

Project River Recovery

An update on some of the cryptic species in the Waitaki catchment

Sam Turner & Jen Schori

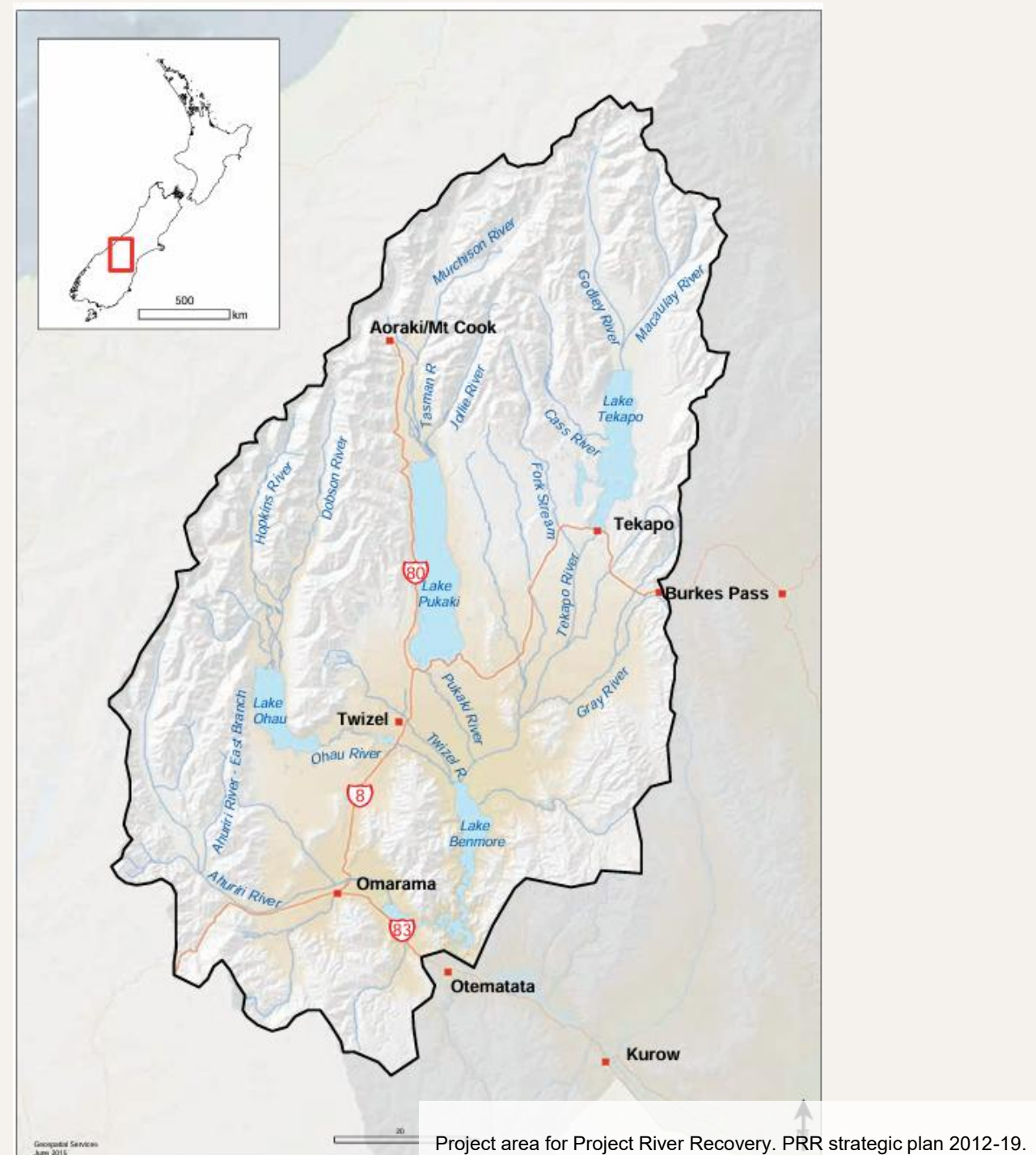


Department of
Conservation
Te Papa Atawhai

**Te Kāwanatanga
o Aotearoa**
New Zealand Government



Project River Recovery: Project Area



Purpose

To provide an update on the population trends, distribution, threats and knowledge gaps of some of the cryptic and elusive species that occur with the Mackenzie Basin



Snout moth (Noah Fenwick)



Lakes skink (PRR)



Lowland longjaw galaxias (Dean Nelson)



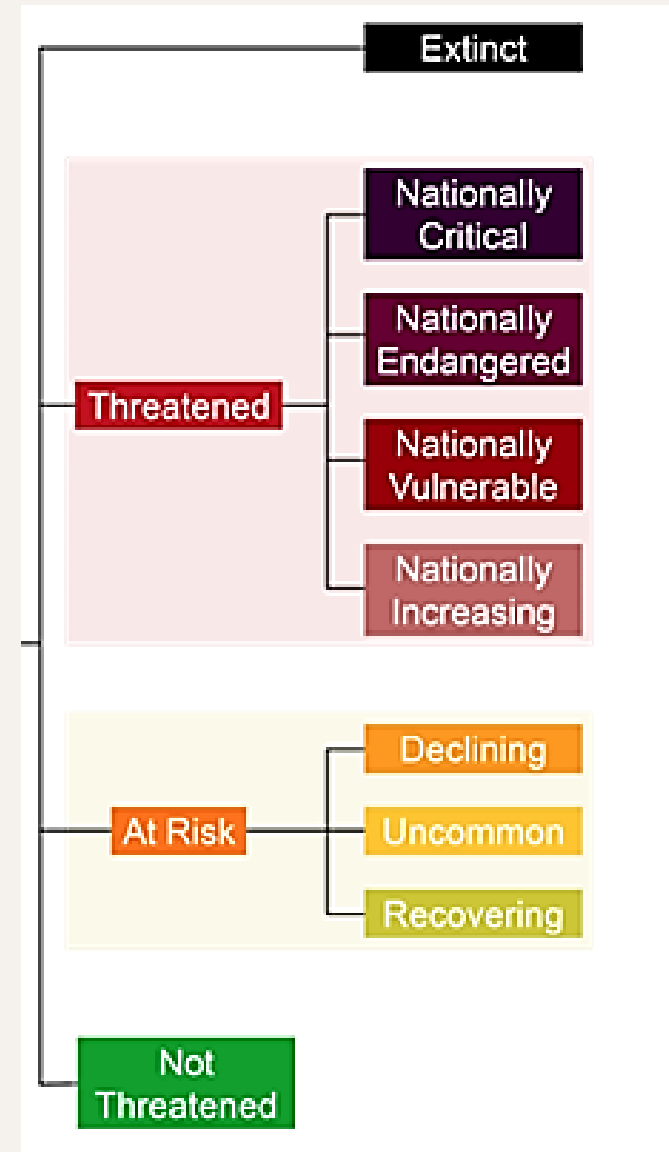
Takapō wētā (TMAP)



Robust grasshopper (PRR)

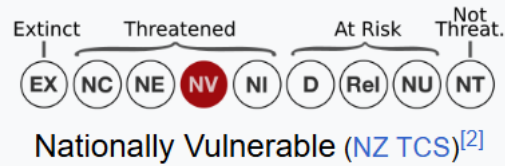
A note on threat status'

The New Zealand Threat Classification (NZTCS) is a national system used to assess the conservation status of species found in the wild in Aotearoa New Zealand.



