

**Ecology of *Puntius bandula* at  
Galapitamada and Salgala in the  
Kegalle District, Sabaragamuwa  
Province, Sri Lanka**

**A thesis submitted for the  
Degree of Master of Science**



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**December 2008**

## Abstract

*Puntius bandula* (Cypriniformes: Cyprinidae) is a point endemic, critically endangered fish recorded from a single location (Galapitamada) in the Kegalle district which lies completely outside the protected area network in Sri Lanka. This population is facing many threats of anthropogenic origin. Available information revealed that its population has declined by more than 80% over a period of 10 years. This has led to the declaration of *P. bandula* as a protected species in 1993 by the Department of Wildlife Conservation and it has been listed as a Critically Endangered species in 1996 by the IUCN. In April 2001, 250 pairs of captive bred fish were introduced to four locations in two streams which lie within the same river basin. The population size of introduced fish has declined to 30, 20 and 15 individuals respectively 3, 6, and 13 months after the introduction. This study examined *P. bandula* in two habitats, in its original type locality at Galapitamada and its introduced site at Salgala. A study was conducted from July 2003 to March 2004 covering periods of both wet and dry weather with the objective of determining the ecology of *P. bandula*, assess the present status in both its type locality and introduced site and identify major threats that may affect its long term survival. The site was visited twice a month and the density of fish and several chemical, and physical and biological parameters of its habitat such as flow rate, pH, turbidity, shade, width, depth, substrate type, vegetation, dissolved oxygen, biological oxygen demand, and phosphate and nitrate concentration were recorded. The fish inhabits a 2.6 km stretch of a stream flowing through Rabbedigala to Minipura. The land use patterns in the area surrounding the stream consist of paddy, rubber and home gardens. The maximum number of fish observed was 123 which included both adults and juveniles. *P. bandula* showed a preference towards shallow, slow flowing areas of the stream with a substratum consisting of sand, silt or leaf debris. They also showed a preference towards areas of shade and places where roots of *Lagenandra sp.* and *Terminalia arjuna* are present. Faecal analysis revealed a food preference towards algae. The fish assemblage frequently associated with *P. bandula* includes *P. bimaculatus*, *P. dorsalis*, *Rasbora daniconius*, *Devario malabaricus*, *Garra ceylonensis* and *Lepidocephalichthys thermalis*. Two breeding peaks were observed during the study period. During this study *P. bandula* was not observed at the translocation site in Salgala. One of the translocation sites undergoes periodic drying while the other site contained a fish resembling *P. bandula*. Two major morpho-types were observed in the fish that resembled *P. bandula*, one having a complete lateral line and two stripes while the other had an incomplete lateral line with one to three stripes. Specimens obtained from Mr. A. Pathirana (captive bred population) also had markings similar to one of the morpho-types observed at the introduced site (a complete lateral line and two vertical stripes). Present study also indicates that the site chosen for the introduction differed from the type locality on number of aspects such as fish assemblage, substratum, flow rate and aquatic vegetation. These factors may have contributed to the failure of the introduction. Further, the identity of the two morpho types observed at the translocation site and its relationship to *P. bandula* remains to be clarified possibly with the use of molecular biological techniques. This study also highlights the need for better planning and execution in conducting such translocation programmes. The stream inhabited by *P. bandula* plays a major role in the lives of the villagers. As such *P. bandula* faces many natural and anthropogenic threats in its habitat such as siltation of the stream during the rainy season, use of the stream for bathing, wallowing of buffaloes, and extraction of water for agriculture. Due to low population size and stress caused by anthropogenic activities these fish are facing a high probability of extinction. Therefore, there is an urgent need for the preparation and implementation of a recovery programme to conserve *Puntius bandula*.