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Zoogeography of Enicocephalomorpha (Heteroptera)

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Abstract

The geographic distribution of genera of Aenictopecheidae and Enicocephalidae is reviewed from the regional viewpoint, with stress on generic endemisms. Both formally established as well as not yet described valid genera are taken in account, and for each of them (or for their assemblages) the numbers of formally established as well as not yet described species are provided. The major centres of generic endemism are S Nearctic and Mesoamerica, Madagascar, Middle East, SW Asia and New Zealand. The Enicocephalidae: Phthirocorinae occur on an island arch including New Guinea, New Caledonia, New Zealand, Crozet Is and Madagascar.

Key words: Aenictopecheidae, Enicocephalidae, distribution, genera, endemism.

Introduction

The Enicocephalomorpha (Aenictopecheidae /A/, Enicocephalidae /E/) is a sister-group to the Euheteroptera. This first review of distribution is based on both the published and unpublished record, and takes into account also the taxa not yet formally established but known to the author. The classification above the species level follows that by Štys (1995; 2002). Genera are taken as units representing named and to-be-named monophyletic clades. Unless otherwise stated, the quoted genera belong to Enicocephalinae (EE); AA refers to Aenictopecheinae. Numbers of described genera and/or species are given in parentheses; numbers of the available undescribed taxa and estimates of number of species in large genera (in squares of 10) are in boldface; "new" or "undescribed" genus means always gen. n., sp.n..

The distributional patterns are considered here largely from the regional viewpoint. Formulation of historical hypotheses is at present hardly possible owing to insufficient and irregular knowledge of some faunas or a lack of it (e.g., all the Atlantic and most Indian Ocean islands and archipelagos), necessity to describe some recently discovered and phylogenetically critical taxa, and to establish the phylogenies at the genus level.

Results

Nearly all genera are endemic to Western (11 + **4**) or Eastern Hemisphere (37 + **about 30** + 8 subgenera/); 21 valid species of the Aenictopecheidae and 304 of Enicocephalidae are formally described.

(1) There are only two **exceptions** to this rule. *Systelloderes* (45 + **>10^3**) is a nearly cosmopolitan genus ranging from Canada to New Zealand, avoiding only some islands and the Palaearctic. *Boreostolus* (AA, 2 vicariants), the only Holarctic aenictopecheid, occurs in the North amphipacific area. Not a single case of an amphinotic distribution is known at any hierarchical level.

(2) **Endemic Western Hemisphere genera.** There are probably no truly endemic Nearctic genera. However, there is a group of 4 enicocephaline genera with species occurring either in S California and/or S Arizona and/or S Texas (*Brevidorsus* - 1, *Hymenocoris* - 3, *Lysenicocephalus* - 2, *Urnacephala* - 1) and/or Mexico. None of these genera occurs in continental America South of Mexico. *Alienates* (E: Alienatinae; 13 + **>10**) is distributed in Arizona, Florida, Bahamas, Antilles (southwards to St. Lucia), S Mexico and Panama.

The other American genera are strictly Neotropical (*Tornocrusus* /AA/ - 8 + **>10**, *Chiricoris* - 1, *Enicocephalus* - 17 + **>10**, *Neoncylocotis* - 15 + **>10^2**, *Xenicocephalus* - 2), the areas of their species ranging from Cuba in the North to the level Tucumán (Argentina) - Sao Paulo (Brazil) in the South, but having their northern continental limit not farther than S Mexico (Chiapas, Vera Cruz). About **three** new genera from Argentina are to be described (**2 EE, 1 AA**).

The only subantarctic genus is *Gamostolus* (AA; 1) from S Chile (Magellanean and Osorno Provinces) and S Argentina (Staten Island). Wygodzinsky and Schmidt (1991) referred to this genus also larvae found in Colombian and Venezuelan cordilleras; they actually belong to an undescribed genus (AA).

(3) **Endemic Eastern Hemisphere genera.** Pragmatically, in addition to conventional regions and provinces or as alternatives to them I accept here also the **West Palaearctic** (Mediterranean, Middle East, Arabian peninsula, Transcaucasia, Middle Asia), **East Palaearctic** (from Tibet to Japan incl. China and Taiwan), **Indian region** (from Pakistan /?; fauna unknown/ to Myanmar), **SE Asia** (from Thailand up to Wallacea including Philippines), **Papuan** (Moluccas, New Guinea and Melanesia) and **Pacific regions** (Polynesia, Micronesia, Hawaii)

(3.1**) Palaeotropical genera of at least biregional distribution** (6). *Oncylocotis* (99 + **>10^3**) and *Henschiella* (12 + **<10^2**) species are known from all the regions (excluding New Zealand but including Australia and Tasmania; in *Henschiella* excluding Oceania). The strongly pterygopolymorphic *Oncylocotis* inhabits also

small isolated islands, and includes the only multiregional species *O. basalis* (*O. b. curculio* - Afrotropical and W Palaearctic /two subspecies undescribed/, *O. b. basalis* - Indian, SE Asia). *Henschiella pellucida* is the only species found once (Horváth, 1888) in Europe.

Embolorrhinus (9 + <**10**^{2}) is shared between Afrotropis and Madagascar (the only other shared genera are *Systelloderes* and *Oncylocotis*). *Hoplitocoris* (32 + >**10**^{2}) is Afrotropical, Indian, SE Asian (including Philippines) and E Palaearctic; the range of *Stenopirates* (8 + >**10**^{2}) is the same but excludes the Afrotropis.

