

A New Record of the Earthworm *Ocnerodrilus occidentalis* Eisen, 1878 from Matsu

馬祖新紀錄種蚯蚓西土寒蟪蚓

Huei-Ping Shen

沈慧萍

Endemic Species Research Institute, Jiji, Nantou, Taiwan

行政院農業委員會特有生物研究保育中心 55244 南投縣集集鎮民生東路一號

*Corresponding author: shenhp@tesri.gov.tw

*通訊作者：shenhp@tesri.gov.tw

Abstract

This paper describes the exotic ocnerodrilid earthworm *Ocnerodrilus occidentalis* Eisen, 1878 as a new record from Matsu. Now distributed globally, the species is a small earthworm whose native home is likely in Central or South America.

摘要

本文描述一採自馬祖南竿、北竿及東引之新紀錄外來種蚯蚓西土寒蟪蚓 *Ocnerodrilus occidentalis* Eisen, 1878。其為小型蚯蚓，屬於寒蟪蚓科(Ocnerodrilidae)，可能原產於中美洲或南美洲。此種蚯蚓目前廣泛分布於全球。

Key words: *Ocnerodrilus occidentalis*, earthworm, Matsu

關鍵詞：西土寒 蟻 蚓、蚯蚓、馬祖

收件日期：2014 年 11 月 13 日 接受日期：2014 年 12 月 17 日

Received: November 13, 2014

Accepted: December 17, 2014

Introduction

Ocnerodrilus occidentalis Eisen, 1878 was first described by Eisen based on specimens found in an irrigation box from his vineyard at Fresno County, California (Eisen 1878; Gates 1972). Eisen (1900) redefined this species with specimens collected from the original locality as well as those from the city parks of Durango, Mexico. Eisen (1900) also described two varieties, var. *sinensis* and var. *arizonae*, of this species. The description of the former was based on specimens from pots containing plants brought from China, while specimens of the latter were obtained near irrigation ditches in Phoenix, Arizona (Eisen 1900). Both Michaelsen (1910) and Stephenson (1914) doubted the validity of var. *arizonae*, and Chen (1933) considered var. *sinensis* as invalid since intermediate forms were observed among var. *typicus*, var. *arizonae* and var. *sinensis*. The distribution range of *O. occidentalis* includes Central Asia, India, Ceylon, Myanmar, Singapore, Hainan, China, Japan, Philippines, Solomons and New Hebrides, California, Arizona, Mexico, Cuba, and Australia and Tasmania (Gates 1972;

Blakemore 2010). According to Gates (1972), plant quarantine interceptions show that the species still is being carried around the world by man, and the original home of this species may be somewhere between the United States and South America.

Gates (1972) stated that *O. occidentalis* is known only from parthenogenetic morphs without seminal vesicles and spermathecae. Currently only seven nominal species have been reported for the genus *Ocnerodrilus* and all of them are native to Central and/or South America (Brown and Frago 2007).

The following description is based on 19 preserved specimens deposited at the Taiwan Endemic Species Research Institute, Jiji, Nantou, Taiwan.

***Ocnerodrilus occidentalis* Eisen, 1878**

Ocnerodrilus occidentalis Eisen, 1878: 10; 1900: 113. – Michaelsen, 1900: 377; 1910: 100; 1931: 1. – Stephenson, 1914: 361; 1916: 348. – Chen, 1933: 224; 1938: 426. – Gates, 1935: 93; 1942: 99; 1961: 57; 1972: 273; 1982: 16. – Lee, 1981: 567. – Blakemore,

2010: 183.

Ocnerodrilus tenellulus Gates, 1945: 223.

Materials examined. — Three mature (clitellate) specimens collected 31 May 2012 from a roadside ditch near the weather station (elevation 48 m), Nangan by H. P. Chen and T. L. Ai (coll. no. 2012-54); six specimens collected 26 June 2012 near a trash treatment field (elevation 64 m), Tangchi Village, Beigan by H. P. Chen and W. J. Chih (coll. no. 2012-61); five mature and five immature specimens collected 31 August 2012 near Zhongling Temple (elevation 76 m), Dongyin by H. P. Chen and H. H. Huang (coll. no. 2012-130).

Description. — Length (clitellates) 20–28 mm, diameter 1.0–1.2 mm. Segment number 75–89. Prostomium epilobous. Dorsal pores absent. Clitellum XIV–XIX or XIII–XX, annular, setae present (Fig. 1A). Setae lumbricine (eight setae per segment), closely paired, aa: ab: bc: cd = 4: 1: 4: 1. Spermathecal pores absent. Male pores one pair in XVII, faint, each slightly lateral to seta b. Female pores one pair in XIV, each anterior to seta b (Fig. 1A). Specimens unpigmented.

