

# The Horse-Flies from Saudi Arabia Distribution and zoogeography (Diptera: Tabanidae)

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## Abstract

Twenty two species of horses-flies are now recorded from Saudi Arabia. We give the checklist and for each species, the widespread distribution with comments on the zoogeography of a such particular fauna.

## Introduction

Little is known about the occurrence and the distribution of Tabanidae from Saudi Arabia. A previous list of the species given by LECLERCQ (1982) is probably the only satisfactory report up to date. After, new research were published by LECLERCQ (1986), AMOUDI & LECLERCQ (1988) and AMOUDI (1989).

The opportunity is taken here to summarize present knowledge concerning the cartography of the all twenty two Saudi Arabian species with references to their geographical distribution in other countries.

Like other blood sucking flies, the horse-flies have medical, veterinary and economic importance. The females only, bite wild and domestic animals and man. Several damages have been established:

- loss of milk and weight production in areas where they are common, disturbing the cattle,
- toxic effect by secretions from the salivary glands introduced into wound with also the possibility of further infection or myiasis,
- mechanical or cyclical vectors of various diseases (Viruses, Bacteria, Protozoa, Spiroplasmas, Helminths).

Three recent studies have underscored the problems of the horse-flies as vectors of pathogens:

- FOIL, L.D., 1989. - Tabanids as vectors of diseases agents. *Parasitology Today*, 5: 88-96.

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- LE GOFF, F., HUMPHERY-SMITH, I., LECLERCQ, M. & CHASTEL, C., 1991. - Spiroplasmas from European Tabanidae. *Medical and Veterinary Entomology*, 5: 143-144.
- DOBY, J.M., BIGAIGNON, G., LECLERCQ, M., LAMBERT, M.C. & COSTIL, C., 1991 - *Borrelia burgdorferi*, agent de la borréliose de Lyme et Tabanidae et Muscidae Stomoxiinae. Recherche négative chez plus de 200 diptères en Bretagne. *Bulletin de la Société Française de Parasitologie*, 9: 119-132.

The horse-flies are considered to be among the Dipteran pests of man and animals worldwide, but they are not yet sufficiently studied. The entire spectrum of research is always: faunistic and distribution of the species, mechanical and cyclical transmission of diseases both from the point of view of general factors affecting transmission dynamics, as well of specific examination of candidate agents from viruses to filaria.

It is therefore interesting to investigate the fauna of Tabanids from the East mediterranean area, the Middle East and the Arabian peninsula. We have also quoted here the principal references for the region: Turkey: KILIC, 1990; LECLERCQ, 1966, 1967 a et b; OLSUFJEV, 1971; PARVU & GIRAY, 1984; SCHACHT, 1983, 1984, 1985 et 1987; TIMMER, 1984 - Iran: ABBASSIAN-LINTZEN, 1964; JEZEK, 1980 - Afganistan: MOUCHA & CHVALA, 1968 - Syria: LECLERCQ, 1961; SURCOUF, 1926 - Iraq: LECLERCQ, 1963 et 1986 - Palestine, Israel: PHILIP, 1952; THEODOR, 1965 - Jordan: SALIBA, 1977 - Saudi Arabia: AMOUDI, 1989; AMOUDI & LECLERCQ, 1988; LECLERCQ, 1982 et 1986 with special references for tsetse flies (Glossinidae): ELSEN *et al.*, 1990 et 1991. For the widespread distribution of the species, we give the general references: in the world: MOUCHA, 1976 - Palearctic: CHVALA, 1988; LECLERCQ, 1960; LECLERCQ & OLSUFJEV, 1981 - Europe: CHVALA *et al.*, 1972 - U.R.S.S.: OLSUFJEV, 1977 - Afrotropical: CHAINEY & OLDROYD, 1980.

