

## Checklist of Thailand taxa updated from Gates' (1939) "Thai Earthworms"

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### Summary

Before Gates started work on the fauna, Asian/Thai earthworm taxonomy was poorly studied. Gates (1939) published a summary of information then known about the "28 species" [actually only 27 taxa plus 4 unnamed species and a redescription of the Vietnamese *Metaphire bianensis bianensis* (Stephenson, 1931)]. Species he recorded first as "*Pheretima annandalei*" then as *Pheretima bipora* have subsequently been merged in the latter taxon. Gates' *Pheretima fluvialis* Gates, 1939 is now put in *Amyntas mekongianus* (Cognetti, 1922) [from Blankemore *et al.* (2007)]. Moreover, *Pheretima campanulata* (Rosa, 1890) is now included in *Amyntas houletti* (Perrier, 1872) that Gates (1939) also listed from Thailand. Thus the number of taxa is retained at ca. 30 species but slightly modified from those listed in Gates (1939) also now including Gates' (1972: 210) subsequent possible record of *Metaphire bahli* (Gates, 1945) from Thailand and *Amyntas fucosus* (Gates, 1933) from an unpublished report by P. Kosavittkul in [2005](#) that appears to have several taxonomic errors, plus new records from a few other reports.

A checklist is presented updated for current nomenclature of Oligochaeta. Several synonyms from Gates (1972) are questioned and species names resurrected, especially those from synonymy in *Metaphire malayana* (Beddard, 1900: 893).

### Methods

Family classification follows Blakemore (2000, 2002) that revised Acanthodrilidae, Octochaetidae, (Exxidae,) and Megascolecidae.

Gates (1972) devoted much study and page space to the problem of parthenogenetic degradation, especially in pheretimoid worms, and Gates' codes for the common forms of degraded morphs are:

- A** – for parthenogenetic **athecal** morphs (i.e., lacking spermathecae);
- R** – for parthenogenetic **anarsenosomphic** morphs (i.e., lacking male terminalia);
- Z** – for parthenogenetic morphs **lacking testes** (also testis sacs and/or seminal vesicles);

- AR** - athecal, anarsenosomphic, parthenogenetic morphs;  
**ARZ** – athecal, anarsenosomphic, parthenogenetic morphs without testes;  
**I** – for **intermediate** morphs with incomplete/asymmetrical deletion of the above organs;  
**Hp** – for hermaphroditic parthenogenetic morphs in which the reproductive organs are present but remain in a juvenile state in adult specimens;  
**H** – a **hermaphroditic** morph with biparental reproduction of a species also with parthenogenetic morphs. (Note: the H morph is not to be confused with the Holotype).

### Systematics

\* = found but also known outside Thailand (i.e., exotic/introduced or widespread and usually classed as "peregrine"); - = only known from Thailand (i.e., native/endemic); ? = some uncertainty of name or status; syn. = synonyms shown in braces with occasional notes. Full synonymies for cosmopolitan exotics are in Blakemore (2002). The order presented here from Blakemore (2005) loosely follows that in Gates (1939) for ease of cross-reference.

#### Family MONILIGASTRIDAE Claus, 1880

-*Drawida vulgaris* ? Gates, 1930: 294. [Type locality Myanmar, Gates' (1939: 73) questionable Thai report was one specimen from Chiangmai.

\**Drawida barwelli* Beddard, 1886: 94. [*Drawida beddardii* (Rosa, 1890: 379) that is probably a synonym of *D. barwelli* Beddard, 1886: 94 [see Blakemore (2002) for full redescription and synonymy], was enigmatically reported by Gates (1972: 246) with distribution in Myanmar plus "(Chiangmai, Thailand?)" thus this report is possibly also for *D. barwelli*].

*Drawida* sp. said by Gates (1939) to be similar to *Drawida hehoensis* Stephenson, 1924.

#### Family MEGASCOLECIDAE Rosa, 1891 sensu Blakemore (2000; 2002)

\**Lampito mauritii* Kinberg, 1866: 103.

\**Amyntas alexandri* Beddard, 1901: 998 (syn. *lignicola* Stephenson, 1914), [this synonymy from Gates (1972: 155) where he also reports A, R, AR, ARZ, I and Hp morphs including a Thailand specimen he described (Gates, 1972: 157) as *Pheretima* sp. that he thought was a biparental H morph].

\**Metaphire bipora* (Beddard, 1900: 908) (syns. *annandalei* Stephenson, 1917; *gemella* Gates, 1931; *balingensis* Gates, 1949; *flocellana* Gates, 1949), [reported by

Gates (1939: 81, 83) as "*Pheretima annandalei*" and "*Pheretima bipora*", the current synonymy from Gates (1972: 171)].

\**Metaphire anomala* (Michaelsen, 1907: 167) (syns. *insolita* Gates, 1925; *centralis* Stephenson, 1929), (H, A, R, I morphs known).

\**Amyntas exiguus austrinus* (Gates, 1932: 514).

