

... aquarium notes on keeping the Tupong ...

I do not believe that this was sexually linked behaviour because two fish which had peacefully co-existed at opposite ends of a 3' aquarium would spar when moved to a smaller aquarium. Another Tupong added to this aquarium would result in each fish sparring with the other two fish, with no sign of "pairing" or two fish working together to drive off the third fish.

At various times I have successfully maintained Tupong with *Galaxias truttaceus*, *Galaxias maculatus* and *Prototroctes maraena* of suitable sizes. I have also kept them with *Gadopsis marmoratus*, but found this combination unsatisfactory as both species constantly sparred.

I currently maintain a Tupong in one of the display aquariums at the Snobs Creek Visitor Centre. It has been in captivity and on public show for four years and has generated quite a lot of public reaction. People are unsure of fish that lie on the bottom, "Is it dead?" or "Is it sick?" are common questions. When it suddenly comes to life to seize a large earthworm people look on in amazement and with renewed respect for this most unusual temperate freshwater species.



***Galaxiella pusilla*:**

AROUND MELBOURNE, GOING, GOING, NEARLY GONE.

P. J. Unmack & G. J. Paras

Introduction

Galaxiella pusilla (dwarf galaxias) is one of the smallest members of the family Galaxiidae. Its distribution includes coastal Victoria from the Mitchell River to the drains in the South-East of South Australia, North-Western Tasmania and Flinders Island in Bass Strait. It is an attractive aquarium fish (at least when it was legal to keep them in Victoria) which featured in the first issue of *Fishes of Sahul*. Males are quite spectacular in breeding colouration, they have a bright red/orange line down their side and two less prominent black lines either side of it. Females are silver-grey all over. Maximum size is 45 mm T.L. for females and 35 mm T.L. for males.

Why have they declined?

G. pusilla was once widespread throughout southern Victoria in slow flowing creeks, lagoons, swamps and seasonally ephemeral habitats. The decline is thought to be caused by habitat destruction and *Gambusia holbrooki* (gambusia, otherwise unfortunately known as mosquitofish). Because of its decline *G. pusilla* is listed as a protected taxa under the Fauna and Flora Guarantee Act of Victoria (FFG). Unfortunately, under the FFG the collection and keeping of *G. pusilla* in Victoria is prohibited. Despite this criticism, the FFG is without doubt a landmark of legislation that is years ahead of other conservation law in Australia.

Changes in local distribution

Prior to European settlement *G. pusilla* was probably common in most creeks flowing into Port Phillip Bay. By 1993 only four populations remained, as of June 1994 three exist and by the end of 1995 there may only be two left in the Port Phillip Bay drainage. Of the last four populations, two are found in

Dandenong Valley and two on the Mornington Peninsula, one in Devil Bend Creek, the other in Tuerong Creek. [At a few localities *G. pusilla* are occasionally collected amongst large numbers of *G. holbrooki*. We do not consider these to be viable breeding populations due to their small size and a lack of evidence that permanent populations exist. We also feel these individuals may simply be dispersants from other populations, thus only representing transitory populations].

Status of populations

Tuerong Creek

At Tuerong Creek it was known *G. holbrooki* occurred in the lower reaches with *G. pusilla* in the upper reaches. During 1993 it was discovered that *G. holbrooki* had colonised the upper section containing *G. pusilla*. Native Fish Australia (Victorian Branch) (a conservation group dedicated to saving Australia's larger native fish as well as having considerable interest in smaller natives) contacted the local region of the Victorian Department of Conservation and Natural Resources with a proposal to translocate remaining *G. pusilla* to nearby *G. holbrooki* free constructed wetlands where populations could have established. Unfortunately there was little response in terms of action by the department and they are now extinct in this creek.

Devil Bend Creek

In Devil Bend Creek *G. holbrooki* occur in the lower reaches and *G. pusilla* occur in the upper reaches. Here, *G. holbrooki* is slowly but surely moving upstream and eliminating *G. pusilla*. As there are no known physical barriers to stop them expanding their range upstream the gambusia pose a serious threat to this *G. pusilla* population. There is no information on how far upstream *G. holbrooki* have so far colonised. This population urgently needs investigation. Consideration should be given to the construction of barriers to prevent *G. holbrooki* progressing further upstream. Refuge populations need to be established.

