



Studies on the genus *Corticaria* Marsham (Col., Lathriidiidae). Part I.

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The results of studies upon some *Corticaria* from Europe and the Canary Islands are presented. (1) Europe: new synonymy — *fagi* Wollaston = *pietschi* Ganglbauer = *aequidentata* Allen; *serrata* (Paykull) = *hispanica* Dajoz; *crenulata* (Gyllenhal) = *spectabilis* Dajoz; *tarragonensis* Dajoz = *besucheti* Dajoz; *planula* Fall = *strandi* Palm. New species described and figured are *fennica* sp.n. (Finland) and *alleni* sp.n. (England and Finland). Records of *orbicollis* Mannerheim and *obsoleta* A. Strand are given for Finland, U.S.S.R. and U.S.A. The interpretation of *crenicollis* Mannerheim and *polypori* J. Sahlberg is confirmed, and English records given for *dubia* Dajoz, whose status is clarified. (2) Canary Islands: an illustrated key is given to the known species, and records of the non-cosmopolitan species listed; *canariensis* sp.n. and *maculosa lineata* sp.n., the former from Tenerife, Grand Canary, Hierro and La Palma, the latter from Lanzarote and Fuerteventura, are described and figured; *umbilicata* (Beck) from Gomera is recorded for the first time.

In the course of determining *Corticaria* material over the last few years, a number of problems concerning the identity of certain species were encountered, many of which could only be solved by examining the types. This has now been done, and the first part of the results of our investigations are presented below. This includes descriptions of some new species, and new data on some little-known ones.

For the loan of valuable and often unique specimens, the writer's grateful thanks are due to the following colleagues and institutions: A. A. Allen, London; Dr. C. Besuchet, Muséum d'Histoire Naturelle, Geneva; Prof. H. Franz, Vienna; P. M. Hammond and R. D. Pope, British Museum (Nat. Hist.); Dr. J. Kingsolver, U. S. National Museum; Dr. T. Palm, Uppsala; Dr. P. I. Persson, Naturhistoriska Riksmuseet, Stockholm; H. Silfverberg and J. Muona, Zoological Museum, Helsinki; Dr. S. Stockman, Helsinki; Dr. A. Strand, Oslo; E. Taylor, University Museum, Oxford; Dr. J. Viramo, Oulu.

(1) European species

Corticaria fagi Wollaston (Fig. 10)

This species was first found by Wollaston in the district of Lombo dos Pecegueiros, Madeira, during July 1850, when he captured it in profusion on his tent after showers. Because of the presence of enormous Spanish chestnut trees in the vicinity, he supposed the beetle to have some connection with these (WOLLASTON 1854, 188).

The present writer has compared some of Wollaston's specimens with the unique British type of *aequidentata* Allen, and finds them to be conspecific. My friend Mr. Allen informs me that his species is also identical with *pietschi* Ganglbauer, it having been compared with the type and Danish specimens of that species some years ago by Dr. Victor Hansen of Copenhagen.

Corticaria besucheti Dajoz and *C. tarragonensis* Dajoz

Three new species of *Corticaria* were described by Dajoz (1970) from the Spanish locality of Sierra de Montsaut, Tarragona: *spectabilis* (previously dealt with); *tarragonensis* and *besucheti*. The two latter species were based on a unique male and a unique female respectively. These types have been studied by the writer and warrant some discussion.

Concerning *besucheti*, the describer writes that it can be distinguished from all others of the *sylicola* group by the very clear colour, strong pronotal puncturation, the excised border of the fifth abdominal sternite, as well as by the elytral punctures not being aligned in distinct striae. A figure of the antennae body shape and fifth sternite age given.

Despite Dajoz's words to the contrary, the *besucheti* holotype is undoubtedly immature, because the elytra have collapsed at the base and separated widely along the suture, and the abdomen has grossly shrivelled. As he rightly remarks, the pronotal puncturation is closer and coarser than in other species. The features of the fifth abdominal sternite are very exaggerated however in his figure. This structure is only slightly sinuate in the middle - - certainly not «échancré», and in fact is very similar to that of the male *tarragonensis*, whose features are also exaggerated. Concerning the elytral puncturation, that of *besucheti* hardly falls into distinct lines (i.e. striae), but then these lines are no better defined in *tarragonensis*. Neither species has the regular striar found in most other members of the genus.

