

**Literature Pertaining to the Mosquito Fauna
and the Mosquito-borne Diseases on Guam. Addendum.**

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ABSTRACT. An additional 117 references have been compiled for inclusion with the annotated bibliography of the mosquitoes and the diseases associated with them on the island of Guam published in earlier issues of *Mosquito Systematics*.

INTRODUCTION. Documentation of the mosquito fauna and incidence of mosquito-borne diseases on Guam began soon after the ceding by Spain of the island of Guam to the United States of America upon conclusion of the Spanish American War in 1898.

The need for a definitive bibliography emerged as the number of species increased and medical significance of the mosquito population became apparent. An initial bibliography was published in this journal (Vol. 8(4): 355-385 (1976)) and supplemented soon thereafter (Vol. 10(2): 211-224 (1978)). This addendum increases the number of annotated references to the mosquito fauna and the mosquito-borne diseases on Guam to 430 articles, studies and reports. While many of the references are to unpublished U.S. military and other reports which are difficult to find, they are included so that the bibliography will be as comprehensive as possible.

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BIBLIOGRAPHY

- Ajax. 1911. Ouch! Guam News Letter 2(8): 4. Describes in rhyme the introduction and ravages of dengue fever. It is assumed that this ditty was written for a local variety show on Guam.
- Bailey, S.F. 1946. Mosquito control in the Mariana islands. Proc. Calif. Mosq. Control Assoc. 14: 103-104. Provides an informal review of mosquito control activities and problems on Guam during 1945.
- Beller, S. 1948. A summary of the insects and flora of Guam. U.S. Dep. Agric., Agric. Res. Admin., Bur. Entomol. Pl. Quar., Div. Foreign Pl. Quar. (Honolulu, Hawaii). 282 p. Lists six species of Culicidae with their breeding sources on Guam, p. 25.
- Bram, R.A. 1967. Contributions to the mosquito fauna of Southeast Asia. II. The genus *Culex* in Thailand (Diptera: Culicidae). Contrib. Am. Entomol. Inst. (Ann Arbor) 2(1): 1-296. Includes the Mariana Islands [Guam?] in the distribution for *Culex halifaxii* Theobald, p. 22.
- Bunn, R.W. 1948. The Army campaign against mosquitoes. Rep. Annu. Meet. Fla. Anti-Mosq. Assoc. 19: 65-69. References a recent outbreak of Japanese B encephalitis on a Pacific island, p. 68. [Inference is to the Nov. 1947-Jan. 1948 outbreak on Guam Island.]
- Center for Disease Control, Bureau of Tropical Diseases. 1979a. Biology and control of *Aedes aegypti*. Vector Topics No. 4, 68 p. U.S. Dep. Health, Education, and Welfare, Public Health Serv., Atlanta, Georgia. Notes that at least six confirmed cases of dengue fever were imported onto Guam from Vietnam in 1975 during the admission of refugees from that country, p. 6.
- Center for Disease Control, Bureau of Tropical Diseases. 1979b. Control of dengue. Vector Topics No. 2, 39 p. U.S. Dep. Health, Education, and Welfare, Public Health Serv., Atlanta, Georgia. Comments that while at least six confirmed cases of dengue were imported onto Guam during the admission to the United States of refugees from Vietnam in 1975, no spread to the residents of Guam occurred because of early detection and extensive efforts toward mosquito control, p. 3.
- Centers for Disease Control. 1981. Annual summary 1980: reported morbidity and mortality in the United States. U.S. Dep. Health and Human Services, Public Health Serv., Atlanta, Georgia. Morbidity Mortality Weekly Rep. 29(54): 1-128 (1981). Reports four cases of malaria on Guam in Part 1: Summaries of diseases in the United States - Reported cases by geographic division and by state, United States, 1980, p. 7.
- Centers for Disease Control. 1982a. Annual summary 1981: reported morbidity and mortality in the United States. U.S. Dep. Health and Human Services, Public Health Service,

Atlanta, Georgia. Morbidity Mortality Weekly Rep. 30(54): 1-132 (1982). Reports three cases of malaria on Guam in Part 1: Summaries of notifiable diseases in the United States - Reported cases, by geographic division and area, United States, 1981, p. 7.

Centers for Disease Control. 1982b. Malaria surveillance annual summary 1980. U.S. Dep. Health and Human Services, Public Health Serv., Atlanta, Georgia. 36 p. Shows a single case for Guam in the geographic distribution of cases, Fig. 2, p. 3, and includes the island in the list of malaria-free countries or areas, Tab.19, p. 21, and Tab. 20, p. 25.

Centers for Disease Control. 1983. Annual summary 1982: reported morbidity and mortality in the United States. U. S. Dep. Health and Human Services, Public Health Serv., Atlanta, Georgia. Morbidity Mortality Weekly Rep. 31(54): 1-153 (1983). Reports two cases of malaria on Guam in Part 1: Summaries of notifiable diseases in the United States - Reported cases, by geographic division and area, United States, 1982, p. 7.

Centers for Disease Control. 1984. Annual summary 1983: reported morbidity and mortality in the United States. U. S. Dep. Health and Human Services, Public Health Serv., Atlanta, Georgia. Morbidity Mortality Weekly Rep. 32(54): 1-125 (1984). Reports three cases of malaria on Guam in Part 1: Summaries of notifiable diseases in the United States - Reported cases, by geographic division and area, United States, 1983, p. 6.

