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Distribution pattern of *Diachlorini* s. str. (Diptera: Tabanidae)¹

Abstract. *Diachlorini* s. str. have a disjunctive distribution in the world, their occurrence being limited to 4 centres: American, Mediterranean, South African and Oriental-Australian. Speciation and dispersal centres are only found in tropical areas in South America and New Guinea. *Diachlorini* s. str. do not occur on the Asian continent, except for the Indian Peninsula (belonging to the Oriental Region) and a small stretch of the eastern coast of the Caspian Sea (belonging to the Mediterranean region). Relationships between the taxa of individual regions are discussed.

Key words: *Diptera*, *Tabanidae*, *Diachlorini*, distribution, relationships, world.

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INTRODUCTION

A new division of the subfamily *Tabaninae* into tribes (TROJAN 1994, 1997) has made it possible to study the distribution pattern of *Diachlorini* s. str. and *Lepidoselagini* independently. Up till now interpretations of the distribution have been based on combined data on the occurrence of both these taxa (MACKERRAS 1954). At present, however, this approach cannot be utilised in either zoogeographical or evolution-related analyses. In my paper on the distribution of *Lepidoselagini* in the Northern Hemisphere (TROJAN 1996) I have demonstrated that, contrary to earlier assumptions, this tribe does not have a Gondwanan distribution. There are numerous representatives of plesiomorphic *Lepidoselagini* in the Holarctic and their distribution suggests that the area of Laurasia was once inhabited by diverse forms belonging to this tribe.

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The aim of the present paper is to determine the pattern of distribution of *Diachlorini* s. str. in accordance with a new interpretation of the taxonomic content of this tribe and then to specify which areas occupied by them function as centres for evolutionary radiation and dispersal of this group and which are only repositories for relic forms. Input material for this paper comes mostly from faunal catalogues of the family *Tabanidae*. At present these catalogues contain information on all zoogeographical land regions. The data have been supplemented with information from latest monographic papers on *Diachlorini* and numerous faunistical papers published later. Information about these is given while discussing the distribution of the tribe in individual regions.

DISTRIBUTION OF *DIACHLORINI* S. STR. IN THE NEW WORLD

4 genera of *Diachlorini* s. str. are found in both Americas (Tab. I), with only 8 species in North America (PHILIP 1965, 1966). The American species occupy a relatively continuous area whose northern border is a line crossing southern California, Utah, Kansas and Missouri to New Jersey and New York. The northernmost species is *Leucotabanus annulatus* (SAY.), while *Stenotabanus guttulatus* (TOWNS.) reaches furthest west. The other species are found in states bordering on the Gulf of Mexico, and from Florida northwards along the Atlantic coast to New Jersey. This area is considerably diversified in terms of habitat and vegetation, with deserts, semi-deserts, hard-leaved plants, steppe vegetation, wintergreen and deciduous forests. Thus, the occurrence of *Diachlorini* s. str. in the Nearctic does not depend on the vegetation

As for climate, the entire area occupied by *Diachlorini* s. str. in North America is situated within a zone characterized by temperatures higher than +20°C in July and 0°C in January. It belongs to 2 provinces: the Deciduan and Sonoran provinces, as distinguished by HAGMEIER & STULTS (1964) on the basis of studies on the distribution of mammals. The northern border of the former province lies just to the north of the southern limit of maximum glacier advance. In the Pleistocene, too, there were greater opportunities for South American species spreading to the North through the Isthmus of Panama and through the archipelagos of the Caribbean Sea than now.

Table I. Numbers of species of the tribe *Diachlorini* s. str. occurring in both Nearctic (Na) and Neotropical (Nt) Regions.

