

TABLES OF HAWAIIAN AND PUERTO RICAN EARTHWORMS

by R.J. Blakemore [March, 2006](#)

The 137 islands of Hawaii comprise the 50th State of the USA, size ca. 16,600 km². About 35 species are listed, none are natives.

The Island of Puerto Rico is a commonwealth associated with the US of ca. 9,000 km². About 31 species are reported and about 58% of these are natives.

Family classification after Blakemore (2000) and (2002) wherein full synonymies (syns.) for the cosmopolitan taxa may be found.

HAWAII

FAMILIES (Origins) and *species* reported from Hawaiian Islands

GLOSSOSCOLECIDAE (Neotropical)

1. *Pontoscolex corethrurus* (Müller, 1856) [includes *Pontoscolex hawaiiensis* Beddard, 1896: 196].

LUMBRICIDAE (Holarctic)

2. *Allolobophoridella eiseni* (Levinsen, 1884)
3. *Aporrectodea caliginosa* (Savigny, 1826) [includes *Aporrectodea turgida* (Eisen, 1873)].
4. *Aporrectodea limicola* (Michaelsen, 1890)
5. *Aporrectodea rosea* (Savigny, 1826)
6. *Aporrectodea trapezoides* (Dugès, 1828)
7. *Bimastos parvus* (Eisen, 1874) [many synonyms including *Allolobophora beddardi* Michaelsen, 1894: 182. [Non *A. beddardi* Ribaucourt, 1896 (= *Ap. caliginosa/trapezoides* complex)].
8. *Dendrobaena octaedra* (Savigny, 1826)
9. *Dendrodrilus rubidus rubidus* (Savigny, 1826) [syns. *xanthurus* Templeton, 1836; *puter* Hoffmeister, 1845; *pieter* Udekem, 1865; *havaicus* Kinberg, 1867 (sometimes misspelt *Hypogaeon "havaicum"*); *victoris* Perrier, 1872; *arborea* Eisen, 1874 [Reynolds & Cook (1976: 71) miscite a reference to this taxon as *A. putris arborea* by Michaelsen (1890: 49) as a different species]; *constricta* Rosa, 1884: 38; *darwini* Ribaucourt, 1896; *putris subrubicunda* var. *helvetica* Ribaucourt, 1896; *magnesa* Tzelepe, 1943. Omodeo & Rota (2004: 250) suggest reservation of the "name" *D. rubidus constrictus* "to the forms devoid of spermathecae" even though "forms" are deemed of infrasubspecific rank and are thereby excluded from the taxonomic code of ICZN (1999)].
10. *Eisenia andrei* Bouché, 1972
11. *Eisenia fetida* (Savigny, 1826)

12. *Eisenia nordenskioldi* (Eisen, 1879) sub-spp.

OCNERODRILIDAE (Tropical America & Africa)

13. *Ocnerodrilus occidentalis* Eisen, 1878 [*Ocnerodrilus mexicanus hawaiiensis* Eisen, 1900:124 from San Francisco, brought in from Honolulu, Hawaii is possibly synonymous with *O. occidentalis*, or with one of its pathenogenetic morphs].

ACANTHODRILIDAE (Pangean?)

14. *Microscolex horstii* Eisen, 1900 (seems to have been left off species lists).

15. *Microscolex phosphoreus* (Dugès, 1837)

OCTOCHAETIDAE (Circumtropical, Indian and Australasian)

16. *Dichogaster (Diplotheodrilus) bolau* (Michaelsen, 1891) [*D. malayana* (Horst, 1893) is a synonym].

17. *Dichogaster (Diplotheodrilus) modiglianii* (Rosa, 1896) [includes *Benhamia papillata* var. *hawaiiensis* Eisen, 1900: 212].

18. *Dichogaster (Diplotheodrilus) saliens* (Beddard, 1893) [includes *Dichogaster crawi* Eisen, 1900].

MEGASCOLECIDAE (mostly Asio-Australasian)

19. *Amyntas aeruginosus* Kinberg, 1867

20. *Amyntas corticis* (Kinberg, 1867) [type locality Oahu; many synonyms, including ?*Pheretima silvestrii* Cognetti, 1909 and probably *Perichaeta perkinsi* Beddard, 1896: 198 and *Perichaeta molokaiensis* Beddard, 1896 all from Hawaii].

21. *Amyntas gracilis* (Kinberg, 1867) [many synonyms, including *Perichaeta hawayana* Rosa, 1891].

22. *Amyntas lavanguanus* (Gates, 1959) [as redescribed by Blakemore (1997: 18); the unconfirmed Hawaii report is from the Bishop Museum website].

23. *Amyntas minimus* (Horst, 1893)

24. *Amyntas morrisi* (Beddard, 1892)

25. [*Amyntas perkinsi* (Beddard, 1896: 198) - an erstwhile subspecies of *Megascolex indicus*, probably in synonymy of *A. corticis* as suggested by Beddard (1912: 111); Gates (1972: 149)].

26. *Amyntas rechingeri* (Cognetti, 1909) [from Samoa and Hawaii].

