ON THE BRITISH SPECIES OF *SCAPTOMYZA* HARDY AND *PARASCAPTOMYZA* DUDA (DIPT., DROSOPHILIDAE)

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THE NAME *Scaptomyza* was given by Hardy in 1849 to a described genus founded upon two Drosophilid species bred from leaf-mining larvae, one of which he described under the new name of *apicalis*, the other he identified as *Drosophila graminum* Fallén. Coquillett in 1910, without having seen Hardy's paper (as indicated by an asterisk appended to the reference) designated *D. graminum* Fln., as type. Unfortunately Fallén included more than one species under the name *graminum*, and Becker in 1908 (Mitt. Zool. Mus. Berlin IV. 157), very obviously without having consulted Hardy's paper, restricted the name *graminum* Fln., to a different species from that to which Hardy had already many years previously restricted it. Owing to the fact that Hardy's paper appeared in a little-known periodical known as *The Proceedings of the Bewickshire Naturalists Club*, and Becker's in a well-known publication of the Berlin Museum, the name *graminum* Fln. has often been accepted (and is still accepted in America) for a species different from either of those for which the genus *Scaptomyza* was originally founded, namely for the species described by Duda in 1921 as *Scaptomyza disticha*, for the reception of which he subsequently (1924) founded the new subgenus *Parascaptomyza*. This species *P. disticha* Duda was apparently unknown to Hardy, it does not possess the generic characters quoted for his genus *Scaptomyza* of (1) having a leaf-mining larva, (2) possessing only a 'moderate' facial keel, and (3) a female ovipositor with 'shining serrated plates'. Moreover in *P. disticha* the dark line on the thorax is not continued on to the scutellum as quoted in the descriptions of *graminum* Fln., by Meigen, Zetterstedt, and Schiner. Unless one accepts the name *graminum* Fln., as the correct name for a Drosophilid with leaf-mining larvae it cannot be used for the type of Hardy's genus *Scaptomyza*. I follow Duda in accepting Hardy's limitation in the use of Fallén's name *graminum* for such a species.

With regard to the number of species belonging to this genus, their correct names, and their distinguishing characters, a lot of work remains to be done before anything like finality can be attained. In so far as the two species (*S. graminum* and *flaveola*) standing in our British List are concerned, it appears probable that they seldom or never attack the same plant, *S. graminum* having been recorded as mainly attacking Caryophyllaceae and Chenopodiaceae, and *S. flaveola* (*apicalis*) Cruciferae and Leguminosae, but as there are actually at least three other British species it is obvious that much useful work could be done by breeding specimens of this genus from different plants, not forgetting to preserve the pupa cases from which

they emerge. Having by this method arrived at a sound knowledge of the limits of variation in the different species one could proceed with some confidence with a critical study of various types of already described species known to be in existence. It would appear that differences in colour must be accepted with caution, while in regard to colour of antennae, face, and legs, females are often darker than males; apparently also little or no value can be placed on either the size of the anterior reclinate orbital bristle, or its position in relation to that of the proclinate orbital, or on the number of hairs on the upper side of the arista, or the venation of wings. The facial ridge has its least development in *flaveola* and its greatest in *trochanterata*, it is often more noticeable in females than in males, if only because it is often darker in the former.

As a preliminary aid to the identification of the British species I venture to give the following keys and notes.

One can first eliminate *Parascaptomyza disticha* Duda by its acrostichal setae being in two rows only, and by its very distinctive male and female genitalia, the former being without the pendant hairy cerci, the latter being without the prominent, chitinized, serrated plates, of *Scaptomyza*. Its larvae live in decaying vegetable matter, and apparently never *make* a mine though they may sometimes be found in the mines of other insects.

KEY TO THE BRITISH SPECIES OF SCAPTOMYZA

1. (2) A distinct nose-like keel to face (as usual more conspicuous in female), and a short black almost spine-like bristle on hind trochanters beneath, instead of the usual bristly hair. Male anal lamellae, or cerci, hairy on basal half but almost bare on apical half, with a slight indentation between. *trochanterata* **sp.n.**
2. (1) At most only a slight facial ridge in male, and not nose-like even in female. Only bristly hairs on hind trochanters. Male anal lamellae hairy all over.
3. (6) A minute bristle on frontal orbits between the upper reclinate orbital and vertical bristles, or if absent entirely yellow species with only anal cerci black. Hairs on *front* side of arista longer than usual. Apical scutellar bristles long, extending rearwards quite as far as lateral bristles.
4. (5) Jowls below eyes at narrowest part quite as wide from lower margin of eye to line of small peristomal bristles as end of front femora from a side view. Often entirely yellow species with only anal cerci black (typical), or yellowish-grey, or grey (Vars). *flaveola* Mg. (*apicalis* Hardy).
5. (4) Jowls below eyes narrower, at narrowest part measured as above about as wide as base of front tibia. Always quite dark species. *montana* Wheeler.
6. (3) No minute bristle between upper reclinate orbital and vertical bristles. Hairs on front side of arista shorter. Apical scutellar bristles shorter, not extending rearwards so far as lateral bristles.
7. (8) Lighter grey species with obvious dark stripes on thorax, narrower jowls and large male cerci (both as in *montana*). Clypeus and proboscis yellowish in both sexes..... *graminum* Fln.
8. (7) Darker species (especially in female), without or with only faint stripes on thorax, wider jowls (as in *flaveola*), and often with darkened

femora. Male anal cerci entirely hairy and smaller than in any other species. Wings rather short and brownish-yellow. Female usually with antennae, median line of face, proboscis, and tip of palpi, darkened. *griseola* Zett.

