

Captive Breeding Of Some Endemic Ornamental Fish Species: Reducing Pressure On Wild Stocks

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Ornamental fish trade in Sri Lanka consists of culture and export of fresh water, marine and brackish water ornamental fish. About 70% of the exports consist of guppy and there is a significant demand for endemic fish species of Sri Lanka. Many endemic ornamental fish species are reported to be in decline and some have become endangered due to a combination of overexploitation, aquatic pollution, and habitat modifications due to industrialization and river-valley projects and siltation due to cleaning. 32 endemic fish species have been reported in Sri Lanka and some of them are either listed as restricted or prohibited for export.

Present study was carried out to investigate into factors affecting the breeding and survival of some high demanded endemic fish species in captivity to establish an endemic ornamental fish species breeding programme as a measure for conservation purposes.

Eight endemic fish species have been used for the present study. They were *Malpulutta kretseri*, *Belontia signata*, *Danio pathirana*, *Rasbora veterifloris*, *Puntius cumingi*, *Puntius srilankensis*, *Puntius titteya*, *Puntius nigrofasciatus*. Fish were kept in 5'X3'X2.5' cement tanks with water to a depth of 24" and were provided natural breeding environment using aquatic plants and pebbles. Water temperature, pH and dissolved oxygen content were attempted to maintain close to natural conditions and were recorded daily and total ammonia, unionized ammonia, nitrite were recorded weekly and alkalinity and hardness were recorded fortnightly. All the fish were fed with live feed (*Moina*), mosquito larvae and pelleted feed. Those endemic fish are live in natural waters having temperature 22-28 °C, pH 5 to 7, hardness and alkalinity 40 mg/l to 120 mg/l respectively.

Though the most of endemic fish live in acidic water (pH 5 to 7), it was found that all above mentioned endemic fish can be bred in captivity in water with temperature ranging from 25 to 30 °C, pH ranging from 7.5 to 9, alkalinity range 26 mg/l to 67.2 mg/l, hardness range 36.8 mg/l to 66.4 mg/l . During the breeding period the unionized ammonia and nitrite content in the tanks were kept below 0.07mg/l and 0.3 mg/l respectively. Survival rates of fish fry were 80%-90% for all fish species except *Malpulutta kretseri*, which had a survival rate of 32%. It can be concluded that most of highly demand endemic fish can be bred in captivity by maintaining water quality close to natural conditions.

Further studies should be carried out to maintain the pH levels in the breeding tanks close to the water pH in their natural environment and that will help to reduce the toxic unionized ammonia and nitrite content in the water and to reduce the time interval required for breeding.