Centers for Disease Control. 1985. Cases of specified diseases, United States, week ending December 22, 1984. U.S. Dep. Health and Human Services, Public Health Serv., Atlanta, Georgia. Morbidity Mortality Rep. 33(51 and 52): 713-732. Reports one case of malaria (cumulative 1984) on Guam, p. 722.

Centers for Disease Control. 1986. Cases of specified notifiable diseases, United States, week ending December 21, 1985. U.S. Dep. Health and Human Services, Public Health Serv., Atlanta, Georgia. Morbidity Mortality Weekly Rep. 34(51 and 52): 765-788. Reports one case of malaria (cumulative 1985) on Guam, p. 776.

Colless, D.H. 1957. Records of two Pacific island species of mosquito from Singapore harbour. Med. J. Malaya 12: 464-467. Reports the collection of *Culex littoralis* Bohart. [According to S. Sirivanakarn 1976, p. 102 (Contrib. Am. Entomol. Inst. (Ann Arbor) 12(2): 1-272), this alleged introduction of *Culex littoralis* Bohart was based upon a misidentification of *Cx. alis*Theobald.]

DeCoursey, J.D. and J.S. Otto. 1958. Medical entomology. U.S. Naval Med. School, Natl. Naval Med. Center, Bethesda, Maryland. 342 p. Places *Aedes guamensis* in the Mariana islands, p. 177.

Delfinado, M.D. 1966. The culicine mosquitoes of the Philippines, Tribe Culicini (Diptera, Culicidae). Mem. Am. Entomol. Inst. (Ann Arbor) 7: 1-252. Includes "Marianas" in the distribution records for *Aedeomyia catantacta*, p. 73, 159.

- Faust, E.C., P.C. Beaver, and R.C. Jung, editors. 1975. *Animal agents and vectors of disease*, 4th ed. Lea & Febiger, Philadelphia, Pennsylvania. 479 p. Reports that *Anopheles subpictus indefinitus* appeared on Guam during World War II, but that malaria transmission has not taken place there up to the present time (1975), p.103.
- Gear, H.S. and Z. Deutschman. 1957. Disease control and international travel: a review of the International Sanitary Regulations. *Chron. WHO* 10(9-10): 273-343. Notes that Guam is "bound without reservation" to the International Sanitary Regulations (including yellow fever control), p. 336.
- Gressitt, J.L. 1954. *Insects of Micronesia*. Introduction. Bernice P. Bishop Mus. *Insects of Micronesia* 1: 1-257. Discusses the breeding habitat of *Aedes pandenus* on Guam, p. 159; lists five species of mosquitoes known to be of medical importance on Guam, p. 191; and provides data on major collectors on Guam, pp. 195-199.
- Griffin, A.P.C., editor. 1901. *Guam*, pp. 45-54. *In: A list of books on Samoa and Guam*. Library of Congress, Div. of Bibliography. Washington, D.C. 54 p. Provides a bibliography of references with annotations, including military department medical reports pertaining to Guam, p. 51.
- Guam, Territory of. 1974. *Union Catalog of the Guam Public Library: Guam and Pacific area materials*. Collections of the Guam Public Library and the Micronesian Area Research Center. Prepared by the Staff of the Nieves M. Flores Memorial Library. 464 p. Provides an alphabetic list (by author) of published books pertaining to Guam. It does not include technical papers or articles printed in journals or other periodicals.
- Haddock, R.L., R.A. Mackie, and K. Cruz. 1979. Dengue control in Guam. *South Pacific Bull.* 29(2): 16-21, 24. Provides a detailed review of the dengue vector surveillance and control programs during *Operation New Life* on Guam in 1975. Six cases of dengue were identified among evacuees. Ground fogging and aerial spraying were credited with control.
- Hammon, W.McD., W.C. Reeves, and G.E. Sather. 1951. Japanese B encephalitis virus in the blood of experimentally inoculated birds. Epidemiological implications. *Am. J. Hyg.* 53 (3): 249-261. Includes data for bird sera collected and tested following an outbreak of Japanese B encephalitis on Guam in 1948. Fourteen percent of the 21 wild birds tested were positive, p. 257 and 260.
- Hammon, W.McD., G.E. Sather, and H.E. McClure. 1958. Serologic survey of Japanese B encephalitis virus infection in birds in Japan. *Am. J. Hyg.* 67(1): 118-133. Notes that American workers beginning in 1945, tested small numbers of wild birds or chickens from areas in which JBE virus had produced epidemics, including Guam, p. 119.
- Harinasuta, C., S. Sucharit, T. Deesin, K. Surathin, and S. Vutikes. 1970. Bancroftian filariasis in Thailand, a new endemic area. *Southeast Asian J. Trop. Med. Public Health* 1(2): 233-245. References filariasis on Guam.

