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SOCIETY FOR BRITISH ENTOMOLOGY

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TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

Vol. 8. 29th March, 1943. Part 5.

THE NATURAL CLASSIFICATION OF THE BRITISH CORIXIDAE (Hemipt.),

By G. A. Walton, M.B., Ch.B., F.R.E.S.

Introduction.

In view of the impending fixation of the names of the British Rhynchota, I wish to draw attention to the fallacy of the present mode of classifying the Water-boatmen, a classification which is based almost entirely upon the arguments and guesses of past nomenclators. In the past few years the Corixidae have been the object of some intensive investigation, and in particular studies have been made concerning their ecology and cytology. The classification which should be (theoretically) a foundation and a guidance in such biological work has had little to offer. Karyological investigations have now been made in over a dozen species of Corixidae. *Cymatia* has a diploid chromosome number of twenty-six, while all other studied species have twenty-four. I will endeavour to show that all these latter species happen to belong to the same genus. (For chromosomes see: 1933, Prokofiewa, *Zeitschr. f. Zellforsch und mikroskop. Anat.*, **18**: 1-27; Poisson, 1936, *Arch. Zool. exp. et Gen.*, **78**: 133-94, pl. 2-4; and Slack, *Proc. Roy. Soc. Edinburgh*, **58**: 192-212.)

Few groups of the class Insecta have caused more confusion than the one in question. There are, even to-day, only about fifty species of European Corixidae, yet, until quite recently, workers seem to have found it exceedingly difficult to identify even the commoner species which form such a large part of most freshwater biota; for example, Douglas and Scott (1869, *Ent. mon. Mag.*, **6**) attempted to make the ubiquitous *Corixa nigrolineata* Fieb., 1848 (=*C. fabricii* Fieb., 1851) into no less than seven species, one of which they called *perplexa*! Glancing through various works one will find the names of one species under the following generic names: *Sigara, Corixa, Corisa,*

Arctocorisa, Arctocorixa, Macrocorixa, Basileocorixa, Callicorixa, Glaenocorisa, while over the first two names, *Sigara* and *Corixa,* systematists have fought and argued by the chapter; see W. E. China (1938, *Ent. mon. Mag.,* **74**: 34-39) in a paper entitled 'Notes on the Nomenclature of British Corixidae,' in which he adds a concise though somewhat confusing summary to the systematic tangle over these names.

Basis of the Classification.

Desiring to discover a classification based on the insects themselves and not on the uncertain statements found in much of the literature, I realised that, to be of any real value, this classification would have to be the result of a thorough investigation of the whole family. Consequently I have examined examples of all but four of the genera that have been described and have seen practically every modern paper on the subject as well as many of the older works. The results of this investigation are still in manuscript form, but will ultimately be published in full. Prof. G. E. Hutchinson, M.A., F.L.S., F.R.E.S., of Yale University, has read that manuscript and has adopted the classification arrived at, and has validated it and the new names suggested in this paper (see 'A Revision of the Corixidae of India and Adjacent Regions,' 1940, *Trans. Connecticut Acad. Arts Science,* **33**: 339-476, pl. 1-36).

From the start it was realised that those so very complicated sexual characters of the male which have been given such prominence by past workers must be largely disregarded, and I at first concentrated most of my attentions on the symmetrical and morphologically much simpler females. It became apparent that the evolution of Corixidae has been fundamentally a gradual alteration from a predatory to a microphytic diet, involving adaptations of the feeding mechanism; namely, a shorting of the stylets and rostrum, an enlargement of the pharynx, the elaboration of a masticatory apparatus within it, and the adaptation of the front tarsus (known as the pala) from a raptoral function to that of an organ for sifting microscopical organisms. There has also been a progressive, but not always parallel, elaboration of the sexual characters of the males. On major structural diverences the family Corixidae can be divided into three subfamilies as follows :—

1 (4) Antennae four-segmented.
2 (3) Ocelli present ..... *Diaprepocorinae* Lundblad.
3 (2) Ocelli absent ..... *Corixinae* Enderlein.
4 (1) Antennae three-segmented ... *Micronectinae* Jaczewski.

The Diaprepocorinae I have divided into predatory and micro-

phytic tribes, using the anterior tarsus as the indicative character. The Corixinae I have also divided into a predatory tribe the Cymatiini, and a microphytic tribe the Corixini, using the anterior tarsus combined with the mouth parts as the indicative characters, and this division is confirmed by studies of their feeding habits. As yet there is no clear indication for dividing the hundred odd species of the Micronectinae.

