Tullaroop Catchment Restoration Project

Platypus and River Blackfish eDNA

North Central CMA

About the project

The overarching aim of the Tullaroop Catchment Restoration Project is to **create a healthy, continuous riparian corridor along Birch's and Tullaroop Creeks**. This will improve populations of regionally important species such as river blackfish and platypus, and improve water quality in Tullaroop Reservoir, Maryborough's drinking water supply.

The project will also provide significant cultural benefits, engage local communities, and promote citizen science activities, such as eDNA and Waterwatch monitoring.

The project is based on recommendations in the comprehensive Tullaroop Integrated Catchment Management Plan (ICMP) developed in 2021 by Natural Decisions and Dja Dja Wurrung Clans Aboriginal Corporation. The Plan was commissioned by North Central CMA and Central Highlands Water, with input received from other key stakeholder organisations, community groups and local community members. Key recommendations in the ICMP include fencing along creeks to prevent stock access and protect banks, removal of high threat weed species, revegetating banks with native plants to improve habitat values, bank stability and water quality, as well as preserving and enhancing cultural values.

North Central CMA Project Manager Angela Gladman sampling eDNA in Birch's Creek

eDNA sampling methodology

All animals naturally 'shed' genetic material in the form of skin cells, hair or faeces in the environment. In aquatic environments, this genetic material/DNA readily disperses in water and flows throughout local rivers, creeks and wetlands. Environmental DNA (eDNA) sampling involves collecting water samples from waterways, then analysing the samples in a laboratory to identify the variety of DNA present in the sample, and therefore, the species that are present in our waterways.

DDW project officer, Kayla, collecting an eDNA water sample from Tullaroop Creek.

eDNA sampling is a simple, cost-effective, accurate and non-invasive method of confirming the presence of a species, compared to traditional capture and release methods, and can detect cryptic species or those species that occur in low abundances.

The sampling methodology reduces the need for high-risk activities such as entering a waterway, is simple to do (water samples are collected from the bank then squeezed through filter paper, the eDNA is deposited on the filter paper and sent to a laboratory for testing), and therefore an excellent way to engage citizen scientists.

About the target species

Platypus

Platypus (*Ornithorhynchus anatinus*) are semi-aquatic mammals endemic to eastern Australia. Platypus have recently been listed as Vulnerable in Victoria due to loss of quality habitat. Loss of habitat can be attributed to river regulation, native vegetation clearing, poor water quality, eroded banks exacerbated by stock access, and infestation of highly invasive species, including Willow.

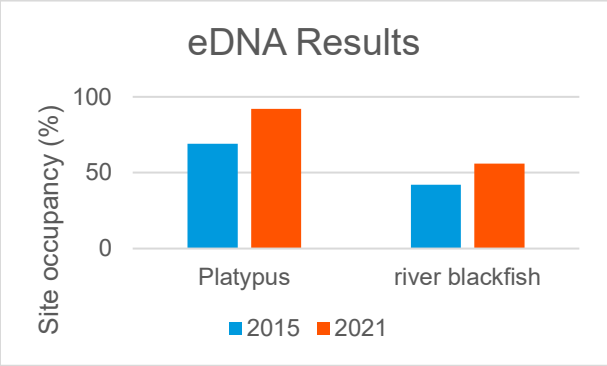
River blackfish

Once common throughout most of Victoria, river blackfish (Gadopsis marmoratus) populations have declined over the last few decades, with many areas now only holding remnant populations. The species prefers clear, gently flowing streams with good instream cover such as large woody habitat, aquatic vegetation or boulders. However, they can be found in a diverse range of streams, from upland and lowland small creeks to large rivers. Blackfish are impacted by siltation, loss of fringing vegetation, de-snagging, bank instability, predation/competition from introduced species, as well as altered flow regime and poor water quality.

eDNA results

Replicate eDNA sampling was undertaken at 25 sites across Tullaroop Creek (2), Birch's Creek (21) and Creswick Creek (2) in 2015/16 and again in late 2021 to determine if populations of platypus and river blackfish had changed in the project area as a result of extensive creek rehabilitation works delivered by the North Central CMA in partnership with private landholders and public land managers.

Excitingly, the results from 2021 sampling have shown that site occupancy has increased for both species in the six-years between the surveys. In 2015/16 platypus were detected at 69% of the sites sampled. In 2021, this increased to 92% of sites returning a positive result. In 2015/16, river blackfish were detected at 42% of sites, and in 2021 this increased to 56%.



During 2015/16 surveys, neither platypus nor river blackfish were recorded in Creswick or Tullaroop creeks, however in 2021 surveys they were.

This is great news for two regionally important species and demonstrates the benefits of river restoration works including stock-proof fencing, willow and woody weed removal, and revegetation with native plants, actions which will continue to be delivered through Victorian Government and partner agency investment into the Tullaroop Catchment Restoration project, guided by the Tullaroop Integrated Catchment Management Plan.

For more information on the project or eDNA, please visit:

North Central CMA: www.nccma.vic.gov.au
EnviroDNA; www.envirodna.com

Platypus – Photo courtesy of Healesville Sanctuary

Dja Dja Wurrung Clans Aboriginal Corporation

Goulburn-Murray WATER

CENTRAL HIGHLANDS WATER

For more information

Telephone 03 5448 7124 or visit www.nccma.vic.gov.au