Lakes skink -

Oligosoma aff. chloronoton
"West Otago"



Hitchmough et al. 2026

Distribution and habitat

- Southern Mackenzie Basin, Southern Lakes District and inland western Southland
- Lowlands to alpine: tussock grasslands, rocky habitats (river terraces, gullies, scree and talus), damp areas



Monitoring the Upper Ōhau River Population

- Found in 2013
- Initial funnel survey 2016 (Lettink, 2016)
- Pitfall traps installed along a terrace



Left: Pitfall trap with lakes skink. Right: Terrace lizard habitat. Photos: PRR

Monitoring the Upper Ōhau River Population

- Annual mark-recapture pitfall survey
 - measured & weighed
 - sexed
 - temporary mark
 - photo-ID

Longest running skink dataset in NZ, 2017- 2026



Example photos take for each Lakes skink A) right side B) Left side C) dorsal D) ventral temporary mark E) missing toes F) scars. Photos: PRR.

Threats

- **Mammalian predators**
 - Rodents
 - Mustelids
 - Feral cats
 - Hedgehogs
- Additional risk from smaller predators that fit in small spaces



Threats

- **Habitat degradation and fragmentation**
 - Weed encroachment
 - Leaf litter build up
 - Shading



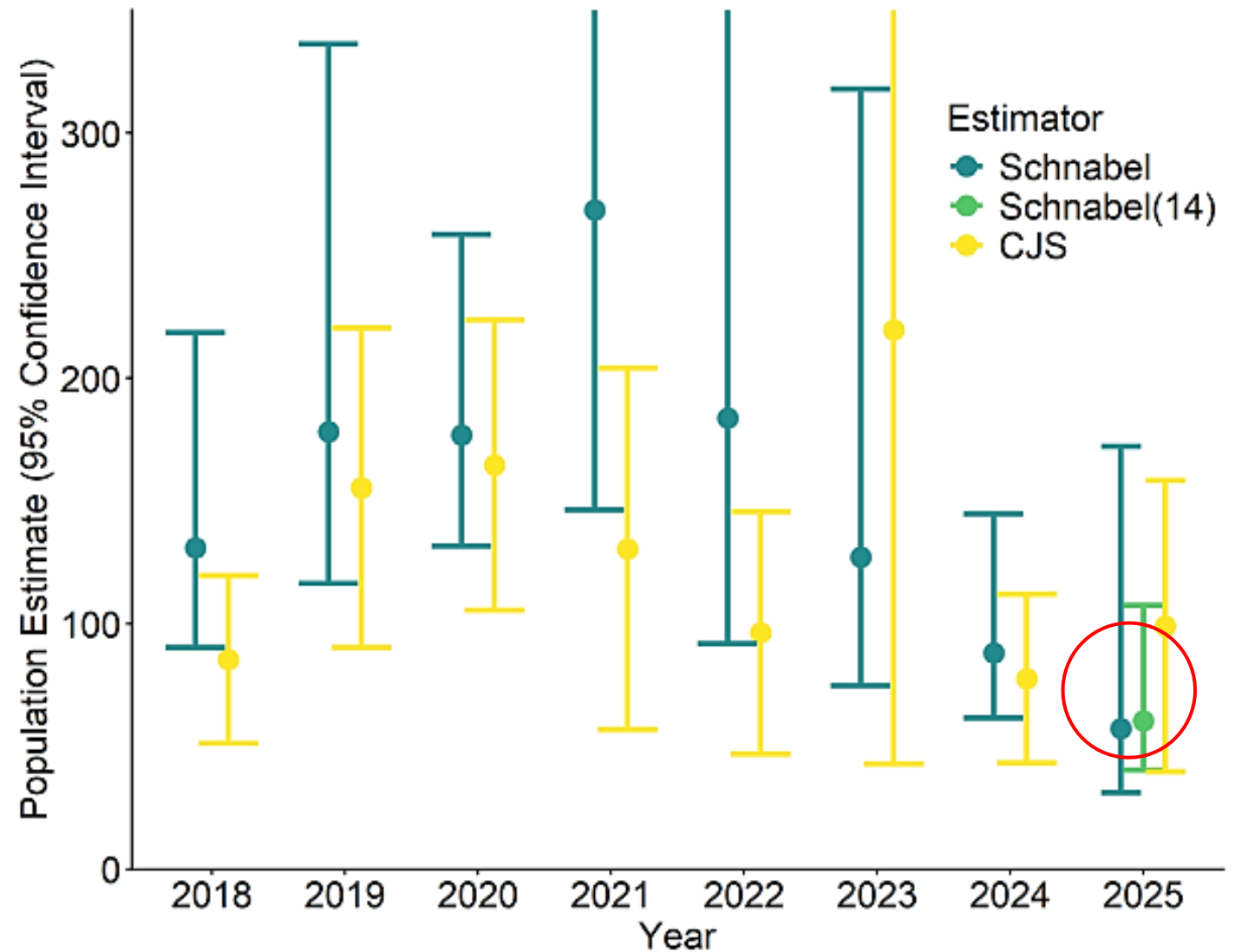
Leaf litter on lizard habitat. Photo: PRR



Shading of lizard habitat from trees. Photo: PRR

Results

- No trend over 8 years, low recaptures
- In 2025 doubled effort - 14 days
- Small population ~ 60 adults, and potentially declining.
- Low adult annual survival rates – 54%
- Low recruitment