There are only eighteen good genera in the whole family, and of these, seven are monospecific, while with the exception of four, none of the other genera contain more than ten species. Of these four genera, *Tenogobia,* in the Micronectinae, a neotropical genus, contains sixteen species, and the Old World genus *Micronecta* over eighty. All the species of the remaining two genera resemble one another closely; they are the most highly and widely specialised, not only in their microphytic feeding habits but also in the sexual specialisations of the males. These species all have palae of the sifting type, very short mesothoracic pleural sutures, convex frons in the females, and belong to the subfamily Corixinae, tribe Corixini. I have managed to list some 330 species belonging to this group; a division is definitely indicated but the definitions of the two groups have been a matter of great difficulty. Group 1 contains 40 species, which are neotropical in origin and not quite so widely specialised as the species of Group 2; the hemielytral markings are generally curiously ragged, and there is often no line of demarcation between the corium and the membrane; there is usually a narrow space between the eyes and the posterior margin of the head, and while the males are pleomorphic in their secondary sexual characters they generally show the anterior tibiae produced over the pala and the presence of hairs modified as pegs in the middle row of sifting hairs. Considered thus, this group includes the genera *Trichocorixa* Kirkaldy, 1909, *Corisella* Lundblad, 1928, *Graptocorixa* Hungerford, 1930, *Trichocorixella* Jaczewski, 1931, *Palmocorixa* Abbott, 1912, *Centrocorisa* Lundblad, 1928, *Krizousacorixa* Hungerford, 1930, *Morphocorixa* Jaczewski, 1931, and perhaps *Ectemnostegella* Lundblad, 1928. All these groups are confined to central and southern America; *Trichocorixa* being the oldest group name becomes the generic name, and the others sink to subgenera within it. Karyology in this group might show differences from the species of Group 2 and considerably help in the clarification of the problem. This Group 2 is undoubtedly holarctic in origin, by far the most numerous, and more generalised and stable, especially in those complicated secondary sexual characters of the males. This large genus is cosmopolitan in distribution. There is reason to believe that dispersal has taken place in relatively recent times; they have even reached New Zealand, which is barred to all

other Corixidae with the exception of one species of the very primitive Notogean subfamily Diaprepocorinae. The characters which separate this genus from the *Trichocorixa* are as follows: Hemielytral markings definite even if vermiculate; always a line of demarcation between corium and membrane; space between eyes and posterior margin of head very narrow or absent; anterior tibiae never produced over the tarsus; never any hairs modified as pegs in the middle row of sifting hairs. A great number of other differences could be listed, but these are the most constant and obvious. This genus '*Corixa*' includes the genera at present known as *Corixa* and *Sigara, Parasigara* Poisson, 1935, *Rhamphocorixa* Abbot, 1912, *Neosigara* Lundblad, 1928, and perhaps the Southern Mediterranean species *Heliocorisa* Lundblad, 1928, *vermiculata* Puton, the only Old World species which approaches *Trichocorixa*. Naturally the characters of these two groups overlap to a small degree. Prof. H. B. Hungerford, of Kansas University, is at present engaged on clarifying the position of these confusing American Corixidae.

A few words on the genera *Corixa* and *Sigara*.

Mr. W. E. China in his 'Notes on the Nomenclature of the British Corixidae' gives three pages to the question as to whether the generic names *Sigara* Fabricius, 1775, or *Corixa* Geoffroy, 1762 ,Fourcroy, 1785) should be used for the British species, of the large cosmopolitan group to which I have referred as Group 2. On page 36 Mr. China says, 'I have taken the trouble to look up some of the references given by Linnaeus for *Notonecta striata*' (1758); in fact, I was with Mr. China when we looked up these references in an attempt to discover what species of Corixidae had been chosen by those famous entomologists as the types for their monobasic genera. The first reference was to Petiver's Gazophylacium, t. 72, f. 7. The figure given is in black and white and represents an elongate subparallel-sided Corixid, slightly large for, but not unlike the shape of, the insect we recognise nowadays as *Sigara* or *Corixa striata* Linnaeus (a yellowish species with very irregular transverse black lines), which he described as 'elytris pallidis; lineolis transversis undulatis striatis.' However both Mr. China and I agreed that the figure was not really recognisable as, despite the shape, the figure showed no markings, being only coarsely shaded. The second reference of Linnaeus was to Rosel's Ins. vol. 3 supplem. tab. 29. Here the figures are coloured and remarkably accurate, when we consider the date of publication. There is no doubt in my mind that the figures shown represent two specimens of the common large mottled species known to British workers as *Corixa geoffroyi* Leach, one with the wings

