

A FIRST CHECKLIST OF THE SHORT-PALPED CRANE FLIES (DIPTERA: LIMONIIDAE, PEDICIIDAE) OF MOROCCO

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Abstract: A total of 51 species of Limoniidae and Pediciidae are currently known from Morocco. Three species of Limoniidae and one of Pediciidae are recorded for the first time both from Morocco and North Africa; two Limoniidae species are recorded for the first time from the Rif mountains. For each species in the checklist the first literature reference of its occurrence in Morocco is given.

Key words: Diptera, Limoniidae, Pediciidae, short-palped crane flies, checklist, Rif, Morocco, North Africa.

Primer listado de los limónidos y pedicidos (Diptera: Limoniidae, Pediciidae) de Marruecos

Resumen: Actualmente se conocen de Marruecos un total de 51 especies de Limoniidae y Pediciidae. Tres especies de Limoniidae y una de Pediciidae se registran como nuevas tanto para Marruecos como para el norte de África; asimismo, dos especies de Limoniidae se registran por primera vez en las montañas del Rif. Para cada especie del listado se da la primera referencia bibliográfica de su presencia en Marruecos.

Palabras clave: Diptera, Limoniidae, Pediciidae, short-palped crane flies, checklist, Rif, Marruecos, África del norte.

Introduction

Crane flies form a very speciose and ecologically diverse group. World-wide approximately 15.365 valid species are recognized (Oosterbroek, 2013) and apparently a large number of species are yet to be recovered by taxonomists (De Jong *et al.*, 2008).

To date the Limoniidae and Pediciidae fauna of Morocco has been poorly investigated. The first records of Limoniidae of Morocco appeared in papers by Pierre (1921a, b; 1924). During the next decades several papers were published that included additional notes on short-palped crane flies occurring in Morocco. Morocco is lined with four mountain ranges which are from north to south the Rif, Middle Atlas, High Atlas, and Anti Atlas. Most older records of crane flies refer to material collected in the Atlas Mountains of southern Morocco (Séguy, 1941a, b; Starý, 1971; Savchenko *et al.*, 1992), while the Rif Mountains of northern Morocco were, until recently, only rarely investigated (Eiroa, 2000; Pärvi *et al.*, 2006; Starý, 2006; Starý & Oosterbroek, 2008; Starý, 2009; Oosterbroek, 2013).

A total of 51 species of the Limoniidae and Pediciidae are now known to occur in Morocco. Four of these represent new records for North Africa: *Cheilotrichia (Empeda) cinerascens* (Meigen, 1804), *Pseudolimnophila (Pseudolimnophila) sepium* (Verrall, 1886), *Geranomyia caloptera* (Mik, 1867) and *Dicranota (Paradicranota) landrocki* Czizek, 1931. These Palaearctic species reach their most

southern distribution in North Africa. Two other species, *Erioptera (Erioptera) fuscipennis* Meigen, 1818 and *Dicranomyia (Dicranomyia) mitis* (Meigen, 1830), are recorded for the first time for the Rif.

The list of Moroccan short-palped crane flies is far from being exhaustive and complete, and it will inevitably augment since the PhD study of the first author on the short-palped crane flies of Morocco has just started. In spite of sporadic collecting, even this preliminary assessment testifies of the great diversity of the Limoniidae. At this stage with collecting done at only six prospected stations, four species have already been discovered as new to the Moroccan fauna.

The following checklist summarizes the short-palped crane fly fauna of Morocco as it is currently known. New records are marked with an asterisk (*). Moroccan sites that provide the first record of a species in either North Africa or the Rif and High Atlas Mountains are given in Table I. Literature references of the first noted occurrence in Morocco are given for each individual species, together with the region of the country from which the species is known. Additional information on the general distribution of the newly recorded species is given. Taxa are listed according to the classification scheme of Oosterbroek (2013). Synonyms are given as far as they have been used in the literature dealing with the Moroccan fauna.

Table I. List of sampling sites harboring the species first recorded in the Morocco or in the Rif Mountains, with localities, altitudes and geographical coordinates.

