

Arachnids of the Ngerukewid Islands Wildlife Preserve, Palau

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Abstract—A survey of arachnids in the Ngerukewid and Kmekumer Islands, Republic of Palau was conducted 5–15 January 1988. Twenty-three specimens of Araneae were collected by the author from the families Ctenizidae, Uloboridae, Pholcidae, Scytodidae, Araneidae, Lycosidae, Pisauridae, Clubionidae and Salticidae. The scorpion *Hormurus australasiae* (Fabricius) and the tailless whipscorpion *Charon grayi* (Gervais) were also recorded.

Introduction

Little work has been done on the arachnids of Micronesia; the taxonomy and distribution of many species is uncertain and some areas have never been sampled (Samuelson & Nishida 1987). Among these places are the Ngerukewid Islands Wildlife Preserve and nearby Kmekumer Islands in the Palauan archipelago. Arachnids were collected there from 5–15 January 1988 as part of a larger study which documented the natural resources of these islands (Birkeland & Manner 1989). Twenty-five specimens were taken, comprising eleven different families, including members of the orders Araneae, Scorpiones and Amblypygi, the tailless whipscorpions. Some juveniles have not been identified to species. Other specimens may be undescribed, such as the unusual pisaurid collected on Island 16.

Study Site

The Ngerukewid and Kmekumer Islands are located in the southwestern corner of the Palauan Islands at about 7°11'N latitude and 134°16'E longitude. Island numbering in Figure 1 follows Wiles & Conry (1990), however, in this paper only sampled islands have been labeled. The islands are formed of uplifted coralline limestone and are small and steep; access to those without beaches is difficult because of undercutting. Palauan limestone forest, described in Cole et al. (1987) covers most of the islands except along cliffs, beaches and some leeward slopes where strand species dominate. A complete description of the studied islands' vegetation is found in Manner & Raulerson (1989). The area has no permanent human inhabitants, though it is visited occasionally by residents of nearby islands.

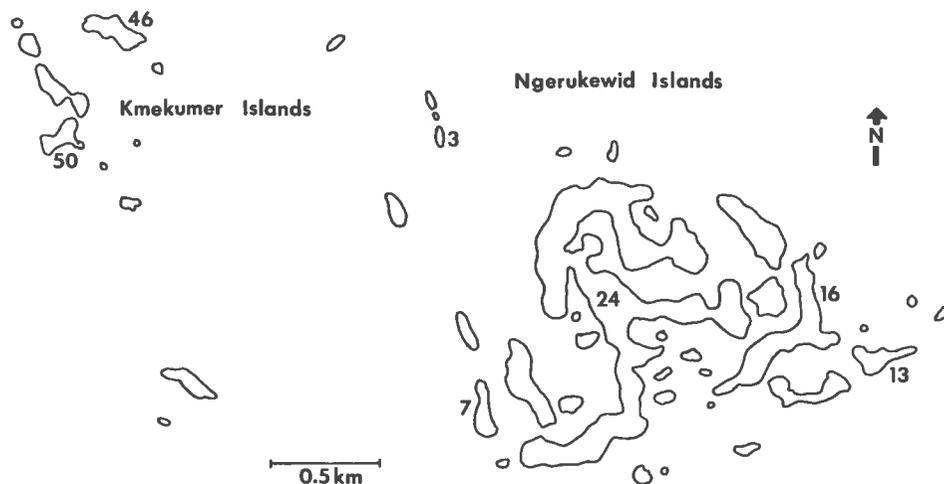


Figure 1. The Ngerukewid and Kmekumer Islands, Palau.

Methods

Specimens were collected by hiking across the islands during the day and brushing the arachnids into a wide-mouth jar or plastic bag. Cave, limestone forest and strand habitats were investigated. Cryptic species were found by looking under stones and in leaf litter and rock crevices. Later the specimens were placed in ethanol, sexed and labeled. The whipscorpion was eviscerated, dried and mounted in a clear plastic case with cotton and a few *p*-dichlorobenzene crystals.

Annotated Species List

The arachnids collected in the survey are listed below in taxonomic order. Information on each specimen's sex, maturity, habitat and the number taken is included and followed by the number of the island where it was collected. Unless otherwise indicated, the specimens are mature individuals and were collected by the author. Voucher specimens were deposited in the University of Guam arachnid collection, except the pisaurid, which is being curated at the Zoology Department, University of Southern Illinois at Carbondale.

