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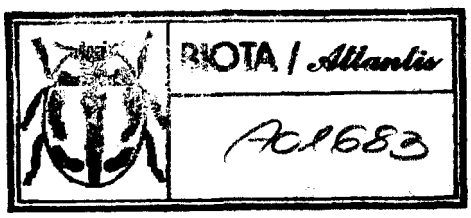

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Larvae of the Canary Islands Stratiomyidae (Diptera)".

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ABSTRACT: The larvae of 4 Canarian species (Nemotelus insularis Becker, Oxycera stiamosa Kertész, Alliophleps elliptica Becker, and Zabrachia occidentalis Rozkosný E Báez) are described. All the known larvae of Stratiomyidae frorn the Canary Islands /i.e. 4 eridemic species mentioned above and the larva of cosmopolitan tiermetia illucens) are illustrated, keyed and compared with related forms.
Key words: larvae, Stratiomyidae, Diptera, Canary Islands.

RESUMEN: Se describen las larvas de cuatro especies de Estratiómidos canarios (Nemotelus insularis Becker, Oxycera stigmosa Kertész, Alliophleps elliptica Becker y Zabrachia occidantalis Rozkosný & Báez). Se comparan todas estas larvas (incluída la de la especie cosmopolita Hermetia illucens (L.)) con las de las especies más próximas, se ilustran sus caracteristicas más notables y se elabora una clave de todas ellas.
Palabras clave: larva, Stratiomyidae, Diptera, Islas Canarias.

According to a recent revision (ROZKOŠNÝ E EAEZ, 1983) the fauna of Stratiomyidae on the Canary Islands consists of 5 endemic forms (Nemotelus insularis Eecker, Oxycera s u - Kertész, Oxycera arancanariensis Frey, Alliophleps elliptica Becker and Zabrachia occidentalis Rozkošný E Báez) and one virtually cosmopolitan species Hermetia illucens (L.) which has been dispersed by commerce. We had the opportunity to study the larvae of all the speciss with the exception of Oxycera grancanariensis Frey. The larvae or puparia were found in several collections (Museo de Ciencias Katurales in Tenerife, hluseum für Naturkunde in Berlin and in ths Al. Báez Collection, Tenerife) or were recently collected on Tenerife (M. Báez!. In this way we succeeded in discovering the larvae of 4 species that have not been described previously. The character state of larvae exarnined fully confirmed the diagnoses given for the appurtenant genera (or subfamilies) in ttie specialized literature. hlorphological structur es, including chaetotaxy, were exarnined arid described according to the general scheme suggested in the monograph of the European Stratiornyidas (ROZKOŠNÝ, 1982,1983).

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KEY TO LARVAE OF CANARIAN STRATIOMYIDAE

1.- Anal segment with a coronet of pinnate setae around posterior spiracular opening (Fig.16); aquatic forms (Oxycera Meigen) ..... Oxycera sticirnosa (Kertész)
- Anal segment without apical pinnate setae forming coronet; terrestrial forrns 2
2.- Anal segrnent projecting into 2 posterior, short and rounded lobes (Figs, 10,13), dorsal setae on abdominal segrnents in 2 rows, i.e. D_2 setae shifted anteriorly (Fig. 9) (Nernotelus Geoffroy) .....Nemotelus insularis Becker
- Anal segrnent rounded or straight posteriorly; dorsal setae on abdominal segrnents in single transverse row (Fig. 23) 3
3.- Anal segment transversely oblorig (Figs. 6-7); body segrnents densely haired; mature larvae large (14.5 - 21.5 mrn long) (Hermetia Latreille) .....Hermetia illucens (Linnaeus)
- Anal segment rounded posteriorly (Fig. 24); body segments only with long setae; mature larvae small (4.8 - 6.3 mm long) 4
4.- Anal segment with apical spiracular cleft, apical setae noticeably short (Fig. 24) (Alliophleps Becker) ..... Alliophleps elliptica Becker
- Anal segnent with dorsal spiracular cleft, apical setae as long as other marginal setae (Fig. 30) (Zabrachia Coquillet) ..... Zabrachia occidentalis Rozkošný & Báez

Hermetia illucens (Linnaeus, 1758) (Figs. 1-7)

The diagnostic characters of the larva and puparium have been revised recently (McFADDEN, 1967; BAEZ, 1975; ROZKOŠNÝ, 1983). Cround colour brown, hairs and setae golden yellow. Anal segment alrnost rectangular, posterior spiracular opening transverse, subapical. Body segments with short, dense and rnostly adpressed hairs, setae strony and pubescent. Dorsal and ventral setae on abdominal segments in single transverse row. Two lateral setae present, rnid-ventral patch on abdominal segrnent 6 distinct. Vestiges of larval spiracles present on thoracic segment 3 and abdominal segments 1-7. Rod-like pupal respiratory horns distinct on abdsminal segments 2-5. Length 14.5-21.5 mm, maximum width 4.8-6.5 mm.

