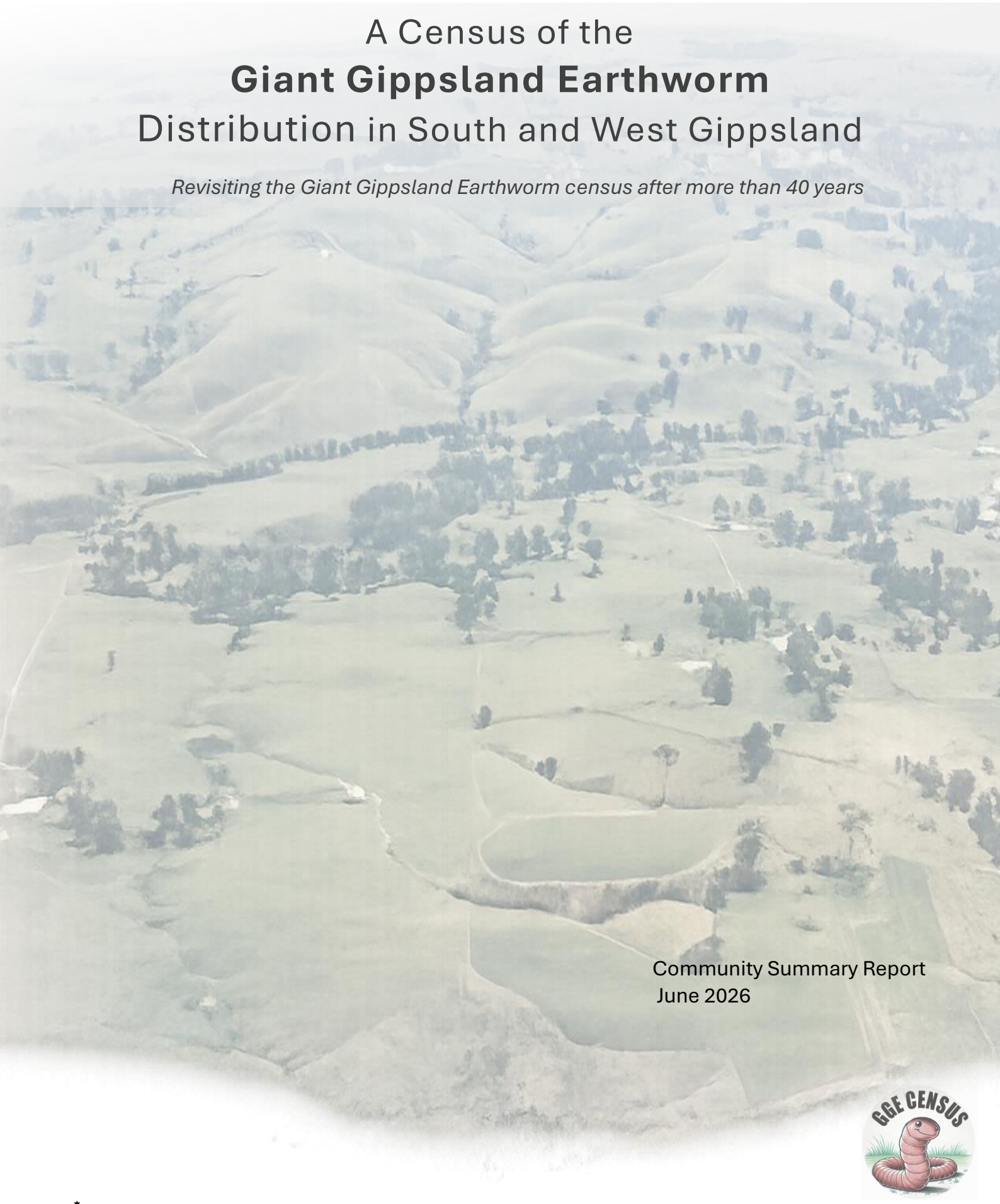
A Census of the
Giant Gippsland Earthworm
Distribution in South and West Gippsland

Revisiting the Giant Gippsland Earthworm census after more than 40 years



Community Summary Report
June 2026

Australian Government

The project received funding by the Australian Government under the Saving Native Species Program.