## Checklist of Tabanidae from Saudi Arabia

### Pangoniinae: Philolichini

1. Philoliche (*Dorcaloemus*) *auricomus* (AUSTEN, 1911) Carte 5  
New record by AMOUDI: Gizan valley (southwest Saudi Arabia), 15.IV.1984.  
Zaire, Tanzania, Saudi Arabia.
2. Philoliche (*Philoliche*) *magrettii* (BEZZI, 1901) Carte 5  
New record by AMOUDI: Gizan valley (southwest Saudi Arabia), 15.IV.1984.  
Guinea-Bissau, Nigeria, Mozambique, Tanzania, Kenya, Sudan, Ethiopia, Eritrea, Somali, Saudi Arabia.

### Tabaninae: Tabanini

3. *Ancala latipes* (MACQUART, 1838) (AMOUDI, 1989) Carte 6  
Senegal, from Senegal-Guinea to Sudan, Saudi Arabia.
4. *Atylotus agrestis* (WIEDEMANN, 1828) (AMOUDI, 1989) Carte 5  
Widespread in Afrotropical Region, outside of Congo basin-West african forest areas, North Chad, Madagascar, Mauritius, Reunion; Portugal, Spain, Morocco, Libya, Egypt; South Yemen, Saudi Arabia, Iraq, Iran; Oriental Region.

5. *Atylotus farinosus* (SZILADY, 1915) (LECLERCQ, 1982) Carte 5  
North Africa: Algeria, Egypt; Palestine, Israel, Syria, Iraq, Saudi Arabia.
6. *Atylotus pallescens* (WALKER, 1871) (LECLERCQ, 1982) Carte 2  
Saudi Arabia only.
7. *Tabanus albifascies* LOEW, 1856 (LECLERCQ, 1982) Cartes 1 et 4  
Algeria, Libya, Egypt; Palestine, Israel, Syria, Iraq, Saudi Arabia.
8. *Tabanus arabicus* MACQUART, 1839 (LECLERCQ, 1982) Carte 1  
Turkey, Iraq, Saudi Arabia.
9. *Tabanus biguttatus* WIEDEMANN, 1830 (LECLERCQ, 1982) Carte 4  
South Africa, throughout Afrotropical Region excluding Congo basin; South Yemen, Saudi Arabia.
10. *Tabanus camelarius* AUSTEN, 1911 (LECLERCQ, 1986) Carte 4  
Sudan; Saudi Arabia.
11. *Tabanus cordiger* MEIGEN, 1820 (18) (LECLERCQ, 1986) Cartes 1 et 4  
All parts of Europe; Turkey, Iran, Saudi Arabia.
12. *Tabanus fumidus* AUSTEN, 1923 (LECLERCQ, 1982) Carte 1  
Soviet Union, Afghanistan, Iran, Iraq, Saudi Arabia.
13. *Tabanus leleani turkestanicus* OLSUFJEV, 1970 (LECLERCQ, 1982) Carte 1  
Soviet Union, Iran, Iraq, Saudi Arabia.
14. *Tabanus leucostomus* LOEW, 1858 (LECLERCQ, 1986) Carte 3  
Namibia, widespread eastern Africa, north-east Africa, southern Africa, Cameroun, Northern Nigeria, Ethiopia, Saudi Arabia, Oman.
15. *Tabanus mordax* AUSTEN, 1911 (LECLERCQ, 1986) Carte 3  
Sudan, Chad, Kenya, Somalia, Egypt, Saudi Arabia  
*Tabanus mordax bouroumandi* JESEK, 1981  
Iran only.
16. *Tabanus riyadhae* (AMOUDI & LECLERCQ, 1988) Carte 1  
Saudi Arabia only.
17. *Tabanus sabuletorum* LOEW, 1874 (LECLERCQ, 1982) Carte 1  
Romania, Soviet Union, Mongolia, China, Iran, Saudi Arabia.
18. *Tabanus sufis* JAENNICKÉ, 1867 (LECLERCQ, 1982) Carte 3  
Sudan, trans-southern Sahara and fringes from Mauritania trough northern Nigeria, Chad to Sudan, Tanzania, northern Kenya, mid-Saharan oases, Ethiopia; Egypt, Palestine, Israel, Iraq, Iran, Saudi Arabia; India.
19. *Tabanus taeniola* PALISOT de BEAUVOIS, 1806 (AMOUDI, 1989) Carte 3  
Nigeria, almost entire Afrotropical Region (including Aldabrax et Madagascar) but mainly riverine in Congo basin-Egypt; Saudi Arabia.
20. *Tabanus unifasciatus* LOEW, 1858 (LECLERCQ, 1986) Carte 3  
Europe, Egypt, Turkey, Syria, Palestine, Israel, Iran, Saudi Arabia.