The larvae live in decaying plant and animal materials as terrestrial scavengers. They may also develop in various foodstuffs (decayiny fruits, potatoes, vegeiables, rotting corn, cacao pods, coffee husks) and are reported to cause occasional myiasis in man (LECLERCQ, 1969). The junior author recorded this species frorn the Canary Islands for the first time in 1975 as occurring on Tenerife since 1952. Hermetia illucens is apparently Neotropical in origin but it has been spred by comrnerce alrnost all over the World between about 45ºN and 40ºS.

Nemotelus insularis Becker, 1908 (Figs. 8-13)

The larvae of the genus hernotelus are characterised by the posteriorly notched anal segment and the dorsally situated posterior spiracular opening (cf. ROZKOŠNÝ, 1983). Also their ctiaetotaxy is characteristic: D_2 setae are shifted anteriorly on all abdominal segments and setae L and Sa on the anal segment are long.

Cround colour ochre yellow, with brown pattern cosisting of irregular, mainly undulating, and interrupted longitudinal stripes on both sides. Antennae with cylindrical but chort basal segment, a long and slender apical sensilla distinct. Sternal patch on segment 6 pale and narrow, consisting of about 50 cells in two longitudinal rows. Anal segment transversely divided, tapering posteriorly into a pair of subconical and relatively low apical lobes. Float hairs around posterior spiracular opening not distinct, pupal respiratory horns also not found. Chaetotaxy: Dorsal setas broadened and finely pubescent, D_2 placed virtually above D_1, dorsal setae on abdominal segments parallel or convergent except for anal segment. V_2 and V_3 setae long, V. setae on all abdominal segrnents short, hardly visible among pubescence. Anal segrnent with relatively long D and L, setae, also all ventral setae (5) distinct. Lengtti 8.9-9.2 mrn, maximum width 2.0-2.4 mm.

Conipared with the common Palaearctic N. pantherinus (L.), the larva of N. insularis possesses much shot-ter apical lobes on the anal segment, Cf setae on the head and all dorsal setae on the body segments are much longer. Also setae V_3 are as long as V_2 and ttie dorsal and first lateral setae on ttie anal segment are almost as long as setae Sa; the ventral setae on the anal segment can be clearly distinguished among the pubescence.

The description is based on 2 pupal exuviae from Tenerife: Bajamar, 27.IX.1974 1♀ ex larva, P. Oromí leg. and 27.VII.1975 1♂ ex larva. M. Báez leg. The puparia were found by chance in the laboratory on Pistacia atlantica Desf. Some morphological characters (e.g. evident absence of float hairs arouiid posterior spiracular openirig, the distinct sternal patch and relatively long setae nn body segnients) may indicate the terrectrial mode of life.

Oxycera stigmosa (Kertész, 1916) (Figs. 14-21)

Ttie aquatic larvae of Oxycera have a well-developed filter apparatus with a ventral orifice on the head and a coronet of hydrofuge, pinnate setae on the apex of the anal segrnent. In this respect they resemble some aquatic larvae of Stratiomyini (Stratiornvs, Odontomvia) which, however, have not been found on the Canary Islands.

Yellowish with darker, brownish pattern. Antenna with a slender apical sensilla only slightly longer than apical segrnent. Ventral hooks on penultimste abdominal segrnent long and slender, curved in apical half. Ventral patches on abdominal segments 6 arid 7 clearly visible, elongate-oval. Anal segment with rounded but prominent posterolateral corners. Ventral spiracular plate only slightly emarginate. Ctiaetotaxy: knteroventral setae on abdominal segments present, usually 3 pairs on segrnents 1–6 and 1 pair on segrnent 7, setae dark and short, barely as long as half of ventral setae. Ventral setae as in other aquatic larvae of the genus, i.e. V_2 setae remarkably thin. Anal segrnent with very distinct lateral setae and 4 pairs of ventral setae. Some short encrustate setae present usually at posterior rnargin of abdominal segments on dorsal side. Dorsal spiracular plate with about 4 long pinnate setae on each side and only 3–5 relatively short setae on middle projection. Ventral spiracular plate with 2 groups of pinnate seta- on each side, externai projection bearing 6–7 long setae and internal projection with only 3 long setae each. In general, ventral pinnate setae of apical coronet nearly twice as long as dorsal setae. Pupal spiracles on thoracic segment 1 long, subconical, projecting in. Short lateral respiratory horns distinct on abdominal segrnents 2–7. Length: 6.3–8.8 mrn, maximum width 1.4–2.2 mrn.

