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## Further Observations on the Redfinned Blue Eye's Conservation Status

Peter Unmack

The redfinned Blue Eye (*Scaturiginichthys vermeilipinnis*) is currently recognised by the Australian Society for Fish Biology as being one of nine species of freshwater fish listed as endangered (as of 1991, see references) (Endangered = Taxa which have suffered a population decline over all or most of their range, whether the causes of this decline are known or not and which are in danger of extinction in the near future (special management measures required if the taxa are to continue to survive)). I have been able to regularly visit and monitor fish populations in artesian springs on Edgbaston, (a grazing property north-east of Aramac in western Queensland), since my first visit and subsequent discovery of the redfinned Blue Eye (11/11/90).

Most sampling has been conducted by observation with only few fish being captured for positive identification (then released). Observation has been an efficient and accurate means of identifying fish due to the clear shallow water. It is also the most sensitive method as the springs may be easily damaged by excessive trampling by people. The redfinned Blue Eye has been collected from a total of seven springs overall at Edgbaston. As of the 10/1/92 the redfinned blue eye still occurs in four springs. The localities and numbers of the springs (pools) are as those in (Unmack *et al.* 1991), except for pool 6.

Pool 1 - this spring has remained free of *Gambusia* (*Gambusia holbrooki*) for the time being. It contains a moderate population of redfinned blue eye and a small population of Edgbaston goby (*Chlamydogobius* sp. ?)

Pool 2 - This actually consists of two springs which are very close together. Pool 2A is closest to pool 1. In pool 2A redfinned blue eye have been the only species collected. It is probably the largest population on Edgbaston.

Pool 2B - redfinned blue eye were collected in abundance on the 18/12/90 but by the 6/7/91 had disappeared. *Gambusia* were collected on two occasions, the 18/12/90 and 6/7/91 but were not present on the 29/9/91. Edgbaston goby have been present in reasonable numbers throughout.

Pool 3 - *Gambusia* have been present throughout and have built up a large population. Redfinned blue eye have also been present throughout but their population has dwindled. On the 18/12/90 they were very abundant but from the 3/4/91 onwards have only been present in small numbers. This spring contains large areas of shallow water (<4 cm) which have probably enabled the redfinned blue eye to persist.

Pool 4 - *Gambusia* have been present throughout while the redfinned blue eye was only collected on the 18/12/90 and 3/4/91 probably due to changes in water level in the spring. During summer and autumn the "tail" of the spring was very shallow (<3 cm) but in winter the water level had risen to around 6 cm minimum depth with little shallow area remaining. This allowed *Gambusia* to thrive throughout the spring.

Pool 5 - redfinned blue eye have only been seen in low numbers. *Gambusia* were present in small numbers on the 18/12/90 and 3/4/91 but none have been seen since the 6/7/91. There is also a very small population of Edgbaston goby present although they were rarely caught/seen.

Pool 6 - a small spring about 100 m from pool 1. It was first looked at on the 29/9/91 when it contained a few redfinned blue eyes and Edgbaston goby. On the 10/1/92 only Edgbaston goby were collected.

For a summary of fish occurrences see table 1.

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It appears that shallow water habitats less than 4 cm deep are the key to redfined blue eye survival in the presence of gambusia.

Table 1. Summary of Fish Occurrences.

	18/2/90	3/4/91	6/7/91	29/9/91	10/1/92
Pool 1	BE,Go	GE,Go	BE,Go	BE,Go	BE,Go
Pool 2A	BE	n/s	BE	BE	BE
Pool 2B	BE,Ga,Go	n/s	Ga/Go	Go	Go
Pool 3	BE,Ga	BE,Ga	Ga	Ga	n/s
Pool 4	BE,Ga	BE,Ga	BE,Ga	BE,Ga	n/s
Pool 5	BE,Ga	BE,Ga,Go	BE,Ga	BE,Ga	n/s
Pool 6	n/s	n/s	n/s	BE,Go	Go

BE = redfined blue eye; Go = Edgbaston Goby; Ga = Gambusia; n/s = not sampled.

Gambusia (up to 60 mm) have shown a preference for the deeper parts of the spring with only small gambusia (<30 mm) having been seen in shallow water (<4 cm). Most of the habitat in pools 1 and 5 are less than 4 cm deep, thus I believe these populations are most likely to survive invasion by gambusia with gambusia having already become extinct in pool 5 once, (although there is no guarantee that they won't persist next time). Redfined blue eye are now fully protected in Queensland, thus if you wish to keep the fish (dead or alive) a permit from the Queensland Department of Primary Industries is required.

Thanks to the several people who have assisted with collections, especially Colin Brumley. Thanks also to Alan and Fay Wills for their hospitality and assistance.

REFERENCES:

Australian Threatened Fishes - 1991 Supplement. Australian Society for Fish Biology newsletter December 1991 Vol. 21 No. 2.

Unmack, P., Brumley C. 1991. Initial observations on spawning and conservation status of redfined blue eye (*Scaturiginichthys vermeilipinnis*). Fishes of Sahul Vol. 6 No. 4.

"For the last time – I don't trust anyone to feed them while we're on holidays...."