- Hermes, W.B. 1946. Some references to recent literature and sundry notes of interest to our members. Proc. Calif. Mosq. Control Assoc. 15: 10-17. References "Mosquitoes of Okinawa and islands in the Central Pacific" by R.M. Bohart and R.L. Ingram (NAVMEC 1055), and notes that 12 species of mosquitoes were known for the Mariana islands in 1946, p.13.
- Higgins, M.M. 1938. Guam - Perch of the China Clippers. Natl. Geogr. Mag. 74(1): 99-122. Notes on p.120: "Guam has no malaria, not much dengue fever."
- Holway, R.T. 1958. Return to source control. [Panel session: Where are we going in mosquito control?; chemical, physical and biological control - what and how.] Proc. Calif. Mosq. Control Assoc. 26: 43-44. Refers to mosquito control activities on Guam.
- Holway, R.T. 1967. Discussion, p. 9. //: Proc. CINCPAC [Commander in Chief Pacific] Conference on Quarantine and Control Measures to Prevent Dissemination of Vectors of Disease, 5-7 July 1967. Honolulu, Hawaii. 42 p. + atchs. Discusses the military responsibility for disease vector quarantine and presents examples of recent mosquito introduction on Guam. (see Holway 1964)
- Holway, R.T., A.W. Morrill, and F.J. Santana. 1967. Mosquito control activities of the U.S. armed forces in the Republic of Vietnam. Proc. Calif. Mosq. Control Assoc. 35: 23-29. References the two cases of introduced autochthonous malaria which occurred on Guam during November 1966, p. 26.
- Howe, G.M. 1977. A world geography of human diseases. Academic Press, London. Reports an estimated 560,000 cases of dengue were infected in Australia during 1943-1945, and that epidemics occurred in New Guinea, Guam, and Hawaii, p. 307.
- Hu, S.M.K. 1950b. Mosquito control in Hawaii. Proc. Calif. Mosq. Control Assoc. 18: 12-13. Refers to the incidence of Japanese B encephalitis in Guam and to W.C. Reeves' collection of *Anopheles albopictus* [should read *An. indefinitus*] on Guam for the first time in 1948, p. 13.
- Huang, Y-M. 1979. Medical Entomology Studies. XI. The subgenus *Stegomyia* of *Aedes* in the Oriental region with keys to the species (Diptera: Culicidae). Contrib. Am. Entomol. Inst. (Ann Arbor) 15(6): 1-79. Includes collection records for *Aedes aegypti* and *Ae. albopictus* in the Mariana islands (Guam), p. 39.
- Hughes, J.H. and J.E. Porter. 1958. Measures against yellow fever entry into the United States. U.S., Public Health Rep. 73(12): 1101-1106. Notes that in 1958, Guam was added to the yellow fever receptive area of the United States, p. 1102.
- Husted, S.R. and S.S. Balling. 1986. The Navy DVECC's role in California vector control. Proc. Calif. Mosq. Control Assoc. 53: 63-64. Refers to *Operation New Life* on Guam in 1975 and the DVECC's part in guarding against the importation of dengue, p. 63.

- Hutchins, R.E. 1966. Insects. Prentice-Hall, Englewood Cliffs, New Jersey. 324 p. Describes the living habitat of the larva of *Aedes pandani* on Guam as being in the leaf axils of the tropical screwpine, or pandanus, p. 113.
- Hutchinson, C.B. 1949. Welcoming address, University of California. Proc. Calif. Mosq. Control Assoc. 17: 2. In listing special departmental personnel at the University of California at Berkeley, the speaker refers to Dr. S. F. Bailey as "a Navy entomologist, who was the savior of Guam when dengue threatened."
- Jenkins, D.W. 1964. Pathogens, parasites and predators of medically important arthropods: annotated list and bibliography. WHO Bull. 30 (Suppl.): 1-150. Includes *Aedes guamensis* and *Ae. pandani* from Guam in the list of mosquitoes found infested by *Dirofilaria immitis*, p. 53.
- Kaiser, R.L. 1978. Vectorborne disease control and research at CDC - current trends. Mosq. News 38(4): 455-461. Refers to field training and/or technical consultation being provided to Guam and other areas, p. 457.
- Kessel, J.F. and E. Massal. 1962. Control of bancroftian filariasis in the Pacific. WHO Bull. 27(4-5): 543-554. Reports the control of filariasis due to *Wuchereria bancrofti* in the western Pacific through simultaneous use of mosquito control with diethylcarbamazine as a mass treatment of the population on Pacific islands, including Guam.
- Kindleberger, C.P. 1914. Department of Health and Charities. Special sanitary regulations for Guam. Guam News Letter 5(9): 6. Directs that all persons afflicted with elephantiasis (among other diseases) shall present themselves for treatment at the U.S. Naval Hospital, Guam.
- Knight, K.L. 1978. Supplement to A Catalog of the Mosquitoes of the World (Diptera: Culicidae). The Thomas Say Found. 6: 1-107 (Suppl.). Includes Guam in the distribution of *Anopheles baezai*, p. 4, and for *An. litoralis*, p. 10.
- Knudsen, A.B. 1986. The significance of the introduction of *Aedes albopictus* into the southeastern United States with implications for the Caribbean, and perspectives of the Pan American Health Organization. J. Am. Mosq. Control Assoc. 2(4): 420-423. References Rozeboom and Bridges (1982) who reported on the decrease in the natural population of *Aedes guamensis* on Guam as the apparent result of competition from *Ae. albopictus*, p. 422.
- Laird, M. 1984. Overview and perspectives, p. 291-325. /n: M. Laird, editor. Commerce and the Spread of Pests and Disease Vectors. Praeger Scientific, New York. xiv + 354 p. Discusses the possible introduction (by aerial flights) of *Aedes albopictus* to the Caroline and Marshall Islands from Saipan or Guam, p. 306; reviews the mosquito introductions onto Guam, p. 306-307; evaluates Guam as a possible source of *Anopheles* infestation in other Pacific areas, including Hawaii, p. 307-308.

