

## Separate status for *Bellardia pruinosa* (ENDERLEIN, 1933) (Diptera, Calliphoridae)

[Separater Status für *Bellardia pruinosa* (ENDERLEIN, 1933) (Diptera, Calliphoridae)]

by  
Knut ROGNES

Stavanger (Norway)

<b>Abstract</b>	<i>Ambodicria pruinosa</i> ENDERLEIN, 1933 is removed from the synonymy of <i>Tachina obsoleta</i> MEIGEN, 1824 and established formally as separate species named <i>Bellardia pruinosa</i> (ENDERLEIN), an action already proposed in the recent German check-list of Calliphoridae. Confusion concerning which genital preparation belongs to the lectotype is resolved.
<b>Key words</b>	Diptera, Calliphoridae, <i>Bellardia, pruinosa, obsoleta</i> , Italy, ENDERLEIN
<b>Zusammenfassung</b>	Die Synonymie von <i>Ambodicria pruinosa</i> ENDERLEIN, 1933 mit <i>Tachina obsoleta</i> MEIGEN, 1824 wird aufgehoben und erstere nunmehr als separate Art <i>Bellardia pruinosa</i> (ENDERLEIN) betrachtet. Diese Auffassung wurde bereits in der deutschen Checkliste der Calliphoridae vorgeschlagen. Die Zuordnung der Genitalpräparate zum Lectotypus wird geklärt.
<b>Stichwörter</b>	Diptera, Calliphoridae, <i>Bellardia, pruinosa, obsoleta</i> , Italien, ENDERLEIN

### Introduction

ENDERLEIN (1933) described a nominal species *Ambodicria pruinosa* on the basis of an unspecified number of specimens of both sexes from «Mittel-Europa» and a single female from «Schneeberg», all from the collection of H. LOEW, now in Museum für Naturkunde der Humboldt-Universität zu Berlin (MNKHUB). It was referred to a new genus, *Ambodicria* ENDERLEIN, 1933, because of the cell  $r_{4+5}$  being closed in margin or having a small stalk. ZUMPT (1956) revised the material, provided figures of the male genitalia (Taf. II, fig. 14f; Taf. III, fig. 16b) and referred the species to *Melinda* ROBINEAU-DESVOIDY, 1830, as *Melinda pruinosa*. SCHUMANN (1974) in his large revision of Palaearctic *Bellardia* ROBINEAU-DESVOIDY, 1863, also studied the material before ENDERLEIN and ZUMPT. SCHUMANN designated a lectotype for *Ambodicria pruinosa*, sunk it as a synonym of a *Tachina obsoleta* MEIGEN, 1824, and referred both to *Bellardia*.

When trying to identify a new species of *Bellardia* ROBINEAU-DESVOIDY in the course of a revision of blowflies from Israel and adjacent areas, I routinely compared its genitalia with two unidentified male *Bellardia* from Oneglia (Italy, Liguria province) [30 km E of Monaco], collected by ESCHER-KÜNDIG 23.V.1912, that were present in the collections of Eidgenössische Technische Hochschule, Zürich (ETHZ). These latter specimens had been identified by the collector as "*Onesia obsoleta* MEIG." according to entries in his notebook under Nos. 13445 and 13446 (Bernhard MERZ, pers. comm.). However, they did not fit SCHUMANN'S redescrptions of *Bellardia obsoleta* (MEIGEN), neither any other *Bellardia* species treated by him. I subsequently re-identified the specimens as *Bellardia pruinosa* (ENDERLEIN) (treated as a synonym of *B. obsoleta* by SCHUMANN 1974) after having compared its genitalia with two male type specimens of *pruinosa* (specimen A, slide B, and specimen D, below) which I borrowed from MNKHUB. During the study of the latter material I became convinced that *Bellardia pruinosa* should be raised from the synonymy of *B. obsoleta* and be given the status as a separate species.

ROGNES: Separate status for *Bellardia pruinosa* (ENDERLEIN, 1933) (Diptera, Calliphoridae).

