

## New species of *Entomobrya* from Germany (Collembola, Entomobryini)

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### Abstract

The systematic study of specimens of *Entomobrya* from various European museums, private collections and other samplings, allows us to describe several species new of the genus. Specimens from Germany, deposited at the Senckenberg Museum of Natural History Görlitz (SMNG), identified as new species as result of this study, are described: *Entomobrya dungeri* n. sp., *Entomobrya germanica* n. sp., *Entomobrya saxoniensis* n. sp., *Entomobrya schulzi* Jordana & Baquero n. sp. and *Entomobrya dorsolineata* n. sp.

**Key words:** morphological characters, chaetotaxy.

### 1. Introduction

During the revision of the genus *Entomobrya* from a loan of Senckenberg Museum für Naturkunde Görlitz (Germany) in view of the publication of the Entomobryini volume of ‘Synopses on Palaearctic Collembola’, and as a result of our re-examination of the specimens provided to us by the museum, new species of *Entomobrya* were identified.

The combined use of colour and macrochaetotaxy allows the identification of new species and provides a good description. The set of characters proposed by Jordana & Baquero (2005), based on a constant and generally visible set of morphological characters (Christiansen 1958; Christiansen & Bellinger 1980), including the dorsal macrochaetotaxy, has proven very useful for the identification of species within the genus *Entomobrya* (Baquero et al. 2010; Jordana & Baquero 2010a; Jordana & Baquero 2010b).

Measurements of the specimens studied (Tab. 1) and a comparative set of character differences among the specimens of various *Entomobrya* species described in this paper (Tab. 2) are provided.

**Abbreviations:** Abd = abdominal segment, Ant = antennal segment, m = mesochaeta, Mc = macrochaeta, psp = pseudopore, SMNG = Senckenberg Museum für Naturkunde Görlitz, Th = thoracic segment.

## 2. Material and Methods

The specimens were mounted in Hoyer medium, sometimes cleared with Nesbitt solution. Observation of the slides was done using an Olympus BX51-TF microscope with a multi-viewing system and phase contrast, and a Zeiss Axio Imager.A1 with differential interference contrast (DIC). For measurements, a UDA drawing attachment UIS (Universal Infinity System) and a scale calibrated with a Graticules Ltd slide (1 mm/0.01 div) were used.

## 3. Results

*Entomobrya dungeri* n. sp. (Figs 1A, 2A–D, 7A–D, Tabs 1–2)

**Type locality.** Germany, Hiddensee Island (Baltic Sea, northeast Germany).

**Type material.** Holotype on slide, labelled as ‘Nat. Mus. Görlitz Hiddensee Island (Baltic Sea, Northeast Germany), Berlese samples (moss layer) 5/2000 leg. Schulz Nat. Mus. Görlitz. *Entomobrya lanuginosa* clearing with Nesbitt’; 3 paratypes, 1 on slide and 2 in a tube with ethyl alcohol, same data as Holotype. Deposited in SMNG.

### Description

Body length up to 1.4 mm excluding antennae (Tab. 1). Body colour whitish or yellowish as in Fig. 1A.

**Head:** Eight ocelli, GH smaller than EF. Antennae length 1045  $\mu\text{m}$ , 3 times the length of the head, Ant IV with simple apical vesicle. Relative length of Ant I/II/III/IV = 1/1.9/1.9/2.2. Labral papillae smooth (Fig. 7A).

**Body:** Length ratio of Abd IV/III <4 (Tab. 1). Claw with 4 internal teeth: first pair at 55% of distance from base of claw; 2 unpaired teeth, first at 73% of distance from base, with the most distal one minute; dorsal tooth basal. Empodium spike-like, with smooth external edge on leg III (Fig. 7B). Length of manubrium and dentes 800  $\mu\text{m}$ . Manubrial plate with 4 chaetae and 2 pseudopores (Fig. 7C). Mucronal subapical tooth similar in size to the terminal one and mucronal spine present (Fig. 7D).

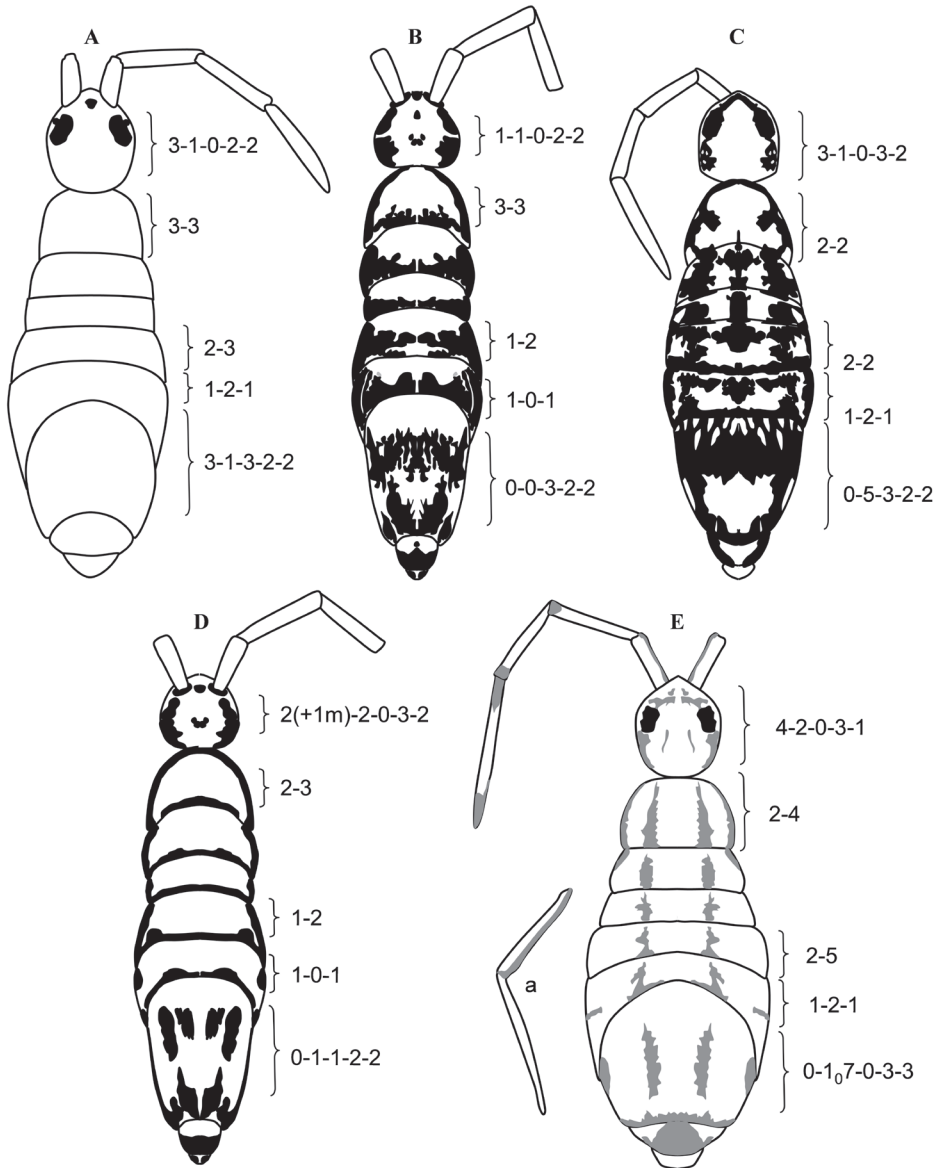
**Chaetotaxy:** Simplified formula: 3-1-0-2-2/3-3/2-3/1-2-1/3-1-3-2-2 (Fig. 1A, Tab. 2).

