

# Preliminary note for the revision of the genus *Schistocerca* Stål, 1873

(Orth. Acridoidea)

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Revisionary work on the genus *Schistocerca* was commenced two years ago, and probably the completion of it will need three or four years more. However, during these early stages, several facts have been discovered which will be useful for any acridologist who may deal with this genus before the whole revision is published. The facts presented below are concerned with the synonymy of the species.

Beside other relevant work for the revision is the major task of checking all existing specific types of *Schistocerca* and the types of species which rightly or wrongly have been synonymised with the known species of the genus, or attributed to it. After exhaustive enquiries in all museums in Europe and the United States of America, it was discovered that while many types have been lost, probably perished, a rather large number are still in existence. These have been studied and compared among themselves and with other available material.

The study of the types has revealed that many of them are without any doubt synonymous. Early elimination of them from the list of valid species will be helpful.

Probably, readers will be surprised by the large number of the synonyms in the species described by Walker. The following quotation from the paper of Mr. N. D. Riley (1958) for the Tenth International Congress of Entomology will be self-explanatory. I may add to it only that the sex of the specimens described by Walker is often wrong, and localities are sometimes doubtful.

“Of Francis Walker it is said that he was paid on the basis of so much for species described (though the records do not confirm this), with results that are too familiar to entomologists. If, while he was at lunch, somebody altered the position of his mark in the box he was

working at, he was liable to describe again as new after lunch the species he had already described as new before lunch. In this way single specimens are known to have become the type specimen of three different Walkerian species. The fierce criticism aimed at Walker would with great justification have been levelled at the authorities who encouraged such monstrous practices, rather than against the amiable old gentleman who performed them." (p. 455).

The literature references are not listed in this paper, as it would be useless repetition to give them in this small paper and repeat them in the final revision of the genus.

All types of the synonymised species, unless stated that they do not exist have been studied, compared between themselves and with a large amount of material.

### *Schistocerca americana* (Drury, 1770).

*Libell. americanus* Drury, 1770: 128, pl. 49, f. 2. Type ♀ (Neotype ♀) in the Linnaean Society, London.

Type locality: "Virginia, Antigua, New York, Madras in the East Indies, and Sierra Leone in Africa". For Neotype: "Georgia".

*Acridium vittatum* Beauvois, 1805: 146 (nec *vittatum* Olivier, 1791: 221). (Nom. confusum.)

*Locusta tatarica* Westwood, 1837 (nec Linn.): 121, pl. 43, f. 2. (Comb. n. et confusum by Westwood.)

*Acridium cancellatum* Serville, 1839: 664. Type ♀, in the Museum National d'Histoire Naturelle, Paris.

Type locality: "Chile". (*Syn. n.*)

*Acridium paranensis* Burmeister, 1861: 491. Lectotype ♀, in the Museo de Ciencias Naturales "Bernardino Rivadavia". Buenos Aires.

Type locality: "Cordova". (*Syn. n.*)

*Cyrtacanthacris approximans* Walker, 1870: 572. Type ♀, in the British Museum (Natural History).

Type locality: "?". (*Syn. by Kirby, 1910: 460.*)

*Cyrtacanthacris interrupta* Walker, 1870: 572. Type ♀, in the British Museum (Natural History).

Type locality: "?". (*Syn. by Kirby, 1910: 461.*)

*Acridium piceifrons* Walker, 1870: 578. Type ♂, in the British Museum (Natural History).

Type locality: "Orizaba, México". (Syn. by Kirby, 1910: 462).

*Acridium patianum* Posada-Arango, 1879: 4. Type lost.

Type locality: "L'avons vu à Medellin. Colombia". (Syn. by Hebard, 1923: 281.)

*Schistocerca urichi* Arribalzaga, 1918: 63. Type lost.

Type locality: Series from Trinidad, Tobago Is. and from the mainland of S. America. (Syn. by Hebard, 1923: 281.)