Tirhatuan Swamp

The most significant Dandenong Valley population of *G. pusilla* occurs in Tirhatuan Swamp is on a reserve managed by Melbourne Water. Tirhatuan Swamp dries out in most summers (although it hasn't done this in the last two years due to wetter summer conditions than usual), when it does, *G. pusilla* presumably aestivate in yabby or crayfish holes, (similar to hibernation but occurring during summer rather than winter). *G. holbrooki* first invaded the area in the mid 1980s when a drain (which also contained *G. pusilla*) near Tirhatuan Swamp was colonised during major floods in Dandenong Creek. As part of Melbourne Water's *G. pusilla* enhancement program an additional wetland was constructed between Tirhatuan Swamp and the drain to increase the *G. pusilla* population. By the end of the first winter *G. holbrooki* had colonised the new wetland (1990). No *G. holbrooki* were present in Tirhatuan Swamp at least until mid 1993. Presumably they gained access during the wettest December ever recorded in Melbourne as *G. holbrooki* were detected during January 1994. Melbourne Water had plans to remove *G. holbrooki* at the beginning of their enhancement works but this was never undertaken. Attempts are currently ...

... *Galaxiella pusilla* ...



Galaxiella pusilla, male

photo Neil Armstrong

being made to relocate sufficient numbers of *G. pusilla* from Tirhatuan Swamp to La Trobe University Wildlife Reserve to establish refuge populations. *G. holbrooki* must be removed from surrounding habitats and the co-existing population needs to be monitored to determine if *G. pusilla* survive until the swamp next dries out and kills *G. holbrooki*. If the population disappears before Tirhatuan Swamp dries out then refuge populations, (if successful) can be used to re-establish *G. pusilla* once *G. holbrooki* have been eliminated.

Drain

Another very small population exists in a drain flowing into a tributary of Dandenong Creek. Fortunately, *G. holbrooki* are not present nearby. A major threat is poor quality runoff from urban areas including a major road and suburb less than a kilometre upstream. The drain is on land owned by Melbourne Water and is at least safe from adverse site development. Hopefully in the near future it will be enhanced and protected to the benefit of *G. pusilla*.

Conclusions

Despite *G. pusilla* being common in a small corner of Tasmania (where *G. holbrooki* is not present) and South- Eastern South Australia (where there aren't many *G. holbrooki* yet) they continue to steadily disappear from Victoria. We may be loosing distinct subspecies that are presently unrecognised, (*G. pusilla* was once considered to consist of three subspecies, one on the mainland, Flinders Island and Tasmania). Genetic studies to determine the distinctiveness of various populations are sorely needed. Further populations must not be allowed to knowingly disappear, action must be taken to safeguard and expand them. If nobody does *G. pusilla* will be going, going, gone.



HON. JOURNAL COORDINATOR: Neil Armstrong, 34 Tarana Avenue, Glenroy, 3046, Australia.
HON EDITOR/DESIGN: Ron Bowman. HON. PHOTOGRAPHER: Neil Armstrong.
HON. SECRETARY ANGFA: P.O. BOX 673, Ringwood, 3134, Victoria, Australia.
HON. TREASURER ANGFA: Peter Surmon, 9 Shelley Street, Strathpine, 4500, Queensland, Australia.
HON. TYPESETTING: K & P Smales. HON. PRODUCTION REPROGRAPHICS: Mark Chettle.
FISHES OF SAHUL IS PRINTED AND PUBLISHED BY ANGFA AND IS DISTRIBUTED FREE TO ALL FINANCIAL MEMBERS. PLEASE DIRECT REPRINT REQUESTS TO AUTHORS VIA JOURNAL COORDINATOR.
Printed by S. R. Frankland, 5 Roberna St. Moorabbin.