

SOME MODIFICATIONS IN THE BRITISH LIST OF  
DELPHACIDAE (HEM.), INCLUDING A NEW GENUS  
AND A NEW SPECIES

By W. J. LE QUESNE

In the process of keying the British Delphacids for another publication, a number of changes have been found necessary in the British list. These include some generic changes and additions and deletions at specific level: it has also been necessary to give a new name to a species left nameless by taxonomic changes.

*Megamelodes* gen. nov.

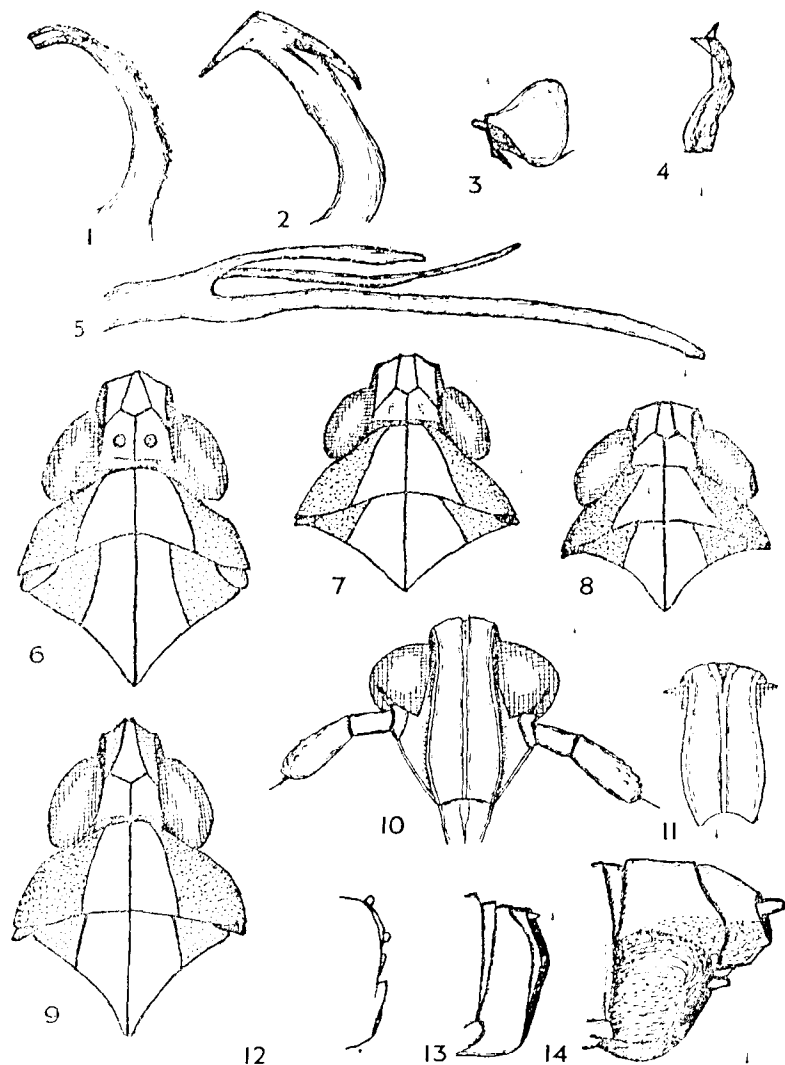
(= *Delphacodes* Linnavuori (1957), et *Dlabola* (1957), nec. Fieber (1866))

Examination of the five British species previously ascribed to *Megamelus* Fieber demonstrated that this so-called genus was heterogeneous. China (1938) has figured the male genitalia from behind in each case, showing the paired outgrowths of the wall of the genital segment in *M. notula*. In the side view (figs. 12-14), the difference between *notula* and the others is even more striking, due to the former possessing black ovate accessory lobes. On dissection, the aedeagus of *notula* (fig. 5) was found to be very different from those of the other four species (figs. 1-4), though the organ is quite variable between these latter.

In other characters, *M. notula* is recognisable by the less divergent outer keels of the pronotum and the more elongate vertex. This is the only species originally placed in the genus by Fieber (1866), who presumably incorrectly assuming *notula* to be an adjective altered the termination. Moreover, it is the only British species that could be referred to this genus as defined by Muir and Giffard (1924) in their paper on the North American Delphacids.

China's (1954) interpretation of the genus *Delphacodes*, based on the identity of the type species *mulisanti* Fieber, has recently been challenged by Dlabola (1957) and ignored by Linnavuori (1957) (who informs me, *in litt.*, that China's paper was not available to him). Both Linnavuori and Dlabola regard *Delphacodes mulisanti* as being congeneric with some of the European species formerly considered as belonging to *Megamelus*.

However, Dlabola admits that he cannot trace the ♂ holotype of *mulisanti* and bases his identification on specimens of workers other than Fieber. Although I agree whole-heartedly with his view that basing the species on a female type, as China has done, is unsatisfactory for its recognition, nevertheless, from a strict application of the rules of nomenclature, I feel that China's view must be upheld.



FIGS. 1-14: 1-5, aedeagus; 1, *Megamelodes quadrimaculatus* Sign.; 2, *M. feberi* Scott; 3, *M. venosus* Germ.; 4, *M. pilosus* Haupt; 5, *Megamelus notula* Germ.; 6-9, head and forebody; 6, *M. quadrimaculatus*; 7, *M. feberi*; 8, *M. venosus*; 9, *M. notula*; 10, face of *M. notula*; 11, frons of *M. feberi*; 12-14, male genital segment in side view; 12, *M. quadrimaculatus*; 13, *M. feberi*; 14, *M. notula*.

Moreover, the species described by Linnavuori as *mulsanti* does not agree with Fieber's figure (1866) or description (1879) in respect of the appearance of the parameres and anal tube of the male. Dr. Dlabola informs me (*in litt.*) that his concept of the species is the same as Linnavuori's, the apparent difference in the aedeagus in his figure (1954) being due to his then having only one specimen which was damaged.

For these reasons, I am erecting a new genus *Megamelodes* for the group of species in question, with *M. quadrimaculatus* (Signoret), 1865 as type species. The remaining British species in this genus are *feberi* Scott, *venosus* Germar and *capnodes* Scott (= *pilosus* Haupt: see below).

The genera *Megamelus* and *Megamelodes* may be separated as follows:—

- 1(2) Outer keels of pronotum less divergent, distance between their posterior ends subequal to length of median keel. Vertex more elongate, about one and a half times as long as broad. In ♂, genitalia complex, with ovate accessory lobes and paired outgrowths of wall of genital segment ..... *Megamelus* Fieber
- 2(1) Outer keels of pronotum more divergent, distance between their posterior ends much greater than length of median keel. Vertex less elongate, less than one and a quarter times as long as broad. In ♂, genitalia simple, without accessory lobes or outgrowths of wall of genital segment ..... *Megamelodes* **gen. nov.**

*Megamelodes* differs from *Delphacodes* in the direction of the outer keels of the pronotum and in the narrowness of the head, which is about three-quarters of the width of the pronotum in the former, but almost or quite as wide as the pronotum in the latter genus.