The species *Libellula americana* was quite adequately described and excellently figured by Drury in the first volume of his "Illustrations of Natural History of Exotic Insects", 1770. However, this name could be applied to most of the very numerous describes American species of the genus, particularly because Drury's figure is female and for the geographical distribution of the species he gave the following localities: "I have received this species from Virginia, Antigua, and New York, Madras in the East Indies and Sierra Leone in Africa" (Drury).

Such a wide range of distribution makes it rather doubtful what *L. americana* really is. From Drury's figure it is clear that it is one of the American species, because the pattern is typical for them but not for the Old World Species.

To what male, and to what species described in later years, *L. americana* corresponds can only be decided definitely by comparison of the specimen from which Drury's figure was drawn with a recent series.

Accordingly, a search for the original Drury specimens was also undertaken.

It is known that, after his death, the Drury collection of insects was auctioned and sold in 1805. The printed catalogue of the auction, with marginal remarks of the auctioneer (most probably), is preserved in the British Museum (Natural History). In the catalogue item No. 176 is described as: "Libellula Canadensis, Americanus and 20 others price £1. 7. 0.". A marginal remark states that the lot was sold to Donovan.

After the death of E. Donovan his collection, presumably with Drury's specimens, was sold again. Since then the fate of the specimens is not known.

However, investigation of the Linnaean Collection in the Linnaean Society in London, revealed the presence of a female specimen which is

remarkably similar to Drury's figure of *L. americana* in pattern and colouration and also in the setting of the elytra and wings.

It is well known that Sir J. E. Smith bought the Linnaean collection in 1784 and that it was transferred permanently to the Linnaean Society in 1829. At various times specimens were added to the collection. This is obvious, because it contains specimens which were never described by Linnaeus himself, but were described by later authors. A good example of this is *Gryllus monstrosus* described by Drury in the second volume of his "Illustrations of Natural History". Probably the specimens found their way into the Society and were incorporated into the Linnaean collection, but they may have been incorporated even earlier, while the collection was still in the private possession of Sir J. E. Smith. It is thus quite conceivable that some of Drury's specimens or the specimens on which Drury based his descriptions could have found their way into the Linnaean Society, particularly as Drury himself was a Fellow of that Society.

Although the specimen in the Linnaean Collection which is remarkably similar to Drury's figure of *L. americana*, it cannot be proved with absolute certainty to be his specimen, there is however good reason to regard it as the type, and it is proposed here to designate it as the *neotype*.

This neotype specimen is a female and bears the label "Georgia. NJH". This locality is not mentioned by Drury in his description, but Georgia is not too far from Virginia and it should be remembered that Drury, like all old authors, was very loose in his geographical data.

All the types mentioned in synonym have been studied and compared between themselves and with the available material. They proved to be identical.

Beauvois (1805: 146) in his book mentioned *Acridium vittatum* Olivier, 1791, which according to Olivier himself, is *Acridium flavofasciatus* De Geer, 1773. Olivier apparently changed the name without giving the reason. From further remarks of Beauvois, it is clear that he had confused several species, as he mentioned localities: Surinam; St. Domingo; United States and Africa.

On his plate (Beauvois, pl. 4, fig. 5), the species figured is not *A. flavofasciatus* de Geer. It looks more like *L. americana* Drury or some other species near to it.

*Locusta tatarica* Westwood is Drury's *americana* to which Westwood gives the name *tatarica*, being convinced that they are conspecific.

***Schistocerca crocotaria* Scudder, 1899.**

*Schistocerca crocotaria* Scudder, 1899: 450. Lectotype ♀, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Chontales, Nicaragua".

*Schistocerca separata* Scudder, 1899: 469. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Chontales, Nicaragua". (*Syn. n.*)

*Schistocerca malachitica* Rehn, 1905: 439. Type ♀, in National Museum, Natural History, Washington.

