

REICHENBACHIA

STAATLICHES MUSEUM FÜR TIERKUNDE IN DRESDEN

Band 18

Ausgegeben: 10. Dezember 1980

Nr. 27

Contribution to the Taxonomy of the Genus *Empoascanara* DIST.

(Homoptera, Auchenorrhyncha, Cicadellidae, Typhlocybinae)

IRENA DWORAKOWSKA

Warszawa

This paper is an attempt at completing information on the genus *Empoascanara* DIST. with reference to reviews of this genus published earlier (DWORAKOWSKA, 1978¹⁾; RAMAKRISHNAN & GHAURI, 1979).

RAMAKRISHNAN & GHAURI have treated the genus in question as a complex of genera and they have formed 15 new generic names including 31 species known to them mainly from publications.

In the quoted work the authors have presented other idea than it is accepted in traditional systematic which use the cladistic analysis. RAMAKRISHNAN & GHAURI were giving much importance to these morphological details of male genital apparatus which are well visible when to tear open genital capsule, sclerotized and pigmented. Their genera are recognizable by using their key which, as a matter of fact, is a key for determination of their type-species the most. Descriptions of these genera contain either characters of the tribe (e. g. hind wing of *Empoascanara* DIST.), characters of majority of genera of the tribe (e. g. fore wing of *Empoascanara* DIST., external male genitalia in all genera, caudal arm [manubrium] of connective in majority of their genera, paramere of *Empoascanara* DIST.) or peculiar specific characters (e. g. apical part of paramere in *E. stilleri* DWOR. and *E. coreca* DWOR. quoted as characteristic for *Westindica*, penis of *E. sonani* [MATS.] recorded as typical for *Pantanarendra* and the same of *E. capreola* DWOR. [erroneously understood] as typical for *Pradhanasundra*, description of penis and connective of *E. linnaeavorii* DWOR. [both detailes figured basing on slightly damaged specimen] as characteristic for *Subbanara* etc.).

My review (DWORAKOWSKA, 1978) gives slightly deficient description of *Empoascanara* DIST. as the genus has been compared with *Seriana* DWOR. only. The comparison was published not for close relationship between both genera but to comply with the want of several persons (among them Dr. U. RAMAKRISHNAN) to tell the difference between them.

¹⁾ The references omitted in this work are to be found in the second quoted paper (RAMAKRISHNAN & GHAURI, 1979)

This paper contains explanation of these structures of male genital apparatus only which led RAMAKRISHNAN & GHAURI to their results.

Male genital capsule spherous or slightly cylindrical if pygophore side is elongated.

The pygophore side always more sclerotized in its basal part (cephalic margin). The shape of sclerotized areas of caudal part of pygophore lobe varies very much throughout the species and it varies also to a certain degree depending on age of mature stage of a specimen. The average size of such a sclerotization is shown for majority of species in my more recent publications. Hind margin of the pygophore lobe and its hind upper region is bent up mesad passing to the inner membrane which forms a doubled wall of pygophore lobe in that region. Usually there are less sclerotized or even semimembranous (colourless) areas in outer wall of the lobe there. The less sclerotized surface is very large in e. g. *E. prima* DIST. and *E. plamka* DWOR. (DWORAKOWSKA, 1979a), hardly distinguishable e. g. in *E. hongkongica* DWOR., very small e. g. in *E. smuga* DWOR. (DWORAKOWSKA, 1979b) or even prominent e. g. in *E. apara* DWOR. (DWORAKOWSKA, 1979a). Ventral margin of the mentioned inner membrane terminates in a certain point of a pygophore margin, usually at about its hind lower angle. This point is also a termination of ventral marginal pygophore ledge as in *E. prima* DIST., *E. dwukropka* DWOR., *E. nigro-bimaculata* (MOTSCH.) and their closest relatives, or it is produced caudad and bent up as in *E. sonani* (MATS.) and *E. cyclopula* (JAC.). The elongated pygophore lobe was helpful to RAMAKRISHNAN & GHAURI to distinguish *Pantanarendra*. Sometimes termination of inner membrane is attached to a small sclerotized tuberculation as in *E. thomasi* DWOR. (DWORAKOWSKA, 1979b). The region beyond attachment of ventral border of inner membrane can develop a distinct broad lobe separated by a sclerotized ledge being vertical as in *E. ihaha* DWOR. et FAWAR or oblique as in *E. plamka* DWOR. The caudal region may form small as in *E. dura* DWOR. (DWORAKOWSKA, 1980b) or large process (*E. mana* DWOR. et PAWAR, *E. pallidula* DWOR. et PAWAR, *E. niazii* (AHMED), *E. distincta* DWOR., *E. tamara* DWOR. (DWORAKOWSKA, 1980b). Presence of the lower processes has allowed to RAMAKRISHNAN & GHAURI to distinguish *Ishiharanara* and *Sayara*. Missing of extending sclerotization at pygophore margin in *E. linnavuorii* DWOR., *E. limbata* (MATS.), *E. falcata* DWOR., *E. tagabica* DWOR. et TROLLE, *E. lutea* DWOR. and *E. fumigata* (MEL.) has given a reason to the both authors to describe *Subbanara*, *Irenara*, *Sohniara*, *Afroindica*, *Sawainara* and *Webbanara* as having the pygophore lobe rounded.

