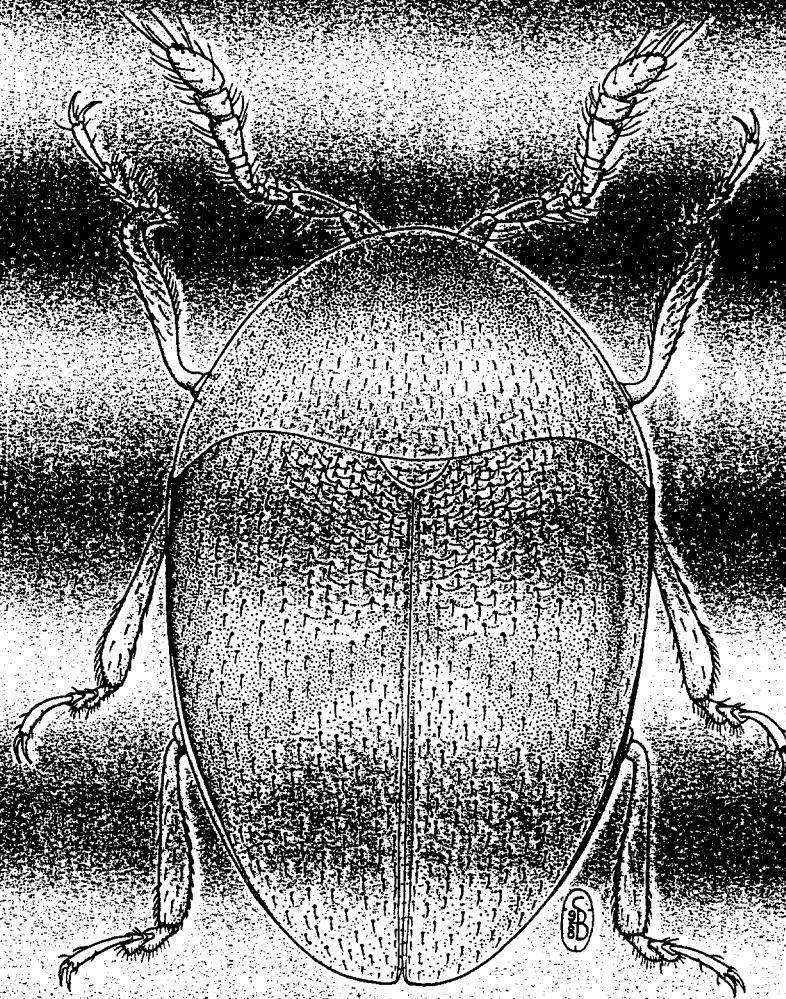
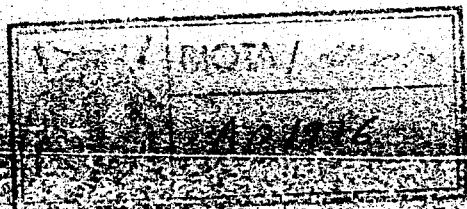


A REVISION OF THE  
CORYLOPHIDAE (COLEOPTERA)  
OF THE  
WEST PALAEARCTIC REGION



Stanley Bowstead

Muséum d'histoire naturelle, Genève  
1999



A REVISION OF THE  
CORYLOPHIDAE (COLEOPTERA)  
OF THE WEST PALAEARCTIC REGION

with 426 figures

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distinctly by the sutural interval which is narrow and has only 1 row of punctures (fig. 67). Its habitus is quite similar to *Arthrolips convexiuscula* (Motschulsky) which also has only 1 row of punctures on the sutural interval (fig. 128). Reference to the underside shows the prosternum of *A. convexiuscula* to be simple (fig. 113), without the median plate of a *Clypastraea* (fig. 48). The other members of this species group are isolated in the Atlantic Islands and cannot therefore be confused with *C. orientalis* which is more eastern in its distribution.

**Distribution.** From central and eastern Mediterranean in the south, to Hungary in the north.

**Biology.** The limited collecting information that is available for this poorly recorded species, suggests that it is associated with old oaks and other deciduous trees. In oak and plane forest (Bense), under bark (Z. Kaszab). This indicates a biology similar to *C. brunnea* (Brisout).

#### *Clypastraea palmi* sp. n.

**Type material.** Holotype female, Canary Islands: Tenerife (Teneriffa), Icod, 400-500 m., 5-17.IX.1966, T. Palm. coll. Palm (UZIL). Paratype female, CANARY ISLANDS: Tenerife (Teneriffa), El Bailadero, 100 m., 17-24.IV.1967 (22.IV. on back of data card), T. Palm (Boweshead).

**Description.** Brachypterous. Males unknown. Females: length 1.04 - 1.15 mm, width 0.75 - 0.77 mm. Pronotum on disc brown testaceous, apical margin pale with 2 pale patches on each side of apex; elytra brown testaceous, slightly infused with testaceous along the suture and at the apex; antennae and legs pale testaceous. A medium sized, short and fairly convex, oval species. Pronotum large and well rounded in anterior outline. Elytra short, ratio of pronotal length to elytral length 1:1.60. Elytra much shorter than any of its congeners; apex without reticulation; sutural interval slightly widened medially and with 1 row of punctures (fig. 69). Punctures of pronotum and elytra well marked, those of pronotum being more indistinct than those of elytra, which are deeper and present a more undulating surface; pubescence pale and long, overlapping the following row of punctures (fig. 70). Head narrow and elongate (fig. 77). Antennae 11-segmented; segments 1 and 2 subequal and very long, 3 slightly shorter, 4, 5 and 6 quadrate, 7 wider, 8 short and transverse, 9, 10 and 11 much wider and transverse, forming broad club (fig. 76). Prosternal plate narrow with strong setae on apical margin; antennal slots wide (fig. 78). Males unknown. Females with apical tergite evenly rounded. Spermatheca very characteristic: sperm duct lobe with well rounded basal bulb and very narrow elongate lobe, entering curved, elongate apical lobe dorsally; gland duct lobe forming large sheath, into which bulb of sperm duct lobe locates; gland duct at base of gland duct lobe (fig. 101).

**Diagnostics.** The holotype was discovered on a card mixed with 9 specimens of the similarly sized *Arthrolips convexiuscula* (Motschulsky) (fig. 128). This is the only species from the Canary Islands that *C. palmi* could be confused with. The short elytra (ratio to pronotum 1:1.60) of this flightless endemic *Clypastraea*, should separate it from *A. convexiuscula* which is fully winged and has longer elytra.

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(ratio to pronotum 1:2.41). This, combined with the more elongate head and wider club to the antennae in *C. palmi* should separate the two species.

**Distribution.** Canary Islands, endemic. This species is known from only two specimens, collected at widely separated points on the north coast of Tenerife.

**Biology.** T. Palm's notebooks give the following information regarding the habitats from which the two specimens were taken. Holotype: collected with other material, whilst sifting mouldy leaf litter in wet or shaded places. The specimen was set on a card amongst 9 specimens of *Arthrolips convexiuscula*. Paratype: collected in leaf litter near old rotten trees in original *Laurus* forest. This limited information suggests that this endemic species should occur anywhere along the north coast of Tenerife, in mouldy leaf litter or rotten wood in relict forest. Males should occur as it can be seen from the females that the sperm duct is present in the spermatheca (fig. 101), showing this to be a functional organ. In parthenogenetic species the sperm duct is absent.

#### *Clypastraea maderae* (Kraatz) comb. n.

*Sacium maderae* Kraatz, 1869: 285.

*Clypeastodes maderae*; Casey 1900: 70.

**Type material.** *Sacium maderae* Kraatz (1869): lectotype (not sexed) (present designation). Madeira: labelled "Clypeaster pusillus? Madeira" Wollaston's hand, "Maderae mihi B.E.Z. 67" Kraatz's hand, coll. Kraatz (DEI), examined. 14 paralectotypes: codes: BMNH No. 346 = Santa Anna 1850, 11 males, 2 females; BMNH No. 673 = Dezena Grande, 1 female, all coll. T.V. Wollaston (BMNH). & 11 paralectotypes: codes: OUM No. 314 = Santa Anna 1850, 3 males, 5 females; & BMNH No. 336 = Santa Anna 1850, 1 male, 2 females, all coll. T.V. Wollaston (OUM), & 1 paralectotype, ex coll. Desbrocher (IRSNB), all examined. CASEY (1900) proposed the generic name *Clypeastodes* on the basis of the enlarged male antennal segments. This is a variable character within the genus *Clypastraea* Haldeman.

**Material examined.** 5 specimens: MADEIRA: 1, No. 610 (not listed with this species name). BMNH No. 610 = *Ceutorhynchus echii* Fabricius Pico de Facho, Porto Santo (BMNH); 3. OUM No. 34 = Boa Ventura (OUM); 1, Santa Anna, no code number, on long narrow card, probably from T.V. Wollaston, coll. Fauvel (IRSNB).

**Description.** Fully winged. Males: length 1.28 - 1.60 mm, width 0.73 - 0.86 mm. Females: length 1.20 - 1.71 mm, width 0.75 - 1.00 mm. Pronotum on disc testaceous brown, apical margin broadly pale testaceous with pale patches on each side of apex; elytra testaceous brown on disc, apex broadly pale testaceous; antennae and legs pale testaceous. A medium large, elongate, depressed species, with pronotum at base slightly narrower than elytra, giving an interrupted outline at the shoulders of the elytra (fig. 73). Elytra elongate, sutural stria long; sutural interval narrow with 1 row of punctures (fig. 73). Punctures of pronotum and elytra strong, with very long, pale pubescence overlapping the next row of punctures (fig. 74); interspaces with indistinct isodiametric cells of microsculpture, characteristic (figs 74, 75). Strongly sexually dimorphic. Males slightly narrower; antennae enlarged with strongly transverse club and stem (fig. 71). Penis less well sclerotised; more elongate laterally (fig. 92); parallel-sided and apically truncate ventrally (fig. 93); with small well formed internal armature; with more pointed apex to biilbous flagellum (fig. 93). Females slightly broader with smaller, normally proportioned antennae (fig. 72). Spermatheca weakly sclerotised with

spaces smooth. pubescence long and pale, overlapping the following row of punctures (fig. 123). Antennae short and robust. 11-segmented; segments 1 and 2 long and subequal, 3 elongate, 4, 5 and 6 short and very transverse. 7 transverse but longer and wider than 6 and 8. 8 short and transverse. 9, 10 and 11 transverse, forming broad club. Prosternum with broadly sinuate anterior margin (fig. 111). Head with narrow base to mentum; submentum narrow and deep (fig. 112). Male apical tergite slightly truncate. Penis evenly curved and robust laterally (fig. 142), broad and robust ventrally with blunt apex (fig. 143); internal armature characteristic; flagellum waisted, broadened medially and rounded apically; lateral winged sclerites tufted and longer than flagellum (fig. 142). Female apical tergite evenly rounded. Spermatheca with large, weakly sclerotised sperm duct lobe; strut-like gland duct lobe with dilated and truncate apex; long crescent-shaped and annulate apical lobe; all entering small, weakly defined body; sperm duct and gland duct entry points adjacent (fig. 156).

**Diagnosis.** The only other large *Arthrolips* in this faunal area, with fine punctures on pronotum and elytra, is *A. obscura* (Sahlberg, C.R.). This can be easily separated from the present species by its 10-segmented antennae, more globose habitus, absence of median depression to elytra (fig. 124) and markedly differently penis and spermatheca.

**Distribution.** Central Europe.

**Biology.** Taken around old deciduous trees. In old faggots (Mulsant & Rey; Lohse), on fungoid old wood stacks (Steffen). This species in its morphology and habits shows the least evolutionary differences between this genus and the closely related *Clypastraea*.

#### *Arthrolips picea* (Comolli)

*Clypeaster piceus* Comolli, 1837: 51.