**Tabaninae: Haematopotini**

21. *Haematopota abyssinica* SURCOUF, 1908 (AMOUDI, 1989) Carte 6  
Nigeria, Malawi, Upper Volta, Zaire, Rhodesia, Tanzania, Kenya, Ouganda, Sudan, Ethiopia; southern parts of Saudi Arabia.
22. *Haematopota coronata* AUSTEN, 1908 (LECLERCQ, 1982 et 1986) Cartes 2 et 6  
Sudan, Ethiopia, Somalia, Yemen, Saudi Arabia, Palestine, Israel.

**Discussion**

Saudi Arabia is located between 12°-30° N latitudes and 35°-65° E longitudes and encompasses approximately 2.24 million km<sup>2</sup>. It lies between the Afrotropical, Palearctic and Oriental Regions. The southern part of it, below the Tropic of Cancer, is included in the Afrotropical Region and the northern part in the Palearctic, while the eastern part in the Oriental, Zoogeographical regions.

The present knowledge on the tabanids fauna is: twenty two species represented by: 2 Pangoniinae of the tribe *Philolichini*, 20 Tabaninae with 18 of the tribe *Tabanini* and only 2 of the tribe *Haematopotini*. Until now, we have no record of Chrysopsinae.

The zoogeographical checkup on the species gives the following results:

**Afrotropical: 12 species**

1. *Philoliche (Dorcaloemus) auricoma*,
2. *Philoliche (Philoliche) magrettii*,
3. *Ancala latipes*,
4. *Atylotus agrestis*,
5. *Tabanus biguttatus*,
6. *Tabanus camelarius*,
7. *Tabanus leucostomus*
8. *Tabanus mordax*,
9. *Tabanus sufis*,
10. *Tabanus taeniola*,
11. *Haematopota abyssinica*,
12. *Tabanus coronata*.

**Palearctic: 8 species**

*Mediterranean: 6 species:*

1. *Atylotus farinosus*,
2. *Tabanus albifacies*,
3. *Tabanus arabicus*,
4. *Tabanus fumidus*,
5. *Tabanus leleani turkestanicus*,
6. *Tabanus sabuletorum*.

- European: 2 species  
 Saudi Arabia only: 2 species
- T. Tabanus cordiger*  
*unifasciatus*
1. *Atylotus pallescens*,
  2. *Tabanus riyadhae*.

Because of the inevitable infiltration of elements of a region into another, Afrotropical and Palearctic elements occur in Saudi Arabia; but until now, no strictly Oriental element of Tabanidae has been recorded from Saudi Arabia.

With 12 species, the prevalence of Afrotropical elements is quite evident, following by 8 Palearctic: 6 Mediterranean and only 2 from European origin.

It may be suggested that the 2 species recorded from Saudi Arabia only, are endemic? Further research are needed to precise habitat and geographical distribution. Moreover, in the key of the *ruficrus* Afrotropical group, *T. riyadhae* is clearly distinct from all included species in many respects (AMOUDI & LECLERCQ, 1988).

Of the genera *Tabanus* and to a lesser extent, *Atylotus* are the most prevalent in terms of the numbers of species. Slightly more than three quarter of species in Saudi Arabia belong to these two genera.