Head chaetotaxy as in Fig. 2A. Thorax chaetotaxy: T1 area on Th II with 3 macrochaetae ( $m_1$  and  $m_{2j}$ , and an additional chaeta present); T2 area on Th II with 3 macrochaetae (Fig. 2B). Abdomen chaetotaxy (Figs 2C–D): A1 area on Abd II with 2 macrochaetae and A2 area on Abd II with 3 macrochaetae ( $m_3$ ,  $m_{3ep}$  and  $m_{3e}$ ). Abd III with 2 macrochaetae on area A4 and 1 on areas A3 and A5.

**Biology:** Unknown.

**Discussion.** This species has a whitish or yellowish ground colour and can be confused with other species of similar colour that are very common, such as *E. lanuginosa* (Nicolet, 1842). 20 species have the same chaetotaxy on the Abd II (2-3 macrochaetae on areas A1 and A2), a frequent character in *Entomobrya*. However, only 6 species (*E. melitensis* Stach, 1963, *E. minuta* Lee & Park, 1992, *E. nevadensis* Steiner, 1959, *E. numidica* Jordana, Hamra-Kroua & Baquero, 2008, *E. turcestanica* Stach, 1963 and *E. vergarensis* Baquero, Arbea & Jordana, 2010) have 1-2-1 macrochaetae on the A3, A4 and A5 areas of the Abd III, respectively. If we consider the chaetotaxy of Th II, only *E. minuta* is similar to the new species, although both are very different in the Abd IV chaetotaxy, as well as in colour pattern.

**Etymology.** The species is dedicated to Prof. Dr. Wolfram Dunger, German specialist on Collembola at Görlitz.



**Fig. 1** Colour pattern of some *Entomobrya* species described in this paper. **A:** *E. dungeri* n. sp.; **B:** *E. germanica* n. sp.; **C:** *E. saxoniensis* n. sp.; **D:** *E. schulzi* Jordana & Baquero n. sp.; **E:** *E. dorsolineata* n. sp. (a, leg III).

**Tab. 1** Measurements of the studied specimens, in micrometers. ‘-’: no data.

	<i>E. dungeri</i> n. sp.	<i>E. germanica</i> n. sp.	<i>E. saxoniensis</i> n. sp.	<i>E. schulzi</i> Jordana & Baquero n. sp.	<i>E. dorsolineata</i> n. sp.
<b>Ant I</b>	150	175	105	150	400
<b>Ant II</b>	280	375	210	277	570
<b>Ant III</b>	280	350	200	225	430
<b>Ant IV</b>	325	450?	300	300	860
<b>Antenna</b>	1045	1350	815	925	2260
<b>Head</b>	325	425	400	450	550
<b>Ant/head ratio</b>	3.22	3.2	2.03	2.1	4.1
<b>Th II</b>	230	275	225	350	330
<b>Th III</b>	150	200	200	200	250
<b>Abd I</b>	100	150	150	160	180
<b>Abd II</b>	162	150	55	170	230
<b>Abd III</b>	140	175	75	120	200
<b>Abd IV</b>	430	600	400	525	820
<b>Abd IV/III ratio</b>	3.07	3.42	5.33	4.4	4.1
<b>Abd V</b>	160	125	50	150	170
<b>Abd VI</b>	70	75	25	75	70
<b>Body</b>	1372	2175	1580	2200	2800
<b>Manubrium</b>	310/350	-	320	-	740
<b>Dens</b>	385/450	-	360	-	870
<b>Claw</b>	35	40	40	35/40	52
<b>Empodium</b>	24	25	22	25/25	30
<b>Tenent hair</b>	50	45	50	45/45	56

***Entomobrya germanica* n. sp.** (Figs 1B, 3A–D, 7E–I, Tabs 1–2)

**Type locality.** Germany, Colbitz Magdeburg, Saxony-Anhalt.

**Type material.** Holotype on slide, labelled as: ‘Colbitz Magdeburg, Saxony-Anhalt (Germany) heathland 30.8.1995, traps leg. Friedrichs Nat. Mus. Görlitz *Entomobrya multifasciata* Group Clearing with Nesbitt’, 4 paratypes in a tube with ethyl alcohol. Deposited in SMNG.

### Description

Body length up to 2.2 mm excluding antennae (Tab. 1). Body colour pattern as in Fig. 1B.

**Head:** Eight ocelli, GH smaller than EF (Fig. 7E). Antennae length 1350  $\mu\text{m}$ , 3 times the length of the head, Ant IV with simple apical vesicle. Relative length of Ant I/II/III/IV = 1/2.1/2.0/2.6. Labral papillae wrinkled or with some projections (Fig. 7F).

**Body:** Length ratio of the Abd IV/III <4 (Tab. 1). Claw with 4 internal teeth: first pair at 47% of distance from base of claw; 2 unpaired teeth, first at 80% of distance from base and the most distal one minute; dorsal tooth between paired teeth and basal part of the claw. Empodium spike-like, with smooth external edge on leg III (Fig. 7G). Length of manubrium and dens 710  $\mu\text{m}$ . Manubrial plate with 5 chaetae and 2 pseudopores (Fig. 7H). Mucronal subapical tooth similar to terminal one and mucronal spine present (Fig. 7I).