*Arthrolips regularis* Reitter, 1877: 7, **syn. n.**

*Artlzrolips ferrugatus* Reitter, 1877: 9, **syn. n.**

*Artlzrolips simoni* Reitter, 1885: 273, **syn. n.**

*Sacium parvum* Matthews, 1886: 432, **syn. n.**

*Arthrolips laevicollis* Rey, 1889: 4, **syn. n.**

*Artlzrolips sicarri* Guillebeau, 1897: 164, **syn. n.**

*Sacium mundum* Matthews, 1899: 67, **syn. n.**

*Sacium longipes* Matthews, 1899: 76, **syn. n.**

*Artlzrolips scaber* Matthews, 1899: 101, **syn. n.**

**Type material.** *Clypeaster piceus* Comolli (1837); no Cornolli type exists, but the interpretation of the species has been consistent. This is confirmed by 2 examples from Switzerland: Waad, det. "G. piceus Kunze" by G. Stierlin (DEI). These specimens agree with the interpretation of Wollaston for his Madeiran material which was in turn based on a specimen sent to him by O. Heer. The slight variation in the habitus of this species has led to much synonymy. *Arthrolips regularis* Reitter (1877); lectotype male (present designation). France: Sos. P. Bauduer, coll. E. Reitter (TMB), examined. *Arthrolips ferrugatus* Reitter (1877); lectotype male (present designation). Caucasus; specimen on left, labelled "ferrugatus m. Cauçan Leder", examined. 8 paratypes. Caucasus; 1 female, specimen on right, same mount as lectotype; 5,

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1 female, 4 males, labelled "Kaucas. Leder", coll. E. Reitter (TMB); 2 paralectotypes. Labelled "ferrugatus, Caucas. Leder", coll. A. Fauvel (IRSNB), all examined. *Arthrolips simoni* Reitter (1885): no type exists, but 3 specimens in Reitter collection: 1, labelled "Syria, Haifa. Reitter" (Reitter's hand), & 2, "Syrien. Kaifa. Reitter" (printed exactly as labels in type series of *Peltinus matthewsi* Reitter), all in the "*A. piceus* Comolli" series, coll. E. Reitter (TMB), examined and confirmed *A. picea* (Comolli). This material seems also to have given rise to *Sacium longipes* Matthews (1899): described by Matthews from "Syria, near Haifa (Reitter)". All specimens under that name were missing from the Matthews collection when Mason was working on the manuscript for the monograph (see Mason editorial note p. 28 in Matthews, 1899). The original description refers to the antennae as short and robust, a strong indication that this is the same material as that present in the Reitter collection. *Sacium parvum* (Matthews (1886): lectotype female (present designation). Italy: labelled "Sacium (Fiori) 29. *S. parvum*, Italy, Fiori. Mason No. 116", coll. A. Matthews (BMNH), examined. 1 paralectotype. Italy: "Calabria, 8.I.1887, A. Fiori" (MNHU), examined. *Arrliolips laevicollis* Rey (1889): lectotype female (present designation), France: black disc (= Hyères or St. Raphael), coll. C. Rey (MGL), examined. 4 paralectotypes, France: same data, coll. Rey (MGL) all examined. *Arthrolips sicardi* Guillebeau (1897): lectotype male (present designation). Tunisia: specimen on right Tunise (Gabes), Sicard, coll. F. Guillebeau (MdB), examined. 8 paralectotypes, Tunisia: 1, specimen on left, same card, & 7, same data on cards, coll. F. Guillebeau (MdB), all examined. *Arthrolips scaber* Matthews (1899): lectotype not sexed (present designation). Italy: labelled "Mason No. 295. Matthews No. 181. *A. scaber* Italy, Fiori" (BMNH), examined. 1 paralectotype, not sexed. Italy: labelled "vide Matthews (green card). Eniilia S. Anna. VII.85. A. Fiori" (MNHU), examined. *Sacium mundum* Matthews (1899): lectotype female (present designation), south Europe: Mason No. 190, coll. A. Matthews (BMNH), examined.

M a t e r i a l e x a m i n e d . 1208 specimens, selected data: CANARY ISLANDS: 4; Tenerife, Bajamar, 21.VI.1992, F. Hieke (MNHU). MADEIRA: 51: 15. Ganpajon, 23.IV.1974, & 5, Ganiçal, 30.IV.1974, & 11, Porto Santo. Picos do Castela, 17-19.V.1977, & 3. Porto Santo. Picos Facho, 4.II.1978, all T. Palm (UZIL). MOROCCO: 7. Taïger, 31.III.1959, C. Besuchet (MHNG). PORTUGAL: 9. Algarve, Alvor, Portimão, 2-14.VIII.1992, refuse heap & cut grass, C. Johnson (MM). SPAIN: 77: 19. Marbella, 10-30.IV.1960, & 17. I-21.VII.1962, & 6, Lloret de Mar, 17.IX-6.X.1961, all T. Palm (UZIL): 1. Castellon, 6.V.1966, & 1. Sevilla, Vento del Atto, 8.IV.1959, & 1. Tarragona, Sierra de Montsaut, 23.III.1959, all C. Besuchet (MHNG). ALGERIA: 33: 1. Larba, 180 m. 4.V.1988, & 1. Djurdjura, 4 km S.W. Tikjda, 1200 m. 7.V.1988, & 2. Djurdjura, rte de Tala Guilef, 1100 m. 8.V.1988, all C. Besuchet. 1. Löbl & D. Burckhardt (MHNG); 3. Edough, -III.1851, & 1. Annaba (Bone), -II.1859, & 8. Bordj Menaïel, 1874, all M. Pic & C.E. Leprieur (MNHN). BALEARIC ISLANDS: 5: 4. Ibiza, San Antonio, 1.VI.1966, with *A. humilis* (Rosenh.), & 1. Ibiza, Staden Ibiza, 16-19.VI.1966, with *A. convexiuscula* (Motsch.), all T. Palm (UZIL). FRANCE: 116: 10. Var, Port Grimaud, 11-26.VII.1986, on tent canvas, & 10. Aveyron, Cantobre-Nant, 4-17.VIII.1988, all C. Johnson (MM); 5. Tarn, Pic de Nore, 1153 m. 12.VIII.1995, & 10. Aveyron, Rignac, 1-11.VIII.1988, stacked hay, & 10. Provence, Flayosc, 1-14.VIII.1993, straw bales in field, all S. Bowestead (Bowestead); 1. Hte Savoie, Bossy-Frangy, 10.V.1986, mouldy hay, J. Steffen (Steffen). BELGIUM: 1; Mechtel, 15.V.1989, Van de Meuvel (IRSNB). SWITZERLAND: 92: 2. Waad, det. *G. piceus* Kunze by G. Stierlin, coll. Stierlin (DEI); 1. Tessin, Generoso, 14.VIII.1967, & 1. Tessin, Navazzano, 6.VIII.1974, dead leaves, & 13. VS, Saviese, 19.X.1987, sieving plants, all P. Scherler (Scherler); 17. Genève, Chancy, 15.VIII.1962, C. Besuchet; 3. Vaud, Commugny, 2.I.1960, J. Steffen; 8. VS, La Sarvas, -IV.1969, & 1. VS, S. Leonard, -V.1965, & 25. same locality, -V.1964, all Toumayeff (MHNG); 1. Valais, Fuiges, 14.VI.1953, & 1. 6.IV.1953, all C. Besuchet (ML); 9. Tessin, Agno, -VIII.1952 (UZ); 7. Tessin, Locarno, -VIII.1944 (UZ). CORSICA: 8: 1. Corte, 500 m. 17-18.VIII.1952, H. Lindberg (ZMUH); 1. Calvi, 4-17.VII.1989, sweeping in marsh, C. Johnson (MM). SARDINIA: 23: 1. Viddalba, F. Coghines (SS), 26.V.1995, F. Angelini (Angelini); 8. S. Teresa, -V.1968, with *A. humilis* (Rosenh.), T. Palm (UZIL); 1. CA, W. Arbus, 400 m. 15.IV.1992, & 5. CA, Pso Bidderdi, 490 m. 15.IV.1992, & 1. SS, N. Pattada, 300 m. 13.IV.1992, & 3. NU, S. Sadali, 750 m. 20.IV.1992, all W. Schwaller (SMNS). TUNISIA: 6: 1. Tazoglane, 9.VI.1988, & 1. Hammamet, 11.VI.1988, leaf heap, with *A. convexiuscula* (Motsch.), P. Whitehead (Whitehead);

1. Sfax. 19.11.1959. T. Palm (UZIL). ITALY: 235; 1. Venice, Laguna Venicia. 1944-8. G. Soika (MV); 1. Isl. Elba. G. Paganetti. 1908 (MNHU); 12. Puglia. Circ Mar Piccolo. 21.X.1979. & 1. Lucania. Policoro. 2.XII.1979. & 1. Enilia. Castelvecchio. 31.VIII.1977. all F. Montemurro; 1. Calabria. Piani Aspromonte. 1000 m. 14.VI.1991. & 1. Basilicata. **770** m. Lago Pantano di Pignola. 31.VIII.1991. & 16. Basilicata. Oasi WWF. L.S. Giuliano. 100 m. Ponte Cagnolino. 9.VIII.1991. light trap. all F. Angelini (Angelini). SICILY: 7: 2. Nebrodi. L. Quattrochi. 1000 m, 10.VI.1991. F. Angelini (Angelini). MALTA: 1. St. George's Bay. 4.V.1974. V. Mahuest (MHNG). AUSTRIA: 5; 2. Wien Umg Mader: 2. Bisamberg. F. Bluhweiss (MNHU). POLAND: 1; Bialowieza National Park. 15-27.VI.1991. L. Borowiec (ZIUW). CROATIA: 26: 1. Croatia. Apfelbeck: 2. Dalmatia. Metkovich. 1879. *es.* E. Reitter (TMB). HUNGARY: 394; 15. occ Zalavár. Kisbalaton. 20.III.1950. & 24. Ocsa Nagyerdö. 10.X.1952. all Z. Kaszab: 7. c. Domsod Apajpuszta. 3.X.1952. Kovacs: 1. Békés m. Gerla. Fácaños erdo. 90 m. 20.II.1982. Adam: 1. Pest ni. Sziget-becse. 100 m. 17.IX.1988. & 8. Aggteleki N.P. Szin. Szeipusza. 18.XI.1988. & 3. Pest m. Erd Parkvaros. 12.IX.1994. all O. Merkl (TMB). BOSNIA-HERZEGOVINA: 1; Jablanica. coll. Berger (TMB). CORFU: 4; 1. A. Fiori. vide A. Matthew (MNHU); 1. Valianti. -V.1964. & 1. Pantokrator. -V.1964. all T. Palm (UZIL). GREECE: 32: 1. Corinth. 10.V.1984. & 2. same data. 14.V.1984. all S.A. Williams (MM): 1. Epine. 11 km S. Konitda. 30.IV.1973. I. Lobl: 2. Phthiotide, nr. Theotogos. 10.IX.1974. A. Senglet (MHNG). BULGARIA: 3: 2. Plovdiv. B. Gruev (MM); 1. Albena. 22.VI-5.VII.1985. T. Palin (UZIL). CRETE: 7: 1. Kalo Chorio. 3.VIII.1972. S. Vit (MHNG); 1. Amari. 4.VII.1906. & 1. Anoya. -V.1906. & 1. Herakleon. -V.1906. all L. Biro (TMB); 1. Palon Horizon. 19.V.1973. T. Palin (UZIL). UKRAINE: 1. Chernomorsky zapovednik (Black Sea Reserve). Yagorlutsky ktit. 14.VII.1994. A. Drogvalenko (ZISP). TURKEY: 15; 3. Ankara Slopes. N. Elma Dag. 1100 m. 31.X.1995. dead stump *Salix*. S. Vit: 3. Bursa Gölyaka. 11.V.1976. & 5. Isparta. Egridir-Çandır. 950 m. 6.V.1973. all C. Besuchet & I. Lobl: 1. Sainsun. Samsun-Bafra. 19.V.1967. C. Besuchet (MHNG). CYPRUS: 2; env. Polis. 19.VII. 1977. C. Besuchet (MHNG). ISRTEL: 13: 4. Galilee. Mt. hleron. 900 m. 21.IV.1982. & 1. Judea. Měvasseret. 30.IV.1981. all C. Besuchet & I. Lobl (MHNG); 1. Haifa (Haifa). H. Simon. *ex.* E. Reitter (IRSNB); 3. Haifa (Kaifa). E. Reitter. det. *A. piceus* by E. Reitter (MNHU). RUSSIA: 26: 1. Novorossisk. - VI.1991. N. Bogdünov-Katkov: 5. Slavinskaja prov. Don. 25.V.1943. & 3. Transcaucasia. Mont Bozdag. N. ab Evlach. -XI.(1930?). all N. Bogachev: 1. Kuban region. St. Nevyinnom. 25.V.1902. G. Sumakov (ZISP); Caticasus. Hrlendorf. *ex.* E. Reitter (TMB). AZERBAIJAN: 1. Baku. 30.V.1930. & 2. Glonchaj. -V.1930. all N. Bopachry (ZISP). TURKMENISTAN: 2; Turkmenia. H. Leder. *ex.* E. Reittsr (MNHU). IRAN: 6: 3. Mazanderan Chorteh. 1600 m. 8.VII.1973. & 1. Kordestan S. de Sanan dajd. 21.VI.1975. all A. Senglet (MHNG). AFGHANISTAN: 1: Hazi Rud. 15 km S.E. Hazat. 950 m. 1.IV.1974. L. Papp (TMB).

**Description.** Fully winged. Males: length 1.00 - 1.15 nim, width 0.63 - 0.70 mm. Females: length 0.80 - 1.12 nim. width 0.50 - 0.70 mm. Pronotum pitchy brown on disc. apical margin with just traceable pale patches on each side of apex: elytra pitchy brown: antennae pale brown: legs pale brown. A medium small, elongate, moderately convex species (figs 119, 120) with distinctive but slightly variable habitus in different parts of its wide geographical range. but always with a degree of interruption to the outline at the shoulders of the elytra (fig. 120). Width of pronotum variable in relation to elytra, making anterior margin slightly or more strongly elliptical; basal margin not sinuate. Elytral outline evenly oval: sutural stria long; sutural interval slightly widened and proliinient at suture 1/3 from apex, with 1 row of punctures (figs 120, 121). Scutellum broadly triangular with transverse microsculpture (fig. 121). Punctures of pronotum weaker than those at base of elytra, where they are strong and well marked: pubescence long and pale, overlapping the next row of punctures; inter-spaces with characteristic transverse lines of microsculpture (fig. 121). Antennae short and robust, 10-segmented, normal segment 8 absent, segment 2 bulbous (fig. 102).

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Prosternal anterior margin simple with slight median prominence (fig. 103). Head with narrow base to mentum; submentum narrow and deep (fig. 104). Male apical tergite slightly truncate. Penis bulbous medially with apex sharply hooked in lateral aspect (fig. 140), broad and robust ventrally (fig. 141); internal armature characteristic (fig. 141). Female apical tergite evenly rounded. Spermatheca (fig. 16) composed of long comma-shaped body and apical lobe fused together; gland duct lobe long and strut-like; sperm duct lobe absent; sperm duct and gland duct entry points adjacent (figs 157, 158).