The genus *Megamelodes* may be thus further characterised:—

Rather small species, usually brachypterous, with forewings distinctly shorter than the abdomen, but macropters are occasionally found. The basal segment of the antennae is half the length of the second segment or a little longer. Length of vertex between one and one and a quarter times the breadth: posterior margin of vertex slightly broader than anterior. Frons about twice as long as broad. Width of head, including eyes, about three-quarters that of pronotum. Outer keels of pronotum reaching posterior margin without curving outwards very markedly, but may do so to a slight extent. Spurs of posterior tibiae with 12-15 small teeth.

*Megamelodes capnodes* (Scott, 1870)  
(= *pilosus* (Haupt, 1935) *paludicola* (Lindberg, 1937)) **syn. nov.**

I have examined the type of Scott's *Liburnia capnodes*, 1870, and find it to be a macropterous female of *pilosus* Haupt. Thus

*capnodes* is the earliest name for this species and *pilosus* becomes a junior synonym.

*Kelisia ribauti* Wagner, W., 1938

*Kelisia ribauti* form *sabulicola* Wagner, W., 1952

The genus *Kelisia* was revised by Ribaut (1934) who first clearly separated a species with longitudinal black streaks on the anterior and median tibiae, which he described as *guttula*. W. Wagner (1938) showed that this was not the true *guttula* Germar and renamed it *ribauti*. Subsequently, Wagner (1952) described *Kelisia sabulicola* as a new and closely allied species: the two are separated on the ratio of the length of the aedeagus to that of the insect and on the wing-forms of the brachypters.

On examination of available British material, two populations are recognisable on morphological and ecological grounds:—

Group 1. Always macropterous. ♂: overall length 3.1-4.0 mm.; length of aedeagus 0.57-0.68 mm.; ratio 4.8-6.2. ♀: overall length 3.5-4.3 mm. On coastal sandhills, also Suffolk 'breckland'.

Norfolk: Great Yarmouth, X (W. West). Suffolk: Mildenhall, IX (P.H.); Cavendish Heath, VIII (W.J.L.Q.); Bramford (Morley). Essex: Clacton, X (P.H.). Kent: Deal, VII (H.W.D.). Dorset: Chesil Bank (O. Pickard Cambridge). Somerset: Brean Sandhills, IX (H.W.D.); Berrow, IX (W.J.L.Q.). Devon: Braunton, IX (W.J.L.Q.). Pembroke: Freshwater West, VIII (H.W.D.). Anglesey: Newborough Warren (on *Juncus maritimus*), VII (P. Whalley). Fife: dunes, St. Andrews, VIII (W.R.B.H.). Ayr: VII (A.R.W.); Prestwick, IX (O. Pickard Cambridge). East Lothian: Gullane, VII (A.R.W.). Northern Ireland ("J.V.C.", E. A. Butler coll.). Dublin (E. Saunders coll.).

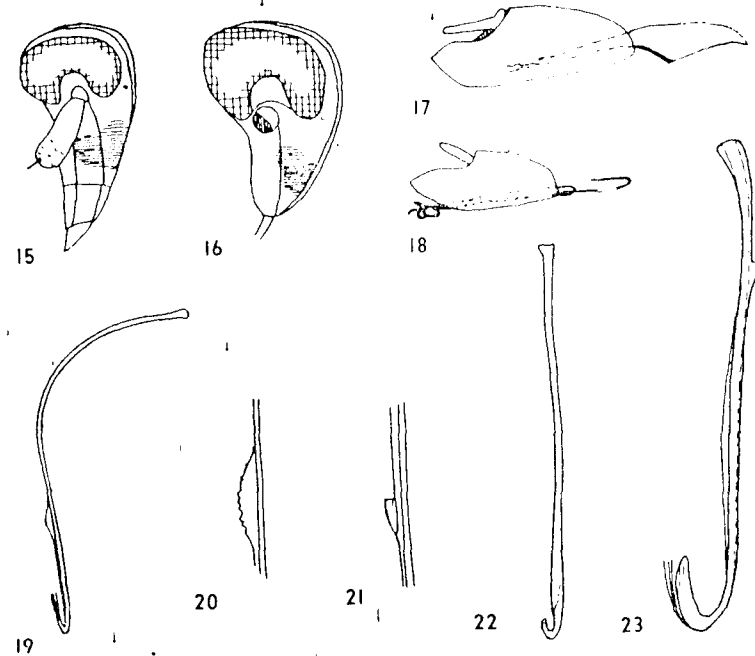
Group 2. Often brachypterous, with forewing somewhat narrowed apically. Macropterous ♂: overall length 3.6-3.8 mm.; length of aedeagus 0.68-0.70 mm.; ratio 5.3-5.4. In brachypterous ♂: overall length 2.6-3.0 mm.; length of aedeagus 0.58-0.71 mm.; ratio 3.7-4.9. Macropterous ♀: overall length 3.6-3.9 mm. Brachypterous ♀: overall length 2.9-3.6 mm. In coastal marshes and saltings, peaty moorland marshes.

Hants: New Forest, IX (P.H.). Dorset: Empool Marsh, X (C.D.D.). Clyde Isles: Glen Sannox, Arran, VIII (A.R.W.). East Lothian: Aberlady, X (A.R.W.). Kincardine: St. Cyrus, VII (A.R.W.). Inverness: Kincraig, IX (P.H.); Aviemore, VIII (O. Pickard Cambridge); Nethy Bridge, VIII (A.R.W.). Moray: Dulnain Bridge, VIII (P.H.).

Group 1 corresponds to Wagner's *sabulicola*. However, in group 2 the ratio of the length of the aedeagus to total length corresponds with that quoted by Wagner for *ribauti* in the case of brachypters but not of macropters. The series from Aberlady, East Lothian, in Luffness Marshes on *Carex* sp. (not *arenaria* L.)

shows clearly that macropters inseparable from *sabulicola* and brachypters of the *ribauti* type coexist in the same population.

Until other characters are found for the clearer separation of these groups, I prefer to regard them as ecological forms of one species, which will therefore bear the older name of *ribauti* Wagner, 1938.



FIGS. 15-23: 15, 16, head in side view; 15, *Kelisia guttula* Germ.; 16, *K. vittipennis* Sahlb.; 17, anal tube of *K. vittipennis*; 18, anal tube of *K. guttulifera* Kirschb.; 19-23, aedeagus; 19, *K. vittipennis*; 20, portion of do., enlarged; 21, corresponding portion of that of *K. guttulifera*; 22, *K. guttulifera*; 23, *K. ribauti* Wagn.