No	Site	Locality	Altitude	Geographical Coordinates
1	Spring Tazitounte	Setti Fatma	1272 m	31°15.886'N/007°40.860'W
2	Spring 15 Km before Fifi	Fifi	1252 m	35°00.081'N/005°12.360'W
3	Spring Sidi Brahim Ben Arrif	Bab Hachef Aïssa	895 m	35°20.240'N/005°32.620'W
4	Guelta Tazia	Road Moulay Abdessalam	735 m	35°20.813'N/005°33.121'W
5	River Ouara	Ikadjjouène	680 m	35°03.987'N/005°14.005'W
6	River Tisgris	Hmmadesh	490 m	35°22.079'N/005°32.064'W

Checklist of Limoniidae and Pediciidae of Morocco

LIMONIIDAE

CHIONEINAE

Cheilotrichia Rossi, 1848

- *Empeda* Osten Sacken, 1869
 - *Cheilotrichia (Empeda) cinerascens* (Meigen, 1804) *
* Widespread in the West Palaearctic (Oosterbroek, 2013).
First record for Morocco [Rif: 5 (Fig. 1)]; first record for North Africa

Ellipteroides Becker, 1907

- *Ellipteroides* Becker, 1907
 - *Ellipteroides (Ellipteroides) lateralis* (Macquart, 1835) = *cinctus* (Egger, 1863)
Coastal meseta (Pierre, 1922a), High Atlas (Seguy, 1941)
- *Protogonomyia* Alexander, 1934
 - *Ellipteroides (Protogonomyia) alboscuteallatus* (Von Roser, 1840)
High Atlas (Lackschewitz, 1940a)
 - *Ellipteroides (Protogonomyia) hutsoni* (Stary, 1971)
High Atlas (Stary, 1971)

Erioconopa Stary, 1976

- *Erioconopa diuturna* (Walker, 1848)
High Atlas (Oosterbroek, 2013)
- *Erioconopa symplectoides* (Kuntze, 1914)
High Atlas (Stary & Oosterbroek, 2008)

Erioptera Meigen, 1803

- *Erioptera* Meigen, 1803
 - *Erioptera (Erioptera) fuscipennis* Meigen, 1818 *
* A widespread western Palaearctic species. Previously recorded in North Africa from Algeria and Morocco (Oosterbroek, 2013).
Costal Meseta (Pierre, 1922a), High Atlas (Pierre, 1922b; Oosterbroek, 2013). First record for the Rif [Rif: 3]
 - *Erioptera (Erioptera) transmarina* Bergroth, 1889
Marrakech (Pierre, 1922a), High Atlas (Pierre, 1922b)

Gonomyia Meigen, 1818

- *Gonomyia* Meigen, 1818
 - *Gonomyia (Gonomyia) subtenella* Savchenko, 1972
High Atlas (Stary & Oosterbroek, 2008)
 - *Gonomyia (Gonomyia) tenella* (Meigen, 1818)
High Atlas (Pierre, 1924)

Hoplolabis Osten Sacken, 1869

- *Parilisia* Savchenko, 1976
 - *Hoplolabis (Parilisia) obtusiapex* (Savchenko, 1982)
High Atlas, Anti Atlas (Stary, 2006)
 - *Hoplolabis (Parilisia) punctigera* (Lackschewitz, 1940)
High Atlas, Anti Atlas (Stary, 2006)
 - *Hoplolabis (Parilisia) sororcula* (Lackschewitz, 1940)
High Atlas (Oosterbroek, 2013)

Idiocera Dale, 1842

- *Euptilostena* Alexander, 1938
 - *Idiocera (Euptilostena) jucunda* (Loew, 1873)
High Atlas (Pierre, 1924)
- *Idiocera* Dale, 1842
 - *Idiocera (Idiocera) pulchripennis* (Loew, 1856)
Coastal (Pierre, 1922b). Pierre (1922b) refers probably to this species under the name *Gonomyia sexpunctata* Dale; *sexpunctata* Dale is a nonexistent name and probably *sexguttata* Dale was meant; non-British *sexguttata* of authors previous to Stary (1974) generally refers to *pulchripennis* (cf Stary, 1974). Pierre (1922b) comments that the species is common in North Africa and he received numbers of specimens from Egypt.

