

# Limoniidae (Diptera, Nematocera) from Dominican amber. I. Genus *Molophilus* CURTIS, 1833

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Abstract. A new subgenus, *Miomolophilus*, with one fossil species, *Molophilus* (*Miomolophilus*) *theischingeri* n. sp. (Diptera, Limoniidae) from Dominican amber (Lower Miocene) is described. This is the first fossil known for this genus.

Key words: Dominican, amber, Miocene, fossil, *Molophilus*, Limoniidae.

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## INTRODUCTION

Dominican amber was first recorded by Christopher COLUMBUS in 1494-96 (HALE 1891). Its age is generally accepted to be Lower Miocene (BARONI-URBANI & SANDERS 1980) and estimated at 20 - 30 million years. However, LAMBERT et al. (1985) proved that this amber is not uniform and varies according to its place of origin: consequently, its age may vary from 15 - 40 million years. Unfortunately, in the museum collections available to me, the localities are not mentioned and the specimens are labeled merely as "Dominican amber".

I had the opportunity to study two collections of Limoniidae in Dominican amber: from the American Museum of Natural History in New York (AMNH) (18 specimens) and the Smithsonian Institution, Washington, D.C. (SI) (34 specimens). The genera represented are listed below.

Limoniidae	AMNH	SI
1. <i>Austrolimnophila</i> ALEXANDER . . . . .	0 specimens	. . 1 specimen
2. <i>Dicranomyia</i> (s. lato) STEPHENS . . . . .	8 specimens	. . 7 specimens
3. <i>Elephantomyia</i> OSTEN-SACKEN . . . . .	0 specimens	. . 1 specimen

4. <i>Geranomyia</i> HALIDAY . . . . .	0 specimens . . .	1 specimen
5. <i>Gnophomyia</i> OSTEN-SACKEN . . . . .	1 specimen . . .	0 specimens
6. <i>Gonomyia</i> MEIGEN . . . . .	1 specimen . . .	0 specimens
7. <i>Limonia</i> MEIGEN . . . . .	0 specimens . . .	1 specimen
8. <i>Molophilus</i> CURTIS . . . . .	1 specimen . . .	0 specimens
9. <i>Rhipidia</i> MEIGEN . . . . .	0 specimens . . .	1 specimen
10. <i>Styringomyia</i> LOEW . . . . .	3 specimens . . .	1 specimen
11. <i>Toxorhina</i> ( <i>Ceratocheilus</i> WESCHÉ) . . . . .	1 specimen . . .	0 specimens
12. <i>Trentepophila</i> BIGOT . . . . .	3 specimens . . .	20 specimens
new genus . . . . .	0 specimens . . .	1 specimen

The differences between the faunas of these two collections may be either random or due to different sites of origin.

Limoniidae represent a group of very primitive and phylogenetically old Diptera. The oldest specimens are from the Upper Triassic (North America) (KRZEMIŃSKI in press). They are represented in almost all deposits with fossil insects from the Lower Jurassic or younger. At present, the world fauna of Limoniidae comprises about 12 000 species.

The genus *Molophilus* comprises more than 500 recent species of worldwide distribution. In this paper the description of *Molophilus* (*Miomolophilus*) *theischingeri* n. sp. is given. This species is the first fossil representative of the genus.

#### Family: Limoniidae

#### Subfamily: Eriopterinae

#### Genus: *Molophilus* CURTIS, 1833

#### Subgenus: *Miomolophilus* n. subgen.

Diagnosis. Vein Sc very short, ending opposite 1/3 length of Rs vein; very short vein R<sub>3+4</sub> present; male ninth sternite and tergite not fused into complete ring.

Type species: *M. (Miomolophilus) theischingeri* from Dominican amber (Lower Miocene).

