



# THE BRITISH ANTHOMYIIDAE

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The cover photograph was kindly supplied by Chris Spilling.

## Distribution and Ecology of British Anthomyiidae

This section updates the “Vice-counties Records” document in the “Antho Pack” distributed previously by Michael Ackland. It is based on the dataset of 6846 records held by the Anthomyiidae Recording Scheme in September 2017.

The Anthomyiid Study Group (ASG, as it was then) compiled a dataset of 4108 records which was uploaded onto the NBN Gateway in 2010, and was transferred to the NBN Atlas in April 2017. The total number of Anthomyiid records there is currently 15,609.

The records added to the ASG database have come from additional older data supplied by Michael Ackland, recent data from several active recorders, and a trawl through editions of the Dipterists Digest published since 2000. The extended database has been analysed to provide aggregate data on the distribution of species across 10 regions of Great Britain defined as follows.

Region Code	Area covered	Vice-counties included	No of records	No of species
A	South-west England	1-11	1187	150
B	South-east England	12-24	2371	168
C	Eastern England	25-32	659	142
D	West Midlands	33-40	600	127
E	Wales	41-52	578	124
F	North Midlands and Lancashire	53-60	129	42
G	Yorkshire, Northern England and the Isle of Man	61-71	172	74
H	Southern Scotland	72-84	23	17
I	Southern Highlands	85-99	778	160
J	The Far North and the Scottish Islands	100-112	349	107

This approach has been adopted to provide a clearer picture of the relative frequency of different species and geographical distributions than the previous use of qualitative terms such as “abundant” or “locally common” and a listing of vice-counties.

The data for individual species are presented in the table at the end of this document. It retains the ecological and taxonomic notes for genera and for species provided by Michael Ackland previously, with a few amendments where required. 246 species are listed and 245 of these are named in accordance with the January 2017 update of Peter Chandler’s British Checklist on the Dipterists Forum website. However, Michael Ackland has advised that *Hydrophora diabata* (Pandellé, 1999) should be re-instated as a separate species rather than being a synonym of *Hydrophoria lancifer* (Harris, 1780) as it is at present.

There is at least 1 record in the ARS database for all but 2 of these species: the exceptions are *Botanophila estonica* and *Pegomya exilis*. These are both additions to the previous listing. Furthermore, that listing stated that records had not been compiled for a number of other species, mainly pests of crops: these are marked with + in the present listing to denote that they are possibly relatively under-recorded.

A further feature of the previous vice-county listing was the highlighting of 33 species as “very common”. For this new document, the top twenty by number of records are listed separately overleaf together with the cumulative percentage of the database they represent. These species provide 43.6% of the total number of records. For more infrequent species there is a steady decline in the frequency with no natural demarcation between common, scarce and rare. The 50% level is

reached at the 28<sup>th</sup> species (*Egle ciliata*), 90% at the 135<sup>th</sup> species (*Pegomya vanduzeei*) and the most infrequent 35 species together contribute only 1% of the records.

### The top twenty species by number of records nationally

Species	A	B	C	D	E	F	G	H	I	J	Total	Cumulative fraction
<i>Delia platura</i>	81	130	35	26	22	10	3		4	5	316	4.6%
<i>Hylemya vagans</i>	74	83	12	32	21	11	1		16	10	260	8.4%
<i>Pegoplata infirma</i>	55	77	11	20	25	4	8	2	22	24	248	12.0%
<i>Pegoplata aestiva</i>	44	54	12	18	37	2	3		30	25	225	15.3%
<i>Botanophila fugax</i>	31	117	19	25	10	5	3		10	4	224	18.6%
<i>Hylemya variata</i>	30	65	13	22	23	4	3		22	17	199	21.5%
<i>Anthomyia liturata</i>	40	78	19	9	14	1	1		10	5	177	24.1%
<i>Anthomyia procellaris</i>	27	77	18	19	5	3					149	26.3%
<i>Delia florilega</i>	24	59	11	17	21	3	3		3	6	147	28.4%
<i>Hylemyza partita</i>	32	49	9	10	13	3	2		4	1	123	30.2%
<i>Delia radicum</i>	16	62	21	4	7	2			3	3	118	31.9%
<i>Botanophila striolata</i>	17	57	11	8	4	1	3	1	7	7	116	33.6%
<i>Hydrophoria lancifer</i>	30	27	8	3	14	16			6	1	105	35.2%
<i>Pegomya bicolor</i>	26	38	6	8	11	4	1		2	8	104	36.7%
<i>Lasiomma seminitidum</i>	10	55	12	8	6	3	2		3		99	38.1%
<i>Paradelia intersecta</i>	12	35	4	6	17	3	2		4	5	88	39.4%
<i>Hydrophoria ruralis</i>	17	35	9	11	3	9	1		1		86	40.7%
<i>Adia cinerella</i>	12	44	5	6	3				1	1	72	41.7%
<i>Hylemya urbica</i>	11	24	10	7	7				5	2	66	42.7%
<i>Leucophora obtusa</i>	2	36	6	17		2	1		1		65	43.6%

Finally, as noted in the previous vice-county listing, it should be remembered that the records are those which are present in the ARS database, and do not indicate the true distribution of the species, even the commonest. There may still be historical material to be compiled and entered. The distribution of the records is heavily biased in favour of Northern Scotland and the south of England, where most collecting of Anthomyiidae has taken place. There are very few records from the north of England and Southern Scotland where even the most abundant species have not been recorded from many vice counties.

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## Distribution of British Anthomyiid records by region with ecological and taxonomic notes

+ denotes species for which records were not compiled in Michael Ackland's original listing, and so may have been relatively under-recorded.

\* denotes species for which there are datasheets in the recently issued national status review (Natural England Commissioned Report No 234).

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<b>Species</b>												
ADIA (1 species)												
<i>Adia cinerella</i>	12	44	5	6	3				1	1	<b>72</b>	Coprophagous
ALLIOPSIS (9 species)												
Mainly northern species with long shining proboscis. Processes of 5th sternite characteristic (inner margins raised). Life history unknown, except one Nearctic species feeding on dead <i>Dytiscus</i> larvae. Often associated with streams and rivers, shingle banks, though not <i>A. billbergi</i> .												
<i>Alliopsis albipennis</i> *									2		<b>2</b>	Mountains: records in 1951 and 1984
<i>Alliopsis atronitens</i> *			1						10	1	<b>12</b>	Only on Scottish mountains
<i>Alliopsis billbergi</i>	5	21	5	5	3				1	3	<b>43</b>	Common early in woods
<i>Alliopsis conifrons</i> *				1	2		2		6	4	<b>15</b>	
<i>Alliopsis longiceps</i> *									9		<b>9</b>	Very local. By R. Spey. Previously <i>sitiens</i>
<i>Alliopsis pilitarsis</i> *				6	1				2		<b>9</b>	River and stream banks
<i>Alliopsis sepiella</i> *				1			3		9		<b>13</b>	Near water, local
<i>Alliopsis silvestris</i>			7		1		1	1	11	4	<b>25</b>	
<i>Alliopsis similis</i> *									8		<b>8</b>	Doubtfully distinct from <i>conifrons</i>
ANTHOMYIA (10 Species)												
Originally included only black and white patterned species, now includes species previously in <i>Craspedochoeta</i> . Hind tibia with a posteroventral apical seta. As far as known, all species breed in bird nests, or feed on vertebrate faeces and decomposing fungi.												
<i>Anthomyia bazini</i> *				1	3						<b>4</b>	Recently rediscovered in NW Wales
<i>Anthomyia cannabina</i> *	2	13	1						6		<b>22</b>	Elusive, bred from bird nests, rarely swept
<i>Anthomyia confusanea</i>	6	32	6	2	2		1			4	<b>53</b>	Bird nests? Recently distinguished from <i>liturata</i>
<i>Anthomyia imbrida</i>	9	24	4		3						<b>40</b>	Bird nests
<i>Anthomyia liturata</i>	40	78	19	9	14	1	1		10	5	<b>177</b>	Bird nests

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Anthomyia mimetica</i>	3	3	5	2			3		9	2	<b>27</b>	Bird nests
<i>Anthomyia monilis</i>	4	20	8	1	1		3		6	1	<b>44</b>	
<i>Anthomyia plurinotata</i>		4	1								<b>5</b>	Recent discovery in Reading and elsewhere
<i>Anthomyia pluvialis</i>	21	25	5	4	7						<b>62</b>	Bird nests
<i>Anthomyia procellaris</i>	27	77	18	19	5	3					<b>149</b>	Bird nests
BOTANOPHILA (33 species)												
Flies of various sizes and life histories. Difficult to characterize on external features. Mid tibia generally with 2 or more posterodorsal setae. Fore tibia never with a blunt posteroventral apical spur. Processes of 5th sternite never with apical blunt spinules. Genitalia: pregonites small and fused to hypandrium in nearly all species, distal section largely membranous and small. Larvae in fungus, flower heads, stems. leaf-mines, saprophagous.												
<i>Botanophila apiciseta</i> *		1							1	1	<b>3</b>	
<i>Botanophila biciliaris</i> *		2		1					3		<b>6</b>	
<i>Botanophila brunneilinea</i>	10	22	8	8	3	2		1	6	4	<b>64</b>	
<i>Botanophila cuspidata</i> *		7	11								<b>18</b>	
<i>Botanophila depressa</i> *	6	1	4		9				1	2	<b>23</b>	Coastal species. Leaf-miner in <i>Suaeda maritima</i>
<i>Botanophila discreta</i>	1				4						<b>5</b>	Recently separated from <i>B. striolata</i>
<i>Botanophila dissecta</i>	1	21	11	3	1				2	2	<b>41</b>	<i>Epichloe</i> fungus on grasses.
<i>Botanophila estonica</i>											<b>0</b>	Previously misidentified as <i>B. varicolor</i>
<i>Botanophila fonsecai</i> *										6	<b>6</b>	Only 1 site known. Dornoch, on shingle
<i>Botanophila fugax</i>	31	117	19	25	10	5	3		10	4	<b>224</b>	Abundant species. Saprophagous?
<i>Botanophila gnava</i>		16	6	1	1		1				<b>25</b>	In gardens etc. uncommon. ?Lettuce
<i>Botanophila helviana</i> *		6									<b>6</b>	On short limestone turf: Wytham Wood & Wychwood only
<i>Botanophila hucketti</i>		1	1			1			18	4	<b>25</b>	
<i>Botanophila jacobaeae</i>		11		3				3	11	3	<b>31</b>	<i>Senecio</i> spp
<i>Botanophila laterella</i> *	4	19	8	2			2				<b>35</b>	
<i>Botanophila latifrons</i>			3	2	4				12	3	<b>24</b>	
<i>Botanophila lobata</i> *	2	8	3						1		<b>14</b>	<i>Epichloe</i> fungus on grasses
<i>Botanophila maculipes</i> *		6		1			2		4		<b>13</b>	Larvae in flowers of <i>Solidago virgaurea</i>

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Botanophila moriens</i> *									6	1	7	Tops of mountains
<i>Botanophila phrenione</i>	3	9	7	6							25	<i>Epichloe</i> fungus on grasses
<i>Botanophila profuga</i>		2					1		23	5	31	
<i>Botanophila rupicapra</i> *									1		1	Was <i>flavisquama</i> . Recorded in 1964.
<i>Botanophila sanctimarci</i> *	1	1	5	13							20	April on wild garlic
<i>Botanophila seneciella</i>	7	4	2	2	10		2		3	5	35	<i>Senecio</i> spp
<i>Botanophila sericea</i>					2				24	1	27	
<i>Botanophila silvatica</i>	2	1	1					1	10	2	17	Fungus
<i>Botanophila sonchi</i> *	9	5	11	2	7				5		39	Flower heads of <i>Sonchus</i> spp
<i>Botanophila spinosa</i> *	10	5	1							1	17	In woods
<i>Botanophila striolata</i>	17	57	11	8	4	1	3	1	7	7	116	
<i>Botanophila trapezina</i>				3			2		1		6	
<i>Botanophila tuxeni</i>									2		2	2 sites, bred from <i>Gentianella campestris</i> in 1998
<i>Botanophila varicolor</i> +	3	8									11	Was <i>B. odontogaster</i>
<i>Botanophila verticella</i> *	1		3		1				11	2	18	
CALYTHERA (2 species)												
Small species with characteristic black and silver pattern on abdomen, enlarged lower squama, anal vein faint distally. Larva coprophagous. Males of <i>C. nigricans</i> sometimes swarm under trees (New Forest).												
<i>Calythea nigricans</i>	7	12	2								21	
<i>Calythea pratincola</i> *		1	3	1	5						10	
CHIASTOCHETA (5 Species)												
Chiastocheta species are rather small flies, all associated with Trollius flowers (globe flowers) in which the larvae develop, sometimes several species can be found in a single flower. Their distribution therefore follows the distribution of Trollius plants. Gena in both sexes very narrow, frons wide, with first flagellomere short, abdomen in male short with large post-abdomen and 5 <sup>th</sup> sternite. The males are fairly easy to identify from details of the 5th sternite; females less so without examination of the ovipositor.												
<i>Chiastocheta dentifera</i>							3		3		6	
<i>Chiastocheta inermella</i>							4		1		5	



Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Chiastocheta rotundiventris</i>							1		5		6	
<i>Chiastocheta setifera</i>					4		2		6		12	
<i>Chiastocheta trollii</i>							3		2		5	
CHIROSIA (12 species)												
<i>Chirosia</i> species all breed in ferns, the larvae either rolling up leaves, or feeding in the stems. They have a developed posteroventral seta on hind tibia. They are found early in the year from April to July, by sweeping bracken and other ferns												
<i>Chirosia aberrans</i> *	1	1	2								4	Marsh fern, <i>Thelypteris palustris</i>
<i>Chirosia albitarsis</i>	6	19	1	2	2				6	3	39	
<i>Chirosia betuleti</i>	5	1	1	1	4				2		14	
<i>Chirosia cinerosa</i>	6	2		1	3				3		15	
<i>Chirosia crassiseta</i>	4	11	2	1	1						19	
<i>Chirosia flavipennis</i>	9	11	1	2	2		1		3	1	30	
<i>Chirosia griseifrons</i> *	11	2	2	5	2				1		23	Stems of <i>Athyrium</i>
<i>Chirosia grossicauda</i>	12	20	1	6	4		2		4	2	51	
<i>Chirosia histicina</i>	8	12	3	4	7				3	2	39	
<i>Chirosia montana</i> *							1		1		2	Ben Lawers (1932) and Moorhouse (1963)
<i>Chirosia nigripes</i>	6	8	1		1				1	1	18	
<i>Chirosia similata</i> *	6	4	2	2	3		2				19	<i>Dryopteris</i> ferns
DELIA (35 species)												
<i>Delia</i> is a large genus, with the larvae of several species damaging commercial crops in many parts of the world. It is difficult to find clear chaetotactic characters to separate this genus from <i>Botanophila</i> , especially in the females. Some <i>Delia</i> species have (in the male) a developed posteroventral spur on the fore tibia; others have various developed setae on the abdominal tergites and sternites, and often blunt spinules on the processes of the 5th sternite. All males have long surstyli, a lengthened distal section of the aedeagus, and the pregonites are developed. Mid tibia in males with generally only one posterodorsal seta.												
<i>Delia albula</i>	1	1			6						8	Sand dunes, locally common, probably all coasts?
<i>Delia antiqua</i> +										3	3	Pest on onions.
<i>Delia cardui</i>	1	4	3						1		9	Stems of <i>Dianthus</i> spp

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Delia carduiiformis</i>	1	2	1	1					1		6	
<i>Delia coarctata</i>		9	17	4	4		1		5		40	Pest on wheat
<i>Delia coronariae*</i>	3		1	2	3						9	?marshes. Leaf-miner on <i>Lychnis</i>
<i>Delia criniventris</i>	1	9	1	2		1			1		15	On <i>Lychnis</i> spp
<i>Delia diluta*</i>	2	1	1	1	1				3	2	11	
<i>Delia echinata</i>	3	4	1	1	4		2	1	2	5	23	Leaf-miner in Caryophyllaceae
<i>Delia fabricii</i>									2	2	4	Roots of grasses
<i>Delia flavogrisea*</i>					1						1	Only record Kenfig, VC41, 1914
<i>Delia floralis+</i>	1									1	2	Pest on Brassicae
<i>Delia florilega</i>	24	59	11	17	21	3	3		3	6	147	Pest. Abundant everywhere. Saprophagous?
<i>Delia frontella</i>	5	14			7		1		4	2	33	?Fungus
<i>Delia hirtitibia*</i>									1		1	Only record Nethy Bridge, 1934
<i>Delia interflua*</i>							1		8	1	10	
<i>Delia kullensis*</i>			1								1	Tuddenham, VC 26: bred <i>Silene</i> , 1952.
<i>Delia lamelliseta</i>	3	4	6	3		2			4	2	24	Marshy places
<i>Delia lavata*</i>		2								1	3	
<i>Delia linearis*</i>	3		1	2					9	1	16	
<i>Delia lophota</i>				1	1		3		5	1	11	Was <i>D. nuda</i>
<i>Delia nigrescens*</i>	7	2	3	1	1				1		15	
<i>Delia pallipennis</i>			2		4				3	2	11	In sandy places
<i>Delia penicilliventris*</i>									1		1	Was <i>D. penicillaris</i> . Recorded in 1997.
<i>Delia penicillosa</i>	2				10		1	1			14	On coasts
<i>Delia pilifemur*</i>									1		1	On mountains: Lairig Ghru, Cairngorms, 1965
<i>Delia piliventris*</i>									4	1	5	On mountains. Recently bred, <i>Silene acaulis</i>
<i>Delia planipalpis+</i>	2	2							1		5	Minor pest, cruciferous roots.
<i>Delia platura</i>	81	130	35	26	22	10	3		4	5	316	Abundant everywhere. Various crops, rotting vegetation

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Delia pruinosa</i> *	2	2	2		1					1	8	<i>Silene inflata</i>
<i>Delia quadripila</i>			3		1				1	3	8	On coasts, sweeping <i>Honkenya peplodes</i>
<i>Delia radicum</i>	16	62	21	4	7	2			3	3	118	Abundant, pest, Cabbage Root fly
<i>Delia setigera</i>	3		1		5				1	3	13	On coasts
<i>Delia tarsifimbria</i> *					3						3	VC41 only: last record 1972
<i>Delia tumidula</i> *									3		3	Last record Aviemore, 1967
EGLE (12 species)												
<p><i>Egle</i> species have a strongly projecting peristomal margin in both sexes, are mainly small to very small flies (<i>ciliata</i> and <i>brevicornis</i> larger but with 4 posterior dorsocentral setae, unusually for Anthomyiidae). Almost all British species breed in willow catkins and fly early in the year around the end of March until early May, and are univoltine. Some of the smaller species with long basal setae on the 5th sternite require dissection of the genitalia for accurate identification.</p>												
<i>Egle brevicornis</i> *	2	1			7						10	Particularly associated with <i>Salix repens</i>
<i>Egle ciliata</i>	5	17	3	8	3	3	15				54	
<i>Egle concomitans</i>			1								1	Possibly associated with <i>Populus</i> . Record from 2012
<i>Egle inermis</i> *		8	3								11	
<i>Egle lyneborgi</i>		7			1		10				18	Recently separated from <i>E. minuta</i>
<i>Egle minuta</i>	1	11	3	3	8	1	10		1		38	
<i>Egle parva</i>		13	3	3			1				20	
<i>Egle parvaeformis</i> *	3	4	1	1	3						12	
<i>Egle rhinotmeta</i>	4	22	2	5	12	1	8		1		55	
<i>Egle steini</i> *	1	4			1						6	
<i>Egle subarctica</i> *		7	2				2				11	
<i>Egle suwai</i>		2					2				4	Recently separated from <i>E. minuta</i>
EMMESOMYIA (2 species)												
<p>The British species of <i>Emmesomyia</i> can be distinguished from all other genera through the possession of a small setula on the anepimeron below the wing insertion. Lower squama enlarged. Genitalia: pregonite divided into two processes; female ovipositor with two pairs of postabdominal spiracles at middle of 6th tergite. Some species may be larviparous.</p>												

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Emmesomyia grisea</i>	10	4			1						15	Coprophagous
<i>Emmesomyia socia</i>	4	11	2	4	1						22	Coprophagous
EUSTALOMYIA (4 species)												
<i>Eustalomyia</i> species are large black and white patterned flies, associated with sphecoid wasps, where they are cleptoparasites in their burrows. They can be collected on dead tree trunks where the wasps are nesting, as they enter the burrows. <i>E. hilaris</i> was recorded in 1971 from London, and seems to be spreading from the original locality.												
<i>Eustalomyia festiva</i>	8	11	4	4	2	1					30	
<i>Eustalomyia hilaris</i> *	2	16									18	
<i>Eustalomyia histrio</i>	3	13	3	8	1	3			1		32	
<i>Eustalomyia vittipes</i> *	5	11	1	2	2	3	1				25	
EUTRICHOTA (7 species)												
Some <i>Eutrichota</i> species are associated with the burrows of small mammals in the Alps and in North America. The first four species listed below may belong to this category; they are found only in Scotland, nearly always caught singly, and there are very few records. The last three are more widespread. Interfrontalia without cruciate setulae. Lower squamae smaller than upper. Male genitalia: pregonite never bilobed, distal section of aedeagus with downwardly directed acrophallus. <i>E. schineri</i> and <i>socculata</i> belong to a separate group characterized by bilobed pregonites, lack of a downwardly directed acrophallus, and differences in the female ovipositor including the posterior margin of the 7th sternite with 6 patches of anteriorly directed hooked spines; and were placed in a separate genus by Griffiths ( <i>Parapegomyia</i> ). <i>Eutrichota</i> are medium to large flies, with long prealar setae, no cruciate interfrontal setulae, long legs, and long surstyli which are apically cleft.												
<i>Eutrichota anderssoni</i> *									2		2	Records for 1907, VC 99 and 1990, VC95
<i>Eutrichota frigida</i> *									6		6	
<i>Eutrichota longimana</i> *									2		2	Records for 1959, VC 98 and 1978, VC87
<i>Eutrichota pilimana</i> *									1		1	In wood by Loch Ness, 1983
<i>Eutrichota praepotens</i>	2	10	1	1				1	1		16	
<i>Eutrichota schineri</i>	2	8	2								12	
<i>Eutrichota socculata</i> +		3		3							6	

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
FUCELLIA (3 species)												
<i>Fucellia</i> species are coastal flies, often abundant on seaweed wrack where the larvae develop. The male head is feminized (wide frons), and the costa of the wing has short, spaced spinules in addition to the usual setae. The males of the British species have a distinct basal swelling at the base of the hind femur.												
<i>Fucellia fucorum</i>					3		4		1	13	21	
<i>Fucellia maritima</i> +	5	2			4				2	3	16	
<i>Fucellia tergina</i> +	7	2			6					4	19	
HETEROSTYLODES (5 species)												
<i>Heterostylodes</i> species are abundant in sandy places where Compositae such as <i>Hieracium</i> , <i>Hypochoeris</i> and <i>Leontodon</i> are found (larvae in flowerheads). They are small blackish species, with a protruding peristomal margin, slender mentum, and characteristic 5th sternites. <i>H. caledonicus</i> was recently placed in this genus (from <i>Delia</i> ) and has a very characteristic median setose swelling on the processes of the 5th sternite; previously only taken on mountains, it was recently caught on Culbin Sands.												
<i>Heterostylodes caledonicus</i> *								1	2	6	9	Formerly <i>Delia caledonica</i>
<i>Heterostylodes nominabilis</i>	4	2	1	3	1				2	1	14	
<i>Heterostylodes obscurus</i>	2				1		1				4	
<i>Heterostylodes pilifer</i>	4	2	1	1	1	1			2		12	
<i>Heterostylodes pratensis</i>		3							4	1	8	
HYDROPHORIA (5 species)												
<i>Hydrophoria</i> species have long plumose arista, and can only be confused with <i>Hylemya</i> species. They differ from the latter through their larger lower squamae. <i>H. linogrisea</i> has apparently identical genitalia to <i>lancifer</i> , an unusual situation in Anthomyiidae. <i>H. linogrisea</i> pupae have been found under bark, suggesting that the larvae of <i>Hydrophoria</i> species may be predatory.												
<i>Hydrophoria diabata</i>		1										Wytham Woods, 1965
<i>Hydrophoria lancifer</i>	30	27	8	3	14	16			6	1	105	
<i>Hydrophoria linogrisea</i>	3	11	2	2	3				7	4	32	Larvae under bark (carnivorous?)
<i>Hydrophoria ruralis</i>	17	35	9	11	3	9	1		1		86	

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Hydrophoria silvicola</i>	1	3	1	2							7	
HYLEMYA (4 species)												
<i>Hylemya</i> species have long plumose arista, with the rays not very numerous (similar to <i>Hydrophoria</i> ), but with small, narrow lower squamae. They are very common flies, with <i>vagans</i> and <i>variata</i> being two of the most common species of Anthomyiidae.												
<i>Hylemya nigrimana</i>	13	17	4	8	9	1			7	3	62	Coprophagous
<i>Hylemya urbica</i>	11	24	10	7	7				5	2	66	Coprophagous
<i>Hylemya vagans</i>	74	83	12	32	21	11	1		16	10	260	Coprophagous
<i>Hylemya variata</i>	30	65	13	22	23	4	3		22	17	199	Coprophagous
HYLEMYZA (1 species)												
This species is covered in the key for <i>Hylemya</i> , leading to recorders often overlooking the inclusion of 'z' in the genus name												
<i>Hylemyza partita</i>	32	49	9	10	13	3	2		4	1	123	Coprophagous
LASIOMMA (5 species)												
<i>Lasiomma</i> species breed in bird nests, <i>L. seminitidum</i> being one of the earliest species to emerge in early March. In spite of the generic name, <i>L. picipes</i> has bare eyes, and is difficult to identify, but the rather spinose short setae at the base of the processes of the 5th sternite are a useful character.												
<i>Lasiomma anthomyinum</i>		10	4	3							17	Bird nests
<i>Lasiomma latipenne</i>	2	5			1				6	1	15	
<i>Lasiomma picipes</i>	7	9		1	4				4	6	31	Bird nests
<i>Lasiomma seminitidum</i>	10	55	12	8	6	3	2		3		99	Bird nests
<i>Lasiomma strigilatum</i>	8	22	5	8	3	1			3		50	Bird nests
LEUCOPHORA (8 species)												
<i>Leucophora</i> species are all associated with the nests of aculeate Hymenoptera (cleptoparasites). They fly early in the year in March, and can be found hovering around the host burrows. They are generally greyish flies with wide parafacials, some species are densely setose. Male genitalia with long distal section to aedeagus, with distinctive paraphalli, female ovipositor sometimes with spinose cerci, indicating oviposition in sandy substrates.												
<i>Leucophora cinerea</i>	6	16	4	2					1		29	
<i>Leucophora grisella</i>	19	12	3		1				2	1	38	
<i>Leucophora obtusa</i>	2	36	6	17		2	1		1		65	

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Leucophora personata</i>	4	17	5	21			2				49	
<i>Leucophora sericea</i> *	5	1	8								14	
<i>Leucophora sociata</i> *	1	5	1	1							8	
<i>Leucophora sponsa</i> *		5		3							8	
<i>Leucophora unistriata</i> *				1			2			1	4	
MYCOPHAGA (1 species)												
A distinctive species with well separated eyes in both sexes, long-plumose arista and reddish yellow abdomen.												
<i>Mycophaga testacea</i>	21	12	3	6	1	1	1			1	46	Fungus
MYOPINA (1 species)												
Male eyes separated as in the female. Male abdomen swollen, with large hypopygium. Arista basally thickened. Female with somewhat expanded palpi. Life history unknown.												
<i>Myopina myopina</i>		1	1	2	2	6	1	1	3		17	Near water
PARADELIA (4 species)												
<i>Paradelia</i> males (apart from <i>lunatifrons</i> ) have distinctive appendages to the processes of the 5 <sup>th</sup> sternite, and 2+3 dorsal setae on the hind tibia in both sexes. Mentum shining.												
<i>Paradelia brunneonigra</i>	4		1	1	4		1		7	2	20	
<i>Paradelia hedgreni</i> *									1		1	Formerly misidentified as <i>P. palliceus</i> . Record from 1919.
<i>Paradelia intersecta</i>	12	35	4	6	17	3	2		4	5	88	
<i>Paradelia lunatifrons</i>	2						1		7	3	13	
PAREGLE (2 species)												
<i>P. audacula</i> is a very common fly, with protruding peristomal margin, and hairs on the notopleural depression. <i>P. atrisquama</i> was recently introduced to the British fauna (1 male, N. Wales) but several males were caught in the Cairngorms recently by I. Perry. It is similar to <i>audacula</i> , and is probably overlooked.												
<i>Paregle atrisquama</i> *					1		1		5		7	
<i>Paregle audacula</i>	6	35	4	5	2				1	3	56	Coprophagous?

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
PEGOMYA (48 species)												
Most <i>Pegomya</i> species have legs and abdomen partly of wholly yellow or orange; only five species are more or less dark. The frons width is sexually dimorphic in all species. Interfrontalia without crossed interfrontal setae in nearly all species. Mentum rather short. Hind tibia without posterior or posteroventral setulae. Genitalia: male genitalia apically cleft into two processes and with a basal to median group of ventral setae; pregonites, postgonites and distal section of aedeagus generally complicated. <i>Pegomya</i> species are divided into two subgenera. Subgenus <i>Pegomya</i> species has leaf-mining larvae which have numerous teeth on their mouthhooks and female ovipositors shortened. Subgenus <i>Phoraea</i> females have longer ovipositors than subgenus <i>Pegomya</i> and larvae are mainly stem-borers or fungus feeders.												
<i>Pegomya argyrocephala</i> *	1										1	Recorded 1958. Stem galls on <i>Euphorbia</i> spp.
<i>Pegomya atricauda</i>				1					1		2	Recorded from 1898 and 1963.
<i>Pegomya betae</i> +	1	3	3		5			2		3	17	Leaf-miner on <i>Beta</i> spp
<i>Pegomya bicolor</i>	26	38	6	8	11	4	1		2	8	104	Leaf-miner on Polygonaceae
<i>Pegomya caesia</i>	1	14	5	3	1				1		25	Fungus
<i>Pegomya calyptrata</i>		3	3							1	7	Fungus
<i>Pegomya circumpolaris</i> *									4		4	Fungus
<i>Pegomya conformis</i> *	1	1	1			1			1		5	Leaf-miner on <i>Chenopodium</i>
<i>Pegomya cunicularia</i>	1	2	3		2			2		2	12	Often on coasts. Leaf-miner on <i>Beta</i> spp
<i>Pegomya depressiventris</i> *									1		1	Leaf-miner on <i>Solidago</i> spp. 1984 record.
<i>Pegomya deprimata</i> *									2		2	Fungus – both records 2004
<i>Pegomya dulcamarae</i> *		4	3	1							8	Leaf-miner on <i>Solanum dulcamarae</i>
<i>Pegomya exilis</i> +											0	Leaf-miner on <i>Beta</i> spp. etc.
<i>Pegomya flavifrons</i>	3	16	2	2	1	1	1			1	27	Leaf-miner on Caryophyllaceae
<i>Pegomya fulgens</i>	1	2	1	2	2				5	2	15	Fungus
<i>Pegomya furva</i> *									3	2	5	Fungus
<i>Pegomya geniculata</i>	16	11	1	12	1		1	1	2	2	47	Fungus
<i>Pegomya haemorrhoum</i>	1	3	1		3				11	1	20	Leaf-miner on <i>Rumex</i> spp.
<i>Pegomya holostea</i> *	1	5	2							1	9	Leaf-miner on <i>Stellaria</i> spp
<i>Pegomya hyoscyami</i> +		2						1		1	4	Leaf miner on <i>Beta</i> spp.



Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Pegomya incisiva</i>				1					6		7	Fungus
<i>Pegomya interruptella</i>	2	3	3								8	Leaf-miner on <i>Chenopodium</i>
<i>Pegomya laticornis</i> *	1	5		3	1						10	Leaf-miner on <i>Arctium</i> spp.
<i>Pegomya macrophthalma</i>		1		2							3	
<i>Pegomya maculata</i> *				1					2		3	Fungus
<i>Pegomya meridiana</i>	4	6	1	1	2		1			1	16	Seeds of <i>Hypericum</i>
<i>Pegomya nigrisquama</i>		3	5	1			1	2	1		13	Flies in Sept-Nov in gardens. Larvae on <i>Solidago</i> , <i>Aster</i>
<i>Pegomya notabilis</i>		1					1		7	4	13	Fungus
<i>Pegomya pallidoscutellata</i> *		1	1	3					11	3	19	Fungus
<i>Pegomya provecta</i>	1	6	1	3					1	2	14	
<i>Pegomya pulchripes</i>		2							2		4	
<i>Pegomya rubivora</i>	1	10	4	2	2	1	1				21	Stem feeder on <i>Rubus</i> spp
<i>Pegomya rufina</i>	7	12	8	1		4	1		1	1	35	Fungus
<i>Pegomya rugulosa</i> *							1		12	2	15	Fungus
<i>Pegomya seitenstettensis</i> *	1	3		1					4	1	10	Leaf-miner <i>Oxalis</i> spp
<i>Pegomya setaria</i>	1	7		1	1	1					11	Leaf-miner on <i>Polygonum</i>
<i>Pegomya sociella</i> *	1	5	4						2		12	
<i>Pegomya solennis</i>	7	23	6	3	3	1			1		44	Leaf-miner on <i>Rumex</i> spp
<i>Pegomya steini</i> *		4	1						2		7	Leaf-miner on thistles
<i>Pegomya tabida</i> *	4		3						10		17	Fungus
<i>Pegomya testacea</i> *		4	8	2	1		1		1		17	
<i>Pegomya transgressa</i> *	1	1							6	4	12	Fungus
<i>Pegomya transversa</i>	2	2		2							6	Fungus. Local in woods
<i>Pegomya ulmaria</i>	5	8		2	1				1		17	Fungus
<i>Pegomya vanduzeei</i>	2	7	1		1	1			1		13	Leaf-miner on <i>Rumex</i> etc. Was <i>P. versicolor</i>
<i>Pegomya vittigera</i>	1				1				13	2	17	Fungus
<i>Pegomya winthemi</i>	4	2		4	3				2	2	17	Fungus
<i>Pegomya zonata</i>	1						1	1	7	2	12	Fungus

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
PEGOPLATA (7 species)												
<i>Pegoplata</i> species are probably all coprophagous. The males have a characteristic heart-shaped 5th sternite and 2+2 (paired) dorsal setae on the hind tibia. Some of the females have swollen palpi. The distal section of the aedeagus is large with lateral tooth-like projections (aedeagal papillae) and a hood-like dorsal surface.												
<i>Pegoplata aestiva</i>	44	54	12	18	37	2	3		30	25	<b>225</b>	Coprophagous
<i>Pegoplata annulata</i>	13	26	2	8	3	4	2		1		<b>59</b>	Was <i>P. juvenilis</i> subsp. <i>nitidicauda</i>
<i>Pegoplata debilis</i>	1	1		2	5				1		<b>10</b>	
<i>Pegoplata infirma</i>	55	77	11	20	25	4	8	2	22	24	<b>248</b>	?Coprophagous
<i>Pegoplata nigroscutellata</i>	4	10	1	2	1		1		3	1	<b>23</b>	
<i>Pegoplata palposa</i> *	5		1	1	1				1	1	<b>10</b>	
<i>Pegoplata patellans</i> *					1				6	2	<b>9</b>	
PHORBIA (9 species)												
Larvae of <i>Phorbia</i> species breed in grass stems, and the female ovipositor is adapted to lay eggs in stems, the cerci being laterally compressed and sabre-like. The male postabdomen is swollen and rather club-like, genitalia are distinctive for all species, the 5th sternite processes bear some blunt or stiff setulae on their inner margins, and the distal section of the aedeagus often has an asymmetrical acrophallus. Most species are univoltine and appear early in the spring, only <i>fumigata</i> apparently having a second generation in the summer.												
<i>Phorbia atrogrisea</i> *		4	1	4							<b>9</b>	Grass stems?
<i>Phorbia bartaki</i>	1	25	13	1	1				6	1	<b>48</b>	Grass stems?
<i>Phorbia fumigata</i>	3	28	6	10	3				5	2	<b>57</b>	Grass stems
<i>Phorbia juncorum</i> *	2	1	3								<b>6</b>	Grass stems
<i>Phorbia longipilis</i> *			10								<b>10</b>	Only 3 sites
<i>Phorbia molinarius</i>	18	10	4	3	8						<b>43</b>	Grass stems?
<i>Phorbia nuceicornis</i>	11	6	3								<b>20</b>	Grass stems?
<i>Phorbia nuditibia</i> *	2										<b>2</b>	Recorded from VC6 in 1956 and 1957
<i>Phorbia sepia</i>	1	18	11	4	3				5	2	<b>44</b>	Grass stems?
STROBILOMYIA (2 species)												
<i>Strobilomyia</i> are somewhat shining blackish species which emerge early in the year at the end of April, in woods with larch and other conifer trees.												

Region	A	B	C	D	E	F	G	H	I	J	Total records	Notes on ecology and distribution
<i>Strobilomyia infrequens</i> *	1	4		3							<b>8</b>	Larch cones
<i>Strobilomyia melania</i>	1	5		1							<b>7</b>	Conifer seeds
SUBHYLEMYIA (1 species)												
<i>Subhylemyia longula</i> can be recognised by the cylindrical abdomen, the small anteroventral seta on mid tibia which is closer to the middle of the tibia than in any other anthomyiid species with an anteroventral seta on mid tibia, and with the wing cross-veins slightly infuscated.												
<i>Subhylemyia longula</i>	11	6	6	1	5				2	5	<b>36</b>	Larvae in dead snails
ZAPHNE (8 species)												
<i>Zaphne</i> species are rather robust black flies with the setulae on the anterior part of scutum being slightly stiffer than in most Anthomyiidae. They are often found in wet or marshy places.												
<i>Zaphne ambigua</i>	10	1	2	2	3		1		4	4	<b>27</b>	Marshes
<i>Zaphne caudata</i>	8	2		3	4	1			14	11	<b>43</b>	Marshes
<i>Zaphne divisa</i>	3	5	1		2		4				<b>15</b>	
<i>Zaphne inuncta</i> *	20	1							6	1	<b>28</b>	
<i>Zaphne nuda</i>		1							8	1	<b>10</b>	
<i>Zaphne proxima</i>							3				<b>3</b>	Thorne and Hatfield moors only
<i>Zaphne spiniclunis</i> *									27		<b>27</b>	Scottish mountains
<i>Zaphne wierzejskii</i> *	1		1						2		<b>4</b>	Latest record 1957

# Morphological characters

By Michael Ackland

## Head (Figs 1-3)

**Frontalia.** Space between eyes. Composed of parafrontalia and interfrontalia, the two together being the frons or frontalia. Measurement taken at the narrowest part. Sometimes the eyes are so close together that the distance between eyes is compared to the width of anterior ocellus, and the interfrontalia is obsolescent, the parafrontalia touching. Sometimes the eyes are separated by the width of the ocellar tubercle, when the parafrontalia and the interfrontalia are all distinct and of varying widths.

**Parafrontalia:** The parafrontalia generally becomes wider towards the tubercle. The width of the parafrontalia at the level of the tubercle is sometimes important.

