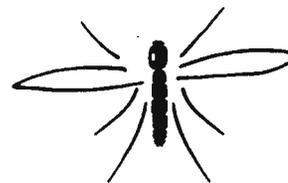


Larger Brachycera Recording Scheme

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Variation in female *Haematopota crassicornis* (Tabanidae)

Alan Stubbs

Most species of horseflies are variable. Goffe in the 1930s named numerous varieties. The problem is to recognise the point at which a single species may in fact comprise two or more species. There is such a problem within *Haematopota crassicornis*.

Female *crassicornis* have the first antennal segment short and inflated, without a subapical notch and with the outer half glossy in lateral view. The antennae are entirely black (or rarely with a tiny trace of orange at the base of the third segment). Typically the dark markings on the wing are relatively strong and distinctly blackish.

The following key notes some forms that will need further thought and further material.

- 1 Tergites from above blackish with only vague dark grey markings. Tergites 3-6 viewed from behind almost uniformly drab grey dusted. Wing dark patches areas reduced to much less than 50% so clear areas predominant. **Form D**

- Tergites 3-6 with distinct grey spots, at least in hind view when blackish areas remain dark in contrast to spots. Wing markings normal, dark areas predominant. 2
- 2 Tergite 2 with a small but distinct pair of grey spots. Tergites overall with very large distinct grey spots and grey flanks, sharply contrasting with dark markings. Wing markings particularly blackish. **Form C**
- Tergite 2 without a distinct pair of spots and markings overall less pronounced. 3
- 3 Wing rather brown with a brown stigma. **Form B**
- Wing with a blacker wing including a black stigma. **Form A**

Form A Typical upland form.

Form B Typical of coastal levels in south-east England and possibly other southern lowlands.

Form C An example from Magor Marsh, Gwent (K Merrifield).

Form D An example from Ross of Mull coast, west Scotland (D Phillips).

There is some suspicion that Forms A and B could be distinct species. Form C may be a variant of the upland form even though it was taken on a coastal level in Wales. Form D looks so different that it may well be a separate species.

Malcolm Smart is posting to me a male problem specimen that may relate to these issues. This loose end needs early resolution for the book. Any comments will be welcomed.

***Hybomitra ciureai* Séguéy (Tabanidae) new to Hampshire (Tabanidae)**

Andrew Grayson

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Whilst checking the identifications of tabanids contained in the collection of Donald H. Smith, I came across a female *Hybomitra ciureai* (standing under an incorrect species name) collected by Don from Beaulieu, south Hampshire (41/38 02) on 8 July 1951. Both Drake (1991) and Falk (1991) give distributional and ecological data for *H. ciureai* in Britain. Drake (1991) gives records from eight vice-counties from West Sussex to East Norfolk, with the note that 'recent records (1970 onwards) come from all coastal counties from East Sussex to Norfolk; there are no old records (pre-1970) outside this area.' The specimen taken at Beaulieu is therefore interesting because it is pre-1970 and westward of the records known to 1991. Heaver (1997) reported the discovery of *H. ciureai* in south Wales on the basis of a male water-trapped on 21 July 1987 from Magor Marsh. Therefore, *H. ciureai* has a more widespread distribution around the British coast than was previously known.

References

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Institute of Terrestrial Ecology.

Falk, S. J. 1991. A review of the scarce and threatened flies of Great Britain (Part 1). *Research and Survey in Nature Conservation*, No. 39. Nature Conservancy Council, Peterborough.

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The discovery of *Hybomitra montana* (Meigen) (Tabanidae) in the North York Moors

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Whilst carrying out research prior to the publication of Grayson (1995), I anticipated discovering *Hybomitra montana* in the North York Moors area which, significantly in the case of this species, contains a number of peat bogs. I was, however, unable to encounter it in the field or locate any records or specimens amongst the data and collections examined, and I had to be content with listing the ten Yorkshire records as five sites in the Yorkshire Pennines and five in the Vale of York area (Grayson, 1995). It was therefore pleasing to confirm that *H. montana* does occur in the North York Moors area.