Nine species from Afrotropical origin are specially recorded from southwest Saudi Arabia: *Philoliche (Dorcaloemus) auricoma* (carte 5), *Philoliche (Philoliche) magrettii* (carte 5), *Ancala latipes* (carte 6), *Atylotus agrestis* (carte 5), *Tabanus biguttatus* (carte 4), *Tabanus leucostomus* (carte 3), *Tabanus sufis* (carte 3), *Haematopota abyssinica* (carte 6), and *Haematopota coronata* (cartes 2 et 6).

It is interesting to emphasize that *Philoliche (Dorcaloemus) auricoma* and the tsetse flies (*Glossina fuscipes fuscipes* NEWSTEAD and *G. morsitans submorsitans* NEWSTEAD) were caught in the Gizan valley (AMOUDI) (ELSEN *et al.*, 1990 et 1991).

The three other species occur: *Tabanus camelarius* (carte 3) and *Tabanus mordax* (carte 4) in the Center and *Tabanus taeniola* (carte 3) in the North of Saudi Arabia.

*Tabanus camelarius* (carte 4) and *T. leucostomus*, *T. mordax*, *T. sufis* (carte 3) are classified in the *sufis* group (17 species) by OLDROYD. Although some of them are widely distributed through the African savannas, the group is one of which has the closest connection with the arid area (LECLERCQ, 1986).

Among the eight species from Palearctic origin, the prevalence is six from the mediterranean area and only two from the Europa:

- *Tabanus cordiger* (cartes 1 et 4) and *T. unifasciatus* (carte 3) occur only in the North of Saudi Arabia;
- *Atylotus farinosus* (carte 5), *Tabanus albifacies* (cartes 1 et 4), *T. arabicus* and *T. fumidus* (carte 1) occur in the North of Saudi Arabia; but *T. leleani turkestanicus* is localized in the North-East and *T. sabuletorum* in the Middle (carte 1).

## Conclusion

It is true that the entomofauna of Saudi Arabia is particular and quite interesting in many respects.

The previous discovery of two species of tsetse flies by one of us (AMOUDI) in the southwestern Saudi Arabia (ELSEN *et al.*, 1990 et 1991) and the present contribution to the knowledge of horse-flies bring to the fore the need for further research in the country.

Among the results, it is interesting to quote the discovery of the two species of PANGONIINAE: *Philolichini* but also, actually, the absence of element of CHRYSOPSINAE and only two species of *Haematopotini*.

