

A REVIEW OF THE GENUS *RAMECIA*

(COLEOPTERA: PSELAPHIDAE)

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Ramecia was erected by Casey (1893: 450) as a new genus of the Tribe Euplectini. In this article he described two new species and included four others which had been described previously in the Genus *Euplectus*. These six species have been set forth in subsequent works without further comment (Raffray, 1908: 101, 1911: 41; Leng, 1920: 129).

Later, Bradley (1930: 88) separated *Ramecia* from other euplectine genera by means of a modification of Raffray's 1908 keys. Bowman (1934: 41-44, 143) separated the six species by means of Casey's 1893 key, gathered together the original descriptions, and (Bowman 1934: 144) designated *Ramecia arcuata* (LeConte) as the type species.

Casey (1893: 442) found great difficulty in maintaining as distinct tribes the Euplectini and genera then included in the Trichonychini since primary separation was based on size and shape of the accessory tarsal claw. Casey made use of *Ramecia crinita* (Brendel) as an example of an euplectine population in which the accessory tarsal claw was well developed. He combined these two tribes in an expanded Euplectini. This course was followed by Park (1942: 63, 1951: 63, 1952: 53).

Park (1953a: 306, 314) discriminated *Ramecia* in a series of keys and placed it in the Subtribe Euplectina of Raffray (1890).

It is apparent from this brief historical summary that authors subsequent to Casey (1893) have not added new information on this genus. The present report attempts a revision of *Ramecia*. As now known, it is restricted to the Nearctic Region, and its populations are in the forested regions of the United States, east of the Mississippi River, with the exception of one species in Texas.

The types of species described by Casey and deposited at the United States National Museum were studied in 1958 by the author through the courtesy of O. L. Cartwright.

Specimens are uncommon. Such individuals that have been collected have been from forests. Within this community type the species are taken from a variety of habitats. They are collected from forest floor debris and leaf mold, from beneath the loose bark of both prostrate logs and standing dead trees, as well as from tree-hole mold, and mosses.

COMPARATIVE EXTERNAL ANATOMY

The integument is pubescent and its sculpture varies from shining subimpunctate or finely punctulate to semiopaque and microgranulate and punctate.

The head always bears a pair of pubescent vertexal foveae between the rather prominent eyes; no frontal rostrum, the antennae being distantly articulated on small tubercles; there are neither supraocular nor infraocular sulci; the ventral surface of the head always bears clubbed genal setae. These genal setae vary from microcapitulate to capitate, and generally are in a right and a left genal cluster.

The eleven-segmented antennae are never geniculate, and end in a three-segmented club. One of the difficulties in the study of *Ramecia* is the amount of variation in the club. In some species (*R. arcuata* and *R. dentiventris*) this club is suddenly formed and sharply set off (fig. 1), whereas in other species (*R. crinita* and *R. capitula*) the club is gradually formed (fig. 2). The first condition alluded

to will place the specimen under study in the Subtribe Euplectina, and its subsequent characters place it in *Ramecia* without further trouble. The second condition, that of a gradually formed antennal club, may serve to overemphasize the relative importance of the distal antennal segment. In this latter case, a specimen will seem to belong in the Subtribe Trimiina, and will key out incorrectly to *Actium*. Unfortunately, *Actium* has species which vary in degree of antennal club formation, from typically trimiine with a club obviously of the last segment and with tenth and ninth segments very transverse and thin, to those in which the club approaches the condition in *Ramecia*. Other features, especially structure of the aedeagus, serve to lessen this difficulty.

Maxillary palpi are four-segmented; first segment short and obconical, second elongate pedunculate and slightly arcuate, third short rounded triangular and about as wide as the second segment, fourth is the largest, elongate subtruncate oval, with the apex bearing a palpal cone. This general structure is typical of palpi in Euplectini. Casey placed weight on the development in *Ramecia* of a prorect process of the gena which more or less separated the maxillary cardo from the palpal fossa. This process is usually very well developed in *Ramecia*, but is also developed, often strongly in *Actium* and other allied genera. Study of this process is effective when specimens are examined in slide-mounts at 430 diameters or more.

The pronotum always has a simply convex disc. This absence of discal foveae and sulci is important in separating *Ramecia* from the majority of genera in Euplectina, and from North American genera of Trichonychina and Tragostrina. Consequently it is of practical help in subtribal keys where tarsal claw development is of relative value. On the other hand, this simple pronotal disc is common in Trimiina in such genera as *Actium* and *Melba*. The pronotum bears a pair of pubescent lateral antebasal foveae, these two foveae united to the larger, nude, median antebasal fovea by a biarcuate sulcus. The prosternum is not medianly carinate.

