

## The Western Swamp Turtle (*Pseudemydura umbrina*): a Radical Conservation Plan

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### INTRODUCTION

This small (carapace length to 15 cm) fresh-water turtle was discovered in 1839 and described to science in 1901, it was all but forgotten until 1953 when it was rediscovered near Perth, Western Australia. Only 35 or so individuals are believed to occur in the wild and in excess of 100 are being held at the Perth zoo. It is considered by many to be the world's rarest reptile.

With the summer drying out of the ephemeral swamp at Ellen Brook nature reserve where it occurs, this turtle aestivates in deep cracks and fissures in the clay. When the swamp fills in June and July it becomes active. It has low fecundity, producing up to 5 eggs in October and November which take as long as 190 days to hatch, and slow maturation. It is believed to have become critically endangered due to habitat clearing, increasing aridity, predation, inappropriate fire regimes and drainage (Cogger *et al.*, 1993)

The Western swamp turtle is facing extinction in the wild and was placed on CITES Appendix I in Jan., 1975 which at present *precludes what I propose here*. It occurs naturally in a very small area at Ellen Brook NR on the outskirts of the major Western Australian city of Perth. A Recovery Team was set up in 1990 comprising members from the Department of Conservation and Land Management (CALM), the University of Western Australia (UWA), Curtin

University, World Wildlife Fund for Nature (WWF) and the Australian Nature Conservation Agency (now Environment Australia). A captive breeding program is ongoing at the Perth zoo as part of a recovery plan now in place (Burbidge and Kuchling, 1994). A CALM maintained terrestrial predator-proof fence has been placed around both Ellen Brook and Twin Swamps NR's and the reintroduction of captive bred individuals to the wild at both reserves has commenced. Dr Gerald Kuchling (UWA) and Dr Andrew Burbidge (CALM) have been involved in studying its ecology. Dean Burford (Perth zoo) has contributed to the development of successful husbandry techniques, culminating in reliable captive breeding. All those involved, including many not mentioned here, should be commended for their efforts. However, will it be enough?

### CONSERVATION

Any program implemented for the conservation of a taxon must be undertaken with a long-term view in mind. If we do not do this the next generation will experience the same problems we are having today. If perpetuity of the present biodiversity is the goal, especially with the earth undergoing rapid changes as a result of the ever increasing human population, we in Australia have to forsake the traditional official attitude

towards our fauna of *going it alone*.

Continuing the status quo, or improving this so that two populations exist, concerning the Western swamp turtle cannot be considered a successful conservation program. For it to be so this turtle must be considered safe as a long-term biological entity so that the program and any peripheral support can be wound down freeing up resources for use in other projects. If this can be attained with the bonus of a return of the capital invested then it is truly a successful outcome, but more on that later.

Suitable alternative areas of habitat, unless away from development, would be subjected to the same detrimental pressure as Ellen Brook and Twin Swamps and should not be considered as adequate in the long term.

### LONG-TERM PROBLEMS

1. Currently the captive population is maintained at one location, the Perth zoo. In the event of some unforeseen pathogen decimating this group, the recovery program will be put back years.

2. The husbandry expertise developed during the recovery program is restricted to too few people. If they should leave the program, a void in experienced people would occur.

3. The small area of wild habitat and its proximity to Perth cause it to be continually under pressure from degradation resulting from the ever increasing development of surrounding areas.

4. The local human population increase will place considerable pressure on future governments to allow the turtle reserves to be used for residential development. I can not help wondering what the situation will be like in three or four generations, let alone three or four hundred years!

### RADICAL SOLUTIONS

Some of the following suggestions are going to be difficult to accept by many of those involved in traditional Australian fauna conservation programs. However I personally believe we all need to exercise some lateral thinking if successful results are the goal. I believe also that the Western swamp turtle is the ideal subject for this type of program: its very restricted distribution allows for easy poaching control, it is appealing, long-lived and comparatively easy to maintain.

First there needs to be a buffer between any unforeseen decimation of the captive population. A successful breeding program is already in place at the Perth zoo, but this is the only facility where this is presently occurring. A portion of captive bred individuals must be provided to other interested zoos both in Australia and overseas. This would also considerably broaden the available expertise on their husbandry.

The natural wild population and any artificially established populations have very little long-

term future for reasons mentioned above (see *Long-term Problems* \*3 & \*4). Any reintroduction should not be restricted to areas of habitat similar to Ellen Brook and Twin Swamps, but also include alternative areas of permanent water such as Lake Leschenaultia, Mundaring weir, Canning and Serpentine dams etc. Although research to date suggests it will not do well in areas of permanent deep water, this may accelerate any potential for adaptation and contribute towards the establishment of an alternative ecology in this turtle. For example, in these [alternative] areas it may be found to continue to aestivate during summer, or in some individuals/situations it may not require to do this. It has previously been found in agricultural dams adjacent to Ellen Brook (Bush *et al.*, 1995).

This brings me to the most radical component of this plan: the involvement of private keepers world-wide. It also allows an immediate financial return on this turtle's conservation. Fifty pairs initially should be made available to private people who can demonstrate turtle husbandry capabilities by their local or wider contribution in this area. These could be sold at say \$20,000 per pair (a return of one million dollars), an investment that would guarantee genuine attempts at breeding. At a later date, depending on the success or otherwise of the private breeders, an advertising campaign could be implemented promoting the Western swamp turtle as a 'state of the art' pet: attractive, easily maintained and owners would be contributing to its conservation. The funding for this advertising could come from the initial sales of the original

breeding stock. Eventually free market forces would come into play reducing the cost as the numbers increase but, by this time, those original private breeders successfully breeding turtles would have their investment returned along with any profit made during early sales. The beauty of programs such as this is they become self perpetuating. Once established the original government department's involvement can be reduced to monitoring the wild population, while now available resources can be directed to other projects.

Samples of success in this type of plan are the Australian Collett's snake and the American grey king snake. The brightly coloured blacksnake (*Pseudechis colletti*) is rare to sparse (Ehmann, 1992) in the wild but has become so common in captivity that it is difficult to give them away (pers. obs.). One of the rarest North American snakes (*Lampropeltis alterna*) known from only five specimens before the 2nd World War has been collected and avidly bred in captivity by keepers. It is now the most frequently exhibited species in both private and zoo collections (Tennant, 1985).

### REFERENCES

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