Setosity of pygophore side contains several short and rigid microsetae situated on inner membrane (but in Fig. 33 by RAMAKRISHNAN & GHAURI placed on outer surface). Position of the microsetae in some species is very inconstant in slides as it depends on precision of dissection. In several species the microsetae arise partly from the very margin of the lobe as in *E. benigna* DWOR. (DWORAKOWSKA, 1979b) or partly even from outer surface as in *E. sonani* (MATS.).

In all species of the nominate subgenus *Empoascanara* DIST. there is a process near upper margin, attached to the inner surface of cephalic part of pygophore side just at, but mesad of the attachment of the inner membrane. Presence of the appendage is mentioned at descriptions of each of RAMAKRISHNAN & GHAURI's genera as "dorsomesal processes" "variously shaped" except in *Vietnara* where the appendage is defined as "short and broad [?]" Such a description is only a simplification of the previous one (DWORAKOWSKA, 1978) and in this form it concerns all genera of Erythroneurini having some processes in the indicated region.

Subgenital plate lamellate and horizontal in basal part, then pocket-like and usually

laterally compressed and inflexed dorsad, sometimes vertical in apical part. In certain species the plates differ mainly by breadth and length of the pocket-like part, degree of sclerotization and presence of a sclerotized protruding on marginal plica at its merging with extension of inner margin. The last feature is correlated with the previous ones and it is developed to a various degree from slightly pigmented tuberculation as in *E. hirsuta* DWOR. to an extremely large, tuberculated black "process" as in *E. indica* (DATTA). The following species show gradation of this feature: *E. dwalata* DWOR., *E. benigna* DWOR. (DWORAKOWSKA, 1969b), *E. dwukropka* DWOR. (DWORAKOWSKA, 1980b), *E. maculifrons* (MOTSCH.)²⁾, *E. truncata* (AHMED), *E. dravidana* DWOR., *E. hongkongica* DWOR., *E. coreca* DWOR., *E. stilleri* DWOR., *E. formosella* DWOR. and *E. alami* (AHMED). Basing on a presence of the "process [on] lateromiddle surface" RAMAKRISHNAN & GHAURI have formed *Indoformosa* and *Westindica*. *Empoascanara alami* (AHMED) has received other generic name (RAMAKRISHNAN & GHAURI, 1979) owing to the missing drawing at the original description.

Details of sclerotization of connective are sometimes indistinct and breadth of less sclerotized sides of manubrium ("posterior arm" after RAMAKRISHNAN & GHAURI) vary to a certain degree. Broadened manubrium of connective is, according to both authors, distinguishing *Pantanarendra* and *Vietnara* as well as *Ratbura* MAHM. and *Kanguza* DWOR. Connectives of the holotypes of *E. linnauorii* DWOR. and *Kanguza ibis* DWOR. are damaged and their defects were described by RAMAKRISHNAN & GHAURI as characteristic for *Subbanara* and *Kanguza*; original drawing of connective of *E. falcata* DWOR. shows incomplete structure either, being helpful in description of *Sohinara*.