- Lang, J.T. 1979. Entomology consultation. Andersen Air Force Base, Guam. USAF Occup. Environ. Health Lab., OL-AD, Clark Air Base Rep. 79-09. 12 p. w/2 atch. A routine base survey that reviews pest problems and makes recommendations for improved pest management. Provides vector species data, p. 2; discusses *Aedes pandani* breeding in leaf axils of pandanus trees or screw pine, p. 4.
- Lang, J.T. 1980. Entomology consultation. Andersen Air Force Base, Guam. USAF Occup. Environ. Health Lab., OL-AD, Clark Air Base Rep. 80-02. 16 p. w/2 atch. A routine base survey to review vector surveillance, pest control activities, and the military quarantine inspection program. Reviews the adult mosquito collection data for the base during 1979, and notes the lack of a mosquito larval surveillance program, p. 3-4.
- Lang, J.T. and A.C. Ramos. 1979. PACAF mosquito identification summary with mosquito surveillance information for the Pacific area. USAF Occup. Environ. Health Lab., OL-AD, Clark Air Base Rep. No. 79-15. 54 p. Lists the mosquito species and numbers collected on Guam during 1978. Data include adults from light traps and larval collections.
- Lang, J.T. and A.C. Ramos. 1983. Distribution and relative abundance of mosquitoes (Diptera: Culicidae) on U.S. Air Force installations in the Pacific and notes on mosquito-borne disease potential. J. Med. Entomol. 20(4): 455-457. Includes Andersen AFB in this analysis of mosquito collection data. *Aedes pandani*, *Ae. vexans*, *Culex quinquefasciatus*, and *Cx. tritaeniorhynchus* were the most abundant species captured in the base light traps.
- Lathrop, G.D. and P.J. Homme. 1975. An epidemic of chikungunya in the Philippine islands: possible role of aircraft dissemination. NATO-AGARD Conf. on Aeromed. Implications of Recent Experience with Communicable Disease, Proc. 169(A8): 1-6. Refers to Guam where three outbreaks of mosquito-borne diseases have been recorded and inferentially explained on the basis of vector importation, p. 1.
- Lindner, R. 1979. Surveillance of dengue fever and dengue haemorrhagic fever in the Western Pacific Region 1975-78. WHO Dengue Newsl. (S.E. Asian and Western Pac. Regions) 5(1): 1. Notes that Guam was one of five countries which reported zero cases of either disease during the period 1975-1978.
- Lucas, J. 1967. Situation report: Marianas, p. 13. In: Proc. CINCPAC [Commander in Chief Pacific] Conference on Quarantine and Control Measures to Prevent Dissemination of Vectors of Disease, 5-7 July 1967. Honolulu, Hawaii. 42 p. + atchs. Reports four recent cases of malaria on Guam and notes that vector mosquito control is accomplished by limited aerial spraying on the island.
- Macdonald, W.W. 1957. An interim review of the non-Anopheline mosquitoes of Malaya. Stud. Inst. Med. Res. Malaya No. 28, Malaysian Parasites 16: 1-34. Includes Guam in the distribution records for *Mansonia (Coquillettidia) crassipes* (? Mariana Islands), *Aedes (Stegomyia) albopictus* (Mariana Islands), and *Aedes (Aedimorphus) caecus* (Mariana Islands), p. 16, 20, 21.

- Manning, D.L., N.L. Evenhuis, and W.A. Steffan. 1982. Annotated bibliography of *Toxorhynchites* (Diptera: Culicidae): Supplement I. J. Med. Entomol. 19(4): 429-486. Includes Guam in the "Index to Geographical Name," p. 479, and lists two references for the island.
- Matias, C.R.T. 1957. A survey of public health and epidemiological problems on Guam before World War II. Stanford, California: Stanford Univ. 67 p. Thesis. Includes arthropod-borne diseases, p. 50-51, and mosquito vectors, p. 52-54.
- Mattingly, P.F. 1956. Addenda and corrigenda to Chapter VI. Diptera: Mosquitoes, p. 293-295. /n: J. Smart, editor. A handbook for the identification of insects of medical importance, 3d ed. Br. Mus. (Nat. Hist.). London. Includes *Aedes guamensis* in the distribution of the species of the *scutellaris* group. p. 294.
- McKenna, R.J. 1982a. Medical pest management survey. Andersen AFB, Guam. USAF Occup. Environ. Health Lab., Aerosp. Med. Div. (AFSC), OL-AD, Clark Air Base Tech. Rep. 82-16. 6 p. Reviews mosquitoes, including diseases vectored and related problems with a note on military quarantine inspection program agencies and recommendations for the base.
- McKenna, R.J. 1982b. Medical pest management survey. Andersen AFB, Guam. USAF Occup. Environ. Health Lab., Aerosp. Med. Div. (AFSC), OL-AD, Clark Air Base Tech. Rep. 83-0160L664MEC. 12 p. Annual survey of medical pests at Andersen AFB with descriptions of potential vector-borne situations and pest problems encountered by the survey team.
- McKenna, R.J. and A.C. Ramos. 1981. Mosquito collections on USAF installations in the western Pacific region during 1980. USAF Occup. Environ. Health Lab., Aerosp. Med. Div. (AFSC) OL-AD, Clark Air Base Tech. Rep. 81-09. 20 p. Includes the monthly mosquito collection data with identifications for Andersen AFB, Guam.
- McKinney, R.Q. 1947. Micronesia under German rule 1885-1914. Stanford, California: Stanford Univ. 145 p. Thesis. In citing Deutsches Kolonialblatt, Amtsblatt fuer die Schutzgebiete des Deutschen Reichs (1901: 73), the author notes that Robert Koch, in his search for malaria by blood test in 1900, showed that the Mariana group was not an endemic malaria area, p. 90.
- Meyer, K.F. 1962. Foreword, pp. iii-v. /n: W.C. Reeves and W. McD. Hammon, in collaboration with W.A. Longshore, Jr., H.E. McClure, and A.F. Geib. Epidemiology of the arthropod-borne viral encephalitides in Kern County, California, 1943-1952. Univ. Calif., Berkeley, Publ. Public Health 4: viii + 257. References the authors' studies on Japanese encephalitis on Guam, p. iv.
- Miller, A., R.W. Burgess, and S.J. Carpenter. 1947. Potentialities of transportation of exotic anophelines by airplane. J. Natl. Malaria Soc. 6(4):227-243. Notes on p. 229: "Anopheline mosquitoes have apparently not been implanted in any of the Pacific Islands previously free from them, despite extensive military air and sea traffic," a statement

