

Two new species of *Austrolimnophila* from the Mediterranean (Diptera: Limoniidae)

Jaroslav STARÝ

Neklanova 7, CZ-779 00 Olomouc-Nedvěži & Silesian Museum, Tyršova 1, CZ-746 01 Opava,
Czech Republic; e-mail: stary.cranefly@gmail.com

Abstract. Two new species of *Austrolimnophila* Alexander, 1920 (subgenus *Austrolimnophila* s. str.) are described, *A. (A.) cretica* sp. nov. (Greece: Crete) and *A. (A.) pallidior* sp. nov. (Algeria), and their male terminalia are illustrated. A key to the Western Palaearctic species of *Austrolimnophila* s. str. is appended.

Key words. Diptera, Limoniidae, *Austrolimnophila*, new species, male terminalia, key, Palaearctic Region

Introduction

In the Western Palaearctic, the nominotypical subgenus of the genus *Austrolimnophila* Alexander, 1920 has been represented by four species, viz. *A. (A.) ochracea* (Meigen, 1804) (most of Europe, ranging to Turkey, Transcaucasia, and Iran), *A. (A.) analis* (Santos Abreu, 1923) (Canary Is.), *A. (A.) brevicellula* Starý, 1977 (Greece, Romania, Turkey; Cyprus, Israel), and *A. (A.) latistyla* Starý, 1977 (Croatia, France (incl. Corsica), Greece (incl. Crete), Italy, Spain) (OOSTERBROEK 2013). All the species are very similar to each other in general appearance, only differing in some details of the wing venation, which, however, may be sometimes variable to a certain degree. Thus, the structure of the male terminalia appears to be the only reliable criterion for distinguishing these species. Although the general plan of this structure is very similar for all the species, clear-cut features differentiate the taxa. Since all the species were properly illustrated in the 1970's (STARÝ 1977, THEOWALD 1977), undescribed forms, if males, are now easily recognized. Nevertheless, it should be noted that some older records of *A. (A.) ochracea*, especially those from South Europe and extra-European ones, may be based on misidentifications.

I here give descriptions of two new *Austrolimnophila* species from the Mediterranean, with illustrations of their male terminalia. A key to the Western Palaearctic species of *Austrolimnophila* (*Austrolimnophila*) is appended.

Material and methods

The morphological terminology adopted here essentially follows McALPINE (1981). Terminology of wing veins is in accordance with HENNIG (1954).

The followings acronyms for museums and collections are used in the text:

JSOC	Jaroslav Starý collection, Olomouc, Czech Republic;
NMPC	Národní muzeum, Praha, Czech Republic;
SMOC	Slezské zemské museum, Opava, Czech Republic;
ZMAN	Zoological Museum, Amsterdam (since 2011 part of Naturalis Biodiversity Center, Leiden, the Netherlands).

Taxonomy

Austrolimnophila (Austrolimnophila) cretica sp. nov.

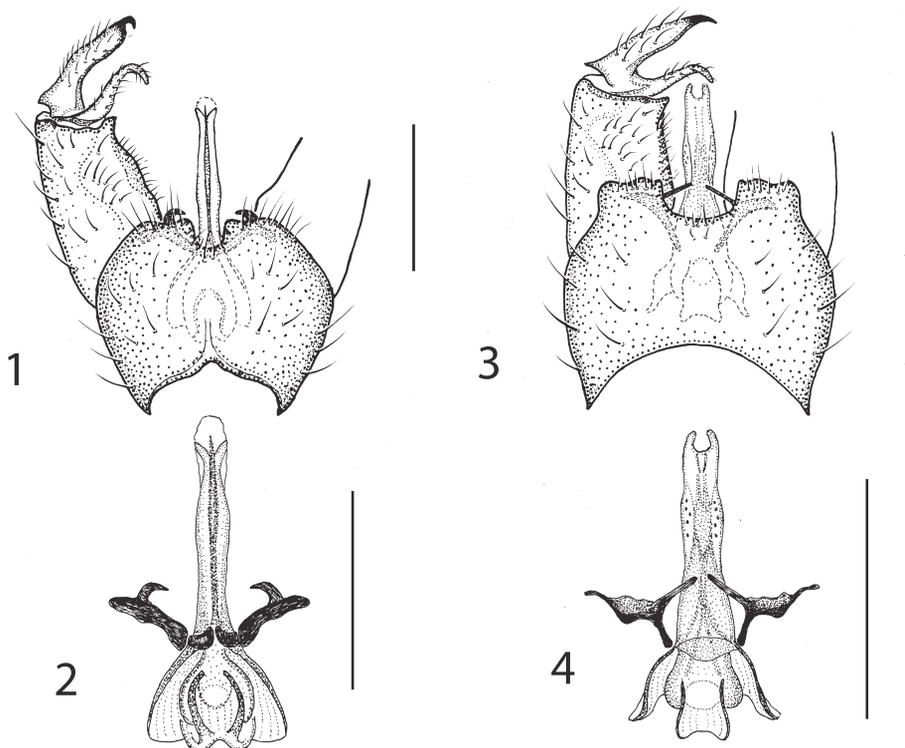
(Figs 1–2)