**Chaetotaxy:** Simplified formula: 1-1-0-2-2/3-3/1-2/1-0-1/0-0-3-2-2 (Fig. 1B, Tab. 2).

Head chaetotaxy as in Fig. 3A. Thorax chaetotaxy: T1 area on Th II with 3 macrochaetae ( $m_1$ ,  $m_2$  and  $m_{21}$  present); T2 area on Th II with 3 macrochaetae (Fig. 3B). Abdomen chaetotaxy (Figs 3C–D): A1 area on Abd II with 1 macrochaeta ( $a_2$ ) and A2 area on Abd II with 2 macrochaetae ( $m_3$  and  $m_{3c}$ ). Abd III with 1 macrochaeta on each area A3 and A5.

**Biology:** Unknown.

**Discussion.** According to its colour pattern, this new species could be a form of *E. multifasciata* (Tullberg, 1871) or other similar species with transversal bands on the body. 19 Palearctic species of *Entomobrya* have 1-0-1 macrochaetae on the A3, A4 and A5 areas of Abd III, but only 7 have 1-2 macrochaetae on Abd II (*E. albocincta* (Templeton, 1836), *E. boneti* Jordana & Baquero, 2006, *E. marginata* (Tullberg, 1871), *E. pusilla* Latzel, 1918, *E. pyrenaica* Cassagnau, 1964, *E. schulzi* n. sp. (see below) and *E. transversalis* Baquero, Arbea & Jordana, 2010). Only *E. albocincta* shares the 3-3 macrochaetae on Th II with the new species, but these 2 species are very different in colour pattern, head and Abd IV chaetotaxy, in addition to other morphological features.

**Etymology.** The species name refers to the country.

***Entomobrya saxoniensis* n. sp.** (Figs 1C, 4A–D, 7J–O, Tabs 1–2)

**Type locality.** Germany, Colbitz near Magdeburg, Saxony-Anhalt.

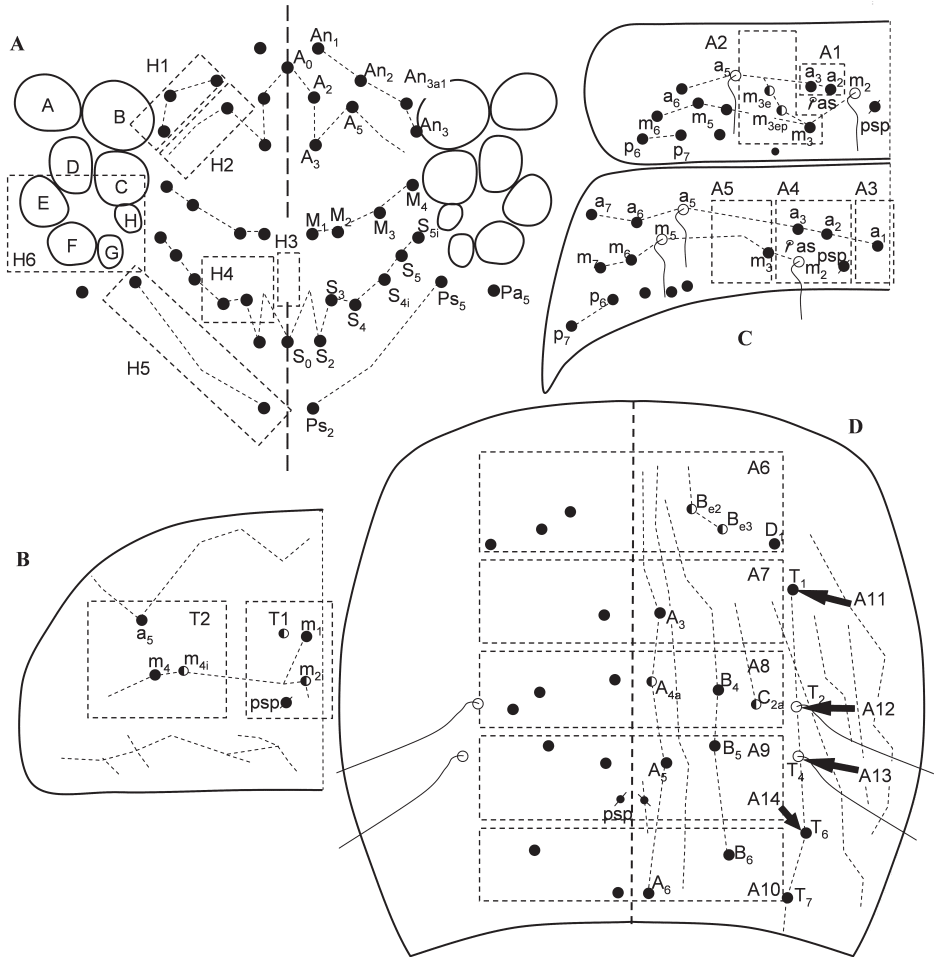
**Type material.** Holotype on slide, labelled as: ‘Colbitz near Magdeburg, Saxony-Anhalt (Germany) heathland, Nat. Mus. Görlitz *Entomobrya* sp’, 30.8.1995, and five paratypes (one on slide and four in a tube with ethyl alcohol). Deposited in SMNG.