\**Metaphire houlleti* (Perrier, 1872) (syns. ?*Perichaeta campanulata* Rosa, 1890 [this synonym doubted by Gates (1932: 377: 1937: 406; 1939: 83) after inspection of types was apparently acceptable to Gates (1972: 191)]; *Perichaeta udekemi* Michaelsen, 1892: 240 [Michaelsen originally cited his species as "Grube (in litteris)"]; ?*Perichaeta guillelmi* Michaelsen, 1895 [this synonymy by Michaelsen (1900) doubted by Gates (1935, 1972)]; *Amyntas kelantanensis* Beddard, 1900: 903; *Pheretima wimberleyana* Stephenson, 1925 [name misspelt "wimberlayana" by Sims & Easton, 1972: 246 and Reynolds & Cook, 1976: 190]; *Pheretima houlleti tortuosa* Gates, 1926: 454; *Pheretima houletti* var. *rugosa* (sic lapsus pro *houlleti*) Gates, 1926: 459; *Pheretima campanulata* var. *penetrans* Gates, 1931: 435; *Pheretima campanulata* var. *meridiana* Gates, 1932; ?*Pheretima yapensis* Ohfuchi, 1941 [this last synonym from Gates (1972: 195)]). [The record of *P. houlleti bidenryoana* Ohfuchi, 1956 from Ryukyu Islands is a synonym of *A. flavescens* and is not from Myanmar]. [Name sometimes misspelt "houletti". Gates (1972: 190) reports all parthenogenetic morphs thus: H, A, I, AR, ARZ, Hp].

\**Amyntas comptus* (Gates, 1932) [sometimes misspelt "composita" or "compositus", included by (Gates, 1972: 158) in an *Amyntas andersoni* (Michaelsen, 1907) species complex in Myanmar, Yunnan and Thailand].

\**Polypheretima elongata* (Perrier, 1872) [syns. numerous, see Blakemore (2002)].

?*Amyntas evansi* Beddard, 1900: 907 [From Biserat, Jalor (Yala) State, Thailand. The date reference is sometimes given as "Beddard, 1901: 907" e.g. by Gates (1939: 87). Inclusion of this and the other taxa under "*Amyntas malayanus*" or "*Pheretima malayana*" [now *Metaphire malayana* (Beddard, 1900)] by Gates (1972: 199) is clearly a mistake they are distinct in their genital markings and superficial or invaginated male pores. Nevertheless, here I present the revised synonymy from this latter paper by Gates (1972):- *Metaphire malayana* (Beddard, 1900: 893) [syn. ?*Amyntas pulauensis* Beddard, 1900: 904; ?*Amyntas evansi* Beddard, 1900: 907; ?*Pheretima baruana* Stephenson, 1932; *Pheretima foveola* Gates, 1949: 21; and *Pheretima strellana* Gates, 1949: 34] from Malaysia, Thailand and Myanmar as described by Gates

- (1972: 199), and possibly including the *P. bosschae* Horst, 1893 (part.) synonym that had clusters of genital markings cf. the types (now = *P. darnleiensis*), and also *Amyntas juliani* that has genital markings and retains septum 8/9].
- \**Amyntas exiguus exiguus* (Gates, 1930: 310) [*Pheretima exigua* nom nov. pro *Pheretima minuta* Gates, 1929, non *Amyntas minutus* Beddard, 1900].
  - \**Amyntas mekongianus* (Cognetti, 1922: 3, figs. 4-8) (syn. *fluvialis* Gates, 1939: 89; ?*Pheretima fluvialoides* Huynh Thi Kim Hoi, 1998: 10). [This synonymy from Blakemore *et al.* (in press)].
  - \**Amyntas gracilis* (Kinberg, 1867: 102) [syns. numerous, see Blakemore (2002); reported by Gates (1939: 93) as "*Pheretima hawayana*".]
  - Amyntas hupbonensis* (Stephenson, 1931: 61) [from Thailand, redescribed by Gates (1972)].
  - \**Amyntas longicauliculatus* (Gates, 1932: 395) [included by (Gates, 1972: 158) in an *Amyntas andersoni* (Michaelsen, 1907) species complex in Myanmar, Yunnan and Thailand].
  - \**Amyntas manicatus manicatus* (Gates, 1931: 414) [*Pheretima manicata* Gates, 1931:414 comb. nov. pro *Pheretima suctoria manicata* Gates, 1931: 412 (Gates, 1932: 527; 1939: 97) (non *suctoria* Michaelsen, 1907) - see Sims & Easton (1972: 235 footnote) which states this much].
  - \**Amyntas morrissi* (Beddard, 1892: 166) [? *Perichaeta barbadensis* (parts ?"a" and "c") Beddard, 1892 (July): 167; ? *Perichaeta mauritiana* Beddard, 1892: 170 [most likely a variety of *A. gracilis*]; ? *Perichaeta pallida* Michaelsen, 1892 (Sept.): 227; ? *Perichaeta amazonica* Rosa, 1894: 14; ? *Perichaeta sanctijacobi* Beddard, 1895: 61; ? *Perichaeta cupulifera* Fedarb, 1898: 445].
  - \**Amyntas papulosus* (Rosa, 1896: 525) (*Pheretima papulosa* var. *sauteri* Michaelsen, 1922 (non Ohfuchi, 1956 - misidentification); *Pheretima composita* Gates, 1932; ? *Pheretima rockefelleri* Chen, 1933 syn. *P. hsinpuensis* Kuo, 1985). [Gates (1972: 207) thought that the parthenogenetic *rockefelleri* morph (lacking prostates and sometimes with defective spermathecae) was only distinguished by quantitative differences, but recently Shen *et al.* (2003) disputed inclusion of *A. rockefelleri* in *A. papulosus* and retained both taxa but suggested adding *A. hsinpuensis* to synonymy of the former].
  - \**Metaphire peguana* (Rosa, 1890: 113) (*Pheretima saigonensis* Omodeo, 1957). [Gates (1972: 208) disputes Ohfuchi's (1956) report from the Ryukus].
  - Metaphire perichaeta* (Beddard, 1900: 896) [Possibly a synonym of *M. virgo* (Beddard, 1900: 895) according to Gates (1972)].