**Parafrontal setae:** The upper setae are the orbital setae, and generally consist of 2 pairs reclinate and 1 pair of proclinate setae. The lower setae are the frontal setae. In females the orbitals and the frontals are often not in a straight line, in most males (dimorphic species) the orbitals are missing, and only the frontals are present.

**Interfrontal setulae** (cruciate interfrontals) : If present, these are small to very small in the male, but stronger in the female. In those species where in the male the interfrontalia is strongly reduced and the parafrontalia are almost touching, the interfrontal setulae are small and difficult to see, and can often be discerned by looking in profile, when they can be seen as small setulae directed forwards. (Fig 4C)

**Anterior facial margin (Peristomal margin):** (Fig 4B). Viewed in profile, the amount this projects in front of the parafrontal angle is important.

**Antennae:** segment 1 = **Scape**; segment 2 = **pedicel**; segment 3 = **postpedicel**. Remaining segments = **arista**

**Parafrontal angle:** Junction of the parafrontals and the parafacials. Area of the parafacialia when viewed in profile at level of lunule. The parafrontal angle is often projecting forwards in front of the level of the anterior facial margin (peristomal margin).

**Parafacials:** Area between the face and the eye below the lunule. The width of this is the actual width, not the apparent width when viewed in profile. In some genera (*Fucellia*) there are setulae on the upper part of the parafacials. (Fig 5)

**Gena:** The area below the eye. The measurement is the narrowest part of the gena and is measured as the actual width, not the apparent width when the head is viewed in profile.

**Genal setae:** Setae on the lower margin of the gena; may be uniserial or bi-serial.

**Face:** Sometimes there is a ridge of tubercle on the upper part of the face between the antennal bases.

**Vibrissa:** The stronger pair of setae on either side of the peristomal margin. The distance between the vibrissal setae and nearest distance from a vibrissal seta to the eye margin may be used.

**Occiput:** Posterior surface of head. Setulae on the upper part of the occiput may be present below the upper row of setulae around margin of eye (ocular setulae).

## Thorax (Figs 6-8)

The different pleurites of the thorax are shown in Fig 6 and the chaetotaxy in Fig 7. The setae of the scutum are shown in Fig 8. Important setae in identifying Anthomyiidae are:

**Prealar seta:** just behind the notopleuron or notopleural depression, and compared with the posterior notopleural seta as to length and strength.

**Posthumeral setae:** either 2 or 3 setae behind the humerus (sometimes called the post pronotal callus).

**Upper anterior anepisternal setula:** This is a small (sometimes duplicated) setula just above and behind the anterior spiracle.

**Katepisternal setae:** there are potentially 4 katepisternal setae, 2 upper and 2 lower. The number and length of the lower setae are important.

**Anepimeral setula:** in *Emmesomyia* there is a small setula on the upper margin of the anepimeron.

**Presutural acrostichal setae:** (Fig 8) the length, strength and position of these setae (sometimes also the postsutural acrostichal setae) are often species specific. The distance between the presutural acrostichal rows and the dorsocentral rows is often expressed as a ratio 10:5:10, which indicates that the distance between the acrostichal rows is half the distance between the acrostichal and dorsocentral rows. The presence or absence of hairs between the acrostichal rows is often important.

**Postsutural dorsocentral setae:** almost always 3 pairs in Anthomyiidae, 4 pairs in *Egle ciliata* and *Egle brevicornis*.

**Ventral scutellar hairs:** (Fig 9) In nearly all Anthomyiidae there are some fine hairs ventrally on the scutellum towards the tip. These can be difficult to see, but careful orientation of the light and point of view will show them up. They are absent in some species (some *Phorbia*, *Heterostylodes* etc) but this character is not very reliable.

## **Wings (Fig 20)**

The wing venation of Anthomyiidae is fairly constant, only the position of the large (lower) crossvein is useful.

The anterior setae or setulae of the costa vary in length, and the usually longer spinule(s) before the distal break vary considerably in length. The ventral surface of the costa (below the anteroventral row of setae) is sometimes setulose or hairy. These setulae are small and difficult to see, especially in species where the costal vein is dark, high magnification is sometimes necessary.

## **Abdomen (Fig 10,11)**

**Prehypopygial tergite:** this is a setulose tergite immediately anterior to the epandrium.

**Tergite VI:** This tergite is either hidden under tergite V (count from the base of abdomen) or is just visible and protruding from under tergite V, without setae (Fig 10), or is more evident and is setose (Fig 11) .

**Sternites IV & V:** the length and width of sternite IV, and its setae are important. Sternite V normally has 2 distal processes which have outer lateral and inner marginal setae or setulae. In some genera (*Delia*) the processes bear specialized blunt ended setae or spinules, composed of coalesced hairs.

## **Legs (Figs 12,13,14,15)**

The nomenclature of the setae of the legs is the usual one employed in Calyptrate Diptera. Viewing the cross section of a leg as a circle, setae are dorsal, ventral, anterior or posterior. The intermediate positions are anterodorsal, posterodorsal, anteroventral and posteroventral. The position along the femur or tibia is described as basal (proximal) , medial, or apical (distal), or in basal third, in apical quarter.

**Posteroventral apical spur on fore tibia** (in some male *Delia* (Fig 12)) : this spur arises at the apex of the fore tibia and is directed forwards.

**Posteroventral apical seta on hind tibia** (Fig 14): this setae is important as it separated several genera or groups of species.

**Dorsal preapical setae on hind tibia** (Fig 13): several groups of species in at least 2 genera possess 3 equally long dorsal preapical setae. Normally only the anterodorsal and dorsal setae are present in most Anthomyiidae.

## **Genitalia (Figs 16,17,18)**

**Cercal plate** (cerci, mesolobe): varies considerably, both in size, shape and chaetotaxy.

**Surstyli:** These are of considerable importance in species identification.

**Pregonite:** can be simple, with short setae, bilobed, long, almost fused with the hypandrium etc.

**Postgonite:** very distinctive in some species, especially *Pegomya*.

**Aedeagus:** consists of a central phallosophore with a dorsal epiphallus, which may be basally, medially or distally placed. Attached to its base is the aedeagal apodeme, which varies considerably in its size, and cross section. Attached to the distal end of the phallosophore is the distal section of the aedeagus, which may have lateral processes called the paraphalli; these are sometimes serrated on their dorsal margin. The dorsal surface of the distal section may be prolonged with a distal acrophallus, or the acrophallus may be a larger sclerotized structure projecting ventrally; sometimes the acrophallus is absent or membranous.

# KEY TO GENERA OF BRITISH ANTHOMYIIDAE MALES

By Michael Ackland

- 1     Narrowest distance between eye margins on frons (generally measured at about halfway between lunule and anterior ocellus) at least 0.75 times width of an eye (range 0.75– 2.3, average 1.5) (Couplet 1 group).....2
- Narrowest distance between eye margins on frons at most 0.4 times width of an eye (generally much less, the majority of species here have the eyes closely approximated) .....9
- 2     Hind tibia without an apical pv-seta.....3
- Hind tibia with a strong apical pv-seta which is almost or quite as long and strong as the av-apical seta.....8
- 3     Arista long plumose, about twice as wide (including hairing) as postpedicel, the hairs in more than one row above and below. Abdomen entirely reddish yellow in ground colour.....*Mycophaga testacea* (Gimmerthal)
- Arista at most only about half as wide as postpedicel. Abdomen entirely black in ground colour .....4
- 4     Gena below eye almost or quite half as deep as vertical diameter of eye.....5
- Gena below eye much less than half as deep as vertical diameter of eye, either very narrow and hardly as wide as postpedicel, or if wider then the latter very large and arista geniculate .....7
- 5     Katepisternal setae 2 + 2. Acrostichals strong in two complete rows. Hind femur with a well developed setose tubercle beneath at base. Vein C of wing with some semi-erect and widely spaced spinules which contrast with the finer and more numerous anterior spinules which are semi-decumbent .....*Fucellia*
- Katepisternal setae 1 + 2. Acrostichals all fine and hair-like. Hind femur without a tubercle beneath .....6
- 6     Mid tibia without ventral setae but with multi-serial fine erect hairs on av-, v- and pv-surfaces. Scape, pedicel and palpus orange-brown. Vibrissal angle in profile well behind level of parafrontal angle. Abdomen short and strongly clubbed. Setae before subcostal break shorter than crossvein dm-cu. Vein C bare on lower surface.....`  
..... *Myopina myopina* (Fallén)
- Mid tibia with three strong av-setae, no erect hairs. Scape, pedicel and palpus dark brown to black. Vibrissal angle in profile level with parafrontal angle. Abdomen less strongly club-shaped. Setae before subcostal break longer than crossvein dm-cu. Vein C setulose on whole length of lower surface, the setulae lying below the row of av- spinules. Parafrontal brown dusted ..... *Botanophila moriens* (Zetterstedt)
- 7     Antennae short, postpedicel hardly 1.5 times as long as pedicel (measured on inside face). Pedicel short, not longer than its width, arista never geniculate. Tip of scutellum usually bare beneath. Haustellum short, not much more than three times as long as wide, dusted.

- Gena very narrow..... *Chiastocheta*
- Antennae conspicuously large, postpedicel quite 4 times as long as pedicel. Arista more or less geniculate. Scutellum with distinct fine pale hairs beneath at tip. Haustellum long and slender, about 4 times as long as wide, shining black.....  
..... *Alliopsis albipennis* (Ringdahl)
- 8 Anal vein not reaching wing margin. Anal lobe of wing little developed so that wing distinctly narrows from about middle to base. Tip of scutellum with a few fine hairs beneath. Katepisternal setae 1 + 1, anterior seta fine and hair-like. Light grey dusted species with a distinct brown median vitta on scutum which extends to tip of scutellum.  
..... *Anthomyia monilis* (Meigen)
- Anal vein always reaching wing margin, even though only as a hair-fine line or shadow. Anal lobe normal, wing not narrowing from middle to base. Scutellum usually bare beneath, at most with only 2-3 inconspicuous pale hairs at tip. .... *Chirosia* group A
- 9 Hind tibia with a well developed apical pv-seta, which is almost (or quite) as long and strong as the apical av-seta. (*Hylemya partita* sometimes has a weaker pv-seta on hind tibia (about one-third to a half length of the av- seta) and is keyed out in both sections)  
..... 10
- Hind tibia without a well developed apical pv-seta, rarely with a short weak one ..... 17
- 10 Scutellum usually entirely bare beneath, at most with only 2–3 scattered fine hairs at tip. (If in doubt and fine pale hairs are present under tip of scutellum, a shining black species with intensively yellow wings, arista plumose with multiseriate shaggy rays, anepisternum without a strong isolated setula on upper anterior margin, see *Chirosia flavipennis* below; or fore tibia with a long submedian p-seta and mid tibia with 4 p-setae, see *Chirosia griseifrons* below) ..... 11
- Scutellum with some short fine pubescence beneath at tip. Anepisternum with an isolated strong upcurved seta towards anterior part of upper margin.....14
- 11 Mid tibia with one or more strong av-setae on apical half. Face somewhat retreating so that parafrontal angle is much more prominent than vibrissal angle.....  
..... *Phorbia* group A
- Mid tibia without av-setae ..... 12
- 12 Anepisternum with an isolated strong upcurved seta towards anterior part of upper margin. Frontal vitta without trace of cruciate interfrontal setae. Mid tibia, in addition to the normal ad- and pd-setae, with 4 posterior setae ..... *Chirosia griseifrons* (Séguy)
- Anepisternum without an isolated strong seta towards anterior part of upper margin. Frontal vitta with a distinct pair of (often small and usually cruciate) setae on upper part. (These setae, unlike the stronger orbital setae, do not arise from the parafrontals, their bases lying within the frontal vitta between, though often close to, the parafrontals)  
..... 13
- 13 Arista, including hairing, about twice as wide as postpedicel, the hairs more than uniserial both above and below. Mid femur with 3 long, strong, erect v-setae in basal half  
..... *Chirosia flavipennis* (Fallén)
- Aristal hairing at most less than half as wide as postpedicel, the hairs in a single row

- above and below ..... **Chirosia** group B
- 14 Arista, including hairing, at least twice as wide as postpedicel, with about 7–9 dorsal rays and 3–5 ventral ones. Prealar seta nearly as long as posterior notopleural seta. Katepisternal setae 2 + 2. Hind femur with numerous long av- and pv-setae and setulae. Processes of sternite V short and widely separated at base... **Hylemya partita** (Meigen)
- Arista, including hairing, not more than half as wide as postpedicel. Prealar seta longer than posterior notopleural seta ..... 15
- 15 Acrostichal setae all, or almost all, fine and hair-like, at most 1–2 stronger ones in front of suture. Tergite VI mainly visible and bearing strong marginal setae. Katepisternal setae 1 + 2 ..... **Botanophila** group A
- Acrostichals well developed. Tergite VI mainly or entirely hidden, without marginal setae..... 16
- 16 Prementum somewhat slender and entirely shining black. Arista with the longest hairs distinctly shorter than its basal diameter..... **Lasiomma latipenne** (Zetterstedt)
- Prementum not particularly slender, entirely dulled by dust. Longest arisal hairs as long as or longer than basal diameter of arista..... **Anthomyia** group A
- 17 Parafrontal angle projecting well in front of level of vibrissal peristomal margin in lateral view, face more or less flat. Parafacial wide at level of lunule, becoming narrower below, with a rather pronounced parafacial fold or ridge. Distance from anterior ocellus to lunule greater than from lunule to vibrissal angle. Thorax short and wide, length from foremargin to base of scutellum more or less equal to width between wing bases. Lower calypter very narrow and strip-like. Abdomen viewed from above long ovate, not parallel sided; in lateral view more or less cylindrical, postabdomen swollen and prominent. Legs rather short and robust. Mid tibia with an av-seta (except some specimens of *atrogrisea*). Grey to light grey dusted flies..... **Phorbia** group B
- Not all the above characters present at the same time ..... 18
- 18 Tergite VI mainly visible and bearing strong setae, and at the same time at least femora dark ..... 19
- Tergite VI without setae, and more or less hidden under tergite V (care should be taken to distinguish tergite VI from the prehypopygial tergite which is always setose) or if tergite VI bears some setae or setulae, then femora yellow, *or* arista almost bare, hairs not longer than thickness of arisal base..... 20
- 19 Hind tibia with 2 ad- and 2 pd-setae. Either upper part of face with a swelling between antennal base, vibrissal angle projecting forwards and mid tibia with 1 av-seta, or arista long plumose, the length of longest hairs equal to width of postpedicel. Prementum short, about 2.5–3 times as long as wide. Acrostichal setae developed. Sternite V cordate with dense series of short setulae on inner surfaces of processes ..... **Pegoplata** group A
- Hind tibia with 3–4 ad- and 3–4 pd-setae. Upper part of face not swollen between antennae, Mid tibia without av-setae. Prementum long and slender, about 4–5 times as long as wide. Vibrissal angle somewhat protruding, projecting as far as or further than parafrontal angle Acrostichal setae fine and hair-like, at most 1–2 stronger ones before suture..... **Botanophila striolata** (Fallén) & **discreta** (Meigen)



- 20 Sternite V processes with raised inner margins (in most species strongly sclerotized and shining black, at least on lower (inner) margin). These inner margins project ventrally in lateral view. Prementum generally rather long and slender, shining black, entirely undusted. Gena as wide as or wider than postpedicel. Cruciate interfrontal setulae present. Abdomen cylindrical or slightly compressed. Anepimeron without a developed upper setula on upper anterior margin. Prealar rather long, from slightly shorter than posterior notopleural seta, to considerably longer. Arista bare to short plumose.....*Alliopsis*
- Without the above combination of characters..... 21
- 21 Parafacial and gena conspicuously wide, the former almost 3 times as wide as postpedicel, the gena 0.3–0.5 times as deep as vertical diameter of eye. Eyes always well separated. Prementum entirely dulled by dust. The longer setae before subcostal break inconspicuous or absent, not more than twice width of vein C. Abdomen almost cylindrical, little (if at all) dorsoventrally flattened. Arista long haired or bare. Mid tibia always with an ad-seta. .... *Leucophora*
- Without all the above combination of characters (if parafacial is wide, then 4 post dorsocentral setae present, Mid tibia without an ad-seta, and eyes closely approximated) ..... 22
- 22 Scutellum dusted pale grey with a black spot or side margin on each side, to black with a pale grey median spot at apex, the division between black and grey always sharply defined..... 23
- Scutellum not marked as above, usually concolorous with thorax, any paler dusting present not forming a sharply defined pattern..... 24
- 23 Proepisternal depression with 6–20 fine hairs on disc. Scutum dusted pale grey with 5 large sharply defined elongate spots. Abdomen distinctly dorsoventrally flattened towards base. Setae on lateral surface of scutellum in a single regular row. Prehypopygial tergite shining black and contrasting with the grey dusted tergite V. Abdomen with a tridentate black basal crossband on at least tergites III–V ..... *Anthomyia* group B
- Proepisternal depression bare. Scutum with 3–5 longitudinal black stripes. Abdomen more or less cylindrical, not flattened even at base. Setae on lateral surface of scutellum in more than one irregular row..... *Eustalomyia*
- 24 Abdominal tergites III–V each with a sharply defined black transverse tridentate band on foremargin. Hind tibia, posterodorsally, with only a single strong seta at distal half to third (occasionally a very small second pd-seta may be present at basal third) which is almost as long as hind tarsomere 1. Legs entirely black..... *Calythea*
- Abdominal tergites never with a tridentate foremarginal band. Hind tibia with 2 or more pd-setae, or if with only one then legs mainly yellow..... 25
- 25 Lower calypter well developed and projecting well beyond upper calypter, its length (greatest distance from thoracic margin to tip of lobe) equal to or exceeding that of upper calypter. Tergite VI bare and mainly hidden, at most with a few fine hairs on posterior margin. Cruciate interfrontal setulae present. Prementum entirely shining black, undusted. Eyes bare. Arista, including hairing, quite half as wide (or more) as postpedicel, or if only pubescent then a pair of well developed cruciate setae on upper part offrontal vitta. Vein

- C setulose along whole length of ventral surface, except in *Zaphne divisa*, (where the setulae reach halfway between the costal breaks). which has arista plumosity twice as wide as postpedicel, notopleural depression setulose, occiput and anterior part of scutum bearing stiffened setulae. Robust flies with more or less cylindrical abdominal.....26
- Without all the above combination of characters.....27
- 26 Arista very long plumose, total width of hairing at least twice width of postpedicel, with 12–16 dorsal rays and 8–12 ventral rays. Notopleuron absolutely bare apart from the two strong setae. Legs partly or wholly yellow in most species. ....***Hydrophoria***
- Arista shorter plumose or only pubescent, total width of hairing not exceeding width of postpedicel, or if with longer hairs then notopleural depression with some hairs about base of posterior seta. Legs and abdomen black. Occiput and anterior part of scutum with some stiffened setulae. Sternites and tergites often with long specialised setae and setulae ..... ***Zaphne***
- 27 Cruciate interfrontal setulae absent (though the uppermost pair of small frontal setae may appear to arise from the interfrontalia, but careful examination shows that their bases are on the parafrontal). Prealar seta longer than posterior notopleural seta (1.3–1.5 times) and directed laterally at right angles to thorax. Eye margins touching on frons (or at least parafrontals touching and frontal vitta linear). Tergite VI bare. sternite V not cordate, with longer processes bearing only fine setulae and hairs on inner surfaces. Flies generally with rather long legs (yellow to completely dark).....***Eutrichota***
- Without the above combination of characters.....28
- 28 Arista long plumose, total width of hairing at least twice width of postpedicel, the rays spaced out with 6–12 on dorsal surface, and 4–9 on ventral surface. Abdomen more or less cylindrical, not flattened basally (except *Hylemya partita* which has a small apical pv-seta on hind tibia ..... ***Hylemya***
- Arista with total width of hairing not wider than postpedicel, generally no more than pubescent.....29
- 29 Hind tibia with only 2 ad- and 2 pd-setae (more or less paired). Dark brownish to black species with thin dusting. sternite V cordate, with dense series of short setulae along inner surfaces of processes. Legs dark ..... ***Pegoplata* group B**
- Hind tibia with more numerous ad-setae, (or if with only 2 ad- and 2 pd-setae on hind tibia and a pale greyish, densely dusted species with projecting peristomal margin and processes of sternite V with 2–3 apical spines placed close together and with pale legs and sternite V not cordate, go to couplet 30. (*Adia cinerella*) .....30
- 30 Thorax with a long presutural intra-alar seta which is two-thirds as long (but not as strong) as posterior notopleural seta. Three almost equally long postsutural intra-alar setae. Abdomen wide and conspicuously shorter than thorax, hence tergite III is 4–5 times wider than long. All acrostichal setae long and strong, presutural acrostichals widely separated and with multiserial hairs between rows. Eye margins touching on frons. Whole fly orange and semi-shining. ....***Pegomya testacea*** (De Geer)
- Presutural intra-alar, when present, very short. Usually only 2 postsutural intra-alar setae. Abdomen normal, longer than thorax .....31
- 31 Anepimeron with an isolated strong setula towards posterior part of upper margin. Anal vein usually so faint in apical part that it may appear not to reach wing margin. Arista

- with the longest hairs quite as long as its basal diameter. ....**Emmesomyia**
- Anepimeron bare. Anal vein always quite distinct (even though faint) right to wing margin ..... 32
- 32 Frontal vitta without trace of cruciate setae or setulae. Vibrissal angle not strongly projecting forwards. Vein C hairy along whole length ventrally, the hairs lying below the anteroventral row of setulae. Hind tibia without pv-setae or setulae. Mid tibia with 0–1 ad-seta. The usually stronger pair of costal setae before the distal break the same length of the setulae. Eyes bare. Arista at most microscopically pubescent. Notopleuron entirely bare apart from the two strong setae (except *argyrocephala*). (The majority of species have fully or partially yellow or orange legs, only four species have entirely black legs) .....**Pegomya**
- Frontal vitta always with a pair of (usually cruciate) setae on upper part, though these may be small and somewhat hair-like. Vein C usually bare ventrally beyond distal break, but if setulose along whole length then not all other characters as above ..... 33
- 33 Hind tibia with 3 strong preapical setae of equal length on dorsal surface (the preapical pd-seta well developed). Arista very strongly pubescent. Prementum shining, undusted. Prealar seta much longer than posterior notopleural seta. Vein C setulose on ventral surface on whole length beneath. .... **Botanophila** group B
- Hind tibia with only 2 well developed dorsal preapicals, the posterodorsal one is weak (not more than half length of dorsal seta) or absent (or if there are 3 dorsal preapical setae of the same length, they are all short and weak) ..... 34
- 34 Mid tibia with one or more av-setae in distal two-thirds ..... 35
- Mid tibia without av-setae ..... 39
- 35 Facial edge in lateral view upturned and conspicuously projecting forwards beyond level of parafrontal angle, and beyond level of vibrissal angle. Hind tibia with only one av-seta. .... 36
- Facial edge not or hardly projecting, distinctly less prominent than parafrontal angle. Hind tibia with 2 or more av-setae ..... 37
- 36 Acrostichals mainly hair-like and multiserial, only one pair of strong presutural setae which are set far apart ..... **Paregle**
- Two rows of setose acrostichals which are equidistant from dorsocentral rows and each other, without hairs between them ..... **Adia**
- 37 Abdomen oval-cylindrical, not dorsoventrally flattened, even somewhat laterally compressed. Hind femur without pv-setae. Wing with crossveins usually somewhat clouded. The av-seta on mid tibia is quite small and placed at middle of tibia ..... **Subhylemyia longula** (Fallen)
- Abdomen decidedly flattened on about basal two-thirds. The av-seta on mid tibia strong and placed in distal half of tibia. Hind femur with long pv-setae. Neither crossvein clouded ..... 38
- 38 Fore tibia with a strong blunt curved apical pv-spur. Mid tibia usually with 2 av-setae. Hind tibia with a posterior row of 8–10 long rather fine setae, becoming shorter distally. Processes of sternite V rather weakly setose except for a close set row of about 6 coarse blunt setae at apex of lower margin, these setae directed vertically downwards. Presutural

- acrostichals partly uniserial anteriorly ..... ***Delia lamelliseta*** (Stein)
- Fore tibia with only the normal pointed apical pv-seta. Mid tibia with only one av-seta. Processes of sternite V rather strongly setose, the setae being sharp pointed and mainly directed posteriorly ..... ***Botanophila*** group C
- 39 Notopleural depression with some hairs about bases of the 2 strong setae, and at the same time only 3 post dorsocentral setae. Lower posterior katapisternal seta much weaker than, and at most little more than half as long as, upper one. Mid tibia without a distinct ad-seta. Vein C setulose along whole length of ventral surface. Eyes separated by almost the width of postpedicel ..... ***Delia*** group A
- [*Botanophila latifrons* sometimes has 1–3 setulae on notopleural depression; a small species with parafrontal angle strongly projecting, peristomal margin receding, wings brownish basally with dark veins, wing length about 4 mm; go to couplet 40]
- Without the above combination of characters, if notopleural depression with some hairs, then 4 post dorsocentral setae present..... 40
- 40 Hind tibia with only 2 pd-setae ..... 41
- Hind tibia with 3 or more pd-setae..... 42
- 41 Hind tibia with 3 or more ad-setae. Mid tibia with a distinct ad-seta. Prementum, and pregenital sclerite of abdomen, shining black. Sternite V with remarkable appendages to processes ..... ***Paradelia*** group A
- Hind tibia with only 2 ad-setae. Mid tibia without an ad-seta. At least the pregenital sclerite dulled by dust. Legs mainly reddish or brownish yellow. Small, delicate fly with small head and thorax in lateral view humped. Sternite V without remarkable appendages ..... ***Paradelia lunatifrons*** Zett.
- 42 Facial edge in profile sharply protruding so that it is more prominent than parafrontal angle. Haustellum conspicuously long and slender, more slender than, and about 0.75 times the length of fore tibia ..... 43
- [If in doubt and prealar seta absent, and a light olive-grey dusted species, go to couplet 44]
- Facial edge hardly or not protruding, or if rather prominent then haustellum distinctly stouter than, and less than 0.75 times the length of fore tibia..... 44
- 43 Mid tibia with a distinct ad-seta. Prealar seta longer than posterior notopleural. Notopleural depression bare apart from the 2 strong setae. Wing base blackish, contrasting with whitish calypteres..... ***Heterostylodes***
- Mid tibia without an ad-seta. Prealar shorter than or as long as posterior notopleural seta, or if longer then 4 postsutural dorsocentrals and notopleural depression with some hairs about base of posterior seta. .... ***Egle***
- 44 Mid tibia without an ad-seta. Hind femur without distinct pv-setae except 2-5 in distal fifth..... ***Delia*** group B
- Mid tibia with one or more ad-setae, sometimes quite small but distinct from tibial hairs (*Botanophila sanctimarci* has a very small ad-seta, sometimes absent, in which case hind femur with complete rows of av- and pv-setae, and processes of sternite V partly orange) ..... 45

- 45 Eyes with distinct pubescence (from one-quarter to equal the width of postpedicel). Anepisternum with a differentiated upcurved setula towards anterior part of upper margin. (Not including *Lasiomma picipes* Mg.)..... **Lasiomma**
- Eyes virtually bare.....46
- 46 Mainly shining blackish flies with only sparse dusting, yellowish wing base and short shining blackish prementum. Scutum, viewed from behind, with two presutural light grey dusted vittae between acrostichal and dorsocentral rows .....**Strobilomyia**
- Without the above combination of characters.....47
- 47 Mid tibia with 2 pd-setae. Fore tibia never with a strong blunt apical p- or pv- spur which is curved forwards towards tarsus, though a pointed apical pv-seta which is directed posteroventrally may be present..... **Botanophila** group D
- Mid tibia with only 1 pd-seta, or if with 2 then fore tibia with a strong blunt apical p- or pv spur..... **Delia** group C

[*Lasiomma picipes* will key to this couplet. It is the only British species of *Lasiomma* with bare eyes, and mid tibia with 1 ad-seta, 1 pd-seta and 2 pv-setae (not in a true posterior position, see couplet 45). About 4-5 mm long, mainly blackish species, genal setae in more than one row, 3 posthumeral setae, costal spines at distal break hardly discernible from the spinules between the costal breaks, scutum with 2 presutural grey dusted vittae between acrostichal and dorsocentral rows. Hind tibia with 8–11 a-setae. All tibial setae rather short. Hind femur with av- and pv-setae].

### Couplet groups

Couplet 1 (Species with eyes widely separated)

*Mycophaga testacea*, *Fucellia* spp, *Myopina myopina*, *Botanophila moriens*, *Chiastocheta*, *Alliopsis albipennis*, *Anthomyia monilis*

Chirosia group A

*Chirosia albitarsis*, *crassiseta*, *grossicauda*, *nigripes*.

Chirosia group B

*Chirosia aberrans*, *cinerosa*, *histricina*, *montana*, *betuleti*, *similata*

Phorbia group A

*Phorbia nuceicornis*, *moliniaris*

Phorbia group B

*Phorbia bartaki*, *fumigata*, *atrogrisea*, *nuditibia*, *juncorum*, *sepia*, *longipilis*

Botanophila group A

*Botanophila varicolor*, *trapezina*, *estonica*

Botanophila group B

*Botanophila apiciseta*, *maculipes*, *jacobaeae*

Botanophila group C

*Botanophila spinosa*, *sericea*

Botanophila group D

*Botanophila biciliaris*, *brunneilinea*, *cuspidata*, *depressa*, *discreta*, *dissecta*, *fonsecai*, *fugax*, *gnava*, *helviana*, *hucketti*, *laterella*, *latifrons*, *lobata*, *phrenione*, *profuga*, *rupicapra*, *sanctimarci*, *seneciella*, *sericea*, *silvatica*, *sonchi*, *striolata*, *verticella*

Anthomyia group A

*Anthomyia liturata*, *confusanea*, *cannabina*, *mimetica*

Anthomyia group B

*Anthomyia pluvialis, procellaris, imbrida, bazini*

Pegoplata group A

*Pegoplata annulata, palposa (nigroscutellata, patellans, aestiva, debilis)*

Pegoplata group B

*Pegoplata aestiva, infirma, nigroscutellata, patellans, debilis*

Delia group A

*Delia radicum, planipalpis, floralis, carduiformis*

Delia group B

*Delia carduiformis, coarctata, fabricii, lavata, nigrescens, pallipennis, pruinosa*

Delia group C

*Delia albula, antiqua, cardui, coronariae, criniventris, diluta, echinata, flavogrisea, florilega, frontella, hirtitibia, interflua, kullensis, lophota, penicilliventris, penicillosa, pilifemur, piliventris, platura, quadripila, setigera, tarsifimbria, tumidula*

Paradelia group A

*Paradelia intersecta, brunneonigra, hedgreni*

## Key to males of the 25 most commonly found species of Anthomyiidae

By Howard Bentley

This short key is a time-saving device; it should never take more than a couple of minutes to run a fly through it. The large majority of Anthomyiidae which are collected by the usual methods of sweeping, flower-searching etc. belong to these 25 species. If the fly you are looking at is not one of these species then one of two things can happen: either the key will fail to produce any result, or you will get a result which is wrong. **IT IS THEREFORE VERY IMPORTANT THAT ALL RESULTS FROM THIS KEY BE CHECKED AGAINST GENITALIA ILLUSTRATIONS.**

- |   |   |                                |
|---|---|--------------------------------|
| 1 | Arista long plumose – total width including hairing much greater than width of flagellomere. Only a single row of arista hairs above and below the arista | 2                              |
| - | Total width of arista less than width of flagellomere   | 8                              |
| 2 | Scutellum with a bare triangular area at base. Lower squama not projecting beyond upper in lateral view   | 3                              |
| - | Scutellum hairy over (almost) all of its area. Lower squama projecting well beyond upper in lateral view  | 6                              |
| 3 | Four rows of acrostichals in front of the suture, the outer rows stronger than the inner. Hind tibia with a posteroventral preapical seta                 | <b><i>Hylemyza partita</i></b> |
| - | Two rows of acrostichals in front of the suture. Hind tibia without a posteroventral preapical  | 4                              |
| 4 | At least the hind tibiae yellow   | <b><i>Hylemya vagans</i></b>   |
| - | Legs entirely black   | 5                              |

- 5 In lateral view, surstyli curved backwards. Frons narrow, frontal orbits quite or almost touching in front of ocellar triangle ***Hylemya variata***
- In lateral view, surstyli curved forwards. Frons wider, with a clear frontal vitta through its length ***Hylemya urbana***
- 6 Mid and hind femora yellow ***Hydrophoria linogrisea***
- Mid and hind femora dark 7
- 7 Prealar seta at least as long as posterior notopleural. Abdomen without dark foremarginal bands ***Hydrophoria lancifer***
- Prealar seta shorter than posterior notopleural. Abdomen with dark foremarginal bands ***Hydrophoria ruralis***
- 8 Thorax with a strongly contrasting pattern of black and light-grey areas 9
- Thorax without such a pattern 10
- 9 The small black spot above the wing base separated from the larger lateral postsutural black spot on the scutum. The parafrontals separated by a narrow black vitta ***Anthomyia pluvialis***
- The black spots defined above merging together. Parafrontals touching on frons ***Anthomyia procellaris***
- 10 Tergite 6 broadly visible and bearing strong setae 11
- Tergite 6 at most narrowly visible, and without strong setae 12
- 11 Surstyli deeply cleft at apex. A small projecting knob between antennal bases ***Pegoplatea aestiva***
- Surstyli not cleft. No projecting knob between antennae ***Botanophila striolata*\***
- 12 Surstyli long, curved and slender, with a very small nick at the apex 13
- Surstyli not of this form 14
- 13 Two rows of strong acrostichals, equidistant from each other and from the dorsocentrals ***Adia cinerella***
- Acrostichals mainly hairlike and multiserial, with only one strong presutural pair ***Paregle audacula***
- 14 Hind tibiae with a row of about twenty erect posteroventral setulose hairs, remarkably even in length and spacing 15
- Without this row of hairs 16
- 15 Middle metatarsus with a dorsal fringe of long setulae, the longest being twice as long as the width of the metatarsus ***Delia florilega***
- Middle metatarsus without these lengthened setulae ***Delia platura***
- 16 Femora yellow ***Pegomya bicolor***

- Femora dark 17
- 17 Cercal plate tridentate, the longest tooth in the centre ***Botanophila fugax***
- Cercal plate not tridentate 18
- 18 Hind femur with a dense brush of coarse hairs basally beneath, the longest hairs at the base and at least as long as the depth of the femur ***Delia radicum***
- Without this brush of hairs 19
- 19 Parafacials exceptionally wide, almost three times the width of the postpedicel ***Leucophora obtusa***
- Parafacials much narrower 20
- 20 Eyes with short but distinct pubescence ***Lasiomma seminitidum***
- Eyes bare 21
- 21 In lateral view, surstyli suddenly widening half way along to about twice their proximal width ***Phorbia fumigata***
- Surstyli with a different shape 22
- 22 Cercal plate deeply cleft at distal end ***Botanophila brunneilinea***
- Cercal plate not cleft 23
- 23 Sternite five with long out-turned processes posteriorly. Surstyli in dorsal view deeply indented from the outer edge near distal end ***Paradelia intersecta***
- Genitalia otherwise 24
- 24 Cross-veins infuscated ***Anthomyia liturata***
- Wings clear ***Pegoplata infirma***

\* NB *Botanophila discreta* also keys out here. See Michael's list of characters to separate the two species.

## Test Key to the Genera of British Female Anthomyiidae

Michael Ackland has produced an excellent key to the genera of British male Anthomyiidae, and keys to species level for many genera covering both males and females. However, there has been no key to the genera for females, and this is an attempt to produce such a key. A provisional key to genera of both sexes covering all the genera in the Palaearctic region is published in "Contributions to a Manual of Palaearctic Diptera, Volume 3, Higher Brachycera, L.Papp and B. Dervas (editors), Science Herald Budapest, 1998". What follows is based on that key. This original key runs to 140 couplets. I have removed from it all sections relating to genera which do not occur in Britain, all sections relating only to males, and all parts concerning features which require dissection and the preparation of microscope slides. (On the borderline in this last case are a few references to the proctiger – the last segment of the ovipositor – which I have had to retain. This bit of anatomy is often visible, or can be



pulled out, without dissection.) I have also clarified the language in places. These procedures have reduced the key to 72 couplets.

I have spent time in the Natural History Museum in London testing this key against named specimens in the collection there. Rather to my surprise I find that it works! However, time constraints have made it impossible to test it for more than a handful of species, and despite the reduction of the original key by almost half of its length there is no denying that the use of this key is still time-consuming and difficult. Good pinning and setting of specimens renders its use much easier; note in particular the need to display the proboscis and palpi.

Michael Ackland's superb illustrations of the genitalia of males provide one of the best features in putting names to this family; any determination of a male can (and in my opinion should) be checked against these figures. Of course there is no such check for females, and once you have arrived at an identity you only have considerations such as habitat and the possible presence of males in the same place, as a check on your accuracy. Comparison with named specimens in reputable collections would be the ideal, but that will often not be possible.

The authors of the Palaearctic Manual say "There may be species which do not run out in the following key to their correct genera, and this is especially true of females. If specimens do not clearly fit either half of a key couplet, they should be keyed out under both alternatives".

You may feel after all of this that the best way to deal with female Anthomyiidae is to drop them in the dustbin. I confess to having done that for some years, but I have never been comfortable with discarding half of my specimens without even making an attempt to identify them. I hope that this key will provide a starting point for those of you who share this feeling.