Type locality: "Turrialba, Costa Rica". (*Syn. by* Hebard, 1923: 284.)

***Schistocerca damnifica* (Saussure, 1861).**

*Acridium damnificum* Saussure, 1861: 14. Type ♂, in the Geneva Museum.

Type locality: "Teness".

*Cyrtacanthacris unilineata* Walker, 1870: 611. Type ♂, in the British Museum (Natural History).

Type locality: "Indiana". (*Syn. by* Scudder, 1899: 475.)

*Acridium rugosum* Provancher, 1876: 111. Type ♀, in the Quebec City Museum.

Type locality: "Quebec" (probably erroneous). (*Syn. by* Scudder, 1899: 475.)

*Acridium appendiculatum* Scudder, 1877: 86. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Fla". (*Syn. by* Scudder, 1899: 475.)

*Schistocerca damnifica calidior* Rehn & Hebard, 1912: 258. Type ♂, in the Museum of the Academy of Natural Sciences, Philadelphia.

Type locality: "Homestead, Florida". (*Syn. n.*)

***Schistocerca flavofasciata* (De Geer, 1773).**

*Acridium flavo-fasciatum* De Geer, 1773: 489. Pl. 40, f. 8. Type ♀ lost. Neotype ♀ in the British Museum (Natural History).

- Type locality: "Surinam". Neotype locality: Uruguay, Rivera Sierra de la Aurora.
- Acridium vittatum* Olivier, 1791: 221. (Nom. n. for. *A. flavofasciatum* De Geer.)
- Gryllus fimbriatus* Thunberg, 1824: 428. Lectotype ♂, in the Museum of the Zoological Institute, Uppsala.
- Type locality: "?". (Syn. by Stål, 1873: 221.)
- Acridium longipenne* Burmeister, 1838: 632. Lectotype ♀, in the Martin Luther Universität, Halle-Wittenberg.
- Type locality: "Brasilien". Label of the lectotype: "Am. Aust. Smr.". (Syn. by Stål, 1873: 67.)
- Cyrtacanthacris subvittata* Walker, 1870, 552. Lectotype ♀, in the British Museum (Natural History).
- Type locality: "Demerara", British Guiana (*Syn. n.*)
- Cyrtacanthacris parvula* Walker, 1870: 554. Type ♂, in the British Museum (Natural History).
- Type locality: "Demerara", British Guiana (Syn. by Kirby, 1910: 456).
- Cyrtacanthacris septemtrionales* Walker, 1870: 555. Type ♀, in the British Museum (Natural History).
- Type locality: "West Coast S. A." (on the label). (*Syn. n.*)
- Acridium femorale* Walker, 1870: 584. Type ♀, in the British Museum (Natural History).
- Type locality: "Brazil". (Syn. by Kirby, 1910: 456.)
- Schistocerca equalis* Scudder, 1899: 458. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.
- Lectotype locality: "Demerara". (Syn. by Rehn, 1916: 304.)
- Schistocerca infumata* Scudder, 1899: 457. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.
- Lectotype locality: "Montevideo, Uruguay". (Syn. by Rehn & Hebard, 1912: 94.)
- Schistocerca desiliens* Scudder, 1899: 455. Lectotype ♂, in the Museum of the Academy of Natural Sciences, Philadelphia.
- Lectotype locality: "Rio de Janeiro". (Syn. by Rehn & Hebard, 1912: 94.)
- Schistocerca flava-linea* Bruner, 1920: 81. Type ♀, in the Museum of the Academy of Natural Sciences, Philadelphia.
- Type locality: "R. Japacani, E. Bolivia". (*Syn. n.*)

The specific type of *A. flavo-fasciatum* is lost. However, the description and the figure leave no doubt of the identity of the species. Accordingly a neotype is erected.

