A FOSSIL *GYMNOPTERNUS* LOEW (DIPTERA: DOLICHOPODIDAE) FROM THE FLORISSANT BEDS, COLORADO.

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ABSTRACT

Gymnopternus lacustris n. sp. (Diptera: Dolichopodidae) is described from a compression fossil from the Eocene/Oligocene Florissant beds of Colorado, U.S.A. *Gymnopternus* has a rich recent fauna in North America, and its fossil presence in these deposits is evidence of the essentially "modern" generic composition of the Tertiary dolichopodid fauna.

INTRODUCTION

Early Tertiary lacustrine beds from western North America often contain insects as compression fossils, and the quality of preservation is such that more than 200 insect families have been recorded (Wilson, 1978). Of these Tertiary deposits, the Florissant Beds of Colorado are among the most famous. Although early papers referred to them as Miocene in age, they are now regarded as Early Oligocene or along the Eocene-Oligocene boundary, some 34 million years B.P. (see references in Wilson, 1978). A new species of the family Dolichopodidae (Diptera) from the Florissant Beds is described below.

Taxonomy

Genus *Gymnopternus* Loew
Gymnopternus lacustris n. sp.

Type material

Holotype, ♂, compression fossil, lacustrine shales; collected by Marion Clare, July 1994, along Grape Creek, north of Florissant

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Fossil Beds National Monument, Colorado, U.S.A.; deposited in the United States National Museum, Washington, D.C. (USNM #486681).

Description

Body length, head to apex of abdomen: 3.6 mm; wing length, thorax to apex: 2.5 mm (Figs 1 & 2).

The specimen is laterally compressed and is rendered only by a black film of carbon. The description is based on visible characters and text numbers in parentheses refer to numbers on Fig. 2.

HEAD: strong vertical and ocellar setae present; palp (1) ovate with apical seta; antenna (2) with first flagellomere subtriangular, bearing a dorsal, distinctly pubescent arista.

THORAX: specimen compressed and somewhat distorted; strong mesonotal (3) and scutellar (4) setae present.

LEGS: covered with fine vestiture; femur I without strong setae; tibia I with a distinct row of short dorsal setae (5) along distal two-thirds; femur II without strong setae; tibia II with distinct mid-dorsal seta (6); femur III with strong anterior subapical seta (7); tibia III with row of strong dorsal setae (8), at least along distal half.

WING: veins R_{4+5} and M subparallel to apex; vein M straight, without flexion; crossvein m-cu straight; m-cu/ distal CuA ratio: 2.5.

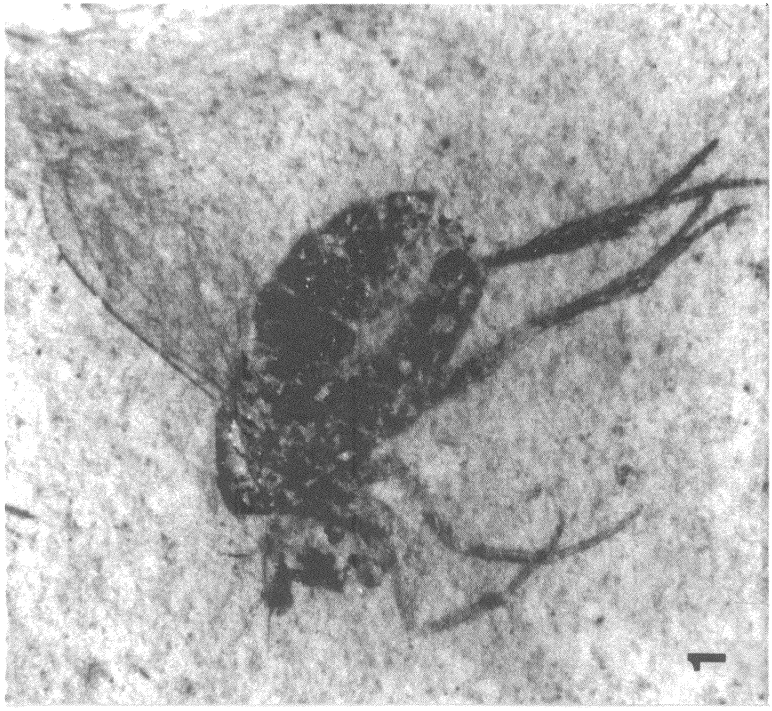
ABDOMEN: terga with short vestiture; hypopygium (9) subrectangular and pedunculate.

Etymology: The specific epithet "lacustris" refers to the presence of this species in fossil lacustrine or lake deposits.

Discussion

This fossil is regarded as a member of the genus *Gymnopternus* Loew. However, its assignment to a species is rather arbitrary. Most dolichopodid species are defined on diagnostic details of the male genitalic capsule and/or male secondary sexual characters. Compression fossils cannot be described in the detail possible and necessary for recent or amber fossil species. Nevertheless, such

Figs. 1–2. *Gymnopternus lacustris* n. sp.: Fig. 1. Photograph of holotype. Fig. 2. Line drawing of holotype; numbers refer to the text description. Scale line = 1.0 mm.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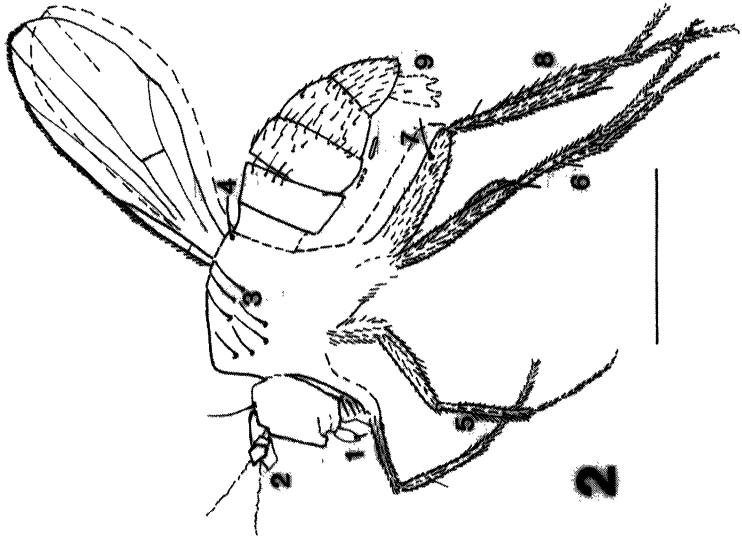
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fossil species are useful in establishing the age and history of higher taxa.

Some 74 species are recognized in the recent North American *Gymnopternus* fauna (Robinson and Vockeroth, 1981). *G. lacustris* extends the history of this genus back to Eocene/Oligocene time. A distinctive character evident on this compression fossil, the dorsal row of setae on tibia I, is shared with such recent Nearctic species as *G. crassicauda* Loew and *G. opacus* Loew.

As shown by the Baltic Amber fauna (Larsson, 1978 and personal examination of collections), many recent genera of Dolichopodidae had originated and radiated by the late Paleogene. The presence of *Gymnopternus* in the Eocene/ Oligocene deposits of western North America is further evidence for the essentially modern character of the Tertiary dolichopodid fauna. [Meunier (see references in Evenhuis, 1994) described Baltic amber fossils as *Gymnopternus*, but his descriptions are inadequate for generic placement.]

Acknowledgments

The specimen was given to me for description by M.E. Irwin, University of Illinois, and was originally obtained by J. Fisher of New Mexico State University from M. Clare, a dealer and owner of "Nature's Wealth," Florissant, Colorado.

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