

The Palaearctic Centers of Taxonomic Diversity of Fleas (Siphonaptera)

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Abstract—The Palaearctic flea fauna includes 921 species and 479 subspecies from 96 genera of 10 families. Of them, 858 species (94%) from 43 genera are endemic to the Palaearctic; they comprise 40% of the Palaearctic Hystrichopsyllidae, 24% of Ceratophyllidae, and 20% of Leptopsyllidae. Ranges of 581 species (63% of the Palaearctic fauna) are situated within one province or subregion of the Palaearctic. Species with ranges including a part of Asia (592) comprise 87% of the total fauna; 72% of the species (517) are endemic to the Palaearctic. The largest centers of taxonomic diversity of Palaearctic fleas are situated in the East Asian, Central Asian, and Turano-Iranian Subregions: 320 species of fleas (214 of them endemic) from 59 genera (8 endemic) are known from the East Asian Subregion; 270 species (over 120 endemic) from 54 genera (5 endemic) are distributed in the Central Asian Subregion.

The Turano-Iranian fauna comprises 213 species (103 endemic) from 47 genera (3 endemic); about 160 species occur in the Turanian Subprovince closest to the Russian borders, one-third of them (52 species, or 33%) are endemic; 69 species more are endemic to the entire Asian part of the Palaearctic. Extra-Asian and extra-Siberian ranges are known in 190 flea species. In the western Palaearctic, 76 species are endemic to the European Province, and 57 species, to the Mediterranean Province; 36 species have Euro-Mediterranean distribution. The fauna of the Saharo-Arabian Subregion comprises 30 species (12 endemic), 6 species have ranges of the Mediterranean-Saharo-Arabian type. Scenarios of the origin of the Siphonaptera at the Triassic-Jurassic boundary are hypothesized.

Formation

of the Palaearctic flea fauna was mostly supported by the Asian–Indo-Malayan and East Asian–Western American palaeofaunal centers of taxonomic diversity. The long history of faunal exchange between the east Palaearctic

and the west Nearctic is manifested by the distribution of the parasites of rodents and insectivores, fleas of the genera *Stenoponia*, *Rhadinopsylla*, *Nearctopsylla*, and *Catallagia*, belonging to several subfamilies of the Hystrichopsyllidae,

as well as members of a number of other flea families. A great number of endemic species in the genera *Palaeopsylla* and *Ctenophthalmus* (Hystrichopsyllidae), both in the European and Asian parts of the Palaearctic,

can be explained by the junction of the European and Asian continental platforms in the late Cretaceous and their subsequent isolation during the Paleocene. A considerable contribution to the flea fauna in the Russian territory was made by the East Asian–Nearctic center of taxonomic diversity, with a smaller role of the European palaeofauna.

Immigration of species of the family Pulicidae from the Afrotropical Region is restricted to the southern territories of Russia.

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