Second overall and first record for *Chionea bezzii* Oosterbroek & Reusch, 2008, from the French Pyrenees (Diptera, Limoniidae)

Clovis Quindroit
3 avenue de la Liberté, F – 59370 Mons-en-Baroeul, France. Corresponding author.
E-mail: clovis.quindroit@tutanota.com.

Léo Chekir
381 chemin de l'Airial, F – 40280 Bretagne-de-Marsan, France.

(Accepté le 25.I.2024 ; publié en ligne le 18.III.2024)

Citation. – Quindroit C. & Chekir L., 2024. Second overall and first record for *Chionea bezzii* Oosterbroek & Reusch, 2008, from the French Pyrenees (Diptera, Limoniidae). *Bulletin de la Société entomologique de France*, 129 (1) : 97-100. https://doi.org/10.32475/bsef_2292

Abstract. – *Chionea bezzii* Oosterbroek & Reusch, 2008, described from Spanish Pyrenees and until now only known by the holotype male, is mentioned by the capture of a single male specimen in French Pyrenees. A brief additional description is given.

Résumé. – **Seconde donnée globale et première donnée française pour *Chionea bezzii* Oosterbroek & Reusch, 2008, des Pyrénées (Diptera, Limoniidae)**. *Chionea bezzii* Oosterbroek & Reusch, 2008, décrite des Pyrénées espagnoles et jusqu'à présent connu exclusivement par le mâle holotype, est découverte en Ariège par la capture d'un spécimen mâle. Un bref complément de description est donné.

Keywords. – Distribution, Chioneinae, faunistics.

The genus *Chionea* Dalman, 1816, belongs to the family Limoniidae Rondani, 1856, and has eleven species in Europe (Oosterbroek, 2023). It is a particular genus, by having all species with extremely short wings, and also by being mostly active in winter whereby the adults are frequently encountered on snow. From France, four species are known, mostly restricted to mountainous areas, with one endemic species, *Chionea pyrenaea* (Bourne, 1981), only known from the French Pyrenees.

The European species of the genus were revised by Oosterbroek & Reusch (2008), which resulted in an easier approach of the determination and names given (a lot of species have been described, even in France, that have been synonymized). This review includes the description of *Chionea bezzii* Oosterbroek & Reusch, 2008, after a single male from Avencó Closes in the Spanish Pyrenees, collected in a glicol-beer trap placed between 11.X.1981 and 17.I.1982. The type locality in Huesca is less than 50 kilometres from the French border (fig. 1). Since the description, and although several more data for the genus

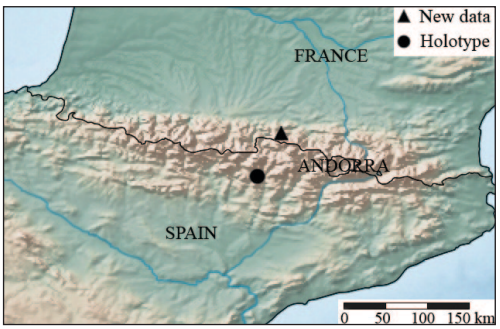

Fig. 1. – *Chionea bezzii* Oosterbroek & Reusch, world distribution. Circle: holotypus; triangle: new data. Designed using https://www.simplemappr.net.

ISSN : 0037-928X / eISSN : 2540-2641

have been given from the French Pyrenees, with a map of the species (OOSTERBROEK & D'AMICO, 2013), no other data for *C. bezzii* have become known.

We report here the capture of a male specimen (fig. 2) of *Chionea bezzii* in the French Pyrenees, making it the first record in France, and the first record since the capture of the holotype forty years ago.

RESULTS

Chionea bezzii Oosterbroek & Reusch, 2008

Material examined. – Ariège (09), Augirein (09027), 42.895909°N, 0.919843°E, 1230 m, 18.I.2023, in a beech/fir [*Fagus/Abies*] forest, on snow of 20-30 cm deep.

Remarks. – The specimen suits the original description and keys out easily using the key in OOSTERBROEK & REUSCH (2008), having a comb on sternite 9 (fig. 4) and a broad characteristic tergite 9 (fig. 5). Antennas have six segments (fig. 3). These characteristics lead in this key to the former subgenus *Sphaeconophilus* Becker, 1912, abandoned because it could not be maintained as a separate taxon with the subgenus *Chionea* (DE JONG & CILIBERTI, 2014).