According to the diagnostic characters, the larva of O. stiarnosa resembles ti-.at of the European O. pygmaea (Fallen), firstly in the form of the ventral spiracular plate and secondly by having short but well developed anteroventral setae. However, they seem to be distinct'y reduced in O. pygmaea, where only 1–2 pairs are developed on abdominal segments 2–5. Also the dark pattern is apparently much more intense on the larva of O. stiamosa.

The description is based on 73 larvae and puparia collected recently by M. Báez: Tenerife, Los Gigantes, 9.1V.1982, Barranco del Rio, 24.111.1983, Palo Blanco, 23.V1.1984, Barranco del Agua, 12.1X.1985. La Palma, Los Tilos, 17.V.1983.

Thesn larvae are commonly found amongst the algae that grow around seepages of water tants, canals, natural springs, etc.

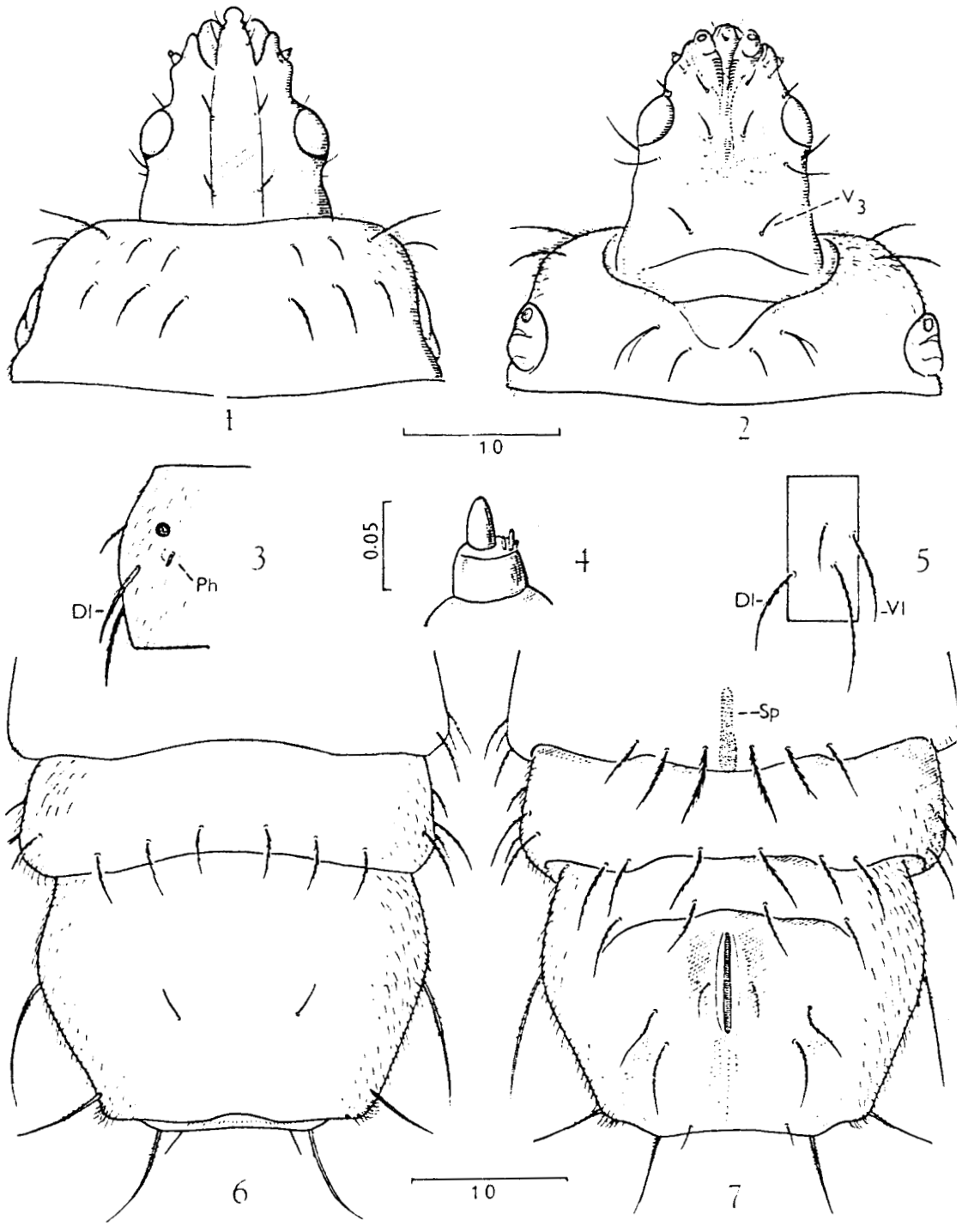
Alliophleps elliptica Becker, 1908 (Figs. 22–27)