which could easily have included the island of Guam with its several fully operational airfields and surface port which hosted a near-constant flow of aerial and sea travel beginning in 1944 and continuing to date.

- Miyagi, I. and T. Toma. 1980. A new species of *Aedes* (*Stegomyia*) from Daito Islands, Ryukyu, Japan (Diptera: Culicidae). *Mosq. Syst.* 12(4): 428-440. Compares *Aedes* (*Stegomyia*, *daitensis* n.sp. to *Ae. guamensis* Farner and Bohart from Guam, p. 432.
- Moore, E.S., compiler. 1974. Index to the Guam News Letter 1909-1921. Nieves M. Flores Memorial Library, Government of Guam. 189 p. Indexes the diseases and mosquitoes on Guam reported in this publication, which was the local newspaper from February 1909 up to March 1920.
- Morlan, H.B. 1964. The *Aedes aegypti* eradication program in the United States. *Proc. N. J. Mosq. Extermin. Assoc.* 51: 65-71. Includes Guam as a yellow fever receptive area in the United States, Fig. 2, p. 68.
- Nowell, W.R. 1978. Literature pertaining to the mosquitoes and the mosquito-borne diseases of Guam (conclusion). *Mosq. Syst.* 10(2): 211-224. Provides an additional 81 references to a bibliography published in *Mosquito Systematics* in 1976.
- Nowell, W.R. 1980. Comparative mosquito collection data from the southern Mariana islands (Diptera: Culicidae). *Proc. Calif. Mosq. and Vector Control Assoc.* 48: 112-116. Compares the initial collection data for both immatures and adults for each species of mosquito reported from Guam, Rota, Saipan and Tinian islands.
- Nowell, W.R. 1987. Vector introduction and malaria infection on Guam. *J. Am. Mosq. Control Assoc.* 3(2): 259-26. Reviews the collections of five species of *Anopheles* on Guam made in 1948 and during 1970-75; describes the small outbreaks of malaria recorded on Guam in 1966 and 1969, analyzes the cases, and notes that both outbreaks included introduced autochthonous cases.
- Okuno, T. 1969. Ecology of Japanese encephalitis virus, pp. 6-7. *In*: Report on the Second Regional Seminar on Virus Diseases: Mosquito-borne virus diseases (arboviruses). WHO Regional Office for the Western Pacific, Manila, Philippines, 6-11 Oct. 1969. WPR/416/69: 1-58. States that *Culex annulirostris marianae* was considered to have been the vector in the Guam epidemic of 1947.
- Osborn, H. 1952. A brief history of entomology. Spahr & Glenn, Columbus, Ohio. 303 p. Reviews entomology on Guam including the Diptera, p. 170.
- Pacific Science Association. 1983. Programme, abstracts and congress information. 15th Congress. Univ. Otago, Dunedin, New Zealand, Feb. 1-11, 1983. *R. Soc. N.Z.* 2 vols. Contains abstracts of several papers referencing mosquitoes or mosquito-borne diseases on Guam (p. 209, 220, 249).