Howard Bentley

October 2017

- |   |  |                          |
|---|--|--------------------------|
| 1 | A <sub>1</sub> ending far before wing margin (not merely weak or disappearing shortly before wing margin, as in some <i>Egle</i> and <i>Emmesomyia</i> ). Palpus present. Scutellum with ventral hairs | <b><i>Anthomyia</i></b>  |
| - | A <sub>1</sub> extending or traceable to wing margin   | <b>2</b>                 |
| 2 | Anepimeron with one to several setae on or near dorsal ridge. Lower calypter much enlarged and distinctly larger in area than upper one  | <b><i>Emmesomyia</i></b> |
| - | Anepimeron without seta, at most with some fine setulae below dorsal ridge. Lower calypter enlarged or not   | <b>3</b>                 |
| 3 | Proepisternal depression with at least one hair  | <b>4</b>                 |
| - | Proepisternal depression bare  | <b>6</b>                 |
| 4 | Hind tibia with a strong apical posteroventral   | <b><i>Lasiomma</i></b>   |

- Hind tibia without apical posteroventral, or with one which is indistinguishable from adjacent setulae **5**
- 5** Body densely pale grey pollinose; scutum with several dark spots or a transverse dark band contrasting with surrounding pale pollinosity. Mid tibia without an anteroventral. Lower facial margin not projecting beyond parafrontal angle ***Anthomyia***
- Body rather finely dull grey pollinose; scutum without contrasting black and grey markings. Mid-tibia with one, or rarely two, anteroventrals. Lower facial margin projecting beyond parafrontal angle ***Pegoplata***
- 6** Costa with a series of widely spaced coarse setae on ventral surface beyond subcostal break. Frons wider than one-third head width in both sexes, and with a pair of distinct interfrontal setae. Coastal distribution ***Fucellia***
- Costa without such setae **7**
- 7** Lower calypter larger than upper **8**
- Lower calypter as large as, or smaller than, upper **15**
- 8** Tergites three to five each with an anterior tridentate mark or three wedge-shaped dark markings contrasting with posterior pale pollinosity. Middle of parafacial narrower than flagellomere. Mid tibia without an anteroventral; hind tibia with one, or rarely two, posterodorsals and no posteroventral. Costa bare ventrally beyond humeral break ***Calythea***
- Tergites three to five marked differently **9**
- 9** Mid tibia with a ventral or an anteroventral **10**
- Mid tibia with neither a ventral nor an anteroventral **11**
- 10** Prementum polished. Costa setulose ventrally beyond humeral break ***Zaphne***
- Prementum pollinose. Costa bare ventrally beyond humeral break ***Paregle***
- 11** Arista pubescent **12**
- Arista long plumose **13**
- 12** Prementum polished ***Pegomya***
- Prementum pollinose ***Pegoplata***
- 13** Prementum pollinose. Palpus blade-like, about as wide as flagellomere ***Pegoplata***
- Prementum polished. Palpus slender, much narrower than flagellomere **14**
- 14** Arista plumose on basal three-quarters or more. Wing without dark spots. Notopleuron without accessory setulae ***Hydrophoria***
- Arista plumose on basal half to two-thirds. Wing with some dark spots or notopleuron with some accessory setulae ***Zaphne***

- 15** Body densely pale grey pollinose; scutum well marked with three black vittae contrasting with surrounding grey pollinosity; scutellum with black lateral markings ***Eustalomyia***
- Without this colour pattern **16**
- 16** Arista with longest hairs at least as long as width of flagellomere **17**
- Arista with longest hairs distinctly shorter than width of flagellomere **23**
- 17** Distance between vibrissae less than distance from a vibrissa to the nearest eye-margin ***Leucophora***
- Distance between vibrissae greater than distance from a vibrissa to the nearest eye-margin **18**
- 18** Hind tibia with an easily distinguishable apical posteroventral **19**
- Hind tibia with apical posteroventral absent or hardly distinguishable **20**
- 19** Arista with long hairs in more than two rows. Hind tibia with apical posteroventral well developed, and about twice as long as tibial diameter ***Chirosia***
- Arista with long hairs arranged in two rows - one dorsal, one ventral. Hind tibia with apical posteroventral less developed, only a little longer than tibial diameter ***Hylemya***
- 20** Interfrontals absent ***Eutrichota***
- Interfrontals present **21**
- 21** R<sub>4+5</sub> with one or more minute setulae at base on both dorsal and ventral surfaces ***Mycophaga***
- R<sub>4+5</sub> without setulae **22**
- 22** Prealar much longer than posterior notopleural. Palpus blade-like, as wide as or slightly narrower than flagellomere ***Pegoplata***
- Prealar shorter than posterior notopleural. Palpus slender, much narrower than flagellomere ***Hylemya***
- 23** Hind tibia with an apical posteroventral easily distinguishable from adjacent setulae even if short **24**
- Hind tibia with apical posteroventral lacking or hardly distinguishable from adjacent setulae **36**
- 24** Prementum polished, at most very narrowly pollinose **25**
- Prementum wholly or largely pollinose **26**
- 25** Mid tibia with one or more anteroventrals. Costa not fading beyond tip of R<sub>4+5</sub>. M<sub>1</sub> almost parallel with R<sub>4+5</sub> and ending behind wing-tip. Flagellomere more than twice as long as wide. Frons wider than one-third head width. Three orbitals ***Lasiomma***

- Mid tibia without anteroventral. Prealar at least as long as posterior notopleural. Arisal pubescence as long as or slightly longer than basal diameter of arista. Fore tibia with apical posterodorsal about as strong as apical dorsal, even if a little shorter than the latter. **Chirosia**
- 26** Mid tibia with one or two anteroventrals. **27**
- Mid tibia without an anteroventral **31**
- 27** Scutellum bare ventrally **28**
- Scutellum haired ventrally **29**
- 28** Frons wider than one-third head width. Prealar distinctly shorter than posterior notopleural. End of ovipositor not laterally compressed **Chirosia**
- Prealar longer than posterior notopleural. End of ovipositor laterally compressed **Phorbia**
- 29** Lower facial margin distinctly projecting beyond parafrontal angle. Prementum as slender as fore tibia and about three-fifths its length. Mid tibia with one anteroventral; hind tibia with apical posteroventral much shorter than apical anteroventral **Heterostylodes**
- With a different combination of characters **30**
- 30** Body distinctly grey pollinose. Mid tibia with one or two anteroventrals. Male tergite six setose **Botanophila**
- Body mainly shining black. Mid tibia with two or three anteroventrals **Lasiomma**
- 31** Scutellum not haired ventrally. Costa setulose ventrally beyond humeral break. Fore tibia with apical anterodorsal weak, much shorter than apical dorsal even if a little developed. End of ovipositor not laterally compressed **Chirosia**
- Scutellum haired ventrally. **32**
- 32** Hind tibia with apical posteroventral shorter than the tibial diameter. Costa not or hardly setulose dorsally **33**
- Either the posteroventral on the hind tibia longer than the tibial diameter, or costa densely setulose dorsally **35**
- 33** Costa setulose ventrally beyond humeral break. Eyes bare **Strobilomyia**
- Costa bare ventrally beyond humeral break, or if setulose then eyes distinctly covered with fine hairs **34**
- 34** Arista with longest hairs no longer than basal diameter of arista. Scutum with posterior posthumeral well developed and easily distinguishable from adjacent setulae **Lasiomma**
- Arista with longest hairs longer than basal diameter of arista. Scutum with posterior posthumeral indistinguishable from adjacent setulae **Botanophila**

- 35** Fore tibia with apical anterodorsal well developed and strong even if a little shorter than apical dorsal. Frons wider than one-third head width. Orbitals absent or indistinguishable from frontals. End of ovipositor not laterally compressed ***Chirosia***
- Fore tibia with apical anterodorsal weak, much shorter than apical dorsal even if a little developed. Prealar shorter than anterior notopleural ***Anthomyia***
- 36** Frons at least as wide as half head-width. Gena broad, at narrowest point 0.4 times eye-height or more. Mid tibia with two or more anteroventrals and three or more anterodorsals. ***Myopina***
- With a different combination of characters **37**
- 37** Frons narrower than one-third head width. Distinct interfrontals present, but if absent then frons narrower than one-quarter head width **38**
- Frons as wide as or wider than one-third head width, but if narrower then wider than one-quarter head width and without distinct interfrontals **39**
- 38** Prementum pollinose. ***Leucophora***
- Prementum polished ***Alliopsis***
- 39** Prementum polished, at most slightly pollinose in part **40**
- Prementum largely pollinose, even if thinly so **50**
- 40** Frons without distinct interfrontals, at most with very minute and vestigial ones **41**
- Frons with distinct interfrontals **44**
- 41** Mid tibia with one anteroventral and two posterodorsals. Occiput bare immediately below postocular setulae ***Delia***
- Mid tibia without anteroventral and with one posterodorsal. Occiput setulose immediately below postocular setulae **42**
- 42** Costa beyond humeral break bare ventrally. Palpus enlarged, at least two-thirds as wide as flagellomere ***Paradelia***
- Costa beyond humeral break densely setulose ventrally. Palpus only slightly expanded distally **43**
- 43** Mid femur with one or more anteroventrals. Legs wholly blackish ***Eutrichota***
- Mid femur without anteroventrals. Legs partly yellow or wholly blackish ***Pegomya***
- 44** Hind tibia with a distinct posteroventral in apical quarter ***Lasiomma***
- Hind tibia without this seta **45**
- 45** Lower facial margin projecting a little beyond parafrontal angle. Occiput setulose immediately below postocular row. Flagellomere at most 1.5 times as long as wide. Prementum distinctly longer than half head height. Mid tibia without

- anteroventral. Hind tibia with three or more posterodorsals. Prealar present, at most as long as posterior notopleural. Prosternum bare **Egle**
- With a different combination of characters **46**
  - 46** Costa beyond humeral break densely setulose ventrally. Occiput setulose immediately below postocular row. Palpus stick-like, but if enlarged and wider than half width of flagellomere then posterior spiracle with several distinct setulae on lower edge. Lower facial margin not projecting beyond parafrontal angle. Mid femur without distinct anteroventrals. Mid tibia without anteroventrals, rarely with one anterior, and always with one posterodorsal. Hind tibia without posteroventrals and rarely with one posterior **Pegomya**
  - With a different combination of characters **47**
  - 47** Palpus enlarged, at least two-thirds as wide as flagellomere; or combination of the following characters present: Mid tibia with one anterodorsal, one posterodorsal and no anteroventral; hind tibia with one, sometimes two or rarely no anteroventral, two posterodorsals and no posteroventral; prealar shorter than posterior notopleural; arista with second segment less than twice as long as wide **Paradelia**
  - Palpus less than half as wide as flagellomere. With a different combination of characters **48**
  - 48** Arista minutely pubescent, with longest hairs shorter than basal diameter of arista, often practically bare. Occiput setulose immediately below postocular setulae. Ovipositor with cerci rod-like and distinctly projecting beyond epiproct, not bearing any stiffened setulae, spinules or spines. Legs wholly blackish. **Alliopsis**
  - With a different combination of characters **49**
  - 49** Ovipositor with proctiger depressed and shining, sheath-like, bearing only fine setulae; cerci shortened and hardly projecting beyond epiproct. If ovipositor different in structure then a combination of the following characters present: occiput setulose immediately below postocular setulae; prealar as long as or longer than posterior notopleural; notopleuron without setulae; costa beyond humeral break setulose ventrally; mid tibia with two posterodorsals **Botanophila**
  - Ovipositor with proctiger not depressed or sheath-like. Other characters not present in combination **Delia**
  - 50** Frons without distinct interfrontals **51**
  - Frons with distinct interfrontals **53**
  - 51** Costa beyond humeral break bare ventrally **Botanophila**
  - Costa beyond humeral break densely setulose ventrally **52**

- 52** Mid femur with one or more anteroventrals, but if without then arista plumose (though hairs shorter than width of flagellomere) or prementum elongated and probably more than half as long as fore tibia ***Eutrichota***
- Mid femur without anteroventral. Arista pubescent. Prementum less than half as long as fore tibia ***Pegomya***
- 53** Palpus distinctly broadened distally, more than half as wide as flagellomere. Mid tibia without anteroventrals, but if with one then hind tibia with only one anteroventral **54**
- Palpus weakly broadened, less than half as wide as flagellomere **55**
- 54** Flagellomere less than 1.5 times as long as wide. Palpus elongated, much more than three times as long as wide ***Egle***
- Flagellomere more than 1.5 times as long as wide. Palpus not lengthened, at most three times as long as wide ***Pegoplata***
- 55** Mid tibia with one or more anteroventrals or ventrals **56**
- Mid tibia without anteroventrals and ventrals **65**
- 56** Ovipositor strongly compressed laterally on proctiger, with cerci minutely setulose and weakly to strongly pointed dorsoapically ***Phorbia***
- Ovipositor not as above **57**
- 57** Four or more orbitals present **58**
- Three or fewer orbitals present **59**
- 58** Lower facial margin distinctly behind parafrontal angle. Gena with only a few weak setae ***Botanophila***
- Lower facial margin projecting distinctly beyond parafrontal angle, or gena with many distinct setae arranged in two or three rows ***Paregle***
- 59** Flagellomere less than 1.5 times as long as wide. Hind tibia with apical anteroventral at most as long as tibial diameter, though stout ***Chiastocheta***
- Flagellomere at least equal to and usually more than 1.5 times as long as wide. Hind tibia with apical anteroventral longer than tibial diameter **60**
- 60** Occiput setulose immediately below postocular row. Scutum setulose between rows of presutural acrostichals. Prealar present, as long as or a little shorter than posterior notopleural. Notopleuron with one or more hairs, but if without then lower facial margin distinctly projecting beyond parafrontal angle and middle of parafacial distinctly wider than flagellomere ***Paregle***
- With a different combination of characters **61**
- 61** Lower facial margin projecting distinctly beyond parafrontal angle. Mid tibia with one ventral (not anteroventral) and one posterodorsal. Hind tibia with two posterodorsals ***Adia***

- Lower facial margin projecting forward or not. Mid tibia with one or more anteroventrals (not ventrals) and one or more posterodorsals. Hind tibia usually with three or more posterodorsals **62**
  
- 62** Lower facial margin situated behind parafrontal angle. Middle of parafacial narrower than flagellomere. Longest hairs of arista slightly longer than its basal diameter. Occiput usually with some setulae immediately below the postocular row. Prealar present and shorter than posterior notopleural. Mid tibia with one anterodorsal and one posterodorsal. Hind tibia usually with one posteroventral in distal fourth ***Subhylemyia***
  
- With a different combination of characters **63**
  
- 63** Lower facial margin slightly projecting beyond parafrontal angle. Middle of parafacial about as wide as flagellomere. Occiput setulose immediately below postocular row. No accessory setulae between presutural rows of acrostichals. Prealar longer than anterior notopleural. Notopleuron bare. Mid tibia with one anterodorsal and one or two posterodorsals ***Heterostylodes***
  
- With a different combination of characters **64**
  
- 64** Occiput bare or nearly so immediately below postocular row, but if distinctly setulose then acrostichals disappearing completely around transverse suture. No or very few accessory setulae between presutural acrostichal rows. Mid tibia with one or two, rarely three, posterodorsals ***Delia***
  
- Occiput distinctly setulose immediately below postocular row. Rows of acrostichals continuous across suture, often with accessory setulae between them. Mid tibia with two or more posterodorsals ***Botanophila***
  
- 65** Flagellomere less than 1.5 times as long as wide **66**
  
- Flagellomere at least equal to and usually more than 1.5 times as long as wide **67**
  
- 66** Palpus distinctly longer than pedicel and flagellomere combined. Parafrontal at level of interfrontal setae at least equal to and usually more than half as wide as frontal vitta ***Egle***
  
- Palpus not longer than pedicel and flagellomere combined. Parafrontal at level of interfrontal setae distinctly less than half, usually about a third, as wide as frontal vitta ***Chiastocheta***
  
- 67** Occiput setulose immediately below postocular row. Costa beyond humeral break densely setulose ventrally. Mid tibia with one posterodorsal. Palpus yellow, legs apart from tarsi yellow and hind tibia with two posterodorsals; or flagellomere about 1.5 times as long as wide, prealar about as long as posterior notopleural, notopleuron haired and ovipositor clothed with only minute setulae ***Pegomya***
  
- With a different combination of characters **68**
  
- 68** Occiput setulose immediately below postocular row. Lower facial margin behind parafrontal angle. Frontal vitta at level of interfrontal setae more than twice as wide as parafrontal. Narrowest part of parafacial much less to slightly more than



half as wide as flagellomere. Scutum with three or four pairs of distinct presutural acrostichals, the rows separated from each other by a distance almost equal to that to adjacent row of dorsocentrals. Prealar not longer than posterior notopleural. Posterior posthumeral easily distinguishable from adjacent ground setulae, but if fine and hardly distinguishable then narrowest part of parafacial usually much less than half as wide as flagellomere **Lasiomma**

- With a different combination of characters **69**
- 69** Prealar absent, or indistinguishable from ground setulae **70**
- Prealar present and easily distinguishable **71**
- 70** Outer vertical absent **Botanophila**
- Outer vertical present **Delia**
- 71** Ovipositor with proctiger depressed dorsoventrally and shining, bearing only short and fine setulae. Cerci shortened, at most only slightly exceeding epiproct **Botanophila**
- Ovipositor not of this structure **72**
- 72** At least one of the following characters present: Occiput bare or nearly so immediately below postocular row; no or at most one pair of presutural acrostichals present; distance between rows of presutural acrostichals less than half that to adjacent row of dorsocentrals; mid tibia with one posterodorsal; ovipositor with spine-like setae on proctiger **Delia**
- Occiput distinctly setulose immediately below postocular row. Three or more pairs of presutural acrostichals. Distance between rows of presutural acrostichals more than half that to adjacent row of dorsocentrals. Mid tibia with two or more posterodorsals. Ovipositor without spine-like setae on proctiger **Botanophila**

## Key to some British females (Fonseca)

(Original key by d'Assis-Fonseca, names brought up to date)

This key to some females was written by d'Assis-Fonseca for his own use. It was originally based on Ringdahl's key, and adapted to the British species. Most of Fonseca's manuscripts came to me in 1992. Since then I have brought the terminology up to date, and added a few species. Within the genera which are included, some recently added, or species not known to Fonseca are missing. Most of the genera which are not included at all have separate keys to the species, including females.

This key contains some useful external characters which have not been used in other keys.

D. M. Ackland 2015

- 1 Hind tibia with a well developed apical pv-seta, in addition to the normal av-seta.....2
- Hind tibia without this seta, at most with a short weak one ..... 14
- 2 Arista long plumose with hairs much longer than postpedicel is wide .....3
- Arista short haired, pubescent or bare, hairs never much more than half as long as postpedicel is wide .....4
- 3 Proboscis strongly thickened. Aristal hairs dense and rather shaggy, more than uniserial above and below.

- Shining black, weakly dusted species with yellowish wings ..... **Chirosia flavipennis** Fall.
- Proboscis normal. Arista hairs sparser, straighter, and in a single row above and below. Greyish dusted species with clear wings ..... (*lasciva* Zett.) **Hylemyza partita** Mg.
- 4 Thorax light bluish grey dusted with a broad brown median vitta extending to tip of scutellum. Anal vein not reaching wing margin ..... **Anthomyia monilis** Mg.
- Thorax not as above. Anal vein always reaching wing margin, even though only faintly towards tip ..... 5
- 5 Mid tibia with one or more av-setae ..... 6
- Mid tibia without av-setae ..... 10
- 6 Densely dusted species with acrostichal setae absent or hardly distinguishable from thoracic hairs. Anepisternite with a strong isolated setula towards front of upper margin. Hind tibia with more than 3 ad-setae (*Botanophila varicolor* group) ..... 7
- Acrostichal setae well developed, or if rather fine and hair-like then a shining black species with little or no dusting. Anepisternite without this isolated setula. Hind tibia usually with not more than 3 ad-setae ..... 9
- 7 ..... (*varicolor* group) **Botanophila** sp
- ..... 8
- 8 ..... (*varicolor* group) **Botanophila** sp
- ..... (*varicolor* group) **Botanophila** sp
- 9 Ash grey dusted species. Lower hind katepisternal seta almost as strong as upper ..... (*grisea* Ringd.) **Phorbia nuceicornis** Pand.
- Mainly shining black species. Lower hind katepisternal seta much weaker than upper ..... **Phorbia moliniaris** Karl
- 10 Mouth margin sharply produced. Proboscis slender and shining black. Thorax with a pair of more or less distinct vittae on lines of dorsocentral setae. Acrostichal setae strong in 2 rows ..... **Lasiomma latipenne** Zett.
- Mouth margin not or hardly produced. Proboscis not slender nor shining ..... 11
- 11 Crossveins distinctly clouded. Arista with hairs almost half as long as postpedicel is wide ..... 12
- Crossveins not clouded. Arista hairs shorter ..... 13
- 12 Mid tibia with 2 ad-setae. Prealar seta usually longer than posterior notopleural seta. Lower hind katepisternal seta longer, about 3/4 or more as long as upper. Legs usually entirely blackish ..... (*pullula* Zett.) **Anthomyia liturata** R.D.
- Mid tibia with only one ad-seta. Prealar seta shorter. Lower hind katepisternal seta 1/2 to 2/3 length of upper. Tibiae usually yellowish towards base, sometimes almost entirely yellowish ..... **Anthomyia confusanea** Mich.
- 13 Costal spine as long as or longer than small crossvein. Arista with longer pubescence, hairs more than twice as long as basal thickness ..... (*karli* Ringd.) **Anthomyia mimetica** Mall.
- Costal spine very short. Arista almost bare ..... **Anthomyia cannabina** Stein
- 14 Mid tibia with one or more av-setae ..... 15
- Mid tibia without av-setae ..... 39
- 15 Ovipositor laterally compressed, strongly chitinised and shining black, upper branch more or less sickle-shaped. Abdomen shining black, sometimes very thinly dusted which does not hide the shine. Mouth margin not or hardly protruding ..... 16
- Ovipositor not as above. Abdomen distinctly dusted, or if somewhat shining then mouth margin strongly protruding ..... 18
- 16 Apical part of upper branch of ovipositor as broad as lower branch, upper edge slightly sinuous with a pointed tip ..... **Phorbia sepia** Mg.
- Upper branch of ovipositor distinctly narrower than lower branch ..... 16a
- 16a Hind tibia with 2 pairs of dorsal setae, the ad- and pd-setae of each pair exactly at same level on tibia, as in *Pegoplata* ..... (*curvicauda* auctt. nec Zett.) **Phorbia bartaki** Ack. & Mich.

–	Hind tibia with more than two setae, both ad- and pd .....	17
17	Mid tibia with 2 pairs of dorsal setae, 3 pv- and 2 av-setae ..... ( <i>securis</i> Tiens) <b>Phorbia fumigata</b> Mg.	
–	Mid tibia with only one pair of dorsals, one pv- and one av-seta.....	<b>Phorbia nuditibia</b> Fon.
18	Ovipositor with a crown of short strong spines at apex. Mid tibia with 2 pd-setae .....	19
–	Ovipositor only fine haired at apex.....	20
19	Abdomen with a distinct brownish median vitta, brownish dusted species. Arista with longest hairs as long as basal width .....	<b>Delia fabricii</b> Holmgr.
–	Abdomen without distinct median vitta. Sandy coloured greyish dusted species. Arista hairs hardly discernible .....	( <i>candens</i> Zett.) <b>Delia pallipennis</b> Zett.
20	Prealar seta about as long as or longer than first dorsocentral seta .....	21
–	Prealar distinctly shorter than first dorsocentral, or absent .....	25
21	Acrostichal setae well developed .....	22
–	Acrostichal setae usually absent or inconspicuous, at least behind suture .....	24
22	Mouth margin very strongly protruding. Blackish species with little dusting .....	<b>Heterostylodes obscurus</b> Macq.
–	Mouth margin not or not much protruding. Grey dusted species.....	23
23	Large species, 5.5–7 mm. Mid tibia with 2 ad-setae. Arista almost sub-plumose, some hairs quite 3 times as long as thickness at base. 2 anterior katapisternals.....	( <i>seticrura</i> Rond.) <b>Botanophila brunneilinea</b> Zett.
–	Smaller species, 4–4.5 mm. Mid tibia with only one ad-seta. Arista almost bare. Only one anterior katapisternal seta .....	( <i>exigua</i> Mde.) <b>Delia frontella</b> Zett.
24	Thorax with distinct median vitta. Mid tibia with only one av-seta. Proboscis distinctly dusted .....	( <i>tristriata</i> Stein, <i>flabellifera</i> Pand.) <b>Delia linearis</b> Stein
–	Thorax without median vitta. Middle tibia with 2–3 av-setae and normally 2 pairs of dorsal setae. Proboscis shining black .....	<b>Delia lamelliseta</b> Stein
25	Lower posterior katapisternal seta long, not much shorter than upper.....	26
–	Lower posterior katapisternal seta usually short and fine .....	29
26	Hind femur either without or with only short fine pv-setae .....	27
–	Hind femur with well developed pv-setae on basal half.....	28
27	Arista sub-plumose, some hairs more than 3 times as long as basal thickness .....	( <i>tenuiventris</i> Zett.) <b>Delia nigrescens</b> Rond.
–	Arista much shorter pubescent .....	<b>Delia tarsifimbria</b> Pand.
28	Mid tibia with 2 ad-setae. Acrostichal setae well developed. Two anterior katapisternal setae. Costal spine almost twice as long as small crossvein .....	( <i>nudithorax</i> Ringd.) <b>Botanophila spinosa</b> Rond.
–	Mid tibia with only one ad-seta. Acrostichal setae absent or inconspicuous. Only one anterior katapisternal seta. Costal spine not or hardly longer than small crossvein .....	( <i>rutilifrons</i> Ringd.) <b>Botanophila sericea</b> Mall.
29	Eye in profile almost circular, small, gena below distinctly more than half as deep as vertical diameter of eye. Arista quite or almost bare. Prealar seta short but strong. Acrostichal setae in 2 well developed rows. Costa with a well spaced series of almost erect stronger spines on anteroventral surface .....	30
–	Eye in profile more or less oval, vertical diameter greater. Gena much narrower, or if about half as deep as vertical diameter of eye then not all other characters as above.....	32
30	Legs black, at most tibiae yellowish at extreme base.....	<b>Fucellia fucorum</b> Fall.
–	All tibiae mainly yellow .....	31
31	Eye somewhat larger, gena below not more than 1/2 as deep as vertical diameter of eye. Hind femur with pv-setae hardly distinguishable from general pubescence, except for one at base .....	( <i>intermedia</i> Lundb.) <b>Fucellia tergina</b> Zett.
–	Eye smaller, gena quite 2/3 as deep as vertical diameter of eye. Hind femur with several fine pv-setae which are about half as long as femur is deep .....	<b>Fucellia maritima</b> Hal.

- 32 Antennae with basal segments reddish yellow. Acrostichal setae short and hairlike. Mid tibia with 2–3 ad-setae. Abdomen very thinly dusted, blackish and semi-shining .....(*reflexa* R. D.) **Myopina myopina** Fall.  
 – Not as above .....33
- 33 Mouth margin sharply protruding and somewhat upturned. Hind tibia with only one av-seta .....34  
 – Hind tibia with 3 or more pd-setae and with numerous ad-setae. Thorax usually and abdomen always, with a distinct median vitta .....**Paregle audacula** Harr.  
 – Hind tibia with only 2 pairs of dorsal setae. At least thorax without vittae .....35
- 35 Abdominal vitta consisting of well defined spots. Hind femur without pv-setae ..... **Adia cinerella** Fall.  
 – Abdomen without median vitta. Hind femur with one long pv-seta near middle and a shorter one towards base ..... (*Nupedia*) **Pegoplata aestiva** Mg.
- 36 Mid tibia with 2 pairs of strong dorsal setae ..... (*nudithorax* Ringd.) **Botanophila spinosa** Rond.  
 – Mid tibia with only one pair of dorsal setae .....37
- 37 Prealar seta slightly longer than posterior notopleural seta. Abdomen almost uniformly brownish grey dusted and without distinct median vitta ..... **Delia tumidula** Ringd.  
 – Prealar seta hardly half as long as posterior notopleural seta. Abdomen ash grey dusted with a dark median vitta more or less broken into tergal spots .....38
- 38 Costal spine almost twice as long as small crossvein. Arista very distinctly pubescent. Crossveins usually faintly clouded ..... **Subhylemyia longula** Fall.  
 – Costal spine shorter, hardly longer than small crossvein. Arista almost bare. Wings quite clear ..... (*exigua* Mde.) **Delia frontella** Zett.
- 39 Scutellum at apex, humeri, abdomen and legs (except tarsi) yellow. Antennae yellow at base and arista long haired ..... (*fungorum* Deg.) **Mycophaga testacea** Gimm.  
 – Not as above .....40
- 40 Arista very long plumose, longest hairs considerably longer than postpedicel is wide .....41  
 – Arista short plumose, pubescent or bare, longest hairs never as long as postpedicel is wide .....44
- 41 Legs (including femora) largely yellow ..... **Hylemya vagans** Panz. or **nigrimana** Mg.  
 – Legs entirely black, at most some tibiae obscurely yellowish or reddish .....42
- 42 Lower posterior katapisternal much weaker than upper. Hind tibia often with a short apical pv-seta ..... (*lasciva* Zett.) **Hylemyza partita** Mg.  
 – Lower posterior katapisternal seta almost or quite as long as upper. Hind tibia without trace of an apical pv-seta .....43
- 43 Legs black, usually at most some tibiae obscurely reddish. Hind femur with at least one distinct pv-seta near middle ..... **Hylemya variata** Fall.  
 – Tibiae tending to be more yellowish. Hind femur without pv except at extreme apex ..... (*variabilis* Stein, *latifrons* Schnabl) **Hylemya urbica** Wulp
- 44 Mid tibia with only one pd-seta, to be distinguished from true posterior setae .....45  
 – Mid tibia with 2 or more pd-setae .....70
- 45 Hind tibia with only 2 pd-setae. Acrostichal setae in 2 well developed rows .....46  
 – Hind tibia with 3 or more pd-setae, or if with only 2 then acrostichals are weak and hair-like behind suture .....53
- 46 Uniformly pale grey dusted species without visible markings. Hind tibia with 3 ad-setae. Proboscis remarkably stout. Wing veins mainly conspicuously pale ..... (*flavidipennis* Stein) **Delia pruinosa** Zett.  
 – Darker grey dusted species, at least abdomen with dark markings. Wing veins mainly dark .....47
- 47 Hind tibia with more than 2 ad-setae .....48  
 – Hind tibia with only 2 ad-setae .....49
- 48 Distinctly bluish grey dusted species. Gena below eye hardly more than 1/4 eye height. Abdominal

- median vitta very indistinct ..... **Paradelia intersecta** Mg.
- More yellowish grey species. Gena about 1/3 eye height. Abdomen with a distinct median vitta consisting of a triangular marking on each tergite..... **Paradelia brunneonigra** Schnabl
- 49 Legs entirely or almost entirely yellow or yellowish. Frontalia entirely or almost entirely red. Hind tibia with the 2 setae forming a dorsal pair usually not level with each other ..... **Paradelia lunatifrons** Zett.
- Legs black, at most only knees sometimes obscurely reddish. Frontalia red only on anterior half or less. The setae forming the dorsal pairs on hind tibia usually exactly or almost exactly at the same level as each other ..... 50
- 50 Palp only slightly dilated. Arista very short pubescent ..... 51
- Palp more strongly dilated, spoon-shaped or ladle-shaped. Arista longer pubescent, hairs about twice as long as basal thickness ..... 52
- 51 Abdomen darker grey dusted, with distinct median vitta but without shifting patches. Proboscis more thinly dusted, at least partly shining black towards base. Sternite I with a cluster of about 10 setulae on each hind corner ..... (*dissecta* auctt. nec Mg.) **Pegoplata infirma** Mg.
- Abdomen lighter grey dusted, with shifting patches in addition to median vitta. Proboscis more densely dusted, nowhere shining. Sternite I with only 1–3 small setulae each side ..... **Pegoplata debilis** Stein
- 52 Costa hairy along whole length ventrally. Palp usually more strongly dilated. Sternite I with at most 1–3 minute hairs on each side ..... (*latipalpis* Lw.) **Pegoplata nigroscutellata** Stein
- Costa bare ventrally. Palp usually less strongly dilated. First sternite with a rather spread cluster of about 12 longish setulose hairs at each side ..... **Pegoplata patellans** Pand.
- 53 Prealar seta as long as or longer than anterior dorsocentral seta ..... 54
- Prealar seta distinctly (usually considerably) shorter than anterior dorsocentral seta, or absent ..... 61
- 54 Lower posterior katepisternal seta very short and fine. sometimes absent. Costa hairy along whole length ventrally ..... 55
- Lower posterior katepisternal seta about as long as upper. Costa bare ventrally, at least beyond tip of subcostal vein ..... 57
- 55 Arista with longest hairs distinctly shorter the basal thickness. Prealar seta not longer than anterior notopleural seta, little more than half as long as supra-alar. Hind tarsus longer than hind tibia ..... (*pilipyga* Vill.) **Delia planipalpis** Stein
- Arista hairs about as long as basal thickness of arista. Prealar seta distinctly longer. Hind tarsus not longer than hind tibia ..... 56
- 56 Abdomen with median vitta and distinct shifting pattern ..... (*brassicae* Wied.) **Delia radicum** L.
- Abdomen without vitta or shifting pattern ..... **Delia floralis** Fall.
- 57 Mid and hind tibiae yellow or yellowish ..... **Delia criniventris** Zett.
- Legs entirely black ..... 58
- 58 Arista quite or almost bare ..... (*fasciventris* Ringd.) **Delia piliventris** Pok.
- Arista strongly pubescent ..... 59
- 59 Arista with some of the hairs more than twice as long as basal thickness. One pair of strong presutural acrostichal setae quite half as long as anterior dorsocentral seta. The 5–6 av-setae on hind femur occupying distinctly more than distal half of femur ..... 60
- Arista with hairs hardly longer than basal thickness. Presutural acrostichal setae much less well developed. The 4–6 av-setae on hind femur almost confined to distal half.. **Delia carduiformis** Schnabl
- 60 Median setae on sternite IV long, reaching to base of sternite V ..... [**Delia penicillaris** Rond.]  
[*penicillaris* Rondani is a mediterranean species, The northern species is apparently undescribed]  
[I described this species in 2010 as *Delia penicilliventris* Ackland]
- Median setae on sternite IV shorter, not reaching base of sternite V ..... **Delia penicillosa** Henn.
- 61 Prealar seta entirely absent or quite inconspicuous. Frontalia at narrowest part not much wider than an orbit. Mouth margin not or hardly prominent ..... 62
- Prealar seta more or less distinct, though often short and fine ..... 63
- 62 Whitish grey dusted species with distinctly whitish wings. Tibia more or less reddish yellow basally

- .....**Delia albula** Fall.
- More greyish species, wings not whitish. Legs entirely black ..... **Delia hirtitibia** Stein
- 63 Mouth margin strongly protruding. Antennae noticeably short. Orbits rather broad ..... **Egle parva** R.D.
- Mouth margin not or only slightly protruding .....64
- 64 Hind tibia with only one ad-seta seta. Anepisternite with an isolated stronger setula towards anterior part of upper margin. 2 front katepisternal setae, lower one as long as or longer than the upper one. Hind tibia sometimes with a short apical pv-seta..... (*octoguttatum* Zett.) **Lasionmma picipes** Zett.
- Hind tibia with 2 or more ad-setae. Anepisternite without this isolated setula. When 2 front katepisternal setae are present the lower one is distinctly shorter and weaker than the lower hind one.....65
- 65 Tibiae yellow or yellowish, at most front tibia darkened in basal half....(*fennica* Karl) **Delia setigera** Stein
- Legs entirely black.....66
- 66 Upper postocular cilia with an almost complete row of setulae immediately behind them. Costal spine distinctly longer than small crossvein ..... 66a
- No second row immediately below upper postoculars, at most an isolated setula or two .....69
- 66a Larger brownish grey dusted species with a darker brown median vittata on scutum. One very strong pair of presutural acrostichal setae followed by much weaker setae.....67
- Smaller ash grey dusted species with thoracic median vitta somewhat inconspicuous. Acrostichal setae more normal.....68
- 67 Lower posterior katepisternal seta about 2/3 the length of upper, and strong .....**Delia cardui** Mg.
- Lower posterior katepisternal seta short, hair-like ..... **Delia nuda** Strobl
- 68 Facial orbits at narrowest part distinctly wider than postpedicel. Eye height about 2.5 times depth of gena below. Arista conspicuously dilated in basal fifth, then rather abruptly slender to tip. Setulae beneath front metatarsus (apart from long ones at base) less than half as long as depth of metatarsus
- ..... **Delia quadripila** Stein
- Facial orbits at narrowest part distinctly narrower than postpedicel Eye height more than 3 times depth of gena below. Arista with more than basal fourth only slightly thickened, then gradually tapered to slender apical part. Setulae beneath front metatarsus distinctly more than half as long as depth of metatarsus.....(*scanica* Ringd.) **Delia echinata** Ség.
- 69 Usually slightly larger species, with all setae (especially those on thorax) somewhat stronger
- ..... (*cilicrura* Rond.) **Delia platura** Mg.
- Usually slightly smaller species, with all setae somewhat weaker
- ..... (*trichodactyla* Rond.) **Delia florilega** Zett.
- 70 Legs (including middle and hind femora) largely yellow. Arista sub-plumose, hairs at least about twice as long as basal thickness.....71
- Legs black, at most tibiae obscurely reddish .....72
- 71 Hind tibia with 3 equally strong dorsal preapical setae. Thinly dusted species with blackish semi-shining abdomen, which shows traces of a darker median vitta
- ..... (*pseudomaculipes* Strobl) **Botanophila maculipes** Zett.
- Hind tibia with only 2 well developed dorsal preapicals, the pd-seta short or absent. Densely pale yellowish grey dusted species without visible markings ..... **Delia coarctata** Fall.
- 72 Mouth margin very strongly protruding. Palp distinctly dilated towards tip. Femora densely haired beneath. Usually 4 postsutural dorsocentral setae ..... 72a
- Without above combination of characters .....73
- 72a Frontalia at narrowest point less than 1.5 times as wide as an orbit. Palp at apex as broad as front tibia at widest part.....**Egle ciliata** Walk.
- Frontalia at narrowest point distinctly more than twice as wide as an orbit. Apex of palp narrower
- ..... **Egle brevicornis** Zett.
- 73 Prealar seta as long as, or not much shorter than, anterior dorsocentral seta, or if much shorter, then ovipositor dorsoventrally flattened, broad.....74
- Prealar seta much shorter than anterior dorsocentral seta, or absent. Ovipositor normal, at least not

	dorsoventrally flattened.....	86
74	Mid tibia with 2 ad-setae .....	75
–	Mid tibia with only one ad-seta .....	76
75	Two anterior katepisternal setae. Acrostichal setae well developed in 2 approximated rows. Hind tibia with more than 3 av-setae. Arista almost sub-plumose. Abdominal vitta of uniform width .....( <i>seticrura</i> Rond.) <b>Botanophila brunneilinea</b> Zett.	
–	Only one anterior katepisternal seta. Postsutural acrostichal setae absent or inconspicuous. Hind tibia usually with only 2–3 av-setae. Abdominal vitta broadened into indistinct triangular spots on each tergite..... ( <i>discreta</i> Mg.) <b>Botanophila striolata</b> Fall.	
76	Costa hairy along whole length ventrally .....	77
–	Costa bare ventrally, at least beyond tip of subcostal vein.....	78
77	Hind tibia with 3 equally long dorsal preapical setae. Arista strongly pubescent. Eyes entirely bare .....	
	..... <b>Botanophila jacobaeae</b> Hardy	
–	Hind tibia with only 2 well developed dorsal preapicals, the pd-seta one short or absent. Arista almost bare. Eyes usually short pubescent .....	
	.....( <i>meadei</i> Kow.) <b>Lasiomma seminitidum</b> Zett.	
78	Ovipositor much exerted, strikingly laterally compressed, upper branch sabre-like, much as in <i>Phorbia</i> . Postpedicel usually reddish .....	
	..... <b>Botanophila latifrons</b> Zett.	
–	Ovipositor not laterally compressed. Antennae entirely black.....	79
79	Ovipositor strongly dorsoventrally flattened, so that apical section is as broad as or broader than hind tibia, without visible papillae. Lower posterior katepisternal seta short and fine, at least much shorter than upper.....	80
–	Ovipositor normal, not dorsoventrally flattened, with distinct papillae .....	82
80	Apical part of ovipositor mainly shining black, not or hardly broader than hind tibia. Species almost uniformly yellowish grey dusted with only traces of median vitta on thorax and abdomen ..... <b>Botanophila gnava</b> Mg.	
–	Apical part of ovipositor not mainly shining black, much broader than hind tibia .....	81
81	In profile, gena below eye only about as broad as parafacial. Hind femur with one or more pv-setae which are longer than femur is deep.....	
	..... <b>Botanophila sonchi</b> Hardy	
–	Gena below eye almost twice as broad as parafacial. Hind femur with only short fine pv-setae ..... <b>Botanophila seneciella</b> Mde.	
82	Arista strongly pubescent (almost sub-plumose) to apex. 2 anterior katepisternal setae. Costal spine longer than small crossvein .....	
	..... <b>Botanophila profuga</b> Stein	
–	Arista short pubescent, or if with longer hairs then costal spine small, hardly longer than costal cilia .....	83
83	Two anterior katepisternal setae, lower one as long as, or longer than lower hind one. Acrostichal setae in two complete well developed rows. Hind femur with only short fine pv-setae. Eyes usually shortly pubescent .....	84
–	Only one anterior katepisternal seta, sometimes a short hair-like one below it. Postsutural acrostichal setae hair-like. Hind femur with several strong pv-setae which are distinctly longer than femur is deep. Eyes entirely bare .....	85
84	Arista more strongly pubescent, hairs quite as long as basal thickness. Hind tibia with about 6 ad-setae .....( <i>eriophthalma</i> Zett.) <b>Lasiomma anthomyinum</b> Rond.	
–	Arista very short pubescent, almost bare. Hind tibia with about 10 ad-setae .....( <i>roederi</i> Kow.) <b>Lasiomma strigilatum</b> Zett.	
85	More uniformly greyish dusted species without distinct vitta on thorax. Costal spine shorter than small crossvein. Anepisternite without an isolated setula on upper margin..... <b>Botanophila sanctimarci</b> Cz.	
–	Darker blackish grey dusted species, with an ill defined abdominal vitta consisting of large triangular spots. Costal spine as long as or longer than small crossvein. Anepisternite with a distinct (often strong) isolated setula towards front of upper margin .....	
	.....( <i>discreta</i> Mg.) <b>Botanophila striolata</b> Fall.	
86	Prealar seta entirely absent, no trace showing.....	
	..... <b>Botanophila fonsecai</b> Ack.	
–	Prealar seta quite distinct, though sometimes short and weak .....	87

- 87 Thorax and abdomen uniformly yellowish grey dusted without visible markings. Arista very short pubescent. Hind femur without pv-setae, except sometimes a short weak one in basal half. Mid tibia with only the normal single ad-setae.....(*oraria* Coll.) **Botanophila depressa** Stein
- Thorax or abdomen, or both, with distinct median vitta, or if without then not all other characters as above.....88
- 88 Arista with some hairs towards base distinctly longer than basal thickness. Usually a fine seta below anterior katepisternal seta. Mid tibia with a rather strong ad-seta. Abdomen with a distinct median vitta.....89
- Arista shorter pubescent or bare.....91
- 89 Hind tibia often with a short *pv* apical seta. Abdomen somewhat uniformly yellowish grey dusted with a narrow median vitta, sometimes with very indistinct shifting pattern. Costal spine about twice as long as small crossvein. Tibiae usually obscurely reddish .....(*cinerea* Fall. **Botanophila silvatica** R.D.
- Not as above .....90
- 90 Acrostichal setae absent behind suture, only fine setulose hairs. Abdomen with a median vitta and distinct shifting pattern..... **Botanophila fugax** Mg.
- Postsutural acrostichal setae well developed, even though short .....**Botanophila hucketti** Ringd.
- 91 Mid tibia with 2 ad-setae. Yellowish grey dusted species with somewhat yellowish wings .....**Delia antiqua** Mg.
- Mid tibia with only one ad-seta .....92
- 92 Mouth margin strongly protruding. Palp long and somewhat dilated at tip. Antennae short. Thorax light grey dusted without distinct markings.....**Egle rhinotmeta** Pand.
- Mouth margin not or only slightly prominent .....93
- 93 Frons mainly or entirely black .....94
- Frons mainly reddish yellow.....95
- 94 Frontalia at narrowest part more than 3 times as wide as an orbit ..... **Botanophila cuspidata** Coll.
- Frontalia at narrowest part not more than 1.75 times as wide as an orbit ..... **Botanophila phrenione** Ség.
- 95 Frontalia at narrowest part quite twice as wide as an orbit ..... **Botanophila laterella** Coll.
- Frontalia at narrowest part not more than 1.6 times as wide as an orbit .....(*divaricata* Coll.) **Botanophila dissecta** Mg.

