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A new species of the Ornithomya biloba-group (Dipt., Hippoboscidae) from Crag Martin (Ptyonoprogne rupestris) (Aves, Hirundinidae)

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Ornithomya rupes, a new species of flat-fly (Dipt., Hippoboscidae), is described from Gibraltar and Switzerland, where it was collected from Crag Martin *(Ptyonoprogne rupestris).* It is the second European species of the *O. biloba*-group. It is most closely related to *O. biloba* DUFOUR itself, from which it differs most obviously in distribution of wing microtrichia, bristling of abdomen and tarsi, etc. The mite *Myialges (Myialges) bombycillae* FAIN (Sarcoptiformes; Epidermoptidae) was common on these flies.

Material of *Ornithomya* collected from Crag Martin *(Ptyonoprogne rupestris)* in Gibraltar was found to be an undescribed species. This discovery prompted a re-examination of earlier material recorded from this host in Switzerland (BÜTTIKER, 1959) which proved to be the same species. The new species is described below as a species of the *Ornithomya biloba*-group. It ist most closely related to *O. biloba* itself, the only other species of this group that regularly occurs in Europe.

Ornithomya rupes n. sp.

A species of the *O. biloba*-group, a group characterised by more extensive uniformly distributed wing microtrichia, particularly in cell 3r; postorbit not shorter than greatest width of inner orbit; eye not longer than greatest interocular distance; ocelli reduced; abdomen with three median tergal plates in both sexes; scutellar bristles not confined to a single transverse row near hind margin. The present species has the most reduced amount of microtrichia on the wings found in this group so far, including bare strips in cell 1m. It would run to *biloba* in the key to Palaearctic species in THEODOR & OLDROYD (1964).

FEMALE. Median length of medio-vertex c. 1.7x its minimum width, minimum width equal to length of post-vertex, c. 2x maximum width of inner orbit and a little less than greatest width of eye. Maximum interocular distance (at level of anterior edge of post-vertex) c. 2.25x minimum width of mediovertex and slightly less than maximum length of eye. Upper half of inner margins of eyes almost straight, only slightly divergent towards upper orbit. Median ocellus slightly transverse, lateral ocelli c. 0.5x median, all arranged in an equilateral triangle. Mediovertex c. 2x length of lunula which is slightly shorter than frons. Frons c. 3x as long as wide, width about equal to width of basal antennal segment. Frons about equal to length of apical antennal segment, which is c. 2.5x width. Length of palp c. 3x its width and longer than frons.

Palps (fig. 3) largely bare (more so than *biloba),* antenna (fig. 4) with more bristles, but bristles weaker especially at base, than *biloba.* C. 4–6 long vibrissal

