

MICROPYGUS VAGANS PARENT (DIPTERA: DOLICHOPODIDAE), A NEW ZEALAND FLY IN THE BRITISH ISLES

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Abstract. A species of Dolichopodidae (Diptera) native to New Zealand, *Micropygus vagans* Parent, has been present in Ireland since 1971. It was found in Northern Ireland in 1987 and in several areas of south-west Scotland in 1994. The means and timing of introduction and rate of spread are unknown, but it was found to be numerous and well established at several sites.

INTRODUCTION

The occurrence of a dolichopodid of New Zealand origin in the British Isles has already been reported in the newsletter of the empid and dolichopodid study group (Chandler, 1996) and it was consequently included in the new checklist of British Diptera (Chandler, 1998). Here more detail is provided of the characters of this species and of the known records.

This species was first recognised in Irish material and was mentioned as an undetermined species of Campsicnemiinae (now included in Sympycninae) by Chandler (1988), when it was thought to be near to *Campsicnemus* Haliday, with which it was compared. The Irish specimens were examined by Peter Dyte, who considered that the species was more nearly related to *Sympycnus* Loew, but clearly not any of the known European species of this or related genera.

The matter rested there until the species was found in numbers in south-west Scotland, during the Dipterists Forum summer field meeting based at Ayr in 1995. It was then decided to submit specimens to Dan Bickel of the Australian Museum, Sydney, who was revising southern hemisphere genera of Sympycninae and he rapidly determined them as *Micropygus vagans* Parent, a species endemic to New Zealand.

It was thought for several reasons that this species had probably been introduced to the British Isles. It has been found in numbers at several localities, some of which are landscaped parks with gardens associated. It is apparently absent from earlier collections and one of the Irish sites is close to the residence of A. H. Haliday, the first author to monograph the Dolichopodidae of the British Isles, who might have been expected to have found it if it was present in the area in the 19th century. It is also well known that a number of other organisms, especially Coleoptera and terrestrial planarians, have been introduced to the British Isles from New Zealand, although no New Zealand Diptera have previously been recorded here.

The date and means of introduction of *M. vagans* is unknown, but it may have been brought in with plant material or soil around imported plants. It was already present in Ireland by 1971 and is widespread there, at least in the east of the island. In Scotland it is still known only from Ayrshire and Kirkcudbright, but is well established there. It may be restricted by climatic requirements and it will be interesting to see if it spreads to other parts of the country.

The genus *Micropygus* is endemic to New Zealand and not recorded elsewhere. All of the 16 known species were described by Parent (1933), most of them being recorded from only one or two localities. *M. vagans* was recorded from six scattered localities, mostly in the South Island, taken in x, xii-i and vi. Nothing was recorded concerning the habitats or biology of any species of *Micropygus*. Because the genus was described after 1930 and Parent did not designate a type-species, the generic name was unavailable until it was validated by Bickel & Dyte (1989), from which it now dates.

DESCRIPTION

This is a rather small fly of undistinguished appearance, the body approximately 2mm long, the wing 2.6-2.8 mm (male), 2.6-3.1mm (female). The body is predominantly dark greenish, more or less covered with grey dusting, and the legs are mainly yellow. The wing is mainly dark grey in appearance with brown veins, but with a strip including the posterior crossvein appearing whitish in both sexes, which is due to the absence both of pigmentation in the vein and of microtrichia on the adjacent part of the wing membrane (Fig. 1).

Unlike many members of the family, there are no obvious secondary sexual characters in the male. Apart from genital characters, the female has the face a little broader than in the male; Parent referred to presence of a ventral bristle on the mid tibia in the female, but this has not been found in the material available. The general description below therefore refers to both sexes.