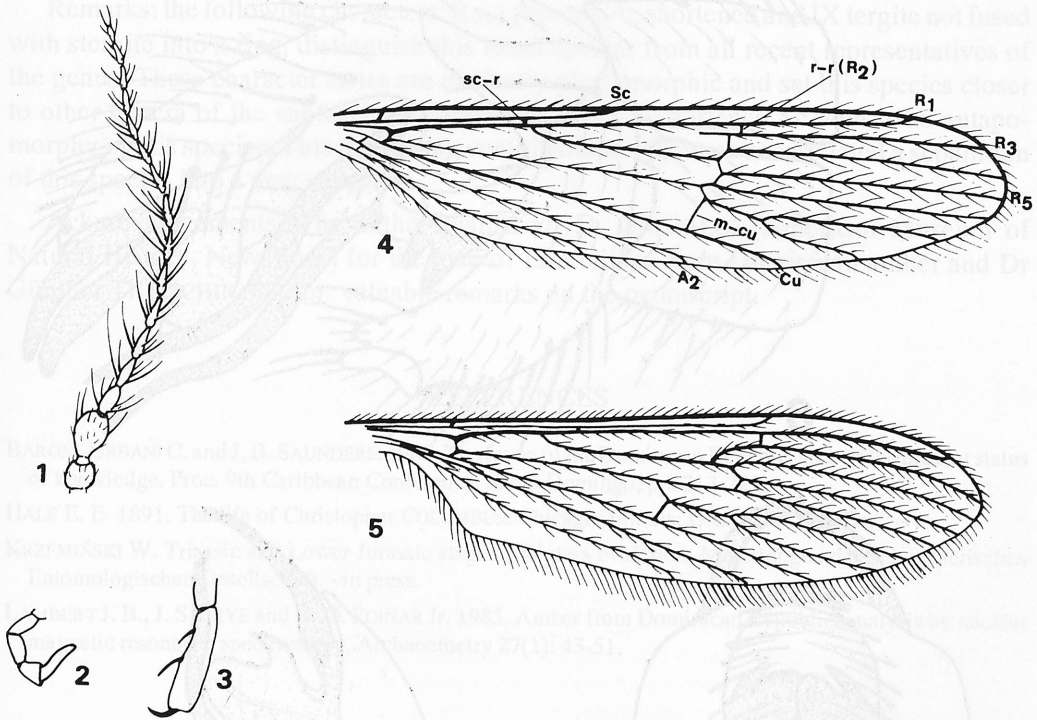
The description of the subgenus is the same as for its only known species.

#### *Molophilus (Miomolophilus) theischingeri* n. sp.

Diagnosis. Basistyle with long apical process; outer dististyle short, broad, with distinct spur on its outer surface; inner dististyle long, slender, and sinuous.

Description. Body length 4 mm, wing length 3,8 mm; colour dark brown.

Head: eyes large; antennae (Fig. 1) 16-segmented, reaching wing bases when bent backwards; scape cylindrical; pedicel large, round; flagellomeres expanded basally, with 4 bristles, each 2-3 times as long as the segments; palpi (Fig. 2) with last segment almost twice as long as penultimate, short and stout segment. Legs: long, slender; last tarsal segment with two short, strong bristles (Fig. 3).



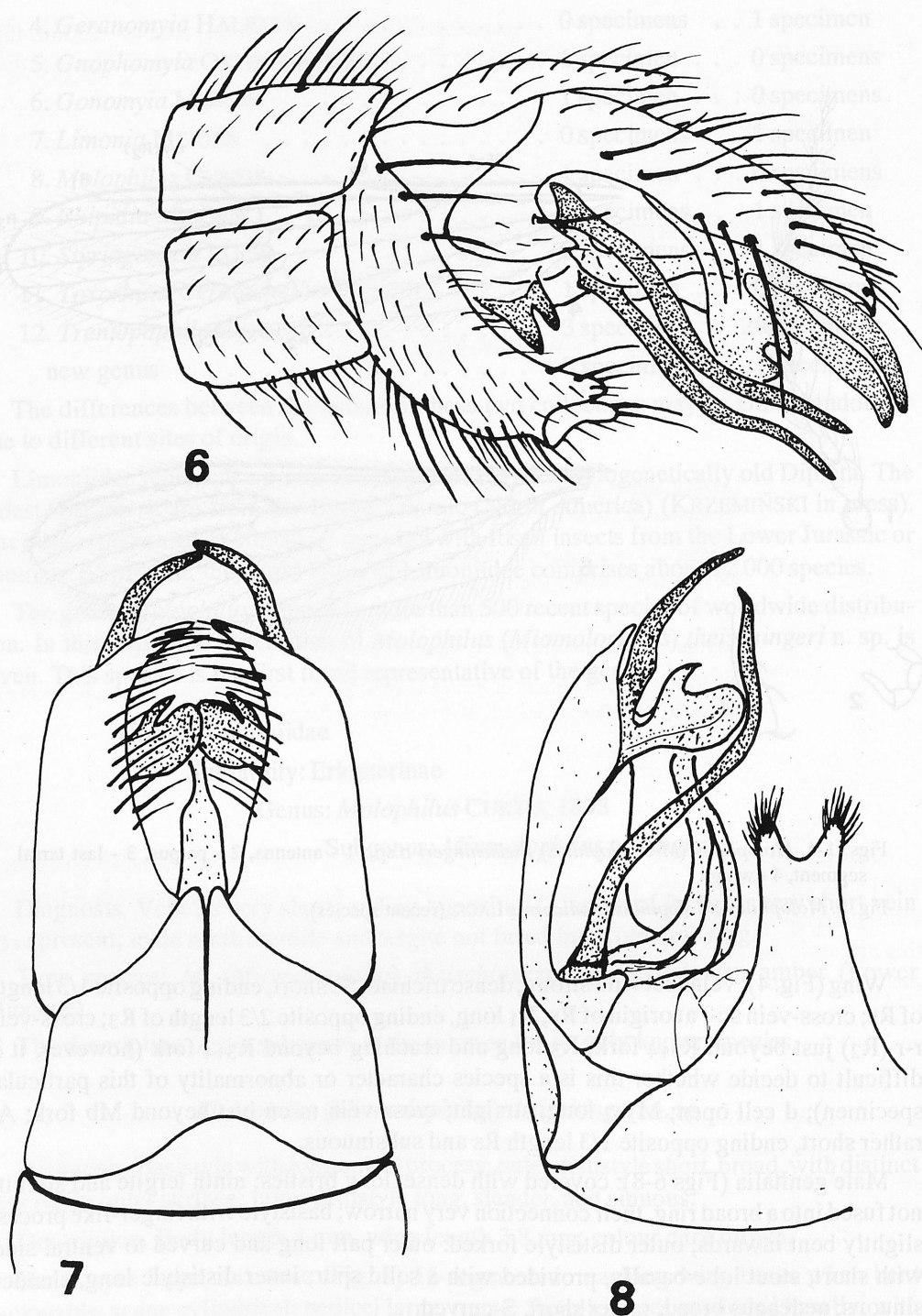
Figs. 1-4. *Molophilus* (*Miomolophilus*) *theischingeri* n.sp.: 1 - antenna, 2 - palpus, 3 - last tarsal segment, 4 - wing.