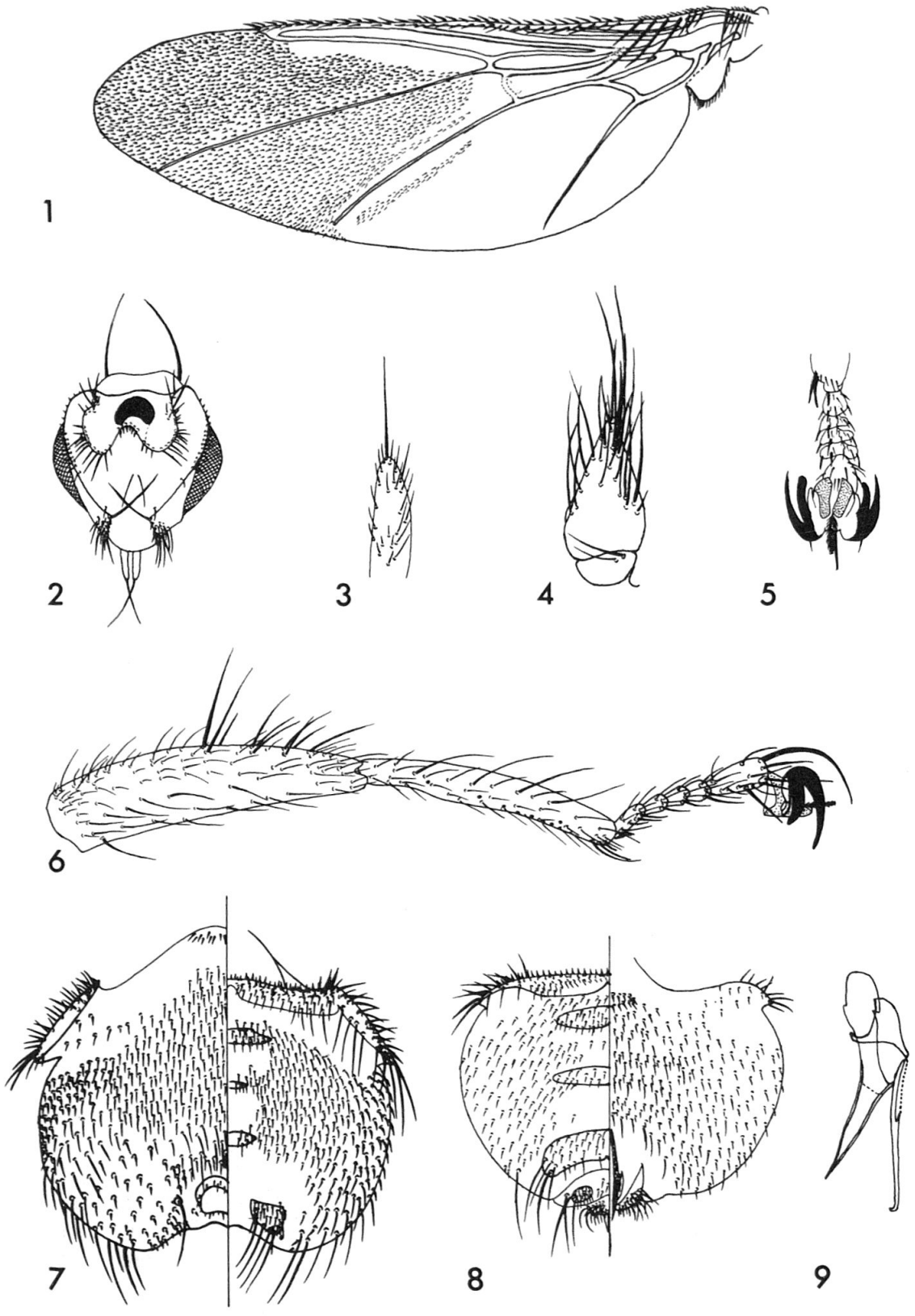

Fig. 1–9: *Ornithomya rupes* n. sp.: Wing (1), Ventral view of head (2), Palp (3), Antenna (4), Ventral view of fore-tarsi (5), Anterior view hind leg (6), ♀ abdomen (left ventral, right dorsal) (7), ♂ abdomen (left dorsal, right ventral) (8), ♂ genitalia (9).

setae and many short spinous ones (fig. 2). C. 6–10 stout gular spines, with 3 or 4 spinous median lateral gular bristles.

Prothoracic spiracle slightly smaller than in *biloba,* length 3x width. Mesonotum with 6–10 laterocentral bristles of which up to four are long, robust bristles, the rest very short and weak. Scutellum with a row of usually 4 (sometimes 6) strong bristles near posterior margin plus 3 or 4 strong bristles anterior to these and c. 20 shorter weak bristles.

Wing (fig. 1) length 4.1–4.8 mm. Length of costa between R1 and R2 + 3 1.0–1.5 x length of costa between R2 + 3 and R4 + 5. Cell 1r without microtrichia. Cell 2r without microtrichia except occasionally at extreme tip. Microtrichia not reaching base of cell 3r and only reaching vein R4 + 5 at its apex. Microtrichia not reaching base of cell 1m and with a bare strip alongside most of M3 + 4 and a short bare strip nearer middle of cell. Cell 2m with at most a few microtrichia at distal apical corner and in a strip near vein M3 + 4. Wing membrane with a slight brownish tinge. (The distribution of wing microtrichia is the most restricted to be seen in the *biloba*-group and approaches the state found in the *avicularia*-group).

Hind femur (fig. 6) length c. 4x width, bristling on anterior surface weaker and sparser than in *biloba.* Fore (fig. 5) and mid-tarsal segments 1–4 with posterior ventral bristles much weaker than anterior ventral bristles.

Tergite 2 (fig. 7) with only 1–2 basal rows of spinous bristles and 1–2 rows of longer fine bristles. Laterites with only about 12 bristles on the surface, these usually concentrated basally, leaving a bare area antero-ventrally.

