

Three new species of the genus *Helius* LEPELETIER & SERVILLE (Diptera, Limoniidae) from the Middle Miocene of Stavropol (northern Caucasus, Russia)

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Abstract. Three new species of the genus *Helius* LEPELETIER et SERVILLE, 1848 are described: *H. stavropolensis* n. sp., *H. miocenicus* n. sp. and *H. verticillis* n. sp. from the Middle Miocene of Stavropol (northern Caucasus, Russia).

Key words: fossil Diptera, Miocene, Limoniidae, *Helius*, new species.

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INTRODUCTION

The worldwide distributed genus *Helius* LEPELETIER et SERVILLE, 1848 (Limoniidae) comprises ca. 200 extant species mainly from south and south-eastern Asia. In the Palearctic region 17 species are known, of which three live in Europe.

First information on fossil representatives of the genus was published by LOEW (1850), who listed four species from the BERENDT collection of inclusions in the Baltic amber (Upper Eocene), but named only two of them: *H. pulcher* LOEW and *H. minutus* LOEW. In 1922, HENRIKSEN described *H. thybotica* from the Fur Formation (Denmark, Eocene), but this species was later revised and transferred to *Dicranomyia* STEPHENS, 1829 (KRZEMIŃSKI 2001). A species described by STATZ (1934) from Rott (Germany, Upper Oligocene) as *Elephantomyia weigandi* belongs undoubtedly the genus *Helius* (KRZEMIŃSKI 1993; EVENHUIS 1994). Also from Rott, STATZ (1944) has described a second species *Helius tenera*.

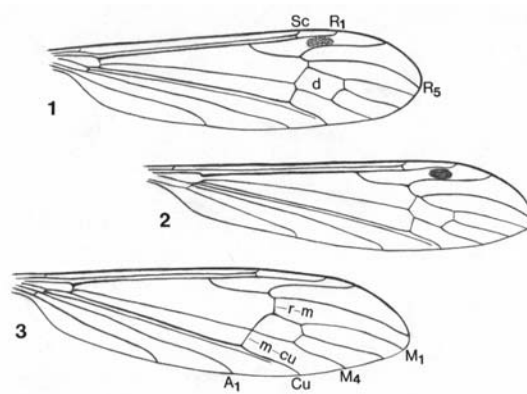
The revision of all representatives of *Helius* from the Baltic amber by KRZEMIŃSKI (1993) added one more species, *H. formosus*. From the Oligocene of North America three species described in the genus *Helius* (SCUDDER 1894) were later transferred to *Dicranomyia* (KRZEMIŃSKI, 1993). Recently only one valid fossil representative of *Helius* is known from this continent, *H. constenius* (KRZEMIŃSKI 1991). The oldest representative, *H. botswanensis*, RAYNER and WATERS, 1990, was described from the Upper Cretaceous of Botswana (South Africa).

Recently I received a rich collection of fossil Tipulomorpha from the Middle Miocene deposits of Stavropol (northern Caucasus, Russia). In this material there are 23 specimens representing three new species of *Helius*. Unfortunately, only separate wings are preserved. Till now only one paper was published on Limoniidae from this locality (KRZEMIŃSKI & FREIWALD 1991).

Abbreviations:

PIN – Paleontological Institute, Russian Academy of Sciences, Moscow, Russia.

d cell base – section of M3+4 from origin to fork into M3 and M4



Figs 1 – 3. Wing venation of recent representatives of the genus *Helius*: 1 – *H. longirostris* (MG.), Palearctic region; 2 – *H. pallirostris* EDWARDS, Europe; 3 – *H. verticillatus* ALEXANDER, Sikkim, India (after ALEXANDER, 1966).

SYSTEMATIC PART

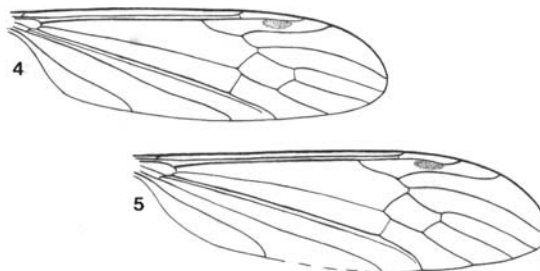
Family: Limoniidae

Genus: *Helius* LEPELETIER & SERVILLE, 1828

***Helius stavropolensis* n. sp.**

Figs 4-5

D i a g n o s i s. Sc ending opposite fork of Rs; r-m relatively long and well visible; R2+3+4 twice longer than Rs; R5 four times longer than Rs; m-cu in proximal 1/6 – 1/5 of d cell base.



Figs 4 – 5. Wing venation of *Helius stavropolensis*, n. sp.: 4 – holotype; 5 – specimen 254/764.

T y p e m a t e r i a l. Holotype No. 254/231, Stavropol, northern Caucasus, Russia, Middle Miocene. Additional material: specimens 254/278; 254/764; 254/288 and 254/650, same data and locality. Housed in PIN.