Apical part of paramere is more or less broadened, usually flattened terminally, often spatially developed. In almost all known species there are well visible small transverse furrows and irregularly shaped ledges. The sculpture is well developed all over paramere apex e. g. in *E. stilleri* DWOR., *E. dwalata* DWOR., *E. maculifrons* (MOTSCH.), *E. nagpurensis* (DIST.), or it is reduced on outer side e. g. in *E. prima* DIST., *E. limbata* (MATS.), *E. indica* (DATTA). Situation of the furrows is helpful in detection interrelations of certain parts of paramere apex through all species of the genus. In long axis there is a terminal extension being deviated ventrad (mesad in slide) e. g. in *E. africana* DWOR., *E. limbata* (MATS.), *E. formosella* DWOR., or only broadened in the same direction e. g. *E. unipunctata* (MAHM.), *E. orientalis* DWOR., *E. maculifrons* (MOTSCH.), *E. dwalata* DWOR., or laterad e. g. *E. hazarensis* (AHMED). Usually there is a distinct praecapital extension directed latero-dorsad in nature and laterad in slide (praecapital tooth). The praecapital tooth (if distinct) is always the most acutely shaped part of paramere apex; but this feature was chosen by RAMAKRISHNAN & GHAURI as distinctive for only *Afroindica*, *Sawainara* and *Vietnara*. In *Empoascanara* DIST. there is no demarcation line between "first" and "second" extension of paramere, thus "heel" is not detectable. When the heel is understood as mesal extremity of whole apical extension, it may concern different parts of this structure in certain species. In the work by RAMAKRISHNAN & GHAURI the example of such a confusion is "heel" in *E. prima* DIST. and "heel" in *E. nagpurensis* (DIST.). The part of paramere situated apicad of praecapital tooth (postappendix) vary in size and the direct interpretation of the outline of paramere apex can lead to emphasizing unessential features. RAMAKRISHNAN & GHAURI have stated by this method generic features e. g.

²⁾ In my paper (DWORAKOWSKA, 1972a, p. 123) the drawing at the left upper corner should be provided with number 70.

"apex [of paramere] obliquely truncate" for *Ratbura* and *Sohinara*, "praecapital tooth more produced than the heel" for *Irenara*, apex "obliquely produced beyond heel" for *Webbanara*, apical extension "slightly produced obliquely" for *Vietnara*, or "praecapital tooth more angulate than the heel" for *Swarajnara*. In some species the postappendix is reduced as in *E. lutea* DWOR. or *E. mana* DWOR. et PAWAR, or almost undistinguishable as in *E. ihaha* DWOR. et PAWAR, *E. pallidula* DWOR. et PAWAR, or *E. sonani* (MATS.) being used for distinguishing *Sawainara*, *Sayara*, *Ishiharanara* and *Pantanarendra*. The superficial similarity of paramere apex of *E. linnauviorii* DWOR. with that of *Zygina* FIEB. was helpful in description *Subbanara* by both authors. The original comparison of structures in question shows that there is no great morphological discontinuity between them even when *E. indica* (DATTA) (*Indoformosa*) and *E. stilleri* DWOR. (*Westindica*) are taken into account. Lower (cephalic) part of paramere is narrowing apicad but its end is always more or less fan-like. This is well visible in separated but not dissected genital block in side view, often not observable in slides. The illustration of this detail in drawings was availed by RAMAKRISHNAN & GHAURI in description of *Afroindica* and *Manzoonara* and at resurrection of *Ratbura* MAHM.

Basing on penis structure I have arranged the known species of *Empoascanara* DIST. to several more or less well defined groups (DWORAKOWSKA, 1978) in spite of their close relation and intragroup-diversity. The groups of *E. prima* DIST. (DWORAKOWSKA, 1980a) and of *E. maculifrons* (MOTSCH.) as well as the groups of *E. nagpurensis* (DIST.) and of *E. nigrofimmaculata* (MOTSCH.) most distinctly grade into one another. They are maintained as working units only and to show the schemes of penis structure.

As it results from the above discuss there is no sufficient correlation between shape of upper part of paramere described by RAMAKRISHNAN & GHAURI and other features to distinguish their genera (as early as 3rd point of their key is not adequate).