The following genera are not included in this key

PEGOMYA, EUTRICHOTA (including PARAPEGOMYIA), ALLIOPSIS, CALYTHERA, some PEGOPLATA, ANTHOMYIA (black and white species), CHIASTOCHETA, most CHIROSIA, HYDROPHORIA, ZAPHNE, EUSTALOMYIA, LEUCOPHORA.

The following species are not included in this key:

Anthomyia imbrida Rond.  
 Anthomyia pluvialis L.  
 Anthomyia procellaris Rond.  
 Botanophila apicista Ringd.  
 Botanophila biciliaris Pandellé.  
 Botanophila dissecta Mg.  
 Botanophila helviana Mich.  
 Botanophila lobata Coll.  
 Botanophila moriens Zett.  
 Botanophila rupicapra Mik  
 Botanophila spp in varicolor group  
 Botanophila verticella Zett.  
 Chiroisia aberrans Coll.  
 Chiroisia albitarsis Zett.  
 Chiroisia betuleti Ringd.  
 Chiroisia cinerosa Zett.  
 Chiroisia crassisetula Stein



Chirosia griseifrons Ség.  
Chirosia grossicauda Strobl  
Chirosia histricina Rond.  
Chirosia montana Pok.  
Chirosia nigripes Bezzi  
Chirosia similata Tiens.  
Delia coronariae Hend.  
Delia diluta Stein  
Delia flavogrisea Ringd.  
Delia interflua Pand.  
Delia lavata Boh.  
Delia pilifemur Ringd.  
Egle bicaudata Mall.  
Egle minuta Mg.  
Egle steini Schnabl  
Egle subarctica Huck.  
Heterostylodes caledonicus Fon.  
Paradelia hedgreni Ringd.  
Paregle atrisquama Ringd.  
Phorbia atrogrisea Tiens.  
Phorbia juncorum Ringd.  
Phorbia longipilis Pand.  
Strobilomyia infrequens Ack.  
Strobilomyia melania Ack.

# KEYS TO SPECIES

by Michael Ackland

## ALLIOPSIS - males

[Species missing: *Alliopsis similis* Fonseca, male, female. Described from Aviemore area. Very similar to *A. conifrons*. I am uncertain about its status at present]

- 1 Frons wide, with one proclinate and 2 reclinate orbital setae. Antennae long and strong, reaching below eye. Arista肘ed, pedicel lengthened, postpedicel thickened to beyond middle, pedicel usually nearly 0.25 times as long as postpedicel. Hind tibia with weak pv-setae. Processes of sternite V shorter than tarsomere 1 of hind leg. Wings distinctly whitish ..... ***albipennis*** (Ringdahl)
- Frons of different width. At most a rudimentary proclinate orbital seta present. Reclinate orbitals completely absent. Antennae significantly shorter. Arista not elbowed, pedicel not lengthened .....2
- 2 Hind tibia above middle with a long and strong pv-seta. Prosternum bare .....3
- Hind tibia without distinct pv-setae .....4
- 3 Processes of sternite V on ventral margin before apex with a distinct incision. Wing base not or only weakly yellowish, calypter whitish ..... ***billbergi*** (Zetterstedt)
- Processes of sternite V without an incision, and with a virtually straight lower margin. Hind tibia with very long and strong pv-seta, nearly as long as av-seta. 3–4 frontal setae on each side. Cruciate interfrontal setae at about middle of distance between frontal setae and ocellar tubercle. Fore tibia with 1–2 long and strong pd-setae, at about middle of tibia ..... ***silvestris*** (Fallén)
- 4 Hind tibia at apex with some long setulose hairs .....5
- Hind tibia at apex without long setulose hairs .....6
- 5 Hind tarsomere 1 with a row of lengthened setulose pv-hairs. Body length at most 5 mm ..... ***sepiella*** (Zetterstedt)
- Hind tarsomere 1 without lengthened setulae pv-hairs. Body length 5.5–6.5 mm. Width of gena equal to length of postpedicel. Setulose hairs at end of hind tibia developed as stronger setae ..... ***longiceps*** (Ringdahl)
- 6 Hind tarsi with tarsomeres 2-4 very small, at apex on each side with a long bristly hair ..... ***pilitarsis*** (Stein)
- Hind tarsi not as above .....7
- 7 Black shining and little dusted species. Postabdomen especially shining black. Facial edge distinctly projecting. Haustellum long and slender. Hypopygium especially large. Processes of sternite V large, oval, swollen on upper side ..... ***atronitens*** (Strobl)
- More dusted species, postabdomen especially grey dusted. Facial edge not or only indistinctly projecting. Processes of sternite V on ventral margin incised, in middle with a wide swollen projection ..... ***conifrons*** (Zetterstedt)

## ALLIOPSIS - females

- 1 Antennae long and strong, reaching almost to facial edge. Arista elbowed, pedicel

- lengthened, generally 1/6 as long as postpedicel, postpedicel thickened up to middle ..... *albipennis* (Ringdahl)
- Postpedicel not reaching as far as lower facial margin .....2
- 2 Hind tibia in proximal half with a long strong pv-seta.....3
- Hind tibia without a strong pv-seta .....4
- 3 Orbital setae present (1 proclinate and 1–2 reclinate). Frons nearly as wide as postpedicel. Shining blackish, weakly grey dusted species. Calypteres whitish, wings at base not or only weakly yellowish. Arista swollen at base, becoming rapidly slender. Tergite V shining blackish, fore tarsus widened ..... *billbergi* (Zetterstedt)
- Orbital setae absent, or only 1 proclinate orbital present ..... *silvestris* (Fallén)
- 4 Mid tibia with 1–2 av-setae .....5
- Mid tibia without av-setae .....7
- 5 Prosternum on each side with some setulose hairs..... *longiceps* (Ringdahl)
- Prosternum bare.....6
- 6 Ocellar triangle and parafacials adjacent to antennal base shining black. Wing at base blackish. Abdomen without pale dusting. Sternite V and tergite V unusually large ..... *atronitens* (Strobl)
- Ocellar triangle not shining. Wing base yellow. Abdomen with weak grey dusting ..... *conifrons* (Zetterstedt)
- 7 Prosternum setulose on side margins .....8
- Prosternum bare.....9
- 8 Parafacial not wider than postpedicel. Uppermost orbital seta exclinate and slightly reclinate, the two anterior ones proclinate..... *pilitarsis* (Stein)
- Parafacial much wider than postpedicel. All 3–4 orbitals more or less exclinate ..... *longiceps* (Ringdahl).
- 9 Prealar seta about as long as posterior notopleural seta ..... *sepiella* (Zetterstedt)
- Prealar seta distinctly longer than posterior notopleural seta ..... *conifrons* (Zetterstedt)

#### ANTHOMYIA - males

All British species included in this key except *A. plurinotata*, a species with only two post-sutural black marks on the scutum – see *Dipterists Digest* Vol. 21 No. 2 p201. No key to females at present.

- 1 Proepisternum bare. Scutum without black and white pattern, at most with brownish vittae. Hind tibia with an apical pv-seta. Apical setae of cercal plate not spiniform ..... 2
- Proepisternum setose or pilose. Scutum patterned with black spots, contrasting with silvery grey areas. Hind tibia without an apical pv-seta. Apical setae of cercal plate spiniform 6
- 2 Eye margins on frons separated by about width of an eye. Strong orbital setae present. Anal vein not reaching wing margin, anal lobe of wing little developed so that wing distinctly narrows from about middle to base. Katepisternal setae 1 + 1. Light grey dusted species with a brown median vitta on scutum which extends to tip of scutellum. Wing darkened

- brownish especially on fore margin..... *monilis* (Meigen)
- Eye margins on frons much closer together, touching or separated by no more than distance between posterior ocelli..... 3
- 3 Crossveins infuscated. Length of arisal hairs nearly equal to width of postpedicel..... 4
- Crossveins not infuscated..... 5
- 4 Mid tibia generally with 1 ad-seta. Prealar seta shorter than posterior notopleural seta. Cercal plate in caudal view more tapering apically, with apical lateral setulae more restricted. . Cercal plate in lateral view flat for most of its length, only convex on lower quarter. Sternite V with processes non-converging. Processes on sterniteVI unpaired. Membranous area between surstylus and cercal plate very narrow. Distiphallus less arched. Pregonite and postgonite of different shape ..... *confusanea* Michelsen
- Mid tibia generally with 2 ad-setae. Prealar seta as long as posterior notopleural seta. Cercal plate in caudal view more tapering apically, with apical lateral setulae continuing up sides for about one-third of its length. Cercal plate in profile strongly convex at middle. Sternite V with processes converging. Process on tergite VI forming a pair of lobes. Membranous area between surstylus and cercal plate wider.. Distiphallus strongly arched and narrow. Pregonite and postgonite different.....*liturata* (R. D.)
- 5 Arista almost bare, hairs shorter than arisal width at base. Calypteres whitish. Wing hyaline, not yellow even at base. Stronger setae before subcostal break shorter than crossvein dm-cu. Lighter grey species.....*cannabina* (Stein)
- Arista pubescent, longer hairs slightly longer than arisal diameter at base. Calypteres yellowish or whitish yellow. Wing darkened at base. Stronger setae before subcostal break as long as cross vein dm-cu or longer. Darker grey species .....*mimetica* (Malloch)
- 6 Scutum with lateral postsutural black spot separated from the small spot above wing base, with the upper border of the latter ventral to the supra-alar seta. Arista with very short pubescence, longest hairs hardly 0.5 times basal diameter of arista. Parafrontals generally separated on frons by a narrow black frontal vitta (width equal to diameter of anterior ocellus). SterniteV in ventral view with the basal inner margin of processes dilated and bearing multiserial rows of setae; in profile with a small rounded ventral membranous lobe, and a space between the basal setae and the longer apical setae of the processes ..... *pluvialis* (L.)
- Scutum with the large lateral postsutural black spot broadly confluent with the small black spot above wing base (if separated then the upper margin of the black spot above wing base is larger and reaches the point of insertion of the supra-alar seta. Arista with longer hairs (longest hairs equal to or longer than the basal arisal thickness) . Parafrontals generally contiguous on frons. Sternite V in ventral view with the inner margins of processes more or less concave..... 7
- 7 Posterior margin of the lateral postsutural black spot on scutum more or less straight just below level of the posterior intra-alar seta. Arista with longer hairs (longest slightly longer than the basal arisal diameter. Hind tibia with about 5–9 ad-setae. Sternite V in ventral view with shorter setae on inner margin of processes basally, outer lateral setae also shorter; in profile the ventral setae are continuous, and the angle between the narrower ventral membranous lobe and base is obtuse..... *procellaris* Rondani & *bazini* Ségu

In outward appearance *bazini* is more or less identical to *A. procellaris*, but the male genitalia differ from *procellaris* as follows: Sternite V with strongly developed membranous lobes, which project downwards and backwards (it should be possible to see this in dried specimens without dissection), postgonite with an expanded setulae, similar to *pluvialis*, and not like *procellaris*, cercal plate with 4 pairs of modified setulae at apex, basal dorsal process on distal section of aedeagus very near base and directed apically ..

..... *bazini* Ségué

- Posterior margin of the lateral postsutural black spot on scutum distinctly indented just below the posterior intra-alar seta. Arista with longest hairs equal to basal thickness of arista. Hind tibia with more numerous ad-setae (generally from 9–15, occasionally more). Sternite V in ventral view with the setae on inner margin of processes basally with longer uni- to biserial setae; in profile with wider membranous ventral lobe (somewhat square ended) and base forming a right angle with the sternite V process, and longer lateral setae at base of processes.....*imbrida* Rondani

#### BOTANOPHILA - males

All British species included in this key

- 1 Eye margins on frons separated by about width of an eye. 3 strong orbital and 3 strong frontal setae. Mid tibia with 3 strong av-setae, 2– 3 ad-setae and 4 pd-setae. Scape, pedicel and palpus dark brown to black. Facial edge in profile level with parafrontal angle. Acrostichal setae triserial and all fine, hair-like. The longer spines before distal break longer than small crossvein.. Vein C setulose on whole length of ventral surface, the setulae lying below the row of av-spinules. Tergite VI visible but bare. Dusting of thorax and abdomen dark olive-brown. Wing length 4.2–5.7 mm.....*moriens* (Zetterstedt)
- Eye margins on frons much closer together, separated by no more than width of ocellar tubercle..... 2
- 2 Tergite VI setulose ..... 3
- Tergite VI bare ..... 6
- 3 Hind tibia without a developed pv-apical seta. Parafacial wide, 1.5 times width of postpedicel, gena about same width with bi-triserial genal setae. Haustellum long and slender. Prealar seta longer than posterior notopleural seta. Mid tibia with 1–2 ad-, 2–3 pd-setae. Wing length 4.5–5.5 mm. .... *striolata* (Fallén) and *discreta* (Meigen)
- (*Botanophila discreta* differs from *B. striolata* as follows: upper frons broader than distance between outer margins of upper ocelli; postoculars fewer and coarser; genal setae fewer and biserial rather than multiserial; vein C with some setulae dorsally and ventrally on basal part rather than bare; head proportionally smaller and abdomen proportionally larger – see *Dipterists Digest* Vol. 20 No. 2 p153.)
- Hind tibia with a developed apical pv-seta ..... 4
- 4 Sternite V processes with minute spines. Eye margins on frons separated by 2.5 times width of anterior ocellus. Outer lobe of surstylus with a developed median tooth on inner margin, in lateral view longer and narrower. Cercal plate with a longer narrow apical half ..... *varicolor* Mg.
- Sternite V processes with stronger spines..... 5

- 5 Eye margins on frons separated by 1–1.25 times width of anterior ocellus. Surstylus in lateral view with outer apical lobe wider ..... *estonica* (Elberg)
- Eye margins on frons separated by 2–2.25 times width of anterior ocellus. Surstylus in lateral view with outer apical lobe narrower ..... *trapezina* (Zetterstedt)
- 6 Arista, including hairing, more than half as wide as postpedicel. Hind tibia with almost complete rows of 12 or more strong setae on both av- and pv- surfaces. Mid tibia with a complete row of pv-setae, 8–10 on basal two-thirds being long and strong ..... *brunneilinea* (Zetterstedt)
- Arista with the longest hairs at most twice as long as basal arista thickness. Hind tibia with only a few av-setae and without true pv-setae. Mid tibia with long setae (at most 6 in number) on basal half only ..... 7
- [It appears that this couplet should refer to femur rather than tibia throughout. PB]
- 7 Hind tibia with 3 equally strong preapical setae on dorsal surface (ad-, d-, pd-setae). Prementum shining, undusted. Prealar seta longer than posterior notopleural. Vein C ventrally at least up to subcostal break setulose (in *apiciseta* sometimes sparse) ..... 8
- Dorsal preapical setae of hind tibia of very different lengths, either the pd-seta is absent, or much shorter than the d-seta, or all setae very short. middle one longest, hind one shortest and weakest. Vein C on ventral surface without setulae ..... 10
- 8 Arista very short pubescent, the length of hairs is less than the thickness of arista base. Space between notopleural depression and posthumeral setae with at least 15 rather long accessory hairs. Processes of sternite V long, with a fringe of setae on basal half on inner margins, apical half bare apart from a single strong seta at extreme apex. Wing length 4.3–5 mm. .... *apiciseta* (Ringdahl)
- Arista with longer hairs, the length of the longest hair at least equals the basal arista diameter. Space between notopleural depression and posthumeral setae with at most 7–9 shorter accessory hairs. 1+1 posthumeral setae ..... 9
- 9 The stronger costal spines before subcostal break not, or only a little shorter than crossvein dm-cu. Space between notopleural depression and posthumeral setae with about 7–9 accessory hairs. Anterior katepisternal seta generally with a longer setulose hair beneath it. Acrostichal setae fairly strong, especially presuturals, biserial without hairs between rows. Hind tibia with 3–4 av-setae. Legs dark brownish black. Wing length 4.5–5 mm ..... *jacobaeae* (Hardy)
- The stronger costal spines before distal break shorter. Space between notopleural depression and posthumeral setae almost bare, at most 3–4 very short and fine hairs. Acrostichals rather fine. Hind tibia with 2 av-setae. Legs brownish yellow, tibiae more yellowish than femora. Mid and hind femur often with darker apices. Wing length 5.5 mm. .... *maculipes* (Zetterstedt)
- 10 Mid tibia with one or more av-setae on apical half ..... 11
- Mid tibia without av-setae ..... 13
- 11 Mid tibia with 2 ad-setae, or if with only one ad-seta, then 1 pair of very long and strong presutural acrostichal setae and the remaining acrostichals (except prescutellar pair) very short and fine. The setae on vein C before subcostal break as long as crossvein dm-cu, the av-spinules slightly longer than width of vein C, especially between costal breaks. Prementum slender, 4.5 times as long as wide. Wing length 6.0 mm ..... 11

- ..... *biciliaris* (Pandellé)
- Mid tibia with only 1 ad-seta. Acrostichals either strong and biserial, or fine and multiserial. Prementum shorter and wider, 1.8–1.9 times as long as wide ..... 12
  - 12 Acrostichal setae well developed, biserial without hairs between rows. Scutum almost devoid of small setulae or hairs. Mid tibia with the av-seta (or when two are present the lower one) almost at same level as lower pd-seta. Visible part of genitalia entirely dark. Wing length 5.8 mm. .... *spinosa* (Rondani)
  - Acrostichal setae short and hair-like, in 4–6 rows, apart from 1–2 strong pairs in front of suture. Scutum with numerous short accessory hairs. Lower av-seta on mid tibia distal to level of lower pd-seta. Cnopypteres and wing base orange-yellow. Visible part of genitalia largely orange yellow. Wing length 5.8 mm..... *sericea* (Malloch)
  - 13 Lower facial edge in lateral view upturned and projecting beyond level of parafrontal angle. Lower margin of head straight. Genal setae with a few upwardly curved setulae. Prementum long and thin, dusted. Parafrontals and genae often reddish brown. Mid tibia with setae short and fine. Hind femur with some av-setae at least twice depth of femur. Dusting of pleura with a greenish blue tinge, especially katapisternum. Processes of sternite V short and pointed. Wing length 3.8–5 mm. .... *tuxeni* (Ringdahl)
  - Without the above combination of characters..... 14
  - 14 Mid tibia with ad-seta strongly developed, as long and strong as the apical av-seta. Notopleural depression without any hairs about bases of the two long setae. Postpedicel at least twice as long as wide ..... 15
  - Mid tibia with ad-seta much less developed, distinctly shorter than apical av-seta, or if as long (*latifrons*) then notopleural depression with some hairs about base of one or both setae, and postpedicel only a little longer than wide, or (*silvatica*) then tibiae yellow-orange or brownish and abdomen subcylindrical ..... 18
  - 15 Prealar seta distinctly longer than posterior notopleural. Hind femur with an almost complete row of long strong pv-setae. Lower anterior katapisternal seta at least half length of upper anterior seta. Thorax, abdomen and legs shining when viewed from some angles. Abdomen viewed from behind at a low angle dusted pale bluish grey with a black median vitta, as wide as hind tibia. Wing length 6 mm..... *profuga* (Stein)
  - Prealar seta slightly to much shorter than posterior notopleural, usually distinctly shorter. Hind femur with at most 1–3 long fine pv-setae near middle. Lower anterior katapisternal seta finer and less than half length of upper anterior seta ..... 16
  - 16 Hind femur with 1–2 longer setulose pv-hairs near middle. 1 pair of strong presutural acrostichal setae followed by multiserial fine hairs on either side of suture. Prealar seta at most only slightly shorter than posterior notopleural seta. Eye margins on frons almost touching. the stronger setae before subcostal break as long as crossvein dm-cu. Processes of sternite V more or less broadly shining black on inner margins. Wing length 5.5 mm. .... *fugax* (Meigen)
  - Hind femur with only a few short setulose pv-hairs, none longer than greatest depth of femur. Prealar seta decidedly shorter than posterior notopleural, The stronger setae before subcostal break distinctly shorter than crossvein dm-cu. Processes of sternite V not shining black on inner margins ..... 17
  - 17 Eyes separated by much less than width of postpedicel. Parafrontal on upper part just

- below anterior ocellus without a pair of short setulae. Arista strongly pubescent, longest hairs about twice as long as thickness of arista base. Scutum, seen from behind, with a distinct dark median vitta in front of suture between two pale dusted ones. Acrostichals strong, biserial, without hairs between rows. Sternite V processes long and wide with a fringe of pale hairs on inner margins. Basal part of sternite V reddish brown. Wing length 5.3 mm.. ..... *hucketti* (Ringdahl)
- Eye margins on frons separated by about distance separating posterior ocelli. Parafrontals on upper part just below anterior ocellus with a pair of short setulae. Arista much shorter pubescent. Scutum, seen from behind, uniformly yellowish dusted, with or without the faintest trace of a dark median vitta. Acrostichals mainly short and biserial with a few hairs between rows. Processes of sternite V short and densely setulose ..... *depressa* (Stein)
- 18 Prealar seta absent. Genal setae biserial. Acrostichal setae very fine and multiserial, except for the anterior presutural and prescutellar pair. Dusting of thorax and abdomen light olive-grey. Prementum dusted. Legs matt brownish or yellowish brown. Wing length 4.0 mm.. ..... *fonsecai* Ackland
- Prealar seta present (sometimes small) ..... 19
- 19 Prementum long, slender and shining blackish, 0.70–0.75 times head height. Gena very narrow, only about 0.1 times eye height in lateral view, and genal setae uniserial. 1 pair of rather long presutural acrostichal setae. Thorax and abdomen deep black, somewhat shining in certain lights, scutum viewed from in front at a low angle entirely matt black. Wing length 4 mm.. ..... *helviana* Michelsen
- Prementum shorter, less than half head height (0.44)..... 20
- 20 Katepisternals 2 + 2, a well developed lower anterior seta present even though shorter and weaker than the upper one. Legs often reddish brown, tibiae sometimes more orange-yellow..... 21
- Katepisternals 1 + 2, or if a short fine seta is present beneath front one (*sanctimarci*) then longest hairs of arista shorter than its basal thickness and sternite V largely reddish yellow..... 22
- 21 Abdomen subcylindrical in basal half. Prementum dusted, not shining. Outer posthumeral seta weak and half length of posterior inner posthumeral seta and much thinner, or absent. Median vitta on abdomen very narrow, half distance between apical scutellar setae or less. Stronger setae before subcostal break as long as crossvein dm-cu. Longest av- and pv-setae on hind femur twice depth of femur. Arista weakly swollen at base, tapering with longer pubescence, almost twice as long as its basal diameter. Hind tibia often with a short apical pv-seta. Wing length 5.5 mm..... *silvatica* (R.D.)
- Abdomen compressed in basal half. Prementum shining. Outer posthumeral seta well developed, nearly as long as, and quite as strong as posterior inner posthumeral seta. Median vitta on abdomen wide, as wide as distance between apical scutellar setae. Stronger setae before subcostal break half length of crossvein dm-cu. Longest av- and pv-setae on hind femur not more than 1.5 times depth of femur. Arista abruptly swollen at base with shorter pubescence, not longer than basal diameter. Wing length 5.3 mm ..... *rupicapra* (Mik)
- 22 Notopleural depression with some hairs about base of one or both setae. Antennae inserted distinctly below middle of head, so that face is shorter than distance from



- anterior ocellus to antennae. Postpedicel hardly 1.5 times as long as wide. Hind femur with some long fine setae which are twice depth of femur. Wings distinctly brownish at base and with distinctly dark veins. Processes of sternite V long, often projecting downwards. Wing length 3.5–3.7 mm. .... *latifrons* (Zetterstedt)
- Notopleural setae without any hairs about their bases. Antennae inserted above middle of head, or at least not below. Postpedicel twice (or more) as long as wide. Wings not blackish at base and veins not especially darkened ..... 23
- 23 Prealar seta as long as posterior notopleural seta. Lower hind katepisternal almost as long as upper. Hind femur with strong av-setae along whole length..... 24
- Prealar seta shorter than posterior notopleural. Lower hind katepisternal at most two-thirds length of upper, or if almost as long (*verticella* Zett.) then hind femur with long av-setae on apical half only ..... 27
- 24 Processes of sternite V strikingly long, practically bare except for a dense cluster of erect setulose hairs at base and a few shorter hairs at tip. Mid and hind femur with pv-setae not longer (on hind femur shorter) than greatest depth of femur. Head, viewed directly from in front, with upper part of parafacials dark brownish black, contrasting with the light grey dusted genae and interfrontalia. Wing length 4.5–5.5 mm. .... *seneciella* (Meade)
- Processes of sternite V much shorter and more extensively setose and haired. At least some of the pv-setae on hind femur longer than greatest depth of femur ..... 25
- 25 Scutum, seen from behind, almost uniformly dull deep brownish black, in front of suture with a more or less distinct pair of paler dusted vittae between lines of setae. Abdomen, seen from behind, brownish grey dusted with a broad, somewhat ill defined dark median area. Frontal vitta velvety black. Wing length 5.6 mm..... *gnava* (Meigen)
- Scutum, seen from behind, largely dusted olive grey with distinct darker vittae. Abdomen, seen from behind, rather densely pale dusted with a very narrow darker median vitta..... 26
- 26 Processes of sternite V largely reddish yellow (more conspicuous after death). Accessory hairs on scutum and scutellum (especially apical setulae), numerous and rather long, those between intra-alar, prealar and supra-alar setae half length of prealar seta. Anterior katepisternal seta with a fine setulose hair below it, which is longer than other hairs on katepisternum. Calypteres with the long hairs of fringes rather dark brownish. Prementum rather short, not as long as palpus. Most of head dark in ground colour, viewed from directly in front with upper part of parafacials dark brownish black, contrasting with the light grey dusted genae and frontal vitta. 1 + 1 posthumeral setae. Wing length 5.5 mm ..... *sanctimarci* (Czerny)
- Processes of sternite V entirely dark, clothed almost all over with short setulose hairs. Accessory hairs on scutum and scutellum sparse and very short, those above prealar seta few in number and less than a quarter length of prealar. No setulose hair distinguishable from the other hairs below anterior katepisternal seta. Calypteres with the long hairs of fringes pale yellow. Prementum narrow and longer than palpus. Most parts of head orange or brownish in ground colour. Wing length 4.6 mm. .... *sonchi* (Hardy)
- 27 Mid tibia without a distinguishable ad-seta, occasionally a minute ad-seta is present, but always shorter than the pd-seta. Lower posterior katepisternal quite three-quarters length

- of upper. Hind femur with long av-setae on distal half only. Scutum, seen from behind, almost uniformly dusted brownish grey without, or with only very indistinct darker vittae. Dorsal surface of scutellum without setulae (only basal laterals, discals and apical setae). Light grey or brownish dusted species. Wing length 3.5–3.7 mm..... *verticella* (Zetterstedt)
- Mid tibia with a short but distinct ad-seta. Lower posterior katepisternal at most two-thirds length of upper. Hind femur with strong av-setae along whole length. Scutum, seen from behind, with a conspicuous median dark vitta flanked by pale dusting, at least in front of suture..... 28
- 28 The stronger spines before subcostal break as long as crossvein dm-cu. Acrostichal setae mainly biserial. Hind femur on basal half, with only one long pv-seta near base, and sometimes with another about middle. Eye margins on frons separated by almost width of ocellar tubercle. Thorax light grey dusted. Wing length 3.5 mm ..... *cuspidata* (Collin)
- The stronger setae before subcostal break much shorter than small crossvein dm-cu. Hind femur on basal two-thirds, with a row of 4–5 long pv-setae. Thorax darker grey dusted ..... 29
- 29 Acrostichals rather numerous, irregularly quadriserial and mainly fine and hair-like. Accessory hairs of scutum numerous and rather long. Processes of sternite V with only short fine hairs on lower margin. Cercal plate with apical third laterally compressed. Wing length 4.5 mm.. ..... *laterella* (Collin)
- Presutural acrostichals much fewer, mainly biserial, but multiserial postsuturally. Cercal plate broad, ending in two short processes ..... 30
- 30 Cercal plate with 2 roundish projecting lobes on apical margin. Processes of sternite V with a row of short spinules on inner margins, which are convex. Anterior frontal setae and cruciate interfrontal setulae especially long. Setae before subcostal break more distinct. Wing length 4.6 mm..... *phrenione* (Séguy)
- Cercal plate otherwise ..... 31
- 31 Cercal plate with 2 long pointed lateral projecting lobes on apical margin, which are widely spaced. Prementum less stout. Processes of sternite V long and narrow and widely spaced, concave on inner margins, and with only a row of cilia. Anterior frontal setae and cruciate interfrontal setulae less strong. .... *dissecta* Mg.
- Cercal plate with a median projecting lobe on apical margin, which is divided apically into two lobes. Prementum stout. Processes of sternite V with convex inner margins, bearing a few short spinules. Anterior frontal setae and cruciate interfrontal setulae short ..... *lobata* (Collin)

#### BOTANOPHILA & DELIA females (including SUBHYLEMYIA)

This key is under construction. It is an attempt to key out females of Delia and Botanophila in one key.

To add: *Botanophila apiciseta*, *rupicapra*, *biciliaris*, *estonica*, *trapezina*

*Delia coronariae*, *diluta*

- 1 Hind tibia with a well developed apical pv-seta, in addition to the normal av-seta. Mid tibia with 1 av-, 2 ad- and 2-3 pd-setae. Prealar seta long and strong, more than 1.5 times

- length of posterior notopleural seta. All acrostichal setae (except for the prescutellar pair) represented by short fine hairs, not differentiated from accessory scutal hairs, bi-triserial but becoming multi-serial towards scutellum. Vein C setae and anterior costal setulae before subcostal costal break long. Head large in proportion to thorax. Large species, W.L. 5.5–6.5 mm ..... *Botanophila varicolor* Meigen, *estonica* Elberg, *trapezina* Zetterstedt
- Hind tibia without an apical pv-seta, at most with a short weak one.....2
- 2 Mid tibia with one or more av-setae .....3
- Mid tibia without av-setae.....17
- 3 Mid tibia with 2-3 av-, 2-3 long ad-, 3 pd-setae. 2 + 2 katepisternal setae. Parafrontal angle produced forwards and frons in lateral view almost flat. Arista with basal segments rather long. Large sp., (W.L. 5.5–6 mm.), densely dusted brownish to olive grey, wings including calypteres brownish orange .....*Botanophila moriens* (Zetterstedt)
- Mid tibia generally with only 1 av-seta, if 2 are present then without the above combination of characters .....4
- 4 Facial edge in profile strongly projecting in front of fronto-parafacial angle. Haustellum long and slender, length from palpi to tip more than total height of head. Ovipositor laterally compressed, cerci sclerotized and pointed in profile..... *Botanophila tuxeni* (Ringdahl)
- Without the above combination of characters.....5
- 5 Epiproct and cerci with several thick, apically recurved, spine-like setae.....6
- Epiproct and cerci without thick, apically recurved setae. Ovipositor only fine haired at apex, or at most with stiffened needle-like setae .....8
- 6 Prealar seta present and more than half length of posterior notopleural seta. Darker grey dusted species. Legs black. Abdomen with a narrow brownish median vitta.....*Delia fabricii* (Holmgren)
- Prealar seta absent or very small, less than half length of posterior notopleural seta. Abdomen without median vitta.....7
- 7 Fore tibia with 1 d-, 1 pd-setae at the same level, and 1 pv-seta. Prealar seta completely absent. Large light greyish dusted species with mainly yellow legs. .... *Delia lavata* (Boheman)
- Fore tibia with only 1 ad- and 1 pv-seta. Prealar seta about as long as posterior notopleural seta but finer. Legs mainly dark with only knees and sometimes tibiae orange obscured by greyish dusting..... *Delia pallipennis* (Zetterstedt)
- 8 Mid tibia with 1 ad- and 1 pd-setae.....9
- Mid tibia with 2 pd-setae (*Delia linearis* sometimes has 2 ad- and 1 pd-seta).....11
- 9 Thorax and abdomen matt olive grey dusted. Scutum with traces of very narrow brown vittae along dorsocentral rows. Mid tibia with ad-seta rather long, nearly twice as long as adjacent pd-seta. Wing with crossveins slightly infuscated. W.L. generally 5 mm or more, but very small specimens occur.....*Subhylemyia longula* (Fallén)
- Thorax and abdomen matt dark grey dusted. Scutum either with two wider or three brownish vittae. Mid tibia with shorter ad-seta. Wing with crossveins clear. W. L. not

- more than 4.5 mm.....10
- 10 Prealar seta absent. Parafacial about 1.2 times width of postpedicel. Acrostichal setae either almost absent, or represented by fine hairs of setulae. Only two katepisternal setae, lower posterior absent. All abdominal setae very short, hind marginal setae hardly longer than discal setulae. Prementum longer than fore tarsomere 1, and shining. ....  
..... *Delia hirtitibia* (Stein)
- Prealar seta distinct though short and fine. Width of parafacial at narrowest point less than width of postpedicel. Acrostichal setae distinct as biserial setulae. Three katepisternal setae, lower posterior seta short but distinct. Abdomen with hindmarginal setae stronger than discal setulae. Prementum slightly shorter than fore tarsomere 1, and semi-shining with thin dust .....*Delia frontella* (Zetterstedt)
- 11 Mid tibia with 1 ad- and 2 pd-setae. Acrostichals (apart from the stronger pair of prescutellars) represented by quadriserial rows of irregular fine hairs which are not differentiated from accessory scutal hairs; these acrostichal hairs cover the same area as a rather wide brownish median vitta .....*Botanophila sericea* (Ringdahl)
- Mid tibia with 2 ad-setae. Acrostichals strong and developed, or fine and biserial, or almost absent, never quadriserial.....12
- 12 Mid tibia with 2 av-setae (sometimes 3). Scutum without distinct vittae. Prementum shining black. Prealar seta as long as posterior notopleural seta. Acrostichal setae very short and fine and almost uniserial. Hind tibia with 3-4 av-setae. Anterior setulae between costal breaks as long as crossvein r-m .....*Delia lamelliseta* (Stein)
- Mid tibia with only 1 av-seta .....13
- 13 All acrostichal setae developed, strong, biserial, ratio 10:8:10, no hairs between rows. A well developed upper anterior anepisternal setula present .....14
- Acrostichal setae either all fine and short (rows close together) or mainly fine and short but with 1 pair of presutural setae (and the prescutellar pair) more developed. No developed upper anterior anepisternal setula present.....15
- 14 Prealar seta shorter than posterior notopleural seta (or at most the same length). Arista practically bare, the longest hairs not longer than basal arista diameter. Hind tibia with 2 av-setae..... *Botanophila spinosa* (Rondani)
- Prealar seta longer than posterior notopleural seta and equally robust. Arista long haired, total width of hairing about half width of postpedicel. Hind tibia with 4-5 av-setae.....  
.....*Botanophila brunneilinea* (Zetterstedt)
- 15 Prementum shining black. Arista almost bare, longest hairs hardly as long as basal arista diameter. Wing base, halteres and calypteres orange-yellow .....  
.....*Delia interflua* (Pandellé)
- Prementum grey dusted. Arista with longer hairs, the longest between 1.5 and 2.0 times basal arista diameter.....16
- 16 All presutural setae are represented by short, fine and irregularly biserial hairs, not differentiated from the accessory scutal hairs. Scutum and abdomen viewed from behind with a diffused darker median vitta, abdomen rather shining in some lights. Vein C setulose ventrally, at least in basal section up to subcostal break. Prealar seta considerably longer than posterior notopleural seta and deflected in a ventro-posterior angle.....

