

REDEFINITION OF *MEGAGATHIS* KRIECHBAUMER, AND REASSIGNMENT OF  
NEW WORLD SPECIES TO *ZACREMNOPS* NEW GENUS (HYMENOPTERA:  
BRACONIDAE: AGATHIDINAE)

M. J. SHARKEY

Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario, Canada K1A 0C6

R. A. WHARTON

Department of Entomology, Texas A&M University, College Station, Texas, USA 77843

**Abstract**

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The genus *Zacremnops* Sharkey & Wharton is erected to include 2 New World species formerly placed in *Megagathis* Kriechbaumer. Phylogenetic relationships between *Zacremnops* and selected genera of Agathidinae are briefly discussed.

**Résumé**

Nous créons le genre *Zacremnops* pour y inclure 2 espèces du nouveau-monde décrites originellement dans *Megagathis* Kriechbaumer. Nous discutons brièvement les relations phylogénétiques de *Zacremnops* avec d'autres genre choisis des Agathidinae.

**Introduction**

The generic name *Megagathis* has been misapplied to 2 New World species of braconid wasps. The junior author has viewed syntypes of *M. natalensis*, type-species of the genus *Megagathis*. *Megagathis*, as defined here, has a strictly Ethiopian distribution. In this paper we describe a new genus, *Zacremnops*, for the New World species formerly placed under *Megagathis*.

This name is being made available for a key to the North American genera of Braconidae (Marsh, Shaw, and Wharton, unpublished).

**Historical Review**

*Megagathis* was erected by Kriechbaumer (1894); the type-species is *Megagathis natalensis* Kriechbaumer. Thirteen described species are currently placed in *Megagathis* (Shenefelt 1970); all but 2 of these are from the Ethiopian region. These 2, *M. cressoni* (Cameron) and *M. petiolata* (Szépligeti), are restricted to the New World tropical and subtropical regions. *Cremnops petiolatus* Szépligeti (1902) was tentatively transferred to *Megagathis* by Szepligeti (1904) and was consequently considered as a species of *Megagathis* by Enderlein (1920). *Agathis albitarsis* Cresson (1865) (preoccupied by *A. albitarsis* Spinola, 1840) was renamed *Agathis cressoni* by Cameron (1887). Ashmead (1895) recognized this species' close relationship with *Cremnops* and used the combination *Cremnops cressonii* (Cameron). When Enderlein (1920) transferred the species to *Megagathis* he resurrected the name *albitarsis*.