D e s c r i p t i o n. Wing (Figs 4-5) 6.3-7.2 mm long, with a large, oval faint stigma. Sc ending opposite fork of Rs; cross-vein sc-r at its length before end of Sc; R1 long, ending opposite 2/3 of R2+3+4; R2+3+4 twice longer than Rs; R5 ca. four times longer than Rs; cross-vein r-m relatively long and well visible; d cell wide and long; M3 twice longer than upper margin of d cell; cross-vein m-cu in 1/6 – 1/5 of d cell base; A2 long, slightly subsinuuous.

R e m a r k s. *Helius stavropolensis* n. sp. (Figs 4-5), is very similar in the wing venation to a recent European species, *H. longirostris* (MEIGEN), 1818 (Fig. 1), the main difference being the length proportion R5/Rs which in a new species reaches almost 3.5, while in *H. longirostris* only 2.5. Medial veins are longer in *H. stavropolensis* n. sp.

***Helius miocenicus* n. sp.**

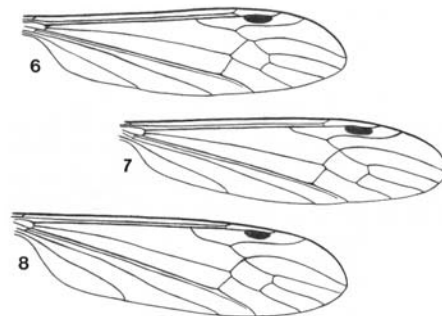
Figs 6-8

D i a g n o s i s. Sc ending opposite fork of Rs; r-m almost entirely or entirely reduced; R2+3+4 ca. twice longer than Rs; R5 three times longer than Rs; m-cu in 1/6 of d cell base.

T y p e m a t e r i a l. Holotype No. 254/833, Stavropol, northern Caucasus, Russia; Middle Miocene. Additional material: specimens 224/170a; 224/170b; 254/135; 254/322; 254/337; 254/533; 254/590; 254/598; 254/612; 254/821; 254/1079; 254/1442; 254/1580 and 254/2301; all same data and locality. Housed in PIN.

D e s c r i p t i o n. Only the wings (Figs 6-8) are retained, 7.2-8.3 mm long, with oval, conspicuous stigma. Sc ending opposite fork of Rs; cross-vein sc-r its two lengths before end of Sc; R1 long, ending opposite 2/3 of R2+3+4; R2+3+4 twice longer than Rs; R5 ca three times longer than Rs; cross-vein r-m completely reduced in all specimens except for No. 245/135 with short r-m; R5 directly contacting d cell; d cell wide and long; M3 less than twice the length of upper margin of d cell; cross-vein m-cu in 1/6 of d cell base; A2 long and slightly subsinuuous.

R e m a r k s. *Helius miocenicus* n. sp. (Figs 6-8) is similar in the wing venation to the recent European species, *Helius pallirostris* EDWARDS, 1921 (Fig. 2), which differs in a shorter R2+3+4, R5 only twice the length of Rs and cross vein m-cu much closer to fork of Mb.



Figs 6 – 8. Wing venation of *Helius miocenicus*, n. sp.: 6 – holotype; 7 – specimen 224/170; Fig. 8 – specimen 254/135.

Helius verticillis n. sp.

Fig. 9

D i a g n o s i s. Sc ending opposite Rs; r-m relatively short; R2+3+4 ca. 1.5 times longer than Rs; R5 2.5 times longer than R5; m-cu in fork of Mb.

T y p e m a t e r i a l. Holotype No. 254/2507, Stavropol, northern Caucasus, Russia; Middle Miocene. Additional material: 254/816 and 254/932, same data and locality. Housed in PIN.

D e s c r i p t i o n. Wing (Fig. 9) 6.0 – 7.2 mm long, with oval, well visible stigma. Sc ending opposite fork of Rs; cross-vein sc-r at its length before end of Sc; R1 ending opposite mid of R2+3+4; R2+3+4 1.5 times the length of Rs; R5 ca. 2.5 times longer than Rs; cross-vein r-m rather short; d cell wide and long; M3 2.5 times longer than upper margin of d cell; cross-vein m-cu in fork of Mb into M1+2 and M3+4; A2 long and slightly subsinuous.

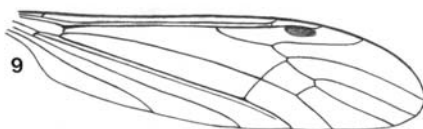


Fig. 9. Wing venation of *Helius verticillis* n. sp., holotype.

R e m a r k s. *Helius verticillis* n. sp. (Fig. 9) has a rare character of m-cu positioned in fork of Mb. Otherwise, wing venation of this species is similar to recent species, *Helius verticillatus* ALEXANDER, 1966 (Fig. 3) from Sikkim (India), which also has a shorter Sc.

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