On 27 July 1997, together with Mr. Len Auckland, I paid a visit to May Moss, Langdale Forest, north-east Yorkshire, in order to repair a wind-damaged Manitoba trap; but, being short of time, decided instead to spend ten minutes looking for tabanids around a small pond known as Little Ark (44/879957), which lies towards the edge of the bog area. This exercise was quite productive, as a male *Tabanus sudeticus* Zeller was captured by placing a net over it as it clumsily climbed fine grass stems arising from *Sphagnum*, and a male *Hybomitra montana* (Meigen) was netted in flight, as it arose from a *Sphagnum*-dominated area of the pond verge. Having established that *H. montana* occurs at one site in the North York Moors, it should be expected to be present and awaiting discovery elsewhere within the area.

Reference

Grayson, A. 1995. *The Horseflies of Yorkshire: A comprehensive county account*. ISBN 0 9521201 0 0.

Recent observations on *Asilus crabroniformis* (Asilidae) from the Isle of Wight

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I first noted the colony of *Asilus crabroniformis* at Alverstone (SZ 579 857), near the south-eastern coast of the Isle of Wight in the summer of 1995 and have been visiting the site regularly since then, mostly in the search for Syrphidae. The site is a seasonally wet mesotrophic, slightly acidic meadow dominated by *Juncus effusus* which covers approximately 60% of the site. The remaining areas are short grassy patches with much *Carex echinata*, *Festuca pratensis*, *Anthoxanthum odoratum*, *Pedicularis sylvatica*, *Potentilla erecta*, *Lychnis flos-cuculi*, *Galium paluste* and *Lotus uliginosus*. Through the site runs a water-filled ditch which is dominated by *Glyceria*, *Menyanthes trifoliata*, *Potentilla palustris* and *Iris pseudacorus*. The marsh is bordered on one side by an oak-dominated secondary woodland, and on the other by a wet *Salix/Ulmus* carr.

The marsh is grazed by a small herd of cattle from mid July through to October or November. The cattle have the effect of flattening much of the vegetation and the site takes on a very different appearance with the tussocks of *Juncus* broken up and the remaining area grazed fairly tightly. It is soon, perhaps a week, after the cattle are introduced that *Asilus* first appears. Individuals hold territory on one or two adjacent cow-pats and defend them from others with vigour. Prey, which seems to be predominantly Muscidae flies, is captured during short sallies from the pat and the fly usually returns to the same pat to feast. Occasionally, the prey is consumed while sitting head upper-most on a grass stem.

During many visits to the site, I have never recorded more than five individuals on any single day, and I suspect that no more than 25-30 *Asilus* emerge throughout the season.

I have frequently asked myself the question what *Asilus* would do if cattle were not grazed on the site, is the species sufficiently nomadic to move to nearby cattle-grazed pasture (which do not seem to hold *Asilus* at present) or would it survive on the small quantity of rabbit droppings on the site?

I can find no reference to the species occurring at such a site as Alverstone, most recent texts listing downland, heathland and dunes as the usual habitat. Does *Asilus* occur on sites similar to Alverstone around the British Isles?

Recent work on *Asilus crabroniformis*

Martin Drake

Asilus is listed on the short list of the Biodiversity Action Plan. The Countryside Council for Wales leads on the species and this year has commissioned work on two aspects of the BAP. English Nature, not wishing to be left out when many populations exist in England, has also commissioned a smaller study. Reports have been received for one of the two Welsh studies and for the English work, and here I summarise some of the findings. Both reports contain a lot more interesting information than I can give here. The reports are (or shortly will be) available from the commissioning agency.

Mike Howe (1997) lists 19 sites for *Asilus* in Wales, mostly in the south of the country. Peter Skidmore (1997) was contracted to re-visit these southern sites to search for *Asilus* and check the suitability of the habitat. Peter also visited other potential sites. Of 14 sites with previous records, *Asilus* was found at only five of them. The fly's absence at some of these sites may be due to conditions being no longer suitable. However, *Asilus* was found at 11 new sites. A broader range of habitats was occupied than had been previously recorded. Nearly all the sites were on light soils, as expected, but these included grassland on calcareous, alluvial and sandy soils, dry to wet heath, dry acid to neutral grassland partially dominated by bracken, clearings in woodland and a colliery waste tip. All the sites where *Asilus* was found were grazed by cattle or horses and supported the large dung beetle *Geotrupes* which is a likely prey for *Asilus* larvae.

