

Ptyctimous mites (Acari, Oribatida) of the Pacific Islands

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ABSTRACT

The zoogeographic remarks on the fauna of Micronesia, Melanesia and Polynesia (Mariana, Solomon, Fiji, Tonga, Samoa, Cook, Society, Tuamotu, Marquesas, Henderson, Easter Islands) are presented and are based on material from 181 samples.

RESULTS

In the region 49 species of ptyctimous mites were found - 31 of Phthiracaroida, 15 of Euphthiracaroida and 3 of Mesoplophoroidea, 13, 6 and 1 new for science, respectively.

The species occurring on volcanic islands in the Pacific Ocean far from the continent reach these islands via passive dispersion directly from the continent, and not as previously suggested, as a result of the phenomenon of stepping stones. On coral islands no specific fauna was found.

At least 10 species developed as a consequence of adaptive radiation in the conditions of natural mountain forests and they can be treated as typical endemites.

Only 3 endemic species and 2 Pacific species belong to the group of the dominant ones on a few volcanic Pacific islands. The other dominant species are widespread.

A relatively greater number of species occur on continental islands. In general, the farther to the east a given archipelago is, the poorer its Oribatida fauna. The fauna is disharmonic, particularly on coral islands.

An attempt at regionalisation of the fauna indicated that a similarity of faunas is determined to a greater extent by the neighbourhood of a specific island rather than by its origin and size. Two subregions have been distinguished: one encompassing Tonga, Samoa and the Cook Islands, and the other Tuamotu, Henderson and the Marquesas Islands. The fauna of the Society Islands is intermediate between these two subregions. The faunas of the continental islands in the west and Easter island lying the farthest to the east are the least similar.

From an ecological point of view, the ptyctimous mites of Pacific islands can be divided into two groups: one is restricted to natural forests of high altitudes (12 species), including mainly endemic species, and the other (15 species) comprises widespread species of disturbed lowland habitats. The second group may also include 7 species of unknown habitat preferences whose main range probably lies outside the Pacific islands. An intermediate group of 16 species, mainly of pantropical and Pacific distribution, are those of natural or partly disturbed lowland habitats. None of the widespread species common and dominant in seashore habitats is strictly restricted to them.

The two most numerous groups of species are (see above) and widespread species, 14 and 15 in number, respectively, and the majority of endemites belong to Phthiracaroida. The others are Pacific species and species of Oriental origin, 10 species from each group. None of the species has been identified as being of directly Australian or South American origin. For a few species the Pacific Islands are the eastern border of occurrence.

Expansion of species on the Pacific Islands takes place from the west to the east thanks to the favourable parallel marine currents. Moreover, the distribution of the Oribatida species on the islands is, to a considerable degree, related to antropochoric dispersion.

The fauna of Hawaii, Galapagos Isl., New Caledonia and New Zealand is discussed in separate papers (Niedbała 1993, 1994, in litt.; Niedbała & Schatz in litt.)

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