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ANOPHELES LITORALIS KING AND *A.*
BARBIROSTRIS GROUP ON THE
ISLAND OF GUAM¹

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Prior to 1970, a single anopheline, *Anopheles* (*Cellia*) *indefinitus* (Ludlow), was known from Guam (Bohart, 1957). This was presumably a post-World War II introduction as this species was first collected during March 1948 by the 207th Malaria Survey Unit, U.S. Army (Yamaguti and LaCasse, 1950). In the period 1970-1971, 6 additional species of *Anopheles* were recorded from Guam by U.S. Navy and U.S. Air Force military entomologists. These included *baezai* Gater, *lesteri* Baisas and Hu and *sinensis* Wiedemann in the subgenus *Anopheles* and *subpictus* Grassi, *tesselatus* Theobald and *vagus* Dönitz in the subgenus *Cellia* (Holway and Bridges 1970, 1971; Reisen et al 1971a, 1971b; Darsie and Cagampang-Ramos 1972). The records of *lesteri* and *sinensis* will require further study as Harrison (1972, 1973) indicated that until his re-examination of the type series of *sinensis* and designation of a lectotype, considerable doubt existed on the true identity of *sinensis* and related taxa.

In May 1975, further collections were made by Army personnel of the 714th Medical Detachment during surveillance activities at the onset of Operation New Life—the program involving the use of Guam as a transit area for Vietnamese nationals prior to their entry to the United States.

On May 22, 1975 an undetermined female anopheline was collected at the Rojas Sports Arena, Naval Station, Guam in a CDC light trap baited with dry ice. This was submitted to the Medical Entomology Project for identification and was determined to be a member of the *A.* (*A.*) *barbirostris* species group, previously unre-

corded from Guam. Additional single female specimens were found on May 27, 1975 by military entomology surveillance programs in a CDC light trap located 200 yards from the site of the initial collection and in a New Jersey light trap on October 10, 1975 in the Apra Heights housing area. This last site is within a mile of the original collection sites.

The *barbirostris* group consists of 11 species and was previously restricted to the Oriental region except for one species on Western New Guinea (Harrison and Scanlon 1975). Three members of the group, *barbirostris* Van der Wulp, *campestris* Reid and *donaldi* Reid are known to be vectors of malaria and/or filariasis in Southeast Asia. Since the adult females are so variable in the group, positive identification to species cannot be made without associated immature stages. It should be pointed out that adult *barbirostris* are very similar to *campestris* and that only 80-85% of the adults can be reliably separated.

In an attempt to locate the breeding site(s) of the above species, the U.S. Navy Environmental Health Service has made additional surveys on Guam. During July 1975, 3 of the 15 larval collections made disclosed the presence of a second unrecorded species, *A.* (*C.*) *litoralis* King. This species was present in 2 collections from artificial containers in an old dump by the Batchelor Officers' Quarters at Orote Point and 1 collection from an oil drum at the junction above the NCS Beach. These 3 collections were all accompanied by reared adults of both sexes with associated larval and pupal pelts.

A. litoralis has previously been reported from the Philippines and may possibly occur in Sabah, Malaysia (Reid 1968). It has been incriminated as a vector of both vivax and falciparum malaria in Pangutaran Island, Sula Archipelago, Philippine Islands (Cabrera, Ramos and Cruz, 1970) and may be of importance on other islands in the Philippines where malaria is present but *A.* (*C.*) *minimus flavirostris* (Ludlow) is absent.

Reference specimens have been deposited in the collections of the U.S. National Museum.

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