DISCUSSION

A difference with the holotype can perhaps be found in the prolongation of the aedeagus (fig. 6). OOSTERBROEK & REUSCH (2008) mention that in *C. pyrenaea* the narrow prolongations of aedeagus are tubular and long, at least one third of the length of aedeagus itself. They further mention that in *C. bezzii* the narrow prolongations of the aedeagus are as in *C. pyrenaea*. This is also the case for our specimen of *C. bezzii*, the narrow prolongations of the aedeagus being about one third of the length of aedeagus itself (fig. 5).

The figure of *C. pyrenaea* in OOSTERBROEK & REUSCH (2008: fig. 19) is a copy of one of the figures in the original description of *C. pyrenaea* (Bourne, 1981). In this figure, made after the single holotype male, the narrow prolongations are coiled. But no mention is made by BOURNE (1981) or OOSTERBROEK & REUSCH (2008) about this "coiled" aspect. So, this might be a variable point, or a situation found after copulation, or a matter of preservation. In our specimen the narrow prolongations are not coiled but seem otherwise of a very natural state (fig. 6).

In France, the genus *Chionea* is most probably under recorded for several reasons: the adults have a somewhat spider-like appearance, making it difficult for non-crane fly specialists to recognise it as a Limoniidae. Also, since the main activities occur during the winter season, when most collectors are not in the field, it very much reduces the chance of finding specimens.

In the Pyrenees, the effects of climate change are already visible, with a reported average snow depth and a snow cover duration already decreasing clearly in the Pyrenees by 2100 m high, in spite of a strong interannual and local variability (not yet significant at 1500 m) (LÓPEZ-MORENO *et al.*, 2020). And it is expected that by 2050, in central Pyrenees, at 1800 m height, the average snow depth could be reduced by half, while snow cover duration could be reduced by more than a month (LÓPEZ-MORENO *et al.*, 2009).

In those conditions, as already well demonstrated by OOSTERBROEK & D'AMICO (2013), we can expect the two Pyrenean endemic species of *Chionea* to be highly endangered, as they are highly specialized "winter active" arthropod species, having an extremely scattered and fragmented distribution, with probably a low dispersal capacity.

In conclusion, *C bezzii* is a rare and highly endangered, cold adapted species of Limoniidae, endemic of the Pyrenees. This capture brings some light and questions on some variability aspect, and moreover, proves that the species is still present, forty years after the only capture. Still, most of it remains unknown, as its exact distribution, habitat preference or even female sex.