INTRODUCTION

A strange and remarkable animal that most people never see has quietly persisted beneath Gippsland farms for generations. Forty years after the first census, local communities, old records and modern technology came together to rediscover it and understand whether it still survives across its historic range.

In 2024, three adjoining Landcare Networks, The Gippsland Threatened Species Action Group and scientists began a two-year project titled *A Census of the Giant Gippsland Earthworm in South and West Gippsland.* The project received funding by the Australian Government under the Saving Native Species Program.

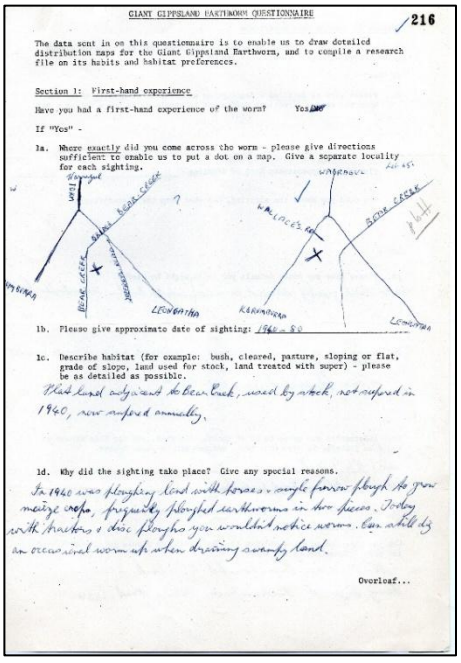
The aim of the project was to improve our understanding of the current distribution and status of the Giant Gippsland Earthworm (GGE), and to revisit records collected during the first major census undertaken by Museums Victoria more than 40 years ago. By combining historical records with new field surveys, community observations and data collected through the new GGE App, the project aimed to better understand how the species distribution may have changed over time and whether populations continue to persist across their known range.

The original 1980s census established an important baseline for GGE research in Gippsland. Four decades on, it was time to revisit many of these areas and see how the worms — and the landscapes they inhabit — are faring today.

So how do you undertake a census of a Giant Earthworm that spends almost its entire life underground and is rarely seen?

By combining historical records, local knowledge, community observations, field surveys and modern technology, the project pieced together the clearest contemporary picture yet of where the Giant Gippsland Earthworm still occurs across South and West Gippsland.

The GGE is one of the world's largest earthworms, growing to more than a metre in length, yet most people will never see one. Living deep underground in the hills and valleys of South and West Gippsland, the species is more often heard than seen, with its distinctive gurgling sounds sometimes giving away its presence beneath the soil. Because of this secretive lifestyle, undertaking a census of the species is no simple task.



GIANT GIPPSLAND EARTHWORM QUESTIONNAIRE 216

The data sent in on this questionnaire is to enable us to draw detailed distribution maps for the Giant Gippsland Earthworm, and to compile a research file on its habits and habitat preferences.

Section 1: First-hand experience

Have you had a first-hand experience of the worm? Yes/No

If "Yes" -

1a. Where exactly did you come across the worm - please give directions sufficient to enable us to put a dot on a map. Give a separate locality for each sighting.

1b. Please give approximate date of sighting: 1960 - 80

1c. Describe habitat (for example: bush, cleared, pasture, sloping or flat, grade of slope, land used for stock, land treated with super) - please be as detailed as possible.

Flat land adjacent to creek bank, used by stock, not super in 1960, now super annually.

1d. Why did the sighting take place? Give any special reasons.

In 1960 was ploughing land with horses, single furrow plough to sow maize crops, frequently ploughed earthworms in two pieces. Today with tractors & disc ploughs you would not notice worms. Can still by an occasional worm up when draining swampy land.

Overleaf...

Original 1980 Museums Victoria Questionnaire

One part of the project involved revisiting and digitising information from the original GGE census questionnaire undertaken by Museums Victoria in the 1980s. This produced 411 historic GGE records with the earliest record dating back to 1875. At the time, there were no reliable methods for precisely recording earthworm locations, so most responses were based on hand-drawn sketch maps or estimated distances from roads.