### Review of material examined

ITALY: Oneglia [30 km E of Monaco], Liguria province, 2 ♂♂ 23 May 1912 (ESCHER-KÜNDIG, 13445, 13446) (ETHZ) (1 ♂ dissected by K.R.).

GERMANY: The following type material in MNKHUB:

A. The lectotype male of *Ambodicia pruinosa* ENDERLEIN, 1933 designated by SCHUMANN (1974: 241). The wings have the cell  $r_{4+5}$  not closed in margin. Its genital capsule had been removed in the manner of ZUMPT, but the ST5 and T5 are complete and most of the TST7+8 remain in situ. The marginal row of setae is intact on one side. The specimen is glued to a piece of card on a strong pin that carries the following labels:

1. "Onesia / nov. sp. / forte clausa / MCQ." [black ink handwriting]
2. "Coll. / H. LOEW" [printed black letters]
3. "Typus" [printed letters on pale red label]
4. "Ambodicia / pruinosa" "♂" / "Type ENDERL." [blue ink handwriting] "Dr. ENDERLEIN det. 1933" [printed black letters] "33" [blue ink handwriting]
5. "slide no. 81" [ZUMPT's black ink handwriting]
6. "Melinda / pruinosa END. / det. ZUMPT 54" [ZUMPT's blue ink handwriting]
7. "Zool. Mus. / Berlin" [printed black letters on yellow label]

The specimen was sent to me by Dr. SCHUMANN. The «Lectotypus» label mentioned by SCHUMANN 1974: 241 is not present on the specimen. The number "81" may be an error for "8" (see B below). Marion KOTRBA informed me that there is also a second specimen in MNHUB with a «slide no. 8» reference label (see E below).

B. A slide with a circular coverglass and two square, preprinted white labels and two smaller square labels reading as follows:

Upper white label: "Melinda / pruinosa END." / HOST [printed black letters] "♂" "term. 8" [ZUMPT's black ink handwriting]

Lower white label: "Berlin" [handwriting in pencil, ZUMPT's ?] (the word is streaked out with a horizontal pencil mark) / LOCALITY [printed] / "Germany" [ZUMPT's black ink handwriting] DATE [printed black letters] / "lectotypus" [weak inconspicuous handwriting in pencil]

Bright red label: "Typus" [printed black letters]

Greyish yellow label: "Zool. Mus. / Berlin" [printed black letters]

Under the circular coverglass are mounted (1) large parts of T5, the entire T6, an entire TST7+8 with spiracles, and the epandrium with cerci and surstyli (all in one flattened piece); (2) the aedeagus in profile, (3) ejaculatory apodeme with a pregonite and a postgonite. The cerci and surstyli, aedeagus and one pregonite from the slide "8" (B) have been figured on Figs. 1-3. The figure made by ZUMPT of the cerci and surstyli (Taf. III, fig. 16) differ in certain details and may not have been made from the same slide.

Adding further to the confusion it should be mentioned that there is in MNKHUB a specimen under *Bellardia unxia* also with a «slide no. 8» reference label, but it is from Venezia and was determined as *Calliphora biseta* by ZUMPT (Marion KOTRBA, pers. comm.). Slide B cannot belong to that specimen, since it is inconceivable that ZUMPT would have mistaken the genitalia on slide B to be those of *B. unxia* (= *B. biseta*, now = *B. pandia*).