### Description

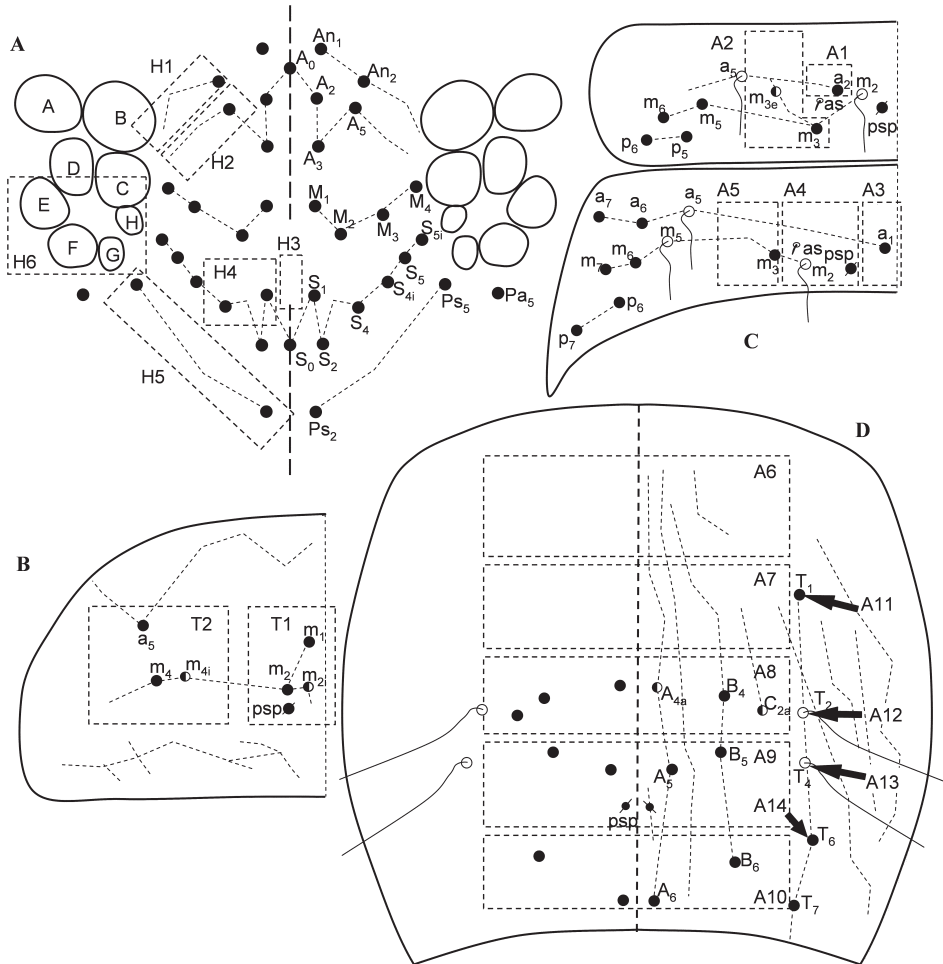
Body length up to 1.6 mm excluding antennae (Tab. 1). Body colour pattern as Fig. 1C.

**Head:** Eight ocelli, GH smaller than EF. Antennae length 815  $\mu\text{m}$ , twice the length of the head, Ant IV with simple apical vesicle; Ant III sensory organ in Fig. 7J. Relative length of Ant I/II/III/IV = 1/2/1.9/2.9. Labral papillae wrinkled or with some projections (Fig. 7K).

**Body:** Length ratio of Abd IV/III >4 (Tab. 1). Trochanteral organ as in Fig. 7L. Claw with 4 internal teeth: first pair at 56% of distance from base of claw; 2 unpaired teeth, first at 67%



**Fig. 2** *Entomobrya dungeri* n. sp. macrochaetotaxy. **A:** head; **B:** Th II; **C:** Abd II–III; **D:** Abd IV (the arrows point to the trichobothria insertions).



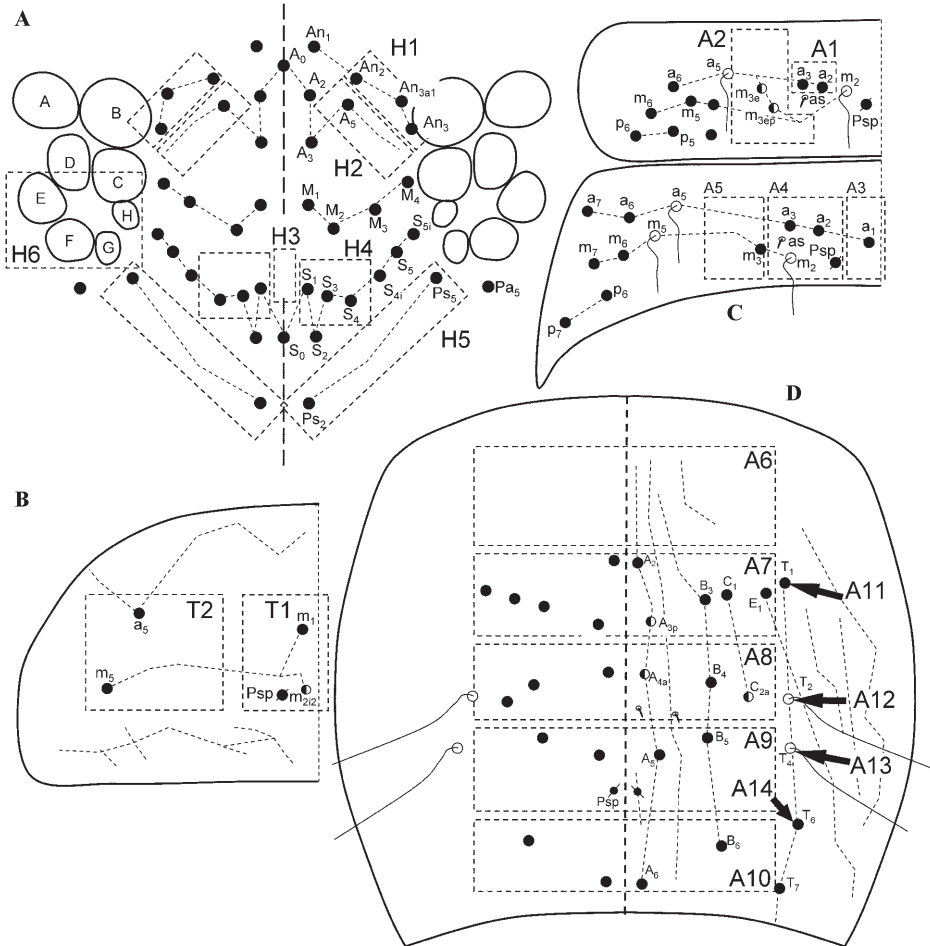
**Fig. 3** *E. germanica* n. sp. macrochaetotaxy. **A:** head; **B:** Th II; **C:** Abd II–III; **D:** Abd IV (the arrows point to the trichobothria insertions).