Other distinctions between the two species emerge from Dajoz's descriptions and figures. Although *besucheti* possesses a fovea to the pronotum, this is such a feeble impression as to be of doubtful significance. It could even be due to immaturity, i.e. a collapsing of the integument. *Tarragonensis* lacks all trace of an impression. In Dajoz's figures 1A and 2A, the temples of the two species are shown to be very

different. However, the types have similar temples which are more like those figured for *besucheti*. Of course they must be viewed from precisely the same angle for this to be appreciated. Quite marked differences are also exhibited by Dajoz's antennal figures. As the present writer has shown under an earlier species (*hispanica*), it is valueless to describe and draw antennal features from antennae which are not mounted flat, and this point is admirable brought home here. Segment 9 in *tarragonensis* is approximately as broad as long, whereas 10 is slightly but distinctly broader than long; both segments are slightly longer than broad in the figures. Similarly with *besucheti*. In fact despite Dajoz's two markedly different figures, I am unable to see any difference in the antennae of the respective types. The pronotal shape of *besucheti* is very like that of *tarragonensis*, contrary to the original figure.

From an examination of the types, it seems to this writer that the only differences between the two species lie in the more strongly punctured and very slightly more ample prothorax of *besucheti*, which has a feeble basal impression, and in the slightly more strongly punctured elytra. These differences are very small, and are in characters which are highly variable in most *Corticaria*. One would expect extremes like these to occur in a good series of almost any species, and since both «species» were collected together, it seems prudent to treat *besucheti* as only a female variant of *tarragonensis*.

The case of *hispanica*, *tarragonensis* and *besucheti*, as well as *spectabilis*, demonstrates the great care and conservative systematic approach which is needed in the study of the very difficult genus *Corticaria*. This is so if the number of true species is not to be lost sight of amongst a sea of individual variants described as new 'species'. In particular, descriptions of new species based on unique females can very rarely be justified.

Corticaria dubia Dajoz (Fig. 12)

This species was recently described (Dajoz 1970, 269) on a unique male collected in the Sierra de Guadarrama, Spain, at an altitude of 1800–2300 m by H. Franz. The describer seemed uncertain of its true position and contrasted it with *impressa* Erichson, surprisingly, since he also remarked that it approached *abietum* Motschulsky.

Dajoz's figures of the body form and characteristic aedeagus permitted the present writer to recognise the species. It is one which occurs in southern England, and which has, up to now, been erroneously known as *eppelsheimi* Reitter in the British literature. That Dajoz should have compared the species with *impressa* is curious, since the species is obviously closely allied to *linearis* (Paykull). With the latter species, *dubia* shares a few characters. These are the similar size, body shape, and leg build of the male — in particular the presence of a highly characteristic mark towards the inner edge of the middle and hind tibiae of the male, this mark being situated about a third from the apex. This tibial feature is not found in any other species of northern and western Europe known to the writer, although there are traces of one right on the edge in *ferruginea* (Marsham). The two species may be separated as follows:

- | | | |
|---|---|---------------------------|
| 1 | Predominantly black species, legs reddish-brown or darker; legs slender. Male: first segment of the front tarsi broadly dilated; aedeagus characteristic, fig. 11 | <i>linearis</i> (Paykull) |
| — | Predominantly reddish-brown species, legs usually unicolours reddish-yellow; legs rather stout. Male: first segment of the front tarsi weakly dilated; aedeagus characteristic, fig. 12 | <i>dubia</i> Dajoz |

Judging from English specimens, *dubia* seems to be associated with slimefungi (*Reticularia* sp. etc.), particularly on dead coniferous stumps and trees. It is a rare species, and seems largely restricted to the south eastern part of the country. Specimens have been seen from the following localities:

ENGLAND -- Berks.: Crowhorne (J. Collins), Wellington College (E. M. Eustace), Bradfield (N. H. Joy). — Cainbs.: Wicken (W. G. Blatch). — Kent: Tonbridge (W. G. Blatch), Westerham (P. Harwood). — Surrey: Woking (J. J. Walker, G. C. Champion, N. H. Joy, H. Donisthorpe), Gomshall (G. C. Champion), Farley (E. C. Bedwell), Hurt Wood (G. C. Champion).

Corticaria alleni sp.n. (Figs. 1, 13, 14)

Length 1.58–1.81 mm; antennal length 0.51–0.58 mm; head breadth 0.35–0.42 mm; pronotal breadth 0.43–0.51 mm; elytral breadth 0.59–0.69 mm; elytral pubescence c. 0.032–0.04 mm, short and decumbent. Pronotum 1.16–1.28 times as broad as long. Elytra 2.8–3.0 times as long as the pronotum, and 1.70–1.76 times as long as together broad. Wings fully developed.

