

# Hooded Scaly-foot population and habitat impact assessment

Hooded Scaly-foot surveys in north-central and north-west Victoria

Biodiversity Flood Recovery Update June 2024

## Key Messages

- We detected Hooded Scaly-foot at three of four known locations, 12 months post-flooding rains.
- Hooded Scaly-foot numbers were comparable to those recorded pre-flooding rains.
- Ongoing monitoring is key to confidently track population trends of this cryptic species.

*The impact of a high rainfall event and associated inundation in the Campaspe-Loddon and Mallee regions on populations of the Hooded Scaly-foot was unknown.*

## Hooded Scaly-foot in Victoria

Areas in the north-central and north-west of Victoria that were impacted during the 2022 floods were known to support populations the Hooded Scaly-foot *Pygopus schraderi* (HSF). HSF are a type of legless lizard, with 'Scaly-foot- referring to the scaly vestigial hindlimb flap that is quite visible compared to those of many other legless lizards, found each side of the body near their vent. The status of the species in this area is unresolved after the large-scale flood event. The threatened HSF is a habitat specialist and exhibits a highly disjunct distribution, centred on north-central and north-western Victoria. In north-central Victoria, it is only found in uncultivated native grasslands that exhibit certain environmental characteristics: a mosaic of low vegetation (mostly cryptogams and grasses) and bare ground. In north-western Victoria it is found in low open chenopod shrublands.

## Project aims

- Determine HSF occurrence at four established monitoring locations and compare with past data.
- Assess habitat availability and condition at established HSF monitoring sites and elsewhere within HSF reserves and evaluate the impacts of any flooding and rainfall.
- Test the effectiveness of thermal imagery as a novel survey technique for HSF and compare with the conventional nocturnal spotlight surveys.

## Survey methods

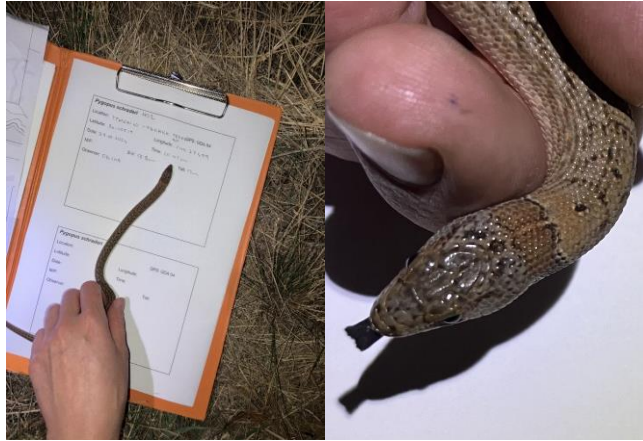
We performed spotlighting surveys at four locations with previously established monitoring transects for surveying HSF. Morphometric measurements of captured individuals were recorded (Figure 1).

Assessments of the habitat at locations where HSF were recorded and along the monitoring transects were undertaken. This data, combined with future monitoring



data, will help to refine our understanding of the habitat preferences for this species and help interpret long-term trends of these populations.

A thermal imaging camera was trialled in parallel with traditional spotlights to determine if HSF, which are cold-blooded, would provide enough of a heat signature such that it could be discerned from the background.

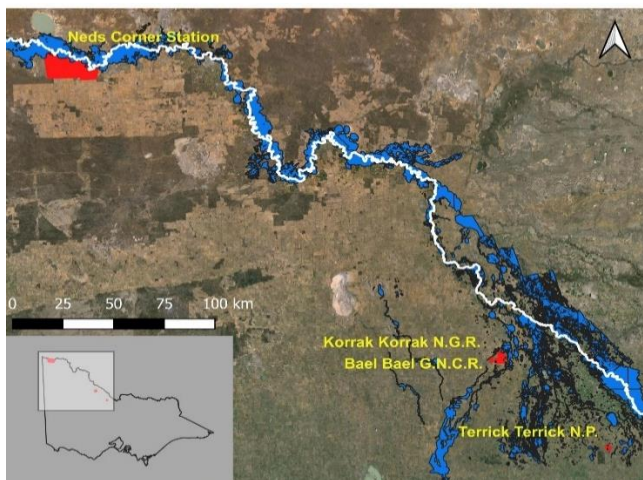


**Figure 1: Recording metrics and photographing a Hooded Scaly-foot.** Credit: Arthur Rylah Institute for Environmental Research

## Survey areas

Survey locations included Terrick Terrick National Park (TTNP), Korrak Korrak Native Grassland Reserve (KKNR) and Bael Bael Grassland Nature Conservation Reserve (BBGNCR) on the northern plains, and Neds Corner Station (NCS) in the mallee region of far northwestern Victoria (Figure 2).