Historic property descriptions and addresses were matched, where possible, with modern property information and aerial imagery to identify locations that could potentially be revisited for field assessments. Discussions over tea and biscuits with long-time farmers and revisiting old parish maps all helped piece together the history of some sites and properties.

The project also invited landholders and the broader community to get involved through a new questionnaire hosted on the SurveyMonkey platform and the development of a purpose-built GGE Census App. More than 2,700 questionnaires were distributed across the earthworm's range, resulting in 311 responses from landholders and community members.

Using the GGE Census App

People were encouraged to report earthworm sightings, gurgling sounds, and take pictures of areas of suitable habitat on their properties. These community records, together with the historic information, helped guide targeted site visits and field surveys across the region.

A video was produced that illustrated how to find worms by looking for habitat clues such as the crayfish chimneys around creeks, springs or terraced south-facing slopes and by listening for the earthworm's distinctive gurgling sound.

The project was promoted widely through newspaper articles, Facebook posts, posters, radio interviews, and information packs sent to landholders. Presentations were also delivered to Landcare groups and at workshops.

To help engage the broader community, a GGE mascot even made an appearance at the South Gippsland Dairy Expo, encouraging people to learn more about the species, take part in the census and become an earthworm ambassador.

REVISITING THE PAST

Historic Museums Victoria data

The original Museums Victoria questionnaire, summarised in an article written by Brian Smith and Jim Peterson in 1982 and revisited in this project, provides a fascinating glimpse into how familiar the GGE once was across parts of Gippsland.

The 1980 survey recorded 411 GGE records with reports ranging from the late 1800s through to the 1980 survey year, with most dating from the 1950s and 1970s. Fifty records related to the period between the 1870s to the 1930s. Many of these were family recollections passed down through generations rather than firsthand sightings highlighting how well known the earthworm was within farming communities.

Most worms were discovered when the soil was turned during everyday farm and land management work. People commonly encountered them while ploughing paddocks, digging post holes, clearing drains in swampy flats, or carrying out bigger jobs such as dam construction, road building, and installing pipes or culverts. Others were also found after heavy rain or flooding, when they were washed from their burrows and sometimes snapped up by kookaburras. In some cases, earthquakes and landslips also exposed GGEs!

Examples from the questionaries

"Mostly when ground is being ploughed or when a post hole is sunk" "When ploughing I used to turn them up with the plough" "Picking potatoes behind a plough" "Turned them out in the furrow and noticed their size and length. Took one home to show to parents and family (1934)" During earthworks dozens were dug up-sizes over 3 metres". "When Bass River flooded the worms were driven up onto road" "Heavy rain and washed out on ground"

Forty years later, the way people encounter the GGE has changed considerably.

Searching for the Worm Again/What people are seeing today?
(SurveyMonkey Questionnaires)

By March 2026, the project had received 311 questionnaire responses, including 144 submitted online and 167 returned paper forms. Around 79 questionnaires were returned to sender with no data. Despite this relatively modest response rate, awareness of the GGE remained remarkably high, with 96% of respondents saying they had heard of the species.

The questionnaire responses showed that people continue to strongly associate the worms with the wetter parts of the landscape. Streams, creek banks, drainage lines and gullies were the most commonly identified habitats, followed by south-facing slopes. Open-text responses painted a very similar picture, with many people describing clay-rich soils, damp riparian areas, crayfish chimneys and patches of buttercup vegetation. These descriptions closely matched the habitat patterns recorded during the original 1980 questionnaire survey.

GGE habitat images submitted via the Census App

Forty years later, however, the way people encounter GGEs appears to have changed considerably. In the 1980 survey, worms were most commonly reported during ploughing, land clearing and large earthworks. Today, most recent sightings were made while people were simply walking around their properties, accounting for 61.9% of responses.

Construction works accounted for a further 30.99% of encounters, while other observations came from activities such as fishing, tree planting, gardening or watching kookaburras attempting to pull worms from the ground. In some cases, people had learned about the species through property sale documents or visits from researchers and Landcare staff.