The head is grey dusted, with areas on the frons appearing dull black when viewed from certain angles. The face is whitish grey and is narrow and parallel-sided below the antennae (a little broader in the female), then widening sharply to the mouth margin. The antennae and palpi are black. The antenna has the scape bare, pedicel with short bristles and third segment (first flagellomere) triangular, a little longer than broad, bluntly rounded apically and densely covered with hairs; the arista is set dorsally at the basal third of the third segment and is slender, about 3 x antennal length. The head bears 4 strong black bristles posteriorly, comprising a pair of divergent postocellars and an erect outer vertical bristle near the hind corner of each eye.

The thorax is humped, greenish brown in ground colour with thin grey dusting on the dorsum, which also bears three vague dark stripes which are widely interrupted around the suture, being present anteriorly before the first dorsocentral bristle and also posteriorly with the laterals on the dorsocentral rows. Acrostichal bristles are absent, but there are 5 pairs of strong erect dorsocentrals, 2 of them being presutural. The pleura are more strongly grey dusted.

The coxae are dark grey; the femora are vaguely greyish dorsally, this dark colouring usually not reaching the base or tip of the femur; the legs, including the trochanters, are otherwise dull yellow. Mid femur has anterior and posterior preapical bristles, the hind femur only an anterior preapical. Mid tibia has 2 long anterodorsals, situated at a third and two-thirds of its length, and a single posterodorsal basal to the more basal of the anterodorsals: these bristles are longer than the tibial width. Hind tibia has a row of about 8 dorsal bristles, of which 4 are usually longer and equalling tibial width, and 4 posteroventral bristles. Hind basitarsus (first tarsomere) is shorter than the second segment of the hind tarsus.

The wing (Fig. 1) is of grey appearance due to the presence of minute close-set microtrichia covering the membrane, except in a strip on either side of the posterior crossvein. The anterior crossvein is absent. The wing veins are brown except for the greater part of the posterior crossvein, which thus appears white in contrast to the rest of the wing. The halteres are yellow.

The abdomen is dark greenish with thin grey dusting. The male genitalia (Fig. 2) are small, black and held vertically; the cerci are relatively large with fine hairs. The female genitalia (Fig. 3) are slender and retracted *in situ*, with the epiproct bearing blunt spinose setae and the cerci strap-shaped and black, with a single apical seta.

