Ripples is the quartlerly 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.*

Ripples

Newsletter of the *AUSTRALIAN PLATYPUS CONSERVANCY*

Issue 17 Winter 2000

PLATYPUS PREFER GUM TREES

Radio-tracking studies undertaken in 1998 by APC researchers in Melbourne's southeastern suburbs (funded as part of Melbourne Water's Urban Platypus program) indicated that platypus tend to avoid using stream segments dominated by willows, at least in summer.

These findings have now been confirmed by a study of how habitat attributes affect platypus feeding behaviour along Running Creek, a small stream located in the upper Diamond Creek catchment, northeast of the Melbourne city centre.

After monitoring the nocturnal movements of five radio-tagged platypus in late summer and early autumn, APC biologists determined that platypus activity was negatively related to the number of willows found on the banks. Conversely, platypus activity was positively related to the number of native trees (gum trees and wattles) growing along the channel.

Each 25-metre section of waterway in the part of Running Creek used by radio-tagged platypus supported on average 11 medium-to-large trees growing within 8 metres of the water, of which 82% were eucalypts or wattles and 8% were willows. By comparison, the same amount of bank in the area *not* used by platypus supported on average fewer than 5 medium-to-large trees, of which only 21% were native trees and 70% were willows.

Differences in water quality were also apparent when a site dominated by gum trees was compared with a site dominated by willows. Notably, only about one-quarter as much oxygen was dissolved on average in the water under willows as compared to that under eucalypts-a level low enough to stress many aquatic insects (which in turn comprise the main platypus food supply).

Similarly, research in Tasmania has found that streamside willows are associated with very low dissolved oxygen levels in summer, possibly due to high rates of bacterial growth within the dense root mats which typically invade the channel under these trees.

The very tough, fibrous nature of willow root mats are also likely to physically impede the efforts of any platypus interested in sampling invertebrates at sites where willows are abundant.

The significant negative relationship between platypus feeding activity and willows along Running Creek suggests that the size of the local platypus population may well increase if sizeable tracts of willow are progressively replaced by native vegetation.

Happily, as part of an ambitious catchment rehabilitation program for Diamond Creek and its tributaries, planning is now well underway for a series of stream improvement works to be undertaken along Running Creek.

The works-to be carried out by Melbourne Water in co-operation with local landowners and Landcare groups-will include removing willows, fencing stream banks to control access by livestock, and replanting the stream corridor with appropriate indigenous trees and understorey species.

Incorporating reliable information on platypus ecology into these and related work programs will help to ensure that they are as platypus-friendly as possible. As well, collecting benchmark ecological data *before* works are undertaken should make it

possible to assess the actual contribution made by rehabilitation protocols to improving the health of aquatic wildlife habitats.

BARWON PLATYPUS STUDY

A Conservancy research program in the Wimmera River catchment has shown that platypus currently reside along a relatively small proportion of the waterways in this important wool-growing region.

It seems highly likely that platypus numbers have also declined in other catchments where natural habitat conditions have been modified by agricultural practices.

The APC plans to continue its work in the Wimmera, in order to monitor the status and health of platypus in the region. However, it is essential that new studies also be commenced to examine how platypus are faring in other farming environments.

One such project, starting in spring 2000, will involve a series of surveys along the Barwon River, which flows from the Otway Ranges to Geelong in south-central Victoria. This waterway has been substantially modified since European settlement and its biodiversity values continue to be under enormous pressure from the combined impacts of rural and urban land use. In particular, salinity levels have risen dramatically as a result of man-made drainage schemes in the catchment.

Live-trapping surveys by the APC, undertaken in collaboration with the Corangamite Catchment Management Authority, will provide information on the abundance and distribution of platypus in the system. Reflecting the value of platypus as an indicator species, the research results will also make an important contribution to the Barwon River Health Strategy which is being formulated to address water and land management problems.

The surveys (using local volunteers) will be complemented by a local "Platypus Watch" campaign to encourage reports of sightings, as well as public talks by the APC to raise awareness of platypus conservation issues.

In addition to the Wimmera, the Hopkins catchmentand now the Barwon, the status of the platypus in other farming areas will be investigated as further funding becomes available. As well, there is a need to determine how may platypus occur in relatively undisturbed habitats (e.g. national parks and forest reserves) to ascertain whether the species can be truly regarded

as "safe" in such environments.