Septa present from 4/5, 4/5 thin, 5/6/7 thick, 7/8–11/12 thickened, and 12/13 to posterior end thin and membranous. Gizzard absent. Intestine enlarged from XII. Hearts two pairs in X–XI. Calciferous glands one pair in IX, shiny, thick-walled, yellowish brown in color. Nephridia holoic.

Spermathecae absent. Accessory glands absent. Testes two pairs in X and XI. Seminal

vesicles absent. Prostate glands one pair, each coiled, tubular and lying under intestine (Fig. 1B). Ovaries in XIII, racemose.

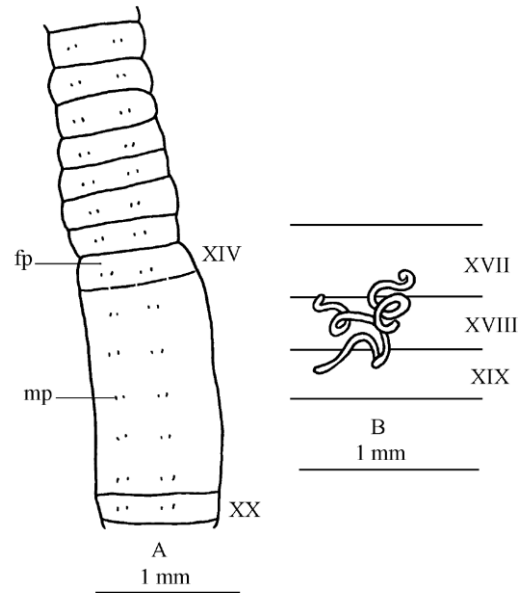


Fig. 1. *Ocnerodrilus occidentalis* Eisen: A, ventral view of preclitellar and clitellar regions (fp, female pore; mp, male pore); B, dorsal view of prostate glands.

Acknowledgments

My thanks to Messrs. H. P. Chen, T. L. Ai, W. J. Chih, and H. H. Huang for their assistance in field collections and specimen preparation, and to two anonymous reviewers for providing valuable comments and suggestions.

Literature Cited

Blakemore, R. J. 2010. *Cosmopolitan Earthworms – an Eco-Taxonomic Guide to*

- the Peregrine Species of the World. 4th Edition. VermEcology, Yokohama, Japan.
- Brown, G.G. and Fragoso, C. 2007. *Minhocas na América Latina: Biodiversidade e Ecologia*. Londrina: Embrapa Soja.
- Chen, Y. 1933. A preliminary survey of the earthworms of the lower Yangtze Valley. Contributions from the Biological Laboratory of the Science Society of China (Zoology) 9: 177-295.
- Chen, Y. 1938. Oligochaeta from Hainan, Kwangtung. Contributions from the Biological Laboratory of the Science Society of China (Zoology) 12: 375-427.
- Eisen, G. 1878. On the anatomy of *Ocnerodrilus*. Nova Acta Regiae Societatis Scientiarum Upsaliensis 10: 1-12.
- Eisen, G. 1900. Researches on American Oligochaeta, with special reference to those of the Pacific Coast and adjacent islands. Proceedings of the California Academy of Sciences 2: 85-276.
- Gates, G. E. 1935. On some earthworms from East Perak and Christmas Island. Bulletin of the Raffles Museum 10: 80-95.
- Gates, G. E. 1942. Notes on various peregrine earthworms. Bulletin of the Museum of Comparative Zoology at Harvard College 89: 63-144.
- Gates, G. E. 1945. On some Indian earthworms. Proceedings of the Indian Academy of Sciences 21: 208-258.
- Gates, G. E. 1961. Earthworms of Burma. Burma Research Society Fiftieth Anniversary Publications No. 1: 51-58.
- Gates, G. E. 1972. Burmese earthworms: an introduction to the systematics and biology of megadrile oligochaetes with special reference to Southeast Asia. Transactions of the American Philosophical Society 62: 1-326.
- Gates, G. E. 1982. Farewell to North American megadriles. Megadrilogica 4: 12-77.
- Lee, K. E. 1981. Earthworms (Annelida: Oligochaeta) of Vanua Tu (New Hebrides Islands). Australian Journal of Zoology 29: 535-572.
- Michaelsen, W. 1900. Oligochaeta. Das Tierreich 10: 1-575.
- Michaelsen, W. 1910. Die Oligochätenfauna der vorderindisch-ceylonischen Region. Abhandlungen aus dem Gebiete der Naturwissenschaften 19(5): 1-108.
- Michaelsen, W. 1931. The Oligochaeta of China. Peking Natural History Bulletin 5: 1-24.
- Stephenson, J. 1914. On a collection of Oligochaeta mainly from Northern India. Records of the Indian Museum 10: 321-365.
- Stephenson, J. 1916. On a collection of Oligochaeta belonging to the Indian Museum. Records of the Indian Museum 12: 299-354.