A second study in Wales looking closely at the fly's autecology is a parallel study which will be reported on later.

In England, a small contract was undertaken by Brian Pinchin, Jonty Denton and Dave Bird (1998) with the aim of obtaining more information on the oviposition behaviour of *Asilus*. Butterfly ecologists have long recognised that the females know what they are doing when they select oviposition sites, so by understanding the cues they use, we may be able to predict what the larvae do. Obviously, deductions are easier with a herbivore that munches the plant on which its eggs were laid, and perhaps we should not expect too much from observing the behaviour of females of a subterranean predator.

The sites in the English study were two heathlands (in Dorset and Surrey), neither with livestock but with rabbits and either deer or passing horses, and a wet, cattle-grazed pasture dominated by *Juncus* where rabbits also occurred, in Hampshire. To standardise observations, the dung of all species was classified on a scale from fresh to completely dry. Flies were seen several times laying eggs at the extreme margins of cattle dung that was either dry externally but moist inside and with beetle present, or almost completely dry and usually devoid of beetles. One fly was seen ovipositing in mud into which cattle dung had been trampled. Confirming Jonty Denton's previous report, flies were also seen several times ovipositing beneath rabbit pellets at all three sites, the pellets being dry at two sites and moist at the third. Minotaur beetles (*Typhaeus typhoeus*) were common at the heathland sites and their burrows were abundant where *Asilus exuviae* were found. These beetles bury rabbits droppings for their larvae to feed upon, so there is a strong possibility that *Asilus* larvae feed on *Typhaeus*.

Flies were marked with white typist's correcting fluid at two sites. Several marked males just hung around and were seen again within an area about 25 m in radius. Others flew away and only a few were ever seen again. One was seen in another field 400 m away from its original 'territory' to which it later returned and was seen on the very pat where it had been caught and marked. Other observations support previous reports

that the males do hold territories. Information on the movement of females was less conclusive but it seems that they patrol an area similar in size or smaller than that of the males.

References

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Skidmore, P. 1997. The status of the hornet robberfly *Asilus crabroniformis* in south Wales. *CCW Contract Science Report* No. 212.

Observations on *Dioctria cothurnata* Meigen (Diptera: Asilidae) in Cumberland

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On 17th July 1995, I swept a male *Dioctria cothurnata* on Rockcliffe Sea Bank at Esk Boathouse. Rockcliffe Sea Bank extends for some 3 km from the River Eden to near the River Esk and separates the salt marsh from the arable land of Castletown House estate. The site is 500m from the channel of the R. Esk and beside an area of flood refuse. On 24th July 1995, I returned to the site and swept three more male *cothurnata*. I continued sweeping along the Bank and encountered no more specimens until I reached another large area of flood refuse some 2½ km south. Here, I swept numerous *cothurnata*, both male and female, and observed males 'patrolling' amongst clumps of cocksfoot (*Arrhenatherum elatius* (L.) J & C Presl.) and creeping thistle (*Cirsium arvense* (L.) Scop.). I returned to the site on 20th July 1996 to find that the Bank had been cleared and grazed. However, I found *cothurnata* to be numerous in the edge of the cornfield behind the Bank at this point. I also swept small numbers of *cothurnata* from the bank of the R. Eden some 200m away across grazed marsh.

Suspecting that the presence of *cothurnata* may be linked to flood refuse, I went 1 km up the R. Eden

to Demense Marsh where a large amount of refuse lies below Castletown House on a wet area of alder seepage and brackish marsh. Only one male was swept from *Juncus* well away from the flood refuse and it was probably wind-borne from the previous site. However, at Rockcliffe village, 1 km further upriver and at the head of the tidal section, *cothurnata* was again encountered in some numbers on dry areas of river bank with coarse upright herbage and some flood refuse.