In colour (brown), form of the eyes and well-developed temples, antennae, legs (including the male secondary sexual characters), pronotal breadth and sculpture, pronotal crenulations and post-median depression, this new species (Fig. 1) resembles *polyperi* J. Sahlberg (*eppelsheimi* Reitter 1886). The apex of the aedeagus is also reminiscent. However, that *alleni* is a good species is demonstrated by the following features. Our new species is a little smaller (but still larger than *inconspicua* Woll.), the elytra are much more parallel-sided and perhaps a trifle flatter, the punctures of the elytral striae are not so coarse and are very close together, the interstices are narrower and hardly widened from the base to the middle of the elytra. The puncturation on the interstices is more distinct, and the elytral pubescence is very slightly shorter, finer, more depressed and generally a trifle denser. In *alleni* the aedeagus is shorter than in *polyperi*, the apex is more protruding and sinuate at the sides (cf. Figs. 13, 16), the dorsal plate is broader, and the whole aedeagus, because of its ventral concavity, has a different shape in profile (cf. Figs. 14 and 17). The habits of the two species also seem different. *C. polyperi* appears to be a boreoalpine species of

the conifer/birch belt -- Sahlberg's original specimens were found on the fungus *Fomes pinicola* Sw. on spruce in Fiinlaaid, whereas *alleni* in Eiigland is essentially a »southern» species, chiefly associated with areas of old deciduous (oak/beech) woodland and forest. Although most specimens have been found iiiider loose, dry bark, a specimen has been collected iii a ripe slimefungus.

C. alleni is extremely closely related to one other species, the Canarian *canariensis* sp.n., described later on in this paper. For the distinctions, see iiiider that species.

Dedication. It is a pleasure to dedicate this species to my friend Mr. A. A. Allen, who recognised it as new some years ago.

Holotype ♂, ENGLAND - Notts.: Sherwood Forest, Edwinstowe, 11. vi. 1970, in powdery *Reticularia* on ancient dead oak, leg. C. Johnson (in Manchester Mus.).

Paratypes. ENGLAND - Notts. Sherwood Forest, 2 ex. (W. G. Blatch), --- VI. 1905 2 ♂ (J. K. Taylor). - - Berks.: Windsor Forest, - - V. 1926 1 ♂, 24. VIII. 1926 1 ♂, 14. VIII. 1930 1 ♀ (H. Donisthorpe), 4. XI. 1965 2 ♂ 3 ♀ (A. E. Gardner & A. M. Masee), 3. IV. 1940 1 ♀, 8. IV. 1940 2 ♂, 8. VIII. 1940 1 ♂, 30. VIII. 1940 1 ♂, 6. IX. 1940 1 ♂, 12. IV. 1943 1 ♀, 22. IV. 1944 1 ♂ (E. hl. Eustace). - - Essex: Epping Forest, 5. III. 1906 1 ♂ (C. J. C. Pool), 2. IX. 1911 4 ♂ 2 ♀ (H. Donisthorpe), - - VII. 1966 1 ex. (B. Levey), 22. X. 1967 1 ♀ (P. hl. Hammond); Epping, 2. IX. 1911 1 ♂, 9. IX. 1911 1 ♂ 1 ♀, 12. XI. 1911 1 ♂ (H. C. Dollman); Weald Park, 12. XI. 1967 1 ♂, 19. II. 1968 3 ex. (P. M. Hammond). - - Surrey: Esher, 1 ♀ (Power); Richmond, 1 ♀ (G. C. Champion).

FINLAND - V. Vilti, 1 ♂ (Mäklin)

Paratypes in the museums of Manchester, Helsinki, the British Museum (Nat. Hist.), and in the collections of Dr. A. Strand, and Dr. T. Palm.

Additional material

CZECHOSLOVAKIA - Slovakia bor., Carp.or., Stažica, 27. VI. 1971, 1 ♂ 2 ♀ (Petr Nohel).

Corticaria fennica sp.n. (Figs. 2, 15)

Length 1.79--2.13 mm. Upper and under surfaces black or nearly so; legs dark reddish-brown, usually even darker to a greater or lesser extent. Pubescence short, c. 0.04--0.048 mm, decumbent. Body rather flat, shape as in Fig. 2. Head about an eighth narrower than the pro-

notum, breadth 0.38--0.45 mm, the puncturation similar to that on the pronotum. Temples well-developed, as in *polypori*, only slightly narrower than the eyes so that the eyes do not protrude beyond them as much as in *abietum*, *linearis* etc. Antennae reddish-brown, 0.56--0.64 mm, the club often darkened; segments 9 and 10 clearly broader than long, the club abrupt, similar to those of *abietum* etc.

