

TONACATECUTLIUS GIBSONI GEN. AND SP. NOV. FROM THE OLIGOCENE/MIOCENE MEXICAN AMBER (HEMIPTERA: FULGOROMORPHA: NOGODINIDAE)

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Abstract.— *Tonacatecutlius gibsoni* gen. and sp. nov. – the first representative of the planthopper family Nogodinidae, and placed in the subtribe Nogodinina, from the Oligocene/Miocene fossil resin of Mexico is described.



Key words.— Hemiptera, Fulgoromorpha, Nogodinidae, Nogodinina, *Tonacatecutlius gibsoni* gen. and sp. nov., Mexican amber, Oligocene/Miocene.

Fossil resins of the New World are known as a rich source of fossils (Poinar 1992, 1993). The most famous is Dominican amber, the second is Mexican amber, also called "Chiapas amber". Resins from both regions originate from a leguminous tree of the genus *Hymenaea* (Fabaceae) (Poinar 1991, 1992, Caridad 1999). Mexican amber is dated Oligocene/Miocene, its deposits range from 22 to 26 Ma (Poinar 1999); it is to be found in sea sediments (Krumbiegel and Krumbiegel 1996).

Most fossil planthoppers were described from the Dominican amber, of similar age (Fennah 1963, Gębicki and Wegierek 1993, Dietrich and Vega 1995, Szwedo 2000).

Representatives of the family Nogodinidae have not been mentioned in the fossil record from the New World. The only reported fossils are: *Eobladina antiqua* Haupt 1956, from Middle Eocene deposits of Germany, on the basis of the imprint of the basal part of fore wing and *Tritophania patruelis* Jacobi (1938), from Eocene Baltic amber, recently redescribed (Szwedo and Stroiński 1999).

The family Nogodinidae comprises 50 genera and about 190 species (O'Brien and Wilson 1985). It is primarily a tropical family (Wilson et al. 1994), the most numerous in Oriental and Neotropical Regions. Very little is known about the biology of the representatives of the family: *Bladina* are often found feeding on grasses (O'Brien and Wilson 1985), but all are believed to be monophagous on woody dicotyledons (Wilson et al. 1994).

The family Nogodinidae is still an enigmatic group, without a precise definition of the family, which some taxa has been often included in to Issidae (Emelianov 1990, Bourgoin et al. 1997). Internal relationships within

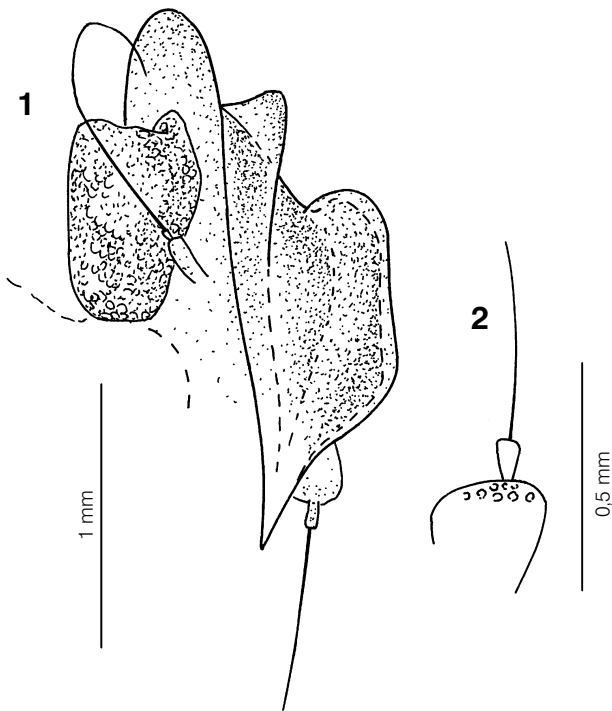
Nogodinidae, and its relationships with some Issidae are still debatable (Fennah 1984, Emeljanov 1999).