This shift likely reflects broader changes in farming practices and land use across Gippsland. Much of the land has already been cleared and converted to pasture, while ploughing and large-scale soil disturbance are now far less common than they were decades ago.

When asked whether earthworm numbers had changed over time, most respondents (59.4%) said they were unsure. Twenty-two per cent felt things had stayed much the same, while 14% thought numbers had declined and 5% believed they had increased. Overall, while some landholders sensed a local decline, many did not feel they had enough information to judge changes over time with confidence.

The GGE Census App also contributed valuable new information, with 83 records submitted through the platform. Although participation in the app was lower than expected given the number of questionnaires distributed, the records collected were high quality and included some excellent photographs of GGE habitat. Importantly, the app has greatly improved the spatial accuracy of modern earthworm records compared with many of the historic observations collected during the original census.

GGE RECORDS AND NEW INFORMATION

The project added 212 new GGE records including 83 through the GGE App, 126 from SurveyMonkey responses, and three from site visits.

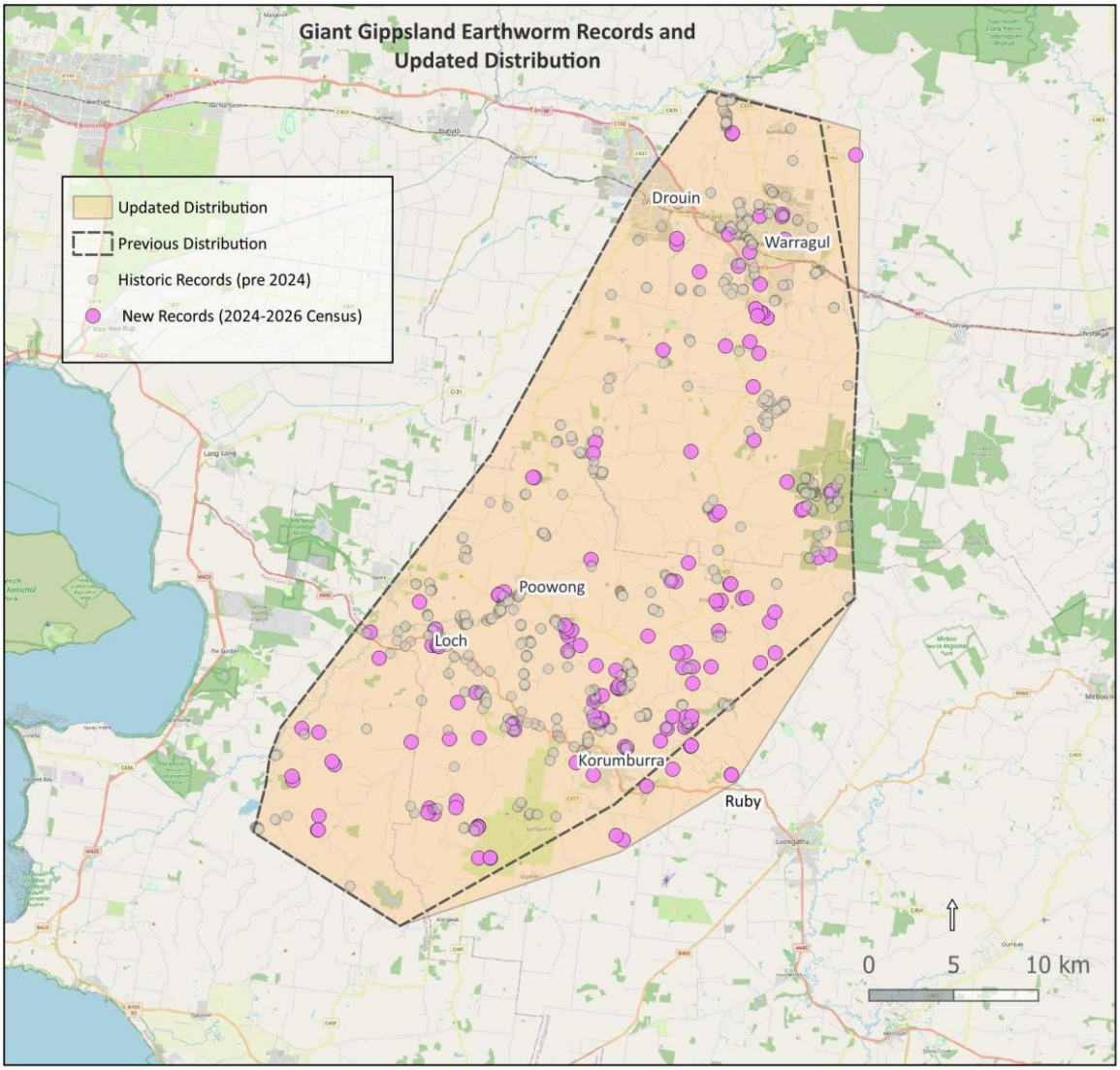
Most new records came from within the worm's known core range, especially through the Warragul–Drouin corridor and south towards Korumburra, Loch and Nyora. While the new records do not dramatically change the overall picture of the species' distribution, they do add important detail by filling in gaps and refining the boundaries of the range.