	..... <i>Delia linearis</i> (Stein)	
–	1-2 pairs of prescutellar acrostichal setae which are slightly stronger than the postsutural acrostichals. Scutum without, or with a very indistinct median vitta., but with a fine narrow brown vitta along lines of dorsocentral setae. Abdomen densely olive-grey dusted without shine or median vitta. Vein C bare ventrally. Prealar seta at most equal in length to posterior notopleural seta .....	<i>Delia nigrescens</i> (Rondani)
17	Hypoproct and cerci with numerous stiff, needle-like setae .....	18
–	Hypoproct and cerci with only normal fine hairs and setae .....	20
18	Aristal pubescence very long, longest hairs about two-thirds as long as width of postpedicel. Femora and tibiae extensively ochre yellow. Prealar seta absent. Thorax and abdomen densely dusted light greyish, latter without median vitta. Acrostichal setae almost uniserial apart from one longer presutural pair.....	<i>Delia coarctata</i> (Fallén)
–	Aristal pubescence much shorter .....	19
19	Prealar seta absent. Haustellum conical, shorter than fore tarsomere.....	<i>Delia albula</i> (Fallén)
–	Prealar seta present even though sometimes small. Haustellum cylindrical, exceeding length of fore tarsomere 1. Head and body covered in light olive grey dusting. Prementum matt, with grey dusting. Fore femur without a-setae. Palpus conspicuously expanded distally. ....	<i>Delia tumidula</i> Ringdahl
	[Haustellum notably bulky, about same length as fore tarsomere 1. Prestomal teeth in part enlarged and without pointed apices. Facial edge not projecting beyond fronto-parafacial angle.]	
20	Mid tibia with only one pd-seta .....	21
–	Mid tibia with 2 or more pd-setae .....	40
21	Haustellum strikingly large and bulky, grey dusted, as long as fore tarsomere 1. Uniformly dull greyish without scutal or abdominal vittae. Tergite V without strong erect discal setae. Hind tibia with apical av-seta (and adjacent setulae) notably thick and spine-like. Cerci with a single apical seta larger than the remaining setae. Hypoproct short, covered in cuticular pubescence. Wing veins pale. W.L. 3.6 mm .....	<i>Delia pruinosa</i> (Zetterstedt)
–	Haustellum not so stout. Hind tibia with normal apical av-seta, and without the combination of the above characters.....	22
22	Haustellum small, shorter than fore tarsomere 1. Genal setae in two irregular rows. Setae on cerci very short, barely differentiated from surrounding setulae .....	<i>Delia kullensis</i> (Ringdahl)
–	Not as above.....	23
23	Prealar seta as long as or longer than posterior notopleural seta .....	24
–	Prealar seta slightly (usually considerably) shorter than posterior notopleural seta, or even absent.....	30
24	Lower posterior katapisternal seta short and fine, at most one third length of upper posterior seta. sometimes absent. Vein C setulose along whole length ventrally. Notopleural depression generally with a few fine hairs in addition to the 2 strong setae.....	25

- Lower posterior katepisternal seta about as long as upper seta. Vein C bare beneath, at least beyond tip of subcostal vein .....26
- 25 Hind femur without basal v-seta or pv-setae in basal half. Mid femur as a rule without a sub-basal av-seta. Abdomen covered in dense olive greyish dusting without discernible dark reflections or median dark vitta ..... *Delia floralis* (Fallén)
- Hind femur with a fine basal v-seta and mostly with 1–3 short pv-setae in basal half. Mid femur sub-basally with 1–2 av-setae. Abdomen covered in greyish dusting with distinct shifting reflections and dark median vitta .....  
..... *Delia radicum* (L.) & *Delia planipalpis* (Stein)
- 26 Legs mainly orange yellow, femora sometimes brownish dusted. Scutum with a narrow brownish median vitta and wider lateral vittae when viewed from in front. Abdominal median vitta distinct, consisting of triangular spots on tergites I–IV. Mid tibia with ad-seta 1.5 times length of pd-seta. Wing veins and membrane yellowish. At least one pair of long presutural acrostichals. .... *Delia criniventris* (Zetterstedt)
- Legs brownish black, or at most tibiae obscurely brownish orange.....27
- 27 Arista quite or almost bare. Fore tibia with 1 ad- and 2 pv-setae. Scutum, viewed from in front with a wide brownish median vitta which fills the space between dorsocentral setae, and continues on to the scutellum, and 2 lateral brownish vittae outside supra-alar setae, separated by paler dusting. Lower part of brownish parafacial adjacent to vibrissal setae with a suffused brownish shifting mark which reaches eye margin in a point. Abdomen with a dark median vitta. .... *Delia piliventris* (Pokorny)
- Arista distinctly pubescent .....28
- 28 Notopleural depression generally with 1-5 short fine hairs in addition to the two strong setae. Arista with hairs hardly longer than basal diameter. Presutural acrostichal setae much less well developed. The 4-6 av-setae on hind femur almost confined to distal half ..... *Delia carduiformis* (Schnabl)
- Notopleural depression bare apart from the 2 strong setae. Arista with some of the hairs more than twice basal diameter. One pair (sometimes 2 pairs) of strong presutural acrostichal setae. The 5-6 av-setae on hind femur occupying distinctly more than distal half of femur.....29
- 29 Locally common in coastal areas, sandhills etc..... *Delia penicillosa* Hennig
- Female not known, males only in Scotland, rare..... *Delia penicilliventris* Ackland
- 30 Prealar seta entirely absent or quite inconspicuous and represented by a fine hair. Frontal vitta at narrowest part not much wider than a parafrontal. Facial edge not or hardly produced anteriorly .....31
- Prealar seta more or less distinct, though often short. Frontal vitta at narrowest part wider than a parafrontal .....32
- 31 Whitish grey dusted species with distinctly whitish wings. Tibiae more or less reddish yellow basally..... *Delia albula* (Fallén)
- More greyish species, wings not whitish. Legs entirely black ... *Delia hirtitibia* (Stein)
- 32 Fore femur in middle with a short row of fine a-setae .....33
- Fore femur in middle with only setulae on a-surface.....36

- 33 Lower posterior katepisternal seta strong and at least  $\frac{3}{4}$  length of upper posterior katepisternal seta. Larger species, W.L. 6mm or more .....***Delia cardui*** (Meigen)
- Lower posterior katepisternal seta short or very short and fine, not exceeding half length of upper posterior katepisternal seta .....34  
[*Delia coronariae* might key in here somewhere]
- 34 Fore tibia with preapical pd-seta distinct, short but at least half length of dorsal preapical seta. Vein C with anterior setae longer and stronger.....***Delia lophota*** (Pandellé)
- Fore tibia with preapical pd-seta absent or very short. Vein C with anterior setae short and weak .....35
- 35 Head and body covered in light olive and brownish grey dusting; mesonotum at least with median dark brown vitta well visible. Parafacial in middle narrower than postpedicel. Acrostichal setae very short and fine.....***Delia echinata*** (Séguy)
- Head and body covered in dense whitish grey dusting; mesonotum without distinct pattern of darker vittae. Parafacial in middle as wide as or wider than postpedicel. Acrostichal setae with one pair of presutural acrostichal setae distinctly longer and stronger than the others ..... ***Delia quadripila*** (Stein)
- 36 Tibiae yellow or yellowish, at most front tibia darkened in distal half. Tibiae orange-yellow, sometimes narrowly darkened brownish at extreme apices, and contrasting with dark grey dusted femora. Acrostichal setae short, biserial, separated by rather less than distance between acrostichal and dorsocentral setal rows. The longest costal seta 1.5 times length of crossvein r-m. Prealar seta short, hardly distinguishable from accessory scutal hairs. ....***Delia setigera*** (Stein)
- Legs dark brownish (though knees may be narrowly orange).....37
- 37 Only 2 long ventral apical setae on mid tibia (v- and pv-seta). Frontal setae rather short, tips not reaching middle of frontal stripe. Arista distinctly pubescent, with greatest width of hairing slightly more than diameter of base of arista. Scutum light ash-grey dusted with no trace of a faint brown median vitta on. Mid femur without an av-seta in proximal third. Parafacial in middle more or less wider than postpedicel. Presutural acrostichal rows much closer together than to dorsocentral rows. Abdomen with a narrow median dark vitta, sometimes very faded and ending well before tergite V. W.L. generally more than 5 mm..... ***Delia flavogrisea*** (Ringdahl)
- Three long ventral apical setae on mid tibia (av-seta present). Frontal setae stronger and longer, tips reaching middle of frontal stripe. Arista with greatest width of hairing not more than 1.0 times width of swollen base of arista. A faint brownish median vitta on scutum and traces of brownish lateral vittae or darkening. Mid femur with an av- seta in basal third. W.L. generally less than 5 mm.....38
- 38 Greatest width of arisal pubescence not exceeding 0.5 times greatest diameter of arisal base. Haustellum somewhat slender, subcylindrical, fully as long as fore tarsomere 1. Prementum with strong black shine through sparse dusting. Fore tibia with apical pd-seta very reduced .....***Delia pilifemur*** (Ringdahl)
- Greatest width of arisal pubescence 1.0–1.5 times as long as greatest diameter of arisal base. Haustellum thicker, conical, shorter than fore tarsomere 1. Prementum matt, covered in distinct thin dusting. Fore tibia with a distinct apical pd-seta.....39

- 39 On the whole smaller, wing length reaching 4.8 mm, and more delicate with notably slender femora. Mid tibia with 1 pd-seta. Vein C basal to subcostal break with av-spinules slender but same length as alternating av-setulae.....*Delia florilega* (Zetterstedt)
- On the whole larger, wing length reaching 5.4 mm, and more robust. Mid tibia with (1–) 2 pd-setae. Vein C basal to subcostal break with av-spinules stronger but shorter than alternating av-setulae ..... *Delia platura* (Meigen)
- 40 Hind tibia with 3 equally strong dorsal preapical setae.....41
- Hind tibia with only 2 dorsal preapical setae (ad- and d-seta), any pd-setae if present distinctly shorter than these.....42
- 41 Femora and tibiae mainly orange, femora with distal fifth darkened brownish on dorsal surface. 1 + 2 katepisternal setae. Scutellum and abdomen shining in certain lights, scutum viewed from above with darker vittae along lateral declivities and a darker median vitta presuturally..... *Botanophila maculipes* (Zetterstedt)
- Legs dark brownish black. Scutum with dense yellowish grey dusting. 2 + 2 katepisternal setae ..... *Botanophila jacobaeae* (Hardy)
- ..... [*Botanophila apiciseta* Ringd. keys in here]
- 42 Femora and tibiae yellowish orange, only fore tibia dorsally infuscated. Prealar seta absent or represented by a fine setula. Arista short plumose, total width of hairing fully half width of postpedicel. Thorax and abdomen densely dusted light greyish, the latter without a median vitta. Acrostichal setae almost uniserial, short apart from one longer presutural pair.....*Delia coarctata* (Fallén)
- Legs black, or at most reddish brown or infuscated orange brown in parts.....43
- 43 Prealar seta entirely absent, or sometimes a fine hair is present which is not distinguishable from the other scutal hairs. Scutum densely dusted without any shine or vittae. Acrostichal setae consisting of 3 rows of very short fine hairs. Abdomen entirely matt grey dusted without median vitta. W. L. 5 mm.....*Botanophila fonsecai* Ackland
- Prealar seta present, ranging from half length to longer than posterior notopleural ... 44
- 44 Haustellum long and slender, prementum shining black and 4–5 times as long as wide. Gena very narrow, about half width of postpedicel or even narrower, facial edge projecting and lower margin of head straight in profile. Scutum and abdomen densely grey dusted without vittae, the latter with some indistinct shining areas. Prealar as long as posterior notopleural and equally strong. Presutural acrostichal rows with numerous hairs between rows..... *Botanophila helviana* Michelsen
- Haustellum generally shorter (if rather long, then grey dusted, and gena not so narrow, and without the above combination of characters).....45
- 45 Fore tibia with 2 ad- and 2 pd-setae. Prealar seta at most as long as posterior notopleural seta, generally shorter (0.8 times). Abdomen entirely grey dusted with very indistinct median vitta and no shifting darker reflections. Presutural acrostichal setae longer, especially 1 pair are half length of anterior presutural dc-setae. ....
- ..... *Delia antiqua* (Meigen) & *?tarsifimbria* (Pandellé)
- Fore tibia with only 1 ad-seta. Prealar seta longer than posterior notopleural seta (1.2–1.4 times) Abdomen darker grey dusted with shifting darker median vitta and darker reflections in the form of inverted triangles. presutural acrostichal setulae are short and



	fine.....	46
46	Mid tibia with 2 ad-setae. All acrostichal setae fine, short and hair-like, bi-seriserial. Lower posterior katepisternal seta nearly as long as upper posterior seta. Parafacials wide, 1.5–2 times width of postpedicel.....	47
–	Mid tibia with only 1 ad-seta, and not all the above characters present.....	48
47	Vein C with some setulae dorsally and ventrally on basal part.....	
	..... <i>Botanophila discreta</i> (Meigen)	
–	Vein C bare dorsally and ventrally on basal part.....	
	..... <i>Botanophila striolata</i> (Fallén),	
48	Katepisternal setae 1 + 1. Haustellum short, dusted, not swollen, Antennae short, postpedicel only as long as wide, or not much longer than wide. Presutural acrostichals short and fine, without hairs between rows. Setae on vein C before subcostal break short, hardly longer than anterior setulae. Small species, W. L. 3.5–4.0 mm.....	49
–	Katepisternal setae 1 + 2, the lower posterior seta may be represented by a fine setulose hair which is only 0.25 times length of upper seta (if in doubt gena more than 1.5 times width of postpedicel).....	50
49	Frontal vitta not much wider than width of a parafrontal. Last section of M1+2 more than twice as long as penultimate section (2.1–2.3). Ovipositor generally exerted, laterally compressed, sabre-like .....	
	..... <i>Botanophila latifrons</i> (Zetterstedt)	
–	Frontal vitta twice width of a parafrontal. Last section of M1+2 slightly less than twice length of penultimate section (1.8–1.9) Ovipositor not as above.....	
	..... <i>Botanophila cuspidata</i> (Collin)	
50	Gena wide, 0.4 times height of eye. Haustellum short, prementum not quite as long as palpus. Scutum and abdomen densely grey dusted. Face almost flat, facial edge not projecting. Scutum with a rather indistinct median vitta and short lateral vittae when viewed from a low angle from behind; the extreme base of scutellum brownish dusted. Prealar seta shorter or as long as posterior notopleural seta. Lower katepisternal seta short and fine, 0.25 times length of upper seta. One stronger pair of presutural acrostichals. Hind tibia with 2–3 av setae. Ovipositor dorsoventrally compressed, apex broader than hind tibia, cerci with only very short hairs .....	
	..... <i>Botanophila seneciella</i> (Meade)	
–	Gena narrower, at most 0.3 times height of eye, generally narrower. Not all the above combination of characters present ( <i>B. gnava</i> is very similar to <i>seneciella</i> , but has a long haustellum, prementum longer than palpi and slender, prealar slightly longer than posterior notopleural seta, gena narrower (0.2–0.25 times eye height) .....	51
51	Haustellum short and strikingly swollen (prementum in profile 0.35–0.43 times as wide as long). Abdomen viewed from behind shining blackish with grey hindmargins on tergites. Legs black and thinly dusted, semi-shining. Small species, W.L generally not more than 5 mm. ....	52
–	Haustellum not so strikingly swollen .....	54
52	The strong hindmarginal setae on abdominal tergites III and IV are some distance removed from the actual hindmargins (by about width of basal half of hind tibia). Upper part of parafacial (profrons) with a shifting dark patch, the ground colour here entirely black. Frontal vitta generally entirely black or obscurely reddish yellow anteriorly. Anterior frontal setae stronger and longer. Scutum viewed from behind with indications of darker lateral vittae, the paler grey vittae between the presutural acrostichals and	

- dorsoventrals lighter and more evident. Abdomen viewed from behind mainly black, tergites lighter silvery grey dusted on posterior two-thirds. Hind tibia with more numerous setae, generally 1–2:4–5:3:0. .... ***Botanophila phrenione*** (Séguy)
- The strong hindmarginal setae on tergites III and IV very close to actual hind margin. Frontal vitta partly or extensively orange in ground colour. Scutum viewed from behind paler and greyer .....53
- 53 Hind tibia generally with fewer setae, typically 1:2:2:0.. Scutum viewed from behind grey, with only the median vitta at all distinct. Frontal setae rather short and fine. Postsutural acrostichal setae short and rows rather close together. Prementum shorter and very swollen in profile, the hind margin almost semi-circular. Smaller species, W.L. 3.5–4.0 mm..... ***Botanophila lobata*** (Collin)
- Hind tibia generally with more ad- and pd-setae. Scutum viewed from behind with more distinct darker lateral vittae. Frontal setae (especially anterior pair) slightly stronger and longer. Prementum slightly longer, less swollen. Larger species, W.L. 4.5–5 mm. .... ***Botanophila dissecta*** (Meigen)
- 54 Abdominal tergite V with strong erect discal setae .....55
- Abdominal tergite V without strong erect discal setae, though some erect discal hairs or fine setulae may be present, which are slightly stronger than the ground hairs. Frontal vitta, parafacial, parafacial and gena largely orange-yellow in ground colour. 60
- 55 All acrostichal setae represented by short setulose hairs, 1–2 pairs of presuturals slightly longer than most postsutural setae but still short; presutural acrostichal rows close together (ratio 10:8:10), rows becoming slightly further separated postsuturally, without hairs between rows. Gena with a group of about 7–8 fine upwardly directed setulae on lower margin above the stronger genal setae. Scutum greyish dusted with only traces of shifting narrow vittae along the dorsocentrals. Abdomen thinly greyish dusted, semi-shining, with a narrow darker median vitta which is hardly as wide as hind tibia. Arista with hairs shorter than basal diameter. Tergites VI and VII shining black in contrast to the grey dusted tergite V. Wing base strongly orange-yellow tinged..... ***Botanophila sanctimarci*** (Cz.erny)
- At least one pair or stronger acrostichal setae, or all acrostichal setae strong .....56
- 56 Only one pair of strong presutural acrostichal setae, all the rest (including postsuturals but excluding prescutellar pair) fine and hair-like .....57
- All acrostichal setae developed (the postsutural setae may be shorter than some presuturals, but they are not hair-like).....58
- 57 Abdomen densely dusted matt olive grey, hardly shining and without trace of a median vitta. Scutum practically without vittae ..... ***Botanophila depressa*** (Stein)
- Abdomen thinly dusted, and shining in some lights with shifting patches and vitta ...59
- 58 One pair of strong presutural acrostichals, about as long as prealar seta; the rest of the acrostichals, including postsuturals but excluding the prescutellar pair, short, fine irregularly triserial hairs, which are not much longer than accessory scutal hairs. Arista with hairs at least as long as diameter of arista base. Larger species, W. L. about 6 mm. Last section of M1+2 ratio 0.8 ..... ***Botanophila fugax*** (Meigen)
- One pair of finer but longer presutural acrostichals (slightly shorter than prealar seta)

- those immediately posterior about three-quarters this length, these becoming shorter towards the long prescutellar pair, remaining biserial with no hairs between rows. Arista practically bare, the longest hairs not as long as diameter of arista base. Scutum darker, with distinct black vittae. Abdomen black with distinct shine and shifting greyer areas. Smaller species, W.L. 5.5 mm. Last section of M1+2 ratio 0.55. .... ***Botanophila laterella*** (Collin)
- 59 Prealar seta distinctly longer than posterior notopleural seta. The longest setae before subcostal break slightly longer than crossvein r-m, and anterior setae strong and erect, the longest equal to one-third length of the stronger setae. Arista long pubescent, longest hairs at least twice diameter of arista base ..... ***Botanophila profuga*** (Stein)
- Prealar seta short, or equal in length to posterior notopleural seta ..... 60
- 60 Hind tibia with 1–2 av-setae, longer setae before subcostal break as long as crossvein r-m, or even longer, and distinctly differentiated from the anterior costal setulae (which are also strong and nearly half length of the longer setae. Pleura more grey dusted with little shine. Hind tibia often translucent orange-brown, especially in proximal half..... ***Botanophila silvatica*** (Fallén)
- Hind tibia with 3–4 ad-setae. Longer setae before subcostal break shorter, less differentiated from anterior costal setulae. Pleura less dusted, with shifting patches and more shine. Hind tibia entirely black ..... ***Botanophila hucketti*** (Ringdahl)
- 61 Smaller species with shorter setae, W.L. 4 mm. Prealar seta rather short and fine, shorter than posterior notopleural seta. Haustellum shorter, prementum not parallel-sided, about as long as palpus. Facial edge hardly projecting. Arista with hairs shorter than basal diameter of arista..... ***Botanophila verticella*** (Zetterstedt)
- Larger species, W. L. more than 4.5 mm. Prealar seta stronger and as long as or slightly longer than posterior notopleural seta. Haustellum longer and slender, parallel-sided, grey dusted. Facial edge more produced forwards. Arista with hairs as long as basal diameter of arista..... 62
- 62 Frontal vitta at narrowest part only 1.6 times width of adjacent parafrontal. Facial edge more projecting beyond level of profrons Scutum without vittae. Apical part of ovipositor not shining black and much broader than width of hind tibia..... ***Botanophila sonchi*** (Hardy)
- Frontal vitta at narrowest part wider, twice width of adjacent parafrontal. Facial edge less projecting (to level of profrons). Scutum with a trace of a median presutural vitta. Apical part of ovipositor shining black and not or hardly broader than width of hind tibia ..... ***Botanophila gnava*** (Meigen)

#### CALYTHEA - males & females

- 1 Prosternum completely bare. Katepimeron bare, without hairs adjacent to hind spiracle posteroventrally. Fore tibia in male with a strikingly long d-seta at about middle, in female shorter, and 2 subapical d-setae which are strong and spinose ..... ***pratincola*** (Panzer)
- Prosternum with setulae or hairs on lateral margins. Katepimeron with a few hairs adjacent to hind spiracle posteroventrally. Fore tibia without a long d-seta ..... ***nigricans*** (R.D.)

## CHIASTOCHETA – males

Male key only at present. Female key in preparation.

- 1 Gena at narrowest part below eyes narrower than palpus. Abdomen seen from above scarcely longer than wide. Prehypopygial tergite complex (7+8) shining black laterally, as is the hypopygium.....*rotundiventris* Hennig
- Gena at narrowest part at least as wide as or much wider than palpus. Abdomen seen from above distinctly longer than wide. Prehypopygial tergite complex and hypopygium not shining black ..... 2
- 2 Processes of sternite V before apices with a ventrally directed tooth-like projection ....  
..... *dentifera* Hennig
- Processes of sternite V without such projections ..... 3
- 3 Processes of sternite V at apices with a group of longer and stronger setae. Surstylus at apex not incised. Cercal plate deeply incised at apex, with widely separated processes. Hind tibia with 2–3 av-setae, which are more or less distinctly longer than the adjacent setulae ..... *setifera* Hennig
- Processes of sternite V without strikingly long and strong setae. Surstylus at apex incised ..... 4
- 4 Hypopygium relatively small, in profile view scarcely reaching further posteriorly than the prehypopygial tergite complex (7+8). T<sub>3</sub> as in *setifera* with 2–3 rather distinct av-setae..... *trollii* (Zetterstedt)
- Hypopygium large or very large, in profile distinctly reaching further posteriorly than prehypopygial tergites. Hind tibia without distinct av-setae..... *inermella* (Zetterstedt)

## CHIROSLA- males

- 1 Frontalia not wider than postpedicel ..... 2
- Frontalia wider than width of postpedicel ..... 8
- 2 Arista long plumose, longest hairs as long as width of postpedicel, the hairs arising from arista in more than one plane. Eyes separated by slightly more than diameter of anterior ocellus. Head small in relation to thorax. Wings tinted yellowish. Prealar shorter than posterior notopleural seta. Scutum and abdomen with shining blackish patches. Mid femur with 3 erect, strong v-setae in basal half. Katepisternal setae 1 + 2 .....  
..... *flavipennis* (Fallén).
- Total arisal hairing at most one-third width of postpedicel, or arista virtually bare ..... 3
- 3 Lateral margin of scutellum below strong setae without fine setulae, also tip ventrally without pubescence. Hind femur without a row of strong pv-setae, only fine hairs basally. Arista short pubescent, the hairs not longer than basal diameter of arista. Eye margins on frons at narrowest part separated by not more than twice diameter of anterior ocellus, and uppermost orbital seta halfway between anterior ocellus and cruciate interfrontal setae which are somewhat stronger than upper orbitals. Abdomen with shining blackish areas. Prealar seta distinctly shorter than posterior notopleural seta. Katepisternal setae 1 + 2. Head small in relation to thorax..... *cinerosa* (Zetterstedt)

[Some males from Scotland (Rogie Falls, ROSS & CROMARTY) with more pointed apices to lobes of sternite V. May represent a distinct species. This form also occurs in Japan (see Suwa,

1974)]

- Lateral margins of scutellum setulose below strong setae, and ventral surface at tip with or without fine pubescence. Hind femur with a more or less complete row of stronger pv-setae (finer and on basal half only in *aberrans*)..... 4
- 4 Arista long pubescent, total width of hairing about half width of postpedicel. Eye margins separated by about 1.5–2 times diameter of anterior ocellus. Uppermost orbital seta closer to anterior ocellus than to cruciate interfrontals. Hind femur ventrally with rows of long fine av- and pv-setae and fine hairs. Hind tibia with 4–5 pv-setae, mainly in basal half. Abdomen with shining black patches, and numerous erect setae on tergites. Hind tibia with 1 ad-seta, not as strong as adjacent pd-seta.....*histricina* (Rondani)
- Arista shorter pubescent, total width of hairing not more than basal diameter of arista 5
- 5 Cruciate interfrontal setulae absent. Eyes on frons separated at narrowest point by about 2.5 times diameter of anterior ocellus. Prealar seta longer than posterior notopleural seta. Mid tibia with 4–5 p-setae. Katepisternal setae 2 + 2. Larger species, wing length mm .....*griseifrons* (Séguy)
- Small cruciate interfrontal setae present ..... 6
- 6 Fore tibia with a rather long preapical d-seta which is three-quarters length of fore tarsomere 1. Upper orbital setae closer to cruciate interfrontal setae than to anterior ocellus. Abdomen viewed from behind with shining blackish patches.....*betuleti* (Ringdahl)
- Dorsal preapical on fore tibia shorter, not longer than half length of fore tarsomere 1. Upper orbital seta equidistant or closer to upper anterior ocellus than to cruciate interfrontal setae. Abdomen more greyish dusted. Larger species, with stronger setae .....7
- 7 Ventral setae on hind femur strong. Hind tibia with 7–8 av-setae, short and fine at base, becoming longer and stronger towards apex, the apical one longest and distinctly stronger than the preceding setae. Fore tibia with a distinct long median p-seta. Abdomen viewed from behind with a very narrow dark median vitta and grey dusted lateral areas.....*similata* (Tiensuu)
- Smaller species, with weaker setae. Ventral setae on hind femur shorter, fine and hair-like, 2–3 av-setae on hind tibia short and fine ..... *aberrans* Collin
- 8 Fore tarsomeres 1–3 with whitish yellow unpigmented areas. Width of frons at narrowest part about 1.5 times width of postpedicel. Orbits narrower at narrowest part of frons than they are opposite anterior ocellus. Arista with hairs about as long as diameter of arista base. Abdomen narrow, grey dusted when viewed from behind with a wide suffused median vitta and long erect marginal setae on tergite V.....*albitarsis* (Zetterstedt)
- Fore tarsomeres normal, dark ..... 9
- 9 Sternite V very large, processes wide and projecting below abdomen in profile, abdomen short, club-like, with shining black patches. Mid tibia with a strong ad-seta. Eyes widely separated, frontalia 2.5–3 times width of postpedicel.....*grossicauda* (Strobl)
- Sternite V of normal size, processes not strikingly visible in profile ..... 10
- 10 Small species, wing length about 3 mm. Abdomen entirely shining black, when viewed

- from behind, and with long discals and lateral marginals on tergites 2–5. . Legs weakly setose, Fore tibia without setae, mid tibia with a small ad-seta. Scutellum without marginal setulae or fine ventral hairs at tip beneath. The stronger costal spines before distal break minute.....*montana* Pokorny
- Thorax and abdomen grey dusted without shining black patches, latter with a rather diffused, indistinct darker median vitta ..... 11
- 11 Eyes widely separated, frons 2.5–3 times width of postpedicel. Katepisternal setae 1 + 1, no differentiated lower posterior seta. Head viewed from a low angle in front with frontal vitta more than twice as wide as a parafacial, both equally grey dusted. Parafrontal angle in lateral view rather projecting in front of level of receding lower facial edge, postpedicel rather large, arista short and swollen in basal half.....*crassiseta* Stein
- Eyes less widely separated, frons hardly twice width of postpedicel. Katepisternal setae 1 + 2, lower posterior seta about half length of upper, though finer. Head viewed from above and in front with shining silvery grey parafacials in contrast to dark and narrow frontal vitta, then as angle of vision becomes lower, the frontal vitta becomes silvery and lighter than parafacials, and at narrowest point is not much wider than a parafacial. Postpedicel not so large, arista less strongly swollen in basal part, and pubescence more distinct ..... *nigripes* Bezzi

#### CHIROSLIA - females

- 1 Arista long plumose, longest hairs as long as width of postpedicel and arising in more than one plane. Larger, blackish shining species with yellowish wings .....*flavipennis* (Fallén)
- Arista with hairs much shorter, longest hairs not longer than half width of postpedicel, or practically bare ..... 2
- 2 Frontal vitta without a pair of cruciate setae.....*griseifrons* (Séguy)
- Frontal vitta with a pair of cruciate setae ..... 3
- 3 Abdomen viewed from behind dull greyish, except for a darker median vitta ..... 4
- Abdomen viewed from behind all shining black, or at least with some shining blackish lateral areas in addition to median vitta ..... 6
- 4 Mid tibia generally with 2 ad-setae, if only one present then scutellum with a few lateral setulae, and arista distinctly pubescent. Frons at level of lunule at least a third head width, gena below eyes equal to width of postpedicel. Abdomen without long or strong erect setae, the short marginal setae hardly differentiated and decumbent, except on tergite V ..... *albitarsis* (Zetterstedt)
- Mid tibia with only one ad-seta. If scutellum with lateral setulae, then frontalia at level of lunule about one quarter of head width, gena below eyes narrower, about half width of postpedicel; otherwise frontalia and genae wider and scutellum bare laterally. Abdomen with some strong erect setae ..... 5
- 5 Frons at level of lunule about a quarter of head width, gena narrow, one third width of postpedicel. Abdomen darker, with wider median vitta. Scutellum generally with some setulae on lateral margins ..... *nigripes* Bezzi

- Frons wider than half head width. Frontal vitta more than twice width of a parafacial, gena wider, at least three-quarters width of postpedicel. Abdomen greyish dusted with hardly discernible dark median vitta, and some erect setae on tergites III and IV. Scutellum without setulae on lateral margins .....*crassiseta* Stein
- 6 Lateral margins of scutellum without setulae, though one or two may be present at tip between stronger apical setae, but no pubescence at tip. Prementum strongly swollen. Katepisternal setae 1 + 1. Hind femur without pv-setae. Prealar shorter than posterior notopleural seta. Black species with shining areas, especially abdomen, which has no darker median vitta. Wings yellow tinged. .... *cinerosa* (Zetterstedt)
- Lateral margins of scutellum with a few short setulae..... 7
- 7 Arista pubescent, with hairs longer than diameter at base. Abdominal tergites III–V with long strong semi-erect marginal and discal setae. Hind femur with long av- and pv-setae. Katepisternal setae 1 + 2, lower posterior seta at least three-quarters as long as upper posterior. .... *histricina* (Rondani)
- Arista bare or very short pubescent, hairs not as long as basal arista thickness ..... 8
- 8 Small species, about 4 mm wing length..... 9
- Larger species, wing length 5 mm or more..... 10
- 9 Abdomen shining blackish, viewed from behind. Fore tibia without setae ..... *montana* Pokorny
- Abdomen with some grey dusting. Fore tibia with a distinct ad- and pd-seta ..... *grossicauda* (Strobl)
- 10 Hind tibia with about 4 av-setae, of which the apical one is longer or at least more robust than the preceding ones. Scutellum with some fine pale pubescence at tip ventrally in addition to the apical and lateral setulae ..... *similata* (Tiensuu)
- Hind tibia with 2–4 av-setae, but the apical one is not noticeably more robust than the others..... 11
- 11 Smaller, more greyish species. Scutellum without pale ventral pubescence at tip. Hind tibia with only 2 av-setae ..... *aberrans* Collin
- Larger, darker species, abdomen more shining blackish. Scutellum generally with some fine pale pubescence ventrally at tip. Abdomen generally with erect discal setae on tergites 3–5. Hind tibia with about 4 av-setae..... *betuleti* (Ringdahl)

#### DELIA - males

- 1 Fore tibia with a distinct blunt curved spur which arises from the posterior or posteroventral apical margin, and which is curved forwards more or less in line with fore tarsomere 1; as this spur is chisel-shaped, view from different angles to determine bluntness. (*Delia radicum*, *floralis* and *planipalpis* have a similar type of spur which is more or less pointed, and are included in both sections) ..... 2
- Fore tibia without a blunt spur as described above, but a short or a longer pointed spur or pv-seta may be present (if a seta is present, it is directed away from the tibia in a posteroventral direction) Vein C setulose ventrally below the av-spinules. Notopleural with a few hairs in addition to the two strong setae..... 20

- 2 Vein C setulose ventrally below the av-spinules. Notopleural depression with a few hairs in addition to the two strong setae .....3
- Vein C bare ventrally. Notopleural depression bare apart from the two strong setae.....5
- 3 Hind femur with a dense brush of ventral setulose hairs at base on av-, v- and pv-surfaces, longest hairs near base. No av- or pv-setae except 1–2 apically. Sternite V with fewer and shorter long lateral and apical setae. Sternite IV more or less parallel-sided. Apex of cercal plate blunter, sides straight to slightly convex. Surstylus wider medially and shorter. Pregonite with lower setae placed at middle of posterior margin of gonite which is round. Arista with longer hairs, longest as long as diameter at base.....*radicum* (Linn.)
- Hind femur without dense basal hairs and setae. Sternite V with longer lateral and apical setae, sternite IV shorter, or with curved sides. Arista with shorter or longer hairs ..... 4
- 4 Hind femur with complete row of long av-setae. Hind tibia with complete rows of short av- and pv-setae. Wings yellowish. Abdomen with narrow median vitta. Scutum with 3 wide darker vittae, slightly shining. Sternite V with the long strong apical lateral setae less numerous, and which are confined to apical half of processes. Cercal plate shorter, with straight or convex sides. Surstyli narrower and longer. Pregonite with ventral seta placed near lower corner of gonite. Arista with longer hairs.....*floralis* (Fallén)
- Hind femur with av-setae in distal half only, no strong pv-setae. Hind tibia with weak av-setae present, a few small pv-setae in proximal half. Wings paler. Abdomen with median vitta distinct, sharply defined. Scutum greyer with only faint vittae. Sternite V with longer stronger lateral setae more numerous, reaching almost to base of processes. Cercal plate pointed at apex, sides slightly concave. Surstylus wider medially, tapering towards apex, shorter than *floralis*. Sternite IV shorter than *radicum*, narrowing basally. Arista with shorter hairs, not as long as arista diameter at base. ....*planipalpis* (Stein)
- 5 Mid tarsomere 1 with a dorsal fringe of lengthened setulae which are longer than depth of tarsomere (longest setae equal to twice depth of tarsomere) .....6
- Mid tarsomere 1 with only short dorsal setulae which are not longer than depth of tarsomere .....9
- 6 Hind tibia with a complete row of about 18-20 setulose pv-hairs on whole length, which are more or less the same length and are more or less erect. Processes of sternite V with a single spatulate seta.....*florilega* (Zetterstedt)
- Hind tibia without a complete row of setulose pv-hairs, at most 7–8 setulae in proximal half of tibia, or if extending over more than proximal half, then setulae gradually become shorter distally
- 7
- 7 Mid tarsus with a fringe of lengthened setulae on first 3 tarsomeres, becoming shorter distally. Scutum, seen from behind, uniformly pale ash grey dusted without discernible vittae.....*tarsifimbria* (Pandellé)
- Mid tarsomere 1 with a fringe which does not continue onto following segments .....8
- 8 Mid tibia without an ad-seta, hind tibia with only 1–2 pv-setulae. Presutural acrostichal rows closer together, the strong pair separated by about 0.3 times distance from dorsocentral rows. Proepimeron with 2 setae without any associated hairs. Processes of



- sternite V with 2 blunt subapical setae set close together. Mid tibia without an ad-seta. Prementum more or less shining with sparse dusting. Distal section of aedeagus without paraphalli but bearing numerous spicules..... *fabricii* (Holmgren)
- Mid tibia with a distinct ad-seta, hind tibia with 7–8 pv-setulae. Presutural acrostichal rows separated by about 0.8 times distance from dorsocentral rows, the space between the acrostichals densely haired. Proepimeron with 7–8 setulose hairs of different length without any distinct setae. Processes of sternite V with only 1 blunt preapical seta. Distal section of aedeagus with paraphalli but without spicules ..... *tumidula* Ringdahl
- 9 Prealar seta present..... 10
- Prealar seta absent..... 17
- 10 Hind tibia with a complete row of about 20 erect setulose pv-hairs which are more or less the same length. Scutum, seen from behind, with a distinct dark brownish median vitta. Hind femur with only 4–6 av-setae on distal half ..... *platura* (Meigen)
- Hind tibia with at most 7–8 pv-setulae in proximal half of tibia, or if extending over more than half length of tibia, then setulae are of differing length, becoming shorter distally
- 11 Mid tibia with 2 or more pd-setae (*antiqua* sometimes with only 1 pd-seta, keyed out in both sections)
- 12
- Mid tibia with only 1 pd-seta ..... 15
- 12 Mid tibia with 1 or more av-setae. Hind femur with numerous long and fine pv-setulae and setulose hairs, Hind tibia with some long pv-setae in basal two-thirds, and 5–6 strong av-setae. Setae before subcostal break long, at least as long as cross-vein dm-cu. Eye margins on frons separated by the distance between posterior ocelli. Processes of sternite V with 4–5 preapical blunt spines..... *lamelliseta* (Stein)
- Mid tibia without an av-seta ..... 13
- 13 Parafacial about 0.75 times width of postpedicel. Arista long pubescent, total width of hairing about 0.5 times width of postpedicel. Abdomen with narrow indistinct median vitta (more distinct basally on each tergite). Mid tibia without an ad-seta. Surstyli, viewed in profile, rather abruptly bent in basal half. Processes of sternite V with several rather irregular stout setae subapically..... *nigrescens* (Rondani)
- Parafacial as wide or wider than postpedicel. Arista short pubescent, longest hairs not longer than diameter of base. Abdomen with a distinct black median vitta ..... 14
- 14 Hind femur with 10–12 long av-setae, which extend along whole length of femur, the proximal setae shorter. Prealar seta long and strong, longer than posterior notopleural seta and directed outwards. Abdomen semi-cylindrical. Vein C with the longer setae before subcostal break hardly longer than anterior wing spinules. Calypteres intensively yellowish orange, contrasting with brownish wing base. Thorax brownish black. Hind tibia with 5 av-setae. Processes of sternite V without blunt preapical setae.....
- ..... *interflua* (Pandellé)
- Hind femur with 5–7 strong av-setae in distal two-thirds. Prealar seta shorter than notopleural seta, about two-thirds its length. Abdomen strongly compressed basally. Calypteres light brownish, concolorous with wing base. Thorax densely dusted light greenish grey dusted. Hind tibia with 3 av-setae. Vein C with the longer setae before