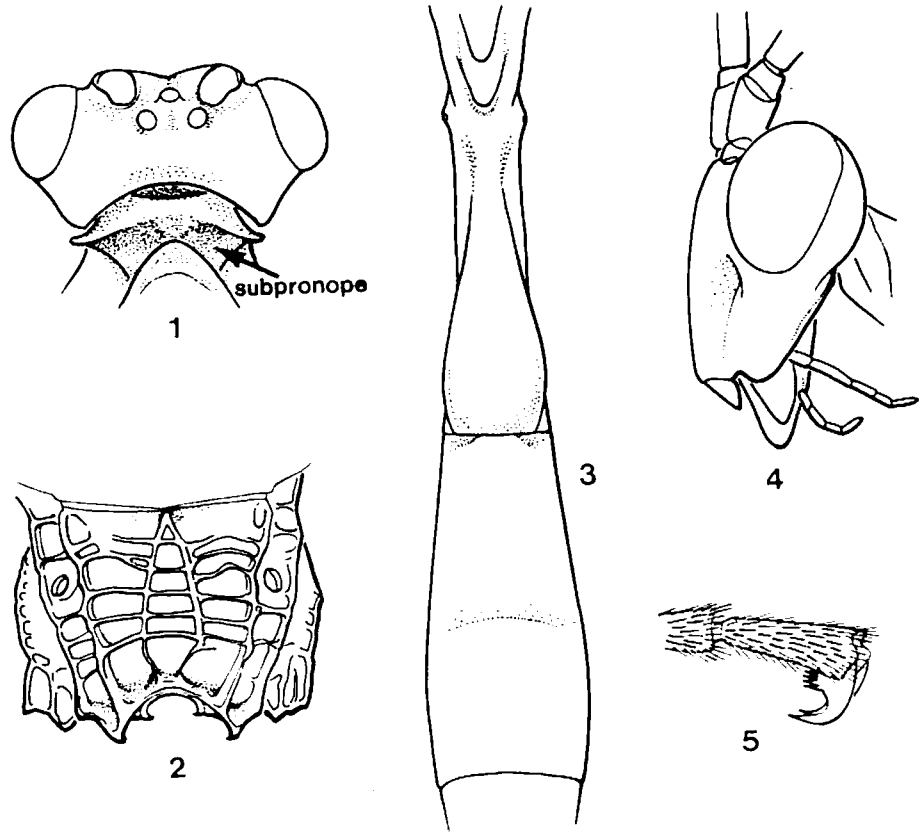
**Taxonomic Treatment**

*Zacremnops* n. gen.

**Type-species.** *Agathis albitarsis* Cresson (= *A. cressoni* Cameron, n. name for *albitarsis* Cresson). 1865, p. 63, ♂, Philadelphia, Type No. 1729.1.

**Etymology.** *Za* means "very" in Greek. This prefix refers to several characters shared by *Cremnops* and *Zacremnops* that are usually exaggerated in members of the latter genus. The gender of the genus is masculine.

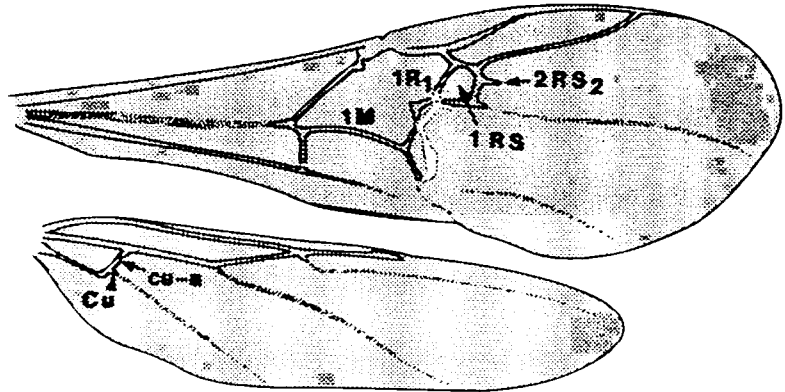
**Description.** **Head** (Figs. 1,4). Distance between median ocellus and lateral ocellus much greater than distance between lateral ocelli (about 3:2); median ocellus situated much lower on face than lateral ocelli (i.e. median and lateral ocelli not on same horizontal plane); frons, between median



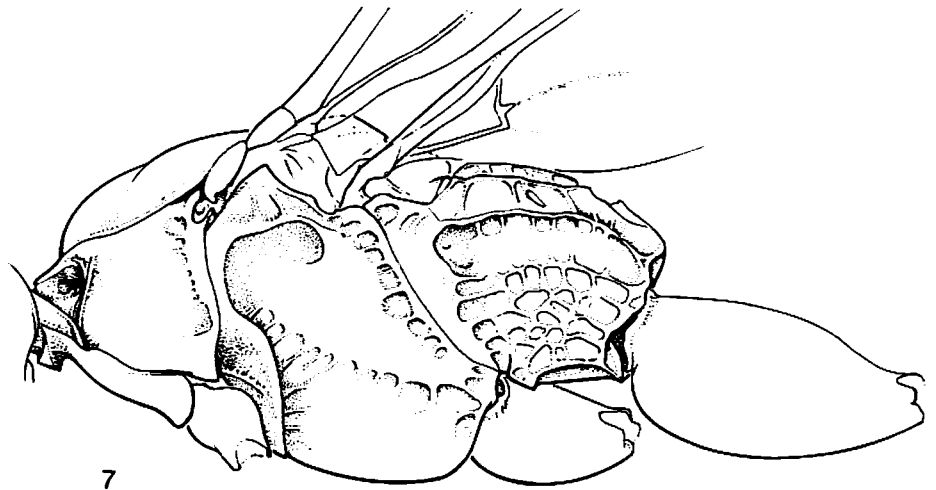
FIGS. 1-5. *Zacremnops cressoni* (Cameron). Fig. 1. Dorsal aspect of head and pronotum. Fig. 2. Propodeum. Fig. 3. Dorsal aspect of 3 basal metasomal segments (segments 2 and 3 fused). Fig. 4. Lateral aspect of head. Fig. 5. Tarsal claw.

