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Studies on *Diapriidae* (*Hymenoptera, Proctotrupoidea*). Part 2. A revision of the genus *Anommatium* FOERSTER

[With 8 text-figures]

Abstract. The genus *Anommatium* FOERSTER is revised, taxonomic adult characters are discussed and evaluated. The assumed synonymy of *Somaroa* JANSSON to *Anommatium* FOERSTER is confirmed and *Somaroa myrmicaria* JANSSON, 1956 is reduced to a subspecies of *Anommatium ashmeadi* MAYR, 1904. *Anommatium stramineum* KIEFFER, 1908 (1907–1911) is a new synonym of *Anommatium ashmeadi* MAYR. The male is conclusively recognized and appropriately associated based on inferred synapomorphies. The single European species is split geographically into two subspecies – *Anommatium ashmeadi ashmeadi* MAYR and *Anommatium ashmeadi myrmicarium* (JANSSON).

The genus *Anommatium* was proposed by FOERSTER (1856) without included species. MAYR (1904) described a specimen from FOERSTER's collection as *Anommatium ashmeadi* MAYR. This specimen is a female characterized by a set of unique characters as follow: 14-segmented antennae, total absence of wings, absence of parapsidal sutures and reduced mouthparts and appendages. KIEFFER [1908 (1907–1911)] described another nominal species as *Anommatium stramineum*. In both species only the female is known. JANSSON (1956) described a similar species *Somaroa myrmicaria*, possessing 13-segmented antennae. HELLEN (1964) and WALL (1967) discussed the problem of validity of the latter species and they considered it to be an alternative morph of *Anommatium ashmeadi* MAYR only. Due to the aberrant appearance of *Anommatium ashmeadi* MAYR, HELLEN (1964) placed this genus into a separate tribe *Anommatiini*. As a result of strong sexual dimorphism the male of this species was misinterpreted by KIEFFER [1908 (1907–1911), 1916] and erroneously associated with a female of *Pantolyta pallida* KIEFFER. The recently associated male of *Anommatium ashmeadi* MAYR bears the following apomorphies indicating its certain affinity to the genus *Pantolyta* FOERSTER: horizontal position of digiti of male genitalia, radial cell shorted and open apically, hind wing stenopterous in male. However, the narrow mouth aperture enables the

true association of both sexes. It is expressed in the both sexes by the same proportion and unique among all *Pantolytini*. The narrow mouth aperture, with mandibles not prominent, might have been achieved by secondary simplification; the wing reduction as a result of peculiar life habits. The characters of the male indicated above (excluding the special shape of mouth aperture) suggest certain affinity to the genus *Pantolyta*. However, the female of *Anommatium* exhibits some other specialized characters contributing to its peculiar appearance: the depressed wingless thorax with slight depressions tracking the obliterated parapsidal sutures, shallow mesoscutellar fovea, and absence of ocelli. All these features suggest a high level of structural specialization connected with its strictly terricolous habits. Wing reduction along with reduction of appendages has high selective value. It facilitates the movement of individuals through the soil where the hosts are searched for. In those species of the related genus *Pantolyta* in which free-living habits prevail, pterygopolymorphism or macroptery are expressed to a high degree, and appendages remain unmodified. Detailed field observations as well as experimental work could elucidate this highly interesting and frequently occurring phenomenon in *Diapriidae*. The tendency toward the reduction of the number of antennal segments is an apomorphous condition. In the *Pantolyta* lineage of the tribe *Pantolytini*, the number of flagellomeres inclines to be unchanged (15-segmented antennae). But in the related *Psilomma* FOERSTER lineage this number varies widely from 15 to 12 in successive sets. Because the reduction of the flagellar segments is frequent in other unrelated phyletic lineages of *Diapriidae* (e.g. *Aclista* auct. complex), its taxonomic value is problematic and should be considered with caution, as illustrated below.

