



New earthworms of the *Amyntas morrisoni*-group (Oligochaeta, Megascolecidae) from Hainan Island, China

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Abstract

This paper describes two new species of earthworms belonging to the *Amyntas morrisoni*-group from Hainan Island, China: *Amyntas zonarius* **sp. nov.** and *Amyntas wuzhimontis* **sp. nov.** Both have two pairs of spermathecal pores in 5/6–6/7, and simple intestinal caeca. *Amyntas zonarius* **sp. nov.** has a pad-like male porophore, with flat-topped tubercle surrounded by 5 skin folds distal half of the spermathecal diverticulum dilated into band-shaped seminal chamber. *Amyntas wuzhimontis* **sp. nov.** has a seminal chamber constricted into moniliform subchambers and a glandular pad-like elliptical male pore porophore surrounded by the tumid area. Partial COI sequences of the holotypes of the two new species have been submitted to GenBank as DNA barcodes to enable molecular species identification.

Key words: Earthworm, Oligochaeta, Clitellata, Megascolecidae, *Amyntas*, new species, Hainan, China

Introduction

In order to investigate the affinities of species in the genus *Pheretima* s.l., Sims and Easton (1972) used phenetic numerical methods to divide this large genus, and finally they re-grouped species of *Pheretima* s.l. into eight genera. At the same time they created subgroups within some of these genera, so-called species-groups, stating that they were a matter of convenience (Sims & Easton 1972). The *Amyntas morrisoni*-group was defined to unite holandric *Amyntas* species with intersegmental spermathecal pores in 5/6–6/7. The two new species described in this study belong to the *morrisoni*-group, which at the time of Sims & Easton (1972) comprised thirty species or subspecies. Another 18 species have been added to this group after 1972: *Amyntas nanulus* (Chen & Yang, 1975), *Amyntas parvus* (Chen & Xu, 1977), *Amyntas angulatus* Hong, 2007, *Amyntas piagolensis* Hong & James, 2001, *Amyntas taebaekensis* Hong & James, 2001, *Amyntas naejangensis* Hong & James, 2001, *Amyntas draconis* Hong & James, 2001, *Amyntas diaoluomontis* Qiu & Sun, 2009, *Amyntas octopapillatus* Qiu & Sun, 2009, *Amyntas zhangii* Qiu & Sun, 2009, *Amyntas lingshuiensis* Qiu & Sun, 2009, *Amyntas dabudongensis* Hong & James, 2009, *Amyntas mutabilitas* Shen, 2012, *Amyntas talus* Blakemore, 2014, *Amyntas instabilis* Qiu & Jiang, 2015, *Amyntas dilatatus* Qiu & Jiang, 2015, *Amyntas infuscuatus* Jiang & Sun, 2015, and *Amyntas qiongzhongensis* Jiang & Zhao, 2015 (Blakemore 2014; Chen *et al.* 1975; Chen & Xu 1977; Hong 2007; Hong & James 2001; Jiang *et al.* 2015; Shen 2012; Sun *et al.* 2009). Among these 47 *Amyntas morrisoni*-group members, 7 species may be synonyms of *Amyntas morrisoni* (Beddard, 1892) (Blakemore 2007).

Most of the species of this group are restricted to East or Southeast Asia. 25 species have been found in China, 10 species are from Korea, 2 species from Sumatra, 1 species from Malaysia, and 1 species from Australia. Two species were reported from more than one country, *Amyntas dignus* (Chen, 1946) from China, Vietnam and Laos, and *Amyntas koreanus* (Kobayashi, 1938) from both Korea and Japan. One species, *Amyntas loveridgei* (Gates, 1968), was found in the United States and St. Helena Island, and although it has not been recorded in Asia, it is considered as being introduced. One species, *Amyntas morrisoni*, is cosmopolitan (Blakemore 2007). Based on the