- subcostal break about twice as long as anterior wing spinules. Processes of sternite V with a pair of long fine setulae..... *antiqua* (Meigen)
- 15 Parafacial at narrowest part (opposite postpedicel) distinctly narrower than width of postpedicel. Eyes practically touching on frons, separated at most by 0.75 times diameter of anterior ocellus. Presutural acrostichals more widely separated, distance between rows equal to distance from dorsocentral rows. Hind femur without pv-setae medially. Processes of sternite V with only 2 blunt preapical setae. Abdomen with distinct median vitta which widens basally. Occipital setae fine and without setulae below row ..... *diluta* (Stein)
- Parafacial at narrowest part as wide as width of postpedicel. Eyes more widely separated, by at least diameter of anterior ocellus. Presutural acrostichals rows slightly closer to each other than from dorsocentral rows ..... 16
- 16 Hind femur with 3–4 distinct fine median pv-setae. Vein C with the longer setae before subcostal break small, not more than twice as long as diameter of Vein C. Smaller, darker grey species with base of arista strongly swollen. Processes of sternite V with 3–4 pointed preapical setae. .... *flavogrisea* (Ringdahl)
- Hind femur without median pv-setae. Vein C with the longer setae before subcostal break longer, 3–4 times as long as diameter of vein C. Larger, lighter grey species with base of arista less strongly swollen. Processes of sternite V with 2 long setulae..... *antiqua* (Meigen)
- 17 Mid tibia with an ad-seta, sometimes very small. Hind tibia with numerous biserial erect a-setae and setulose av-hairs. Thorax and abdomen densely grey dusted, the latter with a wide diffused vitta on tergites III–V, tergite IV with some long semi-erect hindmarginal setae. Parafacials and genae wider than width of postpedicel. Processes of sternite V long, without subapical blunt spinules..... *hirtitibia* (Stein)
- Mid tibia without an ad-seta ..... 18
- 18 Processes of sternite V without blunt spatulate setae. Arista short plumose, total width of hairing equal to at least three-quarters width of postpedicel. Abdomen and legs rather long, tibiae yellow or orange-brown, femora darker brown or black. Wing base strongly brownish orange ..... *coarctata* (Fallén)
- Processes of sternite V with some blunt setae ..... 19
- 19 Legs mainly yellowish. Abdomen densely light grey dusted without a median vitta. Hind tibia with 1 av-seta ..... *lavata* (Boheman)
- Legs mainly dark, only knees yellowish. Abdomen darker grey dusted with a distinct dark median vitta on all segments. Hind tibia with 2 av-setae. Processes of sternite V with numerous strong multiserial spatulate setae ..... *pallipennis* (Zetterstedt)
- 20 Mid tibia without an ad-seta (if an ad-seta is present, then notopleural depression has a few hairs in addition to the two strong setae and vein C with setulae on ventral surface) ..... 21
- Mid tibia with 1 or more ad-setae and notopleural depression bare ..... 25
- 21 Prealar seta absent. Prementum short and strongly swollen. Mid tibia sometimes without a pd-seta. Hind tibia with only 2–3 ad-setae. All tibial setae short. Abdominal sternite III wide and bearing numerous erect setulae. Anterior spinules on vein C and longer setae

- before distal break short and inconspicuous, the latter not longer than width of vein C ..... *pruinosa* (Zetterstedt)
- Prealar seta present. Notopleural depression with a few hairs in addition to the 2 strong setae..... 22
- 22 Ventral surface of vein C bare. Lower katepisternal seta nearly as long and strong as upper seta. Abdominal sternite III with numerous long setulose hairs which are directed posteriorly. Hind tibia with at most 1–2 pv-setulae ..... *carduiiformis* (Schnabl)
- Ventral surface of vein C with a row of setulae on almost whole length ..... 23
- 23 Hind femur with a dense brush of ventral setulose hairs at base on av-, v- and pv-surfaces, longest hairs near base. No av- or pv- setae except 1–2 preapically. (For extra characters for the following three species, see couplets 3 and 4) ..... *radicum* (Linn.)
- Hind femur without dense basal hairs and setae ..... 24
- 24 Hind femur with complete row of long av-setae. Hind tibia with complete rows of short av- and pv-setae. Wings yellowish. Abdomen with narrow median vitta. Scutum with 3 wide darker vittae, slightly shining. Sternite V with long strong apical lateral setae less numerous, and which are confined to apical half of processes. Arista with longer hairs ..... *floralis* (Fallén)
- Hind femur with av-setae in distal half only, no strong pv-setae. Hind tibia with weak av-setae present, a few small pv-setae in basal half. Wings paler. Abdomen with distinct median vitta, sharply defined. Scutum greyer with only faint vittae. Arista with shorter hairs. Sternite V with longer stronger lateral setae more numerous, reaching almost to base of processes. Arista with shorter hairs, not as long as diameter at base..... *planipalpis* Stein
- 25 Abdominal tergite III with some long setae on lateral posterior margins ..... 26
- Abdominal tergite III without long setae ..... 30
- 26 Mid tarsomere 2 ventrally with a swelling (*criniventris* has an extremely small swelling and is included in both sections) ..... 27
- Mid tarsomere 2 without a ventral swelling ..... 29
- 27 Tibiae partly yellowish, especially hind tibiae. Sternite III bare medially on posterior margin, but with long setulae and hairs laterally. Tergite III with long setae on posterior margin laterally which extend beyond apex of abdomen. Larger species, W.L. about 6 mm. .... *criniventris* (Zetterstedt)
- Legs dark..... 28
- 28 Abdominal sternite III widened on posterior margin, which bears short setulose hairs medially (not reaching more than halfway along sternite IV) and with long setae on lateral posterior corners..... *penicillosa* Hennig
- Abdominal sternite III not so strongly widened, projecting tongue-like and with dense long setae on posterior half which are directed posteriorly and reach posterior margin of sternite IV..... *penicilliventris* Ackland
- 29 Tibiae partly yellowish, especially hind tibiae. Abdominal sternite III bare medially on posterior margin, but with long setulae and hairs laterally. Tergite III with long setae on posterior margin laterally which extend beyond apex of abdomen. Larger species, W.L.

- about 6 mm. .... *criniventris* (Zetterstedt)
- All tibiae dark. Abdominal sternite III with dense setulae and hairs on whole of disc, projecting ventrally and visible in lateral view. Tergite III with much shorter setae on posterior margin, their apices not reaching beyond sternite V. Smaller species, W. L. about 4 mm. .... *piliventris* (Pokorny)
- 30 Hind tibia with a complete row of pv-setulae ..... 31
- Hind tibia without a complete row of pv-setulae, although some pv-setulae may be present in basal two-thirds ..... 33
- 31 Prealar seta absent. Parafacials at least 1.5 times as wide as postpedicel. Prementum shining black. Thorax and abdomen densely silver-grey dusted, wing membrane whitish. Median vitta on abdomen narrow and indistinct.....*albula* (Fallén)
- Prealar seta present though small. Median vitta on abdomen distinct ..... 32
- 32 Hind femur with a complete row of long and erect av- and pv-setulose hairs which are about twice as long as depth of femur. Legs black. Median vitta of abdomen as wide as hind femur and expanded basally on each tergite ..... *pilifemur* (Ringdahl)
- Hind femur with complete rows of av- and fine pv-hairs, the pv-row short, not longer than depth of hind femur. Prealar seta short but distinct. Legs with knees distinctly yellowish. Median vitta of abdomen distinct but narrow, not as wide as hind tibia and not expanded basally on each tergite. Processes of sternite V with 3 short, strong, slightly spatulate setae in a row. ....,..... *setigera* (Stein)
- 33 Mid tarsomere 2 with a small ventral swelling ..... 34
- Mid tarsomere 2 without a ventral swelling..... 35
- 34 Abdominal sternite III flat and without erect setulae or hairs on disc or on posterior margin medially; sternites III and IV widened, sternite IV wider than III, and with long lateral setae. Thorax darker, with brownish dust, often without vitta. Wing and calypteres brownish tinged. Larger species, W. L. 6 mm ..... *cardui* (Meigen)
- Abdominal sternite III swollen on posterior margin, and covered in dense erect setulae and hairs, those on posterior third short but dense; sternites III and IV widened, sternite III wider than IV. Thorax paler, with greyish dust and a distinct brown median vitta. Smaller species, W. L. about 5 mm. .... *lophota* (Pandellé)
- 35 Prealar seta normally absent, sometimes small and fine. Abdominal sternite III widened and bearing 2 very long setae on each side on lateral margins. Thorax and abdomen with dense grey dusting, scutum with a distinct dark median vitta, which is slightly wider than hind tibia ..... *quadripila* (Stein)
- Prealar seta present even if short..... 36
- 36 Hind femur with a full row of long fine pv-setae, and a full row of longer and stronger av-setae on whole length; these av- setae are at least twice the depth of femur. Processes of sternite V wide and bearing several spatulate setae. Wings darker towards base, with dark veins ..... *frontella* (Zetterstedt)
- Hind femur with only 1–2 preapical pv-setae; processes of sternite V without spatulate setae..... 37
- 37 Abdominal sternite III with numerous long erect setae, which are mainly directed

- ventrally, the longest setae on proximal margin, becoming shorter distally. Vein C with the longer spines before subcostal break as long as crossvein dm-cu. Notopleural depression generally with a few hairs in addition to the two strong setae. Prealar seta longer than posterior notopleural seta .....*linearis* (Stein)
- Notopleural depression bare apart from the two strong setae. Vein C with the longer spines before subcostal break shorter than crossvein dm-cu. Prealar seta shorter than posterior notopleural seta ..... 38
- 38 Abdominal sternites III and IV widened and with long lateral setae and setulae which are directed posterolaterally..... *echinata* (Séguy)
- Abdominal sternites III and IV not widened and without long laterally projecting setae ..... 39
- 39 Abdominal sternite III with long posteroventrally projecting setulose hairs, which are longer proximally and become shorter distally. Surstylus about 3 times as long as cercal plate.....*coronariae* (Hendel)
- Abdominal sternite III with long laterally projecting setae but without setulae on disc. Surstylus short, about 1.5 times length of cercal plate. Processes of sternite V short, about as long as length of base. Penultimate section of M1+2 short, only half length of ultimate section .....*kullensis* (Ringdahl)

#### DELIA - females

(adapted from Michelsen, 2003, MS)

See also alternative combined key for Botanophila and Delia females

- 1 Epiproct and cerci with several thick, apically recurved, spine-like setae..... 2
- Epiproct and cerci without thick, apically recurved setae..... 4
- 2 Prementum matt, covered extensively in grey dusting. Prealar absent. All tibiae and even parts of mid-and hind femora brightly ochre yellow.....*lavata* (Boheman)
- Prementum shiny black, in middle covered extensively in very thin dusting. Prealar seta mostly present though short. Tibiae darker, ochre brown to black. (Mid tibia with a small av-seta) ..... 3
- 3 Larger, wing length reaching 6.6 mm. Head and body covered in olive-grey and brown dusting. Haustellum conical, shorter than fore tarsomere 1. Parafacial in middle about same width as postpedicel. (Abdomen with a distinct median vitta. Occiput with the upper postocular setae partly biserial).....*fabricii* (Holmgren)
- Smaller, wing length reaching 5.5 mm. Head and body covered in dense whitish grey dusting. Haustellum cylindrical, same length as fore tarsomere 1. Parafacial in middle slightly wider than postpedicel. (Abdomen with very indistinct median vitta, visible only in posterior view. Occiput bare immediately below uniserial postocular row) ..... *pallipennis* (Zetterstedt)
- 4 Hypoproct and cerci with numerous stiff, needle-like setae ..... 5
- Setation of hypoproct and cerci not thus modified ..... 7
- 5 Arisal pubescence very long, longest hairs about two-thirds as long as width of postpedicel. Femora and tibiae extensively ochre yellow. (Prealar seta absent, or very

- short and fine. Vein C without v-setulae. Mid tibia with 2 ad-setae. Occiput bare below the upper postocular row of setae, at most 1–2 irregular setulae present. Light greyish dusted species, abdomen without median vitta) ..... *coarctata* (Fallén)
- Aristal pubescence much shorter. Legs wholly dark or at most knees and tibiae ochre brown to ochre yellow..... 6
- 6 Prealar seta absent. Haustellum conical, shorter than fore tarsomere 1. (Longest pubescence of arista shorter than greatest width of arista. Parafacial in middle clearly wider than postpedicel. Prementum shiny black, only with sporadic, thin dusting. Very pale ash-grey dusted species with whitish wings. Frontal vitta narrower than parafrontal with grey dust. Abdomen without median vitta. Lower posterior katapisternal seta represented by a fine hair)..... *albula* (Fallén)
- Prealar seta present. Haustellum cylindrical, slender, exceeding length of fore tarsomere 1. (Head and body covered in light olive-grey dusting. Prementum matt, covered in grey dusting). ..... *tumidula* Ringdahl
- 7 Vein C with a more or less extensive row of true v-setulae..... 8
- Vein C without row of v-setulae (not counting setulae frequently displaced ventrally from av-row of alternating spinules and setulae)..... 11
- 8 Mid tibia with 1–3 av-setae..... 9
- Mid tibia without av-setae. Notopleural depression generally with a few hairs between stronger setae ..... 10
- 9 Longest arisal pubescence shorter than its greatest basal diameter. Haustellum cylindrical, slender, fully as long as fore tarsomere 1. Lower facial margin more or less produced in front of fronto-parafacial angle. Fore femur with row of a-setae. Mid femur with 1–2 sub-basal av-setae. (Vein C basal to subcostal break with regular row of v-setulae. Abdominal tergites IV and V with normal posteriorly directed marginal setae and tergite V without erect discal setae. Generally 1 pair of stronger presutural acrostichal setae. Mid tibia generally with 2 ad-setae)..... *interflua* (Pandellé)
- Longest arisal pubescence exceeding its greatest basal diameter. Haustellum shorter than fore tarsomere 1. Lower facial margin lying behind level of fronto-parafacial angle. Fore femur without a-setae. Mid femur without av-setae. Vein C with v-setulae in more than basal two-thirds. Mid tibia mostly with 2 ad- and 2 pd-setae. Abdomen covered in dense olive-grey dusting without a distinct blackish subshine. (Abdominal tergites IV and V with strong erect marginal setae, and tergite V with some erect discals as well. Mid tibia often with 3 av-setae. Acrostichal setae short and fine)..... *lamelliseta* (Stein)
- 10 Hind femur without basal v-seta or pv-setae in basal half. Mid femur as a rule without a sub-basal av-seta. Abdomen covered in dense olive-greyish dusting without discernible dark reflections or median dark vitta ..... *floralis* (Fallén)
- Hind femur with a fine basal v-seta and mostly with 1–3 short pv-setae in basal half. Mid femur sub-basally with 1–2 av-setae. Abdomen covered in greyish dusting with distinct shifting reflections and median dark vitta..... *radicum* (L.) & *planipalpis* (Stein)
- 11 Fore femur in middle with a short row of fine a-setae (look carefully!)..... 12
- Fore femur only with setulae on a surface ..... 19
- 12 Prealar seta about same length as or longer than posterior notopleural seta. Lower

- posterior katepisternal seta nearly as strong and fully two-thirds as long as upper posterior seta ..... 13
- Prealar seta more or less shorter and finer than posterior notopleural seta. Lower posterior katepisternal seta considerably shorter and weaker than upper posterior seta ..... 16
- 13 Notopleuron with 2–4 setulae besides usual two setae. Mid femur without sub-basal av-setae..... *carduiformis* (Schnabl)
- Notopleuron bare apart from usual two setae. Mid femur frequently with 1–2 sub-basal av-setae ..... 14
- 14 Longest pubescence of arista shorter than its greatest basal diameter. All tibiae brownish black..... *piliventris* (Pokorny)
- Longest pubescence of arista longer than greatest diameter of arista. Mid and hind tibiae ochre brown to ochre yellow ..... 15
- 15 Mid and hind tibia ochre yellow. Calypteres and wing base brightly orange yellow. (Scutum with brownish vittae distinct, especially laterally) .... *criniventris* (Zetterstedt)
- Mid and hind tibia darker, reddish or ochre brown. Calypteres and wing base paler ochre yellow..... *penicilliventris* Ackland & *penicillosa* Hennig  
(*Delia penicillosa* is a local but widespread coastal sand dune species, *D. penicilliventris* is rare in Scotland)
- 16 Vein C on basal part with setulae displaced ventrally from av-row of spinules and setulae. Longest pubescence of arista 1.5–2.0 times greatest diameter of arista. Lower facial margin projected slightly ahead of fronto-parafacial angle ..... *lophota* (Pandellé). (*cardui* here ?)
- Vein C on basal part bare ventrally. Longest pubescence of arista 1.0–1.5 times greatest diameter of arista..... 17
- 17 Presutural acrostichals in very close set rows, all setulose or middle pair slightly enlarged. Fore tibia with short apical pd-seta. Abdomen covered in olive-grey dusting without dark reflections; dark brown median vitta narrow but distinct, consisting of linear or narrowly wedge-shaped marks on tergites III–V.....*coronariae* (Hendel)
- Presutural acrostichals in moderately close-set rows, setulose except for markedly stronger middle pair. Fore tibiae without distinct apical pd-seta. Abdominal dusting with shifting dark reflections; dark median vitta visible on tergites II–IV, but becoming diffuse or absent on tergite V ..... 18
- 18 Head and body covered in dense whitish grey dusting; mesonotum without distinct pattern of darker vittae. Parafacial in middle as wide as or wider than postpedicel ..... *quadripila* (Stein)
- Head and body covered in light olive and brownish grey dusting; mesonotum at least with median dark brown vitta well visible. Parafacial in middle narrower than postpedicel ..... *echinata* (Séguy)
- 19 Prealar seta about same size as or longer than notopleural setae. (Longest pubescence of arista 1.5–2.0 times greatest diameter of arista. Presutural acrostichals 4–8 tiny setulae standing in two very close-set rows. Mid femur without av-setae. Mid tibia with 1 av-, 2

- ad-setae, the distal seta very long, the proximal seta short. Vein C with a-setae rather long and strong) .....*linearis* (Stein)
- Prealar seta, if at all present, more or less shorter and/or finer than posterior notopleural seta ..... 20
- 20 Longest pubescence of arista distinctly exceeding 2 times greatest diameter of arista. (Prealar seta about half to nearly as long as posterior notopleural seta. Abdomen light olive grey dusted without median vitta. Abdominal tergites IV and V with normal posteriorly directed marginals, without erect discal setae. Scutum with 1–2 pairs of presutural acrostichal setae, 1 pair longer. Vein C with a-setae shorter).....*nigriscens* (Rondani)
- Longest pubescence of arista 0.5–2.0 times greatest diameter of arista..... 21
- 21 Prealar seta absent or only represented by a fine hair. (Slender shining haustellum slightly longer than fore tarsomere 1. Lower facial margin in line with prominent fronto-parafacial angle. Parafacial in middle wider than postpedicel. Gena wide, nearly 0.5 times eye height. Abdomen without median vitta. Scutum without vittae. Light grey dusted species. Katepisternal setae short, 1 + 1. Legs and abdomen with short setae)....*hirtitibia* (Stein)
- Prealar seta present, though sometimes scarcely stronger than nearby mesonotal ground setulae ..... 22
- 22 Mid tibia with 1–2 av-setae. Longest arista pubescence shorter than greatest diameter of arista. Mid femur sub-basally with 1(–2) av-setae. Abdomen matt, covered in bluish grey dusting. (Darker greyish species with distinct brownish vittae on scutum, consisting of a central vitta and lateral vittae along dorsocentral setae. Abdomen with a distinct brownish median vitta and brown dusted anterior margins to tergites. Vein C with some setae before subcostal break twice as long as anterior setulae but slightly shorter than crossvein *r–m*).....*frontella* (Zetterstedt)
- Mid tibia without av-setae..... 23
- 23 Fronto-parafacial angle projected more or less in front of lower facial margin..... 24
- Lower facial margin in line with or projected slightly beyond fronto-parafacial angle 25
- 24 Haustellum small, shorter than fore tarsomere 1. Genal setae in two irregular rows. Setae on cerci very short, barely differentiated from surrounding setulae .....*kullensis* (Ringdahl)
- Haustellum strikingly large and bulky, fully as long as fore tarsomere 1. Genal setae in single row. Cerci with one or more longish setae. (Hind tibia with apical av-seta (and adjacent setulae) notably thick and spine-like. Cerci with single apical seta notably larger than remaining setae. Mid tibia with a short ad-seta which is hardly longer than diameter of tibia. Light grey dusted species without scutal or abdominal vittae. Acrostichal setae with hairs between rows. Prealar seta half length of posterior notopleural seta) .....*pruinosa* (Zett.)
- 25 Femoral tips and mid and hind tibiae on basal third or more ochre yellow. (Scutum without distinct vitta. Abdomen with an indistinct median vitta, visible only when viewed from behind and mainly on basal tergites).....*setigera* (Stein)
- Femora and tibiae extensively dark brownish to black ..... 26



- 26 Larger, wing length in general more than 5 mm. Parafacial in middle more or less wider than postpedicel. Presutural acrostichal rows much closer to each other than to dorsocentral rows. Abdomen with median dark vitta narrow, sometimes very faded, ending well before tergite V ..... 27
- Smaller, wing length in general less than 5.0 mm. Parafacial in middle more or less narrower than postpedicel. Presutural acrostichal rows in general only slightly closer to each other than to dorsocentral rows. Abdomen with median dark vitta generally widened on tergites III and IV, extended to basal half of tergite V ..... 28
- 27 Haustellum slightly thickened. Prementum rather shiny black through thin dusting occupying central part only. Prestomal teeth in part enlarged and with pointed tips ..... *flavogrisea* (Ringdahl)
- Haustellum normally strong. Prementum matt, covered in distinct grey dusting. Prestomal teeth not enlarged, with furcate teeth. (Lower facial margin distinctly produced beyond level of fronto-parafacial angle. Upper occiput bare or with a few erratic setulae. Fore tibia usually with 1–2 submedian ad-setae. Mid tibia with 2 ad-setae. Hind tibia with 5–8 short pv-setae in basal half. Lower katepisternal seta not longer than half length of upper seta) ..... *antiqua* (Meigen)
- 28 Longest arisal pubescence 1.5–2.0 times as long as greatest diameter of arista. Haustellum notably bulky, about same length as fore tarsomere 1. Prestomal teeth in part enlarged and with pointed apices. Lower facial margin not projecting beyond fronto-parafacial angle. Palpus conspicuously expanded distally ..... *tumidula* Ringdahl
- Arisal pubescence shorter, not exceeding 1.5 times greatest diameter of arista. Haustellum not thickened. Prestomal teeth normal sized with furcate apices. Lower facial margin slightly projecting in front of fronto-parafacial angle ..... 29
- 29 Longest arisal pubescence not exceeding 0.5 times greatest diameter of arista. Haustellum somewhat slender, subcylindrical, fully as long as fore tarsomere 1. Prementum with strong black shine through sparse dusting. Fore tibia with apical pd-seta very reduced ..... *pilifemur* (Ringdahl)
- Longest arisal pubescence 1.0–1.5 times as long as greatest diameter of arista. Haustellum thicker, conical, shorter than fore tarsomere 1. Prementum matt, covered in distinct thin dusting. Fore tibia with a distinct apical pd-seta ..... 30
- 30 On the whole smaller, wing length reaching 4.8 mm, and more delicate with notably slender femora. Mid tibia with 1 pd-seta. Vein C basal to subcostal break with av-spinules slender but same length as alternating av-setulae. (Ground colour of abdomen with grey dust (darker than *platura*) with a narrow blurred dark brown median vitta. Setae weaker, presutural acrostichal setae shorter) ..... *florilega* (Zetterstedt)
- On the whole larger, wing length reaching 5.4 mm, and more robust. Mid tibia with (1–) 2 pd-setae. Vein C basal to subcostal break with av-spinules stronger but shorter than alternating av-setulae. (Ground colour of abdomen with greyish white dusting, with a broad dark brown median vitta which consists of triangular marks. All setae on scutum tend to be stronger, presutural acrostichal setae with a stronger pair. Dorsoventral setae arising from brown spots) ..... *platura* (Meigen)

## EGLE - males

(Based on Michelsen, 2009)

- 1 Proboscis short, haustellum less than half as long as fore tibia. Lower facial margin less projected, in profile lying well behind fronto-orbital angle ..... *concomitans* Pandellé
- Proboscis more or less extended, haustellum more than half as long as fore tibia. Lower facial margin more projected, at level with or reaching more or less beyond fronto-parafacial angle ..... 2
- 2 Notopleuron around posterior seta with more than 3 accessory setulae. Hind tibia with apical pd-seta ..... 3
- Notopleuron bare, exceptionally (only some *E. parvaeformis*) with 1-3 accessory setulae. Hind tibia without apical pd-seta ..... 4
- 3 Head about as long as high, parafacial widened downwards, haustellum and palp as long as largest diameter of eye. Apical extension of cerci wider and shorter, emarginate at tip. Thorax more blackish, longitudinal vittae not so distinct. Body with thicker hairing, especially on abdomen and hind femora ..... *ciliata* (Walker)
- Head distinctly higher than long, parafacial widened upwards or parallel-sided, haustellum and palp shorter than largest diameter of eye. Apical extension of cerci narrower and longer, pointed at tip. Thorax more grey, with distinct longitudinal vittae. Body hairing less dense ..... *brevicornis* (Zetterstedt)
- 4 Hind tibia without av-setae. Prealar seta short, at most two-thirds as long as posterior notopleural seta. Posterior margin of sternite V with two small setose protuberances ..... *inermis* Ackland
- Hind tibia with 1–4 av-setae. Prealar variable, but usually more than half as long as posterior notopleural seta. Posterior margin of sternite V without two small protuberances ..... 5
- 5 Hind femur on middle third with some strikingly long pv-setae that by far exceed femoral depth ..... *rhinotmeta* (Pandellé)
- Hind femur with short pv-setae ..... 6
- 6 Sternite V basal to posterior lobes with a pair of dense setal tufts ..... 7
- Sternite V basal to posterior lobes at best with a few distinct, short setae ..... 8
- 7 Notopleuron frequently with 1–3 accessory setulae. Sternite V normal-sized, with setal tufts consisting of less than 10 setae and setulae. Distiphallus unremarkable ..... *parvaeformis* Schnabl
- Notopleuron without accessory setulae. Sternite V enlarged, with setal tufts consisting of more than 20 setae and setulae. Distiphallus bugle-shaped ..... *steini* Schnabl
- 8 Prealar seta longer than posterior notopleural seta. Posterior lobes of sternite V at raised inner margins armed with a series of coarse setulae ..... *subarctica* (Huckett)
- Prealar seta not exceeding length of posterior notopleural seta, usually shorter. Posterior lobes of sternite V different ..... 9
- 9 Epandrium with setulae on lateral parts; surstyli broad-based alongside margins of cerci. Pregonite barely wider than long ..... *minuta* (Meigen)
- Epandrium bare on lateral parts; surstyli narrow-based alongside margins of cerci.

- Pregonite much wider than long ..... 10
- 10 Sternite V with setulae along hind marginal incision relatively long and uninterrupted. Apical extension of cerci constricted basally. Head in profile with lower margin more produced, facial margin somewhat in front of parafrontal angle. Lower margin of gena with two rows of setulae ..... *parva* R. D.
- Sternite V with setulae along hind marginal incision relatively short and interrupted latero-basally. Apical extension of cerci not constricted basally ..... 11
- 11 Surstyli in lateral view relatively broad. Apical extension of cerci often tapering on distal third. Postgonite without anterior transverse ridge ..... *lyneborgi* Ackland & Griffiths
- Surstyli in lateral view relatively narrow. Apical extension of cerci not tapering on distal third. Postgonite with anterior transverse ridge ..... *suwai* Michelsen

## EGLE - females

(Based on Michelsen, 2009)

- 1 Proboscis short, less than half as long as fore tibia. Lower facial margin weakly projected, in profile lying well behind fronto-parafacial margin ..... *concomitans*
- Proboscis more or less extended, haustellum more than half as long as fore tibia. Lower facial margin more projected, in profile usually lying beyond fronto-parafacial angle ..... 2
- 2 Notopleuron around posterior seta with more than 3 accessory setulae. Hind tibia with apical pv-seta ..... 3
- Notopleuron bare, exceptionally (only some parvaeformis) with 1 accessory setula. Hind tibia without apical pd-seta ..... 4
- 3 Head about as long as high. Parafacial widest on lower part. Haustellum and palp as long as largest diameter of eye ..... *ciliata*
- Head higher than long. Parafacial widest on upper part or parallel-sided. Haustellum and palp shorter than largest diameter of eye. Prealar seta about two-thirds as long as posterior notopleural seta. Two oval spermathecae, third reduced in size ..... *brevicornis*
- 4 Hind tibia without distinct av-setae ..... *inermis*
- Hind tibia with 1–4 distinct av-setae ..... 5
- 5 Setulae on lower katapisternum conspicuously fine and dense ..... 6
- Setulae on lower katapisternum unremarkable ..... 8
- 6 Sternite VII narrow, extensively membranized on middle part; hypoproct well maintained on apical half, supporting ca. 4 setulae ..... *minuta*
- Sternite VII to some extent sclerotized even on middle part; hypoproct only retained on extreme apical part ..... 7
- 7 Sternite VII relatively broad and well sclerotized even on middle part; hypoproct only retained as tiny apical fragment supporting ca. 2 setulae ..... *lyneborgi*
- Sternite VII narrower, in particular on middle; hypoproct slightly better retained on extreme apical part that supports 3–4 setulae ..... *suwai*

- 8 Prementum at least on lateral parts shiny and practically without dusting..... 9
- Prementum mat, covered extensively in thin dusting, although sometimes with a distinct dark subshine ..... 10
- 9 Hind femur with fine basal p-seta longer than subapical d-seta of hind tibia. Sternite VII slender, weak or membranized on middle part; cerci almost disc-shaped in broadest aspect ..... *parva*
- Hind femur with basal p-seta shorter than subapical d-seta of hind tibia.. Sternite V II broader, parallel-sided, sclerotized throughout; cerci elongate in broadest aspect ..... *rhinotmeta*
- 10 Lower facial margin weakly projected, in line with fronto-parafacial angle. Prealar seta fully as long as posterior notopleural seta. Sternite VIII largely reduced ..... *subarctica*
- Lower facial margin distinctly projected beyond fronto-parafacial angle. Prealar seta usually shorter than posterior notopleural seta. Sternite VIII retained as a pair of small elongate plates ..... 11
- 11 Proepisternals 2 setae. Sternite VI to varying extent sclerotized on posterior part. Two normal sized, sub-globular spermathecae, third spermatheca and duct reduced in size ... ..... *parvaeformis*
- Proepisternals 1 seta. Sternite VI membranized on posterior part. Two enlarged, very elongate spermathecae, third spermatheca and duct absent ..... *steini*

#### EMMESOMYIA - males

- 1 Sternite V entirely clothed with long bristly hairs, and without stronger setae on inner margins of processes; in profile the apices of processes not bent downwards. Pregonite not deeply indented on posteroventral margin. Cercal plate weakly produced at apex into a blunt point. Hind femur with only 1-2 distinct pv-setae about middle which are hardly longer than femur is deep..... *grisea* (R.D.)
- Sternite V with cluster of strong setae on inner margin of processes, otherwise quite short haired; in profile the apices of processes bent downwards. Cercal plate produced apically into a long sharp point. Hind femur with more numerous pv-setae of which one or more about middle are quite 1.5 times as long as femur is deep..... *socia* (Fallén)

#### EMMESOMYIA - females

- 1 Tergite VI narrow or almost triangular, entirely shining black. Segment VII with numerous short spinose setae. Cerci wider. Hind femur with several pv- setae of which one or two about middle are distinctly longer than femur is deep..... *grisea* (R.D.)
- Tergite VI broad and somewhat trapezoidal, more or less broadly grey dusted on hind margin. Segment VII with only normal setae. Hind femur usually with only one pv-seta near middle which is no longer than femur is deep ..... *socia* (Fallén)

#### EUSTALOMYIA - males and females

- 1 Legs and palpus partly yellow..... *vittipes* (Zetterstedt)
- Legs and palpus completely black ..... 2
- 2 Arista long haired, the length of the hairs on upper and lower side are each equal to width

- of postpedicel. Median vitta of scutum widened behind into a rounded spot .....*hilaris* (Fallén)
- Arista short haired or pubescent. Median vitta of scutum equally wide throughout.....3
- 3 The length of hairing on arista in total equal to width of postpedicel. Hind tibia with 7 av-setae .....*festiva* (Zetterstedt)
- Hairing of arista significantly shorter, the arista is only pubescent. Hind tibia with 12 av-setae..... *histris* (Zetterstedt)

#### EUTRICHOTA - males

- 1 Arista plumose, total width of hairing almost or exceeding width of postpedicel.....2
- Arista almost bare, at most pubescent with the longest hairs not longer than basal diameter of arista.....4
- 2 Arista long plumose, total width of hairing about 1.8 times width of postpedicel. Legs mainly yellow. Abdomen densely greyish dusted with only a trace of a median vitta. Generally a larger, more robust species (body length on average 8.5 mm). Processes of sternite V and hypopygium largely orange-yellow .....*praepotens* (Wiedemann)
- Arista shorter plumose, total width of hairing not more than 1.3 times width of postpedicel .....3
- 3 Arista with longer hairs, total width of hairing more than width of postpedicel. Scutum and abdomen with some shining blackish reflections. Larger, more robust species. Processes of sternite V shorter, not as long as basal part. Cercal plate wider, almost rectangular, surstylus wider in profile and apically expanded, pregonite with 2 setulae. (*Parapegomyia*) .....*schineri* (Schnabl)
- Arista short plumose, total width of hairing equal to width of postpedicel. Scutum and abdomen more grey dusted with less distinct blackish reflections. Smaller, slenderer species. Processes of sternite V longer than basal part. Cercal plate narrower and apically narrower to a blunt point; surstylus in profile slender, not widened apically; pregonite with only 1 setula on ventral lobe. (*Parapegomyia*) .....*socculata* (Zetterstedt)
- 4 Legs entirely dark. Phallopore with epiphallus basal and attached to a narrow anteriorly directed and constricted process. Pregonite with a group of 4-5 hairs on posterodorsal margin .....5
- Legs largely yellow. Epiphallus basal to median, not constricted at point of attachment to phallopore. Pregonite with 1-2 setulae on posterodorsal margin.....6
- 5 Distance between eye margins on frons at narrowest part equal to diameter of anterior ocellus, orbits touching at this point. Dusting on scutum (viewed from above) slightly more bluish, and lateral dark vittae more distinct. Wing more yellowish tinged at base. tergite VI bare. Surstylus longer and more slender. Postgonite narrower. Distiphallus less heeled ventrally at base.. .....*pilimana* (Ringdahl)
- Distance between eye margins on frons at narrowest point twice diameter of anterior ocellus, orbits separated by an extremely narrow black midstripe. Dusting on scutum more greyish, lateral vittae less distinct. Wing more brownish tinged at base. Tergite VI with a few setulae. Surstylus shorter and not so slender. Postgonite wider. Distiphallus strongly heeled at base ventrally ..... *anderssoni* (Hennig)

- 6 Thorax rather finely grey dusted, scutum appearing extensively shining (especially on lateral declivities) in certain angles of light. Fore femur (and sometimes tibia) largely brown. Surstylus more robust and more widely separated in caudal view, distal section of aedeagus broader..... *frigida* (Zetterstedt)
- Thorax more densely grey dusted (with lateral declivities scarcely shining). Fore femur dark on dorsal surface only. Fore tibia pale. Surstylus slender, distal section of aedeagus narrower. .... *longimana* (Pokorny)

#### EUTRICHOTA - females

- 1 Arista plumose, total width of hairing almost or exceeding width of postpedicel..... 2
- Arista almost bare, at most pubescent with the longest hairs not longer than basal diameter of arista..... 4
- 2 Arista long plumose, total width of hairing about 1.8 times width of postpedicel. Legs mainly yellow. Abdomen densely greyish dusted with only a trace of a median vittae. Generally a larger, more robust species (body length on average 8.5 mm). Fore tarsomere 1 with segments 2-4 expanded. Pregonite not bilobed ..... *praepotens* (Wiedemann)
- Arista shorter plumose, total width of hairing not more than 1.3 times width of postpedicel. Fore tarsomere 1 not expanded. Ovipositor with patches of short anteriorly directed hooked spines ..... 3
- 3 Arista with longer hairs, total width of hairing more than width of postpedicel. Scutum and abdomen with some shining blackish reflections. Larger, more robust species ..... *schineri* (Schnabl)
- Arista with shorter hairs, total width of hairing equal to width of postpedicel. Scutum and abdomen more grey dusted with less distinct blackish reflections. Smaller, slenderer species. .... *socculata* (Zetterstedt)
- 4 Legs entirely dark. Fore tarsus not expanded ..... 5
- Legs largely yellow. Fore tarsus with tarsomeres 3 and 4 expanded ..... 6
- 5 [check differences]..... *pilimana* (Ringdahl)
- ..... *anderssoni* (Hennig)
- 6 Thorax rather finely grey dusted, scutum appearing extensively shining (especially on lateral declivities) in certain angles of light. Fore femur (and sometimes tibia) largely brown. Fore tarsus with tarsomeres 3 and 4 distinctly expanded. Hind femur without pv-setae. Mid tibia without av-seta. .... *frigida* (Zetterstedt)
- Thorax more densely grey dusted (with lateral declivities scarcely shining). Fore femur dark on dorsal surface only, fore tibia pale. Hind femur with 3-4 pv-setae, mid tibia with a small av-seta. Fore tarsus with tarsomeres 3 and 4 only slightly expanded..... *longimana* (Pokorny)

#### FUCELLIA - males

- 1 Mid tibia with 1-2 av-setae. Legs completely black ..... *fucorum* (Fallén)

- Mid tibia without av-setae. Tibiae at least in proximal third yellowish..... 2
- 2 Hind femur with basal ventral tubercle evenly rounded at free end, and not set off from femur by an incision, its setae longer and arranged in a row. A single or no hairs present between the two rows of presutural acrostichal setae. Eye larger, gena rather narrow, 0.5–0.65 times the height of an eye ..... *tergina* (Zetterstedt)
- Hind femur with basal ventral tubercle not rounded at free end, set off from femur by a distinct incision. Several hairs present between the two rows of presutural acrostichal setae. Eyes smaller, gena wider, 0.6–0.7 times the height of an eye.....  
.....*maritima* (Haliday)

#### FUCELLIA - females

- 1 Prementum short and wide, in outline nearly semicircular. Gena very wide. No setulae between acrostichal rows. Tibiae black, or only at extreme base lighter. Mid tibia with an av-seta .....*fucorum* (Fallén)
- Prementum not strikingly wide, about 2–3 times as long as wide [mid tibia without av-seta?] ..... 2
- 2 Eyes smaller, parafacial and gena therefore wider, gena 0.6–0.7 times the height of an eye. Some of the pv-hairs of hind femur longer than width of mid tibia. Several hairs present between the two rows of presutural acrostichal setae.....*maritima* (Haliday)
- Eyes larger, parafacial and gena therefore narrower, genae, 0.5–0.65 times the height of an eye. None of the pv-hairs of hind femur longer than width of mid tibia . No hairs present between the two rows of presutural acrostichal setae..... *tergina* (Zetterstedt)