The systematic position of the tribe Nogodinini, in which the new fossil genus is ascribed, is stable within the family Nogodinidae. The tribe is defined by the characters as follows: wings with a line of transverse veinlets distad of R-M and M-Cu cross-veins, third valvula of ovipositor (gonoplac) with the apical margin long, not very thin, minutely denticulate on the posterior and posteromesal surface (Fennah 1978).

Tonacatecutlius gen. nov. is included to the subtribe Nogodinina, which is defined by: vein M with a long basal stalk, third valvula of ovipositor (gonoplac) not tumid dorsally, with distal margin of equal thickness throughout and minutely denticulate almost throughout its length (Fennah 1978).

The recent genera of Nogodinina are distinguished by a mosaic of characters; the criteria of their division are obscure. Melichar (1923) used characters of tegmen shape and venation to recognize genera. The system of genera seems to be phenetic rather than phylogenetic. More studies on the nogodinid characters, more data from the fossil record, and cladistic analysis of the group are necessary.

Descriptions of new genera from relatively young Oligocene/Miocene fossil resins are not very common. It seems result from the lack of reliable data and the poor status of knowledge of particular groups, rather than the actual situation during the formation of the fauna. The first record of the Nogodinidae in the New World fossil resins, representing a new genus, will contribute to our knowledge of the evolution of the group formation of the planthopper fauna of Central America.



Figures 1-2. *Tonacatecutlius gibsoni* gen. and sp. nov. (1) head in laterofrontal view; (2) antenna

Tonacatecutlius gen. nov.

Etymology. Tonacatecutli – name of the main god in Toltec mythology.

Type species. *Tonacatecutlius gibsoni* sp. nov., here designated. Gender: masculine.

Diagnosis. *Tonacatecutlius* gen. nov. is characterized by a character not found in other recent genera of Nogodinina – frons trapezoidal, middle carina and anterior margins of frons strongly elevated in their upper part, hing tibia with 5

	measurements in mm
total length	13.38
length of mezonotum	2.44
length of tegmen	11.27
width of tegmen	5.77
length of clavus at vein A2	6.3
length of claval suture	8.2
length of basal cell	1.22
width of basal cell	0.78
length of wing	9.01
length of fore femur	2.32
length of fore tibia	2.24
length of mid tibia	2.44
length of mid leg tarsus	0.73
mid leg tarsomeres: 1	0.24
mid leg tarsomeres: 2	0.24
mid leg tarsomeres: 3	0.37
length of hind leg tibia	3.34
length of hind leg tarsus	1.1
hind leg tarsomeres: 1	0.73
hind leg tarsomeres: 2	0.37
hind leg tarsomeres: 3	0.37
length of anal tube (in dorsal aspect)	1.27
length of anal tube (in lateral aspect)	1.05
length of ovipositor (in lateral aspect)	1.8

Table 1. Measurements of the specimen

lateral spines. Other characters as follow: tegmen with a net of veins on the upper half, between nodal and apical lines, costal cell with a 9 transverse veinlets, clavus with a few (5-8) transverse veinlets, apical cells longer than subapical cells.

