

All genera of the world: Order Ricinulei (Animalia: Arthropoda: Arachnida)

LORENZO PRENDINI

Arachnology Lab and Scorpion Systematics Research Group, Division of Invertebrate Zoology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, U.S.A.

 lorenzo@amnh.org;  <https://orcid.org/0000-0001-8727-7106>

Abstract

There are eleven genus-group names available in the arachnid Order Ricinulei Thorell, 1876 by the end of 2025. Ten of these refer to currently accepted genera: three extant and seven extinct. One genus-group name is in synonymy. Six (60%) of the currently accepted genera were described since 1950. Ricinulei includes 127 currently accepted species-group names (104 extant species and 23 extinct species) and two *nomina dubia*. The phylogeny and suprageneric classification of the order remain poorly understood and some of the extant genera appear to be paraphyletic.

Key words: Neoricinulei, †Palaeoricinulei, †Poliochoeroidea, †Primoricinulei, Ricinoidoidea, †Curculioididae, †Hirsutisomidae, †Poliocheridae, †Primoricinuleidae, Ricinoididae, †Sigillaricinuleidae, generic names, synonyms, type species, ricinuleids, hooded tick-spiders

Introduction

Ricinuleids, also known as hooded tick-spiders, are peculiar, slow-moving arachnids, usually 5–10 mm in length, characterized by a unique plate or hood, known as a cucullus, covering the two-segmented chelicerae; the three median tergites each subdivided into one median and two lateral plates; an elongate second pair of legs; and the third pair of legs modified for sperm transfer in the adult male. Although two or three pairs of lateral eyes are evident in some fossil taxa (Selden, 1992; Botero-Trujillo *et al.*, 2022), living ricinuleids are blind or possess light-sensitive eyespots on the lateral surfaces of the carapace. The prosoma and opisthosoma, attached by a narrow pedicel, possess a locking mechanism that becomes unhooked during mating and oviposition (Harvey, 2003). The cuticle of Ricinulei is markedly sclerotized, the softer, non-sclerotized, inter-segmental cuticle being thicker than the harder, sclerotized cuticle (Kennaugh, 1968), and ornamented by various tubercles and other features, the arrangement of which has been used taxonomically (Talarico *et al.*, 2005, 2006, 2008, 2011; Tourinho *et al.*, 2024; Whalen & Selden, 2021).

These seldom-seen arachnids inhabit caves and the leaf litter of tropical and subtropical forests in the New

World (on the Caribbean island of Cuba and from southern Texas, U.S.A., southward through Mexico and Central America to the Brazilian state of Rondônia) and fourteen countries in western and central Africa (Adis *et al.*, 1989; Botero-Trujillo & Prendini, 2025).

Although extant ricinuleids are absent from Asia, their presence in Burmese (Kachin) amber confirms a broader distribution in the mid-Cretaceous (*c.* 99 Mya) (Wunderlich, 2012, 2015, 2017, 2022; Botero-Trujillo *et al.*, 2022). Palaeozoic forms are known from Upper Carboniferous (*c.* 305–319 Mya) deposits of Europe and North America (Selden, 1992; Whalen & Selden, 2021). Some Carboniferous genera of Palaeoricinulei exceed living Ricinulei in size, e.g., *Curculioides bohemoni* Whalen & Selden, 2021 is *ca.* 24 mm.

Ricinuleids are nocturnal (García *et al.*, 2015) and often found in large congregations (Mitchell, 1969) but little is known about their ecology, life history and population structure (Platnick & Pass, 1982). At least one species is known to inhabit the organic and upper mineral soil layers of central Amazonian upland forests (Adis *et al.*, 1999). Its hydrophobic cuticular surface and the presence of navicular setae are thought to enable facultative plastron respiration when temporarily submerged. These morphological characteristics, together with an ability to dig into the substrate (Platnick & Pass, 1982; García *et al.*, 2015), may assist ricinuleids to survive by becoming fossorial under adverse conditions, e.g., drought or flooding events.