No	Genus	Na	Nt
1	<i>Chlorotabanus</i> LUTZ	1	6
2	<i>Diachlorus</i> O.-S.*	1	27
3	<i>Leucotabanus</i> LUTZ	2	16
4	<i>Stenotabanus</i> LUTZ**	4	59

**Diachlorus ferrugatus* (Fabr.) occurs in both Americas

** not including *Aegialomyia* Phil. and the subgenera restricted to South America.

In South America 108 species belonging to these 4 genera have been registered (FAIRCHILD & BURGER 1994). Their ranges are generally restricted to the northern part of the continent: they reach its northern coasts and occupy the Caribbean archipelagos from Trinidad to the Bahamas. The Andes mark the eastern border, while in the south they do not go beyond a line running from Santa Catarina in Brazil to Chaco and Salta in Argentina (Fig. 1). Most of the area belongs to the tropical and subtropical forest zones, being more botanically homogeneous than the North American realm of *Diachlorini*. It is situated in the tropical rain belt with +25°C temperatures in January and +15°C in July, a zone warmer than the North American realm.



Fig. 1. Distribution of four genera of *Diachlorini* s. str. common to both Americas. Points outside the continuous area represent sites of *Stenotabanus* s. str., whose distribution transcends the tropical and subtropical forest zone in South America and the ranges of the other genera listed in Table I.

The Neotropical region is an area where *Diachlorini* s. str. are diversified the most in comparison to other biogeographical regions. The degree of diversification was recently described and illustrated by COSCARON & PAPAVERO (1993), while FAIRCHILD & BURGER (1994) have provided a catalogue of species. It is beyond doubt that the evolutionary radiation of the genera *Chlorotabanus* LUTZ, *Diachlorus* O.-S., *Leucotabanus* LUTZ and *Stenotabanus* LUTZ originated in the tropical areas in South America, wherefrom they invaded North America. This is certainly a recent event in the history of the New World since the two continents have been united by the Isthmus of Panama only since the Pliocene, and Amazonia „was a large inland sea during pluvial periods“ both then and in the Pleistocene (RATCLIFFE 1984). The sea formed a vast barrier that separated islands corresponding to the contemporary uplands of Guyana and eastern Brazil. In the Pleistocene, species could colonize the southern part of North America both through the Isthmus of Panama and the Caribbean archipelagos, as indicated by the species found there. The latter route had also been used earlier, as shown by fossils of representatives of *Stenotabanus* LUTZ, the evolutionarily earliest genus of *Diachlorini* s. str. These are *S. brodzinskyi* LANE, POINAR & FAIRCH. and *S. woodruffi* FAIRCH. & LANE found in Saint Dominique and dating back to late Eocene-early Miocene (20-40 million years ago).

When investigating the occurrence of *Lepidoselagini* and *Diachlorini* in North America, it is important to note that the former includes old relic forms more closely related to the representatives of this tribe in the Palaearctic (TROJAN 1996) than to species occupying the South American centre situated in the cool and temperate climate zone. On the other hand, *Diachlorini* s. str. are newcomers from a recently formed evolution and development centre in the north of the South American continent which assumed its present form in the Pleistocene and Holocene. Thus, there are grounds for stating that in both Americas there is only one centre of the evolution and dispersal of *Diachlorini* s. str., situated in South America, while their occupation in the south of North America is the result of their spread from the tropical and subtropical areas in South America in the Pleistocene and Holocene.

DISTRIBUTION OF *DIACHLORINI* S. STR. IN THE PALAEARCTIC

Only two genera of the tribe *Diachlorini* s. str. are found in the Palaearctic region (Fig. 2). Their morphologies are widely dissimilar and their species, let alone a few exceptions, are readily distinguishable from one another. The first genus, *Philipomyia* OLS., is represented by 3 taxa occupying mostly southern Europe. Therefrom, *P. aprica* (MEIG.) spreads northwards along the Rhine Valley to Luxembourg and from the Balkan Peninsula to the Carpathians and southern Germany. Another species, *P. graeca* (F.) is more closely associated with the Mediterranean zone, while the third one, *P. rohdendorfi* (OLS.), is a montane species inhabiting the Caucasus. The occurrence of species of *Philipomyia* (OLS.) in the southern coast of Turkey indicates that the Black

