J. Prószyński

Zakład Zoologii WSRP, ul. Prusa 12,
08-100 Siedlce, Poland

Conclusions to the origin of the European fauna of Salticidae (Araneae) from the studies of the Near East fauna.

Abstract: 82 species of Salticidae from Palaestina and 29 from Saudi Arabia studied recently show almost no relationship to Eurosiberian ones and only limited to Mediterranean, majority may be best characterized as North African- Arabian element.

In difference to purely descriptive studies, the sensibility of comparative faunal studies depends from the light they throw on relationships and origin of faunae of other areas.

Some time ago I have formulated suggestions that European - or better Eurosiberian fauna of Salticidae consists of a mixture of colonists from other areas including: Mediterranean, Africa, tropical Asia, some North American and some preglacial autochthonous survivors. The age of assembly of that mixture - related to the end of the last Glaciation Period would be 12.000 years (Prószyński 1986).

Looking on the map of the Old World we could see the most probable dispersal route of the faunae of these areas: the connecting point of three continents - the Near East. If the above reasoning is true we should expect to find some traces of these dispersals at just that area - both fossil and extant, concentrations of surviving species - which we used to call dispersal centers.

I had recently an occasion to study better the Salticidae fauna of one part of the area - of the Palaestina, and to compare it with more Southern fauna of Saudi Arabia. I use the term "Palaestina" following example of the monographs "Fauna Palaestina" of the Israel Academy of Sciences as the politically neutral term denoting an area containing the Israel and parts of neighboring countries, without going into political or administrative belonging of particular localities. My studies are based on large collection of Salticidae kept in the Department of Zoology, Hebrew University at Jerusalem, majority of other collections existing in the Zoological Musei all over the World. The research were cosponsored by the grant from The Frizzel-Exline Found of the California Academy of Sciences in San Francisco, USA, the Fauna and Flora Palaestina Committee of the Israel Academy of Sciences and my College (WSRP) in Siedlce, Poland. The detailed results shall be published soon. The data on Salticidae of Saudi Arabian came from my publication now in print in the "Fauna of Saudi Arabia" and some additional collections send to me for identification by Dr. A.A. Faragalla. I wish to express my thanks and gratitude to all persons and Institutions which contributed to these research.

Now, the results of these studies come as an surprise - they show almost no relationships to European or Eurosiberian fauna of Salticidae. The Palaestinian fauna of Salticidae contains no single species which could be considered European - that is occurring throughout Europe - there are only three species (3.63 %) which penetrate from Mediterranean to warmer places in Southern or Central Europe. There are 23 species (28.04 %) which occur in the Mediterranean (the whole, or part of it, or more broadly distributed but including Mediterranean)

Of the other hand there are 10 species (12.19 %) common with Saudi Arabia and Africa. Among above mentioned 7 species (8.53 %) occurs

also in Western and Central Asia (Iran, Tadjikistan, Mongolia). There are 10 species (12.19 %) known heretofore only locally and 36 species (43.90 %) which are either new or whose specific identity awaits further studies - these could possibly change somewhat the distributional statistics, none of them is, however, European species and their relationships could be either African (most probably dry North) or West Asian including Arabian. 3 species (3.65 %) are cosmopolitan in warmer areas.

Saudi Arabian fauna of Salticidae is much poorer known at present so drawing conclusions is even less certain; it appears however that there are 5 species (17.22 %) common with Palaestina and occurring simmultaneously in Africa, one of these is mutual with Mediterranean. One species is distributed locally and as much as 21 species (72.41 %) described as new or with specific identity awaiting further studies - all of them, however, of African or West Asian relationships. There is at present only one cosmopolitan species identifed.

What conclusion could we draw from these faunal surveys? Do they demolish my views on origin of Eurosiberian fauna of Salticidae from African and West Asian colonists - not necessarily - although they do not confirm them either. After seeing a few landscapes of Israel I realized that there is no environment for majority of Eurosiberian species - drying up, deforestation and turning of more fertile land into deserts since several thousand years apparently exterminated previous fauna. Modern irrigated agriculture and newly planted forests could possibly open these environment again - but the previous fauna, if there was such, seems to be no longer there. The knowledge of fauna is poor and there may be a lot of species not yet found. Of particular interest could be these few spots of more humid environments where some relicts still survived. Do they harbour any European species?

My provisional summary of the fauna of that area would be: contact of two different faunae: Mediterranean fauna on more humid coastal strip and in the mountains and Arabian fauna in the dry interior - with an intermediate mosaic zone of mixing of both, with some African and more continental Asian species in addition.