Like most arachnids, ricinuleids are predatory, eating small arthropods and other invertebrates (Cooke, 1967; García *et al.*, 2015). Prey are located using sensilla on the legs, especially the elongate second pair, and captured with the chelate pedipalps (Adis *et al.*, 1989). Sensilla on the tarsi of legs I and II, used more frequently to sense the surroundings, differ from those of legs III and IV (Talarico *et al.*, 2005, 2008).

The highly modified metatarsus and tarsus of the third leg of adult male ricinuleids is used to transfer sperm to the female genital aperture during mating, which has been observed in only a few species (Cooke, 1967; Pollock, 1967; Legg, 1977; García *et al.*, 2015). The seminal reservoir of the third leg of the male is filled directly from the gonopore. The male mounts the female, places the modified tarsus into the female genital atrium,

and discharges the seminal fluid, where it is stored until fertilization (Harvey, 2003). Eggs are laid singly and carried under the mother's cucullus, until the young hatch into six-legged larva, which later molt into eight-legged adult forms (Pollock, 1967).

The first ricinuleid described was a fossil misidentified as a beetle, a year before the first living ricinuleid was described, as a harvestman (Buckland, 1837; Guérin-Ménéville, 1838; Whalen & Selden, 2021). Once considered rare, many new species of Ricinulei have been discovered and described in recent years, especially in the New World (e.g., Tourinho & Azevedo, 2007; Tourinho *et al.*, 2010, 2014; Teruel, 2018; Valdez-Mondragón *et al.*, 2018, 2020; Botero-Trujillo *et al.*, 2021a, 2021b; Valdez-Mondragón & Juárez-Sánchez, 2021). Molecular data imply even higher levels of cryptic diversity (Benavides *et al.*, 2021; Valdez-Mondragón & Cortez-Roldán, 2021). Most ricinuleid species appear to be very range-restricted and many are probably threatened by deforestation (Harvey, 2003).

Hansen & Sørensen (1904) presented the first comprehensive taxonomic treatment of all extant ricinuleid taxa known at the time, updated, 45 years later, by Millot (1949). Half a century later, Harvey (2003) presented the first catalog of the genera and species of Ricinulei. A list of suprageneric taxa with counts of genera and species was provided by Prendini (2011). The present contribution updates species counts from the World Ricinulei Catalog (2025) through the end of 2025.

The Order Ricinulei Thorell, 1876 currently comprises one extant suborder, Neoricinulei Selden, 1992, and two extinct suborders, †Palaeoricinulei Selden, 1992, and †Primoricinulei Wunderlich 2015 (Table 1). Suborder Neoricinulei comprises a single superfamily, Ricinoidoidea Ewing, 1929, and family, Ricinoididae Ewing, 1929, which accommodates the three Recent genera.

TABLE 1. Current classification of the Order Ricinulei Thorell, 1876

Order Ricinulei Thorell, 1876
Suborder Neoricinulei Selden, 1992
Superfamily Ricinoidoidea Ewing, 1929
Family Ricinoididae Ewing, 1929
<i>Cryptocellus</i> Westwood, 1874
<i>Pseudocellus</i> Platnick, 1980
<i>Ricinoides</i> Ewing, 1929
Suborder † Palaeoricinulei Selden, 1992
Superfamily † Poliocheroidea Scudder, 1884
Family † Curculioididae Cockerell, 1916
† <i>Amarixys</i> Selden, 1992
† <i>Curculioides</i> Buckland, 1837
Family † Poliocheridae Scudder, 1884
† <i>Poliochera</i> Scudder, 1884
† <i>Terpsicroton</i> Selden, 1992
Suborder † Primoricinulei Wunderlich 2015
Family † Hirsutisomidae Wunderlich, 2017
† <i>Hirsutisoma</i> Wunderlich, 2017
Family † Primoricinuleidae Wunderlich, 2015
† <i>Primoricinuleus</i> Wunderlich, 2015
Family † Sigillaricinuleidae Wunderlich, 2022
† <i>Sigillaricinuleus</i> Wunderlich, 2022