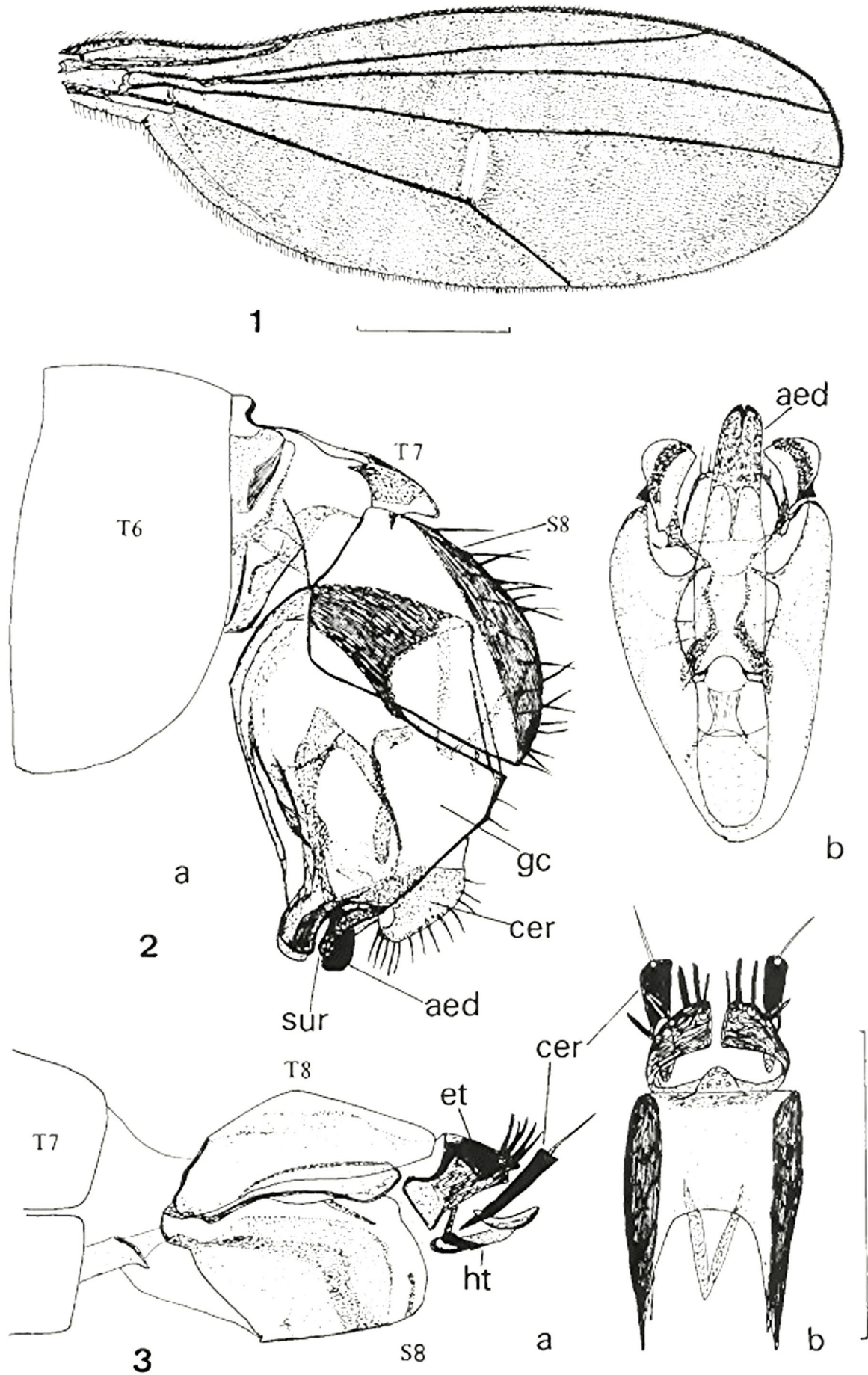
RECOGNITION

M. vagans runs in the keys by Assis Fonseca (1978) to couplet 12 in the male key to genera and couplet 13 in the female key. This is because the "discal vein" (M_{1+2}) is unforked and running straight to the margin parallel to the preceding vein (R_{4+5}), antennal scape simple, arista set basally on third antennal segment, proboscis and front coxae without spines, a preapical bristle present on the hind femur, acrostichals absent and 5 pairs of dorsocentrals present.

In both male and female keys the choice is then between *Campsicnemus*, which has the face narrowed below the antennae but then immediately broadened to the mouth margin, and other genera in which the face is narrowed from the antennae to the mouth margin. *Micropygus* thus differs from both alternatives in having the face parallel-sided on the upper part and then sharply broadened to the mouth margin. As mentioned above, there is some general resemblance to *Sympycnus*, which runs elsewhere in the keys by Assis Fonseca because the British species have uniserial acrostichals although these are absent in some exotic species. *Sympycnus* species also have 6 pairs of dorsocentrals.

According to the key by Parent (1933), *M. vagans* shares the characters of yellow tibiae and the white marking on the posterior crossvein with five other species of the genus, but all of these have one or more additional white markings on the wing and some also differ in chaetotaxy of the legs.

This wing character also enables immediate recognition of *M. vagans* among other small nondescript Dolichopodidae found in the British Isles.



Figs 1-3. *Micropygus vagans* Parent. 1. Male wing. 2. Male genitalia: a, lateral view; b, ventral view. 3. Female genitalia: a, lateral view; b, dorsal view. Abbreviations: aed = aedeagus, cer = cercus, et = epiproct, gc = genital capsule, ht = hypoproct, sur = surstylus, S = sternite, T = tergite. Scale lines: wing 0.5 mm, others 0.25 mm.