Sea straits do not constitute a significant zoogeographical barrier to *Tabanidae*. The other genus, *Dasyramphus* End., is represented in the Palaearctic by 11 species occupying the coasts of the Mediterranean, usually non-communicating areas. Only the range of *Dasyramphus umbrinus* (MEIG.) extends beyond the Mediterranean zone, along the southern coast of the Black Sea through the Caucasus and even beyond the Caspian Sea (OLSUFJEV 1977). Detailed maps of the distribution of species have been provided by LECLERQ (1966) in his monograph on the *Tabaninae* of the Palaearctic. These materials and later papers by this and other authors have formed the basis for this analysis.

The distribution of *Diachlorini* s. str. in the Palaearctic (Fig. 2) follows a simple pattern: the taxa are associated with the Mediterranean zone. Species of the genus *Dasyramphus* End. are almost exclusively found in areas with evergreen, hard-leaved bushes and forests. This genus has no morphological

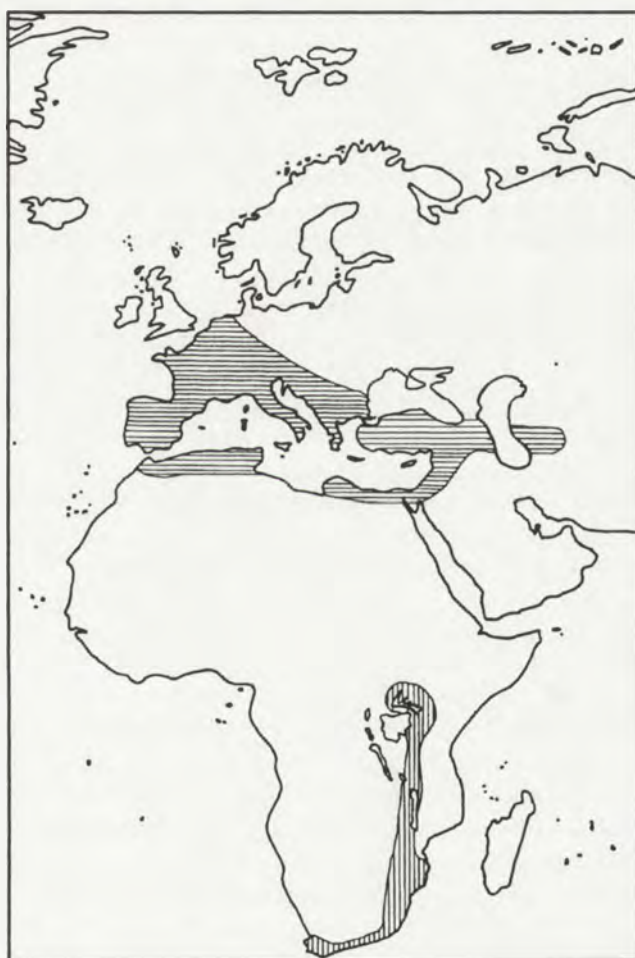


Fig. 2. Distribution of *Diachlorini* s. str. in the Palaearctic and Afrotropical regions

counterparts either in the temperate zone of Eurasia or in Africa south of the Sahara. Even the Oriental forms of the tribe *Diachlorini* s. str. bear no morphological resemblance to the Mediterranean species. Thus, it should be assumed that the *Diachlorini* s. str. of the Palaearctic are a long-isolated group of old ante-Pleistocene forms that formed in the area of Europe during warm periods in the Tertiary. In the Pleistocene they were forced into the Mediterranean zone, where the climate was warm even during maximum glaciation (SCHWARZBACH 1961). They remained in this zone owing to a considerable cooling of the climate in Central and Northern Europe in the Holocene.

