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A comprehensive checklist of earthworm species and subspecies from Vietnam (Annelida: Clitellata: Oligochaeta: Almidae, Eudrilidae, Glossoscolecidae, Lumbricidae, Megascolecidae, Moniligastridae, Ocnerodrilidae, Octochaetidae)

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Table of contents

Abstract	3
Introduction	4
Material and methods	5
Taxonomic part	5
Subclass OLIGOCHAETA Grube, 1850	5
Family ALMIDAE Duboscq, 1902	5
Genus <i>Glyphidrilus</i> Horst, 1889	5
Family EUDRILIDAE Claus, 1880	6
Genus <i>Eudrilus</i> Perrier, 1871	6
Family GLOSSOSCOLECIDAE Michaelsen, 1900	7
Genus <i>Pontoscolex</i> Schmarda, 1861	7
Family LUMBRICIDAE Rafinesque-Schmaltz, 1815	7
Genus <i>Bimastos</i> Moore, 1895	7
Genus <i>Eisenia</i> Malm, 1877	8
Family MEGASCOLECIDAE Rosa, 1891	8
Genus <i>Lampito</i> Kinberg, 1867	8
Genus <i>Perionyx</i> Perrier, 1872	9
Genus <i>Pontodrilus</i> Perrier, 1874	10
Pheretimoid Groups	11
"Caecate" Group	11
Genus <i>Pithemera</i> Sims & Easton, 1972	11
Genus <i>Amyntas</i> Kinberg, 1867	11
Genus <i>Metaphire</i> Sims & Easton, 1972	50
"Acaecate" Group	69
Genus <i>Metapheretima</i> Michaelsen, 1928	69
Genus <i>Planapheretima</i> Michaelsen, 1934	70
Genus <i>Polypheretima</i> Michaelsen, 1934	72
Pheretimoid species "incertae sedis"	76
Family MONILIGASTRIDAE Claus, 1880	77
Genus <i>Drawida</i> Michaelsen, 1900	77
Family OCNERODRILIDAE Beddard, 1891	78
Genus <i>Eukerria</i> Michaelsen, 1935	78
Genus <i>Gordiodrilus</i> Beddard, 1892	79
Genus <i>Malabaria</i> Stephenson, 1924	80
Genus <i>Nematogenia</i> Eisen, 1900	80
Genus <i>Ocnerodrilus</i> Eisen, 1878	81
Genus <i>Thatonia</i> Gates, 1942	81
Family OCTOCHAETIDAE Gates, 1959	82
Genus <i>Dichogaster</i> Beddard, 1888	82
Genus <i>Octochaetona</i> Gates, 1962	83
Genus <i>Ramiella</i> Stephenson, 1921	84
Conclusions	84
Acknowledgments	85
References	85

Abstract

The comprehensive checklist of earthworms in Vietnam is presented here listing 24 genera and 212 species arranged in eight families. For each species, bibliographic citations are given, including the original descriptions as well as notable citations affecting taxonomic status or distributional reports of a species. Distributions of each species are also provided. The bibliography contains all relevant papers for Vietnamese earthworms. Of 212 species, 114 have been recorded only in Vietnam, and 25 are cosmopolitan. New combinations are made for *Amyntas acalifornicus* (Do & Huynh, 1991) comb. nov., *A. binhgiaensis* (Le, 1994) comb. nov., *Metaphire catbaensis* (Thai & Le, 1993) comb. nov., *M. khoii* (Do & Tran, 1994) comb. nov., *M. phaluongana* (Do & Huynh, 1992) comb. nov., and *M. mangophila* (Nguyen, 2011) comb. nov., *M. tripidorophoratus* (Thai & Nguyen, 1993) comb. nov. Additionally, *Pheretima paraalexandri* Nguyen, 2011 is treated as a junior synonym of *Amyntas polychaetiferus* (Thai, 1984).

Key words: Megadriles, checklist, species distributions, taxonomy, exotic cosmopolitans, earthworm, fauna, Vietnam

Introduction

Easternmost Southeast Asia is one of the biodiversity centers in the world, and Vietnam, a narrow and with 332,698 km² relatively small country, is believed to harbour a rich fauna and flora with many remarkable discoveries in recent decades (Sterling *et al.* 2006). The country has diverse habitats with mountainous areas and deltas, and different climatic regimes when comparing northern and southern Vietnam. Like other invertebrates, earthworms are very diverse and have received special attention with numerous publications, many of them in national journals. A literature-based first checklist of earthworm species from Vietnam was provided in tabular form by Blakemore (2008b). Here many species were placed in different genera and tagged "*species inquirenda*" to express the need to confirm these new combinations by reinvestigation of type material. Furthermore, no distributional data were provided. Thus, it is required to update and clarify taxonomic status of several taxa in the checklist in order to promote further studies on diversity, biology and ecology of earthworms in Vietnam. Our aim here is to provide a critical and comprehensive checklist of all data relating to earthworm species in Vietnam, including their taxonomic status and distribution.

The study of earthworm fauna of Vietnam was initiated in the late 19th century by Edmond Perrier (1872, 1875) with description of *Perionyx excavatus* Perrier, 1872, possibly from the vicinities of Saigon (= Ho Chi Minh city), and *Amynthas juliani* (Perrier, 1875) from South of Vietnam (exact locality unknown, possibly also Saigon). In addition, two species were recorded, *Metaphire posthuma* (Vaillant, 1868) (as *Perichaeta affinis* Perrier, 1872) and *Metaphire houletti* (Perrier, 1872).

In the early 20th century, related research was done by several authors. Stephenson (1931a) reported two new species, *Pheretima bianensis* and *Ph. annamensis*, both from Lam Dong. Soon after that, Michaelsen (1934b) described 15 new species including *Pheretima alteradamae*, *Ph. tertiadamae*, *Ph. primadamae* from Phu Quoc Isl.; *Ph. caudana*, *Ph. bangoiana*, *Ph. helvola* from Khanh Hoa; *Ph. bianensis duplofusciata*, *Ph. dalatana*, *Ph. dawydfofi*, *Ph. langbiangi*, *Ph. stephensonii* and *Drawida annamensis*, all from Lam Dong province; *Ph. touranensis* from Da Nang province; *Ph. tonkinensis* from Phu Tho province; and *Ph. varellana* from Phu Yen province. Additionally, Omodeo (1957) contributed a new species, *Pheretima saigonensis* to the Vietnam fauna.

The study of earthworms was interrupted by the war during the period of 1965–1975. In the following years, research on earthworms in Vietnam was revived and extended by Vietnamese scientists (Thai 1982, 1983, 1984a,b,c). The first comprehensive study of earthworms in Vietnam including systematics, fauna, distribution, and zoogeography was made by Thai (1983). By 1983, 113 species in 17 genera and 6 families had been recorded in Vietnam (Thai 1983).

Since then, a new stage of what may be called the "golden period" of earthworm studies started with numerous publications, e.g. Tran (1985), Do (1994), Nguyen V.T. (1994), Pham (1995a,b,c), Le (1995a,b), Huynh (1996, 2005a,b), Nguyen T.T. (2013). Tran (1985) reported on the earthworm fauna of the delta of the Red River with 32 species in 12 genera and seven families; of these, 16 species were recorded in Vietnam for the first time. Do (1994) reported 95 species in seven genera and six families from northwestern Vietnam; of these, 15 species were first records in Vietnam, and other 15 species were new to science. In the same year, Nguyen (1994) reported 54 species in nine genera, six families from the Binh Tri Thien region; of these, six species and subspecies were recorded in Vietnam for the first time, and other five new species were described. Le (1995a) presented a list of 72 species and subspecies in 11 genera and five families from northeastern Vietnam; of these, ten species and subspecies were newly recorded from Vietnam, and five were new to science. Pham (1995c) also reported 48 species and subspecies in eight genera and four families from the Quang Nam-Da Nang region; of these, six were new to science. One year later, Huynh (1996) presented a list of 75 species and subspecies in 14 genera and six families; of these, eight were new to science. Blakemore's (2008b) tabular list of earthworm taxa from Vietnam, Laos and Cambodia included 207 species in 23 genera within seven families, but many species were tagged as "*species inquirendae*" due to unconfirmed new generic placement - original material deposited in Vietnam could not be reinvestigated. Recently, Nguyen T.T (2013) reported 34 species in nine genera and six families from the Cuu Long delta; of which, two were described as new to science. More new species have subsequently been added to the fauna of Vietnam (Nguyen T.T *et al.* 2014; 2015a,b; Nguyen & Nguyen, 2015).

Two problems regarding the taxonomic literature should be mentioned. Firstly, Thai and his students assigned all pheretimoid species to only one genus, *Pheretima* Kinberg, 1867, even after the split of this genus into eight different genera in the revision of Sims and Easton (1972). These assignments probably reduce the understanding

of the richness and taxonomic relationships among earthworm species from Vietnam. Here we follow the generally accepted system of Sims and Easton (1972). Secondly, Blakemore's (2008b) use of the term "*species inquirenda*" for species with uncertain generic position may lead to the erroneous idea that Vietnamese earthworm species need to be reinvestigated because of insufficient original descriptions, whereas, to contrary, most descriptions of Vietnamese earthworm species are accurate and sufficiently detailed.

Our checklist aims to provide all taxonomic and distributional information on Vietnamese earthworms in a comprehensive form (descriptions and characters excepted). This work will hopefully enhance the understanding of Vietnam's earthworm fauna and promote further studies, including phylogeny, biology, and ecology.

Material and methods

The checklist is based on a review of the entire literature on Vietnamese earthworms and on reexaminations of all available material deposited in Vietnam. Some material was found to be lost. Type material housed in museums outside Vietnam was not examined for this study. Material was examined to check the proper generic positions of species. Material was listed to document the availability of the earthworm collections in Vietnam for further study. The classification follows Sims & Easton (1972), Easton (1979), Blakemore (2012a, 2007a). Families, genera within families and species within genera are listed alphabetically. Appropriate citations for each species are given if they provide original records for Vietnam, and/or affect taxonomy of the species, and/or provide important geographical records of the species. Remarks on taxonomic problems or locality records are discussed. In the part "Records from Vietnam", names in bold refer to provinces, names in parentheses refer to districts or lower administrative levels or national parks, or natural reserves. Vietnamese names follow Thai & Nguyen (2016).

Abbreviations

C = Clitellate specimen

A = Aclitellate specimen

CTU = Can Tho University, Can Tho, Vietnam

HNUE = Hanoi National University of Education, Hanoi, Vietnam

MNHN = Muséum national d'Histoire naturelle, France

NHM = Natural History Museum, London, U.K.

NP = National Park

NR = Natural Reserve

SORC = Soil Organism Research Center, Hanoi, Vietnam

ZMNU = Zoological Museum, Nanking University, China

ZMUM = Zoological Museum, University of Moscow, Russia

Taxonomic part

Subclass OLIGOCHAETA Grube, 1850

Family ALMIDAE Duboscq, 1902

Genus *Glyphidrilus* Horst, 1889

Glyphidrilus Horst, 1889: 76; Horst 1893b: 37; Beddard 1895a: 679; Michaelsen 1900: 459; Stephenson 1930: 901; Gates 1972: 234; Chanabun *et al.* 2013: 9.

Bilimba Rosa, 1890: 386; Beddard 1895a: 686.

Annadrilus Horst, 1893b: 44; Beddard 1895a: 680.

Type species. *Glyphidrilus weberi* Horst, 1889.

Distribution. Tanzania, Sri Lanka, India, Myanmar, Malay peninsula, Indonesia (Sumatra, Java, Flores, Borneo, Celebes); China (Hainan), Thailand, Cambodia, Laos, Vietnam (Blakemore 2002; Chanabun *et al.* 2013).

Remarks. A total of 36 species have been described (Csuzdi 2012; Chanabun *et al.* 2013); of these, only one species is known from Vietnam. Records of a second species (*Glyphidrilus ceylonensis* Gates, 1945), in Blakemore 2008b, based on <http://www.msccwbf.org/earthworm/g.php>, (currently unaccessible) are not confirmed here.

***Glyphidrilus papillatus* (Rosa, 1890)**

Bilimba papillata Rosa, 1890a: 386, plate 12, fig. 1; Beddard 1895a: 687

Glyphidrilus papillatus—Michaelsen 1900: 459; Chen 1938: 426; Gates 1972: 236; Thai 1983: 121; Tran 1985: 62; Do 1994: 115; Nguyen 1994: 72; Thai 2000a: 310; Huynh & Nguyen 2004b: 70; Huynh 2005a: 147; Nguyen V.T. & Tran 2008: 185; Blakemore 2008b; Tran & Tran 2010: 8; Chanabun *et al.* 2013: 17; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2012: 146; Nguyen 2013: 97; Nguyen 2014: 113.

Type locality. Myanmar (Cobapo).

Type material. Genoa Museum (44025), Italy.

Examined material. 5 C, 15 A (CTU-EW.030.01) Au Isl., Cai Rang, Can Tho, 13/9/2011, coll. Nguyen Thanh Tung.

Records from Vietnam. Widely distributed in the Red River Delta, and **Bac Giang** (Hiep Hoa; Luc Ngan); **Ho Chi Minh** (Mai Chau); **Quang Tri** (Gio Linh; Quang Tri); **Binh Dinh** (Quy Nhon); **Dak Lak** (Buon Don); **Khanh Hoa** (Van Ninh); **Binh Thuan** (Tanh Linh); **Tien Giang** (Tan Hoa Dong; Cai Lay); **Tra Vinh** (Duyen Hai); **Ca Mau** (Ca Mau City); **Can Tho** (Cai Rang); **An Giang** (Tinh Bien; Tri Ton) (Tran 1985; Do 1994; Nguyen 1994; Huynh & Nguyen 2004b; Huynh 2005a; Nguyen V.T. & Tran 2008; Tran & Tran 2010; Nguyen 2014).

Distribution. Myanmar (Gates 1972; Chanabun *et al.* 2013).

Vietnamese name. Giun khâm nhú.

Remark. The species is common in rice fields in the Red River and can also be found near streams in northwestern Vietnam (Do 1994).

Family EUDRILIDAE Claus, 1880

Genus *Eudrilus* Perrier, 1871

Eudrilus Perrier, 1871: 1175. Michaelsen 1900: 401. Gates 1972: 51.

Type species. *Eudrilus decipiens* Perrier, 1871 (= *E. eugeniae*).

***Eudrilus eugeniae* (Kinberg, 1867)**

Lumbricus eugeniae Kinberg, 1867: 98.

Eudrilus decipiens Perrier, 1871: 1176.

Eudrilus eugeniae—Beddard 1895a: 604; Michaelsen 1900: 402; Gates 1972: 51; Blakemore 2002: 353, Fig. 5.1; Blakemore 2015: 528, Figs. 1–4.

See Blakemore (2002, 2015b) for further synonyms.

Type locality. South Atlantic (St. Helena Isl.).

Type material. Stockholm Museum, Sweden.

Records from Vietnam. This species was reported from provinces of Lang Son and Cao Bang, both in the northern Vietnam for its use in aquatic agriculture (Blakemore 2015).

Distribution. Cosmopolitan species, original distribution in West Africa, but introduced to other parts in the world (Blakemore 2002, 2012a, 2015)

Remarks. Blakemore (2015) reported its occurrence in Vietnam based on an online report (<http://www.afspan.eu/publications/reports/wp3-regional-international-cooperation-report-2012.pdf>, accessed 6 June 2016); no other records have been presented so far.

Family GLOSSOSCOLECIDAE Michaelsen, 1900

Genus *Pontoscolex* Schmarda, 1861

Pontoscolex Schmarda, 1861: 11; Beddard 1895a: 653; Michaelsen 1900: 424; Stephenson 1930: 895; Gates 1972: 53.

Type species. *Pontoscolex arenicola* Schmarda, 1861 (= *Lumbricus corethrurus* Müller, 1856).

Distribution. Neotropical regions, e.g. Surinam, Guyana, Guatemala (Gates 1972) except the cosmopolitan species *Pontoscolex corethrurus*.

Remarks. Only one species has been recorded in Vietnam.

Pontoscolex corethrurus (Müller, 1857)

Lumbricus corethrurus Müller, 1856: 113.

Urochaeta corethrura—Rosa 1889: 125.

Pontoscolex corethrurus—Michaelsen 1900: 425; Gates 1939: 110; Gates 1972: 54; Easton 1984: 120; Thai 1983: 121; Pham 1995c: 111; Thai 2000a: 307; Blakemore 2002: 238, Figs 3.1–3.3; Huynh & Nguyen 2004a: 115; Huynh 2005a: 172; Huynh 2005b: 20; Huynh *et al.* 2005: 180; Nguyen *et al.* 2010: 114; Pham 2010: 62; Thai 1987: 7; Thai *et al.* 2007: 312; Nguyen T.T. & Tran 2008: 61; Blakemore 2008; Nguyen *et al.* 2010: 114; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2011: 1025; Nguyen *et al.* 2012: 146; Nguyen 2013: 39; Nguyen 2014: 108.

Urochaeta australiensis Beddard, 1891b: 278, synonymized by Michaelsen (1900).

Pontoscolex hawaiiensis Beddard, 1895a: 660, synonymized by Michaelsen (1900).

Pontoscolex corethrurus mexicana Eisen, 1896: 8, synonymized by Michaelsen (1900).

Urochaeta hystrix Perrier, 1872: 142, synonymized by Michaelsen (1900).

Pontoscolex arenicola Schmarda, 1861: 11.

See Blakemore (2002: 238) for more synonyms.

Type locality. Brazil (Itajahy).

Type material. Unknown.

Examined material. 16 C, 17 A (CTU-EW.001.01) forest, Cat Tien NP, Tan Phu, Dong Nai, 13/10/2013, coll. Le Van Nhan; 45 C, 1 A (CTU-EW.001.05) Hon Me mountain, Hon Dat, Kien Giang, 13/11/2010, coll. Nguyen Thanh Tung.

Records from Vietnam. Widely distributed over all Vietnam.

Distribution. Pan-tropical; supposedly "the most widely distributed earthworm" (Gates 1972, Blakemore 2002).

Vietnamese name. Giun tân nhiệt đới corethru.

Remarks. The species originates from the neotropical regions and is widely distributed in the world (Gates 1972). Its wide distribution may result from human activities and possibly drifting (Blakemore 2002). The species has been considered as "the most widely distributed earthworm" (Gates 1972), but its supposed restriction to coastal areas (Stephenson 1930) is no longer true in many regions, e.g. in the Indian peninsula (Gates 1972). In Vietnam, the species has been found in high density near the beach of Phu Quoc Isl. (Thai *et al.* 2004).

Family LUMBRICIDAE Rafinesque-Schmaltz, 1815

Genus *Bimastos* Moore, 1895

Bimastos Moore, 1895: 473.

Bimastus—Michaelsen, 1900: 501 (invalid emendation of *Bimastos*).

Type species. *Bimastos palustris* Moore, 1895.

Distribution. North America and the Adriatic/Mediterranean; southeast USA east of the Allegheny Range; Albania, Greece, Italy and the Middle East, Asia (Blakemore 2002)

Remarks. About 18 species are known (Blakemore 2002), but only one has been recorded in Vietnam.

***Bimastos parvus* (Eisen, 1874)**

Allolobophora parva Eisen, 1874: 46, Plate II, Figs 9–11; Thai 1983: 121; Tran 1985: 61; Le 1995a: 74; Thai 2000a: 307;

Blakemore 2002: 264, Fig. 4.3; Huynh 2005a: 157; Huynh & Nguyen 2004a: 115; Huynh & Nguyen 2004b: 70.

Helodrilus (Bimastus) parvus—Michaelsen 1900: 502.

Bimastus parvus (sic!)—Chen 1931: 169; Chen 1933: 222, Fig. 13.

Bimastos parvus—Gates, 1972: 87; Blakemore 2008b.

See Blakemore (2002: 264) for more synonyms.

Type locality. Mount Lebanon, New York, USA.

Type material. Amerian Natural History Museum New York, USA.

Records from Vietnam. **Bac Giang** (Hiep Hoa); **Hai Phong** (Cat Ba Isl.); **Hanoi**; **Lam Dong** (Da Lat) (Tran 1985; Le 1995a; Huynh & Nguyen 2004a, b; Huynh 2005a).

Distribution. Cosmopolitan species, widely reported from Myanmar, India, Japan, China, USA, Mexico, Guatemala, Costa Rica, Brazil, Argentina, Southwest Africa, South Africa, Afghanistan, Kazakstan, Central Asia and Europe (Gates 1972; Blakemore 2002).

Vietnamese name. Giun toàn bắc nhỏ.

Remarks. The species probably originates from Holarctic, and recorded in Vietnam as the name *Allolobophora parva*. It is usually found in vemi-composts in Vietnam (Tran 1985).

Genus *Eisenia* Malm, 1877

Eisenia Malm, 1877: 45; Michaelsen 1900: 471; Reynolds & Cook 1976: 51.

Type species. *Enterion fetidum* Savigny, 1826.

Distribution. Palaearctic (Blakemore 2002).

Remarks. About 30 species are known (Blakemore 2002), but only one has been reported from Vietnam.

***Eisenia fetida* (Savigny, 1826)**

Enterion fetidum Savigny, 1826: 182.

Eisenia foetida—Michaelsen 1900: 475.

Eisenia fetida—Reynolds & Cook 1976: 101 (corr. *foetidum* illegal emendation); Easton 1983: 480; Thai 2000a: 307; Blakemore 2002: 313, Figs 4.13–4.14; Blakemore 2008b.

See Blakemore (2002: 313) for more synonyms.

Type locality. France (Paris).

Type material. MNHN, France (Paris).

Records from Vietnam. This species was listed in Vietnam by Thai (2000a), but exact locality was not stated. It is also reported from the Mekong Delta by Fuchs *et al.* (2005), and Arnold (2009: 90).

Distribution. A cosmopolitan species (Blakemore 2002).

Vietnamese name. Giun toàn bắc phân ủ.

Remarks. It is an introduced species from Europe (Blakemore 2002). Many synonyms that have priority over *E. andrei* Bouche, 1972 that is thus a likely junior synonym (see Blakemore 2002, 2012).

Family MEGASCOLECIDAE Rosa, 1891

Genus *Lampito* Kinberg, 1867

Lampito Kinberg, 1867: 103; Gates 1972: 133.

Type species. *Lampito mauritii* Kinberg, 1867, by original designation.

Distribution. Originally known from India, recorded in the tropics of the Indo-Asiatic region, Pacific Isles and Indian Ocean (Blakemore 2002).

Remarks. To date, eight species and subspecies have been described (Csuzdi 2012), but only one species is recorded in Vietnam.

***Lampito mauritii* Kinberg, 1867**

Lampito mauritii Kinberg, 1867: 103; Stephenson 1916: 315; Gates 1939: 78; Gates 1972: 133; Thai 1983: 122; Nguyen 1994: 36; Le 1995a: 70; Pham 1995c: 103; Thai 2000a: 310; Blakemore 2002: 137; Thai *et al.* 2004: 758; Huynh 2005a: 144; Thai *et al.* 2007: 312; Nguyen V.T. & Tran 2008: 184; Blakemore 2008; Nguyen *et al.* 2010: 114; Nguyen & Nguyen 2010: 123; Nguyen *et al.* 2012: 146; Nguyen 2013: 40; Nguyen 2014: 108.

Megascolex mauritii—Michaelsen, 1900: 227; Chen 1938: 381.

Perichaeta armata Beddard, 1883: 216, figs 5–7.

Perichaeta luzonica Perrier, 1875: 1044.

See Michaelsen (1900), Gates (1972), Blakemore (2002: 137) for more synonyms.

Type locality. Mauritius.

Type material. Stockholm Museum (103), Sweden.

Examined material. 10 C (**CTU-EW.002.01**) Xuan Loc, Dong Nai, 10/2012, coll. Nguyen Van Thang; 11 C (**CTU-EW.002.03**) Phung Hiep, Hau Giang, 9/10/2009, coll. Ngo Thi Ngan.

Records from Vietnam. **Hai Phong** (Cat Ba Isl.); **Quang Binh** (Quang Trach; Dong Hoi; Le Thuy); **Quang Tri** (Gio Linh; Quang Tri); **Thua Thien Hue** (Phong Dien; Hue; Huong Thuy; Phu Loc); **Da Nang** (Hoa Vang; Son Tra); **Quang Nam** (Dien Ban; Hoi An; Duy Xuyen; Thang Binh; Que Son; Tam Ky; Nui Thanh; Tien Phuoc; Tra My); **Quang Ngai** (Quang Ngai); **Binh Dinh** (Quy Nhon; An Nhon; Cu Lao Xanh); **Phu Yen** (Tuy Hoa); **Khanh Hoa** (Nha Trang; Van Ninh; Ninh Hoa; Hon Tre Isl.); **Ninh Thuan** (Phan Rang); **Binh Thuan** (Phan Thiet; Bac Binh; Tuy Phong); **Tay Ninh** (Ba Den Mts); **Dong Nai** (Xuan Loc: Xuan Hoa; Nhon Trach; Phu Huu, Phu Dong; Long Thanh; Long Phuoc); **Tien Giang** (Go Cong Dong); **Vinh Long** (Vung Liem); **Tra Vinh** (Duyen Hai: Cu Lao Hoa Minh); **Ben Tre** (Binh Dai; Thanh Phu); **Bac Lieu** (Bac Lieu Town); **Ca Mau** (Ca Mau City); **Hau Giang** (Phung Hiep); **An Giang** (Tinh Bien) (Nguyen 1994; Le 1995a; Pham 1995c, 2010; Thai *et al.* 2004; Huynh 2005a; Nguyen & Tran 2008; Nguyen *et al.* 2010; Nguyen 2014).

Distribution. Cosmopolitan species, widely known from China, Philippines, Malaysia, Indonesia, Thailand, Myanmar, Cambodia, Singapore, India, Madagascar, Mauritius Isl. (Gates 1972; Thai & Do 1989; Blakemore 2002).

Vietnamese name. Giun lampito mauriti.

Remarks. The species is usually found in coastal regions in Vietnam.

Genus *Perionyx* Perrier, 1872

Perionyx Perrier, 1872: 126; Beddard 1895a: 435; Michaelsen 1900: 207; Stephenson 1930: 481; Gates 1972: 138.

Type species. *Perionyx excavatus* Perrier, 1872, by original designation.

Distribution. Mainly in Burma and India (Blakemore 2002).

Remarks. To date, 61 species and subspecies have been described (Csuzdi 2012), but only one species has been recorded in Vietnam.

***Perionyx excavatus* Perrier, 1872**

Perionyx excavatus Perrier, 1872: 126, Plate IV, Figs 73–74; Rosa 1890b: 121; Beddard 1895a: 436; Michaelsen 1900: 208; Gates 1939: 108; Gates 1972: 141; Thai 1983: 122; Do 1994: 53; Nguyen 1994: 37; Le 1995a: 70; Thai 1987: 6, 7; Pham 1995c: 63; Thai 2000a: 310; Blakemore 2002: 133, Fig. 2.2; Huynh & Nguyen 2004a: 115; Huynh 2005a: 78; Nguyen V.T.

& Tran 2008: 184; Blakemore 2008; Nguyen *et al.* 2010: 114; Pham 2010: 62; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2012: 146; Nguyen 2013: 42; Nguyen 2014: 108.

Perionyx sp.—Tran, 1985: 56.

Perionyx gruenewaldi Michaelson, 1891: 33.

Perionyx turaensis Stephenson, 1920: 216.

See Blakemore (2002) for more details and synonyms.

Type locality. Vietnam (Saigon).

Type material. MNHN, France.

Examined material. 5 C, 5 A (CTU-EW.003.01) Cho Moi, An Giang, 2/2010, coll. Ho Minh Thuan.

Records from Vietnam. Yen Bai (Yen Bai); Ha Giang (Meo Vac); Cao Bang (Thach An); Lang Son (Binh Gia); Hanoi (Ba Vi NP); Quang Tri (Huong Hoa); Thua Thien Hue (Hue); Da Nang (Hoa Vang); Quang Ngai (Quang Ngai; Tu Nghia); Binh Dinh (Quy Nhon); Gia Lai (Pleiku); Phu Yen (Song Cau); Khanh Hoa (Nha Trang); Lam Dong (Da Lat; Don Duong; Duc Trong); Binh Thuan (Phan Thiet; Bac Binh; Duc Linh); Ho Chi Minh; Ca Mau (U Minh); Bac Lieu (Vinh Loi); Ben Tre (Thanh Phu); Tra Vinh (Chau Thanh); Vinh Long (Vung Liem); Can Tho (Cai Rang; Ninh Kieu; Thot Not; Phong Dien); An Giang (Chau Phu; Chau Thanh; Cho Moi); Hau Giang (Phung Hiep) (Perrier 1872; Thai 1987; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004a; Huynh 2005a; Nguyen V.T. & Tran 2008; Nguyen *et al.* 2010; Nguyen 2014).

Distribution. Cosmopolitan species, widely distributed in Australia, New Zealand, Japan, Korea, China, USA, Canada, England, Samoa, India, Taiwan, Thailand, Myanmar, Malaysia, Indonesia, Philippines, Madagascar, Cambodia (Gates 1972; Thai & Do 1989; Blakemore 2012a).

Vietnamese name. Giun Qué, Trùn Qué.

Remarks. The species is commonly used in earthworm farms, and sold as "red earthworm" for fishing and other purposes in Vietnam.

Genus *Pontodrilus* Perrier, 1874

Pontodrilus Perrier, 1874: 1582; Michaelson 1900: 179; Gates 1972: 47.

Type species. *Pontodrilus marionis* Perrier, 1874 (= *Lumbricus litoralis* Grube, 1855).

Distribution. One species (*Pontodrilus litoralis*) widely found on shorelines in the tropics and warmer parts of continents and islands; others in Australia, New Zealand, Sri Lanka and China (Blakemore 2002).

Remarks. Only one species has been recorded in Vietnam.

Pontodrilus litoralis (Grube, 1855)

Lumbricus litoralis Grube, 1855: 127, 135, Plate V, Figs 5–10.

Pontodrilus litoralis—Beddard, 1895a: 469; Michaelson, 1900: 180; Easton, 1984: 114; Blakemore 2002: 129, Fig. 2.1; Blakemore 2007b: S3–S8; Blakemore 2008; Nguyen 2013: 95; Nguyen 2014: 112.

Pontodrilus marionis Perrier, 1874: 1582, synonymized by Michaelson (1900).

Pontodrilus bermudensis Beddard, 1891a: 96, synonymized by Easton (1984).

Pontodrilus bermudensis—Thai 1987: 7; Thai 2000a: 307; Thai *et al.* 2004: 758; Huynh 2005a: 176; Nguyen & Nguyen 2010: 123.

Pontodrilus matsushimensis Iizuka, 1898: 21, Plate II, synonymized by Easton (1984).

Pontodrilus gracilis Gates, 1943: 100, synonymized by Easton (1984).

See Easton (1984) and Blakemore (2002, 2007b) for more synonyms and details.

Type locality. Southern France.

Type material. Humboldt Museum, Berlin, Germany.

Records from Vietnam. Hai Phong (Cat Ba Isl.); Khanh Hoa (Cam Ranh); Ba Ria-Vung Tau (Con Lon Isl.); Tien Giang (Go Cong Dong, Cai Lay); Bac Lieu (Bac Lieu); Ca Mau (Nam Can); Ben Tre (Binh Dai) (Le 1995a; Thai 1987; Thai *et al.* 2004; Nguyen & Nguyen 2010; Nguyen 2014).

Distribution. Cosmopolitan species; usually found in areas near warm seas of Atlantic, Pacific, Indian Oceans, from Mediterranean Sea to Southern China (Easton 1984; Blakemore 2002, 2007b).

Vietnamese name. Giun pontodrilus vùng triều.

Remarks. The species is usually found in coastal regions. Chen (1938) synonymized *Pontodrilus matsushimensis* Iizuka, 1898 with *P. bermudensis* Beddard, 1891. Easton (1984) considered both species as synonyms of *P. litoralis* (Grube, 1855).

Pheretimoid Groups

"Caecate" Group

Genus *Pithemera* Sims & Easton, 1972

Pithemera Sim & Easton, 1972: 202.

Type species. *Perichaeta bicincta* Perrier, 1875, by original designation.

Distribution. Mainly in Pacific Isls, e.g. Solomon Isl., New Britain, Fiji, Samoa, Philippines (Sims & Easton 1972: 202; Blakemore 2002: 223, 2012a).

Remarks. Members of the genus are easily recognized by the presence of intestinal caeca at xxi–xxiv, absence of copulatory pouches, and single or paired female pores on xiv. Currently, twelve species have been described (Csuzdi 2012), but only one has been found in Vietnam.

Pithemera bicincta (Perrier, 1875)

Perichaeta bicincta Perrier, 1875: 1044; Michaelsen 1900: 419.

Pheretima bicincta—Gates 1972: 170; Nguyen 1994: 43; Thai 2000a: 308.

Pithemera bicincta—Sims & Easton 1972: 202, 232; Lee, 1981: 563, Figs 29–30; Easton, 1981: 60; Easton, 1981: 60; 1982: 732; Blakemore 2002: 227, Fig. 2.18; Blakemore 2007a: 14; Blakemore 2008.

Perichaeta violacea Beddard, 1895a: 407, synonymized by Michaelsen (1910: 84).

Pithemera philippinensis James & Hong, 2004 (in: James *et al.* 2004): 9, Figs 2C–D, synonymized by Blakemore (2016: 19). See Blakemore (2002) for more synonyms.

Type locality. Philippines (Mindoro, or Luzon).

Type material. MNHN, France (AE 689–692) inspected by Michaelsen (1910: 84).

Records from Vietnam. Quang Binh (Quang Trach) (Nguyen 1994).

Distribution. A cosmopolitan species, frequently reported from Philippines, Myanmar, Taiwan, Java, Hawaii, Mexico, USA, Malaysia, India, West Indies, Japan, Samoa, Fiji, Penang west of Malacca, and Grenada in the Antilles, Australia (Blakemore 2002, 2007a).

Remarks. Further examination was not possible because all previously collected material has been lost.

Genus *Amyntas* Kinberg, 1867

Amyntas Kinberg, 1867: 97; Sims & Easton 1972: 211; Blakemore 2002: 149.

Amyntas Kinberg, 1867: 101; Beddard 1900: 612.

Nitocris Kinberg, 1867: 102.

Pheretima (part) Kinberg, 1867: 102; Michaelsen 1900: 234.

Perichaeta (part)—Beddard 1895a: 388.

Pheretima (*Pheretima*) (part)—Michaelsen 1928: 8.

Pheretima (*Metapheretima*) (part)—Michaelsen 1928: 8.

Pheretima (*Terrata*) (part) Thai, 1983: 123.

Type species. *Amyntas aeruginosus* Kinberg, 1867, by monotypy

Distribution. Widely distributed in the Oriental region, and also found in Australasian and Oceania regions (Sims & Easton 1972; Blakemore 2012a).

Remarks. Members of the genus can be easily recognized by the presence of intestinal caeca at or near xxvii and the absence of copulatory pouches. It is noted that about 400 nominal species have been recorded, but possibly more than half are synonyms (Blakemore 2012a).

To date, 110 species have been found in Vietnam.

Amynthas abrevicapitatus (Thai & Le, 1993)

Pheretima abrevicapitata Thai & Le, 1993: 34, fig. 1B; Thai 2000a: 307.

Amynthas? *abrevicapitatus*—Blakemore 2007a: 3; Blakemore 2008b.

Type locality. Vietnam (Hai Phong: Cat Ba Isl.).