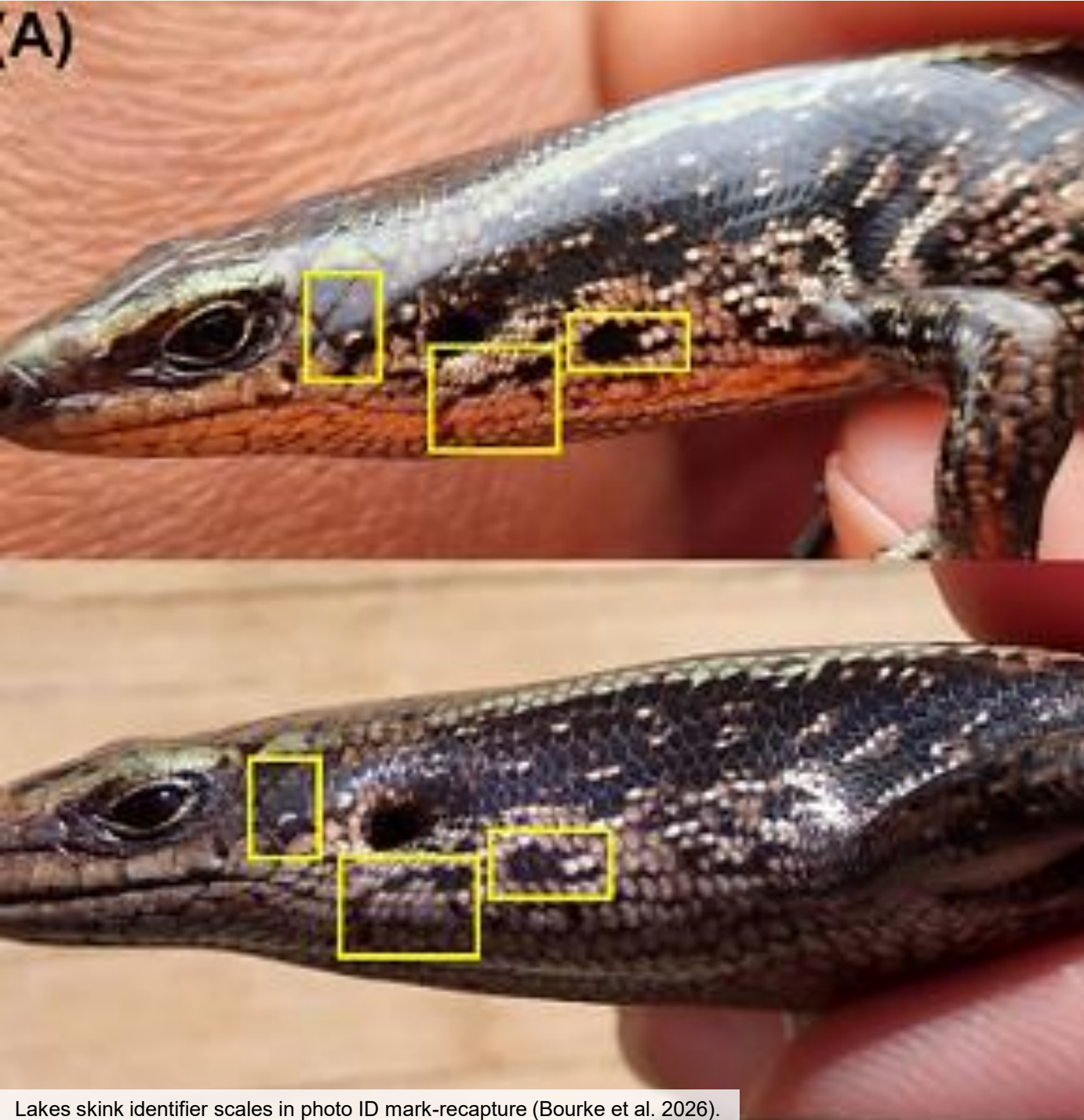


Photo-ID

- 5 scales tested
- High mark stability across years – between year mark-recapture
- Photo quality
- Manual matching effort



Monitoring limitations

- Low recaptures
- Captures declined after the first day
- Likelihood of encountering and entering a trap?

→ Funnel trapping?
mice presence (predation risk)

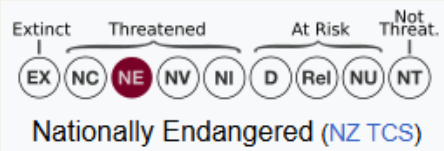
→ More pitfalls?
• Limited and sensitive habitat



What's next?

- Continue habitat maintenance
- Further develop monitoring methods capable of detecting trends
- Test management options

