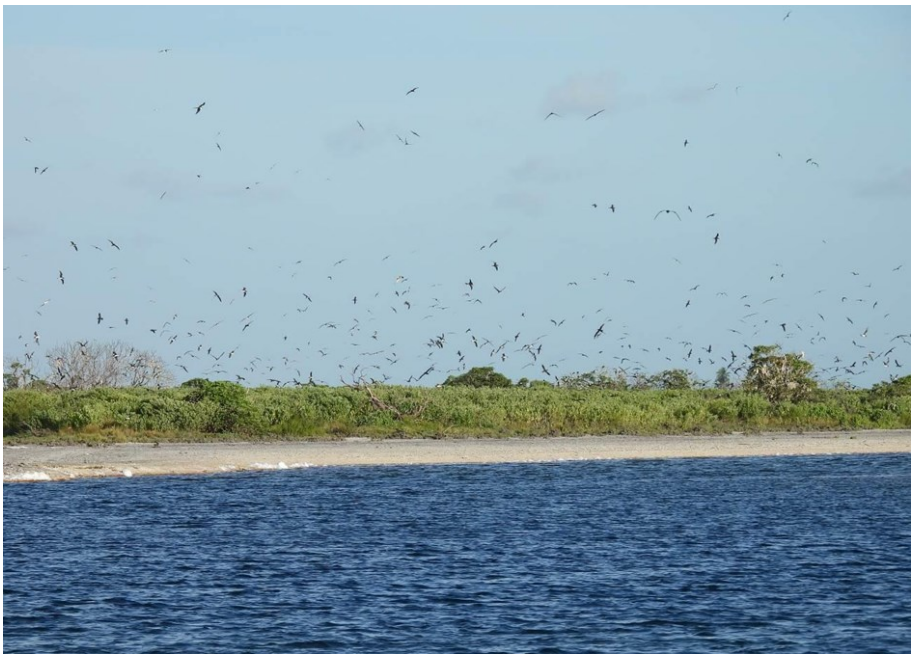
Protection of Kiritimati Seabirds through Invasive Species Management

Mission Report: Rat Eradication and Seabird Protection Operations – Kiritimati



Ministry of Environment, Lands, Agricultural Development, Wildlife Conservation Unit & BirdLife International Pacific

30 July – 12 August 2025

Prepared by: **BirdLife International Pacific** for the Secretariat of the Pacific Regional Environment Programme (SPREP) in support of **Restoring Island Resilience (RIR)** and **BioScapes** Projects.

Compiled by: **Steve Cranwell, Head of Island Restoration**, BirdLife International Pacific

Prepared on: 30 September 2025

Summary

The Wildlife Conservation Unit and BirdLife International successfully completed baiting operations to eradicate Pacific rats from 13 motu including Motu Upua in the Kiritimati Central Lagoon. Four of these motu were previously rat free (Drum islets) and 3 others (Nimroona islets) had been baited in 2023 but rats (and one cat) were confirmed present likely following a reduction in the water level of the lagoon.

The 14-day field mission also strengthened WCUs capability for detecting rats and cats and in the use of tools and practices to eradicate them. A suppression response for cats was initiated on Big Peninsula but requires WCU personnel to have regular access to vehicles to operationalise it. Observations of seabirds confirmed Phoenix Petrel numbers remain high for the Drum and Nimroona islets, but few nesting Red-tailed Tropicbirds were observed and may be attributable to the widespread poaching of these and other seabirds.

Access to vehicles enabling reinstatement of regular patrols by WCU personnel is considered critical and could be facilitated through specialist expertise and the provision of parts in making repairs to the existing fleet. Other recommendations include a regular surveillance programme for priority islets to detect and respond to rat incursions.

1. Scope

BirdLife International Pacific is a SPREP technical support partner for the Pacific Regional Invasive Species Management Support Service (PRISMSS) Restoring Ecosystems Restoring Communities (RERC) and Predator Free Pacific (PFP) programmes. BirdLife has been engaged by SPREP to provide technical support to the SPREP Pacific BioScapes, and Restoring Island Resilience (RIR) projects

BirdLife services are for the eradication of rats from priority seabird sites, seabird monitoring, biosecurity and associated capacity building in Kiritimati.

