

*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*.

# **Ripples**

## **Newsletter of the AUSTRALIAN PLATYPUS CONSERVANCY**

### **Issue 21 Summer 2002**

#### **COUNTING ON CONDITION**

To fuel its active lifestyle, a wild platypus must consume around 20-30% of its own body weight in food each day, mainly in the form of aquatic invertebrates.

In other words, an average-sized (1.5 kg) platypus needs to find and capture more than 2 kilograms of small freshwater organisms (worms, snails, larval mayflies and caddisflies, water bugs and diving beetles, peashell mussels, etc.) each week to stay healthy and happy.

So what typically happens when waterway productivity is reduced because of pollution or habitat degradation: do the platypus living along the waterway simply become skinnier, or do their numbers decline?

To help answer this question, APC biologists have for many years routinely assessed the physical condition of all platypus handled in the course of live-trapping surveys.

Each animal is weighed, and the amount of fat found in the tail (where a platypus stores up to 60% of its total body fat) is assessed by squeezing the tail edges gently. The results of this "squeeze test" are scored using a standard five-point scale developed by Tom Grant and Frank Carrick in the 1970's: the tail of a very fat platypus (class 1) will be firm and difficult to bend inwards, while the tail of a starving animal (class 5) will be soft and limp, with the shape of the tail bones clearly outlined beneath the skin.

More than a thousand platypus have been examined by APC researchers since 1989, including animals associated with lakes and backwaters as well as streams and rivers, and national parks as well as heavily modified agricultural or urban landscapes. Interestingly, platypus fat reserves have proven to be remarkably consistent across waterways and habitat types, with the vast majority of animals (93%) belonging to tail fat classes 2 or 3.

Of the remainder, 5% were assessed as being in top condition (tail fat class 1), with roughly equal numbers of males and females assigned to this category. A disproportionately large number of juveniles was included among the 2% of all platypus rated as very thin (class 4) - presumably reflecting their lack of experience in foraging as compared to adults. Class 5 animals have not yet been encountered in the wild by the APC.

In turn, these findings suggest that platypus are remarkably good at matching population size to

the amount of food available in their environment.

This finding is not completely unexpected, given that platypus are top order predators-as a group, predators tend to avoid over-crowding by means of social behaviours such as marking their home range boundaries with scent-backed up by aggression, if necessary.

From a practical point of view, this means that there is no reason to expect that platypus will ever outstrip the capacity of their local habitat to sustain them, or otherwise greatly overpopulate an area.

As well, it provides a scientific basis for choosing platypus population density as a useful indicator of the relative productivity of a stream or river-and a way to monitor how waterway health responds to conservation activities or other forms of habitat change along the banks or channel.

## **MACKENZIE RIVER UPDATE**

The Mackenzie River arises on the slopes of the Mount Difficult Range in Grampians National Park and, in theory, joins the Wimmera River near the town of Horsham.

In practice, a large proportion of the Mackenzie's water is diverted for irrigation or urban use, with flow along the natural channel regularly ceasing in summer below the off-take channels located at the Laharum distribution heads.

In November 1997, the APC undertook a platypus survey along 25 kilometres of the Mackenzie, sampling sites within the national park as well as farther downstream on privately owned farmland. Just three platypus were encountered, including a male and a female recorded near the park boundary, and a second female captured on a grazing property not far from Wartook township (about 10 kilometres downstream of the park).

In November 2001, the APC again undertook platypus survey work along the Mackenzie, with funding provided by the Wimmera Catchment Management Authority. A number of CMA staff also worked with Conservancy biologists to set survey nets and check them after dark.

The results confirmed that platypus continue to reside along the Mackenzie, although at very low density-just one adult male was captured overnight at a site close to Wartook. Furthermore, this animal appeared to be unusually old, given his heavily scarred bill and tail and the fact that both of his spurs were broken off at the base-the first time that this has been observed by the APC. In recognition of the male's status as a venerable member of their community, local children who attended his release early the next morning decided to name him "Old Bill".

Based on the relatively small amount of survey information available, there is no scientifically valid way to determine if platypus population size changed along the Mackenzie from 1997 to 2001. However, it would not be surprising if the number of animals did decline over this period, given that only a very small environmental flow was allotted to the Mackenzie River channel downstream of Grampians National Park in the last three (exceptionally dry) summers.

A third platypus survey will be carried out along the Mackenzie later this year.

Meanwhile, the Mackenzie findings help to highlight that platypus conservation on private land can be critically important even when substantial parts of a river catchment are protected within a large and carefully managed park.

In the case of the Mackenzie, while the quality of the river environment in Grampians National Park appears to be very good, the total amount of platypus habitat reserved within the park is actually not that great when one considers that the home range of an adult female typically encompasses at least one kilometre of waterway, with males claiming even larger areas.

Furthermore, the ability of the Mackenzie's upper reaches to support platypus may be reduced by a series of spectacular waterfalls, which are likely to restrict the animals' movements.

Accordingly, the survival of platypus along the Mackenzie over the longer term is predicted to rely mainly on boosting the population's numbers through improved river management outside the national park, in the waterway's middle and lower reaches.

### ***Did You Know That....***

***A platypus can reduce its use of oxygen underwater by lowering its heart rate dramatically-from an average resting rate of 140-150 beats per minute while on the water surface to sometimes fewer than 2 beats per minute while diving.***

### **NEW PLATYPUS BOOK FOR SCHOOLS**

"There Are Platypuses in Our Creek" is a new text book for primary school students, produced by Barrie Publishing as part of its Year 4A Australian Series of non-fiction titles.

The authors are Alan Lane and Virginia King. Alan previously worked as a research scientist for the CSIRO and participated as an enthusiastic Earthwatch volunteer in a Conservancy platypus fieldwork expedition in 1999. Virginia's background includes many years of experience as a primary school teacher and as a writer, with more than 50 books for children and teachers published in Australia and overseas.

As well as presenting a range of factual information about platypus biology and ecology, the book features sections about research and platypus habitat requirements which are designed to stimulate the interest of young students in practical conservation activities.

Alan and Virginia have very generously decided to donate royalties from sales of the book to the Conservancy's research and conservation programs.

Copies of "There Are Platypuses in Our Creek" can be ordered from Barrie Publishing, Suite 304, 89 High Street, Kew, VIC 3101 or email [info@barriepublishing.com.au](mailto:info@barriepublishing.com.au).