Olivier, 1791, when redescribing *Acridium flavofasciatum* De Geer, gave it a new name, *Acridium vittatum*, without giving any reason for this change. He cited De Geer's name and the name of his species, but added above his name: *A. vittatum*. Apparently Olivier cited the whole of De Geer's diagnosis and added his own description as well. No new specimens were involved in this redescription.

### *Schistocerca impleta* (Walker, 1870).

*Cyrtacanthacris impleta* Walker, 1870: 554. Type ♀, in the British Museum (Natural History).

Type locality: "West Coast of America".

*Acridium vitticeps* Walker, 1870: 579. Type ♀, in the British Museum (Natural History).

Type locality: "Oajaca" (México). (*Syn. n.*)

*Acridium semivittatum* Walker, 1870: 583. Type ♀, in the British Museum (Natural History).

Type locality: "Venezuela". (*Syn. n.*)

*Acridium luridescens* Walker, 1870: 583. Lectotype ♂, allotype ♀, in the British Museum (Natural History).

Type locality: "Honduras". (Lectotype and allotype). (*Syn. n.*)

*Schistocerca aurantia* Scudder, 1899: 448. Lectotype ♀, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Mérida, Yucatán". (*Syn. by* Rehn & Hebard, 1912: 93.)

*Schistocerca carinata* Scudder, 1899: 449. Lectotype ♀, in the Museum of Academy of Natural Sciences, Philadelphia.

Lectotype locality: "Veracruz, México". (*Syn. by* Rehn & Hebard, 1912: 93.)

*Schistocerca mellea* Scudder, 1899: 452. Lectotype ♂, in the Museum of the Academy of Natural Sciences, Philadelphia.

Lectotype locality: "Veracruz, México". (*Syn. by* Rehn & Hebard, 1912: 93.)

*Schistocerca zapoteca* Scudder, 1899: 453. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "México". (Syn. by Rehn & Hebard, 1912: 93.)

*Schistocerca pyramidata* Scudder, 1899: 454. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Cuernavaca, México". (Syn. by Hebard, 1932: 276.)

#### ***Schistocerca interrita* Scudder, 1899.**

*Schistocerca interrita* Scudder, 1899: 450. Lectotype ♀, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Perú".

*Schistocerca peruviana* Arribalzaga, 1903: 2. Lectotype ♀, in the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia".

Lectotype locality: "Perú". (Syn. n.)

*Schistocerca maculata* Bruner, 1913: 585. Type ♀, in the National Museum Natural History, Washington.

Type locality: "Chuquibamba, 10,000 ft., Perú". (Syn. n.)

#### ***Schistocerca nitens* (Thunberg, 1815).**

*Gryllus nitens* Thunberg, 1815: 236. Type ♂, in the Uppsala Museum.

Type locality: "?"

*Gryllus lividus* Thunberg, 1824: 428. Type ♀, in the Uppsala Museum.

Type locality: "?" (Syn. by Kirby, 1910: 456.)

*Acridium scutellare* Walker, 1870: 579. Type ♀, in the British Museum (Natural History).

Type locality: "México". (Syn. n.)

*Acridium strenuum* Walker, 1870: 580. Type ♀, in the British Museum (Natural History).

Type locality: "Oajaca". México. (Syn. n.)

*Cyrtacanthacris concolor* Walker, 1870: 610. Type ♀, in the British Museum (Natural History).

Type locality: "México?". (*Syn. n.*)

*Acridium propium* Walker, 1870: 621. Lectotype ♂. Syntype ♂ in the British Museum (Natural History).

Type locality: "Oajaca". México. (*Syn. n.*)

### *Schistocerca pectoralis* (Walker, 1810).

*Cyrtacanthacris pectoralis* Walker, 1870: 551. Type ♀, in the British Museum (Natural History).

Type locality: "St. Domingo".

*Cyrtacanthacris viridescens* Walker, 1870: 553. Type ♂ (in the description ♀), in the British Museum (Natural History).

Type locality: "Brazil". (*Syn.* by Hebard, 1923: 553).