*Kelisia guttula* (Germar, 1818)  
(= *pascuorum* Ribaut, 1934)

*Kelisia guttulifera* (Kirschbaum, 1868)  
(= *fallax* Ribaut, 1934)

*Kelisia vittipennis* Sahlberg, *guttula* and *guttulifera* form a complex of closely allied species which was first clearly separated by a study of the male genitalia by Ribaut (1934), his nomenclature being modified by Wagner (1938, 1939).

All three species occur in Britain: they may be separated as follows:—

- 1(2) Black spot of genae reaching posterior keel. In Aedeagus elongate, curved widely at base, with laminate projection about halfway along stem forming approximately right angle anteriorly, but without teeth or laminate appendages. [Transition between vertex and frons not smoothly rounded, somewhat angular. Pronotum yellowish, sometimes dark beneath eyes, but pale posteriorly. Scutellum yellow, black on either side of outer keels. Forewings with median apical cell blackish, with dark colour sometimes spreading somewhat into adjacent cells, otherwise hyaline or nearly so. Mesothoracic epimera and mesosternum blackish. Overall length 2.8-3.8 mm. Widely distributed; on sedges on dry chalk hillsides or in marshy places. ?III, VII-X] ..... *guttula* (Germar)
- 2(1) Black spot of genae not extending more than half distance between median and posterior keels, usually not beyond median keel. Aedeagus either not curved widely at base or with carina expanded and armed with several minute teeth about halfway along stem (Footnote).
- 3(4) Mesothoracic epimera and mesosternum widely dark brown. A black band present at sides of scutellum and often behind eyes on sides of pronotum. Overall length: brachypters 2.9-3.9 mm.; macropters 3.6-4.2 mm. Aedeagus elongate, curved widely at base, with carina about halfway along stem expanded and armed with several minute teeth. (See footnote previously.) Appendages of anal tube stout and straight. [Pronotum and scutellum yellowish medially. Forewings with third apical cell blackish, dark colour sometimes spreading somewhat to adjacent cells, otherwise hyaline or faintly cloudy; surface of cells hardly rugose. Brachypters with hindwings reaching or almost reaching apex of abdomen. Widely distributed; on sedges on dry hillsides or in peatbogs. VIII-X] ..... *vittipennis* (Sahlberg)
- 4(3) Sides and underneath of thorax entirely pale or mesonotum narrowly dark in centre. Black band not present on pronotum behind eye; scutellum very little darker at sides in brachypters, moderately dark brown at sides in macropters. Overall length: brachypters 2.8-3.3 mm.; macropters 3.1-3.5 mm. Aedeagus almost straight, not armed with teeth or sudden dilatation of stem; appendages of anal tube thin and looped apically. [Third apical cell of forewing dark at apex, forewings otherwise rather cloudy hyaline, with surface of cells rather rugose. In brachypters, hindwings extending to about two-thirds of

Footnote. This carina is sometimes bent back over stem or over itself in making a preparation.

length of abdomen. At base of sedges on lightly wooded dry hillside. ?III, VIII, IX] ..... *guttulifera* (Kirschbaum)

Verified records of the three species are as follows:—

*K. guttula* Germ. England: Staffs, Norfolk, Suffolk, Gloucester, Oxford, Bucks, Kent, Surrey, Sussex, Berks, Hants, Wilts, Dorset, Cornwall, Wales: Denbigh—Maes Hafn, near Mold, VIII (H.W.D.); Caernarvon—Snowdonia, VIII (E. A. Butler). Scotland: Midlothian—Edinburgh (A.R.W.); Clyde Isles—Glen Sannox, Arran, VIII (A.R.W.); Inverness—Loch an Eilan, Aviemore, VIII (P.H.); Kineraig, IX (A.R.W.).

*K. vittipennis* Sahlb. England: Westmorland, Staffs, Norfolk, Suffolk, Cambs, Northants, Hereford, Monmouth, Gloucester, Oxford, Bucks, Surrey, Sussex, Berks, Hants, Dorset. Scotland: East Lothian—Aberlady, X (A.R.W.); Clyde Isles—Arran, VIII, IX (A.R.W.); Inverness—Nethy Bridge, VIII, IX (A.R.W.), IX (O. Pickard Cambridge); Loch an Eilan, Aviemore, VIII (P.H.); Kineraig, IX (P.H.); Loch Garten, VIII (P.H.); Moray—Grantown-on-Spey, VIII (P.H.); Dulnain Bridge, VIII (P.H.); W. Ross—L. Maree, VIII (A.R.W.); Outer Hebrides—Barra, VIII (A.R.W.).

*K. guttulifera* Kirschb. Norfolk: Stratton Strawless, IX (J. Edwards coll.). Bucks: Latimer, III, IX (W.J.L.Q.). Herts: St. Albans, VIII (B. S. Williams); Hatfield, VIII (B. S. Williams), IX (B.H.). Surrey: Oxshott, VIII (W. West). Dorset: White Horse Common, IX (C.D.D.). Merioneth: Tal-y-Llyn, IX (M.A.S.).

*Chloriona edwardsi* sp. nov.

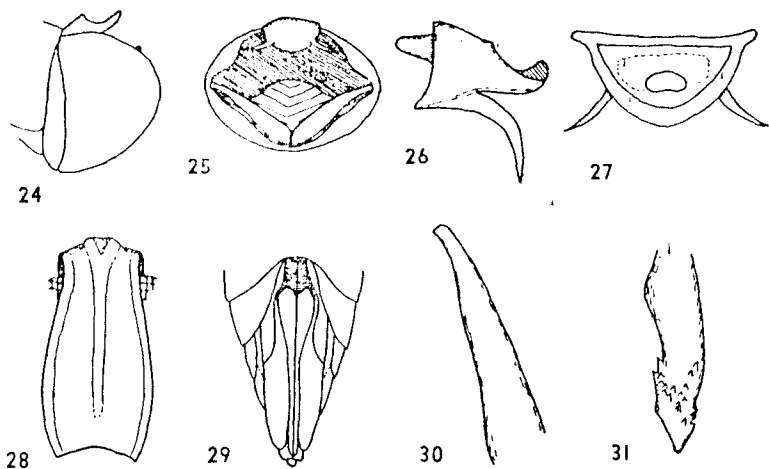
(= *prasimula* Edwards (1898), nec Fieber (1872)).