spread and the other with them closed (which, may it be noted, Mr. China carefully forgot to mention (p. 36) !), and, though not so accurately produced, a specimen of the smaller species which we might nowadays recognise as being *Corixa* or *Sigara striata* L. with the transverse lines. However, in the text, Rosel says that the figures (of the large species, please note) are twice natural size; this would reduce the *C. geoffroyi* to 7 mm., which happens to be the length of *Corixa striata* L. (!), and would reduce the *C. striata* to an impossible size. In other words, neither Linnaeus nor Rosel recognised even the specific difference between these species which most modern writers have placed in different genera. Then in the year 1762 Geoffroy, in a work which is invalid in so far as it does not wholly follow the binomial system, Hist. abrégée Ins. Paris, raised the name *Corixa* for a species he also called *striata,* and said among other things that it stings (! — a confusion with *Notonecta,* for Corixids cannot sting), and that it is pale yellow with transverse lines, though from his description of the front leg he might indeed be referring to a Corixid. From his reference to the yellow and transverse lines he might, like Linnaeus, be referring to almost any one of a dozen European species all about 7 mm. long, though hardly *Corixa geoffroyi,* which is really mottled; but he clinches the identification when he says that it is $5\frac{1}{2}$ lines long or 12 mm., there being only one common French species exactly that size, *Corixa geoffroyi.* Fabricius next raised the genus *Sigara* in 1775, for the species *striata,* first referring to the description of Linnaeus 'lineolis transversis undulatis striatis,' and the pictures in Rosel, which does not help us in the least but takes us back to where we were, though he no doubt meant *striata* L. So if we wish to make a guess at the type of either of these genera, or the species to which Linnaeus first gave the name *striata,* we must rather belittle what these authors have to say about colour and markings, and base our identifications upon the length, with a certain amount of intuition, and our delightfully vague conclusions are :—

1. *Notonecta striata* L. is 7 mm. long = *Sigara striata* Fab. = *Corixa* or *Sigara striata* L., Brit. Cat. (Identification quite doubtful).
2. *Corixa striata* Geffroy is 12 mm. long = *Corixa geoffroyi* Leach, Brit Cat. = *Corixa punctata* Illiger. (Identification almost certain).

Not that it matters in any case, seeing that they are congeneric; that is the important point.

Now O. F. Müller in Fauna Ins. Fridrechsdalina (1764) compares the genera of Linnaeus with those of Geoffroy in a table at the commencement of his interesting little book. This

table is not binomial, although the rest of the book is, so perhaps, as Mr. China puts it, 'it is a matter of personal opinion whether Müller has validated Geoffroyian genera or not.' Geoffroy later validated the name *Corixa* in 1785 (Fourcroy, Ent. Paris). As a point of interest only, note that Mr. China further says 'the validity of Geoffroy's 1762 work would have been of some importance in respect to this problem if the genotypes of *Corixa* Geoff. and *Sigara* F. had been congeneric. One or other of the two names would have become a synonym of the other according to whether 1762 or 1785 was taken as the valid date of *Corixa* Geoff. Since, however, the genotypes are not congeneric, neither of the two genera can ever be synonymous with the other.' Now this is a most unfortunate statement in an otherwise logical paper, and renders that part meaningless, because not only are these somewhat hypothetical genotype candidates actually congeneric, but even cause some difficulty over their separation into subgenera, as I will shortly explain. It therefore only remains to decide which of the two generic names to use. Clearly no really concrete reason or fact can help us. A broad and unconventional view of the position is essential, and since we have said that *Sigara* and *Corixa* are congeneric, and one of them has to become a synonym, I personally accept the name *Corixa* Geoffroy to the exclusion of *Sigara* Fab., since the name *Corixa* is the older group name, is well established, traditional and popular, and since most entomologists accept Müller, 1764, and, apart from any petty question of priority or of validity, there can be very little doubt about the identity of Geoffroy's species but there will always be considerable doubt as to what species was originally meant to be the type of *Sigara* F. As it is rather likely that the question of *Sigara* v. *Corixa* will come before the committee on Generic Nomenclature, and they might unfortunately set aside this well established and popular name *Corixa* in favour of the usurper *Sigara,* this last name would only become the generic name, the family would still be Corixidae, there would still be a subgenus *Corixa,* and the tribe has already been fixed Corixini.

