

FIRST IRISH RECORD OF *MICARIA MICANS* (BLACKWALL) (ARANEAE, GNAPHOSIDAE) AND REVALIDATION OF *MICARIA PULICARIA* (SUNDEVALL)

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Abstract

A recent revision of *Micaria* species (Muster and Michalik, 2019) revived the taxon *Micaria micans* (Blackwall, 1858) and offered a morphological diagnosis differentiating it from its congener *M. pulicaria* (Sundevall, 1831). Both species were found to be present in Britain. An examination of previously collected Irish *Micaria* specimens in combination with fieldwork carried out in 2019 and 2020 shows that both species are present in Ireland. Thus *M. micans* can be added to the Irish list and *M. pulicaria sensu stricto* retained.

Keywords: *Micaria micans*, *Micaria pulicaria*, first Irish record, revived name, revalidated name, Carnsore point, Gibson spider collection, National Museum of Ireland – Natural History.

Introduction

Muster and Michalik (2019), in a revision of cryptic species of *Micaria* (Westring, 1851) utilising DNA and morphological analyses, showed that the taxon *M. pulicaria* (Sundevall, 1831) in fact represented two species, one of which, *Micaria micans* (Blackwall, 1858), had been synonymised with *M. pulicaria* some years ago (Reimoser, 1937). Apart from critical microscopic characters, the authors identified one gross somatic feature of *M. micans* which they suggest allows it to be readily distinguished from *M. pulicaria*; the presence of an elongate area of dark hairs or darkened integument on the dorsal surface of femur IV. Substantial differences in habitat preference were also observed between the two species with *M. micans* preferring insolated, drier habitats and especially coastal dune systems and *M. pulicaria* cooler, shaded, often inland habitats including woodlands and heathlands (Muster and Michalik, 2019). The femoral character has been tested, and found reliable, by Russell-Smith (2020) and Gallon (2021) on a larger sample of British specimens than Muster and Michalik (2019) were able to consider and the differences in habitat preference also evidenced.

M. pulicaria is the only representative of the genus known from Ireland so the question arose as to whether *M. micans* is also present here. Given the species' strong association with coastal dune systems, a good starting point with a view to answering that question was with specimens collected by Leslie Gibson from the dune system and coastal grasslands at Carnsore Point,

County Wexford, in the early 1980s (Gibson, 1982), and which are in the collections of the National Museum of Ireland - Natural History (Registration number NMINH:1987.16.108). The combination of the 'sunny south-east' location and the habitat involved suggested it might be a plausible location to find *M. micans*. The Gibson collection had been completely re-examined between 1999 and 2000 (Nolan, 2000) and all species segregated so the specimens were also readily accessible.

The dark femoral stripe was evident in some specimens placing them readily in *M. micans* and an examination of other diagnostic features confirmed the identification. Because all the Gibson specimens had been collected more than forty years previously however it was obviously of interest to ascertain whether populations persisted. On foot of this, two brief collecting visits were made to Carnsore Point, and the nearby Carne beach, County Wexford, on the 4th and 9th of September 2020 where additional specimens of *M. micans* were found. The question of the status of *M. pulicaria sensu stricto* in Ireland was resolved with a re-examination of some specimens collected from heathland on Howth Head, County Dublin, in 2019, and this showed that they belonged to *M. pulicaria sensu stricto*.

Records

Micaria micans (Blackwall, 1858) **New Irish record**

WEXFORD: dune systems at Carnsore Burrow and Carnsore point (Irish Grid Reference T10), 27 April-11 May 1980, 2♂♂ from pitfall traps on coastal grassland dominated by *Agrostis*, *Carex* and *Festuca*; 19-31 July 1980, 2♀♀ from pitfall traps on fixed *Ammophila* dunes. Specimens collected and identified by Leslie Gibson; same site (T096046), 4 September 2020, 1♀ immature, (T110040), 9 September 2020, 1♂, 1♀ submature. Specimens grubbed from amongst the base of *Ammophila* tussocks on low, fixed fore-dunes, collected and identified by Myles Nolan.

Micaria pulicaria (Sundevall, 1831) **revalidated for Ireland**

DUBLIN: Howth Head (O23), 13 September-2 October 2019, from pitfall trap set amongst *Pteridium* on heathland; 23 July-6 August 2019, 1♂ from pitfall trap set amongst *Ulex* on heathland. Traps were set and sorted by Nessa Darcy and spiders identified by Myles Nolan.

