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## *Uca (Petruca)*, a new subgenus for the rock fiddler crab *Uca panamensis* (Stimpson, 1859) from Central America, with comments on some species of the American broad-fronted subgenera

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### Abstract

Among the fiddler crabs from the Americas, *Uca panamensis* (Stimpson, 1859) (Crustacea: Decapoda: Ocypodidae) is unusual in its behavior and ecology, living in stony habitats rather than sandy or muddy substrates. This species also has several unusual morphological characters of the carapace and major and minor chelae, and had been placed in either the subgenera *Minuca* Bott, 1954, or *Leptuca* Bott, 1973. The armature at the inner corner of the orbital floor, as well as the morphology of the urocardiac ossicles of the gastric mill of *U. panamensis*, are, however, plesiomorphic characters, and are closer to the condition in species belonging the subgenera *Uca* and *Afruca*. Phylogenetic relationships, based on mitochondrial 16S rDNA and cytochrome oxidase subunit I, and nuclear 28S rDNA, supported by its unusual morphological features indicate that this species belongs to its own subgenus. A new subgenus *Uca (Petruca)* **subgen. nov.** is herein established for *U. panamensis*. In addition, the status of *Uca thayeri* Rathbun, 1900, *U. umbratila* Crane, 1941, *U. virens* Salmon & Atsaiades, 1968, and *U. longisignalis* Salmon & Atsaiades, 1968, are revised and discussed based on a reappraisal of their phylogenetic relationships.

**Key words:** Crustacea, Brachyura, systematics, new subgenus, *Uca panamensis*, molecular evidence, 28S rDNA, 16S rDNA, cytochrome oxidase subunit I

### Introduction

Fiddler crabs are abundant in marine wetlands in tropical and subtropical zones (Crane 1975). There are currently 102 species belonging to 11 subgenera, one from West Africa, three from the Americas, and seven from the Indo-West Pacific (IWP) (Ng *et al.* 2008; Shih *et al.* 2013a; Rosenberg 2014; Shih 2015). With regard to the American subgenera, one contains all the species with narrow fronts (relative width between the bases of the eyestalks) (*Uca* Leach, 1814), whereas the other two (*Minuca* Bott, 1954, and *Leptuca* Bott, 1973) include the broad-fronted taxa (Rosenberg 2001; Beinlich & von Hagen 2006; Ng *et al.* 2008). The subgenus *Boboruca* Crane, 1975 (= *Planuca* Bott, 1973), with two species, *Uca thayeri* Rathbun, 1900, and *Uca umbratila* Crane, 1941, is currently regarded as a synonym of *Minuca* (see Ng *et al.* 2008). The morphological differences between *Minuca* and *Leptuca*, however, are not very clear, and several species have been moved between these subgenera. *Uca panamensis* (Stimpson, 1859), *U. pygmaea* Crane, 1941, and *U. subcylindrica* (Stimpson, 1859), for example, were transferred from *Minuca* to *Leptuca*; whereas *U. argillicola* Crane, 1941, was transferred from *Leptuca* to *Minuca* based on either morphology or DNA sequence (see review by Beinlich & von Hagen 2006). A recent preliminary molecular phylogeny for the broad-fronted taxa showed an unsolved genetic relationship between *Minuca* and *Leptuca*, but not all the species in these subgenera were tested (Shih *et al.* 2013b).

Among the American broad-fronted taxa, the subgeneric status of *U. panamensis* is noteworthy. Although it has long been considered to be a member of the subgenus *Minuca* mainly by the characters of the front and male