**Tab. 2** Comparative set of characters among specimens of the different Entomobrya species described in this paper. Number of specimens studied: *E. dungeri* n. sp. (2), *E. germanica* n. sp. (1), *E. saxoniensis* n. sp. (2), *E. schulzi* Jordana & Baquero n. sp. (1), *E. dorsolineata* n. sp. (1). ‘-’: ‘no data’.

Character	Location	Description	Value (Range within the genus)	<i>E. dungeri</i> n. sp.	<i>E. germanica</i> n. sp.	<i>E. saxoniensis</i> n. sp.	<i>E. schulzi</i> Jordana & Baquero n. sp.	<i>E. dorsolineata</i> n. sp.
Ch. 1	H1 (Head)	An <sub>2</sub> -An <sub>3</sub>	1-6	3	1	3	2	4
Ch. 2	H2	A <sub>5</sub> -A <sub>7</sub>	1-3	1	1	1	2	2
Ch. 3	H3	S <sub>0</sub>	0-1	0	0	0	0	0
Ch. 4	H4	S <sub>1</sub> -S <sub>3</sub> -S <sub>4</sub>	0-3	2	2	3	3	3
Ch. 5	H5	Ps <sub>2</sub> -Ps <sub>3</sub> -Ps <sub>5</sub>	0-3	2	2	2	2	1
Ch. 6	labral papillae	simple and smooth papillae (1) wrinkled or with some projections (2) a chaeta-like projection (3)	1-3	1	2	2	1	3
Ch. 7	ocelli G&H size	= E&F (1), <E&F (2)	1-2	2	2	2	2	2
Ch. 8	apical antennal retractile bulb	no bulb (0), lobe simple (1), bilobed (2), trilobed (3)	0-3	1	1	1	2	1
Ch. 9	ratio Ant/Head	> or =3 (1), > or =2 <3 (2), <2 (3)	1-3	1	1	2	2	1
Ch. 10	anterior dorsal mane	Th II Mc with Mc type I (1), without Mc or type 2 (2)	1-2	1	1	1	1	1
Ch. 11	T1	chaetae number m <sub>1</sub> -m <sub>2,2</sub> or >4 (5)	0-5	3	3	2	2	2
Ch. 12	T2	chaetae number a <sub>5</sub> , m <sub>4</sub> -m <sub>5</sub> or >8 (9)	0-9	3	3	2	3	4
Ch. 13	smooth chaetae on tibiotarsi	not or 1 in tibiotarsi III = 0, double file = 1	0-1	0	0	0	0	0
Ch. 14	claw internal teeth	1(1), 2(2), 3(3), 4(4)	1-4	4	4	4	4	4
	paired teeth of claw	distance from claw base, in %	-	55	47	56	42	52
	first unpaired teeth of claw	distance from claw base, in %	-	73	78	67	75	78



<b>Ch.15</b>	claw dorsal tooth	basal = 1, internal teeth level = 2, between pair teeth and basis = 3	1-3	1	3	1	3	1	1
<b>Ch.16</b>	claw internal edge	without ciliation (0), with ciliation (1)	0-1	0	0	0	0	0	0
<b>Ch.17</b>	external empodium	smooth (0), serrate (1)	0-1	0	0	0	0	1	1
<b>Ch.18</b>	A1 Abd II	$a_2$ - $a_3$	0-2	2	1	2	1	2	2
<b>Ch.19</b>	A2 Abd II	$m_3$ series chaetae number	0-7	3	2	2	2	2	5
<b>Ch.20</b>	A3 Abd III	$a_1$	0-1	1	1	1	1	1	1
<b>Ch.21</b>	A4 Abd III	above $m_2$ chaetae number	0-3	2	0	2	0	2	0
<b>Ch.22</b>	A5 Abd III	$m_3$ - $m_4$ series chaetae number	0-4	1	1	1	1	1	1
<b>Ch.23</b>	A6 Abd IV	$a_1$ - $a_3$ ( $A_1$ - $D_1$ ) chaetae number; >8 (9)	0-9	3	0	0	0	0	0
<b>Ch.24</b>	A7 unpaired chaeta	$ma_0$ ( $A_{03}$ )	0-1	0	0	0	0	0	1
<b>Ch.25</b>	A7 Abd IV	$ma_1$ - $ma_4$ ( $A_2$ - $E_1$ ) chaetae number; >9 (10)	0-10	1	0	5	1	7	7
<b>Ch.26</b>	A8 unpaired chaeta	$m_0$ ( $A_{04}$ )	0-1	0	0	0	0	0	0
<b>Ch.27</b>	A8 Abd IV	$m_1$ - $m_3$ ( $A_4$ - $C_{2b}$ ) chaetae number; >5 (6)	0-6	3	3	3	3	1	0
<b>Ch.28</b>	A9 unpaired chaeta	$mp_0$ ( $A_{05}$ )	0-1	0	0	0	0	0	0
<b>Ch.29</b>	A9 Abd IV	$mp_1$ - $mp_3$ ( $A_5$ - $B_5$ ) chaetae number; >6 (7)	0-7	2	2	2	2	2	3
<b>Ch.30</b>	A10 Abd IV	$P_{1a}$ - $P_3$ ( $A_6$ - $B_6$ ) chaetae number; >5 (6)	0-6	2	2	2	2	2	3
<b>Ch.31</b>	A11 Abd IV	$T_1$ ( $ma_{4c}$ ) as trichobothrium	0-1	0	0	0	0	0	0
<b>Ch.32</b>	A12 Abd IV	$T_2$ ( $m_4$ ) as trichobothrium	0-1	1	1	1	1	1	1
<b>Ch.33</b>	A13 Abd IV	$T_4$ ( $mp_4$ ) as trichobothrium	0-1	1	1	1	1	1	1
<b>Ch.34</b>	A14 Abd IV	$T_6$ ( $p_1$ ) as trichobothrium	0-1	0	0	0	0	0	0
<b>Ch.35</b>	ratio Abd IV/III	$2 < R < 4$ (1), $R > 4$ (2)	1-2	1	1	2	2	2	2
	manubrium and dens	total length	-	800	710	680	820	1610	
<b>Ch.36</b>	manubrial plate	chaetae number; >10 (11)	0-11	4	5	5	4	-	-
<b>Ch.37</b>	manubrial plate	pseudopores 1-2	1-2	2	2	1	2	-	-
<b>Ch.38</b>	macro	sub-apical tooth, without (0), normal (1), big (2), smaller (3)	0-1	1	1	1	1	1	2
<b>Ch.39</b>	macro	basal spine, absent (0), present (1)	0-1	1	1	1	1	1	1



**Fig. 4** *E. saxoniensis* n. sp. macrochaetotaxy. **A:** head; **B:** Th II; **C:** Abd II-III; **D:** Abd IV (the arrows point to the trichobothria insertions).

of distance from base and the most distal one minute; dorsal tooth in middle position between the internal paired teeth and the base of the claw. Empodium spike-like, with smooth external edge on leg III (Fig. 7M). Manubrium and dens length 680  $\mu\text{m}$ . Manubrial plate with 5 chaetae and 1 pseudopore (perhaps there are 2, but only 1 has been recognized) (Fig. 7N). Mucronal subapical tooth similar in size to terminal one. Mucronal spine present (Fig. 7O).

