

# MEMOIRS OF THE QUEENSLAND MUSEUM

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**A NOTE ON THE HABITAT REQUIREMENTS OF THE SWAMP CRAYFISH ON BRIBIE ISLAND, SOUTHEASTERN QUEENSLAND.** *Memoirs of the Queensland Museum* 49(1): 452, 2003:- *Tenuibranchiurus glypticus* (Riek, 1969) is a little studied freshwater crayfish with a distribution restricted to acidic wallum (sedge-heath) swamps along the southeastern coast of Queensland. This report describes the physical conditions and habitats in which *T. glypticus* are found.

Observations were made at 38 sites on Bribie Island in southeastern Queensland from February to March of 2001. Bribie Island is a low-lying sand island with many areas dominated by wallum heath vegetation and characterised by pools of tannin-stained water. Sampling sites were swamps and small artificial dams, and pools and gutters occurring beside and across sandy vehicular tracks. Sampling was conducted with dip nets using standard sweeps and all animals captured were identified, enumerated and released at point of capture. A range of physical parameters were recorded (pH, substrate type, turbidity and presence of vegetation) in order to ascertain whether *T. glypticus* was associated with any pool characteristics.

*T. glypticus* was caught at 20 of the 38 sites sampled (19 of 34 temporary pools and 1 of 4 permanent pools). Most pools were tannin-stained ( $n = 35$ ) and pH ranged from 2.6-5.65. *T. glypticus* were found in pools with pH ranging from 3.2-4.80, and were not found in any of the three pools with clear water. *T. glypticus* were more likely to be found in pools with a sandy substrate (62% of 29 pools) than in pools with a thick layer of organic matter (22% of 9 pools; Fishers Exact test,  $p=0.058$ ).

More pools with vegetation in the middle contained *T. glypticus* (85% of 13 pools) than pools without vegetation in the middle (36% of 25 pools; Fishers Exact test = 6.28,  $p=0.012$ ). *T. glypticus* were more common in pools with the sedge *Rastio pallens* (80% of 24 pools with *R. pallens* v 44% of 14 pools without; Fishers Exact test,  $p=0.035$ ). *T. glypticus* presence was positively associated with the presence of insect predators (Anisopteran odonate nymphs and/or Nepid

hemipterans) (100% of 11 pools with insects v 33% of 27 pools without; Fishers Exact test = 11.4,  $p<0.001$ ), and the crayfish *Cherax robustus* (76% of 17 pools with *C. robustus* v 33% of 21 pools without; Fishers Exact test = 5.39,  $p=0.020$ ), but these associations were most likely due to common habitat requirements of these species. The only fish species found in samples was the Striped gudgeon (*Gobiomorphus australis*) (6 pools, 2 with *T. glypticus*).

In 7 of the 20 pools in which *T. glypticus* were found, catch rates (number/standard sweep) were compared between sweeps through sedges (24 sweeps) and sweeps over bare substrate (50 sweeps). Catch rate was significantly higher in sedges (mean<sub>sedge</sub> = 1.12, s.d = 0.39,  $n=7$ ; mean<sub>non sedge</sub> = 0.00, s.d = 0,  $n=7$ ; Wilcoxon  $z = -2.46$ ,  $p=0.014$ ).

Of the 20 sites where *T. glypticus* was collected, all were within wallum heath areas containing tannin-stained pools. *T. glypticus* was only captured within vertical standing sedges. This may indicate that sedges provide protection from predators, or provides a food requirement. The data suggest that *T. glypticus* has specific habitat requirements within the wallum areas in which it is found. These habitat characteristics need further investigation in order to understand the ecology of this unique crustacean.

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#### Literature Cited

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