ocellus and antennal inserts smooth and shining, carinae lacking; occiput slightly excavated for reception of pronotum (Fig. 1); malar space very long, about  $0.7-0.8 \times$  eye height (Fig. 4); longitudinal carina between antennae weak or absent; anterior tentorial pit about  $2 \times$  closer to eye than to mandibular condyle; maxillary palpi 5-segmented, second and last segments sometimes longest, often all segments subequal (Fig. 4); labial palpi 4-segmented, basal 3 segments subequal, apical segment may be slightly longer (Fig. 4); clypeus almost as high as wide, height:width ratio about 3.0:2.5.

**Mesosoma.** Anterior and posterior portions of pronotum, viewed dorsally, separated by deep transverse groove dorsally (i.e. subpronopes confluent) (Fig. 1); propleuron without protuberances; sternaulus usually complete to prepectal carina (Fig. 7); prepectal carina approaching pronotum near mid-height of posterior margin of pronotum (Fig. 7); at least ventral half of metapleuron areolate rugose; notauli deeply impressed, smooth; scutellum with posterior transverse ridge weak or absent posteriorly; propodeum areolated (Fig. 2); propodeal spiracles oval: hind coxal cavities closed; fore tibia lacking spines apically; mid tibia with apical spines but lacking spines admedially; all trarsal claws bifid with pectination basally (Fig. 5); hind trochanterellus lacking longitudinal carina; hind coxa large, about  $2 \times$  longer than mid coxa; 1  $RS_1$  cell of fore wing quadrate (Fig. 6); 2  $RS_2$  vein present as stub or absent (Fig. 6); cells 1M and 1R 1 of fore wing confluent (Fig. 6); Cu vein of hind wing present and distinctly sclerotized basally (Fig. 6); cu vein of hind wing emanating from posterior half of Cu-a vein (Fig. 6); 2 r-m vein of hind wing weakly indicated or completely absent.



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FIGS. 6-7. *Zacremnops cressoni* (Cameron). Fig. 6. Fore and hind wing. Fig. 7. Lateral aspect of mesosoma.

**Metasoma** (Fig. 3). First tergum long and narrow, 2.6-4.2 $\times$  longer than wide apically; apex of first tergum not more than 2 $\times$  wider than base; metasomal terga mostly smooth; ovipositor length (measured from base of hypopygium if not fully exposed) longer than metasoma but shorter than body length.

**Color.** Wings infuscated with several small hyaline patches (Fig. 6), without yellow bands or spots; body mostly to entirely black usually with some yellow or red orange coloration on legs, lower part of head and/or mesosoma.

**Length.** Most species are large, from 9 to 13 mm; 1 small species is 6.5 mm.

**Relationships.** Table 1 compares *Cremonops* Foerster, *Disophrys* Foerster, *Labagathis* Enderlein, *Marjoriella* Sharkey, *Megagathis* Kriechbaumer, *Zacremnops* n. gen., and *Zelomorpha* Ashmead using characters considered phylogenetically significant, i.e. synapomorphic. The genera *Zelomorpha* Ashmead and *Disophrys* Foerster have been used as outgroups to determine the relative apomorphy or plesiomorphy of character states. We believe that these 2 genera are closely related to *Zacremnops* primarily because of their bifid tarsal claws.

Table 1. Character matrix of *Zacremnops* and related genera. 0 = plesiomorphic, 1 and 1' = apomorphic. See text for description of character states

Taxa	Characters*					
	1	2	3	4	5	6
<i>Megagathis</i>	1	0	0	0	0	0
<i>Cremnops</i>	1	0	0	0	0	0 <sup>b</sup>
<i>Marjoriella</i>	1'	0	0	1	0	0
<i>Zacremnops</i>	1	1	1	0	1	1
<i>Labagathis</i>	0	1	1	1	1	1
<i>Zelomorpha</i>	0	0	0	0	0	0
<i>Disophrys</i>	0	0	0	0	0	0

\*The following list of characters are used in Table 1. 0 represents the plesiomorphic character states and 1 or 1' represent relatively more derived character states. 1' is not necessarily more derived than 1.

