



THE PLATYPUS, REVEALED

By Hilary Van Leeuwen

Over the past year, the Great Australian Platypus Search (GAPS) has captured the attention of a wealth of conservationists, ecologists, students, and passionate nature lovers eager to volunteer their time to help save one of Australia's most iconic and distinctive species. In 2021, the Odonata Foundation launched the GAPS in response to the up-listing of the conservation status of the platypus to 'vulnerable'. Using environmental DNA (eDNA) technology, this world-first project gathered samples from nearly 2,000 locations on rivers, creeks and streams across Victoria, producing spatial data on platypuses and all wildlife populations to a scale that has never before been achieved.

Environment Education Victoria, the Victorian Government, Waterwatch, World Wide Fund for Nature Australia, the Ross Trust, Capricorn Foundation, and many more generous philanthropists provided support and funding for the project, enabling it to be rolled out across

Victoria during the 2021 platypus breeding season (August-November). Gathering data from so many sampling sites in such a short period presented an initial challenge to Odonata, so over 500 citizen scientists from across the state were engaged to collect the data. Guided by Environment Education Victoria (EEV), over 30 Victorian schools took part in the Great Australian Platypus Search, collecting eDNA samples from waterways near their school to better understand one of Australia's most elusive species.

While it is a reasonably new technology in terms of ecological research, eDNA is very simple to collect and use, and produces incredibly accurate results. For the GAPS, citizen scientists collected samples from Victorian waterways, passing water through special filters that captured eDNA that had been "shed" by platypuses and other animals. These samples were then sent back to project partner, EnviroDNA, to be analysed in their lab.

Scientists tested the samples for platypus and other wildlife eDNA and determined whether each sample tested positive or negative for platypus presence. All samples were submitted by December 2021, and while students patiently waited for results, many also participated in EEV's GAPS Poetry Competition. In early 2022, 152 poems were submitted by classes and individual students from across Victoria, with seven winners chosen across five categories.

Thanks to the research and data collected through the GAPS, ecologists have been able to deduce that platypuses are widely distributed throughout Victoria, with more extensive populations in the eastern regions compared to the drier and more modified northern and western areas of the state, where populations appear much more restricted and fragmented. We have never had access to such a comprehensive dataset on platypus distribution, though much of this new data aligns with what ecologists had predicted. A few noteworthy results have piqued the interests of scientists and the broader GAPS team, with further research being planned. A positive detection at one site on the Portland Coast is of significant interest as there are minimal records of platypuses in this river system and none for more than 15 years. Several other notable detections recorded where platypuses are not expected to occur warrant further investigation, including Tidal River on Wilson's Promontory, Forge Creek near Paynesville, and Wimmera River near Crowlands, where platypuses are thought to have disappeared.

Critically, this data has filled valuable gaps in current knowledge of the status of platypuses across the state, thereby helping to confirm their conservation status in each of Victoria's major river basins, including many areas where no recent data existed, such as East Gippsland.

Understanding where platypuses were not detected is just as important as knowing where they were, as this demonstrates the areas, conditions, and habitats they favour and those they avoid. These findings, and the new-found knowledge that they offer, have not been seen on a scale like this before. They will allow for more informed conservation actions to be made by natural resource managers and policymakers to further support platypus populations in Victoria.



***Top:** water sampling at a Victorian river site to collect environmental DNA from riparian vertebrates, including the illusive platypus. **Above:** father and child walking to collect water samples from their local river. **Photography:** Odonata*

Plans are being put in place for a similar national-scale wildlife search (the Great Australian Wildlife Search) led by Odonata again. For more information on how you can get involved in the next search, or to donate to the project, please visit thegreataustralianwildlifesearch.org

To view results from the 2021 Great Australian Platypus Search, visit the project website www.thegreataustralianplatypussearch.org/