantled by an arborist to limit damage to the native vegetation that is now thriving without the influence of the pines.

Without a seed source of pine, there will be only a single flush of pine seedlings from the existing seed.

At the interface of pohutukawa and northern rata

Originally protected by **Graham and Valerie Turner** in 2006, **Rick Turner's** 7ha semi-coastal forest covenant near Tairua together with other forest on his uncle's property and neighbouring covenants form a network of over 1,600ha of forest.

Both regenerating pohutukawa and northern rata occur in the covenant as it is at the semi-coastal boundary where pohutukawa changes to northern rata forest. The regionally significant swamp maire is also present. Only 3% of the original semi-coastal forest in the Tairua Ecological District remains. Securing remnants such as this will help to ensure the forest is sustainable in the much modified landscape.

Top: Swamp maire in a wetland on a gully floor along with kahikatea and pukatea. The wetland attracts a multitude of whistling tree frogs.

Bottom: Northern rata (bottom) and pohutukawa (top right) occur together in the covenant. At the top left is towai.



Photos: Hamish Kendal

Committed guardians of conservation values

The **NZ Native Forests Restoration Trust** manages 26 covenants protecting 5,600ha of forests and wetlands from the Far North to Golden Bay. To save yet another habitat of our unique flora and fauna disappearing through development, NZNFRT purchased the 90ha Tararu Cynthia Hewett Memorial Reserve in the Tararu Valley north of Thames and protected it with a covenant in 2007.

In recognition of the high biodiversity and soil and water quality values, Environment Waikato contributed to the purchase. Connecting to the Coromandel Forest Park, the covenant is an important wildlife corridor.

In the Tararu Stream catchment, much of the covenant is broadleaf forest with kanuka and manuka shrubland. Rewarewa are emerging and there are rimu, puriri, karaka, pohutukawa and towai. Forest wetland areas contain pukatea, kahikatea and the regionally significant swamp maire *Syzygium maire*.

Right: The protected forest is habitat for the nationally threatened Hochstetter's frog *Leiopelma hochstetteri*. This native frog is now found only in the upper half of the North Island; 72 QEII covenants totalling 1,413ha are known to protect its habitat.

Below: NZNFRT Trustees discuss the management of the forest on a field trip in the Tararu Cynthia Hewett Memorial Reserve.



Inset: G. Shirley, Crown Copyright; Department of Conservation
Photo: Hamish Kendal



Photo: Hamish Kendal

Linking remnants of natural areas

Much of our bush and many of our wetlands have been cleared for farming and development. Linking remaining fragments of ecosystems is a key to their long term viability.

Two farmers in the remote King Country and two from the Waikato have recently protected bush and wetlands on their farms with QEII covenants, preserving links to larger natural areas.

King Country: Alongside the Retaruke River in the heart of New Zealand

In steep hill country east of the confluence of the Retaruke and Whanganui Rivers, **Richard and Rachel Steele** put the 119ha Tapuae Trees covenant in place on Retaruke Station in April 2009. Adjoining the 674ha Neilsons Conservation Area to the east and north, podocarp-broadleaved forest covers the lower and mid hill slopes of the covenant while black beech features on the ridges and spur crests. The southern boundary meets the Retaruke River.

‘This bush was logged before covenanting but some very big trees remain including kahikatea and tawa,’ says John Williamson, the local QEII Regional Representative. ‘The landowners have a comprehensive pest control programme in place as goats continually reinfest the forest from neighbouring bush.’

Don and Isabel Dempsey protected a block of primary podocarp-broadleaved forest on their beef farm south-west of Owhango with a 19ha covenant in March 2009. ‘I’ve lived here all of my life and preserving the bush is something I’ve always wanted to do,’ says Don.

‘We have a unique climate and geology here and are very sheltered from the wind so there’s enormous tree growth. The forest has a good variety of native plants and birds such as tomtits and robins and a few years ago we had a colony of fernbirds too.’



Left: Looking towards Mount Ruapehu from the top of the remote Tapuae Trees covenant. Fencing required to exclude stock from the forest was funded by QEII and the landowners.



Left: Richard Steele on goat patrol on an old logging track in the protected forest.

Far left: Don Dempsey says local conditions encourage vegetation growth. ‘It’s an endless battle to control weeds such as barberry, blackberry, willows and wilding pines,’ he explains. ‘Feral cats and stoats are also a problem.’



Left: In steep country bordering a Department of Conservation reserve, the Dempsey covenant runs along the Retaruke River. Horizons Regional Council, QEII, and the landowners contributed to the costs of fencing the covenant that now provides a buffer to the river, helping to improve water quality.

Waikato: Links to Maungatautari

On the southern flanks of Maungatautari, the Tautari Wetland was protected with a 3.5ha QEII covenant by **Ted (Taotao) and Carol Tauroa** on their dairy farm in September 2008.

A predator proof fence linking to Maungatautari Ecological Island surrounds the wetland ensuring a secure environment for endangered species such as takahe and tuatara. In June 2006, a pair of takahe was released in the wetland. Matariki and Hauhunga produced a healthy chick in December 2009.

Taotao, of Ngāti Korokī Kahukura, says contractors and volunteers continually monitor the wetland for pests. 'We are in the process of getting tuatara later in the year to join the takahe,' he explains.

Top right: The Tautari Wetland is now protected in perpetuity with an open space covenant by Taotao and Carol Tauroa.

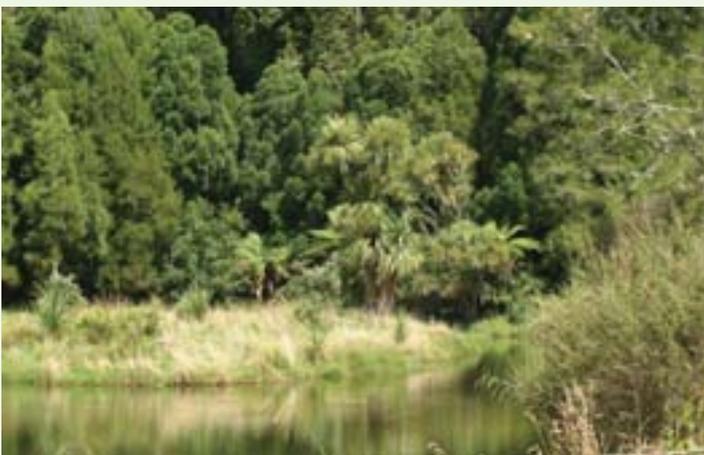
Bottom right: Takahe at Maungatautari. There are only 230 adult birds throughout New Zealand.



Photo: Rex Webby



Photo: Loralie Hyde



Photos: John Scott

On Puketawa, their farm on the eastern flanks of Maungatautari, the **Scott family** put a 7.5ha covenant in place in August 2009 to protect four blocks of tawa forest, kahikatea stands and wetland areas. The family has been on the farm for 114 years, initially with sheep and beef farming and now also with a dairy operation managed by fourth generation farmer Geoff.

'My grandfather left patches of bush when he cleared the land,' says John Scott, 'My father began fencing these blocks off 50 years ago so the understorey is well established.'

'I'm enthusiastic about our native plants and regularly add species that are indigenous to the district to the blocks. The fencing keeps stock from browsing the forest and allows the vegetation to come away.'

Top left: Maungatautari from Puketawa.

Middle left: The blocks of tawa, mangeao and pukatea forest in the Puketawa covenant form a buffer zone for the nearby forest in the Maungatautari Ecological Island. Exposed to full light, supplejack climbs up to the canopy.

Bottom left: Riparian areas revegetated by the Scott family are protected by the covenant including this wetland area which flows through a kahikatea stand.

New and upgraded fencing required to exclude stock from the covenant was funded by QEII and the landowners, although a substantial amount had already been completed.

