A cave wētā collecting trip to Tiritiri Matangi Island

14–20 March 2025

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Executive Summary

Two entomologists, Danilo Hegg and Maddy Pye, visited Tiritiri Matangi Island in March 2025. The main purpose of the trip was to collect specimens of any species of cave wētā / tokoriro (Family Rhaphidophoridae) present on the island, for the purpose of taxonomic studies. The work was authorised under research permit 101790-RES issued by the Department of Conservation. This report summarizes the main findings and results of the trip.

- Three species of tokoriro were found on Tiritiri Matangi Island, all in forest: *Talitropsis irregularis* Hutton, 1896; *Neonetus poduroides* (Walker, 1871); and an undescribed *Neonetus* sp.

- *Neonetus poduroides* and the undescribed *Neonetus* sp. are, as expected, common and widespread throughout much of the upper North Island.

- *Talitropsis irregularis*, originally described with type locality "Auckland", is currently only known from Tiritiri Matangi, where it is by far the most abundant tokoriro. This is unusual – it is highly unlikely that the species would be endemic to the island. Most likely, it became extinct or it declined to below detection levels on the mainland as a result of mammalian predation, whereas it would have recovered on Tiritiri Matangi after the eradication of kiore and the reforestation of the island.

- With only three species present, cave wētā are under-represented on Tiritiri Matangi. Most locations have six to nine sympatric species.

- A wider survey of tokoriro on islands in the Hauraki Gulf is warranted, to determine what species would have been most likely present on the island before human arrival. Any species that have disappeared from Tiritiri Matangi should be reintroduced as part of the island's ecological restoration efforts.

- The exotic raspy cricket *Pterapotrechus salomonoides*, which is very common in Auckland, is absent from Tiritiri Matangi and from most other islands in the Hauraki Gulf. The species has the potential to become an ecological pest, since it is an aggressive predator that is found in unnaturally high numbers in the Auckland region. If it were to establish on Tiritiri Matangi, it would pose a threat to wētāpunga, whose nymphs would make for easy prey. Biosecurity protocols should ensure that the invasive raspy cricket is prevented from establishing on Tiritiri Matangi, very much like the Argentine ant.

- Additional notes on the invertebrate fauna of Tiritiri Matangi Island are also included in this report.

Introduction

Two entomologists, Danilo Hegg and Maddy Pye, visited Tiritiri Matangi Island in March 2025. Hegg spent six nights on the island (14–20 March) whereas Pye stayed four nights (15–19 March). The main purpose of the trip was to collect specimens of an unidentified cave wētā / tokoriro (Family Rhaphidophoridae) that was spotted on Tiritiri Matangi on a previous trip, as well as any other tokoriro that might be encountered.

The work was authorised under research permit 101790-RES issued by the Department of Conservation. All Orthoptera specimens collected on the island are deposited in the Orthoptera collection at the Phoenix Lab, Massey University, Palmerston North (MPN).

This report summarizes the main findings and results from the visit.

Background on Tiritiri Matangi Island

Tiritiri Matangi Island is a 2.2km^2, low (max 90m a.s.l.) forested hill located at the entrance of the inner Hauraki Gulf, 25km north of the Auckland CBD. It is separated from the mainland by the Whangaparāoa Passage, a stretch of water just over 3km wide.

History of human settlement

The island was first discovered by Māori around the year 1,400 CE (Dodd 2008) and provided an important base for fishing and hunting for centuries to follow. Two historic Pā have been identified on Tiritiri Matangi, Tiritiri Matangi Pā and Papakura Pā (Fig. 1), erected by the Te Kawerau ā Maki and by Ngāti Pāoa respectively (Rimmer 2004; Reid & Richardson 2007; Dodd 2008). Several other iwi have ancestral links to the island; these include Ngāi Tai Ki Tāmaki, Ngāti Manuhiri, Ngāti Tamaoho, Ngāti Tamaterā, Ngāti Te Ata, Ngāti Whanaunga and Te Runanga o Ngāti Whatua.