The species described by Edwards (1898) as *prasimula* cannot be reconciled with that which Fieber figured as *smaragdula* in 1866 and re-named *prasimula* in 1872. *C. prasimula* was re-described by Jensen-Haarup (1920) and *smaragdula* Stål (1853) synonymised with it by Ossiannilsson (1946). This agrees with Edwards' concept of *smaragdula*, but leaves *prasimula* sensu Edwards' without a name. I, therefore, propose the name *edwardsi* for it. As Edwards' drawings are not very accurate, its parts are here refigured (figs. 24-31).

*C. edwardsi* may be characterised thus:—

♂: Macropterous, forebody grey-green, forewings rather brownish; dark markings absent. Parameres not, or slightly, broadened at apex, not forming acute angles at either side, rather slender at base, widely divergent, only reaching to about half height of segment. Anal tube without spines on apical margin, but with long recurved spines beneath, clearly visible from behind. Genital segment oval, distinctly broader than long, dark throughout. Overall length: 3.6-5.0 mm.

♀: Usually brachypterous, more or less bright green, without dark markings; macropters coloured as males. Frons with lower margin smoothly curved, widest considerably below middle;



FIGS. 24-31: *Chloriona edwardsi* sp. nov.; 24, male genital segment, side view; 25, do., from behind; 26, male anal tube, side view; 27, do., from behind; 28, frons; 29, female, posterior portion of abdomen from beneath; 30, male, paramere; 31, aedeagus.

width at transition with vertex about two-thirds of width at widest point. Basal part of first gonocoxa not much broadened, with rounded margins, not covering base of first gonapophysis. Overall length: brachypters 3.4-4.1 mm.; macropters 4.9-5.5 mm.

As type I designate a male in the British Museum (Nat. Hist.) labelled "Dersingham Common, 30 July 1885", "*Chloriona prasinula* teste J. Edwards". It is mounted with a macropterous female which I regard as the allotype.

#### *Chloriona vasconica* Ribaut

In the collection of the late Mr. P. Harwood I found a single male of this species new to Britain, on the same card as specimens of *glaucescens* Fieber and *edwardsi*, all having been taken at Thornham, Norfolk, on 7th June 1956. It was originally described from France (Ribaut, 1934) and also occurs in Sweden. I append figures of the ♂ genitalia (figs. 64-69) and a short description of each sex, that of the female being borrowed from the descriptions and drawings of Ribaut and Ossiannilsson, as I have not seen an undoubted specimen.

*C. vasconica* can be characterised thus:—

♂: Macropterous, forebody grey-green, forewings rather brownish; dark markings absent. Parameres at apex produced into acute angle outwardly and downwards, broadly rounded at base. Anal tube apically bearing narrow

projection, acutely angled at either extremity. Genital segment, seen from behind, distinctly broader than long, pale throughout. Overall length: 4.3 mm.

♀: Usually brachypterous. Frons with sides smoothly curved, widest near middle. Basal part of first gonocoxa distinctly broadened, with rounded margins, without projection directed backwards.

#### *Delphacodes uncinata* (Fieber, 1866)

I have not seen an authentic British male of this species: the females labelled as *uncinata* in the old collections are not sufficiently characteristic to be recognisable as this species. Recently, Hill (1952) has recorded this species from Scotland; he has been kind enough to lend some specimens, which turned out to be *pellucida* Fabricius. I am, therefore, deleting *uncinata* from the British list.

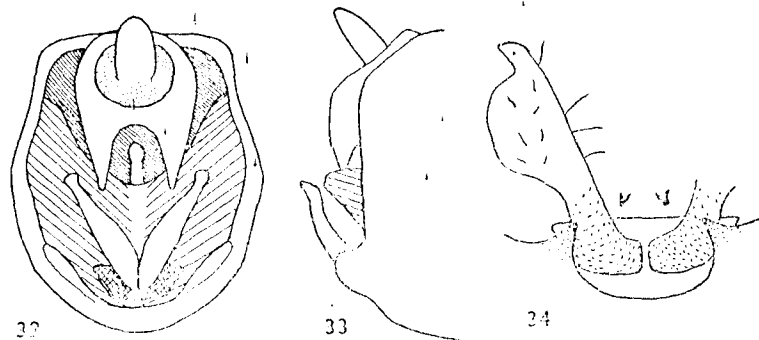
#### *Delphacodes albocarinata* (Stål, 1858)

##### *Delphacodes distincta* (Flor, 1861)

Kontkanen (1952) has distinguished between *albocarinata* Stål and *distincta* Flor, which had previously been confused. All the British specimens which I have seen agree with his definition of *distincta*, if we assume that the tiny spines on the aedeagus, which vary in numbers from one specimen to another, are not shown in his figure; the general form of this organ certainly agrees with his figure of *distincta* rather than *albocarinata*. I am, therefore, deleting *albocarinata* from the British list.

##### *Delphacodes sordidula* (Stål, 1853)

Five specimens labelled as *sordidula* are in the British Museum (Nat. Hist.) collection. Two females are not this species, but



FIGS. 32-34: 32, 33, *Delphacodes sordidula* Stål; 32, male genital segment from behind; 33, do., side view; 34, *Delphacodes collina* Boh., paramere and part of male genital segment, from behind (after Ribaut, 1953).

macropterous *boldi*: a study of the labels on the other three specimens showed that they were taken in Austria. I have not seen any other material of this species in British collections. Thus there is no evidence at present that this species occurs in Britain. I have, however, figured the genitalia of one of the male Austrian specimens (figs. 32, 33) in case this species should subsequently be found here. In the meantime, I am deleting this species from the British list.

*Delphacodes collina* (Boheman, 1847)

*Delphacodes imitans* (Ribaut, 1953)

*Delphacodes pungens* (Ribaut, 1953)