Looking after kiwi at Tui Glen

Keen covenantors, **Duncan and Jean Macky**, protected two blocks of tawa-mangeao forest on their previous farm at Maungatautari in the Waikato with their first covenant in 2005. They moved to Tui Glen farm at Pipiwai north-west of Whangarei four years ago.

While assessing the bush on their new farm for a covenant, Nan Pullman, the local QEII Regional Representative, saw kiwi probe holes.

To protect this habitat of North Island brown kiwi, Duncan and Jean put a 29ha covenant in place in July 2009.

'The Mackys are hard workers and great covenantors,' says Nan. 'They got rid of roaming stock from the bush and have vigorously attacked pest issues. They have paid for a transceiver to monitor kiwi and with assistance from Whangarei District Council built a platform for kiwi listening.'

'QEII, Northland Regional Council, Whangarei District Council and the Mackys contributed to the cost of fencing the covenant while the Department of Conservation is helping with the kiwi monitoring and mustelid control.'

'This is a wonderful example of farmers looking after the conservation values of their land and working alongside agencies to protect our threatened species.'



Photo: Malcolm Pullman



Photo: Malcolm Pullman

Above: Jean Macky, Nan Pullman and Duncan Macky help with monitoring the condition of a kiwi while Pete Graham from the Department of Conservation weighs the chick.

Top left: Fencers like Keith Briars help to protect our threatened flora and fauna, often constructing covenant fences in difficult terrain and isolated areas.

Left: The covenant has some steep gullies covering the upper catchment of the Putauhinu Stream.

'This caused some interesting angles for Keith Briars, our fencer, when preparing the line,' says Duncan.

'With the help from Nan at QEII and Lisa Forester at Northland Regional Council it was possible to fence off this bush. We do encourage other landowners to consider protecting special areas on their farms with QEII.'



Photo: Duncan Macky

DNA investigation of domesticated native plants

Lara Shepherd from Massey University and her colleagues are using DNA analyses to investigate the domestication by Māori of karaka *Corynocarpus laevigatus*, rengarenga *Arthropodium cirratum*, whau *Entelea arborescens* and coastal kowhai *Sophora chathamica*. The occurrence of these species outside Northland is thought to be the result of translocation by humans.

Greg Blunden, QEII Far North Regional Representative, recently hosted Lara along with Leon Perrie from Te Papa and local naturalist Kevin Matthews at selected covenants to collect samples of these species. They also visited **Chappie Foley's** 7ha floodplain forest covenant near Kaitaia.

Highlights here include the extremely tall kowhai *Sophora microphylla*, heart-leaved kohuhu *Pittosporum obcordatum* (Nationally Vulnerable) and a good population of the epiphytic orchid *Adelopetalum tuberculatum* (Naturally Uncommon). Especially exciting for Leon, who is a fern specialist, was seeing *Christella dentata* (Nationally Critical) which is extremely rare in New Zealand.

Lara and Leon also visited the 23ha **Moanaroa Station** coastal forest covenant west of Akito in Taranaki with landowner Dan Ramsden and local QEII representative Bill Wallace for sampling of karaka and whau. Whau is quite uncommon in the southern North Island, making its occurrence at Moanaroa Station of interest for the research.

Top right: Flowers of the epiphytic orchid *Adelopetalum tuberculatum*.

Right: *Christella dentata* is principally a fern of the tropical Pacific. Until recently, Foley's Bush was the only known site in New Zealand.

Below left: A small patch in the Moanaroa Station covenant has abundant whau seedlings. Whau was cultivated by Māori for its light wood, which was used for fishing floats.

Below right: Karaka was widely cultivated by Māori even though the fruit required substantial processing to remove toxins. This line of karaka on Moanaroa Station may have been planted.



Photo: Kevin Matthews



Photo: Greg Blunden



Photo: Leon Perrie



Photos: Leon Perrie

If there are any of these plants in your covenant that you think may be of interest to the researchers, please contact Lara Shepherd on l.d.shepherd@massey.ac.nz

Our *Olearia* shrubs: Unique divaricating species

A striking feature of New Zealand's biodiversity is the many small-leaved, twiggy shrubs covering our landscapes.

Described as divaricating, that is, with many interlacing, wide-angled branches and tiny leaves, they are found in a variety of habitats from wetlands to forests but the greatest number occur on the dry eastern side of the country, in particular Canterbury.

Our divaricating shrubs include the small-leaved shrubby species of *Olearia* that were once abundant in dryland environments. Impacted by intensive land development and weeds and pests, these distinctive plants are fast disappearing. Recognising the value of *Olearia* shrubs that remain, landowners and councils are now protecting the habitats of these unique indigenous species with QEII open space covenants.

Canterbury: Hidden treasures revealed on uncultivated land



Photo: Miles Giller



Photo: Miles Giller. Inset: Ian Platt

On the outskirts of Christchurch near Yaldhurst, two neighbours protected rare remnants of original Canterbury Plains dryland shrubland, grassland and mossfield vegetation in May 2009. On former river-channel soils of the Waimakariri River, **Tricia and Ian Crumpton's** 0.6ha covenant and **Tim and Keryn Stark's** 1.4ha block are on land that has never been cultivated.

Although outwardly austere, the covenants protect *Olearia adenocarpa*, a new species described by Brian Molloy and Peter Heenan at Landcare Research in 2004.

Distinguished from *O. odorata* by its smaller and open growth habit and short-lived and slender spreading branches, only about 650 plants are known.

Far left: Ian Crumpton by his and Tricia's covenant that protects the habitat of threatened shrubs including *Olearia adenocarpa* (Nationally Critical), *Aciphylla subflabellata* (Declining), *Muehlenbeckia ephedroides* (Declining) and *Melicytus* aff. *alpinus* ("Hinds") (undescribed species).

Left: *O. adenocarpa* is susceptible to browsing by hares, rabbits and sheep. Rabbit-proof enclosures constructed with contributions from the landowners and the council will help this unique indigenous species to recover.

'We found out how rare this plant is during a Selwyn District Council biodiversity workshop,' explains Tricia. 'With the council's help we are restoring the native vegetation and controlling exotic invaders.'

'The covenants certainly look different from the surrounding manicured land.'

Central Otago: *Olearia* shrubland fragments are also home to native moths and insects

West of Patearoa, **John Gibson** protected *Olearia odorata* shrubland on Oliverburn Farm with a 0.6ha covenant in September 2009. Adjacent shrubland along Puketoi Runs Road was also protected by **Central Otago District Council** with a 5.4ha Landscape Protection Agreement.

'As far as I know, these remnants are all that is left of this plant community on the Maniototo Basin floor,' says Brian Molloy. 'The relict shrubland is also habitat for a proliferation of native moths and insects that depend on the indigenous shrubs.'

'Rabbit-proof fencing now excludes browsing animals from the shrubland.'

'Enrichment planting of the *Olearia* and reintroducing fescue tussock and large native herbs such as Spaniards and wheatgrass would help to restore the area. With the landscape rapidly changing to dairy farming, small fragments such as these are well worth protecting.'

Above right: John Gibson looks over his *O. odorata* shrubland covenant that also protects an unnamed *Melicytus* species, Otago broom *Carmichaelia petriei* and *Muehlenbeckia australis*.

Below right: A mature *O. odorata* in early flower bud. The large central trunk is characteristic of this deciduous tree daisy species.



Photos: Brian Molloy

You may have a special area of *Olearia* shrubland that you wish to safeguard forever. Contact your local QEII representative or visit www.openspace.org.nz

Moths find *Olearia* shrubs tasty

Brian Patrick provides an insight to some of our native moths that are dependent on *Olearia* shrubs.

Divaricating shrubs are a dominant feature of the eastern and central South Island montane valley floors and slopes.