- Pashley, D.N. and D.P. Pashley. 1983. Observations on *Aedes (Stegomyia)* mosquitoes in Micronesia and Melanesia. *Mosq. Syst.* 15(1): 41-49. Reviews the *Aedes* mosquito fauna in the Mariana islands, p. 43-44.
- Pillai, J.S. and S. Ramalingan. 1984. Recent introductions of some medically important Diptera in the northwest, central, and South Pacific (including New Zealand), p. 81-101. *In*: M. Laird, editor. *Commerce and the spread of pests and disease vectors*. Praeger Scientific, New York. 354 p. Refers to R.M. Bohart's report (1957) of *Aedes albopictus* being found on both Guam and Saipan, p. 93.
- Pinkovsky, D.D. 1983. Medical pest management survey. Andersen AFB, Guam. USAF Occup. Environ. Health Lab., Aerospace Med. Div. (AFSC), Clark Air Base, OL AD, USAF OEHL Rep. 84-0060L664LEC. 15 p. w/9 atch. Reviews the mosquito-borne diseases with case data on Guam, and describes the pest management and quarantine programs on the base, p. 2-4.
- Pinkovsky, D.D. 1985. Medical pest management survey. Andersen AFB, Guam. USAF Occup. Environ. Health Lab., Aerospace Med. Div. (AFSC), Clark Air Base, OL AD, USAF OEHL Rep. 85-0380L664CEC. 17 p. w/16 atch. Reviews the incidence of mosquito-transmitted diseases and vectors on Guam, p. 2-3; discusses the mosquito surveillance and control programs on the base, p. 3-4, and the military quarantine inspection program, p. 11-14. Includes the female mosquito collection records for 1979-1984 on Andersen AFB, Atch. 3.
- Pinkovsky, D.D. 1986. Medical pest management survey. Andersen AFB, Guam. USAF Occup. Environ. Health Lab., Aerospace Med. Div. (AFSC), Clark Air Base, OL AD, USAF OEHL Rep. 86-0350L664EEC. 22 p. w/9 atch. Reviews the history of mosquito-transmitted diseases on Guam and lists the potential vectors collected on the air base, p. 3; discusses the mosquito surveillance and control programs on the base, p. 3-5, and the military quarantine inspection program, p. 14-17. Includes the female mosquito collection records for 1979-1986 on Andersen Air Force Base, Atch. 3.
- Pinkovsky, D.D., A.C. Ramos, and M.M. Cannon. 1978. 1977 PACAF mosquito identification summary with mosquito surveillance information for the Pacific area. USAF 6201 Epidemiol. Flt. (PACAF) ENT Tech. Rpt. 78-002. 57 p. Contains mosquito collection data and information on the mosquitoes of Guam, p. 5-6.
- Pratt, G.K., A.C. Ramos, and R.J. Macaspac. 1987. 1986 mosquito identifications from USAF installations in the Pacific region. USAF Occup. Environ. Health Lab., Human Systems Div. (AFSC), Clark Air Base, Operating Location A D, USAFOEHL Rep. 87-0210L0610FEC. 50 p. Contains mosquito collection data for Andersen AFB, Guam, p. 2.
- Quarterman, K.D. 1963. Past achievements, current activities and contributions, and a view to the future on research on and control of mosquitoes by the U.S. Public Health Service. *Proc. N.J. Mosq. Extermin. Assoc.* 50: 59-72. Refers to the discovery of *Culex tritaeniorhynchus summarosus* and *Mansonia uniformis* on Guam in May of 1962 by Division of Foreign Quarantine personnel, p. 63.

- Quarterman, K.D. and D.R. Johnson. 1972. *Anopheles* and malaria transmission, p. 30-33 (in *Biology and Control of Important Insect Pests of Disease*, p. 14-45). In: J.V. Smith and R. Pal, editors. *Vector Control in International Health*. WHO, Geneva. 144 p. Comments on the discovery of *Anopheles subpictus indefinitus* on Guam in 1948, and notes that six cases of malaria were reported from Guam in 1969 with at least one of the cases having been transmitted locally on this previously classified malaria-free island, p. 32.
- Rai, K.S. 1986. Genetics of *Aedes albopictus*. *J. Am. Mosq. Control Assoc.* 2(4): 429-436. Includes Guam in the distribution of *Aedes albopictus* on p. 430; discusses the competitive displacement of *Ae. aegypti* and *Ae. guamensis* on the island by *Ae. albopictus*, p. 434.
- Ramalingam, S. 1984a. Disease vector surveillance and training, Guam. WHO Regional Office West. Pac. Assignment Rep., 3-30 June 1984 (ICP/VBC/003), dated 24 July 1984. 42 p. Describes workshop activities and provides a checklist and keys to both the larvae and adults of all the mosquito species reported from Guam. The key includes 17 species which were misidentified or are no longer considered as occurring on the island.
- Ramalingam, S. 1984b. A survey of mosquitoes and mosquito-borne diseases in some central and South Pacific islands. *Trop. Biomed.* 1: 133-144. Reports on the findings of a series of surveys made to determine the prevalence and density of the vectors of dengue and dengue haemorrhagic fever on eight island nations in the south and central Pacific, including Guam, p. 133.
- Rao, V.P., M.A. Ghani, T. Sankaran, and K.C. Mathur. 1971. A review of the biological control of insects and other pests in South-East Asia and the Pacific region. *Commonw. Inst. Biol. Control Tech. Commun.* 6: 1-149. Includes Guam in the discussion of *Toxorhynchites*, p. 54-55, 93, 99.
- Reeves, W.C. 1958a, moderator. Panel: Where are we going in mosquito control?; chemical, physical and biological control - what and how. *Proc. Calif. Mosq. Control Assoc.* 26: 40-45. Includes discussions in which mosquito control activities on Guam are mentioned.
- Reeves, W.C. 1958b. Comment [Panel: Where are we going in mosquito control?; chemical, physical and biological control - what and how]. *Proc. Calif. Mosq. Control Assoc.* 26: 44. Describes cutting down ornamental *Pandanus* sp. trees for mosquito control on Guam.
- Reinert, J.F. 1976. A ventromedian cervical sclerite of mosquito larvae (Diptera: Culicidae). *Mosq. Syst.* 8(2): 205-208. Notes that the larva of *Aedes oakleyi* [from Guam] possesses the sclerite, p. 205.
- Reisen, W.K. 1982. *Culex tarsalis* Coq. and *Cx. tritaeniorhynchus* Giles: similarities and differences in bionomics and disease relationships. *Proc. Calif. Mosq. Vector Control Assoc.* 49: 10-14. References the report of collection of *Cx. tritaeniorhynchus summarosus* on Guam in 1972, p. 10.