Discussion

The Gibson specimens could be placed very clearly in *Micaria micans* on basis of the dark dorso-femoral markings on leg IV which distinguished the males strongly (Plate 1) though females somewhat less so. Microscope examination of other features recommended by Muster and Michalik (2019) substantiated the identification. A sclerotised region on the retrolateral side of the palpal tegulum (males only) could be clearly seen to be strongly sinuous, creating a deep

and distinct notch (Plate 2). On the prolateral side of the male palp the position of the terminal curve of the embolus was measured, confirming that it lies within the basal half of the bulbus (see Figure 4 in Muster and Michalik, 2019). The epigyne of the female specimens displayed the strongly parallel, rather than curved, mid-section of the copulatory ducts i.e.] [rather than) (*sensu* Gallon, 2021), identifying them also as *M. micans*.

The three specimens collected at Carnsore on the 4th and 9th of September 2020 exhibited the dark dorso-femoral strip of hairs – the feature was visible on-site with a x10 hand lens - and the adult male displayed the other diagnostic factors detailed above.

As part of a study of the beetles of Howth Head in 2019, Nessa Darcy had utilised pitfall traps with spiders occurring inevitably as by-catch. Funding from Fingal County Council made it possible for me to identify these. Two specimens of *Micaria* had been collected and these both proved to be *M. pulicaria sensu stricto*. Clear dorso-femoral markings were not present (Plate 1), the retrolateral notch was shallow and rather indistinct (Plate 2), and the terminal curve of the embolus lay in the apical half of the palp's bulbus.

Comments

While many more Irish specimens of *Micaria* were available for examination, I have restricted this note to detailing a small number that satisfactorily represent the two taxa in question as described by Muster and Michalik (2019). I also wished to supplement observations on the Gibson material only with recently collected specimens, the reason for this being that while it was possible to place some other specimens examined into one or other of the species with certainty, a number of others seemed somewhat more ambiguous. Occasionally the male retrolateral notch seemed more strongly developed than one might expect in specimens that otherwise fit with *M. pulicaria*. The form of the copulatory ducts in many female specimens were often quite difficult to discern being partly obscured by other structures. The epigynes of specimens illustrated in Muster and Michalik (2019) had been cleared, revealing their differences more explicitly. This would probably be necessary in order to properly assess much of the female Irish material. The clarity of the internal female ducts in the Gibson Carnsore (1980s) specimens was almost certainly partially the result of mild bleaching the specimens had undergone due to overlong exposure to light prior to acquisition by the Museum.

Even the most obvious 'gross' feature, the dorso-femoral stripe on leg IV, seemed sometimes neither obviously present nor absent. Some rather hirsute male femora gave the impression of having a distinct elongate section of hairs amidst the pile, which could be possibly interpreted as an enlarged version of the *micans* 'stripe'. It was felt however this could also be an artefact of light refracting at different angles from the lateral leg facets, causing some hairs to appear paler than others and exaggerating the 'darkness' of those placed dorsally.

It should be emphasised here that Muster and Michalik (2019) in their morphological analysis made it clear that not all diagnostic structures supported identification of a single taxon at all times, and that consideration of a range of features might be necessary for at least a proportion of specimens. Thus, a detailed examination of a wider dataset of specimens will be necessary before making a statement on the species' relative distribution in Ireland.

An initial rapid review suggests that *M. micans* may be restricted to coastal dune systems and associated grasslands in the southern half of Ireland. However, there are few records from such habitats north of Drogheda, County Louth so it may not be possible to verify this as yet. The review also seems to confirm that *M. micans* does not occur inland, with any specimens from such locations seeming to be of *M. pulicaria*. Given its wider habitat latitude *M. pulicaria* will probably be found to occur countrywide in Ireland. The records from Howth show how 'coastal' the species can be without necessarily overlapping with *M. micans*. However, both species have been recorded from the same broad habitat in Wales (Gallon, 2021), though the extent of their overlap within a particular location is uncertain.

Acknowledgements

Thanks to Martin Cawley for examining the specimens of *Micaria* noted here (and some others) and for reading this note in an earlier draft. His opinion reinforced my hesitancy in treating of a wider dataset of material before a more careful analysis can be carried out. Thanks also to Hans Visser, Biodiversity Officer, Fingal County Council for funding the analysis of the Howth spiders collected by Nessa Darcy, to Adam Mantell for bringing the Muster and Michalik paper to my attention and to Nigel Monaghan for the use of laboratory facilities and access to the NMINH collections.

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PLATE 1. *Micaria micans* (left) (collected M. Nolan, Carnsore point, 2020) and *M. pulicaria* (right) (collected N. Darcy, Howth Head, 2019) showing the dorso-femoral dark stripe of leg IV (seen less clearly on leg III) in *M. micans* – arrowed – and the non-variegated pilosity on the femur of *M. pulicaria*. Photograph: Myles Nolan.



PLATE 2. *Micaria micans* (left) (collected M. Nolan, Carnsore point, 2020) and *M. pulicaria* (right) (collected N. Darcy, Howth Head, 2019) showing the retrolateral notch on the male palp (arrowed for *M. micans*). Photograph: Myles Nolan.