

**EUPEODES GOELDLINI (DIP.: SYRPHIDAE) NEW TO BRITAIN, FRANCE  
AND IRELAND, WITH A KEY TO SEPARATE IT FROM RELATED  
ATLANTIC ZONE SPECIES**

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**Abstract**

The hoverfly *Eupeodes goeldlini* Mazánek, Láska & Bičík, 1999 (Diptera: Syrphidae) is added to the lists for Britain, France and Ireland. Records of this species are provided, together with notes on its determination and biology and a key to the identification of the *Eupeodes* species known from Atlantic parts of Europe.

**Introduction**

Identification of European species in the hoverfly genus *Eupeodes* has never been easy and changes in nomenclature, coupled with segregation of additional species from among existing taxa, has made the process more confusing and not necessarily any easier! Until the appearance of Coe (1953) identification of these species was extremely unreliable. At that point in time *Eupeodes* species were not separated from *Syrphus*. Dusek and Láska (1973, 1976) made a significant advance in sorting out the European species, segregating them from *Syrphus* s.l. under the generic name *Metasyrphus*, describing new species and providing a key. It was subsequently shown that the generic name *Eupeodes* should be used, instead of *Metasyrphus*, and one of the erstwhile European *Metasyrphus* species was also hived off into its own subgenus or genus, *Lapposyrphus*. Throughout the period since publication of the papers by Dusek and Láska (*op. cit.*) there has been doubt and confusion over the identity of one widely distributed European species in particular, namely the taxon then known as *M. latilunulatus* (Collin). Mazanek et al (1998), showed that the correct name for *latilunulatus* of Collin was *bucculatus* (Rondani). The following year Mazanek et al (1999) published descriptions of two further species in this complex, *E. duseki* and *E. goeldlini*, the former from northern Europe, the latter from central Europe. Their description of *E. goeldlini* was based on the male only. Haarto and Kerppola (2007) include both *E. duseki* and *E. goeldlini* in their keys, together with *E. bucculatus*, citing all three species from Finland. Further, they key out both sexes of *E. goeldlini*, though they provide no description, as such, of the otherwise undescribed female of *E. goeldlini* (they do, on p.176, provide a brief diagnosis of *E. goeldlini* in Finnish, which makes reference to some features of the female). The present text provides the first citations of *Eupeodes goeldlini* for Britain, France and Ireland and a key allowing separation of *E. goeldlini* from other known Atlantic zone *Eupeodes* species. The concept of the male of *E. goeldlini* employed here is based on the original description of the species provided by Mazanek et al (1999) and on Haarto and Kerppola (2007). The concept of the female is based on Haarto and Kerppola (2007).

***Eupeodes goeldlini* Mazánek, Láska & Bičík, 1999****Britain**

Dorset: 29 August 1998, 2 males; SY875935 Bere Heath Wood, Bere Regis; coll. and det. D. & T. Levy.

Gloucester: 31 July 1983, female; SO625110, Forest of Dean; coll. and det. D. & T. Levy.

Norfolk: 18 July 1983, female; Upton; coll. W. Erwin, det. D. Levy.

**France**

Cher: 25 May 1991, female, Apremont; alluvial *Salix alba* gallery forest, along R. Allier; coll. and det. M. C. D. Speight.

Pyrénées-Atlantiques: 25 July 1999, male, F. de Bioux-Artigues, Vallée d'Ossau; open slope mire within *Abies* forest, 1600m; coll. and det. J-P. Sarthou.

**Ireland**

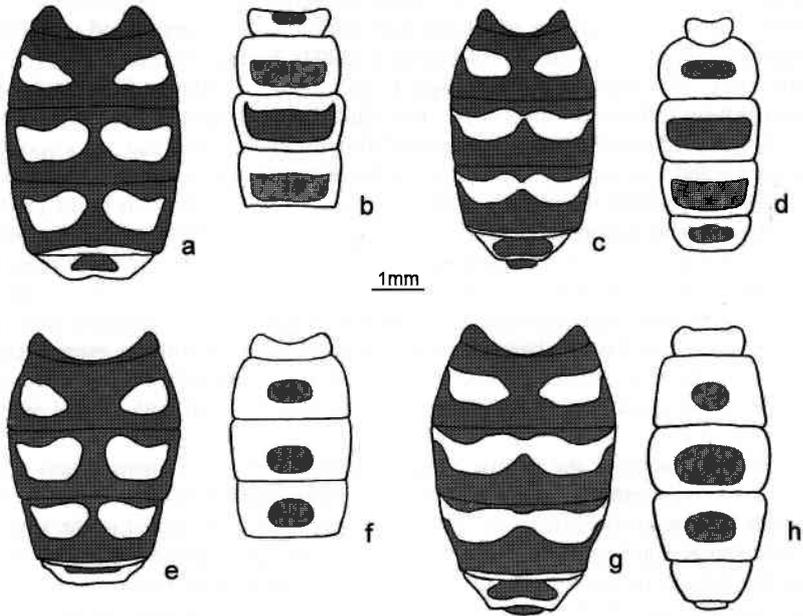
Co. Kildare: 13 May 2004, male; 10 June 2004, females; N692 259 (PV2), Lullymore E.; *Molinia* grassland and *Betula/Salix* scrub on drained valley bog, at edge of conifer plantation; coll. and det. M. C. D. Speight.