Europeans first visited Tiritiri Matangi around 1843, causing Māori to be driven away by 1856. The lighthouse was built in 1864 and remains the oldest operating lighthouse in New Zealand. The island outside of the lighthouse reserve was leased for farming starting 1854; farming operations continued uninterrupted until 1971 (Dodd 2008; Reid & Richardson 2007). When the lease expired in 1971, the Crown took possession of the island and grazing stock was removed.

Tiritiri Matangi Island became part of the Hauraki Gulf Maritime Park in 1971 and was subsequently designated a Scientific Reserve in 1980. Tiritiri Matangi Island Scientific Reserve is managed by the Department of Conservation in cooperation with the Supporters of Tiritiri Matangi Trust.

The island currently attracts over 30,000 visitors each year. Passengers on ferries are capped at 170 per day (DOC 2014: 98). Additionally, visitors can travel with their own watercraft and land at Hobbs Beach. The Tiritiri Matangi Island bunkhouse has 15 bunk beds available for the public to stay overnight.

Fig. 1. Tiritiri Matangi Island map, with GPS tracks superimposed in red. Scale approx. 1:14,000 if printed on A4. Adapted from the map of the island's tracks published by the Department of Conservation.

Natural history

Forest clearance by means of burning started in pre-European times and ramped up with the advent of farming by pākeha. By the time the Crown retook possession in 1971, only about 6% of Tiritiri Matangi's land area was still covered with isolated pōhutukawa (*Metrosideros excelsa*) trees; another 10% sustained secondary mānuka (*Leptospermum scoparium*) and kānuka (*Kunzea* aff. *ericoides*) forest and 3% kohekohe (*Dysoxylum spectabile*) regrowth. All secondary growth forest was confined to damp gullies and was heavily disturbed by grazing. The remaining 80% of the island was covered by pasture grasses and bracken fern (*Pteridium esculentum*) (Cameron & Davies 2013). Other than stock and domestic animals, kiore (*Rattus exulans*) was the only mammalian pest ever introduced to Tiritiri Matangi.

An ambitious revegetation programme started in 1984, resulting in 280,000 trees being planted during the following decade. As of 2013, the island's land cover was 20% natural regrowth forest, 64% planted forest, 10% pasture, the remainder being a naturally regenerating mix of flax (*Phormium tenax*), bracken and other coastal shrubs near the northern coastline (Fig. 1) (Cameron & Davies 2013).

The first birds being reintroduced to Tiritiri Matangi were kakariki (*Cyanoramphus novaezelandiae*) in 1973, followed by tieke / North Island saddleback (*Philesturnus carunculatus*) in 1984. Another nine avian species followed during the next 30 years. Kiore were eradicated in 1993. Three species of lizards, the tuatara (*Sphenodon punctatus*), Duvaucel's gecko (*Hoplodactylus duvaucelii*) and the shore skink (*Oligosoma smithi*) were released between 2003 and 2006. The wētāpunga (*Deinacrida heteracantha*) was reintroduced in 2011 (Galbraith & Cooper 2013).

Bellbird (*Anthornis melanura*), common gecko (*Hoplodactylus maculatus*) and giant centipede (*Cormocephalus rubriceps*) survived forest clearance on the island; the latter two species were only detected approx. twenty years into the revegetation programme. Few species of seabirds survived on steep cliffs and on rocky coastlines (Galbraith & Cooper 2013); burrowing seabirds however remain largely absent from the island's interior.

Argentine ants (*Linepithema humile*) were first detected on Tiritiri Matangi in 2000. An eradication programme was initiated the following year, and was declared successful in 2016, in spite of a secondary infestation in 2008 (Green 2019). This was the first successful eradication of Argentine ants worldwide. Common and German wasps (*Vespula* spp.) and paper wasps (*Polistes* spp.) are present on Tiritiri Matangi. Asides from being a nuisance to visitors, they pose a serious threat to the island's invertebrate life.

