

PERSISTENCE PAYS OFF IN ROTORUA

I spent a lot of time in the Rotorua District last year to assess habitat and encourage people and groups to join the Great Matuku-hūrepo muster.

While we only drummed up a handful of people, we were able to confirm bittern booming at two locations!

Since then, Rotoehu Ecological Trust have confirmed a sighting of not one but two young bittern not far from one of the sites that had recorded bittern booming. Young bittern are poor flyers so its likely that bittern are successfully breeding nearby.



AI GENERATED Image of a flock of 44 Bittern!

Lake Rotorua was the last recorded sighting of a 'flock' of bittern. 44 bittern were reported to be seen lifting out of a patch of raupō in 1937.

It's a reasonable assumption that there could be isolated populations of Bittern around the district.

If you live in the Rotorua area or have a project there that supports wetland habitat and would like to join the Muster to help listen for male Bittern booming this Spring please let us know!

NEST SUCCESS!

2025 was a better year for Bittern with nest success reported across the country. Monitoring methods are being improved and now use less invasive methods where possible such as drone surveys.



Chicks and Mum moving between wetland habitats

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AUTUMN 2026

NEWS & UPDATES

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SMALL SITES PUNCH ABOVE THEIR WEIGHT!

I visited a small Canterbury in-drain wetland 3m wide with patches of raupō stretching 30-40m long which was used to successfully raise chicks. The habitat had an abundance of small fish able to be accessed, raupō cover, good water quality and layers of protection.

If you have a small wetland area, focus on creating quality habitat - it is a big win for Bittern!

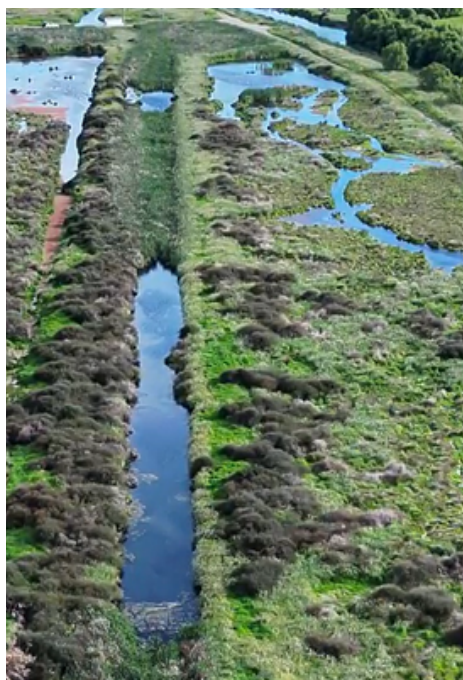


Photo Credit DOC, small in drain wetlands used.

WHAT SUPPORT LOOKED LIKE

Game camera's were set up to identify bittern on foraging platforms and to detect predators. Drone surveys were carried out to monitor the progress of the chicks.

Cats and mustelids were targeted with traps and a 'rapid response' team deployed to dispatch any predators in the vicinity of the bittern family.

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COULD RAKIURA BE A BITTERN STRONGHOLD?

Over the last two years I have been socialising the idea that Rakiura could be a stronghold for bittern, as it has been for other critically endangered species.

In late November 2025 I travelled to Rakiura to look at the logistics and feasibility of monitoring bittern there.



A wetland in Rakiura's North-West Arm

After asking around no one seemed aware of what bittern numbers were there or if a survey had been carried out in the past.

We have offered to support the local DOC efforts to coordinate and raise funds for monitoring to be carried out over the next 3-5 years.

The goal is to estimate the population with a team of people listening along existing tracks and to place audio recorders in the more remote areas.

At the same time we plan on carrying out habitat assessments and predator monitoring so we know what our baseline is there.

Long term, we aim to be able to provide more protection for bittern and use annual monitoring to measure any improvements and establish long term population trends.

LANDSCAPE SCALE THREATS

Bittern and their wetland homes are becoming more at risk as large scale infrastructure projects ramp up.

We are still losing wetlands.

Windfarms, roads, solar farms and urban creep can all threaten wetlands and as a consequence, bittern that rely on them.



Risks & Threats

Collisions with propeller blades, vehicles or powerlines have the potential to cause injury and fatalities.