Now let us consider the cause of this long-lived and most unfortunate misrepresentation of the facts. Let us get it quite clear, realising that those great and famous entomologists, Linnaeus, Geoffroy and Fabricius, though just as capable of logical reason as their modern counterparts, had but very limited knowledge upon which to exercise these powers. To them and their gullible followers the European Corixidae would obviously appear to fall into two quite clear groups, namely, large smooth species and small rough ones in the which the abdominal asymmetry of the males was reversed, and which was interpreted by them thus :—

Group A. Genus *Corixa* or *Macrocorixa* Th.	Group B. Species grouped under some other generic name, e.g. *Sigara*.
Large species, length 8-13 mm.	Smaller species, length 4·5-10 mm.
Pronotum and hemielytra smooth.	At least the pronotum rough.
Male abdominal asymmetry to the left side.	Male abdominal asymmetry to the right side.

Now in the light of modern knowledge Group B contains a number of species morphologically and cytologically related to the species of Group A, the only difference being the reversal of the segmental asymmetry of the abdomen in the males. In Europe it so happens that these related species from the two groups are about equal in number (and appear to be real reason for the long muddle). However, an intermediate species, *Corixa mirandella* Hutch. (a Glacial relict), is found in Africa, and this, while being 8-8·5 mm. long, has faintly roughly sculptured pronotum and hemielytra and has *left*-sided asymmetry. In North America there are 14 species belonging to this group, but these are large and smooth with *right*-sided male abdominal asymmetry. Some of them, like *C. mirandella,* are slightly rough. One called *C. laevigata* Uhler occurs regularly with the asymmetry directed to *either* side ! Moreover such a reversal has been recorded in the Eurasian large smooth species ; a male of *C. affinis* from Egypt was found by Jaczewski to have the abdominal asymmetry directed to the *right* (1924, *Ann. Mus. zool. polon. Hist. Nat.,* **3**: 83). There is another interesting North American species which, while being very large, has rough sculpture and *right*-sided abdominal asymmetry. Structurally this so-called *Hesperocorixa kennecottii* Uhler (= *C. brimleyi* Kirk.) is a large example of the group of smaller species, nothing else. Moreover the diploid number of chromosomes is the same for all species of this group so far studied.

It is only too obvious that this occurrence of reversal of asymmetry is largely a matter of chance, and has much the same significance as the reversed spiral found in the Gastropoda, and Dextrocardia in the Mammalia, and is further reduced in importance when we know that there are a number of genera and species of Corixidae in Central and S. America in which the males occur with the abdominal asymmetry directed both to the left and right, as in the case of *Corixa laevigata* Uhler. Most of these species belong to the genus *Trichocorixa* as interpreted in

this paper, and in them the reversal is the rule rather than the exception. In 1924 an eminent and progressive Corixologist, Dr. Jaczewski, realised the real situation when he wrote (1924, *Ann. Mus. zool. polon. Hist. Nat.*, **3**: 83) concerning a new subgenus of *Corixa*, 'The resemblance of the subgenus *Anticorixa* m. in all these respects with the genus *Corixa* Geoff. is so striking that almost only the other-sided asymmetry of the males' abdomen does not allow their union into one closely allied group.' This is surely sufficient evidence that the abdominal asymmetry in the males of *Corixa* can be completely ignored. *Corixa geoffroyi* Leach, the type of the genus *Corixa* Geoffroy, is, therefore, in every way congeneric with those Group B species, often smaller in size, with rough hemielytral sculpture and right-sided abdominal asymmetry, which formed the *Basileocorixa* of Kirkaldy, the *Arctocorisa* of Wallengren, the *Callicorixa* + *Anticorixa* of Jaczewski and the *Sigara* of W. E. China. I am sure that none of the older Corixologists ever doubted that these species were not congeneric but for the unexplained male abdominal asymmetry. The important fact that arises from this analysis is that this great congeneric group includes the species *striata* of Linnaeus. In other words, *Corixa geoffroyi* and *Sigara striata* are completely congenic. It is interesting to note that broad-minded entomologists when writing on Corixidae have often used the generic name *Corixa* to cover all the British species not belonging to *Cymatia, Glaenocorixa* or *Micronecta,* in order not to commit themselves over this confusing issue, and they, and only they, were following the correct procedure. On the other hand, it now becomes more desirable than ever to divide this great unwieldy genus *Corixa* into subgenera. Fortunately this is easy ; the genus lends itself admirably to such treatment, being made up of a number of clearly defined groups of real morphological, ecological and zoo-geographical significance which can be of great assistance as a guide to future scientific work on the group. From such work several far-reaching and important biological phenomena have already been discovered.