Tergites 3 and 4 about equal in length, 3 c. 2 x 4 in width, 5 longer and intermediate in width. Tergites 3–5 with sparse fine bristles. Lateral pieces of tergite 6 as broad as long, with c. 4 long strong apical bristles and other weaker bristles on surface. Spiracle 6 adjacent to apico-lateral area of tergite 6. Dorsum of abdomen with fine bristles becoming stronger laterally and apically, but with bare areas between tergites and broadly around tergite 6. C. 20 long bristles on small papillae in apico-lateral area. Sides of abdomen (3rd abdominal segment) with large area of short spinous bristles on well developed pedicels. Venter of abdomen with 20–25 spines on sternum 1. Fine bristles becoming longer apically on each of sterna 2–5. Apical lobes of abdomen with short spinous bristles (shorter than spines on sternum 1) on well developed pedicels. C. 12 small spines between urogenital area and spiracle 7. A dense double row of bristles at median apex of abdomen (urogenital fence) leaving a clear area before urogenital aperture.

MALE. Lateral ocelli sometimes very small, more widely separated from each other than from median ocellus, otherwise as ♀. Tergite 2 (Fig. 8) with only 1–2 basal rows of spinous bristles and 1–2 rows of longer fine bristles apically. Laterites with a fairly uniform covering of rather stout bristles, longer bristles marginally.

Tergite 4 slightly narrower and broader than 3, slightly more than half as wide as 5. Tergites 3–5 with sparse fine bristles, 5 with c. 4–6 longer strong bristles in apico-lateral corners and apical margin. Lateral pieces of Tergite 6 c. 1.5–2.0x broader than long, with sparse fine bristles and 2–3 long stout bristles in lateral corners. Dorsum of abdomen with sparse short fine bristles with broad bare areas posterior to each tergite. 4 or 5 longer bristles in apico-lateral areas. Venter of abdomen with fine bristles becoming longer apically on each of sterna 2–5. Several longer bristles towards apex of abdomen. Lateral lobes of genital pore well devel-

oped with 4 or 5 long bristles and a few shorter fine bristles. Genitalia (fig. 9) with apex of penis distincly curved.

MATERIAL. Holotype ♀, from Crag Martin *(Ptyonoprogne rupestris),* Gibraltar, x-xi. 1974. B. ETHERIDGE (in British Museum [Natural History], London); Paratypes 6♂ 17♀, same data as holotype (1♂ 1♀ in Bernice P. Bishop Museum, Honolulu, rest in B.M. [N.H.], London). Also 2♂ (and pupae) from *Ptyonoprogne rupestris,* Switzerland, Berne, Sundlauenen, 9. viii. 1952. H. STRAHM. (Ex coll. W. BÜTTIKER, now in B.M. [N.H.]); 1♀, from *P. rupestris,* Switzerland, Arden (Rhône Valley), vii. 1980. H. MINDER (ex coll. W. BÜTTIKER, 5275, now in B.M. [N.H.]).

The Swiss material has not been included in the type series since it is from a very different locality and because the early specimens are very teneral, making it difficult to see some of the characters, and the recent specimen is damaged. However, I have no doubt that they are the same species. BÜTTIKER (1959) discussed other specimens from Castione, Switzerland, but these were not examined in the present study.

BEQUAERT originally identified the Swiss specimens as *O. fringillina* and later as *O. biloba* (teste labels on the specimens). BEQUAERT (1953) records *O. bilboa* from *P. rupestris* in France and so it is likely that these also belong to the present species.

B. ETHERIDGE reports (in litt.) that he and H. VON-GILS trapped the Gibraltar Crag Martins at roosts in limestone caves on the beach. The flies were on both adult and juvenile birds from the time the roosts formed in late October until the roosts disbanded in April. These were not local birds and ringed birds have been recovered in the breeding season from N.E. Spain, French Pyrenees and the Balearic Islands. It was not known whether the flies originated from the breeding sites or the roosting sites, but there was no marked decline in population through the period that the roosts were occupied. One or two pairs of Crag Martins nested in the roost caves during the summer.

