A new mountain species of *Lasiopogon* from Corsica (Diptera, Asilidae)

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Abstract. – This is the first Corsican record of a robber fly in the genus *Lasiopogon* Loew, 1847. This species is new to science and probably endemic to Corsica. *Lasiopogon corsicus* n. sp. is described. By its phallus this species resembles *L. fourcatensis* Timon-David, 1950. The specimens were collected around characteristic mountain wetlands called Pozzines during the first phase of the "*Our Planet Reviewed in Corsica 2019-2021*" survey. Their discovery illustrates the significant contribution of this kind of scientific survey in an isolated biotope. Relevant literature references concerning the French *Lasiopogon* fauna are provided.

Résumé. – **Une nouvelle espèce montagnarde de *Lasiopogon* de Corse (Diptera, Asilidae)**. Cette contribution est la première mention d'un asilide du genre *Lasiopogon* Loew, 1847, en Corse. *Lasiopogon corsicus* n. sp. est décrit. La forme de son phallus est proche de celle de *L. fourcatensis* Timon-David, 1950. Cette espèce est nouvelle pour la science et probablement endémique de Corse. Les spécimens ont été collectés, à proximité de formations végétales typiques appelées "Pozzines", dans le cadre de la première phase de l'expédition "*La Planète Revisitée en Corse 2019-2021*". Ces collectes illustrent bien l'importance de ce type d'enquête scientifique au sein de biotopes isolés. Les principales références bibliographiques portant sur les genitalia des *Lasiopogon* de France sont présentées.

Keywords. – Robber fly, Stichopogoninae, France, Pozzines, distribution, taxonomy, genitalia.

Forty-six asilid species have been reported from Corsica (Tomasovic, 2003). In samples from the "Our Planet Reviewed in Corsica 2019-2021" project, we found an undescribed species of *Lasiopogon* Loew, 1847, the first record of the genus in Corsica. This paper describes this new species and discusses the diversity of *Lasiopogon* in France. For more information on the general framework, the areas studied, sampling methodologies, and preliminary results of this survey, see Touroult *et al.* (2023).

Materials and methods

The specimens were collected in southern Corsica from a typical wetland called a Pozzine (fig. 1). The term "pozzine" was introduced to the scientific literature by the botanist Briquet (1910: xxv, in footnote) to indicate certain wetland plant associations

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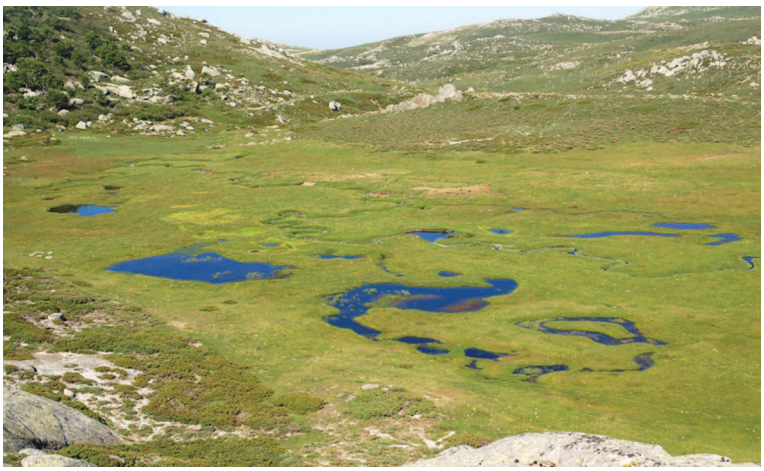

Fig. 1. – Pozzines of the Pian d'Ornucciu (Corsica). *(Picture from Jérôme Rattat; http://jerome-rattat.fr/page_Ornucciu.htm).*

of the High Corsican mountains. Pozzines occupy projecting ledges that accumulate fine materials, allowing significant retention of precipitation and snow melt; these elements come from the framing slopes colonized by xeric thorny shrubs. These wet grasslands have developed on small surfaces; close to water sources and on some banks, wetlands of high floristic richness exist (ALAOUI HARONI *et al*., 2009).

Male genitalia were dissected and glued on a cardboard attached to the pin of the corresponding specimens.

The photographs were taken with a Canon 90D equipped with a Canon EF 100 mm f/2.8L Macro IS USM. The focus bracketing function was used for habitus and the image compiled by stacking with DPP 4.10 software.