C. A female specimen which has the parts of the abdomen that is behind the anterior half of T3 removed, and which carries these labels:

1. "33" [small square old label with faded black ink handwriting]
2. "Coll. / H. LOEW" [printed black letters]
3. "Typus" [printed letters on pale red label]
4. "Ambodicia / pruinosa" "♀" / "Type ENDERL." [blue ink handwriting] "Dr. ENDERLEIN det. 1933" [printed black letters] "33" [blue ink handwriting]
5. "Zool. Mus. / Berlin" [printed black letters on yellow label]

23 May 1912 (ESCHER-KÖNDIG, 13445).

33 designated by SCHUMANN (1974: 24).  
 genital capsule had been removed in the  
 most of the TST7–8 remain in situ. The  
 is glued to a piece of card on a string of

handwriting]

handwriting] "Dr. ENDERLEIN det. 1912"

ink handwriting]  
 label]

«typus» label mentioned by S. ...  
 may be an error for "S" (see B ...  
 in MNHUB with a slide no. ...

white labels and two smaller square

black letters] "3" term 87 [Zumpt's

s?] (the word is streaked out with a  
 Zumpt's black ink handwriting] DATE  
 handwriting in pencil]

letters]

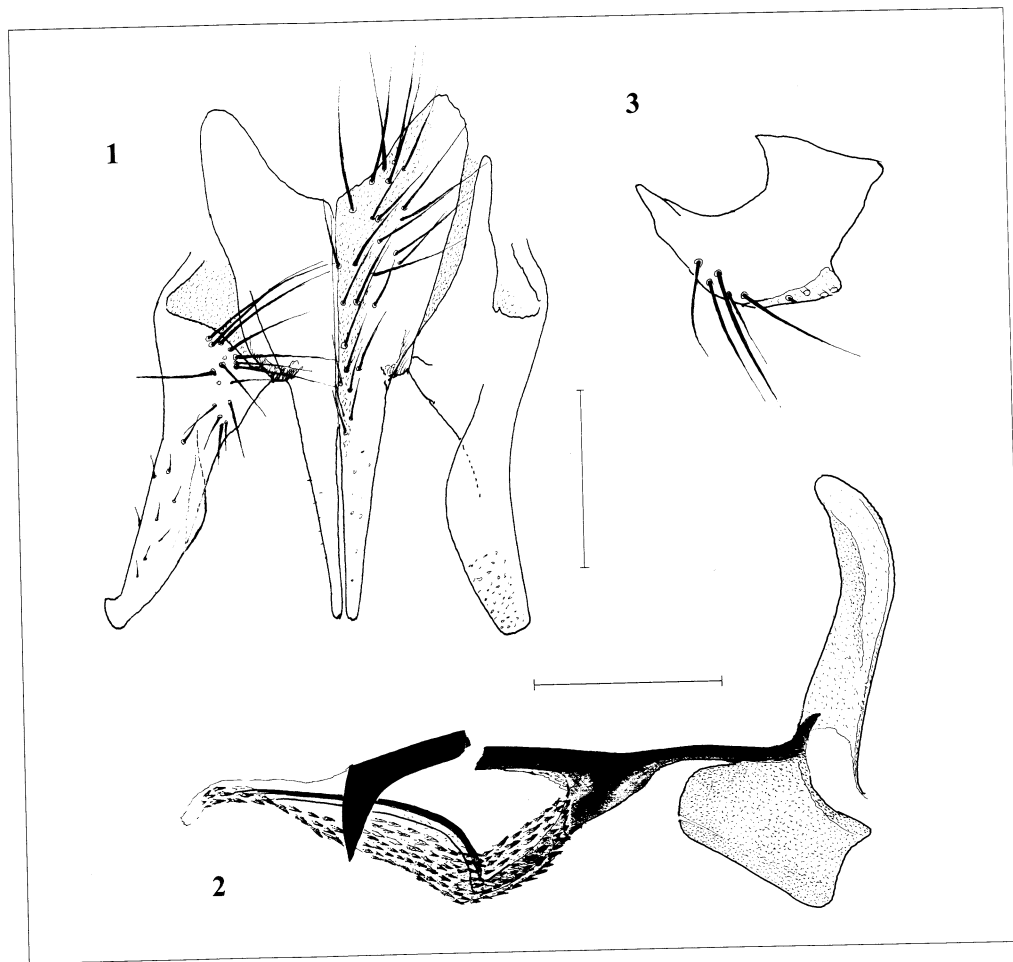
T5, the entire T6, an entire TST7+8  
 one flattened piece) and the aedeagus  
 postgonite. The cerci and surstyli  
 are figured on Figs. 1–3. The figure  
 in certain details and may not have

there is in MNKHUB a specimen  
 label, but it is from Venezia and was  
 pers. comm.). Slide B cannot being  
 have mistaken the genitalia on slide B

is behind the anterior pair of T3

ing]

handwriting] "Dr. Enderlein det.