In the introductory part, I drew attention to the existence of two species placed in separate genera *Anommatium* and *Somaroa*. The diagnosis of the latter was made on the basis of the number of antennal segments. Based on many specimens of both nominal species coming from various parts of Europe, I made an attempt to clarify the validity of JANSSON'S species. The systematic position of both nominal taxa appeared to be rather obscured by the presence of many apomorphies in females. *Anommatium* was place in the tribus *Anommatini*, *Somaroa* was transferred to the subfamily *Diapriinae*. The revisionary study showed an interesting distribution pattern of both species. The specimens from the western parts of Europe (Switzerland, Austria, Bohemia, England, Italy) posses 14-segmented antennae, those from eastern parts (eastern Hungary, Romania, Sweden, Finnland) have 13-segmented antennae. The series from Esztergom contained both morphs (12 specimens with 13-segmented, 7 specimens with 14-segmented antennae). Based on these findings it may be presumed that the 13-segmented morph is distributed throughout the eastern part of Europe and the 14-segmented alternative in western part, with overlapping area in Central Europe (as indicated on the Esztergom series). The conspecifity of both morphs was shown by the morphological uniformity of the associated males. According to those observations, *Somaroa myrmicaria*

JANSSON reaches only a subspecific level in the eastern and northern pattern of distribution. In spite of clear relationships of *Anommatium* to the *Pantolyta* (on the base of inferred male synapomorphies) the existence of independent tribal rank for it is unjustified, thus it is included in *Pantolytini*.

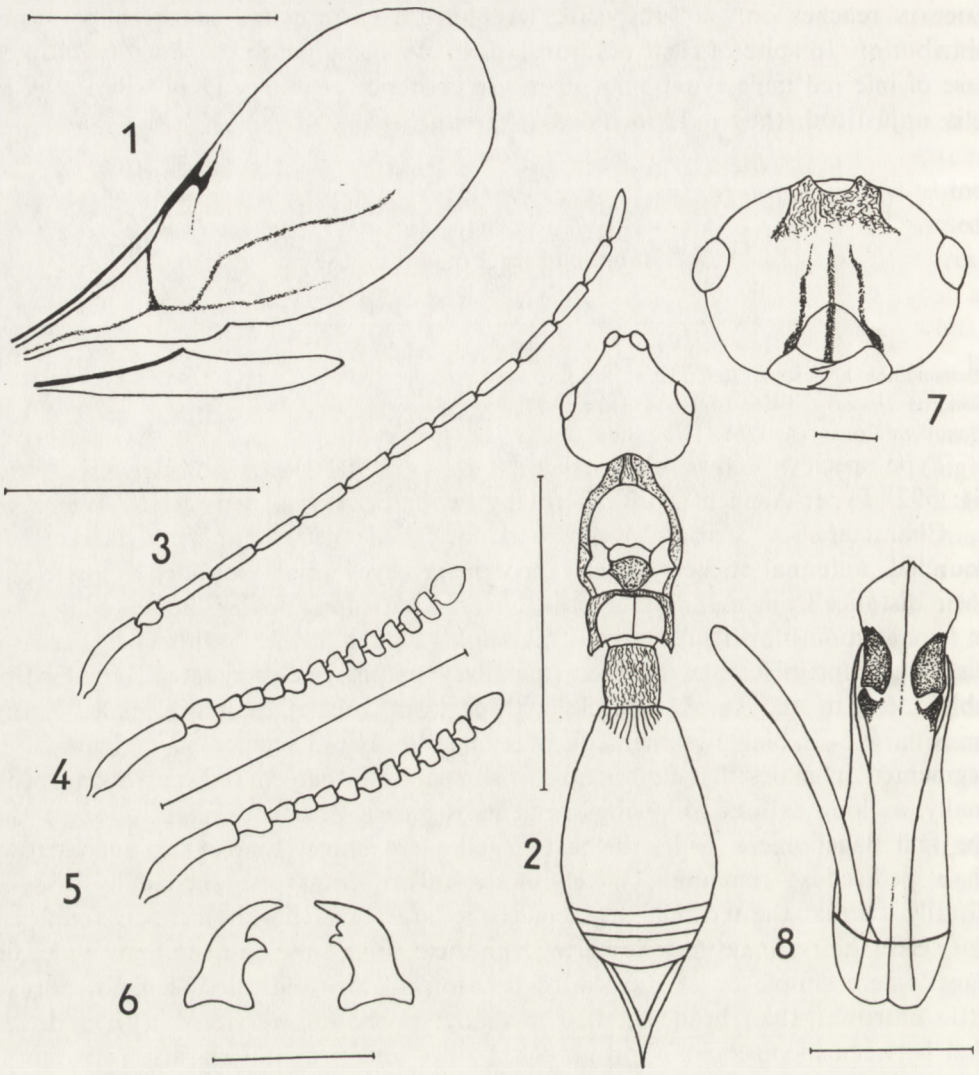
Anommatium FOERSTER, 1856

(Figs 1–8)

Anommatium FOERSTER, 1856: Hym. Stud., 2: 130, 140.
Somaroa JANSSON, 1956: Entomol. Tidskr., 77: 85, **syn. nov.**
Pantolyta FOERSTER, 1856: Hym. Stud., 2: 128, 129 (partim, ♂).

