Crayfish And Poo Ponds - An Unexpected Alliance

The Warragul Burrowing Crayfish (WBC) - a small, pale burrowing crayfish with tiny eyes and a hairy head - may seem rather inconsequential. However, this modest crayfish takes the title of being one of the most threatened of all our Australian burrowing crayfish and is listed as Critically Endangered.

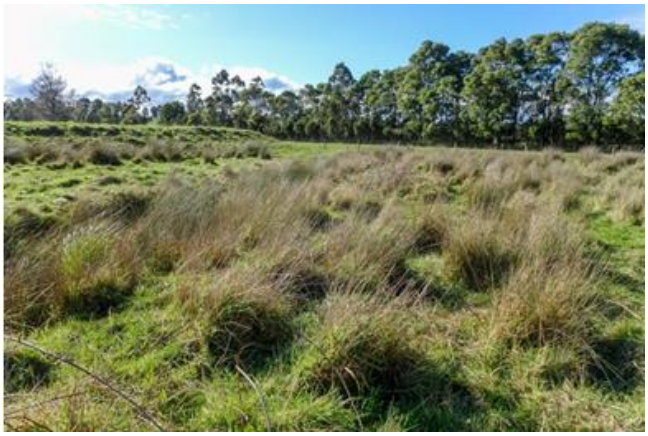
These crayfish were likely widespread from Warragul through to Labertouche, but massive changes to the wetlands and hydrology associated with agriculture and urban development has reduced their available habitat to less than 20 sq km in west Gippsland.

Yet, as recently discovered, they can live in some of the most unexpected places. One of these is Gippsland Water's Warragul Wastewater Treatment Plant (WWTP) or Poo Ponds! The presence of the treatment plant may have unintended positive consequences for this threatened species by providing a protected wetland refuge in a landscape that has been vastly altered over the last 200 years.

In June 2021, Dr Beverley Van Praagh visited the WWTP in search of Warragul Burrowing Crayfish as part of the Landscape-scale conservation of threatened invertebrates of the Western Strzelecki's project, funded by the State Government.

One way to identify the presence of the WBC is through their unique and intricate chimneys. The WBC's talent as soil architects is evident only in the wetter months when they build mud chimneys made up of almost perfectly spherical balls around their burrow entrances.

The visit turned out to be a roaring success. After a day searching for the distinctive chimneys, crayfish were found to be widespread at the site. Over 350 chimneys were counted, making it one of the largest populations of WBC recorded!



Poo Pond Facts

Location - Outer east of Warragul township

Size - 20 ha

Site Character - 60% is occupied by wastewater treatment plant and lagoons. The land surrounding the site is low-lying pasture and waterways.

History - The plant has been in operation since the 1940s as a combination of both mechanical and lagoon-based treatment systems. It currently operates with the mechanical plant doing most of the work and two lagoons used for sludge storage and wastewater balancing during high rainfall periods.

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Gippsland Water

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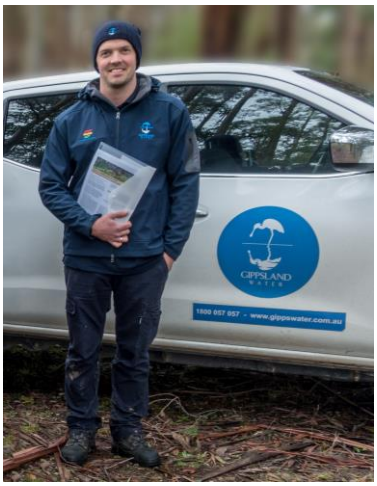
Dr Van Praagh interviewed Shannon Dwyer, a Senior Environmental Scientist with Gippsland Water.



Why did Gippsland Water want to be involved in this project?

Gippsland Water has a long-established environmental management program that goes beyond compliance for its water and wastewater activities. As a significant landowner in central and west Gippsland, we recognise we have a responsibility to contribute to the conservation of our environment.

We saw this project as a fantastic opportunity to work with other partners in the region to find and conserve some of the rarest, threatened, and cryptic fauna on earth.

Was it a surprise to learn that the WWTP has one of the largest colonies of WBC recorded?

Yes, this was absolutely a surprise. We had thought that the WWTP was a good potential site based on its proximity to known populations of the WBC and its topography. However, the historical clearing of its cover of native vegetation and current use as an operational site was thought to be a limiting factor for the species persisting there. What made it more surprising was that a previous search of the site (during drier times) had failed to find the species. This experience was a testament to how cryptic and unpredictable this species can be.

It's a source of real pride at Gippsland Water that one of the largest known colonies of WBC could be found at a fully operational site in one of the fastest growing areas of Gippsland.

How will you manage the site for WBC to make sure they continue to thrive?

Prior to identification of the species at the site, some conservation improvements (including weed control and revegetation) around the riparian area of Hazel Creek had commenced. Now that we know the WBC is present on site, we are working with Gippsland Regional Agribusiness (Gippsland Water's farming business) to ensure that farming activities around the lagoons have a minimal impact on the habitat for WBC - particularly during the winter months. This includes moving cattle to higher ground during winter and ensuring stock numbers are appropriate for the conditions at the site.

Understanding where the WBCs are found on site also allows us to conduct our wastewater operations around the habitat and prevent accidental impacts to a species that we previously didn't know was there.

The importance of the relationship between bird diversity and sewerage plants is well known. But Gippsland Water's Poo Ponds proved to be a windfall for a very different kind of threatened species.

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Unlike yabbies, burrowing crayfish are terrestrial. Even though they build their burrows on land, they are still dependent on water.

Research from around Australia is indicating that settlement ponds of wastewater treatment plants are providing vital aquatic habitats in areas where natural wetlands have been drained to make way for farming and human settlements.

The WWTP is providing a home for WBC in a landscape that is now used extensively for agriculture and faces continued change from urban expansion. By gently grazing the land and never allowing soils to dry out, the WWTP has created conditions that mimic the floodplain environment in which WBC naturally occurs.

With the management of the site for the conservation of WBC now a priority for Gippsland Water, the WWTP will continue to provide a sanctuary for this species.

It is an unexpected alliance worth preserving.

This project has been funded by the Victorian Government's Biodiversity Response Planning program and is helping to ensure that Victoria's natural environment is healthy, valued and actively cared for.