Larvae of the genus Alliophleps show all the main diagnostic characters of the Pachygasterinae. They bear the short antennae with a simple apical joint, without any sensilla, abdominal segment 6 always possesses a clearly visible sternal patch and the anal segment is semicircular, rounded posteriorly. The lateral setae on the head are placed close to the anterior margin of the eye and the setae on the body seyments are relatively long, forrning one transverse row dorsally as well as ventrally.

Ground colour yellowish to pale brown. Labrurn slender, tapered anteriorly, labral setae not distinct. Aritennae rninute, placed anterolaterally, setae DI, L and VI_3 lorig, close to eye. Mid-sternal patch on segment 6 elongate-oval, with very fine reticiilation. Anal segment short, sernicircular. Anal slit barely as long as half-length of anal segment, bordered by a row of 10–12 subquadrate teeth on each side. Thoracic segment 1 with usual 2 anterodorsal and 3 dorsal setas on each side, thoracic leg groups with 3 setae, one being distinctly longer than others. Abdominal segments with convergent dorsal and divergent ventral setae. Two lateral setae ori the same segments relatively short. Dorsal and dorsolateral setae slightly clavate, all setae shorter ttian length of abdominal segrnent. All marginal setae on anal segment including apical setae relatively long, but shorter than length of anal segment. Ventral side with 5 pairs of ventral setae. Pupal respiratory horns not found. Length 4.8–5.6 mm, maximum width 1.3 mm.

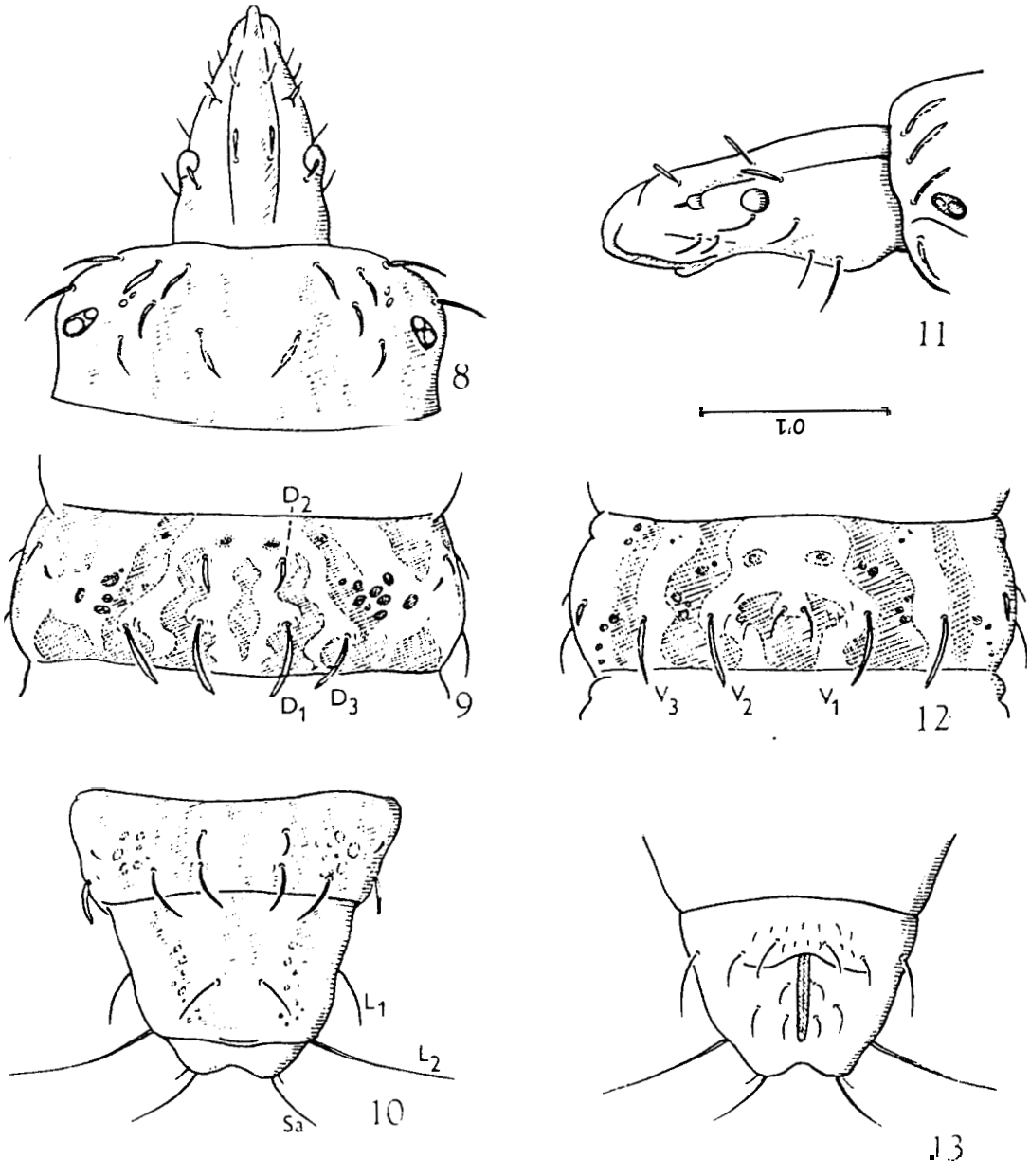
Larvae of this moriotypic arid endemic genus apparently differ frorn all the ottier known Palaearctic forms by the apically situated posterior spiracular openirig. The configuration of the setas on the anal segment also seems to be spscific, the apical setae are almost parallel arid always shorter than other marginal setae.