Takapō ground wētā - *Hemiandrus fabella*



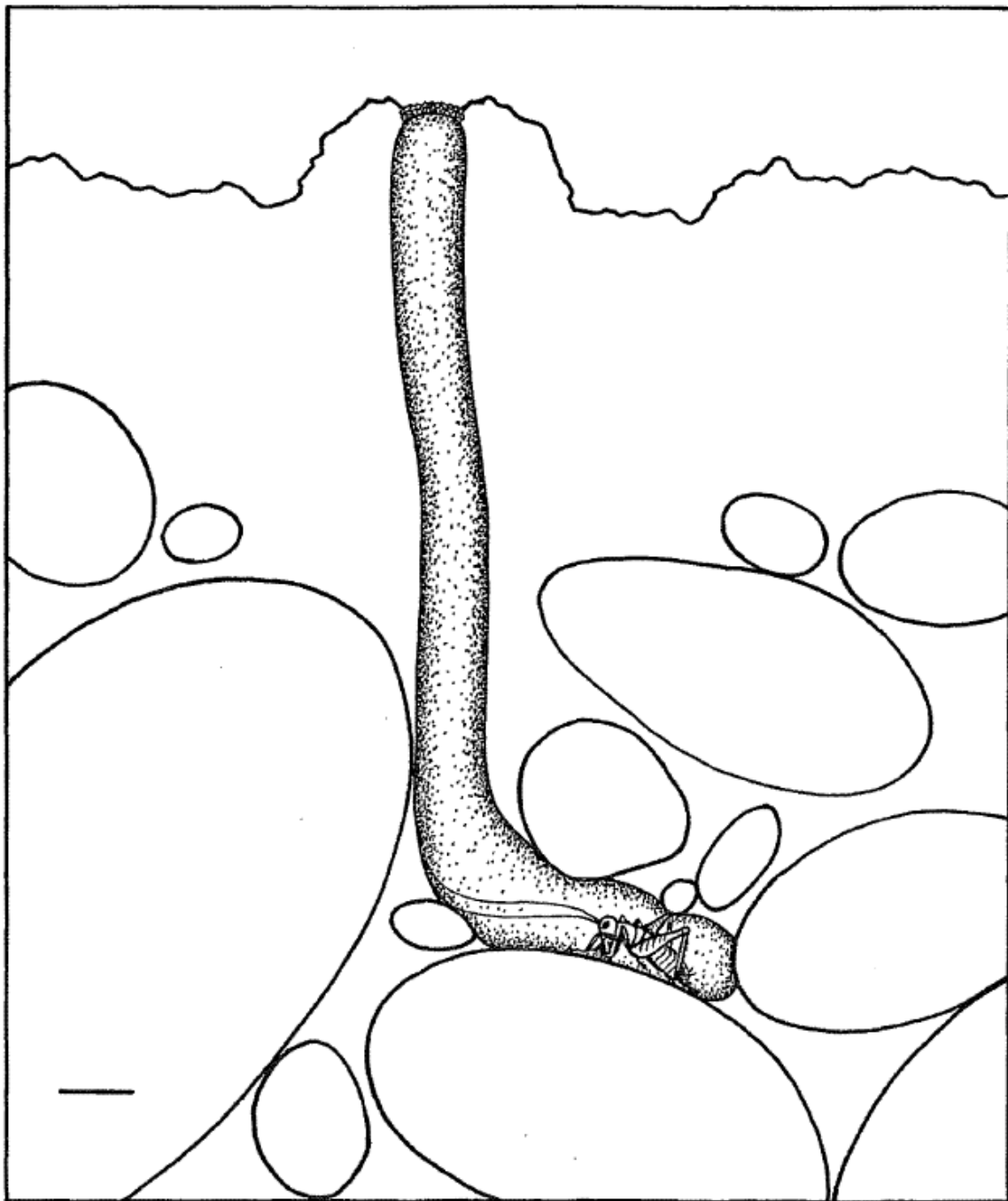
Trewick et al. 2022

Distribution and habitat:

- First discovered along the Takapō River in 1992
- Endemic to the Mackenzie Basin
- Occurs throughout the basin on sparsely vegetated friable soils



Takapō ground wētā Photo: TMAP



Activity and threats

- **Activity Patterns:**
 - Nocturnally active
 - Builds underground burrows
 - Plugs the top of its burrow
- **Key threats:**
 - Habitat loss
 - Mammalian predators

Figure 6.5. Stylised late instar *Hemiandrus* new sp. burrow, showing cap (top), shaft and terminal chamber among stones. Scale bar = 10mm.

From: van Wyngaarden, F.1995.

Mammalian predators



New Zealand Journal of Zoology



RESEARCH ARTICLE [OPEN ACCESS](#)

Potential Benefit of Predator Exclusion Fence for the Threatened Ground Wētā *Hemiandrus fabella*

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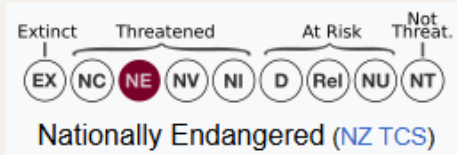
Received: 10 December 2025 | Revised: 19 February 2026 | Accepted: 25 February 2026

Keywords: dryland ecosystem | hedgehog | *Hemiandrus* | invasive mammalian predators | invertebrate conservation | predator exclusion fencing

ABSTRACT

Although conservation practitioners in Aotearoa New Zealand are world-leaders in predator exclusion fencing for threatened species conservation, the degree to which fences protect invertebrates has not been extensively studied, especially in non-forested environments. This study examines the potential impact of a predator exclusion fence on the threatened Tekapo ground wētā (*Hemiandrus fabella*) in a dryland environment. A mark-recapture study was conducted to compare wētā relative abundance, sex ratios, size, and microhabitat associations inside and outside a predator exclusion fence. Wētā captures were 4.8 times higher inside the fence. Females accounted for approximately 67% of wētā both inside and outside the fence and were larger inside the fence. Wētā captures were higher in pitfalls situated in open microhabitats dominated by mat cover plants compared to microhabitats dominated by grasses. Overall, the predator exclusion fence appears to have had a significant positive impact on the *H. fabella* population; however, this result is strictly correlative because no population data was collected before the fence was installed. We hypothesise that the predator exclusion fence has increased the wētā population within by excluding hedgehogs (*Erinaceus europaeus*) which are considered a key predator of the species. We discuss evidence for and against this mechanism as a driver of wētā population density and what future work is required to confirm our hypothesis.

Robust grasshopper – *Siguas robustus*



Trewick et al. 2022

Distribution and habitat:

- Endemic to the Mackenzie Basin
- Stony, sparsely vegetated braided rivers and associated terraces



The robust grasshopper camouflaged in its habitat

Exceptional camouflage



The robust grasshopper camouflaged in its habitat

Exceptional camouflage



The robust grasshopper camouflaged in its habitat. Photo DOC

Exceptional camouflage



The robust grasshopper camouflaged in its habitat. Photo DOC

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News / Environment 18 November 2025, 4:36pm

Rare pink grasshopper discovered during annual Mackenzie Basin survey



Pink grasshopper found during a Mackenzie Basin survey. Supplied/DOC

Otago Daily Times

News Sport Life & Style Entertainment Business

Wednesday, 19 November 2025

Seeing rare pink grasshopper 'so exciting'

Regions > South Canterbury



An "exceptionally rare" pink grasshopper was found by Department of Conservation rangers during Doc's annual grasshopper survey. PHOTO: DOC

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Exceptionally rare pink grasshopper spotted in New Zealand

The robust grasshopper (*Sigaus robustus*), native to New Zealand's Mackenzie basin, is usually grey or brown in colour, but a genetic mutation is thought to turn some pink

By New Scientist

26 November 2025

f X in e m



Samantha Turner/New Zealand DOC

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Ultra-rare pink grasshopper spotted in New Zealand



Rare pink grasshopper spotted in New Zealand's Mackenzie Basin. Photo: NZ Department of Conservation

Vishwam Sankaran

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NEWS

A Once-in-a-Lifetime Sighting: Rare Pink Grasshopper Spotted in New Zealand

Published on November 24, 2025 at 10:00 am By Sarah Talbi Reading duration

In a rare and stunning discovery, New Zealand's Department of Conservation spotted an exceptionally rare pink grasshopper in the Mackenzie Basin.

© A Once-in-a-Lifetime Sighting: Rare Pink Grasshopper Spotted in New Zealand's Mackenzie Basin. Photo: NZ Department of Conservation

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Have you ever seen a grasshopper like this?