ONE GOOD INTERN DESERVES ANOTHER

The platypus is a very difficult species to study in the wild because of its mainly nocturnal and aquatic lifestyle. As a result, few biologists are committed to major research projects involving the ecology of the species

To help address the shortage of platypus biologists, the Conservancy provides training opportunities which encourage students and recent graduates to experience the challenges of platypus fieldwork.

The latest recruit to this program is Melanie Swinnerton, who graduated in zoology from the Australian National University at the end of 1999. During the course of her undergraduate studies, Melanie worked very successfully as a volunteer with APC research teams and accordingly was an ideal candidate to become the Conservancy's second Mazda Foundation Trainee at the beginning of this year.

As a trainee, Melanie mastered the intricacies of a variety of fieldwork techniques, through involvement in platypus research projects in both rural and urban areas.

She has now progressed to an APC Internship (supported by the Ross Trust) which will see her take substantial responsibility for one of the Australian Platypus Conservancy's many projects.

NATIONAL GEOGRAPHIC PLATYPUS

The April 2000 edition of *National Geographic* magazine carried an 11-page colour feature on platypus, the result of a successful collaboration between APC Conservation Biologist Melody Serena and American photographer David Doubilet.

Widely regarded as one of the world's best underwater photographers, Doubilet was faced with special challenges in getting shots of the platypus in its natural habitat. In comparison to the sharks, seals and other spectacular marine creatures which are the usual focus of David's art, the small and cryptic platypus comprised a much more elusive subject.

However, after working with an APC field team for several weeks on Kangaroo Island and around Melbourne, and lying on the bottom of a rocky creek bed for many hours in a wetsuit, some spectacular photographs of the platypus in its underwater world were obtained.

One image in particular, of a platypus twisting its way through swirling water, is an evocative reminder of the fact that this species can be traced through the fossil record to the time of the dinosaurs.

The accompanying text has been designed to give the magazine's 40 million readers an overview of the unusual biological features and conservation status of this remarkable animal.

Dr Serena is the recipient of a National Geographic Society Research Grant.

RECENT PUBLICATIONS BY APC STAFF

The following articles have recently been published by APC staff and associates:

De-La-Warr, M. and Serena, M. (1999). Observations of platypus *Ornithorhynchus anatinus* mating behaviour. *The Victorian Naturalist* 116, 172-174.

Serena, M. (2000). Duck-billed platypus: Australia's urban oddity. *National Geographic*, vol. 197, no. 4, pp. 118-129.

Serena, M., Williams, G.A., Thomas, J.L. and Worley, M. (1999). Effect of a flood retarding basin culvert on movements by platypus *Ornithorhynchus anatinus*. *The Victorian Naturalist* 116, 54-57.

Williams, G. (1999). Our flagship for freshwater conservation. *Chain Reaction*, Winter 1999, pp. 18-19.

Williams, G. (2000). The urban platypus. *Greenhouse Living*, Winter 2000, pp. 10-13.

Williams, G. (2000). Unravelling the platypus mystery. *Wildlife Australia*, Winter 2000, pp. 2-5.

Worley, M. and Serena, M. (2000). Platypus need streamside vegetation. *Victorian Landcare and Catchment Management*, issue 16, pp. 12-13.

Worley, M. and Serena, M. (2000). Protecting the platypus. *Park Watch*, no. 201, pp. 5-6.

LIVING WITH PLATYPUS REPRINTED

The Conservancy's *Living With Platypus* booklet has recently been reprinted, following an enthusiastic response from Landcare and other community conservation groups, government management agencies, and schools.

The 40-page publication summarises much of what is currently known about the platypus and offers practical advice on measures that can be taken to assist platypus conservation in urban and rural waterways.

Copies of the booklet can be obtained from the Conservancy.

Friends of the Platypus receive a free copy when they join the organisation or renew their membership.

Did You Know That....

Like most diving mammals, the platypus has blood that is rich in oxygen-carrying haemoglobin and red cells. The platypus can also reduce its need for oxygen underwater-by lowering its heart rate from more than 200 beats per minute to less than 10 beats per minute.