The characteristic features mentioned by both authors at certain descriptions do not coincide exactly in all species originally included either. For example, original studies show that *E. alami* (AHMED) is hardly distinguishable from *E. formosella* DWOR. while in the quoted work they are assigned to separate genera. Also *E. bucephala* DWOR. has been unnaturally separated from *E. (K.) ibis* (DWOR.). On the other hand, it is not understandable the difference in paramere between *E. sonani* (MATS.) (*Pantanarendra*) and species assigned to *Sawainara* (except its type-species: *E. lutea* DWOR.). *Empoascanara caespitis* DWOR. et TROLLE (*Irenara* according to RAMAKRISHNAN & GHAURI) does not show paramere structure characteristic for *Irenara*, its paramere is exactly as that of *E. lutea* DWOR. (*Sawainara*). *Sohinara* comprising two species and characterised by "peculiar paramere" shows paramere of similar shape as in *Ratbura* MAHM. in *E. falcata* DWOR. and that of the type *Irenara* in *E. plagialis* (JAC.). Description of the apical part of paramere in *Afroindica* concerns its type-species only while in *E. cyclopula* (JAC.) this structure is exactly as in *E. sonani* (MATS.) (*Pantanarendra*) and paramere of *E. africana* DWOR. resembles rather that of *E. tytiae* DWOR. (*Sawainara* by RAMAKRISHNAN & GHAURI) than that of *E. tagabica* DWOR. et TROLLE. Manubrium at penis in *E. cyclopula* (JAC.) is also much bigger than delimited for *Afroindica*. The "foot-like" apex of paramere is told to be characteristic for *Sawainara*, but such structure occurs in *E. ihaha* DWOR. et PAWAR as well as in *E. sonani* (MATS.) (*Pantanarendra*) but not in the type-species *E. lutea* DWOR. which paramere is rather similar to that of *E. caespitis* DWOR. et TROLLE (*Irenara* according to RAMAKRISHNAN & GHAURI). Pair of processes in apical part of penis stem occurs in the type-species of *Sawainara* but in *E. ihaha* DWOR.

et PAWAR there are only lamellate extensions. Also the paramere in *E. tytaniac* DWOR. is not typical for *Sawainara* but similar to that in *E. africana* DWOR. (*Afroindica* following RAMAKRISHNAN & GHAURI). The features described as for *Sayara* (penis stem "tubular" and "manubrium well developed") concern type-species but not *E. pallidula* DWOR. et PAWAR. Description of paramere of *Webbanara* fit in the structure in numerous species assigned by RAMAKRISHNAN & GHAURI to other genera, e. g. apical part of paramere in *E. dwalata* DWOR. is like that in *E. maculifrons* (MOTSCH.) but larger, and that of *E. fumigata* (MEL.) is also like that in *E. maculifrons* (MOTSCH.) but smaller. *Webbanara* is characterised also by "typical aedeagus" but penis of *E. fumigata* (MEL.) bears unpaired asymmetrical processes situated on the stem which is compressed dorso-ventrally while in *E. dwalata* DWOR. the penis stem is tubular and its appendages are symmetrical. *Vietnara* is the only group of closely related species among units distinguished by RAMAKRISHNAN & GHAURI. In *Vietnara*, except other features which grade into one another, the previously discussed (DWORAKOWSKA, 1978) asymmetrical appendages of penis are the most characteristic. But *E. fumigata* (MEL.) shows similar penis-structure accompanied with a same type appendage at pygophore side as in *E. maculifrons* (MOTSCH.). *Empoascanara hirsuta* DWOR., *E. smuga* DWOR. (DWORAKOWSKA, 1979b, 1980b) and *E. coreca* DWOR. have also apical part of penis being asymmetrical to a certain degree.

Some genera have been distinguished owing to not sufficient data in original papers (MAHMOOD, 1967), information being confusable (AHMED, 1970b), or data which escaped detection of the both authors. The example is *Swarajnara* of which type-species should be re-investigated until one come to more detailed considerations. The key-feature for *Swarajnara* by RAMAKRISHNAN & GHAURI – presence of mesal lobe of paramere – most probably results from not careful dissecting or modification of the drawing by the author. Penis of *Ratbura unipunctata* MAHM. (MAHMOOD, 1967) looks like misshapen. *Manzoonara* has been characterised by RAMAKRISHNAN & GHAURI by features discussed above and by "very peculiar" penis. While to compare data of the original description of *Erythroneura hazarensis* AHMED with the closely related *E. singhi* DWOR. (DWORAKOWSKA, 1980a) AHMED's mistake concerning gonoduct and gonopore is evident. This confusion is one of the two main features in diagnosis of *Manzoonara*.