**Diagnosis.** The only other species which can be confused with this is *A.*

*scula* (Motschulsky), which also has strong elytral punctures and where the smallest examples just overlap the size range of *A. picea*. Occasional examples of *A. convexiuscula* show traces of microsculpture between the punctures (figs 130, 131). Reference to the shorter, more robust 10-segmented antennae, with more bulbous segment 2 (*A. convexiuscula* has 11 segments and a longer, narrower segment 2) and the medially widened sutural interval (in *A. convexiuscula* it is parallel to the suture) should easily separate these species. The spermatheca of *A. picea* cannot be confused with that of any other species and is the most reliable character by which to recognise the species.

**Distribution.** Widely distributed, from the Atlantic Islands, across southern Europe and the Mediterranean, to central Asia.

**Biology.** This species can occur in very large numbers around farms. It is most frequently found in mouldy straw in barns and in bales of both straw and hay. It has been taken occasionally in leaf litter and other vegetable debris.

*convexiuscula* group - 4 species . . . . *convexiuscula* (Motschulsky); *klapperichi* sp. n.; *humilis* (Rosenhauer); *indescrita* (Peyerimhoff)

#### Lips *convexiuscula* (Motschulsky)

*Clypeaster convexiusculus* Motschulsky, 1849: 90.

*Arthrolips aequale* Wollaston, 1857: 140. **syn. n.**

*Sacium densatum* Reitter, 1877: 6. **syn. n.**

*Clypeaster nitens* Rey, 1889: 4. **syn. n.**

*Arthrolips doderoi* Reitter, 1898: 17. **syn. n.**

*Sacium oblongum* Matthews, 1899: 64. **syn. n.**

**Type material.** *Clypeaster convexiusculus* Motschulsky (1849); lectotype female (present designation), Spain: labelled "Clypeaster convexiusculus m. Hisp. mer." Motschulsky's hand, coll. Motschulsky (ZMMU), examined. 4 paralectotypes, Spain: 1. labelled "Hisp. mer. Hadsch. coll. G. Kraatz var *convexiusculus* Motsh" Motschulsky's hand, coll. Kraatz (DEI). Hadsch = M. Handschuh who supplied the material to Motschulsky, see Kraatz (1869); 3. Motsch. Hisp. mer. coll. L.W. Schaufuss (MNHU), all examined. *Arthrolips aequale* Wollaston (1857); lectotype female (present designation), Madeira: BMNH. No. 85\* = S. Antonio, Nr. Funchal, autumn 1855, coll. T.V. Wollaston (BMNH), examined. 17 paralectotypes, Madeira: 2. BMNH no. 85\*, coll. T.V. Wollaston (BMNH); 15. OUM No. 625 = S. Antonio, Nr. Funchal, coll. T.V. Wollaston (OUM), all examined. *Sacium densatum* Reitter (1877); lectotype male (present designation), Germany: labelled "densatum m. Pommern" Reitter's hand, coll. E. Reitter (TMB), examined. *Clypeaster nitens* Rey (1889); lectotype female (present designation), Algeria:

labelled "Alger. Suznay", coll. C. Rey (MGL), examined. 2 paralectotypes, Spain: same data, coll. C. Rey (MGL), all examined. *Arthrolips doderoi* Reitter (1898): lectotype male (present designation). Uzbekistan: South Margelan, labelled "Sud Margelan. *Arthrolips doderoi* m." Reitter's hand, coll. E. Reitter (TMB), examined. 2, paralectotypes. Uzbekistan: labelled "Margelan Reitter", coll. E. Reitter (TMB), all examined. *Sacium oblongum* Matthews (1899): lectotype male (present designation). Italy: Mason No. 211, *oblongum*, coll. A. Matthews (BXINH), examined.

**M a t e r i a l e x a m i n e d .** 1071 specimens, selected data: AZORES: 6: 2. Santa Maria, limestone area, 20.III.1957. Brinck-Dahl (UZIL); 1. Vila do Porto, 29.V. 1987. D. Teixeira Pombo (MHNG). CANARY ISLANDS: 12: 9. Tenerife, Icod, 400-500 m, 5-17.IX.1966; 7. Tenerife, Bajamar, 19.III.1974, all T. Palm (UZIL). MADEIRA: 25: 8. Funchal, 20.VII.1994, & 2. Cabo Girão, 580 m, 20.VII.1994, & 1. Levada do Curral Sta. Quittéria, 290 m, 22.VII.1994, all C. Johnson (MM); 3. Garajau, 26.VIII.1978, T. Palm (UZIL). MOROCCO: 21: 1. Safi, 7-8.V.1926, & 1. Rabat, 19.VI.1926, & 1. Hlarii kech, 21-23.V.1926, all H. Lindberg (ZMUH). PORTUGAL: 38: 1. Lisbon. Parque Florestal de Monsanto, 27.VII.1962, thin dry forest. J. Abraham & E. Horecset (BMNH); 1. Figueira de Foz, 23.V.1959. H. Lindberg (ZMUH); 36. Algarve, Alvor, Portimão, 2-14.VIII.1992, refuse heap & cut grass, C. Johnson (MM). SPAIN: 94: 2. Cadiz, Algeciras, 6.IX.1962. M.J.D. Brendell (BMNH); 10. Marbella, 10-30.IV.1960, & 6. Lloret de Mar, 7.IX-6.X.1961, & 6. Tossa de llar, 29.VI-19.VII.1963, & 4. Fuengirola, 3-16.1.1965, all T. Palm (UZIL); 1. Sierra Nevada, 21-24.VII.1926, H. Lindberg (ZMUH). ALGERIA: 2-1: 1. Bordj Menaiel, -III.1874, & 2. Annaba (Bone), -111.1857. M. Pic & C.E. Leprieti (MNHN). BALEARIC ISLANDS: 128: 24. Menorca, Son Bou, 9.VII.1970, & 49. Cala n Porter, 1-10.VII.1991, & 17. S. Albufera, 5.VII.1991, all C. Johnson (MM); 1. Mallorca, El Arenal, 2.IV.1970, C. Johnson (MM); 10. Mallorca, Alcudia, 8.VIII.1977, & 5. Ibiza, San Antonio, 12.VI.1966, & 12. Ibiza, Staten Ibizas, 16-19.VI.1966, all T. Palm (UZIL); 1. Palma de hlallorca, Porto Pi, 11.V.1932, G. Enderlein (MNHU). FRANCE: 192: 10. Provence, Flayosc, 1-14.VIII.1993, sweeping long grasses & at base of plant stems, S. Bowestead (Bowestead); 20. Var, Port Grimaud, 11-26.VIII.1986, sweeping and on tent, late afternoon, & 3. Aveyron, Cantobre-Nant, 4-17.VIII.1988. C. Johiison (MM); 10. Hte Pyr., Maubourguet, 24-29.VIII.1953. L. Pandellé (IRSNB). CORSICA: 1. Corte, 500 m, 17-18.VIII.1952. H. Lindberg (ZMUH). SARDINIA: 56: 20. Viddalba F. Coghines (SS), 26.V.1995. F. Angelini (Angelini); 2. W. Arbiis, 400 in, 15.IV.1992. W. Schawaller (SMNS). TUNISIA: 7: 2. Nabéul, 11.II.1959, & 1. Tunis, 3-22.II.1959. T. Palm (UZIL). ITALY: 326: 2. Laguna Venicia Altino, 11.XI.1967. R. Zecchin; 8. Litorale Venito, sp. Alberoni, 12.VII.1959, dunes under plants, G. Soika (MV); 91. Porto Tolle RO. UK, 22.VI.1990, & 16. 14.III.1990, leg. Foddai; 1. Ponzano, Treviso, 28.VII.1963. A. Minelli (PU); 3. Puglia, Mésagne, BR. Bosco Preti, 26.IV.1977, & 1. Puglia, Torre Tectii, BR, 1.XI.1976, & 1. Lucania, Policoro, MT, 12.V.1976, all F. Angelini (Angelini). SICILY: 15: 1. Gibelmann, 17.IV.1981. S. Lundberg (MM); 1. Piana degli, 750 m, Albanesi, 20.IV.1973. L. Bonometto (MV). GERMANY: 1. Berlin, W.F. Erichson (MNHU). AUSTRIA: 5, old specimens, coll. Maerky (MNHN). MALTA: 1. Wied has Saptan, 14.VII.1956. G.V.P. Sewell (BMNH). YUGOSLAVIA: 1. Budva, E. Reitter (TMB). HUNGARY: 72: 8. Simontornya, 13.VII.1931, & 1. N. Enyed, 2.VIII.1917. L. Biro; 1. Veszprém in, Balatonudvari, 21.V.1979, leg. Adam (TMB). CORFL: 2: 1. Corfu, coll. E. Reitter (TMB); 1, 1915, leg. Kramer (MNHU). GREECE: 49: 4. Morea, Pyrgos, coll. E. Reitter (TMB); 1. Gallicos Saloniki, 2.VIII.1938. H. Lindberg (ZMUH); 1. Ionian Islands, Zakynthos Gerakas, 9.VIII.1991. P. Whitehead (Whitehead). ROMANIA: 1. Comana Vlasca, A.L. Montandon (TMB). BULGARIA: 24: 6. Albena, 21.VIII.1987, & 1. 7.VI.1987, all T. Palm (UZIL). EGYPT: 3, old specimens, Bupis? (MHNG). UKRAINE: 8: 7. Crimea Region, Evpatoria, 31.V.1902. V.E. Jakovlev: 6. Chernomorsky zapovednik (Black Sea Reserve) site Yagorlutsky kut, 14.VII.1994. A. Drogvalenko (ZISP). TURKEY: 1. Muglia Fethiye, 28.VII.1947. M. Burr (BMNH). JORDAN: 1. Jordan tal, Jericho, 200 m, 31.III.1959. J. Klapperich (TMB). RUSSIA: 1. Kinelly S.O. Zhana-Arka, Karaganda Region, 27.V.1958. Loginova (ZISP). TURKMENISTAN: 7. Turkestan, H. Leder, E. Reitter (TMB). KAZAKHSTAN: 4. Turkestan, Aulie-Ata, coll. E. Reitter (TMB).

**D e s c r i p t i o n .** Fully winged. Males: length 1.14 - 1.31 mm, width 0.70 - 0.81 mm. Females: length 1.11 - 1.34 mm, width 0.73 - 0.89 mm. Pronotum pitchy

saine data.  
ile (present  
*ideroi* m.)  
elled "Mar-  
99); lecto-  
(BMNH).

6: 2. Santa  
D. Teixeira  
X.1966; 2.  
II.1994, &  
II.1994, all  
1. Safi, 7-  
(ZMUH).  
forest, J.  
MUH); 36.  
1). SPAIN:  
1960, & 6.  
ngirola, 3-  
(ZMUH).  
pic & C.E.  
& 49. Cala  
llorella, El  
Ibiza, San  
Palma de  
Flayosc, 1-  
stead; 20.  
Aveyron.  
VIII.1853.  
(ZMUH).  
W. Arbus.  
. Tunis, 3-  
scchini: 8.  
'orto Tolle  
Festa. BR.  
Lk: 15; 1.  
V.1973. L.  
specimens.  
(BMNH).  
II.1931, &  
m (TMB).  
CE: 49: 4.  
(ZMUH);  
IANIA: 1.  
987, & 1.  
JNE: S: 2.  
Black Sea  
1. Muglia  
II.1959. J.  
2.V.1958.  
CAZAKH-

on disc. apical margin with just traceable pale patches on each side of apex: elytra pitchy brown; antennae and legs slightly paler brown. A medium sized, elongate, broadly oval, moderately convex species (fig. 128). Pronotum short and slightly elliptical in profile. Elytra large, ratio of pronotum to elytra 1:2.41, sutural stria long, slightly variable, extending from 2/3-3/4 of length of suture. Scutellum broadly triangular with slightly curved sides. Punctures of pronotum weaker than those at base of elytra, where they are strong with a change of profile at the point from which the long, pale, overlapping pubescence emerges (fig. 129); interspaces variable from smooth to even and occasionally with plate-like meshes (figs 130, 131). Antennae slightly

cate. 11-segmented; segment 8 very short, segment 2 long and narrow. Prosternum anterior margin simple with slight median prominence (fig. 113). Mentum and ligula fairly equal in width (fig. 114). Male apical tergite slightly truncate. Peiis large, broad and robust with apex very sharply angled in lateral aspect (fig. 148); internal armature with V-shaped sclerotised plate (figs 148, 149). Feinale apical tergite evenly rounded. Spermatheca with large body entered by gland duct and long sinuate and medially bulbous apical lobe, which varies slightly in length across the very wide distribution range of this species; sperm duct entry point opposite to gland duct entry point (figs 17, 150).

**D i a g n o s i s .** This species has caused much confusion in collections from the earliest times. In Matthews' collection all the specimens standing under *Sacium pusillum* (Gyllenhal) were this species (an interpretation based on the counting off antennal segments). Large examples can be confused with *Clypastraea orientalis* (Reitter) - see diagnosis for that species. The other common *Arthrolips* which just overlaps this species in size is *A. picea* (Coinolli). It can easily be separated from this species by the characters of the sutural interval and microsculpture - see diagnosis for that species. Very small examples could be confused with *A. humilis* (Rosenhauer), but that species has 10-segmented antennae and a small, differently shaped body to the

spermatheca, which is entered by the gland duct at an angle to the sperm duct entry point (fig. 160). The geographically isolated *A. indescreta* (Peyerimhoff) also has 11-segmented antennae and can only be reliably determined by reference to its spermatheca which has a much longer apical lobe (fig. 161). *A. klapperichi* sp. n. is more geographically isolated and can only be reliably separated by its distinctive spermatheca, which has a small body (fig. 162).

**D i s t r i b u t i o n .** Widely distributed across the whole of the south of the region, from the Atlantic Islands, around the Mediterranean, to central southern Asia.

