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New species and new records of eunicids (Polychaeta, Eunicidae) from Taiwan

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Abstract

Seven species of eunicids were found from rocky intertidal and shallow subtidal habitats on the coasts of Taiwan. These polychaetous worms belong to two genera, *Eunice* Cuvier, 1817 and *Nicidion* Kinberg, 1865. Among them, five species are new to science, namely *Eunice jihueiensis* sp. nov., *Eunice reticulata* sp. nov., *Eunice shihmenensis* sp. nov., *Eunice taoi* sp. nov., and *Nicidion megabalanicola* sp. nov., *Eunice annulicirrata* Miura, 1986 and *Eunice dilatata* Grube, 1877, are documented for the first time from this geographic region. A key to the genus and species of these eunicids is provided.

Key words: taxonomy, intertidal and shallow water eunicid polychaetes

Introduction

The genus *Eunice* Cuvier, 1817 is one of the most highly diversified polychaete groups with 250 plus species worldwide (Fauchald & Bella 2013), which occupies all marine benthic environments and is especially common in tropical shallow seas (Fauchald 1992). Despite its abundance in tropical shallow marine habitats, the taxonomic study of this polychaete genus in Taiwan, a geographic region on the Tropic of Cancer, is virtually not existent. Nevertheless, over hundred specimens of *Eunice* were accumulated over the past three decades by curators at National Museum of Natural Sciences, Taiwan as well as by authors of the present study. A taxonomic study of this material was undertaken by the authors.

To study this highly diversified polychaete group, Hartman (1944) and Fauchald (1970) developed a grouping scheme on the basis of the colour and dentations of the subacicular hooks and the distribution pattern of the branchiae. Hartman (1944) divided members of the genus into four groups on the basis of the subacicular colouration. Fauchald (1970) suggested that these four groups could each be subdivided into five subgroups by the distribution pattern of the branchiae. Fauchald (1992) added several categories to further divide a given group into subgroups or special groups (i.e., the absence or presence of articulation on peristomial cirri for A-1 group; see details in Tables 20 to 53).

The systematics of *Eunice* has been confused for decades. It was once used interchangeably with *Leodice* Savigny in Lamarck, 1818 (Zanol *et al.* 2014), and *Nicidion* Kinberg, 1865 was considered as a subgenus of *Eunice* (Fauchald 1970). During the late 20th and early 21th century, the latter two genera were still regarded as synonyms of *Eunice* (Fauchald 1992; Zanol *et al.* 2010). On the basis of a recent molecular phylogeny study on the family Eunicidae Berthold, 1827, Zanol *et al.* (2014) suggested *Leodice* and *Nicidion* are valid genera and subsequently transferred some of *Eunice* spp. to these newly re-erected genera.

The present study follows the diagnosis of *Eunice* and *Nicidion* given by Fauchald (1992) and Zanol *et al.* (2014) to split the specimens collected from Taiwan and recognizes six *Eunice* species and one *Nicidion* species. Of these *Eunice* species, four are new to science, and two are new records for the region. The *Nicidion* species is also new to science. The present study describes and reports these eunicids and provides a key to these genera and species.

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APPENDIX

Key to the genus and species of eunicids of Taiwan (modified from Zanol *et al.* 2014)

1. Mandibles flat, MxVI absent. Subacicular hook darkest shade closest to distal half or end along the whole body. Presence of hammer-headed superior aciculae and mucronate inferior aciculae Genus *Nicidion* + *Nicidion megabalanicola* **sp. nov.**
- Mandibles flat, MxVI absent or present. Subacicular hook darkest colour shade on most of the length of hook, but colour more concentrated towards proximal end in at least part of the distribution 2 (Genus *Eunice*)
2. Subacicular hooks bidentate 3
- Subacicular hooks tridentate 7
3. Compound spinigers present *Eunice taiwanensis* **sp. nov.**
- Compound spinigers absent 4
4. Branchiae present 5
- Branchiae absent *Eunice shihmenensis* **sp. nov.**
5. Branchiae first present before chaetiger 10 *Eunice reticulata* **sp. nov.**
- Branchiae first present after chaetiger 10 6
6. Branchiae continued to the end of the body *Eunice dilatata* Grube, 1877
- Branchiae terminating near the middle of the body *Eunice jihueiensis* **sp. nov.**
7. Branchial filaments bimodal distribution; parapodia dorsal cirri with distinct long moniliform articulations. *Eunice annulicirrata* Miura, 1986