Type material. SORC, Vietnam.

Records from Vietnam. **Hai Phong** (Cat Ba Isl.) (Thai & Le 1993).

Distribution. Only known from Vietnam.

Remarks. The species is fairly similar to *Amynthas brevicapitatus* (Thai, 1984) in having two pairs of spermathecal pores in intersegments 7/8/9, more or less same number of pre- and post-clitellar setae, prostatic duct S-shaped. However, it can be recognised by smaller body, prolobous prostomium, the absence of genital markings in spermathecal and male regions, spermathecal ampulla ellipsoid-shaped, and diverticula very short. The species was found inside decaying woods (Thai & Le 1993).

Amynthas acalifornicus (Do & Huynh, 1991) comb. nov.

Pheretima acalifornica Do & Huynh, 1991 (in: Do *et al.* 1991): 56, fig. 4D; Do 1994: 54; Thai 2000a: 307; Huynh *et al.* 2005: 180.

Metaphire? *acalifornica*—Blakemore 2007a: 3; Blakemore 2008b.

Type locality. Vietnam (Son La: Moc Chau).

Type material. 1 A (**SORC-V.002.01**) Son La, Moc Chau, humid forest, 15/05/1991; 3 C (**SORC-V.002.02**) Son La, Moc Chau, forest, 12/04/1990; 1 C (**SORC-V.002.03**) Son La, Moc Chau, forest on limestone, 13/04/1990.

Records from Vietnam. **Son La** (Moc Chau); **Phu Tho** (Xuan Son NP); **Ninh Binh** (Cuc Phuong NP) (Do 1994; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Remarks. The species is fairly similar to *Metaphire californica* (Kinberg, 1867), but differs in lack of copulatory pouches, having a pair of large genital markings on viii, and one or two pairs of genital markings in the male region. Blakemore (2007a) assigned this species to the genus *Metaphire* with comments "species inquirenda". The species assigned here to the genus *Amynthas* because of lack of copulatory pouches.

Amynthas acidophilus (Chen, 1946)

Pheretima acidophila Chen, 1946: 111, Plate VI, Fig. B; Do 1994: 54; Nakamura 1999: 27; Thai 2000a: 307; Huynh & Nguyen 2004b: 70.

Amynthas acidophilus—Sims & Easton 1972: 237.

Amynthas? *acidophilus*—Blakemore 2007a: 3; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Records from Vietnam. **Lao Cai** (Sa Pa); **Ninh Binh** (Cuc Phuong NP); **Bac Giang** (Hiep Hoa) (Do 1994; Huynh & Nguyen 2004b).

Distribution. Vietnam (Do 1994), China (Chen 1946).

Vietnamese name. Giun ura chua.

Remarks. Chen (1946) noted that the species was usually found under mosses on trees, occasionally on dead trees, but never on the ground. To the contrary, it was collected on the ground in Vietnam (Huynh & Nguyen 2004b).

Amyntas adexilis (Thai, 1984)

Pheretima adexilis Thai, 1984a: 286, fig. 1d; Le 1995a: 41; Nakamura 1999: 37; Thai 2000a: 307; Huynh *et al.* 2005: 180; Tran & Ngo 2008: 133.

Pheretima (Terrata) adexilis—Thai 1983: 123.

Amyntas adexilis—Blakemore 2007a: 4; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Soc Son).

Type material. ZMUM (W.214), Russia.

Examined material. 1 C, 1 A (**SORC-V.003.01**), and 1 C (**CTU-EW.043.01**) Trau forest, Xuan Mai, Hoa Binh, 06/1986.

Records from Vietnam. **Phu Tho** (Xuan Son NP; Phu Tho town); **Quang Ninh** (Mong Cai); **Bac Giang** (Tan Yen; Khe Ro NR); **Hanoi** (Soc Son) (Thai 1984a; Le 1995a; Huynh *et al.* 2005; Tran & Ngo 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận exilis.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas alluxus (Thai, 1984)

Pheretima alluxa Thai, 1984c: 1318, fig. 2b; Le 1995a: 64; Nakamura 1999: 48; Thai 2000a: 307; Huynh 2005a: 83; Pham 2010: 62.

Pheretima (Amyntas) alluxa—Thai 1983: 124.

Amyntas alluxus—Blakemore 2007a: 6; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: Buon Luoi).

Type material. ZMUM (W.243), Russia.

Examined material. 4 C (**SORC-V.004.01**), Trang Dinh, Lang Son, 27/01/1990.

Records from Vietnam. **Lang Son** (Trang Dinh); **Vinh Phuc** (Tam Dao); **Gia Lai** (Buon Luoi); **Da Nang** (Ba Na NP) (Thai 1984c; Le 1995a; Huynh 2005a; Pham 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận luxus.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas alteradamae (Michaelsen, 1934b)

Pheretima alteradamae Michaelsen, 1934b: 540, Figs. XXVII–XXVIII; Nakamura 1999: 37.

Pheretima (Terrata) alteradamae (*sic!*)—Thai 1983: 123; Thai 2000a: 307.

Amyntas alteradamae—Sims & Easton 1972: 237; Blakemore 2007a: 6; Blakemore 2008b.

Type locality. Vietnam (Kien Giang: Phu Quoc Isl.).

Type material. MNHN (AE574 (A730)), France.

Examined material. 8 C (**CTU-EW093.01**) short-term tree plantations, An Son Isl., Kien Hai, Kien Giang (104°21'10.1"E; 09°41'11.8"N), 17/11/2013, coll. Trinh Thi Kim Binh.

Records from Vietnam. **Kien Giang** (Phu Quoc Isl., Hon Tre Isl., An Son Isl.) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun phú quốc khác.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amynthas andersoni doettrani Blakemore, 2006

Amynthas andersoni doettrani Blakemore, 2006; Blakemore 2007a: 7; Blakemore 2008b.

Pheretima andersoni minima Do & Tran, 1995 (in: Do *et al.* 1995): 89, fig. 1E; Thai 2000a: 307; Huynh *et al.* 2005: 180.

Type locality. Vietnam (Nghe An: Quy Hop).

Type material. SORC, Vietnam.

Examined material. 8 C, 4 A (**SORC-V.008.01**) Bu Co mountain, Que Phong, Nghe An, 15/5/1988; 16 C (**CTU-EW.044.01**) Chau Thanh, Quy Hop, Nghe An, 16/5/1988.

Records from Vietnam. **Phu Tho** (Xuan Son NP); **Nghe An** (Quy Hop; Tan Ky; Que Phong; Quy Chau) (Do *et al.* 1995; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun anderson bé.

Remarks. The subspecies, originally named *Pheretima andersoni minima* Do & Tran, 1995, differs from *Pheretima andersoni andersoni* (Michaelsen, 1907) in fewer setae, much smaller body size and genital markings presenting till 20/21 (Do *et al.* 1995). Blakemore (2006) proposed a new name, *Amynthas andersoni doettrani* to replace *Pheretima andersoni minima*, which was considered as a junior homonym of *Amynthas minimus* (Horst, 1893). Under ICBN (1999, Arts. 16; 53.3; 57.2), the name *Pheretima andersoni minima* is permanently invalid. Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas angusticaudus (Thai, 1982)

Pheretima angusticauda Thai, 1982: 821, fig. 1B; Do 1994: 55; Nakamura 1999: 20; Thai 2000a: 307.

Pheretima (Amynthas) angusticauda—Thai 1983: 125.

Amynthas angusticaudus—Blakemore 2007a: 7; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.249), Russia.

Examined material. 10 C (**SORC-V.009.01**) limestone forests, Moc Chau, Son La, 12/04/1990; 12 C, 3 A (**SORC-V.009.02**) Thuy Phuoc, Hue, 07/01/1980.

Records from Vietnam. **Son La** (Moc Chau); **Lao Cai** (Sa Pa); **Ninh Binh** (Cuc Phuong); **Thua Thien Hue** (Hue city) (Thai 1982; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đuôi nhọn.

Remarks. The species is variable in the number of spermathecae. It has been found in decaying woods (Do 1994). Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas anhumalatanus (Thai & Huynh, 1993)

Pheretima anhumalatana Thai & Huynh, 1993 (in: Thai *et al.* 1993): 14, fig. 1D; Thai 2000a: 307; Huynh 2005a: 95.

Amynthas? anhumalatanus—Blakemore 2007a: 7; Blakemore 2008b.

Type locality. Vietnam (Dak Lak: Yok Don).

Type material. SORC, Vietnam.

Records from Vietnam. Dak Lak (Yok Don NP) (Thai *et al.* 1993).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận *nhumalatanus*.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but no further examination was made to confirm its taxonomic status because the type specimens were lost.

Amynthas arrobustus (Thai, 1984)

Pheretima arrobusta Thai, 1984c: 1327, fig. 4B; Le 1995a: 58; Do 1994: 57; Nakamura 1999: 29; Thai 2000a: 310; Huynh & Nguyen 2004a: 115; Huynh 2005b: 20; Huynh *et al.* 2005: 180; Tran & Ngo 2008: 133.

Pheretima (Amynthas) arrobusta—Thai 1983: 124.

Amynthas arrobustus—Blakemore 2007a: 9; Blakemore 2008b.

Type locality. Vietnam (Hanoi).

Type material. ZMUM (W.212), Russia.

Records from Vietnam. Vinh Phuc (Me Linh); Thai Nguyen (Dinh Hoa); Hanoi; Son La; Lai Chau (Phong Tho: Khuoi Leng); Phu Tho (Xuan Son NP); Bac Giang (Khe Ro NR); Hanoi (Ba Vi NP); Ninh Binh (Cuc Phuong NP) (Thai 1984c; Do 1994; Le 1995a; Huynh 2005b; Huynh *et al.* 2005; Tran & Ngo 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận robustus.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but no further examination was made to confirm its taxonomic status.

Amynthas assacceus (Chen, 1938)

Pheretima assaccea Chen, 1938: 382; Do 1994: 59; Le 1995a: 47; Thai 2000a: 308.

Amynthas assacceus—Sims & Easton 1972: 236.

Amynthas assacceus—Tsai *et al.* 2001: 284; Blakemore 2007a: 9; Blakemore 2008b.

Pheretima pusilla Ohfuchi, 1956: 138 (non Ude, 1893 = *A. minimus*), synonymized by Tsai *et al.* (2000, 2001).

Pheretima medipusilla Nakamura, 1999: 2, nom. nov., pro *Pheretima pusilla* Ohfuchi, 1956.

Type locality. China (Hainan).

Type material. Unknown.

Records from Vietnam. Yen Bai (Luc Yen; Bao Ha); Ninh Binh (Cuc Phuong NP) (Do 1994; Le 1995a; Thai 1982).

Distribution. China, Japan (Chen 1938; Nakamura 1999).

Remarks. An "incorrect original spelling" (under ICBN, 1999: Art. 32.5.1.1) as *Pheretima assaccea* was subsequently corrected by Chen in an ERRATA sheet to *assaccea* (Tsai *et al.* 2001). Thus, it is often misspelt as "*Amynthas assacceus*". No re-examination was made because of lack of available specimens. Do (1994) stated that the population found in northwestern Vietnam has additional genital markings on spermathecal region.

Amynthas aspergillum (Perrier, 1872)

Perichaeta aspergillum Perrier, 1872: 118.

Perichaeta takatorii Goto & Hatai, 1898: 76.

Pheretima aspergillum—Chen 1938: 382; Pham 1995c: 74; Nakamura 1999: 29; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Huynh 2005a: 100; Tran & Ngo 2008: 133; Nguyen V.T. & Tran 2008: 184; Pham 2010: 62.

Amynthas aspergillus—Sims & Easton 1972: 234.

Pheretima (Amynthas) aspergillum—Thai 1983: 124.

Amynthas aspergillum—Blakemore 2007a: 9; Blakemore 2008b.

Type locality. China.

Type material. MNHN, France.

Examined material. 4 C, 1 A (**SORC-V.122.04**) Xuan Nha, Moc Chau, Son La, 17/11/1991; 3 C, 1 A (**SORC-V.122.07**) Luc Ngan Hill, Bac Giang, 11/5/1992; 10 C (**CTU-EW.045.02**) Cau Giay, Hanoi, 09/20013, coll. Thai Tran Bai; 7 C (**CTUEW.045.01**) Xuan Hoa, Thanh Hoa, 15/7/1999.

Records from Vietnam. Widely distributed in Vietnam except southern Vietnam.

Distribution. China, Taiwan (Blakemore 2002).

Vietnamese name. Giun khoang.

Remarks. The species is commonly found in northern and central Vietnam.

Amynthas bachmaensis (Thai & Nguyen, 1993)

Pheretima bachmaensis Thai & Nguyen, 1993 (in: Nguyen 1993): 7, fig. 1D; Nakamura 1999: 40; Thai 2000a: 308.

Amynthas? *bachmaensis*—Blakemore 2007a: 10; Blakemore 2008b.

Type locality. Vietnam (Thua Thien Hue: Bach Ma NP).

Type material. SORC, Vietnam.

Records from Vietnam. Thua Thien Hue (Bach Ma NP; Nam Dong) (Nguyen 1993).

Distribution. Only known from Vietnam.

Vietnamese name. Giun bạch mã.

Remarks. The species is fairly similar to *Metaphire dawydovi* Michaelsen, 1934b in having three pairs of spermathecal pores and simple intestinal caeca, but can be distinguished by the position of the first dorsal pore and morphology of genital markings in the male region (Nguyen 1993). Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but no further examination was made to confirm its taxonomic status due to lack of available specimens and apparent loss of the type specimens.

Amynthas banaensis (Pham, 1995)

Pheretima banaensis Pham, 1995a: 22, fig. 1B; Pham 1995c: 73; Nakamura 1999: 20; Thai 2000a: 308; Pham 2010: 62.

Amynthas? *banaensis*—Blakemore 2007a: 11; Blakemore 2008b.

Type locality. Vietnam (Da Nang: Ba Na NP).

Type material. SORC, Vietnam.

Examined material. 2 C (**CTU-EW.048.01**), and 4 C, 4 A (**CTU-EW.048.02**) forest, Ba Na-Nui Chua National Park, Da Nang, 24/9/1994, coll. Pham Thi Hong Ha.

Records from Vietnam. Da Nang (Ba Na NP) (Pham 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun bà nà.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*".

Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas banbongensis (Thai, 1982)

Pheretima banbongensis Thai, 1982: 829, fig. 3B; Thai & Tran 1986: 5; Do 1994: 59; Nakamura 1999: 40; Thai 2000a: 308.

Pheretima (*Amynthas*) *banbongensis*—Thai 1983: 125.

Amynthas banbongensis—Blakemore 2007a: 11; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong NP).

Type material. ZMUM (W.247), Russia.

Examined material. 7 A (**SORC-V.014.01**), and 1 C (**CTU-EW.047.01**) Muong Long, Ky Son, Nghe An, 31/12/1985, coll. Tran Ba Cu; 1A (**SORC-V.014.02**) Cuc Phuong NP, Nho Quan, Ninh Binh, 26/3/1983, coll. Do Van Nhuong.

Records from Vietnam. **Ninh Binh** (Cuc Phuong NP); **Nghe An** (Ky Son) (Thai 1982; Thai & Tran 1986; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun bắn bóng.

Remarks. The population from Ky Son has smaller size, three pairs of genital markings on vii, viii and ix, and deeply-lobuled intestinal caeca (Thai & Tran 1986). Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

***Amyntas bangoianus* (Michaelsen, 1934)**

Pheretima (Pheretima) bangoiana Michaelsen, 1934b: 505, Figs. VI–VIII; Nakamura 1999: 40.

Amyntas bangoianus—Sims & Easton 1972: 236 (*sieboldi*-group); Blakemore 2007a: 11; Blakemore 2008b; Blakemore 2016: 21, fig. 8.

Type locality. Vietnam (Khanh Hoa: Ba Ngoi).

Type material. MNHN (576), France.

Records from Vietnam. **Khanh Hoa** (Cam Ranh: Ba Ngoi) (Michaelsen 1934).

Distribution. Only known from Vietnam.

Vietnamese name. Giun ba ngòi.

Remarks. The species has been considered as a synonym of *Metaphire bahli* (see Thai 1983, 2000a). However, Michaelsen (1934b: 508) states that male pores are simple and that "Kopulationstaschen" are absent, hence the species belongs to *Amyntas* rather than to *Metaphire*. Furthermore, the genital markings are quite different from those typical of *M. bahli* (Blakemore 2016).

***Amyntas bellatulus* (Gates, 1932)**

Pheretima bellatula Gates, 1932: 427; Gates 1972: 170; Do 1994: 60; Nakamura 1999: 37; Thai 2000a: 308; Huynh & Nguyen 2004a: 115.

Amyntas bellatulus—Sims & Easton 1972: 235; Blakemore 2007a: 13; Blakemore 2008b.

Type locality. China (Yunnan: Teung Cong).

Type material. Unknown.

Records from Vietnam. **Lao Cai** (Sa Pa); **Hanoi** (Ba Vi) (Do 1994; Huynh & Nguyen 2004a).

Distribution. Vietnam (Thai 2000a), Myanmar, China (Yunnan) (Gates 1972).

Remarks. Gates (1972) noted that the species can be found in habitats of rotting leaves and sandy soils.

No material for re-examination was available. Do (1994) stated that specimens found in Vietnam had a shorter duct of diverticula, compared to the description in Gates (1972).

***Amyntas binhgiaensis* (Le, 1994) comb. nov.**

Pheretima binhgiaensis Le, 1994 (in: Do et al. 1994): 22, fig. 1A; Le 1995a: 50; Nakamura 1999: 37; Thai 2000a: 308.

Metaphire binhgiaensis—Blakemore 2007a: 15.

Metaphire? binhgiaensis—Blakemore 2008b.

Type locality. Vietnam (Lang Son: Binh Gia).

Examined material. 3 C and 2 A (**SORC-V.018.01**) decaying wood, Minh Khai, Binh Gia, Lang Son, 29/3/1992; 2 C (**SORC-V.018.02**) footprint of Na Tap Mt., Khuoi O, Minh Khai, Binh Gia, Lang Son, 22/3/1992; 4 C (**SORC-V.018.04**) Coc Cheng Mts, Ban Tan, Minh Khai, Binh Gia, Lang Son, 23/3/1992, all coll. Le Van Trien.

Records from Vietnam. Lang Son (Binh Gia) (Do *et al.* 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun binh giá.

Remarks. The species was found in litter layer, decaying woods (Do *et al.* 1994). Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas bournei (Rosa, 1890)

Perichaeta bournei Rosa, 1890b: 110, Figs 3–5; Beddard 1895a: 395, 398, 405.

Pheretima bournei—Michaelsen 1900: 257; Gates 1932: 441; 1933: 510; Gates 1972: 173; Do 1994: 60; Nakamura 1999: 46; Thai 2000a: 308.

Amyntas bournei—Beddard 1900: 635.

Amyntas bournei—Sims & Easton 1972: 234; Blakemore 2007a: 16; Blakemore 2008b.

Type locality. Myanmar (Cobapo).

Type material. Museum of Genoa, Italy.

Records from Vietnam. Lao Cai (Sa Pa) (Do 1994).

Distribution. Myanmar (Cobapo) (Rosa 1890b).

Vietnamese name. Giun bournei.

Remarks. Gates (1972) noted that the species was considered as a synonym of *Pheretima hawayana* by Beddard (1900: 635), but was accepted by Michaelsen (1900). Blakemore (2007a) suggested synonymy with *Amyntas gracilis*. He recommended to re-check types of both species (Blakemore 2007a).

Amyntas brevicapitatus (Thai, 1984)

Pheretima brevicapitata Thai, 1984c: 1324, fig. 3B; Tran 1985: 32; Do 1994: 61; Nguyen 1994: 42; Le 1995a: 60; Nakamura 1999: 29; Thai 2000a: 308; Nguyen V.T. & Tran 2008: 184.

Pheretima (*Amyntas*) *brevicapitata*—Thai 1983: 124.

Amyntas brevicapitatus—Blakemore 2007a: 16; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Hoai Duc).

Type material. ZMUM (W.209), Russia.

Examined material. 4 C, 11 A (**SORC-V.019.03**), 15 C, 7 A (**CTU-EW.050.01**), and 6 C (**CTU-EW.050.02**) Co Nhue, Tu Liem, Hanoi, 11/1980, coll. Tran Thuy Mui; 2 C (**SORC-V.019.05**) limestone forest, Moc Chau, Son La, 12/04/1990; 2 C, 6 A (**SORC-V.019.02**) rotting woods, Chan Yen, Bac Son, Lang Son, 29/4/1993, coll. Le Van Trien.

Records from Vietnam. Son La (Moc Chau); Phu Tho (Doan Hung); Vinh Phuc (Me Linh); Bac Giang (Tan Yen); Bac Kan; Cao Bang (Thanh An); Lang Son (Binh Gia; Bac Son); Hai Phong (Cat Ba Isl.); Hanoi (Hoai Duc); Thai Binh; Hai Duong; Hung Yen; Nghe An (Ky Son; Quy Chau); Thua Thien Hue (Phu Loc); Binh Dinh (Thai 1984c; Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Nguyen V.T. & Tran 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đầu ngắn.

Remarks. The species is commonly found in forests, particularly in rotting wood and rocky holes (Le 1995a). Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas breviclitellatus (Do & Tran, 1995)

Pheretima breviclitellata Do & Tran, 1995 (in: Do *et al.* 1995): 92, fig. 2B; Thai 2000a: 308.

Amyntas? *breviclitellatus*—Blakemore 2007a: 16; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Que Phong).

Type material. SORC, Vietnam.

Examined material. 1 C (SORC-HV.020), and 5 C, 4 A (SORC-PV.020.01) bamboo forest, Hiep Cat, Que Phong, Nghe An, 22/12/1987, coll. Tran Ba Cu.

Records from Vietnam. **Nghe An** (Que Phong) (Do *et al.* 1995).

Distribution. Only known from Vietnam.

Remarks. The species is fairly similar to *Amyntas polychaetiferus* (Thai, 1984), but distinguished by having two pairs of spermathecal pores, a clitellum from xiv–3/4xvi, and genital markings in spermathecal and male region. Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas campanoporophoratus (Thai, 1982)

Pheretima campanoporophorata Thai, 1982: 825, fig. 2B; Do 1994: 63; Le 1995a: 37; Nakamura 1999: 25; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Pham 2010: 63.

Pheretima (Terrata) campanoporophorata—Thai 1983: 123.

Amyntas campanoporophoratus—Blakemore 2007a: 19; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.245), Russia.

Examined material. 2 A (SORC-V.021.01) maize field, Moc Chau, Son La, 13/05/1991, coll. Do Van Nhuong.

Records from Vietnam. **Son La** (Moc Chau); **Bac Giang** (Tan Yen); **Hanoi** (Ba Vi NP); **Ninh Binh** (Cuc Phuong); **Nghe An** (Quy Chau); **Da Nang** (Ba Na NP) (Thai 1982; Do 1994; Le 1995a; Huynh & Nguyen 2004a; Pham 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú đực hình chuông.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas carnosus (Goto & Hatai, 1899)

Perichaeta carnosa Goto & Hatai, 1899: 15, figs 4–5.

Pheretima carnosa—Michaelsen 1900: 260; Chen 1936: 274; Kobayashi 1936: 115, text figs 1–3; Gates 1972: 149; Ishizuka 2001: 75, fig. 32.

Amyntas carnosus—Sims & Easton 1972: 235; Blakemore 2005; Blakemore 2007a; Blakemore 2008b; Blakemore, 2012b: 35; Blakemore 2013: 101.

Pheretima pingi Stephenson, 1925: 891, fig. 17; Chen 1933: 228, fig. 15; Do 1994: 103; Nguyen 1994: 58; Nakamura 1999: 53; Thai 2000a: 309; Huynh 2005a: 81; Huynh & Nguyen 2004a: 116; Nguyen & Tran 2008: 185.

Pheretima (Amyntas) pingi—Thai 1983: 124.

Amyntas pingi—Blakemore 2002: 182, fig. 2.13.

Pheretima kyamikia Kobayashi, 1934: 1, figs 1–3.

See Blakemore (2012b, 2013) for more synonyms.

Type locality. Japan (Tokyo).

Type material. Unknown.

Records from Vietnam. **Son La** (Moc Chau); **Nghe An** (Quy Chau); **Quang Binh** (Tuyen Hoa; Minh Hoa; Bo Trach; Quang Ninh, Dong Hoi); **Thua Thien Hue** (Phu Loc); **Gia Lai** (Buon Luoi; Kon Ha Nung); **Binh Dinh** (Do 1994; Nguyen 1994; Huynh 2005a; Nguyen & Tran 2008).

Distribution. China, Taiwan, Korea, and Japan (Chen 1933; Blakemore 2002, 2007a, 2013).

Remarks. The records of this species from Vietnam (as *Pheretima pingi*) are outside its known area, temperate regions in northern China, Korea and Japan, and require confirmation with fresh reference material.

Amynthas caudanus (Michaelsen, 1934b)

Pheretima caudana Michaelsen, 1934b: 531, Fig. XXI; Nakamura 1999: 49; Thai 2000a: 308; Huynh 2005a: 95; Thai *et al.* 2004: 758.

Pheretima (Terrata) caudana—Thai 1983: 122.

Amynthas caudanus—Sims & Easton 1972: 234; Blakemore 2007a: 21; Blakemore 2008b.

Type locality. Vietnam (Khanh Hoa: Nha Trang).

Type material. MNHN (AE578 (A730)), France.

Records from Vietnam. Khanh Hoa (Nha Trang: Cau Da, Hon Tre Isl.) (Michaelsen 1934b; Huynh 2005a; Thai *et al.* 2004).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cát đá.

Remarks. The species was only recorded in Hon Tre Isl., and never found in other places. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amynthas corticis (Kinberg, 1867)

Perichaeta corticis Kinberg, 1867: 102.

Pheretima (Amynthas) cortices (**sic!**)—Thai 1983: 124.

Pheretima corticus (**sic!**)—Do 1994: 64; Do 1994: 43; Le 1995a: 58; Pham 1995c: 69; Huynh 2005a: 89; Thai *et al.* 2004: 758; Pham 2010: 63.

Pheretima corticis—Nakamura 1999: 49.

Amynthas corticus (**sic!**)—Sims & Easton 1972: 235; Easton 1981: 49.

Amynthas corticis—Easton 1982: 726; Easton, 1984: 118; Blakemore 2002: 155, Figs 2.4–2.5; Blakemore 2007a: 24; Blakemore 2008b.

Megascolex diffringens Baird, 1869: 40.

Pheretima diffringens—Gates, 1972: 149; Thai 2000a: 308.

Amynthas diffringens—Sims & Easton 1972: 235; Easton, 1979: 119.

Megascolex indicus Horst, 1883: 186 (part).

Perichaeta heterochaeta Michaelsen, 1891: 6; Stephenson 1914a: 399; 1914b: 343; Chen 1933: 234, Fig. 16; Chen 1938: 382.

See Blakemore (2002, 2007a, 2012a) for more synonyms and Blakemore (2013) for separation of *A. diffringens* s. stricto.

Type locality. Hawaii (Oahu).

Type material. Stockholm Museum (1947, possibly immature), Sweden.

Examined material. 5 C (CTU-EW.052.02) Nam O Bridge, Hoa Vang, Da Nang, 28/7/1994, coll. Pham Thi Hong Ha.

Records from Vietnam. Lao Cai (Pho Rang; Sa Pa); Ha Giang (Quan Ba; Dong Van); Cao Bang (Thach An); Lang Son (Trang Dinh; Bac Son; Binh Gia); Vinh Phuc (Tam Dao NP); Quang Ninh (Mong Cai); Nghe An (Ky Son; Que Phong); Thua Thien Hue (A Luoi); Da Nang (Hoa Vang; Son Tra; Ba Na NP); Quang Nam (Hiep Duc; Tien Phuoc); Binh Dinh (Quy Nhon; Tuy Phuoc); Lam Dong (Da Lat); Ninh Thuan (Ninh Son); Kien Giang (Tho Chu Isl.); Ba Ria-Vung Tau (Con Lon Isl.) (Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh 2005a; Thai *et al.* 2004).

Distribution. Cosmopolitan species; usually recorded from temperate and tropical regions throughout the world (Blakemore 2002, 2012).

Remarks. The species name is sometimes misspelt as "corticis". The taxonomic history of the species is very complicated, see Blakemore (2002: 157, 2012, 2013) for more details.

Amynthas cupreae (Chen, 1946)

Pheretima cupreae Chen, 1946: 117, Plate VII, Fig. C; Sims & Easton 1972: 224; Easton, 1979: 117; Do: 1994: 65; Le 1995a:

54; Nakamura 1999: 36; Nakamura 1999: 63; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Tran & Ngo 2008: 133.

Amynthas? cupreae—Blakemore 2007a: 25; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Examined material. 3 C, 5 A (**SORC-V.131.01**), 3 C (**CTU-EW.053.01**) rotting woods, Khuoi Da, Thach An, Cao Bang, 18/3/1992, coll. Le Van Trien; 1 C, 2 A (**SORC-V.131.02**) Bac Son, Lang Son, 26/11/1993, coll. Le Van Trien.

Records from Vietnam. Lao Cai (Sa Pa); Yen Bai (Luc Yen; Yen Binh); Ha Giang (Quan Ba); Lang Son (Bac Son); Cao Bang (Thach An); Bac Giang (Khe Ro NR); Hanoi (Ba Vi NP) (Do 1994; Le 1995a; Huynh & Nguyen 2004a; Tran & Ngo 2008).

Distribution. China (Chen 1946).

Remarks. Sims & Easton (1972) stated that the species can be excluded from *Metaphire* or *Pheretima* because of the absence of copulatory pouches, but it cannot be assigned to a genus due to lack of details of the presence or absence of intestinal caeca. Therefore, it was listed as "species *incertae sedis*" on page 241 of Sims & Easton (1972). The examined population in Vietnam showed the presence of intestinal caeca in xxi–xxvii. The species is confirmedly assigned to the genus *Amynthas*.

Amynthas cyclopapillatus (Thai & Samphon, 1988)

Pheretima cyclopapillata Thai & Samphon, 1988: 13; Samphon 1990: 75; Do 1994: 67.

Amynthas? cyclopapillatus—Blakemore 2007a: 25; Blakemore 2008b.

Type locality. Laos (Tha Pha).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-V.407.01**) bushes, Tien Phong, Que Phong, Nghe An, 24/12/1987, coll. Tran Minh Khoi; 2 C (**SORC-V.407.02**) Chau Hanh, Quy Chau, Nghe An, 11/5/1988, coll. Tran Minh Khoi.

Records from Vietnam. Nghe An (Que Phong; Quy Chau) (Do 1994).

Distribution. Vietnam, Laos (Thai & Samphon 1988; Samphon 1990; Do 1994).

Vietnamese name. Giun nhú phủ vòng.

Remarks. Blakemore (2007a, 2008b) considered it as "species *inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas dackenanus (Do & Huynh, 1992)

Pheretima dackenana Do & Huynh, 1992 (in: Thai *et al.* 1992): 2, fig. 1C; Nakamura 1999: 41; Thai 2000a: 308; Huynh 2005a: 114.

Amynthas? dackenanus—Blakemore 2007a: 26, "species *inquirenda*"; Blakemore 2008b.

Type locality. Vietnam (Dak Lak: Dak Ken).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-PV.026**), 3 C (**SORC-HPV.026**) on the banks of stream Dak Ken, Dak To, Kon Tum, 12/10/1989, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dak Lak (Dak Ken) (Thai *et al.* 1992).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đắc kên.

Remarks. The species can be distinguished from its most similar congener *Amynthas alluxoides* (Thai & Samphon, 1988) in having three pairs of spermathecal pores in intersegments 6/7/8/9 and male porophores slightly indented into body wall (Thai *et al.* 1992). Blakemore (2007a, 2008b) considered it as "species *inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amyntas dactilicus (Chen, 1946)

Pheretima dactilica Chen, 1946: 106, Plate V, Fig. C; Nakamura 1999: 41; Huynh & Nguyen 2004a: 115; Huynh *et al.* 2005: 180.

Amyntas dactilicus—Sims & Easton 1972: 237; Blakemore 2007a: 26.

Type locality. China (Szechuan).

Type material. Unknown.

Records from Vietnam. **Phu Tho** (Xuan Son NP); **Hanoi** (Ba Vi NP) (Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. China (Chen 1946).

Remarks. The species was only listed in Huynh & Nguyen (2004a) and Huynh *et al.* (2005). Further examination was not possible because all previously collected material has been lost.

Amyntas dananganus (Thai, 1984)

Pheretima danangana Thai, 1984c: 1322, fig. 3A; Do 1994: 67; Nguyen 1994: 47; Pham 1995c: 70; Nakamura 1999: 38; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Nguyen V.T. & Tran 2008: 184; Pham 2010: 63.

Pheretima (Amyntas) danangana—Thai 1983: 124.

Amyntas dananganus—Blakemore 2007a: 27; Blakemore 2008b.

Type locality. Vietnam (Quang Nam: Dai Loc).

Type material. ZMUM (W.277).

Examined material. 8 C (**SORC-V.029.02**) near Nam Mo river, Ta Ca, Hoa Son, Da Nang, 1/1/1986; 9 C and 2 A (**SORC-V.029.08**) Dien Ban, Quang Nam, 2/4/1992; 13 C and 1 A (**CTU-EW.055.01**) Ha Tinh city, 1985.

Records from Vietnam. **Hanoi** (Ba Vi NP); **Nghe An** (Ky Son); **Ha Tinh**; **Quang Binh** (Quang Trach; Dong Hoi; Le Thuy); **Quang Tri** (Quang Tri; Dong Ha); **Thua Thien Hue** (Huong Dien; Huong Thuy; Phu Loc); **Da Nang** (Hoa Son; Hoa Vang; Son Tra; Ba Na NP); **Quang Nam** (Dai Loc; Dien Ban; Que Son); **Binh Dinh** (Thai 1984c; Do 1994; Nguyen 1994; Pham 1995c, 2010; Huynh & Nguyen 2004a; Nguyen V.T. & Tran 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đà nẵng.

Remarks. The species was usually found in wet soils in hilly land or humid sandy soils (Nguyen 1994). Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas dangi dangi (Thai, 1984)

Pheretima dangi Thai, 1984c: 1325, fig. 4B; Le 1995a: 51; Nakamura 1999: 60; Thai 2000a: 308.

Pheretima (Amyntas) dangi—Thai 1983: 125.

Amyntas dangi dangi—Blakemore 2007a: 27; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Soc Son).

Type material. ZMUM (W.269), Russia.

Examined material. 1 C (**CTU-EW.078.01**) Ba Vi Mt., Hanoi, 9/1992, coll. Khiem. 1 C (**CTU-EW.078.03**) the temple of Hung Vuong King, Doan Hung District, Phu Tho province, 29/4/2007, coll. Vu Quang Manh.

Records from Vietnam. **Phu Tho** (Doan Hung); **Vinh Phuc** (Tam Dao NP); **Lang Son** (Huu Lung); **Hanoi** (Soc Son) (Thai 1984c; Le 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đặng.

Remarks. Blakemore (2007a) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas dangi munglonganus (Thai & Tran, 1986)

Pheretima dangi munglongana Thai & Tran, 1986a: 9, fig. 3B; Do 1994: 68; Nguyen 1994: 47; Thai 2000a: 308.
Amyntas dangi munglonganus—Blakemore 2007a: 27; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 3 C (CTU-EW.078.02) bamboo forest, Thuong Tien NR, Kim Boi, Hoa Binh, 7/8/2005, coll. Anh D. Nguyen.