*E. goeldlini* is as yet a little-known species. It has been found in Poland, Germany, the Czech Republic, Slovakia and Switzerland, plus Finland and European parts of Russia. In its features, the sole Irish male specimen corresponds well with the original description of the species and can be determined without much difficulty using the keys of Haarto and Kerppola (2007). However, although *E. goeldlini* is also included in the keys of van Veen (2004) it would be difficult to correctly determine this species using those keys. For some reason van Veen (l.c.) includes the male of *E. goeldlini* in a section of the key in which the black marks on the sternites are "rectangular or nearly so", whereas they are distinctly rounded in this species (as figured in the original description). Further, van Veen uses as a diagnostic feature, to separate *E. goeldlini* from *E. duseki*, the extension of the pale tergal markings to the lateral margins of the tergites, a feature that is stated in the original description to be variable in *E. goeldlini*, the pale marks being separate from the margins of the tergites in dark specimens. The female of *E. goeldlini* is not included in van Veen's (2004) keys. Using the keys in Ball *et al.* (2002) the French male of *E. goeldlini* would run to "*Eupeodes* species B", but the French and Irish females recognised here as *E. goeldlini* do not key out satisfactorily as "species B". Even so, it would seem very likely that "species B" of Ball *et al.* (2002) will prove to be *E. goeldlini*. The Irish male has a narrower face than is indicated for either "species B" or *E. goeldlini* – at its maximum width it is slightly narrower than the maximum width of an eye in anterior view. According to Mazanek *et al.* (1999) the face in male *E. goeldlini* varies in width from "43-49% of width of head". In redescribing *E. bucculatus* Mazanek *et al.* (1998) unfortunately give neither figure, nor information on, the width of the face of the male lectotype, or on variability in facial width in this species. However, facial width in *E. bucculatus* s.s. is known to vary from about the maximum width of an eye to greater than the maximum width of an eye and it is assumed here that facial width in *E. goeldlini* could do likewise. Ball *et al.* (2002) highlight the variability of facial width in *E. bucculatus* males by separating two forms, X and Y, based largely on this feature. It should also be noted that the figure of the dorsal

surface of the abdomen in the *E. bucculatus* lectotype, provided by Mazanek *et al.* (1998), shows a specimen in which the pale markings are separated and very large, almost exactly as in "species B" of Ball *et al.* (2002). Further, Mazanek *et al.* (1999) state that "in external morphology *E. goeldlini* is almost identical with *E. bucculatus*". They do, however, state that the dark sternal markings in the lectotype of *E. bucculatus* are rectangular (Mazanek *et al.*, 1998) and "dark spots on sternites 3 and 4 oval and of equal size" in the holotype of *E. goeldlini* (Mazanek *et al.*, 1999). In deciding the identity of the specimens that form the basis of the present text, Haarto and Kerppola (2007) are followed, in taking the shape of the black sternal markings to be more diagnostic than other features, and in employing the basis they use for recognising the otherwise undescribed female of *E. goeldlini*. Collection of both male and female specimens of apparently *E. goeldlini* from the same Irish locality has also been taken as significant, coupled with the experience of repeatedly finding males and females of "typical" *E. bucculatus* (i.e. with very rectangular dark marks on the sternites) together elsewhere, in both Ireland and on the continent.