Type material. HOLOTYPE: ♂ (SMOC): **GREECE: CRETE:** Khania Region, Kourna Lake, 11.v.2004 (J. Starý leg.), labelled 'CRETE 11.5.2004 / Khania Region / Kourna Lake / J. Starý leg.' [printed, white label] // 'HOLOTYPE / *Austrolimnophila* (s. str.) / *cretica* sp. n. ♂ / J. Starý 2013' [printed, red label]. The specimen is pinned; apex of abdomen cut off; terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. PARATYPES (42 ♂♂ 7 ♀♀): **GREECE: CRETE:** Khania Region: Kournas, 11.v.2004, 1 ♀; Kourna Lake, 11.v.2004, 2 ♂♂; Vrysses, brook, 12.v.2004, 23 ♂♂ 2 ♀♀; Stilos, Killiaris River, 13.v.2004, 6 ♂♂; Episkopi, Petres River, 16.v.2004, 2 ♂♂; Georgiupoli, marsh, 12.v.2004, 1 ♂; Georgiupoli env., river, 17.v.2004, 2 ♂♂; Georgiupoli, river, 19.v.2004, 1 ♂ 1 ♀; Kakopetros, brook, 23.v.2004, 1 ♂ 1 ♀ (all J. Starý leg.) (JSOC, NMPC, SMOC). Rethimno Region: Spili, brook, 22.v.2004, 2 ♂♂ (J. Starý leg.) (JSOC). [Khania Region] 2 km NE of Kambos, stream in gorge with trees and undergrowth, 20.v.1994, 250 m, 2 ♂♂ 2 ♀♀ (R. T. A. Schouten leg.) (JSOC, ZMAN). All specimens pinned; terminalia, if dissected, placed as for holotype.

Diagnosis. Medium-sized species. Body in general ochreous, or yellowish brown, darker dorsally, suffused with grey pruinosity. Wing narrow, origin of Rs shortly before tip of A_2 , discal cell rather small. Male terminalia with outer gonostylus generally slender, parallel-sided, gently sinuous, abruptly tapered distally into sharp blackened hook; aedeagus considerably long, slender, exceeding beyond distal end of gonocoxite. Wing length 6.3–8.1 mm.

Description. Male. Head with heavy silvery dark grey pruinosity on frons and vertex. Rostrum ochreous; palpus slightly darker, greyish brown. Antenna 16-segmented, reaching approximately to base of wing, dark greyish brown except for yellowed base of flagellomere 1. Flagellomeres elongate, gradually narrowed towards apex of antenna. Longest verticils on flagellomeres slightly exceeding length of their respective segments, pubescence sparse.

Thorax generally ochreous, darker dorsally. Pronotum ochreous. Prescutum and scutum dark greyish brown; only anterior part of paratergite pale ochreous; scutal lobe yellowed posterolaterally near base of wing. Scutellum partly yellowed. Postscutellum greyish ochreous. Pleuron greyish ochreous, except for paler ochreous dorsopleural membrane, and with slightly indicated darker longitudinal stripe anteriorly crossing cervical sclerite, lower part of postpronotum and lower part of anepisternum. Wing tinged brownish, rather narrow, width-length ratio about 1 : 4. Pterostigma weakly indicated. Venation: Sc_2 sometimes partly longitudinal, joining R_1 beyond tip of Sc_1 . Rs about twice length of R_{3+4} , arcuated near its base. Origin of Rs shortly before tip of A_2 . Distal section of M_{1+2} (beyond discal cell) moderately long, about



Figs 1–4. 1–2 – *Austrolimmophila (A.) cretica* sp. nov., male terminalia (paratype). 1 – general view, dorsally. 2 – aedeagal complex, dorsal view. 3–4 – *A. (A.) pallidior* sp. nov., male terminalia (holotype). 3 – general view, dorsally. 4 – aedeagal complex, dorsal view. Scale bars = 0.5 mm.

one fifth length of M_1 . Discal cell comparatively small, short, M_{3+4} (posterior/lower margin of discal cell) less than half length of M_4 . Halter obscure yellow, knob darkened. Legs ochreous, including coxae and trochanters, apices of femora and entire tarsi slightly darkened.