A few words on the Subgenera within the Genus Corixa.

Since the genus *Corixa* contains at the very least 290 species, it is obviously necessary to split in into subgenera as mentioned above.

Macrocorixa Thomson, 1869, was raised for the large, smooth species with the left-sided male abdominal asymmetry, but since *C. geoffroyi* Leach is the type of the whole genus, this name becomes a synonym of the subgenus *Corixa* Geoff., 1762. The question arises here as to the fate of the subgenus *Anticorixa*

Jaczewski. As I have shown, there is no reason whatsoever for separating this from the subgenus *Corixa*. However, as far as British Corixidae are concerned the separation would tend to make the identification of the species more easy, so in direct contradiction to my previous statement I here suggest that *Anticorixa* be retained for *Corixa* species with right-sided male abdominal asymmetry and related to subgenus *Corixa,* reserving this name for the Group A species. Further back in this paper we arrived at the inference, more from surmise and tradition than reason or fact, that the type of the genus *Sigara* Fab. was *Notonecta striata* L. This species is the only British representative of a closely related group including *Corixa albiventris* Horv., *C. assimilis* Fieb., *C. sistanensis* Dist. and *C. jaczewskii* Lundblad. I therefore suggest the subgenus *Sigara* Fabricius, 1775, type *C. striata* (L.), for this group of species.

Arctocorisa (spelt *Arctocorixa*) was created by Wallengren (1894, *Ent. Tidskr.,* **15**) for Group B species, but it so happens that the type chosen by him, *C. carinata* C. Sahlb., belongs to a very clearly defined group of subarctic and alpine species distributed from N. America to the Himalayas. *Arctocorixa,* therefore, becomes the subgeneric names for species related to *C. carinata,* of which ten are now known.

The name *Callicorixa* was raised by Buchanan White (1873, *Ent. mon. Mag.,* **10**) for those Group B species which lack the organ on the male abdomen known as the strigil, and have a black spot on the posterior tarsus, the type being *C. praeusta* Fieb. This species is a member of another very distinct northern group numbering about twelve species of holarctic distribution; but it so happens that there are a number of species from various parts of the world which also lack the strigil, and even one or two which possess both the original characters of *Callicorixa* without being related to *C. praeusta* Fieb. During my investigation of these species it became evident that White's original definition covered two distinct subgenera. *Callicorixa* is northern; the species never have a strigil, and always have a black tarsal spot; the male palae have two disconnected peg rows and the genitalia are typical. The other subgenus, for which I have suggested the name *Vermicorixa,* type *Corixa lateralis* Leach (= *hieroglyphica* Duf.), because of their typical vermiculate hemielytral pattern, are more southern in distribution. They often have a poorly developed black posterior tarsal spot, and sometimes lack the strigil, which if present is very small; the male palae have a single continuous row of pegs and the genitalia are typical. Other small differences occur, and it is possible to list sixteen species at present. This subgenus is undoubtedly related to *Callicorixa* and comes phylogenetically between it and the subgenus *Tropocorixa* Hutchinson, a large group numbering

about thirty-four species distributed throughout the tropics. It should be noted that the British species *C. concinna* Fieb., hitherto placed in the subgenus *Callicorixa,* should be placed in *Vermicorixa.*

Subsigara was the name given to those species related to *Corixa fossarum* Leach by Stichel (1935, *Illustrierte Bestimmungstabellen der Deutschen Wanzen* (*Hem-Het.*) **11**: 307-30). Thus all but five of the British Corixidae have been placed in subgenera, so, to complete the process and because the remaining species form two distinct groups, I have created the subgenus *Halicorixa,* type *Corixa stagnalis* Leach (= *lugubris* Fieb.), for the halophile species related to *C. stagnalis,* and the subgenus *Retrocorixa,* type *C. venusta* D. & S., for all species related to *C. venusta* (see Hutchinson, 1940, *Trans. Connecticut Acad. Arts Science,* **33**: 344-345). There are quite clearly several further subgeneric groups in America which cannot be satisfactorily defined at present because of the casual vagueness of the method of describing species used in the past by American workers.