Pronotum broadest at or a little in front of the middle, breadth 0.46--0.56 mm, 1.17--1.25 times as broad as long, surface rather dull and uneven, somewhat coarsely and closely punctured, basal half with a not very deep irregular median depression; pronotum somewhat narrow in proportion to the elytra - - a little broader and more transverse than in *linearis*, but not as much as in *lateritia*; hind margin about as broad as the head; side margins coarsely crenulate, ie. the crenulations are coarser and rather fewer than in *linearis*, approaching more towards *serrata* in this respect.

Elytra rather long, 2.90--3.21 times as long as the pronotum, and 1.59--1.70 times as long as together broad. breadth 0.74--0.85 mm, the sides moderately curved, the greatest breadth about the middle, striae rather coarsely punctured, the interstices very finely punctured and shagreened, the surface often a little more shining than the pronotum. Wings fully developed. Sternite five flat. Legs long and slender, much more so than in related species.

Male: front and middle tibiae very feebly sinuate towards the apex, where there is a small tooth (similar to *crenicollis*, but the legs longer and more slender); hind tibiae straight and without a tooth; basal joint of the front tarsi slightly dilated, more so than in *crenicollis*, but less so than in *linearis*; aedeagal apex as in Fig. 15, similar to that of *polypori*, but smaller and narrower; basal piece of the aedeagus (not figured) excessively long, some five to six times as long as the sclerotised apex -- at the most only twice as long in *polypori*.

Holotype ♂, FINLAND - Uusikaupunki, leg. Söderman (in Zool. Mus. Helsinki). Paratypes. FIN-

LAND -- Uusikaupunki (Söderman) 17 ex.; Pälkäne (Söderman) 13 ex.; Pirkkala (Saarinen) 1 ex.; Sa. Ristiina (Linnaniemi) 11 ex., (Renkonen) 1 ex., Esbo, 3. V. 1942 (S. Stockmann) 1 ex.; N. Helsinge, 31.11. 1934 (M. Stockmann) 1 ex.; N. Kauniainen (Linnaniemi) 1 ex.; Tb. Saarijärvi, Pylhäkivi (S. Stockmann) 1 ex.; Ks. Käylä, 6. 14. VII. 1972, 3 ex. (J. Muona).

Paratypes in the museums of Helsinki and Manchester, and in the collections of Dr. S. Stockmann, Dr. T. Palm, Dr. A. Strand, Mr. S. Lundberg, Mr. T. B. Ehnström and Mr. J. Mäona.

Notes. This new species probably finds its best position between *crenicollis* Mannerheim and *polypori* Sahlberg. Although because of its black colouration, similar size and depressed form, *fennica* might be passed over at first glance for *linearis*, it may be readily distinguished by the eyes not protruding as far beyond the temples, by the slightly more transverse pronotum with its uneven surface and coarser (and fewer) lateral crenulations, as well as by the longer and more slender legs. In addition, males lack the distinctive meso- and metatibial mark, and possess a different aedeagus. Compared with *crenicollis*, to which it is probably most closely related, *fennica* is a little more depressed, the head is not so broad in proportion to the narrower, duller and more uneven pronotum, the temples are more right-angled, the legs longer and more slender, and the colour is black -- the great majority of *crenicollis* are typically brown. The aedeagus also differs, cf. Figs. 15 and 18. Confusion with dark *lateritia* is unlikely because of the latter's characteristic elytral sculpture, broader and more finely punctured pronotum etc. Compared with *polypori*, *fennica* is larger, black, has longer antennae with a frequently darker club, darker, longer and more slender legs, as well as differing in the form of the pronotum: this is duller, less transverse as a rule, more coarsely crenulate at the sides, the puncturation is coarser, the surface is more uneven, and the post-median depression is perhaps more irregular. The aedeagal differences have already been alluded to. Males of *fennica* also generally have a very slightly larger tooth to the front and middle tibiae.