**B i o l o g y .** This species is taken most regularly by sweeping long grasses at the heat of the day has passed. I have also taken it at the roots of plants in cultivated areas. I have dissected material from all these geographically separated localities. The species provides a good model for the range of morphological clines of colour, microsculpture and spermathecal habitus which a wide geographical distribution can create within a species.

characteristic; globular body entered by long and apically rounded apical lobe, and very long tapering gland duct lobe which curves around apical lobe as far as body; gland duct at base of gland duct lobe adjacent to sperm duct entry point on body (fig. 195).

**D i a g n o s i s .** The 2-segmented maxillary palpi will quickly separate members of this genus from *Sericoderus*, which has 3-segmented maxillary palpi. The shape of the scutellum and the 3 rows of punctures on the sutural interval (fig. 185), will separate brightly coloured examples of this species from the larger *A. immigrans* Israelson, which has a more transverse scutellum and only 2 rows of punctures on the sutural interval (fig. 188). Spermathecal samples must confirm determination.

**D i s t r i b u t i o n .** A very widely distributed species whose range extends beyond this region. North and south Africa, the whole Mediterranean Basin, across central southern Asia.

**B i o l o g y .** Associated with wet areas, where it has been sieved from plant debris and tussocks at the edge of pools (C. Besuchet & I. Lobl); shaken from rushes in numbers (A. Chobaut & L. Puel, type material). Many specimens taken flying near Venice (see inmaterial examined MV).

#### *Aposericoderus immigrans* Israelson

*Aposericoderus immigrans* Israelson. 1987: 77.

**T y p e m a t e r i a l .** *Aposericoderus immigrans* Israelson (1987): holotype female. Canary Islands: Gomera, Valle Gran Rey. 5.II.1985. G. Israelson (Israelson). examined. Israelson listed 61 paratypes: 19. same data as holotype 2 (Israelson). & 2, same data except 8.II.1985, 1 (Israelson). & 1 (ULT), & 1, same data but 13.II.1985 (Israelson). & 38. Tenerife, Bajamar. 27.II.1973, T. Palm (31. coll. T. Palm) (UZIL), & 1, Gran Canaria. Maspalomas, 21.II.1974, G. Israelson (Israelson), all examined.

**M a t e r i a l e x a m i n e d .** 40 specimens: CANARY ISLANDS: 17: 6. Tenerife. Puerto de la Cruz, 28.I-24.II.1964, & 2. Tenerife, Bajamar, 31.I.1977, & 1. Gran Canaria. Maspalomas, 30.III.1973, in compost heap, all T. Palm (UZIL); 8. Maspalomas. 0-30 m. 1-7.I.1995, A.P. Fowles (BMNH). BALEARIC ISLANDS: 22: 20. Mallorca, El Arenal. 3.IV.1970. sieving cut litter at edge of a dyke. C. Johnson (MM); 2. Menorca, Son Bou. 9.VII.1991, evening sweeping at edge of a pool behind dunes. C. Johnson (MM). GREECE: 1. Ionian Islands, Zakynthos, Vlasilikos pools. 4.V. 1993. P. Whitehead (Whitehead).

**D e s c r i p t i o n .** A parthenogenetic species, represented only by females. Fully winged. Females: length 1.08 - 1.31 mm. width 0.75 - 0.90 mm. Colour very distinctive: habitus usually two-coloured: pronotum testaceous; elytra brown basally and pale testaceous apically, with apical margin slightly infuscated (the disposition of these colour areas is shown in fig. 187); antennae and legs pale testaceous. A medium sized, weakly convex species with large, wide pronotum and long, only slightly acuminate elytra (fig. 187). Pronotum at base slightly wider than elytra: anterior margin very elliptical; basal angles sharp and pointing to elytral apex; basal margin strongly sinuate. Elytra tapering towards apex and rather straight-sided: sutural stria long (fig. 187); sutural interval wide medially and prominent at suture apically, with 2 rows of punctures (fig. 188). Scutellum short and very transverse, sides sharply angled near base (figs 187, 188). Punctures of pronotum fine; interspaces smooth and shining; elytral microsculpture composed of large V-shaped plates from the apex of which the

long, pale, overlapping pubescence emerges; interspaces shining with traceable transverse meshes (fig. 188). Antennae 11-segmented. Sublineatum more waisted than *A. revelierei* (Reitter). Apical tergite evenly rounded apically. Spermatheca very characteristic: body entered by long, apically rounded apical lobe and very long gland duct lobe with 3 windings; gland duct at base of gland duct lobe but sperm duct absent, showing spermatheca to be a non-functional organ (fig. 196).

**Diagnosis.** The larger size and distinctive two-coloured habitus of this species make it readily recognised. Smaller specimens could be confused with brightly coloured examples of *A. revelierei* (Reitter) (see diagnosis *A. revelierei*). Preliminary diagnosis should be followed with reference to the very short transverse scutellum and sutural interval with only 2 rows of punctures (fig. 188). All new records must be confirmed by samples of the spermatheca, which remains the most reliable means of determination.

**Distribution.** This species is a new arrival in this faunal area. First recorded from the Canary Islands, it is now spreading across the Mediterranean. As it is a parthenogenetic species, its distribution should continue to expand throughout the Mediterranean Basin.

**Biology.** Strongly exploited agricultural areas in Canary Islands, and Gomera, "beaten from *Ricinus communis* L. which occurs as a weed in old banana plantations" (G. Israelson); compost heaps (T. Palm); coastal wet areas in the Balearic Islands (C. Johnson).

#### Genus *Sericoderus* Stephens

Gender masculine

*Sericoderus* Stephens, 1829: 187. Type species: *Sericoderus thoracicus* Stephens, 1829, by monotypy.

*Cossyphus* Redtenbacher, 1849: 573. Type species: *Cossyphus lateralis* Gyllenhal, 1827, designated & syn. by Gemminger & Harold, 1876.

*Anisomeristes* Matthews, 1886: 225. Type species: *Anisomeristes sharpi* Matthews, 1886, designated by Paulian, 1950; REITTER, 1908: 40.

**Description.** Colour unicolorous: pronotum and elytra without discal patches, varying from testaceous to brown testaceous; antennae and legs pale. Habitus distinctive, widest at base of pronotum (figs 189, 191). Pronotal anterior margin elliptical, without emargination. Wide basally with basal margin strongly sinuate and basal angles acute. Elytra elongate, depressed and at least slightly tapering towards apex; epipleura wide near shoulders and strongly inflexed (fig. 182 and section on dotted line, beneath figure); sutural stria long (figs 189, 191); sutural interval of variable width, with 1 or 2 rows of punctures (figs 190, 192). Scutellum triangular or transverse (figs 190, 192). Microsculpture without background reticulation; composed of wavy lines, from the base of which the long, pale, overlapping pubescence emerges (figs 190, 192). Head quadrate; eyes large; mouthparts simple (figs 177, 178). Antennae biarticulate, folding in a Z shape beneath the hood-like pronotum; 10- or 11-segmented and funicle less narrow; segments 1 and 2 elongate and stout, 3 and 4 may be fused, giving an

a synonym of *S. lateralis* (Gyllenhal). REDTENBACHER (1849) introduced the genus *Gryphinus* for species in his family Clypeastrcs (a preoccupied name). In this genus he placed the species with 10-segmented antennae, listing *G. lateralis* and *G. piceus* only.

#### KEY TO THE SPECIES OF *Sericoderus*

- 1 Antennae 10-segmented, normal segments 3 and 1 fused (fig. 176). Species size larger, 0.88 - 1.09 mm (fig. 189). Scutellum triangular (fig. 190). Sutural stria long (fig. 189). Sutural interval broad with 2 rows of punctures basally and 3 rows medially (fig. 190). Elytral punctures at base of wavy line microsculpture which is smooth and shining (fig. 190). Parthenogenetic. Spermatheca without sperm duct: apical lobe with characteristic apical callosity (fig. 197) . . . . . *lateralis* (Gyllenhal)
- Antennae 11-segmented. Species size smaller, 0.80 - 0.92 mm (fig. 191). Scutellum short and transverse (fig. 193). Sutural stria very long (fig. 191). Sutural interval narrow with only 1 row of punctures (fig. 192). Microsculpture similar to *S. lateralis* (fig. 192). Penis in lateral aspect angled in apical 1/3 of ventral margin (fig. 198). Spermatheca with sperm duct: apical lobe with rounded apex; gland duct lobe slightly longer but only just passing apex of apical lobe (fig. 21), often more overlapping in prepared specimens (fig. 200) . . . . . *pecirkanus* Reitter

#### *Sericoderus lateralis* (Gyllenhal)

*Cossyphus lateralis* Gyllenhal, 1827: 516.

*Sericoderus thoracicus* Stephens, 1829: 188; MATTHEWS 1899: 120.

*S. forticornis* Matthews, 1899: 119, syn. n.

*S. visnyae* Csiki, 1940: 918, syn. n.

?*Clypeaster ptilioides* Motschulsky, 1819: 91, syn. n.

Type material. *Cossyphus lateralis* GYLLENHAL (1527): Lectotype female (present designation). Germany: Muhlfeldt, sent to Gyllenhal by J.C. Megerle with the name *Clypeaster lateralis*. In the original description Gyllenhal says that G. Marklin has specimens from Sweden: "Gottlandia", but in the Gyllenhal collection there is only 1 specimen present. The drawer label has "*Clypeaster lateralis* Megerle", and lower on the label where the place of origin is written for the other specimens studied, he writes "Megerle", coll. L. Gyllenhal (ZU), examined. *Sericoderus thoracicus* Stephens (1829): lectotype female (present designation). England: London, centre specimen in tray of 3 specimens, coll. J.F. Stephens (BMNH), examined. 2 types, same tray, coll. J.F. Stephens (BMNH), all examined. *Sericoderus forticornis* GYLLENHAL (1599): lectotype female (present designation). England: "probably Oxfordshire", labelled. Mason No. 381. "*S. forticornis*", Matthews' hand, coll. A. Matthews (BMNH), examined. *Sericoderus visnyae* Csiki (1940): Lectotype female (present designation). Hungary: Velem (Comit. Vas), labelled "Velem Visnya", coll. E. Csiki (TMB), examined. *Clypeaster ptilioides* Motschulsky (1849): Kirghizia: no type exists in Motschulsky collection. As the original description refers to its similarity to *Acrotrichis* Motschulsky (Ptiliidae), this description would suggest a similar habitus to *S. lateralis* (Gyll.), which occurs in the type locality. The true identity of *C. ptilioides* Motschulsky, will remain obscure in the absence of type material and I have placed it here as a questionable synonym.