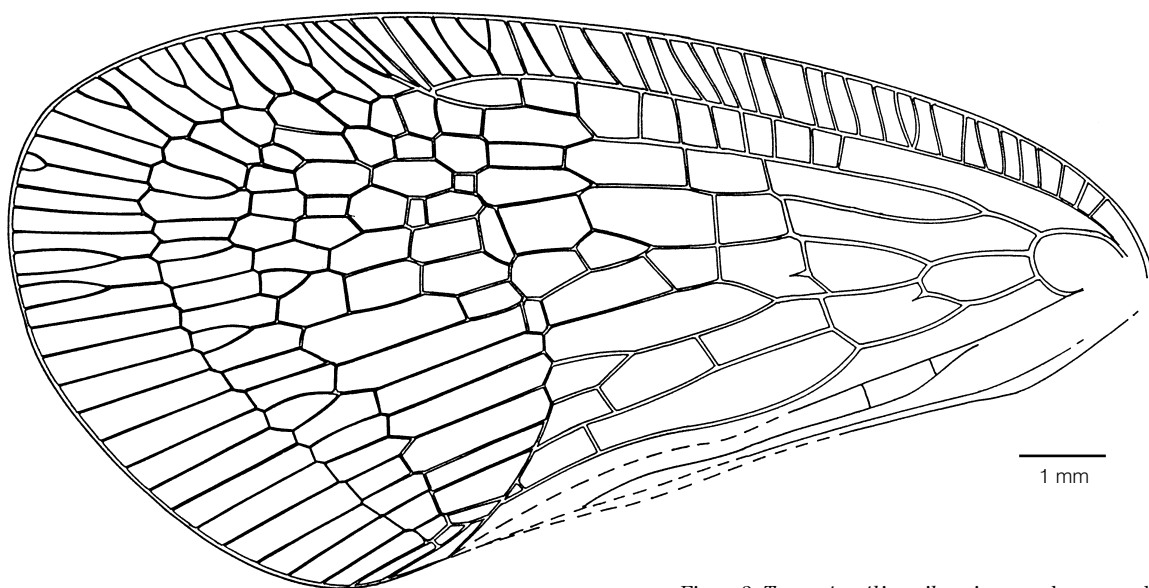
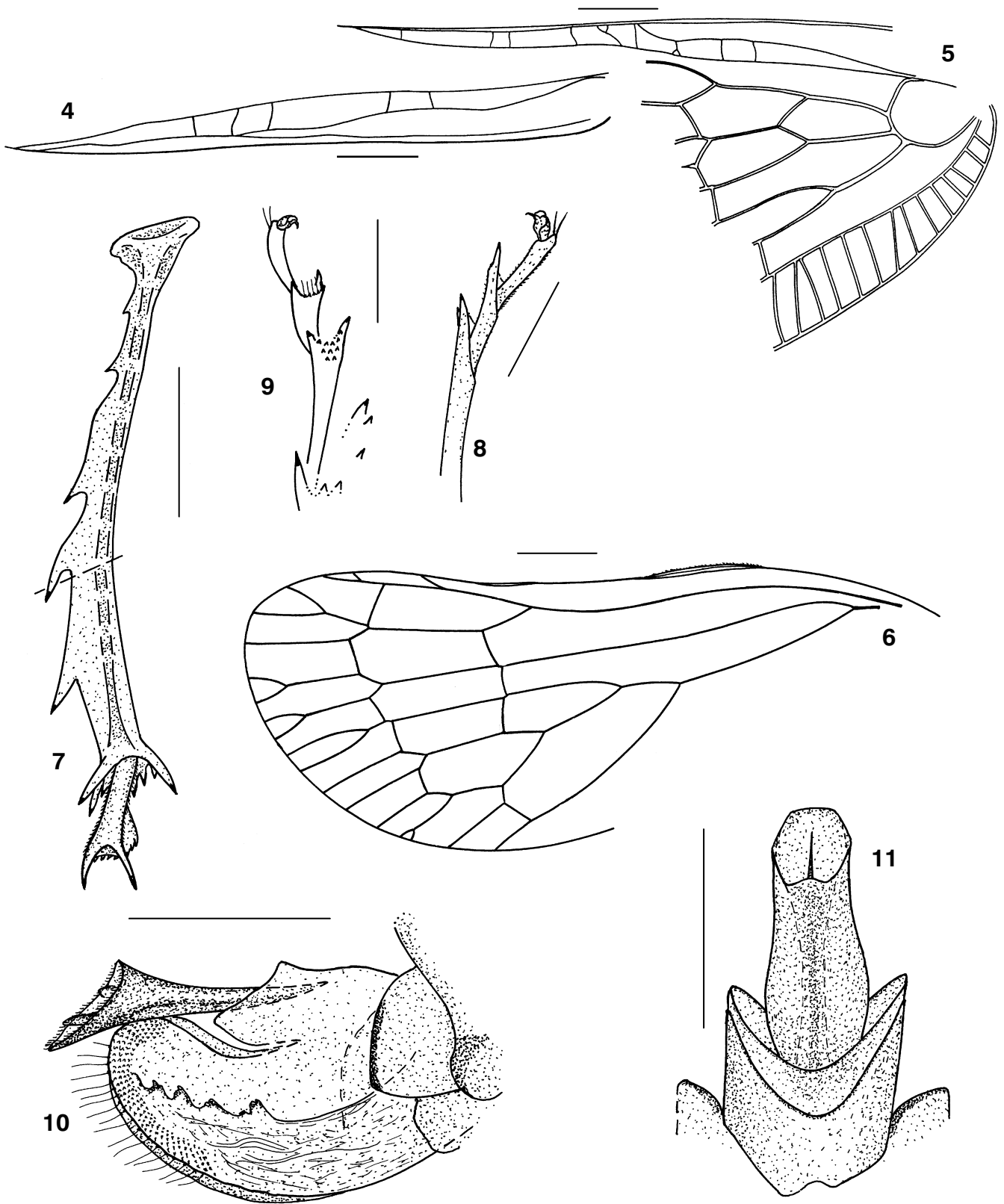