Corticaria polypori J. Sahlberg (Figs. 3, 16, 17)

FRANZ and STRAND (1969, 11--12) have recently shown *eppelsheimi* REITTER 1886 (not 1875) to be identical with *polypori* J. Sahlberg 1926. The discovery of both *fennica* and *alleni* spp.n. necessitated a check upon the identity of Sahlberg's type from Ruovesi, Finland, in the Zoological Museum, Helsinki, whereupon the writer found himself in complete agreement with his two colleagues on its identity.

Corticaria crenicollis Mannerheim (Figs. 4, 18)

To judge from material examined, *crenicollis* is frequently misidentified, especially as *polypori*. This is probably due to the somewhat similar aedeagal apex in the two species, which are very dissimilar in other respects. Some of the salient features of *crenicollis* are as follows: on an average one of the larger species; usually brown, very rarely blackish; head much broader than in related species, almost as broad as the pronotum (Fig. 4); eyes only protruding a very short distance beyond the temples; temples very well-developed, generally about half the length of an eye, much more obtusely angled as a rule than in allied species; pronotum generally with coarse crenulations, similar to those of *serrata*; pronotum and elytra more convex than in *linearis*, *polypori* etc., approaching *serrata* in this respect. The aedeagus (Fig. 18) is larger and more elongate than in other species. Compared with *serrata*, *crenicollis* may be distinguished by its broader head with longer and more angled temples, and by the aedeagus. Body size is also usually larger.

The writer has examined Mannerheim's types of both *crenicollis* and *lacerata* from the former Finnish locality of Kavantsaari, and can confirm the accepted interpretation of *crenicollis* and its synonym *lacerata* -- see STRAND (1937: 14, 16).

This species is unknown in central Europe, according to the recent key by PEEZ (1967). However, I have seen specimens from Majevica,

Bosnia, leg. Zoufal in coll. Strand, so it is very probable that the species occurs in that region. Likely areas appear to be in the Bohmerwald and Carpathians, to judge from certain rare Cryptophagidae occurring in all three areas.

Corticaria strandi Palm

Two specimens of this very distinctive depressed species were collected by my colleague Dr. Thure Palm at Mala, Swedish Lapland, and described by him in 1949. However, unknown to the describer, ROUBAL (1934, *Folia Zoologica hydrobiologica*, 5, 324) had already employed the same specific name for a new species which he described from Tschardshui near Buchara, Uzbekistan. The discovery of this homonymy prompted the present writer to consult Fall's account of the North American Lathridiidae (Fall, 1899), wherein Palm's holotype (kindly loaned by the Naturhistoriska Riksmuseet, Stockholm) keyed straight down to *planula* Fall, also agreeing with the description and figure of that species. The writer then borrowed two authentic *planula* (data: Calif., Los Gatos, coll. Hübner & Schwarz, cotype, 1 ♀; Mon., Bear Paw Mt., coll. Hubbard & Schwarz, det. H. C. Fall, 1 ♂) from the U. S. National Museum, and, on comparing them with the *strandii* type, found them to be conspecific. The aedeagus of the Bear Paw Mt. specimen was also protruding, and this too agreed with the aedeagus of *strandii*. Fall's name must therefore be used for *strandii* Palm 1949 (not Roubal 1934) (Syn.n.).

Corticaria orbicollis Mannerheim

Previous records of this species (= *munsteri* Strand, see JOHNSON 1972) from eastern Fennoscandia are very few. Specimens have recently been seen from the following localities:

FINLAND — Ob: Ylikiminki (Saalas), Pisavaara naturpark (Håkan Lindberg); — Li: Inarjoki (U. Sahlberg), Inare (Poppius) (Saalas); — Ks: Kuusamo (Saalas), Taivalkoski (Saalas); — IR: Ounas-

tunturi (U. Sahlberg); — Ta: Jämsä (U. Sahlberg), Korpilahti (U. Sahlberg); — Ok: Paltamo (Saalas).

U.S.S.R. — Kon: Kontiozero (Levander); — Kk: Kivakka (Saalas); — Lps: Lutto (Poppius), Petsamo (Håkan Lindberg), Haukilampi, Petsamo (Lin-ninmi).

Kenai Peninsula, Alaska, from whence *orbicollis* was described, is the only published locality for the species in North America. A second may now be added: Colorado, New Castle, 'Picea engelmanni', coll. C. L. Massey, 1 ♂ in U. S. National Museum.

