LOW AGGRESSION IN JUVENILE BURROWING CRAYFISH,
FALLICAMBARUS FODIENS (COTTLE, 1863) (DECAPODA, CAMBARIDAE)

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ABSTRACT
Informal observation suggested that Fallicambarus fodiens, which lives in close aggregations of mud burrows, exhibits less aggression than related epigean Cambarus spp. Interactions between size-matched, same sex pairs of F. fodiens were analysed in the laboratory. The analysis shows that these crayfish use behaviours similar to those used by Cambarus spp. in initiating agonistic interactions. However, approximately 84% of such interactions never proceed to the point of physical contact between the two opponents, whereas almost all comparable interactions in Cambarus spp. involve physical contact (fights). F. fodiens gather sufficient information for conflict resolution in a number of bouts of interaction comparable to that of other crayfish (differences not significant), but without physical interaction. Thus, these burrowing crayfish seem to have lower levels of aggression in comparison to more solitary, surface water crayfish species. This may be an adaptation for living in aggregations, where close co-habitation would be compromised by physical fighting and the subsequent extreme avoidance.

RÉSUMÉ
Certaines observations ont suggéré que Fallicambarus fodiens, qui habite dans des terriers vaseux agrégés, est moins agressive que des espèces épiégées Cambarus proches. Les interactions entre paires de même taille et même sexe de F. fodiens ont été analysées au laboratoire. Les analyses montrent que ces écrites utilisent des comportements similaires à ceux de Cambarus spp. en début d’interactions. Cependant, environ 84% de ces interactions n’arrivent pas jusqu’au contact physique entre les deux adversaires, alors que, au contraire, toutes les interactions comparables chez Cambarus spp. comprennent des contacts physiques (combats). F. fodiens rassemble assez d’information pour la résolution des conflits au cours d’un nombre d’assauts comparable au cas d’autres espèces (différence non significative), mais sans contact physique. Donc, ces écrites

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Typical epigean crayfish are generally considered to be overtly aggressive animals, which usually attack other crayfish present nearby. Competition for food and shelters most likely selected for this spacing behaviour. Surface water crayfishes usually require close physical contact only during mating and while taking care of their young. However, not all crayfish follow this common pattern. Some wetland-inhabiting, semi-terrestrial burrowing species form aggregations, constructing their individual burrows in close proximity to each other (Guiaşu et al., 1996a; Punzalan et al., 2001; Guiaşu, 2002b). This close association is incompatible with the aggressive pattern of inter-individual spacing typical of lake and stream crayfish.

We undertook an assessment of agonistic interactions in *Fallicambarus fodiens* (Cottle, 1863), a wetland-inhabiting, aggregating species, in which individuals build tunnels in the mud with elevated entrances (“chimneys”) in close proximity to each other. Elsewhere we have demonstrated that these semi-terrestrial crayfish are attracted to burrows and mud chimneys built by conspecifics, and that these crayfish prefer to excavate new tunnels near or beside existing conspecific burrows. Sometimes, two or more *F. fodiens* individuals may even share the same burrow (Trépanier & Dunham, 1999; Punzalan et al., 2001; Guiaşu, 2002b). Thus, it would be expected that these burrowing crayfish would be less aggressive towards conspecifics than the solitary crayfish species.

Informal observations indicated to us that *F. fodiens* was much less aggressive than the typical epigean crayfish species, principally *Cambarus* spp. and *Orconectes* spp., with which we were most familiar (e.g., Bruski & Dunham, 1987; Trépanier & Dunham, 1999; Punzalan et al., 2001; Guiaşu, 2002a, b). We tested this impression by staging interactions in the laboratory between size-matched, same gender pairs of *F. fodiens*. Our results were then compared with previous data from comparable studies of closely related epigean *Cambarus* spp. (e.g., Guiaşu et al., 1996b; Guiaşu & Dunham, 1997a, b, 1998, 1999 a, b, c; Guiaşu, 2002a), in order to determine if there is indeed a difference in aggression levels between the burrowing crayfish and the solitary surface water crayfish species.