*Schistocerca idonea* Scudder, 1899: 461. Lectotype ♀, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Chapada, Brazil". (*Syn.* by Rehn & Hebard, 1912: 94).

*Schistocerca vittafrons* Bruner, 1903: 298. Type ♂, in the Museum of the Academy of Natural Sciences, Philadelphia.

Type locality: "Boruca, Costa Rica". (*Syn.* by Rehn & Hebard, 1912: 121.)

### *Schistocerca pallens* (Thunberg, 1815).

*Gryllus pallens* Thunberg, 1815: 237. Type ♂, in the Uppsala Museum.

Type locality: "?"

*Gryllus serialus* Thunberg, 1815: 241. Type ♂, in the Uppsala Museum.

Type locality: "Insula Barthelems". (Lesser Antilles). (*Syn. n.*)

*Gryllus columbinus* Thunberg, 1824: 425. Type ♀, in the Uppsala Museum.

Type locality: "Barthel" (on the label). (*Syn. n.*)

*Gryllus occidentalis* Thunberg, 1824: 429. Type ♂, in the Uppsala Museum.

Type locality: "Barthel" (on the label). (*Syn. n.*)

*Acridium cubense* Saussure, 1861: 14. Type ♀, in the Geneva Museum.

Type locality: "Cuba". (*Syn. n.*)

*Cyrtacanthacris subspurcata* Walker, 1870: 552. Type ♀ (in the description ♂), in the British Museum (Natural History).

Type locality: "Guayaquil" (probably erroneous). (*Syn. n.*)

*Acridium varipes* Walker, 1870: 581. Type ♀, in the British Museum (Natural History).

Type locality: "St. Domingo". (*Syn. n.*)

*Cyrtacanthacris simulatrix* Walker, 1870: 610. Type ♂, in the British Museum (Natural History).

Type locality: "St. Domingo". (*Syn. by Kirby, 1910: 462.*)

*Acridium consobrinum* Walker, 1870: 636. Type ♀, in the British Museum (Natural History).

Type locality: ? (*Syn. n.*)

#### ***Schistocerca shoshone* (Thomas, 1873).**

*Acridium shoshone* Thomas, 1873: 295. Type lost. Neotype ♂.

Type locality: "Nevada and Utah". Neotype locality: Utah, Cache County, Logan.

*Schistocerca venusta* Scudder, 1899: 467. Lectotype ♂, in the Museum Comparative Zoology, Cambridge, Mass.

Lectotype locality: "Indio, Calif." (*Syn. by Hebard, 1935: 299.*)

*Schistocerca obliquata* Scudder, 1889: 470. Lectotype in the Museum of the Academy of Natural Sciences, Philadelphia.

Lectotype locality: "San José del Cabo, Lower California, México". (*Syn. by Hebard, 1932: 279.*)

#### ***Oxya vittigera* (Blanchard, 1851).**

*Acridium vittigerum* Blanchard, 1851: 73. Type ♀, in the Muséum National d'Histoire Naturelle, Paris.

Type locality: "Nouv. Guinée. Baie Triton".

*Heteracris gavisia* Walker, 1870: 669. Type ♂, in the British Museum (Natural History).

Type locality: "Ceram". (*Syn. n.*)

*Schistocerca vittigera* (Blanchard, 1851). (Comb. n. by Kirby, 1910: 461.)

***Anacridium melanorhodon melanorhodon*** (Walker, 1870).

*Acridium melanorhodon* Walker, 1870: 585. Type ♀, in the British Museum (Natural History).

Type locality: "St. Jago", Cape Verde Islands.

*Schistocerca exsul* Scudder, 1893: 4. Type ♀, in the Museum Comparative Zoology, Cambridge, Mass.