The construction of infrastructure can increase erosion and sedimentation, impacting on water quality and loss, fragmentation or degradation of wetland habitats leading to displacement or starvation.

Mitigation & offsets

The organisations responsible are required to monitor environmental impacts before, during and after construction.

Risks to species and ecosystems are calculated and if mitigations can't prevent the risk, the risk is calculated, and offset.

Offsets may include replacing habitat ie. constructing wetlands or contributing funds towards conservation in the area.

POWER LINES

Bittern are big enough to be killed or injured in collisions with powerlines. Bittern mainly fly at dawn, dusk or in the night.

Do your wetlands have bird diverters that glow in the dark on the lines to help them avoid potential collisions?

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How can we help?

Record bittern every time you see or hear one. It's hard to stop roads or infrastructure without evidence of Bittern. The longer records are kept the better they are.

Be a voice for bittern and wetlands. Show up and speak up in community consultations. Advocate for regional and district planning to implement stronger rules for bittern and wetland habitats.



Image found online, non-specific wind farm.

Work together with agencies and organisations to understand the impacts and be part of the solution.

eg. the Kaiwaikawe Wind Farm is being constructed near known bittern habitat in Dargaville, Northland. This wind farm has calculated a risk to Bittern and are helping to construct a 2ha wetland and provided a Bittern fund to support conservation efforts as offsets.

We have asked to look at their wetland plans to make sure it meets the objective of providing habitat for hūrepo and will work together.



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ACCESS TO FOOD

Concern over results which showed bittern are nutritionally stressed resulted in a more recent study which has confirmed that bittern are still primarily eating fish and eels, however the quality of the food and/or access to food may be the issue.

Bittern are visual hunters and rely on walking into the water or using a platform to reach their prey.

When the water is too murky or too deep they go hungry.

We question the net gain given the increased effort it takes for a bittern to successfully hunt smaller exotic species like mosquito fish (*Gambusia sp.*) which may not be providing the same nutritional content that some of our native species would.



These bittern have high site fidelity, stoically returning to their degraded wetland at night and reliably seen feeding in paddocks on insects and worms nearby.

How can we help?

Bittern use a network of fresh (to brackish) water to forage for fish and eels.

Check your wetland, waterways and water bodies have places where there are gradual sloped sides to provide enough clear, shallow water to forage in.

Check you have an abundance of fish (preferably native), eels or frogs.

Make sure fish and eels have safe passage to their breeding grounds and enough to eat.

THE GREAT MATUKU-HÜREPO MUSTER!

Nationwide synchronised counts of male bittern booming.

The Matuku Muster is the biggest citizen science project supporting Bittern Conservation in New Zealand.

In 2025 we had 393 people in 14 regions listening and recording male bittern booming at 289 sites and 175 individual bittern were heard.

Efforts were handicapped by weather and funding withdrawn from projects around the country [2024 saw 545 people at 450 sites and 205 bittern booming]

This program is significant in that it is helping to connect people to bittern and wetlands, helping us to identify potential breeding sites for further investigation and helping us to prioritise areas for protection and wetland restoration.



SAVE THE DATES

We need more boots on the ground to help! Set your dates and postponement dates for monitoring within the following 10 day windows:

- September Friday 18th to Sunday 27th (full moon 27th)
- October Friday 23rd to Sunday 1st Nov (full Moon 26th)
- November Friday 20th to Sunday 29th (full moon 25th)

Connect with other people/groups in your district and region to synchronise your dates as much as possible.

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PROGRAM UPDATES

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WHERE THE FUTURE SITS

Monitoring female nesting behaviour & influencing nest success.

In 2025 we piloted our program to detect female behavior and influence nest success across 3 sites, and although we aimed for 5 the weather just didn't play into getting the timing right at the other 2 locations while traveling.

DOC are poised to release best practice guidelines for detecting females and nests using thermal drones and some community groups are gearing up to be able to carry this work out.

nb. DOC permits are required, regardless of land ownership when flying over a threatened species.

Our program helps to support groups who don't have this option available to them to get a measure of females and nest success... or can help to qualify sites to optimise thermal drone investigation.

Our program uses a range of different equipment - see more information on some of the options in our equipment highlight.



HABITAT FOR HÜREPO

Protecting and restoring natural wetland habitats so Bittern can thrive and not just survive.

In 2025 114 wetlands were assessed, bringing our total across the country in the last 2 years to 170.