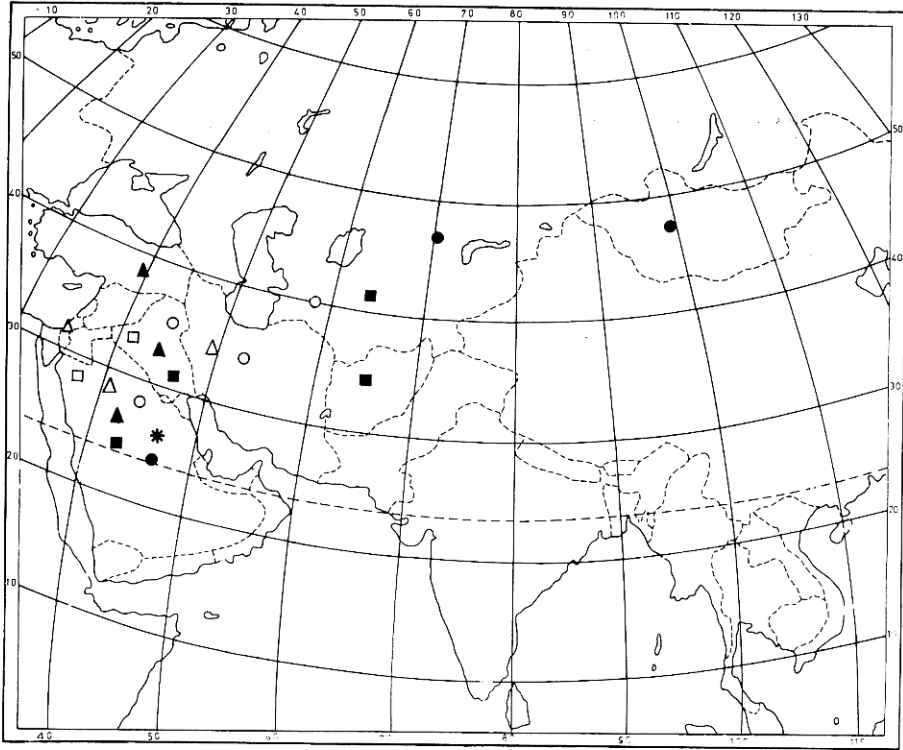
## Résumé

Actuellement, 32 espèces de Taons (Tabanides) sont connues en Arabie Saoudite. Nous présentons la liste systématique et, pour chaque espèce, la distribution géographique générale avec la cartographie et les commentaires zoogéographiques de cette faune bien particulière.

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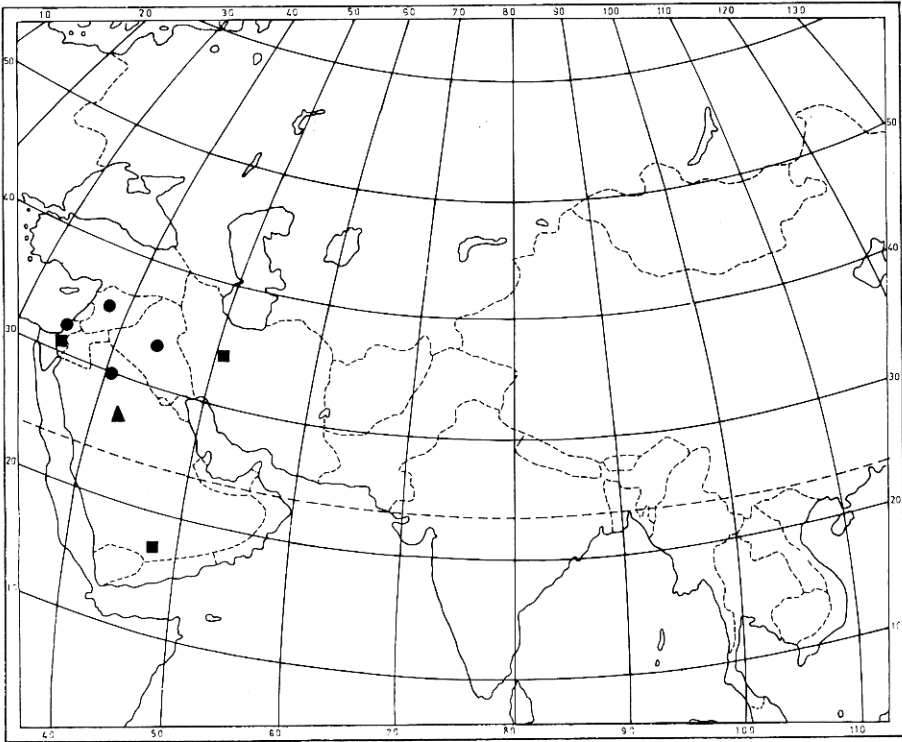


Carte 1. - Geographical distributions of

<i>Tabanus albifacies</i>	(△)
<i>T. arabicus</i>	(▲)
<i>T. cordiger</i>	(□)
<i>T. fumidus</i>	(■)
<i>T. leleani turkestanicus</i>	(○)
<i>T. riyadhae</i>	(*)
<i>T. sabuletorum</i>	(●)