- Reiter, P. and R.F. Darsie, Jr. 1984. *Aedes albopictus* in Memphis, Tennessee (USA): an achievement of modern transportation? *Mosq. News* 44(3): 396-399. Includes the Mariana islands in the list of areas in which *Ae. albopictus* has become established, p. 396.
- Reuben, R. and S.G. Suguna. 1983. Morphological differences between sibling species of the taxon *Anopheles subpictus* Grassi in India, with notes on relationships with known forms. *Mosq. Syst.* 15(2): 117-126. Refers to specimens of this species collected on Guam, p. 118.
- Rosen, L.L. 1953. Mosquito vectors of human filariasis in Oceania, p. 9-14. *In: Proc. S. Pac. Comm. Conference on Filariasis and Elephantiasis, 21 Aug.-1 Sep. 1951, Papeete, Tahiti.* Notes there is practically no information on the mosquito vectors of *Wuchereria bancrofti*, in Micronesia and lists members of the *scutellaris* group of genus *Aedes*, including *Ae. guamensis* in the Marianas, which could be suitable hosts for filariasis, p. 11.
- Sabin, A.B. 1964. Dengue. Part II. Research activities, p. 40-62. *In: J.B. Coates, Jr., E.C. Hoff, and P.M. Hoff, editors. Preventive medicine in World War II. Vol. VII. Communicable diseases: Arthropodborne diseases other than malaria. Office of the Surgeon General, Dept. of the Army, Washington, D.C.* States that neutralization tests on sera from individuals who had dengue fever on Guam in 1944-45, indicated that another type or types of dengue other than the Hawaii type of virus were probably more prevalent there, p. 59.
- Safford, W.E. 1912. Guam. An account of its discovery and reduction, physical geography and natural history, and the social and economic conditions on the island during the first year of the American occupation. Reprint of a lecture delivered before the District of Columbia Society of the Sons of the American Revolution at Washington, D.C., April 19, 1911. 32 pp. Mentions the use of a "smudge" to drive mosquitoes out of the house prior to retiring for the night, p. 26.
- Schreiner, I. and D. Nafus. 1986. Accidental introductions of insect pests to Guam, 1945-1985. *Proc. Hawaii. Entomol. Soc.* 27: 45-52. References the confirmation by R.A. Ward (1984) of the establishment on Guam of at least 14 species of mosquitoes since 1945, p. 45, 49, 50.
- Self, L.S. and A. Smith. 1983. Preventive measures against importing malaria vectors into Pacific islands (Abstract). Programme, abstracts and congress information, Pac. Sci. Assoc., 15th Congr. Univ. Otago, Dunedin, New Zealand (Feb. 1-11, 1983). 2 vols. 2: 209. References the recent history of *Anopheles* species becoming established on Guam.
- Self, L.S. and A. Smith. 1984. Preventive measures against importing malaria vectors into Pacific islands, p.163-175. *In: M. Laird, editor. Commerce and the spread of pests and disease vectors. Praeger Scientific, New York.* 354 p. Refers to the post-World War II introductions and establishment of several anopheline species on Guam, p. 163; discusses mosquito surveillance at Guam International Airport, and malaria on Guam, p. 169-170.

- Smith, A. and I.D. Carter. 1983. International transportation of mosquitoes of public health importance (Abstract). Programme, abstracts and congress information, Pac. Sci. Assoc., 15th Congr. Univ. Otago, Dunedin, New Zealand (Feb. 1-11, 1983). 2 vols. 2: 220. References the autochthonous cases of malaria which occurred on Guam in 1966 and in 1969, and the suspected vector.
- Smith, A. and I.D. Carter. 1984. International transportation of mosquitoes of public health importance, p. 1-21. *In*: M. Laird, editor. Commerce and the spread of pests and disease vectors. Praeger Scientific, New York. 354 pp. Comments on the outbreaks of dengue fever and malaria on Guam, p. 3; considers the possible introduction of *Aedes albopictus* into Guam aboard insufficiently disinfected aircraft, p. 5; notes the number of mosquito introductions onto Guam through international transportation, p. 18.
- Steffan, W.A., N.L. Evenhuis, and D.L. Manning. 1980. Annotated bibliography of *Toxorhynchites* (Diptera: Culicidae). J. Med. Entomol. Suppl. 3: 1-140. Includes references to the two *Toxorhynchites* species which were introduced onto Guam in 1954, p. 13, 44, 68, 134.
- Stone, A. 1961. A synoptic catalog of the mosquitoes of the world. Supplement I (Diptera: Culicidae). Proc. Entomol. Soc. Wash. 63(1): 29-52. Deletes "? Mariana Islands (Guam)" from the distribution of *Tripteroides (Tripteroides) purpuratus*, p. 32; also deletes the *Uranotaenia colocasiae* collection record from Guam, p. 36.
- Stone, A. 1967. A synoptic catalog of the mosquitoes of the world. Supplement III (Diptera: Culicidae). Proc. Entomol. Soc. Wash. 69(3): 197-224. Describes taxonomic changes for *Anopheles (Cellia) indefinitus* in the Mariana islands, p. 200.
- Stone, A. 1970. A synoptic catalog of the mosquitoes of the world. Supplement IV (Diptera: Culicidae). Proc. Entomol. Soc. Wash. 72(2): 137-171. References *Aedes oakleyi* Stone, as being endemic to Guam, p. 151.
- Suzuki, T. and J.H. Hirshman. 1977. Distribution and density of *Aedes aegypti* in the South Pacific. N.Z. Med. J. 85(587): 374-380. Surveys of *Ae. aegypti* were made on 26 islands covering 10 countries or territories in the south and central Pacific. Guam is included in the study, p. 374, 375, 378. [A review of this article was printed in Trop. Dis. Bull. 74(11): 1061. 1977].
- Taboada, O. 1967. Medical entomology. Naval Med. School, Natl. Naval Med. Center, Bethesda, Maryland. 395 p. Includes *Ae. guamensis* from the Mariana islands in the list of aedine mosquitoes, p. 181.
- Tanaka, K., K. Mizusawa, and E.S. Saugstad. 1979. A revision of the adult and larval mosquitoes of Japan (including the Ryukyu Archipelago and the Ogasawara islands) and Korea (Diptera: Culicidae). Contr. Am. Entomol. Inst. (Ann Arbor) 16:1-987. Includes the Mariana islands (Guam) in the distribution for *Aedes albopictus*, p. 383.