Records from Vietnam. Nghe An (Ky Son: Muong Long); Quang Binh (Minh Hoa); (Thai & Tran 1986; Do 1994; Nguyen 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun mường lóng.

Remarks. The subspecies can be distinguished from the nominotypical subspecies *Amyntas dangi dangi* (Thai, 1984) by having three pairs of spermathecal pores in intersegments 5/6/7/8 and by genital markings in spermathecal region (Thai & Tran 1986). Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas deonganganus (Thai, 1984)

Pheretima deongangana Thai, 1984c: 1325, fig. 4A; Nakamura 1999: 62; Thai 2000a: 308.
Pheretima (Amyntas) deonganganus—Thai 1983: 125.
Amyntas deonganganus—Blakemore 2007a: 29; Blakemore 2008b.

Type locality. Vietnam (Ha Tinh: Deo Ngang).

Type material. ZMUM (W.238), Russia.

Records from Vietnam. Ha Tinh (Deo Ngang) (Thai 1984c).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đèo ngang.

Remarks. Blakemore (2007a) considered it as "*species inquirenda*"; no further examination was made to confirm its taxonomic status.

Amyntas dignus (Chen, 1946)

Pheretima digna Chen, 1946: 132, Plate X, Fig. C; Tran 1985: 35; Do 1994: 69; Nguyen 1994: 45; Le 1995a: 35; Pham 1995c: 90; Nakamura 1999: 25; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Huynh 2005a: 115; Huynh 2005b: 20; Huynh *et al.* 2005: 180; Nguyen V.T. & Tran 2008: 184; Pham 2010: 63.
Pheretima (Terrata) digna—Thai 1983: 123.
Amyntas dignus—Sims & Easton 1972: 236; Blakemore 2007a: 29; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Examined material. 16 C (SORC-V.132.01) Thanhhoa city, 09/05/1991, coll. Le Hoa.

Records from Vietnam. Lao Cai (Sa Pa); Son La (Moc Chau); Bac Can (Cho Don); Thai Nguyen (Dinh Hoa); Lang Son (Binh Gia; Bac Son); Quang Ninh (Mong Cai); Hai Phong (Cat Ba Isl.); Phu Tho (Xuan Son NP); Hanoi (Ba Vi NP); Nam Dinh; Ha Nam; Thai Binh; Nghe An (Ky Son; Que Phong; Quy Chau); Quang Binh (Tuyen Hoa; Minh Hoa; Quang Trach; Bo Trach; Dong Hoi); Quang Tri (Dong Ha; Quang Tri); Thua Thien Hue (Huong Dien; Huong Tra; Hue; A Luoi; Nam Dong; Phu Loc); Da Nang (Hoa Vang; Son Tra; Ba Na NP); Quang Nam (Que Son; Tam Ky; Tien Phuoc); Dak Lak (Yok Don NP); Dac Nong (Ta Dung Mts); Binh Dinh; Ninh Thuan (Song Pha pass) (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004a; Huynh 2005a,b; Huynh *et al.* 2005; Nguyen V.T. & Tran 2008).

Distribution. Laos, China (Chen 1946; Samphon 1990).

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. The species seems to be widely distributed in Vietnam.

Amynthas dipapillatus (Do & Tran, 1995)

Pheretima dipapillata Do & Tran, 1995 (in: Do et al. 1995): 91, fig. 1G; Thai 2000a: 308; Huynh et al. 2005: 180.

Amynthas? dipapillatus—Blakemore 2007a: 29; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Quy Hop).

Type material. SORC, Vietnam.

Examined material. 5 C (SORC-V.034.01) bushes lands, Chau Nga, Quy Chau, Nghe An, 13/5/1988, coll. Tran Minh Khoi.

Records from Vietnam. Phu Tho (Xuan Son NP); Nghe An (Quy Hop; Que Phong) (Do et al. 1995; Huynh et al. 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun hai nhú phụ.

Remarks. The species is fairly similar to *Amynthas zenkevichi* (Thai, 1982), but distinguished by having three pairs of spermathecal pores and shorter prostatic duct (Do et al. 1995). Blakemore (2007a, 2008b) considered it as "species inquirenda". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas divitopapillatus (Thai, 1984)

Pheretima divitopapillata Thai, 1984c: 1321, fig. 2G; Do 1994: 70; Pham 1995c: 70; Nakamura 1999: 49; Thai 2000a: 308;

Huynh 2005a: 91; Pham 2010: 63.

Pheretima (Amynthas) divitopapillata—Thai 1983: 124.

Amynthas divitopapillatus—Blakemore 2007a: 30; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: Buon Luoi).

Type material. ZMUM (W.219), Russia.

Examined material. 1 C and 2 A (SORC-V.035.01) bamboo forest, Chau Nga, Quy Chau, 15/05/1988, coll. Tran Minh Khoi.

Records from Vietnam. Nghe An (Que Phong; Quy Hop); Da Nang (Son Tra; Ba Na NP); Quang Nam (Que Son; Tien Phuoc); Gia Lai (Buon Luoi); Dak Lak (Ea Lop) (Thai 1984c; Do 1994; Pham 1995c, 2010; Huynh 2005a).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun nhiều nhú phụ.

Remarks. Do (1994) noted variations in the position of genital markings in the spermathecal region and similarities to *Amynthas aspergillum* (Perrier, 1872) in the pattern of genital markings in male region. Blakemore (2007a, 2008b) considered it as "species inquirenda". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas donghaanus (Pham, 1995)

Pheretima donghaana Pham, 1995b: 5, fig. 1; Pham 1995c: 72; Nakamura 1999: 49; Thai 2000a: 308; Huynh et al. 2005: 180.

Amynthas? donghaanus—Blakemore 2007a: 30; Blakemore 2008b.

Type locality. Vietnam (Quang Tri: Dong Ha).

Type material. SORC, Vietnam.

Examined material. 14 C (**SORC-V.036.01**) Phu Loc, Thua Thien Hue, 8/3/1985; 6C (**SORC-V.036.02**) hilly soil, Dong Ha, Quang Tri, 17/2/1985.

Records from Vietnam. **Phu Tho** (Xuan Son NP); **Nghe An** (Ky Son; Vinh); **Ha Tinh** (Ky Anh); **Quang Binh** (Tuyen Hoa); **Quang Tri** (Dong Ha; Gio Linh; Trieu Phong); **Thua Thien Hue** (Huong Dien); **Quang Nam** (Kham Duc; Phuoc Son; Que Son; Dai Loc; Dien Ban) (Pham 1995b; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đông hà.

Remarks. The species is fairly close to *Amynthas dananganus* (Thai, 1984), but can be distinguished by more setae, first dorsal pore in 11/12, genital markings in 17/18, four pairs of spermathecal pores in intersegments 5/6/7/8/9, septum 8/9 thickened and absence of lymph glands (Pham 1995c). Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

***Amynthas dongkheanus* (Le, 1995)**

Pheretima dongkheana Le, 1995b: 59, fig. 1B; Thai 2000a: 308; Huynh *et al.* 2005: 180.
Amynthas? dongkheanus—Blakemore 2007a: 30; Blakemore 2008b.

Type locality. Vietnam (Cao Bang) (Le 1995a).

Type material. SORC, Vietnam.

Records from Vietnam. **Cao Bang** (Thach An); **Phu Tho** (Xuan Son NP) (Le 1995b; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đông khê.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*"; further examination was not possible all previously collected material has been lost.

***Amynthas dorsomorriisi* (Do & Tran, 1995)**

Pheretima dorsomorriisi Do & Tran, 1995 (in: Do *et al.* 1995): 89, fig. 1D; Thai 2000a: 308.
Amynthas? dorsomorriisi—Blakemore 2007a: 31; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Quy Chau).

Type material. SORC, Vietnam.

Examined material. 8 C and 2 A (**SORC-V.039.02**) Muong Long, Muong Xeng, Ky Son, Nghe An, 18/6/1986, coll. Tran Minh Khoi.

Records from Vietnam. **Nghe An** (Que Phong; Quy Chau) (Do *et al.* 1995).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận morrisi lung.

Remarks. The species is closely similar to *Amynthas morrisi* (Beddard, 1895), but can be recognised by spermathecal pores on dorsum. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

***Amynthas dranfocanus* (Do & Huynh, 1993)**

Pheretima dranfocana Do & Huynh, 1993 (in: Thai *et al.* 1993): 12, fig. 1A; Thai 2000a: 308; Huynh 2005a: 101.
Amynthas? dranfocanus—Blakemore 2007a: 31; Blakemore 2008b.

Type locality. Vietnam (Dak Lak: Yon Don).

Type material. SORC, Vietnam.

Examined material. 2 C (**SORC-HPV.040**) forest, Dranfoc, Dak Lak, 10/1989, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dak Lak (Yok Don NP) (Thai *et al.* 1993; Huynh 2005a).

Distribution. Only known from Vietnam.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*" Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas duplicoecus (Thai, 1982)

Pheretima duplicoeca Thai, 1982: 822, fig. 1D; Do 1994: 72; Le 1995a: 66; Nakamura 1999: 63; Thai 2000a: 308.

Pheretima (Amyntas) duplicoeca—Thai 1983: 125.

Amyntas duplicoecus—Blakemore 2007a: 32; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong NP).

Type material. ZMUM (W.262), Russia.

Records from Vietnam. Cao Bang (Thach An); **Vinh Phuc** (Tam Dao NP); **Hoa Binh** (Mai Chau); **Ninh Binh** (Cuc Phuong NP) (Thai 1982; Do 1994; Le 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun manh tràng kép.

Remarks. The species is easily recognised by ventrally and dorsally flattened body, bi-lobuled intestinal caeca. So far it was found only in wet forest (Do 1994). Blakemore (2007a, 2008b) considered it as "*species inquirenda*", further examination was not possible because all previously collected material has been lost.

Amyntas ealopanus (Do & Huynh, 1993)

Pheretima ealopana Do & Huynh, 1993 (in: Thai *et al.* 1993): 12, fig. 1B; Thai 2000a: 308; Huynh 2005a: 119.

Amyntas? ealopanus—Blakemore 2007a: 32; Blakemore 2008b.

Type locality. Vietnam (Dak Lak).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-HV.042**) deciduous forest, Ealop, Dak Lak, 10/1/1989, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dak Lak (Ea Lop) (Thai *et al.* 1993; Huynh 2005a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun ea-lóp.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", material was re-checked to confirm its taxonomic status.

Amyntas editus honguanus (Thai & Samphon, 1988)

Pheretima edita honguana Thai & Samphon, 1988: 20; Huynh *et al.* 2005: 180.

Amyntas editus honguanus—Blakemore 2007: 32; Blakemore 2008.

Type locality. Laos (Hong Ngu).

Type material. SORC, Vietnam.

Records from Vietnam. Phu Tho (Xuan Son NP) (Huynh *et al.* 2005).

Distribution. Laos (Thai & Samphon 1988; Samphon 1990).

Remarks. The subspecies was originally described from Laos, and never been previously known in Vietnam. Further examination was not possible because all previously collected material has been lost.

Amynthas erroneous Nguyen & Nguyen, 2015

Amynthas erroneous Nguyen D.A. & Nguyen, 2015: 129, Fig. 1.

Pheretima multitheca multitheca—Nguyen 1994: 53; Pham 1995c: 68; Thai 2000a: 309; Huynh 2005a: 89; Huynh 2005b: 20; Nguyen V.T. & Tran 2008: 185; Pham 2010: 63.

Type locality. Vietnam (Quang Ngai: Duc Pho).

Type material. CTU, Vietnam.

Examined material. 8 C (**SORC-V.153.01**), and 13 C (**CTU-EW.071.02**) garden, Duc Pho town, Pho Minh, Quang Ngai, 15/4/1995, coll. Huynh Thi Kim Hoi.

Records from Vietnam. **Quang Tri** (Quang Tri town); **Thua Thien Hue** (Huong Tra; Hue; Nam Dong; Phu Loc); **Da Nang**; **Quang Nam** (Que Son); **Quang Ngai** (Quang Ngai city; Duc Pho); **Binh Dinh**; **Dak Nong** (Ta Dung Mts) (Nguyen 1994; Pham 1995c, 2010; Huynh 2005a, b; Nguyen & Tran 2008).

Distribution. Only known from Vietnam.

Remarks. The species had been erroneously identified as *Pheretima multitheca multitheca* Chen, 1938. It was corrected by Nguyen D.A. & Nguyen (2015).

Amynthas exiguum exiguum (Gates, 1930)

Pheretima exigua Gates, 1930: 310; Gates 1939: 89.

Pheretima exigua exigua—Gates 1972: 184; Do 1994: 73; Thai 2000a: 308; Thai *et al.* 2004: 758; Huynh 2005a: 116.

Amynthas exiguum exiguum—Sims & Easton 1972: 235; Blakemore 2007a: 34; Blakemore 2008b.

Type locality. Myanmar (Shan: Lashio).

Type material. In the collection of Judson College, USA (Gates 1939). None (Gates, 1972).

Examined material. 10 C (**CTU-EW.094.01**), long-term tree plantation, Hon Tre Isl., Kien Hai, Kien Giang (104°51'15.5"E; 09°58'13.0"N), 13/11/2013, coll. Trinh Thi Kim Binh.

Records from Vietnam. **Lao Cai** (Sa Pa); **Son La** (Moc Chau); **Ninh Binh** (Cuc Phuong NP); **Gia Lai** (Buon Luoi); **Dak Lak** (Yok Don NP); **Kien Giang** (Tho Chu Isl., Hon Tre Isl.) (Do 1994; Thai *et al.* 2004; Huynh 2005a).

Distribution. Vietnam (Do 1994), Thailand, Myanmar (Gates 1930, 1939, 1972).

Vietnamese name. Giun nhô.

Remarks. The species is fairly widespread in Vietnam (Do 1994; Thai *et al.* 2004; Huynh 2005a), northern Thailand, and Myanmar (Gates 1939).

Amynthas exiguum austrinus (Gates, 1932)

Pheretima exigua var. *austrina* Gates, 1932: 514; 1933: 525.

Pheretima exigua austrina—Gates 1972: 184; Le 1995a: 34; Pham 1995c: 92; Thai 2000a: 308; Huynh 2005a: 117; Huynh *et al.* 2005: 180; Pham 2010: 63.

Pheretima austrina—Gates 1936: 400; 1939: 82.

Pheretima (Terrata) exigua austrina—Thai 1983: 123.

Amynthas exiguum austrinus—Sims & Easton 1972: 235; Blakemore 2007a: 34; Blakemore 2008b.

Type locality. Myanmar (Toungoo: Leiktho Circle).

Type material. Unknown.

Records from Vietnam. **Tuyen Quang** (Chiem Hoa); **Yen Bai** (Luc Yen); **Lang Son** (Binh Gia); **Phu Tho** (Xuan Son NP); **Da Nang**; **Quang Nam** (Tien Phuoc; Tra My); **Kon Tum** (Dak Glei); **Gia Lai** (Buon Luoi); **Dak Lak** (Yok Don) (Le 1995a; Huynh 2005a; Huynh *et al.* 2005; Pham 1995c, 2010).

Distribution. Vietnam (Le 1995a), Thailand, Myanmar (Gates 1932, 1939, 1972)

Vietnamese name. Giun nhô phương nam.

Remarks. Gates (1939) said that the species was probably endemic in the northern part of the Malay peninsula.

Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amynthas exiguum chomontis (Thai & Samphon, 1988)

Pheretima exigua chomontis Thai & Samphon, 1988: 18; Samphon 1990: 81; Nguyen 1994: 49; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Pham 2010: 63.

Amynthas exiguum chomontis—Blakemore 2007a: 34; Blakemore 2008b.

Type locality. Laos (Se Pon).

Type material. SORC, Vietnam.

Records from Vietnam. **Hanoi** (Ba Vi NP); **Thua Thien Hue** (Huong Thuy; Phu Loc); **Da Nang** (Ba Na NP) (Nguyen 1994; Huynh & Nguyen 2004a; Pham 2010).

Distribution. Vietnam; Laos (Samphon, 1990).

Vietnamese name. Giun nhở núi cho.

Remarks. Blakemore (2007a) considered it as "*species inquirenda*"; further examination was not possible because all previously collected material has been lost.

Amynthas exiguum taybacanus (Thai, 1984)

Pheretima exigua taybacana Thai, 1984b: 616, fig. 2B; Do: 1994: 75; Le 1995a: 34; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Huynh *et al.* 2005: 180.

Pheretima (Terrata) exigua taybacana—Thai 1983: 123.

Amynthas exiguum taybacanus—Blakemore 2007a: 34; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong NP).

Type material. ZMUM (W.237), Russia.

Records from Vietnam. **Cao Bang** (Thach An); **Lang Son**; **Thai Nguyen** (Dinh Hoa); **Bac Giang**; **Hanoi** (Ba Vi NP); **Ninh Binh** (Cuc Phuong NP); **Hoa Binh** (Mai Chau); **Son La** (Moc Chau); **Phu Tho** (Xuan Son NP); **Nghe An** (Que Phong) (Thai 1984b; Do 1994; Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhở tây bắc.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", further examination was not possible because all previously collected material has been lost.

Amynthas exilisarius exilisarius (Thai, 1984)

Pheretima exilisaria Thai, 1984a: 286, fig. 1B; Le 1995a: 39; Nakamura 1999: 20; Thai 2000a: 308; Huynh & Nguyen 2004a: 115; Huynh *et al.* 2005: 180.

Pheretima (Terrata) exilisaria—Thai 1983: 123.

Amynthas exilisarius exilisarius—Blakemore 2007a: 35; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Soc Son).

Type material. ZMUM (W.214), Russia.

Examined material. 1 C (**SORC-V.045.01**) forest at elevation of 900m a.s.l., Tam Quan, Tam Dao, Vinh Phuc, 19/4/1984.

Records from Vietnam. **Vinh Phuc** (Tam Dao); **Hanoi** (Soc Son; Ba Vi NP); **Phu Tho** (Xuan Son NP) (Thai 1984a; Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under

the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas exilisarius ngheanae (Do & Tran, 1994)

Pheretima exilisaria ngheanae Do & Tran, 1994 (in: Do *et al.* 1994): 24, fig. 1C; Do 1994: 76; Thai 2000a: 308.
Amyntas exilisarius ngheanae—Blakemore 2007a: 35; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Que Phong).

Type material. SORC, Vietnam.

Examined material. 3 C, 4 A (**SORC-V.046.01**), and 3 C (**CTU-EW.059.01**) near stream on the footprint of Bu Coi Mts, Chau Phong, Quy Chau, Nghe An, 15/5/1988, coll. Tran Minh Khoi; 8 C (**SORC-V.046.02**) primary forest, Tri Le, Que Phong, 20/12/1987, coll. Tran Minh Khoi.

Records from Vietnam. Nghe An (Que Phong; Quy Chau) (Do 1994).

Distribution. Only known from Vietnam.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas falcipapillatus (Thai, 1982)

Pheretima falcipapillata Thai, 1982: 826, fig. 2E; Do 1994: 77; Nakamura 1999: 63; Thai 2000a: 308.
Pheretima (Amyntas) falcipapillata—Thai 1983: 125.
Amyntas falcipapillatus—Blakemore 2007a: 36; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.254), Russia.

Records from Vietnam. Ninh Binh (Cuc Phuong NP); Son La (Moc Chau) (Thai 1982; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú lưỡi liềm.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", further examination was not possible because all previously collected material has been lost.

Amyntas gegatesi Blakemore, 2006

Amyntas gegatesi Blakemore, 2006; Blakemore 2007a: 41; Blakemore 2008.
Pheretima dolosa Gates, 1932: 443; Gates 1972: 181; Do 1994: 71; Nakamura 1999: 46; Thai 2000a: 308.

Type locality. China (Yunnan).

Type material. Unknown.

Records from Vietnam. Lao Cai (Sa Pa) (Do 1994).

Distribution. China (Gates 1932).

Remarks. Blakemore (2006) proposed a new name, *Amyntas gegatesi*, to replace *Pheretima dolosa* Gates, 1932, which was considered as junior homonym of *Pheretima dolaria dolosa* Gates, 1932. Under IZCN (1999, Arts. 16; 53.3; 57.2), the name *Pheretima dolosa* is permanently invalid.

Amyntas ghilarovi (Thai, 1982)

Pheretima ghilarovi Thai, 1982: 826, fig. 2D; Do 1994: 77; Nakamura 1999: 63; Thai 2000a: 309.
Pheretima (Amyntas) ghilarovi—Thai 1983: 125.
Amyntas ghilarovi—Blakemore 2007a: 41; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.266), Russia.

Examined material. 1 C (SORC-V.050.01) Cave "Nguoi Xua", Cuc Phuong NP, Ninh Binh, 18/8/1995.

Records from Vietnam. Ninh Binh (Cuc Phuong NP) (Thai 1982).

Distribution. Only known from Vietnam.

Vietnamese name. Giun ghilarovi.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas glabrus (Gates, 1932)

Pheretima glabra Gates, 1932: 395; Gates 1972: 187; Zhong & Qiu 1987: 24, fig. 2; Do 1994: 78; Le 1995a: 37; Nakamura 1999: 24; Thai 2000a: 309; Huynh *et al.* 2005: 180.

Pheretima (Terrata) glabra—Thai 1983: 123.

Amyntas glabrus—Sims & Easton 1972: 237; Easton 1981: 50; Blakemore 2007a: 42; Blakemore 2008b.

See Blakemore (2007a) for more synonyms.

Type locality. China (Nam Hpen Noi, Yunnan).

Type material. Unknown.

Examined material. 1 C (SORC-V.138.01), cabbage field, Son La, 31/12/1984.

Records from Vietnam. Lang Son (Binh Gia); **Yen Bai** (Yen Binh); **Vinh Phuc** (Tam Dao NP); **Phu Tho** (Xuan Son NP); **Ninh Binh** (Cuc Phuong NP) (Do 1994; Le 1995a; Huynh *et al.* 2005).

Distribution. Originally described from China (Yunnan) and Myanmar, and known from Japan; recently reported from China (Sichuan; Guizhou) and Vietnam (Easton 1981; Zhong & Qiu 1987; Blakemore 2007a).

Vietnamese name. Giun nhẵn.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amyntas gracilis (Kinberg, 1867)

Nitocris gracilis Kinberg, 1867: 102; Beddard 1895a: 402, as "*species inquirenda*"; Michaelsen 1900: 419, as "*dubious species*".

Amyntas gracilis—Sims & Easton 1972: 235; Easton 1981: 50; Easton, 1982: 728; Shen & Yeo 2005: 21; Blakemore 2007a: 42; Blakemore 2008b.

Pheretima gracilis—Nakamura 1999: 38.

Perichaeta hawayana Rosa, 1891: 396, Figs 7, 9.

Pheretima hawayana—Michaelsen 1900: 271; Gates 1972: 189, 217; Thai 1983: 125; Do 1994: 81; Le 1995a: 63; Nakamura 1999: 38; Thai 2000a: 309; Huynh & Nguyen 2004a: 115; Huynh 2005a: 113; Huynh *et al.* 2005: 180; Tran & Ngo 2008: 133; Tran & Tran 2010: 8.

Perichaeta bermudensis Beddard, 1892a: 160, synonymized with *Pheretima hawayana* by Michaelsen (1900).

Perichaeta mandhorensis Michaelsen, 1892: 241, Figs 18–19, synonymized with *Pheretima hawayana* by Gates (1972).

Type locality. Brazil (Rio de Janeiro).

Type material. Leiden Museum, Neitherland.

Records from Vietnam. Lao Cai (Pho Lu; Sa Pa; Pho Rang); **Son La** (Moc Chau); **Hoa Binh** (Hoa Binh; Mai Chau); **Yen Bai** (Yen Bai; Luc Yen; Yen Binh); **Ha Giang** (Quan Ba; Dong Van); **Lang Son** (Binh Gia; Bac Son; Dong Dang; Van Lang); **Cao Bang** (Thach An; Cao Bang; Ha Lang); **Phu Tho** (Doan Hung; Thanh Son); **Vinh Phuc** (Phong Chau; Tam Dao); **Bac Can** (Bac Can); **Thai Nguyen** (Phu Binh); **Bac Giang** (Luc Ngan; Tan Yen; Yen The; Khe Ro NR); **Quang Ninh** (Mong Cai); **Hai Phong** (Cat Ba Isl.; San Ho Isl.); **Hanoi** (Ba Vi NP); **Thanh Hoa** (Ngoc Lac); **Nghe An** (Ky Son; Que Phong; Quy Chau); **Gia Lai** (Pleiku); **Dak Lak** (Ban Me Thuot); **Lam Dong** (Da Lat; Don Duong) (Do 1994; Le 1995a; Huynh & Nguyen 2004a; Huynh 2005a; Tran & Ngo 2008; Tran & Tran 2010).

Distribution. Cosmopolitan species, widely known in temperate and tropical regions. Sometimes, recorded with high density in garden in Brazil and Hawaii (Gates 1972; Blakemore 2002, 2007a).

Remarks. All reports of this species from Vietnam are under the name of its junior *Perichaeta hawayana* (= *Pheretima hawayana*).

Amyntas grandiglandularis (Do, 1995)

Pheretima grandiglandularis Do, 1995 (in: Do *et al.* 1995): 88, fig. 1A; Thai 2000a: 309.

Amyntas? *grandiglandularis* (*sic!*)—Blakemore 2007a: 43; Blakemore 2008b.

Type locality. Vietnam (Son La: Moc Chau).

Type material. SORC, Vietnam.

Examined material. 2 C and 2 A (SORC-V.051.01) rotting woods, Moc Chau, Son La, 5/1991, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Son La (Moc Chau) (Do *et al.* 1995).

Distribution. Only known from Vietnam.

Vietnamese name. Giun tuyén lón.

Remarks. Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas grandipapillatus (Thai, 1982)

Pheretima grandipapillata Thai, 1982: 827, fig. 3A; Tran 1985: 41; Do 1994: 80; Le 1995a: 51; Nakamura 1999: 38; Thai 2000a: 309.

Pheretima (*Amyntas*) *grandipapillata*—Thai 1983: 126.

Amyntas grandipapillatus—Blakemore 2007a: 43; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.256), Russia.

Records from Vietnam. Hanoi (Soc Son); Ninh Binh (Cuc Phuong NP); Thai Binh (Thai 1982; Tran 1985; Do 1994; Le 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú lón.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", further examination was not possible because all previously collected material has been lost.

Amyntas hexitus (Chen, 1946)

Pheretima hexita Chen, 1946: 100, Plate IV, Fig. C; Do 1994: 82; Nakamura 1999: 31; Thai 2000a: 309; Huynh & Nguyen 2004a: 115.

Amyntas hexitus—Sims & Easton 1972: 234; Blakemore 2007a: 47; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Examined material. 2 C and 2 A (SORC-V.140.02) Chieng village, Moc Chau, Son La, 11/10/1990, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Son La (Moc Chau); Lao Cai (Sa Pa); Hanoi (Ba Vi NP) (Do 1994; Huynh & Nguyen 2004a).

Distribution. China (Chen, 1946).

Remarks. The population found in Vietnam is somewhat different from the original description in having pre- and post-setae genital markings in vii and viii, and spermathecal pores located laterally (Do 1994).

Amynthas hiepcatanus (Do & Tran, 1994)

Pheretima hiepcatana Do & Tran, 1994 (in: Do *et al.* 1994): 26, fig. 1G; Do 1994: 83; Nakamura 1999: 25; Thai 2000a: 309; Huynh & Nguyen 2004a: 115.
Amynthas? *hiepcatanus*—Blakemore 2007a: 47; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Que Phong).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-V.055.01**) Thong Thu, Que Phong, Nghe An, 21/7/1987.

Records from Vietnam. **Nghe An** (Que Phong); **Hanoi** (Ba Vi NP) (Do *et al.* 1994; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun hiệp cát.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas hupeiensis (Michaelsen, 1895)

Pheretima hupeiensis Michaelsen, 1895: 35, figs 11–12; Michaelsen 1900: 273; Chen 1933: 251, fig. 19; Gates 1972: 213; Le 1995a: 43; Thai 2000a: 309.
Amynthas hupeiensis—Sims & Easton 1972: 237; Blakemore 2002: 168; Blakemore 2007: 50.
Amynthas hupiensis (**sic!**)—Easton 1981: 53.

Type locality. China (Hupei).

Type material. Unknown.

Examined material. 5 A (**SORC-V.143.01**) and 3 C (**CTU-EW.062.01**), Binh Gia, Lang Son, 26/03/1992.

Records from Vietnam. **Lang Son** (Binh Gia) (Le 1995a).

Distribution. A cosmopolitan species; widely reported from China, Korea, Japan, North America, and New Zealand (Easton 1981; Blakemore 2002).

Remark. The species is distinguished from *Metaphire bahli* and *Metaphire peguana* by the absence of copulatory pouches (Le 1995a).

Amynthas infantilis (Chen, 1938)

Pheretima infantilis Chen, 1938: 392, Fig. 5; Nakamura 1999: 20; Huynh *et al.* 2005: 180.
Amynthas infantilis—Sims & Easton 1972: 236; Blakemore 2007a: 51; Blakemore 2008b.

Type locality. China (Hainan Isl.).

Type material. Unknown.

Records from Vietnam. **Phu Tho** (Xuan Son NP) (Huynh *et al.* 2005).

Distribution. Vietnam (Huynh *et al.* 2005), China (Chen 1938).

Remarks. The species was only listed in Huynh *et al.* (2005). Further examination was not possible because all previously collected material has been lost.

Amynthas infantiloides (Thai, 1984)

Pheretima infantiloides Thai, 1984a: 284, fig. 1A; Do 1994: 85; Le 1995a: 42; Nakamura 1999: 20; Thai 2000a: 309; Huynh & Nguyen 2004a: 115; Huynh *et al.* 2005: 180.
Pheretima (Terrata) infantiloides—Thai 1983: 123.
Amynthas infantiloides—Blakemore 2007a: 51; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Soc Son).

Type material. ZMUM (W.233), Russia.

Records from Vietnam. **Cao Bang** (Thach An); **Lang Son** (Binh Gia); **Phu Tho** (Xuan Son NP); **Vinh Phuc** (Tam Dao); **Hanoi** (Soc Son; Ba Vi NP); **Nghe An** (Quy Chau; Que Phong) (Thai 1984a; Do 1994; Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận *infantilis*.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", further examination was not possible because all previously collected material has been lost.

Amyntas juliani (Perrier, 1875)

Perichaeta juliani Perrier, 1875: 1045.

Pheretima juliani—Michaelsen 1900: 419, "incertae sedis"; Michaelsen 1910: 102, Fig. XX; Nguyen 1994: 51; Nakamura 1999: 64; Thai 2000a: 309; Nguyen T.T. & Tran 2008: 61; Nguyen *et al.* 2012: 146; Pham 2010: 64; Nguyen 2013: 51; Nguyen 2014: 109.

Pheretima (Amyntas) juliani—Thai 1983: 124.

Amyntas juliani—Sims & Easton, 1972: 235; Blakemore 2002: 170, Fig. 2.8; Blakemore 2007a: 53, "specie inquirenda"; Blakemore 2008b; Blakemore *et al.* 2007: 29.

Amyntas julianus—Sims & Easton, 1972: 243.

Type locality. Vietnam (Southern part).

Type material. MNHN (AE584 (A725)), France.

Examined material. 5 C (**CTU-EW.007.01**) My Luong, Cho Moi, An Giang, 20/12/2009, coll. Ho Minh Thuan; 13 A (**SORC-V.057.01**) Lao Bao, Quang Tri, 20/1/1985, coll. Nguyen Van Thuan; 5 C and 4 A (**SORC-V.057.02**) on the river bank, Tan Chau, An Giang, 08/2007, coll. Nguyen Thanh Tung.

Records from Vietnam. **Quang Tri** (Huong Hoa); **Da Nang**; **Dong Thap** (Hong Ngu: Long Thuan Isl., Long Khanh Isl.); **An Giang** (Tan Chau; Phu Tan; My Luong; Cho Moi) (Nguyen 1994; Pham 2010; Nguyen *et al.* 2012; Nguyen 2014).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun Julian.

Remarks. The species was known to only recorded in basin of the Mekong river and its tributaries, but currently expanding northwards. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas khami (Thai, 1984)

Pheretima khami Thai, 1984b: 614, fig. 1B; Samphon 1990: 87; Do 1994: 86; Thai 2000a: 309.

Pheretima (Amyntas) khami—Thai 1983: 124.

Amyntas? khami—Blakemore 2007a: 54; Blakemore 2008b.

Type locality. Vietnam (Son La: Moc Chau).

Type material. ZMUM (W.240), Russia.

Records from Vietnam. **Son La** (Moc Chau) (Thai 1984b; Do 1994).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun khǎm.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amyntas kinfumontis (Chen, 1946)

Pheretima kinfumontis Chen, 1946: 119, Plate VIII, Fig. A; Samphon 1990: 85; Do 1994: 97; Nakamura 1999: 31; Thai 2000a: 309; Huynh & Nguyen 2004a: 115; Huynh *et al.* 2005: 180.

Amyntas omeimontis kinfumontis—Sims & Easton 1972: 258, Figure 3B.

Amyntas kinfumontis—Tsai *et al.* 2000: 286; Blakemore 2007a: 55; Blakemore 2008b.

Type locality. China (Szechuan) (Chen 1946).

Type material. Unknown.

Records from Vietnam. **Son La** (Moc Chau; Yen Chau); **Phu Tho** (Xuan Son NP); **Hanoi** (Ba Vi NP) (Do 1994; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. Vietnam, Laos, China (Chen 1946; Samphon 1990).

Vietnamese name. Giun núi kinfu.

Remarks. The species was originally described by Chen (1946), but treated as a subspecies of *Amyntas omeimontis* by Sims & Easton (1972). Tsai *et al.* (2000) restored full species rank.

Amyntas kisonensis (Thai & Tran, 1986)

Pheretima kisonensis Thai & Tran, 1986a: 7, fig. 2G; Do 1994: 88; Nakamura 1999: 62; Thai 2000a: 309; Huynh *et al.* 2005: 180.

Amyntas kisonensis—Blakemore 2007a: 55; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 4 C (**SORC-V.060.01**), 1 C (**SORC-HV.060**), 8 C and 2 A (**CTU-EW.064.01**) Muong Long, Ky Son, Nghe An, 31/12/1985, coll. Tran Ba Cu.

Records from Vietnam. **Nghe An** (Ky Son); **Phu Tho** (Xuan Son NP) (Thai & Tran 1986; Do 1994; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun kỳ son.

Remarks. The species is fairly similar to *Amyntas tuberculatus* (Gates, 1935) in having three pairs of spermathecal pores in intersegments 5/6/7/8 and strongly lobuled intestinal caeca. However, it can be distinguished by stable and large genital markings in both spermathecal and male regions (Thai & Tran 1986). Blakemore (2007a, 2008b) considered it as "species inquirenda". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas kytyanus (Thai, 1984)

Pheretima kytyana Thai, 1984b: 613, fig. 1A; Nguyen 1994: 52; Pham 1995c: 66; Thai 2000a: 309; Pham 2010: 63.

Pheretima (Amyntas) kytyana—Thai 1983: 124.

Amyntas? kytyanus—Blakemore 2007a: 57; Blakemore 2008b.

Type locality. Ha Tinh (Ky Anh).

Type material. ZMUM (W.225), Russia.

Examined material. 6 C (**CTU-EW.065.01**) Thach Ban, Phu Thuy, Ha Tinh, 23/4/1993.