Each elytron has an entire sutural stria arising near an antebasal sutural fovea, and a discal impression arising near an antebasal discal fovea. This is known as a bifoveate condition. In some of the species there is a trifoveate condition, in which there is an antebasal fovea between a sutural and a humeral fovea. The discal impression varies greatly as between the several species, from a vague impression to a rather sharply formed strioid sulcus, and from a short impression in basal third to well over half the elytral length. The elytral flank always bears a pubescent subhumeral fovea, and usually a well formed submarginal carina and longitudinal sulcoid impression. Metawings are present.

The abdomen has five visible tergites, of which the first three bear lateral margins, also the first tergite, and sometimes the next two bear a pair of basal abdominal carinae. These latter vary greatly in the genus in size, relative length, and amount of separation. There are only six visible sternites in the female sex. Males have seven visible sternites, the last being a rather conspicuous circular to oval aedeageal plate. This latter is asymmetrically articulated to allow extrusion of the aedeagus. The venter is often secondarily modified in males, e.g., usually the lateral thirds of the second and third sternites of males are more or less excavated or microtuberculate. An extreme case is found in *R. dentiventris*, where the third sternite on each side bears such an enormous tubercle that it is obvious from a dorsal view (fig. 3), appearing to arise from the second tergite.

The legs have typical brachysceline articulation (Park, 1953: 301). Mesocoxal cavities are confluent, with contiguous mesocoxae; metacoxae are subcontiguous. Femora are usually more inflated in males, especially the first two pairs. Mesotrochanters may be toothed and an extreme case of this is found in *R. arcuata* (fig. 4). Metatrochanters may also bear a tooth (*R. mendica*). The three-segmented tarsi are typical of the Subfamily Pselaphinae, and the third tarsomere always bears a large primary tarsal claw. In *Ramecia* there is also a