#### HETEROSTYLODES - males

- 1 Eye margins on frons at narrowest part separated by distinctly more than distance between outer margins of posterior ocelli (1.3–1.5). Scutum, viewed from in front, lighter grey dusted with 3-5 faint brownish vittae along setal rows. Mid femur with 5–6 strong av- and about 5 pd-setae which are as long as or longer than depth of femur. Hind tibia without p- or pv-setulose hairs in basal half. Processes of sternite V with a group of about 5–6 short blunt setae on inner margins which arise from a small tubercle .....*caledonicus* (d'Assis Fonseca)
- Eye margins on frons at narrowest part separated by no more than distance between outer margins of posterior ocelli. Scutum, viewed from in front, without brownish vittae along setal rows, more or less darker grey dusted.. Mid femur with shorter or finer av- and pv-setae. Hind tibia with a few p- or pv-setulose hairs on basal half. Processes of sternite V without a group of median blunt setae ..... 2
- 2 Parafacials slightly to distinctly wider than width of postpedicel. Abdomen in caudal views with distinct grey dusting and a darker median vitta ..... 3
- Parafacials normally slightly to markedly narrower than width of postpedicel. Abdomen in caudal views entirely brownish black to just with narrow margins obscurely lighter dusted ..... 4
- 3 Arista short, only slightly longer than antennae, and with pubescence clearly shorter than greatest arisal diameter. Scutellum devoid of ventral pale hairs  
.....*nominabilis* (Collin)

- Arista decidedly longer than antennae and with pubescence subequal in length with greatest arisal diameter. Scutellum with usual ventral pale hairs .... *pilifer* (Zetterstedt)
- 4 Frontal vitta at narrowest point normally wider than diameter of anterior ocellus. Sternite V with pubescence on median posterior margin ..... *pratensis* (Meigen)
- Frontal vitta at narrowest point normally narrower than the diameter of anterior ocellus. Median posterior margin of sternite V without pubescence ..... *obscurus* (Macquart)

#### HETEROSTYLODES - females

- 1 Parafacial at level of lunule with a shifting sheen stripe, which when viewed obliquely from in front is dark grey dusted and sharply cut off from the lighter grey dusted parafrontal; when viewed obliquely from below the sheen stripe becomes almost white dusted. Scutum viewed from obliquely from in front grey dusted with traces of darker brownish vittae along the rows of acrostichal, dorsocentral and intra-alar setae, these setae arising from brownish spots. Gena below eyes wider in lateral view, about one-third of eye height (0.3 to 0.32 times) ..... *caledonicus* (d'Assis Fonseca)
- Parafacial at level of lunule without a distinct shifting sheen stripe, in certain lights a trace of a very weak sheen stripe may be present. Scutum darker grey dusted when viewed from in front, without vittae along setal rows. Gena below eyes narrower in lateral view, ranging from 0.15 to 0.2 times eye height ..... 2
- 2 Arista short, only slightly longer than antennae, and with pubescence clearly shorter than greatest arisal diameter. Scutellum devoid of ventral pale hairs Wing length generally less than 3 mm (2.6-2.8mm) ..... *nominabilis* (Collin)
- Arista decidedly longer than antennae and with pubescence subequal in length with greatest arisal diameter. Scutellum with usual ventral pale hairs. Wing length more than 3mm (3.6-3.9mm) ..... 3
- 3 Parafacialia slightly to distinctly broader than width of postpedicel. Abdomen with blackish subshine rather dulled by grey dusting in certain caudal views ..... *pilifer* (Zetterstedt)
- Parafacialia slightly to markedly narrower than width of postpedicel. Abdomen shiny blackish with very sparse brownish grey dusting to be seen in certain caudal views 4
- 4 Posterior lower katapisternal seta only a little shorter than upper seta (0.8 times). Cerci with free apices practically missing ..... *obscurus* (Macquart)
- Posterior lower katapisternal seta less than half the length of upper seta (0.3 times). Cerci with shortly produced free apices ..... *pratensis* (Meigen)

#### HYDROPHORIA - males

- 1 Mid and hind femora yellow ..... *linogrisea* (Meigen)
- Mid and hind femora dark ..... 2
- 2 Prealar seta at least as long as posterior notopleural seta. Abdomen without dark foremarginal bands. Sternite V with setae on inner margin of processes clustered in distal half ..... 3
- Prealar seta shorter than posterior notopleural seta. Abdomen with dark foremarginal bands. Sternite V with setae on inner margin clustered near base ..... 4



- 3 Epandrium in profile longer than high, the sides distinctly shining. Surstylus in caudal view narrower in apical half..... *diabata* (Pandellé)
- Epandrium shorter, the sides only very slightly shining. Surstylus in caudal view wider in apical half..... *lancifer* (Harris)
- 4 Abdomen generally with translucent yellowish areas at base. Tibiae more or less yellow, at least in basal half..... *ruralis* (Meigen).
- Abdomen darker in ground colour. Tibiae dark.....*silvicola* Robineau-Desvoidy

#### HYDROPHORIA - females

To add: *diabata* (Pandellé)

- 1 Legs completely black, at most knees slightly yellowish. Prealar seta shorter than posterior notopleural seta.....*silvicola* Robineau-Desvoidy
- Legs partly reddish or yellowish (at least mid and hind femora) .....2
- 2 Mid and hind femora completely yellow .....*linogrisea* (Meigen).
- Mid and hind femora black .....3
- 3 Prealar seta at most half length of anterior notopleural seta .....*ruralis* (Meigen).
- Prealar seta longer and stronger, at least as long as posterior notopleural seta, generally as long as anterior notopleural seta ..... *lancifer* (Harris)

#### HYLEMYA & HYLEMYZA - males

- 1 The two rows of acrostichal setae rather widely separated, between them, at least in front of suture, two rows of fine setulae. Hind tibia with a preapical pv-seta as well as a preapical av-seta..... *Hylemyza partita* (Meigen)
- Acrostichal setal rows close together, between them no fine setulae. Hind tibia without a preapical pv-seta (genus *Hylemyza*) .....2
- 2 Legs not completely black, at least tibia (especially mid and hind tibia) yellow.....3
- Legs completely black .....4
- 3 All femora black, only tibiae yellow.....*vagans* (Panzer)
- Only fore femur black, mid and hind femora yellow as are tibiae..*nigrimana* (Meigen)
- 4 Surstylus long and slender, apices slender and curved backwards. Parafrontals in front of ocellar tubercle touching or almost touching.....*variata* (Fallén)
- Surstylus short, widened at apices, curved forwards. Frontal vitta complete and rather wide.....*urbica* (van der Wulp)

#### HYLEMYA & HYLEMYZA - females

1. The two rows of acrostichal setae rather widely separated, between them at least in front of suture two rows of fine setulae .....*Hylemyza partita* (Meigen)
- Acrostichal rows close together, between them no fine setulae (genus *Hylemyza*) .....2
2. All femora black, at most knees lightened.....*variata* (Schnabl), *urbica* (van der Wulp)

- At least mid and hind femora yellow .....*vagans* (Panzer), *nigrimana* (Meigen)

#### LASIOMMA - males

- 1 Hind tibia with a strongly developed apical pv-seta, which is as long and strong as the apical av-seta. Prealar seta much longer than posterior notopleural seta. Mid tibia with 2 ad- and 2–3 pd-setae. Prementum long and slender, shining blackish brown. Large light grey dusted species, wing length ? mm.....*latipenne* (Zetterstedt)
- Hind tibia without an apical pv-seta. Prealar seta shorter than posterior notopleural seta. Mid tibia with 1 ad- and 2 pd-setae. Smaller blackish species. Wing length ? mm. .. 2
- 2 Eyes bare, or at most with microscopic pubescence. Hind tibia usually with only 1 av-seta. Scutum, seen from behind, with 2 distinct whitish dusted presutural vittae contrasting with the dark ground, and with a little pale dusting in front of scutellum . .....*picipes* (Meigen)
- Eyes pubescent (long and dense in *anthomyinum*, short and sparse in *seminitidum* and *strigilatum*)..... 3
- 3 Eyes with longer pubescence, hairs mainly more than half as long as postpedicel is wide. Lower calypter as long as or longer than upper. Hind tibia with a row of about 6 av-setae of which the longest proximal one is distinctly longer than the rest. .... *anthomyinum* (Rondani)
- Eyes shorter pubescent, at most one-third as long as width of postpedicel, the hairs sparser. Hind tibia with at most 3 av-setae ..... 4
- 4 Vein C setulose along whole length ventrally. Hind tibia posteriorly with only 1–3 fine setae on basal half. Hind femur with long pv-setae, the longest median setae more than twice depth of femur .....*seminitidum* (Zetterstedt)
- Vein C bare ventrally. Hind tibia abundantly setose, 3–4 long av-setae, 15 ad-setae of varying lengths, 4 pd-, 5 –9 short p-v, 10–13 longer p-setae. Hind femur with only short fine pv-setae except at apex .....*strigilatum* (Zetterstedt)

#### LASIOMMA - females

- 1 Hind tibia with a strongly developed apical pv-seta, which is as long and strong as the apical av-seta. Prealar seta longer than posterior notopleural seta. Mid tibia with 2 ad- and 2–3 pd-setae. Prementum long and slender, shining blackish brown. Large light greyish species. Wing length ? mm. ....*latipenne* (Zetterstedt)
- Hind tibia without apical pv-seta. Prealar seta shorter than posterior notopleural seta. Mid tibia with 1 ad- and 2 pd-setae. Smaller blackish species ..... 2
- 2 Mid tibia with only 1 pd-seta .....*picipes* (Meigen)
- Mid tibia with 2 or more pd-setae ..... 3
- 3 Vein C setulose ventrally along whole length. Mid tibia often with 3 pd-setae .....*seminitidum* (Zetterstedt)
- Vein C bare ventrally except sometimes at base. Mid tibia generally with 2 pd-setae.. 4
- 4 Arista more distinctly pubescent, with hairs quite as long as basal thickness. Hind tibia with about 6 ad-setae ..... *anthomyinum* (Rondani)

- Arista almost bare. Hind tibia with about 10 ad-setae ..... ***strigilatum*** (Zetterstedt)

#### LEUCOPHORA - Males

- 1 Arista plumose, total width of hairing about twice width of postpedicel; the hairs composed of both long and shorter hairs. Prealar seta absent. .... ***grisella*** Hennig
- Arista bare or long pubescent, total maximum width of hairing at most equal to two-thirds width of postpedicel. Prealar seta present.....2
- 2 Arista long pubescent, total width of hairing equal to two-thirds width of postpedicel. Mid tibia without an av-seta. ....3
- Arista practically bare, or if with longer hairs, the total width of hairing equal to diameter of base. Mid tibia with or without an av-seta.....4
- 3 Hind femur without pv-setae, only av-setae present. Hind tibia with about 3 pv-setae. Cruciate interfrontal setulae present ..... ***cinerea*** R. D.
- Hind femur with some pv-setae, at middle or on apical half. Hind tibia with 6–8 pv-setae. Cruciate interfrontal setulae absent..... ***sociata*** (Meigen)
- 4 Mid tibia with a strong ventral seta (in *personata* sometimes missing, in which case notopleural depression with several hairs in addition to the two strong setae; keyed out in both sections) .....5
- Mid tibia without a ventral seta .....7
- 5 More hairy species. Abdominal sternites with long erect hairs. Hind femur with numerous long fine hairs beneath. Lower margin of gena with several rows of upwardly directed setae. Lateral margins of scutellum with several rows of setulae ..... ***obtusa*** (Zetterstedt)
- Less hairy species. Abdominal sternites with shorter hairs. Hind femur more setulose than hairy, with av- and pv- rows of stouter setae .....6
- 6 Notopleural depression with several hairs in addition to the two long setae. Scutum seldom with any indication of a median dark vitta. Hind tibia with only 2–3 short inconspicuous setulose hairs posteriorly. Large crossvein more sinuous. Prealar seta as long and somewhat stronger than posterior notopleural seta. .... ***personata*** (Collin)
- Notopleural depression bare except for the two long setae . Scutum with a brown median vitta. Hind tibia with 7–8 longer fine setulose p-hairs. Crossvein dm-cu straighter. Prealar seta generally shorter and weaker than posterior notopleural seta ... ***unistriata*** (Zetterstedt)
- 7 Notopleural depression with several hairs in addition to the two long setae ..... ***personata*** (Collin)
- Notopleural depression bare except for the two long setae.....8
- 8 Prosternum with a pair of strong setae, one on each lateral margin. Weakly setose species. Head setae short. Genal setae uniserial and very short. Hind tibia with only 2–3 short setulose p-hairs. Cruciate interfrontal setae generally absent ..... ***sericea*** R. D.
- Prosternum bare. Strongly setose species. Genal setae at least biserial and longer. Hind tibia with 6-8 setulose p-hairs in proximal half. Cruciate interfrontal setae generally present. .... ***sponsa*** (Meigen)

## LEUCOPHORA - Females

- 1 Arista plumose, total width of hairing about twice width of postpedicel, the hairs composed of both long and shorter hairs. Prealar seta absent. Orbital setae strong, two proclinate and one reclinate set.....*grisella* Hennig
- Arista bare or long pubescent, total maximum width of hairing at most equal to two thirds width of postpedicel. Prealar seta present, even though sometimes small. ....2
- 2 Arista long pubescent, total width of hairing equal to two-thirds width of postpedicel. Mid tibia without an av-seta .....3
- Arista practically bare, or if with longer hairs, the total width of hairing hardly as long as diameter of base. Mid tibia with or without an av-seta.....4
- 3 Frons narrower (width of frons to width of head = 25:100). Hind femur without pv-setae. Only 1 proclinate orbital seta present. Cruciate interfrontal, orbitals and frontal setae short and fine..... *cinerea* R. D.
- Frons wider (width of frons to width of head = 30:100). Hind femur medially with some relatively long and strong pv-setae. Immediately above the proclinate orbital seta there is another outwardly directed seta present. Cruciate interfrontal, orbitals and frontal setae relatively long and strong.....*sociata* (Meigen)
- 4 Mid tibia with a v-seta (in *personata* sometimes missing, in which case notopleural depression with several hairs in addition to the two strong setae).....5
- Mid tibia without a v-seta .....7
- 5 Fore tibia with two p-setae. Lateral margins of scutellum with several rows of setulae. Eyes approximated, distance between eye margins equal to distance between posterior ocelli. Hind tibia without p- or pv-setulae ..... *obtusa* (Zetterstedt)
- Fore tibia with only one p-seta. Abdominal sternite I bare. ....6
- 6 Notopleural depression with some (8-15) hairs in addition to the two strong setae. Prealar seta strong and slightly longer than posterior notopleural seta. The middle four setae on hind margin of last visible abdominal segment much further from the margin than the others.....*personata* (Collin)
- Notopleural depression bare apart from the two strong setae. Prealar seta very short and fine. Setae on hind margin of last abdominal segment all equally near margin ..... *unistriata* (Zetterstedt)
- 7 Notopleural depression with a few hairs in addition to the two strong setae .....*personata* (Collin)
- Notopleural depression bare apart from the two strong setae.....8
- 8 Prosternum with a pair of strong setae, one on each lateral margin. Hind margin of tergite VI with long, strong curved setae which are bent down over the end of abdomen when ovipositor is withdrawn. Cruciate interfrontal setulae absent.....*sericea* R. D.
- Prosternum bare. Tergite VI with no remarkable curved setae. Frons wider, about one quarter the width of head. Cruciate interfrontal setulae present ..... *sponsa* (Meigen)

## PARADELIA - males

- 1 Hind tibia with only 2 ad- and 1 pd-setae. Mid tibia without an ad-seta. Pregenital sclerite dulled by dust. Legs very slender and mainly reddish or brownish yellow. Head small in relation to thorax, which is humped when seen in lateral view. Abdomen long and slender. Sternite V without appendages but with outer lateral setae ..... *lunatifrons* (Zetterstedt)
- Hind tibia with 3 ad- and 2 pd-setae. Mid tibia with a distinct but often small ad-seta. Pregenital sclerite shining black. Sternite V processes with appendages but without lateral setae..... 2
- 2 Upper anterior quarter of katepisternum with a shining black patch. Prosternum shining black, and processes of sternite V ending in wedge-shaped flattened blunt lamella ..... *brunneonigra* (Schnabl)
- Katepisternum almost entirely grey dusted..... 3
- 3 Processes of sternite V ending in pointed leaf-like lamellae. Vein C bare on ventral surface. Abdomen with a wide median vitta. Wing base and calypter pale brownish grey. .... *intersecta* (Meigen).
- Processes of sternite V blunt distally with a finger-like process on inner lobes. Vein C setulose on ventral surface. Abdomen with a very narrow dark median vitta. Wing base and calypter bright orange yellow..... *hedgreni* (Ringdahl)

## PARADELIA - females

- 1 Mid tibia without an ad-seta. Head small in relation to thorax, which is humped (height of head less than half height of thorax (0.41) measured from ventral margin of katepisternum to highest point of scutum). Legs very slender and mainly orange brown ..... *lunatifrons* (Zetterstedt)
- Mid tibia with an ad-seta. Head larger (height of head more than half height of thorax (0.55) measured as above) ..... 2
- 2 Vein C setulose on ventral surface. (?wing base and calpyter yellowish orange) ..... *hedgreni* (Ringdahl)
- Vein C bare on ventral surface..... 3
- 3 Distinctly bluish grey dusted species. Gena below eye hardly more than one-quarter eye height. Abdominal median vitta very indistinct. (?Katepisternum entirely grey dusted) ..... *intersecta* (Meigen)
- More yellowish grey dusted species. Gena about one-third eye height. Abdomen with a distinct median vitta consisting of a triangular marking on each tergite. (?Katepisternum with upper anterior part shining black) ..... *brunneonigra* (Schnabl)

## PAREGLE - males

- 1 Notopleural depression with some hairs in addition to the two strong setae. Scutum lighter grey dusted. Calypteres whitish yellow with pale fringe. Mid tibia with 1 distinct median av-seta. Cercal plate longer, tapering to a point which is not incised and bears only 2 long setae and some very short hairs..... *audacula* (Harris)

- Notopleural depression generally bare apart from the two strong setae, though occasionally an isolated hair may be present. Scutum darker, with pale dusted lateral vittae visible only in front of suture. Mid tibia without a median av-seta, or occasionally a short v-seta may be present on one or both legs. Cercal plate shorter, with a blunt incised apex, which bears 2 long setae and several long setulose hairs which are one-third the length of the long setae. .... ***atrisquama*** (Ringdahl)

[Female key to be constructed]

#### PEGOMYA - males

- 1 All legs entirely dark brown or black in ground colour. (Some or all of the following may be black: palpus, antennae, abdomen). Hind tibia with 2 ad-setae ..... 2
- Legs entirely or in part yellow or orange in ground colour. (The legs may appear dark in a few species, but they are dark translucent reddish, somewhat infuscated; even if most of the legs are black, but parts of the tibiae and knees are translucent orange-brown, follow this section) ..... 6
- 2 Genal setae biserial [*Check on rubivora*] (at least partially). Hind tibia with 2 pd-setae. .... 3
- Genal setae uniserial. Prealar setae distinctly shorter than posterior notopleural seta... 5
- 3 Postpedicel short, 1.5 times as long as wide. Prealar seta nearly as long as posterior notopleural seta but finer. Notopleural depression with 1–2 fine setulose hairs in addition to the two long setae. Inner posterior posthumeral seta duplicated, both setae equally long and strong, and placed very close together. (Only one specimen available, so this character may be aberrant). (Posthumeral setae present) ..... ***argyrocephala*** (Meigen).
- Postpedicel longer, more than 1.75 times as long as wide. Prealar seta as long as or longer than posterior notopleural seta but equally robust. Notopleural depression bare apart from the two long setae. Inner posterior posthumeral seta represented by a single seta (3 posthumeral setae present) ..... 4
- 4 Tergite VI setulose on posterior margin. Hind tibia with 1 av- and 3 ad-setae. Eye margins on frons separated by width of ocellar tubercle, the parafrontals wide and touching so the black interfrontalia is linear at this point. Abdomen viewed from behind bluish-grey dusted. Sternite V black and shining, processes with a uniserial row of long strong setae on inner margins which project downwards in lateral view. Cercal plate black or dark brown. Wing length 5.3–5.5 mm. .... ***rubivora*** (Coquillett)
- Tergite VI bare. hind tibia with 2 av- and 2 ad-setae. Eye margins on frons practically touching, only separated by width of anterior ocellus, the parafrontals very narrow at this point. Abdomen viewed from behind lighter brownish grey dusted. Sternite V black, processes with a dense tuft of setae on inner margins which are separated from some isolated apical setae. Cercal plate and epandrium contrastingly orange. Wing length about 5.0–5.3 mm. .... ***haemorrhoum*** (Zetterstedt)
- 5 Hind tibia with 3 ad-setae. Haltere blackish or brownish. Fore tibia without a median seta. Mid tibia without an ad-seta. Wing rather pale brownish basally. Sternite V black, base shining, processes tapering to a point, as long as base, with a multiserial fringe of short fine setulose hairs on inner margins. Wing length 3.3–3.5 mm. ....

- .....*meridiana* (Villeneuve)
- Hind tibia with 2 ad-setae. Haltere yellow. Fore tibia with a distinct median pv-seta. Mid tibia with a small ad-seta. Wing darker brown basally. Sternite V black, slightly shining, processes expanded and mainly bare on apical half, bearing a tuft of hairs on inner pointed expansion, and a fringe of setae inside at base, with a bare thumb-like apex. Wing length 3.6–4.00 mm. ....*provecta* (Villeneuve)
- 6 Genal setae biserial (at least partially). Antennae entirely dark brown in ground colour ..... 7
- Genal seta uniserial ..... 12
- 7 Palpus entirely yellow. Scape and pedicel clear orange. Hind tibia generally with 3 ad- and 3 pd-setae. Presutural acrostichal rows closer together, distance separating them about half that between presutural acrostichals and dorsocentral rows, without setulae between the rows. Abdomen entirely orange, with a very faint darker brownish orange median vitta. Scutellum dark in ground colour. Prealar seta equal in length to posterior notopleural seta. Sternite V entirely orange, with tapering processes bearing multiserial curling setae on inner margins. Wing length 5.4–5.6 mm..... *steini* Hendel
- Palpus not entirely yellow, either all dark or paler basally with black apex. Scape and pedicel dark. Abdomen dark in ground colour, or if orange then hind tibia with only 2 ad- and 2 pd-setae ..... 8
- 8 Hind tibia with 2 av-setae, or if with only 1 av-seta then abdomen brownish orange in ground colour ..... 9
- Hind tibia with 1 av-seta and abdomen dark in ground colour. Fore femur largely infuscated especially on posterior surface, mid and hind femur yellow ..... 11
- 9 Hind tibia with 3–4 ad-setae. Palpus entirely dark brown or black. Thorax, viewed from in front, deep black without vittae, slightly shining. Eye margins on frons touching, or at most parafrontals touching and eye margins only separated by less than width of anterior ocellus. Abdomen dark in ground colour with dense light grey dusting and a wide suffused black median vitta (as wide as depth of hind femur). Sternite V with blackish base, brownish orange processes which are apically narrow and pointed, with the bare apical third shining orange. Wing length 5.6–5.8 mm.....*depressiventris* (Zetterstedt)
- Hind tibia with 2 ad-setae. Scutum, viewed from in front, light or dark grey dusted. Palpus orange basally, with brown or black apex ..... 10
- 10 Scutum, viewed from in front, densely light grey dusted, with traces of darker vittae along dorsocentral rows. Eye margins separated by twice width of anterior ocellus. Legs mainly orange, fore femur infuscated basally. Sternite V grey, with short processes which are separated by a bare area, and a dense tuft of setae at base of each process; apex of each process shining blackish, with some setae which are separated from basal tuft. Cercal plate and epandrium orange Wing length 4.4–4.7 mm.....*vanduzeei* (Malloch)
- Scutum, viewed from in front, dark grey dusted without vittae. Eye margins either touching or separated by width of anterior ocellus. Legs mainly dark, mid and hind femur on basal three-quarters yellowish orange, apically contrasting with black apices, hind tibia obscurely orange (fore legs entirely black). Sternite V black, otherwise as in

- vanduzeei*; cercal plate and epandrium orange. Wing length 4.7–5.0 mm. ....  
 ..... *haemorrhoum* (Zetterstedt)
- 11 Palpus entirely dark brown or black. Eye margins on frons separated by slightly more than width of ocellar tubercle. Prealar seta longer than posterior notopleural seta. Hind tibia with 3 equally long and strong dorsal preapical setae (ad-, d-, pd-). 2 posthumeral setae. Proepisternal setae long and robust. Abdomen subcylindrical, dark in ground colour with dense grey dust and with a suffused darker median vitta (about as wide as hind tibia). Processes of sternite V widely separated with a shining bare blackish knob-like distal third. Wing length 5.4–5.7 mm. .... *rugulosa* (Zetterstedt)
- Palpus yellow or orange basally. Eye margins on frons separated by slightly more than width of anterior ocellus, the parafrontals touching at this point. Hind tibia with 3 short unequal dorsal preapical setae, the pd-seta distinctly shorter than the dorsal seta. Three posthumeral setae. Prealar seta as long as posterior notopleural seta. Proepisternal setae shorter and not so robust. Abdomen dorsoventrally compressed and with a very narrow median vitta. Sternite V with blackish brown base, brownish orange processes with darker margins, which are flat and rather wide, and bearing only short fine curling setulae on inner margins basally, bare and shining orange. Wing length 5.4–5.6 mm. ....  
 ..... *laticornis* (Fallén)
- 12 Lower calypter projecting beyond upper calypter by at least width of postpedicel. Eye margins on frons touching, or at most parafrontals touching and eye margins only separated by the width of anterior ocellus. Hind tibia with 2 pd-setae ..... 13
- Lower calypter not projecting beyond upper calypter, or only by a small amount ..... 17
- 13 Prealar seta longer than posterior notopleural seta ..... 14
- Prealar seta not longer than posterior notopleural seta, equal in length or shorter ..... 15
- 14 Entirely orange in ground colour with sparse dusting. Scutum with a long presutural intra-alar seta which is as long as posterior notopleural seta. 3 equally long postsutural intra-alar setae. 3 strong posthumeral setae. Abdomen wide and conspicuously shorter than thorax, hence tergite III is 4–5 times wider than long. All acrostichals long and strong, presutural acrostichals widely separated with multi-serial rows of fine hairs between them. All thoracal hairs dark. Hind tibia with 3 ad-setae. Sternite V entirely orange, processes expanded and downturned in lateral view, with a long seta on posterior margin, bare apically, with long lateral setae. Wing length 7.4–7.6 mm. ....  
 ..... *testacea* (De Geer)
- Thorax mainly dark in ground colour. Presutural intra-alar seta short and fine, half length of 2nd presutural dorsocentral seta and much finer. Anterior seta of the 3 posterior intra-alar setae much shorter than the other two. Abdomen longer than thorax. Presutural acrostichal setae shorter and finer, rows widely separated, twice as far from each other as they are from the dorsocentral rows, with multiserial rows of fine pale hairs between them. Golden hairs present on lower half of frons, pleura, fore coxa and beneath and on sides of abdominal tergite I. Hind tibia with 4 ad-setae. Abdomen largely orange with greyish dust on tergites and with a narrow median vitta. Sternite V orange with brownish base, processes with a fringe of long setae on inner margins reaching almost to apices. Wing length 6.5–6.8 mm. .... *transversa* (Fallén)
- 15 Palpus and antennae dark brown or black. Presutural acrostichal rows widely separated by a distance which is 1.5 times distance between acrostichal and dorsocentral rows, with



- multiserial rows of hairs between them. Hind tibia with 3 ad- and 2 pd-setae. Abdomen dorsoventrally compressed, mainly orange. Sternite V mainly orange, small with short, rather narrow processes, becoming narrow and pointed, with inner marginal setae reaching apices. Wing length 5.1–5.4 mm.....*rufina* (Fallén)
- Palpus entirely orange. Antennae partly yellow or orange ..... 16
- 16 Scape, pedicel and basal part of postpedicel orange. Hind tibia with 2 ad-setae. Disc of scutellum practically bare except for 3–4 setae on sides. Presutural acrostichal rows equally spaced from each other and from dorsocentral rows, rarely with any short setulae between them. Hind femur with only 2 pv-setae (1 fine median seta and 1 seta near base). Lower calypter whitish.. Prementum less shining, with thin dust. Processes of sternite V reddish, short and triangular. Sternite V orange with brownish base, processes very short. Wing length 5.4–5.6 mm. ....*ulmaria* (Rondani)
- Postpedicel dark brown or black. Hind tibia with 3 ad-setae. Disc of scutellum mainly covered with scattered short setulae. Presutural acrostichal setae more widely separated from each other than from dorsocentral rows, and with numerous scattered short setulae between rows. Lower calypter light brownish. Prementum undusted, shining. Sternite V brownish orange, processes very short, with short setulae on inner margins. Wing length 5.4–5.6 mm.. ....*winthemi* (Meigen)
- 17 Palpi entirely dark brownish black, without trace of translucent orange or brownish red on any part..... 18
- Palpi entirely yellow or partly yellowish or orange basally (even if only extreme base is orange, follow this section)..... 24
- 18 Presutural acrostichal rows widely spaced apart, nearer to dorsocentral rows than to each other, with several hairs between rows (if presutural acrostichal rows are separated by a distance equal to that between acrostichal and dorsocentral rows, then eye margins on frons are separated by no more than half width of anterior ocellus). Scutum, viewed from in front, appearing mainly matt dark brown. Parafacial in lateral view almost linear. Wing with a short but developed spinule before distal break which is slightly longer than preceding spinules but thicker ..... 19
- Presutural acrostichal rows separated by less than the distance between acrostichal and dorsoventral rows. Scutum, viewed from in front, grey dusted, with or without vittae, or if appearing matt brown, then mid and hind femur dark ..... 20
- 19 Postpedicel shorter, 1.8 times as long as wide. Presutural acrostichal rows separated by about 1.3 times distance between acrostichal and dorsocentral rows. Hind femur mainly yellow with apex infuscated brownish. Processes of sternite V narrow, bare and inwardly directed, inner margins basally with long multiserial setae, base with long lateral setae. Wing length 5.4–5.6 mm. ....*maculata* (Stein), *atricauda* Ringdahl, *macrophthalmia* Griffiths
- Postpedicel longer, 2.2 times as long as wide. Presutural acrostichal rows separated by a distance equal to that between acrostichal and dorsocentral rows. Hind femur generally more infuscated brownish, apex not contrasting with the rest of femur. Sternite V black, processes and lateral margins of base shining, the latter with expanded apices, with long curling erect setae basally, and multiserial very short setulose hairs on inner margins. Wing length 5.4–5.6 mm. ....*sociella* (Stein)
- 20 Hind tibia with 1 av-seta [*conformis* sometimes has only 1 av-seta, so should be in this

- couplet as well] ..... 21
- Hind tibia with 2–3 av-setae ..... 22
- 21 Thorax and abdomen light grey dusted, the former light grey when viewed from in front. Parafacial and gena light silvery grey dusted viewed from in front. Legs mainly yellowish, only fore femur infuscated brownish. Calypter whitish. Sternite V brownish black. Wing length 4.9–5.1 mm..... *interruptella* (Zetterstedt)
- Thorax and abdomen blackish brown with light brownish dust, the former when viewed from in front deep brownish black. Interfrontalia and parafrontals, viewed from above and in front, deep velvety matt cream, the parafacials and genae becoming black. All femora infuscated brownish, tibiae less so. Calypter and wing brownish tinged, the former with a brownish fringe. Sternite V blackish, processes with bare apical third, which is narrow, pointed and out-turned. Wing length 5.2–5.4 mm. .... *nigrisquama* (Stein)
- 22 Hind tibia with 4 pd-setae which are very robust. Mid tibia with 3 p- or pv-setae. Fore femur entirely yellow. Scutal setae rather longer than usual, supra-alar seta more than 3 times as long as prealar seta. Eye margins on frons separated by twice width of anterior ocellus, the parafrontalia touching at this point and interfrontalia linear. Scape and pedicel orange. Abdomen rather long, 2.3–2.4 times as long as wide. Hypopygium partly orange, Sternite V orange, base brownish, rather flat, with an obtuse V-shape between the processes which have rounded bare apices and a fringe of fine setulae on inner margins. Wing length 6.5–7.0 mm. .... *setaria* (Meigen)
- Hind tibia with up to 3 pd-setae, none of which are robust. Mid tibia with only 2 p- or pv-setae. Fore femur infuscated brownish.. Eye margins on frons either touching or separated by 3 times width of anterior ocellus (with interfrontalia distinct throughout). Abdomen shorter, 1.6–1.8 times as long as wide ..... 23
- 23 Parafrontals very narrow, touching on frons. Hind femur with numerous fine multiserial curled hairs among the longer pv-setae on basal half. Mid tibia with a small ad-seta. Sternite V dark brown, processes wide basally, with a row of uniserial long setae medially, apices bare and twisted and out-turned, base very short. Wing length 4.4–4.6 mm. .... *holosteae* (Hering)
- Parafrontals separated by a distinct interfrontalia, eyes separated by two-thirds the width of postpedicel. Mid tibia without an ad-seta. Hind femur without long curled ventral hairs. Sternite V orange with darker base, processes very short, apically bare with short setae on inner margins, in lateral view pointed. Wing length 5.1–5.3 mm. .... *dulcamarae* (Wood)
- 24 Scutellum partly or wholly translucent orange-yellow or reddish (may be restricted to extreme apex and ventral surface)..... 25
- Scutellum entirely dark in ground colour including apex and ventral surface..... 33
- 25 Hind tibia with 5 ad- and 3 pd-setae. Presutural acrostichal rows equally separated from each other as from the dorsocentral rows, with numerous short setulae between them. Outer posthumeral seta as strong as and nearly as long as inner posterior posthumeral. Prealar seta distinctly shorter than posterior notopleural seta. Scutellum more or less translucent yellowish at apex and beneath. Legs (except tarsi) and abdomen yellow-orange, the latter with a weak darker orange median vitta. Sternite V orange brown, with

- dense incurving setae on processes. Wing length 5.4–5.7 mm.....*calyptrata* (Zetterstedt)
- Hind tibia with at most 3 ad-setae. Outer posthumeral seta either shorter (slightly to considerably) and finer than inner posterior posthumeral seta or absent ..... 26
- 26 Lower occiput with some golden yellow hairs. Hind tibia generally with 2 av-setae. Mid tibia with 2 ad- and 2 pd-setae.[check] Scape and pedicel, most of head, thorax including pleura, scutellum, legs and abdomen translucent orange. Prealar seta slightly shorter than posterior notopleural seta. Sternite V orange, ventrally projecting, processes in lateral view with small downturned apices. Wing length 5.8–5.9 mm .....(pale specimens) *tabida* (Meigen)
- Lower occiput with only dark hairs. Hind tibia with 1 av-seta ..... 27
- 27 Palpus orange basally, dark apically ..... 28
- Palpus entirely yellow or orange ..... 29
- 28 Scutum, viewed from in front, deep brownish black, with only light greyish brown dust visible behind head and along suture. Scutellum, viewed from above translucent orange to amber brownish; scutum and scutellum, viewed from behind, light brownish grey dusted. Presutural acrostichal setal rows equally separated from each other and from dorsocentral rows, with a few hairs between the rows. Hind femur with 2 long pv-setae, one at base, the other just before middle. Legs, including coxae (but not tarsi) clear yellow. Sternite V brownish black, base reddish brown, not projecting downwards with short wide processes, which are separated basally. Wing length 5.7–6 mm ..... *fulgens* Mg.
- Scutum, viewed from in front, greyish dusted, especially presuturally. Scutellum, viewed from above, grey dusted basally with yellowish tip. Presutural acrostichal setae slightly closer together, without hairs between rows. Hind femur with 3 or more pv-setae. Sternite V dark brown, strongly projecting downwards, with the narrow apical part of the processes projecting downwards and at almost right angles to the plane of the abdomen. Wing length 5.4–5.6 mm.. ..... *zonata* (Zetterstedt)
- 29 Sternite V processes not projecting downwards away from the abdomen, sternite therefore flatter in lateral view ..... 30
- Sternite V processes projecting downwards, away from the abdomen..... 31
- 30 Hind tibia with 3 ad-setae. Postpedicel shorter, 2.15 times as long as wide. Anteroventral row of spinules on vein C about as wide as width of vein C and robust, contrasting with the finer decumbent anterior cilia. Humerus translucent orange in ground colour. Sternite V processes orange and rather long, with apices turned inwards. Wing length 5.1–5.3 mm. .... *pallidoscutellata* (Zetterstedt)
- Hind tibia with 2 ad-setae. Hind tibia with 2 strong pd-setae of equal length. Postpedicel longer, 3.3–3.5 times as long as wide. Any av-spicules on vein C much less noticeable and not contrasting with the anterior cilia. Sternite V processes brown, shorter than base and rather wide. Wing length 5.8–6.0 mm..... *geniculata* (Bouché)
- 31 Sternite V projecting ventrally, in lateral view with the rather long narrow apical part of the processes directed posteriorly, more or less in line with the abdomen. Tarsi yellow in ground colour. Femora generally all pale without apical darkening. Colour of whole fly variable, ranging from specimens which are largely pale to specimens with varying

- degrees of darkening on thorax, legs and abdomen. Wing length 5.1–5.4 mm.  
..... *incisiva* (Stein)
- Sternite V projecting ventrally, in lateral view with the narrow apical part of the processes projecting downwards and at almost right angles to the plane of the abdomen  
..... 32
- 32 Scutum, scutellum, legs and abdomen shining, with darker median and lateral vitta which are dulled by paler dust when viewed from different angles. Palpus always completely yellow. Outer posthumeral seta absent or only represented by a short fine hair. Prealar seta as long as posterior notopleural seta. Legs (except tarsi) nearly always orange with the tips of femora darkened dorsally. Sternite V dark brown, projecting ventrally, with rather small apices. Wing length 5.5–5.7 mm. .... *vittigera* (Zetterstedt)
- Scutum, scutellum, legs and abdomen much less shining, scutum generally dark on disc, with shifting areas of lighter dusting. Palpus generally with darker tips. Fore tibia generally darker suffused. Outer posthumeral seta developed, up to one-third length of inner posterior posthumeral seta. Prealar seta shorter and finer than posterior notopleural seta. Femora with any darkening more suffused on apical half. Sternite V strongly projecting downwards, blackish, with the narrow apical part of the processes projecting downwards and at almost right angles to the plane of the abdomen. Wing length 5.4–5.6 mm ..... *zonata* (Zetterstedt)
- 33 Prealar seta shorter than posterior notopleural seta, not more than three-quarters as long, often much shorter ..... 34
- Prealar seta as long as or longer than posterior notopleural seta ..... 47
- 34 Hind tibia with 2 av-setae ..... 35
- Hind tibia with only 1 av-seta ..... 36
- 35 Hind tibia with 3 ad-setae. Hind femur with a row of short fine pv-hairs which are shorter than depth of femur except for 3–4 slightly longer apical setae. Fore tibia with 1 pv-seta. Gena wider, 0.2 times height of eye. Scutum viewed from behind almost entirely light grey dusted. Scutellum bare on central part of disc. Setulae on anterior surface of hind tibia somewhat longer than usual. Legs often strongly infuscated, but varying from yellow to dark brown. Sternite V brownish and rather flat and not projecting ventrally, with the lateral lobes of processes very wide. Wing length 5.3–5.6 mm.....  
..... *circumpolaris* Ackland & Griffiths
- Hind tibia with 4–5 ad-setae. Hind femur with a row of longer pv-setae, some nearly twice depth of femur. Fore tibia with 2 pv-setae. Gena narrower, 0.1 times eye height. Scutum viewed from behind with four dark postsutural vittae, which end just past the 2nd postsutural dorsocentral seta. Sternite V brownish, processes light brown and slightly shorter than the long base, with multiserial rows of setae on inner margins, apical third bare, in lateral view without downturned apices. Wing length 5.4–5.7 mm. ....  
..... *conformis* (Fallén)
- 36 Eye margins on frons touching ..... 37
- Eye margins separated by width of ocellar tubercle..... 43
- 37 Processes of sternite V strongly projecting ventrally; postabdomen developed ..... 38
- Processes of sternite V not projecting ventrally, postabdomen not strongly developed..