Character 1. Shape of tarsal claws: 0, bifid; 1, bifid with pectination basally (Fig. 5); 1', simple claw with rounded basal tooth.

Character 2. Carina on frons posteriorly: 0, present; 1, absent (Fig. 1).

Character 3. Shape of metasomal segment 1: 0, apex less than 2.5 × wider than base and first segment not elongate, i.e. less than 2 × longer than wide; 1, greatly narrowed basely or segment 1 elongate (Fig. 3).

Character 4. Sharp carina on occiput laterally: 0, absent (Fig. 1); 1, present.

Character 5. Ocellar triangle: 0, median ocellus not further from lateral ocellus than lateral ocelli are from each other (POL greater than or equal to LOL); 1, median ocellus further from lateral ocellus than lateral ocelli are from each other (LOL greater than POL).

Character 6. Shape of pronotum dorsally: 0, subpronopes separated; 1, subpronopes contiguous (Fig. 1).

<sup>b</sup>One species, *C. slossonae*, has the subpronopes contiguous. At present this is considered to be a derived condition within *Cremnops* convergent with other genera.

A discussion of the exact phylogenetic relationships of *Zacremnops* is premature. This is partly due to the presence of several undescribed and closely related genera. However, based on the characters used in this analysis (Table 1), *Labagathis* Enderlein is the sister group of *Zacremnops*, as demonstrated by Sharkey (1983) (where *Zacremnops* was referred to as *Megagathis*). The synapomorphies demonstrating this relationship are the derived states of characters 2, 3, 5, and 6.

It is apparent from Table 1 that *Zacremnops* is distinct from *Megagathis*. *Megagathis s.s.* is, however, very similar to *Cremnops*. Other than several reductional characters (e.g. loss of notauli and loss of most propodeal sculpture) there seems to be no difference between these 2 genera. This problem is beyond the scope of this paper and no conclusion concerning the status of *Megagathis* will be arrived at here.

Besides the differences presented in the character matrix (Table 1) *Zacremnops* differs from *Megagathis* as follows: 1. Propodeal sculpture. *Zacremnops*, areolate (Fig. 2). *Megagathis* mostly smooth with 2 median longitudinal carinae. 2. Notauli. *Zacremnops*, well impressed. *Megagathis* weakly impressed, almost absent. 3. Sternaulus. *Zacremnops*, well impressed and heavily sculptured, usually extending to prepectal carina (Fig. 7). *Megagathis*, weakly impressed and smooth, present in posterior ½ of mesopleuron only. 4. Metapleural sculpture. *Zacremnops*, areolate rugose (Fig. 7). *Megagathis* smooth. 5. Pronotum. *Zacremnops*, wide anterodorsally and fitting into well excavated occiput (Fig. 1). *Megagathis*, not so wide, and occiput only weakly excavated.

### Discussion

*Zacremnops* is found in the tropical and subtropical areas of the New World. Specimens have been captured from northern Argentina north to the southern USA. Judging from the specimens in the Canadian National Collection, the Townes Collection, the Texas

A&M Collection, and the United States National Museum, we believe there to be about 7 species of *Zacremnops*.

Two of these species are named, i.e. *Z. cressoni* (Cameron) new combination and *Z. petiolatus* (Szépligeti) new combination. There may be other species described under *Creemnops* that belong to *Zacremnops*.

One species of *Zacremnops* occurs in the southern USA and is also widespread throughout Mexico and Central America. It is closely related to *Z. cressoni* but it is probable that *Z. cressoni*, described from specimens collected in Cuba, is restricted to the Greater Antilles. We believe that the widespread mainland form represents a new species. The 2 populations differ mainly in the sculpture of the ventral portion of the hind femur. Further research is needed to resolve this problem fully.

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