

Western Australia's Wheatbelt region is a vast area, well known for its geological structures and diverse floral assemblages. This year's winter rains led to strong spring floral growth, which is expected to continue into summer. However, the Wheatbelt's terrestrial diversity has been impacted by long-term agriculture. While nature reserves are caches of native and endemic terrestrial biota, the area surrounding the reserve islands is usually highly modified. This presents a challenge for animals that evolved in a markedly different habitat – with larger trees and denser understorey – that would have existed before mass agriculture. Native land snails are one such group of invertebrates that have been adversely affected.

Bothriembryon is a genus of large-bodied (up to five centimetres) native terrestrial snails found in the southern half of mainland Australia. The majority of the 37 currently recognised species are limited to the wetter areas of south-west WA. Members of the genus are commonly found near the coast but can also be found inland among woodlands or on rocky areas. They also persist deep into the Wheatbelt, where they inhabit numerous reserves. Five described species are currently known from the Wheatbelt region (*Bothriembryon bulla*, *B. kendricki*, *B. perobesus*, *B. praecelesus* and *B. sedgwicki*). The latter three species are now largely relegated to a patchwork of nature reserves, some of which have also been grazed or were disturbed prior to being gazetted.

A team of scientists at the WA Museum, in concert with international partners, has been working to understand the relationship among species of *Bothriembryon* using a molecular phylogenetic approach. This work is necessary to help to identify the true number of distinct lineages in the genus. To construct this phylogeny we have relied on existing collections in the WA Museum. However, not all species had appropriate vouchers for this work, so new fieldwork was necessary to recollect key species.



Wheatbelt *Bothriembryon*

Unsurprisingly, some of the species that were the most difficult to find, were rare and endangered. Of those species known to occur in the Wheatbelt, two species (*B. perobesus* and *B. praecelesus*) are of special conservation significance.

During our searches in the Wheatbelt over the past five years, we were fortunate to locate a number of juvenile specimens that could be *B. praecelesus*. This species is listed as presumed extinct and has never been observed live, so it could be an incredibly significant find. Unfortunately, adults are required for conclusive identification, so we are still on the lookout for mature specimens. During the course of our sampling, we visited some new sites across the Wheatbelt. One of these sites was among the giant granite outcrops south of Kellerberrin. Although we did not find *B. praecelesus* there, it seems that we may have discovered something new. While these early results are promising, all of these discoveries require careful study, proper comparisons and a lot of consideration before a new species can be described or a conservation listing updated. However, time may be running

Above Granite outcrop snail from a reserve in the Wheatbelt.

Photo – Lisa Kirkendale

out, especially given that on our most recent trip to Kellerberrin and surrounds we came up empty handed – even after good rains! This complete absence of *Bothriembryon*, with no sign of even long-dead shells, is concerning.

So while the Wheatbelt region continues to display spectacular wildflowers each year, it also comprises vast areas of highly modified landscape and this presents challenges when we're trying to protect our native biota. But we can all play a role, and we ask everyone to keep a look out for *Bothriembryon* land snails, dead (shells) or alive (crawling)! You never know whether your find might help with a much-needed identification or even provide a species new to science.

For more information or to report possible sightings, please email lisa.kirkendale@museum.wa.gov.au or corey.whisson@museum.wa.gov.au