- ..... 41
- 38 Hind femur with a row of 8–12 short but strong pv-spinules which are shorter than depth of femur, and are all the same length. Width of gena below eye one-fifth of eye height. Sternite V brownish black, projecting ventrally, in lateral view with long narrow downturned apices. Wing length 5.4–5.7 mm ..... *notabilis* (Zetterstedt)
- Hind femur with only normal setae..... 39
- 39 Lower part of occiput with only black hairs. Gena very narrow, 0.1–0.15 times eye height. Colour variable, often very dark. Sternite V black, processes with inner margins bearing a uniserial row of short setae, often laterally compressed and reflexed with the pointed apices of the processes directed towards the hind coxae. Wing length 4.2–4.7 mm. .... *furva* Ringdahl
- Lower part of occiput medially with some yellow hairs..... 40
- 40 Hind femur with 6–7 long av-setae and 1–2 pv-setae which are at least 3 times as long as femur is deep. Mid and hind femur with darkened apices. Scutum, viewed from above, chocolate-brown with light grey dust on humeri and disc. Palpus, scape and pedicel yellow. Sternite V black, ventrally projecting, the processes in lateral view with downturned apices and long setae on inner margins. Wing length 5.6–5.8 mm. .... *pulchripes* (Loew)
- Hind femur with 5–6 av-setae, which are not more than twice depth of femur, and 1–2 pv-setae which are even shorter. Mid and hind femur not darkened at apices. Thorax, viewed from above, greyish with darker lateral vittae. Sternite V orange, ventrally projecting, in lateral view with small downturned apices. Wing length 5.8–6.0 mm. .... (dark specimens) *tabida* (Meigen)
- 41 Scutum, viewed from behind, with 4 short darker postsutural vittae running from suture to just passed 2nd postsutural dorsocentral setae. Sternite V reddish brown, processes bare on apical half, in lateral view with the tip downcurved. Wing length 4.6–4.8 mm. .... *flavifrons* (Walker)
- Scutellum, viewed from behind, without distinct vittae, entirely grey dusted..... 42
- 42 Legs (excluding tarsi) varying from nearly all dark brownish (tibiae partially translucent orange) to largely pale (fore femur nearly always dark). Abdomen longer and narrower, 2.3–2.4 times as long as wide at tergite III. Dusting of thorax dark grey on black ground colour. Abdomen varying from yellowish to almost completely dark in ground colour. Antennae all dark. Sternite V black, processes shorter than the long base, with a row of fine setulae on inner margins. Wing length 4.6–4.8 mm. .... *transgressa* (Zetterstedt)
- Legs (including tarsi and coxae) yellow without any darkening. Abdomen rather short, about 1.5–1.6 times as long as wide at tergite III. Head and thorax wide, the former viewed from above twice as wide as long. Dusting of thorax and abdomen light grey dusted. Scape and pedicel yellow. Sternite V brown, processes wider basally and pointed, with multiserial rows of setae on whole length. Wing length 5.4–5.7 mm. .... *deprimata* (Zetterstedt)
- 43 Hind tibia with 3 equally long and strong dorsal preapicals. Hind tibia with 4 ad- and 3 pd-setae. Abdomen almost cylindrical, entirely orange and semi-shining, only weakly dulled by sparse whitish dust. Parafrontalia separated by a narrow interfrontalia which is about as wide as diameter of anterior ocellus. Sternite V orange brown, processes shorter

- than base, widely separated, with multiserial rows of short fine setae in inner margins, apices bare. Wing length 5.7–6.0 mm..... *bicolor* (Wiedermann)
- Hind tibia with only 2 long preapical d-setae .....44
- 44 Abdomen cylindrical, postabdomen prominent. Eye margins on frons separated by about width of ocellar tubercle. Surstylus cleft into 2 long arms. Scape and pedicel generally dark .....45
- Abdomen dorsoventrally compressed, postabdomen not prominent. Eye margins on frons touching or separated by narrow parafrontals, or about twice width of anterior ocellus. Scape and pedicel generally orange .....46
- 45 Processes of sternite V in addition to the vestiture of fine hairs, with a patch of dense black setae at their bases. Cercal plate with incised apex. Surstylus with slender arm apically hook-like in lateral view. Wing length 5.4–5.7 mm.....*cunicularia* (Rondani)
- Processes of sternite V without this dense patch of black setae at their bases, with only a fringe of fine hairs on inner margins. Cercal plate with a rounded apex. Surstylus with stronger arm apically simple in lateral view. Wing length 5.4–5.7 mm. ...*betae* (Curtis)
- 46 Processes of sternite V with wider apex when viewed in its widest aspect. Distiphallus longer, with more prominent ventral apical third. Wing length 5.0–5.3 mm. .... *hyoscyami* (Panzer)
- Processes of sternite V with slender apex when viewed in its widest aspect. Distiphallus shorter with less prominent ventral apical third. Wing length 5.0–5.3 mm..... *exilis* (Meigen)
- 47 Prealar seta distinctly longer than posterior notopleural seta.....48
- Prealar seta at most as long as posterior notopleural seta .....49
- 48 Parafrontals touching on frons, but they are quite wide so that eye margins are separated at this point by nearly 3 times width of anterior ocellus. Parafacial and gena wide and orange. Scape and pedicel clear orange, contrasting with the black postpedicel. Scutum densely light grey dusted. Legs (except tarsi) orange, Fore femur darkened only dorsally. Apical abdominal tergite, hypopygium and processes of sternite V orange, the latter very wide in lateral view, with a dense fringe of long black setae. Wing length 4.8–5.1 mm. .... *solennis* (Meigen)
- Parafrontals touching on frons, but they are narrow, so that eye margins are separated by no more than width of anterior ocellus. Parafacial and gena narrow and dark. Scape and pedicel strongly brownish infuscated on orange ground colour, not contrasting with postpedicel. Scutum densely dark grey dusted. Legs orange with fore and mid tibia much darker than fore and mid femur (almost blackish), the femora orange but darker apically. Abdomen grey dusted. Processes of sternite V similar to *solennis* but dark. Wing length 5.0–5.3 mm. .... *seitenstettensis* (Strobl)
- 49 Hind tibia with 3–4 ad-setae. Palpus partly dark. Presutural acrostichal rows separated by a distance equal to that between acrostichal and dorsocentral rows, with a few setulose hairs between the rows. Scape and pedicel largely darkened on orange ground colour. The postsutural pair of acrostichal setae immediately before the scutellum long, their apices reaching tip of scutellum. Abdomen partly orange in ground colour, with grey dust and a wide median vitta when viewed from behind. Sternite V dull brownish orange, processes with apices bare. Wing length 5.0–5.3 mm. .... *caesia* (Stein)

- Parafrontals separated by a distinct interfrontalia, eyes separated by two-thirds the width of postpedicel. Mid tibia without an ad-seta. Hind femur without long curled ventral hairs. Sternite V orange, base darker, processes very short, apically bare with short setae on inner margins, in lateral view pointed. Wing length 5.1–5.3 mm  
..... *dulcamarae* (Wood)

#### PEGOMYA – females

- 1 Legs (including tarsi) entirely black or at most obscurely dark brownish ..... 2
- Legs partly or completely yellow, orange or orange-brown ..... 4
- 2 Prealar seta shorter than posterior notopleural seta, not more than half its length. Lower katepisternal seta absent or very short and fine. No developed upper anepisternal setula present. Fore tibia without a median d- or pv-seta. Abdomen very thinly dusted, consequently with distinct shine. Cerci laterally compressed and shining black. Small species, W.L. about 3 mm.....*meridiana* (Villeneuve)
- Prealar seta longer, at least 3/4 length of posterior notopleural seta. Lower posterior katepisternal seta at least half length of upper seta. Fore tibia with either a d- or ad-seta, or both ..... 3
- 3 Hind tibia with 3 ad-setae (distal one may be small). Prealar seta about as long as or longer than posterior notopleural seta. A developed upper anepisternal setula present. Hind femur with a row of about 4-6 pv-setae. Larger species, W.L. about 5-7 mm.....*rubivora* (Coquillett)
- Hind tibia with only 2 ad-setae. Prealar seta slightly shorter than posterior notopleural seta. No developed upper anepisternal setula present. Hind femur with only a fine pv-seta basally. W.L. about 3-4 mm.....*provecta* (Villeneuve)
- 4 Lower calypter larger in area than upper, in lateral view projecting well beyond margin of upper calypter. (*rufina* has a lower calypter less projecting than the other species in this group, but can easily be recognised by the processes on apical tarsomeres described in couplet 6) ..... 5
- Lower calypter smaller, not or only slightly projecting by about width of vein C beyond margin of upper calypter in lateral view ..... 9
- 5 Last three tarsomeres of mid and hind tarsi widened.....*winthemi* (Meigen)
- Last three tarsomeres of mid and hind tarsi not widened ..... 6
- 6 Palpus and antennae dark brown or black. Apical tarsomeres of all tarsi with a pair of tiny sclerotized ventral processes in the form of flattened boomerangs. Frontal vitta without cruciate setae. All tarsi black. Abdomen orange and strongly shining .....*rufina* (Fallén)
- Palpus yellow or orange. Apical tarsomeres without ventral processes. Frontal vitta with cruciate setae, sometimes small in *transversa*. Tarsi orange ..... 7
- 7 Thorax and scutellum entirely orange, with only dark hairing. Frontal vitta and parafacials entirely orange. Frontal vitta with strong cruciate setae. ....*testacea* (De Geer)
- Thorax mainly dark. Frontal vitta mainly dark, or at least only anterior 1/4 orange..... 8

- 8 Thorax with pale hairs present on humeral callus, fore coxa, katepisternum, and occiput ventrally. Humeral callus and scutellum and upper part of katepisternum orange ..... *transversa* (Fallén)
- Thorax, occiput, coxa and katepisternum without pale hairs. Humeral callus sometimes indistinctly orange, but scutellum with only tip orange-yellow.....*ulmaria* (Rondani)
- 9 Mid and hind tarsi modified, rather thickened and short, the hind tarsi shorter than hind tibia, and densely clothed ventrally with fine erect, yellowish sensory hairs of equal length, which are at right angles to tarsus. Frontal vitta with cruciate setae. No developed upper anterior anepisternal setula present ..... 10
- Hind tarsi normal, and setulae on ventral surface black and inclined towards apex of tarsi ..... 12
- 10 Humeral callus and scutellum wholly orange and rather transparent. Hind tibia with 3 ad-setae. Tarsi paler orange.....*fulgens* (Meigen)
- Humeral callus and scutellum not so transparent orange, partly infuscated. Hind tibia with 2 ad-setae. Tarsi darker ..... 11
- 11 Gena narrower, below eye between eye margin and genal setal row about as wide as maximum width of palpus. Aristal pubescence shorter than aristal diameter at base. Thorax, scutellum and abdomen mainly dark. Postabdomen when extended (from segments VI) shorter than length of abdomen (0.7-0.8 times) ..... *furva* Ringdahl
- Gena slightly wider, below eye between eye margin and genal setal row about 1.3 times maximum width of palpus. Postabdomen longer than length of abdomen (1.3-1.4 times) .....*circumpolaris* Ackland & Griffiths, *transgressa* (Zetterstedt)
- (Females of these two species may be impossible to separate at present)
- 12 Fore tibia without a d-seta or an ad-seta ..... 13
- Fore tibia with an ad-seta or a d-seta ..... 20
- 13 Gena on lower margin with bi- to triserial rows of setae. Abdomen entirely dark in ground colour, densely grey dusted, without median vitta. Frontal vitta entirely orange, scape, pedicel and most of the wide parafacial and gena orange, translucent. Postpedicel black and rather short, not reaching facial edge.....*laticornis* (Fallén)
- Gena with only uniserial setae ..... 14
- 14 Palpus entirely dark brown or black. Antennal segments dark brown or black, or at most scape and pedicel slightly lighter brownish orange ..... 15
- Palpus with only tips darkened, basal two-thirds orange or yellow, or entirely yellow. Antennae with scape and pedicel orange, contrasting with the dark postpedicel ..... 16
- 15 Prealar seta small or sometimes absent, always less than half length of posterior notopleural seta. Scutum with three brown vittae. Upper parafrontal infuscated brownish. Parafrontal angle in lateral view well in front of level of facial margin, gena wider than width of postpedicel. 5-6 pairs of frontal setae..... *nigrisquama* (Stein)
- Prealar seta nearly as long as posterior notopleural seta. Scutum without distinct vitta. Upper parafrontal paler grey dusted. Parafacial narrower, not wider than width of postpedicel. Generally only 4 pairs of frontal setae .....



- ..... *dulcamarae* (Wood)
- 16 Prealar as long as or longer than posterior notopleural seta. Lower katepisternal seta longer, about 3/4 length of upper. Palpus entirely orange-yellow. Vertical setae strong. Abdomen orange and slightly shining ..... *steini* (Hendel)
- Prealar seta not more than half length of posterior notopleural seta. Lower katepisternal seta generally only about half length of upper seta. Palpus yellow with darkened tips. Abdomen grey dusted, without shine, with a narrow darker median vitta..... 17
- 17 Abdomen in dried specimens strongly tapering caudad. Tergite IV extensively membranous in the middle. Tergite VI and sternite VI partly coalesced along their lateral margins. Sternite VI large and bulging. Accessory sclerite well developed with anterior margin flexed downwards. Sclerites of sternite VIII comparatively large ..... *betae* (Curtis)
- Abdomen in dried specimens only slightly tapering caudad. Tergite VI completely developed or just narrowly membranous along centre line. Tergite VII and sternite VII not coalesced. Accessory sclerite small and without anterior margin flexed downwards. Sclerites of 8th sternite comparatively small ..... 18
- 18 Sternite VII strongly bulging and with spinulose vestiture in the middle..... *exilis* (Meigen)
- Sternite VII with normal vestiture..... 19
- 19 Sternite VII rather bulging. Accessory sclerite broader, with well defined lateral margins ..... *cunicularia* (Rondani)
- Sternite VII not bulging. Accessory sclerite narrower, with poorly defined and irregular lateral margins..... *hyoscyami* (Panzer)
- 20 Parafacial (actual width) at narrowest part nearly or quite as wide as width of postpedicel. Gena on lower margin with bi- to triserial setae ..... 21
- Parafacial (actual width) at narrowest part much narrower than width of postpedicel. Gena on lower margin with uniserial setae ..... 22
- 21 Abdomen mainly dark in ground colour with apical tergites more or less orange. Scape and pedicel dark brown. 4 pairs of frontal setae ..... *haemorrhoum* (Zetterstedt)
- Abdomen entirely orange. Scape and pedicel reddish orange, contrasting with dark pedicel. Generally only 2-3 pairs of frontal setae ..... *vanduzeei* (Malloch)
- 22 Hind tibia with three equally long dorsal preapical setae (ad-, d- and pd-setae), the pd-seta often the longest ..... 23
- Hind tibia with only two strong dorsal preapical setae (ad- and d-setae) and sometimes one shorter pd-seta ..... 24
- 23 Basal antennal segments yellow or orange-yellow, or sometimes dirty orange-brown. Femora and tibiae generally yellow, sometimes fore femur infuscated. Abdomen reddish orange in ground colour with traces of whitish dust on tergites anteriorly. Prealar setae slightly shorter than posterior notopleural seta. Presutural acrostichal setae longer ..... *bicolor* (Wiedemann)
- Basal antennal segments entirely dark. Fore femur in proximal 2/3 and abdomen black in ground colour with shifting grey dust. Presutural acrostichal setae slightly shorter.....

	..... <i>rugulosa</i> (Zetterstedt)	
24	Occiput with some pale yellow hairs ventrally .....	25
–	Occiput without any pale hairs ventrally .....	26
25	..... ..... <i>tabida</i> (Meigen)	
–	..... ..... <i>pulchripes</i> (Loew)	
	(Females of these 2 species may not be separable?)	
26	Frontal vitta with cruciate setae .....	27
–	Frontal vitta without cruciate setae ( <i>solennis</i> rarely has a pair of tiny cruciate hairs on the frontal vitta but is included in this section).....	30
27	Hind tibia with only 2 ad-setae. Lower katepisternal seta only about 0.6 times length of upper katepisternal seta. Postpedicel entirely dark brown, and rather long, nearly 3 times as long as wide, reaching facial edge. Tergite VI shining black in contrast to sternite V. Face almost flat, lower margin of head in profile shorter than length of head at level of lunule. Parafacial in lateral view very narrow.....	<i>deprimata</i> (Zetterstedt)
–	Hind tibia with 3 or more ad-setae. Postpedicel shorter, generally less than 1.8 times as long as wide, or if longer ( <i>pallidoscutellata</i> ) then pleura and postpedicel largely orange-yellow.....	28
28	Postpedicel longer, about 2.4–2.6 times as long as wide, and reaching facial edge. Pleura and postpedicel largely orange-yellow. Scutellum entirely orange-yellow .....	<i>pallidoscutellata</i> (Zetterstedt)
–	Postpedicel shorter, about 1.6–1.8 times as long as wide, and not reaching facial edge. ....	29
29	Palpus entirely orange-yellow.....	<i>calypttrata</i> (Zetterstedt)
–	Palpus with dark tips, slightly swollen .....	<i>caesia</i> (Stein)
30	Postpedicel very long, almost 3 times as long as wide, apex reaching or surpassing level of facial edge. Gena and parafacial very narrow, the former about 0.1 times eye-height, the latter about 0.35 times width of postpedicel. Tergite IV without strong marginal setae. Hind tibia with 3 ad-setae. Abdomen densely dusted grey, without trace of reddish colour .....	<i>sociella</i> (Stein)
–	Postpedicel shorter, not reaching facial edge ( <i>geniculata</i> almost reaching facial edge, but pleura orange and hind tibia with 2 ad-setae and presutural acrostichal setae separated by a distance equal to or greater than distance of rows from presutural dorsocentral rows)	31
31	Prealar seta distinctly longer than posterior notopleural seta (by 1.4–1.5 times) .....	32
–	Prealar seta shorter than posterior notopleural seta .....	33
32	Abdomen dark in ground colour. Fore tibia often infuscated brownish. Scape, pedicel and knees infuscated. Hind tibia with 2 or even 3 av-setae. No developed upper anterior anepisternal setula. Wing suffused brownish.....	<i>seitenstettensis</i> (Strobl)
–	Abdomen orange or reddish in ground colour, rather shining. Fore tibia clear orange-yellow. Hind tibia generally only with 1 av-seta. Palpus brown, obscurely paler at base.	

- Presutural acrostichal rows closer together than they are to dorsocentral rows, with no hairs in between rows. Scape, pedicel and knees clear orange ..... *solemnis* (Meigen)
- 33 Abdomen entirely dark in ground colour ..... 34
- Abdomen entirely or partly reddish or orange ..... 36
- 34 Presutural acrostichal setal rows very close together. Scutum more densely grey dusted, not shining and with only a trace of a narrow vitta along acrostichal rows..... *holosteae* (Hering)
- Presutural acrostichal setal rows more widely separated ..... 35
- 35 Frontal vitta shorter and wider, at level of anterior orbital seta nearly three times width of a parafrontal, and lateral margins of interfrontalia more sinuate. 2–3 pairs of shorter frontal setae whose tips do not reach middle of interfrontalia. Antennae with scape and pedicel infuscated orange Antennae entirely dark brown or black. Scutum less shining, with traces of darker vittae along acrostichal and dorsocentral rows when viewed from behind. Abdomen with a distinct narrow darker vitta..... *interruptella* (Zetterstedt)
- Frontal vitta longer and narrower, at level of anterior orbital seta only about twice width or a parafrontal, and margins of frontal vitta more or less straight. Generally two pairs of long frontal setae whose tips touch at mid line of frontal vitta. Scutum and abdomen rather more shining, the latter with shifting darker patches..... *setaria* (Meigen)
- 36 Presutural acrostichal setal rows widely separated. Tarsi orange in ground colour, with black setulae and hairs ..... *geniculata* (Bouché)
- Presutural acrostichal rows not so widely separated. Tarsi black (except *incisiva*, *zonata* and *notabilis*) ..... 37
- 37 Antennae entirely dark brown or black ..... *flavifrons* (Walker)
- Antennae partly orange or yellow ..... 38
- 38 Scutum shining orange. Ocellar tubercle and frontal triangle shining black. No developed upper anterior anepisternal setula present ..... *vittigera* (Zetterstedt)
- Scutum orange but not strongly shining, or infuscated brownish and dull ..... 39
- 39 Palpus clear yellow ..... *incisiva* (Stein)
- Palpus with distal half or only tip infuscated brownish ..... 40
- 40 Interfrontalia mainly orange, only darkened around ocellar triangle. Lower katepisternal seta about 2/3 length of upper. (Ovipositor: tergite VIII projecting posteriorly, forming an angulate projection above tergite X) ..... *zonata* (Zetterstedt)
- Interfrontalia more extensively darkened in proximal half. Scutum more extensively dark. Lower katepisternal seta almost as long as upper ..... *notabilis* (Zetterstedt)

The following species are not included in this key to *Pegomya* females:

*P. maculata* (Stein), *atricauda* Ringdahl, *macrophthalma* Griffiths, *conformis* (Fallén), *depressiventris* (Zetterstedt), *argyrocephala* (Meigen). The first three species belong to the rarely collected *Pegomya maculata* group species. Only the female of *maculata* has been described. No females of *maculata* and only 2 males have been recorded from Britain, (Inverness-shire and Aberdeenshire). Only one male of *P. atricauda* has been recorded from Britain (Herefordshire); the female is unknown.

*Pegomya macrophthalma* is known from six British records of males (Kent, Herts, Worcs, Berks, Gloucs and Perthshire); the female is unknown.

*Pegomya argyrocephala*: The only British record is a male from Hants, Whitsbury, 25.iv.1958, C. H. Andrewes. Michelsen records two females from France, emerged from *Euphorbia amygdaloides* galls. There is some doubt as to whether these females are conspecific with the male type of *argyrocephala*.

The remaining species (*conformis*, *depressiventris*) will be added later. At present I do not possess any females of these species.

#### PEGOPLATA - males

- 1 Arista plumose, total width of hairing as long as or longer than width of postpedicel. Scutum and abdomen with light bluish grey dusting and shifting blackish reflections. Anterior knees narrowly pale. Larger species, wing length normally 5.5 mm or more. 2
  - Arista almost bare, longest hairs not longer than basal arista width. Dusting of scutum and abdomen generally greyish or brownish. Anterior knees dark. Smaller species, wing length 4.5–5 mm ..... 3
- 2 Lower calypter smaller in area than upper calypter, not projecting beyond the latter, and whitish ..... *annulata* (Pandellé)
  - Lower calypter as large as upper calypter, and projecting beyond the latter, and pale yellowish ..... *palposa* (Stein)
- 3 Facial edge strongly projecting forwards beyond level of parafrontal angle. Mid tibia with an av-seta. Face below lunule and between insertion of antennae swollen into a small projecting knob. Proepisternum with a few pale hairs. Haustellum strikingly long, prementum 0.7 times head height ..... *aestiva* (Meigen)
  - Facial edge not projecting. Mid tibia without an av-seta. Upper part of face not swollen. Proepisternum bare. Prementum not more than 0.3 times head height..... 4
- 4 Upper occipital setal row with several setulae below it. Arista almost bare. Palpus only slightly dilated..... 5
  - Upper occipital setae uniserial, with a bare space immediately below it. Arista distinctly pubescent, with hairs distinctly longer than thickness at base. Palpus rather strongly dilated..... 6
- 5 Scutum seen from behind almost uniformly dark, especially in front of suture where there are no distinct vittae, only a narrow transverse band of paler dusting. Hind femur with very inconspicuous pv-setae, normally one longer one near base and 1–2 near middle. Surstylus apically cleft..... *infirma* (Meigen)
  - Scutum seen from behind with distinct narrow median and broader lateral vittae on a greyer background, at least in front of suture. Hind femur with numerous long pv-setae. Surstylus simple in outline, exterior surface clothed with tiny outstanding setulae ..... *debilis* (Stein)
- 6 Scutum viewed from behind with a more or less complete dark median vitta which reaches scutellum. Vein C setulose ventrally along whole length. Cercal plate ending in a bare two pronged tip. Surstylus simple in outline. Setulae in front of humerus normal, not spinose ..... *nigroscutellata* (Stein)
  - Scutum viewed from behind with a dark median vitta in front of suture, postsuturally it is indistinct and does not reach scutellum. Vein C bare on ventral surface. Cercal plate with

a simple hairy tip. Surstylus apically with a small rounded incision. The shorter setulae in front of humerus coarser and more spinose than those in any other species .....  
 ..... *patellans* Pandellé)

#### PEGOPLATA - females

- 1 Arista plumose, total width of hairing as long as or longer than width of postpedicel. Scutum and abdomen with light bluish grey dusting and shifting blackish reflections. Wing base and veins rather yellowish ..... 2
- Arista almost bare, longest hairs not longer than basal arista width. Dusting of scutum and abdomen generally greyish or brownish ..... 3
- 2 Lower calypter smaller in area than upper calypter, not projecting beyond latter. Palpus less strongly dilated..... *annulata* (Pandellé)
- Lower calypter larger in area than upper and projecting beyond latter. Palpus very strongly dilated..... *palposa* (Stein)
- 3 Facial edge strongly projecting forwards beyond level of parafrontal angle. Mid tibia with an av-seta. Face below lunule and between insertion of antennae swollen into a small projecting knob. Proepisternum with a few pale hairs. Haustellum strikingly long, prementum 0.7 times head height ..... *aestiva* (Meigen)
- Facial edge not projecting. Mid tibia without an av-seta. Upper part of face not swollen. Proepisternum bare. Prementum not more than 0.3 times head height..... 4
- 4 Palpus only moderately dilated. Arista very short pubescent ..... 5
- Palpus strongly dilated, spoon or ladle shaped. Arista longer pubescent, hairs about as long as basal arista thickness ..... 6
- 5 Abdomen darker grey dusted with distinct median vittae, but without shifting pattern. Prementum rather thinly dusted, at least partly shining towards base. *infirma* (Meigen)
- Abdomen lighter dusted with shifting pattern in addition to median vitta. Prementum more densely dusted, not shining ..... *debilis* (Stein)
- 6 Vein C setulose ventrally on whole length. Palpus usually more strongly dilated. Setulae in front of humerus normal, not spinose..... *nigroscutellata* (Stein)
- Vein C bare ventrally. Palpus usually less strongly dilated. Setulae in front of humerus coarser and more spinose ..... *patellans* (Pandellé)

#### PHORBIA - males

- 1 Hind tibia with a long and strong apical pv-seta, in addition to the apical av-seta..... 2
- Hind tibia without an apical pv-seta ..... 3
- 2 Thorax and abdomen with shining blackish areas in certain lights. Ocellar triangle partly shining blackish, especially in front of anterior ocellus. Cruciate interfrontal setae nearly as long and strong as the proclinate orbitals. Presutural acrostichal setae hardly stronger than thoracic hairs. Processes of sternite V gradually tapering to a rather narrow apex, with the setae on inner margin not separated from any at apex. Apical section of aedeagus more slender with an asymmetrical, laterally directed acrophallus .....  
 ..... *moliniaris* (Karl)

- Thorax and abdomen densely dusted greyish, without any shining black areas. Ocellar triangle grey dusted. Cruciate interfrontal setae absent or only developed as tiny hairs. Presutural acrostichal setae well developed. Processes of sternite V with setae on inner margin towards apex on a raised step, and separated from those at apex by an incision. Apical section of aedeagus more robust and without laterally directed acrophallus .....  
..... *nuceicornis* (Pandellé)
- 3 Mid tibia without av-setae ..... 4
- Mid tibia generally with one or more av-setae (sometimes absent in *fumigata*) ..... 5
- 4 Cercal plate pointed at apex with two longer setulae which reach to middle of surstylus. Acrophallus short ..... *nuditibia* d'Assis-Fonseca
- Cercal plate blunt at apex with only short hairs. Acrophallus long and slender .....  
..... *atrogrisea* Tiensuu
- 5 Cercal plate with a rather dense but short tuft of hairs and setulae ..... 6
- Cercal plate without hair tuft, at most with some long single hairs, or equally short haired  
..... 7
- 6 Surstylus in profile wider in distal half, with a tuft of hairs on posterior margin medially. Distal section of aedeagus robust, with a very small apical acrophallus  
..... *bartaki* Ackland & Michelsen
- Surstylus in profile long and slender and more or less of equal width. Distal section of aedeagus tapering, with a long slender acrophallus ..... *juncorum* (Ringdahl)
- 7 Distal half of surstylus in profile twice as wide as proximal half. Space between processes of sternite V is V-shaped. Longer spines before distal break as long as small crossvein  
..... *fumigata* (Meigen)
- Distal half of surstylus in profile at most only slightly wider than proximal half ..... 8
- 8 Frontal vitta narrower, distance between eyemargins at narrowest place equal to about twice width of anterior ocellus. Cercal plate square ended without long setulae  
..... *atrogrisea* Tiensuu
- Frontal vitta wide, distance between eyemargins at narrowest place equal to width of gena or postpedicel. Cercal plate pointed with 4 long setae or narrowly rounded without long setae ..... 9
- 9 Surstylus slim and equally curved and narrow from base to apex, on inner side without hair tuft. Cercal plate at apex with four very long setae. Processes of sternite V not incised inside before apex. Acrophallus slender. Smaller species ..... *sepia* (Meigen)
- Surstylus not equally narrow from base to apex, and cercal plate without long setae. Surstylus in caudal view with a tuft of short setulae medially on inner margin. Processes of sternite V inside before apex deeply incised. Acrophallus more robust. Larger species  
..... *longipilis* (Pandellé)

#### PHORBIA - females

- 1 Hind tibia with a strong preapical pv-seta in addition to the preapical av-seta ..... 2
- Hind tibia without a preapical pv-seta, only a preapical av-seta present ..... 3
- 2 Cruciate interfrontal setulae absent. Orbital and frontal setae not in a straight line, upper

- frontal setae level with and overlapping anterior orbital seta and closer to interfrontalia. Frontal triangle, ocellar tubercle and parafrontalia densely olive-grey dusted. Thorax and abdomen grey dusted, latter with a darker median vitta. Cercal plate in profile with dorsal distal corner upturned into a point. 1 pair of stronger presutural acrostichals setae. Genal setae biserial. Hind tibia with about 4 ad-setae ..... *nuceicornis* (Pandellé)
- Cruciate interfrontal setae present. Orbital and frontal setae more or less in a straight line. Upper frontal setae not overlapping orbital setae. Genal setae uniserial. Hind tibia generally with 2–3 ad-setae. Frontal triangle, ocellar tubercle and parafrontalia shining black. Thorax and abdomen largely shining black, latter without a median vitta. Cercal plate in profile with a less produced dorsal corner, ending in a blunt point. No stronger presutural acrostichals setae..... *moliniaris* (Karl)
- 3 Lower posterior katapisternal seta at least half as long as upper seta ..... 4
- Lower posterior katapisternal seta less than half length of upper seta..... 6
- 4 Mid tibia generally with 2 av-, 2–3 ad- and 2–3 pd-setae, all rather long and strong. Hind tibia with 5 or more ad- and pd-setae. Costal spines and anterior costal spinules strikingly long. 1 pair of longer presutural acrostichal setae. Abdominal tergites IV-V with long erect discal and hindmarginal setae. .... *longipilis* (Pandellé)
- Mid tibia generally with only 1 av- and 1–2 ad-setae. Setae of legs and abdomen generally slightly shorter and weaker..... 5
- 5 Mid tibia with 2 pd-setae. Cercal plate in profile with dorsal distal corner ending in a short point. Brownish grey dusted species..... *fumigata* (Meigen)
- Mid tibia with 1 pd-seta. Cercal plate in profile with dorsal distal corner drawn out into a long narrow point. Light grey dusted species ..... *nuditibia* d'Assis-Fonseca
- 6 Genal setae uniserial, at least anteriorly. Smaller species, 3–4 mm. Katapisternal setae 1 + 1, or posterior lower seta represented by a hair ..... 7
- Genal setae biserial or even triserial. Larger species, 4–5 mm. Katapisternal setae 1 + 2 ..... 8
- 7 Mid tibia generally with 2 av-setae. Cercal plate in profile narrower at basal third, lower margin gradually curved..... *sepia* (Meigen)
- Mid tibia generally with only 1 av-seta. Cercal plate in profile narrower at basal third, lower margin more or less straight..... *bartaki* Ackland & Michelsen
- 8 Orbital and frontal setae not in a straight line. Mid tibia generally with 2 av-setae. Vein C basal to the longer spines without stronger erect spinules. Cercal plate with dorsal margin straight in distal half..... *atrogrisea* Tiensuu
- Orbital and frontal setae more or less in a straight line. Mid tibia generally with only 1 av-seta. Vein C basal to the longer spines with strong erect spinules. Cercal plate with dorsal margin sinuate ..... *juncorum* (Ringdahl)

#### STROBILOMYIA - males

- 1 Processes of sternite V with strongest median setae situated on basal part. Terminalia: surstylus wider medially and less curved in profile, cercal plate with 2 setae apically. sternite V processes in profile evenly rounded apically ..... *melania* (Ackland)

- Processes of sternite V with strongest setae situated at middle. Terminalia: surstyli more or less parallel-sided, cercal plate with one seta apically. Sternite V processes in profile curved dorsally at apex and narrowing..... *infrequens* (Ackland)

#### STROBILOMYIA - females

- 1 Ovipositor with setae at hind margin margin of segment VIII. Sternite V pieces about two-thirds as long as tergite VIII. Cerci short but distinctly flattened. Notopleural depression without hairs between the two longer setae..... *infrequens* (Ackland)
- Hind margin of segment VIII of ovipositor at most with short setae. Sternite VIII pieces at most half as long as tergite VIII. Cerci with free apices almost as long as remaining parts. Notopleural depression often with some hairs between the two strong setae ..... *melania* (Ackland)

#### ZAPHNE - males

- 1 Mid tibia without an av-seta but with a strong pv-seta. Arista plumose, the longest hairs at least nearly as long as width of postpedicel. Katepimeron setulose..... *divisa* Meigen
- Mid tibia with an av-seta. Arista shorter plumose, or nearly bare .....2
- 2 Katepimeron hairy. Tergites VII and VIII bare, dusted, tergite IX with short stiff setae ..... *spiniclunis* (Pandellé)
- Katepimeron bare .....3
- 3 Notopleural depression with some fine hairs about bases of setae, or at least behind posterior one .....4
- Notopleural depression bare apart from the two setae .....6
- 4 Ventral margins of tergite IV on each side with a dense brush of long setulose hairs, which become finer and somewhat crinkly towards their tips. Hind femur without long pv-setae near middle.....5
- Ventral margins of tergite IV without dense brushes of long setulose hairs, though some long scattered setae are present. Hind femur with some long pv-setae near middle ..... *ambigua* (Fallén)
- 5 Fore tarsomere laterally compressed, with a long curved stiff seta at tip of last segment, and some short stiff setulae anteriorly on segments II and II. Mid and hind tarsomeres conspicuously long and slender. Katepisternal setae 1:2, lower anterior seta weak or absent ..... *wierzejskii* (Mik)
- Fore tarsomere normal. Katepisternal setae 2:2, lower anterior seta strong ..... *caudata* (Zetterstedt)
- 6 Arista with very short hairs, total width of hairing hardly one-third width of postpedicel. Prealar seta nearly twice as long as posterior notopleural seta. The stronger setae on Vein C before subcostal break distinct, about as long as small crossvein. Margins of tergite IV with dense long setae ..... *nuda* (Schnabl)
- Arista short plumose, width of hairing at least two-thirds width of postpedicel. Prealar seta slightly shorter than posterior notopleural seta. The stronger setae on vein C before subcostal break practically absent. Processes of sternite V with long laterally directed setulose hairs which are curled at their tips ..... *inuncta* (Zetterstedt)



## ZAPHNE - females

- 1 Mid tibia without an av-seta. Arista long plumose. Notopleuron with a few setulose hairs. Katepimeron setulose. Tibia partly orange ..... ***divisa*** (Meigen)
- Mid tibia with an av-seta. Arista shorter plumose or nearly bare.....2
- 2 Parafrontals between orbital setae and eye margins with numerous short proclinate setulose hairs. Katepimeron with anterior upper ridge setulose ..... ***spiniclunis*** (Pandellé)
- Parafrontals between orbital setae and eye margins with at most some isolated hairs. Katepimeron bare .....3
- 3 Arista very short pubescent, the length of hairs hardly longer than the diameter of arista at base. Prealar seta long and strong, at least 1.5 times as long as posterior notopleural seta..... ***nuda*** (Schnabl)
- Arista longer haired, the length of longest hairs distinctly longer than diameter of arista at base. Prealar seta shorter than posterior notopleural seta.....4
- 4 Notopleural depression bare apart from the two strong seta, or with 1–2 behind posterior seta. Lower anterior katepisternal seta strong. .... ***inuncta*** (Zetterstedt)
- Notopleural depression hairy (sometimes 1–2 fine hairs behind posterior notopleural seta in *wierzejskii*) .....5
- 5 Lower anterior katepisternal seta very fine, short and hair-like, or absent. Mid femur generally with 1–2 longer v-setae at base..... ***wierzejskii*** (Mik)
- Lower anterior katepisternal seta longer and stronger. Mid femur with 3–4 v-setae .....6
- 6 Mid femur without long pv-setae. Arista shorter haired, total width of hairing not quite as wide as width of postpedicel. Generally no developed presutural acrostichal setae present..... ***caudata*** (Zetterstedt)
- Hind femur with 1 or more longer fine pv-setae. Arista longer haired, total width of hairing about as wide as width of postpedicel. .... ***ambigua*** (Fallén)

## Note on the Figures in Part 2

The figures of male genitalia following the morphology figures are in the order of current species name. However:

- There is no diagram for *Alliopsis similaris* as this is doubtfully distinct from *A. conifrons*.
- There is no separate diagram of the genitalia of *Botanophila discreta*, as they are indistinguishable from those of *B. striolata*.
- That for *Delia lophota* still bears the earlier name of *D. nuda*.
- The genitalia of *Hydrophoria linogrisea* are covered by the diagram for *H. lancifer*.
- The *Hylemyza partita* diagram appears under the name *Hylemya partita*.