

Ripples is the quarterly newsletter of the Australian Platypus Conservancy. It provides updates on research in progress and other APC news. Members of *Friends of the Platypus* automatically receive each edition of *Ripples*.

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Newsletter of the AUSTRALIAN PLATYPUS CONSERVANCY

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IS THE PLATYPUS AN ENDANGERED SPECIES?

The Australian federal government and state wildlife agencies in Queensland, New South Wales, Victoria and Tasmania all effectively classify the platypus as "common", implying that no direct conservation measures are warranted on behalf of the species.

In contrast, at the concluding session of the National Symposium on Platypus Biology held in November 1996, the following resolution was endorsed by a forum of Australia's leading platypus specialists:

"Although the status of the platypus is relatively secure in some areas, it is clear from the Symposium that the platypus is declining, and in some situations disappearing, from some areas of its current range, particularly in agricultural and urban landscapes.

The differing perceptions of government officials and scientists regarding the status of the platypus may partly reflect the fact that, until recently, most platypus live-trapping work has typically (and very understandably) tended to focus on waterways where the animals are expected to be at least reasonably abundant.

Over the past five years, the APC has been working hard to find out how many platypus survive in waterways that have been markedly altered by human activities. For example, a major Conservancy research program is studying the animals in the Wimmera River catchment, a major wool producing region of western Victoria.

Landowners in this area report that platypus began noticeably disappearing in the 1970's, apparently in response to progressive deterioration in the quality of freshwater habitats.

The results of setting nets to survey platypus over about 150 kilometres of waterway have confirmed that the animals are absent or found at very low density through much of the catchment. At best, it appears that the entire Wimmera system (which drains nearly 10% of Victoria's total land area) currently supports no more than 200 platypus.

The Wimmera study has highlighted the tenuous position of the platypus in one agricultural catchment. Unfortunately, there is good reason to believe that this pattern of decline has been repeated in many other rural areas across the range of the species.

Similarly, while the positive outcome of surveys undertaken over the past five years around Melbourne is that platypus have been found in about half the city's waterways, the bad news is that the animals are gone from the other half. Moreover, there are far fewer animals living along most of Melbourne's streams as compared to when the city was founded about 160 years ago.

To protect platypus populations adequately throughout their range it makes sense to initiate appropriate conservation actions now, rather than waiting until this freshwater icon becomes locally endangered through neglect.

In this context, the following statement from the web site of Environment Australia, the leading federal wildlife conservation agency, is even more germane:

In recent years we have learned a lot about the Platypus. However, we need to know much more if we are to make sure that this remarkable creature survives.

NEW WETLAND WELCOMES THE PLATYPUS

The platypus will potentially use many different kinds of artificial water bodies: reservoirs, flood retention basins, ornamental ponds, recreational lakes and farm dams. However, manmade wetlands are rarely designed from the outset to be platypus-friendly . A recent project in Melbourne's eastern suburbs has set out to address this omission.

Olinda Creek, a tributary of the Yarra River, arises on the forested slopes of the Dandenong Ranges and flows about 20 kilometres through Melbourne's urban fringe before reaching the township of Lilydale. Surveys undertaken by the Australian Platypus Conservancy since 1996 have demonstrated that this waterway supports a sizeable platypus population, with 28 individuals (including 12 juveniles) marked to date. Most of these animals have been encountered in the relatively undisturbed upper reaches of the creek, with numbers declining downstream. Unless action is taken to improve the quality of freshwater habitats around Lilydale, there is a real risk that the platypus population in upper Olinda Creek will become isolated from the main Yarra population and cease to be viable over the longer term.

In early 1999, Melbourne Water carried out stream improvement works along a 700-metre section of Olinda Creek, at a site located about 2 kilometres upstream of Lilydale. The project aimed to reduce the risk of local flooding by removing willows and creating a system of flood retention ponds to divert and store surplus storm water. Given the desirability of creating additional platypus feeding habitat in this section of creek, the new wetlands system was also designed to encourage the animals to use the ponds even during times of low flow.