Records from Vietnam. **Ha Tinh** (Ky Anh; Phu Thuy); **Quang Binh** (Le Thuy); **Da Nang** (Hoa Vang; Son Tra; Ba Na NP); **Quang Nam** (Tra My) (Thai 1984b; Nguyen 1994; Pham 1995c, 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Giun kỳ tây.

Remarks. Blakemore (2007a, 2008b) considered it as "species inquirenda". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amynthas lateropapillatus (Thai & Samphon, 1988)

Pheretima lateropapillata Thai & Samphon, 1988: 5; Nguyen 1994: 52.
Amynthas? lateropapillatus—Blakemore 2007a: 57; Blakemore 2008b.

Type locality. Laos (Se Pon).

Type material. SORC, Vietnam.

Records from Vietnam. Quang Tri (Huong Hoa) (Nguyen 1994).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun nhú bên.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amynthas leucocircus (Chen, 1933)

Pheretima leucocirca Chen, 1933: 262, Figs 22–23; Do 1994: 89; Le 1995a: 53; Nakamura 1999: 43; Thai 2000a: 309; Huynh & Nguyen 2004a: 115; Tran & Ngo 2008: 133.

Pheretima (Amynthas) leucocirca—Thai 1983: 124.

Amynthas leucocircus—Sims & Easton 1972: 237; Blakemore 2007a: 58; Blakemore 2008b.

Type locality. China (Ihsing, Kiangsu).

Type material. ZMNU (No. 554–556), China.

Examined material. 1 C (**SORC-V.147.01**) forest at the elevation of 800m a.s.l., Tam Dao NP, Vinh Phuc, 2/8/1984.

Records from Vietnam. Lao Cai (Bac Ha); Cao Bang (Thach An); Lang Son (Binh Gia; Bac Son); Yen Bai (Bao Ha); Vinh Phuc (Tam Dao NP); Bac Giang (Son Dong; Khe Ro); Thanh Hoa (Ngoc Lac) (Do 1994; Le 1995a; Huynh & Nguyen 2004a; Tran & Ngo 2008).

Distribution. China (Chen 1933).

Vietnamese name. Giun vành tráng.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas lignophilus (Thai, 1982)

Pheretima lignophila Thai, 1982: 822, fig. 1G; Do 1994: 90; Le 1995a: 67; Nakamura 1999: 62; Thai 2000a: 309.

Pheretima (Amynthas) lignophila—Thai 1983: 126.

Amynthas lignophilus (**sic!**)—Blakemore 2007a: 59; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.260), Russia.

Records from Vietnam. Lang Son (Bac Son); Ninh Binh (Cuc Phuong NP) (Thai 1982; Do 1994; Le 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun gỗ mục.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amynthas lunatus (Chen, 1938)

Pheretima lunata Chen, 1938: 411, Fig. 14; Samphon 1990: 90; Le 1995a: 51; Pham 1995c: 66; Nakamura 1999: 52; Thai 2000a: 309.

Amynthas lunatus—Sims & Easton 1972: 235, 243; Blakemore 2007a: 60.

Type locality. China (Hainan Isl.).

Type material. Unknown.

Examined material. 7 C (SORC-V.148.01) near a stream, Khan Co Ma, Tri An, Dong Nai, 15/3/1992.

Records from Vietnam. **Ha Giang** (Quan Ba); **Lang Son** (Bac Son; Huu Lung); **Cao Bang** (Thach An); **Quang Nam** (Tien Phuoc; Tien Son); **Dong Nai** (Tri An) (Le 1995a; Pham 1995a).

Distribution. Vietnam, Laos, and China (Chen 1938; Samphon 1990).

Vietnamese name. Giun mặt trắng.

Remarks. The species seems to be widely distributed in Vietnam.

Amynthas magnodiverticulatus (Thai, 1984)

Pheretima magnodiverticulata Thai, 1984a: 287, fig. 1E; Samphon 1990: 91; Nakamura 1999: 52; Thai 2000a: 309; Huynh 2005a: 121; Nguyen & Tran 2008: 185.

Pheretima (Terrata) magnodiverticulata—Thai 1983: 123.

Amynthas magnodiverticulatus—Blakemore 2007a: 61; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: An Khe).

Type material. ZMUM (W.229), Russia.

Records from Vietnam. **Gia Lai** (An Khe); **Binh Dinh** (Thai 1984a; Nguyen & Tran 2008).

Distribution. Vietnam, Laos (Samphon 1990).

Vietnamese name. Giun diverticulum lớn.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amynthas mammoporophoratus (Thai, 1982)

Pheretima mammoporophorata Thai, 1982: 825, fig. 2G; Do 1994: 90; Nakamura 1999: 52; Thai 2000a: 309.

Pheretima (Terrata) mammoporophorata—Thai 1983: 123.

Amynthas mammoporophoratus—Blakemore 2007a: 62; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.251), Russia.

Records from Vietnam. **Lao Cai** (Sa Pa); **Son La** (Moc Chau); **Ninh Binh** (Cuc Phuong NP); **Nghe An** (Que Phong) (Thai 1982; Do 1984).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú đực hình vú.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amynthas manicatus manicatus (Gates, 1931)

Pheretima manicata Gates, 1931: 414; Gates 1939: 97; 1972: 201; Samphon 1990: 92; Huynh & Nguyen 2004a: 116; Huynh et al. 2005: 180.

Amynthas manicatus manicatus—Sims & Easton 1972: 235, 244; Blakemore 2007a: 62.

Type locality. Myanmar.

Type material. Unknown.

Records from Vietnam. **Phu Tho** (Xuan Son NP); **Hanoi** (Ba Vi NP) (Huynh & Nguyen 2004a; Huynh et al. 2005).

Distribution. Vietnam; Laos; Thailand; Myanmar (Gates 1931, 1939, 1972; Samphon 1990).

Remarks. The species was only listed in Huynh & Nguyen (2004a) and Huynh *et al.* (2005). Further examination was not possible because all previously collected material has been lost.

Amynthas manicatus cucfuongmontis (Thai, 1984)

Pheretima manicata cucfuongmontis Thai, 1984c: 1321, fig. 2D; Do 1994: 91; Le 1995a: 66; Thai 2000a: 309.

Pheretima (Amynthas) manicata cucfuongmontis—Thai 1983: 126.

Amynthas manicatus cucfuongmontis—Blakemore 2007a: 62; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.200), Russia.

Examined material. 2 C and 4A (**CTU-EW.067.01**) forest, Moc Chau, Son La, 3/10/1990; 1 C (**SORC-V.066.01**) rotting woods, Khuoi Dai, Cao Bang, 18/2/1992, coll. Le Van Trien.

Records from Vietnam. **Cao Bang** (Thach An); **Son La** (Moc Chau); **Ninh Binh** (Cuc Phuong NP) (Thai 1984c; Do 1994; Le 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun manh tràng bàn tay cúc phuong.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas manicatus kisonmontis (Thai & Tran, 1986)

Pheretima manicata kisonmontis Thai & Tran, 1986a: 7, fig. 3A; Do 1994: 93; Nguyen 1994: 53; Thai 2000a: 309; Huynh & Nguyen 2004a: 116.

Amynthas manicatus kisonmontis—Blakemore 2007a: 62; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-HV.067**) and 3 C (**SORC-PV.067**) Muong Long, Ky Son, Nghe An, 1/1/1986, coll. Tran Ba Cu.

Records from Vietnam. **Hanoi** (Ba Vi NP); **Nghe An** (Ky Son); **Quang Binh** (Minh Hoa) (Thai & Tran 1986; Nguyen 1994; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun manh tràng bàn tay kỳ sơn.

Remarks. The subspecies is characteristically different from other subspecies in having three pairs of spermathecal pores in 5/6/7/8, first dorsal pore in 5/6 and the presence of genital markings in spermathecal and male regions (Thai & Tran 1986). Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amynthas* is confirmed here.

Amynthas manicatus quefongensis (Do & Tran, 1994)

Pheretima manicata quefongensis Do & Tran, 1994 (in: Do *et al.* 1994): 25, fig. 1D; Thai 2000a: 309.

Amynthas manicatus quefongensis—Blakemore 2007a: 62; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Que Phong).

Type material. SORC, Vietnam.

Examined material. 2 C (**SORC-V.068.04**) primary forest, Tri Le, Que Phong, Nghe An, 28/12/1987; 7 C (**SORC-V.068.07**) Muong Long, Tri Le, Que Phong, Nghe An. 12/1987; 10 C (**CTU-EW.068.01**) Xuan Hoa, Tuyen Hoa, Quang Binh, 1991.

Records from Vietnam. Nghe An (Que Phong) (Do *et al.* 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun manh tràng bàn tay quê phong.

Remarks. The subspecies can be recognised from other subspecies by having three pairs of spermathecal pores in 6/7/8/9; septa 5/6/7/8 very thickened (Do *et al.* 1994). Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas mamillaris (Chen, 1938)

Pheretima mamillaris Chen, 1938: 413, Fig. 15; Le 1995a: 33; Nakamura 1999: 35.

Amyntas mamillaris—Sims & Easton 1972: 236, 244; Blakemore 2007a: 62.

Type locality. China (Hainan Isl.).

Type material. Unknown.

Examined material. 8 C (**SORC-V.149.01**) near stream, Viet Lam, Vi Xuyen, Ha Giang, 5/12/1993, coll. Le Van Trien.

Records from Vietnam. Ha Giang (Vi Xuyen) (Le 1995a).

Distribution. China (Chen 1938).

Vietnamese name. Giun núm vú.

Amyntas modiglianii (Rosa, 1889)

Perichaeta modiglianii Rosa, 1889: 134; Beddard 1895a: 405.

Pheretima modiglianii—Michaelsen 1900: 285; 1934b: 509; Nguyen 1994: 56; Pham 1995c: 85; Nakamura 1999: 53; Thai 2000a: 309; Huynh 2005a: 101; Nguyen V.T. & Tran 2008: 185; Pham 2010: 63.

Pheretima (Amyntas) modigliani (**sic!**)—Thai 1983: 125.

Amyntas modiglianii—Sims & Easton 1972: 235; Blakemore 2007a: 65; Blakemore 2008b.

Type locality. Indonesia (Sumatra: Nias).

Type material. Unknown.

Examined material. 10 C (**CTU-EW.069.01**) Tam Ky, Quang Nam, 27/2/1984, coll. Pham Thi Hong Ha; 13 C (**SORC-V.150.08**) garden, Nui Thanh, Quang Nam, 9/2/1990 coll. Pham Thi Hong Ha.

Records from Vietnam. Quang Binh (Quang Rach); **Quang Tri** (Gio Linh; Huong Hoa); **Thua Thien Hue** (Huong Dien; Huong Tra; Hue; Huong Thuy; Nam Dong; Phu Loc); **Da Nang** (Son Tra; Hai Van); **Quang Ngai** (Quang Ngai; Tu Nghia; An Nhon; Son Ha; Hoai Nhon); **Binh Dinh** (Cu Lao Xanh); **Phu Yen** (Tuy Hoa); **Khanh Hoa** (Nha Trang; Van Ninh); **Lam Dong** (Da Lat); **Ninh Thuan** (Ninh Son; Ninh Phuoc); **Binh Thuan** (Phan Thiet; Bac Binh; Tuy Phong) (Nguyen 1994; Huynh 2005a; Nguyen V.T. & Tran 2008; Pham 2010).

Distribution. Indonesia (Sumatra) (Blakemore, 2007a).

Vietnamese name. Giun modigliani.

Amyntas morrisi (Beddard, 1892)

Perichaeta morrisi Beddard, 1892a: 166, Plate IX, Fig. 1.

Pheretima morrisi—Michaelsen 1900: 287; Chen 1931: 148, Fig. 9; Chen 1933: 267; Chen 1936: 270; Chen 1938: 382; Gates 1939: 100; Gates 1972: 202; Tran 1985: 39; Do 1994: 94; Nguyen 1994: 57; Le 1995a: 61; Nakamura 1999: 26; Thai 2000a: 309; Huynh & Nguyen 2004a: 116; Nguyen V.T. & Tran 2008: 185; Tran & Tran 2010: 8; Pham 2010: 63.

Pheretima (Amyntas) morrisi—Thai 1983: 125.

Amyntas morrisi—Sims & Easton 1972: 236, Figs 1A, 1H; Easton 1981: 55; Easton 1982: 729, Fig. 4d; Blakemore 2002: 176, Fig. 2.12; Shen & Yeo 2005: 24; Blakemore 2007a: 67; Blakemore 2008b.

See Blakemore (2002, 2007a) for more synonyms.

Type locality. England (Kew Gardens, soils from Penang, Malaysia).

Type material. NHM London, U.K.

Examined material. 4 C (**CTU-EW.070.01**) Tu Liem, Hanoi, 6/1996; 9 C and 10 A (**CTU-EW.070.02**) near stream in the primary forest, Tri Le, Que Phong, Nghe An; 16 C (**SORC-V.151.09**) on the Bac Giang river bank, Van Minh, Binh Gia, Lang Son, 26/3/1992, coll. Le Van Trien; 6 C (**SORC-V.151.22**) wetlands, Khe Ngam, Na Chang, Que Phong, Nghe An, 23/12/1987, coll. Tran Minh Khoi.

Records from Vietnam. **Lao Cai** (Sa Pa); **Son La** (Moc Chau); **Hoa Binh** (Mai Chau; Tan Lac); **Yen Bai** (Luc Yen; Pho Rang; Nghia Lo); **Phu Tho** (Phu Tho; Doan Hung; Thanh Son); **Vinh Phuc** (Me Linh; Tam Dao NP; Yen Lac); **Ha Giang** (Quan Ba; Meo Vac; Vi Xuyen; Dong Van); **Cao Bang** (Trung Khanh; Ha Lang; Thach An); **Tuyen Quang**; **Thai Nguyen** (Cho Don; Phu Binh); **Bac Can** (Bac Can); **Lang Son** (Bac Son; Trang Dinh; Huu Lung; Dong Dang; Van Lang); **Bac Giang** (Luc Ngan; Pho Thang; Tan Yen; Lang Giang); **Quang Ninh** (Mong Cai); **Hai Phong** (Cat Ba Isl.; Cat Hai Isl.); **Hanoi** (Ba Vi NP); **Thai Binh**; **Ninh Binh** (Cuc Phuong NP); **Thanh Hoa** (Nong Cong); **Nghe An** (Ky Son; Que Phong; Quy Chau; Quy Hop); **Quang Binh** (Quang Trach; Quang Ninh); **Da Nang** (Ba Na NP); **Binh Dinh** (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Huynh & Nguyen 2004a; Nguyen V.T. & Tran 2008; Tran & Tran 2010; Pham 2010).

Distribution. The species is probably originally from southern China, but now widely distributed in Laos, Myanmar, Thailand, Singapore, Taiwan, Malaysia, Indonesia (Sumatra), Hawaii, USA, Mexico, South America, the Caribbean region, England, Spain, Italy, Pakistan, India, and Australia (Gates 1972; Easton 1981; Samphon 1990; Blakemore 2002; Shen & Yeo 2005).

Vietnamese name. Giun morris.

Remarks. The species is widely distributed in northern and northcentral Vietnam.

Amynthas mucrorimus (Chen, 1946)

Pheretima mucrorima Chen, 1946: 108, Plate V, Fig. D; Do 1994: 96; Le 1995a: 54; Nakamura 1999: 46; Thai 2000a: 309; Huynh & Nguyen 2004a: 116.

Pheretima (Amynthas) mucrorima—Thai 1983: 124.

Amynthas mucrorimus—Sims & Easton 1972: 234; Blakemore 2007a: 67; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Examined material. 1 C and 1 A (**SORC-V.152.01**) Muong Long, Ky Son, Nghe An, 01/1986, coll. Tran Minh Khoi.

Records from Vietnam. **Yen Bai** (Luc Yen); **Ha Giang** (Quan Ba); **Son La** (Moc Chau); **Hanoi** (Ba Vi NP); **Ninh Binh** (Cuc Phuong NP); **Nghe An** (Ky Son) (Do 1994; Le 1995a; Huynh & Nguyen 2004a).

Distribution. China (Chen 1946).

Remarks. The Vietnamese population is slightly different from the original description in having only two pairs of spermathecal pores in vi and vii.

Amynthas multichaetiferus (Le, 1995)

Pheretima multichaetifera Le, 1995b: 59, fig. 1A; Thai 2000a: 309.

Amynthas? multichaetiferus—Blakemore 2007a: 67; Blakemore 2008b.

Type locality. Vietnam (Lang Son: Binh Gia).

Type material. SORC, Vietnam.

Records from Vietnam. **Lang Son** (Binh Gia) (Le 1995b).

Distribution. Only known from Vietnam.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost.

Amynthas namdongensis (Thai & Nguyen, 1993)

Pheretima namdongensis Thai & Nguyen, 1993 (in Nguyen 1993): 5, fig. 1B; Nguyen 1994: 56; Nakamura 1999: 43; Thai 2000a: 309.

Amynthas? namdongensis—Blakemore 2007a: 70; Blakemore 2008b.

Type locality. Vietnam (Thua Thien Hue: Nam Dong).

Type material. SORC, Vietnam.

Records from Vietnam. Thua Thien Hue (Nam Dong; A Luoi) (Nguyen 1993, 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nam đong.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost.

Amynthas nhonmontis Nguyen & Nguyen, 2015

Pheretima nhonmontis Nguyen & Nguyen, 2015: 132, Fig. 2.

Type locality. Vietnam (An Giang: Tinh Bien).

Type material. CTU, Vietnam.

Examined material. 1 C (**CTU-EW.023.h01**) and 6 C (**CTU-EW.023.p02**) natural forest, Nhon mountain, (104°56'09.2"E, 10°35'39.6"N), 56 m a.s.l., Tinh Bien district, An Giang province, Vietnam, 7/11/2010, coll. Nguyen Thanh Tung.

Records from Vietnam. An Giang (Tinh Bien) (Nguyen & Nguyen 2015).

Distribution. Only known from Vietnam.

Vietnamese name. Giun núi Nhơn

Amynthas oculatus ankheanus (Thai, 1984)

Pheretima oculata ankheana Thai, 1984a: 284, fig. 1B; Thai 2000a: 309; Huynh 2005a: 119.

Pheretima (Terrata) oculata ankheana—Thai 1983: 123.

Amynthas oculatus ankheanus—Blakemore 2007a: 72; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: An Khe).

Type material. ZMUM (W.242), Russia.

Records from Vietnam. Gia Lai (An Khe; Buon Luoi); Kon Tum (Sa Thay) (Thai 1984a; Huynh 2005a)

Distribution. Only known from Vietnam.

Vietnamese name. Giun mắt an khê.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but no further examination is made to confirm its taxonomic status.

Amynthas ophthalmopapillatus (Thai, 1982)

Pheretima ophthalmopapillata Thai, 1982: 823, fig. 2A; Do 1994: 97; Nakamura 1999: 21; Thai 2000a: 309; Huynh & Nguyen 2004a: 116.

Pheretima (Amynthas) ophthalmopapillata—Thai 1983: 125.

Amynthas ophthalmopapillatus—Blakemore 2007a: 73; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.258), Russia.

Records from Vietnam. Hanoi (Ba Vi NP); Ninh Binh (Cuc Phuong NP); Nghe An (Que Phong; Quy Chau) (Thai 1982; Do 1994; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú phu hình măt.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost.

Amyntas ovaliporophoratus (Do & Tran, 1995)

Pheretima ovaliporophorata Do & Tran, 1995 (in: Do *et al.* 1995): 88, fig. 1B; Thai 2000a: 309.

Amyntas? *ovaliporophoratus*—Blakemore 2007a: 73; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Que Phong).

Type material. SORC, Vietnam.

Records from Vietnam. Nghe An (Que Phong; Quy Chau) (Do *et al.* 1995).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú đực hình trúng.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost. However, Do *et al.* (1995) noted that the species is fairly similar to *Amyntas glabrus* (Gates, 1932) in male region. Thus, it is unlikely to have copulatory pouches.

Amyntas papulosus papulosus (Rosa, 1896)

Perichaeta papulosa Rosa, 1896: 525, Pl. I, Figs 14–16;

Pheretima papulosa—Michaelsen 1900: 291; Gates 1939: 101; Gates 1972: 206; Do 1994: 101; Nguyen 1994: 60; Le 1995a: 38; Pham 1995c: 93; Nakamura 1999: 39; Thai 2000a: 309; Huynh & Nguyen 2004a: 116; Huynh 2005a: 117; Tran & Ngo 2008: 133; Nguyen V.T. & Tran 2008: 185; Tran & Tran 2010: 8; Pham 2010: 63.

Pheretima (Terrata) papulosa—Thai 1983: 123.

Amyntas papulosus—Sims & Easton 1972: 181; Easton, 1981: 56; Blakemore 2002: 180.

Amyntas papulosus papulosus—Sims & Easton 1972: 236; Blakemore 2007a: 76; Blakemore 2008.

Pheretima composita Gates, 1932: 430, synonymized by Gates (1972).

Type locality. Indonesia (Sumatra: Balighe).

Type material. Genoa Museum, Italy.

Examined material. 3 C (**SORC-V.155.02**) fruit tree garden, Hoai Nhon, Binh Dinh, 16/4/1995, coll. Huynh Thi Kim Hoi; 2 C and 1 A (**SORC-V.155.03**) Binh Hiep, Binh Son, Quang Ngai, 15/4/1995, coll. Huynh Thi Kim Hoi; 4 C and 1 A (**SORC-V.155.07**) cassava garden, Tien Phuoc, Tien Ky, Quang Nam, 28/1/1998, coll. Pham Thi Hong Ha.

Records from Vietnam. Bac Giang (Luc Ngan; Son Dong: Khe Ro); Hai Phong (Cat Ba Isl.); Hanoi (Ba Vi NP); Ha Nam; Nam Dinh; Ninh Binh; Nghe An (Ky Son; Que Phong; Quy Chau); Quang Binh (Tuyen Hoa; Quang Trach; Bo Trach; Le Thuy); Quang Tri (Dong Ha; Gio Linh; Quang Tri); Thua Thien Hue (Huong Dien; Huong Tra; Hue; Huong Thuy; Nam Dong); Da Nang (Hoa Vang; Son Tra; Hai Van); Quang Nam (Dien Ban; Que Son; Hiep Duc; Tam Ky; Nui Thanh; Tien Phuoc; Phuoc Son); Quang Ngai (Binh Son; Tu Nghia); Binh Dinh (Hoai Nhon); Gia Lai (Pleiku; Buon Luoi); Phu Yen; Dak Lak (Buon Me Thuot; Cu Mgar); Khanh Hoa (Ninh Hoa); Ninh Thuan (Ninh Son); Binh Thuan (Tuy Phong) (Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004a; Huynh 2005a; Tran & Ngo 2008; Nguyen V.T. & Tran 2008; Tran & Tran 2010).

Distribution. Cosmopolitan species; also recorded from Myanmar, Thailand, Indonesia (Sumatra), China, Taiwan (Gates 1972; Easton 1981; Blakemore 2002).

Remarks. The species seems to be widely distributed in Vietnam, except in the southernmost part. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amyntas papulosus savanakhetanus (Thai & Samphon, 1988)

Pheretima papulosa savanakhetana Thai & Samphon, 1988: 21; Le 1995a: 38; Thai 2000a: 309.
Amyntas papulosus savanakhetanus—Blakemore 2007a: 76; Blakemore 2008b.

Type locality. Laos (Savannaket).

Type material. SORC, Vietnam.

Records from Vietnam. Quang Ninh (Mong Cai) (Le 1995a).

Distribution. Laos (Samphon 1990).

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost.

Amyntas paraduplicoecus (Do & Huynh, 1991)

Pheretima paraduplicoeca Do & Huynh, 1991 (in: Do *et al.* 1991): 53, fig. 4A; Do 1994: 100; Thai 2000a: 309.
Amyntas? *paraduplicoecus*—Blakemore 2007a: 76; Blakemore 2008b.

Type locality. Vietnam (Son La: Moc Chau).

Type material. SORC, Vietnam.

Examined material. 2 C (SORC-HPV.076) forest, Moc Chau, Son La, 10/1990, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Son La (Moc Chau) (Do *et al.* 1991; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận *duplicoecus*.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas pauxillulus (Gates, 1936)

Pheretima pauxillula Gates, 1936: 442; Gates 1972: 207; Do 1994: 102; Le 1995a: 35; Nakamura 1999: 37; Thai 2000a: 309.
Pheretima (Terrata) pauxillula—Thai 1983: 123.
Amyntas pauxillulus—Sims & Easton 1972: 236; Blakemore 2007a: 78; Blakemore 2008b.

Type locality. Myanmar (Kutkai).

Type material. Indian Museum, India.

Records from Vietnam. Lao Cai (Pho Rang; Sa Pa); Ha Giang (Quan Ba); Son La (Song Ma); Hoa Binh (Mai Chau) (Do 1994; Le 1995a).

Distribution. Myanmar (Gates 1972; Blakemore 2007a).

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Further examination was not possible because all previously collected material has been lost.

Amyntas penichaetiferus (Thai, 1984)

Pheretima penichaetifera Thai, 1984c: 1323, fig. 3B; Nguyen 1994: 61; Pham 1995c: 73; Nakamura 1999: 39; Thai 2000a: 309; Huynh & Nguyen 2004a: 116; Huynh *et al.* 2005: 180; Pham 2010: 63.
Pheretima (Amyntas) penichaetifera—Thai 1983: 124.
Amyntas penichaetiferus—Blakemore 2007a: 78; Blakemore 2008b.

Type locality. Vietnam (Da Nang: Hoa Vang).

Type material. ZMUM (W.204), Russia.

Examined material. 7 C (SORC-V.077.01) tea plantation, Quang Binh, 2/4/1992.

Records from Vietnam. Phu Tho (Xuan Son NP); Hanoi (Ba Vi NP); Quang Binh (Dong Hoi; Quang Trach;

Quang Ninh); **Quang Tri** (Dong Ha; Gio Linh; Quang Tri; Huong Hoa); **Thua Thien Hue** (Huong Dien; Huong Tra; Hue; Huong Thuy; Phu Loc); **Da Nang** (Hoa Vang; Son Tra); **Quang Nam** (Tam Ky; Nui Thanh) (Thai 1984c; Nguyen 1994; Pham 1995; Huynh & Nguyen 2004a; Huynh *et al.* 2005; Pham 2010)

Distribution. Only known from Vietnam.

Vietnamese name. Giun có tơ giao phối.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas plantopapillatus (Thai, 1982)

Pheretima plantopapillata Thai, 1982: 819, fig. 1A; Do 1994: 104; Nakamura 1999: 26; Thai 2000a: 309.

Pheretima (Amyntas) plantopapillata—Thai 1983: 125.

Amyntas plantopapillatus—Blakemore 2007a: 80; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.252), Russia.

Examined material. 1 C (SORC-V.080.01) Co Nhue, Tu Liem, Hanoi, 1980, coll. Tran Thuy Mui.

Records from Vietnam. **Hanoi** (Tu Liem); **Ninh Binh** (Cuc Phuong) (Thai 1982; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú phu hình bàn chân.

Remarks Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas plantoporophoratus (Thai, 1984)

Pheretima plantoporophorata Thai, 1984a: 287, fig. 2A; Zhong & Qiu 1987: 24, fig. 1; Do 1994: 105; Nguyen 1994: 63; Le 1995a: 37; Nakamura 1999: 24; Thai 2000a: 310; Huynh & Nguyen 2004a: 116; Huynh *et al.* 2005: 180; Tran & Tran 2010: 8.

Pheretima (Terrata) plantoporophorata—Thai 1983: 123.

Amyntas plantoporophorata—Zhong & Qiu 1992: 40.

Amyntas plantoporophoratus—Blakemore 2007a: 80; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Tu Liem).

Type material. ZMUM (W.202), Russia.

Records from Vietnam. **Son La** (Moc Chau; Son La; Thuan Chau; Yen Chau); **Phu Tho** (Xuan Son NP); **Lang Son** (Binh Gia; Bac Son); **Bac Giang** (Luc Ngan); **Quang Ninh** (Mong Cai); **Cao Bang** (Thach An); **Hai Phong** (Cat Ba Isl.); **Hanoi** (Tu Liem; Ba Vi NP); **Nghe An** (Ky Son; Que Phong; Quy Chau); **Quang Binh** (Tuyen Hoa; Minh Hoa) (Thai 1984a; Do 1994; Nguyen 1994; Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005; Tran & Tran 2010).

Distribution. China (Zhong & Qiu 1987; Zhong & Qiu 1992).

Vietnamese name. Giun nhú đực hình bàn chân.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a) considered the species as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amyntas platycorpus (Thai, 1982)

Pheretima platycorpa Thai, 1982: 821, fig. 1B; Samphon 1990: 99; Do 1994: 106; Nakamura 1999: 28; Thai 2000a: 310.

Pheretima (Amyntas) platycorpa—Thai 1983: 125.

Amyntas? platycorpus—Blakemore 2007a: 81; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong)

Type material. ZMUM (W.264), Russia.

Records from Vietnam. Ninh Binh (Cuc Phuong NP) (Thai 1982; Do 1994)

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun dẹt.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Amyntas polychaetiferus (Thai, 1984)

Pheretima polychaetifera Thai, 1984: 1317, fig. 2A; Nakamura 1999: 53; Thai 2000a: 310; Huynh 2005a: 96; Nguyen 2013: 54.

Pheretima sp.—Thai *et al.*, 2007: 313.

Pheretima sp.1—Nguyen T.T. & Tran, 2008: 61; Nguyen *et al.* 2010: 114; Nguyen & Huynh 2011: 1018.

Amyntas polychaetiferus—Blakemore *et al.* 2007: 29.

Pheretima paraalexandri Nguyen, 2011a: 153, Figs 2, 4, **syn. nov.**

Type locality. Viet Nam (Long An: Tan An City).

Type material. ZMUM (W.210), Russia.

Examined material. 6 C (CTU-EW.008.06) Quoi An, Vung Liem Distr., Vinh Long Prov., 19/10/2008, coll. Nguyen Thi Nhi; 17 C and 4 A (CTU-EW.008.04) Xuan Thinh, Trang Bom Distr., Dong Nai Prov., 16/10/2013, coll. Le Van Nhan; 2 C (SORC-V.083.01) near ricefield, Duc Binh, Tanh Linh Distr., Binh Thuan Prov., 4/4/1995, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dong Nai (Trang Bom); Binh Thuan (Duc Binh); Hau Giang (Phung Hiep); Long An (Thanh Hoa; Tan Thanh, Tan An City); Ben Tre (Binh Dai; Thanh Phu; Cho Lach); Vinh Long (Binh Minh; Mang Thit; Vung Liem; Long Ho); Tien Giang (Chau Thanh; Cai Lay; Cai Be; My Tho city); Can Tho (Cai Rang; Binh Thuy; Co Do; Phong Dien; Thoi Lai); Soc Trang (Ke Sach) (Thai 1984; Huynh 2005; Thai *et al.* 2007; Nguyen T.T. & Tran 2008; Nguyen *et al.* 2010; Nguyen & Huynh 2011; Nguyen & Nguyen 2010; Nguyen 2011a).

Distribution. Only known from Vietnam.

Remarks. Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas pomosus (Chen, 1946)

Pheretima pomosa Chen, 1946: 139, Pl. IV, Fig. D.

Pheretima domosa Chen, 1946: 102; Do 1994: 71; Nakamura 1999: 46; Huynh & Nguyen 2004a: 115; Blakemore 2007a: 30, "nomen nudum".

Amyntas domosus—Sims & Easton 1972: 234.

Amyntas pomosus—Blakemore 2007a: 82, "emend".

Type locality. China (Szechuan).

Type material. Unknown.

Records from Vietnam. Lao Cai (Sa Pa), Hanoi (Ba Vi NP) (Do 1994; Huynh & Nguyen 2004a).

Distribution. China (Chen 1946).

Remarks. Blakemore (2007a) restored name under ICBN (1999: Art. 32.5) from incorrect original spelling of the name as "*domosa*" by Chen (1946: 102) for "*pomosa*" as cited by Chen (1946: 139 and Plate IV D). Sims & Easton (1972: 234) and Reynolds & Cook (1976: 95) have erroneously retained the name "*domosus*".

Amyntas robustus (Perrier, 1872)

Perichaeta robusta Perrier, 1872: 112.

Pheretima robusta—Michaelsen, 1900: 299; Chen 1936: 271; Gates 1972: 216; Tran 1985: 45; Do 1994: 109; Nguyen 1994:

65; Le 1995a: 55; Pham 1995c: 77; Nakamura 1999: 33; Thai 2000a: 310; Huynh & Nguyen 2004a: 116; Huynh *et al.* 2005: 180; Pham 2010: 63.

Pheretima (Amyntas) robusta—Thai 1983: 124.

Amyntas robustus—Sims & Easton 1972: 234; Easton, 1981: 56; Blakemore 2002: 183; Blakemore 2007a: 86; Blakemore 2008.

Pheretima corrugata Chen, 1931: 131, Figs 5–6, synonymized by Chen (1936).

See Blakemore (2002, 2007a) for more synonyms.

Type locality. Mauritius.

Type material. MNHN, France.

Examined material. 3 C and 1 A (**SORC-V.161.03**), Ta Ken, Binh Gia, Lang Son, 26/3/1992; 2 C and 1 A (**SORC-V.161.04**), Bac Giang river bank, Binh Gia, Lang Son, 26/3/1992; 3 C and 1 A (**SORC-V.161.07**) hilly soil, Tan Lac, Hoa Binh, 15/7/1990.

Records from Vietnam. Commonly found in central and northern Vietnam (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004a).

Distribution. Cosmopolitan species (Blakemore 2002, 2007a).

Vietnamese name. Giun lón.

Remarks. Its original home is probably in China (Gates 1972). In Vietnam, it has been rarely found in southern part of Haivan pass in central Vietnam.

Amyntas rodericensis (Grube, 1879)

Perichaeta rodericensis Grube, 1879: 554.

Pheretima rodericensis—Michaelsen, 1900: 299, 318; Gates 1972: 218; Do 1994: 110; Nguyen 1994: 66; Pham 1995a: 87; Nakamura 1999: 54; Thai 2000a: 310; Huynh 2005a: 104; Nguyen V.T. & Tran 2008: 185; Pham 2010: 63.

Pheretima (Amyntas) rodericensis—Thai 1983: 125.

Amyntas rodericensis—Sims & Easton 1972: 235; Easton, 1982: 729; Blakemore 2002: 186, Fig. 2.14; Blakemore 2007a: 86; Blakemore 2008.

Perichaeta dyeri Beddard, 1892a: 157, Plate IX, Figs 2,8, Plate X, Fig. 1.

Perichaeta sinensis Beddard, 1892a: 158, Plate IX, Figs 3,5, Plate X, Figs 2–4, 7,8.

Perichaeta monilicystis Michaelsen, 1892: 251, Fig. 28.

Type locality. Rodriguez.

Type material. Wroclaw ("Breslau") Museum and British Museum (Gates 1972).

Examined material. 22 C (**SORC-V.162.13**) fruit tree lands, village 6, Thay Phuoc, Hiep Duc, Quang Nam, 17/12/1988, coll. Pham Thi Hong Ha; 5 C and 1 A (**SORC-V.162.02**) Canh Tien Tower, Do Ban, An Nhon, Binh Dinh, 15/11/1987, coll. Huynh Thi Kim Hoi.