**Chaetotaxy:** Simplified formula: 3-1-0-3-2/2-2/2-2/1-2-1/0-5-3-2-2 (Fig. 1C, Tab. 2).

Head chaetotaxy as in Fig. 4A. Thorax chaetotaxy: T1 area on Th II with 2 macrochaetae ( $m_1$  and  $m_{212}$  present); T2 area on Th II with 2 macrochaetae ( $a_5$  and  $m_5$  present) (Fig. 4B). Abdomen chaetotaxy (Figs 4C–D): A1 area on Abd II with 2 macrochaetae and A2 area on Abd II with 2 macrochaetae ( $m_{3ep}$  and  $m_{3e}$  present). Abd III with 2 macrochaetae on area A4 and 1 on each area A3 and A5.

**Biology:** Unknown.

**Discussion.** The colour pattern of this new species is somewhat similar to dark coloured species of *Entomobrya*, but an examination of its chaetotaxy removes all doubt. Only 8 *Entomobrya* species have a similar chaetotaxy (1-2-1 macrochaetae) on the Abd III, and only 2 of them (*E. vadelli* Jordana & Baquero, 2005 and *E. violaceolineata* Stach, 1963) have 2-2 macrochaetae on the Abd II, but the Th II (2-2 macrochaetae) allows an easy identification.

**Etymology.** The species name is dedicated to the land of Saxony.

*Entomobrya schulzi* Jordana & Baquero n. sp. (Figs 1D, 5A–D, 7P–T, Tabs 1–2)

**Type locality.** Germany, Dubringer Moor.

**Type material.** Holotype on slide, labelled as: ‘Dubringer Moor 1986–1987 leg Voigtländer, traps, pine forest, catalogue number 16102 Nat. Mus. Görlitz *Entomobrya multifasciata* det. Schulz’, and 2 paratypes on the same slide as Holotype. Deposited in SMNG.

### Description

Body length up to 2.2 mm excluding antennae (Tab. 1). Body colour pattern as in Fig. 1D.

**Head:** Eight ocelli, GH smaller than EF. Antennae length 925  $\mu\text{m}$ , twice the length of the head, Ant IV with bilobed apical vesicle (Fig. 7P); Ant III sensory organ as in Fig. 7Q. Relative length of Ant I/II/III/IV = 1/1.9/1.5/2.0. Labral papillae smooth (Fig. 7R).

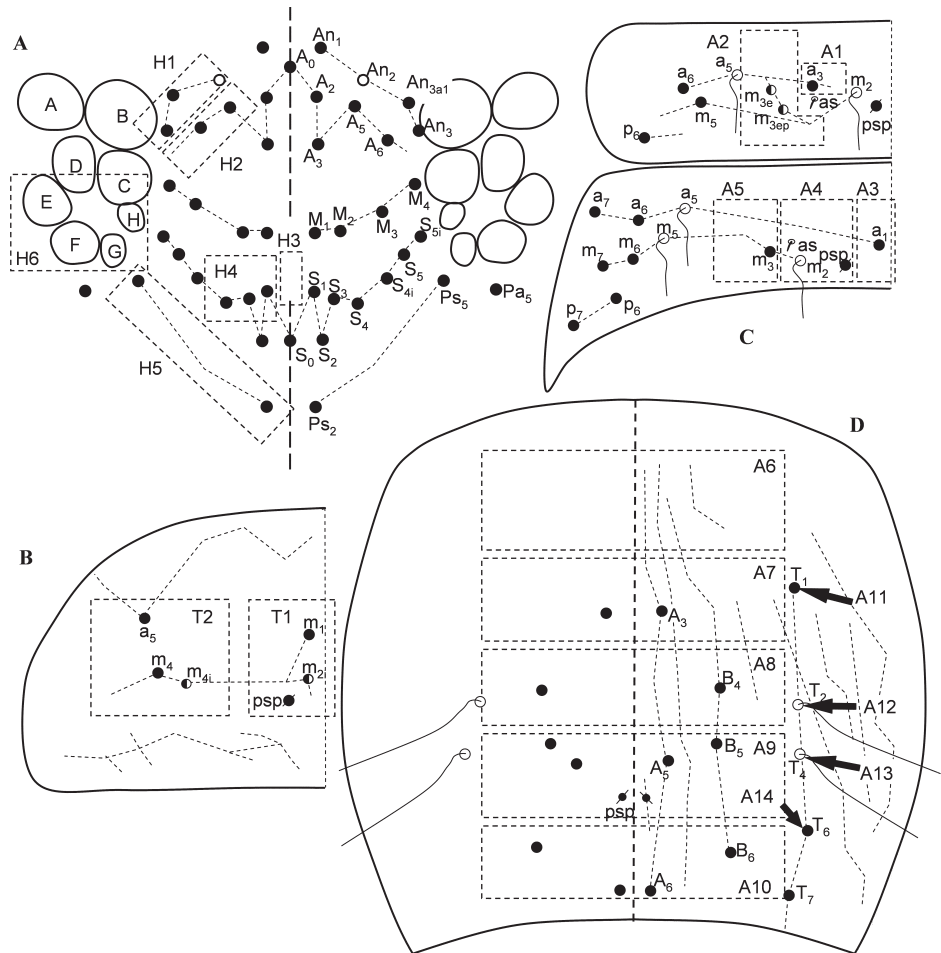
**Body:** Length ratio of Abd IV/III >4 (Tab. 1). Claw with 4 internal teeth: first pair at 42% of distance from base of claw; 2 unpaired teeth, first unpaired at 75% of distance from base and the most distal one minute; dorsal tooth basal (Fig. 7S). Empodium spike-like, with serrate external edge on leg III. Manubrium and dens length 820  $\mu\text{m}$ . Manubrial plate with 4 chaetae and 2 pseudopores. Mucronal subapical tooth similar in size to terminal one. Mucronal spine present (Fig. 7T).