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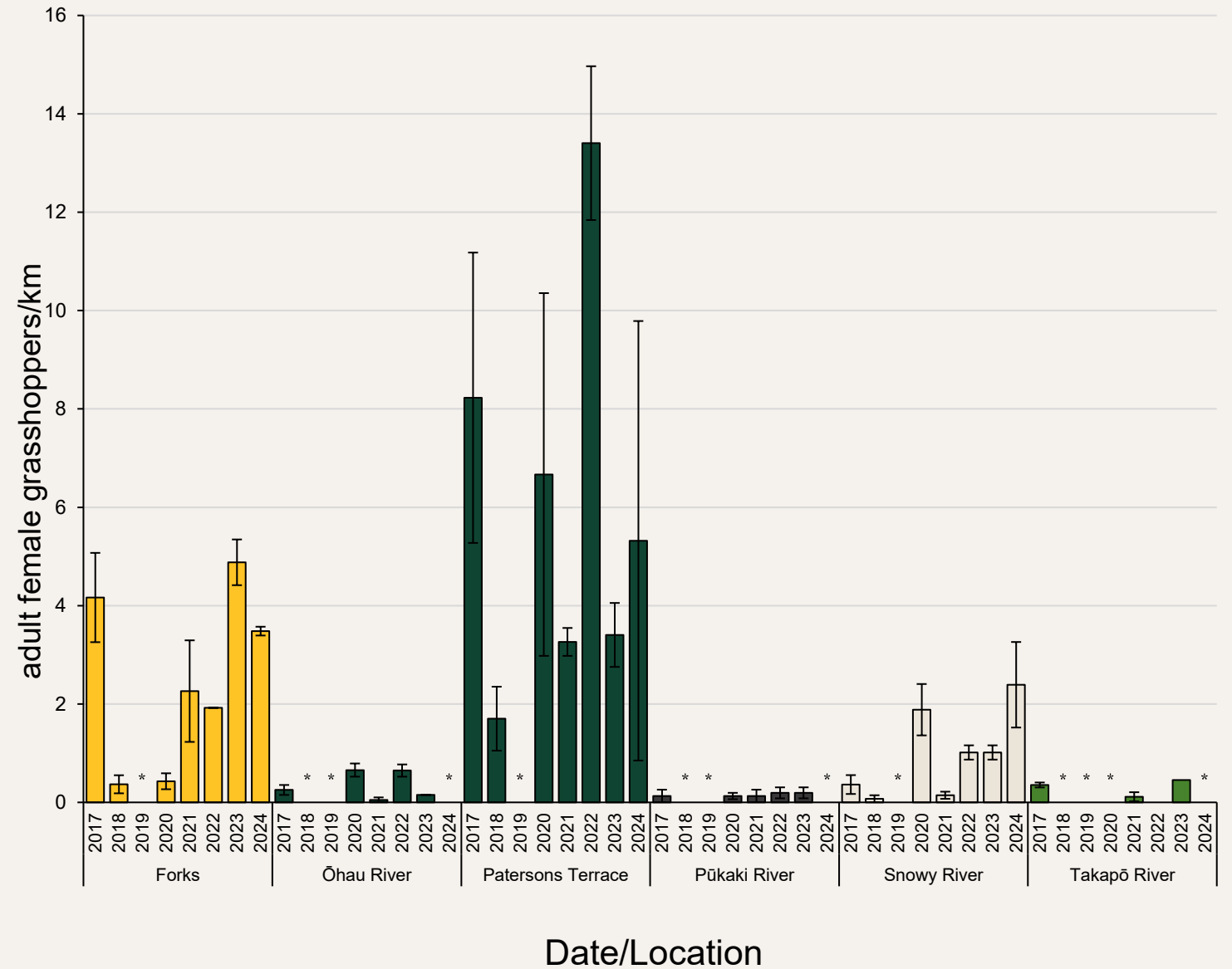
A new Brisbane-based project from News