Type species: *Anommatium ashmeadi* MAYR, 1904: Ver. zool.-bot. Ges. Wien. 54: 592. Type: Aachen (F. R. Germany), coll. FOERSTER, dep. NHM Wien.

Characteristics: size 2–2,5 mm, body of female yellow, in male darker; head rounded, antennal sockets slightly prominent; eyes small, rounded, shorter than their distance from mandibular base, covered with long sparse hairs; ocelli absent in female, mouth aperture narrow, mandibles hidden, rather asymmetrical crossing distally; palpi in females reduced (maxillary palpus one-segmented, labial palpus obliterated to the small tubercle with a stout bristle), palpi in males normal (maxillary 5-, labial 3-segmented), antennae 14- or 13-segmented in females, 14-segmented in males; female antenna with scapus rather curved, narrowing proximally, as long as four following segments together, pedicellus slightly longer than the first flagellomere, wide, the first flagellomere longer than wide, but narrower than pedicellus; remaining flagellomeres rather transverse, becoming widened distally, so that the terminal segment is the largest; all flagellomeres covered with fine, erect hairs; male flagellomeres cylindrical, four times longer than wide, first flagellomere simple or at most with excision slightly indicated; female thorax a little narrower than head, saddled medially; pronotum cervicoid with a distinct keel between inconspicuous pronotal shoulder and pronotal spiracle; mesonotum small, semicircular with notauli absent; mesoscutellum short and transverse; mesoscutellar fovea narrow square, margined by two parallel keels; metanotum saddle-like; propodeum large, rounded, its hind margin straight, medial keel simple; female fully wingless; male thorax with mesoscutum convex and notauli fully developed, wings present; wings with radialis as long as postmarginalis, marginalis longer than radialis and abscissa between marginalis and basalis, respectively; radial cell open apically; hind wings stenopterous with indistinct venation; petiolus trapezoidal, narrowing distally, with its dorsal surface rugose; gaster stout, eliptical, abruptly pointed apically with sides compressed; the macrotergite with a distinct striation on its base; protrudable endoovipositor, as long as gaster. Male genitalia with large flat aedeagus, large dentes sclerotized attached to



Figs 1–8. *Anommatium ashmeadi* MAYR:. 1 – male wing; 2 – female body (legs and antennae omitted); 3 – male antenna; 4 – female antenna (*Anommatium ashmeadi ashmeadi* MAYR); 5 – female antenna [*Anommatium ashmeadi myrmicarium* (JANSSON)]; 6 – female mandibles; 7 – female head (frontal view); 8 – male genitalia. (Scale: figs 1–5: 1 mm; figs 6–8: 0.1 mm)

the aedeagus, detached from cuspis and volsellae, parameres slender outcurved. One European species.

The genus is closely related to *Pantolyta* (based on male synapomorphies). The aberrant female appearance is associated with a peculiar habitat (terricoly) and has a distinct adaptive value.

Anommatium ashmeadi MAYR, 1904

Anommatium ashmeadi MAYR, 1904: Verh. zool-bot. Ges. Wien, 54: 592. Type: Aachen (F.R. Germany), coll. FOERSTER, dep. NHM Wien.

Anommatium stramineum KIEFFER, 1908 (1907–1911): Spec. Hym. Eur. Alg., 10: 378. Type: Madonna delle Finestre (Italy), coll. DORIA, dep. MCSN Genova, **syn. nov.**

Somaroa myrmicaria JANSSON, 1956: Entomol. Tidskr., 77: 85. Type: Sweden, coll. JANSSON, dep. ZM Lund, **syn. nov.**

Anommatium myrmicarium: HELLEN 1964: Fauna Fenn., 18: 65–66.

Pantolyta pallida KIEFFER, 1908 (1907–1911): Spec. Hym. Eur. Alg., 10: 430 (partim, ♂).

Pantolyta pallida: NIXON 1957: Handb. Ident. Br. Insects, 8, 3: 19, misinterpretation.