On 14th July 1996, another site for *cothurnata* was found, situated some 25 km down the Solway estuary beside the R. Waver and at the head of the salt marsh below Winding Banks at Rumbling Bridge. The flies were numerous in a small area of *Festuca arundinacea* Schreb. tussocks surrounded by a Wheat grass *Agropyron* sp.¹ and on alluvium. Smaller numbers were found 200m downstream at a similar site.

Behaviour

On two occasions, males were observed inside stands of wheat grass. They 'patrolled' forward slowly, alighted on a horizontal part of a leaf and raised each foreleg alternately to the horizontal in a series of jerky motions. In the subdued light, the pale pulvilli and knees appeared particularly luminous. After raising each leg several times, they were observed to fly forward a short distance and repeat the actions.

A male/female interaction was observed, the male hovering with all legs outstretched and positioned about 10 cm from and slightly above a female who was vigorously waving her forelegs whilst raised from a leaf with the other legs to face the male. This was observed for some 20 seconds at 1 m distance, then the female flew deeper into the Wheat grass and alighted on another leaf followed by the male who alighted facing her and about 20 cm away. The female then moved out of sight followed by the male.

One male was observed struggling with an empid, a male *Kritempis livida*, but had not subdued it. One male and one female were captured with hymenopteran prey, both apparently ichneumons. One male had diteran prey, a *Sepsis fulgens* (Sepsidae).

I am grateful to Mr Giles Mounsey-Heysham for arranging my access permits for the Rockcliffe Marsh Nature Reserve on the Castletown House estate, and to Mr Alan Stubbs for confirming the identity of the *Dioctria* and for his comments.

Post script

On returning to the Rumbling Bridge site on 3 March 1997, I observed that the small area where the *cothurnata* were concentrated was now completely waterlogged from the discharge of a large land drainage pipe in the bank behind. Does *cothurnata* require a seasonally flooded site?

Variation in *Laphria marginata* (Asilidae)

Alan Stubbs

This note is a hurried preliminary analysis of recently recognised variation in *Laphria marginata*. The purpose of such premature publication is to quickly draw attention to a matter that will need resolution in the next month or so before the larger Brachycera book goes to press. Comment will be welcome from anyone with material that may aid a solution one way or the other. At present the most likely course is to mention in the text the range of variation as an unresolved matter, but preferably to key to Form A and

¹ I am not sure what this grass is but presumably a couch (now *Elytrigia* sp) (ed.)

Form B if a satisfactory split on well defined characters can be upheld.

The series in the Natural History Museum's British collection contains over 100 specimens. About 20 specimens are teneral, damaged, have illegible data labels or are difficult to classify to form. The rest, 104 specimens can be separated into two forms, most of which can be easily allocated but some may need re-assessment.

The male genitalia of the two forms of *L. marginata* are apparently identical but the appearance of the whole fly at the extremes of variation is markedly different. This, however, can be true of other variable species. In the taxonomy of this genus, the male genitalia generally display differences between species, although these differences are in some cases small. It may be possible for two species to have apparently identical genitalia, although one would then expect ecological, geographical or behavioural partitioning to prevent interbreeding.

An initial analysis of the data reveals that the same locality can have both forms on the same date and there is a mixed pair taken *in cop*. The data have also been reviewed for seasonal differences and geographic differences. Either the recognised variation is meaningless or the means of distinguishing the two forms is not sufficiently refined to iron out apparent anomalies.

Definition of Two Forms



Typical shape of tergite 3 in males

Form A (large wide form)

The size is variable but this form includes the larger specimens. Tergite 5 is covered in orange-brown hairs (as on tergites 1-4) even when viewed from the side. The base of the costa usually has pale hairs beneath (but so have some specimens of Form B). The orange-brown hairs on the legs are more developed, but this sort of feature is often related to the size of the specimen in other flies.

Males have broader tergites though there are intermediates towards Form B.

Females also have a particularly broad abdomen, although its width is variable. The tergites have relatively dense hairs, including the addressed zones and the hind fringe towards the lateral corners.

Form B (small narrower form)

Size is variable but the form includes the smaller specimens, many of which are particularly small compared with Form A. Tergite 5 is covered in black hairs along the axis when viewed from the side. The base of the costa has black hairs beneath.

