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Abstract book

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Welcome

It is our sincere pleasure to welcome you on the EurBee 10 Congress in Tallinn, Estonia! The Congress is organized by the Estonian University of Life Sciences with assistance by Publicon OÜ.

EurBee is the event, where old and new friends get together to exchange the knowledge of novel scientific findings, associated with honeybees and other pollinators.
We encourage young researchers to meet the leading scientists on their field. Establishing networking and creating new connections is extremely important for sustainable bee research.

The City of Tallinn is the capital of Estonia. Tallinn's Hanseatic old town and nowadays modern architecture is a great mixture for every taste. We recommend you to discover the great Estonian flavors and the interesting culture that Tallinn offers you in abundance on every corner.

Looking further, Estonian nature with its forests, bogs and swamps is unique in the world – all the EurBee guests have the opportunity to experience its magic!

Experience magic – experience Estonia!

Sincerely Yours,

Risto Raimets
President of EurBee 10

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WING GEOMETRIC MORPHOMETRICS OF EUROPEAN HONEY BEE POPULATIONS

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Abstract

Wing venation patterns have long been used to identify honey bee subspecies, singly or in combination with other morphological traits, using different approaches. Beekeepers have traditionally used identification methods that only require estimations of the Cubital Index, Hantel Index, and/or Discoidal Shift Angle. However, these measures do not consider all the information carried by wing patterns, and a more accurate approach is geometric morphometrics, which requires the annotation of 19 landmarks in the forewing vein junctions. While manual wing annotation is a time-consuming and error-prone endeavour, the recently developed software DeepWings© performs this task automatically, allowing a fast and relatively accurate identification of European honey bee subspecies, and is appropriate for large-scale projects. In this study, we analyse the patterns of forewings extracted from over 850 colonies sampled across 29 European countries. To that end, the right forewings of five workers per colony are photographed with a digital camera attached to a stereomicroscope. The images are then analysed using DeepWings©. Our main objective is to assess (i) how closely the colonies identified by DeepWings© match the endemic evolutionary lineages and subspecies; and (ii) the association between the identification produced by DeepWings© and that inferred from mitochondrial DNA. While geometric morphometrics does not replace molecular tools for the identification of colonies, it can provide a preliminary estimation of their genetic integrity.

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