**M a t e r i a l e x a m i n e d .** 3154 specimens, selected data: AZORES: 70: 1. São Miguel, Furnas Hot Springs, 24.III.1957, under plants, & 1. São Miguel, Ponta Delgada, 13.III.1957, decaying leaves, all Brinck-Dahl (UZIL). CANARY ISLASDS: 78: Hierro: 2. Valverde, 500 m., 7.III.1983, C. Besuchet (MHNG); La Palma 12: 8, S. Cruz, 23.IV.1972, T. Palm (UZIL); Gomera 7: 6, Hermigua, 13.IV.1979, P. Oroini (ULT); Tenerife 48: 1, Las Palmeras, 700-800 m., 24.VIII-19.IX.1966, T. Palm (UZIL); Gran Canaria 3: 2, Los Tilos, 4.IV.1973, T. Palm (UZIL); Lanzarote 6: Haria, 2.XII.1972, T. Palm (UZIL). MADEIRA: 112: 1, Levada de Toros, 800 m., -IV.1972, & 1, Encunizada, -IV.1972, all S.A. Williams; 9, Levada do Curral, St. Quitéria, 290 m., 22.VII.1994, C. Johnson (MM). MOROCCO: 23: 18, Agadir, 7.IV.1974, C. Besuchet (MHNG). PORTUGAL: 14, Algarve, Alvor, Portimão, 1-14.VIII.1992, refuse heap & cut grass, C. Johnson (MM). IRELAND: 35: 2, Dublin, Glasnevin, 15.X.1924, J. Halbert; 9, Killarney, -IV.1915, E.F. Bullock (NM). SPAIN: 52: 5, Fuengirola, 3-16.I.1965, with *A. humilis* (Rosenh.) & *A. picea* (Com.), T. Palm (UZIL). BRITAIN: 13: Wales: 1, Caernavon, 18.III.1975, grass sap on beach, S. Bowstead (Bowstead). England: 12: 2, Kent, Isle of Sheppey, 28.VIII.1973, cut hay in fields, S. Bowstead (Bowstead): 1, Berkshire, Windsor, 18.X.1987, beech stump, & 1, Norfolk, Upton Fen, 9.XI.1986, **tussock**, & 3, Sussex, Pevensey, -III.1980, debris near ditch, all J. Owen (Owen). ALGERIA: 17: 3, Annaba (Boïie), -I.1851, & 1, Bordj Menaiel, 1874, all hl. Pic & C.E. Leprieur (MNHN): 2, Djurdjura, 950-1100m., 10.V.1988, & 1, Gide Kabylie, 800 m., 14.V.1988, & 1, Larba, 180 m., 4.V.1988, all C. Besuchet, 1, Lobl & D. Burckhardt (MHNG). BALEARIC ISLANDS: 8: 6, Mallorca, Alcudia, 6-20.VIII.1977, with *A. hetschkoi* (Reitt.). T. Palni (UZIL). FRANCE: 329: 4, Hte Savoie, Bossy-Frangy, 9.V.1986, mouldy hay, & 1, same data, woodstack, & 1, same data, 5.II.1972, field mouse nest, & 1, same data, 1.IX.1986, rotten fungi, & 1, same data, 26.V.1985, on old apples, & 1, same data, 4.V.1986, faggots, all coll. J. Steffen (Steffen): 14, Hte Pyrénées, Maubourguet, 23.X.1849, L. Pandellé (IRSNB): 2, Alpes Maritimes, Mongins-Canne, 29.III.1986, foot of pine & oak, C. Besuchet (MHNG): 4, Hérault, 9.IX.1984, bamboo litter on bank of river, & 14, Dordogne, Rouffignac, 1-14.IV.1988, & 34, Lot & Garonne, Dausse, 28.VIII-9.IX.1987, rotting vegetation, all M. Darby (Bowstead). BELGIUM: 43: 1, Jupille, -XI.1940, A. Collart; 4, La Roche, -VIII.1941, R. de Ruelle, 13. Ixelles, -VIII.1944, L. Fennet (IRSNB). SWITZERLAND: 24: 1, Genève, Thoney, 9.IV.1987, *Polyporus*, C. Besuchet (MHNG): 6, Genève, Versoix, 17.XI.1995, rotten stump *Taxus*, & 4, same data, 25.XI.1995, rotten stump *Fagus*, & 3, same data, compost, all S. Vit (Bowstead). CORSICA: 3, Prunelli di Casaconi, 22.V.1971, A. Senglet (MHNG). SARDINA: 8: 1, Arzola, 19.V.1890, A. Fiori (MNHU): 3, S. Teresa, -VI.1968, T. Palm (UZIL). TNISIA: 6: 3, Hammamet, 4-11.II.1959, T. Palm (UZIL). ITALY: 591: 2, Borghetto (TN), 14.VI.1990, leg. Grigolli, with *Orthoperus anxius* M. & R. (PU); 1, Calabria, Mt. Orsoniardo, Grisolino, loc. Pantanelli (CS), 670 m., 4.VIII.1989, faggots, & 1, Basilicata, Accettura, b. Gallipoli (MT), 790 m., 14.V.1989, bone trap, & 58, Puglia, Francavilla F. (BR), 135 m., 15.I.1990, & 1, Puglia Foresta Umbra (FG), 25.IV.1987, & 3, Lucania, Policoro (MT), 7.XI.1982, all F. Angelini (Angelini): 1, Emilia, Castelvecchio sulla Secchia, 31.VIII.1977, F. Montemurro (Angelini); 9, Piemonte, Sommariva del Bosco, 7.II.1982, G. Apra (Agnelini); 10, Venice, Laguna Veneta, Casse di Colonata, 24.IV.1977, E. Ratti: 3, CCR, Ispra, Euratom (VA), 9.IX.1975, E. Ratti & R. Cavalloro (MV). SICILY: 5, Nicolosi, 12.IX.1957 (TMB), MALTA: 1, Birzebbugia, 2.IV.1956, G.V.P. Sewell (BMNH). DENMARK: 1, Loll, Ikoreby, 5.VIII.1950, A. Sundholm (UZL). SWEDEN: 171: 7, Skåne, Lund, 5.IX.1972, N.A. Kenirier: 2, Skåne, Kullen, 8.IV.1961, S. Palmqvist: 7, Södermanland, Trosa, 5-26.VII.1938, & 17, Uppland, Adelsö, 4.VII.1937, all O. Sjöberg: 1, Narke, Örebro, 25.VIII.1957, & 5, Blekinge, Sillovdala, 13.IX.1950, all A. Sundholm: 3, Värmland, Lundberg, 20.VIII.1945, E. Wiren: Y. Gotland, Faron, 3-6.X.1945, T. Palm: 2, Dalarna, Falun, leg. Klefbeck: 1, Öland, Sandby, 22.IV.1948, & 1, Stockholm, Ronninge, 25.X.1937, all N. Bruce (UZIL). GERMANY: 59: 5, Saxony, Leipzig, Connewitzer Holz, 7.XII.1951, Dorn: 1, Seeburg, 16.IV.1919, coll. Fiege: 2, Umg. Düsseldorf, Büderich, 19.I.1935, K. Emerich (MNHU). CZECH REPUBLIC: 2, Bohemia, Praha, Zbraslav, 20.IV.1995, S. Vit (Bowstead). AUSTRIA: 16: 6, Vorarlberg, Götzis Meschach, 800 m., 25.IV.1991, old hay, A. Kapp (Brandstetter). SLOVENIA: 5: 3, Istria, Portoroz, 30.VI-17.VII.1959, T. Palm (UZIL): 2, Gorenjska, Bled 24-31.VII.1997, C. Johnson (MM). CROATIA: 10: 3, Slavonia, Brod, 10-14.VII.1956, T. Palm (UZIL). HUNGARY: 1175: 2, Teányfalu,

ORES: 70: 1. São Ponta Delgada. : 78: Hierro; 2. 23.IV.1972. T. erife 48: 1. Las 3: 2. Los Tilos. ADEIRA: 112: 1, ns; 9. Levada do 23; 18. Agadir. 1-14.VIII.1992, in. 15.X.1924. J. 3-16.I.1965, with s; 1. Caernavon. 2. Kent. Isle of shire. Windsor. sex, Pevensey. - ), - I.1851, & 1, '0 m. 10.V.1988. ichet, I. Lobl & VI11.1977. with angy. 9.V.1986. nest, & 1, sanie : 1, same data. .. 23.X.1849. L. pine & oak, C. 14. Dordogne. ting vegetation. 4. La Roche. - RLAND: 24: 1, ix. 17.XI.1995, data. compost. iglet (MHNG). Palm (UZIL). orghetto (TN). Mt. Orsoniaro. Acceitura, b. (BR). 135 m. olicoro (MT). 1.VIII.1977. F. (Agnelini); 10. Euratom (VA). Y). MALTA: 1. 5.VIII. 1950. A. Skåne. Kullen. pland. Adelsö. ja. 13.IX.1950. and. Faron: 3-48, & 1. Stock-eipzig. Conneig. Düsseldorf. raha. Zbraslav. chach. 800 m. ortoroz. 30.VI-M). CROATIA: 2. Leányfalu.

: 33. E. Csiki: 1. Budapest. Káposztásmegyer. 100 m. 9.IX.1983. & 7. Heves m. istennyezeje. Bugolytanya. 13.VII.1994. & 4. Pest ni. Erd. Parkvaros. 12.IX.1994. & 1. Aggteleki N.P. Szogliget. Ménés Völgy. 19.X.1990. all O. Merkl; 3. Békés. Garla. Fácános-erdő. 90 m. 13.XI.1982. Adam: 22. Žalavár Kisbalaton. 18.IV.1950. Z. Kaszab (TMB). BOSNIA-HERZEGOVINA: 1. Drieno. E. Reitter (MNHU). ALBANIA: 1. Avlona. leg. Oertzen (MNHU). CORFU: 3: 1. Gastaur. -V.1964. & 2. Dassia. 6.X.1964. T. Palm (UZIL). YUGOSLAVIA: 2: Macedonia. Yzkiib. 22.IX.1917. P. Schulze (MNHU). GREECE: 27: 1. Ionian Islands. Zakynthos Limnikerion. 22.IX.1991. P. Whitehead (Whitehead); 6. Beotie Lebedia (Kastron). 12-22.VII.1968. A. Senglet: 6. Epine Aghios Komasses. 25.IV.1973. I. Lobl: 1. Rhodes. M. Kariona. 400 ni. 11.IV.1977. C. Besuchet (MHNG). ROMANIA: 32: 5. Comana Vlăsca. A.L. Montandon: 1. Senokos. 20 km O. Tolbuchin. 21.VIII-28.X.1987. in *Quercus robur* clippings on ground. DEI); 12. Herculane. 4-22.V.1970. T. Palm (UZIL). BULGARIA: 29: 1. Borowiec. 1300 : 1.1993. J. Cooter (MM); 3. Albena. 19.VIII-1.IX.1983. & 14. Zlatni Piassatzi. 1-21.VIII.1980. all T. Palm (UZIL). CRETE: 10: 5. 18.V.1975. T. Palm & A. Horion (UZIL). TURKEY: 23: 4. Sinop Lala. 20.V.1976. & 1. Zonguldak. 500 m. 16.V.1976. & 1. same data. 23.V.1976. all C. Besuchet & I. Lobl: 9. Erczincan Tercan Euphrates. 1400 m. 6.VI.1986. C. Besuchet. I. Lobl & D. Burckhardt (MHNG); 1. Ankara. slopes N. Elma Dagi. 31.X.1995. litter of *Crategus*. S. Vit (Bowstead). CYPRUS: 11: 6. Baths of Aphrodite. 21.VII.1977. & 4, Yerovasa. 14.VII.1977. & 1. Mamonia. 14.VII.1977. all C. Besuchet (MHNG). SYRIA: 2. Daya, coll. Madon (IRSNB). LEBANON: 1. Env. Damour. 28.III.1975. C. Besuchet (MHNG). ISRAEL: 28: 20. Galilee, Tel Dan. 24.IV.1982. & 1. Golan. Banias. 24.IV.1982. all C. Besuchet & I. Löbl: 1. Mt. Carmel. ZS.V.1973. I. Lobl (MHNG). JORDAN: 2: 1. Tulkarem. 200 m. 1956. J. Klapperich (Bowstead). RUSSIA: 29: 1. Caucasus. Araxesthal. H. Leder, coll. E. (TMB). GEORGIA: 1. Tblisi. 4-23.VI.1987. Wrasse & Schulke (MNHU). ARMENIA: 3. Caucasus. Armen Geb., H. Leder. coll. E. Reitter (TMB). YEXIEN: 4: 1. Wadi Scharez. -II.1985, & 3. Wadi el Ahjer. -II.1985. G. de Rougemont (MM). AZERBAIJAN: 32: 1. N. Borab. 4.VI.1974. A. Senglet (MHNG). IRAN: 28: 6. Golhak, nr. Tehran. 1400 m. -III-IV.1961. & 1. Prov. Ghuillan. Lahijan nr. Caspian Sea. 200 m. -VII-VIII.1961. & 3. Now-Schar, nr. Caspian Sea. -VII-XI.1961. all J. Klapperich (Bowstead). KAZAKHSTAN: 3: 2. Aulie-Ata. coll. E. Reitter (TMB); 1. Turkestan. H. Leder. coll. E. Reitter (TMB). UZBEKISTAN: 1. Margelan, coll. E. Reitter (TMB). TADJIKISTAS: 2: 1. Kondüra Ravine. 1100 m. Varzob. Tadz. IO.VIII.1937. Gussakovsky (ZISP). KHIRGHIZIA: 7: 5. Ferganski. Alatau Yarodar. 1400 m. 16-19.V.1993. & 1. Chatkalskij. Alatau San) Celek. 1400-1600 m. 27-31.V.1993. & 1. Naryn val. E. Karakul. 1200 m. LS.V.1993. all W. Schawaller (SMNS).

**D e s c r i p t i o n .** A parthenogenetic species. represented only by females. Fully winged. Length 0.88 - 1.09 min. width 0.61 - 0.73 mm. Habitus almost unicolorous: pronotuni and elytra varying from pale brown to dark brown. occasionally slightly more red on disc of pronotumi; antennae and legs pale testaceous. A medium small, weakly conve, elongate species with large, wide pronotuni and long, only slightly acuniinate elytra (fig. 189). Pronotum at base wider than elytra: anterior margin very elliptical; basal angles sharp and pointing to elytral apex: basal margin strongly sinuate. Elytra tapering towards apex and rather straight-sided; sutural stria long (fig. 189); sutural interval wide and proiiiinent at suture apically, with 2 rows of punctures and 3 rows medially. Scutellum triangular. sides alnmost straight (figs 189, 190). Punctures of pronotiiii fine. interspaces smooth and shining. Elytral microsculpture composed of wavy lines, from the base of which the long, pale, overlapping pubescence emerges; interspaces smooth and shining, without reticulation (fig. 190). Antennae 10-segmented and rather elongate; normal segments 3 and 4 fused (fig. 176, the fusion line can be seen in prepared specimens). Submentum very narrow and waisted (fig. 177). Apical tergite evenly rounded apically. Spermatheca very characteristic: round body

### **Microstagetus parvulus Wollaston**

*Microstagetus parvulus* Wollaston, 1861 : 106.  
*Anisomeristes doderoi* Peyerimhoff, 1917: 133, syn. n.

**Type material.** *Microstagetus parvulus* Wollaston (1861); lectotype female (present designation), Madeira: BMNH No. 222\* = near Funchal. coll. T.V. Wollaston (BMNH), examined. 1, paralectotype male, same data, coll. T.V. Wollaston (BMNH); & 1, paralectotype. Madeira: OUM No. 1177 = near Funchal. coll. T.V. Wollaston (OUM), all examined. *Anisomeristes doderoi* Peyerimhoff (1917); lectotype male (present designation). Algeria: labelled "Philippeville. Algérie. A. Théry", coll. P. de Peyerimhoff (MNHN), examined. 1, paralectotype male, "St. Charles. Algérie. A. Théry", coll. P. de Peyerimhoff (MNHN), examined. St. Charles is near Philippeville and this must be the other specimen referred to in the original description: both have "*Anisomeristes doderoi* Peyerimhoff. Type" handwritten. Examination of the mesosternum: habitus microsculpture and the internal armature of the penis confirmed these to be *Microstagetus parvulus* Wollaston.