The four survey locations had largely been unaffected by flood inundation but were in areas where flooding had occurred more broadly. The impacts on HSF of the rain event that had led to the flooding was unknown.



**Figure 2: The survey locations (red) in relation to the Victorian border (white) and the 2022 flood area (blue).**

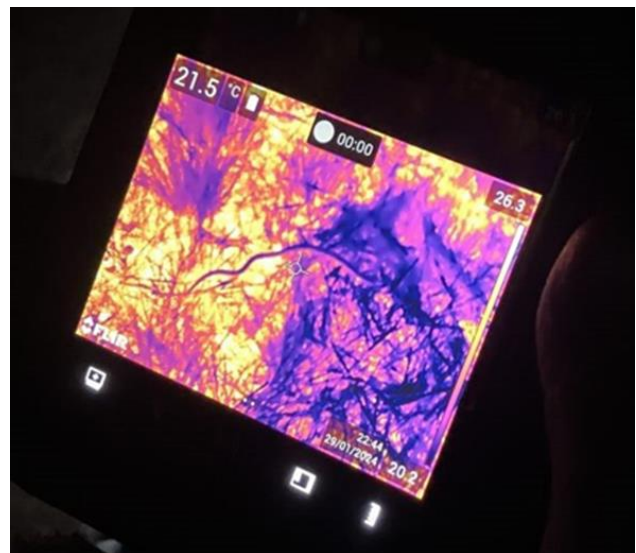
## Results

Hooded Scaly-foot were observed at TTNP and KKNR, with evidence including eggs (believed to be HSF) and a slough at NCS. No evidence of HSF was recorded from BBGNCR (Table 1), a location where HSF have been infrequently recorded previously.

**Table 1: Hooded Scaly-foot detections in the four survey locations**

Location	Number of HSF seen	Number of egg sites	Number of sloughs
Terrick Terrick NP	7	0	3
Korrak Korrak GNR	3	1	1
Bael Bael GNCR	0	0	0
Neds Corner Station	0	5	1

The use of the thermal imaging camera proved unsuccessful. While a HSF heat signature could be ascertained, it presented like that of the vegetation, with both being cooler than the ground, (Figure 3). We could only discern HSF when individuals were very close (distance of operators' feet) and their location already known. At further distances, the heat signature could not be distinguished from vegetation, making the method impractical.



**Figure 3: A Hooded Scaly-foot (centre) in the thermal imaging camera view.** Credit: Arthur Rylah Institute for Environmental Research

One hundred and seventeen habitat assessments were performed, collecting vegetation cover and height estimates, ground-layer cover estimates, soil characteristics, and estimates of weed and feral species presence. A measure of biomass was obtained for each



assessment using the Golf Ball method (right hand image on banner).

Three threatened species, (Hooded Scaly-foot, Red-chested Button Quail and Little Button Quail) were recorded as part of this study, as well as an additional fifteen species recorded during spotlighting surveys or opportunistically during the day. These included five reptile, one frog, seven mammal and five bird species.



**Figure 4: Egg, believed to be that of Hooded Scaly-foot, observed at Neds Corner Station.** Credit: Arthur Rylah Institute for Environmental Research

## Conclusions

We were able to establish that 12 months after the 2022 weather event that resulted in inundation and heavy rains across large areas of the Campaspe-Loddon and Mallee regions, HSF populations are persisting at least at three of the four study locations. We were unable to confirm the presence of HSF at Bael Bael Grassland Nature Conservation Reserve, a location where HSF have occasionally been recorded.

The presence of HSF sloughs and eggs allowed us to extend the spread of records at the locations. The observation of eggs at Neds Corner Station on the

ground surface around ant nests has not been previously reported.

The data from the habitat assessments, in addition to data collected from any future monitoring, will allow a more robust comparison of HSF habitat preferences, and contributes to a dataset that will facilitate improved monitoring of HSF population over the longer term.

This project has shown:

- Evidence of persistence of HSF on the Victorian northern plains and in the mallee region of far northwestern Victoria following the 2022 major flood and rainfall event.
- Thermal imaging was not a suitable survey method for this species.
- HSF eggs serve as another means of determining the presence of HSF.

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Banner Photos: Hooded Scaly-foot head (Geoff Brown), Performing Biomass assessment using the Golf Ball method (David Bryant)

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