DISTRIBUTION OF *DIACHLORINI* S. STR. IN SOUTHERN AFRICA

The Afrotropical region accommodates 19 species of *Diachlorini* s. str. belonging to two genera. The systematic status of these species has changed recently. I will discuss this issue while describing the *Diachlorini* s. str. of the Oriental and Australian regions. The first Afrotropical genus, *Tabanotelum* OLDR., contains only two specialised species inhabiting the island of Mauritius. The other genus, *Amanella* OLDR. (Fig. 2) consists of 17 species occupying a belt stretching from the Cape of Good Hope along the southeastern coast to Transvaal and further north through Rhodesia, Malawi and Tanzania to Kenya and Uganda (CHANEY & OLDROYD 1980). In the South African Republic there are 13 species (USHER 1972). Seven of these are associated with a temperate and Mediterranean climate. The number of species diminishes with increasing distance from the coast and with the climate changing first to subtropical and then to tropical further north. *Amanella amblychroma* (SPEISER) of Kenya and Tanzania is associated with mountain tropical forests (OLDROYD 1954) while *A. cooksoni* USHER and *A. grayi* OLDR. are savanna species. The entire range of the genus *Amanella* OLDR. in Africa belongs to a zone described by OLDROYD (1954: 33) as „low tree savanna and deciduous woodland”, only the southernmost limit of this area is Mediterranean, both in terms of climate and vegetation.

The tribe *Lepidoselagini* is represented by three taxa in the Afrotropical region. The first, *Atelozella* End., embraces two species occurring in the mountains on the northern bank of Lake Nyasa (OLDROYD 1957). The area has been described as an important centre of endemism in Africa (KORNAŠ & MEDWECKA-KORNAŠ 1986). In the 8-species-strong genus *Limata* OLDR., 6 species occur in a narrow coastal belt east of the Cape of Good Hope in a Mediterranean and temperate climate, with only two species' ranges extending beyond this zone: *L. kuhneli* USHER is seen in the deserts of Namibia (USHER 1972) while *L. seyrigi* (SEGUY) is a South African relict in Madagascar. All three species of *Neavella* OLDR. are associated with Africa's eastern coast, occurring from the Somali Peninsula to Mozambique and the neighbouring islands. A map of the distribution of this genus was supplied by OLDROYD (1954: 58).

An analysis of similarity between the representatives of *Diachlorini* s. str. of the Palaearctic and Afrotropical regions performed using the Tytan 87 software package shows that *Tabanotelum* OLDR. is morphologically closer to the Mediterranean *Dasyramphis* END. than to Afrotropical *Amanella* OLDR. *Amanella* OLDR. is more closely related to the Palaearctic *Philipomyia* OLS. than to the Mediterranean *Dasyramphis* END. Dissimilarity between the four taxa ranges from 0.62 to 0.80; it is therefore more appropriate to say that they have a high degree of dissimilarity. The figures for the individual regions are higher, at 0.80, than differences between pairs of genera in various regions, which range from 0.6 to 0.75. Such a high degree of morphological dissimilarity between the four genera is indicative of absence of links between the *Diachlorini* s. str. of the Palaearctic and Afrotropical regions, both nowadays and in the past. There are more barriers between them than the Sahara, at present as well as in the past; there are also the dry savanna and tropical rainforests. Species belonging to these taxa are not expansive. There is a corridor running along the Nile that species of the genus *Tabanus* L. can use to cross the border between the two regions in both directions. However, no representative of *Diachlorini* s. str. has been found in the corridor so far though its representatives occur at both ends of it.

DISTRIBUTION OF *DIACHLORINI* S. STR. IN THE ORIENTAL, AUSTRALIAN AND OCEANIAN REGIONS

The distribution range of *Diachlorini* s. str. in the regions under discussion includes Indian Peninsula, insular Orient to the Philippines and Pacific archipelagos (Fig. 3).