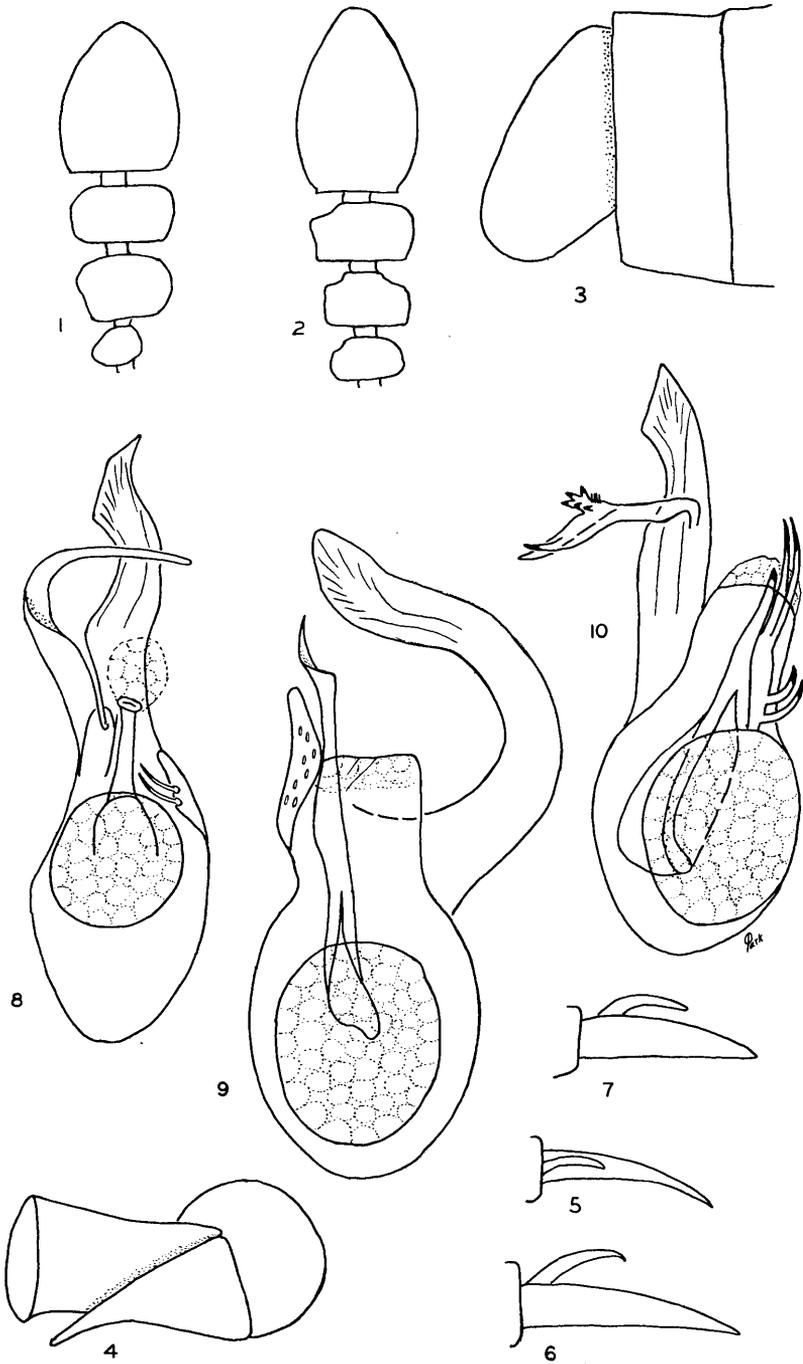


PLATE I

R. capitula (Casey)

Head as wide as pronotum or nearly so (at greatest widths the ratio is 4.2 to 4.4, or 5.0 to 5.2, or 5.2 to 5.2)..... 6

- 6 (5) Pubescence dense, opaque-milky and conspicuous; about three rows of setae transversely between inner marginal striae of third tergite, with about twenty-one setae per row; six obvious guard setae on third tergite (from type specimens, *not* as stated in original description); discal elytral stria extends beyond middle of elytral length

R. discreta Casey

Pubescence sparse and very inconspicuous; about as many setae on third tergite as in *discreta* but setae very thin and translucent; discal elytral stria usually ending before middle of elytral length; mesotrochanter with a long spine at distal angle (fig. 4); aedeagus as illustrated (fig. 8)

R. arcuata (LeConte)SPECIES OF *RAMECIA*

The external anatomy that is common to the genus has been discussed. The following deals briefly with diagnostic features and other relevant data. So little is known about the geographic ranges occupied that literature citations have been excluded in most cases where identification of specimens has not been checked.

1. *Ramecia arcuata* (LeConte)

Euplectus arcuatus LeConte (1850: 106) Brendel (1866: 38) Henshaw (1885: 30) Casey (1884: 114).

Trimiopectus arcuatus Brendel and Wickham (1890: 51).

Ramecia arcuata Casey (1895: 451) Raffray (1911: 41) Leng (1920: 129) Bowman (1934: 43).

Designated as the type species by Bowman (1934: 144).

Deposition of type: Museum of Comparative Zoology.

Type locality: Athens, Clarke County, Georgia.

Additional localities: Roane County, Tennessee.

Male with the apical half of the second sternite bearing a mesial fovea each side; third sternite each side slightly excavated in basal half, with a faint tumulus; sixth sternite with a deep median concavity; mesotrochanter distally spined (fig. 4); aedeagus as illustrated (fig. 8).

2. *Ramecia capitula* (Casey)

Euplectus capitulum Casey (1884: 112) Henshaw (1885: 30).

Trimiopectus capitulum Brendel and Wickham (1890: 52).

Ramecia capitulum Casey (1893: 451) Raffray (1911: 41) Leng (1920: 129) Bowman (1934: 42).

Deposition of type: United States National Museum.

Type locality: Tallahassee, Leon County, Florida.

Additional localities: Ocean Springs, Jackson County, Mississippi.

Described from a female. A male from Ann Arbor, Michigan was associated with the type by Casey (1884: 113). This male is not regarded as being this species by the author.

3. *Ramecia crinita* (Brendel)

Euplectus crinitus Brendel (1865: 260) Brendel (1866: 38) Casey (1884: 111) Henshaw (1885: 30) Brendel and Wickham (1890: 55).

Ramecia crinita Casey (1893: 451) Raffray (1911: 41) Leng (1920: 129) Bowman (1934: 42).

Deposition of type: Philadelphia Academy of Natural Sciences.

Type locality: "Northern States".

Additional localities: St. Vincent, Westmoreland County, Pennsylvania; The Shades, Waveland, Montgomery County, Indiana; Warren Woods, Lakeside, Berrien County, Michigan; Illinois.

Male with second to fifth sternites semicircularly excavated each side, the excavations being deepest on the second and progressively shallower to the fifth; second sternite with a low tumulus between the excavation and the posterior margin of the sternite. Mesotrochanters with a short, rounded tooth near mesial angle. Metatrochanters with a short tooth near mesial angle. Antennal club (fig. 2), metatarsal claws (fig. 6), aedeagus (fig. 9) illustrated.

4. *Ramecia decora* (Casey)

Euplectus decorus Casey (1884: 113) Henshaw (1885: 30) Brendel and Wickham (1890: 56).

Ramecia decora Casey (1893: 451) Raffray (1911: 41) Leng (1920: 129) Bowman (1934: 43).

Deposition of type: United States National Museum.

Type locality: Columbus, Colorado County, Texas.

Described on a female.