- \**Metaphire planata* (Gates, 1926: 411).
- \**Metaphire posthuma* (Vaillant, 1868) (*Perichaeta affinis* Perrier, 1872). [Various A and I-morphs mentioned by Beddard (1900) were thought possible misidentifications by Gates (1972: 214)].
- \**Metaphire virgo* (Beddard, 1900: 895) [?*Amyntas perichaeta* Beddard, 1900: 896; *Pheretima mamillana* Gates, 1931: 400; *P. mendosa* Gates, 1932: 538]. [These synonyms from Gates (1972: 223) who also listed A-morphs].
- \**Perionyx excavatus* Perrier, 1872: 126 [syns. numerous, see Blakemore (2002)].
- ?*Metaphire bahli* (Gates, 1945: 85) [Type locality Colombo, Sri Lanka. Types lost. Gates (1972: 210) described a single specimen believed to be from Thailand that he thought may be this taxon. In a Vietnamese paper by Thai (2000?) it was suggested that *Pheretima bahli* had synonyms of *Pheretima saigonensis* Omodeo, 1955 and *Ph. bangoiana* Michaelsen, 1934; if so, then the latter species would take priority from Gates' *bahli*, but *saigonensis* Omodeo, 1956: 327 is currently placed in synonymy of *M. peguana*].

?*Pheretima* sp. Gates, 1972: 210. [Believed to be from Thailand].

\* *Amyntas fucosus* (Gates, 1933) (from [Prasuk, 2005](#)).

Family OCTOCHAETIDAE Michaelsen, 1900

- \**Dichogaster (Diplotheocodrilus) affinis* (Michaelsen, 1890: 9) [syn. *Benhamia mexicana* Rosa, 1891; *Benhamia crassa* Beddard, 1893; *Benhamia floresina* Horst, 1893; ?*Dichogaster curgensis* var. *unilocularis* Stephenson, 1931: 69 [Gates (1972: 280) thought this a synonym of *D. curgensis* (= *D. annae*) and Csuzdi (1995: 103) has it as a syn. nov. there; Csuzdi (1996: 357) has it in synonymy with *D. affinis*; but Csuzdi (2000: 59) again has it within *D. annae*]; *Dichogaster sinuosus* Stephenson, 1931; *Dichogaster sinicus* Chen, 1938 (?nomen nudum *D. sinensis* Chen, 1938: 421, legend for fig. 18)].

Family GLOSSOSCOLECIDAE Michaelsen, 1900

- \**Pontoscolex corethrurus* (Müller, 1857: 113) [syns. numerous, see Blakemore (2002)].

Family LUMBRICIDAE Schmaltz

*Eisenia fetida* (Savigny, 1826) reported as "*E. foetida*" from vermicomposting operations transferred from Laos to Thailand (eg. *Bangkok Post* feature article: 21 January, 2003 [www.bangkokpost.net/education/site2003/ftja2103.htm](http://www.bangkokpost.net/education/site2003/ftja2103.htm)).

[A Thai Agricultural university website lists several other lumbricids in a Thesaurus, but these are not known to be confirmed from Thailand. Viz.

[http://pikul.lib.ku.ac.th/www/thes\\_show.php?mainword=Oligochaeta&mainid=29111&lang=PT](http://pikul.lib.ku.ac.th/www/thes_show.php?mainword=Oligochaeta&mainid=29111&lang=PT) Jan. 2007].

#### ADDITIONAL TAXA

Gates (1939: 111) also redescribed *Pheretima bianensis* Stephenson, 1931: 58 (= *Metaphire bianensis bianensis*) from South Annam (= Vietnam).

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[End of Thai list].