A small number of records sit just beyond the previously mapped range, although these occur at the margins of the known range rather than appearing as isolated outliers. Of particular interest are records east of Korumburra in the Ruby area, suggesting the distribution extends a little further than previously mapped. The area between Korumburra and Ruby now warrants further investigation.

Overall, the findings confirm that the GGE distribution remains patchy, surviving in scattered pockets of suitable habitat rather than across one continuous range.

While some historic localities continue to support populations, other areas have been heavily modified through agriculture, drainage works and urban development, particularly around the expanding urban corridors near Warragul and Drouin.

Even so, the census findings confirm that the GGE continues to persist across much of its recognised core range, including some areas where populations were first recorded many decades ago.



The revised mapping confirms the species remains concentrated within its known core range, while several new records east of Korumburra suggest the distribution extends slightly further east than previously mapped.

PERSISTENCE AND LOSS

Although the census confirmed that GGE continue to persist across much of their known range, there is also evidence that some colonies may have been lost over time.

The historic questionnaire responses suggest that many worms were once encountered during the early cultivation of the land, particularly during ploughing, drainage works and large-scale earthworks. Some landholders described worms "looking like ribbons or spaghetti on the tynes of ploughs", while others recalled large numbers being uncovered during dam construction, road building and the draining of swampy paddocks.

These observations suggest that substantial numbers of earthworms may have been impacted during the widespread clearing, cultivation and drainage of Gippsland's agricultural landscapes throughout the late 19th and early 20th centuries. It remains unclear how other factors, such as fertiliser application may have affected the species over time. More recent losses are also likely to have occurred through urban expansion around Warragul and Drouin, and to a lesser extent, Korumburra.

The project also revisited 37 roadside sites first surveyed during research undertaken in 1990. These sites were reassessed during 2025–2026 to determine whether the earthworms were still present.

Live colonies were confirmed at seven sites while another three showed signs of possible persistence (e.g. burrows and castings), although active populations could not be confirmed. Six additional sites retained some elements of potential habitat but showed no direct evidence of the worms.

Many of the remaining sites appeared to have been substantially modified since they were first surveyed. Common changes included drier or more compacted soils, altered drainage patterns, weed invasion, roadworks and other forms of disturbance. Based on current observations, many of these roadside locations (approximately 27) are unlikely to still support active colonies, suggesting localised losses from some previously occupied sites.

While roadsides can still provide pockets of suitable habitat, they are also especially vulnerable to disturbance. Even so, one roadside near Poowong has continued to support an active colony first recorded almost 100 years ago — a remarkable sign of persistence.

CHALLENGES IN COMMUNITY PARTICIPATION

Although the census was widely promoted, fewer people took part than expected. Awareness of the species remains remarkably high, with 97% of respondents saying they knew of the species, yet only 11% of landholders responded to the questionnaires. This represents a notable change from the original 1980s census where over 20% of landholders responded (600) with around 83% openly reported GGE on their properties, forty years later that had fallen to less than half (41%).

Early survey responses often included generous personal observations, sometimes adding extra notes about worms on their own land and nearby farms. In contrast, responses during the current census were generally more cautious, with many landholders choosing not to participate or reluctant to report worms on their properties.