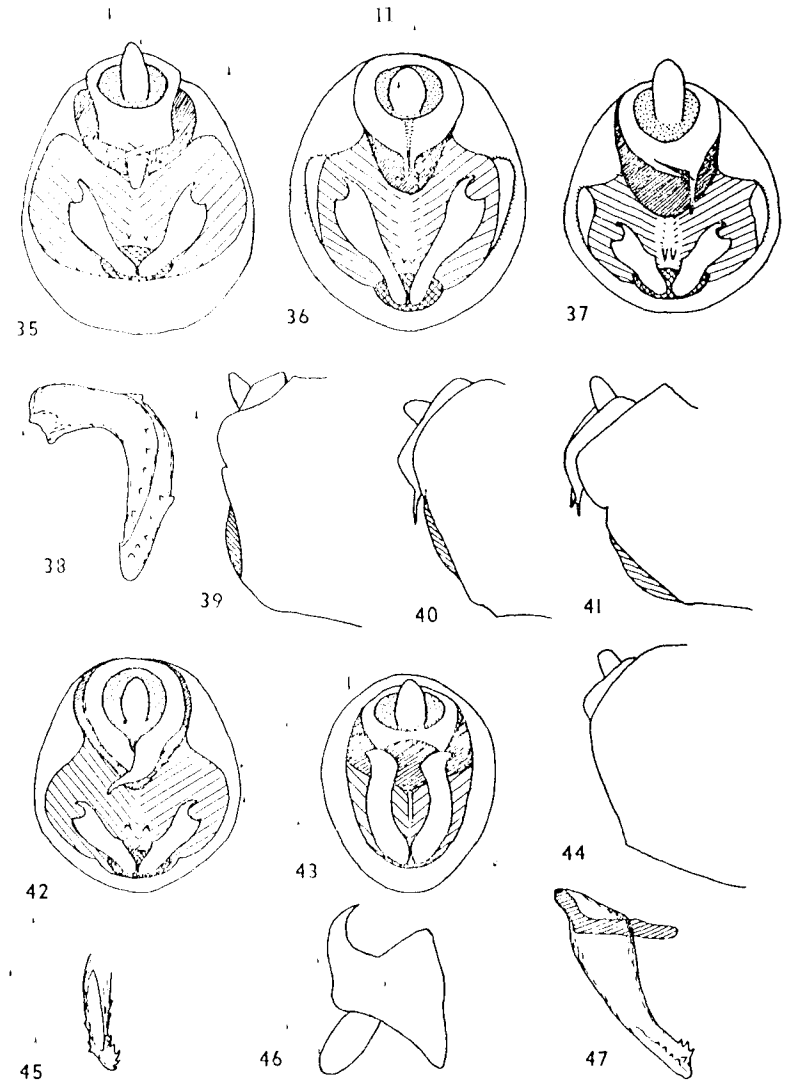
*Delphacodes angulosa* (Ribaut, 1953)

*Delphacodes pallens* (Stål, 1854)

Ribaut (1953) has recently described three new species, *imitans*, *pungens* and *angulosa*, closely related to *collina* Boheman and *pallens* Stål. Examination of British material shows that the three forms described by Ribaut all occur in Britain, together with *pallens*. I have, however, no evidence that *collina* as now defined occurs in Britain and am deleting it from the British list. The specimen taken by me and recorded in Salmon's (1954) list of Auchenorrhyncha of Hertfordshire as *collina* has now been re-identified as *angulosa*.

Males of the above may be separated as follows (cf. figs. 35-42):

- 1(2) Appendages of anal tube not crossing each other, thin, almost parallel and nearly contiguous at base. [Parameres two and three quarters to three times as long as broad, with inner margin almost straight. Lower margin of genital segment seen from behind with concave incision below base of parameres, making obtuse-angled discontinuities at extremities. Overall length: brachypters 2.3-2.6 mm.] ...  
*imitans* (Ribaut)
- 2(1) Appendages of anal tube crossing each other, not nearly parallel ..... 3
- 3(1) Lower margin of genital segment, seen from behind, with concave incision below base of parameres making acutely angled projections at extremities. Parameres longer. [Projections of anal tube symmetrically crossed] .....  
*collina* (Boheman)
- 4(3) Lower margins of genital segment, seen from behind, without concave incision between base of parameres or with one making obtuse angled discontinuities at extremities. Parameres shorter ..... 5
- 5(6) Appendages of anal tube symmetrically crossed. Inner margin of paramere not forming distinct tooth. [Lower margin of genital segment with very weak concave incision. Overall length: brachypters 2.5 mm.] ..... *pallens* (Stål)



FIGS. 35-47: 35-37, male genital segment from behind; 35, *Delphacodes pallens* Stål; 36, *D. imitans* Rib.; 37, *D. pungens* Rib.; 38, aedeagus, *D. angulosa* Rib.; 39-41, male genital segment in side view; 39, *D. imitans*; 40, *D. pungens*; 41, *D. angulosa*; 42, *D. angulosa*, male genital segment from behind; 43-45, *D. clypealis* Sahlb.; 43, male genital segment from behind; 44, do., side view; 45, aedeagus; 46, 47; *D. distincta* Flor; 46, male anal tube, from side; 47, aedeagus.

- 6(5) Appendages of anal tube not symmetrically crossed. Paramere with inner margin produced into more or less distinct tooth ..... 7
- 7(8) Appendages of anal tube more elongate and straighter, one of them, more often the right one, extending almost vertically downwards and the other one inwards towards it. Lower margin of genital segment with concave incision below base of parameres making distinct angles, at discontinuities at extremities. [Overall length: brachypters 2.3-2.6 mm.] ..... *pungens* (Ribaut)
- 8(7) Appendages of anal tube shorter, more bent, usually with right hand appendage directed towards left and downwards, and left hand one beneath, directed horizontally towards right, but rarely mirror image of this. Lower margin of genital segment with concave incision below base of parameres making distinct angles at discontinuities at extremities. [Overall length: brachypters 2.1-2.4 mm.] .. *angulosa* (Ribaut)

In the case of *pungens*, as noted in the above key, some specimens taken by Edwards had genitalia the mirror-image of the form described by Ribaut and re-figured here (fig. 37). There is also a mirror-image specimen of *angulosa* in the Harwood collection. No constant characters have at present been found to separate the females.

It has been suggested to me that these closely allied forms may not be true species, but seasonal forms, ecological races or the results of parasitization. The monthly records below indicate that seasonal polymorphism cannot be the main factor. Series of some length of *pungens* have been taken and short series of *imitans* and *angulosa*, but in no case has more than one form been reported from a single locality. Thus, I feel that these must be either good species or ecological forms: at present I prefer to regard them as the former.

Verified records of this species-group are as follows:—

*D. imitans* Ribaut. Dorset: Corfe, VIII (E. A. Butler); Southwell, Portland, VIII (C.D.D.).

*D. pungens* Ribaut. Gloucester: Withington, IV, VI (J. Edwards); Colesborne, V, IX (J. Edwards). Kent: Folkestone Warren, V (H.W.D.); Sandwich, V (H.W.D.); Wye, VII (C.A.W.D.). Dorset: Worth, V (P.H.).