**Figs 1–3:** *Bellardia pruinosa* (ENDERLEIN), ♂ (slide B, «term. 8», MNKHUB, see text for explanation). – 1: Cerci and surstyli, posterior view; – 2: Aedeagus, right lateral view; – 3: Pregonite. Scale = 0.2 mm

Between labels (4) and (5) are a glass microvial with abdominal parts in a fluid judged to be glycerol. The vial has a very long cork stopper.

**D.** A male specimen with ST5 and much of T5 intact but with the remaining genital parts removed. The wings have the cell  $r_{4+5}$  closed with a short stalk. Below the specimen is a pinned card on which is glued a dried entire genital capsule consisting of the epandrium and cerci, surstyli, aedeagus, pre- and postgonites, ejaculatory apodeme and ejaculatory sclerite, but without traces of T5, T6 and TST7+8. The specimen carries these labels:

1. "43" [small square old label with faded black ink handwriting]
2. "Coll. / H. LOEW" [printed black letters]
3. "pruinosa END. / det ZUMPT 53" [ZUMPT's black ink handwriting]
4. "Typus" [bright red label with black printed letters] [label as on slide "8", B above]
5. "Zool. Mus. / Berlin" [printed black letters] [label as on slide "8", B above]
6. "Zool. Mus. / Berlin" [printed black letters on greyish yellow label] [label as on slide "8", B above]

The cerci and surstyli are clearly conspecific with those on slide "8" described above.

- E. A slide in MNKHUB labelled "81", but the text on the label is not in ZUMPT's handwriting. On that slide one label states that it is from specimen of *Bellardia stricta* (VILLENEUVE) from "Genthin, Sachsen" and another label states «*Bellardia / pruinosa* (END.) ? / Typus Hypopygium / präp. ZUMPT Wahrscheinlich ver- / wechslung / Mitteleuropa». Furthermore, it has a square coverglass. The genitalia are different from those of slide B and most likely belong to a specimen of *B. stricta*. There is present in MNKHUB a second adult specimen, which I have not seen, and which, like specimen A, carries a "slide no. 81" reference label, but that specimen is not from Genthin, and it is determined by ZUMPT as "*Calliphora pusilla*" (according to information provided by Marion KOTRBA). So some confusion therefore remains, but that does not seem to involve the identity of the lectotype.
- F. A slide with circular coverglass, labelled with the same type of preprinted labels as on slide B, but with the following handwritten ink text by ZUMPT. Label 1: "*Melinda / pruinosa* END." / "♂" "term. 35"; label 2: "Berlin" [weak pencil writing] / "Biskra / Algier" DATE "III/08". Under the coverglass are four units: an entire T5, aedeagus, the T6 and ST7+8 and epandrium with genitalia in one piece, the hypandrium with a pregonite and the ejaculatory apodeme. I am not convinced that these genitalia are conspecific with those on slide B or on specimen D.
- G. A slide with circular coverglass, labelled with the same type of preprinted labels as on slide B, but with the following handwritten ink text by ZUMPT. Label 1: "*Melinda / pruinosa* END." / "♂" "term. 17"; label 2: "Berlin" [weak pencil writing] "Milledorff" (?). Under the coverglass are parts of T5, TST7+8, epandrium and genital capsule in one flattened piece. The genitalia are conspecific with those on slide B or on specimen D, thus = *pruinosa* ENDERLEIN.
- H. A slide with circular coverglass, labelled with the same type of preprinted labels as on slide B, but with the following handwritten ink text by ZUMPT. Label 1: "*Melinda / pruinosa* END." / "♂" "term. 35"; label 2: "Berlin" [weak pencil writing] "Germany". Under the coverglass are three units: aedeagus, epandrium and genital capsule in one flattened piece, and a crushed assemblage made up of parts of T5, TST7+8, ejaculatory apodeme, hypandrium and pregonites. The genitalia are conspecific with those on slide B or on specimen D, thus = *pruinosa* ENDERLEIN.