**Material examined.** 11 specimens. CANARY ISLANDS: 1, Gran Canaria. Jardin Canarie. 2.VII.1966. G. Israelson (UZIL). MADEIRA: 9: 4, no number, no data, may be via Bewicke (S. Antonio da Serra & Pria Formosa, referred to in the original description). T.V. Wollaston (OUM): 5, Funchal, -IV. 1972. S.A. Williams (Bowestead) (MM). ALGERIA: (2), see Type material. ISRAEL: 1, Galilee, Ginosar, 200 m. 28.IV.1982. C. Besuchet & I. Löbl (MHNG).

**Description.** Fully winged. Males: length 0.74 - 0.87 mm, width 0.51 - 0.60 mm. Females: length 0.80 - 0.90 mm, width 0.60 - 0.62 mm. Colour unicolorous testaceous. A smaller, weakly convex, evenly oval species (fig. 219), with distinctive slight emargination of anterior margin of pronotum (best seen from front, fig. 218). Pronotum more strongly arched near anterior margin (obscuring anterior emargination in dorsal aspect); basal margin sinuate. Elytra elongate, widest in middle; sutural stria long, almost extending to scutellum (fig. 219); sutural interval with 1 row of well marked punctures (fig. 220). Scutellum triangular, with slightly curved sides (figs 219, 220). Punctures of pronotum very fine; microsculpture of elytra composed of distinct inverted U shapes, with long, pale, overlapping pubescence emerging from base of punctures (fig. 220). Antennae 11-segmented and stout with segments 3, 5 and 7 enlarged (fig. 201). Male protibia inflexed at extreme apex (fig. 204). Metasternum with slight depression in apical 1/3 of disc (fig. 206). Basal sternite of males without median tubercles (fig. 207). Penis very stout, acuminata and hooked at apex in lateral aspect (fig. 208); bluntly acuminate in ventral aspect (fig. 209); internal armature well formed and characteristic (fig. 209). Spermatheca vertical and characteristic: small globular body entered by sperm duct and gland duct, and a single crescent-shaped apical lobe (fig. 210).

**Diaagnosis.** The tribal character of the mesosternum must first be confirmed (fig. 206). The small size: anterior emargination of pronotum (seen from front, fig. 218); simple antennae, without vestigial segments (fig. 201); triangular scutellum: long sutural stria and sutural interval with 1 row of well marked punctures combined with the elytral microsculpture (figs 219, 220), should separate this species from the other Corylophini in this fauna.

**Distribution.** Widely distributed across the south of the region, from the Canary Islands to Israel.

ence, 1991, replaces *T. Rafinesque*, 1815.

us to brown; body oval with punctures (fig. 256). Median aight ventral body crescent-shaped and gland *te* (Mulsant & Rey) brown, legs with narrow and shining: a series of tellum (fig. 250). *te* and gland *matthewsi* (Reitter)

otype male (present designation). 5 paratypes: "P. *te*" Reitter (1885); "P. *te*" Kovich, Reitter". "P. *te*" labelled "Dalmatia" (TMB); 5, "Dalmatia" (TMB), all examined. AIN: 26. Tarragona, ANDS: Menorca: 2. Artes, Théron, coll. la Mer, A. Chobaut. Camargue, L. Puel L. Puel: 9. Hérault: 5. Porto Vecchio, L. HJ: 1. Corsica, leg. 0 m. 10.V.1995. F. i: 4. Porto Vecchio VI.1993. G. Sabella 57. C. Besichst: 21. e (MV). CROATIA: 6. SI.IV.1916. & 1. (TMB). BOSNIA-ic. -1879. E. Reitter

ALBANIA: 1. Avlona, V. Oertzen (MNHU). CORFU: 2. Salhberg, coll. E. Reitter (TMB). BULGARIA: 2. Burgas, -V.1894. K. Flach (MNHU). UKRAINE: 2. Chernomorsky zapovednik (Black Sea Reserve), site Yagorlutsky kut. 14.VII.1994. A. Drogvalenko (ZISP). ISRAEL: 2. Costal Plain, Akko, N. Naaman, 18.IV.1982, C. Besuchet & I. Lobl (MHNG).

**Description.** Fully winged. Males: length 0.78 - 0.87 mm, width 0.60 - 0.65 mm. Females: length 0.82 - 0.85 mm, width 0.62 - 0.65 mm. Unicolorous brown testaceous to brown with anterior margin of pronotum transparent; antennae and legs unicolorous pale brown testaceous. A smaller, broadly oval, globose species with slightly apically acuminate elytra (figs 254, 255). Sutural stria about 1/3 length of fig. 254). Punctures of pronotum and elytra very fine and hard to trace; spaces on pronotum and elytra with uniform but variable isodiametric meshes, from very indistinct to fairly distinct; pubescence very short and hard to trace (fig. 256). Penis: lateral aspect, dorsal outline evenly curved and ventral outline straight (fig. 246); ventral aspect, broad and parallel-sided (fig. 247); internal armature with very short flagellum enclosed by simple curved winged sclerites (fig. 247). Spermathecal habitus characteristic, orientation against sternite reversed (fig. 249); body elongate and crescent-shaped, slightly tapering from base to apex; apical lobe narrow and elongate; gland duct lobe very long and curved, apex passing apex of apical lobe; sperm duct and duct enclosed in sheath surrounding base of body (figs 248, 249).

**Diagnosis.** The presence of indistinct meshes on pronotum and elytra (fig. 256) should separate this species from *Teplinus matthewsi* (Reitter), which is smaller, very smooth and shining with a very small series of transverse lines at the base of the elytra (fig. 259).

**Distribution.** Around the northern Mediterranean, from Spain to the Black Sea, and in the east as far as Israel.

**Biology.** C. Rey collected his type material at Hyères, in the marshes in April. This is a wetland species, mainly of coastal marshes. Inland records may also be from situations with slight salinity.

### *Teplinus matthewsi* (Reitter)

*Peltiriis matthewsi* Reitter, 1885: 273.

*Peltiriis walkeri* Matthews, 1886: 227, **syn. n.**

*Peltiriis demaisonii* Paulian, 1950: 28, **syn. n.**

*Peltinus peyerimhoffi* Paulian, 1950: 28, **syn. n.**

*Peltinus intermedius* Israelson, 1980: 181. **syn. n.**

**Type material.** *Peltinus matthewsi* Ritter (1885): lectotype female (present designation). Syria: labelled "Syrien Kaifa Reitter". "P. matthewsi m.", coll. E. Reitter (TMB), examined. 2 paratypes: 1, same data as Lectotype. & 1, "Chaifa Syria Simon", coll. E. Reitter (TMB), all examined. *Peltinus walkeri* Matthews (1886): lectotype male (present designation). Sardinia: labelled "Cagliari". "Mason No. 499". "Peltinus walkeri". "Pelt. walkeri". Matthews' hand. coll. Matthews (BMNH), examined. 5 paratypes: 4, labelled "Cagliari". "Mason Nos. 495, 496, 497, 498". coll. Matthews. & 1, Cagliari, coll. G.C. Champinn (BMNH), all examined. *Peltinus demaisonii* PAULIAN (1950): lectotype male (present designation). Cyprus: top specimen of 2 specimens on 1 pin, labelled "Chypre". "Peltinus demaisonii n. sp. det. R. Paulian", coll. Demaison (MNHN), examined. 7 paratypes: 1, bottom specimen on same card as Lectotype.

& 6 labelled "Larnaka", of which 5 are *Peltinus* and 1 is an acarine mite, coll. Demaison (MNHN), all examined. In coll. E. Reitter (TMB) there are 4 specimens labelled "*Peltinus demaisonii* i.l. Reitter"; they are on the same mount as the *Peltinus demaisonii* Paulian type material. It seems that Demaison sent specimens to Reitter, who intended to publish this as a new species but did not do so. Paulian picked this up when working on his African material and published the name there. *Peltinus peyerimhoffi* PAULIAN (1950): Morocco: no type material in the (MNHN) collections, but Paulian mentions specimens from Morocco determined as *Peltinus velatus* by Reitter, which he thought were *P. peyerimhoffi*. I have dissected this material and confirmed Paulian's view. The variable outlines of the penis shown in PAULIAN (1950:24, figure 9) are, I believe the result of misorientation of the specimen in the permanent mount. I have made drawings in a temporary mounting medium (clove oil), from dissected males and females of all this material and found the males to agree with figs 246, 247, 250, 251. *Peltinus intermedius* ISRAELSON (1980): holotype male, Canary Islands. Fuerteventura. Jardina Gran Valle, 19-23.II.1974, G. Israelson (Israelson), examined. I have dissected material from the Canary Islands, Lanzarote and this agrees in penial and spermathecal habitus with my figures made from Reitter's type series of *Peltinus matthewsi* Reitter, which also closely corresponds with Israelson's fig. 2, page 207.

**M a t e r i a l e x a m i n e d .** 120 specimens, selected data: CANARY ISLANDS: Lanzarote 38; 2. Orzola, 8.VI.1957, & 36. Janubio, 79.IX.1972, all T. Palm (UZIL). MOROCCO: 3; 7. coll. Reitter (TMB); 1. Safi, S. Quedenfeldt (MNHU). SPAIN: 6; 3. Algeciras, Simon, coll. Reitter (TMB); 1, Algeciras, 15-22.IV.1976, Lindberg (ZMUH); 1. Puerto de S. Maria, near Cadiz, 7.IV.1987, salt marsh. M. Darby (Darby). GIBRALTAR: 1, J.J. Walker, coll. Matthews (BMNH). ALGERIA: 7; 1. Kabylie. Bou Berak, L. Puel (TMB); 5. Annaba (Bone), -II.1959, M. Pic & C.E. Lepriir (MNHN). SARDINIA: 14; 11. Cagliari, A. Dodero, coll. Reitter (TMB); 2. same data (MNHN). CORFU: 1, coll. Reitter (TMB). GREECE: 1. mouth of River Evino, 22.V.1994, G. Sabella (Angelini). CYPRUS: 15; 3. labelled "*P. Demaisonii* m. i. l. Cyprern". P. Demaison: 1, Cyprus, coll. Ritter (TMB); 11. Akrotiri Bay, 21.IX.1949, G.A. Mavromoustakis (BMNH). ISRAEL: 20; 1. Golan, Kazabia, 15.IV.1982, at base of vegetation at edge of stream, & 2, coastal plain, Beit Zevi, 18.IV.1982, at base of *Opuntias*, & 1. Galilee, Huln, 25.IV.1982, in dead leaves and rotten wood near a pool, & 14, Negev, Yerohama, 29.IV.1982, at base of Tamaris, & 2, Judea, Mavasseret, 30.IV.1982, at base of vegetation by the edge of a dried up stream. all C. Besuchet & I. Lobl (MHNG). JORDAN: 14. Jordantal, Kleat, 1.II.1963, J. Klapperich (Bowstead).

**D e s c r i p t i o n .** Wings variable from micropterous to brachypterous, extending from 1/4 to 3/4 of the length of the elytra. Males: length 0.66 - 0.70 mm, width 0.54 - 0.55 mm. Females: length 0.70 - 0.73 mm, width 0.55 - 0.58 mm. Unicolorous brown to dark brown with anterior margin of pronotum transparent; antennae and legs unicolorous pale testaceous. A very small, broadly oval, globose species with narrow pronotum and evenly oval elytra (figs 257, 258). Sutural stria about 1/3 length of suture (fig. 257). Punctures of pronotum and elytra very fine and hard to trace; interspaces smooth and shining, without isodiametric meshes, but with a small series of transverse lines at base of elytra (fig. 259). Penic: lateral aspect, strongly sinuate (fig. 250); ventral aspect: sides curved and acuminate apically with apex truncate (fig. 251); internal armature with two elongate, symmetrical winged sclerites (fig. 251). Spermatheca: habitus simple and characteristic, orientation against sternite reversed (fig. 253); composed of a globular body entered by a simple gland duct lobe; gland duct entry point 1/4 from base of lobe; sperm duct entry point near inner angle of body and lobe (figs 252, 253).

**D i a g n o s i s .** The very small size, globose habitus, smooth and shining dorsal surface, with a small series of transverse lines at the base of the elytra, combined

lectotype male (present in 55708", "Pithophorus labelled "55709 Zurich in the Heer collection in

MADEIRA: 26; 7. Santo da Ilha, 1975, & 4. Funchal, house, summer 1855, V. Wollaston (OUM). J.V. Pearman (MM). E. Reitter (TMB); 3. France (TMB); 1. le, Bordeaux, via L. Bettinger; 2. Paris. Brocher; 1. Finistère, as Rhin, Strasbourg, & coll. Donge (IRSNB). 1938 (IRSNB). THE NETHERLAND: 27; 6. Aigle, 11.VI.1950, in neve, coll. Tournier; 3. 5.VII-, coll. Maerky Bouchvelli, -XII.1899. Reitter (TMB); 1. Valonte, Zisa, 26.XI.1968, coll. Streda (TMB); 1. by A. Fauvel (IRSNB). VI.1898, coll. Diener:

67 mm, width 0.38 - Habitus unicolorous, infuscated; legs pale species (fig. 284). shiny, without punctures in shallow depression; median keel lateral aspect (fig. 330); unded and ventrally 331). Spermatheca:ulations; apical lobe angle to basal outline term duct entry point

es in Europe usually and microsculpture this species from race of isodiametric not be confused (fig. he spermathecae also

reliable characters to confirm determination (fig. 352. *O. atomarius*; fig. 353. *O. aequalis*).

**Distribution.** Distributed across the region by the agencies of man.

**Biology.** A synanthropic species. In the cool regions of Europe the records are mainly from cellars where wine is kept. In warmer situations it may be found on the walls of houses (Wollaston).

### *Orthoperus aequalis* Sharp

*Orthoperus aequalis* Sharp, 1885: 128.

*Orthoperus nitidulus* Allen, 1942: 89; KLOET & HINCKS 1977: 62.