Fieldwork

All fieldwork was done at night, walking slowly along the island's tracks, spot-lighting the surrounds for invertebrates. Cave wētā were captured in hand-held insect nets. Nymphs and other unwanted specimens were released unharmed. We mainly focused on the oldest forest remnants on the Kawerau Track and on the Wattle Track; we also repeatedly walked Ridge Road / Cable Track and Hobbs Beach Track.

The weather was fine for the duration of our stay, allowing us to be out in the field every night. Conditions were hot and dry initially, with all foliage visibly wilting after months of prolonged drought. Only during the last two nights did some downpours help increase humidity levels.

Talitropsis irregularis (cave wētā / tokoriro)

The most common tokoriro on Tiritiri Matangi Island is *Talitropsis irregularis* Hutton, 1896 (Fig. 2). I have identified the species by comparing the material we collected with the holotype, held at Canterbury Museum, and with Hutton's description.

Originally described from a single adult male collected in Auckland "under bark" (Hutton 1896), *Talitropsis irregularis* is one of the most obscure Rhaphidophorids in New Zealand. In fact, there is not a single record for the species in literature since it was first discovered.

Fig. 2. *Talitropsis irregularis* adult female. Kawerau Track, Tiritiri Matangi Island, 14 March 2025

It should be noted that, while the insect was assigned to the genus *Talitropsis* by Hutton, this classification is incorrect; it will be transferred to the correct genus during upcoming taxonomic revisions of the New Zealand Rhaphidophoridae.

Talitropsis irregularis appears to be an arboreal species and is easily spotted in the foliage of kohekohe (*Dysoxylum spectabile*), kawakawa (*Piper excelsum*) and other broadleaf trees. It is both common and widespread on Tiritiri Matangi. We observed it most frequently in mature forest on the Kawerau Track and on the Wattle Track, but encountered it on Ridge Road / Cable Track and on Hobbs Beach Track also.

Most interestingly, *Talitropsis irregularis* is currently only known from Tiritiri Matangi. Having first observed it there in March 2022, I unsuccessfully searched for it in Shakespear Open Sanctuary on Whangaparāoa Peninsula on 26 April 2023. The species may well be present there, but in much lower density. More significantly perhaps, out of 854 cave wētā observations from the Auckland Region on iNaturalist (as to 29 June 2025), none appear to be of *Talitropsis irregularis* except for the observations from Tiritiri Matangi.

Cave wētā species in New Zealand typically have a broad geographic distribution, extending across significant portions of one or both main islands. Tiritiri Matangi Island was connected to the mainland during the last ice age and is not expected to have any endemic species – its inverterbrate fauna should really match the one on the mainland. Under these circumstances, it seems most likely that *Talitropsis irregularis* would have been reduced to low densities, possibly even to extinction on the mainland due to predation by introduced mammals. The species would have survived in forested gullies on Tiritiri Matangi, where kiore was the only introduced predator, and started thriving after eradication of kiore and revegetation of the island.

If the above is true, *Talitropsis irregularis* should also be found on other predator-free islands in the Hauraki Gulf, including The Noises and Hauturu / Little Barrier Island. It should be noted here that The Noises had Norway rats (*Rattus norvegicus*) for a period of time until an eradication was carried out in 1960 (Moors 1985), whereas kiore were removed from Hauturu in 2004 (Green *et al*. 2011).

I have examined Rhaphidophoridae collected in pitfall traps on The Noises and stored at Auckland Museum; the vast majority of this material consists of early-instar nymphs that cannot be identified to species or even to genus. Moreover, *Talitropsis irregularis* being an arboreal species, it is unlikely that it would be collected in pitfall traps. Night searches on The Noises and on Hauturu are warranted, as well as more thorough searches in Shakespear Open Sanctuary and elsewhere in the Auckland Region.