**Chaetotaxy:** Simplified formula: 2(+1m)-2-0-3-2/2-3/1-2/1-0-1/0-1-1-2-2 (in the head, the formula could be 3-2-0-3-2 if  $An_2$  is considered as macrochaeta) (Fig. 1D, Tab. 2).

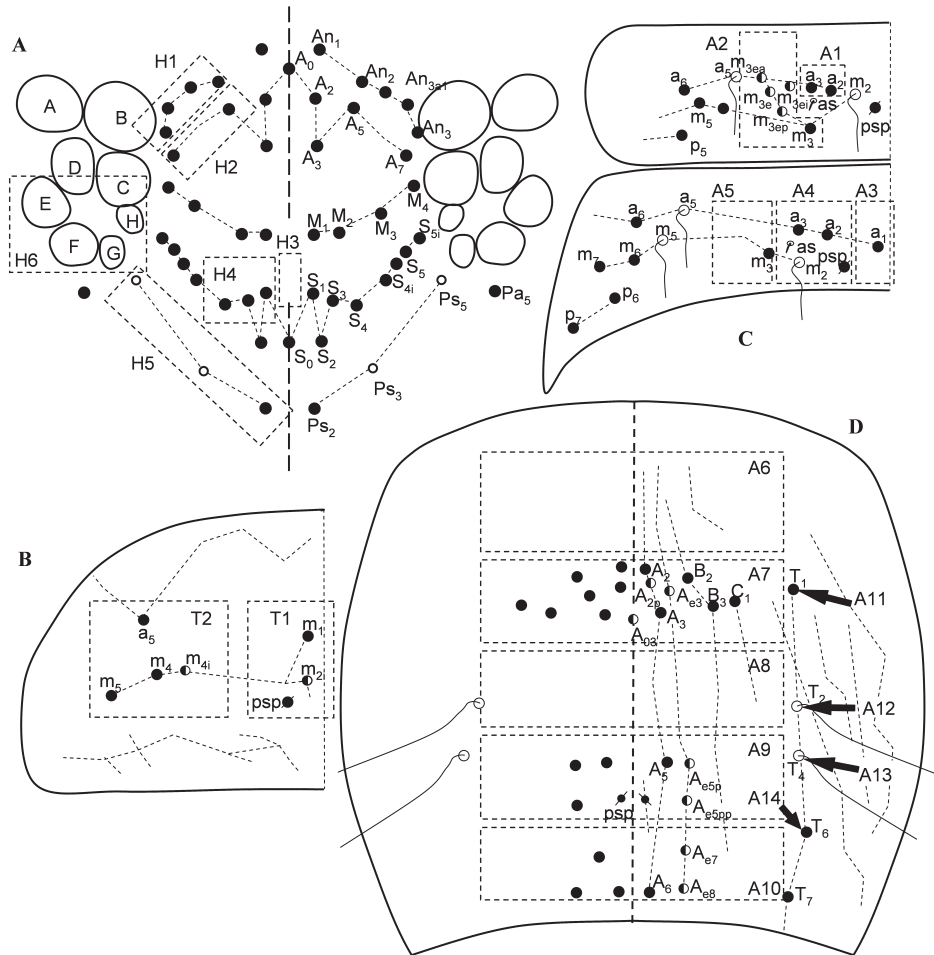
Head chaetotaxy in Fig. 5A ( $An_2$  as a mesochaeta). Thorax chaetotaxy: T1 area on Th II with two macrochaetae ( $m_1$  and  $m_{21}$  present); T2 area on Th II with three macrochaetae (Fig. 5B). Abdomen chaetotaxy (Figs 5C–D): A1 area on Abd II with one macrochaeta ( $a_3$ ) and A2 area on Abd II with two macrochaetae ( $m_{3ep}$  and  $m_{3e}$  present). Abd III with one macrochaeta on each area A3 and A5.

**Biology:** Unknown.

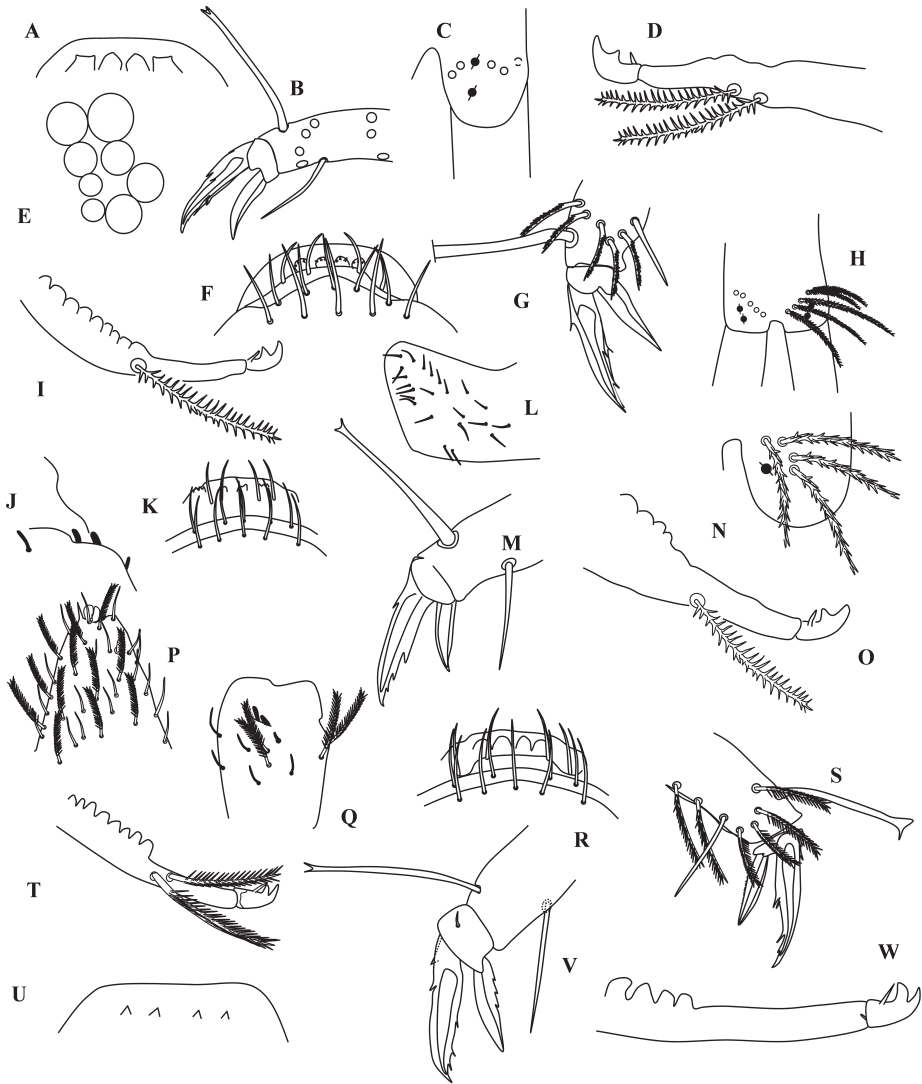
**Discussion.** This new species could be confused with *E. multifasciata* based on coloration. Only 19 species have the same chaetotaxy on Abd III (1-0-1 macrochaetae); 8 are similar in chaetotaxy of Abd II (1-2 macrochaetae) but only three (*E. boneti*, *E. pusilla* and *E. pyrenaica*)