Some people expressed concern that reporting worms could lead to restrictions on land use, affect land values or attract unwanted attention. Others — especially older farmers — found the app and online survey difficult to use.

Discussions with respected local Landcare leaders highlighted several recurring themes, including concern about government and council overreach, resistance to being told how land should be managed, and a lack of trust in authorities where conservation priorities were perceived to outweigh farmers' needs.

Throughout the project, the team consistently reassured landholders that the census was independent of local government and was not linked to the Environmental Significance Overlay (ESO) or any new planning restrictions on land use. All information shared through the project was kept confidential. Even so, these assurances did not fully ease community concerns.

These findings highlight the importance of trust in community-based data collection. Because most GGE populations occur on private land, voluntary participation is essential to building a clearer picture of the worms' biology, distribution and long-term persistence.

There was also concern among some landholders that low participation rates or the deliberate withholding of records could be misinterpreted as evidence that the GGE had declined more substantially than was actually the case, rather than reflecting a reluctance to participate. This, in turn, was perceived as potentially contributing to an increased threat classification or the introduction of additional regulatory restrictions affecting landholders and farming activities.

A common misunderstanding identified during the project was the perception that the Environmental Significance Overlay (ESO) maps represent confirmed GGE habitat. In reality, the overlay identifies areas of potential habitat where the species may occur and where impacts should be considered during the planning process. Because the ESO often includes a buffer of approximately 30 m around waterways and drainage lines, it may extend into adjacent areas such as ridges and upper slopes where GGE are unlikely to occur. However, in the absence of a reliable method for accurately mapping all occupied habitat, the ESO remains the most effective planning tool currently available for identifying areas where the species may potentially occur and where development activities may require further assessment.

One recommendation arising from this project is the development of an updated habitat model to improve the accuracy of the ESO and better reflect the currently understood distribution of the GGE.

WHERE TO FROM HERE?

Although the census has added important new information about the GGE, it has also highlighted how much there is still to learn about this remarkable species and the landscapes it inhabits.

The findings suggest that the GGE continues to persist across much of its recognised core range, often surviving in scattered pockets of suitable habitat that may have remained occupied for many decades. At the same time, the project points to likely localised losses associated with historical land clearing, drainage works, changing land use and urban development.

The project also demonstrated the value of combining historical records, local knowledge and modern technology to better understand changes in species distribution over time. Old family recollections, historic maps, community observations and records submitted through the GGE Census App all contributed to building the most detailed contemporary picture of the species to date.

The project was also undertaken during a period of very dry conditions, which may have reduced the detectability of some populations. Ongoing data collection will help correlate population information with changes in climatic conditions.

Because most GGEs occur on private land, future understanding of the species will continue to rely on landholders and the broader community sharing observations and helping document where populations still occur. The GGE Census App will remain available, and people are encouraged to continue recording sightings, gurgling sounds and areas of potential habitat.

The project team would like to sincerely thank all landholders, community members, Landcare groups and volunteers who contributed information, shared stories, completed questionnaires or assisted with field surveys throughout the project.

Every report, recollection and observation helps to build a better understanding of one of Gippsland's most remarkable and unusual animals.

Project Partners

Gippsland Threatened Species Action Group,

Bass Coast Landcare Network,

South Gippsland Landcare Network,

Latrobe Catchment Landcare Network,

Oates Environmental Consulting

Invert-Eco Terrestrial Invertebrate Consulting and

Ro Marks Consulting

Author: B Van Praagh in collaboration with project partners. 5 June 2026

ACKNOWLEDGEMENTS

Aviato Consulting Pty Ltd. developed the GGE Census App, providing an effective tool for recording accurate locality information.

Extended thanks go to Matt Killin, Emily Crick and John Hick from Invert-Eco for assistance with field surveys and data collection. David Sutton and Amaryll Perlesz from the Threatened Species Action Group provided ongoing support throughout the project. VP-IT for provided IT support and website updates throughout the project.

We sincerely thank participating landholders and land managers for contributing records, questionnaire responses and historical property information.