Nesenicocephalus (3 + <**10**^{2}) is essentially an Oceanic genus occurring also on Philippines, but recently discovered throughout SW Asia, Papua and Australia.

(3.2) **Endemic Afrotropical, Madagascan and W Palaearctic genera.** The fauna of Afrotropical region, though richest in terms of formally described species, and fauna of W Palaearctic are formed by enicocephaline genera only. There are only three endemic Afrotropical genera, *Machadocoris* (1) from Angola, *Owenoderes* (1) from Nigeria and an undescribed gen. n., sp.n. from Cameroon, and five W Palaerctic ones, *Alkowdiella* (2 +), *Kulichoderes* (1 + **>10**), *Ugloderes* (1), *Utukhengal* (1) and *Vuorilinna* (1) - all five with unknown females. On the other hand, Madagascar, Seychelles, and Mauritius harbor 1 (+ **2)** endemic AA genus (*Lomagostus* - 1), **2** undescribed genera of E: Phthirocorinae, and 8 (+ **3**) enicocephaline genera, viz**.** the holoptic *Cocles* (4 + **10**); *Euchelichir*, *Heissaptera*, *Henicocorinus*, *Mateucoris*, *Proboscidopirates* (the most specious genus), *Pseudohenschiella*, *Schenchiella*, *Trichopirates*, altogether with 27 (+ <**10**^{2}) species. None of the endemic Madagascan genera is shared with the Afrotropical region, and no taxon of a particular phylogenetic significance is known from S Africa.

(3.3) The Indian and E Palaearctic areas are (in addition to *Boreostolus* - see sub 1) inhabited only by species of widely distributed EE genera (see sub 3.1) derived partly from Afrotropical, partly from SE Asian sources.

(3.4) **Southeast Asian endemic genera.** This is the area of highest suprageneric, generic and species diversity although most taxa remain to be described. Of the AA there is *Aenictopechys* (1 + **>10**) and **2** undescribed genera (partly from the continent, partly from Great Sundas), of the endemic A: Murphyanellinae 2 monotypic genera (*Murphyanella*, *Timahocoris*) from Singapore and inestimable number of new genera and species from Borneo and Indochina. Of the endemic E: Phallopiratinae there are 1 (*Phallopirates*, 3) + **3 genera** (1+ **4),** of equally endemic E: Megenicocephalinae there is *Megenicocephalus* (1 + **about 10**) known so far from a single female of *M. chinai*. Both subfamilies share the same distribution: Malayan peninsula, Philippines and Great Sundas. There are no described endemic EE genera, but about **10** are available.

(3.5) The major surprises are probably in store in the **Papuan region** and surrounding archipelagos, and continental islands in **SW Pacific**, although the available samples are mostly unsorted. The E: Phthirocorinae are represented by hygropetric *Phthirocorisella* from New Guinea and two genera from New Caledonia (*Monteithostolus* - 2, *Ciucephalus* - 1) with the most plesiomorphic male genitalia. A new genus (**1**) related to *Oncylocotis* and having female forewings transformed in halterae is available from Fiji.

(3.6) **Australia and Tasmania** are inhabited by enormous number of undescribed species (especially *0ncylocotis*), but the generic endemism is rather poor. There is only AA *Australostolus* (1 + **2**), EE *Usingeriella* (1 + >**10**) and **2** new enicocephaline genera (>**10**). **New Zealandian endemic genera** belong to endemic A: Maoristolinae (*Maoristolus* - 2), A: *incertae sedis* (*Aenictocoris* - 1), E: Phthirocorinae (*Gourlayocoris* - 1, *Phthirostenus* - 1), and the endemic A: Nymphocorinae containing the only genus shared between NZ and Australia (*Nymphocoris* - 1 NZ, 1 Tasmania). Of the Enicocephalinae **2** monotypic genera from NZ await description.

(3.7) The subantarctic **Crozet Islands** in the Indian Ocean harbor a genus of E: Phthirocorinae, *Phthirocoris* (1 + **2**).

The presently known area of the E: **Phthirocorinae** should be stressed: New Guinea, New Caledonia, New Zealand and nearby islands, Tasmania, Crozet Islands and Madagascar. This neatly formed arch surrounding the Australian continent from the Pacific and Southern Ocean sides, and "closing" the Indian Ocean is difficult to interpret - any further finds are of great biogeographical interest.

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References

HORVÁTH G., 1888.- Matériaux pour servir a l´étude des Hémiptères de la faune paléarctique.- *Revue d´Entomologie, Caen*, 7: 168-189.

ŠTYS P., 1995.- Enicocephalomorpha, pp. 67-73. In: *True Bugs of the World (Hemiptera: Heteroptera). Classification and Natural History* (SCHUH R. T, SLATER J. A.).- Cornell University Press, Ithaca, USA.

ŠTYS P., 2002.- Key to the genus-group taxa of the extant Enicocephalomorpha of the World, their list, and taxonomic changes (Heteroptera).- *Acta Universitatis Carolinae Biologica*, 45: 339-368.

WYGODZINSKY P., SCHMIDT K., 1991.- Revision of the New World Enicocephalomorpha (Heteroptera).- *Bulletin of the American Museum of Natural History*, 200: 1-265.

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