Figure 3. *Tonacatecutlius gibsoni* gen. and sp. nov. – left tegmen.



Figures 4-11. *Tonacatecutlius gibsoni* gen. and sp. nov. (4) clavus of left tegmen; (5) basal part and clavus of right tegmen; (6) left wing; (7) right hind tibia and first tarsomere; (8) left hind tarsus in lateral view; (9) left hind tarsus in ventral view; (10) female genitalia in lateral view; (11) female anal tube in dorsal view. Scale: 1 mm for 4-7, 10 and 11; 0.5 mm for 8 and 9.

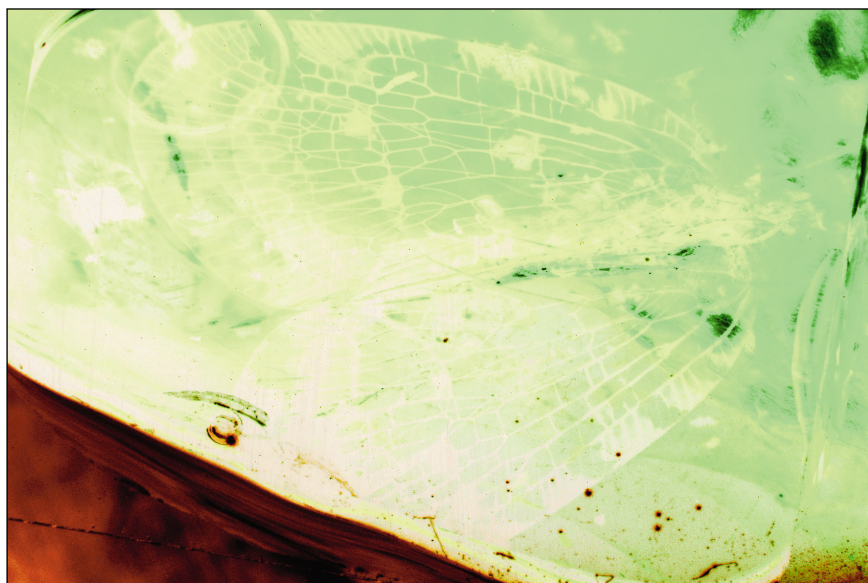


Figure 12. *Tonacatecutlius gibsoni* gen. and sp. nov. – in dorsal view.