The BioScapes project was initiated with operations to eradicate rats from 3 Nimroona islets in 2023, an assessment of previously rat free motu, biosecurity measures, seabird monitoring and capacity building of Wildlife Conservation Unit personnel (R Pierce et al 2023). Island Conservation (the PFP lead) sub-contracted BirdLife for the RIR project in 2024 targeting eradication operations on Motu Upua, and three Te nei Rababa motu and seabird monitoring in 2025.

This report covers the objectives of the 14-day BirdLife and WCU field mission from July 29 to August 12, 2025

- Implementation of baiting operations to eradicate rats from Motu Upua, and three Te nei Rababa motu
- Confirmation of the status of rats on the three Nimroona islets baited in 2023
- Establishing cat suppression for the Big Peninsula Wedge-tailed Shearwater colony and
- Increasing WCU rat eradication and cat suppression capability

The mission was supported by WCU personnel Ata Binoka, Katareti Taabu, Kaiea Ruitiata, Bauro Kambeia, Etita Taunga, Kireeua Tibwan, Aobure Teatata, Ataieta Ioane, Teikake Takaria, Kautabuki Eritane, and from BirdLife Josh Kemp and Steve Cranwell

2. Operations

2.1. Motu Upua and Tenei Rababa islets

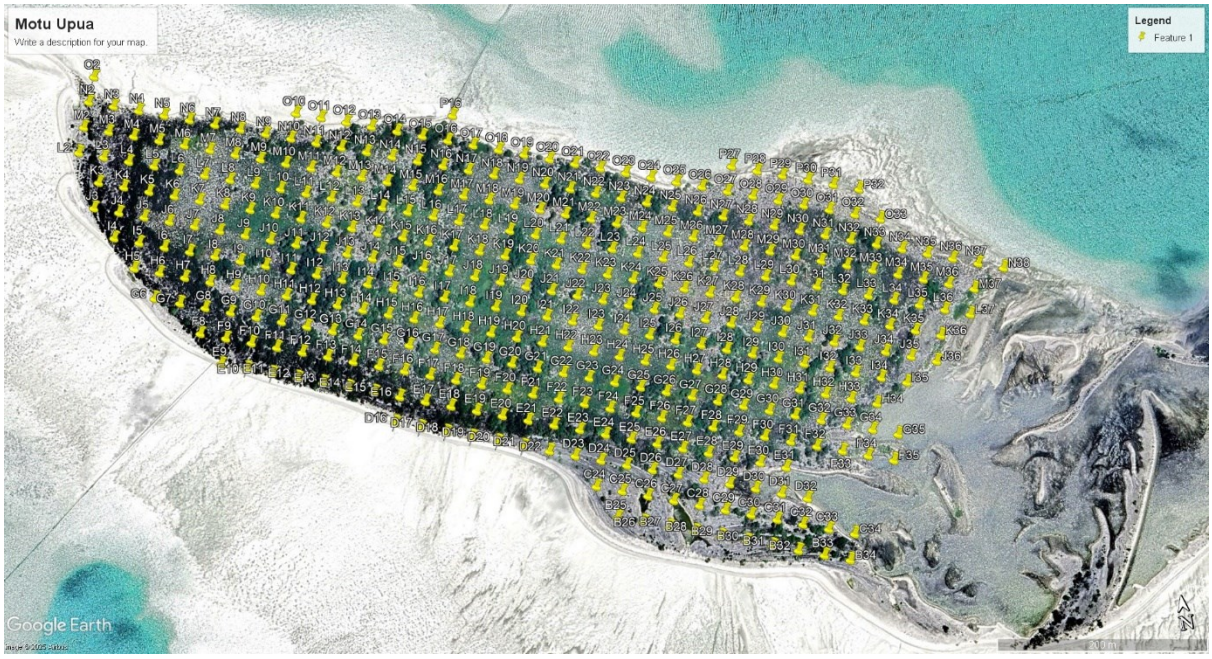
In lead up to the field mission preparations were made to eradicate rats (Kimoa) from Motu Upua, and three motu within the Tenei Rababa lagoon.