The description is based α 2 complete puparia and 2 pupal exuviae originating from the large series of specimens deposited in the Museum für Naturkunde in Berlin (Port Orotava, 22.II. larvae, 25–30.V. adults es larva?, G. Enderlein det.; c.f. ROZKOŠNÝ & BAEZ, 1983). The larvae were found en roots of Euphorbia canariensis L.



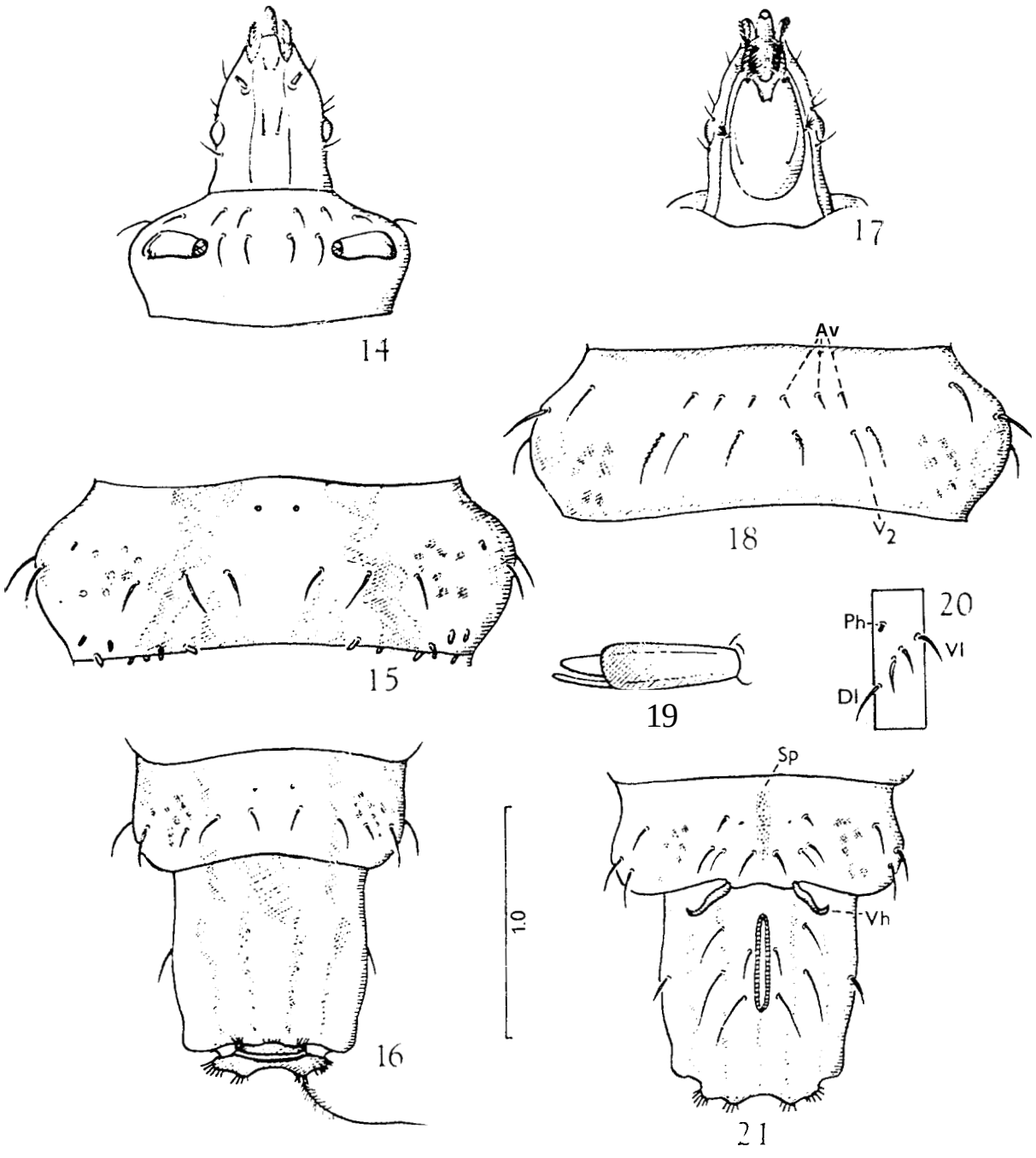
Figs. 1-7.- Larva of Hermetia illucens (L.): 1-2. anterior end in dorsal and ventral view, 3. lateral part of abdominal segment, 4. antenna, 5. schema of setae on lateral wall, 6-7. posterior end in dorsal and ventral view. Scales in mm.