Biology poorly known; collecting data suggest wide ecological tolerance of adults. Females are terricolous, moving in upper soil strata searching for hosts; hosts unknown. Two subspecies recognized with parapatric pattern of distribution; contact zone in Central Europe: *Anommatium ashmeadi ashmeadi* MAYR, 1904, stat. nov., female with 14-segmented antennae and western distribution (Western and western part of Central Europe); *Anommatium ashmeadi myrmicarium* (JANSSON, 1956), stat. et comb. nov., female with 13-segmented antennae and eastern and northern distribution (eastern part of Central Europe, Northern Europe).

Material examined: Czechoslovakia: Bohemia 234 ♂♂, 6 ♀♀; Moravia 147 ♂♂; Slovakia 47 ♂♂; Hungary: 122 ♂♂, 55 ♀♀; F. R. Germany: 12 ♂♂; Poland: 67 ♂♂; Sweden: 81 ♂♂, 9 ♀♀; Italy; 5 ♀♀; Albania: 2 ♀♀; Jugoslavia: 3 ♂♂, 1 ♀.

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REFERENCES

FOERSTER A. 1856. Hymenopterologische Studien. 2. *Chalcidiae* und *Proctotrupii*. Aachen, 152 pp.

HELLÉN W. 1964. Die Ismarinen und Belytinen Finnlands (*Hymenoptera, Proctotrupoidea*). Fauna fenn., Helsinki, **18**: 1–68.

JANSSON A. 1956. Neue Proctotrupiden aus Schweden. IV. *Somaroa* nov. gen. (*Diapriidae*). Entomol. Tidskr., Stockholm, **77**: 84–86.

KIEFFER J. J. 1907–1911. *Proctotrypidae*. In ANDRÉ: Species des Hyménoptères d'Europe et d'Algérie, **10**. Paris, 1015 pp.

KIEFFER J. J. 1916. *Hymenoptera. Diapriidae*. Das Tierreich, **44**. Berlin, XXX + 627 pp.

MAYR G. 1904. Hymenopterologische Miszellen. III. Verh. zool.-bot. Ges. Wien, **54**: 559–598.

Nixon G. E. J. 1957. *Hymenoptera Proctotrupoidea. Diapriidae*, subfamily *Belytinae*. Handb. Ident. Br. Insects, **8**, 3. London, 107 pp.
Wall I. 1967. *Ismarinae* und *Belytinae* der Schweiz. Entomol. Abh., Dresden, **35**: 123–265.

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STRESZCZENIE

[Tytuł: Badania nad *Diapriidae* (*Hymenoptera, Proctotrupoidea*). Część 2. Rewizja rodzaju *Anommatium* Foerster]

Dokonano rewizji rodzaju *Anommatium*, omawiając i oceniając cechy taksonomiczne postaci doskonałych (imagines). Rodzaj *Somaroa* zsynonimizowano z *Anommatium*, a *Somaroa myrmicaria* Jansson, 1956 uznano za podgatunek *Anommatium ashmeadi* Mayr, 1904. *Anommatium stramineum* Kieffer, 1908 (1907–1911) jest nowym synonimem *A. ashmeadi* Mayr. Określono i odpowiednio przypisano samce tego gatunku na podstawie przyjętych przez autora cech synapomorficznych. Ten jedyny europejski gatunek reprezentowany jest przez dwa różniące się zasięgami podgatunki – *Anommatium ashmeadi ashmeadi* Mayr i *A. a. myrmicarium* (Jansson).

РЕЗЮМЕ

[Заглавие: Исследования по *Diapriidae* (*Hymenoptera, Proctotrupoidea*). Часть 2. Ревизия рода *Anommatium* Foerster]

Произведена ревизия, обсуждение таксономических признаков imagines и их оценка. Автор синонимизирует *Somaroa* с *Anommatium*, а *Somaroa myrmicaria* Jansson, 1956 рассматривает как подвид *Anommatium ashmeadi* Mayr, 1904. *Anommatium stramineum* Kieffer, 1908 (1907-1911) является новым синонимом *Anommatium ashmeadi* Mayr. Определены самцы на основании принятых автором синапоморфических признаков. Единственный европейский вид разделен на два географических подвида — *Anommatium ashmeadi ashmeadi* Mayr и *Anommatium ashmeadi myrmicarium* (Jansson).

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