### Discussion

The presence of parts of T5 and an entire TST7+8 precludes the possibility that the slide B ["term. 8"] can have been prepared from specimen A, even if (1) it was Dr. SCHUMANN, the very designator of the lectotype, who received my letter of request for type material and sent me the specimen and slide, and even if (2) it is labelled "lectotypus", although not in a very distinctive manner. There appears to have been confusion as to which specimen (A or D) slide B belongs to, even if the specimens are dated from two different years by ZUMPT (in addition to other confusions). The confusion is resolved, however, if one assumes that the genital capsule on the pin of specimen D belongs to specimen A, and that slide "8" (B) has been prepared by ZUMPT from specimen D. The greyish yellow and bright red labels on the pin of specimen D are exactly equal to those found on slide "8" (B), and the absence of much of T5 and TST7+8 from the specimen D corresponds with the presence of T5 and the sclerites behind it on slide B. Conversely, the absence of T5 and TST7+8 from the genital capsule glued to card on the pin D fits in with their presence on specimen A.

Which specimen is the lectotype, specimen A or D? SCHUMANN designated specimen A. But the genitalia on slide B ("term 8") is not dissected from the lectotype, but the genitalia on the card on the pin of specimen D seem to have been. This is fortunate for they can be examined from several angles in the latter.

The surstyli of both males are very characteristic in being constricted at the base and having a flange-like wing along the dorsal side distally (Fig. 1). In profile the surstyli are rather wide distally but with a much narrower portion basally towards the epandrium. The cerci are

label is not in ZUMPT's handwriting. On that  
*stricta* (VILLENEUVE) from "Genthin, Sachsen"  
 ) ? / Typus Hypopygium / präp. ZUMPT  
 ermore, it has a square coverglass. The geni-  
 belong to a specimen of *B. stricta*. There is  
 have not seen, and which, like specimen A.  
 n is not from Genthin, and it is determined  
 tion provided by Marion KOTRBA). So some  
 involve the identity of the lectotype.

type of preprinted labels as on slide B, but  
 1: "Melinda / pruinosa END." / "♂" "term.  
 gier" DATE "III/08". Under the coverglass  
 7–8 and epandrium with genitalia in one  
 y apodeme. I am not convinced that these  
 specimen D.

type of preprinted labels as on slide B, but  
 1: "Melinda / pruinosa END." / "♂" "term.  
 " (?). Under the coverglass are parts of  
 ned piece.

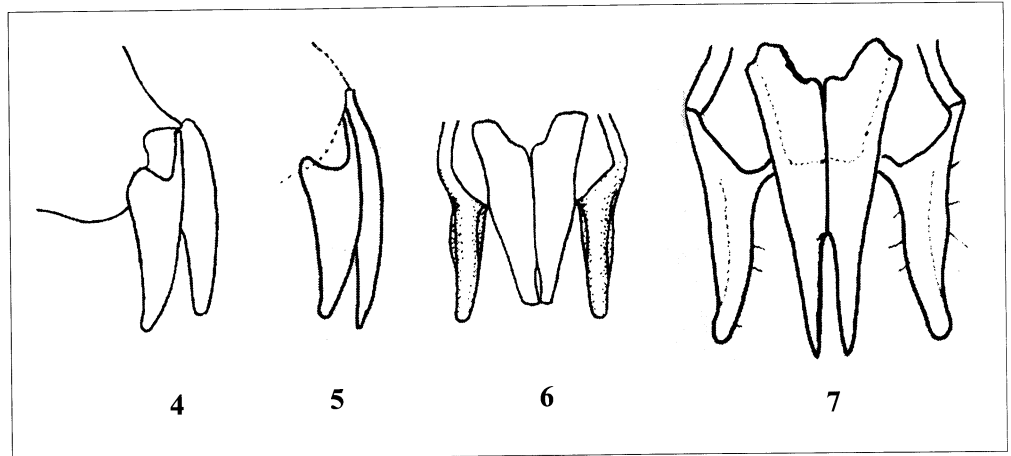
specimen D, thus = *pruinosa* ENDERLEIN.