A secure route back and forth from the creek to the flood retention system was provided in the form of a special underground concrete pipe. Platypus are known to travel through pipes as long as the diameter is not too small nor the length too excessive. Accordingly, a large diameter pipe has been installed, with an open grate included about midway along its length so that a platypus can breathe even if the pipe is completely filled by water. As well, outflows from the new pond system terminate in relatively shallow rocky slopes rather than steep vertical drop structures, again improving platypus access.

The wetland ponds themselves have been specially contoured to provide sections of relatively steep but stable banks where platypus can build burrows. These areas are being densely

planted to reduce potential disturbance by humans and predators such as foxes and wandering dogs and cats. Vegetation which overhangs the water's edge is being encouraged to help hide platypus burrow entrances. To provide additional protected space and extra edge habitat for platypus use, several small islands have been built in the ponds. In addition, some of the natural creek channel has been deepened and a series of shallow rock chutes or riffles constructed. These changes will both help to moderate post-storm flows and increase the diversity of freshwater habitats along Olinda Creek.

Conservancy researchers monitored platypus movements and use of burrows during the construction phase, so contractors could be alerted if an animal was found sleeping in the immediate vicinity of heavy equipment. By generating new information on the effects of construction on platypus behaviour, the radio-tracking work has also provided useful feedback on how best to implement future capital works programs affecting the stream zone.

In brief, platypus remained resident in the general vicinity of construction activities, gradually shifting their feeding patterns to accommodate the progress of the works. Only one burrow (unoccupied at the time) of the seven used by radio-tagged platypus in the works area was destroyed in the course of the project. By continuing to monitor the Olinda Creek platypus population, it will be possible to determine whether the number of animals living in the vicinity of the flood retention ponds increases as predicted, and if so, by how much. Meanwhile, this project has already demonstrated that new wetlands can easily be made both accessible and appropriate for use by platypus in the wild.

TRACKING DOWN TRYPS

Trypanosomes are tiny protozoan parasites found in the blood of all classes of vertebrates, including mammals, birds, reptiles, amphibians and fish.

In Australia, trypanosomes have been identified in native rodents, bats, bandicoots, wombats and kangaroos. A type of trypanosome, known to scientists as *Trypanosoma binneyi*, has also been described from the platypus.

Little is known about the life cycle or other biological characteristics of *T. binneyi*, apart from the fact that it has been recorded both in Tasmania and on the Australian mainland. While there is no evidence to suggest that a platypus is normally harmed by being infected with trypanosomes, it is possible that this situation may change if an animal is undernourished or becomes stressed, for example due to aggressive behavioural interactions during the breeding season.

As far as humans are concerned, the good news is that there is almost no possibility that people can become infected with platypus trypanosomes. In part, this reflects the fact that trypanosomes are spread from one individual to another by blood-sucking leeches, ticks or biting insects. Only one such species is commonly associated with the platypus, the platypus tick *Ixodes ornithorhynchi*, which fortunately does not regard human blood as being tasty (or even slightly edible).

To learn more about platypus trypanosomes, the Australian Platypus Conservancy has been undertaking a collaborative study since 1995 with Melbourne veterinarian Dr Ted Donelan and staff of the Central Veterinary Diagnostic Laboratory.

To determine if a platypus is infected by trypanosomes, a small sample of blood is collected after lightly anaesthetising the animal with isoflurane - a very safe compound which is also

commonly used in hospitals to anaesthetise humans. A thin blood smear is prepared on a glass microscope slide and examined by an experienced veterinary pathologist for the presence of the parasites. Trypanosomes are recognised among blood cells as slender, crescent-shaped bodies with a wavy edge and short, whip-like tail.

Did You Know That....

Because platypus are predators near the top of the food chain and require large amounts of food to survive (up to about 30% of a given animal's body weight each day), it is believed that their numbers are most often limited by the availability of food in the form of aquatic invertebrates - shrimps, yabbies, horsehair worms, and insects such as diving beetles, mayflies and caddis flies.