Motu Upua is a priority conservation site (Van Dijken, S.G 2013) supporting several seabird and wader species including the globally Endangered Phoenix Petrel (Te Ruru) and Near Threatened Bristle-thighed Curlew (Te Kiwi). The eradication of rats from the approximately 25ha islet would support the recovery of Te Ruru there and potentially other rat sensitive species like the Endangered Polynesian Storm Petrel (Te Bwebwe Ni Marawa) and the endemic and Endangered Kiritimati Reed-warbler (Bokikokiko).

Tenei Rababa lagoon situated in the south of Central Lagoon and on the southern boundary of the Tanguoua Conservation Area comprises several motu at least three of these are separated from the mainland and support breeding seabird populations. The eradication of rats would benefit both these seabirds and provide secure habitat for other rat sensitive species in the area Te Ruru, Te Bwebwe Ni Marawa, and Bokikokiko.

Preparations were made for the eradication of rats from the 4 motu and associated 31ha with an operational plan supporting the hand broadcast of rodenticide bait (PestOff 20R). Bait and equipment were shipped from NZ in November 2024, cleared in Kiritimati in February and stored at the WCU office. An Environmental License application was completed for the baiting and mission activities and work permits obtained for BirdLife personnel (Josh Kemp and Steve Cranwell).

WCU and BirdLife marked a 25x25m grid across the motu on the 30th of July. The grid was GIS generated and uploaded into GPS units and smartphones (using the app Offline Maps) for navigation to each bait point. The navigation accuracy was high (<5m variance) and enabled the grid to be completed in a day with minimal vegetation cutting. Rats were trapped and species, sex, age and reproductive status was recorded



with genetic material collected as an origin reference for any future detection.

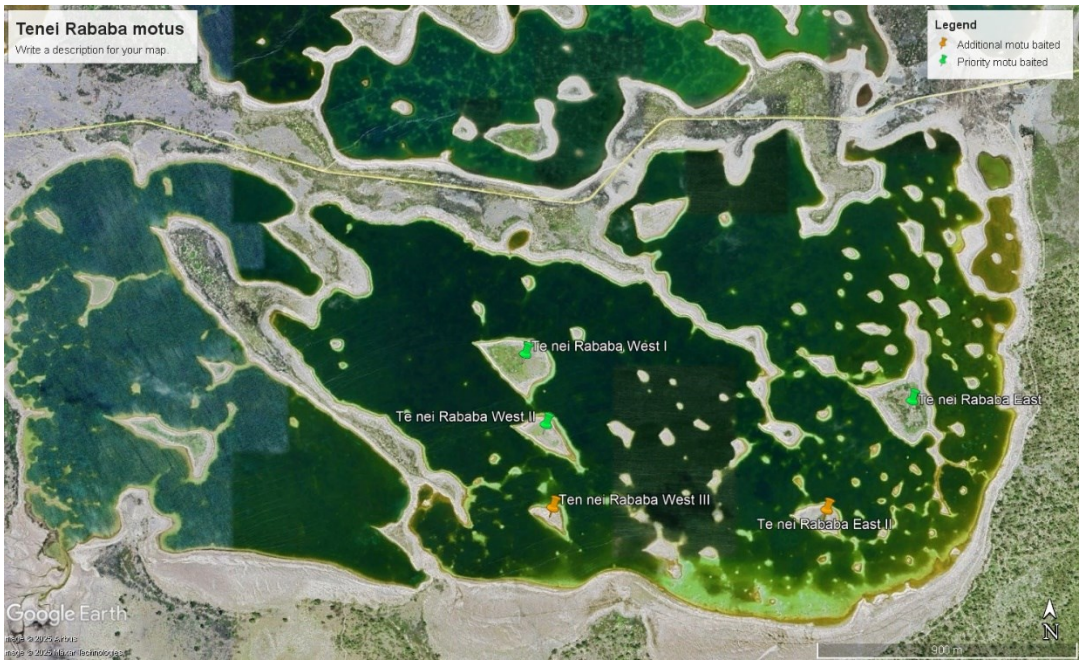
The Motu Upua baiting grid targeting Pacific rats August 2025

Ten people (WCU and BirdLife) commenced baiting Motu Upua on the 1st of July. The bait shipped in buckets was found to be mouldy particularly the top third to half or each bucket and was discarded. Some of the bait was also heavily infested by weevils but could still be used. Bait was applied at 25kg/ha and all interior lines were completed and three (of the targeted 10) bait uptake plots established. The remaining baiting (the perimeter and the SE connecting motu) was completed the following day (2nd) and establishment of the 7 remaining bait uptake plots.