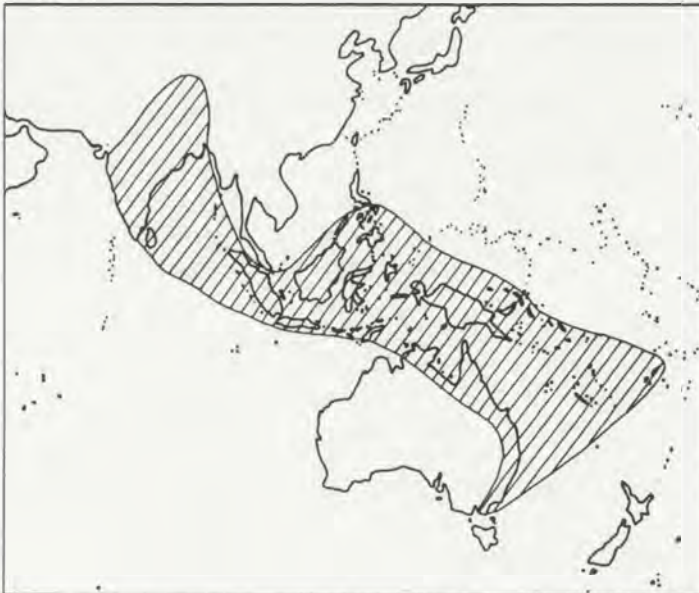


Fig. 3. The distribution of *Diachlorini* s. str. in Oriental, Australian and Oceanian regions.

In the Oriental Region there is little diversification of *Diachlorini* s. str. According to a catalogue by STONE (1975) and subsequent publications, the region accommodates representatives of 3 genera and 22 registered species (Tab. II).

Table II. Distribution of *Diachlorini* s.str. in the Oriental Region.

Genus	Species number	India	Nepal Sikkim	Ceylon	Sumatra	Java	Celebes	Philippines
<i>Cydistomyia</i> TAYL.*	17	7	1	-	1	1	1	6
<i>Lissimas</i> END.	4	-	1	-	-	-	2	1
<i>Udenocera</i> RIC.	1	-	-	1	-	-	-	-
Total	22	7	2	1	1	1	3	7

*Including the species of the genus *Tabanotelum* OLDOR.

Even if we assume that the *Diachlorini* s. str. of the Oriental Region have been poorly studied, diversification of this tribe both on the genus and on the species level is conspicuously low. The genera *Tabanus* L. (*Tabanini*) and *Haematopota* MEIG. (*Haematopotini*) are much richer in species numbers (STONE 1975, STONE & PHILIP 1980).

In the Australian region, *Diachlorini* s. str. are much more diversified than in the Oriental region with almost twice as many genera and six times as many species (DANIELS 1989, TROJAN 1991, BURGER 1995), as shown by an updated table (Tab. III). The greatest diversification of *Diachlorini* s. str. is observed in New Guinea (MACKERRAS 1964, 1971; DANIELS 1989) with the number of registered species exceeding three times the total number of species found in the Oriental region. On the island are found representatives of all genera known from Australia and Oceania. The second locality in terms of the number of species is New Caledonia with representatives of only two genera (TROJAN 1991, BURGER 1995), while the third place is occupied by Australia.

The three areas with the most diversified *Diachlorini* s. str. fauna in the Australian region and Oceania differ in their significance for understanding the diversification of this tribe. What, however, needs to be explained is the status of a group of supraspecific taxa associated with the genus *Cydistomyia* TAYL., especially as their taxonomic ranges postulated by various authors considerably influenced the interpretation of the zoogeography and evolution of this tribe.

