

Portuguese moth's mystery solved after 22 years

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Male (left) and female (right) of the Portuguese mystery moth, *Ekboarmia miniaria*. Credit: Dr Pasi Sihvonen

An unknown moth, collected from Portugal 22 years ago, has finally been named and placed in the tree of life thanks to the efforts of an international team of scientists. The moth was unambiguously placed in the family of geometer moths (Geometridae), commonly known as loopers or inchworms due to the characteristic looping gait of their larvae.

The [new species](#) description is published in the open access journal *Nota Lepidopterologica*, along with a taxonomic review of the genus

Ekboarmia, thought to comprise four species in the western Mediterranean area.

The first specimen, a male, was found in 1995 in Lagoa de Santo André, south of Lisbon, near the Atlantic coast. Despite its unique appearance, the specialists did not find enough similarities with any other European species, making its classification impossible. When three females were finally found following an intensive search in 2009, the team of scientists hoped they would find enough evidence to solve the mystery.

"The discovered females had different wing patterns compared to the males, suggesting sexual dimorphism, adding another complexity in the identification. This new species could not have been classified on the basis of external characters alone," explains Dieter Stünig from Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany.

In 2015, two specimens, a male and a female, have been DNA barcoded and recently became targets of detailed morphological examinations. DNA data played an essential role in demonstrating that the male and the female belong to the same species, whereas morphological structures finally provided unambiguous evidence to place the mystery moth in the geometrid genus Ekboarmia. The species name *miniaria* seemed appropriate to denote its small size. The tiny moth is the smallest in its genus whose other species are externally dissimilar.

Peder Skou from Denmark played a central role in the discovery of the species, tirelessly searching for more material to solve the questions.

"Discovery of an undescribed and distinct macromoth from Europe is a rare occasion, because the continent's fauna is probably the most exhaustively studied in the world," explains Skou.

Pasi Sihvonen from the Finnish Museum of Natural History concludes: "Virtually nothing is known about the species. Altogether, only 11

specimens have been found between 1995 and 2011. Larvae of related species feed on juniper needles, which might also be the foodplant of the new species. We hope that the richly illustrated publication of the new [moth](#) will lead to new discoveries of this mysterious species. More data are needed, for instance, its conservation status cannot be evaluated due to insufficient life history and distribution data."

More information: Hossein Rajaei et al, The biology and preimaginal morphology of Italian endemic species *Isturgia sparsaria* (Hübner, 1809) (Lepidoptera, Geometridae), *Nota Lepidopterologica* (2017). [DOI: 10.3897/nl.40.10865](#)

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