Abdomen greyish ochreous, paler ventrally, lateral margins of segments 1–7 broadly dark brown; segments 8 and 9 shiny dark brown throughout. Male terminalia (Figs 1–2) relatively larger with respect to rest of abdomen compared to other species. Tergite 9 posteriorly with narrow but deep, rectangular, median notch with slightly protruding postero-lateral corners; posterior margin lateral of notch more or less truncate. Gonocoxite generally cylindrical, slightly narrowed distally, without any distinguishing characters. Both gonostyli setose. Outer gonostylus generally slender, parallel-sided, gently sinuous on inner surface, abruptly tapered distally into sharp, blackened, terminal hook. Inner gonostylus very slender, strongly sinuous, obtuse at apex. Paramere darkly pigmented, its posterior arm hook-shaped, subacute at tip; tips broadly separated. Aedeagus considerably long, slender, generally straight in lateral aspect, membranous at tip, extending to, or slightly beyond distal end of gonocoxite. Dorsal apodeme of vesica of moderate length, strongly arched ventrally. For other details in structure

of aedeagal complex, see Fig. 2.

Female resembling male in general appearance. Female terminalia with cercus long, slender, slightly upturned, subacute at tip. Hypogynial valve long, straight, reaching beyond middle of cercus.

Differential diagnosis. *Austrolimnophila (A.) cretica* sp. nov. is similar to *A. (A.) brevicellula* in the distal section of M_{1+2} (beyond discal cell) moderately long, about one fifth the length of M_1 or more, and the discal cell small, its posterior/lower margin (M_{3+4}) less than half the length of M_4 . In the structure of the male terminalia, however, the new species conspicuously differs from all the other species, in nearly every detail, such as the distinctive outer gonostylus (slender, parallel-sided, gently sinuous, abruptly tapered into a sharp hook), the posterior arm of the paramere (hook-shaped, subacute at tip), and the aedeagus (considerably long and slender).

Etymology. The name of the new species, *creticus* (-a, -um), refers to its occurrence in Crete. An adjective in nominative singular.

Distribution. Greece: Crete.

Austrolimnophila (Austrolimnophila) pallidior sp. nov.

(Figs 3–4)

Type material. HOLOTYPE: ♂ (ZMAN): ALGERIA: 14 km SE of La Calle, 300 m, deciduous forest & carr, 26.iv.1980 (E. v. Nieuwerkerken, G. Bryan & P. Oosterbroek leg.), labelled 'ALGERIA / E. v. Nieuwerkerken, / G. Bryan & / P. Oosterbroek' // '14 km SE of / LA CALLE 300 m / 26-IV-1980 / Decid. for. & carr' [both printed, white labels] // 'HOLOTYPE / Austrolimnophila (s. str.) / pallidior sp. n. ♂ / J. Starý 2013' [printed, red label]. The specimen is pinned; apex of abdomen cut off; terminalia dissected and placed in a sealed plastic tube with glycerine, pinned with the specimen. PARATYPE: 1 ♀, same data as for holotype (ZMAN). A pinned specimen.

Diagnosis. Medium-sized species. Body paler than in other species, pale ochreous, darker dorsally, suffused with pale grey pruinosity. Wing moderately narrow, with origin of Rs shortly beyond tip of A_2 and discal cell moderately large. Male terminalia with outer gonostylus generally slender, gradually tapered into slightly curved, blackened spine; aedeagus long, rather broad, extending to distal end of gonocoxite. Wing length 7.6–8.9 mm.

Description. Male. Head with heavy silvery dark grey pruinosity on frons and vertex. Rostrum and palpus ochreous. Antenna 16-segmented, reaching to about wing base, generally brown, except for yellowed base of flagellomere 1. Flagellomeres elongate, gradually narrowed towards apex of antenna. Longest verticils on flagellomeres slightly exceeding length of their respective segments, pubescence sparse.

Thorax generally pale ochreous, darker dorsally. Pronotum pale ochreous. Prescutum and scutum greyish brown, with darker median area indistinctly divided into two stripes. Prescutal disc paler laterally, especially around prescutal pit. Paratergite pale ochreous. Scutellum greyish brown. Postscutellum broadly yellowed laterally. Pleuron pale ochreous, without distinct longitudinal stripe anteriorly. Wing tinged pale brownish, moderately narrow, width-length ratio about 1 : 3.5. Pterostigma moderately indicated. Venation: Sc_2 slightly beyond tip of Sc_1 . Rs about one third longer than R_{3+4} , angulated near its base and with short spur. Origin of Rs shortly beyond tip of A_2 . Distal section of M_{1+2} (beyond discal cell) very short, about one ninth length of M_1 . Discal cell moderate in size, M_{3+4} (posterior/lower margin of discal

cell) about two thirds length of M_4 . Halter obscure yellow, knob darkened. Legs pale ochreous throughout.