Taxonomic studies of the Afrotropical region (OLDROYD 1954) and the Oriental and Australian regions (MACKERRAS 1962, 1971) used different systems of supraspecific taxa of *Diachlorini* s. l. After the systems were combined (CHANEY & OLDROYD 1980) and the priority designation of *Cidystomyia* TAYL. was used in the naming of the African taxa, all representatives of *Diachlorini* s. str. (with narrow parafacial plates) were classified under one genus. Similar tendencies were also seen in the taxonomy of Oriental, Australian and Oceanian genera (MACKERRAS 1964). It seems that the issue still has not been clarified. For the sake of comparative

analysis, Oldroyd's system (1954) is used for the Afrotropical region while a slightly modified version of MACKERRAS' system (1971) is used for the Australian region.

Table III. Distribution of *Diachlorini* s. str. in Australian and Oceanian Regions

Genus	Species number	NG	Mal	Bis.	Sol.	Australia				NC	Fiji
						NT	Qld	NSW	Vic		
<i>Cydistomyia</i> Tayl.	82	35	2	4	6	1	20	12	1	20	3
<i>Chalybosoma</i> Oldr.	3	3	-	-	-	-	-	-	-	-	-
<i>Chasmia</i> End. and <i>Chasmiella</i> End.	25	16	-	-	2	-	-	-	-	7	-
<i>Lissimas</i> End.	5	3	1	-	-	-	1	-	-	-	-
<i>Japenoides</i> Oldr.	6	3	-	2	1	-	-	-	-	-	-
<i>Neobolbodimyia</i> Ric.	1	1	1	-	-	-	-	-	-	-	-
Total	122	61	4	6	9	1	21	12	1	27	3

Explanation of abbreviations: Bis.- Bismarck Archipelago, Mal. - Maluku Archipelago, NC - New Caledonia, NG - New Guinea, NSW - New South Wales, NT - Northern Territory, Qld - Queensland, Sol. - Solomon I., Vic - Victoria.

Diachlorini s. str. of Australia belong, with one exception, to the genus *Cydistomyia* Tayl., their range being restricted to eastern Australia, where they are distributed in a belt from the York Peninsula along the eastern coast to the state of Victoria. The number of species decreases from the north to the south (Tab III): from 20 in Queensland, through 12 in new South Wales to only one in the southernmost state of Victoria. Species diversity of *Cydistomyia* Tayl. is markedly influenced by vegetation, being the highest in the tropical forest zone (New Guinea) and still relatively high in Queensland, where large areas of tropical forests are found north of the Tropic of Capricorn along the eastern coast. The number of species considerably falls south of the Tropic, where there are only subtropical forests.

The interpretation of the species diversity of *Diachlorini* s. str. in the various parts of the Oriental and Australian regions and in Oceania remains a subject of heated discussion (MACKERRAS 1961, 1971; TROJAN 1991; BURGER 1995). The controversy pertains to the validity of two hypotheses: the monocentric concept and the polycentric concept (TROJAN 1996).

The monocentric hypothesis links the evolution of the tribe in the Orient, Australia and Oceania to the Afrotropical region. It was corroborated by the finding in Nepal, India, Ceylon, Maluku, Timor and New Caledonia of representatives of the genus *Philoliche* WIED. belonging to the plesiomorphic subfamily *Pangoniinae* (Diptera, *Tabanidae*). These large stout horse-flies with a strongly elongated proboscis and an open life style have always attracted researchers' attention. This genus is now most diversified in the Afrotropical region (OLDROYD 1957, CHAINEY & OLDROYD 1980). Consequently, other taxa were also thought to have been associated with the South African centre. This tendency is most evident in a scheme for the evolution of *Diachlorini* s. l.

presented by MACKERRAS (1971: 407, Fig. 1), who derived all the genera of that tribe from a *Tabanotelum*-like ancestral form described earlier (MACKERRAS 1964). Two representatives of the genus *Tabanotelum* OLDR. occur nowadays on Mauritius and another two have been discovered by MACKERRAS (1962) in the southern part of the Indian Peninsula. MACKERRAS uses this taxon to derive subsequent branches of the genealogical tree, of the Oriental, Papuan, Papuan-Pacific and Austromalayan-Pacific subregions.