Among the bewildering array of these shrubs, the mainly deciduous, small-leaved daisy shrubs in the genus *Olearia* are conspicuous with their light green foliage and profuse fragrant flowers. There are at least 13 species of *Olearia* in this distinctive group.

Studies over the past decade have revealed a rich endemic moth fauna that depends on this suite of shrubs. A total of 41 moth

species were found as larvae (caterpillars) feeding on different parts of the plants, from the flowers to fresh foliage, old foliage, buds and leaf litter. At least three of these moths have tiny larvae mining within the thin leaves.

Of the total, 17 species are *Olearia* specialists. By rearing larvae found on the shrubs, an amazing eight new species in five moth families were discovered.

With other insect orders such as beetles and bugs also richly represented, four species stand out for their importance to

local invertebrate communities: *Olearia odorata*, *O. fimbriata* and *O. hectorii* of the South Island and *O. gardneri* of the North Island.

Several *Olearia* moths are now rare and threatened with extinction because of loss of or degradation of their habitat.

Among these are unnamed species in the genera *Protosynaema*, *Pyrgotis* and *Pseudocoremia* while *Stathmopoda campylocha*, *Graphania tetrachroa*, *Meterana grandiosa* and *M. exquisita* are also disappearing.

This large new species in the genus *Pseudocoremia* is unusual as the female (pictured) is completely flightless with wings just 1mm long on a 1cm body.

Being effectively immobile, the species is dependent on a canopy of the host plant *Olearia odorata* to enable the female to walk from plant to plant amongst the foliage.

Dense shrublands of these plants are now rare, with scattered shrubs the normal situation, probably accounting for the demise of this and other *Olearia* dependent moths.

Inset: *Pseudocoremia* larvae on *O. odorata*



The appropriately named *Meterana exquisita* is a Spring-emerging noctuid moth that depends on various *Olearia* shrubs for sustenance. While the moth is still reasonably common in some areas, it has disappeared from the many areas where its host plants are no longer found. With their perfect camouflage, both the adults and larvae (pictured on *O. bullata*) can be difficult to find.

The well-camouflaged geometrid larvae (commonly called inchworms or loopers) of *Pasiphila cotinaea* feed on the flowers of various small-leaved *Olearia* shrubs.

For more about *Olearia* moths, visit [www.openspace.org.nz/Resources/Covenant Management Information](http://www.openspace.org.nz/Resources/Covenant%20Management%20Information).

Protecting our biodiversity cannot be done without people



Photo: Malcolm Pullman

Over 3,300 inspired landowners throughout New Zealand protect our natural heritage with QEII covenants, investing time, money and energy into constructing and maintaining fencing, controlling weeds and pests and undertaking restoration projects.

Working alongside covenants are dedicated council, Department of Conservation and QEII staff. Community volunteers play an important role in restoring natural habitats protected by covenants. Contractors help by erecting fencing and carrying out weed and pest control, often in difficult terrain.

The achievements of just a small sample of covenantors and others committed to protecting our biodiversity are celebrated here. For an example of the impact volunteers can make, see page 32.

Left: Jean and Duncan Macky monitor kiwi in their covenant near Whangarei.

'Good management of our natural environments and the many taonga on it cannot be done without people.' – Jo Ritchie, QEII Director



Photo: Philip Lissman

Nelson: Landowners protect endangered species

East of St Arnaud in the Nelson Lakes area, **Sue and Kelvin Allen** protected regenerating manuka-broadleaf forest, manuka shrubland, primary beech forest and a small *Carex* dominated wetland with a 10ha covenant in March 2009. In a frost hollow at 720m, the covenant is habitat for the threatened *Pittosporum patulum* (Nationally Endangered). The Allens have fostered native regeneration in the harsh montane environment since they purchased the property over 20 years ago.



Photo: Kelvin Allen

Sue and Kelvin Allen with *Pittosporum patulum* in their covenant. Commonly called Pitpat, this subalpine species is endemic to the South Island.



Photo: Neil Phillips

Taranaki Regional Council: Landowners encouraged to protect wetlands

The first step in the covenanting process is an evaluation of the area against a range of criteria including biodiversity values. On the volcanic ring plain around Mount Taranaki, only 1% of wetlands remain as most have been drained for farming.

The Taranaki Regional Council's Land Management and Biodiversity Programmes help and encourage landowners to protect remaining wetlands. In September 2009, Neil Phillips, QEII Regional Representative, and Craig Hornby, Land Management Officer at the council, evaluated a wetland for a proposed covenant on a dairy farm near Inglewood.

Craig Hornby inspecting the existing fence around the wetland. The fence will need to be upgraded with additional posts and wires before a QEII covenant can be put in place.

Southland: Joining the fight against gorse

In December 2008, Environment Southland released the gorse soft shoot moth *Agonopterix ulicetella* in **Gay and Ron Munro's** Manuka Mire covenant at Mokotua to establish a population of this biological control agent.

The caterpillars of the moth damage gorse by feeding on new shoots in the spring. The release site was checked one year later in December 2009. No signs of the moth were found but it can take a while for this biological control agent to establish.

Biocontrol contractor Jesse Bythell and landowner Ron Munro check the release site of the gorse soft shoot moth in the covenant.



Photo: Gay/Munro

Wairarapa: Farming co-exists with uncommon indigenous plants

Over 1,000 matagouri plants are scattered across steep hillsides on **Michael and Deborah Doyle's** farm at Tora, the largest concentration of this regionally threatened plant left in the region. Four areas of the matagouri shrubland are in the process of being protected with a *Life of the Trees* covenant.

With its long sharp spines, matagouri is unpalatable to stock. The areas will therefore continue to be grazed to minimise the threat of gorse and broom invading and to help prevent the matagouri being shaded out by taller native species.

Deborah and Michael Doyle, who also have a 7.7ha coastal forest covenant on their farm, look over the matagouri shrubland with Trevor Thompson, QEII Regional Representative.



Photo: Albert Rebergen

Southland: Partners work together to protect alluvial plain biodiversity

Ross and Pamela Fraser protected four blocks of primary forest and flaxland along the Mokotua River at Awarua in Southland with a 6.3ha covenant in December 2009. Brian Rance from the Department of Conservation assessed the significance of the vegetation and its management requirements.

Fifty-nine indigenous species were recorded including five podocarp species – kahikatea, rimu, celery pine, Hall's totara and miro. The landowners, QEII and Invercargill City Council contributed to the cost of fencing the covenant.

Ross Fraser and Brian Rance discuss the presence of the shrub daisy *Olearia laxiflora* in the covenant, only the second site recorded for this species in the Waituna Ecological District. Brian and Chris Rance have a 3ha covenant protecting a coastal podocarp forest remnant at Otatara.



Photo: Chris Rance



Photo: Mark Sutton

Farm managers contribute to leaving a natural legacy

Throughout the country, **Landcorp Farming Limited** now protects over 4,500ha of bush remnants and wetlands with 93 registered and 27 approved covenants. The seventh open space covenant on Mararoa Station near Te Anau was approved in November 2009, protecting a small headwater tributary valley system leading from Snowdon Forest to Dale Creek and a grey scrub dominated escarpment. 'Landcorp is committed to balancing farm production with environmental protection,' says Mark Sutton, QEII Regional Representative. 'The farm managers really do recognise that retiring wetlands and protecting them with covenants is a key to good clean water and the recovery of our native flora and fauna.'

Above: Tim Smith, Mararoa Station Manager, at the approved Dale Burn Tributary covenant. Landcorp, QEII and the Waiau Fisheries and Wildlife Habitat Enhancement Trust have funded the covenant fencing.

Tararua: Joint effort to protect and restore rare treeland

South of Takapau, the 0.85ha Bram Bush covenant was put in place by the **Poulton family** on their 475ha sheep and beef farm in October 2009. Funding is now being sought for a three-year revegetation programme to reinstate this severely degraded treeland that contains one of only five mature rata trees remaining in the northern Puketoi Ecological District.