A notable feature of the British, French and Irish females recognised here as *E. goeldlini* is their entirely orange hind femora. The colour of the hind femora in the Finnish specimens identified as females of *E. goeldlini* is not noted in the keys of Haarto and Kerppola (2007). However, Antti Haarto (pers. comm.) has confirmed that the female in his collections does have entirely yellow hind femora. In *E. bucculatus* females the femora are almost invariably black at the base. In that species the hind femora are usually black for about 50% of their length. The only European *Eupeodes* species with characteristically pale hind femora in the female and otherwise similar to the females here identified as *E. goeldlini*, is *E. nitens* (Zetterstedt). But the female of *E. nitens* has wings almost entirely covered in microtrichia, the front femora largely black-haired postero-laterally, rectangular black markings on the sternites and small frontal dust spots. The females here identified as *E. goeldlini* do not correspond with *E. nitens* in any of those features, though they do show some variability in the extent of the frontal dust spots. In fresh specimens, the black marks on the sternites are easy enough to see in both sexes of all *Eupeodes* species. But post-mortem changes in the content of the abdomen may cause considerable general darkening that obscures the surface colouring of the sternites and can make the shape of the black markings difficult to discern. Entirely pale hind femora can also be found in females of *E. luniger*. An ancillary feature helping to distinguish females of *E. goeldlini* and *E. luniger* is that in the former species the pale marks on tergites 3 and 4 usually form complete, undulating, transverse bands that reach the lateral margins of the tergites, whereas in *E. luniger* these markings are almost invariably in the form of a pair of separated spots on each tergite, that do not reach the lateral margins.

There is very little biological information available about *E. goeldlini*. The Irish male was collected whilst feeding at flowers of *Taraxacum*, and the Dorset specimens were on *Leontodon* flowers, and that would seem to be the only data on flower-visiting for this hoverfly. Its general habitat preferences are unclear. The



**Figure 1:** a-d = *Eupeodes bucculatus*; e-h = *E. goeldlini* ; a, b, e, f = males; c, d, g, h = females; a, c, e, g = tergites 1-5; b, f = sternites 1-4; d, h = sternites 1-5 (all diagrammatic)

French female specimen was derived from a “classical” alluvial softwood forest site that shared with the Irish site features of seasonal flooding and presence of *Salix* species. *Salix* scrub was also present on the Pyrenean slope mire from which the French male was collected. There is habitat information from one of the British localities, but it is ambiguous – the specimens were collected from open rides in conifer plantation close to *Salix* swamp. Although *Salix* is present at Finnish field-edge/forest localities where *E. goeldlini* was collected, *Salix* is omnipresent in such situations in Finland (Antti Haarto and Sakari Kerppola, pers.comm.). Indeed, if there were some direct relationship between presence of *Salix* and occurrence of *E. goeldlini* one might reasonably expect *E. goeldlini* to be frequent and widely distributed in Finland, which does not seem to be the case. If further records with good associated habitat data were to be published this might help to clarify the species’ requirements. The original description (Mazanek *et al.*, 1999) unfortunately provided little habitat information for any of the localities from which the species was recorded, though one was apparently “polder” and another was close to a pond. Whether *E. goeldlini* has been overlooked until so recently due simply to confusion with the closely-related *E. bucculatus*, or also because it is rarely encountered, will remain a matter for conjecture until its status in different parts of Europe is better

established. The data provided by Haarto and Kerppola (2007) certainly suggest that *E. goeldlini* is much less frequent in Finland than is *E. bucculatus* – the latter is generally distributed there but only five Finnish records of the former are known. Similarly, in Ireland *E. bucculatus* is not infrequent in the Midlands and western parts of the island. But only one locality has as yet yielded *E. goeldlini*. Nonetheless, the species evidently ranges widely through Europe. The records provided by Haarto and Kerppola (2007) extend the known range of this species far into the North-west of the continent and the Pyrenean record included in the present note extends its range considerably towards the South-west.

### Key to Atlantic zone *Eupeodes* species

This key includes known Atlantic zone species plus *E. lucasi* (Marcos-Garcia and Láska). The latter is included since its occurrence in at least southern parts of the Atlantic zone would seem likely. If *E. lucasi* were to occur in the more northern parts of the Atlantic zone, separation of this species from *E. luniger* would be dependent upon the females, since there is as yet no reliable way of separating males of *E. lucasi* from males of *E. luniger* in which the hind femora are black for most of their length. This is not the only taxonomic issue still awaiting resolution among European *Eupeodes* species and the possibility of the presence of additional species within the Atlantic zone requires to be born in mind in using this key.

1	Metasternum hairy	2
-	metasternum bare	<i>Lapposyrphus lapponicus</i> (Zett.)
2	Microtrichia covering distinctly more than 50% of the wing membrane	3
-	microtrichia covering less than 50% of the wing membrane (resembling <i>Scaeva</i> , but with eyes bare)	<i>lundbecki</i> (Soot-Ryen)
3	Males	4
-	females	5
4	In dorsal view, genital capsule extending beyond tergite 5 for a distance equal to, or greater than, the median length of tergite 5	<i>corollae</i> (Fab.) (male)
-	genital capsule extending beyond tergite 5 for a distance equal to half, or less, the median length of tergite 5	7
5	Frons with lateral dust spots	7
-	frons without lateral dust spots	6
6	Alula entirely covered in microtrichia	<i>latifasciatus</i> (Macq.) (female)
-	Alula with a large area bare of microtrichia towards the base	<i>lucasi</i> (Marcos-Garcia & Láska) (female)
7	Lateral margin of tergite 5 entirely yellow	8
-	lateral margin of tergite 5 partly, or entirely, black	17
8	Alula entirely (or almost entirely) covered in microtrichia	9
-	Alula with a large area bare of microtrichia towards the base	14
9	Males	10
-	females	12