Corticaria obsoleta A. Strand

Another rare Fennoscandian species, of which there are few records. Specimens have been seen from the following eastern Fennoscandian localities:

FINLAND — Ob: Turtola (J. Sahlberg); — Li: Inare (Saalas); — Ia: Ruovesi (Saalas), Kangasala (Saalas), Jämsä (Saalas); — Tb: Kivijärvi (Saalas); — Ok: Hyrynsalmi (Saalas); — Le: Enontekiö, Pallasunturi (Saalas); — Oim: Pietarsaari (Saalas); — LK: Kittilä (Saalas).

U.S.S.R. — Knn: Klimetskoï (Poppius); — Lu: Nuortijärvi (Poppius).

Of considerable interest is the first North American record of this species — Colorado, New Castle, 'Picea engelmanni', coll. C. L. Massey, 1 ♀ in U. S. National Museum. Although, being a female, the genitalia could not be checked, this specimen agrees so well with Fennoscandian material that there seems to be no doubt about its identity. Although the species could be identical with one of Fall's, no suggestions presented themselves on a cursory check through his key (Fall, 1899).

(2) Species from the Canary Islands

Six species of *Corticaria* have been recorded from the Canary Islands to date, and two further species are known to the writer. These are *umbilicata* (Beck) — of which my colleague Dr. Thure Palm collected a single specimen on Gonicra (San Sebastian, 7. IV. 1967), and *canariensis* sp.n. Below is given a key to these eight species, after which further data is presented for the more interesting forms.

- 1 Elytral pubescence not overlapping, rather sparse and conspicuously double, the striae with short depressed hairs, the interstices with longer and erect (= bristling) ones; body long and cylindrical. Entirely reddish-yellow/brown, the elytral suture usually darkened; pronotum almost as broad as the elytra, without a post-median depression; temples distinct, about a quarter the length of an eye; antennal club gradual and narrow, segment 9 obviously, 10 more or less conical; 9 longer than broad, 10 as broad or broader than long. Length 1.6—2.2 mm. Aedeagus Fig. 19. Palearctic region; Gomera *umbilicata* (Beck)
- Elytral pubescence dense and more-or-less uniform, the striae and interstitial hairs each overlapping or at least touching, and inclined at a similar angle; body broader in proportion to its length 2
- 2 Elytra with strongly curved, somewhat long and semi-erect pubescence which projects beyond the body margins 3
- Elytra with almost straight, shorter and more decumbent pubescence, not or barely projecting beyond the body margins 5
- 3 Larger, 2.0—2.8 mm. dark brown; antennal segments 8, 9 and 10 obviously longer than broad, the club narrow and gradual; elytra with coarsely and closely punctured interstices, the punctures almost as strong and close as those of the striae, the resulting rows not well-defined; legs long. Head with bulging eyes and long temples, the temples at least half the length of an eye. Aedeagus Fig. 20. Holarctic region; Tenerife *pubescens* (Gyllenhal)
- Smaller, 1.6—2.0 mm, light yellow/brown; antennal segment 9 at the most as broad as long, 8 and 10 as broad to slightly broader than long, the club broader and more abrupt; elytra with very finely and sparsely punctured interstices, these contrasting with the more coarsely and closely punctured striae, the resulting rows very well-defined; legs shorter 4
- 4 Head with well-developed temples, these about half the length of an eye; pronotum not so broad nor so ample as in the next species, about a third broader than the head; head and pronotum dull; legs slightly thicker; fully winged. Aedeagus Fig. 21. Cosmopolitan; Tenerife, Lanzarote *fulva* Comolli
- Head without distinct temples; pronotum very broad and ample, about a half broader than the head, Fig. 5; head and pronotum shining; legs a little more slender; brachypterous. Aedeagus Fig. 22. Tenerife: montane species *alticola* Lindberg
- 5 Temples well-developed, about a third the length of the eyes, the eyes not or very slightly projecting beyond them, Fig. 6. Entirely brown species, elytra feebly curved at the sides. Aedeagus Fig. 23. Tenerife, Grand Canary, La Palma, Hierro *canariensis* sp.n.
- Temples weakly developed, at the most about a quarter the length of the eyes, the eyes conspicuously projecting beyond them 6
- 6 Pronotum coarsely crenulate at the sides; body form convex; colour unicolorous, usually black, never pale with dark markings, Aedeagus Fig. 25. Cosmopolitan; Tenerife, Hierro, Lanzarote, Fuerteventura *serrata* (Paykull)
- Pronotum finely crenulate at the sides; body form more depressed; colour often unicolorous brown, more frequently brown with black elytral markings 7
- 7 Very depressed species; undersurface black, sides of the pronotum and head usually so; elytral humeri broadly rounded off; elytra brown/yellow, with a black fascia across the middle, this bent apically towards and along the suture in a Y-shape, Fig. 7; legs slightly thicker. Aedeagus Fig. 26. Tenerife, La Palma, Gomera *apenhageni* Uytendboogaart
- Less depressed species; head, pronotum and undersurface brown; elytral humeri not so broadly rounded; elytra brown, frequently unicolorous, but usually with a blackish spot slightly behind the middle of each elytron, Figs. 8—9; legs slightly thinner. Aedeagus Fig. 27. All Canary Islands; Madeira, Azores *maculosa* Wollaston