Type locality: "Two hundred and fifty miles off the West coast of South America". (Probably the locality is erroneous.) (*Syn. n.*)

***Dichroplus democraticus*** (Blanchard, 1851).

*Acridium democraticum* Blanchard, 1851: 74. Type ♀, in the Muséum National d'Histoire Naturelle, Paris.

Type locality: "Chile".

*Pezotettix bergii* Stål, 1878: 6. Lectotype ♀, in Naturhistoriska Riksmuseet, Stockholm.

Type locality: Buenos Aires, Paraná. (*Syn. n.*)

*Dichroplus bergii* Giglio-Tos, 1824: 21. (Comb. n. by Giglio-Tos, 1894).

*Schistocerca democratica* (Blanchard, 1951). (Comb. n. by Kirby, 1910: 461.)

The study of the types left no doubt about the above synonymy.

***Dichroplus maculipennis*** (Blanchard, 1851).

*Acridium maculipennis* Blanchard, 1851: 72. Type ♀, in the Muséum National d'Histoire Naturelle, Paris.

Type locality: "Chile".

*Acridium (Podisma) arrogans* Stål, 1860: 333. Type ♀, in the Naturhistoriska Riksmuseet, Stockholm.

Type locality: "Buenos Aires, Montevideo". (*Syn.* by Liebermann, 1944: 106.)

*Pezotettix (Dichroplus) arrogans*, Stål, 1873: 78. (Comb. n. by Stål.)

*Pezotettix arrogans* Stål, 1898: 6. (Comb. n. by Stål.)

*Dichroplus arrogans* Bruner, 1906: 72. (Comb. n. by Bruner.)

*Schistocerca maculipennis* Blanchard, 1851: 72. (Comb. n. by Kirby: 461.)

*Dichroplus maculipennis* Blanchard, 1851: 72. (Syn. by Liebermann, 1955: 177.)

Blanchard's type is preserved in rather good condition in the Paris Museum. It has been studied by me and it definitely belongs to the genus *Dichroplus*.

### **Melanoplus bivittatus** (Say, 1825).

*Gryllus bivittatus* Say, 1825: 308. Type ♂ - ♀ ?, not designated and lost. Neotype ♂, in the British Museum (Natural History).

Type locality: "Inhabits Arkansa". Neotype locality: "N. Dakota".

*Acridium milberti* Serville, 1828: 648. Type ♀, in the Muséum National d'Histoire Naturelle.

Type locality: "Amerique septentrionale".

*Melanoplus bivittatus* Say, 1825: 308. (Comb. n. Scudder, 1874: 376.)

*Schistocerca (?) milberti* Serville, 1838: 648. (Comb. n. Kirby, 1910: 530.)

*Acridium milberti* Serville, 1838, was regarded by Kirby (1910): 452 as *Schistocerca milberti* Serv. However, on page 530 he regarded *Acridium milberti* Serv. as a synonym of *Gryllus bivittatus* Say, 1825.

I have compared the type of *Gryllus milberti* Serv. with the description and the material which is in the collection in the British Museum (Natural History) determined as *Gryllus bivittatus* Say, and have found them to be conspecific.

### **Diponthus cribratum** (Serville, 1839).

*Acridium cribratum* Serville, 1839: 648. Type ♀, in the Muséum National d'Histoire Naturelle, Paris.

Type locality: "Capit. de Montevideo" (on the label).

*Acridium (Diponthus) nigroconspersum* Stål, 1860: 327, pl. 5, f. 7.

Type ♀, in the Naturhistoriska Riksmuseet, Stockholm.

Type locality: "Montevideo". (*Syn. n.*)

*Diponthus nigroconspersus* Stål, 1873: 47. (Stat. n. by Stål.)

*Diponthus nigroconspersus* Stål, 1860; Kirby, 1910: 382.

*Schistocerca cribata* (Serville, 1839). (Comb. n. by Kirby, 1910: 462.)

Study of the types confirmed the above synonymy and showed that the species does not belong to the genus *Schistocerca*.

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