Fig. 5. *Molophilus* (*Molophilus*) *nodicornis* LACK. (recent species).

Wing (Fig. 4): veins set with strong, dense trichiae; Sc short, ending opposite 1/3 length of Rs; cross-vein sc-r at origin of Rs; R<sub>1</sub> long, ending opposite 2/3 length of R<sub>3</sub>; cross-vein r-r (R<sub>2</sub>) just beyond R<sub>3+4</sub> fork; R<sub>3</sub> long and reaching beyond R<sub>3+4</sub> fork (however, it is difficult to decide whether this is a species character or abnormality of this particular specimen); d cell open; M<sub>1+2</sub> long, straight; cross-vein m-cu just beyond Mb fork; A<sub>2</sub> rather short, ending opposite 1/3 length Rs and subsinuous.

Male genitalia (Figs 6-8): covered with dense, long bristles; ninth tergite and sternite not fused into a broad ring, their connection very narrow; basistyle with finger-like process slightly bent inwards; outer dististyle forked: outer part long and curved to ventral side, with short, stout lobe basally, provided with a solid spur; inner dististyle long, slender, sinuous; aedeagus broad, rather short, S-curved.

Material examined: holotype No. 11809, male, Dominican amber, Lower Miocene, col. J. BRODZINSKY. Housed in the American Museum of Natural History, New York.



Figs. 6-8. Hypopygium of *Molophilus (Miomolophilus) theischingeri* n.sp.: 6 - lateral view, 7 - dorsal view, 8 - ventral view.



Origin of name: this first fossil species of *Molophilus* is dedicated to Dr Günther THEISCHINGER, specialist of recent species of the family Limoniidae.

Remarks: the following characters:  $R_{3+4}$  present,  $A_2$  shortened and IX tergite not fused with sternite into a ring, distinguish this fossil species from all recent representatives of the genus. These character states are distinctly plesiomorphic and set this species closer to other genera of the subfamily Eriopterinae, while a shortened Sc vein is an autapomorphy of this species. This interesting combination of features necessitated a separation of this species into a new subgenus.

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## INTRODUCTION

Publications dealing with the Tipulids of the alpine region are still very scarce. Apart from taxonomical works (mainly MANNHIMS & THEODORALD in LIEBHERR (1953-1962)) we can only mention the faunistical lists of MANNHIMS & PACHAUSKY (1963) for North Tirol; THEISCHINGER (1977) for Allgäu and THEISCHINGER (1978) for Oberösterreich. Lists of boreo-alpine tipulids have been proposed by MANNHIMS (1959) and recently THEODORALD & OOSTERHOUT (1985) have discussed in detail the zoogeography of montane, alpine and boreal Tipulidae. The *exilis*-group of *Veddyella* has been revised by THEODORALD & MANNHIMS (1962).

In Switzerland the alpine fauna has only rapidly been described within the general inventory of the fauna (DUFOUR 1986).

The present publication is aimed to give an overview of the various remarkable features of the alpine and subalpine fauna, including systematics, morphology, ecology and biogeography. Only Swiss material has been taken into account in order to work on strictly