There are a number of arguments now to challenge that hypothesis. First, the *Tabanotelum*-like form is poorly established as the ancestor of contemporary *Diachlorini* s. str. Species belonging to this genus and found nowadays in Mauritius are highly specialised forms. Their characters, such as a very narrow frons and elongated fore legs, are exceptional among *Tabanidae* and seen mostly in tropical forms. Secondly, the two Indian species of *Cydistomyia* (*Tabanotelum*) (MACKERRAS 1962) are apparently much closer to the Afrotropical genus *Amanella* OLDR., with their broad frons and rudimental ocelli, than to *Tabanotelum* OLDR. str. mentioned above. Thirdly, *Diachlorini* s. str. are not much diversified in the Indian Peninsula. Thus, the area can hardly be considered a dispersal centre. The absence of *Diachlorini* s. str. from the Malay and Indochina Peninsula, and Borneo, and the finding of single species in Sumatra and Yawa should be more properly termed faunal poverty in the Insular Orient. It must be remembered that in an comprehensive monography of the Indonesian *Tabanidae* (SCHUURMANS 1926), based on a large-sized material there were few examples of *Diachlorini* s. str. The occurrence of *Philoliche* WIED. in the Afrotropical, Oriental, Australian and Oceanian regions is only indicative of the age of this genus, which may be considered to have formed in the Jurassic, when the Gondwanaland continental platform was not divided yet. The Indian species linked with *Tabanotelum* OLDR. by MACKERRAS (1962) might have derived from Afrotropical *Diachlorini* s. str. that came here together with the Indian Peninsula 52 Myr b.p. (POWELL & al. 1985). BARRON & al. (1981) date this event to less than 40 Myr b.p. Thus, the difference between the spread of *Philoliche* WIED. and *Amanella* OLDR. into the Gondwanaland is 100 Myr or more. The two events took place in different epochs, under different arrangement of continental platforms and different climatic conditions.

The polycentric hypothesis (TROJAN 1996) postulates the existence of a number of radiation and expansion centres for *Diachlorini* s. str. The ancestors of this tribe may be sought not only among *Amanella*-like or *Tabanotelum*-like Afrotropical forms, but also among Australian *Lepidoselagini*, particularly forms similar to the morphologically diversified genus *Cydistomorpha* Troj. Nowadays, New Guinea is the largest radiation centre for this group, the island having been linked by vast land-bridges both to Australia and the surrounding archipelagos in the Pleistocene (THENIUS 1972). From there the species of *Cydistomyia* TAYL. probably colonised islands in both oceans, as far as the Philippines and New Caledonia. The relationships between the species require further study due to lack of phyletic

homogeneity between groups of species in this taxon. That *Cydistomyia* Tayl. is an old taxon in the Australian Region is evidenced by the affinity of its New Caledonian species not only to New Guinean forms, but, partially, to those occurring in New South Wales as well (MACKERRAS 1961). The relationships between representatives of the subfamily *Tabaninae* in south-east Australia, New Zealand and New Caledonia were subsequently confirmed using the continental drift hypothesis, with later studies by NUR & BEN AVRAHAM (1977) and KAMP (1980), not known to MACKERRAS, showing that until the end of the Jurassic the three parts of the continent of Gondwana were connected. Representatives of *Lepidoselagini* and *Diachlorini* that inhabited these lands at that time have been changed in the course of evolution but the body structure of their contemporary representatives has retained a number of characters suggesting common ancestors. This interpretation (TROJAN 1991) was compatible with the current understanding of paleogeographical data. This concept was then presented in a paper on the *Tabanidae* of new Caledonia (BURGER 1995: 2). However, no reference to my name was made.