- 10 Black mark on each sternite rounded (fig.1f) **11**  
 - black mark on each sternite angular (fig.1b), that on st 3 often produced into an anteriorly directed point at antero-lateral corners (post-ocular orbits adjacent to vertical triangle narrower than length of an ocellus) *bucculatus* (Rond.) (male, part)
- 11 Post-ocular orbits adjacent to vertical triangle distinctly wider than length of an ocellus; anterior margin of pale marks on tergite 3 almost straight *latifasciatus* (male)  
 - post-ocular orbits adjacent to vertical triangle approximately as wide as length of an ocellus; anterior margin of pale marks on tergite 3 deeply concave (fig.1e) *goeldlini* Mazanek, Láška & Bičík (male)
- 12 Sternites 4 and 5 each with an angular, transverse black mark or band (fig.1d) **13**  
 - Sternite 4 with a rounded black mark; sternite 5 entirely pale (fig.1h); hind femora entirely yellow (posterolateral hair fringe on front femur mostly pale; 2nd basal cell of wing with 30% or more of surface bare of microtrichia; frontal dust spots occupying more than 50% of width of frons) *goeldlini* (female)
- 13 Posterolateral hair fringe on front femur almost entirely black; 2nd basal cell of wing entirely or mostly covered (up to 30% bare) in microtrichia; legs entirely yellow; frontal dust spots occupying <50% of width of frons *nitens* (Zett.) (female, part)  
 - postero-lateral hair fringe on front femur mixed black and yellow; 2nd basal cell of wing 50% or more bare of microtrichia; legs with bases of all femora black and hind femora with basal half or more of length black; frontal dust spots occupying 50% or more of width of frons *bucculatus* (female)
- 14 Males **15**  
 - females **16**
- 15 Hind femora black for basal half or less of their length *luniger* (Mg.) (male, part: southern Europe and a good proportion of specimens from further north)  
 - hind femora black for basal two thirds to three quarters of their length *lucasi* (male) and *luniger* (male, part: many specimens from the more northerly parts of the Atlantic zone)
- 16 Pale markings on tergites 3 and 4 reaching the lateral margins of the tergites (black area on frons extending forward medially, for a distance of one third or less the distance between the anterior ocellus and the lunule) *corollae* (female)  
 - pale marks on tergites 3 and 4 not reaching the lateral margins of the tergites (in the female, the black area on the frons extends forwards, as a median Y-shaped or V-shaped mark, for more than half the distance between the anterior ocellus and the lunule) *luniger* (female)
- 17 Males **18**  
 - females **20**
- 18 Tergite 5 with lateral margins partly yellow (wing with 2nd basal cell partly bare; alula entirely, or almost entirely covered in microtrichia) *bucculatus* (male, part)  
 - Tergite 5 with lateral margins entirely black **19**

- 19 Alula entirely covered in microtrichia; ocellar triangle clearly longer than wide; angle between eyes c 90° (pale markings on tergite 3 and tergite 4 in the form of a narrow, undulating, transverse band that reaches the lateral margin of the tergite, or a pair of separated transverse bars that may or may not reach the lateral margins ) *nitens* (Zett.) (male)
- Alula with a distinct, but narrow area bare of microtrichia basally; angle between eyes distinctly greater than 90°; ocellar triangle equilateral (pale markings on tergite 3 and tergite 4 in the form of a pair of separated transverse bars that do not reach the lateral margins of the tergites) *nielsenii* (Dusek & Láška) (male)
- 20 Legs with hind femora black for c.50% of their length (frontal dust spots usually covering 50% or more of width of frons; alula with or without bare area across base) **21**
- hind femora entirely orange (frontal dust spots covering <50% of width of frons; alula entirely covered in microtrichia) *nitens* (female, part)
- 21 Lateral margins of tergite 5 entirely black; clypeus 1.75-2x as long as broad (alula with area bare of microtrichia across base) *nielsenii* (female)
- lateral margins of tergite 5 partly pale (yellowish); clypeus 1.25-1.5x as long as wide (alula with or without a narrow bare area at base) *bucculatus* (female, part)

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