A restoration plan developed with support from ecologists Gerry Kessels and Britta Deichmann and the Biodiversity Advice Fund recommends replanting areas dominated by rank grass with 3,800 plants, establishing locally sourced rata trees, maintaining long term pest and weed control programmes and ongoing monitoring of the restoration plan.

The covenant was part of the densely forested tract known as 'Seventy Mile Bush' that once extended from Masterton to Norsewood but was largely cleared in the late 19th century for farming. 'This is the only piece of bush left on the property,' says David Poulton. 'A joint effort between landowners and agencies such as QEII is the only way to keep these areas.'



Photo: Marie Taylor

Hawke's Bay: Intrusive pines felled

In **Sir Rodney Gallen and Peter Lattey's** lowland forest covenant alongside the Esk River at Te Pohue, 60 very large old pines were dominating the indigenous vegetation that includes kahikatea, miro, matai, totara and rimu. With Biodiversity Condition Funding and contributions from the landowners, QEII and Hawke's Bay Regional Council, contractors removed the pines using machine assisted felling to minimise damage to the vegetation and to make sure the pines didn't fall into the river.

Above: Contractors Dave Froggatt and Ed Saathof from Pan Pac Forest Products Limited admire their successful felling of the pines. For more about pine control, see page 24.



Above: David Poulton and his sons at the treeland. The 8-wire (1 electric) covenant fence was constructed with contributions from QEII, Horizons Regional Council and the landowners.

Right: The significant rata in Bram Bush is at the northern limit of the distribution range of rata in lowland Tararua-Hawke's Bay. This tree may be locally adapted to the dry environment conditions.



Photo: Bill Wallace

Protecting natural and cultural features of Coromandel pā sites

One of the largest and best preserved pā sites on the Peninsula

Close to Kuaotunu beach, **Ian Simpson** protected a complex pā site and regenerating coastal forest on his farm with a 23ha covenant in 2005. An archaeologist's report states 'the archaeological landscape within the Simpson farm is remarkable for the number of site types in it, the span of New Zealand's history that these relate to, and for their good state of preservation both as individual sites and as a coherent archaeological landscape.'

The archaeologist also considers 'this pā is either the largest pā on Coromandel Peninsula, or failing that is close to the largest.' Sympathetic stock management by the Simpson family has helped to preserve the banks and scarps and a number of kumara pits.

Ngāti Hei and the Department of Conservation were highly supportive of protecting this significant pā site with an open space covenant in perpetuity.



Photos: Hamish Kendall

Above: On top of a hill, the main pā (possibly called Aotearoa or Pukeumu) overlooks the whole of the Kuaotunu area. The covenant also protects historic horizontal gold mining tunnels.

Dairy farmers preserve Pukemaire Pā as well as an ecological corridor

In 2008, **Dirk and Katherine Sieling** protected a semi-coastal forest remnant and riparian wetland with a 5ha covenant on their dairy farm on the Whitianga floodplains. The covenant also protects the site of Pukemaire Pā. A local interpretation for the name is 'place of spirits.'

'This defensive pā was constructed as a place where Ngāti Hei could flee to when they were under attack,' explains Dirk. 'We had discussions with Ngāti Hei when we were planning to build a house below the bush. In recognition of their agreement for the house, we protected the bush and the pā site with a QEII covenant.'

'The agreement reached with Ngāti Hei is a good example of outcomes being achieved that benefit both parties.'

Top: Forming a backdrop to the Whitianga landscape, the Sieling Covenant protects the Pukemaire Pā site as well as semi-coastal forest.

Bottom: On the dairy farm that runs 250 cows, the covenant also protects a wetland and the banks of the Taputapuatea Stream, providing an ecological corridor for wildlife.



Photos: Hamish Kendall

For advice on the best management and protection for a particular archaeological site, please contact the Historic Places Trust or visit www.historic.org.nz

Gisborne: Protecting a water catchment as well as regenerating primary forest

On Waingakia Station inland from Ruatoria, **Jim White and Alison Pohatu** protected a block of primary forest with a 65ha QEII covenant in August 2009. Previously cut-over, the totara, tawa and black beech forest is regenerating well with a good understorey developing.



Deer, cattle, sheep and pigs were threatening the recovery of the vegetation. To exclude stock and feral animals, 1.7km of fencing was constructed with funding from the Biodiversity Condition Fund, QEII and the landowners.

Retirement of this land will also protect the headwaters of Aorangiwai River, a tributary to the Mata River in the Waiapu Catchment, and will enhance erosion control being undertaken by Jim with the East Coast Forestry Project.

Left: Recovery of the lowland forest vegetation following the fencing will be monitored during regular visits by Malcolm Piper, the local QEII representative.



Photos: Malcolm Piper

Above: Jim White cleared and laid the line for the 7-wire post and batten fence that now protects the covenant from browsing animals.



On the southern flanks of Mounts Hikurangi and Aorangi, the Waingakia Station covenant forms a link between Raukumara Forest Park and Aorangiwai Scenic Reserve.

Tararua: Replacing ineffective fencing

Now owned by **Ian and Janet Woodhouse**, the 10ha Awatea Bush covenant protecting two primary forest remnants east of Eketahuna was put in place by **Robert and Lorraine Monson** in 1994.

With continual shorting by the regenerating vegetation, the original 3-wire electric fences around the blocks had become ineffective. This type of fence is not suitable for protecting remnants on sheep and beef farms and permanent fencing was needed to stop stock damaging the understorey and groundcover.

With contributions from the landowners and QEII, 490m of replacement fencing was constructed over 2005-2007. Then in 2009, the remaining 1,347m was fenced with the Biodiversity Condition Fund and Horizons Regional Council also contributing to the costs. Palatable seedlings are already appearing in the groundcover and new leaves sprouting on palatable understorey species.

‘The landowners are very proud of the two remnants and are enthusiastic about the recovery of the vegetation now they are fenced properly,’ says Bill Wallace, the local QEII representative. ‘They will monitor and maintain the fences to a good stock proof standard.’



Right top and middle: With a wide diversity of species including tawa, mahoe, matai, kahikatea, totara and rimu, the forest is habitat for ornate skinks (Gradual Decline), tui and kereru. The new 8-wire post and batten fence constructed by Gary Graham will now protect the forest from stock.

Bottom right: Ruth Fleeson from Horizons Regional Council and landowner Ian Woodhouse check the new fence line.

Left: An ancient matai in the forest.



Photos: Bill Wallace

Forest fragments: Objectives of restoration and management

An update from the Landcare Research *Forest Remnant Resilience* programme funded by the Foundation for Research, Science and Technology.



Landcare Research
Manaaki Whenua

John Innes from Landcare Research in Hamilton discusses the key concepts of restoring and managing forest fragments. He has previously described a two-year research project in tawa-dominated forest fragments in the Waikato. *

How do you work out when a forest fragment is restored? Questions such as: 'What was this forest really like before it was fragmented and grazed?' provide the way forward, although natural ecosystems tend to change with time anyway. Restoring the key elements of natural ecological processes is a better approach than picking a past date (e.g. pre-European) and trying to turn the clock back.

Both scientists and laypeople are likely to agree on the first major steps to take in practice (usually fencing and pest and weed control), and we all do what we can with the time, energy and money available. And there is never enough! There is probably no really clear endpoint when a fragment can be truly declared restored. You can't just walk away from pest control without pests coming back and even good fencing needs renewal eventually.

However, there are some simple and helpful words and concepts that make scientific sense that can help non-scientists envisage the ecological path ahead and see clearly how they are contributing to national goals.