The males typically have a particularly narrow abdomen.

The female has tergites with a much weaker coverage of hairs, looking particularly thin in the anterolateral areas with adpressed hairs, and also weak in the hind zones. The abdomen looks more bulbous since the basal segments are narrower relative to the very broad hind segments.

Intermediates

About 95% of specimens have been allocated to one or other form, and about 85% with reasonable confidence. Refinement in recognition of forms may increase confidence, much depending on whether the more obvious anomalies can be resolved.

Some specimens that otherwise look like Form A have some black hairs visible on the axis of tergite 5. Typically, Form A has no such hairs but where some black hairs are present these are normally masked by the well developed pale hairs.

Geographical picture

Hampshire is a strong county for records as one may expect. There is little gross difference in the western or northern limits. Form B seems more dominant in Essex and the southern fringe of Sussex but the data are insufficient to draw firm conclusions.

Both forms (on the basis of initial interpretation) are represented at Loxley Wood (Somerset), the New Forest, Hell Coppice (Oxon) and Bookham Common (Surrey).

Seasonal Occurrence and Relative Abundance

In the NHM collection, Form A has 31 males and 32 females, and Form B has 19 males and 22 females. Since the sex ratios balance, the allocation seems to be on the right lines, with Form A rather more frequent. However, the data is distorted by the exceptionally long series of 16 specimens taken on the same date at Loxley Wood by Fonseca. Hence, noting that the locality is also represented by other material, if Fonseca's data are excluded the revised balance is as follows:-

Form A has 23 males and 26 females; Form B has 19 males and 20 females.

The balance of seasonal data is also distorted by the Fonseca series from Loxley Wood. The table shows the number of specimens taken each month, with Fonseca's shown separately.

Form A

	May	June	July	Aug	Sept	total
males		8	17	5	1	31
[ex Fonseca]			17	5	1	23
females	1	12	17	2		32
[ex Fonseca]	1	6	17	2		26

Form B

males		1	11	6	1	19
females		3	9	9		22
[ex Fonseca]		3	8	9		20

The earliest specimen is a female on 11 May and the latest a male on 7 September.

Conclusion

The extremes of variation are easily recognised as being different but the male genitalia are apparently identical. It would seem that both forms are equally frequent and any detectable differences in gross distribution could be spurious since there are so few specimens in some fringe areas.

There are certainly intermediates, although notably not forming the majority as one might expect from a continuously variable species. There is one pair *in cop.* which, on current interpretation, includes both forms.

Both forms have been taken in the same locality, even on the same day. This could be the case even with two closely related species. As yet there is an absence of ecological or behavioural information about the two forms.

The evidence for deciding the taxonomic status of these forms is conflicting and inadequate. However, it seems best to treat this as one species, especially if the apparent cross-pairing evidence is upheld.

Unusual behaviour of the Bee-fly *Thyridanthrax fenestratus* (Fallén) (Bombyliidae)

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Whilst taking a group of people around Thursley Common NNR, Surrey, to look at dragonflies on 30 July 1997, I noticed the bee-fly *Thyridanthrax fenestratus* on the ground near a sand wasp *Ammophila sabulosa*. As I approached, the fly took off and started hovering at 3 metres above the ground. It was immediately caught by another bee-fly which latched on to it. They both flew away at a height of about 6 metres, and out of sight. I have watched this species for over 40 years and have never seen it much more than a few centimetres off the ground. They frequently visit Tormentil flowers (*Potentilla erecta*).

Interesting records

Odontomyia ornata (Stratiomyidae) - Norton Marshes (in the Broads) Norfolk, 23 September 1997, larva in slightly saline-contaminated dyke on grazing marsh; collected by Colin Plant. I'm pleased to see that this species continues to be found only in grazing marsh ditches, and remains an outstanding flagship species for this habitat.

[Apologies for this section being so sparse - will try harder next time!].

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Recording cards are available from :

Biological Records Centre
Institute of Terrestrial ecology
Monks Wood Experimental Station
Abbots Ripton
Cambs PE17 2LS