Abbreviations: Dl = dorsolateral setae, Ph = pupal respiratory horn, Sp = sternal patcti, V = ventral setae, Vl = ventrolateral setae.



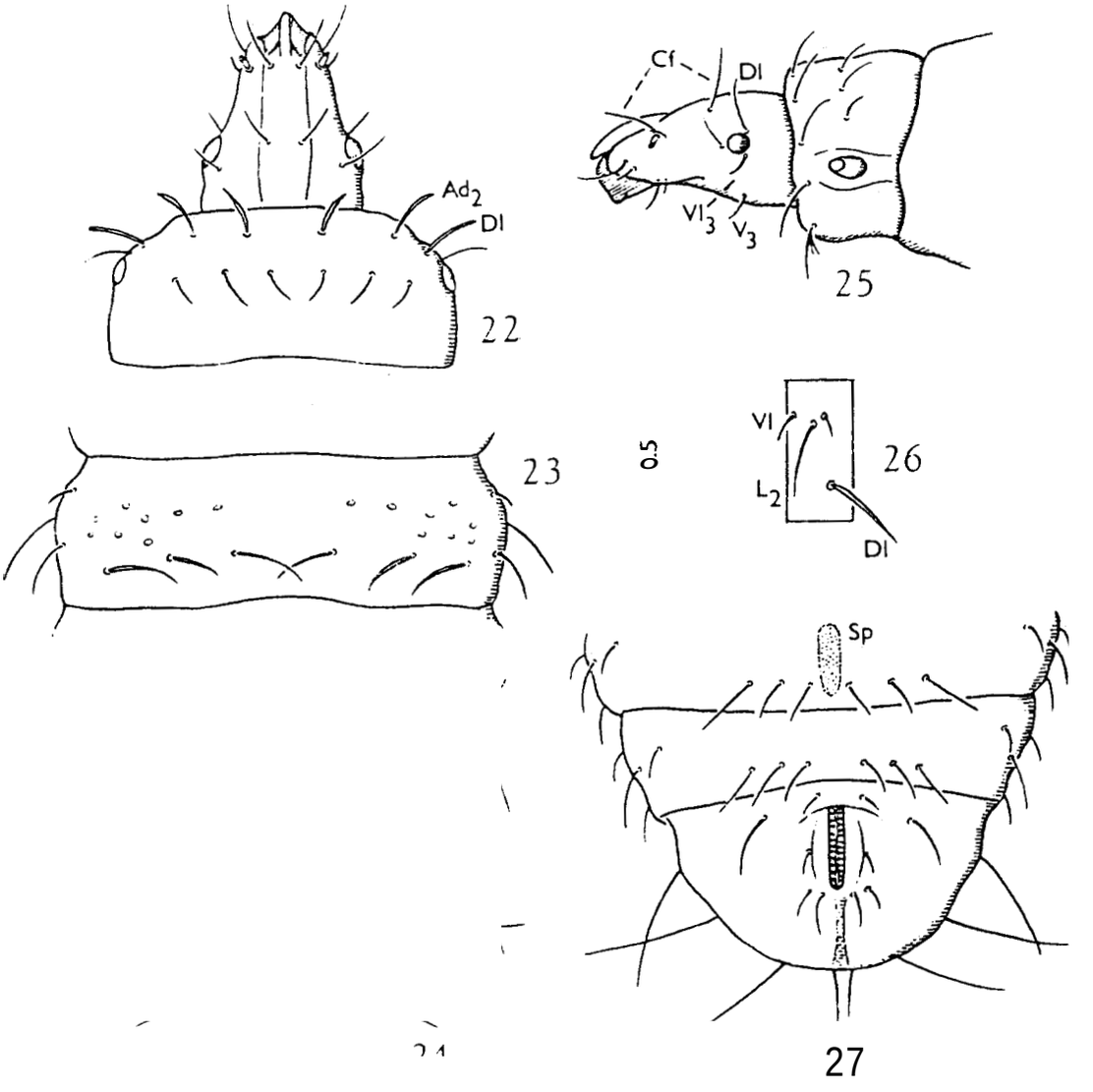
Figs. 8-13.- Larva of Nemotelus insularis Becker: 8, 11. anterior end in dorsal and lateral view, 9, 12, abdominal segment 3 in dorsal and ventral view, 10,13. posterior end in dorsal and ventral view. Scale en mm.