We collected five adult male and five adult female *Talitropsis irregularis* during our visit to Tiritiri Matangi.

Neonetus sp. (cave wētā / tokoriro)

Fig. 3. *Neonetus* sp. adult male. Kawerau Track, Tiritiri Matangi Island, 16 March 2025

Also widespread in forest on Tiritiri Matangi is a small cave wētā that belongs in the genus *Neonetus* Brunner von Wattenwyl (Fig. 3). This undescribed species, characterised by a short black stripe running horizontally between white patches behind the eye, is widespread over much of the North Island. It is variable in habitus and may or may not have a pale longitudinal dorsal band. We mainly found it on tree trunks and in foliage, but it may live in leaf litter on the forest floor also.

This insect is either more cryptic or less common compared to *Talitropsis irregularis*, and proved much more difficult to find. We encountered it in mature forest on the Kawerau Track and on the Wattle Track, not in other parts of the island.

We collected five adult male and two adult female *Neonetus* sp. during our visit to Tiritiri Matangi.

Neonetus poduroides (cave wētā / tokoriro)

Fig. 4. *Neonetus poduroides* adult male. Tangihua Forest Nature Walk, Whangārei. 17 March 2020

During six nights of searching, we spotted one adult *Neonetus poduroides* (Walker, 1871) on cutty grass (*Gahnia lacera*) on the side of the upper Wattle Track. The insect jumped before we were able to photograph it or capture it. No more *Neonetus poduroides* could be found, in spite of a dedicated search effort.

This small cave wētā may be pale or dark dorsally, but it is always decorated with several longitudinal stripes running along the whole length of its back (Fig. 4). It is typically seen stretched out on leaves with longitudinal nervature on which it camouflages, e.g. on flax (*Phormium* spp.), *Astelia* spp., cutty grass (*Gahnia* spp.) etc.

Neonetus poduroides is both common and widespread in the North Island, north of about Palmerston North. Its presence on Tiritiri Matangi Island is to be expected. It should be noted that this insect is still officially but erroneously classified in the genus *Talitropsis*; it does however belong in *Neonetus* (Hegg *et al*. 2024).

We did not collect any specimens of *Neonetus poduroides*. It would probably be easier to search for this species earlier in the year on flax bushes when these are flowering.

Wētāpunga infected by entomopathogenic fungus

On 16 March we came across and adult male wētāpunga (*Deinacrida heteracantha*) that appeared to be infected by an entomopathogenic fungus. The was wētā about 1.8m up a tree trunk on the side of the Kawerau Track. While it was still alive, it was solidly anchored to the tree trunk in an unnatural position, and did not move when touched. The fungus' hyphae could be seen growing out of the anterior spiracles for a length of approx. 2cm on both the left and the right side of the insect (Fig. 5).

Since the location was easy to find, we marked it and made a mental note to return to observe the progression of the fungus' growth.

Fig. 5. Adult male wētāpunga *Deinacrida heteracantha* with entomopathogenic fungus infection. Kawerau Track, Tiritiri Matangi Island, 16 March 2025.

When Maddy checked the site during daylight on the next day, she found that the insect had disappeared. We had one more look at night, and found an adult male wētāpunga in the same exact location, alive and well, mobile, and without fungal hyphae growing out of the spiracles. It seems

extremely unlikely that this would be the same insect. Adult male wētāpunga are very mobile and spend the nights moving around while searching for females; they never return to a roost they occupied the previous day (Watts & Thornburrow 2011). An insect recovering from an advanced fungal infection is also unheard of.

It would seem most likely that the insect infected by fungus would have been eaten by a morepork, or by a saddleback the next day. It was anchored to the tree in plain sight and would have been easily spotted by any avian predator. Wētāpunga are abundant on Tiritiri Matangi, especially on the Kawerau Track; we often found multiple individuals at the same location. We cannot rule out the possibility that both males may have been following a female's chemical trail up the same tree, especially in the absence of rain to wash out odours.