- Thompson, L. 1942. Guam and its people: a study of culture change and colonial education. Am. Council, Inst. Pac. Relations. Stud. Pac., No. 8. 308 p. Notes that malaria is absent on Guam, p.161; includes case data for malaria and dengue fever on Guam in the table: Communicable Diseases Recorded on Guam, 1933-1937, p. 298-299. The totals for the period of record were zero cases of malaria and 17 cases of dengue fever.
- U.S. Department of Agriculture. 1967. Insects not known to occur in the United States. A mosquito (*Culex tritaeniorhynchus* Giles). U.S. Dep. Agric. Coop. Econ. Inst. Rept. 17(42): 951-952. Provides a description and illustrations of this species with notes on its distribution, including Guam.
- U.S. Navy. 1944. Guide to the western Pacific. For the use of the Army, Navy, and Marine Corps of the United States of America. CinCPac-CinCPOA Bull. No. 126-44. 124 p. Notes that filariasis and dengue fever occur throughout the Mariana islands, but that malaria is rare, p. 67; also states "Mosquitoes are found everywhere, and although the malaria-bearing mosquito has not yet been introduced into the islands, the bearer of dengue fever and the nocturnal mosquito are both present," p. 67.
- Utinomi, H. (Uchinomi, F.), compiler. 1944. Bibliographia Micronesica: Scientiæ Naturalis et Cultus. Tokyo. Compiled by H. Utinomi, edited and revised by O.A. Bushnell and printed as "Bibliography of Micronesia" by the Univ. Hawaii Press, Honolulu, in 1952. xiv + 157 p. Includes Mariana island references in the following sections: Zoology: Insects, p. 43-45, and Medicine, p. 80-89.
- Ward, R.A. 1983. Mosquito fauna of Guam: case history of an introduced fauna (Abstract). Programme, abstracts and congress information, Pac. Sci. Assoc., 15th Congress. Univ. Otago, Dunedin, New Zealand (Feb. 1-11, 1983). 2 vols. 2: 249. While analyzing the 35 species of mosquitoes that had been reported in the literature as occurring on the island of Guam, the author points out that only 24 are valid species records: six species are restricted to the island, with the remaining 18 having been introduced since the United States acquired the island in 1898.
- Ward, R.A. 1984. Mosquito fauna of Guam: case history of an introduced fauna, pp. 143-162. /n: M. Laird, editor. Commerce and the spread of pests and disease vectors. Praeger Scientific, New York. 354 p. Analyzes the 41 species and subspecies of mosquitoes reported in the literature as having been found on Guam with emphasis on their period of introduction, validity of occurrence on the island, and their medical significance. Only 24 species are considered to be valid records: seven are endemic in the Mariana archipelago; 17 comprise an introduced fauna; and the remaining 17 are deleted from the list because their presence can not be confirmed.
- Ward, R.A., and B. Jordan. 1979. *Anopheles barbirostris* - confirmation of introduction on island of Guam. Mosq. News 39(4): 802-803. Points out that collections of the larval form of *An. barbirostris* made in 1976 confirm the published report in 1975 of the introduction of this mosquito onto Guam.

- Woodhill, A.R. 1949. A note on experimental crossing of *Aedes (Stegomyia) scutellaris scutellaris* Walker and *Aedes (Stegomyia) scutellaris katherinensis* Woodhill (Diptera, Culicidae). Proc. Linn. Soc. N.S.W. 74: 224-226. Locates *Aedes guamensis* in the Mariana islands (Saipan and Guam) in the distribution of *Ae. scutellaris* Walker and closely related species, Text-fig. 1, p. 224.
- World Health Organization. 1971. Vector quarantine in air transport. WHO Chron. 25(5): 236-239. References the five new species of mosquitoes which were recently introduced onto Guam and are potential vectors of dengue fever, Japanese encephalitis, and filariasis on the island, p. 236.
- World Health Organization. 1975. Dengue fever surveillance in some countries of Asia and the south-west Pacific. W.H.O., Wkly. Epidemiol. Rec. 50: 269-272. Notes that while Guam had been reported free of *Aedes aegypti* since the late 1940s, one adult and two larval forms were found during a survey in 1971, and that *Ae. scutellaris* and *Ae. albopictus* were also identified on the island, p. 271.
- World Health Organization. 1976. Vaccination certificate requirements for international travel (Situation as on 1 January 1976). W.H.O., Geneva. 53 p. Lists Guam on p. 19 with its immunization requirement for yellow fever being the same as that for the U.S.A. Also: World Health Organization. 1978. Same title and pagination for "Situation as on 1 January 1978." Lists Guam on p. 19 with the yellow fever immunization requirement being the same as that for the U.S.A.
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