The genus *Ratbura* has been founded by MAHMOOD (MAHMOOD, 1967) for three "congeneric species", viz: *Empoascanara prima* DIST., *Empoasca nagpurensis* DIST. and *Empoascanara binotata* DIST. *Empoasca nagpurensis* DIST. has been chosen by MAHMOOD as the type-species of *Ratbura* "on the basis of priority". This problem I have discussed previously (DWORAKOWSKA, 1978) confessing that I can not understand author's way of thinking. I was right as I believed that the author accepts the established among systematists meaning of conceptions "congeneric" and "priority". More detailly, if *Empoascanara prima* DIST. was already designed as the type-species of the genus *Empoascanara* DIST. "on the basis of priority" all mentioned species (if they are really "congeneric") should be assigned to this genus. RAMAKRISHNAN & GHAURI have stated in their work that MAHMOOD's point of view is quite clear. If so, it could be expected that they will discuss also the systematic position of *Empoascanara binotata* DIST. The drawing of penis of *E. nagpurensis* (DIST.) given in my paper has been modified by RAMAKRISHNAN & GHAURI (their Fig. 7) without corresponding remark. As the result of modification of the drawing, gonoduct and gonopore have received the position which does not hold in nature. The beak-like structure considered by RAMAKRISHNAN & GHAURI as "aedeagal shaft" is only an atrial extension in *E. ethiopica* DWOR. and it is fused to a various degree with

very short penis stem in certain species of *E. nagpurensis* (DIST.) group (DWORAKOWSKA, 1978, 1980a). The same remark can concern also the statement of both authors "gonopore subapical" in *E. sonani* (MATS.) (*Pradhanasundra*) supported by fitting modification of the original drawing. *Pantanarendra* is distinguished owing to the features characteristic for *Empoascanara capreola* DWOR. with the same "correction" of penis structure as have been done for *E. nagpurensis* (DIST.) and *E. sonani* (MATS.). Paramere and basal part of penis of the holotype of *E. capreola* DWOR. are, maybe, mutilated. The mutilation can be recognized in unusual proportions of parts of paramere. It is quite possible that the species being closely related to *E. nagpurensis* (DIST.) has at least rudimentary extension in paramere and, maybe, also its manubrial process is bifurcated.

Kanguza DWORAKOWSKA, 1972, subgenus of *Empoascanara* DISTANT, 1918

Kanguza ibis has been recognized by me (DWORAKOWSKA, 1976) as having all generic features of *Empoascanara* DIST. with slightly other proportions of head and wings. In male genital apparatus the main difference in comparison with the nominate subgenus is setosity of subgenital plate slightly resembling that of *Motaga* DWOR. (DWORAKOWSKA, 1980a) and upper appendage at the pygophore strongly attached to the lobe or even partly fused.

Kanguza ibis DWOR. has been assigned to the genus *Empoascanara* DIST. with a subgeneric status, together with *E. (K.) bucephala* DWOR. showing all features mentioned above. The both species should be redescribed basing on new material against to the new information on the structure of male genital apparatus of *Empoascanara* DIST.

RAMAKRISHNAN & GHURI, without original studies, have decided to supplement the original recognition and one can read new description of the genus *Kanguza* DWOR. vivid and full of details. The most astonishing in this description (RAMAKRISHNAN & GHURI, 1979) is "a pair of dorsomesal processes [appendages at pygophore]" detected by the authors beside "acute triangular tooth" at the pygophore margin. At description of penis of this "monotypic" genus it is stated by both authors "wall of the shaft split into a pair of processes at the apex". In the original drawing (DWORAKOWSKA, 1972a), however, it is clearly visible that the lateral extensions seen in posterior view belong to upper part of atrial rim as commonly occurs in all other species of the genus *Empoascanara* DIST.