Notes on the Orthoptera of Tiritiri Matangi Island

As already mentioned in the previous paragraph, wētāpunga (*Deinacrida heteracantha*) are abundant on Tiritiri Matangi. Every night we encountered several individuals in all life stages. To say that the reintroduction of this threatened species has been a success would be a severe understatement. Auckland tree wētā (*Hemideina thoracica*) and ground wētā (*Hemiandrus pallitarsis*) are also ubiquitous and were spotted in good numbers every night.

Among the crickets (Superfamily Grylloidea), we recorded the presence of the black field cricket (*Teleogryllus commodus*) and of the Australian fast-chirping field cricket (*Lepidogryllus parvulus*); the latter was identified to species by its song. Ground crickets are also represented with native species (*Bobilla* spp.) and with exotic species (*Pteronemobius* cf *arima*). Both field crickets and ground crickets are common in the lawns in the vicinity of the lighthouse, and in the grasslands between Fishermans Bay Track, the next track parallel to it to the north, Ridge Road and East Coast Track.

The Australian scaly cricket *Ornebius aperta* is present on the island and can be heard singing at night, especially on the Hobbs Beach Track. Given that this species is flightless, it is not clear how it became established on Tiritiri Matangi.

Cave wētā (Rhaphidophoridae) are under-represented on Tiritiri Matangi, with only three species present on the island. Most locations have six to nine sympatric species (max 13 in Kahurangi National Park). Most notable for their absence are the Auckland cave wētā (*Pachyrhamma acanthocerum*) and the forest cave wētā *Neonetus variegatus*. Both of these species are common in forests in the wider Auckland region, and would be reasonably expected to be present on Tiritiri Matangi. It is possible and likely that they did not survive the island's deforestation during the 19th century. A wider survey of Orthoptera on islands in the Hauraki Gulf should be conducted to determine which species, if any, should be reintroduced to Tiritiri Matangi as part of the island's ecological restoration.

We did not see any common garden katydids (*Caedicia simplex*), nor did we hear their song. There are no observations of this species on iNaturalist, nor can I find any evidence of it having ever been observed on Tiritiri Matangi. This insect is a master at camouflage and could exist on the island cryptically. It is also possible that it went locally extinct as a result of deforestation.

A pest species that must be kept off the island

The black-masked raspy cricket (*Pterapotrechus salomonoides*) is an accidental introduction from Australia that was first detected in Auckland in 1990 (Fig. 6). Numbers in the city have exploded during the past decade. It is an arboreal species and an agile predator that that does not spare any invertebrate that moves at night. Observations in captivity have shown it feeding on Auckland tree wētā, among many other native insects (Hegg 2025).

Even though it is winged, *Pterapotrechus salomonoides* is a poor flier and is unlikely to make it to the island on its own steam, not even from the nearby Whangaparāoa Peninsula, where it is locally common. At the same time, it has the habit of hiding into crevices of all sorts and it is an expert hitch-hiker. It has established on Waiheke Island, probably by travelling in a vehicle on one of the frequent ferry crossings. At the time of writing, it does not appear to have reached any other islands in the Hauraki Gulf.

We did not encounter any raspy crickets during our visit to Tiritiri Matangi, nor are there any observations for this conspicuos insect on iNaturalist. If it were to establish on Tiritiri Matangi, *Pterapotrechus salomonoides* would without any doubt prey on wētāpunga nymphs, with the potential of having a severe impact on the island's population of this threatened species.

The black-masked raspy cricket should be put into the same basked as the Argentine ant, as an unwanted pest species to be kept out of Tiritiri Matangi through constant surveillance and biosecurity efforts.

Fig. 6. The black-masked raspy cricket *Pterapotrechus salomonoides* has not established on Tiritiri Matangi Island – and we want to keep it that way, because of its predatory habits and the risk it poses to native invertebrate populations, especially wētāpunga.