Repositories. – GxABT, Gembloux Agro-Bio Tech – ULiège, Gembloux, Belgique; **MNHN**, Muséum national d'Histoire naturelle, Paris, France; **OEC**, Office pour l'Environnement de la Corse, Corte, France.

The holotype and allotype are deposited in MNHN, paratypes in MNHN, OEC, and GxABT as indicated in "Type material".

SYSTEMATICS

Family **Asilidae** Latreille, 1802

Subfamily **Stichopogoninae** Hardy, 1930

Genus ***Lasiopogon*** Loew, 1847

Dasypogon (*Lasiopogon*) Loew, 1847: 508. Type species: *Dasypogon* (*Lasiopogon*) *pilosellus* Loew, 1847.

The species-rich genus *Lasiopogon* is widely distributed in Nearctic and Palearctic regions. They are often difficult to separate by color or external morphological characters but the structures of the male genitalia are definitive.

Five described *Lasiopogon* species are known from France: *L. cinctus* (Fabricius, 1781); *L. fourcatensis* Timon-David, 1950; *L. immaculatus* Strobl, 1893; *L. macquarti* (Perris, 1852) and *L. montanus* Schiner, 1862 (TOMASOVIC & CHAUBET, 2016). It is likely that *L. bellardii* Jaennicke, 1867, is also present, but this requires confirmation (TOMASOVIC & CHAUBET, 2016). For the study of these species, refer to the works of SEGUY (1927), WEINBERG & BÄCHLI (1995), CANNINGS (1996, 2002), MALDÈS & TOMASOVIC (2006) and

Tomasovic & Chaubet (2016). There are many undescribed species across Europe, from France to Turkey; a comprehensive revision of the continent's *Lasiopogon* fauna is needed (Cannings, 2002). Without such a revision, an identification key, even restricted to French species, would be premature.

Some male and female genitalia have been illustrated:

– Engel (1930): *L. cinctus,* p. 310 fig. 223; *L. immaculatus,* p. 312 fig. 224; *L. montanus,* p. 316 fig. 226;

– Theodor (1976): *L. cinctus*, aedeagus, proctiger and spermatheca, p. 70 fig. 141-143;

– Weinberg (1978): *L. montanus,* p. 296 fig. 1 (a-g ♂ and h-k ♀);

– Weinberg & Bachli (1995): *L. pilosellus,* p. 60 fig. 41b; *L. cinctus,* p. 60 fig. 41c, *L. montanus,* p. 60 fig. 41d, p. 62 fig. 43 and *L. immaculatus,* p. 61 fig. 42b;

– Cannings (1996): *L. bellardii*, male terminalia, p. 348 fig. 1-4, gonostylus in lateral, dorsal and ventroapical views: *L. bellardii*, p. 350 fig. 5, 7, 9, *L. montanus*, p. 350 fig. 6, 8, 10, Epandrium: *L. bellardii*, p. 351 fig. 11, *L. montanus* p. 351 fig. 12-14, epandrium apex: *L. bellardii*, p. 352 fig. 15, 18, *L. montanus,* p. 352 fig. 16-17, 19-20;

– Cannings (2002): *L. bellardii,* epandrium (dorsal and lateral views), p. 277 fig. 245b; hypandrium (ventral and lateral views), gonocoxite, gonostylus, p. 279 fig. 246b; female sternite 8 (ventral view), p. 285 fig. 249a; *L. cinctus*, epandrium (dorsal and lateral views), p. 277 fig. 245c; subepandrial sclerite, p. 281 fig. 247f; phallus (lateral and ventral views), p. 282 fig. 248e-f; *L. grajus,* epandrium (dorsal and lateral views), p. 277 fig. 245d; subepandrial sclerite, p. 281 fig 247b; *L. montanus,* subepandrial sclerite, p. 281 fig. 247a; phallus (lateral and ventral views), p. 282 fig. 248a-b; spermathecae, p. 287 fig. 250a;

– Maldès & Tomasovic (2006): *L. fourcatensis,* genitalia male, p. 341 fig. 1-9: 1-3 epandrium, 4 subepandrial sclerite, 5-6 dististylus, 7 phallus, 8 hypandrium, 9 antennae.

Biological information about *Lasiopogon* is scarce. We know little about the habitat requirements, larval habitats and behaviour, prey selection, reproductive behaviour, and life histories of most of these flies. Haab *et al*. (2019) investigated a North American species but summarised some of the ecological literature. Melin (1923) and Lavigne & Holland (1969) are also useful. Larvae live in the soil (Cannings, 2002). The imagos of *Lasiopogon* mostly fly in sandy or rocky places, especially near water, although the latter is not a prerequisite; many species are common in open areas in subalpine forests and meadows.