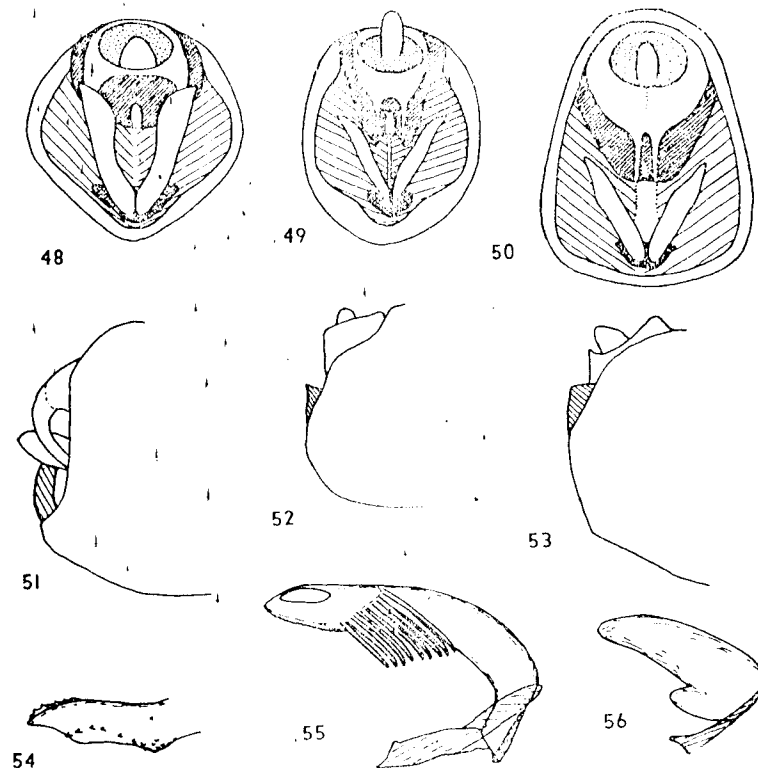
*D. angulosa* Ribaut. Herts.: Chorleywood, V (W.J.L.Q.). Surrey: Epsom Downs, VII (M.A.S.). Hants.: New Forest, V (P.H.). Dorset: Handley, V (P.H.).

*D. pallens* Stål. Berks.: Wytham Wood, VII, VIII (J. J. Collins).

*D. collina* Boheman. No evidence of occurrence in Britain.

*Delphacodes leptosoma* (Flor, 1861)  
(= *niveimarginata* (Scott, 1870))  
*Delphacodes albofimbriata* (Signoret in Fieber, 1866)  
(= *leptosoma* auctt. Brit. nec (Flor, 1861))

Linnavuori (1951) has shown that two species have been confused under the name *leptosoma* in Europe: the true *leptosoma* of Scandinavia and the Baltic coast is the same as our *niveimarginata* Scott, while the species so long regarded as *leptosoma* in Britain and France must now be called *albofimbriata*. The latter was figured by Fieber in 1866 as *albofimbriata* Signoret, but no earlier reference is given by Oshanin (1906-8) or Metcalf (1943). The name, as pointed out



FIGS. 48-56: 48-50, male genital segment from behind; 48, *Delphacodes littoralis* Reut.; 49, *D. albofimbriata* Sign. in Fieb.; 50, *D. leptosoma* Flor; 51-53, male genital segment, side view; 51, *D. leptosoma*; 52, *D. albofimbriata*; 53, *D. littoralis*; 54-56, aedeagus; 54, *D. littoralis*; 55, *D. leptosoma*; 56, *D. albofimbriata*.

by Scott (1870), is a manuscript name of Curtis'. The male genitalia of the two species are here figured (figs. 49-52, 55, 56).

*Delphacodes exigua* (Boheman, 1847)  
(*scutellata* (Scott, 1873)) **syn. nov.**

The type of *scutellata* is a male with the abdomen missing, in the British Museum (Nat. Hist.). Another macropterous male, also in the British Museum, identified as this species by J. Edwards, has the genital segment mounted separately on the card. The aedeagus is partly protruding and from the form of both this and the external genitalia, the specimen is clearly *exigua* Boheman. In most Delphacids, the forebody of macropters is darker than brachypters and this effect is very marked in *exigua*, often producing the characteristic *scutellata* colour pattern. I therefore regard *scutellata* as a synonym of *exigua*.

*Delphacodes denticauda* (Boheman 1847)  
(*insignis* (Scott 1882)) **syn. nov.**

The type of *insignis* is a male in the British Museum (Nat. Hist.), which unfortunately has the abdomen missing. It was described, however, by Scott (1882) and Edwards (1896) and I feel that the appearance of the forebody and Scott's and Edwards' descriptions of the abdomen are consistent with regarding it as *denticauda*, perhaps a somewhat aberrant specimen. This is a rather variable species in the form of the male genitalia: for example, Haupt (1935) split off a new species *oxyura* from it, which Ossianilsson (1946) included as a form of *denticauda*. I therefore consider that *insignis* is a synonym of *denticauda*.

*Delphacodes litoralis* (Reuter 1880)

The late Mr. P. Harwood took a number of specimens of a *Delphacodes* on sedges round a small loch in a deep hollow on the moors at Aviemore, Inverness-shire. I saw some of these specimens at the British Museum (Nat. Hist.) and wrote to Mr. Harwood, who kindly sent me several more examples. These agreed quite closely with the figures and redescription of *litoralis* Reuter by Linnavuori (1951): I therefore sent some specimens to Dr. Linnavuori who kindly confirmed my identification. The species has hitherto been recorded with certainty only from Finland: Haupt (1935) does not clearly separate it from *paludosa* Flor, so that I am not sure whether it occurs in Germany. The male genitalia are here refigured (figs. 48, 53, 54).

*D. litoralis* may be recognised as follows:—

♂: Frons rather convex-sided, black between prominent yellow-brown keels. Vertex anteriorly and transition with frons more or less dark or black, keels often concolorous in this region. Vertex posteriorly light brown. Pronotum light brown above; scutellum light brown in brachypters, blackish in macropters. Usually brachypterous, with forewings yellow-brown, translucent,

a little more than one and a half times as long as broad. Forewings of macropters hyaline, almost colourless. Abdomen largely dark. Genital segment about as high as broad seen from behind, in side view with posterior margin convex. Parameres slightly broadened towards apex, apical margin convex, making acute angle with outer margin. Teeth of anal tube tapering, at extremities of lower margin of anal tube. Overall length: brachypters 2.1-2.3 mm.; macropters 3.5-4.1 mm.

♀: Frons rather convex-sided, more or less dark-marked or blackish between keels: keels distinct throughout. Usually brachypterous, with vertex, pronotum and scutellum light yellowish brown, forewings translucent, straw-coloured, about one and two-thirds times as long as broad: abdomen light brown, darker marked. In macropters, vertex, pronotum and scutellum largely black-brown; forewings light brownish, veins darker. Inner margin of first gonocoxa rather weakly bent towards base.

*Delphacodes clypealis* (Sahlberg 1871)

The late Mr. Harwood also sent me specimens of another species taken at Wicken Fen, Cambridgeshire, which did not agree with any recorded British species. From Ossianilsson's (1946) keys to the Swedish species, I ran this down to *clypealis* Sahlberg and Dr. Ossianilsson has kindly confirmed my identification. This is also an addition to the British list therefore: it had previously only been recorded from the Scandinavian countries, where it occurs under *Calamagrostis canescens* in damp places.