List of invertebrates observed on Tiritiri Matangi Island

Our visit to Tiritiri Matangi Island had a specific aim: to collect cave wētā (Family Rhaphidophoridae) for the purpose of taxonomic work. When out in the field, we did keep a record of any invertebrates we encountered. Our list of observations is in Table 1. below.

We did not run light traps, nor did we install pitfall traps. We did not conduct a complete inventory of the island's invertebrate life. Lepidoptera (butterflies and moths), Diptera (flies), Hymenoptera (wasps and ants), leaflitter invertebrates, spiders etc. are very much under-represented in our observations. What is listed below is simply an inventory of what we observed and identified while out in the field, and represents nothing more than a fraction of the island's rich invertebrate life. A selection of photographs is showcased in Figs. 7 and 8.

Table 1. (Continues on next two pages). List of invertebrates recorded on Tiritiri Matangi Island. 14–20 March 2025.

Insects (Class Insecta)		
Orthoptera	**Wētā, crickets and grasshoppers**	
Deinacrida heteracantha (Wētāpunga)	Anostostomatidae	New Zealand endemic
Hemideina thoracica (Auckland tree wētā)	Anostostomatidae	New Zealand endemic
Hemiandrus pallitarsis	Anostostomatidae	New Zealand endemic
Talitropsis irregularis	Rhaphidophoridae	Only known from Tiritiri Matangi
Neonetus sp.	Rhaphidophoridae	New Zealand endemic
Neonetus poduroides	Rhaphidophoridae	New Zealand endemic
Teleogryllus commodus (Black field cricket)	Gryllidae	Unknown (Native, or Introduced)
Lepidogryllus parvulus (Fast-chirping field cricket)	Gryllidae	Introduced from Australia
Bobilla spp.	Trigonidiidae	New Zealand endemic
Pteronemobius cf. *arima*	Trigonidiidae	Introduced from Australia
Ornebius aperta	Mogoplistidae	Introduced from Australia
Blattodea	**Cockroaches**	
Celatoblatta sp. 1	Blattidae	New Zealand endemic
Celatoblatta sp. 2	Blattidae	New Zealand endemic
Platyzosteria novaeseelandiae (Large black kekerengu)	Blattidae	New Zealand endemic

Table 1. (Continued). List of invertebrates recorded on Tiritiri Matangi Island. 14–20 March 2025.

Insects (Class Insecta)		
Coleoptera	**Beetles**	
Polyacanthia flavipes	Cerambycidae	New Zealand endemic
Xylotoles griseus (Fig longhorn beetle)	Cerambycidae	New Zealand endemic
Xylotoles gratus	Cerambycidae	New Zealand endemic
Odontria xanthosticta (Yellowspotted chafer)	Scarabaeidae	New Zealand endemic
Gnaphalopoda picea	Scarabaeidae	New Zealand endemic
Strongylopterus hylobioides	Curculionidae	New Zealand endemic
Chalepistes compressus (Compressed weevil)	Curculionidae	New Zealand endemic
Amarygmus watti	Tenebrionidae	Introduced from Australia
Phanodesta sp.	Trogossitidae	Native, probably endemic
Lepidoptera	**Moths and Butterflies**	
Vanessa itea (Yellow admiral)	Nymphalidae	Native to Australia, New Zealand and Pacific Islands
Aenetus virescens (Pūriri moth)	Hepialidae	New Zealand endemic
Dumbletonius unimaculatus (Forest ghost moth)	Hepialidae	New Zealand endemic
Proteuxoa tetronycha	Noctuidae	New Zealand endemic
Ichneutica lignana	Noctuidae	New Zealand endemic
Agrotis ipsilon (Dark sword-grass)	Noctuidae	Cosmopolitan
Scopula rubraria (Plantain moth)	Geometridae	Native to Australia, New Zealand and New Caledoinia
Orocrambus ramosellus	Crambidae	New Zealand endemic
Pantydia sparsa	Erebidae	Introduced from Australia
Hymenoptera	**Bees, ants, wasps and sawflies**	
Polistes humilis (Australian paper wasp)	Vespidae	Introduced from Australia
Vespula germanica (German wasp)	Vespidae	Introduced from Europe
Technomyrmex jocosus (White-footed house ant)	Formicidae	Introduced from Australia

Table 5. (Continued). List of invertebrates recorded on Tiritiri Matangi Island. 14–20 March 2025.