Suborder †Palaeoricinulei comprises a single superfamily, †Poliocheroidea Scudder, 1884, with two families, †Curculioididae Cockerell, 1916 and †Poliocheridae Scudder, 1884, with two genera each. Suborder †Primoricinulei comprises three

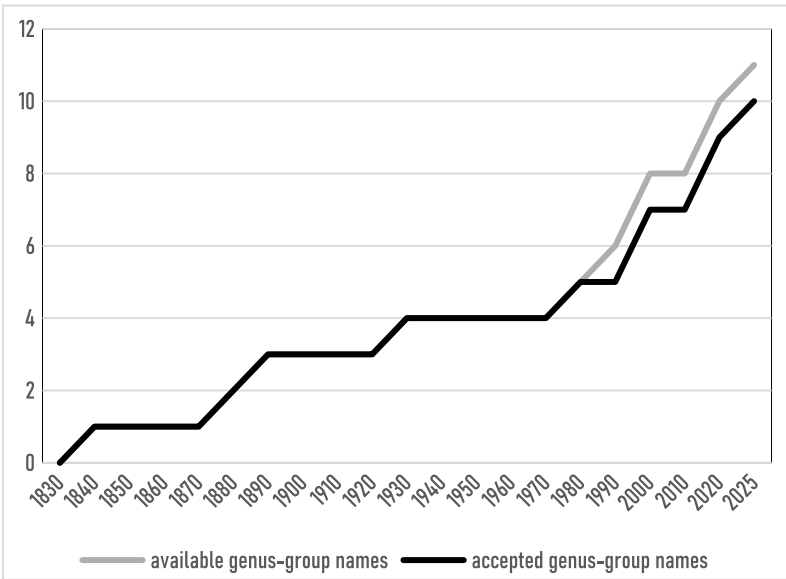


FIGURE 1. Cumulative number of available and accepted genus-group names in the arachnid Order Ricinulei Thorell, 1876 by decade.

monotypic families, †Hirsutisomidae Wunderlich, 2017, †Primoricinuleidae Wunderlich, 2015, and †Sigillaricinuleidae Wunderlich, 2022.

Eleven genus-group names are available in Ricinulei by the end of 2025. Ten of these refer to currently accepted genera, three extant and seven extinct. One genus-group name is in synonymy. Six (60%) of the currently accepted genera were described since 1950 (Fig. 1). The order includes 127 currently accepted species-group names (104 extant species and 23 extinct species) and two *nomina dubia*.

Despite several molecular phylogenetic analyses (Murienne *et al.*, 2013; Fernández & Giribet, 2015; Benavides *et al.*, 2021; Sato *et al.*, 2024), the phylogeny and suprageneric classification of Ricinulei remain poorly understood. Both the extant New World genera appear to be paraphyletic.

Acknowledgements

This list was developed from the World Ricinulei Catalog (<https://wac.nmbe.ch/order/ricinulei/4>), in turn based on the catalogs of Harvey (2003, 2013; <http://www.museum.wa.gov.au/catalogues/ricinuleids>) and the list of fossil spiders and their relatives by Dunlop *et al.* (2023). The Biodiversity Heritage Library (<https://www.biodiversitylibrary.org>), the Global Biodiversity Information Facility (GBIF) (<https://www.gbif.org>), the Interim Register of Nonmarine and Marine Genera (<https://www.irmng.org>), and the Paleobiology Database (Uhen *et al.*, 2023; <https://paleobiodb.org>) were also consulted. The author's research on minor arachnid orders was supported by grants EAR 0228699, DEB 0640219, and DEB 2003382, from the National Science Foundation, U.S.A. The author thanks Zhi-Qiang Zhang for the invitation to submit this contribution, and Ricardo Botero-Trujillo and two anonymous reviewers for comments on earlier drafts of the manuscript.