Corticaria alticola Lindberg (Figs. 5, 22)

This very distinctive species is well-characterised by the features given in the key, and it is hardly likely to be confused with any other known Canarian species. In distribution it is extremely localised, apparently being confined to the high mountains of the Las Cañadas below Teide, on Tenerife.

Specimens examined. TENERIFE — Portillo, 2000 m, 17. IV. 1950, holotype & 1 ex. (Lindberg); Las Cañadas, 14. V. II. 1949, 1 ex. (Lindberg), 5. III. 1950, 2 ex. (Fernandez); Teide, 2200 m, 31. I. — 20. II. 1964, 11 ex. (T. Palm); Teide, Las Cañadas, 2000 m, 8. I. 1972, 1 ex., 6. VII. 1972, 3 ex. (T. Palm), Cumbre, 1600—1800 m, 1 ex. (H. Franz).

Corticaria canariensis sp.n. (Figs. 6, 23, 24)

Length 1.55—1.85 mm: antennal length 0.48—0.58 mm: liead breadth 0.35—0.42 mm: pronotal breadth 0.45—0.54 mm: elytral breadth 0.59—0.74 mm: elytral pubescence c. 0.032—0.04 mm, short and decument. Pronotuni 1.22—1.36 times as broad as long. Elytra 2.60—2.80 times as long as the pronotuni, and 1.52—1.64 times as long as together broad. Wings fully developed.

In all respects, this species is extremely closely related to *alleni* sp.n., described earlier on in this paper from England and Finland. As far as the writer can see, *canariensis* differs from *alleni* in being a trifle more convex, the elytra are proportionately shorter and more curved at the sides (cf. Figs. 6 and 1), and the pronotum is a little more coarsely puctured. That the species is distinct is further demonstrated by the male genitalia, which, although of a very similar form, constantly differ in both dorsal and lateral aspects (cf. Figs. 13 and 14, 23 and 24).

Holotype ♀, TESERIFE — Los Picachos, 5. IV. 1919. leg. Lindberg (in Zool. Mus. Helsinki).

Paratypes. TESERIFE. — forest above Esperanza, 2 es. (H. Franz); near Erjos, 3 es. (H. Franz); El Bailadero, 1000 m. 17—24. IV. 1967. 3 es. (T. Palm); La Esperanza, 28—29. IV. 1967, 2 es. (T. Palm); Las Mercedes, 6. II. 1971, 3 ex., 13. I. 1971, 3 es., 3. VII. 1972. 1 es. (T. Palm); Agua Manza, c. 1000 m, 22. II. 1964, 5 es.; 16. V. 1971, 1 ex., 28. VI. 1972. 3 es.; 19. I. 1972, 31 es.; 19—29. X. 1969, 36 es. (T. Palm); Icod, 400—500 m. 21. I. 1972, 2 es. (T. Palm). HIERRO — El Brezsal, 1 es. (H. Franz); El Piñar, 1 es. (H. Franz). GRAND CANARY — Cruz de Tejada. 18. VI. 1971, 9 es. (T. Palm). LA PALMA — Cumbrecita. — IV. 1972, 5 es. (T. Palm); Santa Cruz, 33. IV. 1972, 1 es. (T. Palm).

Paratypes in the Manchester Museum, and in coll. T. Palm and H. Franz.

Habits. Chiefly under the bark of dend pines, in company with Scolytidae and Cerambycidae workings: rarely in rotten laurel trees and in leaf litter (T. Palm, *in litt.*)

Corticaria appenhageni Uyttenboogaart (Figs. 7, 26)

One of the most beautiful of the Palaearctic members of the genus, the coloration renders *appenhageni* quite unmistakable. The species is only known from the Canary Islands, and seems to be absent from at least the two eastern islands.

Specimens examined. TESERIFE — Mt. Aguirre, 18. II 1927, holotype and 2 paratypes (Appenhagen); Canary Is., 99—203, 1 paratype; near Erjos, 1 es.