Records from Vietnam. **Nghe An** (Ky Son); **Quang Binh** (Tuyen Hoa; Quang Trach; Quang Ninh; Le Thuy); **Quang Tri** (Dong Ha; Gio Linh; Quang Tri; Huong Hoa); **Thua Thien Hue** (Huong Dien; Huong Tra; Hue; Huong Thuy; A Luoi; Nam Dong; Phu Loc); **Da Nang** (Hoa Vang; Son Tra; Hai Van; Ba Na NP); **Quang Nam** (Dien Ban; Hoi An; Duy Xuyen; Que Son; Hiep Duc; Tam Ky; Nui Thanh; Tien Phuoc; Phuoc Son; Tra My); **Quang Ngai** (Quang Ngai; Binh Son; Tu Nghia); **Binh Dinh** (Quy Nhon; Tuy Phuoc; Hoai Nhon; Phu My; An Nhon); **Gia Lai** (Buon Luoi); **Dak Lak** (Buon Me Thuot); **Phu Yen** (Song Cau; Tuy Hoa); **Khanh Hoa** (Nha Trang); **Lam Dong** (Da Lat) (Do 1994; Nguyen 1994; Pham 1995; Huynh 2005a; Nguyen V.T. & Tran 2008; Pham 2010).

Distribution. Cosmopolitan species, known from USA, South America, Pacific Isls, Europe, India, Australia (Blakemore 2002).

Remarks. The species seems to be widely distributed in the highlands and central parts of Vietnam.

Amyntas sapinianus (Chen, 1946)

Pheretima sapiniana Chen, 1946: 130, Plate X, Fig. B; Le 1995a: 49; Nakamura 1999: 27; Thai 2000a: 310.

Amyntas sapinianus—Sims & Easton 1972: 236, 245; Blakemore 2007a: 88; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Examined material. 17 C and 4 A (**SORC-V.163.01**) under decaying woods, Tac Nga, Duc Xuan, Cao Bang, 13/7/1992, coll. Le Van Trien.

Records from Vietnam. **Cao Bang** (Thach An) (Le 1995a).

Distribution. China (Chen 1946).

Remarks. The species was originally found from wet ground under the moss coat or amongst grass roots (Chen 1946).

***Amyntas siccatus* (Chen, 1946)**

Pheretima siccata Chen, 1946: 88, Plate I, Fig. E; Do 1994: 111; Le 1995a: 53; Thai 2000a: 310; Huynh & Nguyen 2004a: 116;

Huynh *et al.* 2005: 180.

Amyntas siccatus—Sims & Easton 1972: 236, 246; Blakemore 2007a: 94; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown.

Records from Vietnam. **Lao Cai** (Pho Lu); **Son La** (Moc Chau); **Phu Tho** (Xuan Son NP); **Hanoi** (Ba Vi NP) (Do 1994; Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. China (Chen 1946).

Remarks. Do (1994) noted that the species can be found in decaying woods with high density. Further examination was not possible because all previously collected material has been lost.

***Amyntas swanus* (Tsai, 1964)**

Pheretima swanus Tsai, 1964: 13; Pham 1995c: 96; Nakamura 1999: 25; Thai 2000a: 310; Pham 2010: 64.

Amyntas swanus—Sims & Easton 1972: 236, 237, 246; Blakemore 2007a: 95; Blakemore 2008b.

Type locality. Taiwan.

Type material. Missing.

Records from Vietnam. **Da Nang** (Hoa Vang; Son Tra); **Quang Nam** (Que Son; Hiep Duc; Tam Ky; Tien Phuoc; Phuoc Son) (Pham 1995c, 2010).

Distribution. Taiwan (Tsai 1964).

Remarks. Pham (1995c) noted that the species seems to be commonly found in hill soils. Further examination was not possible because all previously collected material has been lost.

***Amyntas tertiadamae* (Michaelsen, 1934b)**

Pheretima tertiadamae Michaelsen, 1934b: 535, Figs XXIII–XXV; Nakamura 1999: 55; Thai 2000a: 310.

Pheretima (Amyntas) tertimadae (*sic!*)—Thai 1983: 123.

Amyntas tertiadamae—Sims & Easton 1972: 235, 246; Blakemore 2007a: 97; Blakemore 2008b.

Type locality. Vietnam (Kien Giang: Phu Quoc Isl.).

Type material. MNHN (AE591 (A730)), France.

Examined material. 10 C (**CTU-EW.095.01**), An Son Isl., Kien Hai, Kien Giang (104°21'10.8"E; 09°41'11.1"N), 17/11/2013, coll. Trinh Kim Binh.

Records from Vietnam. **Kien Giang** (Phu Quoc Isl.; An Son Isl.) (Michaelsen, 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun phú quốc thứ ba.

Remarks. The species has been known only in Kien Giang. Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amynthas tienphucanus (Pham, 1995)

Pheretima tienphucana Pham, 1995a: 22, fig. 1A; Pham 1995c: 95; Nakamura 1999: 27; Thai 2000a: 310.
Amynthas? tienphucanus—Blakemore 2007a: 98; Blakemore 2008b.

Type locality. Vietnam (Quang Nam: Tien Phuoc).

Type material. SORC, Vietnam.

Records from Vietnam. Quang Nam (Tien Phuoc) (Pham 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun tiên phuốc.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost.

Amynthas tonkinensis (Michaelsen, 1934b)

Pheretima tonkinensis Michaelsen, 1934b: 529, Fig. XX; Nakamura 1999: 55; Thai 2000a: 310.
Pheretima (Terrata) tonkinensis—Thai 1983: 123.
Amynthas tonkinensis—Sims & Easton 1972: 235; Blakemore 2007a: 99; Blakemore 2008b.

Type locality. Vietnam (Phu Tho: Phu Ho).

Type material. MNHN (AE592 (A730)), France.

Records from Vietnam. Phu Tho (Phu Ho) (Michaelsen, 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun bắc bộ.

Remarks. There are no other records since its original description. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amynthas triastriatus (Chen, 1946)

Pheretima triastriata Chen, 1946: 97, Plate III, Fig. D; Tran 1985: 47; Do 1994: 112; Nguyen 1994: 71; Le 1995a: 55; Nakamura 1999: 34; Thai 2000a: 310; Huynh & Nguyen 2004a: 116; Huynh *et al.* 2005: 180.
Pheretima (Amynthas) triastriata—Thai 1983: 124.
Amynthas triastriatus—Sims & Easton 1972: 234; Blakemore 2007a: 100; Blakemore 2008b.

Type locality. China (Szechuan).

Type material. Unknown

Examined material. 3 C (SORC-V.166.02) garden near stream, Thanh Ninh, Thanh Hoa, 2/10/1997, coll. Thai Tran Bai.

Records from Vietnam. Vinh Phuc (Tam Dao NP); Phu Tho (Xuan Son NP); Hanoi (Soc Son); Ninh Binh (Cuc Phuong NP); Hai Duong; Hung Yen; Thai Binh; Ha Nam; Nam Dinh; Thanh Hoa; Quang Binh (Dong Hoi) (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. China (Chen 1946).

Remarks. The species seems to be widely distributed in the delta of the Red river in northern Vietnam

Amynthas tschiliensis tschiliensis (Michaelsen, 1928)

Pheretima tschiliensis Michaelsen, 1928a: 13; Chen 1933: 250; Nguyen 1994: 71; Pham 1995c: 83; Nakamura 1999: 45; Thai 2000a: 310; Huynh & Nguyen 2004a: 116; Huynh 2005a: 108; Pham 2010: 64.

Pheretima (Amynthas) tschiliensis (*sic!*)—Thai 1983: 125.

Amynthas tschiliensis—Sims & Easton 1972: 237; Blakemore 2008b, *species incertus sedis*.

Amynthas? tschiliensis tschiliensis—Blakemore 2007a: 101, "incertae sedis".

Type locality. China (Tschili).

Type material. Unknown

Examined material. 2 C (**SORC-V.167.11**) bushes, Km13, Bach Ma NP, Thua Thien Hue; 3 C (**SORC-V.167.10**) banana, Tam Ky, Quang Nam, 14/2/1984; 4 C and 5 A (**SORC-V.167.09**) long-term tree garden, Tam Dan, Tam Ky, Quang Nam, 4/9/1994, coll. Pham Thi Hong Ha.

Records from Vietnam. Hanoi (Ba Vi NP); Quang Binh (Tuyen Hoa); Thua Thien Hue (Huong Thuy; Nam Dong; Phu Loc); Da Nang (Hoa Vang; Son Tra; Hai Van; Ba Na NP); Quang Nam (Dien Ban; Duy Xuyen; Dai Loc; Thang Binh; Que Son; Hiep Duc; Tien Phuoc); Gia Lai (Buon Luoi); Dak Lak (Yon Don) (Nguyen 1994; Pham 1995c, 2010; Huynh & Nguyen 2004a; Huynh 2005a).

Distribution. Vietnam; China (Michaelsen 1928; Chen 1933).

Vietnamese name. Giun tschili.

Remarks. Although Blakemore (2007a) noted the species as "*incertae sedis*", Csuzdi (2012) accepted the generic placement.

Amynthas tuberculatus (Gates, 1935)

Pheretima tuberculata Gates, 1935: 18; Chen 1936: 302, Fig. 21; Tran 1985: 48; Do 1994: 114; Nguyen 1994: 68; Le 1995a: 64; Pham 1995c: 64; Nakamura 1999: 62; Thai 2000a: 310; Huynh 2005a: 81; Huynh & Nguyen 2004a: 116; Nguyen V.T. & Tran 2008: 185; Tran & Tran 2010: 8; Pham 2010: 64.

Pheretima (*Amynthas*) *tuberculata*—Thai 1983: 125.

Amynthas tuberculatus—Sims & Easton 1972: 236; Blakemore 2007a: 101; Blakemore 2008b.

Type locality. China (Szechuan: Suifu).

Type material. U.S.National Museum (Smithsonian) (No. 20107) (Chen 1936).

Examined material. 2 C and 5 A (**SORC-V.168.02**) Quy Phuong, Quang Trach, Quang Binh, 20/8/1991, coll. Nguyen Van Thuan.

Records from Vietnam. Son La (Moc Chau); Ha Giang (Quan Ba); Bac Giang (Yen The; Luc Ngan); Quang Ninh (Tien Yen; Cam Pha); Lang Son (Bac Son); Hai Phong (Cat Ba Isl.); Hanoi (Ba Vi NP); Hai Duong; Hung Yen; Thanh Hoa; Nghe An (Que Phong; Quy Chau; Quy Hop); Quang Binh (Tuyen Hoa; Minh Hoa; Quang Trach; Bo Trach; Le Thuy); Da Nang (Son Tra; Hai Van; Ba Na NP); Dak Lak (Yon Don); Binh Dinh (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004a; Huynh 2005a; Nguyen V.T. & Tran 2008; Tran & Tran 2010).

Distribution. China (Gates 1935).

Vietnamese name. Giun mâu.

Amynthas vuongmontis (Thai, 1984)

Pheretima vuongmontis Thai, 1984b: 615, fig. 2A; Le 1995a: 47; Thai 2000a: 310.

Pheretima (*Terrata*) *vuongmontis*—Thai 1983: 123.

Amynthas? *vuongmontis*—Blakemore 2007a: 105; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Soc Son) (Thai 1984).

Type material. ZMUM (W.231), Russia.

Records from Vietnam. Vinh Phuc (Tam Dao NP); Hanoi (Soc Son) (Thai 1984b; Le 1995a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun núi vuông.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Blakemore (2007a) stated its status as "*species inquirenda*". Further examination was not possible because all previously collected material has been lost.

Amyntas wui (Chen, 1935)

Pheretima wui Chen, 1935: 109, Fig. 1; Tran 1985: 50; Do 1994: 114; Le 1995a: 39; Pham 1995c: 92; Nakamura 1999: 22; Thai 2000a: 310; Huynh *et al.* 2005: 180; Tran & Ngo 2008: 133; Tran & Tran 2010: 8; Pham 2010: 64.

Pheretima (Terrata) wui—Thai 1983: 123.

Amyntas wui—Sims & Easton 1972: 236; Blakemore 2007a: 106; Blakemore 2008b.

Type locality. China (Fukien: Amoy).

Type material. No. 13213, Museum of Biological Laboratory, Science Society of China.

Records from Vietnam. **Dien Bien** (Tuan Giao; Dien Bien Phu); **Son La** (Moc Chau); **Hoa Binh** (Tan Lac); **Lao Cai** (Pho Lu); **Yen Bai** (Luc Yen); **Phu Tho** (Doan Hung; Xuan Son NP); **Vinh Phuc** (Tam Dao); **Bac Can** (Bac Can); **Bac Giang** (Luc Ngan; Tan Yen; Khe Ro NR); **Cao Bang** (Trung Khanh; Cao Bang; Ha Lang; Thach An); **Lang Son** (Bac Son); **Hai Phong** (Cat Ba Isl.); **Hanoi** (Soc Son); **Da Nang** (Hoa Vang; Son Tra; Hai Van; Ba Na NP) (Tran 1985; Do 1994; Le 1995a; Pham 1995c, 2010; Huynh *et al.* 2005; Tran & Ngo 2008; Tran & Tran 2010)

Distribution. China (Chen 1935).

Vietnamese name. Giun wu.

Remarks. The species seems to be widely distributed in northern Vietnam. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Amyntas zenkevichi (Thai, 1982)

Pheretima zenkevichi Thai, 1982: 823, fig. 2B; Tran 1985: 51; Le 1995a: 46; Nakamura 1999: 58; Thai 2000a: 310; Huynh & Nguyen 2004a: 116; Tran & Ngo 2008: 133; Tran & Tran 2010: 8.

Pheretima (Amyntas) zenkevichi—Thai 1983: 125.

Amyntas zenkevichi—Blakemore 2007a: 108; Blakemore 2008b.

Type locality. Vietnam (Hanoi: Soc Son) (Thai 1984).

Type material. ZMUM (W.221), Russia.

Examined material. 6 C and 3 A (**SORC-V.100.03**) Thai Son, Tan Thai, Dai Tu, Thai Nguyen, 2/5/1986.

Records from Vietnam. **Phu Tho** (Phu Tho); **Vinh Phuc** (Me Linh); **Bac Giang** (Luc Ngan; Tan Yen; Pho Thang; Khe Ro NR); **Cao Bang** (Thach An); **Quang Ninh** (Mong Cai; Hon Gai); **Hanoi** (Soc Son; Ba Vi NP); **Thai Binh** (Thai 1982; Tran 1985; Le 1995a; Huynh & Nguyen 2004a; Tran & Ngo 2008; Tran & Tran 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Giun zenkevich.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and absence of male copulatory pouches and hence placement of the species in *Amyntas* is confirmed here.

Amyntas zoysiae (Chen, 1933)

Pheretima zoysiae Chen, 1933: 288; Le 1995a: 46; Nakamura 1999: 22; Thai 2000a: 310; Huynh *et al.* 2005: 180.

Type locality. China (Chekiang: Lin-hai).

Type material. ZMNU (No. 570).

Records from Vietnam. **Bac Giang** (Luc Ngan); **Phu Tho** (Doan Hung; Xuan Son NP) (Le 1995a; Huynh *et al.* 2005).

Distribution. China (Chen 1933).

Remarks. The species was synonymized with *Amyntas minimus* (Horst, 1893) (Easton 1981; Blakemore 2002), but Shen and Yeo (2005) re-validated this species. *A. zoysiae* differs from *A. minimus* in lower setal number and larger prostate glands (Shen & Yeo 2005: 22).

Genus *Metaphire* Sims & Easton, 1972

Metaphire Sim & Easton, 1972: 215.

Type species. *Rhodopis javanica* Kinberg, 1867, by monotypy

Distribution. The genus is widely distributed in the Oriental region, from Japan through to the Indo-Australian archipelago (Sims & Easton 1972: 215; Blakemore 2002).

Remarks. Members of the genus can be easily recognized by the presence of intestinal caeca at or near xxvii, the presence of copulatory pouches and the absence of micronephridia on the spermathecal ducts. About 180 nominal species have been described (Blakemore 2002, 2008a), and 55 species have been recorded in Vietnam.

Metaphire amplexens (Michaelsen, 1934b)

Pheretima amplexens Michaelsen, 1934b: 501, Figs III—V; Pham 1995c: 97; Nakamura 1999: 40; Thai 2000a: 307; Pham 2010: 62.

Pheretima (Amyntas) amplexens—Thai 1983: 125.

Metaphire amplexens—Sims & Easton 1972: 238; Blakemore 2007a: 6; Blakemore 2008b.

Type locality. Vietnam (Da Nang: Ba Na NP).

Type material. MNHN (AE647 (A730)), France.

Records from Vietnam. Da Nang (Ba Na NP; Son Tra) (Michaelsen 1934b; Pham 1995c, 2010).

Distribution. Only known from Vietnam.

Metaphire anomala (Michaelsen, 1907)

Pheretima anomala Michaelsen, 1907: 167, Fig. 14; Gates 1939: 82; Gates 1972: 166; Samphon 1990: 66; Thai & Do: 1989: 77; Do 1994: 56; Nguyen 1994: 38; Nakamura 1999: 19; Thai *et al.* 2004: 758; Huynh 2005a: 85; Nguyen V.T. & Tran 2008: 184; Nguyen 2013: 44; Nguyen 2014: 108.

Pheretima insolita Gates, 1925: 568.

Pheretima anomala centralis Stephenson, 1929: 234.

Pheretima (Amyntas) anomalia (*sic!*)—Thai 1983: 125; Thai 2000a: 308.

Metaphire anomala—Sims & Easton 1972: 237; Blakemore 2007a: 8; Blakemore 2008b.

Type locality. India (Botanical Gardens, Sibpur near Calcutta).

Type material. Hamburg Museum, Germany (Michaelsen 1907).

Examined material. 10 A (**SORC-V.121.02**) Quang Tri Province, Lao Bao, on the bank of Se Pon river, 22/8/1984, coll. Nguyen Van Thuan; 1 C (**SORC-V.121.01**) Dak Lak, on the bank of the river Krong Ana, 08/10/1989, coll. Huynh Thi Kim Hoi; 11 C (**CTU-EW.020.01**) rubber plantation, Trang Bom, Dong Nai, 16/10/2013, coll. Le Van Nhan; 7 C (**CTU-EW.020.02**) natural forest, Cat Tien NP, Tan Phu, Dong Nai, 13/10/2013, coll. Le Van Nhan.

Records from Vietnam. Lai Chau (Khuoi Leng); **Son La** (Quynh Nhai); **Quang Tri** (Huong Hoa); **Binh Dinh**; **Dak Lak** (Yok Don NP); **Ba Ria-Vung Tau** (Con Lon Isl.); **Dong Nai** (Cat Tien NP; Trang Bom); **Kien Giang** (Lai Son Isl.); **An Giang** (Nhon Mts, Phu Cuong Mts, Ba Doi Mts, Cam Mts, To Mts); **Dong Nai** (Vinh Cuu, Xuan Loc, Dinh Quan, Trang Bom, Cam My, Long Thanh); **Tay Ninh** (Ba Den Mts) (Do 1994; Nguyen 1994; Thai *et al.* 2004; Nguyen & Tran 2008; Huynh 2005a; Nguyen 2014: 108).

Distribution. India, Myanmar, Thailand, Cambodia, Laos, China (Gates 1939, 1972; Thai & Do 1989; Samphon 1990; Blakemore 2007a).

Vietnamese name. Giun bát thường.

Remarks. The species is rather unique with male pores in xx. The populations found in Cambodia and Con Lon Isl. (Vietnam) have genital markings on xix (Do 1994), and the population found in Dak Lak has an additional genital marking on xxi (Huynh 2005a). The material was re-checked to confirm the occurrence of the species in Vietnam.

Metaphire arrobustoides (Thai, 1984)

Pheretima arrobustoides Thai, 1984c: 1327, fig. 4D; Le 1995a: 58; Nakamura 1999: 29; Thai 2000a: 308; Huynh *et al.* 2005: 180

Pheretima (Amyntas) arrobustoides—Thai 1983: 124.

Metaphire arrobustoides—Blakemore 2007a: 9; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong).

Type material. ZMUM (W.236), Russia.

Records from Vietnam. **Lang Son** (Bac Son); **Cao Bang** (Thach An); **Bac Giang** (Tan Yen); **Ninh Binh** (Cuc Phuong NP); **Phu Tho** (Xuan Son NP) (Thai 1984c; Le 1995a; Huynh *et al.* 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun dạng *arrobusta*.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Metaphire bahli (Gates, 1945)

Pheretima bahli Gates, 1945b: 85; Thai & Samphon 1991: 4; Nguyen 1994: 39; Pham 1995c: 68; Nakamura 1999: 40; Thai 2000a: 308; Thai *et al.* 2004: 758; Huynh 2005a: 87; Nguyen V.T. & Tran 2008: 184; Nguyen *et al.* 2010: 114; Pham 2010: 62; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2011: 1025; Nguyen *et al.* 2012: 146; Nguyen 2013: 46; Nguyen 2014: 109.

Pheretima (Amyntas) bahli—Thai 1983: 124.

Metaphire bahli—Sims & Easton 1972: 239; Blakemore 2007a: 10; Blakemore 2008b; Blakemore *et al.* 2007: 29; Blakemore 2016 (removing synonyms *saigonensis* and *bangoiana*): 22, figs 1, 9a–d, 10.

Type locality. Sri Lanka (Colombo).

Type material. Unknown.

Examined material. 16 C (**SORC-V.124.01**) Bau Can, Gia Lai, 29/11/1979; 13 C (**SORC-V.124.02**) field of sweet potato, Lam Vien plateau, Da Lat, Lam Dong, 25/10/1995; 30 C (**CTU-EW.004.01**) long-term tree garden, Phu Ngoc commune, Dinh Quan, Dong Nai, 14/10/2013, coll. Le Van Nhan; 30 C and 2 A (**CTU-EW.004.02**) Xuan Loc, Dong Nai, 9–10/2012, coll. Nguyen Van Thang; 22 C (**CTU-EW.004.03**) short-term tree garden, Phu Loc commune, Tan Phu, Dong Nai, 13/10/2013, coll. Le Van Nhan; 16 C and 1 A (**CTU-EW.004.04**) plantation, Vinh Cuu, Dong Nai, 13/9/2012, coll. Duong Chi Trong; 26 C (**CTU-EW.004.05**) natural forest, Nhon mountain, Tinh Bien, An Giang, 7/11/2010, coll. Nguyen Thanh Tung.

Records from Vietnam. **Quang Binh** (Minh Hoa); **Thua Thien Hue** (A Luoi); **Da Nang**; **Quang Nam** (Tra My); **Kon Tum** (Dak Glei; Sa Thay); **Gia Lai** (Pleiku: Bau Can; Duc Co); **Binh Dinh** (Quy Nhon, Cu Lao Xanh); **Dak Lak** (Buon Me Thuot); **Binh Thuan** (Gia An); **Khanh Hoa** (Nha Tranh: Ba Ngoi); **Ba Ria-Vung Tau** (Con Lon Isl.); **Ho Chi Minh city**; **Dong Nai** (Vinh Cuu; Xuan Loc; Tan Phu; Trang Bom; Nhon Trach; Long Thanh); **Tay Ninh** (Ba Den Mts); **Tien Giang** (Tan Phu Dong; Cai Lay; Cai Be); **Ben Tre** (Binh Dai; Thanh Phu; Ba Tri); **Vinh Long** (Long Ho; Vung Liem; Vinh Long City); **Can Tho** (Cai Rang; Ninh Kieu; O Mon; Thot Not; Phong Dien); **Tra Vinh** (Duyen Hai; Tra Cu); **Kien Giang** (Ha Tien Town, Lai Son Mts); **An Giang** (Nguyen 1994; Pham 1995c, 2010; Huynh 2005a; Michaelsen 1934; Thai *et al.* 2004; Omodeo 1957; Nguyen V.T. & Tran 2008; Nguyet *et al.* 2009, 2010; Nguyen 2014).

Distribution. Philippines, Sri Lanka, Laos, Cambodia (Gates 1945b, 1972; Blakemore 2007a; Thai & Samphon 1991; Thai & Do 1989).

Vietnamese name. Giun bahli.

Remarks. Although the morphology of the male region of *M. saigonensis* is similar to that of *M. peguana*, the distance between male pores is totally different among the two species. Thai (1983, 2000) had suggested that *saigonensis* is a synonym of "*Pheretima*" *bahli* Gates, 1945; however, Blakemore (2005, 2016) restored both *saigonensis* and *bangoiana* separately from *Metaphire bahli*.

Metaphire baii (Blakemore, 2016)

Pheretima thaili Nguyen, 2011b: 26: fig. 3 (non *Pheretima thaili* Hong & James, 2011)

Pheretima sp.3—Nguyen T.T. & Tran, 2008: 61.

Pheretima thaili—Nguyen et al., 2012: 146; Nguyen 2013: 60; Nguyen 2014: 110.

Metaphire baii Blakemore 2016: 6, replacement for *Pheretima thaili*, preoccupied by Hong & James (2011).

Type locality. Vietnam (An Giang: Cho Moi).

Type material. CTU (EWh031), Vietnam.

Examined material. 6 C (CTU-EW013.01), Duyen Isl., Cho Moi, An Giang, 25/8/2007, coll. Nguyen Thanh Tung.

Records from Vietnam. **An Giang** (Cho Moi: Duyen Isl.); **Dong Thap** (Cao Lanh) (Nguyen 2011b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun Bái.

Metaphire bianensis (Stephenson, 1931)

Pheretima bianensis Stephenson, 1931a: 58, Text-figure 12; Nguyen 1994: 41; Pham 1995c: 65; Nakamura 1999: 48; Thai 2000a: 308; Huynh 2005a: 84; Nguyen V.T. & Tran 2008: 184; Pham 2010: 63.

Pheretima (Amyntas) bianensis—Thai 1983: 125.

Metaphire bianensis bianensis—Sims & Easton 1972: 237; Blakemore 2007a: 13; Blakemore 2008b.

Pheretima bianensis duplofasciata Michaelsen, 1934b: 514; synonymized by Thai (1983).

Metaphire bianensis duplofasciata—Sims & Easton 1972: 237; Blakemore 2007a: 13; Blakemore 2008b.

Type locality. Vietnam (Lam Dong: Langbian Plateau).

Type material. NHM London, U.K.

Examined material. 1 C (SORC-V.016.01) deciduous forest, Ea Lop, Dak Lak, 10/1989, coll. Huynh Thi Kim Hoi; 10 C (CTU-EW.046.01) primary forest, Kon Ka Kinh NP, Gia Lai, 20/10/2010, coll. Phan Thi Mai.

Records from Vietnam. **Thua Thien Hue** (Hue, Binh Dien; A Luoi; Bach Ma NP); **Da Nang** (Hoa Vang; Ba Na NP); **Binh Dinh** (Tuy Phuoc); **Dak Lak** (Ea Lop); **Gia Lai** (Kon Ha Nung; Buon Luoi); **Khanh Hoa** (Hon Ba); **Lam Dong** (Da Lat; Lang Bian Mts) (Stephenson 1931a; Michaelsen 1934b; Nguyen 1994; Pham 1995c, 2010; Huynh 2005a; Nguyen V.T. & Tran 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun lâm viên.

Remarks. Michaelsen (1934b) erected the subspecies *Pheretima bianensis duplofasciata* Michaelsen, 1934 for specimens from the same locality as *Pheretima bianensis bianensis* Stephenson, 1931, but according to Thai (1983) the two subspecies are not clearly distinguishable. It is suggested to re-check material for both subspecies.

Metaphire californica (Kinberg, 1867)

Pheretima californica Kinberg, 1867: 102; Beddard 1895a: 369; Michaelsen, 1900: 258, 275; Chen 1936: 270; Gates, 1972: 174; Do 1994: 62; Le 1995a: 59; Nakamura 1999: 29; Thai 2000a: 308; Thai et al. 2004: 759; Huynh et al. 2005: 180; Nguyen et al. 2012: 146; Nguyen 2013: 48; Nguyen 2014: 109.

Pheretima (Amyntas) californica—Thai 1983: 124.

Metaphire californica—Sims & Easton 1972: 238; Easton, 1981: 57; Easton, 1982: 731; Blakemore 2002: 195, Figs 2.16–2.17; Blakemore 2007a: 18; Blakemore 2008b.

Perichaeta ringeana Michaelsen, 1890a: 10.

Perichaeta guarini Rosa, 1894: 13.

Pheretima modesta Michaelsen, 1927: 88.

See Blakemore (2002, 2007a) for more synonyms.

Type locality. Sausalita Bay, California, USA.

Type material. Stockholm Museum, Sweden.

Examined material. 17 C and 1 A (**SORC-V.128.03**), A1 area, Thanh Ninh, Thanh Hoa, 03/10/1997, coll. Thai Tran Bai; 9 C (**CTU-EW.005.05**), Thanh Phu, Vinh Cuu, Dong Nai, 13/9/2012, coll. Duong Chi Trong.

Records from Vietnam. **Lao Cai** (Pho Lu; Pho Rang: Sa Pa); **Yen Bai** (Luc Yen); **Tuyen Quang** (Chiem Hoa); **Phu Tho** (Phu Tho; Thanh Son; Doan Hung; Xuan Son NP); **Vinh Phuc** (Me Linh); **Thai Nguyen**; **Bac Can** (Cho Don); **Cao Bang** (Thach An; Trung Khanh; Ha Lang); **Lang Son** (Binh Gia; Bac Son; Trang Dinh; Dong Dang); **Bac Giang** (Tan Yen); **Dien Bien** (Tuan Giao); **Son La** (Moc Chau; Son La); **Hoa Binh** (Hoa Binh; Mai Chau; Tan Lac); **Hanoi**; **Ha Nam**; **Thai Binh**; **Dong Nai** (Vinh Cuu, Long Khanh, Nhon Trach, Long Thanh); **Kien Giang** (Phu Quoc Isl.; Kien Luong); **Tra Vinh** (Duyen Hai); **Soc Trang** (Tran De); **Bac Lieu** (Bac Lieu Town); **An Giang** (Tinh Bien) (Le 1995a; Thai *et al.* 2004; Huynh *et al.* 2005; Nguyen 2014).

Distribution. Cosmopolitan species, found in various parts of the world, e.g. USA (Californica; New York); Mexico; South America; Madeira; Egypt; Myanmar; China; Taiwan; Japan; Australia (Blakemore 2002).

Vietnamese name. Giun californi.

Remarks. The species possibly originates from the Oriental region (Blakemore 2002). Chen (1936) noted that the species may be a senior synonym of *Metaphire hesperidum* (Beddard, 1892) following Gates's (1935) examination.

Metaphire catbaensis (Thai & Le, 1993) comb. nov.

Pheretima catbaensis Thai & Le, 1993: 33, fig. 1A; Thai 2000a: 308; Huynh & Nguyen 2004a: 115.
Amyntas? catbaensis—Blakemore 2007a: 21; Blakemore 2008b.

Type locality. Vietnam (Hai Phong: Cat Ba Isl.).

Type material. SORC, Vietnam.

Records from Vietnam. **Hai Phong** (Cat Ba Isl.); **Hanoi** (Ba Vi NP) (Thai & Le 1993; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cát bà.

Remarks. The species is similar to *Amyntas leucocircus* (Chen 1933) in having three pairs of spermathecal pores in intersegments 6/7/8/9, pre- and post-setal genital markings in vii and viii, spermathecal ampulla heart-shaped, prostatic duct S-shaped, and accessory glands mushroom-shaped. However, it can be distinguished by the presence of copulatory pouches, the absence of genital markings in the male region, prostomium prolobous, and diverticula ducts strongly twisted (Thai & Le 1993). Blakemore (2007a) tentatively assigned the species to the genus *Amyntas*, as "species inquirenda". Due to the presence of copulatory pouches, the species is better allocated to the genus *Metaphire*.

Metaphire chaubinhensis (Do & Tran, 1994)

Pheretima chaubinhensis Do & Tran, 1994 (in: Do *et al.* 1994): 24, fig. 1B; Do 1994: 64; Nakamura 1999: 62; Thai 2000a: 308; Huynh & Nguyen 2004a: 115.
Metaphire chaubinhensis—Blakemore 2007a: 22; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Quy Chau).

Type material. SORC, Vietnam.

Records from Vietnam. **Hanoi** (Ba Vi NP); **Nghe An** (Quy Chau) (Do *et al.* 1994; Do 1994; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun châu bình.

Remarks. Blakemore (2007a, 2008b) considered it as "species inquirenda", further examination was not possible because all previously collected material has been lost.

Metaphire conhanungensis (Thai, 1984)

Pheretima conhanungensis Thai, 1984c: 1319, fig. 2B; Nakamura 1999: 49.

Pheretima (Amyntas) conhanungensis—Thai 1983: 125.

Pheretima conghanungensis (**sic!**)—Thai 2000a: 308; Huynh 2005a: 122.

Metaphire? conhanungensis—Blakemore 2007a: 23; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: Buon Luoi).

Type material. ZMUM (W.239), Russia.

Examined material. 1 C (**SORC-V.025.01**) deciduous forests, Ealop, Dak Lak, 10/1989; 1 C (**SORC-V.025.02**) primary forest, Buon Luoi, Gia Lai, coll. Huynh Thi Kim Hoi.

Records from Vietnam. **Gia Lai** (Buon Luoi); **Dak Lak** (Ea Lop) (Thai 1984c; Huynh 2005a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun công hà nứng.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire coniporophorata (Thai & Samphon, 1989)

Pheretima coniporophorata Thai & Samphon, 1989: 69; Le 1995a: 45; Huynh & Nguyen 2004a: 115.

Metaphire? coniporophorata—Blakemore 2007a: 23; Blakemore 2008b.

Type material. SORC, Vietnam.

Type locality. Laos (Se Pon).

Records from Vietnam. **Cao Bang** (Thach An); **Phu Tho** (Xuan Son NP); **Hanoi** (Ba Vi NP) (Le 1995a; Huynh & Nguyen 2004a; Huynh *et al.* 2005).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun nhú đực hình chóp.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Metaphire dacnomontis (Thai & Huynh, 1992)

Pheretima dacnomontis Thai & Huynh, 1992 (in: Thai *et al.* 1992): 2, fig. 1B; Nakamura 1999: 22; Thai 2000a: 308; Huynh 2005a: 94.

Metaphire? dacnomontis—Blakemore 2007a: 26; Blakemore 2008b.

Type locality. Vietnam (Dak Lak: Yok Don).

Type material. SORC, Vietnam.

Examined material. 5 C (**SORC-HPV.027.01**) near stream, deciduous forest, Dak No, Dak Lak, 13/10/1989; 4 C (**SORC-V.027.02**) forest, Dran Phoc, Dak Lak, 10/1989; 1 C (**SORC-V.027.03**) deciduous forest, Ea Lop, Dak Lak, 18/10/1989; 1 A (**SORC-V.027.06**) bamboo forest, Yok Don, Dak Lak, 9/10/1989; 1 C (**SORC-V.027.08**) Yok Don, Dak Lak, 10/1989; 4 C (**SORC-V.027.09**) banana garden, Yok Don, Dak Lak, 10/1989; 1 A (**SORC-V.027.10**) near lotus lake, Yok Don, Dak Lak, 3/10/1989; all coll. Huynh Thi Kim Hoi.

Records from Vietnam. **Dak Lak** (Yok Don; Dak No) (Thai *et al.* 1992; Huynh 2005a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun núi đặc nô.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

***Metaphire dalatana* (Michaelsen, 1934b)**

Pheretima dalatana Michaelsen, 1934b: 533, Fig. XXII; Nakamura 1999: 49; Thai 2000a: 308; Huynh 2005a: 98.
Pheretima (Amynthas) dalatana—Thai 1983: 123.
Metaphire dalatana—Sims & Easton 1972: 238; Blakemore 2007a: 27; Blakemore 2008b.