Insects (Class Insecta)		
Mantodea	**Mantises**	
Miomantis caffra (South African mantis)	Miomantidae	Introduced from South Africa
Hemiptera	**True bugs**	
Amphipsalta cingulata (Clapping cicada)	Cicadidae	New Zealand endemic
Odonata	**Dragonflies and Damselflies**	
Hemicordulia australiae (Sentry dragonfly)	Corduliidae	Australia, New Zealand and Pacific Islands
Archaeognatha	**Bristletails**	
Nesomachilis sp.	Meinertellidae	New Zealand endemic
Diptera	**Flies**	
Leptotarsus sp.	Tipulidae	New Zealand endemic
Sapromyza neozelandica (brown-striped litter fly)	Lauxaniidae	New Zealand endemic
Neuroptera	**Antlions and lacewings**	
Mallada basalis	Chrysopidae	Widespread in Australia and South-East Asia
Arachnids (Class Arachnida)		
Araneae	**Spiders**	
Trite planiceps (Black-headed jumping spider)	Salticidae	New Zealand endemic
Dolomedes minor (Nurseryweb spider)	Dolomedidae	New Zealand endemic
Sidymella angularis	Thomisidae	New Zealand endemic
Socca pustulosa (knobbled orbweaver)	Araneidae	Australia and New Zealand
Centipedes (Class Chilopoda)		
Scolopendromorpha	**Tropical centipedes**	
Cormocephalus rubriceps (New Zealand giant centipede)	Scolopendridae	Native to Australia and New Zealand
Gastropods (Class Gastropoda)		
Stylommatophora	**Common land snails and slugs**	
Leaf-veined slugs (Unidentified)	Athoracophoridae	New Zealand endemic