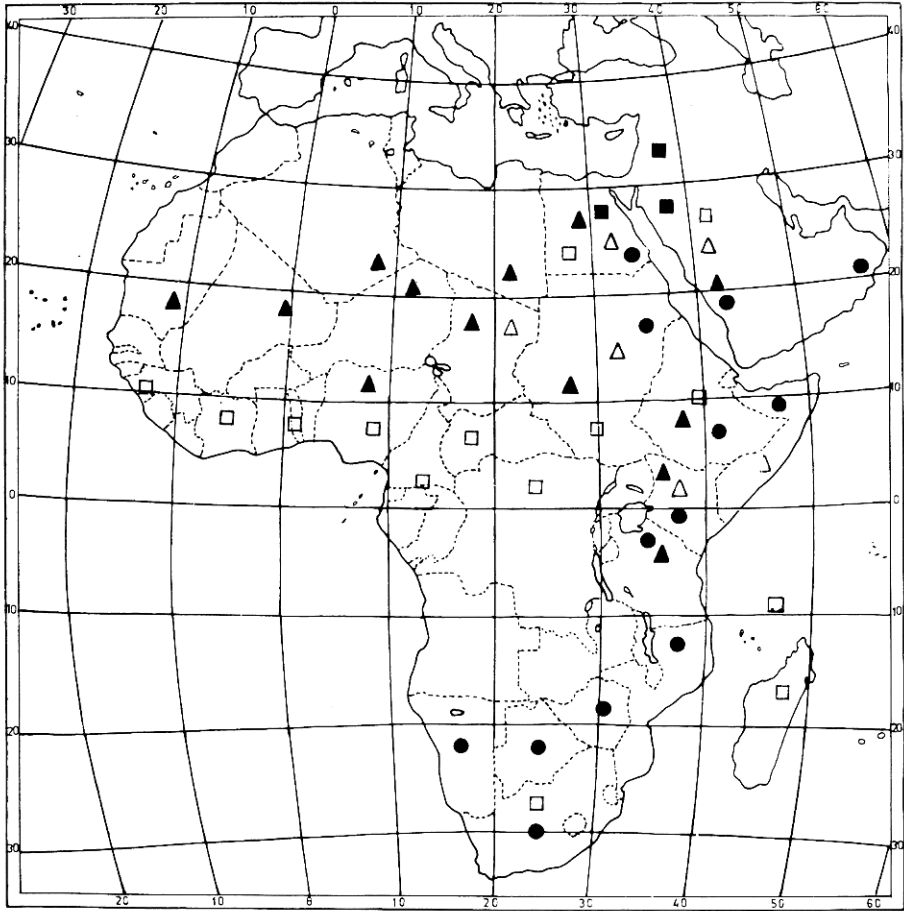
of Asia and Arabian Peninsula



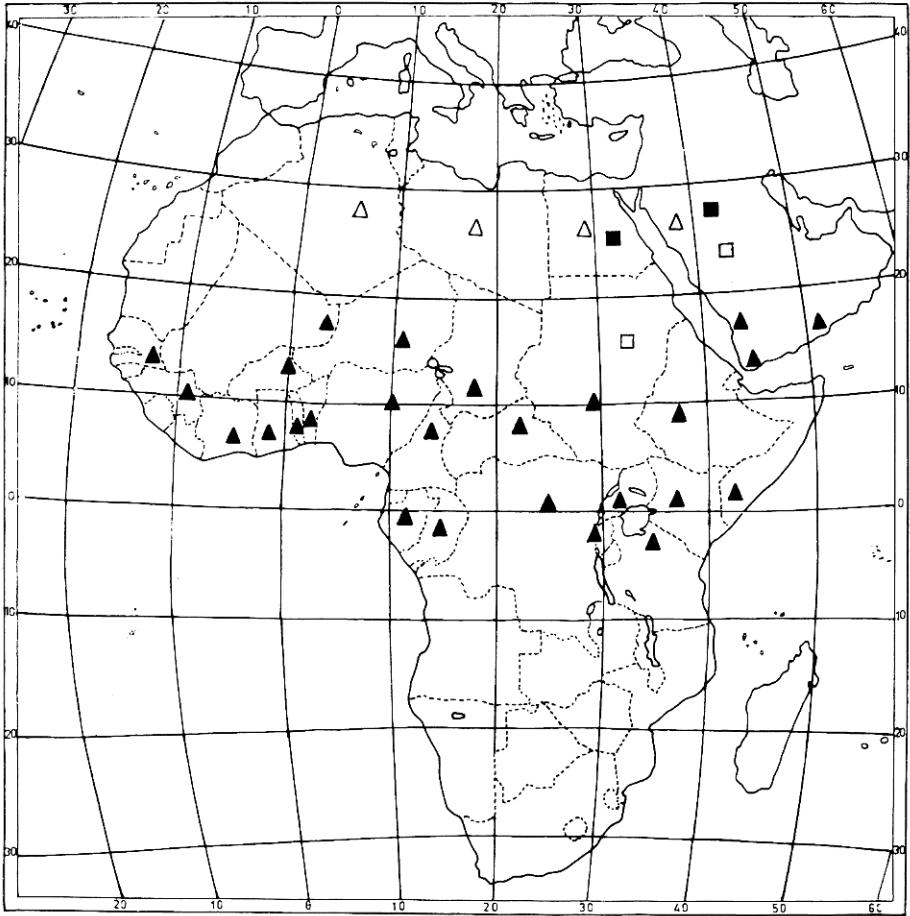


Carte 2. - Geographical distributions of  