The bait plots indicated high rates of bait disappearance particularly in areas of woody vegetation which also had higher concentrations of Cardisoma carnifex crabs (Manai), a heavy bait consumer. All 10 plots still had some bait 11-12 days after the first application, and the second application was made at the same rate (25kg/ha) on the 12th of August.

In the Tenei Rababa lagoon three motu were initially targeted for rat eradication but a further two motu were identified to have seabirds, and rats and be sufficiently isolated

(to minimise the likelihood of rat reinvasion). Bait points over a 20x20m grid for each motu were uploaded to GPS and smartphones with baiters each assigned a bait line navigating directly to each bait point. The first bait application to each of the five motu was on the 5th of August at 15kg/ha. Two bait uptake plots were established on one motu



(Tenei Rababa East) and both still had more than 50% of the bait remaining five days after the first application. The second application took place on the 5th of August at 10kg/ha.

The five motu baited for rats in the Tenei Rababa lagoon August 2025

The operation achieved high levels of bait availability with complete coverage of the Tenei Rababa and Upua motus in each of the two applications enabling sufficient access to lethally expose 100% of the rat populations. The attractiveness/palatability of the bait is not considered to have been significantly affected by the mouldy bait or weevils and no rain occurred over the period.

No non-target species mortality was detected with Te Kiwi potentially the most at risk. To avoid this the operation was timed to coincide with the annual migration of Te Kiwi to their northern hemisphere breeding grounds. Three birds were present on Motu Upua during the baiting operation and were clearly detectable/active at the time of the second application.

Counts of Red-tailed Tropicbirds (Te Taake), frigatebirds (Te Eitei), Red-footed Booby (Te Koota), Brown Booby (Te Kibwi), and Masked Booby (Te Mouakena) detected low

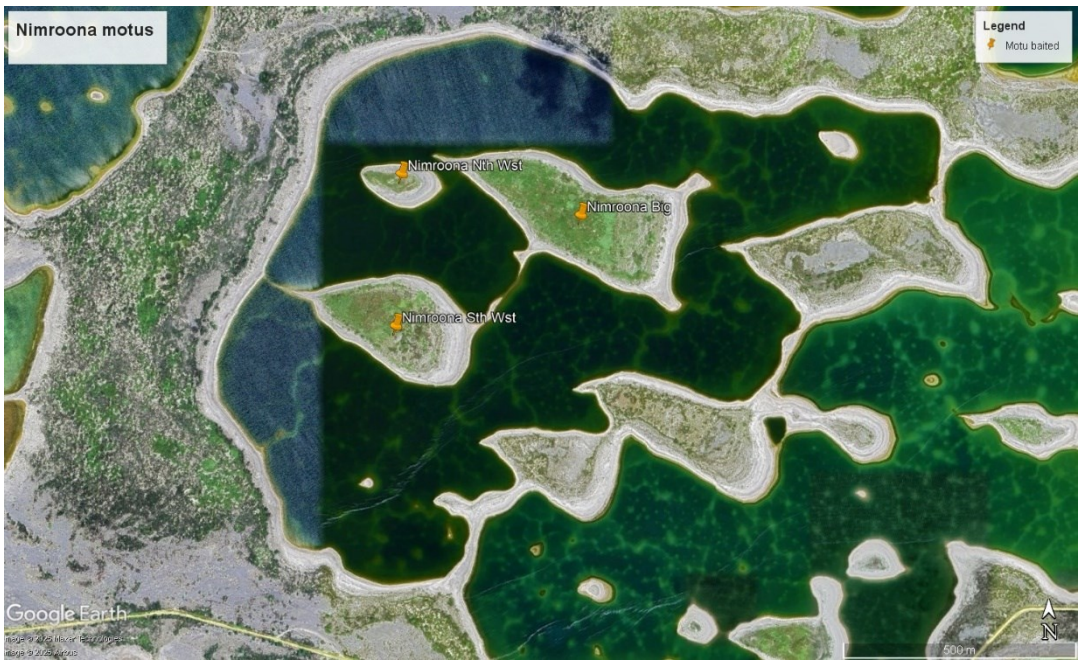
numbers of Te Taake and Te Eitei at most sites and no boobies on Motu Upua. Poaching of Te Taake was evident on Upua with carcasses observed at several locations

2.2. Nimroona Motu

Three Nimroona motus (Nimroona Big, South-west and North-west) were baited for rats in 2023 (under the Bioscapes project). The July/August 2025 field mission was the first opportunity to check for the presence of rats and confirm if eradication had been achieved.