We saw actions in progress, results (bittern using wetlands, nest success) and helped people to set their next steps.

We have noticed a far bigger ripple effect, with many more people and communities accessing resources and just getting on with it to do what they can do now to create better bittern habitat.



Traveling to meet with communities across the nation, helping them raise awareness, educate and advocate for Bittern.

In 2025 we delivered 227 community events, workshops, hui, school visits and wetland walk-&-talks across 16 regions in New Zealand.

We visited 14 schools to deliver our 'Let's learn about Bittern!' program and trained educators to continue the work across schools and events.

Thank you to all of the communities and donors who helped make this possible!

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EQUIPMENT

HIGHLIGHT

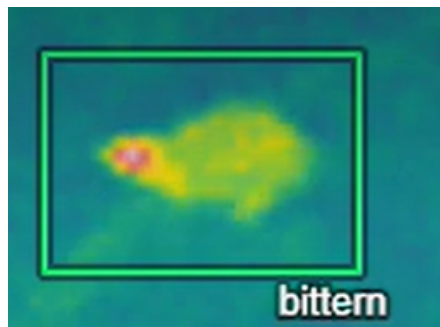
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AI SOLUTIONS

DOC AI CAM

DOC AI Cam is a thermal camera and coupled with an audio bird monitor you can now detect a range of predators and taonga species from the comfort of your home.

While the AI is reported to be able to identify a bittern booming, when we last heard the thermal image ID is having a spot of bother telling the difference between a kiwi and a bittern.



These units can be purchased with an additional solar power kit and where offline will store the data until its collected or comes into range.

AT520-AI PREDATOR TRAP

The next generation of Autotraps helps to identify species before striking and significantly reduces trapping effort.

Reported to be able to stay in the field for 6 months and able to send back useful information on detections and catches this gives you a good idea of who the bad guys are in your wetland - and removes them at the same time!

TARGETING NORWAY RATS

Norway rats aren't great climbers - but are great swimmers - How are you targeting them in your wetland?

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Results don't just happen. They take a strategic approach and use a range of equipment to help. Here is some of the equipment we use in the field:

TRAIL CAMERAS

For years community groups around the country have been quietly using game camera's set up to view foraging lanes or platforms where bittern have been seen.

The full colour images help us to identify individual bittern, gender and age-something we don't get from thermal images.

The real gold here is that because bittern are habitual they often visit the same spot at the same time of the day or tide time.

Over the breeding season female bittern have been recorded bringing their chicks to these regular foraging spots which helps provide evidence of nest success without causing undue risk by having a camera on a nest.

CAMERAS ON NESTS

We don't advocate for walking into a wetland to put camera's on nests.

While the practice has improved with smaller cameras connected to a battery and sd card by an extension cord away from the nest site resulting in less nest disturbance, there needs to be a really good reason to do this and we aren't convinced there is - unless you are part of a DOC research team.



AUDIO RECORDERS

Alato AR5 is the new improved automatic recorder. We experience significant failure in older devices and are looking to these to change that.

Alato aren't just a hardware provider they also work on AI recognition software. This still involves taking the SD card out of the device and uploading it, but when it comes online for Bittern this will save 100's of hours in analysis.



GAME CHANGERS

TĀWHITI SMART CAGE

This trap has been well proven in the field (ours!). We've used these to target feral cats, mustelids, possums and norway rats. Yes, you have to dispatch the animal but it's a great no toxin option and safer for the neighbours cats!

THERMAL DRONES

DOC has been building capacity and capability in regions by training operators to carry out surveys to detect nests and monitor the progress of chicks. A protocol is poised to be released so surveys are conducted without disturbing bittern and so consistent information is collected.

COMING SOON>>>

HARK.nz are creating a world first AI audio monitor where the AI is run directly on-device. The device runs on solar and can be left in the field year round.

HARK recognises multiple species and they are working on Bittern now to have this available in Spring 2026.

The detections are able to be carried through a mesh network from remote locations until they hit a signal and are sent on to you.

With 3 directional microphones we think these devices have the potential to provide almost (they can't see!) the same level of data that in-person monitoring provides i.e. triangulation data to be able to estimate how many individual males detected.

This makes HARK a great choice for remote locations because you don't have to revisit the device to collect data, change cards or batteries.