

## Unexpected discovery of *Sarcophaga (Helicophagella) inopinata* (Rohdendorf) (Diptera, Sarcophagidae) from Finland

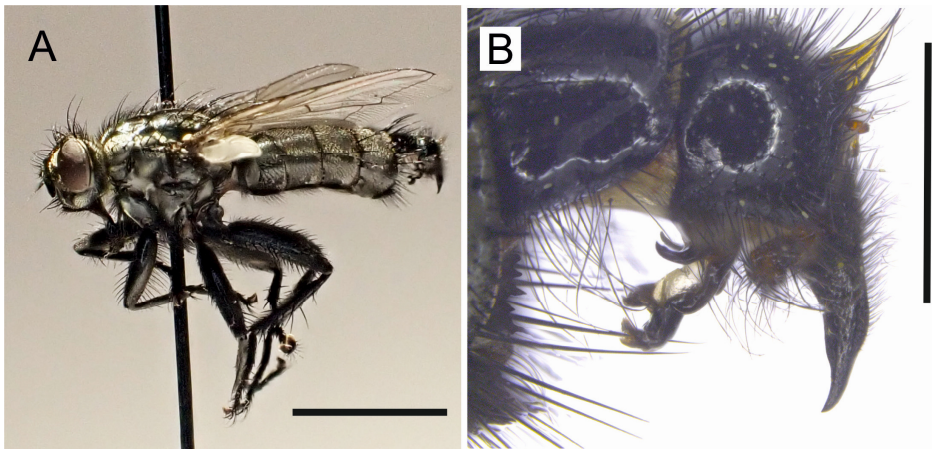
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### Summary

*Sarcophaga (Helicophagella) inopinata* (Rohdendorf, 1937) is recorded as new to Finland and Northern Europe.

During a field trip to Koivusuo strict nature reserve in Iломantsi, Finland, on 7 July 2020, I collected a large male flesh fly (Fig. 1A) from flowers of the hogweed *Heracleum sphondylium* ssp. *sibiricum* (Apiaceae). Males of Finnish Sarcophaginae species are usually fairly easy to identify and I was surprised when I was unable to key the specimen using the book on the Fennoscandian species (Pape 1987). However, when leafing through the figures in the book on Central European flesh flies (Povolný and Verves 1997), I noticed that the aedeagus of my specimen matched the illustration of *Sarcophaga (Helicophagella) inopinata* (Rohdendorf, 1937) given as an additional figure belonging to Appendix I of the book. The species is also included in the keys and figures in Blackith *et al.* (1998), which provided more confidence in the determination of the specimen. Eventually, Dr Thomas Pape kindly confirmed the identification from photographs of the male terminalia, which are quite characteristic compared to other species in the group (Fig. 1B).

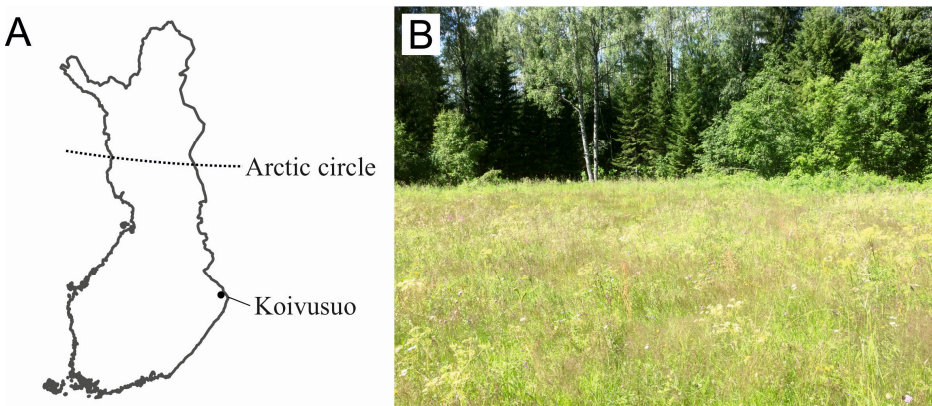


**Fig. 1.** The first *Sarcophaga inopinata* record from Finland: (A) habitus of the specimen, scale bar 5 mm; (B) terminalia of the same specimen. Compare with fig. 245 in Povolný and Verves (1997) and fig. 4 in Blackith *et al.* (1998). Scale bar 1mm.

Finding of this species in Eastern Finland can be considered surprising, as *S. inopinata* was not known from adjacent countries but only from Hungary, Kazakhstan (type location) and the

Russian Far East (Pape 1996). Overall, the literature on the species' distribution is scarce and for example the Hungarian record is based on *Sarcophaga hortobagyensis* (Mihályi, 1979), which has been interpreted as a junior synonym of *S. inopinata* (Verves 1993, Pape 1996). The biology of *S. inopinata* remains unknown, but some of the known species of *Sarcophaga* sg. *Helicophagella* are obligate parasitoids of snails, while others develop in faeces and small carrion (Blackith *et al.* 1998).

The Finnish specimen was collected in the yard of an old forest ranger's log house in Pirhunvaara, surrounded by a lush grass meadow with a rich flora of flowering plants such as hogweed, field scabious (*Knautia arvensis*, Caprifoliaceae) and oxeye daisy (*Leucanthemum vulgare*, Asteraceae) (Fig. 2). The location has also yielded interesting records of Tachinidae, including *Linnaemya rossica* Zimin, *Onychogonia flaviceps* (Zetterstedt), *Exorista fasciata* (Fallén) and a characteristically southern European species, *Ceromasia rubrifrons* (Macquart). With its meadow, Pirhunvaara differs markedly from its surroundings, as Koivusuo strict nature reserve is mainly known for its large, eccentric raised bogs (Seppä 2002) and old growth pine forests (Metsähallitus 2006). Koivusuo is located in the most eastern part of Finland and has a relatively continental climate with cold, snowy winters and warm summers.



**Fig. 2.** Collection location of the first Finnish *Sarcophaga inopinata* specimen: (A) Koivusuo strict nature reserve (N62.9729, E31.4010) is located in Iiomantsi, North Karelia, close to the Russian border; (B) meadow in Pirhunvaara, around an old forest ranger's log house.

Although the *Sarcophaga* sensu lato fauna of Finland is dominated by a few abundant species, the finding reported here emphasises the importance of regular collecting of this group too. The Finnish *Sarcophaga inopinata* specimen will be DNA barcoded as a part of the Finnish Barcode of Life initiative (<https://en.finbol.org>) and submitted to the Barcode of Life Database (<https://www.boldsystems.org>) to facilitate its identification in the future, especially of female specimens.

### Acknowledgements

I would like to thank Metsähallitus Wildlife Services, Finnish state authority for nature conservation, nature parks and reserves, for granting the five-year research permit (MH779/2018/06.06.02) to the protected areas under their jurisdiction. I am also grateful for Dr Thomas Pape and Dr Daniel Whitmore for confirming the identification and providing information regarding the literature, species nomenclature and records.

## References

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