Trail cameras were setup on Big and South-west Nimroona on the 3rd of August and checked the following day confirming rats to be present on both motu. It is unclear if the rat presence is because the baiting operation failed or if rats have reinvaded in the two years since.

The presence of a cat on Big Nimroona and that the isolated north-west Nimroona islet was rat free suggests rats are more likely to have reinvaded. For a cat to access south-west Nimroona the height of the lagoon would have to have lowered so a cat could cross without swimming between the mainland and motu. These conditions would also allow rats to cross and have occurred in the past and led to rats being present in 2023 (after several years of being rat free).



The three Nimroona motu baited for rats in August 2025

With sufficient bait for the 11ha area the three Nimroona motu (Nimroona Northwest was included as a precaution) were baited on the 7th (Big Nimroona) and 8th (South-west

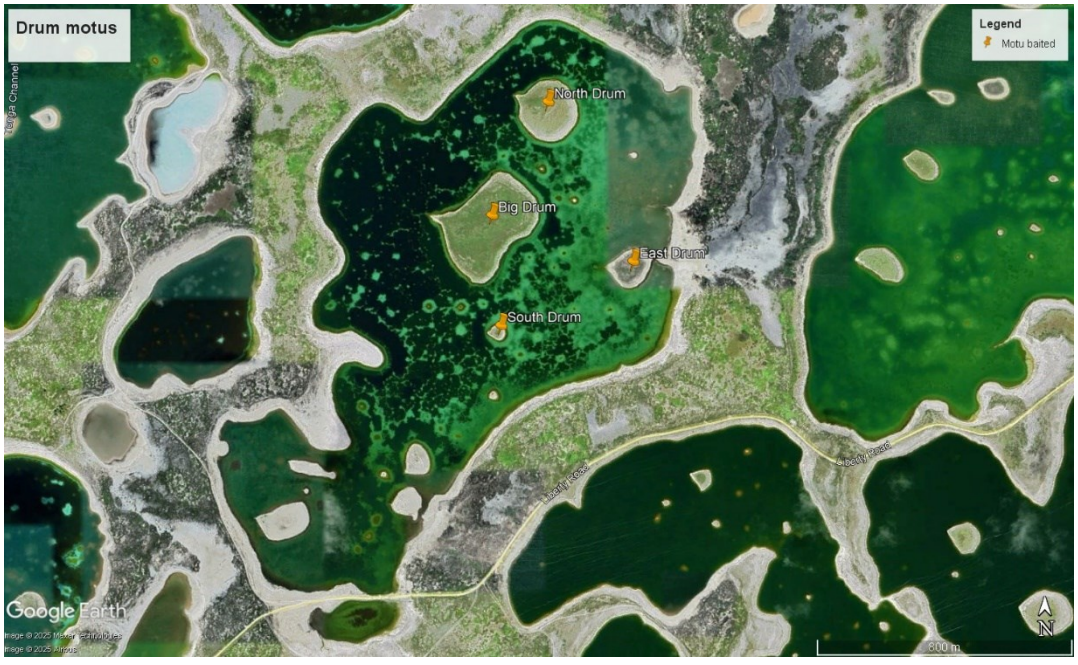
and North-west Nimroona) of August at 20kg/ha and again on the 19th of August at 10kg/ha across a 20x20m baiting grid. Bait distribution was supported by GPS and smartphones enabling navigation to each baiting point. Leg-hold and cage traps were operated over several days to catch the cat but as WCU currently don't have access to vehicles this was limited to the period of the mission. It is possible the cat will succumb to secondary poisoning by eating rats containing rodenticide.

Seabird surveys confirmed significant numbers of Te Ruru, Christmas Shearwater (Te Tinebu), Tropical Shearwater (Te N'na), and Wedge-tailed Shearwater (Te Tanguoua) and small numbers of Red-footed Booby. No nesting Te Taake were detected but the wings/body parts of Te Taake, Te Eitei and other seabird species harvested were evident in many locations often numbering more than ten birds at each location.