A major review of biodiversity inventory and monitoring done for the Department of Conservation by Bill Lee, Matt McGlone, Elaine Wright and others in 2005 (Landcare Research Contract Report LC0405/122) suggested that the 'primary national outcome of conservation management at the highest level is to maintain **ecological integrity** ... defined as the full potential of indigenous biotic and abiotic features, and natural processes, functioning in sustainable communities, habitats and landscapes.'

While ecological integrity is the outcome of many interactions between genes, species, populations, ecosystems and the abiotic (i.e. non-living: soils, geology, climate) environment, they suggested that key elements were **indigenous dominance**, **species occupancy** and **environmental representation**.

The real power of these targets is that they are just as useful for a single forest fragment as for the whole country. They will even work for the section of stream that meanders through your farm, and the cave underneath it.

1. **Indigenous dominance** demands that key ecological processes (like seedling regeneration, litter decomposition, pollination and seed dispersal in a forest fragment) are driven by indigenous plants and animals, not exotic ones. Natural regeneration is a key requirement to maintain those species that naturally dominate each vegetation layer, such as tawa or podocarps in Waikato fragments. Killing and removing willows, tradescantia, possums and ship rats all increase indigenous dominance by restoring greater roles for native species.
2. **Species occupancy** means simply that the species that should be there, are there. It may take some homework to find out what plants and animals used to be at your place, but nearby reserves, or larger forests (even if unmanaged) or patches on a neighbour's place may show you trees or animals that could be added to your fragment. In the Waikato fragments we have worked with, trees like rimu, hinau and rata that were formerly present are now rare or absent and could be planted back. Discussion with local DoC staff may reveal native animals that should be in your fragment and could be translocated back there.



Far left: **Michael and Margaret Oliver** protected a podocarp forest remnant on their organic farm at Whitehall north-east of Cambridge with a 6.9ha covenant in 1987. The covenant, seen here above the blocks of bush in the foreground, protects mature tawa, pukatea, rewarewa, kahikatea, rimu and totara.

Left: With stock excluded by fencing and ongoing possum control undertaken by Environment Waikato, good regeneration is occurring. The landowners have also planted areas alongside the covenant.

* See *Forest fragments need fencing and pest control* in *Open Space* Issue 75, March 2009 or download under [www.openspace.org.nz/Resources/Covenant Management Information](http://www.openspace.org.nz/Resources/Covenant%20Management%20Information)

3. **Environmental representation** describes how ecosystems vary across geological and climatic landscape. This is more of an issue for agencies like DoC who should consider how individual sites contribute to regional and national variation.

A final useful concept is that of **resilience**, which describes how a fragment bounces back when disturbance agents (usually stock, weeds, pests) are removed.

The Waikato fragments that we studied are generally fairly resilient. Fencing stock out led to a pulse of dense seedlings and saplings that within 10 years thinned out, leaving more native ground ferns and shrubs and fewer exotic weeds than in unfenced fragments. Possum control additionally increased the number of canopy seedlings in the regeneration pulse, although neither treatment returned all the species present in nearby large 'reference' forests, nor probably established sufficient juveniles of shade-reproducing canopy trees to ensure canopy replacement (especially tawa). Fencing and pest control also increased invertebrate populations and litter mass, decreased soil fertility, and increased bird nesting success.

All of these changes can be cast as increasing indigenous dominance and species occupancy, plus other downstream ecological outcomes. In essence, they capture naturalness and acknowledge that what is natural varies from place to place. They also avoid the trap of aiming to make a site as it was at a particular time in the past e.g. pre-European.

The concepts can be applied to individual trees, small forest blocks, large DoC forests and the whole North Island. They also capture what people who manage fenced and unfenced sanctuaries of various kinds do, since intensive pest control aims to increase the roles of indigenous animals, and species translocations enhances species occupancy.

1. Protected since 1999 with a 1.5ha covenant, the edges of **Pam Wilkinson's** kahikatea remnant and wetland beside Lake Karapiro south-east of Cambridge have been planted to reduce the effects of wind on the vegetation. Natural regeneration is now flourishing.

2. After the planting of more kahikatea in 2008, Pam Wilkinson and Ian Bickle admire the encouraging growth of previous plantings on the edge of the fragment. Pam's late husband Rob and the Cambridge Tree Trust made major contributions to the revegetation project.

3. The degraded condition of this block west of Huntly contrasts sharply to the health of recovering vegetation in longstanding covenants. Browsing stock prevent seedlings regenerating to replace mature trees as they die, damage the roots and bark of existing trees and carry weeds into the bush. The fertility of the soil also increases which favours weed species rather than natives.

4. At Waingarō near Ngaruawahia, **Mavis and Ralph Skinner** have worked on restoring a block of podocarp-hardwood forest for over 30 years by weeding, setting traps and planting gaps with seedlings sourced from the bush. Two covenants totalling 37ha protect the forest that has a canopy of rimu, kahikatea, miro, totara and tawa. The Skinners' first covenant was registered in 1987 and the second in 1993. Environment Waikato handles the possum control.

'We have enjoyed working in the bush and still spend one day a week there,' says Mavis. 'It's nice to have the bush protected and know it's not going to be bulldozed.'

Rex Webby, QEII Waikato Regional Representative, says the understorey is thick with a diverse range of species. 'The covenants are in excellent health and are well cared for by these devoted owners.'



Photos: Rex Webby

Protecting open space values: Controlling wilding pines



Wilding pines are introduced pine tree species that have spread unwanted into native forest, shrubland or grassland areas. The unchecked spread of wilding pines can pose a real risk to biodiversity, landscape and recreational values. They compete for space with native trees and plants but do not have the berries and nectar that encourage native birdlife and insects. A carpet of pine needles discourages regeneration of native forest floor species.

Wilding pines pose a threat to the landscape values of covenants as they can eventually dominate regenerating native forest. They may reach many metres above the canopy of the bush and are especially noticeable on bush margins. Once a covenant is fenced and protected, the lack of grazing by stock can hasten this spread and establishment.

Left: Typical wilding pines on a steep sidling in Alec Olsen's 54ha covenant beside the Mangaone River in Hawke's Bay. With contributions from the Biodiversity Condition Fund, QEII, Hawke's Bay Regional Council and the landowner, wilding pines in this covenant have now been controlled.

Controlling wilding pines

Wilding pine spread is very predictable. Guidelines are available from your Regional Council or the Department of Conservation on safe and efficient control. *

The most appropriate method for controlling wilding pines depends upon factors such as the extent of the infestation, density of trees, size and age of trees, native species present, access to the site, and the skills and resources available.

Where immediate complete control is not possible, give priority to controlling isolated trees and mature trees on 'take off' sites such as ridges and hilltops from where seeds are likely to be blown long distances. Large infestations should initially be contained by controlling trees on the perimeter before they seed. Follow-up control is important at intervals of 5 to 10 years.

Hand pulling is the most effective option for small seedlings less than 0.5m tall. Repeat every 3 to 5 years. Felling is an effective method of control provided all live foliage is removed from the stump. If this is not possible because of the terrain, apply herbicide to the stump. Use glyphosate (e.g. Roundup®) 200ml / 1 litre water, plus 20ml penetrant (e.g. Pulse®).

Where felling is difficult, pines can be poisoned by drilling holes at a downward angle about 50mm into the trunk. Fill with about 25ml of neat glyphosate. Space holes about 200mm apart around the trunk. A modified method using metsulfuron has been trialled and found to be as effective as glyphosate and significantly faster. †

One of the most important management issues is the restoration of infestation sites once wilding pines have

been removed. Options include sowing seed of native shrub species or interplanting infestations with native tree species and then removing the pines once the natives are well established.

Wilding pine control in covenants can be difficult as protected areas are often in steep terrain that is difficult to access. Damage to native vegetation and covenant fences is a risk. Felling with the assistance of an excavator may be required to avoid damage.



A pine in a covenant on the Te Maire property in Hawke's Bay eight months after being poisoned.