Type locality. Vietnam (Lam Dong: Da Lat).

Type material. MNHN (AE650 (A730)), France.

Records from Vietnam. Lam Dong (Da Lat) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đà lạt.

Remarks. No other records since its original description.

***Metaphire dawydovi* (Michaelsen, 1934b)**

Pheretima dawydovi Michaelsen, 1934b: 517, Fig. XV; Nakamura 1999: 41; Thai 2000a: 308; Huynh 2005a: 115; Nguyen V.T. & Tran 2008: 184.
Pheretima (Terrata) dawydovi—Thai 1983: 123.
Metaphire dawydovi—Sims & Easton 1972: 238; Blakemore 2007a: 28; Blakemore 2008b.

Type locality. Vietnam (Lam Dong: Da Lat).

Type material. MNHN (AE651 (A709)), France.

Records from Vietnam. Thua Thien Hue (A Luoi; Phu Loc); Lam Dong (Da Lat: Langbian Mts); Binh Dinh (Michaelsen 1934b; Nguyen 1994; Nguyen V.T. & Tran 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun dawydov.

Remarks. The species has been only known from mountainous areas. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. No material for examination was available.

***Metaphire dipapillata* (Thai & Tran, 1986)**

Pheretima multitheca dipapillata Thai & Tran, 1986a: 9, fig. 3C; Do 1994: 95; Thai 2000a: 309.
Metaphire multitheca dipapillata—Blakemore 2007a: 68; Blakemore 2008b.
Metaphire dipapillata—Nguyen & Nguyen 2015: 132, **stat. nov.**; Nguyen *et al.* 2015b: 470, Fig. 4.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-HV.070**) and 5 C (**SORC-PV.070.01**) Muong Long, Ky Son, Nghe An, 1/1 1986, coll. Tran Ba Cu.

Records from Vietnam. Nghe An (Ky Son) (Thai & Tran 1986; Do 1994).

Distribution. Only known from Vietnam.

***Metaphire dorsobitheca* (Thai & Huynh, 1992)**

Pheretima dorsobitheca Thai & Huynh, 1992 (in: Thai *et al.* 1992): 3, fig. 1D; Nakamura 1999: 41; Thai 2000a: 308; Huynh 2005a: 107.
Metaphire? dorsobitheca—Blakemore 2007a: 31; Blakemore 2008b.

Type locality. Vietnam (Dak Lak: Yok Don).

Type material. SORC, Vietnam.

Examined material. 2 C (**SORC-HPV.038**) stream bank, Yok Don, Dak No, Dak Lak, 10/1989, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dak Lak (Yon Don NP) (Thai *et al.* 1992; Huynh 2005a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun đôi túi nhện tinh lùng.

Remarks. The species is fairly similar to *M. dorsomonotheca* (Thai & Samphon, 1988) from Laos, but differs in having three pairs of spermathecal pores in intersegments 6/7/8/9 and larger body size. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire dorsomultitheca Nguyen & Nguyen, 2015

Pheretima dorsomultitheca Nguyen & Nguyen, 2015 (in Nguyen *et al.* 2015b): 465, Fig.2.

Type locality. Vietnam (An Giang: Chau Doc).

Type material. CTU (EW.025), Vietnam.

Examined material. 1 C (**CTU-EW.025.h01**) and 8 C (**CTU-EW.025.p02**) natural forest, Sam Mountain (10°40'06.8N; 105°04'50.2E), Chau Doc Distr., An Giang Prov., Vietnam, 06/11/2010, coll. Nguyen Thanh Tung; 3C (**CTU-EW.025.p03**) natural forest, To Mountain (10°23'09.2N; 105°00'22.8E), Tri Ton Distr., An Giang Prov., Vietnam, 09/11/2010, coll. Nguyen Thanh Tung.

Records from Vietnam. An Giang (Chau Doc) (Nguyen *et al.* 2015b).

Distribution. Only known from Vietnam.

Metaphire easupana (Thai & Huynh, 1993)

Pheretima easupana Thai & Huynh, 1993 (in: Thai *et al.* 1993): 14, fig. 1C; Thai 2000a: 308; Huynh 2006: 121.
Metaphire? easupana—Blakemore 2007a: 32; Blakemore 2008b.

Type locality. Vietnam (Dak Lak: Ea Sup).

Type material. SORC, Vietnam.

Examined material. 4 C (**SORC-HPV.043.01**) Banana garden, Ea Lop, Ea Sup, Dak Lak, 19/10/1989, coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dak Lak (Ea Sup) (Thai *et al.* 1993; Huynh 2005a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun easup.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire exilis (Gates, 1935)

Pheretima exilis Gates, 1935: 7, Figs 3–4.; Chen 1936: 295, Fig. 13; Do 1994: 75; Nguyen 1994: 49; Le 1995a: 39; Nakamura 1999: 25; Thai 2000a: 308; Huynh 2005b: 20; Huynh *et al.* 2005: 180; Tran & Ngo 2008: 133; Pham 2010: 63.

Pheretima (Terrata) exilis—Thai 1983: 123.

Metaphire exilis—Sims & Easton 1972: 238; Blakemore 2007a: 35; Blakemore 2008b.

Type material. U.S. National Museum (Smithsonian) (No 20097).

Type locality. China (Szechuan: Suifu).

Records from Vietnam. Phu Tho (Xuan Son NP; Doan Hung); **Vinh Phuc** (Me Linh; Tam Dao); **Bac Giang** (Luc Ngan; Tan Yen; Khe Ro NR); **Thai Nguyen** (Dinh Hoa); **Bac Can**; **Yen Bai** (Luc Yen); **Lang Son** (Bac Son; Binh Gia); **Cao Bang** (Thach An); **Quang Ninh** (Tien Yen); **Hai Phong** (Cat Ba NP); **Lao Cai** (Sa Pa); **Ninh Binh**

(Cuc Phuong NP); **Nghe An** (Quy Chau); **Quang Binh** (Tuyen Hoa); **Da Nang**; **Dak Nong** (Ta Dung Mts) (Le 1995a; Do 1994; Nguyen 1994; Huynh 2005b; Huynh *et al.* 2005; Tran & Ngo 2008; Tran & Tran 2010; Pham 2010).

Distribution. China (Szechuan) (Gates 1935).

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Do (1994) noted that genital markings vary among populations.

Metaphire fluvialoides (Huynh, 1998)

Pheretima fluvialoides Huynh, 1998: 10, fig. 1; Thai 2000a: 308; Huynh 2005a: 126.

Metaphire fluvialoides—Blakemore 2007a: 38; Blakemore *et al.* 2007: 25, Fig. 5.

Type locality. Vietnam (Dak Lak).

Examined material. 6 C and 5 A (**SORC-PV.048.01**), 14 C (**SORC-PV.048.01**), river banks of Krong Ana, Yok Don, Dak Lak, 8/3/1989; 5 C and 7 A (**SORC-V.048.02**) same locality, but 14/5/1990; 2 C and 1 A (**CTU-EW.060.01**) same locality, but 11/3/1989; all coll. Huynh Thi Kim Hoi.

Records from Vietnam. Dak Lak (on the banks of Ea'Leo and Krong Ana Rivers) (Huynh 1998).

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận *fluvialis*.

Remarks. Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire gastromonotheca (Do & Tran, 1995)

Pheretima gastromonotheca Do & Tran, 1995 (in: Do *et al.* 1995): 91, fig. 2A; Thai 2000a: 309.

Metaphire? gastromonotheca—Blakemore 2007a: 41; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Quy Chau).

Type material. SORC, Vietnam.

Records from Vietnam. Nghe An (Quy Chau; Tan Ky) (Do *et al.* 1995).

Distribution. Only known from Vietnam.

Vietnamese name. Giun mót lỗ nhận tinh bụng.

Remarks. The species is typically characterized by having only one spermathecal pore ventrally. Further examination was not possible because all previously collected material has been lost.

Metaphire guillelmi (Michaelsen, 1895)

Perichaeta guillelmi Michaelsen, 1895: 32; Blakemore 2002: 201, treated as a synonyms of *Metaphire houletti*.

Pheretima guillelmi—Chen 1933: 249; Chen 1936: 270; Do 1994: 80; Le 1995a: 50; Pham 1995c: 65; Nakamura 1999: 42; Thai 2000a: 309; Pham 2010: 63.

Pheretima guillemi (sic!)—Huynh & Nguyen 2004a: 115.

Metaphire guillelmi—Sims & Easton 1972: 238; Blakemore 2007a: 44.

Type locality. China (Hupei).

Type material. Unknown.

Records from Vietnam. Vinh Phuc (Tam Dao); **Quang Ninh** (Mong Cai); **Hai Phong** (Cat Ba NP); **Son La** (Moc Chau); **Hanoi** (Ba Vi NP); **Da Nang** (Hoa Vang) (Le 1995a; Do 1994; Pham 1995c, 2010; Huynh & Nguyen 2004a).

Distribution. Cambodia, Laos, China (Thai & Do 1989; Samphon 1990; Chen 1933, 1936).

Vietnamese name. Giun guillelm.

Remarks. A warm-temperate species distributed in northern and central China. Although the species is unlikely to occur in Vietnam, previous research confirmed its occurrence in north and central Vietnam (Le 1995a; Do 1994; Pham 1995c, 2010; Huynh & Nguyen 2004a). Unfortunately, further examination was not possible because all previously collected material has been lost. Do (1994) noted that the population found in Vietnam has three pairs of spermathecal pores in 6/7/8/9, small genital markings close to the male porophores and spermathecal pores, mushroom-shaped accessory glands, and simple intestinal caeca. However, due to the fact that this species is found outside its known areas, the records in Vietnam require confirmation with fresh reference material.

Metaphire hilgendorfi (Michaelsen, 1892)

Perichaeta hilgendorfi Michaelsen, 1892: 235.

Pheretima hilgendorfi—Michaelsen, 1900: 272; Le 1995a: 63; Thai 2000a: 309.

Amyntas hilgendorfi—Sims & Easton 1972: 235, 237; Easton, 1981: 51.

Metaphire hilgendorfi—Blakemore 2002: 200; Blakemore 2007a: 47; Blakemore 2008b.

Perichaeta rokugo Beddard, 1892: 756.

Perichaeta schizophora Goto & Hatai, 1898: 76.

Type locality. Japan.

Type material. Germany (Berlin).

Records from Vietnam. Cao Bang (Thach An) (Le 1995a).

Distribution. Japan, Korea, Russia; also introduced into USA and Vietnam (Easton 1981; Blakemore 2007a).

Vietnamese name. Giun hilgendorf.

Remarks. This is a temperate species distributed in Japan, Korea and Russia, and with no records so far from China. Further examination was not possible because all previously collected material has been lost. Le (1995a) noted that the population recorded in Vietnam has stable characters for *M. hilgendorfi*, for example: two pairs of spermathecal pores in 6/7/8, a pair of large genital markings behind the setal ring of xviii, and manicate intestinal caeca. However, due to the fact that this species is found outside its known areas, the records in Vietnam require confirmation with fresh reference material.

Blakemore (2007a) recommended to allocate the species in *Metaphire* instead of *Amyntas* due to the occasional presence of copulatory pouches in several populations.

Metaphire honbaensis (Gates, 1941)

Pheretima helvola Michaelsen, 1934b: 520, Figs XV–XVI; Nakamura 1999: 65; Huynh 2005a: 109.

Pheretima honbaensis Gates, 1941: 497.

Pheretima (Amyntas) honbaensis (sic!)—Thai 1983: 125; Thai 2000a: 309.

Metaphire honbaensis (sic!)—Sims & Easton, 1972: 238, 243; Easton 1979: 101.

Metaphire honbaensis—Blakemore 2007a: 48; Blakemore 2008b.

Type locality. Vietnam (Nha Trang: Hon Ba Mts).

Type material. MNHN, France.

Records from Vietnam. Khanh Hoa (Hon Ba Mts) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun hòn bà.

Remarks. The name was proposed to replace *Pheretima helvola* Michaelsen, 1934. There are no other records since its original description.

Metaphire houletti (Perrier, 1872)

Perichaeta houletti Perrier, 1872: 99, Plate 2, Figs 31–44.

Pheretima houletti—Gates 1939: 94; 1972: 190; Pham 1995c: 89; Nakamura 1999: 42; Thai 2000a: 309; Huynh 2005a: 109;

Huynh 2005b: 20; Nguyen *et al.* 2010: 114; Pham 2010: 63; Nguyen T.T. & Tran 2008: 61; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2011: 1025; Nguyen *et al.* 2012: 146; Nguyen 2013: 49; Nguyen 2014: 109. *Metaphire houletti*—Sims & Easton 1972: 238; Blakemore 2007a: 48; Blakemore 2008b. *Perichaeta campanulata* Rosa, 1890b: 115. *Pheretima campanulata*—Gates 1930: 307, 311; 1939: 83; Thai *et al.* 2004: 759; Pham 1995c: 89; Nakamura 1999: 41; Thai 2000a: 308; Huynh 2005a: 112; Nguyen V.T. & Tran 2008: 184; Pham 2010: 63; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2011: 1025; Nguyen *et al.*, 2012: 146. *Metaphire campanulata*—Sims & Easton 1972: 238; Blakemore 2007a: 48, treated as synonym of *Metaphire houletti* (Perrier, 1872).

Type locality. India (Calcutta).

Type material. MHNH, France.

Examined material. 25 C and 18 A (**CTU-EW.006.06**) natural forest, Cat Tien NP, Tan Phu, Dong Nai, 13/10/2013, coll. Le Van Nhan; 22 C (**CTU-EW.006.02**) Phung Hiep, Can Tho, 9/10/2009, coll. Ngo Thi Ngan; 13C, 4 A (**SORC-V.129.01**) deciduous forest, Ealop, Dak Lak, 18/10/1989, coll. Huynh Thi Kim Hoi; 15 C and 5 A (**CTU-EW.018.01**) Nam Cat Tien, Tan Phu, Dong Nai, 13/10/2013, coll. Le Van Nhan; 11 C (**CTU-EW.018.05**) Cu Lao Duyen, Cho Moi, An Giang, 9/2009, coll. Ho Minh Thuan.

Records from Vietnam. **Son La** (Moc Chau); **Dien Bien** (Tuan Giao; Dien Bien); **Nghe An** (Que Phong); **Quang Tri** (Huong Hoa); **Thua Thien Hue** (Huong Tra; Hue; Huong Thuy; Nam Dong); **Da Nang** (Hoa Vang; Son Tra; Ba Na NP); **Quang Nam** (Dien Ban; Hiep Duc; Tam Ky; Tien Phuoc; Phuoc Son; Tra My); **Quang Ngai** (Son Ha); **Kon Tum** (Dak Glei; Sa Thay); **Binh Dinh** (Tuy Phuoc; An Nhon); **Gia Lai** (An Khe; Duc Co); **Phu Yen** (Tuy An); **Dak Lak** (Ea Sup; Yok Don NP; Buon Me Thuot); **Dak Nong** (Ta Dung Mts); **Binh Thuan** (Tanh Linh); **Lam Dong** (Duc Trong; Da Lat); **Khanh Hoa** (Nha Trang); **Dong Nai** (Vinh Cuu; Xuan Loc; Tan Phu; Dinh Quan; Trang Bom; Thong Nhat; Nhon Trach; Long Thanh; Cam My); **Tay Ninh** (Ba Den Mt.); **Dong Thap** (Thanh Binh; Lap Vo; Cao Lanh; Cu Lao Tan Long); **Hau Giang** (Phung Hiep; Nga Bay); **Long An** (Vinh Hung; Thanh Hoa); **Kien Giang** (Phu Quoc Isl.); **Tien Giang** (Cai Be; Cai Lay; Chau Thanh); **Vinh Long** (Long Ho); **An Giang** (Cho Moi; Cu Lao My Hiep; Chau Doc; Tinh Bien; Tri Ton); **Kien Giang** (Kien Luong; Hon Tre Isl.; Lai Son Isl.; An Son Isl.; Hon Dat); **Hau Giang** (Phung Hiep); **Can Tho**; **Ben Tre** (Binh Dai); **Tra Vinh** (Duyen Hai; Hoa Minh Isl.; Cau Ke); **Soc Trang** (Long Phu; Tran De; Ke Sach; Chau Thanh); **Bac Lieu** (Hoa Binh); **Ca Mau** (Dam Doi; Cai Nuoc; Ca Mau City) (Do 1994; Nguyen 1994; Pham 1995c, 2010; Huynh 2005a; Thai *et al.* 2004; Nguyen V.T. & Tran 2008; Nguyen & Nguyen 2010; Nguyen & Huynh 2011; Nguyen *et al.* 2010; Nguyen *et al.* 2011; Nguyen *et al.* 2012).

Distribution. Cosmopolitan species, occurring in India, Thailand, Cambodia, Laos, Myanmar, Taiwan, Singapore, China, Australia, USA (Gate 1939, 1972; Easton 1982; Thai & Do 1989; Thai & Samphon 1991; Shen & Yeo 2005; Shen *et al.* 2005).

Vietnamese name. Giun houlet.

Remarks. Gates (1939) noted that the original home of the species is probably somewhere a region comprising eastern Myanmar and Thailand. The species has been known in Vietnam as two different species, *Pheretima houletti* and *Pheretima campanulata*.

Metaphire javanica (Kinberg, 1867)

Rhodopis javanica Kinberg, 1867: 102; Beddard 1895a: 402, 403, "species inquirenda"; Michaelsen 1900: 259 (as *Perichaeta capensis* Horst, 1883).

Perichaeta javanica—Beddard, 1891b: 276.

Pheretima javanica—Gates 1940: 413; Do 1994: 85.

Metaphire javanica—Sims & Easton 1972: 215; Blakemore 2002: 203; Blakemore 2007a: 52.

Megascolex sumatrana Horst, 1883: 189, synonymized by Sims & Easton (1972).

Perichaeta capensis Horst, 1883: 195; Michaelsen 1900: 259.

Perichaeta operculata Rosa, 1891: 398, synonymized by Michaelsen (1900).

Perichaeta inflata Horst, 1893a: 327, synonymized by Sims & Easton (1972).

Perichaeta tenkatei Horst 1893a: 321, synonymized by Michaelsen (1900).

Perichaeta tjibodae Horst 1893a: 326, synonymized by Michaelsen (1900).

See Blakemore (2002, 2007a) for more synonyms.

Type locality. Indonesia (Java: Tjibodas).

Type material. Stockholm Museum, Sweden.

Records from Vietnam. Son La (Moc Chau) (Do 1994).

Distribution. Indonesia, Timor Lester, and China (Hongkong) (Blakemore 2002).

Vietnamese name. Giun java.

Remarks. Blakemore (2002) suggested that the species is possibly synonymous with *M. californica*.

Metaphire kiengiangensis Nguyen & Trinh, 2015

Pheretima kiengiangensis Nguyen & Trinh, 2015 (in Nguyen *et al.* 2015b): 461, Fig. 1.

Type locality. Vietnam (Kien Giang: Kien Hai).

Type material. CTU (EW.019), Vietnam.

Examined material. 1 C (**CTU-EW.019.h01**) and 10 C (**CTU-EW.019.p02**), plantation of *Hopea* and other trees, Lai Son Island, Kien Hai District, Kien Giang Province, Vietnam (09°48'21.6N; 104°38'01.1E), elevation of 81m a.s.l., 15 November 2013, coll. Trinh Thi Kim Binh; 3 C (**CTU-EW.019.p03**) fruit tree garden, on the way to Bang Beach, Lai Son Island, Kien Hai District, Kien Giang Province, Vietnam (09°48'32.4N; 104°39'23.0E), 14 October 2014, coll. Trinh Thi Kim Binh; 13 C (**CTU-EW.019.p04**) mango garden, Hon Dat Mountain, Hon Dat District, Kien Giang Province, Vietnam (10°06'37.6N; 104°53'06.2E), 13 November 2010, coll. Nguyen Thanh Tung.

Records from Vietnam. Kien Giang (Kien Hai; Hon Dat) (Nguyen *et al.* 2015b)

Distribution. Only known from Vietnam.

Vietnamese name. Giun Kiên giang.

Remarks. The species consists of mainland and island populations, with specimens on the mainland being smaller in size (Nguyen *et al.* 2015b).

Metaphire khoii (Do & Tran, 1994) comb. nov.

Pheretima khoii Do & Tran, 1994 (in: Do *et al.* 1994): 25, fig. 1E; Do 1994: 87; Nakamura 1999: 59; Thai 2000a: 309. *Amyntas? khoii*—Blakemore 2007a: 54; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Quy Chau).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-HV.059.01**) limestone, Chau Thuan, Quy Chau, Nghe An, 9/5/1988; 1 C (**SORC-PV.059.02**) Bu Cao Ma, Hiep Cat, Que Phong, Nghe An, 22/12/1987; 2 C (**CTU-EW.063.01**) forest, Nhu Xuan, Thanh Hoa, 8/1998, coll. Nguyen Thi Nguyet.

Records from Vietnam. Nghe An (Ky Son; Que Phong; Quy Chau) (Do *et al.* 1994; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun khôi.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and male copulatory pouches were observed. Thus, the species is transferred here to the genus *Metaphire*.

Metaphire langbiangi (Michaelsen, 1934)

Pheretima langbiangi Michaelsen, 1934b: 522, Fig. XVII; Nakamura 1999: 52; Thai 2000a: 309; Huynh 2005a: 83.

Pheretima (Amyntas) langbiangi—Thai 1983: 125.

Metaphire langbiangi—Sims & Easton 1972: 238; Blakemore 2007a: 57; Blakemore 2008b.

Type locality. Vietnam (Lam Dong: Langbian Mts).

Type material. MNHN (AE655 (A730)), France.

Records from Vietnam. Lam Dong (Langbian Mts) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun núi lang biang.

Remarks. Only known from original description.

Metaphire leonoris (Chen, 1946)

Pheretima leonoris Chen, 1946: 114, Plate VII, Fig. A; Do 1994: 89; Nakamura 1999: 31; Thai 2000a: 309; Huynh & Nguyen 2004a: 115.

Metaphire leonoris—Sims & Easton 1972: 238; Blakemore 2007a: 58.

Type locality. Szechuan (China).

Type material. Unknown.

Records from Vietnam. Lao Cai (Sa Pa); Hanoi (Ba Vi NP) (Do 1994; Huynh & Nguyen 2004a).

Distribution. China (Szechuan) (Chen 1946).

Remarks. Chen (1946) recorded two coloration types of the species: white specimens living in the yellow clays and dark specimens living in humus soils. The species was only known from highly mountainous areas (1,800m a.s.l. in Szechuan and 2,000m a.s.l. in Sa Pa). Do (1994) assumed that it could be an endemic species for mountainous areas in Indochina and Southern China. No material was examined because of lack of available specimens.

Metaphire mangophila (Nguyen, 2011) comb. nov.

Pheretima mangophila Nguyen 2011b: 24, fig. 2.

Pheretima sp.2—Nguyen T.T. & Tran 2008: 61; Nguyen *et al.* 2011: 1025.

Pheretima mangophila—Nguyen *et al.* 2012: 146; Nguyen 2013: 58; Nguyen 2014: 110.

Type locality. Vietnam (An Giang: Cho Moi).

Type material. CTU (EW.h017), Vietnam.

Examined material. 10 C (CTU-EW.012.01) plantation, Thien Ton, Vinh Cuu Distr., Dong Nai Prov., 13/09/2012, coll. Duong Chi Trong; 5 C (CTU-EW.012.02) fruit tree gardens, Phu Ngoc, Dinh Quan Distr., Dong Nai Prov., 14/10/2013, coll. Le Van Nhan.

Records from Vietnam. Tay Ninh (Ba Den Mt.); Dong Nai (Vinh Cuu; Xuan Loc; Dinh Quan); Dong Thap (Cao Lanh); Can Tho (Vinh Thanh); Kien Giang (Hon Dat; Kien Luong; Ha Tien, An Son Isl.); An Giang (Cho Moi: Duyen Isl.; Chau Doc; Tinh Bien; Tri Ton); Tra Vinh (Chau Thanh) (Nguyen 2011b; Nguyen 2014).

Distribution. Only known from Vietnam.

Vietnamese name. Giun ưa đất xoài.

Metaphire mangophilooides Nguyen & Le, 2015

Metaphire mangophilooides Nguyen & Le, 2015 (in Nguyen *et al.* 2015b): 467, Fig. 3.

Type locality. Vietnam (Dong Nai: Vinh Cuu).

Type material. CTU (EW.082), Vietnam.

Examined material. 1C (CTU-EW.082.h01) and 1 C (CTU-EW.082.p01) *Acacia* plantation, Thien Tam community, Vinh Cuu District, Dong Nai Province, Vietnam (11°15'54,7"N; 107°03'52,7"E), 13/09/ 2012, coll. Duong Chi Trong.

Records from Vietnam. Dong Nai (Vinh Cuu) (Nguyen *et al.* 2015b)

Distribution. Only known from Vietnam.

Vietnamese name. Giun cận mangophila.

***Metaphire mochauana* (Do & Huynh, 1991)**

Pheretima mochauana Do & Huynh, 1991 (in: Do et al. 1991): 56, fig. 4B; Do 1994: 93; Thai 2000a: 309.
Metaphire? mochauana—Blakemore 2007a: 65; Blakemore 2008b.

Type locality. Vietnam (Son La: Moc Chau).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-HV.069.01**) forest, Moc Chau, Son La, 13/4/1990; 2 C (**SORC-V.069.03**) corn field, Moc Chau, Son La, 13/4/1990, all coll. Huynh Thi Kim Hoi.

Records from Vietnam. Son La (Moc Chau) (Do et al. 1991; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun mộc châu.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*", material was re-checked to confirm its taxonomic status.

***Metaphire munglongmontis* (Thai & Tran, 1986)**

Pheretima munglongmontis Thai & Tran, 1986a: 10, fig. 4A; Do 1994: 96; Nakamura 1999: 26; Thai 2000a: 309; Huynh & Nguyen 2004a: 116.

Metaphire? munglongmontis—Blakemore 2007a: 68; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 1 A (**SORC-PV.071**) Muong Long, Ky Son, Nghe An, 1/1/1986, coll. Tran Ba Cu.

Records from Vietnam. Nghe An (Ky Son); Hanoi (Ba Vi NP) (Thai & Tran 1986; Do 1994; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun mường lồng.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

***Metaphire neoexilis* (Thai & Samphon, 1988)**

Pheretima neoexilis Thai & Samphon, 1988: 17, fig. 4D; Do 1994: 97; Nguyen 1994: 57; Huynh & Nguyen 2004a: 116; Huynh et al. 2005: 180.

Metaphire? neoexilis—Blakemore 2007a: 71; Blakemore 2008b.

Type locality. Laos (Luang Prabang).

Type material. SORC, Vietnam.

Records from Vietnam. Phu Tho (Xuan Son NP); Hanoi (Ba Vi NP); Nghe An (Que Phong); Quang Binh (Tuyen Hoa; Minh Hoa; Bo Trach; Quang Ninh); Thua Thien Hue (Phu Loc); (Do 1994; Nguyen 1994; Huynh & Nguyen 2004a; Huynh et al. 2005).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun exilis mới.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

***Metaphire nhani* (Huynh & Nguyen, 2005)**

Pheretima nhani Huynh & Nguyen, 2005: 25 fig. 1.

Metaphire nhani—Blakemore 2007a: 71.

Amyntas? nhani—Blakemore 2008b.

Type locality. Vietnam (Thua Thien Hue: Nam Dong).

Type material. SORC, Vietnam.

Examined material. 3 C (SORC), Doc Da, Huong Phu, Nam Dong, Thua Thien Hue, 07/04/1989.

Records from Vietnam. Thua Thien Hue (Nam Dong; A Luoi) (Huynh & Nguyen 2005).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhân.

Remarks. Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire pajana (Michaelsen, 1928)

Pheretima pajana Michaelsen, 1928: 33, Fig. 8; Do 1994: 98; Nakamura 1999: 33; Thai 2000a: 309.

Metaphire pajana—Sims & Easton, 1972: 239; Blakemore 2007a: 75; Blakemore 2008b.

Type locality. Borneo.

Type material. Unknown.

Records from Vietnam. Son La (Moc Chau) (Do 1994).

Distribution. Borneo (Michaelsen 1928).

Vietnamese name. Giun pajan.

Remarks. The species has been recorded only in northern Vietnam and in Borneo, so there is currently a distribution gap. It is expected to be found in central and southern Vietnam.

Metaphire peguana (Rosa, 1890)

Perichaeta peguana Rosa, 1890b: 113, Figs 6–8; Beddard 1895a: 403.

Pheretima peguana—Michaelsen, 1900: 292; Gates 1939: 102; Gates, 1972: 207; Nakamura 1999: 43; Thai 2000a: 309; Nguyen V.T. & Tran 2008: 185; Thai *et al.* 2004: 759; Thai 1987: 7; Huynh 2005a: 88; Nguyen *et al.* 2010: 114; Nguyen & Nguyen 2010: 123; Nguyen *et al.* 2011: 1025; Nguyen *et al.* 2012: 146; Nguyen 2013: 52; Nguyen 2014: 109.

Pheretima (Amyntas) peguana—Thai 1983: 124.

Pheretima peguana (*sic!*)—Huynh & Nguyen 2004a: 116.

Metaphire peguana—Sims & Easton 1972: 239; Easton, 1981: 58; Blakemore 2002: 207; Blakemore 2007a: 78; Blakemore 2008b; Blakemore 2016: 17, figs 1, 5a–c, 10.

Type locality. Myanmar (Rangoon).

Type material. Genoa Museum (44037), Italy.

Examined material. 7 A (SORC-V.157.01) Ho Chi Minh city, 29/7/1979, coll. Ms Ly; 10 C (CTU-EW.009.01) Duyen Hai, Tra Vinh, 19–20/09/2009, coll. Nguyen Thi Anh Ngoc; 5 C (CTU-EW.009.02) Xuan Loc, Dong Nai, 10/2012, coll. Nguyen Van Thang; 15 C (CTU-EW.009.03) Vinh An, Vinh Cuu, Dong Nai, 18/10/2012, coll. Duong Chi Trong.

Records from Vietnam. Binh Dinh; Tien Giang (Cai Lay); **Kien Giang** (Phu Quoc Isl.; Hon Dat); **An Giang** (Tinh Bien; Tri Ton); **Ben Tre** (Thanh Phu; Binh Dai; Ba Tri); **Tien Giang** (Cai Lay; Chau Thanh); **Long An** (Chau Phu; Chau Thanh); **Tra Vinh** (Duyen Hai; Tra Cu); **Vinh Long** (Vung Liem); **Bac Lieu** (Bac Lieu Town); **Ca Mau** (Nam Can); **Tay Ninh** (Ba Den Mts); **Dong Nai** (Vinh Cuu; Xuan Loc; Nhon Trach; Long Thanh) (Thai 1987; Thai *et al.* 2004; Nguyen V.T. & Tran 2008; Nguyen *et al.* 2010; Nguyen 2014).

Distribution. Cosmopolitan species, also known from Thailand, Myanmar, Singapore, Cambodia, Malaysia, Indonesia (Gates 1939, 1972; Thai & Do 1989; Blakemore 2002; Shen & Yeo 2005).

Vietnamese name. Giun pegu.

Remarks. Gates (1972) and Blakemore (2002) considered *saigonensis* Omodeo, 1957 a synonym of *Metaphire peguana* (Rosa, 1890). However, Thai (1984) suggested that *P. saigonensis* is a synonym of *M. bahli*. The taxa were reviewed and *M. saigonensis* was restored by Blakemore (2016).

Metaphire perelae (Thai, 1982)

Pheretima perelae Thai, 1982: 827, fig. 3B; Do 1994: 102; Nakamura 1999: 28; Thai 2000a: 309.

Pheretima (Amyntas) perelae—Thai 1983: 125.

Metaphire perelae—Blakemore 2007a: 78; Blakemore 2008b.

Type locality. Vietnam (Ninh Binh: Cuc Phuong NP).

Type material. ZMUM (W.267), Russia.

Examined material. 1 C (**SORC-V.078**) Cuc Phuong NP, Ninh Binh, 23/6/1983, coll. Thai Tran Bai.

Records from Vietnam. Ninh Binh (Cuc Phuong NP) (Thai 1982; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun perel.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire phaluongana (Do & Huynh, 1992), comb. nov.

Pheretima phaluongana Do & Huynh, 1992 (in: Thai *et al.* 1992): 1, fig. 1A; Do 1994: 103; Nakamura 1999: 23; Thai 2000a: 309.

Amyntas? phaluonganus—Blakemore 2007a: 79; Blakemore 2008b.

Type locality. Vietnam (Son La: Moc Chau).

Type material. SORC, Vietnam.

Examined material. 18 C and 5 A (**SORC-HPV.079.01**), on the banks of stream, Na Muong village, Xuan Nha, Moc Chau, Son La, 20/11/1991.

Records from Vietnam. Son La (Moc Chau) (Thai *et al.* 1992; Do 1994).

Distribution. Only known from Vietnam.

Vietnamese name. Giun pha luông.

Remarks. Thai *et al.* (1992) noted that the species is fairly similar to *Metaphire posthuma* (Vaillant, 1868) in having copulatory pouches, prolobous prostomium, and septum 8/9 much thickened. *Metaphire phaluongana* can be distinguished by having only one pair of spermathecal pores in intersegment 7/8, no genital markings in both spermathecal and male regions. It is usually found in sandy soil. Due to the presence of copulatory pouches, the species is more properly allocated in the genus *Metaphire*.

Metaphire planata (Gates, 1926)

Pheretima planata Gates, 1926: 441; Gates 1939: 103; 1972: 211; Do 1994: 105; Nakamura 1999: 36; Thai 2000a: 309; Huynh *et al.* 2005: 180

Metaphire planata—Sims & Easton 1972: 239; Blakemore 2007a: 80; Blakemore 2008b.

Type locality. Myanmar (Rangoon).

Type material. NHM London, U.K.

Records from Vietnam. Lao Cai (Sa Pa); **Phu Tho** (Xuan Son NP) (Do 1994; Huynh *et al.* 2005).

Distribution. Myanmar, India, Thailand, Vietnam, Malaysia (Gates 1939, 1972; Blakemore 2007a).

Metaphire posthuma (Vaillant, 1868)

Perichaeta posthuma Vaillant, 1868: 146; Beddard 1895a: 424.

Pheretima posthuma—Michaelsen 1900: 295; Gates 1939: 104; 1972: 212; Thai & Samphon 1991: 4; Pham 1995c: 97; Nakamura 1999: 53; Thai 2000a: 310; Thai *et al.* 2004: 758; Huynh 2005a: 123; Nguyen V.T. & Tran 2008: 185; Tran & Tran 2010: 8; Nguyen *et al.* 2010: 114; Pham 2010: 63; Thai 1987: 7; Thai *et al.* 2007: 312; Nguyen & Nguyen 2010: 123;

Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2011: 1025; Nguyen *et al.* 2012: 146; Nguyen 2013: 56; Nguyen 2014: 110.
Pheretima (Amyntas) posthuma—Thai 1983: 124.
Metaphire posthuma—Sims & Easton, 1972: 239; Blakemore 2002: 210; Blakemore 2007a: 82; Blakemore 2008b; Blakemore 2016: 15, figs 3a–d, 10.

Type locality. Indonesia (Java).

Type material. MNHN (AE656-668), France.

Examined material. 23 C (CTU-EW.011.02) Duyen Hai, Tra Vinh, 19–20/9/2009, coll. Nguyen Thi Anh Ngoc).