27. *Lampito mauritii* Kinberg, 1866

28. *Metaphire californica* (Kinberg, 1867)

29. [? *Metaphire sandvicensis* (Beddard, 1896) (?= *M. californica*)]

30. *Metaphire schmardae schmardae* (Horst, 1883)

31. *Perionyx excavatus* Perrier, 1872

32. *Pithemera bicincta* (Perrier, 1875)

33. *Polypheretima elongata* (Perrier, 1872)

34. *Polypheretima taprobanae* (Beddard, 1892)

35. *Pontodrilus litoralis* (Grube, 1855)

Total non-endemic exotic spp. (E)	35
Endemic natives in region (N)	0
Approx. TOTAL spp. (E+N)	35
Exotics [E/(E+N)] x 100 %	100
Approximate Lumbricidae as % total exotic	34%
Approximate Megascolecidae as % total exotic	47%

Notes: Hawaiian records are derived from a Michaelsen (1900), Beddard (1912: 110 see <http://www.regenwurm.de/pdf/beddard-earthworms.pdf>); the Bishop Museum website (<http://www2.bishopmuseum.org/HBS/invert/oligochaeta.htm>) that lists 55 nominal taxa although many of these are long established synonyms; the 20 names listed (some, e.g. "*schmardae*" listed more than once) in Table 6 of Nakamura (1992: 30); and other sources from Blakemore (2002).

A report of *Pheretima darnleiensis* (Fletcher) was due to the record of "*Perichaeta indica* Horst" that was in the past confused with *P. darnleiensis* - it is now believed to refer to *Amyntas corticis* wherein its erstwhile subspecies *P. indicus perkinsi* may also more comfortably reside.

PUERTO RICO

FAMILIES (Origins) and *species* reported from Puerto Rico

MONILIGASTRIDAE (India - Oriental)

- *1. *Drawida barwelli* (Beddard, 1886) [report from Borges & Moreno (1994)].

GLOSSOSCOLECIDAE (Neotropical)

[Note: genus *Estherella* sometimes misspelt "Estherilla"].

2. *Estherella aguayoi* Borges & Moreno 1989
3. *Estherella caudoferruginea* Borges & Moreno 1989
4. *Estherella gatesi* Borges & Moreno 1989
5. *Estherella montana* Gates, 1970 [reported by Borges (2004)].
6. *Estherella nemoralis* Borges & Moreno 1989
7. *Estherella stuarti* Borges & Moreno 1989
8. *Estherella toronegrensis* Borges & Moreno 1989
9. *Onychochaeta borincana* Borges 1994
10. *Pontoscolex cynthiae* Fragoso, 1993 [report from Borges & Moreno (1990)].
11. *Pontoscolex melissae* Borges & Moreno 1990
12. *Pontoscolex spiralis* Borges & Moreno 1990
- *13. *Pontoscolex corethrurus* (Müller, 1856)

LUMBRICIDAE (Holarctic)

- ?*14. *Eisenia fetida* (Savigny, 1826) [possible record from Borges (2004: 286)].

OCNERODRILIDAE (Tropical America & Africa)

- *15. *Eukerria kuekenthali* (Michaelsen, 1908)
- ?*16. *Gordiodrilus elegans* (?) Beddard, 1892 [reported thus by Gates (1972: 271)].
- *17. *Gordiodrilus paski* Stephenson, 1928 [recorded as *G. peguanus* Gates, 1942 (? = *G. elegans*)].
- *18. *Ocnerodrilus occidentalis* Eisen, 1878 [report from Borges *et al.* (2003)].

EXXIDAE (Caribbean and, doubtfully, Australia)

19. *Neotrigaster complutensis* (Borges & Moreno, 1991: 40)
20. *Neotrigaster rufa* (Gates, 1962: 3)

OCTOCHAETIDAE (Circumtropical, Indian and Australasian)

21. *Borgesia montana* James, 1991
22. *Borgesia sedecimsetae* (Borges & Moreno, 1991)
23. *Borgesia wegei* James, 1991
24. *Trigaster longissima* Borges & Moreno, 1991 [originally *Trigaster longissimus* (sic – although ICZN, 1999: Art. 30 says genera ending in *-gaster* are feminine)].
25. *Trigaster yukiyui* Borges & Moreno, 1991 [restored from *Neotrigaster* as suggested by Blakemore (2000: 39)].

MEGASCOLECIDAE (mostly Asio-Australasian)

- *26. *Amyntas corticis* (Kinberg, 1867) [record from Borges (2004)].
- *27. *Amyntas gracilis* (Kinberg, 1867) [record from Borges (2004)].
- *28. *Amyntas rodericensis* (Grube, 1879) [record from Borges (2004)].
- *29. *Polypheretima elongata* (Perrier, 1872) [report from Borges *et al.* (2003)].
- *30. *Pontodrilus litoralis* (Grube, 1855) [report from Borges & Moreno (1994)].

EUDRILIDAE (African)

- *31. *Eudrilus eugeniae* (Kinberg, 1867) [report from Borges *et al.* (2003)].

Total non-endemic exotic spp. (E)	13
Endemic natives in region (N)	18
Approx. TOTAL spp. (E+N)	31
Exotics [E/(E+N)] x 100 %	42
Approximate Lumbricidae as % total exotic	7%?
Approximate Megascolecidae as % total exotic	38%

* - exotic taxa from Borges (2004)

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[End of Hawaii and Puerto Rico checklist].