* See *Wilding conifers: Prediction and Prevention*, *Open Space Issue 60*, March 2003 or download under [www.openspace.org.nz/Resources/Covenant Management Information](http://www.openspace.org.nz/Resources/CovenantManagementInformation).

† For full details of herbicide use, see *Environment Bay of Plenty Pest Plant Control Factsheet 21 – Wilding Pines* www.envbop.govt.nz and *Marlborough District Council/ Department of Conservation Wilding Radiata Pine – Poisoning Factsheet 174* www.marlborough.govt.nz

Wilding pine control in Hawke's Bay covenants

With contributions from the Biodiversity Condition Fund, the landowners, Hawke's Bay Regional Council and QEII, scattered wilding pines were controlled in three adjacent covenants on the Te Maire property owned by the **Williams family** at Tikokino in Central Hawke's Bay. This series of covenants is one of the oldest in Hawke's Bay, with the first covenant registered in 1984.

The totara forest covenants have high landscape values. Felling of the pines was the most appropriate method of control, some with the assistance of an excavator to avoid damaging covenant fences. Some poisoning was also undertaken in steep areas.

Right: Large old pines were poisoned by making multiple chainsaw plunge cuts into the base of the trees and injecting poison with a drench pack.



Before control: Despite a very good canopy cover, wilding pines in the Te Maire covenants were increasing in number from the seeds of mature trees.



After control: Pines in the protected forest dying following poisoning.

On SH5 between Napier and Taupo, a kanuka covered gorge was protected by **Ross Bramwell** with an 87ha covenant in 2004. Wilding pines were spreading through the particularly steep gullies. Ross had already successfully poisoned pines in the upper part of the covenant so with contributions from the Biodiversity Condition Fund, Hawke's Bay Regional Council, QEII and the landowner, further poisoning work was carried out.



Dying pines in the steep gorge in Ross Bramwell's covenant following poisoning by the contractor Pan Pac Forest Products Limited.



Drill hole and poison.

'These projects brought together a range of agencies to support landowners wanting to solve the problem of wilding pines in their covenants,' says Troy Duncan, QEII Hawke's Bay Regional Representative.

'We are still experimenting with poisoning recipes as we don't yet know how little we can use and still kill the tree. There are different factors like the time of year and season and which way the sap is flowing to take into account.

'The underlying message I have learnt so far is that when it comes to poisoning pines, don't be shy on the chemical.

'Getting to the tree and the labour are the most costly and time consuming parts of the job. The chemical is the relatively inexpensive component, so use enough the first time round.'

Properties for sale with covenants

For more details visit www.openspace.org.nz



Far North Bush Hideaway, \$620,000

Sunny, comfortable house amidst 75ha covenant of mature diverse forest with kiwi. Harbour/ocean views. Solar energy. 4WD access; only 3km from sealed road. Suit active conservationist. Ph 07 322 8245 Email godnbnbird@xnet.co.nz



Kauri dam on shared access lot

Coromandel – Silverstream Falls lifestyle properties

Choose from ocean, native bush and rural views. Lifestyle properties with spacious house sites, attractive native bush and areas for gardens/orchards. Priced from \$369,000 + GST. Area: 3-18ha. Ph: 021 942 146. www.silverstreamfalls.co.nz



Ngatea – Hauraki, \$340,000

1980s 60m² Open Plan Home/1 Double Bedroom. 2.9676ha (approx 7.3 acres). Native bush and birdlife. Views from deck facing north-east. 2.5km barked walking tracks. Phone Denise Roddis, Richardsons Real Estate 07 867 7800. Listing RR0635.



Indigena

Indigena is the quarterly journal of the Indigenous Forest Section (IFS) of the New Zealand Farm Forestry Association. Topics range from biodiversity enhancement to pest control.

IFS members receive *Indigena* as part of their subscription. Copies are available to non-members at \$10 per issue. Contact John Wardle, PO Box 40, Oxford 7443. Phone 03 312 4171. Email wardlejr@xtra.co.nz



The NZ Plant Conservation Network (NZPCN) website provides information about native plants and their conservation. The website was updated in December 2009 with a range of new features including a forum for discussing plant conservation and sections on ecosystems, monitoring and restoration. You can find out more about the plants featured in this issue of *Open Space* magazine on the website. Network members also receive the monthly newsletter *Trilepidea*. To join the Network visit www.nzpcn.org.nz

To make a bequest

When making your will, it is easy to include a bequest to QEII. Please talk about this when preparing your will with your solicitor or other adviser. To discuss any aspect of contributing to QEII by bequest or gift, please contact CEO Margaret McKee on 04 472 6626 or from outside Wellington 0800 4 OPENSACE (0800 467 367) or email mmckee@openspace.org.nz

World Wetlands Day: Finding out about our biodiversity



Photo: Neil Phillips

Taranaki: The links between water, wetlands and biodiversity were highlighted at a field day on 31 January at Alison Rumball's covenant at Umutekai Wetland near New Plymouth.*

George Gallop from Taranaki Regional Council demonstrated the use of traps for predator control. Participants also enjoyed presentations from Taranaki Tree Trust, Department of Conservation, Fish & Game and the local QEII Regional Representative, Neil Phillips.

* For more about covenants at Umutekai Wetland, see *Open Space* Issue 77, November 2009.



Photo: Mark Surton

Southland: At an event on his sheep and beef farm north-west of Winton on 2 February, Warrick Day explained how creating, restoring and maintaining wetlands can help add value to farming operations.

Warrick and Wendy Day have four QEII covenants protecting a total of 35ha of red tussock, wetlands and coprosma shrubland. NZ Landcare Trust, Environment Southland, Department of Conservation and Fish and Game also made presentations.

A distinctive puka

On their sheep and beef farm south-east of Dannevirke, **Bryan and Anna Speedy** protected three blocks of lowland forest and regenerating manuka shrubland with two covenants totalling 20ha in 2007. A large puka descending a rimu stands out in the forest among the wide range of species including totara, matai, kahikatea, titoki, tawa, black beech and nikau.



Photo: Bill Wallace

The epiphytic puka *Griselinia lucida* establishes in a nest epiphyte or a branch fork with roots eventually descending to the ground. 'This is the largest puka I've seen,' says Bill Wallace, QEII Taranaki Regional Representative.

Perfectly camouflaged jewelled gecko

Miles Giller, QEII North Canterbury Regional Representative, spotted this female jewelled gecko *Naultinus gemmeus* while assessing a block of podocarp-hardwood forest for protection with a QEII covenant.

'In their natural environment these geckos are really well camouflaged,' explains Miles. 'The green matches the nearby *Coprosma crassifolia* almost perfectly and the white tones in with the lichens.'