**Type material.** *Orthoperus aequalis* Sharp (1885): holotype male, Hawaii; labelled at base of large mounting card "Orthoperus aequalis Type D. S. Mauna Loa. Hawaii. Blackburn", "Mason No. 694", coll. Matthews (BMNH), examined. *Orthoperus nitidulus* ALLEN (1942): lectotype male (present designation), labelled "Windsor Forest, 30.VIII.1941. A.A. Allen", "Orthoperus nitidulus Allen", "O. nitidulus dissected N. Bruce" (BMNH), examined.

**Material examined.** 159 specimens: CANARY ISLANDS: 2: 1. Hierro. La Caldereta, 650 m. 28.VI.1969, G. Israelson (UZIL); 1. Hierro. -IX.1969. emerged from dead branches of fig (*Ficus* sp.), via A.A. Allen, leg. G. Israelson (Bowestead). MADEIRA: 18; 9. Funchal, 7.IV.1986. banana litter. M. Darby (Darby); 6. Porto Santo. Pico do Castelo. 7.II.1978, & Poiso. 1600 m. 9.II.1976. all T. Palm (UZIL). SPAIN: 2. Province Cadiz. Sierra de Luna, 9.IV.1959, C. Besuchet (MHNG). BRITAIN: 30; England 30; 4. Hampshire, New Forest. Bramshaw. 20.X.1986, under oak bark on mould with *O. corticalis* (Redt.). & 4. same locality, Normansland. 20.X.1986, on pieces of cut oak. S. Bowestead (Bowestead); 2. Windsor, 5.IV.1985. M. Darby (Darby); 2. Liverpool, Speke Hall, 23.XI.1980, on mould under bark of damaged sycamore, & 2. 26.VI.1980, under birch bark. & 10. 29.IX.1991, under cut section of oak. all T. Eccles (Eccles); 2. Sussex, Buxted Park, 7.III.1978, under bark of dead elm. P. Hodge (Hodge); 1. Surrey, Richmond Park. -IX.1985, on cut surface of oak. & 1. Surrey. Wisley. -11.1987, & 1. Berkshire. Windsor. -VIII.1982, on fermenting plums. & 1. -IV.1982, under beech bark. all J. Owen (Owen). FRANCE: 54; 1. Aveyron. Belcastel. 2.VIII.1988, under damaged bark of sweet chestnut with *O. corticalis* (Redt.). & 50. Tarn. Moulayres. 20.VIII.1995. grass heap. & 1. Vi11.1995. in oak faggots. all S. Boaestelid (Bowestead). CORSICA: 1. Calvi. 4. I..vii.1989. on small bracket fungus on pine tree. C. Johnson (MM). SWITZERLAND: 2. Trissin, Bioggio. 31.VIII.1990, in compost. C. Besuchet (MHNG). ITALY: 50; 26. Puglia. Francavilla (BR). -II.1992, & 15. 15.I.1990, & 1. 10.XII.1988, & 1. Basilicata. Policoro (MT). 13.VIII.1989. willow litter. all F. Angelini (Angelini); 3. Puglia. Bari. -V.1985, & 1. -V.1984, all L. DeMarzo, & 2. Puglia. Fiume Lato (TA). 16.XII.1979. F. Montemurro, & 1. Puglia. Monopoli. Implata (BA). 21.I.1990. V. Lillo. all coll. F. Angelini (Angelini). CROATIA: 1. Dalmatia. Kastel Stari. -IV.1975. S.A. Williams (MM).

**Description.** Fully winged. Males: length 0.63 - 0.72 mm. width 0.45 - 0.49 mm. Females: length 0.65 - 0.77 mm, width 0.50 - 0.54 mm. Habitus unicolorous brown; antennae pale basally with 5 apical segments infuscated; legs pale testaceous. A smaller to very small, elongate oval, very strongly convex species (fig. 287). Punctures of pronotum and elytra strong: interspaces shining, with indistinct isodiametric meshes, pubescence emerging from punctures in shallow depressions (fig. 288). Metasternum of males without median depression; median keel about 1/3 from apical margin (fig. 289). Penis slender in lateral aspect (fig. 332); apex without setae (fig. 333); internal armature with apically narrow median sclerite (fig. 333). Spermatheca: body only slightly broadened basally and apically; apical lobe about as wide as

narrowest part of body; gland duct lobe short, outline following outline of body; sperm duct lobe characteristic, long and bulbous, sperm duct entry point on inner face of lobe and widely separated from body outline (fig. 353).

**D i a g n o s i s .** Large samples of this species may display differences in colour. Immature specimens are pale and very like *O. atomarius* (Heer), whilst other specimens may be pale with some brown infuscation. The presence of some trace of isodiametric meshes between the punctures is the most reliable character to separate *O. aequalis* (fig. 288) from *O. atomarius* (fig. 285), which is smooth and shining without any trace of meshes. The length of the sperm duct lobe of the spermatheca is the most reliable character to confirm determination (fig. 353, long in *O. aequalis*; fig. 352, short in *O. atomarius*).

**D i s t r i b u t i o n .** This species is a recent arrival in the fauna. It is spreading across southern Europe and seems to be extending its range into more central areas. The species is present in New Zealand: North Island, Lynfield, (examined), where it occurs in compost heaps (Kuschel).

**B i o l o g y .** The holotype was collected in Hawaii, Mauna Loa, from dead wood, by Blackburn. In England it is also associated with recently cut wood and the moulds under the bark of hardwoods. In southern Europe, my recent experience in France, Tarn, is that the species can be present in very large numbers in grass heaps, thus indicating that it can make use of a variety of habitats where mouldy conditions prevail. The evidence of it breeding in old fig leaves further widens the range of habitats that can be made use of by this seemingly very adaptable species.

#### **Orthoperus acariformis Reitter**

*Orthoperus acariformis* Reitter, 1901: 70.

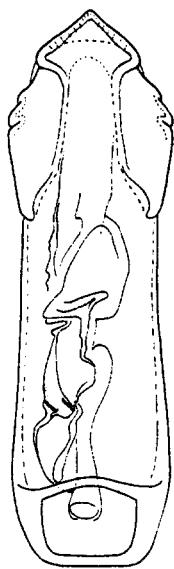
**T y p e m a t e r i a l .** *Orthoperus acariformis* Reitter (1901): lectotype male (present designation). Kazakhstan: labelled "Turkestan, Aulie Ata", "*Orthoperus acariformis* m. Typ. 1900". Reitter's hand, coll. E. Reitter (TMB); & 4 paralectotypes: 2, same data, & 1, "Margelan Reitter", all coll. E. Reitter (TMB). & 1, "*Orthoperus acritooides* m. Type Aulie Ata" (ZISP), all (examined).

**M a t e r i a l e x a m i n e d .** Known only from the type material.

**D e s c r i p t i o n .** Micropterous. Males: length 0.66 - 0.67 mm, width 0.50 - 0.51 mm. Females: length 0.64 - 0.68 mm, width 0.50 - 0.52 mm. Habitus unicolorous, testaceous; antennae and legs pale testaceous. A very small, broadly oval, very strongly convex species (fig. 293). Punctures of pronotum and elytra minute and hardly traceable, with very fine short pubescence: interspaces smooth and shining with at most, only a very slight indication of isodiametric meshes traceable at  $\times 100$  magnification, the whole dorsal surface presenting a distinctive smooth uninterrupted surface (fig. 294). Metasternum of males with elongate median depression; median keel about 1/3 from apical margin (fig. 295). Penis slender in lateral aspect (fig. 338); apex without setae (fig. 339); internal armature with elongate median sclerite enclosed in tube-like lateral sclerites (fig. 339). Spermatheca: body short, parallel-sided basally, annulate and slightly broadened apically; apical lobe large, as wide as widest part of body; gland

## REFEREKCES

- ABEILLE DE PERRIS. (E). 1894. Diagnoses de Coléoptères Réputés Nouveaux. *L'Echange. Revue Linnéenne*, 10: 91.
- ABEILLE DE PERRIS. (E). 1895. Descriptions de deux Coléoptères du midi de la France et observation synonymique. *Annales de la Société Entomologique de France* 64. Bull. 266-267.
- ALLEN. A.A. 1942. A New Species of *Orthoperus* in Britaiii. *Entomologist's Monthly Magazine* 78: 89-90.
- ALLEN. A.A. 1970. Revisional notes on the British species of *Orthoperus* Steph. (Col. Corylophidae). *Entomologist's Record & Journal of Variation* 82: 112-120.
- BESUCHET. C. 1972. Les Coléoptères Aculagnathides. *Revue suisse de Zoologie* 79: 99-145.
- BÖVING. A.G. & CRAIGHEAD. F.C. 1931. An Illustrated Synopsis of the Principal Larval Forms of the Order Coleoptera. *Entomologica Americana (N.S.)* 11 (1930): 1-351.
- BRISOUT. H. 1863. Appendix, Matériaux pour la Faune Française: p. 70. In Grenier, Catalogue des Coléoptères Européens. *Paris*.
- BROUN. T. 1883. Revision of the New Zealand Cossidae. with descriptions of New Species. *The New Zealand Journal of Science* 1: 498-499.
- BRUCE. N. 1916. *Orthoperus atomus* Gyll. - En kollektivart. *Opuscula Entomologica* 11: 106-107.
- BRUCE. N. 1948. The Scandinavian species of the genus *Orthoperus* Steph. (Coleoptera). *Opuscula Entomologica*, Supp. IX: 33-31, & plate IV: 10-15.
- BRUCE. N. 1951. (Publication date). Eine neue *Orthoperus* art (Corylophidae). (*Orthoperus intersitus* n. sp.). *Entomologische Blätter* 1949-50: 45-46.
- CASEY. T.L. 1900. Review of the American Corylophidae. Cryptophagidae, Tritomidae and Dermestidae with other Studies. *Journal of the New York Entomological Society* 8: 60-75.
- COMOLLI. A. 1837. De Coleopteris novis ac rarioribus minusve cognitis provinciae Novocoini. 50-51. *Ticini, Fusi*.
- CROWSON. R.A. 1981. The Biology of the Coleoptera. *Academic Press, London*.
- CSIKI. E. 1910. Coleopterorum Catalogus. Part 18: 5-28. *W. Junk, Berlin*.
- CSIKI. E. 1910. Rovartani Lapok. 17: 28. *Budapest*.
- CSIKI. E. 1910. Coleoptera Nova ex Hungaria. 59: 918-919. *Matematikai és Természettudományi Ertésítő*.
- FIORI. A. 1915. Appunti sulla fauna Coleotteroologica dell'Italia meridionale e della Sicilia. *Rivista Coleotteroologica Italiana* 13: 57-84.
- FLACH. C. 1889. Bestimmungstabellen der Trichopterygidae des europäischen Faunengebietes. pp. 481-532; plates X-XIV. *Verhandlungen der Kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien*. Band 39: 451-533.
- FREUDE. H., HARDE. K.W. & LOHSE. C.A. 1971. Die Käfer Mitteleuropas 3: 303-310. *Krefeld*.
- GANGLBAUER. L. 1899. Die Käfer von Mitteleuropa 3: 271-288. *Vienna*.
- GEMMINGER. M. & HAROLD. E. v. 1876. Catalogus Coleopterorum 12: 3818-3821. *Munich*.
- GISTEL. J. 1848. Naturgeschichte des Thierreichs. p. viii. *Stuttgart*.
- GUILLEBEAU. F. 1897. Description de quelques espèces nouvelles de Coléoptères. *Annales de la Société Entomologique de France* 66. Bull. 164.
- GUNDLACH. J. 1854. In POEY. F. Memorias Sobre La Historia Natural de la Islas Cuba. I, pt. 5: 323.
- GYLLENHAL. L. 1808. Insecta Suecica. Classis I. Coleoptera sive Eleuterata. Vol. I. Part I: 185. *Leverentz, Scaris*.
- GYLLENHAL. L. 1910. Insecta Suecica I, pt. II: 576-578.



