



*Arawai Kākāriki Wetland Restoration Programme*

# 2018 Programme Update

## Celebrating 10 years

Arawai Kākāriki was initiated in July 2007 and has since developed into a flagship wetland conservation and science programme. We are celebrating ten years of effort from Rangers, technical teams, community and our partners – thanks for your support.

Our efforts have resulted in...



**more than 16,000 ha of sustained predator control** to protect threatened species in wetlands, lakes and braided rivers.



**development of monitoring techniques for birds and predators in wetland habitats.**



**changes to the management of two flood management schemes** through RMA advocacy to reduce impacts on freshwater biodiversity.



**more than 150 science reports and presentations** that support wetland conservation in New Zealand.



**more than 40 partnerships** with iwi, community, research agencies and local government.



Trap installation, Waituna Lagoon

*Arawai Kākāriki*  
wetland restoration programme

Department of Conservation  
Te Papa Atawhai

NEW!

Kaimaumau-Motutangi

Whangamarino

NEW!

Moawhitu

Ō Tū Wharekai

Awarua-Waituna

## Science support to two new sites

Arawai Kākāriki now supports wetland research and monitoring at two new sites: **Kaimaumau-Motutangi** (Northland), and **Moawhitu** (d'Urville Island).

Working in partnership with iwi, both new initiatives are addressing key pressures on freshwater biodiversity.



### Increasing effort to secure matuku/Australasian Bittern

A new national science project focused on the recovery of matuku/Australasian bittern was established in 2017.

Research will focus on tracking bittern movements, describing preferred bittern habitat and developing recovery plans.

### Check out our national bittern report card:

[www.doc.govt.nz/our-work/arawai-Kākāriki-wetland-restoration/report-cards](http://www.doc.govt.nz/our-work/arawai-Kākāriki-wetland-restoration/report-cards)



Bittern nest, Awarua-Waituna





# AWARUA-WAITUNA

Over the past 12 months Murihiku Operations team instigated a number of large-scale revegetation projects – with a long-term goal to restore lowland forests, wetlands and riparian habitat at Awarua-Waituna.

## Waituna Creek rehabilitation

The riparian margin along a 2.5 km length of Waituna Creek has increased freshwater protection – through repositioning the reserve/farmland boundary to align with the natural creek system.

Planting and stream bank rehabilitation within the broad riparian margin is underway, with fencing to be completed by September 2018.



Riparian planting, Waituna Creek



Restoration workshop attendees

## Restoration workshop

A 2-day workshop was hosted in Invercargill to develop novel, efficient and large-scale wetland forest regeneration techniques. 25 experts, stakeholders and practitioners from around New Zealand participated.

**Watch this space for new projects informed by this workshop!**



Riparian planting, Awarua-Waituna

photo © Emma Bardsley

## Lowland forest/wetland revegetation

8,000 native plants were successfully planted at Awarua-Waituna in 2018.

Working with the Nature Heritage Fund, the revegetation programme aims to reconnect forest fragments in Toe Toes Scenic Reserve and Waituna Wetland Scientific Reserve.

During 2017 and 2018 the Geraldine Operations team has increased efforts to protect threatened species and wetland ecosystems.

## *Craspedia* 'heron'

This critically endangered plant is found at only one site in New Zealand.

This year a trial planting in a new location was a success with 21 of the 26 plants surviving and some of them setting seed. A trial is underway to see if these seeds will germinate.



*Craspedia* 'heron'  
planting trial



Banded Kaki chick

## Predator control

Over 12,000 ha of the upper Rangitata River is under predator control with an extensive network of kill traps (removing 2,188 pest animals, 63% hedgehogs) and leg-hold traps. A24 Good Nature traps were trialed for stoat and rat control within the river with mixed results.

## Braided river bird recovery

Predator control is benefitting threatened species:

- ✔ **Wrybill** nest predation rate before predator control was **16%**, now only 6%.
- ✔ **Black-fronted tern** nest predation rate is 96% outside predator control area, compared to 38% within.
- ✔ A pair of Nationally Critical **kaki/black stilt** nested in the upper Rangitata River. Three chicks fledged and were banded.

## Weeds

3,721 ha received weed control within the Ashburton Basin and 2,035 ha in the upper Rangitata River during the 2017-18 year.

Photo points have been set up to monitor the change in plant communities as a result of weed control.

A new restoration site has been established at Lake Heron, with the removal of willow and silver birch recently. Native restoration planting will follow.



Over the past year the Waikato Operations team have been working collaboratively to protect the Whangamarino wetland.

## Management of new weed

Biodiversity surveillance detected a new weed *Cuscuta campestris* in Whangamarino wetland and adjacent farmland. Rangers have developed a response plan to contain and control this species.



*Cuscuta campestris*



'Swampee'  
the bittern

## Predator control and bittern tracking

Predator trapping across 1,703 ha of Whangamarino has been maintained.

Although it is too early to see a response in bittern abundance, a positive trend in spotless crane and fernbird has been observed in the trapped area.