Some time ago Mr. F.R. Wanless (personal communication) remembered views of zoogeographers "dividing Arabian Peninsula by half into Palaearctic and Ethiopian parts". I think such summary could be perhaps right but rather during the past - the Glacial Periods only. My personal proposal would be to draw faunal border line roughly along southern lower forest limits on Southern European Mountains (Alps, Balkan Peninsula Mountains etc.) which would separate Eurosiberian from Mediterranean Salticidae. That Mediterranean fauna on Southern coast of the sea is limited to the narrow, more humid zone, coming into contact and intergrading with the fauna of dry North African-Arabian areas more inland - as it is visible in the Palaestina. I do not see any justification in Salticidae (other groups may lead to different conclusions) for speaking on "Palaearctic" or the "Palaearctic fauna" south from Mediterranean. But I have no much personal experience in North African Salticidae yet.

References

Prószyński J. 1975. Remarks on the origin and composition of the Salticidae fauna of the Nearctic Region. Proc. 6th Int. Arachn. Congress, Amsterdam, pp. 217-221, 3 ff.

Prószyński J. 1976. Studium systematyczno-zoogeograficzne nad rodzina Salticidae (Aranei) Regionow Palearktycznego i Nearktycznego. Rozprawy WSP, 6. Siedlce, 260 pp. 450 ff., 218 maps.

Prószyński J. 1978. Distributional patterns of the Palaearctic Salticidae (Araneae). Proc. zool., Soc., London, 42: 335-343, 7 ff.

Prószyński J. 1981. Geographical distribution pattern of related species and its significance for evolutionary interpretations. Bull. Acad. pol. Sci. II., Varsovie, 28, 6: 357-361.

Prószyński J. 1983. Tracing of history of a genus from its geographical area on example of Sitticus (Araneae, Salticidae). Veroff. Naturwiss. Vereins, Hamburg, 26, 15 ff.

Prószyński J. 1986. Remarques sur la composition de la faune europenne, sa rpartition et son origine bases sur les tudes des Salticidae. Mm. Soc. r. belge Ent., Bruxelles, 33: 165-170, 4 tt.

Prószyński J. (in print). Salticidae (Araneae) of Saudi Arabia Fauna of Saudi Arabia.

Appendix 1

Provisional comparison of relationships of faunae of two areas of the Near East with other potentially related faunae (in %)

[note insufficient number of species known yet]

Number and Percentage of species in common between:

	Palaestina		SAUDI ARABIA	
and the following areas:				
	No of species	%	No of species	%
Africa - Arabia - - Palaestina	- 7 species	8.53 %	3 species	10.34 %
Arabia, Sinai	- 2 species	2.43 %	1 species	3.44 %
Southern Europe	1 species	1.21 %	0 species	
E Mediteranean	- 7 species	8.53 %	0 species	
E Mediter. - W Asia	- 3 species	3.65 %	0 species	
Mediterranean	- 9 species	10.97 %	0 species	
W, C Asia	- 7 species	8.53 %	1 species	3.44 %
PALEARCTIC	- 2 species	2.43 %	0 species	
Warmer areas of Eurasia and in Africa.	- 1 species	1.21 %	1 species	3.44 %
COSMOPOLITAN in warmer areas.	- 3 species	3.65 %	1 species	3.44 %
Distribution local	- 10 species	12.19 %	1 species	3.44 %
Species described as NEW or not fully identified)	- 36 species	43.90 %	21 species	72.41 %

Appendix 2.

Check list of the Salticidae of Palaestina and SAUDI ARABIA

List of species of the Salticidae in Palaestina and in SAUDI ARABIA divided into faune of various distribution

Species known to occur in Arabian Peninsula and Africa

In Palaestina - 7 species	In SAUDI ARABIA - 3 species
Bianor staintoni (O.P.-Cambridge, 1872).	
Festucula vermiformis Simon, 1901 -	
Heliophanus decoratus L, Koch, 1875	
Heliophanus edentulus Simon, 1871	
	Mogrus fulvovittatus Simon, 1882.
Myrmarachne tristis (Simon, 1882) -	**Myrmarachne tristis** (Simon, 1882)
Pseudicius cf. tamaricis [sp. 1]	
Pseudicius tamaricis	**Pseudicius tamaricis** (Simon, 1885)

Species known to occur in Arabian Peninsula and Sinai

In Palaestina - 2 species	In SAUDI ARABIA - 1 species
Mogrus sp. 2	
Plexippoides [sp. n. in print]	Plexippoides [sp. n. in print]