H. Franz): Las Mercedes: 2. IV. 1959 1 es. (Lindberg); Teide, Las Cañadas. c. 2000 m, 6. VII. 1952, IX. 1966 9 ex., 13—18. I. 1571 2 es (T. Palm); Anaga, Bailadero, 700 m, 2. III. 1950, 1 es. (Lindberg); Teide, Las Canadas. c. 2000 m, 6. VII. 1972, 2 es. (T. Palm); Barranco San Antonio, 4. II. 1949, 10 es. (Lindberg). LA PALMA — Los Tilos, 17. IV. 1973, 3 es. (T. Palm); B. Galga. 27—28. IV 1972, 5 es. (T. Palm). GOMERA — El Cedro, 3 es. (H. Franz).

Habits. In forested areas, under fungoid bark of laurel trees; once in grass debris (T. Palm *in litt.*).

Corticaria maculosa Wollaston (Figs. 8, 27)

This species seems to be generally distributed over the greater part of the Canary Islands, Madeira and the Azores, but is unknown elsewhere. Typically, the black spot on each elytron is just visible, but unicolorous forms are not uncommon. It is represented by a distinct subspecies, which is dealt with separately below, in the two eastern islands.

Specimens examined. Over 180 es. have been seen from the following localities: GOMERA — San Sebastian (T. Palm). HIERRO — El Bresal (Lindberg); El Golfo. Fröntero (Lindberg). GRAND CANARY — Valle de Tejada (Lindberg); Maspalomas (Lindberg); Aldea S. Nicolas (Lindberg); Santa Brígida (Lindberg); Teror (T. Palm); Cruz Tejada (T. Palm); Los Tilos (T. Palm); Las Palmas (T. Palm); Islafa, Las Palmas (H. Franz). LA PALMA — Santa Cruz (T. Palm); Hoyo (T. Palm). TESERIFE — Icod (T. Palm); Icod Vino (T. Palm); La Laguna (Fernandez) (T. Palm); La Esperanza (T. Palm); Granadilla (T. Palm); Agua Manza (T. Palm); Buenavista (T. Palm) (S. A. Williams); Las Cañadas (T. Palm); Los Rodeos (Fernandez); Barr. Martiánez (Lindberg); Las Mercedes (Lindberg); Puerto de San

Juan (Lindberg); Valle de Santiago (Lindberg); Mt. Aguirre (Xppenhagen): Santa Cruz (T. Palm) (Lindberg); Puerto de la Cruz (T. Palm) (Lindberg) (S. A. Williams).

Habits. The species seems to occur all the year round, although no specimens have been seen from July or November. Especially in *Euphorbia* stems; also in coinpost and rarely in leaf litter (T. Palm, *in litt.*).

Corticaria maculosa lineata ssp.n. (Fig. 9)

Length 1.6—1.90 mm. Differs from the nominotypical form in the following features: head and pronotum proportionately narrower, generally of a darker hue than the elytra; pronotum less curved at the sides, more sparsely covered with smaller and shallower punctures, the stronger shagreenation giving this and the head a noticeably duller appearance; elytra narrower and much straighter at the sides, the sub-apical spot usually very well-marked; elytral striae

more finely punctured. The male genitalia do not appear to show any significant differences.

Distribution. Apparently confined to Lanzarote and Fuerteventura.

Holotype. FUERTEVENTURA — Pajara, 10. III. 1949, leg. Lindberg (in Zool. Mus. Helsinki).

Paratypes. FUERTEVENTURA — same data as holotype, 8 es.; Vallebrun, 17. III. 1949, 3 es. (Lindberg); La Oliva, 16. III. 1949, 1 es. (Lindberg); Betencuria, 11. III. 1949, 13 es. (Lindberg!; no precise locality, 3 es. (H. Franz). LANZAROTE — no precise locality, 8 es. (H. Franz); Famara, 30. XI. 1972, 3 es. (T. Palm); Haria, 1. XII. 1972, 8 es.; Masvacha, 4. XII. 1972, 15 es. (T. Palm).

Paratypes in the museums of Helsinki, Manchester, and in the collections of T. Palm and H. Franz.

The writer has seen eight additional specimens from Pajara which are more-or-less intermediate between the nominotypical form and ssp. *lineata*. In these the head and pronotum resemble the former, the elytra the latter. It seems likely that these are the results of some degree of hybridisation.

Habits. In leaf and plant litter (T. Palm, *in litt.*).

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