2.3. Drum Motu

The Drum islets in the centre of the Tangoua Closed Area support some of the most important Te Ruru and Te Bwebwe Ni Marawa populations outside of Motu Tabu and Cook Island. The islets have been rat free since 2009 and were last monitored in 2023. Cameras were placed on Big Drum and North Drum on the 3rd of August and confirmed Pacific rat on both motu and subsequently East Drum.

These three motu and the small 'south Drum' motu (together comprising 9.4ha) were baited on the 7th of August at 20kg/ha and again on the 20th of August at 10/kg/ha. GPS



and smartphones were used to identify the bait points and navigate a 20x20m baiting grid.

The four Drum islets baited for rats in August 2025

Large numbers of Te Ruru were present on Big and North Drum also Sooty Terns with chicks (Te Keeu), Christmas Shearwater, Tropical Shearwater, Red-footed Booby, Brown Noddy and Grey Noddy were also present and small numbers of Red-tailed Tropicbird. There was no evidence of poached birds, and no Te Bwebwe Ni Marawa were seen.

2.4. Big Peninsula

The Big Peninsula just outside the Dojin Closed Area supports the single largest Wedge-tailed Shearwater (Tangoua) colony on Kiritimati but it is heavily impacted by cats. With a narrow neck joining the peninsula to the mainland effective cat suppression could be achieved to protect Tangoua over the beeding season. To initiate this 20 SA2 cat kill traps were shipped from NZ to trial a suppression response. On the 6th of August WCU personnel were trained in siting and setting the SA2s with 4 set and baited around the margin of the peninsula. While the traps are kill traps and don't require daily checks ideally these would be made once a week to replace the bait and remove any trapped cats. Once the WCU have a vehicle to access the area it will be possible to service the traps and install additional traps.

The interior of the pensinsula and the Tangoua colony were not surveyed but piles of poached birds were observed on the margins. While the entire edge of the peninsula was not walked very few nesting Te Taake were seen.

3. Recommendations

The mission enabled significant development of WCU capability in rat baiting practices including the use of accessible technology aiding the deployment of a baiting grid. The independent and successful completion by WCU personnel of the second bait application on the Nimroona and Drum islets demonstrated this capability. Experience in deploying motion cameras to detect rat and cat presence also enhanced WCU capability as did trapping techniques targeting cats. Accordingly WCU now has the capability to effectively manage rats and cats to protect Kiritimati's seabirds, but opportunities for personnel to use and further develop these skills will be crucial to them achieving this protection.

The availability of vehicles to provide regular access to the central lagoon and Motu Upua, Tabu and Cook islands is essential. Of the 3 motorbikes, two 4x4s and boat none are operational and attempts to repair them have been unsuccessful. Expertise to diagnose faults and source parts is not readily available, but it may be possible to assist

this by bringing a qualified and experienced mechanic to assess the vehicles, identify the repairs/parts needed and to source and ship these to Kiritimati, returning to complete the repairs. BirdLife knows of a mechanic who likely has the required expertise and would be willing to assist. If of interest to MELAD and other partners BirdLife can provide the mechanic with information to assess if repairs are possible/worthwhile and initial costings to do so.

Significant numbers of seabird's killed for human consumption were apparent at almost all sites visited. The resumption of regular patrols by WCU rangers to deter this activity is urgently needed and is linked to resolving the vehicle issue

With WCUs increased capability for detecting the presence of rats and in responding to incursions a programme of annual monitoring with trail cameras will help safeguard these priority sites and seabird populations. A digital baiting network for all of these motu will assist WCU in responding to an incursion and is something BirdLife is able to provide. The WCU premises currently has no suitable facility for storing bait and with shipment requiring at least 6 months or more is also necessary to a timely response. A shipping container modified to include good ventilation and insect proofing could be located on-site.

References

Van Dijken, S. G., and Anderson, P. 2013. Priority Sites for Conservation in Kiribati: Key Biodiversity Areas. Conservation International Pacific Islands Programme, Secretariat of the Pacific Regional Environment Programme, Government of Kiribati Ministry of Environment, Lands, Agriculture Development. Apia, Samoa. 56pp