Species known to occur in Southern Europe

In Palaestina - 1 species

Dendryphantes nidicolens [= Eris nidicolens]

Species known to occur in Eastern Mediteranean

In Palaestina - 7 species	In SAUDI ARABIA - 0 species ?
Heliophanus equester L. Koch	
Heliophanus mordax (O. P.-Cambridge, 1872)	
Leptorchestes berolinensis C. L. Koch, 1846 (?)	
Menemerus animatus O. P.-Cambridge, 1876	
Pellens nigrociliatus (L. Koch, 1875)	
Pellenes ostrinus (Simon, 1868)	
Habrocestum latifasciatum (Simon, 1868)	

Species known to occur in Eastern Mediterranean - and various parts of Western Asia

In Palaestina - 3 species	In SAUDI ARABIA - 0 species ?
Heliophanus ignorabilis Wesołowska, 1986	
Salticus tricinctus (C.L. Koch, 1848)	
Pellenes simoni (O. P.-Cambridge, 1872) -	

Species known to occur in Mediterranean

In Palaestina - 9 species	In SAUDI ARABIA - 0 species ?
Evarcha jucunda (Lucas, 1846) (or cf.?)	
Heliophanus encifer Simon	
Marpissa canestrini (Ninni in Canestrini, Pavesi, 1868)	
Menemerus semilimbatus (Hahn, 1829)	
Menemerus illigeri (Savigny et Audouin, 1825).	
Pellenes geniculatus (Simon, 1868)	
Pellenes maderianus Kulczynski, 1905	
Synageles dalmaticus (Keyserling, 1863)	
Yllenus salsicola (Simon, 1937)	

Species known to occur in Western and Central or Middle Asia

In Palaestina - 1 species	In SAUDI ARABIA - 1 species
Heliophanus curvidens (O. P.-C., 1872)	
	Menemerus "taeniatus"

Species known to occur over PALEARCTIC Region

In Palaestina - 2	In SAUDI ARABIA - 0 species
Heliophanus lineiventris Simon, 1868	
Philaeus chrysops (Poda, 1761)	

Species known to occur in warmer areas of Eurasia and in Africa.

In Palaestina - 1 species	In SAUDI ARABIA - 1 species
Thyene imperialis (Rossi, 1846)	Thyene imperialis (Rossi, 1846)

Species known to be COSMOPOLITAN in warmer areas.

In Palaestina - 3 species	In SAUDI ARABIA - 1 species
Hasarius adansoni (Audouin, 1827)	
Menemerus bivittatus (Dufour, 1831)	
Plexippus paykulli -	Plexippus paykulli

Species known to have DISTRIBUTION LOCAL

In Palaestina - 10 species	In SAUDI ARABIA - 1 species
Aelurillus politiventris (O. P.-Cambridge, 1872)	
Aelurillus cf. politiventris sp. n. 2	

Bianor insignis (O.P.-Cambridge, 1872)
Bianor putus (O.P.-Cambridge, 1872).
Euophrys pseudogambosa Strand, 1915.
Evarcha nepos (O. P.-Cambridge, 1872)
"Heliophanus" fulgens O. P.-C.,1872 "Heliophanus" cf. fulgens sp. n.
"Menemerus" cf. flavescens O.P.-Cambridge, 1872
Mogrus dumicolus (O. P.-C.)
Pseudicius palaestinensis (Strand, 1915) comb. n.

Species described as NEW or whose identification is not fully studied

In Palaestina - 36 species	In SAUDI ARABIA - 21 species
Aelurillus cf. numidicus sp. 1 - 4	Aelurilus sp n! 1-2
Bianor sp.	Bianor sp.
Chalcoscirtus sp. 1 -3	
Dendryphantes sp.cf. nitellinus Sim.	
Euophrys sp. (n) 1 - 4)	
Evarcha sp. [cf, Habrocestum nigricans]-	
GEN. NOV. cf. "Phlegra" 2-5	
	Habrocestum sp. n.
	Heliophanus (Heliocapensis) sp.n.
	Langona sp. -
	Menemerus sp. 1 -2.
Menemerus sp. cf bivittatus	
Menemerus sp. 3	
Mogrus sp. n ?	Mogrus sp. n. 1 -4
Mogrus sp.n.(?) cf. frontosus	
Mogrus sp. cf. neglectus 1	
	Neaetha sp. -
	Pellenes sp. -
Phlegra sp. (n.) 1-7	
Pseudicius sp. 1 - 4	Pseudicius sp. n. 1 -5
Salticus sp. UNKNOWN -	
	Stenaelurillus sp. ?
	Yllenus sp. cf. salsicola