Molophilus Curtis, 1833

- *Molophilus* Curtis, 1833
 - *Molophilus (Molophilus) ibericus* Stary, 2011
High Atlas (Stary, 2011)
 - *Molophilus (Molophilus) obscurus* (Meigen, 1818)
High Atlas (Stary & Oosterbroek, 2008)
 - *Molophilus (Molophilus) propinquus propinquus* (Egger, 1863)
High Atlas (Oosterbroek, 2013)

Symplecta Meigen, 1830

- *Symplecta* Meigen, 1830
 - *Symplecta (Symplecta) hybrida* (Meigen, 1804)
High Atlas (Oosterbroek, 2013)

- *Trimicra* Osten Sacken, 1861

- *Symplecta (Trimicra) pilipes* (Fabricius, 1787) = *andalusiaca* (Strobl, 1900) = *hirsutipes* (Macquart, 1839)
Coastal meseta (Pierre, 1922a, b), High Atlas (Pierre, 1922a)

DACTYLOLABINAE

Dactylolabis Osten Sacken, 1860

- *Dactylolabis (Dactylolabis) symplectoidea* Egger, 1863
Coastal meseta (Pierre, 1922a)

LIMNOPHILINAE

Dicranophragma Osten Sacken, 1860

- *Brachylimnophila* Alexander, 1966
 - *Dicranophragma (Brachylimnophila) adjunctum* (Walker, 1848)
Bas-Loukkos basins (Parvu *et al.*, 2006)
 - *Dicranophragma (Brachylimnophila) nemorale* (Meigen, 1818)
High Atlas (Oosterbroek, 2013)

Eloeophila Rondani, 1856

- *Eloeophila maroccana* Stary, 2009
High Atlas (Stary, 2009)

Euphyllidorea Alexander, 1972

- *Euphyllidorea* Alexander, 1972
 - *Euphyllidorea (Euphyllidorea) crocotula* (Seguy, 1941)
High Atlas (Seguy, 1941; Stary & Oosterbroek, 2008)
 - *Euphyllidorea (Euphyllidorea) lineola* (Meigen, 1804)
High Atlas (Lackschewitz, 1940b)

Hexatoma Latreille, 1809

- *Hexatoma* Latreille, 1809
 - *Hexatoma (Hexatoma) gaedii* (Meigen, 1830)
High Atlas (Oosterbroek, 2013)

Pseudolimnophila Alexander, 1919

- *Pseudolimnophila* Alexander, 1919
 - *Pseudolimnophila (Pseudolimnophila) sepium* (Verrall, 1886)*
* Widespread in the western and eastern Palaearctic (Oosterbroek, 2013).
First record for Morocco [Rif: 4 (fig. 4)]; first record for North Africa

LIMONIINAE

Dicranomyia Stephens, 1829

- *Dicranomyia* Stephens, 1829
 - *Dicranomyia (Dicranomyia) affinis* (Schummel, 1829)
High Atlas (Oosterbroek, 2013)
 - *Dicranomyia (Dicranomyia) chorea* (Meigen, 1818)
High Atlas (Pierre, 1922b; Oosterbroek, 2013)
 - *Dicranomyia (Dicranomyia) didyma* (Meigen, 1804)
High Atlas (Pierre, 1922b; Oosterbroek, 2013)
 - *Dicranomyia (Dicranomyia) goritiensis* (Mik, 1864)
High Atlas (Oosterbroek, 2013)
 - *Dicranomyia (Dicranomyia) longicollis* (Macquart, 1846)
Coastal meseta (Pierre, 1922a, b), Marrakech (Pierre, 1922a)
 - *Dicranomyia (Dicranomyia) lutea* Meigen
Pierre (1922b) mentions *Dicranomyia lutea* Meigen from the High Atlas. It is unclear whether this concerns *lutea* Meigen, 1804 (a questionable synonym of *chorea* Meigen, 1818), *lutea* Meigen, 1818 (currently recognized as a valid species close to *affinis* Schummel, 1829 and *mitis* Meigen, 1830), or actually either *affinis* or *mitis*, with which *lutea* Meigen, 1818 has been confused in the literature]
 - *Dicranomyia (Dicranomyia) mitis* (Meigen, 1830) *
* Recorded thus far from most of Europe, the North Caucasus, Georgia, Azerbaijan, Turkey, Israel, and Turkmenistan. For North Africa recorded from Algeria and Morocco (Oosterbroek, 2013).
Souss plain to High Atlas occidental (Parvu *et al.*, 2006); High Atlas (Oosterbroek, 2013). First record for the Rif [Rif: 4, 6]
- *Glochina* Meigen, 1830
 - *Dicranomyia (Glochina) sericata* (Meigen, 1830)
High Atlas (Oosterbroek, 2013)