Abbreviations: D = dorsal setae, L = lateral setae, Sa = subapical setae, V = ventral setae.



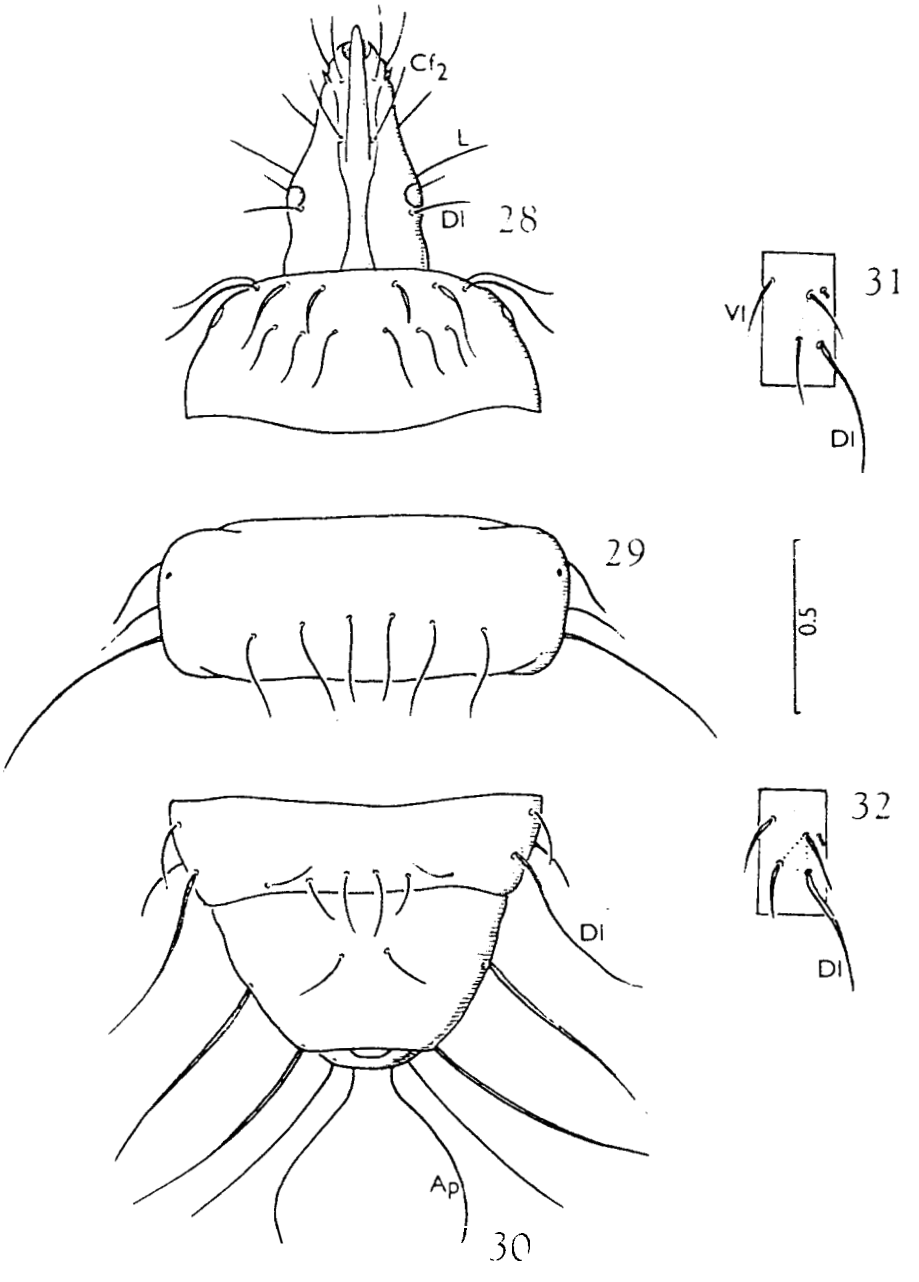
Figs. 14-21.- Larva of Oxycera stigmosa (Kertész): 14, 17. anterior end in dorsal and ventral view, 15, 18. abdominal segment 3 in dorsal and ventral view, 19. aritenna, 20. schema of setae on lateral wall of abdominal segment, 16, 21. posterior end in dorsal and ventral view. Scale in mm.