Records from Vietnam. Widely distributed in Vietnam.

Distribution. Cosmopolitan species, widely recorded from Vietnam, Laos, Cambodia, Thailand, Taiwan, China, USA, Pakistan, India, Philippines, Bahamas, Myanmar, Indonesia, Malaysia, England, Egypt, Argentina, France (Gates 1939, 1972; Thai & Do 1989; Thai & Samphon 1991; Blakemore 2002; Nguyen T.T. & Tran 2008; Nguyen V.T. & Tran 2008).

Vietnamese name. Giun quắn.

Remarks. The species usually occurs in sandy soils in Vietnam.

Metaphire prava mungxenensis (Thai & Tran, 1986)

Pheretima prava mungxenensis Thai & Tran, 1986: 11, fig. 4B; Samphon 1990: 102; Do 1994: 109; Thai 2000a: 310; Pham 2010: 63.

Metaphire prava mungxenensis—Blakemore 2007a: 82; Blakemore 2008b.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 1 C (SORC-HV.085) Ta Ca, Ky Son, Nghe An, 1/1/1986; 3 C (SORC-PV.085.02) same locality, but 15/6/1985; 12 C and 3 A (CTU-EW.073.01) Hoa Son, Ky Son, Nghe An, 6/1985, all coll. Tran Ba Cu.

Records from Vietnam. Nghe An (Ky Son); Da Nang (Ba Na NP) (Thai & Tran 1986; Do 1994; Pham 2010).

Distribution. Laos (Samphon 1990).

Vietnamese name. Giun prava mường xén.

Remarks. The subspecies is different from *M. prava prava* in spermathecal pores located further from dorsal line, more post-clitellar setae (Thai & Tran 1986). Blakemore (2007a, 2008b) considered it as "species inquirenda". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire primadamae (Michaelsen, 1934b)

Pheretima primadamae Michaelsen, 1934b: 526, Figs XVIII–XIX; Nakamura 1999: 53; Thai 2000a: 310.

Pheretima (Terrata) primadamae—Thai 1983: 122.

Amyntas primadamae—Sims & Easton 1972: 245; Blakemore 2008b.

Metaphire? primadamae—Blakemore 2007a: 82.

Type locality. Vietnam (Kien Giang: Phu Quoc).

Type material. MNHN (AE586 (A730)), France.

Records from Vietnam. Kien Giang (Phu Quoc Isl.) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun phú quốc thứ nhát.

Remarks. There are no other records since its original description. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species in the new subgenus.

Metaphire saigonensis (Omodeo, 1957)

Pheretima saigonensis Omodeo, 1957: 327, Figs 2, 4; Thai 1983: 124, as a synonym of *Metaphire bahli*; Nakamura 1999: 44. *Metaphire saigonensis*—Sims & Easton 1972: 239 (*peguana*-group); Blakemore 2008b, as a synonym of *Metaphire peguana*; Blakemore 2016: 17.

Type locality. Vietnam (Ho Chi Minh city = Sai Gon).

Type material. Unknown.

Records from Vietnam. Ho Chi Minh City (= Saigon) (Omodeo 1957).

Distribution. Only known from Vietnam.

Vietnamese name. Giun sài gòn.

Remarks. The species was considered a synonym of *Metaphire peguana*, but was restored to full species rank by Blakemore (2016). *M. peguana* and *M. saigonensis* are clearly different in the distance between male pores and spermathecal pores (Blakemore 2016).

Metaphire scitula (Gates, 1936)

Pheretima scitula Gates, 1936: 457; Gates 1972: 219; Nakamura 1999: 44; Pham 2010: 64. *Metaphire scitula*—Sims & Easton 1972: 238; Blakemore 2007a: 89.

Type locality. India (Port Blair).

Type material. Indian Museum.

Records from Vietnam. Da Nang (Pham 2010).

Distribution. Vietnam, India, Myanmar (Gates 1936, 1972).

Remarks. The species was only listed in Pham (2010). Further examination was not possible because all previously collected material has been lost.

Metaphire seponensis (Thai & Samphon, 1989)

Pheretima seponensis Thai & Samphon, 1989: 68, fig. 1; Samphon 1990: 104; Nguyen 1994: 66. *Metaphire seponensis*—Blakemore 2007a: 90; Blakemore 2008b.

Type locality. Laos (Se Pon) (Thai & Samphon 1989).

Type material. SORC, Vietnam.

Records from Vietnam. Quang Tri (Huong Hoa) (Nguyen 1994).

Distribution. Vietnam, Laos (Thai & Samphon 1989; Samphon 1990).

Vietnamese name. Giun xê-pôn.

Remarks. The species is more or less commonly distributed in both natural and disturbed habitats (Samphon 1990). Blakemore (2007a) stated its status as "*species inquirenda*", but further examination was not possible because all previously collected material has been lost.

Metaphire socsonensis (Thai, 1984)

Pheretima socsonensis Thai, 1984a: 286, fig. 1D; Le 1995a: 41; Nakamura 1999: 21; Thai 2000a: 310; Huynh & Nguyen 2004a: 116; Tran & Ngo 2008: 133.

Pheretima (Amyntas) socsonensis—Thai 1983: 124.

Metaphire socsonensis—Blakemore 2007a: 92; Blakemore 2008b.

Type locality. Hanoi (Soc Son).

Type material. ZMUM (W.206), Russia.

Records from Vietnam. **Bac Giang** (Khe Ro NR; Tan Yen); **Lang Son** (Binh Gia); **Hanoi** (Soc Son; Ba Vi NP) (Thai 1984a; Le 1995a; Huynh & Nguyen 2004a; Tran & Ngo 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun sóc sơn.

Remarks. No material examination was made because of lack of available specimens.

Metaphire stephensonii (Michaelsen, 1934b)

Pheretima stephensonii Michaelsen, 1934b: 543, Fig. XXIX; Nakamura 1999: 54; Thai 2000a: 310; Huynh 2005a: 107.

Pheretima (Terrata) stephensonii—Thai 1983: 123.

Metaphire stephensonii—Sims & Easton, 1972: 239; Blakemore 2007a: 94; Blakemore 2008b.

Type locality. Vietnam (Lam Dong; Da Lat).

Type material. MNHN (AE675 (A730)), France.

Records from Vietnam. **Lam Dong** (Da Lat) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Vietnamese name. Giun Stephenson.

Remarks. There are no other records since its original description. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

Metaphire thaibinhensis (Thai, 1984)

Pheretima thaibinhensis Thai, 1984b: 616, fig. 2B; Tran 1985: 46; Thai & Do 1989: 77; Le 1995a: 42; Thai 2000a: 310; Huynh & Nguyen 2004a: 116.

Pheretima (Amyntas) thaibinhensis—Thai 1983: 124.

Metaphire thaibinhensis—Blakemore 2007a: 98; Blakemore 2008b.

Type locality. Vietnam (Thai Binh).

Type material. ZMUM (W.223), Russia.

Examined material. 10 A (**SORC-V.091.02**) river banks of the Red River, Thanh Hoa, Phu Tho, 23/7/1993; 2 C and 1 A (**CTU-EW.075.01**) along the Red River, Thanh Ba, Phu Tho; 1 C and 2 A (**CTU-EW.075.02**) Mekong river, Cagino, Cambodia, 27/10/1988, coll. Do Van Nhuong.

Records from Vietnam. **Vinh Phuc** (Thanh Hoa); **Phu Tho** (Phu Tho town); **Ha Giang** (Vi Xuyen); **Thai Binh**; **Hanoi** (Ba Vi NP); **Hai Duong**; **Hung Yen**; **Ha Nam**; **Nam Dinh**; **Ninh Binh** (Thai 1984b; Tran 1985; Le 1995a; Huynh & Nguyen 2004a).

Distribution. Cambodia (Thai & Do 1989).

Vietnamese name. Giun thái bình.

Remarks. Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire truongsonensis (Thai, 1984)

Pheretima truongsonensis Thai, 1984a: 288, fig. 2B; Samphon 1990: 105; Nguyen 1994: 67; Pham 1995c: 64; Nakamura 1999: 55; Thai 2000a: 310; Huynh 2005a: 82; Tran & Ngo 2008: 133; Nguyen V.T. & Tran 2008: 185; Pham 2010: 64.

Pheretima (Amyntas) truongsonensis—Thai 1983: 125.

Metaphire truongsonensis—Blakemore 2007a: 100; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: An Khe).

Type material. ZMUM (W.223), Russia.

Examined material. 2 C (**SORC-V.096.02**) Duc pass, Khanh Hoa, 9/3/1989; 3 C and 2 A (**CTU-EW.076.01**) humid soil, Bach Ma NP, Thua Thien Hue, 25/6/1988, coll. Nguyen Van Thuan; 26 A (**CTU-EW.076.02**) primary forest, Kon Ka Kinh NP, Gia Lai, 20/10/2010, coll. Phan Thi Mai.

Records from Vietnam. **Bac Giang** (Khe Ro NR); **Quang Binh** (Dong Hoi; Quang Ninh); **Thua Thien Hue** (Bach Ma NP; Huong Tra; Phu Loc); **Da Nang** (Hoa Vang; Hai Van; Ba Na NP); **Khanh Hoa** (Duc Ma pass); **Gia Lai** (An Khe; Buon Luoi); **Binh Dinh** (Thai 1984a; Nguyen 1994; Pham 1995c, 2010; Huynh 2005a; Tran & Ngo 2008; Nguyen V.T. & Tran 2008).

Distribution. Vietnam, Laos (Samphon 1990).

Vietnamese name. Giun trường sơn.

Remarks. Blakemore (2007a) stated its status as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire tripidoporophoratus (Thai & Nguyen, 1993), comb. nov.

Pheretima tripidoporophorata Thai & Nguyen, 1993 (in Nguyen 1993): 5, fig. 1A; Nguyen 1994: 70; Pham 1995c: 95; Nakamura 1999: 24; Thai 2000a: 310; Pham 2010: 64.

Amyntas? *tripidoporophoratus*—Blakemore 2007a: 100; Blakemore 2008b.

Type locality. Vietnam (Thua Thien Hue: Hue).

Type material. SORC, Vietnam.

Examined material. 6 C and 1 A (**SORC-V.095.04**) An Le, Huong Dien, Hue, 15/5/1985, coll. Nguyen Van Thuan.

Records from Vietnam. **Thua Thien Hue** (Hue; Huong Dien); **Da Nang**; **Quang Nam** (Phuoc Son) (Nguyen 1993, 1994; Pham 1995c, 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Giun nhú đực 3 cánh.

Remarks. Blakemore (2007a, 2008b) considered it as "*species inquirenda*". Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

Metaphire varellana varellana (Michaelsen, 1934)

Pheretima varellana Michaelsen, 1934b: 511, Figs. XI–XII; Nakamura 1999: 55; Thai 2000a: 310; Huynh 2005a: 98; Pham 2010: 64.

Pheretima (Amyntas) varellana—Thai 1983: 123.

Metaphire varellana—Sims & Easton, 1972: 239.

Metaphire varellana varellana—Blakemore 2007a: 103; Blakemore 2008b.

Type locality. Vietnam (Phu Yen).

Type material. MNHN (AE676 (A730), AE 677), France.

Records from Vietnam. **Da Nang** (Ba Na NP); Phu Yen; Lam Dong (Da Lat) (Michaelsen 1934b; Huynh 2005a; Pham 2010).

Distribution. Only known from Vietnam.

Remarks. Another subspecies, *Metaphire varellana gilva* (Michaelsen, 1934) was noted to be recorded in Indochina, but the exact locality was not given (Blakemore 2007a).

Metaphire varians songbaana (Thai, 1984)

Pheretima varians songbaana Thai, 1984b: 617, fig. 2D; Nguyen 1994: 72; Pham 1995c: 93; Thai 2000a: 310; Huynh 2005a: 123; Nguyen V.T. & Tran 2008: 185; Pham 2010: 64.

Pheretima (Terrata) varians songbaana—Thai 1983: 123.

Metaphire varians songbaana—Blakemore 2007a: 103; Blakemore 2008b.

Type locality. Vietnam (Gia Lai: An Khe).

Type material. ZMUM (W.198), Russia.

Examined material. 5 C and 2 A (**SORC-V.098.01**) Banana garden, Lien Son, Mai Hoa, 21/8/1991, coll. Nguyen Duc Tan; 10 C and 29 A (**CTU-EW.077.01**) primary forest, Kon Ka Kinh NP, Gia Lai, 20/10/2010, coll. Phan Thi Mai.

Records from Vietnam. **Gia Lai** (An Khe); **Quang Binh** (Quang Trach; Bo Trach); **Quang Tri** (Quang Tri town); **Thua Thien Hue** (Huong Dien; Hue); **Da Nang** (Hoa Vang; Son Tra; Hai Van; Ba Na NP); **Quang Nam** (Hiep Duc; Tam Ky; Tien Phuoc); **Quang Ngai** (Quang Ngai; Tu Nghia); **Binh Dinh** (Thai 1984b; Nguyen 1994; Pham 1995c, 2010; Huynh 2005a; Nguyen V.T. & Tran 2008).

Distribution. Only known from Vietnam.

Vietnamese name. Giun sông ba.

Remarks. Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus. Material was re-examined and presence of male copulatory pouches and hence placement of the species in *Metaphire* is confirmed here.

"Acaecate" Group

Genus *Metapheretima* Michaelsen, 1928

Pheretima (*Metapheretima*) (partim) Michaelsen, 1928: 8.

Metapheretima—Sims & Easton 1972: 205, 233; Easton 1979: 78.

Type species. *Perichaeta neoguinensis* Michaelsen, 1892, by original designation.

Distribution. North and southeast New Guinea, New Britain, Lombok, Carolines, Solomon Isls. and New Hebrides (Easton 1979).

Metapheretima tani (Thai, 1996)

Pheretima tani Thai, 1996: 4, fig. 3A; Thai 2000a: 310; Huynh 2005a: 127.

Polypheretima tani—Nakamura 1999: 7; Blakemore 2007a: 96; Blakemore 2008b.

Metapheretima tani—Nguyen et al. 2014: 106, fig. 1.

Type locality. Vietnam (Phu Yen: Tuy Hoa).

Type material. SORC, Vietnam.

Examined material. 1 A (**SORC-HV.227**) and 1 A (**SORC-PV.227.01**) Hoa Binh co-operative, Tuy Hoa city, Phu Yen, 15/11/1989, coll. Nguyen Duc Tan.

Records from Vietnam. **Phu Yen** (Tuy Hoa) (Thai 1996).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn tân.

Metapheretima tiencanhensis (Pham, 1995)

Pheretima tiencanhensis Pham, 1995a: 24, fig. 1C; Pham 1995c: 100; Thai 2000a: 310; Pham 2010: 64.

Polypheretima tiencanhensis—Nakamura 1999: 7; Blakemore 2008b.

Metapheretima tiencanhensis—Nguyen et al. 2014: 108, fig. 1.

Type locality. Vietnam (Quang Nam: Tien Phuoc).

Type material. SORC, Vietnam.

Examined material. 1 C (**SORC-HV.228.01**) village No.1, Tien Canh, Tien Phuoc, Quang Nam, 27/01/1988, coll. Pham Thi Hong Ha; 1 C (**SORC-PV.228.1**) garden, Group No.3, Tra My town, Quang Nam, 04/03/1989, coll. Pham Thi Hong Ha; 2 C and 1 A (**SORC-V.288.02**) Binh Lam, Hiep Duc, Quang Nam, 19/12/1988, coll. Pham Thi Hong Ha.

Records from Vietnam. Da Nang (Son Tra; Hai Van; Ba Na NP); Quang Nam (Tien Phuoc; Tra My) (Pham 1995a, 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn tiên cảnh.

Remarks. Blakemore (2008b) considered it as "*species inquirenda*", material was re-checked to confirm its generic position.

***Metapheretima vietnamensis* Thai, 1984**

Metapheretima vietnamensis Thai, 1984b: 614, fig. 1B; Blakemore 2007a: 104; Blakemore 2008b; Nguyen *et al.* 2014: 108, fig. 1.

Pheretima vietnamensis—Pham 1995c: 100; Thai 2000a: 310; Huynh 2005a: 130; Pham 2010: 64.

Type locality. Vietnam (Gia Lai: An Khe).

Type material. ZMUM (W.270), Russia.

Records from Vietnam. Gia Lai (An Khe town); Da Nang (Hoa Vang; Son Tra; Hai Van); Quang Nam (Hiep Duc; Tra My) (Thai 1984b; Pham 1995c; Pham 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn viet nam.

Remarks. The species is similar to *Metapheretima speiseri* (Michaelsen, 1913) and *Metapheretima apunae* Lee, 1981, but differs from both in having two pairs of spermathecal pores in 5/6 and the spermathecal diverticulum originating from the spermathecal duct (Thai 1984b).

Genus *Planapheretima* Michaelsen, 1934

Pheretima (Planapheretima) Michaelsen, 1934a: 15.

Planapheretima—Sims & Easton 1972: 208, 233; Easton 1979: 64.

Type species. *Pheretima moultoni* Michaelsen, 1913, by original designation.

Distribution. China (Szechuan); Myanmar; Vietnam; Indonesia (Sumatra, Borneo and Celebes); and New Guinea (Easton 1979).

***Planapheretima arboricola* (Rosa, 1890)**

Perionyx arboricola Rosa, 1890b: 119, Plate I, Fig. 11; Beddard 1895a: 438; Michaelsen 1900: 209; Michaelsen 1903: 89; Gates 1936: 465; Gates 1972: 141.

Pheretima arboricola—Gates 1936: 399; Gates 1972: 169; Thai 1997: 5, fig. 3B; Thai 2000a: 310.

Planapheretima arboricola—Sims & Easton 1972: 233; Easton 1979: 76, Figs 27j, 30a.; Nakamura 1999: 5; Blakemore 2007a: 8; Blakemore 2008b; Nguyen *et al.* 2014: 109.

Type locality. Myanmar (Cobapo, Carin Mts).

Type material. Genoa 44017, Museo Civico di Storia Naturale "Giacomo Doria", Italy.

Examined material. 12 A (SORC-V.206.01) Vinh Phuc Prov., Tam Dao National Park, on the way to the Rung Rinh peak, 20/06/1995.

Records from Vietnam. Vinh Phuc (Tam Dao NP) (Thai 1997).

Distribution. Vietnam (Thai 1997); Myanmar (Gates 1972).

Vietnamese name. Giun lá cây.

Remarks. The populations in Vietnam differ from the description of Gates (1936) in having spermathecal pores paired in vi and vii, additional genital markings in vi and more setae (Thai 1997).

***Planapheretima lacertina* (Chen, 1946)**

Pheretima lacertina Chen, 1946: 109, Plate VI, Fig. A; Thai, 1997: 4, fig. 3A; Thai 2000a: 310; Huynh & Nguyen 2004a: 115; Pham 2010: 63.

Planapheretima lacertina—Sims & Easton 1972: 233; Easton 1979: 77, Figs 27k, 30d; Nakamura 1999: 5; Blakemore 2007a: 57; Blakemore 2008b; Nguyen *et al.* 2014: 109.

Type locality. China (Szechuan).

Examined material. 2 C (HNUE) forest, Ta Sua NR, Son La, 30/12/2012, coll. Tran T.T. Binh.

Records from Vietnam. Lao Cai (Sa Pa); Son La (Ta Sua); Hanoi (Ba Vi NP); Da Nang (Ba Na NP) (Thai, 1997; Huynh & Nguyen 2004a; Pham 2010).

Distribution. Vietnam (Thai 1997), China (Chen 1946).

Vietnamese name. Giun lá đuôi thạch sùng.

Remarks. The population in Vietnam differs from the original description of the species (Chen 1946) in smaller body size, fewer setae and in having spermathecal pores paired in 5/6/7/8 (Thai 1997).

***Planapheretima plumatomusculata* (Thai, 1982)**

Pheretima plumatomusculata Thai, 1982: 829, fig. 3D; Thai 1997: 2, fig. 2B; Thai 2000a: 310; Huynh & Nguyen 2004a: 116. *Pheretima (Terrata) plumatomusculata*—Thai 1983: 123.

Planapheretima? plumatomusculata—Blakemore 2007a: 81; Blakemore 2008b. *Planapheretima plumatomusculata*—Nguyen *et al.* 2014: 110, Fig. 2.

Type locality. Vietnam (Ninh Binh).

Type material. ZMUM, Russia.

Examined material. 6 C and 3 A (**CTU-EW.079.01**) on the way to the observation tower, Tam Dao NP, Vinh Phuc, 25/07/1998, coll. Tran T.T. Binh.

Records from Vietnam. Vinh Phuc (Tam Dao NP); Hanoi (Ba Vi NP); Ninh Binh (Cuc Phuong NP); Nghe An (Ky Son; Quy Hop) (Thai 1982, 1997; Do 1994; Le 1995a; Huynh & Nguyen 2004a).

Distribution. Only known from Vietnam.

Vietnamese name. Giun lá cờ lông chim.

Remarks. The species is fairly similar to *Planapheretima lacertina* (Chen, 1946), but differs in having spermathecal pores paired in 5/6/7 dorsally and pigments dorsally (Thai 1997). Thai (1983) proposed a new subgenus *Terrata* of the genus *Pheretima*, and placed the species under the new subgenus.

***Planapheretima rarusa* (Thai, 1997)**

Pheretima rarusa Thai, 1997: 1, fig. 2A; Nakamura 1999: 39; Thai 2000a: 310.

Planapheretima? rarusa—Blakemore 2007a: 85; Blakemore 2008b;

Planapheretima plumatomusculata—Nguyen *et al.* 2014: 111, Fig. 2.

Type locality. Vietnam (Nghe An: Ky Son).

Type material. SORC, Vietnam.

Examined material. 4 C and 3 A (**SORC-V.202.01**) Muong Long, Ky Son, Nghe An, 18–23/5/1986, coll. Tran Minh Khoi.

Records from Vietnam. Nghe An (Ky Son: Muong Long) (Thai 1997).

Distribution. Only known from Vietnam.

Vietnamese name. Giun lá hiém.

Remarks. The species is very close to *Planapheretima plumatomusculata* (Thai, 1982) but differs in violet color dorsally, having copulatory pouch, genital markings in male regions, and accessory glands with long duct (Thai 1997).

***Planapheretima tenebrica* (Chen, 1946)**

Pheretima tenebrica Chen, 1946: 93, Plate III, Fig. A; Thai 1997: 4, fig. 2C; Thai 2000a: 310.

Planapheretima tenebrica—Sims & Easton 1972: 233; Easton 1979: 78, Figs 27I, 30e; Nakamura 1999: 5; Blakemore 2007a: 97; Blakemore 2008b; Nguyen *et al.* 2014: 111, Fig. 2.

Type locality. China (Szechuan).

Type material. Unknown.

Examined material. 3 A (**SORC-V.209.01**) on the leaves, Tam Dao NP, Vinh Phuc, 25/07/1998; 2 A (**SORC-V.209.02**) on the way to observation tower, Tam Dao NP, Vinh Phuc, 21/06/1995.

Records from Vietnam. **Vinh Phuc** (Tam Dao NP) (Thai 1997).

Distribution. China (Chen 1946).

Vietnamese name. Giun lá tenebrica.

Remarks. The population in Vietnam differs from the original description (Chen 1946) in larger body size, more setae, and simple intestinal caeca (Thai 1997).

Genus *Polypheretima* Michaelsen, 1934

Pheretima (Polypheretima) Michaelsen, 1934a: 25.

Metapheretima (part)—Sims & Easton 1972: 205, 233.

Polypheretima—Easton 1979: 28.

Type species. *Perichaeta stelleri* Michaelsen, 1892, by original designation.

Distribution. Philippines, Indonesian archipelago, Papua New Guinea, Malaya peninsula and Vietnam (Blakemore 2002).

***Polypheretima annamensis* (Stephenson, 1931)**

Pheretima annamensis Stephenson, 1931a: 60, Text-fig. 13; Thai 2000a: 310; Huynh 2005a: 127.

Pheretima (Polypheretima) annamensis—Thai 1983: 126.

Metapheretima annamensis—Sims & Easton 1972: 233.

Polypheretima annamensis—Easton 1979: 56; Nakamura 1999: 7; Blakemore 2007a: 7; Blakemore 2008b; Nguyen *et al.* 2014: 112, Fig. 3.

Type locality. Vietnam (Lam Dong).

Type material. NHM London, U.K.: BMNH1930.2.7.10–11.

Records from Vietnam. **Lam Dong** (Lang Bian Peaks).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn trung bô.

Remarks. Apart from the original description, there are no other records from Vietnam.

***Polypheretima cattienensis* Nguyen, Tran & Nguyen, 2015**

Polypheretima cattienensis Nguyen, Tran & Nguyen, 2015a: 594, Fig. 1.

Type locality. Vietnam (Dong Nai: Cat Tien).

Type material. CTU (EW.040), Vietnam.

Examined material. 1 C (**CTU-EW.040.h01**) and 4 C (**CTU-EW.040.p01**) natural forest (11°25'30.9N; 107°25'42.2E), 122 m asl, Cat Tien National Park, Tan Phu District, Dong Nai Province, Vietnam, 13/10/2013, coll. Le Van Nhan.

Records from Vietnam. **Dong Nai** (Cat Tien NP) (Nguyen *et al.* 2015a).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn cát tiên.

***Polypheretima colonensis* (Thai, 1996)**

Pheretima colonensis Thai, 1996: 1, fig. 2A; Thai 2000a: 310.

Polypheretima colonensis—Nakamura 1999: 7; Blakemore 2007a: 23; Blakemore 2008b; Nguyen *et al.* 2014: 112, Fig. 3.

Type locality. Vietnam (Con Lon Isl.).

Type material. SORC, Vietnam.

Examined material. 1 A (**SORC-HV.222**) Ba Ria-Vung Tau Prov., Conlon Island, Nha Bang slope, 300m asl, 25/06/989, coll. Thai Tran Bai

Records from Vietnam. Ba Ria-Vung Tau (Conlon Isl.) (Thai 1996).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn côn đảo.

***Polypheretima cordata* Nguyen, Tran & Nguyen, 2015**

Polypheretima cordata Nguyen, Tran & Nguyen, 2015a: 597, Fig. 3.

Type locality. Vietnam (Dong Nai: Vinh Cuu).

Type material. CTU (CTU-EW.042), Vietnam.

Examined material. 1 C (**CTU-EW.042.h01**) and 5 C (**CTU-EW.042.p01**) natural forest (11°06'89.5N; 107°03'10.3E), about 100 m asl, Ma Da commune, Vinh Cuu Distr., Dong Nai Prov., 13/10/2013; coll. Duong Chi Trong; 4 C (**CTU-EW042.k01**) natural forest (11°25'42.0N; 107°25'38.1E), 122 m asl, Cat Tien National Park, Tan Phu Distr., Dong Nai Prov., Vietnam, 13/10/2013, coll. Le Van Nhan.

Records from Vietnam. Dong Nai (Vinh Cuu; Tan Phu) (Nguyen *et al.* 2015a).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn ampun hình tim.

***Polypheretima elongata* (Perrier, 1872)**

Perichaeta elongata Perrier, 1872: 124, Plate IV, Fig. 70; Beddard 1895a: 431.

Metapheretima elongata—Sims & Easton 1972: 233.

Polypheretima elongata—Easton 1979: 53, Fig. 22a; Easton 1981: 61; Nakamura 1999: 7; Blakemore 2002: 231, Fig. 2.19; Blakemore 2007a: 32; Blakemore 2008b; Tran & Tran 2010: 8; Nguyen *et al.* 2014: 114, Fig. 4.

Pheretima (Polypheretima) elongata—Thai 1983: 126.

Pheretima elongata—Michaelsen 1900: 265; Gates 1972: 182; Thai 1987: 7; Thai 2000a: 310; Huynh 2005a: 131; Thai *et al.* 2007: 312; Nguyen T.T. & Tran 2008: 61; Nguyen *et al.* 2010: 114; Nguyen & Nguyen 2010: 123; Nguyen & Huynh 2011: 1018; Nguyen *et al.* 2012: 146; Nguyen 2014: 112.

Perichaeta biserialis Perrier, 1875: 1044.

Perichaeta acystis Beddard, 1895a: 423.

See Easton (1976: 40–41) and Blakemore (2002) for more synonyms.

Type locality. Peru.

Type material. MNHN (AE 633–646), France.

Examined material. 9 C (**CTU-EW.026.01**) Vinh Long Prov., Vung Liem Distr., 10/2008, coll. Nguyen Thi Nhi.

Records from Vietnam. Bac Giang (Tan Yen; Luc Ngan); **Lang Son** (Dong Mo, Chi Lang); **Quang Ninh** (Tien Yen); **Hai Phong** (Cat Ba and Cat Hai Isls); **Dien Bien** (Dien Bien city); **Son La** (Song Ma); **Nghe An** (Ky Son); **Hanoi**; **Hai Duong**; **Hung Yen**; **Ha Nam**; **Nam Dinh**; **Ninh Binh**; **Quang Binh** (Quang Trach; Dong Hoi);

Quang Tri (Dong Ha; Quang Tri); **Thua Thien Hue** (Hue; Phu Loc); **Binh Dinh**; **Ninh Thuan** (Phan Rang; Ninh Son; Song Pha; Ninh Hai); **Binh Thuan** (Bac Binh; Tuy Phong; Phan Ri); **Ben Tre** (Binh Dai; Thanh Phu; Cho Lach; Ba Tri); **Can Tho** (Can Tho); **Vinh Long**; **Dong Thap**; **Tien Giang**; **An Giang**; **Tra Vinh**; **Soc Trang**; **Ca Mau** (Do & Le 1992; Le 1995a; Do 1994; Tran 1985; Nguyen 1994; Huynh 1996; Thai 1987; Nguyen T.T. & Tran 2008; Tran & Tran 2010; Nguyen *et al.* 2010; Nguyen 2014; Nguyen *et al.* 2014).

Distribution. A cosmopolitan species, widely found from various parts of the world (Blakemore 2002, 2007a).

Vietnamese name. Trùn dài.

Remarks. *Polypheretima elongata* is an exotic species originating from the Indonesian region (Easton 1976), and commonly found in the Indochinese region (Thai 1983).

Polypheretima grandisetosa (Thai, 1996)

Pheretima grandisetosa Thai, 1996: 3, fig. 2B; Thai 2000a: 310; Thai *et al.* 2004: 758.

Polypheretima grandisetosa—Nakamura 1999: 7; Blakemore 2007a: 43; Blakemore 2008b; Nguyen *et al.* 2014: 115, Fig. 3.

Type locality. Vietnam (Con Lon Isl.).

Type material. SORC, Vietnam.

Examined material. 1 A (SORC-HV.223) Ba Ria-Vung Tau Prov., Conlon Island, slope near Datdoc Bay, 10m asl, 25/06/1989, coll. Thai Tran Bai.

Records from Vietnam. **Ba Ria-Vung Tau** (Conlon Isl.; Baycanh Isl.) (Thai 1996; Thai *et al.* 2004).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn to lớn.

Remarks. The species is relatively close to *Polypheretima colonensis* Thai, 1996, but differs in smaller size and the presence of big setae in vi.

Polypheretima kyhaensis (Thai, 1996)

Pheretima kyhaensis Thai, 1996: 4, fig. 3B; Thai 2000a: 310.

Polypheretima kyhaensis—Nakamura 1999: 7; Blakemore 2007a: 56; Blakemore 2008b; Nguyen *et al.* 2014: 115, Fig. 3.

Type locality. Vietnam (Quang Nam: Nui Thanh).

Type material. SORC, Vietnam.

Records from Vietnam. **Quang Nam** (Nui Thanh, Ky Ha) (Thai 1996).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn kỳ hà.

Remarks. No material was available for examination.

Polypheretima mekongmontis Nguyen, Tran & Nguyen, 2014

Polypheretima mekongmontis Nguyen, Tran & Nguyen, 2014: 118, Fig. 6.

Type locality. Vietnam (Kien Giang: Hon Dat).

Type material. CTU (EW.028), Vietnam.

Examined material. 1 C (**CTU-EW.028.h01**) and 10 C (**CTU-EW.028.p02**) Kien Giang Prov., Hon Dat District, Hon Me Mt. (10°06'12.3N; 104°52'43.5E), mango garden, 13/11/2010, coll. Nguyen Thanh Tung.

Records from Vietnam. **Kien Giang** (Hon Dat, Hon Tre Isl.) (Nguyen *et al.* 2014).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn núi mêkông.

***Polypheretima militium* Nguyen, Tran & Nguyen, 2015**

Polypheretima militium Nguyen, Tran & Nguyen, 2015a: 596, Fig. 2.

Type locality. Vietnam (Dong Nai: Vinh Cuu).

Type material. CTU (EW.041), Vietnam.

Examined material. 1 C (CTU-EW.041.h01) and 4 C (CTU-EW.041.p01) natural forest (11°25'30.9N; 107°25'42.2E), 122 m asl, Cat Tien National Park, Tan Phu Distr., Dong Nai Prov., Vietnam, 13/10/2013, coll. Le Van Nhan.

Records from Vietnam. Dong Nai (Vinh Cuu) (Nguyen *et al.* 2015).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn trại lính.

***Polypheretima parataprobanae* (Thai & Nguyen, 1993)**

Pheretima parataprobanae Thai & Nguyen, 1993: 7, fig. 1C; Pham 1995c: 102; Nakamura 1999: 23; Thai 2000a: 310; Nguyen V.T. & Tran 2008: 185; Pham 2010: 63.

Polypheretima? *parataprobanae*—Blakemore 2007a: 77; Blakemore 2008b.

Polypheretima parataprobanae—Nguyen *et al.* 2014: 116.

Type locality. Vietnam (Thua Thien Hue).

Type material. SORC (HV.225), Vietnam

Examined material. 1 C (SORC-HV.225) Thua Thien Hue Prov., Hue city, Nguyet Bieu, sandy garden, 13/01/1985, coll. Nguyen Van Thuan.

Records from Vietnam. Thua Thien Hue (Hue city, Bach Ma NP); **Da Nang** (Hoa Vang); **Binh Dinh**; (Nguyen 1993; Pham 1995c; Nguyen V.T. & Tran 2008; Pham 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn cận taprobanae.

Remarks. The species is fairly similar to *Polypheretima taprobanae* (Beddard, 1892), but differs in absence of genital markings in the male region, and having a pair of genital markings near the spermathecal pores.

***Polypheretima spiridonovi* (Thai, 1996)**

Pheretima spiridonovi Thai, 1996: 3, fig. 2C; Thai 2000a: 310; Huynh 2005a: 132.

Polypheretima spiridonovi—Nakamura 1999: 7; Blakemore 2007a: 93; Blakemore 2008b; Nguyen *et al.* 2014: 116, Fig. 3.

Type locality. Vietnam (Khanh Hoa: Duc Mu pass).

Type material. SORC (HV.226), Vietnam.

Examined material. 1 C (SORC-HV.226) Khanh Hoa Prov., Duc Mu pass, 9 January 1989, coll. Spiridonov S.E.

Records from Vietnam. Khanh Hoa (Duc Mu pass) (Thai 1996).

Distribution. Only known from Vietnam.

Vietnamese name. Trùn Spiridonov.

Remarks. The species is fairly similar to *Polypheretima polytheca* (Beddard, 1900) but differs in having spermathecal pores in 4/5–6/7, testes sacs in ventral position, absence of a copulatory pouch, and absence of genital markings (Thai 1996).

***Polypheretima taprobanae* (Beddard, 1892)**

Perichaeta taprobanae Beddard, 1892a: 163; Beddard 1895a: 411.