Conothele gressitti (Roewer)

Two females found in leaf litter in limestone forest behind strand on Island 24.

Tangaroa beattyi (Opell)

Three females on horizontal webs 30 cm above the ground and suspended between tree seedlings in limestone forest. One is from Island 13; the remaining two are from Island 16.

Scytodes striapes (L. Koch)

One female in foliage of *Eugenia cuminii* in limestone forest of Island 13.

Smeringopus pallidus (Blackwall)

One of undetermined sex in a web in a cave overlooking the east-facing beach on Island 24.

Leucauge sp.

One female and one juvenile in delicate orb webs angled away from the vertical in limestone forest. Both are from Island 3.

Nephila maculata (Fabricius)

One juvenile on orb web in shaded limestone forest from the Ngerukewid Islands (island number not recorded).

Neoscona sp.

Two juveniles from vertical webs in limestone forest 1 m above the ground on Island 16.

Arctosa sp.

Two females and one male. The largest female was collected in full sunlight among dried seaweed (*Padina*) deposited by high tide on Island 46. The smaller female and male are from the strand on Island 50.

unidentified Araneidae

Three females on vertical orb webs in shaded limestone forest on Island 16.

unidentified Pisauridae

One female on shaded beach in strand litter on Island 16. The tarsi curled shortly after immersion in 70% ethanol.

Chiricanthium diversum L. Koch

One juvenile female on *Cordia subcordata* foliage on Island 46.

Menemerus bivittatus (Dufour)

One male from leaf litter under *Scaevola sericea* and *Causurina equisetifolia* behind strand on Island 50.

Mollica microphthalma (L. Koch)

One male and one juvenile found in beach litter. The male is from Island 24; the juvenile is from Island 3.

Hormurus australasiae (Fabricius)

Two of undetermined sex found under rotting *Hernandia sonora* bark on Island 46.

Charon grayi (Gervais)

One male on wall of cave in deep twilight zone on Island 16. Three other individuals were seen but not collected in the dark zone of the same cave. Collected by G. Wiles.

Discussion

Most of the spiders found in this survey have been collected from other areas of Micronesia (Roewer 1963, Sabath et al. 1974, Samuelson & Nishida 1987). A majority of the collected species are widespread, being distributed in the Papuan-Malayan region and Pacific. The scorpion *Hormurus australasiae* (Fabricius) is found throughout Micronesia (Chapin 1963). The whipscorpion *Charon grayi* Gervais is found in Micronesia only in Palau (Takashima 1950); *Nephila maculata* (Fabricius) extends to Yap. *Tangaroa beattyi* Opell and *Conothele gressitti* Roewer are Pacific spiders. Several juveniles could not be identified below genus.

The survey was conducted during a severe dry spell which may account for the low number of Araneidae seen (Robinson & Robinson 1973). Conspicuously absent in the preserve, but present on the larger Palauan islands, were *Cyrtophora molluccensis* (Doleschall), *Argiope* sp. and adult *Nephila maculata* (Fabricius). In spite of the weather and the short time spent collecting, at least two unusual finds were made. The first was a small population of tailless whipscorpions *Charon grayi* Gervais found in a cave on Island 16. Caves and crevices examined on other islands did not contain *C. grayi*. Because of its limited distribution in Micronesia and cavernicolous nature (Millot 1968), this organism is an interesting addition to the preserve's arachnid fauna.

The second unusual arachnid found was an undescribed pisaurid also collected from Island 16. Members of the family Pisauridae are scarce in Micronesia and are seldom collected (J. Beatty, pers. comm.). The specimen reported here, however, is unique in having curled tarsi, a trait previously seen only in New World genera.

Time constraints prevented more than a preliminary survey, but small leaf-litter inhabiting arachnids, such as members of Linyphiidae and Oonopidae, are undoubtedly also present. Because of the efficient method of dispersal used by most spiders and the studied islands' proximity to the rest of the archipelago, the species composition of the Ngerukewid and Kmekumer Islands is similar to that reported from the more sampled Palauan islands. The pisaurid, though, has not been found outside the preserve; further sampling is needed to find its true distribution.

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