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Preliminary List of Terrestrial Gamasid Mites (Acarina) from the Northern Mariana Islands, Micronesia

Kazuo Ishikawa

Laboratory of Biology, Matsuyama Shinonome College
3-2-1 Kuwabara, Matsuyama 790, Japan

Abstract Terrestrial gamasid mites collected from the northern Mariana Islands were studied, and 24 species belonging to 14 genera of 11 families are recognized and listed, although the identification has not been completed. All of these are recorded from the northern Marianas for the first time.

Key words: Northern Mariana Islands, Gamasid mites, Acarina.

The gamasid mites usually inhabit litter or humus layers, and they are important predators on the soil-inhabiting nematodes and micro-arthropods such as collembolans. A number of species of gamasids are associated with insects and other arthoropods in their life stages. Although the gamasid mites appeared in the "Insects of Micronesia (1967)" published by the Berince P. Bishop Museum, there was no record of them from the northern Mariana Islands.

The scientists of the Natural History Museum and Institute, Chiba, made a biological expedition to the northern Mariana Islands from May 10 to June 11, 1992, in cooperation with the Department of Natural Resources (Commonwealth of the Northern Mariana Islands) and the University of Guam Marine Laboratory. The northern Marianas are located in the western Pacific between 16°22′ and 20°32′ and form the southern part of Izu-Mariana Archipelago. During the expedition, many species of gamasid mites were collected and are listed in this paper.

Materials and Methods

The collections were made either by hand sorting or using the Tullgren apparatus. Specimens were collected by Mr. Taiji Kurozumi of the Museum except the ones specified. They were preserved in 70% ethanol, cleared in lactophenol, and mounted in Hoyer's medium. See Kurozumi (1994) for detailed information on the sampling sites and their codes with data. The specimens used for this study are deposited in the collection of the Natural History Museum and Institute, Chiba, and some specimens are retained in the collection of the Laboratory of Biology, Matsuyama Shinonome College, Matsuyama.

Results and Discussion

Twenty-four species belonging to 14 genera of 11 families are recorded. All of them are recorded from the northern Marianas for the first time. The dominant groups are Laelapidae, Rhodacaridae and Ologamasidae. Parholaspidae, which is a dominant group in the Oriental Region, was not found.

Among the species listed below, *Asca quinquestosa* Wharton was previously recorded from Oahu Island, Hawaii, and Clipperton Island, west Costa Rica. *Asca aphidioides* Linnaeus is known as a cosmopolitan species. *Podocinum* sp. in the list resembles *P. sumatrense* Evans and Hyatt, previously known from Sumatra. *Podocinella* sp. is very alike *P. alstoni* Evans and Hyatt, previously known from Sulawasi. It is of interest that *Podocium jamaicense* Evans and Hyatt recorded from Jamaica in the Neotropical region is collected from the northern Marianas. From the view point of the zoogeography, the species composition of the gamasid mites from the northern Marianas shows the characteristics for that of the Polynesian Subregions in the Australian Region.

List of Collected Species

Family Parasitidae

1. *Parasitus* sp.

Specimen examined. ANATAHAN: 1 nymph, An-4.

Family Ascidae

2. *Asca aphidioides* (L.)

Acarus aphidioides Linnaeus, 1758, Syst. Nat. 10: 235.

Asca aphidioides Vitzthum, 1926, Tierwelt Mitteleuropas 3: 30.

Specimens examined. ANATAHAN: 3 ♀ ♀, An-4. SARIGAN: 1 ♀, S-2. GUGUAN: 1 ♀, G-1. ALAMAGAN: 2 ♀ ♀, Al-2. AGRIHAN: 2 ♀ ♀, Ag-1; 1 ♀, Ag-3. ASUNCION: 3 ♀ ♀, As-2.

Known distribution. Europe; North America; Japan.

3. *Asca quinquesetosa* Wharton

Asca quinquesetosa Wharton, 1941, Smiths. Misc. Coll. 99, No. 12: 2–4; Hurlbutt, 1963, Acarologia 5(4): 513.

Specimens examined. ANATAHAN: 3 ♀ ♀, An-2. ALAMAGAN: 3 ♀ ♀, Al-3. PAGAN: 2 ♀ ♀, P-1. ASUNCION: 1 ♀, As-1. MAUG: 1 ♀, M-1; 1 ♀, M-2. URACAS: 2 ♀ ♀, U-1.

Known distribution. Clipperton Island, west of Costa Rica; Oahu Island, Hawaii.

4. *Lasioseius* sp.

Specimens examined. ANATAHAN: 2 ♀ ♀, An-3. SARIGAN: 1 ♀, S-2. ALAMAGAN: 1 ♀, Al-2; 2 ♀ ♀, Al-3. AGRIHAN: 5 ♀ ♀, 1 ♂, Ag-2.

5. *Cheiroseius* sp.

Specimen examined. ANATAHAN: 1 ♀, An-2.

Family Ameroseiidae

6. *Ameroseius* sp. 1

Specimen examined. SARIGAN: 1 ♀, S-2; 1 ♀, S-3.