Photo: Miles Giller

Recently registered covenants

A summary of covenants registered from 1 October 2009 to 31 January 2010

Name	Area (ha)	Open space type	District Council
Cookson & Walker	4.4	F	Far North
Landcorp Farming Limited	34.1	G,R	Far North
Schluter	15.6	F,S	Far North
Airey, Cheyne & Dunn	3.1	F	Whangarei
Page Farm and Forests Limited	161.6	F,G,S	Whangarei
Hayward, Wade & Illingworth	76.9	F,W	Kaipara
Kernot	9.4	S,W	Kaipara
Gray & Holborow	0.6	F,W	Franklin
Garland & Makgill (x2)	14.0	F	Waipa
Gibson & Day Limited	30.5	F	Whakatane
MacPherson, Stevens & O'Shea	13.0	F,L	Otorohanga
Peake & Loewenthal	0.4	F	Otorohanga
Snell & Ingram	0.7	F,W	Otorohanga
Yeates (x2)	27.6	F,W	Otorohanga
Salmond	105.1	A,F	Gisborne
Chambers	0.03	A	Hastings
Hilson	8.1	F,W	Central Hawke's Bay
Public Trust	17.1	F	Central Hawke's Bay
Schneider & Locker-Lampson	0.7	F,T	Central Hawke's Bay
Davies & Edirweera	1.5	F	New Plymouth
Fowler & Taylor	11.7	F	New Plymouth
Fox	0.7	W	New Plymouth
Schumacher	3.2	F	New Plymouth
Spencer, Fox & Owen	2.0	F,W	New Plymouth
Fowler & Hurley	44.3	F	South Taranaki
Parinihi Ki Waitotara	83.0	F	South Taranaki
Leigh	0.6	F	Rangitikei
Durie	6.5	F	Manawatu
Ahradsen	16.4	F,S	Taranaki
Poulton & Greer	0.9	T	Taranaki
Hayes	0.5	F,FI	Masterton
Solway College Board of Proprietors Inc.	1.0	F	Masterton
Wellington Natural Heritage Trust Inc.	7.1	F	Wellington
Marlborough District Council & Kaikoura District Council	115.3	F	Marlborough
Minehan	0.8	W	Marlborough
Edwin	9.7	F	Tasman
Holland	9.7	F	Tasman
Malcolm & Fong Company Limited	146.8	F,L,S	Tasman
Roborgh	9.7	F	Tasman
Ros & Hiebendaal	9.7	F	Tasman
Triple Gem Limited (x2)	19.5	F	Tasman
Anderson & Hargreaves	0.7	A,F	Westland
Woodgrove Farm Limited	1.0	F	Kaikoura
Ravensbourne Environmental Trust Board	0.6	F	Dunedin
Swete Kelly	3.2	W	Dunedin
Brookhouse Farm Limited	1.6	W	Clutha
Shanks	1.0	G,S	Clutha
Stephens & Thomson	1.3	F	Clutha
Foveaux Investments (2008) Limited	32.4	F,G,S	Southland
Fraser	6.3	F,FI	Southland

Key: **A** Archaeological feature **C** Cushionfield **D** Duneland
F Forest **FI** Flaxland **G** Grassland
Ga Garden / arboretum **Ge** Geological feature **L** Landscape
P Predator-proof area **R** Rushland **S** Shrubland
T Treeland **Tu** Tussockland **W** Wetland

Covenants by Regional Council - 31 January 2010

Regional Council	Total land area in the region (ha)	No. of registered covenants	No. of approved covenants	Total area registered & approved (ha)	Largest registered covenant in region (ha)	Average covenant size (ha)
Northland	1,250,000	543	66	9,219	417	15.1
Auckland	500,000	225	42	4,251	841	15.9
Waikato	2,500,000	497	73	16,893	645	29.6
Bay of Plenty	1,223,100	159	11	9,495	6,564	55.9
Gisborne	826,500	108	21	4,899	1,104	38.0
Taranaki	723,600	214	59	4,742	334	17.4
Hawke's Bay	1,420,000	198	38	11,964	4,606	50.7
Horizons	2,221,500	285	33	7,370	306	23.2
Wellington	813,000	263	40	5,949	824	19.6
Tasman	978,600	120	19	2,342	641	16.8
Nelson	42,100	11	2	301	140	23.1
Marlborough	1,049,500	53	13	1,857	182	28.1
West Coast	2,300,000	41	19	2,288	619	38.1
Canterbury	4,220,000	216	43	13,765	1,679	53.1
Otago	3,200,000	147	26	10,500	2,735	60.7
Southland	3,035,000	219	25	5,826	214	23.9
Totals		3,299	530	111,661		29.2

Historic West Coast gold mining workings

Near Ross, well preserved gold mining workings including a Prince of Wales water race, stacked tailings and a dam are features in an area of podocarp-hardwood forest **Brian Anderson and Lynley Hargreaves** protected with the 0.7ha Lodger Creek covenant in September 2009.



Photos: Mike Coppeland



Above: Connecting to the Totara-Mikonui Forests Conservation Area, the covenanted forest behind the house is habitat for a variety of bird species including eastern falcon (Nationally Vulnerable), western weka (Declining) and kereru.

Left: 'Prince of Wales' was the name of a large alluvial gold claim at Donoghues that extended across the whole southern face of Mount Greenland. The water race in this forest brought water down to Donoghues.



Field Operations Manager

Dave Banks has joined QEII as the Field Operations Manager. He has lived in Wellington for over 40 years, working previously for NIWA and then more recently the New Zealand Seafood Industry Council where he participated in and managed field teams and data gathering programmes around the country.

Dave has a biological background with a BSc from Victoria University and this is reflected in his activities in the outdoors. He is a keen trail runner and trapper and is interested in botany, birds and lizards. He is also an active member and volunteer at Karori Sanctuary. Dave hopes these skills and attributes will help him provide good management to the Trust and assist in securing and enhancing covenants.

QEII Directors election result

The results of the 2010 election for directors of the QEII National Trust Board were not available at the time of press. The results will be posted on the QEII website www.openspace.org.nz and the successful candidates profiled in the July 2010 issue of *Open Space* magazine.



Greg Blunden, QEII Far North Regional Representative, found these kiwi prints in a muddy part of a ridge track near Hihi while assessing a further covenant for Rod and Margaret Langridge.

PUBLIC NOTICE FROM THE MINISTER OF CONSERVATION

Appointments to the Queen Elizabeth the Second National Trust – a public invitation to interested agencies and organisations from Hon Kate Wilkinson, Minister of Conservation.

The terms of appointments of Bernard Card and Edward Ellison, directors of the Queen Elizabeth the Second National Trust Board, expire on 28 June 2010. They are eligible for reappointment and it is my intention to reappoint both of them for a further three year term.

If any interested agency or organisation wishes to nominate other persons they consider suitable for appointment instead of Bernard or Edward could they please advise me in writing no later than 23 April 2010 and I will give those nominations due consideration before making my final decision.

In making appointments to the Board I have to have due regard to environmental and conservation values, the interests of rural landowners and the interests of the Māori community.

The other Minister-appointed directors of the Board and their terms of appointments are: Sir Brian Lochore, Chairperson, whose term expires 30 June 2011 and Yvonne Sharp whose term expires 31 August 2012.

Kate Wilkinson, Minister of Conservation

Dated this 8th day of February 2010

In Memoriam – Charlotte Wallace 1919 - 2009

Dr Charlotte Wallace, QEII Director 1980-1986, Covenantor and Life Member, died on 30 December 2009. A pioneer in conservation and environmental issues, Charlotte played a key role in the Trust's formation with the covenanting concept coming from her through the South Auckland Conservation Association as early as 1972.

Charlotte and her husband Lin's family property at Tapuaetahi on the Coromandel Peninsula has some of the best coastal forest on private land on the east coast of the North Island. When they bought the property in the 1960s, there were few fences and stock roamed free. Linking with neighbouring private and state forests, five registered covenants now protect 42ha of forest and wetlands and an approved covenant is currently being fenced, providing a habitat for a wide range of native flora and fauna including North Island brown kiwi.



Coastal forest on the Wallace property. Inset: The late Charlotte Wallace.

QEII Trust: Help us to protect our natural features

Protecting natural features helps New Zealand

- Many of our plants, animals and landscapes are unique to New Zealand. This helps set us apart and define us as a nation.
- Unfortunately, many of these species and features are under threat. The decreasing diversity of our indigenous flora and fauna is regarded as one of our biggest environmental problems.
- New Zealand has a network of publicly owned conservation areas. However, 70% of land is in private ownership. Many habitats and features are found only on privately owned land and can be protected only with the goodwill and action of landowners.