We agree with Cannings (2002) when he writes: "The internal structures of the male genitalia are critical for species determination. They offer stable and unequivocal characters for setting species limits; this is especially valuable in *Lasiopogon,* where many of the external characters traditionally used are variable and unreliable for taxonomic purposes".

Before the discovery of this new species, Tomasovic (2003) noted that alpine or subalpine species in genera such as *Cyrtopogon* Loew, 1847 or *Lasiopogon* were lacking in Corsica despite the island's mountains. It was thought that only lowland species had been able to spread throughout the island via continental links like narrow arms of the sea (Rasmont & Adamski, 1995).

***Lasiopogon corsicus* n. sp.** (fig. 2-6)

https://zoobank.org/NomenclaturalActs/69F92CBA-A0FD-4BEF-B52F-E84B1555EA20

Type material. – Holotype: ♂, France, Corsica, Serra di Scopamène, Castellu d'Ornucciu, 41°50′02.9″N, 9°09′24.2″E, 1559 m, Yellow Pan Trap in open rocky sites

along stream in pozzine landscape, 26-30.VI.2019, leg. M. Pollet, FR-COR/2019/154 La Planète Revisitée – MNHN Corsica/2019 (MNHN).

ALLOTYPE: ♀, same data as for holotype but with White Pan Trap, FR-COR/2019/155 La Planète Revisitée – MNHN Corsica/2019 (MNHN).

PARATYPES: 5 ♂, same data as for holotype but captured in a Blue Pan Trap. FR-COR/2019/156 (MNHN, OEC and 3 specimens at GxABT). Two of these specimens were partially dissected to study their genitalia. These paratypes can be used to remove a leg for DNA sequencing.

2 ♀, France, Corsica, Serra di Scopamène, Castellu d'Ornucciu, 41°50›00.5»N, 9°09›27.6»E, 1568 m, White Pan Trap in shady sites along stream in pozzine landscape, 26-30.VI.2019, leg. M. Pollet, FR-COR/2019/151 and FR-COR/2019/152 La Planète Revisitée – MNHN Corsica/2019 (OEC, GxABT).

Females were captured in white pan traps in shady sites; males were mainly captured in blue pan traps in open, rocky habitat about 100 metres from the shady sites.

Fig. 2-3. – *Lasiopogon corsicus* n. sp., ♂, habitus. – **2**, Lateral view. – **3**, Dorsal view.

Diagnosis. – Small species (about 7 mm long) with black mystax; grey mesonotal tomentum contrasting with brown dorsocentral stripes and narrow medial stripe. Katatergite bristles and other thoracic bristles black. Halter knob with dark spot. Legs black with grey tomentum and white hairs; these are long ventrally on femora. Abdomen black with white tomentum, tergite 1 laterally with about 12 white bristles (fig. 2-3). Genitalia of male robust, brown, with black hairs. Female genitalia with tergite 8 black, sternite 8 brown.

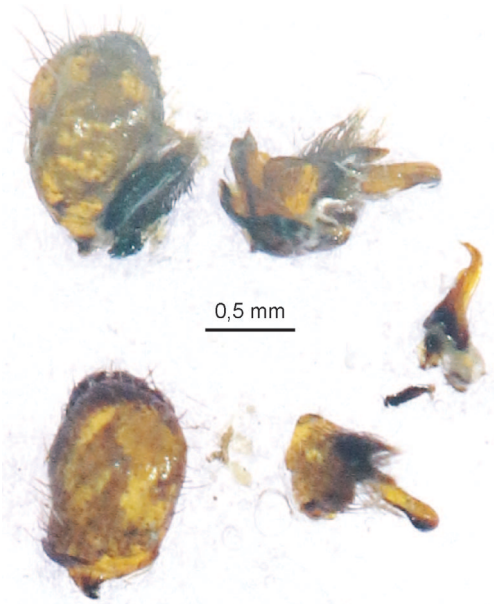

Fig. 4. – *Lasiopogon corsicus* n. sp., ♂, genitalia.

Etymology. – The species epithet refers to Corsica, where the type series was collected.

Description of male (holotype). – Body length: 7 mm; wing length: 5.7 mm.

Head. Face and frons with grey tomentum. Mystax black, frons with long, black, fine hairs. Antennae black, scape and pedicel with grey tomentum and relatively long black setae anteriorly, scape slightly shorter than pedicel, postpedicel as long as scape and pedicel combined, with one fine black seta. Ocellar tubercle and vertex with long, fine, black hairs.