THE LIST OF BRITISH CORIXIDAE.

Only about half the names found in the modern lists are to be found in Saunders' 'British Hemiptera.' Mr. W. E. China introduced *Corixa castanea* and *C. dentipes,* while the writer introduced *Corixa pearcei* and the true *Micronecta minutissima,* while showing that the common British species was *Micronecta poweri. Corixa wollastoni* has proved to be a good species found in the hilly districts of Wales, the north of England, and in Ireland and Scotland. In a paper entitled 'The Aquatic Hemiptera of the Hebrides' (in press) I have shown that at the present time it is wisest to regard *Corixa caledonica* Kirkaldy as a subspecies of *C. wollastoni.* I am omitting *C. sodalis, socia* and *boldi* from the list. Following Prof. Balfour-Browne's example in the treatment of the water-beetles *Deronectes elegans* Panz. and *D. depressus* Fab. (*Scot. Nat.,* **1934**), I have split *Glaenocorixa cavifrons* Th. into two subspecies in order to show the very real differences that exist in this species. I have now examined specimens from twelve different pools, and have used the name *propinqua,* a name used by Fieber for a species which he says is identical in structure to *cavifrons* but paler. It will probably turn out, when a full analysis of the problem of *Glaenocorixa* in Great Britain can be made, that *G. propinqua* has been used in this paper to cover a small number of local isolated southern races, rather than a single southern subspecies.

Through the kindness of Prof. Heslop-Harrison, I have recently studied the Corixidae collected in the Hebrides by his expeditions. Among a number of other interesting finds was a small number of *Cymatia coleoptera* to which I have given the

subspecific name *insularis*, since not only are these specimens isolated on a small island 350 miles away from their nearest southern colonies, but also have slightly different genitalia. Readers who wish to acquaint themselves with the details of the identification, references and distribution of the British Corixidae should refer to the Scientific Publication No. 1 of the F.B.A., published in 1939 and entitled 'A Key to the British Species of Corixidae (Hemiptera-Heteroptera) with Notes on their Distribution,' by Dr. T. T. Macan.

The check list at the end of this present paper is arranged in phylogenetic order, as far as that is possible, and all synonyms for which substantial evidence was forthcoming have been included, ignoring the catalogue of Oshanin.

Acknowledgments.

I wish to express my most sincere thanks for the valuable assistance received from Mr. W. E. China, Prof. G. E. Hutchinson, and Prof. Frank Balfour-Browne, who has so kindly read and criticised the manuscript.

A List of the British Species of Corixidae.

Family **CORIXIDAE** Leach, 1815.

Subfamily CORIXINAE Enderlein, 1912.

Tribe Cymatiini Walton, 1940.

Genus *CYMATIA* Flor, 1860.

1. *bonsdorffi* (C. Sahlberg), 1819.
2. *coleoptrata coleoptrata* (F.), 1776.
3. *coleoptrata insularis* Walton, 1942.

Tribe Corixini Walton, 1940.

Genus *GLAENOCORIXA* Thomson, 1869.

(Syn. *Oreinocorixa* B. White, 1873.)

4. *cavifrons cavifrons* Thomson, 1869.
   (= *carinata* Fieb., 1848).
   (= *alpestris* D. & S., 1870).
5. *cavifrons propinqua* (Fieb., 1851).

Genus *CORIXA* Geoffroy, 1762.

(Syn. *Sigara* Fab., 1775; *Arctocorixa* Wallengren, 1894; *Basileocorixa* Kirkaldy, 1898; *Glaenocorixa* Saunders, 1892, nec. Thoms., 1869; *Corisa* Latreille, 1825; *Callicorixa* Jaczewski, 1924.)

Subgenus *Vermicorixa* Walton, 1940.

6. *lateralis* Leach, 1818.
   (= *hieroglyphica* Dufour, 1833).
7. *nigrolineata* Fieb., 1848.
   (= *fabricii* Fieb., 1851).
   (= *lineolata* H. Schaff., 1853).
   (= *pallidula* J. Sahlb., ? 1868).
   (= *abdominalis* Fieb., 1848).
   (= *saunderseri* Kirk., 1899).
   (= *dubia* D. & S., 1869).
   (= *decora* D. & S., 1869).
   (= *micans* D. & S., 1869).
   (= *borealis* D. & S., 1869).
   (= *whitei* D. & S., 1869).
   (= *perplexa* D. & S., 1869).
8. *concinna* Fieb., 1848.