- *Melanolimonia* Alexander, 1965
- *Dicranomyia (Melanolimonia) morio* (Fabricius, 1787) = *pauliani* Seguy, 1941
High Atlas (Seguy, 1941)
- uncertain

- *Dicranomyia majuscula* Pierre, 1924
Pierre (1924) describes *Dicranomyia majuscula* based on female material originating from the High Atlas; *D. majuscula* is considered a doubtful taxon of which the identity remains unknown

***Dicranoptycha* Osten Sacken, 1860**

- *Dicranoptycha fuscescens* (Schummel, 1829)
Rif (Eiroa, 2000)

***Geranomyia* Haliday, 1833**

- *Geranomyia caloptera* (Mik, 1867) *
* Known to occur in a few European countries. In the Mediterranean area recorded from France (incl. Corsica), Italy (incl. Sicily), Turkey, and Israel (Oosterbroek, 2013). First record for Morocco [High Atlas: 1 (fig.3)]; first record for North Africa
- *Geranomyia obscura* Strobl, 1900
High Atlas (Oosterbroek, 2013)

***Helius* Lepeletier & Serville, 1828**

- *Helius* Lepeletier & Serville, 1828
- *Helius (Helius) hispanicus* Lackschewitz, 1928
High Atlas (Stary & Oosterbroek, 2008)

***Limonia* Meigen, 1803**

- *Limonia flavipes* (Fabricius, 1787)
High Atlas (Pierre, 1922b)

- *Limonia hercegovinae* (Strobl, 1898)
High Atlas, Middle Atlas (Stary & Oosterbroek, 2008)
- *Limonia macrostigma* (Schummel, 1829)
High Atlas (Stary & Oosterbroek, 2008)
- *Limonia nubeculosa* Meigen, 1804
High Atlas (Pierre, 1922b)
- *Limonia phragmitidis* (Schränk, 1781)
Middle Atlas (Stary & Oosterbroek, 2008)

PEDICIIDAE

PEDICIINAE

***Dicranota* Zetterstedt, 1838**

- *Dicranota* Zetterstedt, 1838
- *Dicranota (Dicranota) bimaculata* (Schummel, 1829)
High Atlas (Pierre, 1922b; Oosterbroek, 2013)
- *Dicranota (Dicranota) irregularis* Pierre, 1922
High Atlas (Pierre, 1922)
- *Paradicranota* Alexander, 1934
- *Dicranota (Paradicranota) candelisequa* Stary, 1981
Bas-Loukkos basins (Parvu *et al.*, 2006)
- *Dicranota (Paradicranota) landrocki* Czizek, 1931 *
* Widespread in the Palaearctic region (Oosterbroek, 2013).
First record for Morocco [Rif: 2 (fig.2)]; first record for North Africa

Acknowledgements

The authors like to thank Piotr Oosterbroek (Amsterdam and Leiden) and Jaroslav Stary (Olomouc) for providing them with information on distributional matters and literature references.

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Fig. 1. River Ouara Ikadjiouène.



Fig. 2. Spring 15 Km before Fifi.



Fig.3. Spring Tazitounte.



Fig.4. Guelta Tazia.