type of preprinted labels as on slide B, but  
 "Melinda / pruinosa END." / "♂" "term.  
 . Under the coverglass are three units:  
 eece, and a crushed assemblage made up  
 ium and pregonites. The genitalia are  
 = *pruinosa* ENDERLEIN.

cludes the possibility that the slide B  
 ven if (1) it was Dr. SCHUMANN, the  
 of request for type material and sent  
 "lectotypus", although not in a very  
 on as to which specimen (A or D)  
 n two different years by ZUMPT (in  
 . however, if one assumes that the  
 imen A, and that slide "8" (B) has  
 ellow and bright red labels on the  
 slide "8" (B), and the absence of  
 ds with the presence of T5 and the  
 T5 and TST7+8 from the genital  
 nce on specimen A.

MANN designated specimen A. But  
 the lectotype, but the genitalia on  
 This is fortunate for they can be

constricted at the base and having  
 In profile the surstyli are rather  
 ards the epandrium. The cerci are



**Figs 4–7:** *Bellardia obsoleta* (MEIGEN), ♂ (4, 6 from lectotype of *Tachina obsoleta* MEIGEN, 1824). – 4, 5: Cerci and surstylus, profile view; – 6, 7: Cerci and surstylus, dorsal view (all scanned from SCHUMANN 1974: Abb. 2a, 55, 2b, 36, respectively).

slightly bent backwards (*Oneglia* specimens) or straight (specimen D) in profile view, the difference is probably due to the fact that the former is in glycerol. The surstyli in *obsoleta* MEIGEN does not have this basal constriction, are evenly tapering towards apex, and have the cerci gently curved downwards in profile (Figs. 4–7). Thus *B. pruinosa* should not be considered conspecific with *B. obsoleta*.

In conclusion I therefore formally propose that *B. pruinosa* be treated as a good species. This was suggested to Dr. SCHUMANN (in letter January 2, 1997) who followed it up in the Calliphoridae part of the checklist to German Diptera (SCHUMANN 1999). So far, the species is known with certainty only from Italy and Germany.

### Summary of new synonymy

#### *Bellardia obsoleta* (MEIGEN, 1824)

- Tachina obsoleta* MEIGEN, 1824 – MEIGEN 1824: 282
- Onesia clausa* MACQUART, 1835 – MACQUART 1835: 234
- Bellardia vernalis* ROBINEAU-DESVOIDY, 1863 – ROBINEAU-DESVOIDY 1863: 548
- Onesia angusta* SÉGUY, 1928 – SÉGUY 1928: 131

#### *Bellardia pruinosa* (ENDERLEIN, 1933), **stat. rev.**

- Ambodieria pruinosa* ENDERLEIN, 1933 – ENDERLEIN 1933: 125
- Melinda pruinosa*: ZUMPT 1956: 35
- Bellardia pruinosa*: SCHUMANN 1974: 236; SCHUMANN 1986: 14  
(both erroneously in synonymy of *Bellardia obsoleta*)
- Bellardia pruinosa*: SCHUMANN 1999: 135 (separate entry in checklist)

**Notes.** GRUNIN's records of "*Melinda pruinosa*" (GRUNIN 1970) are based on misidentified specimens of *B. bayeri* (cf. Rognes 1991a). SCHUMANN (1974, 1986) listed *Onesia angusta* SÉGUY, 1928: 131 as a synonym of *B. obsoleta*, though described the desolate type material both under *B. obsoleta* (SCHUMANN 1974: 240) and under *B. pusilla* (SCHUMANN 1974: 277).