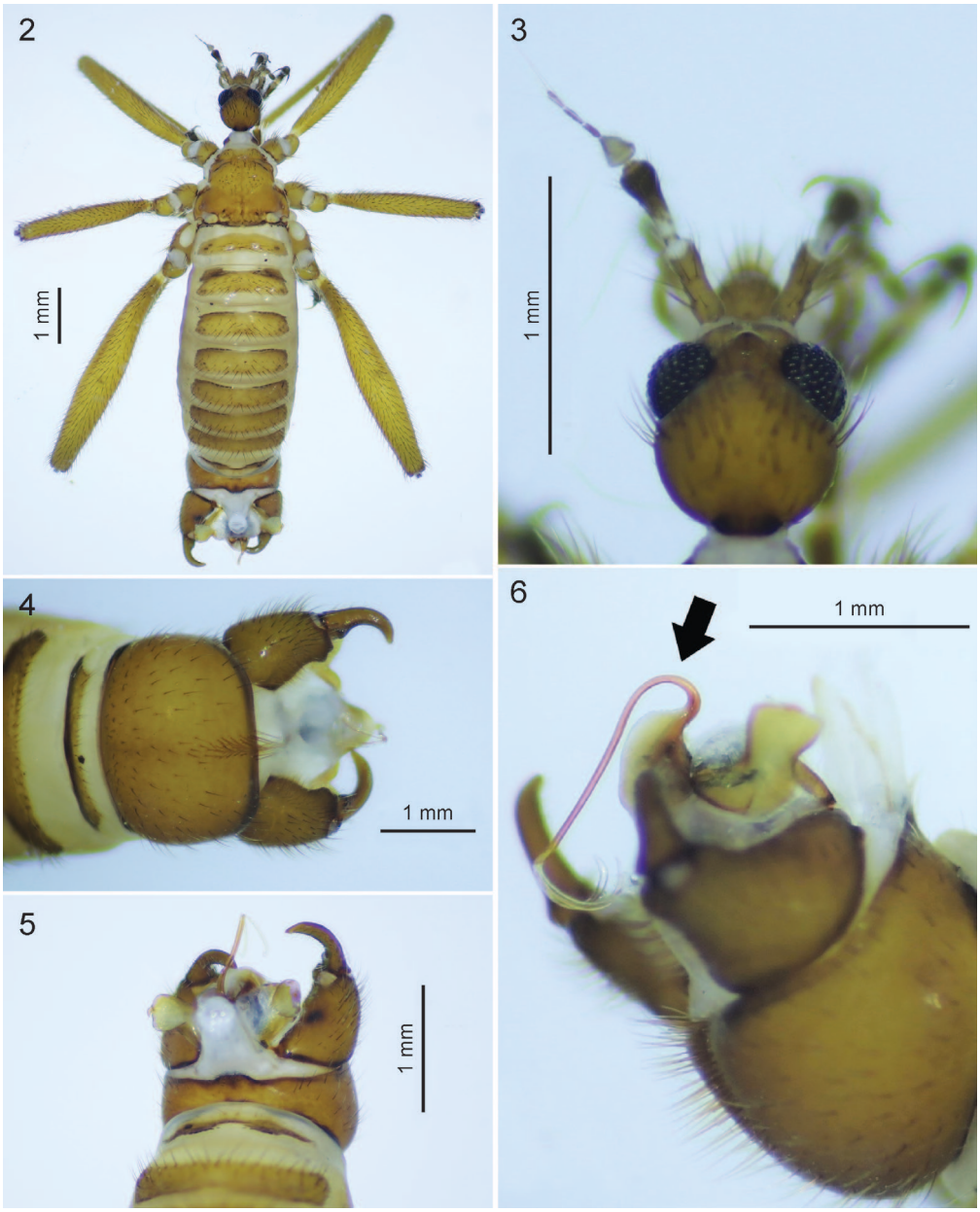

Fig. 2-6. – *Chionea bezzii* Oosterbroek & Reusch. – **2**, Habitus, dorsal view. – **3**, Head dorsal view, with antenna. – **4-6**, Terminalia : **4**, sternite 9 with comb hair; **5**, dorsal view, with characteristic tergite 9; **6**, lateral view, with aedeagus (arrow).

ACKNOWLEDGMENT. – We want to thank warmly Dr Pjotr Oosterbroek for his very valuable comments on the text, and his help in general.

REFERENCES

BOURNE J. D., 1981. – Une nouvelle espèce du genre *Niphadobata* des Pyrénées françaises (Diptera : Tipulidae). *Revue Suisse de Zoologie,* **88** : 765-767. https://doi.org/10.5962/bhl.part.82405

DE JONG H. & CILIBERTI P., 2014. – How cold-adapted flightless flies dispersed over the northern hemisphere: phylogeny and biogeography of the snow fly genus *Chionea* Dalman (Diptera: Limoniidae). *Systematic Entomology,* **39** : 563-589. https://doi.org/10.1111/syen.12075

LÓPEZ-MORENO J., GOYETE S. & BENISTON M., 2009. – Impact of climate change on snowpack in the Pyrenees: Horizontal spatial variability and vertical gradients. *Journal of Hydrology,* **374** (3-4) : 384-396. https://doi.org/10.1016/j.jhydrol.2009.06.049

LÓPEZ-MORENO J., SOUBEYROUX J.-M., GASCOIN., ALONSO-GONZALEZ E., DURÁN-GÓMEZ N., LAFAYSSE M., VERNAY M., CARMAGNOLA C. & MORIN S., 2020. – Long term trends (1958-2017) in snow duration and depth in the Pyrenees. *International Journal of Climatology,* **40** (14) : 6122-6136. https://doi.org/10.1002/joc.6571

OOSTERBROEK P., 2023. – Catalogue of the Craneflies of the World (Diptera, Tipuloidea: Pediciidae, Limoniidae, Cylindrotomidae, Tipulidae). https://ccw.naturalis.nl/ [consulted 12.II.2023].

OOSTERBROEK P. & D'AMICO F., 2013. – New records of the endemic snow fly *Chionea* (*Sphaeconophilus*) *pyrenaea* (Bourne, 1981) and updated distribution of snow fly species in the Pyrenees. *Pirineos,* **168** : 129-137. https://doi.org/10.3989/Pirineos.2013.168007

OOSTERBROEK P. & REUSCH H., 2008. – Review of the European species of the genus *Chionea* (Dalman, 1816) (Diptera, Limoniidae). *Braunschweiger Naturkundliche Schriften,* **8** (1) : 173-220.