*D. clypealis* may be recognised as follows:—

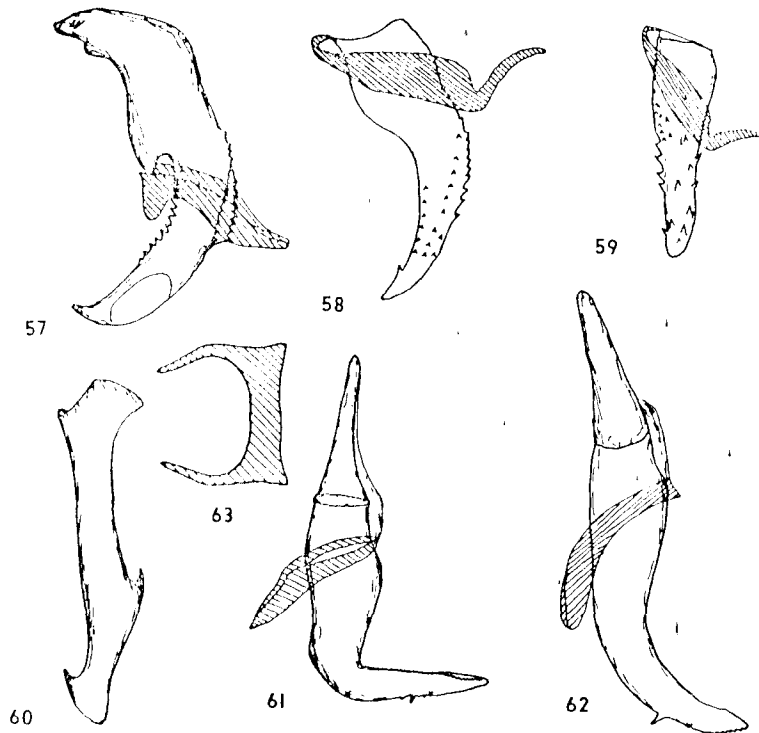
♂: Frons more or less marked with black-brown, not reaching upper margin; keels broadly and conspicuously pale. Forebody in brachypters light orange-brown; scutellum largely dark brown in macropters. Forewings of brachypters light orange-brown, usually rather darker apically, about one and a half times as long as broad in brachypters, reaching to about half length of abdomen. Abdomen blackish above. Genital segment as in figs. 43, 44. Parameres with apical margin convex, widened somewhat at extreme apex, forming acute angle at apex of outer margin. Aedeagus as in fig. 45. Overall length: brachypters 2.3-2.4 mm.; macropter 3.8 mm.

♀: Frons more or less dark marked between keels, rather narrow, with sides nearly straight; median keel of frons forked somewhat below junction with vertex, not very sharp in this area. Vertex, pronotum and, in brachypters, scutellum light yellow-brown, the two latter slightly darker at sides: scutellum of macropters dark brown beyond outer keels and usually with brown streaks between them. Forewings of brachypters rather smoky brown, somewhat darker towards apex, about one and two-thirds times as long as broad. Abdomen above whitish, darker ringed. Overall length: brachypters 2.7-3.4 mm.; macropters 3.9-4.1 mm.



Genus *Criomorphus*  
(= *Stiroma* Fieber, = *Eurybregma* Scott)

Most authors during the 50 years up to 1940, including Edwards (1896) and China (1939), have combined the three genera *Criomorphus*, *Stiroma*, and *Eurybregma*. However, Metcalf (1943) separated the three genera and China (1950) followed him in his British check-list.



FIGS. 57-62, aedeagus; 57, *Criomorphus (Stiroma) pteridis* Spin.; 58, *C. (Criomorphus) williamsi* China; 59, *C. (C.) albomarginatus* Curt.; 60, *C. (Eurybregma) nigrolineatus* Scott; 61, *C. (S.) affinis* Fieb.; 62, *C. (S.) bicarinatus* H.-S.; 63, aedeagus basal support of *C. nigrolineatus*.

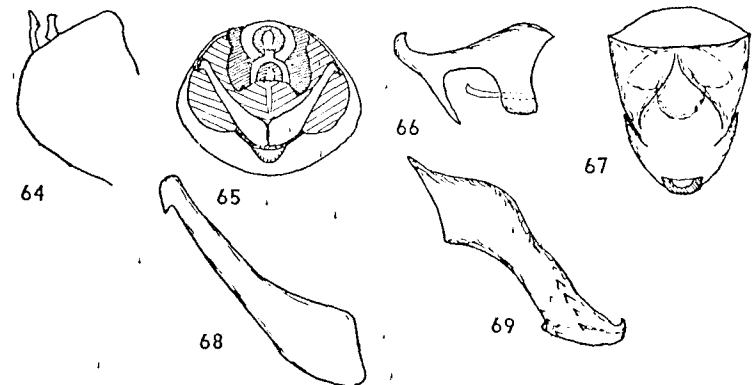
As there did not seem to be any external characters of real generic value, I have dissected and figured (figs. 57-63) the aedeagus of all the British species of this complex except the very rare *moestus* Boheman. The form of the aedeagus itself is somewhat variable, but not more so than in genera like *Delphacodes* and *Megamelodes*: however, three groups can be recognised in the

attachment of its basal support, corresponding to the three genera recognised by Metcalf. In the circumstances, I prefer to regard these as subgenera in the *Criomorphus* genus, recognisable as follows:—

Subgenus *Criomorphus* Curtis. Aedeagus basal support attached to base of aedeagus, adhering tightly to it. (Keels of frons whitish, thick and prominent).

Subgenus *Stiroma* Fieber. Aedeagus basal support more or less across middle of aedeagus, adhering tightly to it, not attached to base. (Keels of frons concolorous, thin and indistinct).

Subgenus *Eurybregma* Scott. Aedeagus basal support loosely bound to aedeagus, separating very readily on dissection. Aedeagus flattened. (Keels of frons concolorous, thin and indistinct).



FIGS. 64-69: *Chloriana vasconica* Rib., male; 64, genital segment, side view; 65, do., from behind; 66, anal tube, side view; 67, do., from beneath; 68, paramere; 69, aedeagus.

CHECK LIST OF THE BRITISH SPECIES OF DELPHACIDAE

In view of the number of proposed changes in the British list, I am appending a check-list of species incorporating the ones above and also the changes made by China (1954, 1957) in the interim since his 1950 check-list: the species are numbered as in the latter.