Order **Ricinulei** Thorell, 1876
(1 extant suborder, 2 extinct suborders)

Suborder **Neoricinulei** Selden, 1992
(1 extant superfamily)

Superfamily **Ricinoidoidea** Ewing, 1929
(1 extant family)

Family **Ricinoididae** Ewing, 1929
(3 extant genera)

Cryptocellus Westwood, 1874 [47 extant species, 1 *nomen dubium*]. Type species: *Cryptocellus foedus* Westwood, 1874, by monotypy.

Heteroricinoides Dumitresco & Juvara-Balș, 1977. Type species: *Heteroricinoides bordoni* Dumitresco & Juvara-Balș, 1977 = *Cryptocellus bordoni* (Dumitresco & Juvara-Balș, 1977). Synonymized by Platnick & Shadab (1977).

Pseudocellus Platnick, 1980 [41 extant species, 1 *nomen dubium*]. Type species: *Cryptocellus dorotheae* Gertsch & Mulaik, 1939 = *Pseudocellus dorotheae* (Gertsch & Mulaik, 1939), by original designation.

Ricinoides Ewing, 1929 [16 extant species]. Type species: *Cryptostemma westermanni* Guérin-Méneville, 1838 = *Ricinoides westermanni* (Guérin-Méneville, 1838), by monotypy. [Replacement name for *Cryptostemma* Guérin-Méneville, 1838.]

Cryptostemma Guérin-Méneville, 1838. Type species: *Cryptostemma westermanni* Guérin-Méneville, 1838 = *Ricinoides westermanni* (Guérin-Méneville, 1838), by monotypy. [Junior homonym of *Cryptostemma* Herrich-Schäffer, 1835 (Insecta: Hemiptera).]

Suborder †**Palaeoricinulei** Selden, 1992
(1 extinct superfamily)

Superfamily †**Poliocheroidea** Scudder, 1884
(2 extinct families)

Family †**Curculioididae** Cockerell, 1916
(2 extinct genera)

†**Amarixys** Selden, 1992 [3 extinct species]. Type species: †*Kustarachne sulcata* Melander, 1903 = †*Amarixys sulcata* (Melander, 1903), by original designation.

†**Curculioides** Buckland, 1837 [9 extinct species]. Type species: †*Curculioides ansticii* Buckland, 1837, by subsequent designation (Pocock, 1911).

Family †**Poliocheridae** Scudder, 1884
(2 extinct genera)

†**Poliochera** Scudder, 1884 [4 extinct species]. Type species: †*Poliochera punctulata* Scudder, 1884, by monotypy.

†**Terpsicroton** Selden, 1992 [1 extinct species]. Type species: †*Poliochera alticeps* Pocock, 1911 = †*Terpsicroton alticeps* (Pocock, 1911), by original designation.

Suborder †**Primoricinulei** Wunderlich 2015
(3 extinct families)

Family †**Hirsutisomidae** Wunderlich, 2017
(1 extinct genus)

†**Hirsutisoma** Wunderlich, 2017 [4 extinct species]. Type species: †*Hirsutisoma bruckschi* Wunderlich, 2017, by original designation.

Family †**Primoricinuleidae** Wunderlich, 2015
(1 extinct genus)

†**Primoricinuleus** Wunderlich, 2015 [1 extinct species]. Type species: †*Primoricinuleus pugio* Wunderlich, 2015, by monotypy.

Family †**Sigillaricinuleidae** Wunderlich, 2022
(1 extinct genus)

†**Sigillaricinuleus** Wunderlich, 2022 [1 extinct species]. Type species: †*Sigillaricinuleus triparens* Wunderlich, 2022, by monotypy.

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