BEHAVIORAL RESPONSES OF FIDDLER CRAB MALES TO CONSPECIFIC AND HETEROSPECIFICS: A DEAR ENEMY EFFECT HYPOTHESIS

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Studies with different taxa has demonstrated that territorial animals can be less aggressive to their established neighbor than strangers. This phenomenon is known as the 'dear enemy' effect. In fiddler crabs, neighbors are established males that already have their own territory and therefore may only compete for resident mates, whereas strangers are burrow seekers individuals that can offer a great threat to residents because they lack both territories and mates. Sometimes, residents are faced by intrusions to others opponents besides those of his own species and according to the niche overlap, heterospecifics should not be neglected as inferior competitors. Here, we investigate the occurrence of the 'dear enemy' effect in territorial fights between conspecific and heterospecific. Specifically, we investigated if there are any differences between the costs of territorial defense (aggressiveness interactions or fight duration), between the focal species *L. leptodactyla* and neighbors and strangers of *L. uruguayensis*. In sunny days, during low tides, we evaluated naturally occurring intrusions of resident-neighbor and resident-strangers in conspecific (*L. leptodactyla*) and heterospecific (*L. leptodactyla* versus *L. uruguayensis*) fights. Agonistic interactions were divided in order of increasing intensity: 1- touch/push, 2 – grapple and 3 – flick/ digging out. In the end, fight duration was recorded, and both crabs were measured. Resident-strangers were more likely to employ grapple and flick/digging movements than resident-neighbor fights. On the other hand, conspecifics employed more touch/push and grapple movements than heterospecifics. Conspecific resident-stranger fights were longer than heterospecific resident-stranger. The dear enemy effect occurs in both conspecific and heterospecific fights, regardless of stranger species. Nevertheless, fights were more intense to conspecifics than to heterospecifics, since conspecific resident-stranger fights were longer than heterospecific. Our findings confirm our hypothesis and expand this phenomenon to territorial crustaceans, providing support to established neighbors coexistence between fiddler crab species. In this sense, the competition against conspecifics is more intense, since heterospecific do not compete for females. Fiddler crab males appear to balance the costs of territorial defense with the opponent motivations and self-fitness risks that conspecific and heterospecifics imposed to them.

Keywords: intraespecific competition, interspecific competition, agonistic interactions, territoriality, oponent recognition.