of Asia and Arabian Peninsula

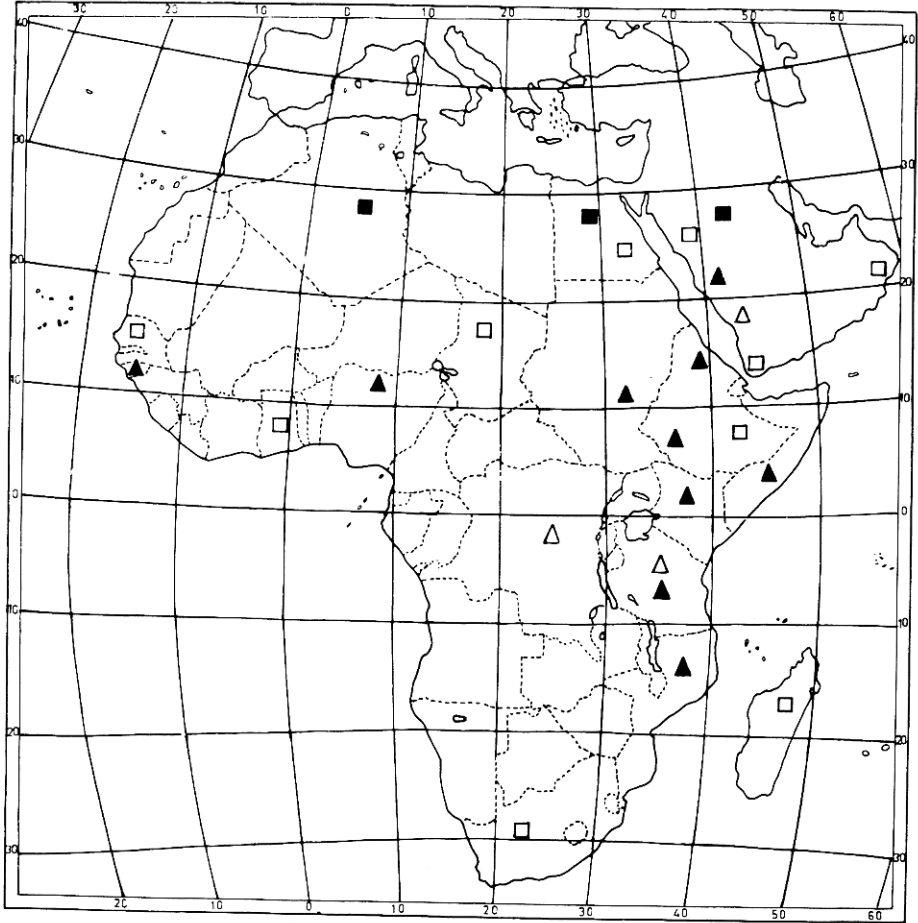
*Atylotus farinosus* (●)  
*A. pallescens* (▲)  
*Haematopota coronata* (■)