S. trochanterata sp.n. ♂ ♀

A reddish-brown or rust-coloured species possessing the distinctive characters given in the above key.

♂. Head in most respects similar to that of *graminum*, but face slightly narrower than usual in the genus, pale yellow with a sharply ridged more nose-like keel than in any other species, similar but not quite so prominent as in *P. disticha* Duda. Jowls below eyes at narrowest part (in front) about as wide as base of front tibia and yellow. Two rather stouter than usual black spines at end of each yellow palpus. All other head bristles (including those on antennae) rather stout. No minute bristle between posterior reclinate orbital and vertical bristles. Antennae similar in colour to frontal stripe, and hairs in front of arista short.

Thorax always decidedly rufous at least in part, sometimes almost entirely so, at others with three ill-defined longitudinal darkened areas, and irregularly darkened pleurae. Humeri with the bristle at middle much the longest but there is a short hair above it, and another (which may vary in strength and length but is never very long) below it. One or two of the presutural row of dorso-central hairs may be somewhat developed. Acrostichals regularly quadriserial in front, irregularly biserial behind. Apical (cruciate) scutellar bristles shorter than the lateral but if stretched out would extend almost as far rearwards.

Abdomen blacker than thorax, less so about base, sixth tergite apparently without even the microscopic dusting which gives the other tergites a greyish sheen from some points of view. The prehypopygial tergite however microscopically pilose at least on its hindmargin. Anal lamellae or cerci not very large, and very distinctive with their almost bare apical half. All sternites yellow.

Legs entirely yellow, with a distinctive black spinose bristle on lower side of hind trochanters. Wings not materially differing from those of *graminum*, but both bristles of the pair at costal break equally long, more like those of *P. disticha*.

♀. Not greatly differing from male except in the sexual character of a darker and slightly more prominent facial keel, while the sixth abdominal tergite is microscopically pilose especially at sides and on hindmargin, the black long-haired anal cerci comparatively small, and the tawny or brown chitinized ovipositor plates narrow and only weakly spinose, the only obvious spines being about six small ones on the evenly rounded end, the uppermost one of these being slightly longer, lateral sides of plate not so convex as usual. Legs with the short setae on front tibiae and tarsi, as usual, not so outstanding as in the male. Length about 2 mm., rather more in female.

Described from a series taken by myself at Kinrara, near Aviemore (Inverness) on 9th July, 1936, but Col. Yerbury had previously taken a male at Nairn on 25th May, 1904.

S. FLAVEOLA Meigen (1830). With regard to the name of this species (which was described by Hardy as *Scaptomyza apicalis*) Fallén's name of *Drosophila flava* which was used by Hendel in 1928 (Zool. Anz. LXXVI: 295) for this species is not available. Some years ago when I examined Fallén's Collection at Stockholm I found a female under this name which according to my notes was a species of *Drosophila* of the *fenestrarum*-group. The type of *flaveola* which was received by Meigen from Wiedemann is not to be found either in Meigen's Collection at Paris or in Wiedemann's Collection at Vienna,

if it is not at Kiel it must be considered lost, but a leaf-mining Drosophilid which was certainly the *S. apicalis* of Hardy was bred and recorded under the name of *Drosophila flaveola* Mg., by Goureau and Kaltenbach, and Schiner accepted the identification as correct; as there is nothing contradictory in Meigen's description of *flaveola* (even though he placed it in his genus *Notiphila*) I see no reason for refusing to accept this identification. This species has been reported as breeding in radish leaves in America, and I have bred it from the same plant in this country, as well as specimens of the greyer variety from cauliflower leaves. The *S. nigrocella* Wheeler described and mentioned in the same publications as *montana* appears to be a synonym.

S. MONTANA Wheeler, (1949). I use the name proposed by Wheeler (Univ. Texas Publ. No. 4920, 166; ibid No. 5204:203) for a northern nearctic species found breeding in the leaves of watercress as that of our British species on the supposition that there is no prior name because the species has previously been mixed up with *graminum* Fln., however it may ultimately be found that one of the synonyms of *graminum* is an earlier name for this species, one which I obtain by sweeping over plants of watercress in this country.

S. GRAMINUM Fallén, (1823). It appears certain that this very common and widely distributed species must breed in some equally common and widely distributed plant such as chickweed *Stellaria media*, (and possibly other allied Caryophyllaceae) as recorded by Hardy, but I strongly suspect that specimens bred from *Anthyllus vulneraria* will prove to represent a distinct species.

S. GRISEOLA Zetterstedt, (1847). This species was described by Zetterstedt from the female only, and in that sex is darker than in the male. *S. grisescens* Duda (1935, Lindner's Die Fliegen. Drosophilidae) is almost certainly a synonym. My interest in this species was first aroused by a male specimen taken by Dr. D. Sharp at Lockwood Oaks, Beattock (Dumfries) in July, 1907, and then in June, 1942, I found a similar male at Kennett (Cambs), but it was not until the 13th April, 1952, that I came across the species in some numbers, and both sexes, at Barton Mills (Suffolk), and satisfied myself that it represented a distinct species.

PARARGE AEGERIA CAPTURED BY A DRAGONFLY.—With reference to Mr. S. B. Hodgson's note on this subject in the March issue (p. 66), it would be as well to record now an additional instance. In a lane here on 8th September, 1942, a male *Aeshna cyanea* hawking the hedgerow seized a *P. aegeria*. Both captor and prey were luckily quickly captured together, and the remains of the butterfly, though much mangled, were still easily recognizable. This is the only occasion on which I have witnessed the capture of a butterfly by a dragonfly.—J. COWLEY, Holywell House, Edington, Bridgwater, Som.