Subgenus *Callicorixa* B. White, 1873.

nec. *Callicorixa* Jaczewski, 1924.

9. *praeusta* Fieb., 1848.
10. *wollastoni wollastoni* D. & S., 1865.
    (= *praeusta* var. *wollastoni* Auct.).
11. *wollastoni caledonica* Kirkaldy, 1897.
    (= *cognata* D. & S., 1870).

Subgenus *Retrocorixa* Walton, 1940.

12. *venusta* D. & S., 1869.
13. *semistriata* Fieb., 1848.
    (= *undulata* H. Schaff., 1853, nec. *undulata* Wallengren, 1855).
14. *limitata* Fieb., 1848.

Subgenus *Subsigara* Stichel, 1935.
(Syn. *Selecorixa* Walton, 1936.)

15. *scotti* D. & S., 1868.
    (= *prominula* Thoms., 1869).
16. *fossarum* Leach, 1818.
17. *falleni* Fieb., 1848.
18. *pearcei* Walton, 1936.
19. *distincta* Fieb., 1848.
    (= *undulata* and *vernicosa* Wall., 1855).
    (= *Douglasi* D. & S., 1865).
    (= *gebleri* J. Sahlb., 1868, nec. *gebleri* Fieb., 1848).
    (= *carinata* H. Schaff., 1853, nec. *carinata* C. Sahlb, 1819, nec. *carinata* Fieb., 1848).

Subgenus *Halicorixa* Walton, 1940.

20. *stagnalis* Leach, 1818.
(= *lugubris* Fieb., 1848).
(= *coxalis* Fieb., 1864).
(= *ståli* Fieb., 1865).
(= *laevis* Thoms., 1869).
(= *salina* Puton, 1871).

21. *selecta* Fieb., 1848.
(= *ståli* D. & S., 1865).

Subgenus *Arctocorixa* Wallengren, 1894.

22. *germari* Fieb., 1848.
(= *variegata* Wallengren, 1855).
(= *intricata* D. & S., 1869).

23. *carinata* C. Sahlberg, 1819.
(= *sharpi* D. & S., 1869).

Subgenus *Anticorixa* Jaczewski, 1924.

24. *castanea* Thoms., 1869.

25. *moesta* Fieb., 1848.

26. *linnei* Fieb., 1848.
(= *regularis* H. Schaff., 1853).

27. *sahlbergi* Fieb., 1848.
(= *striata* Leach, 1818).

Subgenus *Corixa* Geoffroy, 1762.
(Syn. *Macrocorixa* Thoms., 1869.)

28. *punctata* Illiger, 1807.
(= *striata* Geoffroy, 1762, nec. *striata* Linn., 1758).
(= *geoffroyi* Leach, 1818).

29. *affinis* Leach, 1818.
(= *atomaria* Fieb., 1848).

30. *dentipes* Thoms., 1869.

31. *panzeri* Fieb., 1848.
(= *macrocephala* Fieb., 1848).
(= *salina* Thoms., ? 1869).

Subgenus *Sigara* Fabricius, 1775.

32. *striata* Linnaeus, 1758.
(= *strigata* Latreille, 1804).
(= *dorsalis* Leach, 1818).

Subfamily MICRONECTINAE Jaczewski, 1924.
(Syn. Sigarinae D. & S., 1865.)

Genus *MICRONECTA* Kirkaldy, 1897.
(Syn. *Sigara* D. & S., 1865; Auct.)

Subgenus *Micronecta* Kirkaldy, 1897.

33. *minutissima* (Linnaeus, 1758).
(= *minuta* Fab., 1794).
(= *lemana* Fieb., 1861).
(= *foveifrons* Thoms., 1871).
(= *rugicollis* Horvath, 1901).

34. *poweri* (D. & S., 1869).
(= *borealis* Lundblad, 1936).
(= *minutissima* Brit. Auct.).

Subgenus *Dichaetonecta* Hutchinson, 1940.

35. *scholtzi* (Fieb. in Scholtz, 1846).
(= *meridionalis* Costa, 1860; Brit. Auct.).

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