

Echinichidae, a new family of dart-bearing helicoid slugs from Mexico, with the description of a new genus and three new species

(Gastropoda: Pulmonata: Xanthonychoidea)

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Abstract

A new family of slugs, Echinichidae, belongs to the Superfamily Xanthonychoidea. The rudimentary shell is completely embedded in the mantle integument. The body is covered with glandular papillae. The jaw is solid and bears 10–16 strong ribs. The radula has horizontal transverse tooth rows with undifferentiated lateral and marginal teeth. The retractor muscle system lacks a columellar retractor muscle and the left and right pedal retractors are independent. The penis retractor originates on the posterior body wall; not on the inner wall of the lung as in other families of helicoid gastropods. The pneumostome is located along the posterior-right margin of the mantle shield. The kidney is bean-shaped and occupies most of the lung floor. The reproductive system is generalized for the Superfamily Xanthonychoidea. The penis has a prominent large verge internally. The epiphallus is long, stout and bears a long flagellum. The vagina is large and capacious, and bears a single dart sac and two compound-alveolar dart glands that enter the vagina on short ducts. The family includes a single genus, *Echinix* n. gen. with three new species. The family is endemic to northeastern Mexico.

Key words: Gastropoda, Xanthonychoidea, Echinichidae n. fam., *Echinix* n. gen., *E. ochracea* n. sp., *E. granulata* n. sp., *E. rugosa* n. sp., Mexico.

Introduction

The Xanthonychoidea is a diverse superfamily of terrestrial gastropods. It includes some of the largest and most brightly colored neotropical helicoid snails. A curious branch of this radiation is a group of semi-slugs that have been referred to the family Xanthonychidae. They have a reduced shell that is partially or wholly covered by the mantle when the animal is active: *Cryptostrakon* BINNEY 1879, *Semiconchula* NARANJO-GARCÍA, POLACO & PEARCE 2000, and *Xanthonyx* CROSSE & FISCHER 1867. A fourth genus, *Metostrakon* PILSBRY 1900, has evolved a slug-like habitus with its shell completely embedded within the mantle integument. This paper describes a

new family and three new species of slug-like gastropods of the Superfamily Xanthonychoidea belonging to a new genus. These species are bizarre in appearance as well as in its morphology. They also have a reduced shell that is completely enclosed within the mantle integument. The new genus is found in northeast Mexico in the states of Tamaulipas and Querétaro.

The novelty was brought to the first author's (FGT) attention in 1972 by Barbara T. WARBURTON, former Professor of Biology at Texas Southernmost University, Brownsville, Texas. Dr. WARBURTON sent to FGT several preserved specimens and a photograph of a live speci-

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