DISTRIBUTION

The Irish and British records are listed chronologically. Without recent Irish records it is not possible to speculate on how widespread it may now be there. The most recent list with locality data of Irish Dolichopodidae was by Dyte (1969), following his collecting trip in 1967. I collected Dolichopodidae, among other Diptera, widely in Ireland from 1968 to 1987, enabling Assis Fonseca (1978) to add six species and over thirty new county records to those previously recorded from Ireland. Prior to first finding this species in 1971, I had spent seven weeks collecting in Ireland and this find was on my fifth visit. The Irish dolichopodid list was updated by Speight & De Courcy Williams (1992) and Speight and others have also published several other notes on species additional to the Irish list, but have not reported this species.

The widespread occurrence of the species in Ayrshire and the adjacent part of Kirkcudbright suggests that *M. vagans* has been established in that part of Scotland for many years, but has passed unnoticed through lack of previous visits by dipterists. It is possible that Culzean (pronounced Cullane) Castle Park was the point of introduction, but until more is known of its biological requirements, the means of spread must remain uncertain. My records are cited as PJC; most specimens are in the collections of the recorders or that of Peter Dyte, but examples will be deposited in the National Museums of Scotland and other national collections.

IRELAND: *Dublin*, Howth (O2837), mixed woods on summit of hill, 17.vii.1971, female (PJC); 27.vi.1975, male and female (PJC).

Dublin, Slade of Saggart (O033245), 7.viii.1981. female (J. P. O'Connor, to be deposited in National Museum of Ireland).

Down, Crawfordsburn Country Park (J4481), 2 and 3.vii.1987, numerous by stream bordered by Rhododendron thicket in beech woodland (PJC).

SCOTLAND: *Ayrshire*, Culzean Castle Country Park (NS2209-2310): Swan Lake, 5.vii.1995. two females (PJC) and 6.vii.1995, in numbers amongst low vegetation around wooded margin of lake (R. Crossley); belt of sycamore woodland between shore and Cow Cliffs, vii.1995 (J. H. Cole); amongst Rhododendron by cliff path and by ditches near the Carse Walk, 16.vii.1995, numerous (PJC).

Ayrshire, River Ayr Gorge at Failton (NS458258), vii.1995, numerous below overhanging wooded riverbank (J. H. Cole)

Ayrshire, Bridgend, Loch Winnoch (NS348595), 6.vii.1995, frequent in wooded ravine with stony stream; presence of ramsons (*Allium ursinum*) suggested a base-rich influence (C. M. Drake).

Ayrshire, Sevenacres Mains Wood (NS332452), 6.vii.1995, 2 males, 1 female in secondary damp birch woodland on sand (C. M. Drake).

Ayrshire, North Lissens (NS323479), 6.vii.1995, frequent in oak/beech woodland with a stream and a few boggy patches (with *Luzula* and *Phalaris*) (C. M. Drake).

Ayrshire, East Newton Valley (NS519383), 8.vii.1995, very abundant by heavily shaded wooded stream (C. M. Drake).

Kirkcudbright (Dumfries & Galloway), Wood of Cree RSPB Reserve (NX3870), 7.vii.1995, 2 males, 3 females by small stream under oaks (C. M. Drake).

Kirkcudbright (Dumfries & Galloway), Loch Trool (NX415803), 7.vii.1995 male and female by wet drainage ditch alongside upland track with moorland vegetation, the only open site but near a stream under a few trees (C. M. Drake).

Wooded streams or ditches are a common factor to a number of the sites and in two cases wooded lake margins. However, at least one site lacked open water and the last mentioned site was away from trees. The woodland types are quite varied and other vegetation also quite variable. As with so many Dolichopodidae, development in damp soil or mud seems most likely, but knowledge of the early stages of members of the family with this general habitat is very limited.

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