5. *Ramecia dentiventris* Casey (1893: 452)

Raffray (1911: 41) Leng (1920: 129) Bowman (1934: 43).

Deposition of type: United States National Museum.

Type locality: Virginia.

Additional localities: Great Smoky Mountains National Park, Sevier County, Tennessee.

The remarkable lobes of the second sternite are so large that they are visible dorsally; one lobe is illustrated (fig. 3).

6. *Ramecia discreta* Casey (1893: 451)

Raffray, Leng, and Bowman citations as for *R. dentiventris*.

Type deposition: United States National Museum.

Type locality: Pennsylvania.

Described from a female.

***Ramecia mendica* sp. n.**

Type Male. Head 0.18 mm long \times 0.26 mm wide; pronotum 0.25 mm \times 0.27 mm; elytra 0.36 mm \times 0.33 mm; abdomen 0.31 mm \times 0.35 mm; total length 1.1 mm.

Shining reddish brown; pubescence rather abundant, prostrate, except as follows: a guard seta at apical and basal third of pronotum each side; a guard seta at apical and basal third of elytra each side; a transverse row of four guard setae on the second, and on the third visible tergites; integument finely punctulate to subimpunctate.

Head with a pair of prominent eyes about one-fourth as long as head; tempora rounded and as long as eyes; a pair of pubescent vertexal foveae between the eyes, connected by an entire interfoveal sulcoid impression; face short and simple; ventral surface of head with short, inclined microcapitulate setae and a few aciculate inclined setae.

Antennae 0.37 mm long, with a well defined three-segmented club; first two relatively large; III small, obconical; IV-VI about as wide as third, submoniliform; VII and VIII transverse moniliform, very slightly larger than sixth; club of last three segments, IX distinctly wider than eighth, transverse lenticular; X larger than ninth, transverse lenticular; XI truncate oviform, largest segment, longer than the preceding two united; antennal club about as long as segments II-VIII united.

Pronotum as described for genus. Each elytron with three large antebasal foveae; discal impression not quite attaining the center of elytral length. Metathoracic wings well developed.

Abdomen with five visible tergites in a median length ratio of 1.2/1.4/1.4/1.7/1.0 with lateral margins on first three; a pair of minute basal abdominal carinae at base of first tergite, these being one-eleventh as long as segment and separated by almost 25 percent of tergite width. Seven visible sternites in median length ratio of 0.5/1.0/0.8/0.7/0.2/0.8/1.2 with the last sternite in the form of an asymmetrically articulated subcircular aedeageal plate. Third sternite each side with a vague tumulus near the depressed posterior margin.

Legs with pro- and mesofemora more swollen than metafemora. Metatrochanter with a small triangular tooth just mesiad of center of ventral margin. All tarsi with a large primary

tarsal claw and a distinct accessory claw (fig. 7); the protarsal primary claw deeply bifid. These tarsal claws best studied from slide-mounts at 430 \times .

Aedeagus as illustrated (fig. 10), 0.335 mm long \times 0.100 mm wide.

Female as for male except that (1) compound eyes are smaller, of 18 to 20 facets, and only about three-fourths as long as tempora; (2) six sternites in median length ratio of 0.5/0.8/0.8/0.6/0.4/1.4 with sixth large, convex and rounded triangular; (3) metatrochanter not toothed; (4) protarsal primary claw not bifid.

Described from seven specimens (4 males and 3 females). Type specimen and two paratypes berlesed from mold in a hollow yellow poplar near Saltpeter Cave, Pisgah, Jackson County, Alabama on June 29, 1958. Type in author's collection; and one paratype in the collection of John A. Wagner; one paratype in H. R. Steeves collection. This is the type locality. In addition four specimens were collected which are conspecific but not in the type series, as follows: one specimen in floor debris near Creek Cave, Grant, Marshall County, Alabama on May 25, 1958, and three specimens from forest floor debris near Prudy Cave No. 2, Jefferson County, Alabama on September 13, 1958. All specimens collected by Harrison R. Steeves, Jr.

This is very distinct species. The two distal styles of the aedeagus, instead of being strongly separated as in the type species *R. arcuata* (fig. 8) and *R. crinita* (fig. 9), appear to be fused (fig. 10), and the small right style is extended abruptly like a miniature hand in supination, hence the species name derived from this begging posture. In the key, *R. mendica*, *R. crinita*, and *R. dentiventris* are the only known species with trifoveate elytra, but the general aspect and head/pronotum width ratio of *R. mendica* is most similar to *R. arcuata*.

SUMMARY

The pselaphid Genus *Ramecia* is revised. Revision includes a historical review of its taxonomy, comparative anatomy, key to known species largely based on examination of type specimens, annotated checklist and description of one new species, *Ramecia mendica* from Alabama.

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