Family DELPHACIDAE Spinola 1839	= <i>Delphax</i> auctt. nec Fabricius 1798
= ARAEOPTIDAE Metcalf 1938	272. pulchellus (Curtis 1833)
<i>Asiraca</i> Latreille 1796	= dubia (Curtis 1833) nec (Panzer 1796)
= <i>Delphax</i> Fabricius 1798	= crassicornis (Marshall 1865) nec (Panzer 1796)
271. clavicornis (Fabricius 1794)	<i>Megamelus</i> Fieber 1866
<b>G</b>	273. notula (Germar 1830) <b>G</b>
<i>Aracopus</i> Spinola 1839	<i>Megamelodes</i> <b>gen. nov.</b>

- Megamelus* auctt. nec Fieber 1866 partim.  
*Delphacodes* auctt. nec Fieber 1866
271. capnodes (Scott 1870) **comb. nov.**  
 = pilosus (Haupt 1935)  
 = brevifrons (Haupt 1917) nec (Reuter 1880)  
 = paludicola (Lindberg 1937)
275. fieberi (Scott 1870) **comb. nov.**
276. quadrimaculatus (Signoret 1865) **G comb. nov.**
277. venosus (Germar 1830) **comb. nov.**  
 = thoullesi (Edwards, J., 1896)  
 = melanopachys (Scott 1870)
- Stenoceanus* Fieber 1866
278. minutus (Fabricius 1787) **G**  
 = lineola (Germar 1818)  
 = farinosus (Buckton 1890)
279. fuscovittatus (Stål 1858)
280. major (Kirschbaum 1868)
281. longipennis (Curtis 1837)
- Kelisia* Fieber 1866
282. pallidula (Boheman 1847)
283. punctulum (Kirschbaum 1868)
284. fasciata (Kirschbaum 1868)  
 = scotti (Fieber in Scott 1870)  
 var. nigra Metcalf 1913  
 var. triangularis Metcalf 1913
285. perspicillata (Boheman 1845)
286. ribauti Wagner, W., 1938  
 = guttula Ribaut 1931 nec (Germar 1818)  
 form. sabulicola Wagner, W., 1952
287. vittipennis (Sahlberg, J., 1867)
- 287a. guttula (Germar 1818) **G**  
 = pascuorum Ribaut 1931
- 287b. guttulaifera (Kirschbaum 1868)  
 = fallax Ribaut 1931
- Delphacinus* Fieber 1866
288. mesomelas (Boheman 1850) **G**
- Chloriona* Fieber 1866
289. smaragdula (Stål 1853)  
 = prasinula Fieber 1872
- 289a. edwardsi **sp. nov.**  
 = prasinula Edwards 1898  
 nec Fieber 1872
290. glaucescens Fieber 1866  
 = unicolor (Scott 1870) nec (Herrich-Schaeffer 1835)
291. dorsata Edwards, J., 1898  
 = danica Jensen-Haarup 1917
- 291a. vasconica Ribaut 1931
- Euidella* Puton 1886
- = *Euides* Fieber 1866 nec Hübner 1816
292. speciosa (Boheman 1845)  
*Eurya* Fieber 1866
293. lurida Fieber 1866
294. lineata (Perris 1857) **G**
295. douglasi (Scott 1870)
- Conomelus* Fieber 1866
296. anceps (Germar 1821) **G**  
 = limbatus (Fabricius 1794)  
 nec (Olivier 1791)
- Eucrommelus* Haupt 1929
297. lepidus (Boheman 1847) **G**
- Delphacodes* Fieber 1866  
 = *Calligypona* Sahlberg, J., 1871  
 = *Liburnia* auctt. nec Stål 1866  
 = *Delphax* auctt. nec Fabricius 1798
298. reyi (Fieber 1866)  
 = albicollis (Sahlberg, J., 1871)
299. discolor (Boheman 1847)  
 = similis (Kirschbaum 1868)
300. pellucida (Fabricius 1791)
301. marginata (Fabricius 1794)  
 = striatella (Fallén 1826)
302. dubia (Kirschbaum 1868)  
 = difficilis (Edwards, J., 1888)
305. holdi (Scott 1870)
306. distincta (Flor 1861)  
 = consanguinea (Scott 1873)  
 = albocarinata auctt. nec (Stål 1858)
308. elegantula (Boheman 1847)  
 = aemulator (Scott 1873)
- 309a. imitans (Ribaut 1953)  
 = collina auctt. nec (Boheman 1847) partim

- 309b. pungens (Ribaut 1953)  
 = collina auctt. nec (Boheman 1847) partim
- 309c. angulosa (Ribaut 1953)  
 = collina auctt. nec (Boheman 1847) partim
310. pallens (Stål 1854)  
 = collina auctt. nec (Boheman 1847) partim
311. obscurella (Boheman 1847)  
 = discreta (Edwards, J., 1888)
312. foreipata (Boheman 1847)
313. leptosoma (Flor 1861)  
 = niveimarginata (Scott 1870)  
 = thloracica (Marshall 1867)  
 nec (Stål 1858)
314. albifimbriata (Signoret in Fieber 1866)  
 = leptosoma auctt. Brit. nec (Flor 1861)
317. pullula (Boheman 1852)
318. lugubrina (Boheman 1847)
319. aubei (Perris 1857)  
 = cognata (Fieber 1866)
320. exigua (Boheman 1847)  
 = scutellata (Scott 1873)
321. dalei (Scott 1870)
322. denticauda (Boheman 1847)  
 = insignis (Scott 1882)
323. paludosa (Flor 1861)
- 323a. thloralis (Reuter 1880)
- 323b. clypealis (Sahlberg, J., 1871)  
 = thloralis (Ossiannilsson 1911) nec (Reuter 1880)
324. adela (Flor 1861)  
 = signoreti (Scott 1870)
325. brevipennis (Boheman 1847)  
 = bivittata (Boheman 1850)  
 = hyalinipennis (Stål 1854)
326. straminea (Stål 1858)  
 = v-flava (Scott 1881)
327. fairmairei (Perris 1857)  
 = neglecta (Flor 1861)  
 = extrusa (Scott 1871)
328. flavcola (Flor 1861)  
*Dicranotropis* Fieber 1866
330. divergens Kirschbaum 1868
331. hamata (Boheman 1847) **G**  
*Criomorphus* Curtis 1833  
 = *Stiroma* Fieber 1866  
 = *Ditropis* Fieber 1866 n. nud.  
 = *Eurybregma* Scott 1875
- Subgenus *Criomorphus* Curtis 1833
332. albomarginatus Curtis 1833 **G**
333. moestus (Boheman 1847)  
 = thoracicus (Stål 1858)  
 = borealis (Edwards 1886) nec (Sahlberg, J., 1871)
334. williamsi China 1939
- Subgenus *Stiroma* Fieber 1866
335. pteridis (Spinola 1839)
336. bicarinatus (Herrich-Schaeffer 1837)  
 = nasalis (Boheman 1847)
337. affinis (Fieber 1866)  
 Subgenus *Eurybregma* Scott 1875
338. nigrolineatus (Scott 1875)

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