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- Proceedings of*  
by T. Marshani
- d Orthoperiden-  
ipae, Caucasi et  
isk Tidskrift 92:  
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te und Arthrolips
- he Zeitschrift 18:
- Animal distribué
- coleoptera. 2: 531.
- pterü. 2: 885. III:  
of Coleoptera. 2
- tera: Clavicornia).
- proceedings of the
- um orbis terrarum
- MARSHAM, T. 1802. *Coleoptera Britannica*. pp. 547. London.
- MATTHEWS, A. 1885. On a New Genus Allied to *Corylophus*. *Entomologist's Monthly Magazine* 22: 160.
- MATTHEWS, A. 1885. Synopsis of the British Species of *Orthoperus*. *Entomologist's Monthly Magazine* 22: 107-110.
- MATTHEWS, A. 1885. Annales de la Société Entomologique de Belgique, 29: 69. *Bulletin ou Comptes-Rendus des Séances*.
- MATTHEWS, A. 1886. *Corylophidarum* species novae e musaeo fioriano. *Bollettino della Società Entomologica Italiana* 18: 432.
- MATTHEWS, A. 1886. Description of a New Genus, and Some New Species of *Corylophidae*. *Entomologist's Monthly Magazine* 22: 224-228.
- MATTHEWS, A. 1888. *Biologia Centrati-Americana. Insecta. Coleoptera*, 2, pt. 1: 118-119. London.
- MATTHEWS, A. 1890. Vier neue europäische Coleopteren-arten aus der familie der *Corylophidae*. *Wiener Entomologische Zeitschrift* 9: 151-152.
- MATTHEWS, A. 1899. A Monograph of the Coleopterous Families *Corylophidae* and *Sphaeriidae*, ed. MASON P.B. 220 pp. *Janson & Son, London*.
- MULSANT, M.E. & REY, C. 1861. Description de Quelques Coléoptères Nouveaux ou Peu Connus. *Annales de la Société Linnaéenne de Lyon* 8: 113-118, 121-122.
- OENBERGER, J. 1922 (Publication date). II Beitrag zur Kenntnis der palaearktischen Käfer-fauna. *Archiv für Naturgeschichte* 1916: 22-23.
- PAKALUK, J. 1985. Phylogenetic Position of *Hyplathrinus* (Coleoptera: *Corylophidae*). *Entomological News* 96: 69-70.
- PAKALCK, J. 1985. New Genus and Species of *Corylophidae* (Coleoptera) from Florida, with a Description of its Larva. *Annals of the Entomological Society of America* 78: 406-409.
- PAKALUK, J. 1985. Review of the New World Genus *Aenigmaticum* Matthews (Coleoptera: *Corylophidae*). *The Coleopterists Bulletin* 39 (3): 207-214.
- PAKALUK, J. 1987. Revision and Phylogeny of the Neotropical Genus *Hophlicnema* Matthews (Coleoptera: *Corylophidae*). *Transactions of the American Entomological Society* 113: 73-116.
- PAKALUK, J. & SLIPINSKI, S.A. 1995. Biology, Phylogeny and Classification of Coleoptera. 2 vols. *Museum i Institut Zoology PAN, Warszawa*.
- PAKALUK, J., SLIPINSKI, S.A. & LAWRENCE, J.F. 1994. Current Classification and Family-group names in Cucujoidae. *Genus*, 5 (4): 223-268.
- PAULIAN, R. 1950. Les *Corylophidae* d'Afrique. *Mémoires de l'Institut français d'Afrique noire* 12: 1-126.
- PAULIAN, R. 1962. Observation sur les Saciinae d'Asie Tropicale (Col. *Corylophidae*). *Reichenbachia* 1, Nr 14: 73-105.
- POEY, F. 1854. Memorias Sobre La Historia Natural de la Islas Cuba. I, pt. 5: 323.
- PEYERIMHOFF, P. DE. 1917. Coléoptères du Nord-Africain. *Annales de la Société Entomologique Française* 86: 132-133.
- REDTENBACHER, L. 1845. Die Gattungen der deutschen Käfer-Fauna. p. 122. Wien.
- REDTENBACHER, L. 1849. Fauna Austriaca. Die Käfer. p. 159. Wien.
- REDTENBACHER, L. 1858. Fauna Austriaca. Die Käfer, pp. 298-299. Wien.
- REITTER, E. 1876. Über *Orthoperus punctatus*. *Deutsche Entomologische Zeitschrift* 20: 312.
- REITTER, E. 1877. Description des Espèces d'Europe des Genres *Sacium* Lec et *Arthrolips* Woll. *L'Abeille* 16: 1-12.
- REITTER, E. 1878. Über die europäischen *Orthoperus*-Arten. *Deutsche Entomologische Zeitschrift* 22: 199-201.

- REITTER, E. 1884. In BRENSKE, E. & REITTER, E: Neuer Beitrag zur Käferfauna Griechenlands. *Deutsche Entomologische Zeitschrift* 28: 58-59.
- REITTER, E. 1885. Coleopterologische Notizen, 13. *Wiesner Entomologische Zeitung* 80a: 273.
- REITTER, E. 1891. Neue Coleopteren aus Europa, den angrenzenden Ländern und Siberien etc. *Deutsche entomologische Zeitschrift* 35: 20.
- REITTER, E. 1898. Sechzehnter Beitrag zur Coleopteren-Fauna des russischen Reiches. *Wiesner Entomologische Zeitung* 17: 17-19.
- REITTER, E. 1900. Coleopterologische Notizen, 69. *Wiener Entomologische Zeitung* 572: 132.
- REITTER, E. 1901. Zur Coleopteren-Fauna des russischen Reiches. *Deutsche Entomologische Zeitschrift* 70.
- REITTER, E. 1902. Neue Coleopteren der palaearktischen Fauna. *Wiener Entomologische Zeitung* 21: 137-8.
- REITTER, E. 1913. Eine Serie neuer Coleopteren aus der paläarktischen Fauna. *Deutsche Entomologische Zeitschrift*: 653-654.
- REY, C. 1889. Coléoptères (Suite) Remarques en passant. *L'Echange. Revue Linnéenne* (Lyon), 50: 4.
- RIDE, W.D.L., SABROSKY, C.W., BERNARDI, G. & MELVILLE, R.V., Eds. International Code of Zoological nomenclature. 3rd Edition. 1985. BMNH (London).
- ROSENHAUER, W. G. 1856. Die Thiere Andalusiens nach der Resultaten einer Reise zusammengestellt nebst den Beschreibungen von 249 neuer oder bis jetzt noch unbeschriebenen Gattungen und Arten, pp. 347-349. Erlangen.
- SAINTE-CLAIRES DEVILLE, J. 1935-38. Catalogue raisonné des Coléoptères de France (complété et publié par A. Méquignon). *Abbeille* 36 (1-4), pp. 467.
- SASAJI, H. 1968. Phylogeny of the family Coccinellidae (Coleoptera). *Euzenia* 35: 1-37, pls 1-8.
- SCOTT, H. 1917. Corylophidae (Coleoptera) from the Seychelles and Rangoon. *The Annals and Magazine of Natural History*, Ser. 8, Vol. 19: 1-33; plates 1-5.
- SEN GUPTA, T. & GROWSON, R.A. 1973. A review of the classification of Cerylonidae (Coleoptera: Ciavicornia). *Transactions of The Royal Entomological Society of London* 124 (4): 365-446.
- SHARP, D. 1885. In: BLACKBURN, T. & SHARP, D. On Some New Species and Genera of Coleoptera. *Scientific Transactions of the Royal Dublin Society, Natural Science* (2)3: 128.
- SLIPINSKI, S.A. & PAKALUK, J. 1991. Problems in the Classification of the Cerylonid Series of the Cucujoidea (Coleoptera). *Advances in Coleopterology*: 79-83.
- SMETANA, A. 1975. Revision of the New World genera of the tribe Omicrini trib. nov. of the hydrophilid subfamily Sphaeridiinae (Coleoptera). *Studies of Neotropical Fauna*.
- STEPHENS, J.F. 1829 (15th June). Illustrations of British Entomology. Mandibulata. 2: 185-188. London.
- STEPHENS, J.F. 1819 (August). A Systematic Catalogue of British Insects. 71. London.
- STEPHENS, J.F. 1833 (July). The Nomenclature Of British Insects: Together With Their Synonyms. 2 edn. (iv + 68, pages not numbered. 136 columns numbered (page 13; column 26. London.
- SUNDT, E. 1958. Revision of the Fennoscandian species of the genus *Acrotrichis* Motsch.. 1848. *Norsk Entomologisk Tidsskrift* 10 (4-5): 241-277; plates I-IV.
- THOMPSON, R.T. 1989. News and Notes. *Curculio* 26: 3-4.
- THOMSON, C.G. 1859. Skandinaviens Coleoptera. 1: 63. Lund.
- VIT, S. 1977. Contribution à la connaissance des Eucinetidae (Coleoptera). *Revue suisse de Zoologie* 84 (4): 917-935.
- WANKOWICZ, J. 1865. Coléoptères nouveaux de Lituanie. *Annales de la Société Entomologique Française* (4) 5: 299-300.

- Griechenlands.
- g 80a: 273.
- id Siberien etc.
- reiches. Wiener
- g 572: 132.
- Entomologische  
gische Zeitung*
- tuna. *Deutsche*
- méenne (Lyon),
- ational Code of
- eise zusammen-  
nbeschreibenen
- ice (complété et
- 1-37. pls 1-8.  
*The Annals and*
- lylidae (Coleo-  
at Londori 124
- nera of Coleop-  
(2) 3: 128.
- nid Series of the
- trib. nov. of the  
*Fauna.*
- lata, 2: 185-188.
- don.
- ith Their Syno-  
z 13: column 26.
- s Motsch., 1848.
- Revue suisse de  
Entomologique*
- WESTWOOD**. J.O. 1838-40. Synopsis of the Genera of British Insects, p. 11, in Introduction to the Modern Classification of Insects. 2 Vols + Catalogue. *London*.
- WINKLER**. A. 1924-32. Catalogus Coleopterorum regionis palaearcticae. Parts 1 to 13. *Wien*.
- WOLLASTON**. T.V. ante 4.IX.1854. Insecta Maderensia. pp. 470-482 & figs 4, 6, 7 & 9. *London*.  
(Date in: *Proceedings of the Entomological Society of London*; p. 23 for 4<sup>th</sup> September 1854, pp. 1-74; (23), bound with *Transactions of the Entomological Society of London*; New Series 3. 1854-1856.).
- WOLLASTON**, T.V. 1857. Catalogue of the Coleopterous Insects of Madeira in the Collection of the British Museum. *London*.
- WOLLASTON**. T.V. 1865. Coleoptera Atlantidum. *London*.

- HALDEMAN, S.S. 1842. Remarks on Changes of Nomenclature in Natural History. *Proceedings of the Academy of Natural Sciences of Philadelphia* 1: 190-191. MAT
- HAMMOND, P.M. 1971. On the type Material of Staphylinidae (Col.) described by T. Marsham and J.F. Stephens. *Entomologist's Gazette* 23: 129-135. MAT
- HEER, O. 1841. Fauna Coleopterorum Helvetica. 1: 432-434. *Turici*. MAT
- HETSCHKO, A. 1913. Nomenclatorische Bemerkungen zu einigen Pselphiden- und Orthoperiden-Gattungen. *Wiener Entomologische Zeitung* 32: 181-182. MAT
- HEYDEN, L. v., REITTER, E. & WEISE, J. 1906. Catalogus Coleopterorum Europae. Caucasi et Armeniae Rossicae. Ed. E. Reitter. 2nd. ed. pp. 774. Berlin, Paskau, Caen. MAT
- HORION, A. 1949. Faunistik der Mitteleuropäischen Käfer, 2: 219. *Frankfurt*. MAT
- ISRAELSON, G. 1971. Notes on some North-European Coleoptera. *Entomologisk Tidskrift* 92: 66-67. MAT
- ISRAELSON, G. 1980. Taxonomic and Nomenclatural Notes on some Canarian Coleoptera. *Vieraea* 9: 183-201. MAT
- ISRAELSON, G. 1987. An *Aposericoderus* Paulian from the Canary Islands. with a note on the speciesnatheca of the Corylophidae (Coleoptera). *Entomologist's Monthly Magazine* 123: 73-76. MAT
- ISRAELSON, G. 1991. Notes on Wollaston's Cokopterological Investigations in the Madeiran Archipelago. *Boletim do Museu Municipal do Funchal* 43 (231): 159-165. MUL
- JACQUELIN DU VAL, 13.IX.1854 (date on cover wrappers). Bulletin entomologique. *Annales de la Société Entomologique de France*, Series 3; 2: 38. OBE
- JACQUELIN DU VAL, 1857. Glanures entomologiques. *Annales de la Société Entomologique de France* 5: 98-100. PAK
- JACQUELIN DU VAL, 1859. Genera des Coléoptères d'Europe, 2: 229-236. *Paris*. PAK
- JOHNSON, C. 1970. The *Atomaria* Species (Col. Cryptophagidae) of Evladeira and the Canary Islands Including Data on the Wollaston Collections and Lectotype Designation of His Species. *Entomologica Scandinavica* 1: 145-160. PAK
- JOHNSON, C. 1981. An Introduction to the Ptiliidae (Coleoptera) of New Zealand. *New Zealand Journal of Zoology* 9: 333-376. PAK
- KIRBY, W. Manuscript (No date). Museum Entomologicum Barhamense, Pars prima (acquired by BMNH from the Entomological Society of London in 1863). PAK
- KLOET, G.S. & HINCKS, W.D. 1977. A. Check List of British Insects. 2nd. Edn. 3: 62. PAK
- KRAATZ, G. 1869. Ueber die europäischen Arten der Gattung *Sacium* Le Conte und *Arthrolips* Woll. *Berlin Entomologische Zeitschrift* 12: 283-287. PAK
- KRAATZ, G. 1874. Über die deutschen Orthoperus-Arten. *Berlin Entomologische Zeitschrift* 18: 119-122. PAK
- KUSCHEL, G. 1989. News & Notes. *Circulio*, 27: 4. PAK
- LATREILLE, P. A. 1829. Insectes Coléoptères. In: CUVIER, G. (ed.). *Le Règne Animal distribué d'après son Organisation*. 1<sup>edn.</sup> 5: 162. *Paris*. POR
- LAWRENCE, J.F. 1981. Synopsis and Classification of Living Organisms. Coleoptera. 2: 531. McGraw-Hill, New York. PEY
- LAWRENCE, J.F. & NEWTON, A.F. 1995. Families and subfamilies of the Coleoptera. 2: 885. In: PAKALUK, J. & SLIPINSKI, S.A. Biology, Phylogeny and Classification of Coleoptera. 2 vols. pp. 1092. *Museum i Institut Zoologiczny PAN, Warszawa*. REI
- LAWRENCE, J.F. & STEPHAN K. 1975. The North American Cerylonide (Coleoptera: Clavicornia). *Psyche* 82 (2): 131-166. REI
- LECONTE, J.L. 1952. Remarks upon the Coccinellidae of the United States. *Proceedings of the Academy of Natural Sciences of Philadelphia* 6: 129-145. REI
- LUCAS, R. 1920. Catalogus alphabeticus generum et subgenerum Coleopterorum orbis terrarum totis, part I, pp. 696. Berlin. RE