CONCLUDING COMMENTS

Analysis of the distribution of *Diachlorini* s. str. in land regions indicates the presence of four isolated distribution centres of this tribe. The first and most diversified one is situated in tropical areas of South America. It is also a basis for the expansion of species into North America. The second centre, situated within the Mediterranean basin and showing little diversification, has only contributed to the expansion of one species into Western and Central Europe. The third centre, in the south of Africa, little diversified and occupying a small area, may have allowed expansion to the south-east with the drifting Indian Peninsula. Other *Tabanidae* species also followed this route, including the little-known typical African species of *Parancala kibic* TROJAN (1976), which stopped on its way from Africa to Asia to live on Nias Island in Western Indonesia. The fourth evolutionary centre of *Diachlorini* s. str. is situated in New Guinea. Its taxa are related to Australian *Lepidoselagini* through the genus *Cydistomorpha* TROJ. This centre is considerably diversified both on the genus and species levels and also serves as the starting point for the expansion of *Diachlorini* s. str. into Australia and the adjoining archipelagos.

The most striking feature of the distribution pattern of *Diachlorini* s. str. is the absence of representatives of this tribe from vast areas of Asia. In Europe *Diachlorini*, outside the Mediterranean basin, are newcomers from the postglacial era and so is the case with North America, where South American forms have settled. At the same time it is not appropriate to treat this distribution as a Gondwanaland type because two of the centres (New Guinea and South America) are associated with the tropical zone and the two other centres - in Africa and the Mediterranean region - with savanna and macchia

respectively. These might be secondary radiation centres but this question is still far from being solved.

To conclude these considerations, I should like to mention that an analysis of morphological dissimilarity of the supraspecific taxa of *Diachlorini* s. str. of the Palaearctic, Afrotropical, Oriental and Australian regions has also been carried out using the Tytan 87 software package. The analysis showed morphological affinity between the genera that crosses all geographical barriers, whether contemporary or past. At the same time the undoubtedly related taxa of *Chasmia* END. and *Chasmiella* END. from New Guinea were considered considerably distant. It only shows that the diversification of forms in distant regions ran a similar course.

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STRESZCZENIE

[Tytuł: Charakter rozmieszczenia *Diachlorini* s. str. (*Diptera*: *Tabanidae*)

Rozmieszczenie *Diachlorini* s. str. na świecie ma charakter dysjunktywny. Występowanie tego plemienia jest ograniczone do czterech izolowanych od siebie obszarów: pierwszy wspólny dla obu Ameryk, drugi medyteranejski, trzeci południowoafrykański i czwarty obejmujący regiony Orientalny, Australijski i Oceanii. W Ameryce centrum zróżnicowania i dyspersji gatunków znajduje się w tropikalnym regionie Ameryki Południowej. Ameryka Północna została zasiedlona przez *Diachlorini* s. str. w okresie Plejstocenu i po ustąpieniu lodowca. W Europie na północ od Regionu Medyteranejskiego występuje tylko jeden gatunek z tego plemienia. W Afryce Południowej znajduje się niewielkie centrum *Diachlorini* s. str. związane z formacjami macchii i sawanny. Podobieństwo morfologiczne przedstawicieli afrykańskich i Półwyspu Indyjskiego oraz dane o występowaniu innych przedstawicieli *Tabanidae* wskazują na możliwość ich migracji wraz z dryftem płyty półwyspu do kontynentu Azji. Największe zróżnicowanie plemienia w regionach Orientalnym i Australijskim ma miejsce na Nowej Gwinei, która może być uznana również za centrum dyspersji przedstawicieli tego plemienia na obszar wschodniej Australii oraz wysp oceanów Indyjskiego i Pacyfiku. Cechą charakterystyczną rozmieszczenia *Diachlorini* s. str. jest brak ich przedstawicieli w większości podregionów Holarktyki. Wskazuje to na ich związek z Gondwaną. Jednak współczesne rozmieszczenie plemienia jest związane ze strefą tropikalną i medyteranejską.