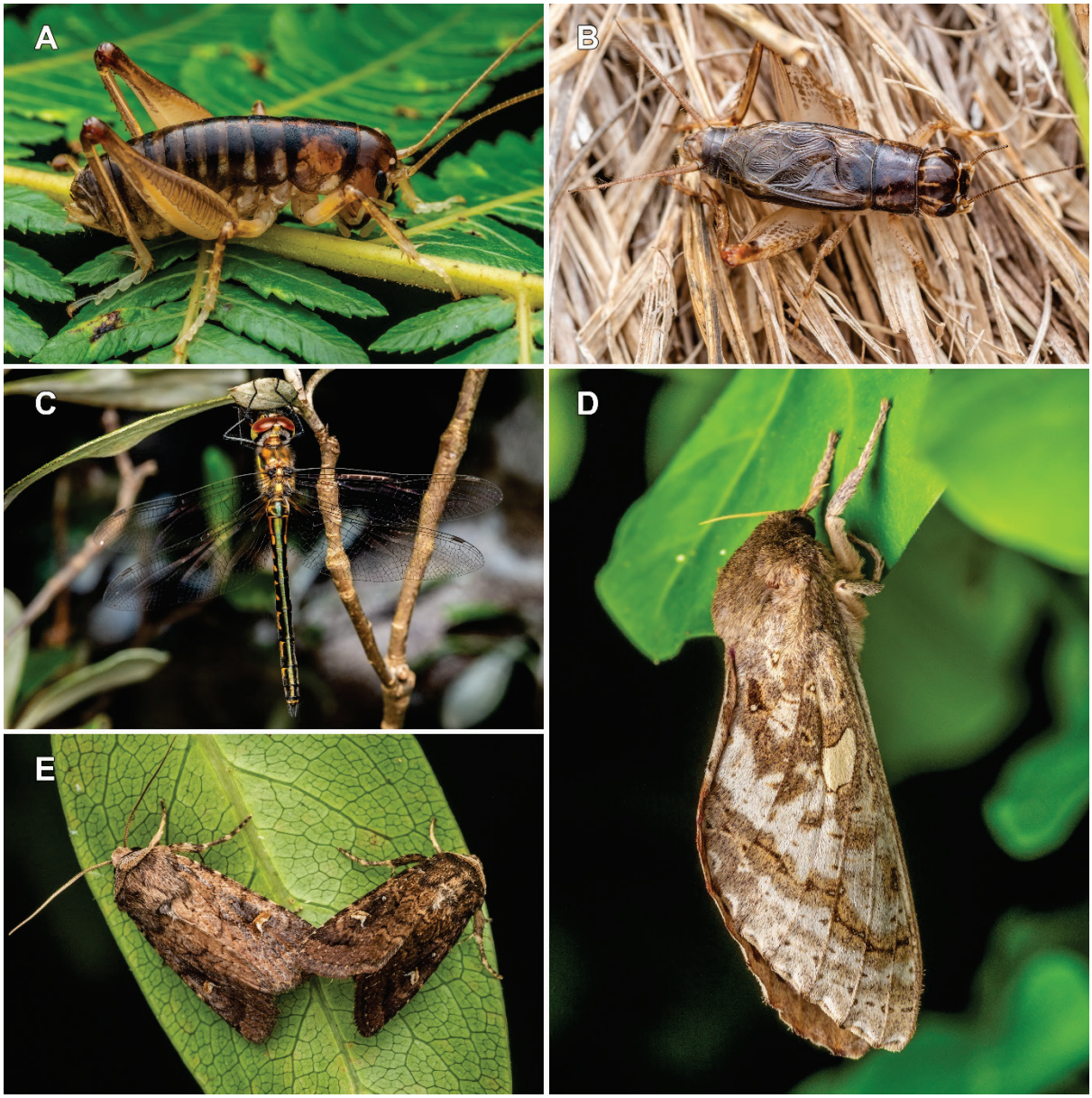

Fig. 7. A selection of invertebrates from Tiritiri Matangi Island. 14–20 March 2025. **A.** Ground wētā *Hemiandrus pallitarsis*. Kawerau Track. **B.** The fast-chirping field cricket *Lepidogryllus parvulus*, a species accidentally introduced from Australia. East Coast Track. **C.** Sentry dragonfly *Hemicordulia australiae*, native to New Zealand, Australia, and a number of Pacific islands. Wattle Track. **D.** The forest ghost moth *Dumbletonius unimaculatus* is a large hepialid moth that is very abundant on Tiri in autumn. Kawerau Track. **E.** The noctuid *Proteuxoa tetronycha* is an endemic moth that is common throughout New Zealand. Wattle Track.

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Fig. 8. A selection of invertebrates from Tiritiri Matangi Island. 14–20 March 2025. **A.** New Zealand endemic weevil *Strongylopterus hylobioides*, found throughout the country but more common in the North. Wattle Track. **B.** *Polyacanthia flavipes*, a rarely encountered native longhorn beetle. We saw it twice during our stay, which suggests this species is benefiting from the predator-free environment. Wattle Track **C.** *Xylotoles gratus*, another rarely encountered endemic longhorn beetle. Cable Track. **D.** Fig longhorn beetle *Xylotoles griseus*. Wattle Track. **E.** White-footed house ant *Technomyrmex jocosus*, introduced from Australia and very common on Tiri. Hobbs Beach Track. **F**. South African mantis *Miomantis caffra*, introduced from South Africa. Cable Track.

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