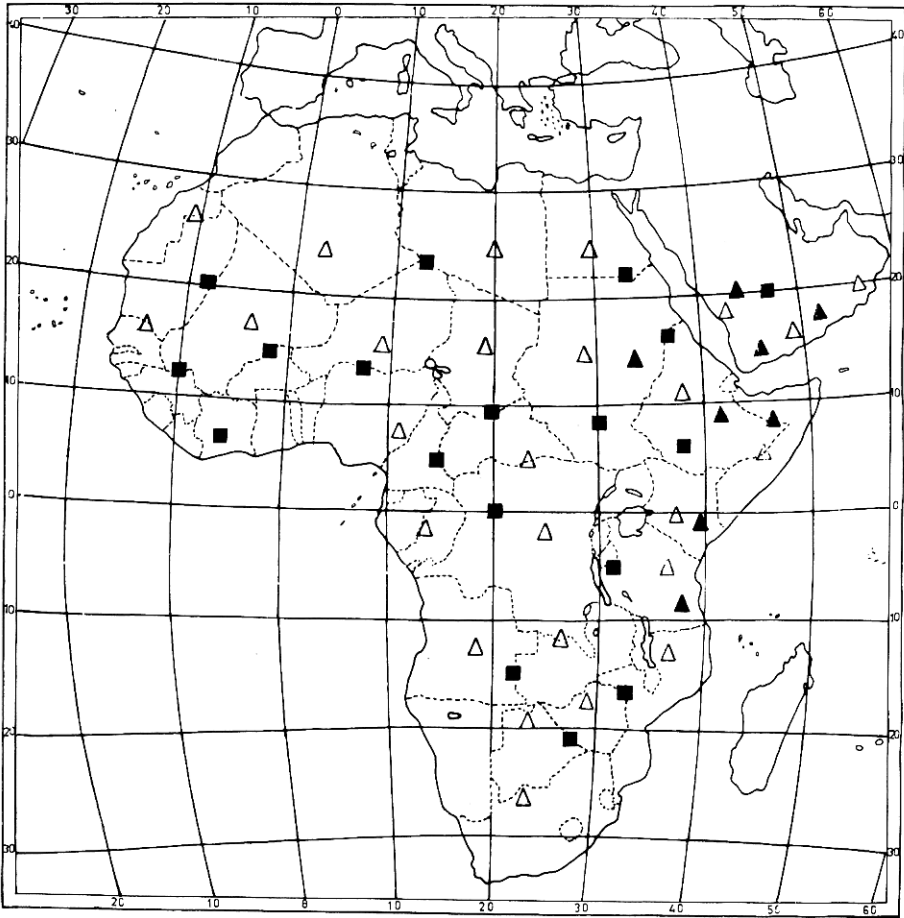
Carte 3. - Geographical distributions of *Tabanus leucostomus* (●)  
*T. mordax* (△)  
*T. sufis* (▲)  
*T. taeniola* (□)  
*T. unifasciatus* (■)  
of Africa and Arabian Peninsula



Carte 4. - Geographical distributions of *Tabanus albifacies* (△)  
*T. biguttatus* (▲)  
*T. camelarius* (□)  
*T. cordiger* (■)  
of Africa and Arabian Peninsula



Carte 5. - Geographical distributions of *Philolice (Dorcaloemus) auricoma* (△)  
*P. (Philolice) magretti* (▲)  
*Atylotus agrestis* (□)  
*A. farinosus* (■)  
of Africa and Arabian Peninsula



Carte 6. - Geographical distributions of *Haematopota abyssinica* (△)  
*H. coronata* (▲)  
*Ancala latipes* (■)  
of Africa and Arabian Peninsula