Mites on the flies from Gibraltar have been identified by D. MACFARLANE as *Myialges (Myialges) bombycillae* FAIN (Sarcoptiformes; Epidermoptidae). 12 of the 24 flies were carrying 26 adult mites, most of these surrounded by clusters of eggs. One gravid ♀ fly was carrying two nymphs. One ♂ fly was carrying many larvae between the mid- and hind coxae. 3 of 6 ♂ flies were carrying 4 adult mites (incidence rate: 50%; infestation rate: 0.66 mites per fly), 3 of 7 non-gravid ♀ flies were carrying 5 adult mites (43%; 0.72 mites per fly), 6 of 11 obviously gravid flies were carrying 17 adult mites (55%; 1.55 mites per fly). There is therefore a tendency for mites to occur on gravid flies. The mites were widely distributed on the lower surface of the flies towards the apex of the abdomen (3), at sides of abdomen (3), at base of abdomen (3), at base of wings (4), around fore-coxae to anterior spiracle (3), gular region (1) and vibrissal region (6); three were removed before their position had been noted. *M. bombycillae* is known from Belgium from a skin of a Waxwing *(Bombycilla garrulus)* and from the abdomen of an *O. avicularia* from Woodpigeon *(Columba palumbus).* Further information on these mites can be obtained from FAIN (1966) and HILL *et al.* (1967). *M. uncus* is recorded from *O. biloba* from *H. rustica* by FAIN (1966) and BÜTTIKER & ČZERNÝ (1971).

AFFINITIES. The new species is most closely related to the Palaearctic *O. biloba* which differs principally in usually lacking vibrissal spines (sometimes 2 or 3

present); wings clearer with more extensive microtrichia (including microtrichia in cell 2r extending back as far as vein R2 + 3, cell 3r and 1m with uniform microtrichia except at extreme base, cell 2m with microtrichia along most of length of last abscissa of M3 + 4 and across to wing margin); length of costa between R1 and R2 + 3 1.5–2.0 x length of costa between R2 + 3 and R4 + 5; bristling on anterior surface of hind femur stronger and denser; fore and mid-tarsal segments 1–4 with posterior and anterior ventral bristles equally strong; tergite 1 with 4–6 rows of bristles; ♀ with areas between tergites 1–4 with at least two or three complete rows of bristles towards posterior, abdominal dorso-lateral bristles closely approaching lateral pieces of tergite 6, dorsal abdominal bristles shorter and stouter, apico-lateral area of abdomen with only short, slightly stouter bristles, which are shorter and on more enlarged bases towards venter of abdomen, only a small lateral area of short stout bristles on papillate bases, c. 15 long bristles and c. 30 short stout spines in ventral urogenital fence; ♂ with lateral lobes of urogenital area smaller with only 2–4 bristles.

This new species of *Ornithomya* brings the total of species of this genus regularly occurring in Europe to five. These are separated into the *avicularia*-group *(avicularia* Linnaeus, *chloropus* Bergroth and *fringillina* Curtis) and the *biloba*-group *(biloba* Dufour and *rupes* n. sp.). The *O. biloba*-group is restricted to Hirundinidae with most known species occurring in the Afrotropical region. *O. biloba* is widespread in continental Europe and North Africa (Theodor & Oldroyd, 1964) with a few records from the Afrotropical region (Maa, 1964). It has also been recorded from the Oriental region (Maa, 1977), but such records need verification in the light of recent work on the group. In Europe it is usually recorded from the Swallow *(Hirundo rustica),* on which it is common over most of the range of the fly and is recorded occasionally on other Hirundines, such as House Martin *(Delichon urbica),* Sand Martin *(Riparia riparia)* and Crag Martin *(P. rupestris).* Records from *D. urbica* are undoubted stragglers, but records from *R. riparia* could refer to an African species. *O. biloba* does not occur throughout the range of its preferred host *H. rustica;* for instance, it is extremely rare in Britain.

The discovery of this new species in Europe suggests the possibility of other such discoveries even in Europe: there appears to be no European record from Red-rumped Swallow *(H. daurica)* from which two non-European species have been recorded in Africa (Hutson, 1971). It would be worth examining *H. daurica* in Europe: Hippoboscidae of hirundines tend to deposit larvae in the nest (presumably due to the nest-site loyalty shown by their hosts) and the nest of *H. daurica* is more like *D. urbica* than other local hirundines. *D. urbica* has its own Hippoboscid, *Crataerina hirundinis* Linnaeus, which is also known to occur on *H. rustica* in continental Europe. There seems no reason why European *H. daurica* should not be host to a Hippoboscid, but it could be a species of either *Crataerina* or *Ornithomya.* If *Ornithomya* occurs on *H. daurica* in Europe, the identity of the species may help to establish the host preferences of the species found in Africa.

Species of the *O. biloba*-group show a much greater degree of host-specificity than species of the *avicularia*-group, but much more data is required before a good picture of the limits of this specificity and the range of the group as a whole can be made. Undescribed species are known from Australia (T. C. Maa, *in litt.)* and more collecting in the Oriental region may well produce further species. Some of the Afrotropical species are very poorly known.

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