### Acknowledgments

Thanks to Hubert SCHUMANN and Hella WENDT (Berlin). Marion KOTRBA (then Berlin, now München) and Bernhard MERZ (then Zürich, now Geneva) for loan of material and assistance in various ways.

ROGNES: Separate status for *Bellardia pruinosa* (ENDERLEIN, 1933) (Diptera, Calliphoridae).

---

### Literature

- ENDERLEIN, G. (1933): Neue paläarktischen Calliphoriden, darunter Schneckenparasiten (Dipt.). – Mitteilungen der Deutschen Entomologischen Gesellschaft **4**: 120–128; Berlin.
- GRUNIN, K. YA. (1970): 108. Sem. Calliphoridae - Kalliforidy. – Pp. 607–624 in: BEI-BIENKO, G. Ya. (ed.): Opredelitel' nasekomykh evropeiskoi chasti SSSR, V. Dvukrylye, Blokhi. – Leningrad: Akad. Nauk SSSR, Zool. Inst. [In Russian].
- MACQUART, J. (1835): Histoire naturelle des Insectes. – Diptères **2**: 1-702 or 710; Paris.
- MEIGEN, J. W. (1824): Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. **4**: xii + 1-428; Hamm: Schulzische Buchhandlung.
- ROBINEAU-DESVOIDY, A. J. B. (1863): Histoire naturelle des Diptères des environs de Paris. Oeuvre posthume du Dr ROBINEAU-DESVOIDY publiée par les soins de sa famille, sous la direction de M. H. MONCEAUX **2**: 1–920; Paris, Leipzig, London.
- ROGNES, K. (1991): Blowflies (Diptera, Calliphoridae) of Fennoscandia and Denmark. – Fauna Entomologica Scandinavica **24**: 1–272; Leiden: E. J. Brill/Scandinavian Science Press Ltd.
- SCHUMANN, H. (1974): Revision der palaearktischen *Bellardia*-Arten (Diptera, Calliphoridae). – Deutsche entomologische Zeitschrift (Neue Folge) **21**: 231–299; Berlin.
- SCHUMANN, H. (1986): Family Calliphoridae. – Pp. 11–58 in: SOÓS, Á & PAPP, L. (eds.): Catalogue of Palaeartic Diptera, 12, Calliphoridae-Sarcophagidae, 265 pp.; Budapest: Akademiai Kiado & Amsterdam (etc.): Elsevier.
- SCHUMANN, H. (1999): Calliphoridae. – Pp. 135–137 in: SCHUMANN, H., BÄHRMANN, R. & STARK, A. (eds.): Entomofauna Germanica 2. Checkliste der Dipteren Deutschlands. – Studia dipterologica Supplement **2** (1999): 1–354; Halle (Saale).
- SÉGUY, E. (1928): Études sur les mouches parasites. Tome I Conopides, Oestrides et Calliphorines de l'Europe occidentale. Recherches sur la morphologie et la distribution géographique des Diptères à larves parasites. – Encyclopédie entomologique, Série A Travaux généraux **9**: 1–251; Paris.
- ZUMPT, F. (1956): 64i. Calliphorinae. – In: LINDNER, E. (ed.). Die Fliegen der palaearktischen Region **11**: 1–140 [Lieferungen 190, 191, 193]; Stuttgart: Schweizerbarth.

### Author's address

Dr. Knut ROGNES  
Stavanger University College  
Faculty of Teacher Education  
P. O. Box 8002  
N-4068 Stavanger  
Norway  
E-mail: knrogn@online.no

The paper was accepted on 20 September 2001.

Editem: 25 September 2002.

Please note change of e-mail address:  
[knut@rogn.no](mailto:knut@rogn.no)