Abbreviations: Av = anteroventral setae, Di = dorsolateral setae, Ph = pupal respiratory horn, Sp = sternal patch, V = ventral setae, Vh = ventral hook.



Figs 22-27.- Larva of Alliophleps elliptica Becker: 22, 25. anterior end in dorsal and lateral view, 23. abdominal segnient 3 in dorsal view, 24, 27. posterior end in dorsal and vi-ntral view, 26 scherna of setae on lateral wall of abdominal segrnent. Scales in mrn.

Abbreviations: Ad = anterodorsal setae, Ap = apical setae, Cf = clypeo-frontal setae, DI = dorsolateral setae, L = lateral setae, Sa = subapical setae, Sp = sternal patch, V = ventral setae, VI = ventrolateral setae.



Figs. 28-31.- Larva of Zabrachia occidentalis Rozkosný & Báez: 28. anterior end, 29. abdominal segment 3, 30. posterior erid, 31-32. schema of setae on lateral wall of abdominal segment of Z. occidentalis and Z. minutissima (Zett.). Scale in mm.

Abbreviations: Ap = apical setae, Cf = clypeo-frontal setae, DI = dorsolateral setae, L = lateral setae, VI = ventrolateral setae.

Zabrachia occidentalis Rozkošný & Báez, 1983 (Figs. 28-32)

Larvae of the genus are characterised by a rounded anal segment and the small posterior spiracular opening that is placed beyond a transverse fold reaching the lateral margins of the anal segment. The anal slit is moderately long, but without any special cuticular structures at the border, continuing as a deep median groove posteriorly almost to the margin of the anal seyment. The dorsolateral setae on abdominal segments and all the marginal setae on the anal segment are unusually long.

Cround colour pale brown, without any darker pattern, srnall dark cuticular plates visible mainly on puparia. Whitish sternal patch on abdominal segrnent 6 rather large, oval, slightly contricted in middle. Anal segment rounded, with small tubercles at bases of L_2 setae. Spiracular opening small, just beyond a transverse fold. Anal slit with a simple border, occupying about 1/3 length of anal segment and continuing as a groove to posterior rnargin. Chaetotaxy: All setae relatively long and pointed, only D setae on thoracic segments slightly dilated and lateral and ventrolateral setae somewhat clavate. On head Cf_2, DI and L setae almost of the same length, Lb setae indistinct, all other setae well developed. Setae on body segments as in Z. minutissima, i.e. length of dorsal setae not distinctly differerit, from ventral setae V_3 remarkably long. DI setae on abdominal segments considerably long, always longer than half-width of a segment. Dorsal setae directed upwards and slightly convergent, ventral setae divergent. Ventral setae on anal segment complete. Thoracic leg groups consist from 3 setae each, one seta being very long. Length 6.1-6.8 mm, maximum width 1.3 rnm.

Compared with the common Palaearctic species Z. minutissima (Zett.) (the diagnostic characters of the larva were compiled by ROZKOŠNÝ, 1983), the larva of Z. occidentaiis has only indistinct labral setae on the head, the first lateral seta on abdominal segments equals the length of ths second lateral seta (whilst L_1 is distinctly shorter than L_2 in Z. minutissirna) aria some differences were found also in the configuration of the setae on the lateral wall of abdominal segments (c.f. Figs. 31-32).

The only known 2 female specimens were reared from the larvae that had been found in a log of Pinus canariensis. This fact confirms the known host-specificity of the larvae of Zabrachia to coniferous trees. Two pupal exuviae are deposited in the Museo de Ciencias Naturales, Tenerife (Tenerife, La Esperanza, 1.VII.1956, J.M. Fernández leg.).

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