RAMAKRISHNAN & GHURI's decision of recognizing *Zygina serrata* SINGH and *Zygina simplices* SINGH (SINGH, 1968) as nomina nuda, quoting Art. 13(a)(I) of the International Code of Zoological Nomenclature, is quite unexpectable. Description of *Zygina serrata* sp. n. in SINGH's paper takes about one page of printed text and drawings additionally, and description of the second one is only a bit shorter. In both of them morphological features (external and genitalic) are given together with dimensions, locality and food plant. I suppose that it is quite enough as for "statement that purports to give characters differentiating the taxon".

None of the known species of *Zygina* FIEB. shows close specific similarity to the SINGH's species assigned to this genus. Thus his descriptions are as much differentiating as it was possible those times.

The above discuss exhibits the great difference in the principles assented to the study by RAMAKRISHNAN & GHURI in contrary to these which are practiced by systematists (e. g. YOUNG, 1952; ROSS, 1965; KNIGHT, 1968; REMANE & ASCHE, 1979). The arrangement 42 species known from the literature to the authors (RAMAKRISHNAN & GHURI,

RI, 1979) into 18 units of generic group (among which 15 are newly described) offers an inconsistent system concerning only a small part of the natural unit treated by the authors as a closed set. In numerous cases the descriptions by RAMAKRISHNAN & GHAURI are based on incorrect understanding of the analysed structures.

Reconsideration of my previous papers as well as studies of type material and new material of the species being type-species of genera described by RAMAKRISHNAN & GHAURI prompt me to reveal that all of these genera are the product of an exaggerated splitting.

As the classification by both authors (RAMAKRISHNAN & GHAURI, 1979) could cause more aggravation than elucidation to the problem and the proposed generic names have been published in full accordance with rules of the Code I feel to be obliged to submit the following synonyms:

***Empoascanara* DISTANT, 1918**

- Indoformosa* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Westindica* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Pantanarendra* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Swarajnara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Pradhanasundra* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Subbanara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Irenara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Manzoonara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Sohinara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Afroindica* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Sawainara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Ishiharanara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Sayara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Webbanara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*
- Vietnara* RAMAKRISHNAN et GHAURI, 1979 *syn. n.*

***Empoascanara dubiosa* nom. n.**

Empoascanara serrata AHMED, 1979 secondary homonym, nec *Zygina serrata* SINGH, 1969

Dr. AHMED was informed about the above homonymy before forwarding manuscript of his paper to the printing office. *Empoascanara dubiosa* nom. n. is so much similar to *E. tagabica* DWOR. et TROLLE that its separateness remains doubtful until revision of the holotype.

***Empoascanara circumscripta* (MATSUMURA, 1910) comb. n.**

Zygina circumscripta MATSUMURA, 1910

***Empoascanara kotoshonis* (MATSUMURA, 1940) comb. n.**

Zygina kotoshonis MATSUMURA, 1940

The two above new combinations are stated basing on the original descriptions only as their type-series were not found in MATSUMURA's collection at Sapporo. The relation of both these species to the others known in the genus *Empoascanara* DIST. remains, however, still unknown.

Up to now the genus *Empoascanara* DIST. comprises 75 units of species group (6 of them assigned to two other subgenera).

RAMAKRISHNAN & GHAURI have stated separateness of *Empoascanara thattaensis* (AHMED) along with *E. prima* DIST. but they have not decided to which of them belongs *Zygina minor* RAM. et MENON (RAMAKRISHNAN & MENON, 1974).

The external features of abdomen of female of *Empoascanara maculifrons* (MOTSCH.) are hardly distinctive in comparison with other species of the group (DWORAKOWSKA, 1978) but they are rather dissimilar against these of *E. indica* (DATTA). Colouration of specimens of these two species, when preserved some years, does not differ from each other. For the time being only these two species of *Empoascanara* DIST., having well defined blackish spot on vertex, are known from Ceylon. The record of *Empoascanara truncata* (AHMED) by RAMAKRISHNAN & GHAURI (as labelled by me "Empoascanara similima sp. n.") is an error only. Up to now *Empoascanara maculifrons* (MOTSCH.) is identified temporarily only, though with high probability. May be the drawings of the female holotype of *Typhlocyba maculifrons* MOTSCH. were performed by Dr. M. S. K. GHAURI during his visit to the quoted Zoological Museum in 1959.³⁾ Perhaps that time *Typhlocyba maculifrons* MOTSCH. has been recognized as congeneric with *Thamnotettix nigrobitimaculata* MOTSCH. and correspondingly labelled (DWORAKOWSKA, 1972a, p. 121; VILBASTE, 1975, p. 232). For the above reason the drawings published by RAMAKRISHNAN & GHAURI do not show any specific character of the species. Thus, specific identity of *E. maculifrons* figured by me (DWORAKOWSKA, 1972a) with the mentioned holotype will be confirmed only when sufficient faunistic studies of Ceylon will state that only one species of the *E. maculifrons* (MOTSCH.) group is living there.