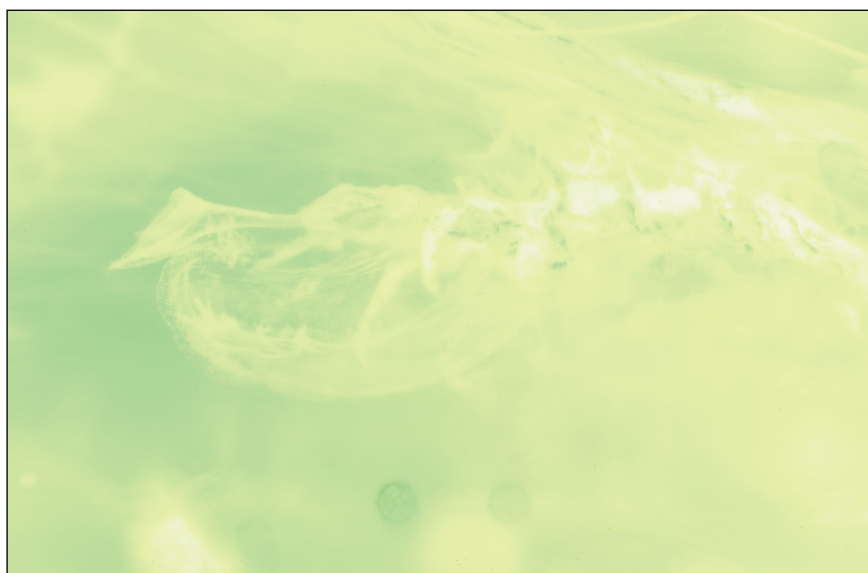


Figure 13. *Tonacatecutlius gibsoni* gen. and sp. nov. – end of abdomen and female genitalia

Description. See description of *Tonacatecutlius gibsoni* sp. nov.

***Tonacatecutlius gibsoni* sp. nov.**

Etymology. Species named in honour of the collector, Mr. D. Gibson.

Diagnosis. See diagnosis of *Tonacatecutlius* gen. nov.

Description. Total length 13.4 mm. Frons trapezoidal, lateral margins distinctly elevated, middle carina elevated in upper portion, fading in lower part (Fig. 1). Mesonotum long, lateral carinae distinct, median carina weak visible. Tegmina hyaline, with irregular colour pattern, elongate, about twice as long as wide, with scarce transverse veinlets

in corium (Figs 3 and 12). Nodal line and two apical lines present. Costal margin curved at base, median portion almost straight, apical margin, slightly convex, apical and claval angles broadly rounded. Costal membrane about 1.4 times wider than costal cell, with numerous transverse veinlets. Costal cell with 9 transverse veinlets. Basal cell about 1.3 times longer than wide. Ratios of the stalks of longitudinal veins leaving basal cell differ on the left and right tegmen. Sc+R leaving basal cell with a common stem distinctly shorter on the left tegmen than on the right. The stalk of M is markedly longer on the left tegmen, the stalk of Cu of the same length on both tegmina. The ratios of stalk lengths Sc+R:M:Cu on left tegmen – 0.85:1.32:1; on right tegmen – 1.24:1.20:1. Apical and subapical cells longer than wide; apical cells about 5 times longer than wide, subapical cells about 0.65 times as long as apical cells and about 4 times longer than wide. Clavus with transverse veinlets linking veins CuP-PCu and PCu-A₁ (Figs 3-5 and 12). Wing venation as in Figure 6.

Hind tibia with 5 lateral and 8 apical spines; first tarsomere as long as length of the second and third (Fig. 8), with apical rows of small teeth on the plantar surface (Fig. 9). Measurements of the specimen in Table 1.

Female genitalia. Anal tube elongate, about 3 times as long as wide, in dorsal view guttiform; in side view long, extended at end, tapering basad. Anus hexagonal in dorsal view, base of anus placed apicad at 2/3 of anal tube length (Figs 10 and 13).

Gonoplac elongate, 2.6 times longer than wide, outer margin with numerous long chaetae. Internal margin in its ventroapical portion covered with rows of delicate denticles apically. Gonophysis

VIII as long as gonoplac, massive, with a few big teeth (Figs 10 and 13).

Type. Holotype (female): “BMNH Pal. PI II 2131 – (1) / Insecta, Pterygota, Hemiptera, / Homoptera, Fulgoroidea / Nogodinidae. / Identified by: Ross, A. J. 09/99. / U. Oligocene, Mexican amber. / Chiapas, Mexico. / Purchd, Gibson, D., 03/09/99.” Deposited in Department of Palaeontology, Natural History Museum, London.

Syninclusions. Hymenoptera: Apocrita and Formicidae.

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