Abdomen ochreous, with lateral margins of segments 1–7 broadly dark brown; segments 8 and 9 shiny dark brown throughout. Male terminalia (Figs 3–4): Tergite 9 posteriorly with deep, wide, rectangular, median emargination with slightly protruding postero-lateral corners; broad, conspicuously protruding lobe with undulating edges on each side of emargination. Gonocoxite generally cylindrical, slightly narrowed distally, without distinguishing characters. Both gonostyli setose. Outer gonostylus generally slender, gradually tapered distally into slightly curved, blackened terminal spine. Inner gonostylus very slender, moderately sinuous, obtuse at apex. Paramere darkly pigmented, its posterior arm straight, very slender, rod-shaped, obtuse at tip; tips close together over aedeagus. Aedeagus long, rather broad, generally straight in lateral aspect, largely membranous distally, reaching distal end of gonocoxite. Dorsal apodeme of vesica of moderate length, strongly arched ventrally. For other details in structure of aedeagal complex, see Fig. 4.

Female resembling male in general appearance. Female terminalia not essentially different externally from those of other species.

Differential diagnosis. *Austrolimnophila (A.) pallidior* sp. nov. is the palest Western Palaearctic species, with the prescutum and scutum becoming ochreous laterally, especially around the prescutal pits. In the wing venation, the new species resembles most of the other species in having the distal section of M_{1+2} (beyond the discal cell) very short, about one ninth length of M_1 , and the discal cell comparatively large, with its posterior/lower margin (M_{3+4}) about two thirds length of M_4 . In the shape of the outer gonostylus, *A. (A.) pallidior* sp. nov. is similar to *A. (A.) brevicellula*, but it considerably differs from it in other genital structures, especially the broad, truncate lobe on each side of the wide, median, posterior emargination of tergite 9, and the shape of the aedeagus, which is rather long and broad.

Etymology. The name of the new species (Latin *pallidior* = paler) refers to its body colouration, which is in general paler than that of the other Western Palaearctic species. An adjective in nominative singular.

Distribution. Algeria.

Key to Western Palaearctic species of *Austrolimnophila (Austrolimnophila)*

- 1 Wing with discal cell comparatively large, its posterior/lower margin (M_{3+4}) at least two thirds length of M_4 , and with distal section of M_{1+2} (beyond discal cell) mostly very short, much less than one fifth length of M_1 (e.g. DIENSKE 1987, Fig.73; PODENAS et al. 2006, Fig. XIIIb). 2
 - Wing with discal cell small, its posterior/lower margin (M_{3+4}) less than half length of M_4 , and with distal section of M_{1+2} about one fifth length of M_1 or more. 5
- 2 Male terminalia with aedeagus short, slightly exceeding half length of gonocoxite. 3
 - Male terminalia with aedeagus long, reaching at least to distal end of gonocoxite. 4
- 3 Body colouration comparatively dark and contrasting, pterostigma distinct, dark brown. Male terminalia with aedeagus gently sinuous in lateral aspect (THEOWALD 1977, Fig. 23). *A. (A.) analis* (Santos Abreu, 1923)

- Body colouration paler, rather plain, pterostigma weakly indicated. Male terminalia with aedeagus considerably upturned (STARÝ 1977, Figs 1–2). *A. (A.) ochracea* (Meigen, 1804)
- 4 Male terminalia with outer gonostylus flattened, conspicuously broad for most of its length, abruptly tapered into blackened hook (STARÝ 1977, Figs 7–9). *A. (A.) latistyla* Starý, 1977
- Male terminalia with outer gonostylus generally slender, gradually tapered into blackened spine slightly curved inwardly (Figs 3–4). *A. (A.) pallidior* sp. nov.
- 5 Origin of Rs opposite or shortly beyond tip of A₂. Male terminalia with outer gonostylus considerably slender, gradually tapered distally into blackened spine slightly curved inwardly, and with aedeagus comparatively short, exceeding half length of gonocoxite, bent upwards at right angle at distal quarter (STARÝ 1977, Figs 4–6). *A. (A.) brevicellula* Starý, 1977
- Origin of Rs shortly before tip of A₂. Male terminalia with outer gonostylus generally slender, parallel-sided and gently sinuous, abruptly tapered distally into sharp, blackened hook, and with aedeagus considerably long and slender, exceeding distal end of gonocoxite (Figs 1–2). *A. (A.) cretica* sp. nov.

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