7. *Ameroseius* sp. 2

Specimen examined. PAGAN: 1 ♀, P-1.

Family Rhodacaridae

8. *Rhodacarus* sp.

Specimens examined. ANATAHAN: 1 ♀, An-3; 3 ♀ ♀, An-4. SARIGAN: 5 ♀ ♀, S-2. GUGUAN: 3 ♀ ♀, G-2. ALAMAGAN: 2 ♀ ♀, Al-2; 1 ♀, Al-3. PAGAN: 2 ♀ ♀, P-1. AGRIHAN: 2 ♀ ♀, Ag-2; 5 ♀ ♀, Ag-4. ASUNCION: 1 ♀, As-2. MAUG: 3 ♀ ♀, M-1; 1 ♀, M-2.

Family Ologamasidae

9. *Gamasiphis* sp. 1

Specimens examined. ANATAHAN: 3 ♀ ♀, An-1; 1 ♀, An-4. GUGUAN: 1 ♀, G-1; 1 ♀, G-2. ALAMAGAN: 2 ♀ ♀, Al-1; 1 ♂, Al-3. PAGAN: 3 ♀ ♀, P-3. ASUNCION: 1 ♀, 1 ♂, As-1. MAUG: 1 ♀, M-1; 1 ♂, M-2.

10. *Gamasiphis* sp. 2

Specimens examined. ANATAHAN: 3 ♀ ♀, 1 ♂, An-3. SARIGAN: 1 ♀, 1 ♂, S-2; 1 ♀, S-3. GUGAUAN: 1 ♀, G-1. ALAMAGAN: 3 ♀ ♀, 3 ♂ ♂, Al-1; 2 ♀ ♀, Al-2. PAGAN: 3 ♀ ♀, 2 ♂ ♂, P-1; 1 ♀, P-2. AGRIHAN: 1 ♀, Ag-1. MAUG: 1 ♀, M-1.

Family Digamasellidae

11. *Dendrolaelaps* sp.

Specimens examined. ANATAHAN: 3 ♀ ♀, An-3. SARIGAN: 1 ♀, S-2. ASUNCION: 2 ♀ ♀, As-2.

Specimens examined. SARIGAN: 1 ♀, S-2; 1 ♀, S-3.

Family Podocinidae

12. *Podocinum jamaicense* Evans and Hyatt

Podocinum jamaicense Evans and Hyatt, 1957 Ann. Mag. Nat. Hist., (XII), 10: 920.

Specimens examined. ANATAHAN: 1 ♀, An-3. GUGUAN: 3 ♀ ♀, G-1. ALAMAGAN: 1 ♀, Al-2. PAGAN: 2 ♀ ♀, P-1; 5 ♀ ♀, P-3.

13. *Podocinum* sp.

Specimen examined. ASUNCION: 1 ♀, As-1.

14. *Podocinella* sp.

Specimen examined. AGRIHAN: 1 ♀, Ag-1.

Family Eviphididae

15. *Evimirus* sp.

Specimens examined. ANATAHAN: 1 ♀, An-1. PAGAN: 1 ♀, P-1.

Family Macrochelidae

16. *Macrocheles* sp. 1

Specimens examined. ANATAHAN: 2 ♀ ♀, An-2; 1 ♀, An-3.

17. *Macrocheles* sp. 2

Specimen examined. ANATAHAN: 1 ♀, An-3.

Family Laelapidae

18. *Hypoaspis* sp. 1

Specimens examined. SARIGAN: 1 ♀, S-3. GUGUAN: 2♀♀, G-1, 1♀, G-2. ALAMAGAN: 1♀, Al-1. PAGAN: 6♀♀, P-1; 1♀, P-3.

19. *Hypoaspis* sp. 2

Specimens examined. ANATAHAN: 1♀, An-1; 4♀♀, 1♂, An-3; 2♀♀, An-4. ALAMAGAN: 1♀, Al-2. PAGAN: 1♀, P-1. AGRIHAN: 3♀♀, Ag-3.

20. *Hypoaspis* sp. 3

Specimens examined. ANATAHAN: 1♀, An-3. GUGUAN: 1♀, 1♂, G-2. SARIGAN: 2♀♀, S-3. AGRIHAN: 5♀♀, 1♂, Ag-2.

21. *Hypoaspis* sp. 4

Specimens examined. GUGUAN: 2♀♀, G-1; 1♀, G-2. AGRIHAN: 1♀, Ag-1; 1♀, Ag-3; 2♀♀, Ag-4.

22. *Hypoaspis* sp. 5

Specimens examined. ANATAHAN: 2♀♀, May 13, 1992. S. Miyanao leg.

23. *Hypoaspis* sp. 6

Specimen examined. ANATAHAN: 1♀, May 13, 1992. S. Miyano leg.

Family Sejidae

24. *Sejus* sp.

Specimens examined. ALAMAGAN: 2♀♀, Al-1. AGRIHAN: 4♀♀, Ag-3; 1♀, Ag-4. ASUNCION: 3♀♀, As-1.

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