Practical land management and farm productivity

- Many farmers protect natural features because it makes good land management sense.
- Bush and wetlands help to filter rain and runoff ensuring improved water quality. They encourage recycling of nutrients and reduce soil erosion.
- Forest remnants reduce wind and provide shelter and shade, enhancing stock management and production.
- Fencing allows regeneration of bush, helps to protect stream banks and water quality, and keeps stock out of hard to manage areas.
- Healthy bush and natural landscapes beautify and add economic value to farm properties.

Flowering matagouri *Discaria toumatou* at High Peak Station.



Photo: Loralee Hyde

Join QEII National Trust Membership – an ideal gift

QEII is always in need of greater financial and moral support for its work. You can help by becoming a QEII Trust member.

Your benefits as a QEII Trust member

- Three issues of *Open Space*™ magazine a year.
- Free or discounted entrance to properties owned or administered by the National Trust (UK), National Trust for Scotland, National Trust of Australia (all States), Barbados National Trust, Bermuda National Trust, National Trust for Fiji, Georgia Trust for Historic Preservation, Gibraltar Heritage Trust, Japan National Trust and National Trust for Zimbabwe.
- Entitlement to nominate and vote two members onto the QEII National Trust Board of Directors.

Financial members must have a residential address in New Zealand. QEII covenantors automatically become members.

To join QEII Trust: post the membership application to QEII National Trust, PO Box 3341, Wellington 6140, email info@openspace.org.nz or phone 04 472 6626, or from outside Wellington 0800 4 OPENSACE (0800 467 367).

QEII National Trust Membership Application

Title Name

Address

Postcode Phone (0) Email

Membership Type (please tick)

Individual \$30 Family \$45 Life \$550

Corporate – business \$75

Corporate – non profit organisation \$50

Subscriptions include GST. Financial members must have a residential address in New Zealand.

Donation (optional)

Donations over \$5.00 are tax deductible.

\$100 \$50 \$20 Other \$

Method of payment Cheque MasterCard Visa

CREDIT CARD DETAILS

Number:

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Cardholder name Expiry date Signature

Total \$ Please send a receipt

For direct debit option, please email info@openspace.org.nz

Please send me more information on:

Making a bequest to QEII Open Space Covenants

Gift Membership

Gift to: Name & address

Send next year's gift renewal to me or to the recipient

Membership runs from 1 July to 30 June. New memberships after 31 March will come due for renewal 30 June the following year.

QEII Trust: Helping you protect the special nature of your land

What is a QEII open space covenant?

A covenant is a legally binding protection agreement which is registered on the title to the land. It is voluntary but once in place binds the current and all subsequent landowners.

Private property rights are not jeopardised – the landowner retains ownership and management of the land. Visitor access is available only with the landowner's prior permission.

Each covenant is unique. It can apply to the whole property or just part of the property. There can be different management areas within a covenant with varying applicable conditions. Conditions can be stringent where rare or vulnerable natural features or habitats are being protected.

Open space covenants are generally in perpetuity although there are variable term covenants. These include **Kawenata** on Māori land which recognises tino rangatiratanga, and **Life of the Trees** where individual trees occur in a situation where they may not be self-generating. **Landscape protection agreements** are used where the land does not have title such as roadside areas.

Managing a QEII open space covenant

QEII helps landowners with ongoing management advice and support. A management plan may be prepared with the landowner when a covenant is established, which sets out ongoing management objectives and provides guidance on aspects such as species management, pest control and restoration methods.

Each covenant is visited regularly (usually every two years) to monitor its condition and trends, identify and address any threats, and advise the owner about how to meet the covenant objectives.

How to covenant your special area

To protect a special area on your property, these steps are typically needed to gain a QEII open space covenant.

- **Enquiry** Ask your region's QEII representative (see page 2) to visit your property.
- **Evaluation** The QEII representative will evaluate your special area against a wide range of criteria including ecological and biodiversity values, naturalness, sustainability, existing or potential value as an ecological corridor, wildlife, geological features, landscape values,

and cultural and heritage values. There will also be practical considerations including management needs, threats to site values, your motivation and potential sources of funding.

- **Approval** The QEII Trust Board will consider the evaluation, and approve the covenant if it meets the criteria. You will then be asked to sign a covenant agreement.
- **Fencing** If required, the covenant will have to be fenced next.
- **Survey** An accurate survey plan or aerial photodiagram of the covenant area will be prepared, which you will need to check and sign.
- **Registration** The covenant will then be formally registered on the title to your land with Land Information New Zealand. QEII will lodge all the necessary documentation.

Funding assistance

Your QEII open space covenant may be non-rateable. See *QEII Covenants and Local Government Rates – Best Practice Recommendation* under *Resources/Publications* on www.openspace.org.nz

You may also be eligible for assistance with funding for items such as fencing, weed and pest control, and restoration planting. Your QEII representative will be able to advise you about possible funding sources.

Each covenant is unique



Photo: Margaret McKee

Troy Duncan, QEII Hawke's Bay Regional Representative, Mason Chambers and Bill Dodds with four pits in front of Mason's home near Havelock North. On an elevated site above the Tukituki River, the pits have connections with the nearby Kaiwaka Pā archaeological site. Mason protected them in perpetuity with The Horseshoe Pits covenant in October 2009.



Photos: Richard White

The Bell family protected Tuahine Point near Gisborne with a 25ha covenant in 2003. Led by the Tuahine Point Ecological Trust, a community restoration project has planted 17,000 trees so far. This success was celebrated on 31 October 2009 with the dedication of a seat in memory of Les and Rose Bell. From left: Alayne Jones, Warwick Bell and Diane Hintz.

Kaharoa Kokako: Amplifying New Zealand's original song

Working together is the future of conservation

The Kaharoa Kokako Trust is a group of volunteers dedicated to protecting kokako that live in the Kaharoa Conservation Area near Rotorua. By reducing the number of possums and rats in the forest, the community-based Trust has enabled the number of kokako to grow. The Trust draws much of its support from the rural community of Kaharoa and works closely with the Department of Conservation.

Kokako are now spreading to private land adjacent to the Kaharoa Conservation Area including QEII covenants owned by **Winston Fleming** and **Vernon Cotter**.

With funding from the Biodiversity Condition Fund and contributions from QEII and Environment Bay of Plenty, volunteers and contractors applied pindone and Feratox® (encapsulated cyanide) during October 2009 to control ship rats and possums in the covenanted areas. This coincided with the kokako breeding season to ensure the birds were safe for another nesting period.

The Kaharoa Kokako Trust will monitor the survival of known pairs of kokako, newly recruited juvenile kokako and any additional kokako that disperse from the Kaharoa Conservation Area to the covenants during the next 3-5 years. Environment Bay of Plenty will monitor the populations of possums and ship rats.

By encouraging community buy-in to the project and engendering widespread support for saving kokako, the Kaharoa Kokako Trust is recognised as a successful model for other community conservation groups to follow when enhancing our environment.



Above: Long time QEII covenantor Winston Fleming is a keen supporter of kokako protection at Kaharoa with pest control being undertaken in the regenerating forest in his covenant.

Below: Greg Corbett from Environment Bay of Plenty (front) and Guus Knopers from Wildlife Contractors (behind) were involved in undertaking the pest control in the covenants. They were assisted by Kaharoa Kokako Trust volunteers.

'If conservation of our endangered species is to work effectively in New Zealand, it must involve government agencies, community groups, private companies and individual landowners working together for common goals. At Kaharoa we are now on the cusp of making this collective approach a reality.'
– Anne Managh, Chairperson, Kaharoa Kokako Trust

Below: Kaharoa now contributes to the national recovery of kokako nationwide by providing birds for translocation to other protected areas. In September 2009, seven kokako were captured at Kaharoa and released on Secretary Island in Fiordland.

This is a significant project by the Department of Conservation as it marks the return of kokako to the South Island where they had become extinct.



Photos: Margaret Horner

To find out more about the work of the Kaharoa Kokako Trust, visit www.kokako.org.nz