Occiput with white tomentum; occipital setae black, long, and fine and bent anteriorly. Ventral occipital hairs white. Proboscis black, short and stout. Palpi black, small, with one or two fine setae ventrally.

Thorax. Scutum with grey tomentum, sparsely but evenly covered with black, fine and relatively long hairs (as long as scape and pedicle combined); three brown stripes, the two lateral ones (dorsocentral) wide and the medial one fine. Macrosetae long and black: two notopleurals, one prealar, two postalars, six or seven pairs of dorsocentrals on both sides of the transverse suture. Scutellum with grey tomentum; scutellar setae numerous, black, long, and

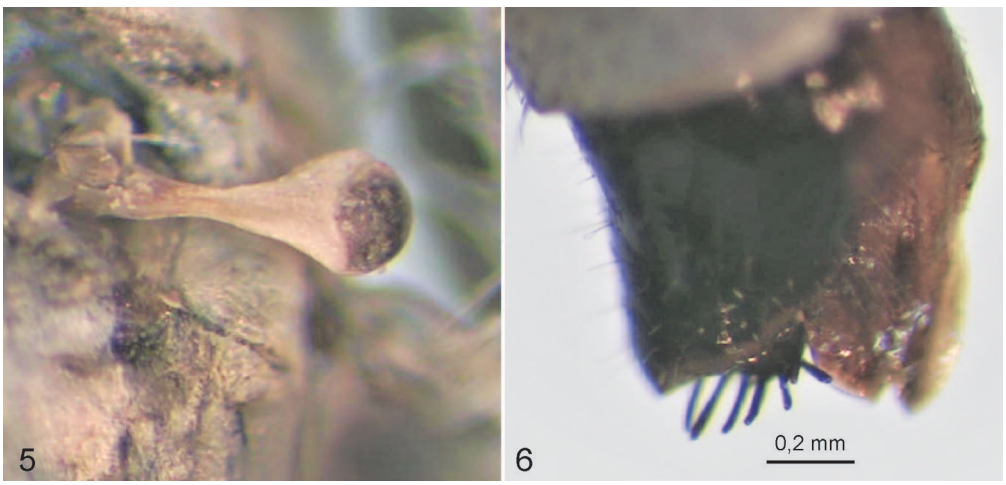

Fig. 5-6. – *Lasiopogon corsicus* n. sp. – **5**, Halter knob with a dark brown spot. – **6**, ♀, terminalia with acanthophorites (lateral view).

fine. Legs black with grey tomentum, covered by short white hairs, which are long ventrally on femora.

Pro- and mesofemora with a few black, fine setae. Tibiae and tarsi black with long, black setae. Wings brownish with black veins and covered by microtrichia. Halteres yellowish, with dark brown spot on knob (fig. 5).

Abdomen. Tergite cuticle black. Brown tomentum on tergite bases. Tergite 1, apical half covered with grey tomentum; on other segments, apical bands of grey tomentum cover about 0.3 the length of the tergite and extend laterally to the tergite base; hairs short and black dorsally; white, long, and fine laterally. Sternites with grey tomentum and sparse fine, long, white hairs.

Terminalia. Brown, large and swollen with black setae. Lateral width of epandrium halves about 0.6 times the length. Gonostylus short and broad, apex rounded. Phallus elongate and curved (fig. 4).

Female. – Similar to male. Abdominal tomentum pattern same as in male. Tergite 8 black, acanthophorite spines numerous and black (fig. 6). Sternite 8 clear brown.

CONCLUSION

Corsican robber flies are well-known; 46 species are recorded (TOMASOVIC, 2003). However, some specific environments, such as pozzines, deserve to be more fully explored.

Prospecting in the pozzines led to the discovery of a new species of *Lasiopogon*. This species is probably endemic to Corsica, and it is currently the only species of the genus known from the island. It is mainly distinguished from other species by its genitalia. Indeed, among the six French *Lasiopogon* species, four species have a large, short, and slightly curved phallus (*L. cinctus*, *L. immaculatus*, *L. macquarti* and *L. montanus*) and both other species have an elongate, curved phallus (*L. fourcatensis* and *L. corsicus*). Of these, only *L. corsicus* has the halter knob marked with a distinct dark brown spot. *Lasiopogon cinctus* and *L. montanus* also have the knob marked with a dark brown spot.

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