The pink robust grasshopper seen among the rocks at Lake Tekapo. Photo: NZ DOC



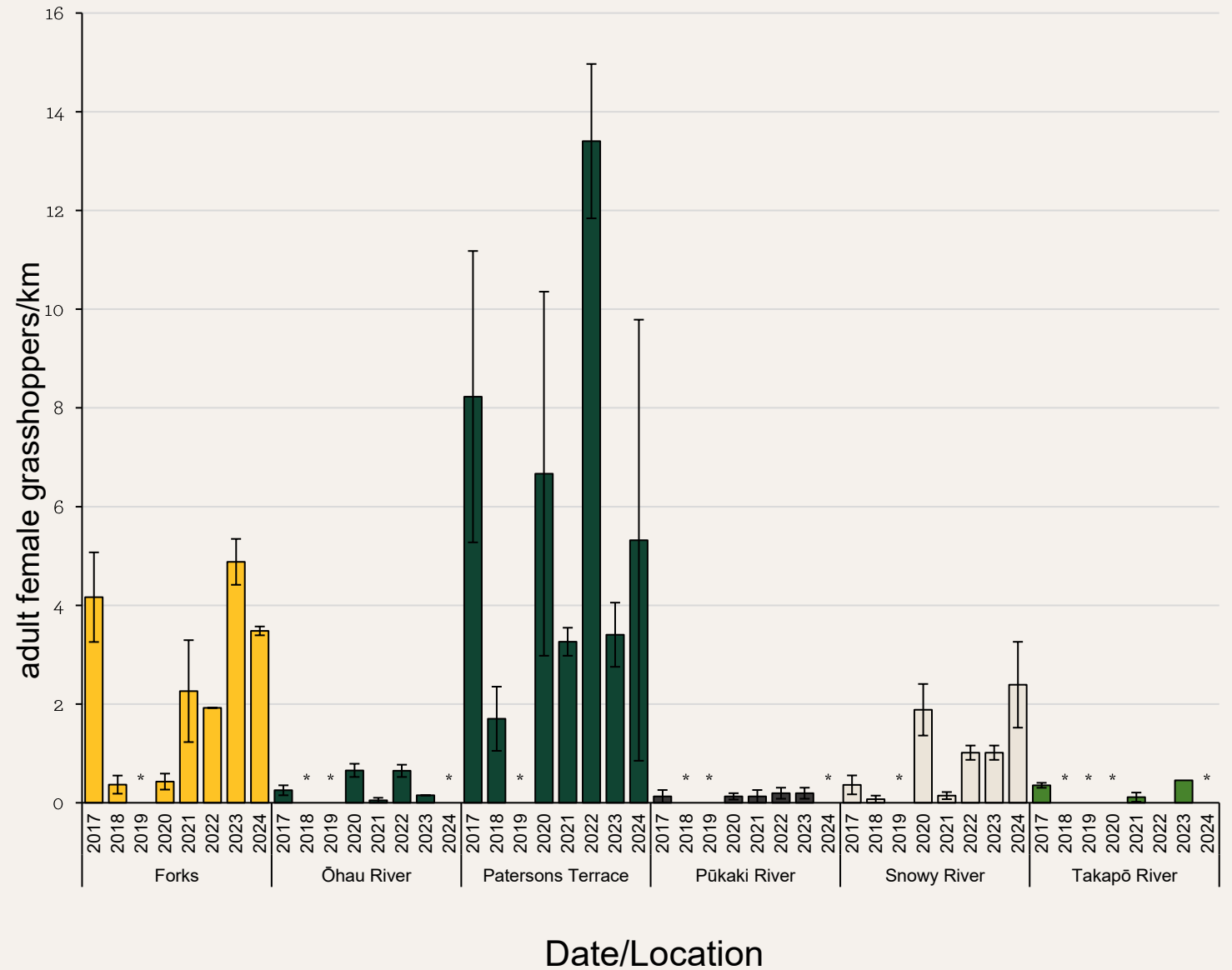
Population monitoring

- Walk-through surveys, 3-days in early summer



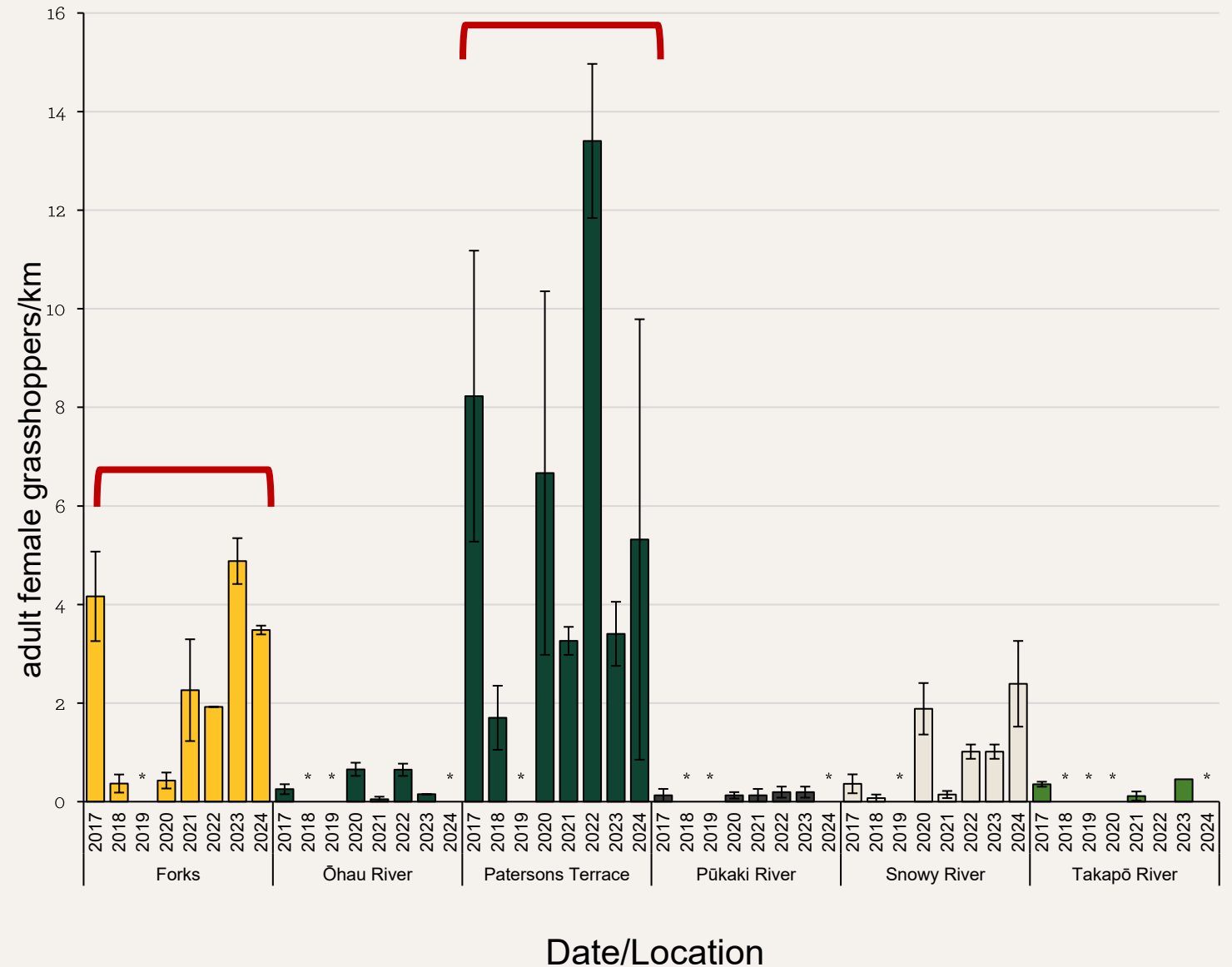
Population monitoring

- Walk-through surveys, 3-days in early summer
- No detectable trends yet



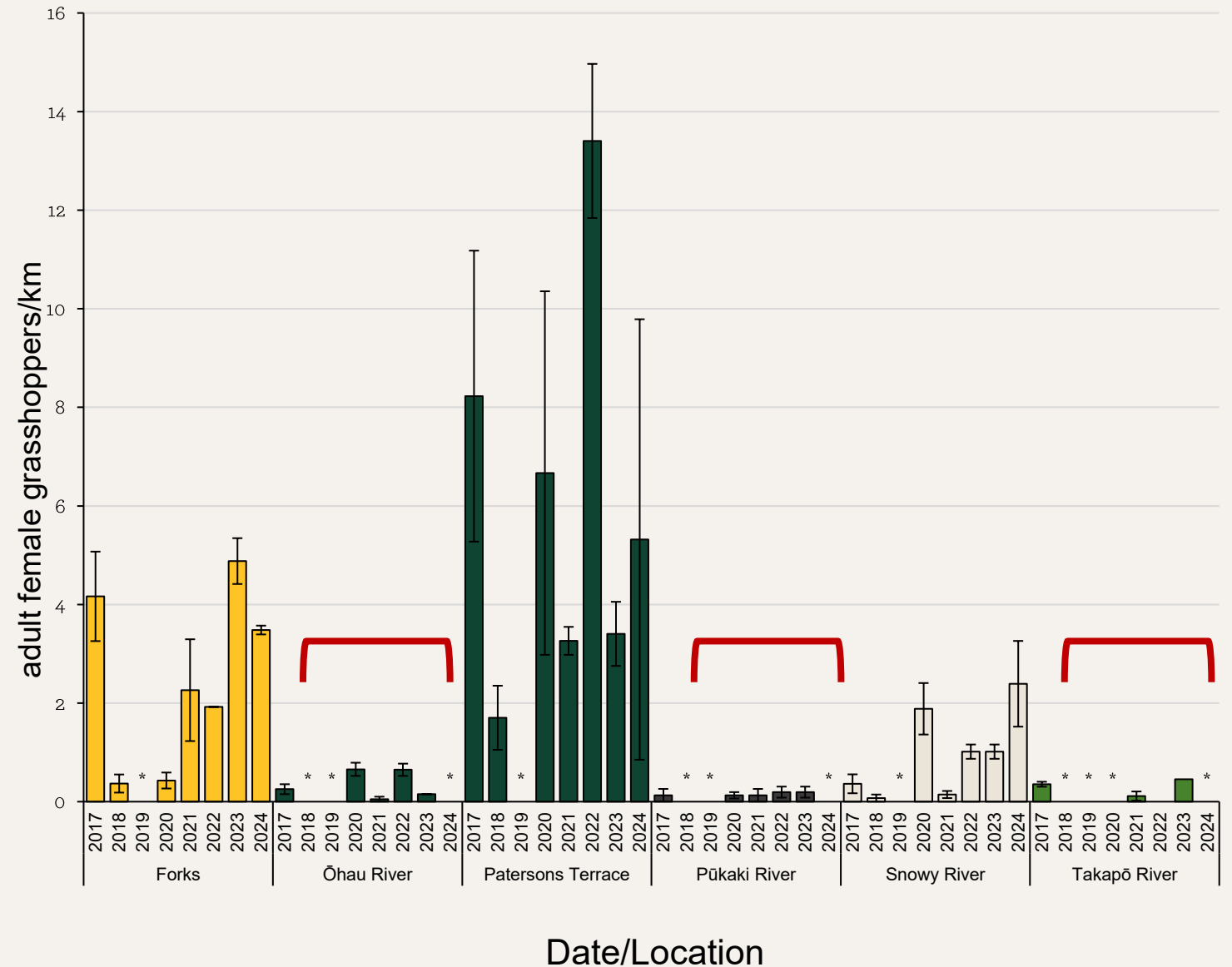
Population monitoring

- Walk-through surveys, 3-days in early summer
- No detectable trends yet
- Highest densities in anthropogenic habitats



Population monitoring

- Walk-through surveys, 3-days in early summer
- No detectable trends yet
- Highest densities in anthropogenic habitats