Biodiversity rangers also successfully caught and tracked an adult bittern – the first caught in Whangamarino since the 1980s.

## Advocacy to reduce sediment deposition

Sediment deposition is a key threat to the wetland health at Whangamarino.

A positive step to address sediment was achieved in 2018, with an agreement to alter operation of the flood management scheme that is expected to reduce sediment inputs by more than 1,500 tonnes per year.



Sediment colours the water,  
Whangamarino Wetland

## Willow research

Applied research on willow management confirmed glyphosate will effectively control willow on a large scale and support recovery of native plants and invertebrates in Whangamarino. The team are now developing a willow management plan to enhance bittern habitat and aid the recovery of indigenous vegetation.



Dead willows  
after control



# KAIMAUMAU-MOTUTANGI

Kaimaumau-Motutangi is an approximately 4,000 ha wetland and coastal dune ecosystem located near Kaitaia, Northland. Arawai Kākāriki is supporting research and monitoring at the site working in partnership with Ngai Takoto.

## Understanding drain impacts

Kaimaumau-Motutangi is a unique wetland ecosystem, but with a history of drainage and gum-digging. A new research project is investigating the ecological effects of drainage schemes on the wetland.

Kaimaumau-Motutangi

## Vegetation mapping

The science team is also working to develop a comprehensive vegetation map of Kaimaumau-Motutangi based on aerial photography and drone imagery.



Kaimaumau-Motutangi

# MOAWHITU

Moawhиту is a coastal wetland on d'Urville Island. Arawai Kākāriki is supporting research and monitoring at the site, working in partnership with Ngati Koata.

## Restoring hydrology

Moawhиту wetland is degraded due to extensive drainage. The Arawai Kākāriki science team installed a network of eleven water level loggers in 2017 to understand wetland hydrology and guide future drain blocking (scheduled for 2019).



Moawhиту Wetland

## Native fish – research partnership

A key biodiversity and cultural aim is to ensure the long-term sustainability of longfin eel/tuna at Moawhиту.

In partnership with the Cawthron Institute, researchers are investigating the effects of adding woody debris to the lake to improve tuna habitat.



Measuring tuna,  
Moawhиту Lake



# RESEARCH & MONITORING

Arawai Kākāriki contributes to wetland conservation by improving our understanding of threatened species and ecosystems and how best to manage them. Each year a suite of new publications are added to our growing bibliography.



## Recent publications and reports

Letting & Monks (2019). Ecology of scree skinks (*Oligosoma waimatense*) in Ō Tū Wharekai Wetland, mid-Canterbury high-country, New Zealand.

Robertson *et al.* (2019). Loss of wetlands since 1990 in Southland, New Zealand. NZJE.

Gillies & Brady (2018). Trialling monitoring methods for feral cats, ferrets and rodents in the Whangamarino wetland. NZJZ 45: 192-212.

Griffiths *et al.* (2018). Can aerial herbicide application control Grey Willow and stimulate native plant recovery in New Zealand wetlands? EMR 19: 19-57.

Burge *et al.* (2017). Glyphosate redirects wetland vegetation trajectory following willow invasion. AVS 20: 620-630.

Report Card 2017 - Australasian bittern in Whangamarino wetland. [www.doc.govt.nz/globalassets/documents/conservation/land-and-freshwater/wetlands/arawai-kakariki-report-card-whangamarino-australasian-bittern.pdf](http://www.doc.govt.nz/globalassets/documents/conservation/land-and-freshwater/wetlands/arawai-kakariki-report-card-whangamarino-australasian-bittern.pdf)

Report Card 2017 - Current and historical distribution of Australasian bittern (*Botaurus poiciloptilus*). [www.doc.govt.nz/Documents/conservation/land-and-freshwater/wetlands/australasian-bittern-national-report-card.pdf](http://www.doc.govt.nz/Documents/conservation/land-and-freshwater/wetlands/australasian-bittern-national-report-card.pdf)

## New publications will be added to the science bibliography:

[www.doc.govt.nz/Documents/conservation/land-and-freshwater/wetlands/arawai-kakariki-bibliography-science-outputs.pdf](http://www.doc.govt.nz/Documents/conservation/land-and-freshwater/wetlands/arawai-kakariki-bibliography-science-outputs.pdf)



## Improving our monitoring and reporting systems

The Arawai Kākāriki technical team recently completed a review of 71 biodiversity monitoring projects across Whangamarino, Ō Tū Wharekai and Awarua-Waituna. The review is being used to improve the quality of our data and reporting.

### On the horizon...

- ✓ Expanding predator control operations and refining monitoring techniques at all sites.
- ✓ Large-scale peatland forest restoration at Awarua.
- ✓ Increased advocacy to improve water quality and freshwater biodiversity of the Ashburton lakes.
- ✓ Broad-scale willow control at Whangamarino.
- ✓ Restoring wetland hydrology at the 'Gum Block' at Awarua through drain blocking.

Scree skink