Acknowledgements

I am grateful to Dr. M. MROCKOWSKI, member of the International Commission on Zoological Nomenclature, for his expert advice on the problem of interpretation of the Art. 13 of the Code.

References

- AHMED, M., 1979: Some genera and species of Typhlocybinae Leafhoppers from Uganda, East Africa. (Homoptera, Auchenorrhyncha, Cicadellidae). — Reichenbachia, Mus. Tierk. Dresden **17** (5), 25–41.
- DWORAKOWSKA, I., 1979a: On some Erythroneurini from Vietnam (Typhlocybinae, Cicadellidae). — Annot. Zool. Bot. Bratislava **131**, 1–50.
- , 1979b: Nine new species of Asiatic Erythroneurini (Auchenorrhyncha, Cicadellidae, Typhlocybinae). — Bull. Acad. Polon. Sci., Sér. Sci. Biol. **27**, 371–380.
- , 1980a: On some Typhlocybinae from India (Homoptera, Auchenorrhyncha, Cicadellidae). — Entom. Abh. Mus. Tierk. Dresden **43** (8), 151–201.
- , 1980b: On Some Species of the Genus *Empoascanara* Dist. (Homoptera, Auchenorrhyncha, Cicadellidae, Typhlocybinae). — Reichenbachia, Mus. Tierk. Dresden **18** (26), 173–188.
- KNIGHT, W. J., 1968: A revision of the Holarctic genus *Dikraneura* (Homoptera: Cicadellidae). — Bull. Brit. Mus. (Nat. Hist.), Ent. **21** (3), 99–201.
- MATSUMURA, S., 1910: Die schädlichen und nützlichen Insekten vom Zuckerrohr Formosas, 1–52 [1–86].

³⁾ A. ZHELOKHOVSEV (1903–1976) would be rather in difficulties to arrange the loan of this type-series in 1978.

- , 1940: Homopterous insects collected at Kotosho (Botel Tabago) Formosa by Mr. Tadao Kano. — *Insecta Matsumurana* **15**, 34–51.
- RAMAKRISHNAN, U., GHAURI, M. S. K., 1979: New genera of the *Empoascanara* complex (Homoptera, Cicadellidae, Typhlocybinae). — *Reichenbachia, Mus. Tierk. Dresden* **17** (24), 193–213.
- REMANE, R., ASCHE, M., 1979: Evolution und Speziation der Gattung *Cixius* Latreille 1804 (Homoptera, Auchenorrhyncha, Fulgoromorpha, Cixiidae) auf den Azorischen Inseln. — *Marburger Entom. Publ.* **1** (2), 1–264.
- ROSS, H. H., 1965: The phylogeny of the leafhopper genus *Erythroneura* (Hemiptera, Cicadellidae). — *Zool. Beitr. (N. F.)* **11**, 247–270.
- VILBASTE, J., 1975: On some species of Homoptera Cicadinea described by V. Motschulsky. — *Izv. Akad. Nauk Estonskoy SSR* **24** (3), 228–236.

Address of the author:

Dr. I. Dworakowska, 00-849 Warszawa, ul. Pereca 2 m. 1512; Poland

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Reichenbachia](#)

Jahr/Year: 1980

Band/Volume: [18](#)

Autor(en)/Author(s): Dworakowska Irena

Artikel/Article: [Contribution to the Taxonomy of the Genus Emboascanara
DIST. \(Homoptera, Auchenorrhyncha, Cicadellidae, Typhlocybinae\) 189-197](#)