- In modified rivers, densities of <1 adult female grasshopper/km



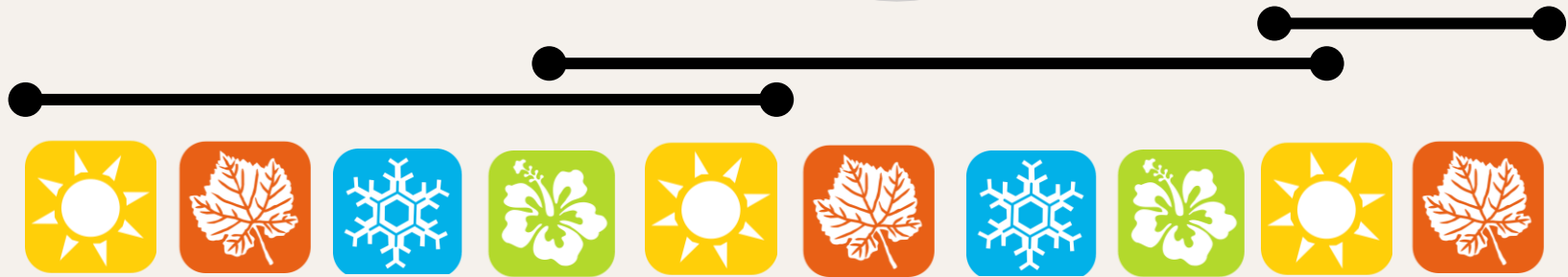
Threats

- Habitat degradation
- Introduced mammalian predators



Lupins in the Takapō River

Climate change: potential impacts on reproductive success



Climate change: potential impacts on reproductive success



- Eggs require over-winter conditions to complete development

Climate change: potential impacts on reproductive success



- Eggs require over-winter conditions to complete development

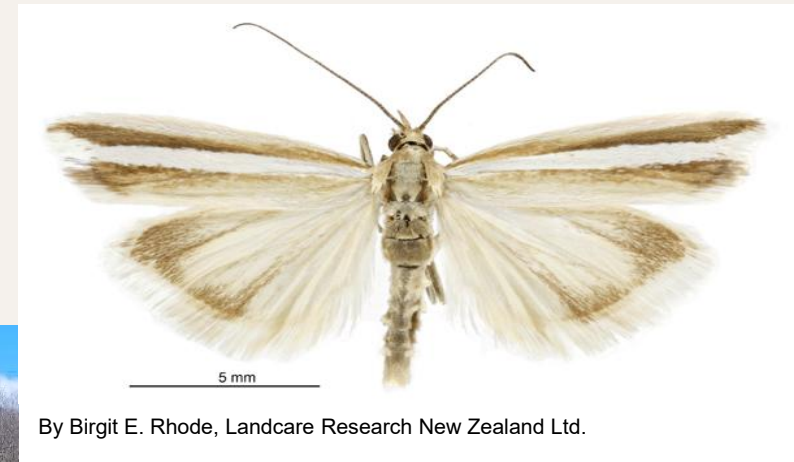


Robust grasshopper eggs incubated *in situ*

Snout moth – *Orocrambus fugitivellus*



Hoare et al. 2026



Distribution and habitat:

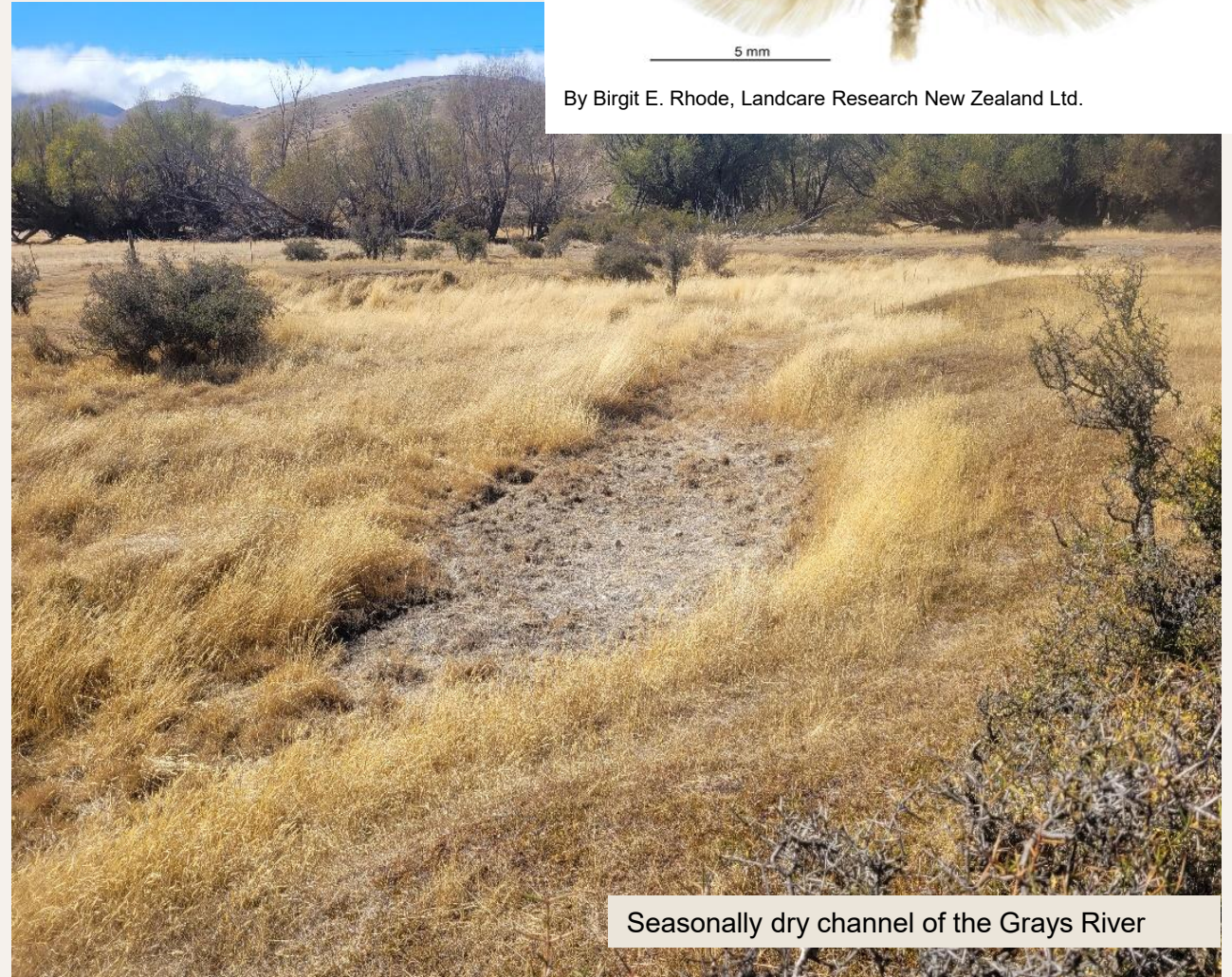
- Endemic to the Mackenzie Basin
- Ephemeral channels of the Grays River
- Only known from the Glenrock Conservation Area

Phenology:

- Adults emerge January to March
- Males fly by day
- Females are flightless

Threats:

- Limited distribution



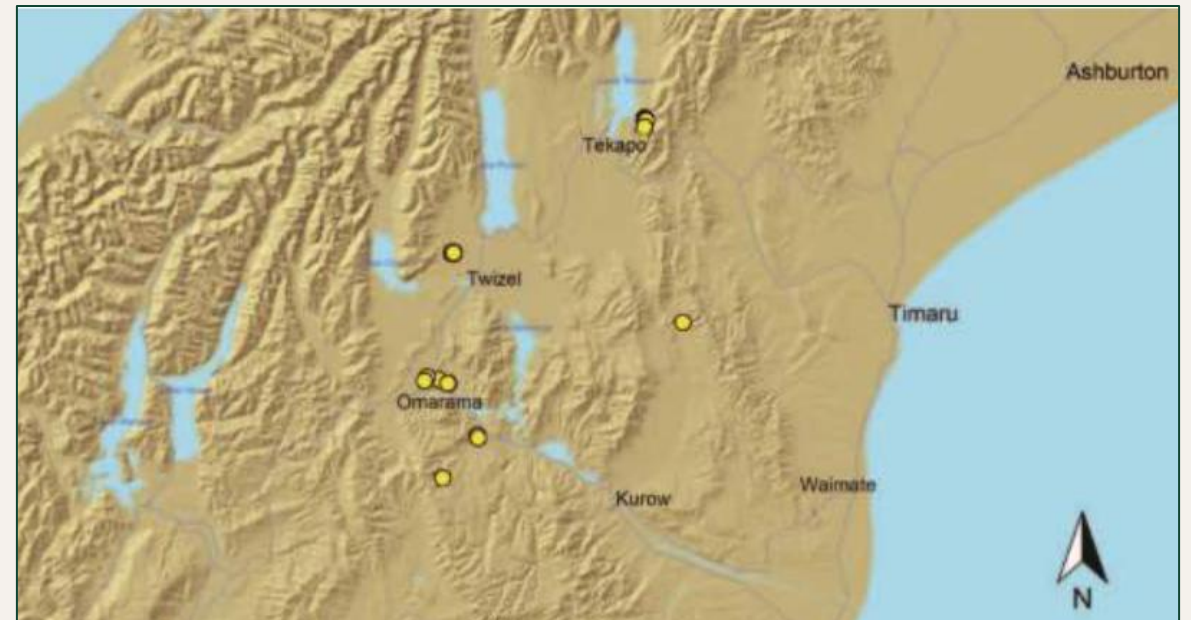
Lowland longjaw galaxias (Waitaki River) - *Galaxias* *aff. cobitinis* “Waitaki”



Dunn et al. 2023

Distribution and habitat:

- Only through the mid Waitaki catchment
- Small streams and spring fed tributaries
- Require clean and ‘moveable’ substrate for burrowing into interstitial spaces



Threats

- Invasion of aquatic weeds (such as monkey musk)
- Changes in land use, such as stock access to stream and changes to riparian vegetation
- Introduced fish species such as trout



Monkey musk smothers a spring feed stream.

Threats

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- Introduced fish species such as trout



A trout consuming a native galaxias.

Monkey musk smothers a spring feed stream.

Trout barriers for protection



Celebrating on top of the trout barrier at Waterwheel.



Thank you!

Juvenile bignose galaxias. Photo Dean Nelson

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