**Fig. 5** *E. schulzi* Jordana & Baquero n. sp. macrochaetotaxy. **A:** head; **B:** Th II; **C:** Abd II–III; **D:** Abd IV (the arrows point to the trichobothria insertions).



**Fig. 6** *E. dorsolineata* n. sp. macrochaetotaxy (Holotype, specimen from SMNG). **A:** head; **B:** Th II; **C:** Abd II–III; **D:** Abd IV (the arrows point to the trichobothria insertions).



**Fig. 7** *Entomobrya dungeri* n. sp. **A:** labral papillae; **B:** claw; **C:** manubrial plate; **D:** mucro and tip of dentes.

*Entomobrya germanica* n. sp. **E:** ocelli; **F:** labral papillae; **G:** claw; **H:** manubrial plate; **I:** mucro and tip of dentes.

*Entomobrya saxoniensis* n. sp. **J:** Ant III sensory organ; **K:** labral papillae; **L:** trochanteral organ; **M:** claw; **N:** manubrial plate; **O:** mucro and tip of dentes.

*E. schulzi* Jordana & Baquero n. sp. **P:** Ant IV apical vesicle; **Q:** Ant III sensory organ; **R:** labral papillae; **S:** claw; **T:** mucro and tip of dentes.

*E. dorsolineata* n. sp. **U:** labral papillae; **V:** claw; **W:** manubrial plate.

have the same chaetotaxy on Th II; the new species has 0-1-1-2-2 macrochaetae on Abd IV while the other species have a different chaetotaxy on this segment.

**Etymology.** The specific name is dedicated to Dr. Hans-Jürgen Schulz, Görlitz's taxonomist.

***Entomobrya dorsolineata* n. sp.** (Figs 1E, 6A–D, 7U–W, Tabs 1–2)

**Type locality.** Germany, Kyffhäuser.

**Type material.** Holotype on slide (clearing), Deutsch. Entomol. Institut. Coll. Carl Börner - Kyffhäuser 1920 July, pilgrim house, previously identified as *Entomobrya corticalis*. Deposited in SMNG.

**Description**

Body length up to 2.8 mm excluding antennae (Tab. 1). Body colour pattern as in Fig. 1E.

**Head:** Eight ocelli, GH smaller than EF. Antennae length 2260  $\mu\text{m}$ , 4 times the length of the head, Ant IV with simple apical vesicle. Relative length of Ant I/II/III/IV = 1/1.4/1.1/2.2. Labral papillae very small, with a chaeta-like projection (Fig. 7U).

**Body:** Length ratio of Abd IV/III >4 (Tab. 1). Claw with 4 internal teeth: first pair at 52% of distance from base of claw; 2 unpaired teeth, first unpaired at 78% of distance from base and the most distal one minute; dorsal tooth basal. Empodium spike-like, with serrate external edge on leg III (Fig. 7V). Length of manubrium and dens 1610  $\mu\text{m}$ . Mucronal subapical tooth bigger than terminal one, and mucronal spine present (Fig. 7W).

**Chaetotaxy:** Simplified formula: 4-2-0-3-1/2-4/2-5/1-2-1/0-1<sub>0</sub>7-0-3-3 (Fig. 1E, Tab. 2). Ps<sub>2</sub> always as macrochaeta, but Ps<sub>3</sub> and Ps<sub>5</sub> (mesochaetae) would be considered as macrochaetae.

Head chaetotaxy in Fig. 6A. Thorax chaetotaxy: T1 area on Th II with 2 macrochaetae (m<sub>1</sub> and m<sub>21</sub> present); T2 area on Th II with 4 macrochaetae (Fig. 6B). Abdomen chaetotaxy (Figs 6C–D): A1 area on Abd II with 2 macrochaetae and A2 area on Abd II with 5 macrochaetae (m<sub>3</sub>, m<sub>3ep</sub>, m<sub>3e</sub>, m<sub>3ei</sub> and m<sub>3ea</sub> present). Abd III with 2 macrochaetae on area A4 and 1 on each area A3 and A5. Abd IV with a macrochaetotaxy distribution similar to an *Homidia* (A7 with 15 macrochaetae), and A8 without Mc.

**Biology:** Unknown.

**Discussion.** The colour pattern is very characteristic in this species, similar to the species with longitudinal bands as *E. quinquelineata* Börner, 1901. 23 species have 1-2-1 macrochaetae on Abd III, but only *E. dorsalis* Uzel, 1891 has the same chaetotaxy on Abd II (2-5 macrochaetae). The new species differs from the latter in having 2-4 macrochaetae on Th II instead of the 4–8 in *E. dorsalis*, and they are very different in colour pattern. Despite being a single specimen from an ancient collection, we describe it here as a new species, because it is still in a good state of preservation after nearly 100 years.

**Etymology.** The species name is referred to the colour pattern.

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## 5. References

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