Metapheretima taprobanae—Sims & Easton 1972: 181, 233.

Pheretima (Polypheretima) taprobanae—Thai 1983: 126.

Polypheretima taprobanae—Easton 1979: 45, Fig. 20c; Nakamura 1999: 8; Blakemore 2002: 234, Fig. 2.20; Shen & Yeo 2005: 27, Fig. 5; Blakemore 2007a: 97; Blakemore 2008b; Nguyen V.T. & Tran 2008: 185; Nguyen *et al.* 2010: 114; Nguyen *et al.* 2014: 117, Figs 3, 5.

Perichaeta pauli Michaelsen, 1897: 243, Fig. 26.

Pheretima taprobanae var. *pauli*—Michaelsen 1900: 309.

Metapheretima pauli—Sims & Easton 1972: 233.

Pheretima taprobanae—Michaelsen 1900: 308; Gates, 1972: 220; Pham 1995c: 101; Thai 2000a: 310; Huynh 2005a: 50; Nguyen 2014: 112.

See Blakemore (2002, 2012a) for more synonyms.

Type locality. Sri Lanka.

Type material. In the collection of Oxford University Museum, England.

Examined material. 6 C (**SORC-V.241.2**) Quang Binh Prov., Bo Trach Distr., Tan Trach commune, 18/05/1991, coll. Nguyen Van Thuan; 1 C (**SORC-V.241.6**) Quang Binh Prov., Tuyen Hoa Distr., Mai Hoa commune, tea planted hill, 20 August 1991, coll. Nguyen Duc Tan; 1 C (**SORC-V.241.3**) Quang Nam Prov., Nui Thanh Distr., Ky Ha, 24 January 1989, coll. Pham Thi Hong Ha; 1 C, 1 A (**SORC-V.241.6**) Quang Ngai Prov., garden, 30 November 1994, coll. Cao Van Sung; 3 C (**CTU-W.027.01**) Vinh Long Prov., Vung Liem Distr., Trung Thanh commune, 9 November 2008, coll. Nguyen Thi Nhi.

Records from Vietnam. **Nghe An** (Quy Hop); **Quang Binh** (Tuyen Hoa; Minh Hoa; Quang Trach; Bo Trach); **Quang Tri** (Quang Tri; Huong Hoa); **Thua Thien Hue** (Huong Dien; Hue city); **Da Nang** (Hoa Vang); **Quang Nam** (Que Son; Hiep Duc; Nui Thanh; Tien Phuoc; Tra My); **Quang Ngai** (Tu Nghia); Gia Lai (Pleiku city); **Binh Dinh**; **Vinh Long** (Vung Liem) (Do 1994; Nguyen 1994; Pham 1995c; Huynh 1996; Nguyen V.T. & Tran 2008; Nguyen *et al.* 2010; Nguyen 2014).

Distribution. A cosmopolitan species (Blakemore 2002, 2007a).

Vietnamese name. Trùn taproban.

Remarks. The species has been recorded from various parts of the world (India, Sri Lanka, Seychelles, Brazil, Hawaii, Madagascar, Fiji, Australia, Southeast Asia, Papua New Guinea) (Blakemore 2002). However, its homeland is still unknown. The species possibly originated in Southeast Asia (Easton 1979) or in Papua New Guinea (Gates 1972).

Pheretimoid species "incertae sedis"

"*Polypheretima*" *touranensis* (Michaelsen, 1934)

Pheretima touranensis Michaelsen, 1934b: 499; Sims & Easton 1972: 225, "incertae sedis"; Pham 1995c: 102; Thai 2000a: 310.

'*Pheretima*' *touranensis*—Easton 1979: 118.

Pheretima (Amyntas) touranensis—Thai 1983: 124; Nakamura 1999: 34.

Amyntas? *touranensis*—Blakemore 2007a: 100;

Polypheretima touranensis—Nguyen *et al.* 2014: 118, Fig. 3.

Type locality. Vietnam (Tourane = Da Nang).

Type material. MNHN (AE688 (A730)), France.

Records from Vietnam. **Da Nang** (Vu Gia pass) (Michaelsen 1934b).

Distribution. Only known from Vietnam.

Remarks. Intestine of type material was so damaged that presence or absence of caeca could not be identified (Sims & Easton 1972). Easton (1979) considered this species a candidate for inclusion in three genera, *Amyntas*, *Pithemera* and *Polypheretima*, but he further suggested that if this species should prove to belong to *Polypheretima* then it would be included within the *bifaria* species-group. Since it is impossible to determine the presence or absence of the intestinal caeca, it is impossible to decide exactly which genus this species should belong to. Thus, the species is treated as species incertae sedis. Apart from the original description, there are no other records from Vietnam.

Family MONILIGASTRIDAE Claus, 1880

Genus *Drawida* Michaelsen, 1900

Drawida Michaelsen, 1900: 114; Stephenson 1930: 814; Gates 1930: 279; Gates 1933: 418; Gates 1972: 244.

Type species. *Moniligaster barwelli* Beddard, 1886.

Distribution. India, Myanmar, Malay Peninsula, Thailand, Cambodia, Laos, Vietnam, China, Korea, Manchuria, Siberia, Japan, Philippines, Borneo, Sumatra, Java, Sri Lanka (Gates 1972).

Drawida annamensis Michaelsen, 1934b

Drawida annamensis Michaelsen, 1934b: 495; Thai 1983: 121; Blakemore 2008b; Thai 2000a: 311; Huynh 2005a: 148; Pham 2010: 65.

Type locality. Vietnam (Lam Dong).

Type material. MNHN, France.

Records from Vietnam. Da Nang (Son Tra; Ba Na NP); Lam Dong (Lang Bian Plateu) (Michaelsen 1934b; Pham 2010).

Distribution. Only known from Vietnam.

Vietnamese name. Giun drawid trung bô.

Drawida beddardi (Rosa, 1890)

Moniligaster beddardi Rosa, 1890a: 379, fig. 12.

Drawida beddardi—Gates 1972: 246; Thai 1983: 121; Tran 1985: 57; Nguyen 1994: 73; Le 1995a: 75; Pham 1995c: 108; Thai 2000a: 311; Huynh & Nguyen 2004b: 70; Huynh 2005a: 149; Tran & Ngo 2008: 133; Nguyen V.T. & Tran 2008: 185; Tran & Tran 2010: 8; Pham 2010: 65; Nguyen & Nguyen 2010: 123.

Drawida barwelli—Blakemore 2008; Nguyen *et al.* 2012: 146; Nguyen 2013: 98; Nguyen 2014: 113.

Type locality. Philippines (Manila).

Type material. NHM London, U.K.

Records from Vietnam. Bac Giang (Hiep Hoa; Luc Ngan; Son Dong; Khe Ro); **Vinh Phuc** (Me Linh; Tam Dao); **Hanoi** (Soc Son); **Quang Binh** (Quang Trach); **Da Nang** (Hoa Vang; Ba Na NP); **Quang Nam** (Hiep Duc); **Gia Lai** (Buon Luoi); **Phu Yen** (Tuy Hoa); **Binh Dinh**; **Hau Giang** (Phung Hiep; Tan Binh, Tan Phuoc Hung, Long Thanh); **Ben Tre** (Cho Lach); **Vinh Long** (Vinh Long city, Vung Liem, Long Ho); **Tien Giang** (Cai Be), **Can Tho**; **An Giang** (Cho Moi, Tinh Bien); **Kien Giang** (Kien Luong, Ha Tien) (Tran 1985; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004b; Huynh 2005a; Tran & Ngo 2008; Nguyen V.T. & Tran 2008; Tran & Tran 2010; Nguyen 2014).

Distribution. Myanmar (Gates 1972).

Vietnamese name. Giun drawid beddard.

Remarks. The species was synonymized with *Drawida barwelli* (Beddard, 1886) (Blakemore 2002), but it is a valid species distinguishable specifically from *D. barwelli* as has been shown by Shen *et al.* (2015: 434–435). Material from Vietnam shows the untwisted and short sperm ducts characteristic of *D. beddardi* (Nguyen 2013).

Drawida chapaensis Do & Huynh, 1993

Drawida chapaensis Do et Huynh, 1993: 36, figs 1A; Do 1994: 116; Thai 2000a: 311; Blakemore 2008b.

Type locality. Vietnam (Lao Cai: Sa Pa).

Type material. SORC, Vietnam.

Records from Vietnam. Lao Cai (Sa Pa) (Do & Huynh 1993).

Distribution. Only known from Vietnam.

Vietnamese name. Giun drawid cha pa.

Remarks. Do & Huynh (1993) noted that the species is similar to *Drawida japonica* (Michaelsen, 1892), but different in the absence of genital markings and accessory glands, and in thinned septa. Unfortunately, the type material is lost.

***Drawida delicata* Gates, 1962**

Drawida delicata Gates, 1962a: 319; Gates 1972: 249; Thai 1983: 121; Tran 1985: 58; Do 1994: 116; Nguyen 1994: 75; Le 1995a: 76; Pham 1995c: 108; Thai 2000a: 311; Huynh 2005a: 149; Huynh 2005b: 20; Nguyen V.T. & Tran 2008: 185; Blakemore 2008b; Tran & Tran 2010: 8; Pham 2010: 65.

Type locality. Myanmar (Mergui).

Type material. Unknown.

Records from Vietnam. Dien Bien (Dien Bien Phu); Son La (Moc Chau); Bac Giang (Luc Ngan; Tan Yen); Vinh Phuc (Me Linh); Hanoi; Ninh Binh (Cuc Phuong NP); Quang Binh (Dong Hoi); Thua Thien Hue (A Luoi); Da Nang (Son Tra; Hai Van; Ba Na NP); Quang Nam (Dien Ban; Phuoc Son); Gia Lai (Pleiku; Buon Luoi; An Khe); Dak Lak (Buon Me Thuot); Dak Nong (Ta Dung Mts); Binh Dinh (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh 2005a,b; Nguyen V.T. & Tran 2008; Tran & Tran 2010).

Distribution. Vietnam (Thai 1983), Myanmar (Gates 1972).

Vietnamese name. Giun drawid tinh té.

***Drawida langsonensis* Do, 1993**

Drawida langsonensis Do, 1993 (in Do & Huynh 1993): 36, fig. 1B; Thai 2000a: 311; Blakemore 2008b.

Type locality. Lang Son (Huu Lung: Huu Lien).

Type material. SORC, Vietnam.

Records from Vietnam. Lang Son (Huu Lung) (Do & Huynh 1993).

Vietnamese name. Giun drawid läng son.

Remarks. The species is similar to *Drawida nemora* Kobayashi, 1936, but differs in the absence of copulatory pouches and genital markings (Do & Huynh 1993). There are no available specimens due to loss of type material.

Family OCNERODRILIDAE Beddard, 1891

Genus *Eukerria* Michaelsen, 1935

Kerria Beddard, 1892b: 355; Michaelsen 1900: 369; Stephenson 1930: 859.

Eukerria Michaelsen, 1935b: 102, replaced the name *Kerria* Beddard, 1892, which was pre-occupied by a Coccidian.

Type species. *Kerria halophila* Beddard, 1892.

Distribution. Mainly in South America (Blakemore 2002).

Remarks. Only two cosmopolitan species have been recorded in Vietnam.

***Eukerria kuekenthali* (Michaelsen, 1908)**

Kerria kükenthali Michaelsen, 1908: 24, Plate 1, Fig. 1.

Eukerria kükenthali—Michaelsen, 1935b: 102.

Eukerria kükenthali—Gates 1972: 269; Thai 2000a: 311; Thai 2000b: 1; Huynh 2005a: 162.

Eukerria kuekenthali—Blakemore 2002: 79 (nomen correctum); Blakemore 2008.
Kerria selangorensis Stephenson, 1931b: 279, synonymized by Michaelsen (1935b).
Eukerria pinguana Gates, 1942: 67, synonymized by Gates (1972).

Type locality. West Indies (St Thomas).

Type material. Berlin and Hamburg Museum, Germany.

Records from Vietnam. **Da Nang** (Hoa Vang); **Quang Ngai** (Duc Trach); **Binh Dinh** (Cat Ninh; An Nhon); **Phu Yen** (Dong Hoa); **Khanh Hoa** (Nha Trang; Van Ninh; Ninh Hoa; Dien Khanh); **Ninh Thuan** (Ninh Son); **Binh Thuan** (Phan Thiet; Duc Linh) (Thai 2000b).

Distribution. A cosmopolitan species; be distributed in Malaysia, Myanmar, West Indies, Puerto Rico, Brazil, Australia (Christmas Island) (Blakemore 2002).

Vietnamese name. Giun eukerria kuekenthal.

Remarks. The species probably originates from the neotropical regions (Michaelsen 1935b). In Vietnam, it is usually found in wet soils (Thai 2000b).

***Eukerria saltensis* (Beddard, 1895)**

Kerria saltensis Beddard, 1895b: 225; Michaelsen 1900: 371; 1935a: 40.

Eukerria saltensis—Michaelsen 1935b: 103; Gates 1972: 270; Thai 1983: 121; Thai 2000a: 311; Thai 2000b: 2; Blakemore 2002: 81, Fig. 1.7; Huynh & Nguyen 2004b: 70; Huynh 2005a: 158; Nguyen V.T. & Tran 2008: 185; Blakemore 2008.

Acanthodrilus sydneyensis Sweet, 1900: 124, synonymized by Michaelsen (1935a).

Kerria nichollsi Jackson, 1931: 121, Pl. XVI., Figs 5, 8–9, 11, synonymized by Michaelsen (1935a, b).

See Blakemore (2002) for more details.

Type locality. Chile (Salto, Valparaiso).

Type material. NHM London, U.K.

Records from Vietnam. **Bac Giang** (Hiep Hoa); **Quang Ngai** (Quang Ngai; Duc Pho); **Kon Tum** (Kon Tum); **Binh Dinh** (Phu My; Phu Cat; An Nhon); **Phu Yen** (Tuy Hoa; Phu Lam; Dong Hoa; Deo Ca); **Khanh Hoa** (Nha Trang; Van Ninh; Ninh Hoa; Dien Khanh; Cam Ranh); **Ninh Thuan** (Ninh Son; Ninh Hai); **Binh Thuan** (Phan Thiet; Tuy Phong; Bac Binh; Tanh Linh) (Thai 2000b; Huynh & Nguyen 2004b; Nguyen V.T. & Tran 2008).

Distribution. A cosmopolitan species; widely distributed from South America, through Myanmar, South Africa to Australia (Blakemore 2002).

Remarks. It is an introduced species, probably originates from South America (Gates 1972). The species has been usually found in wet soils, together with *E. kuekenthali* (Thai 2000b).

Genus *Gordiodrilus* Beddard, 1892

Gordiodrilus Beddard, 1892c: 93; Beddard 1895a: 506; Michaelsen 1900: 373; Stephenson 1930: 863; Gates 1962b: 351; Gates 1972: 271.

Type species. *Gordiodrilus elegans* Beddard, 1892

Distribution. Tropical Africa, and transported to Caribbean, Asia, and Australia (Blakemore 2002).

Remarks. Only one species has been recorded in Vietnam.

***Gordiodrilus elegans* Beddard, 1892**

Gordiodrilus elegans Beddard, 1892c: 84, Figs 1, 6A, 7; Michaelsen 1900: 374; Gates 1972: 271; Thai 1983: 122; Thai 2000a: 311; Thai 2000b: 2; Blakemore 2002: 84, Figs 1.8–1.9; Pham 1995c: 109; Thai *et al.* 2004: 758; Huynh *et al.* 2005; Huynh 2005a: 163; Thai *et al.* 2007: 313; Blakemore 2008; Nguyen T.T. & Tran 2008: 61; Tran & Tran 2010: 8; Pham 2010: 65; Nguyen & Nguyen 2010: 123; Nguyen 2013: 104; Nguyen 2014: 113.

Gordiodrilus travancorensis Michaelsen, 1910: 98, synonymized by Gates (1972).

Gordiodrilus unicus Stephenson, 1931a: 79, synonymized by Gates (1972).

Gordiodrilus peguanus Gates, 1942: 85, synonymized by Gates (1972).
See Blakemore (2002) for more details.

Type locality. England (Kew Garden, soil from Lagos, Nigeria).

Type material. NHM London, U.K.

Records from Vietnam. Widely known from various parts of Vietnam (Thai 2000b).

Distribution. A cosmopolitan species; reported from England (Kew Gardens), Myanmar, India, East and West Africa, Egypt, Sudan, Abyssinia, Madagascar, Zanzibar, Puerto Rico, Bonaco Isl. (Blakemore 2002)

Vietnamese name. Giun gordio tinh té.

Remark. It is an introduced species, and probably originates from tropical regions of Africa (Gates 1972). In Vietnam, it is usually found in wet soils of disturbed habitats (Thai 2000b).

Genus *Malabaria* Stephenson, 1924

Malabaria Stephenson, 1924: 356; Gates 1942: 90; Gates 1972: 264.

Aphanascus Stephenson, 1924: 360.

Filodrilus Chen, 1938: 422.

Type species. *Malabaria paludicola* Stephenson, 1924.

Distribution. Mainly in Indian Peninsular, Burma and China (Hainan Island).

Remarks. Only one species has been recorded in Vietnam.

Malabaria levius (Chen, 1938)

Filodrilus levius Chen, 1938: 422, Fig. 19.

Malabaria levius—Gates 1942: 92; Gates 1972: 265; Thai 1983: 121; Thai 2000a: 311; Thai 2000b: 1; Blakemore 2008.

Type locality. China (Hainan Isl.).

Type material. Unknown.

Records from Vietnam. Hanoi (Tu Liem) (Thai 2000b).

Distribution. Myanmar, China (Chen 1938; Gates 1972).

Vietnamese name. Giun malabaria nhô.

Genus *Nematogenia* Eisen, 1900

Ocnerodrilus (*Nematogenia*) Eisen, 1900: 112.

Nematogenia—Michaelsen 1900: 376; Stephenson 1930: 862; Gates 1972: 272.

Type species. *Pygmaeodrilus lacuum* Beddard, 1893.

Distribution. Guinea to Congo, tropical Africa (Gates 1972).

Remarks. Only one species has been recorded in Vietnam.

Nematogenia panamaensis (Eisen, 1900)

Ocnerodrilus (*Nematogenia*) *lacuum* var. *panamaensis* Eisen, 1900: 127, Plate IX, Figs 55–65, 67 and Plate XI, Figs 114–116.
Nematogenia panamaensis—Michaelsen 1900: 376; Gates 1942: 98; Gates 1972: 272; Thai 1983: 122; Thai 2000a: 311; Thai 2000b: 3; Huynh 2005a: 168; Blakemore 2008.

Nematogenia josephina Cognetti, 1904, synonymized by Gates (1972).

Type locality. Panama.

Type material. Unknown.

Records from Vietnam. **Kon Tum** (Kon Tum); **Gia Lai** (Pleiku); **Dak Lak** (Ban Me Thuot; Cu M'gar); **Dak Nong** (Gia Nghia); **Lam Dong** (Don Duong; Duc Trong; Da Lat); **Binh Thuan** (Duc Linh; Tuy Phong) (Thai 2000b).

Distribution. Guinea, Liberia, Nigeria, Cameroons, Congo, Panama, Sri Lanka, Philippines, Costa Rica, Venezuela, and Bahamas (Gates 1972; Blakemore 2002).

Vietnamese name. Giun sói panama.

Remarks. The species probably originates from tropical region of Africa (Gates 1972). In Vietnam, it has been found only in wet soils in hilly areas of the southcentral part and highlands of Vietnam (Thai 2000b).

Genus *Ocnerodrilus* Eisen, 1878

Ocnerodrilus Eisen, 1878: 1; Beddard 1895a: 510; Michaelsen 1900: 377; Stephenson 1930: 860; Gates 1972: 273.

Type species. *Ocnerodrilus occidentalis* Eisen, 1878

Distribution. Tropical and subtropical America and Africa (Blakemore 2002).

Remarks. Only one Cosmopolitan species has been recorded in Vietnam.

Ocnerodrilus occidentalis Eisen, 1878

Ocnerodrilus occidentalis Eisen, 1878: 10, Plates I-II; Michaelsen 1900: 377; Chen 1933: 224, Fig. 14; Chen 1938: 426; Gates 1942: 99; Gates 1972: 273; Thai 1983: 122; Pham 1995c: 111; Thai 2000a: 311; Thai 2000b: 4; Blakemore 2002: 90, Figs 1.10–1.11; Huynh & Nguyen 2004a: 115; Huynh 2005a: 170; Huynh *et al.* 2005: 180; Blakemore 2008; Tran & Tran 2010: 8; Pham 2010: 65.

Ocnerodrilus occidentalis sinensis Eisen, 1900: 115, synonymized by Michaelsen (1900).

Ocnerodrilus tenellulus Gates, 1945a: 223, synonymized by Gates (1972).

Type locality. USA (Californica, Fresno County).

Type material. USNM, USA.

Records from Vietnam. Widely found in central and north Vietnam (Thai 2000b).

Distribution. Pan-tropical, especially if all the reports of various parthenogenetic morphs are included, less frequently found in temperate regions (Blakemore 2002).

Vietnamese name. Giun ocnero phuong tay.

Remarks. The species probably originates from the neotropical regions (Gates 1972). In Vietnam, it is usually found in wet soils (Thai 2000b).

Genus *Thatonia* Gates, 1942

Thatonia Gates, 1942: 101; Gates 1972: 265.

Type species. *Thatonia gracilis* Gates, 1942.

Distribution. Mainly in India and Myanmar (Gates 1972).

Remarks. Only one species has been recorded in Vietnam.

Thatonia exilis Gates, 1945

Thatonia exilis Gates, 1945a: 216; Gates 1972: 266; Samphon 1990: 110; Thai 1983: 121; Thai 2000a: 311; Thai 2000b: 1; Blakemore 2008.

Type locality. India.

Type material. Unknown.

Records from Vietnam. Hanoi (Tu Liem) (Thai 2000b).

Distribution. Laos, India (Samphon 1990; Gates 1945a, 1972)

Family OCTOCHAETIDAE Gates, 1959

Genus *Dichogaster* Beddard, 1888

Dichogaster Beddard, 1888: 251; Michaelsen 1900: 334.

Microdrilus Beddard, 1892d: 683.

Eutrigaster Cognetti, 1904: 2.

Type species. *Dichogaster damonis* Beddard, 1888.

Distribution. Widely distributed in various parts of the world.

Remarks. More than 200 species have been described, several with circumtropical distributions (Blakemore 2002). Only four species have been recorded in Vietnam, and all are cosmopolitan species.

Dichogaster affinis (Michaelsen, 1890)

Benhamia affinis Michaelsen, 1890b: 9, Fig. 20.

Dichogaster affinis—Michaelsen 1900: 345; Stephenson 1917: 413; Gates 1939: 109; Gates 1942: 128; Gates 1972: 278; Thai 1983: 122; Tran 1985: 54; Do 1994: 118; Nguyen 1994: 77; Le 1995a: 70; Thai 2000a: 311; Blakemore 2002: 106, Figs 1.15–1.16; Huynh 2005a: 134; Blakemore 2008; Tran & Tran 2010: 8.

Dichogaster sinuosus Stephenson, 1931a: 74, synonymized by Gates (1972).

Dichogaster sinicus Chen, 1938: 420, Fig. 18, misspelt with "sinensis"

See Blakemore (2002) for synonyms.

Type locality. Quilimane, Zanzibar.

Type material. Hamburg Museum, Germany.

Records from Vietnam. Lai Chau (Khuoi Leng); **Son La** (Song Ma); **Hoa Binh** (Mai Chau); **Vinh Phuc** (Me Linh); **Quang Ninh** (Hon Gai); **Bac Giang** (Luc Ngan); **Hanoi**; **Thua Thien Hue** (Phu Loc); **Kon Tum** (Sa Thay); **Dak Lak** (Yon Don NP); **Ninh Thuan** (Ninh Son; Ninh Phuoc); **Binh Thuan** (Tuy Phong; Bac Binh) (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Huynh 2005a; Tran & Tran 2010).

Distribution. A cosmopolitan species; reported from various parts of Asia, Central and South America, Africa, Australia and Pacific Isls (Easton 1984; Blakemore 2002).

Dichogaster bolaui (Michaelsen, 1891)

Benhamia bolaui Michaelsen, 1891: 307, Figs 1–2.

Dichogaster bolaui—Michaelsen 1900: 340; Stephenson 1917: 413; Stephenson 1933: 934; Gates 1942: 129; Gates 1972: 279; Thai 1983: 122; Tran 1985: 53; Do 1994: 119; Nguyen 1994: 78; Le 1995a: 72; Pham 1995c: 107; Thai 2000a: 311; Blakemore 2002: 108, Figs 1.17–1.18; Thai *et al.* 2004: 758; Huynh & Nguyen 2004b: 70; Huynh 2005a: 137; Thai *et al.* 2007: 312; Blakemore 2008; Nguyen T.T. & Tran 2008: 61; Nguyen *et al.* 2010: 114; Tran & Tran 2010: 8; Pham 2010: 62; Nguyen & Nguyen 2010: 123; Nguyen *et al.* 2011: 1025; Nguyen *et al.* 2012: 146; Nguyen 2013: 105; Nguyen 2014: 114.

Benhamia octonephra Rosa, 1895: 2, synonymized by Michaelsen (1900).

Benhamia palmicola Eisen, 1896: 132, figs 43–55, synonymized by Michaelsen (1900).

Benhamia malayana Horst, 1893b: 35, Plate II, Figs 10–13, synonymized by Stephenson (1933).

See Blakemore (2002) for more synonyms.

Type locality. Germany (Bergedorf near Hamburg).

Type material. Hamburg Museum, Germany.

Records from Vietnam. **Dien Bien** (Dien Bien Phu; Tuan Giao); **Son La** (Chieng Hac; Xuan Nha); **Hoa Binh** (Cao Phong); **Phu Tho** (Doan Hung); **Vinh Phuc** (Me Linh; Tam Dao); **Bac Giang** (Hiep Hoa; Tan Yen; Luc Ngan); **Lang Son** (Bac Son); **Hai Phong** (Cat Ba Isl.); **Hanoi**; **Nghe An** (Quy Chau; Ky Son); **Quang Binh** (Quang Trach); **Quang Tri** (Khe Sanh); **Thua Thien Hue** (Bach Ma NP); **Da Nang** (Son Tra; Hai Van); **Gia Lai** (Buon Luoi); **Khanh Hoa** (Hon Tre Isl.); **Ben Tre** (Thanh Phu, Binh Dai); **Vinh Long** (Vung Liem; Long Ho); **Kien Giang** (Tho Chu Isl.); **Dong Thap** (Hong Ngu; Thanh Binh); **Can Tho** (O Mon; Thot Not; Co Do; Phong Dien; Thoi Lai); **An Giang** (Tinh Bien, Phu Tan, Chau Phu, Chau Thanh, Cho Moi); **Hau Giang** (Phung Hiep); **Tra Vinh** (Chau Thanh, Cau Ke); **Soc Trang** (Vinh Chau) (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c; Thai *et al.* 2004; Huynh & Nguyen 2004b; Huynh 2005a; Nguyen *et al.* 2010; Tran & Tran 2010; Pham 2010; Nguyen 2014).

Vietnamese name. Giun dạ dày kép bolau.

Distribution. A cosmopolitan species; reported from various parts of Asia, America, Europe, Oceania, and Australia (Blakemore 2002).

Dichogaster modiglianii (Rosa, 1896)

Benhamia modiglianii Rosa, 1896: 510, Figs 1a–b.

Dichogaster modiglianii—Michaelsen 1900: 346; Stephenson 1933: 934; Gates 1942: 130; Gates 1972: 280; Thai 1983: 122; Tran 1985: 52; Do 1994: 121; Nguyen 1994: 78; Le 1995a: 72; Pham 1995c: 107; Thai 2000a: 311; Blakemore 2002: 113; Huynh & Nguyen 2004a: 115; Huynh & Nguyen 2004b: 70; Huynh 2005a: 140; Blakemore 2008; Nguyen V.T. & Tran 2008: 185; Tran & Tran 2010: 8; Pham 2010: 62.

Dichogaster doveri Stephenson, 1931b: 276, synonymized by Stephenson (1933).

Type locality. Indonesia (Sumatra: Padang).

Type material. Genoa Museum (44050), Italy.

Records from Vietnam. **Son La** (Chieng Hac; Thuan Chau; Xuan Nha); **Dien Bien** (Dien Bien Phu); **Hoa Binh** (Cao Phong); **Phu Tho** (Doan Hung; Phu Tho); **Vinh Phuc** (Tam Dao; Me Linh); **Bac Giang** (Hiep Hoa; Luc Ngan; Tan Yen); **Cao Bang** (Trung Khanh); **Lang Son** (Van Lang; Bac Son); **Hanoi** (Ba Vi NP); **Thai Binh**; **Quang Tri** (Lao Bao; Dong Ha); **Da Nang** (Hai Van); (Tran 1985; Do 1994; Nguyen 1994; Le 1995a; Pham 1995c, 2010; Huynh & Nguyen 2004a, b; Huynh 2005a; Nguyen V.T. & Tran 2008; Tran & Tran 2010).

Distribution. Indonesia (Sumatra), Myanmar, India, Pakistan, Malaysia, Philippines, New Caledonia, Colombia, Guiana, Brazil, Venezuela (Gates 1972; Blakemore 2002).

Vietnamese name. Giun dạ dày kép Modigliani.

Remarks. *Dichogaster modiglianii* (Rosa, 1896) is fairly similar to *Dichogaster affinis*, but differs in the absence of genital markings (Blakemore 2002: 114). The species probably originates from tropical region of Africa (Gates 1972).

Genus *Octochaetona* Gates, 1962

Octochaetona Gates, 1962c: 211; Gates 1972: 307.

Type species. *Octochaetus surensis* Michaelsen, 1910.

Distribution. Mainly in India.

Remarks. Only one species has been reported from Vietnam.

Octochaetona beatrix (Beddard, 1902)

Octochaetus beatrix Beddard, 1902: 456.

Octochaetoides beatrix—Gates, 1961: 57.

Octochaetona beatrix—Gates 1962c: 213; Gates 1972: 308; Thai 1983: 122; Le 1995a: 73; Thai 2000a: 311; Blakemore 2002: 117, Fig. 1.21; Blakemore 2008.

Octochaetus lunatus Gates, 1929: 24, synonymized by Gates (1972).

Type locality. India (Calcutta).

Type material. Unknown.

Records from Vietnam. Quang Ninh (Hon Gai) (Le 1995a).

Distribution. India, Nepal, Myanmar, Malaysian Peninsula, Philippines, Australia (Blakemore 2002).

Genus *Ramiella* Stephenson, 1921

Ramiella Stephenson, 1921: 109; Stephenson 1930: 845; Gates 1972: 311.

Type species. *Octochaetus bishambari* Stephenson, 1914, by original designation.

Distribution. India with the range of the type species extended by transportation.

Remarks. Only one species has been reported from Vietnam.

Ramiella bishambari (Stephenson, 1914)

Octochaetus bishambari Stephenson, 1914: 347.

Ramiella bishambari—Gates 1972: 312; Thai 1983: 122; Tran 1985: 55; Thai 2000a: 311; Huynh 2005a: 142; Huynh *et al.* 2005: 180; Blakemore 2008; Tran & Tran 2010: 8.

Ramiella cultrifera Stephenson, 1931c: 187, synonymized by Gates (1972).

Type locality. India (Saharanpur).

Type material. Unknown.

Records from Vietnam. Phu Tho (Xuan Son NP); Bac Giang (Luc Ngan); Hai Duong; Hung Yen; Quang Ngai (Thach But Mt.); Binh Dinh; Ninh Thuan (Ninh Son); Binh Thuan (Phan Thiet) (Tran 1985; Huynh 2005a; Huynh *et al.* 2005; Tran & Tran 2010).

Distribution. A cosmopolitan species, reported from India, Myanmar, Philippines, Andaman, Christmas Isl. (Australian territory) (Blakemore 2002).

Vietnamese name. Giun ramiella bishambar.

Conclusions

To date, 212 earthworm species and subspecies in 24 genera of eight families have been recorded from Vietnam. Of the eight families, Megascolecidae is the most diverse family with 191 species/subspecies, followed by Ocnerodrilidae (6 species), Octochaetidae and Moniligastridae (5 species each), Lumbricidae (2 species each), Almidae, Eudrilidae and Glossoscolecidae (1 species each) (see Table 1 for a summary).

The earthworm fauna of Vietnam is dominated by pheretimoid species, which are arranged in seven genera: *Amyntas* (112 species/subspecies), *Metaphire* (54 species/subspecies), *Polypheretima* (12 species), *Planapheretima* (5 species), *Metapheretima* (3 species), and *Pithemera* (1 species).

More than half of the recorded species (54%) appear to be endemic to Vietnam; 114 species are known only from this country. Twenty-five species are cosmopolitan, following the lists in Blakemore (2002, 2012a).

Several new combinations were made for *Amyntas acalifornicus* (Do & Huynh, 1991) **comb. nov.**, *A. binhgiaensis* (Le, 1994) **comb. nov.**, *Metaphire catbaensis* (Thai & Le, 1993) **comb. nov.**, *M. khoii* (Do & Tran, 1994) **comb. nov.**, *M. phaluongana* (Do & Huynh, 1992) **comb. nov.**, and *M. mangophila* (Nguyen, 2011) **comb. nov.**, *M. tripidoporphoratus* (Thai & Nguyen, 1993) **comb. nov.**. Additionally, *Pheretima paraalexandri* Nguyen, 2011 is treated as a junior synonym of *Amyntas polychaetiferus* (Thai, 1984). One species "Polypheretima" *touranensis* is still listed as "*incertae sedis*".

TABLE 1. Species numbers within genera and families found in Vietnam.

Family	Genus	Species number
ALMIDAE	<i>Glyphidrilus</i> Horst, 1889	1
EUDRILIDAE	<i>Eudrilus</i> Claus, 1880	1
GLOSSOSCOLECIDAE	<i>Pontoscolex</i> Schmarda, 1861	1
LUMBRICIDAE	<i>Bimastos</i> Moore, 1893	1
	<i>Eisenia</i> Malm, 1877	1
MEGASCOLECIDAE	<i>Lampito</i> Kinberg, 1866	1
	<i>Perionyx</i> Perrier, 1872	1
	<i>Pontodrilus</i> Perrier, 1874	1
Pheretimoids groups	<i>Pithemera</i> Sims & Easton, 1972	1
	<i>Amyntas</i> Kinberg, 1867	112
	<i>Metaphire</i> Sims & Easton, 1972	54
	<i>Metapheretima</i> Michaelsen, 1928	3
	<i>Planapheretima</i> Michaelsen, 1934	5
	<i>Polypheretima</i> Michaelsen 1934	12
	<i>Incertae sedis</i>	1
MONILIGASTRIDAE	<i>Drawida</i> Michaelsen, 1934	5
OCNERODRILIDAE	<i>Eukerria</i> Michaelsen, 1935	1
	<i>Gordiodrilus</i> Beddard, 1892	1
	<i>Malabaria</i> Stephenson, 1924	1
	<i>Nematogenia</i> Eisen, 1900	1
	<i>Ocnerodrilus</i> Eisen, 1878	1
	<i>Thatonia</i> Gates, 1942	1
OCTOCHAETIDAE	<i>Dichogaster</i> Beddard, 1888	3
	<i>Octochaetona</i> Gates, 1962	1
	<i>Ramiella</i> Stephenson, 1921	1

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