

ANNUAL PROFILES OF TEN COMMON SPECIES OF
ADULT MOSQUITOES COLLECTED IN LIGHT
TRAPS ON OKINAWA FOR THE PERIOD
1965-1970

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The annual incidence of any species of mosquitoes in any geographic region is a most important factor in all mosquito control programs. Knowing the normal incidence not only assists in proper preparation for control programs, but where medically important vectors are involved an "early warning" system can greatly aid in avoiding epidemics or even pandemics of mosquito-borne diseases. Ordinarily sufficient data of the characteristic annual profiles are lacking due to inconsistent collecting or inadequate numbers of mosquitoes collected to reflect relevant information. Hurlbut and Nibley (1964) reported the profiles of only three species of Okinawa's mosquitoes collected in light traps for a single year and indicated their relative numbers. However, because a single year's data cannot be considered average by any stretch of the imagination, the purpose of this study was to examine the data for meaningful annual profiles of mosquito species on Okinawa.

Okinawa is an island located in the East China Sea. It is 67 miles long and 3-12 miles wide comprising an area of about 483.4 square miles. The nearest

large land mass is Taiwan approximately 400 miles to the southwest. Since 1945 a highly organized mosquito surveillance and control program has been in operation under the auspices of the American Military Comand for most of Okinawa. The mosquito surveillance and control program there owes its success to the consistent and methodical approach to mosquito control. Permanent larval dipping stations have been a constant source of information about the aquatic stages of the local mosquitoes as have the light traps with respect to the night-flying positively phototropic adults. Numbers of mosquitoes reflected in this study were obtained from 25 New Jersey type light traps operated 7 days per week from 1965 to 1970.

The data concerning the mosquitoes are extremely detailed and voluminous. To process them by ordinary means would be time-consuming and virtually impossible. As a result, data concerning the ten most common species of Okinawa's mosquitoes collected in light traps have been analyzed by use of an IBM 1130 computer at NAMRU-2. Histograms were produced which reflect the characteristic profile of the mosquito species collected from 1965 to 1970. Figures 2 through 11 reflect the percentages or relative numbers of the total number of each species of mosquitoes taken in the light traps throughout the year on a 6-year average. Figure 1 reflects the combined average annual profile of all species of adult mosquitoes taken in the

Average Annual Profiles of Okinawa Mosquitoes 1965 - 1970

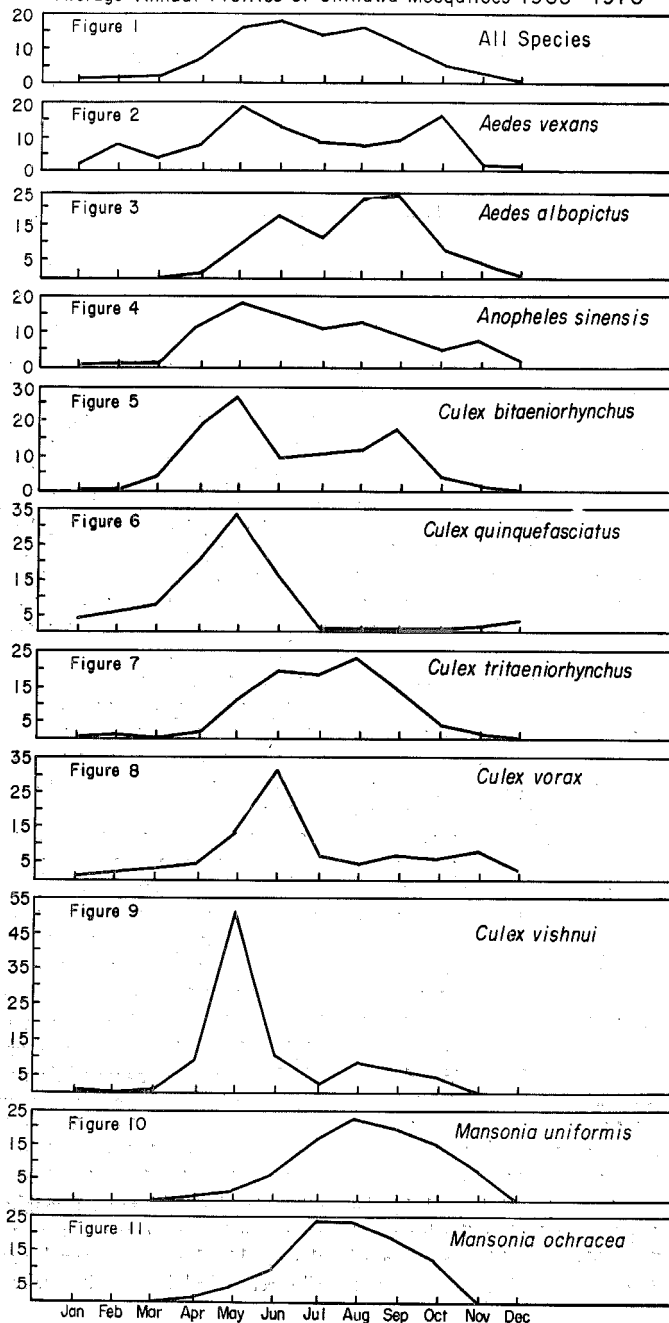


Table I
Six Year Average of the Monthly Percent of all Ten Common
and the Other Mosquitoes Taken in Light Traps in Okinawa

	<i>Aedes vexans</i>	<i>Aedes albopictus</i>	<i>Anopheles sinensis</i>	<i>Culex quinquefasciatus</i>	<i>Culex tritaeniorhynchus</i>	<i>Culex vixans</i>	<i>Culex vishnu!</i>	<i>Mansonia uniformis</i>	<i>Mansonia ochracea</i>	Other Species	All Species	
Jan	17.8	0.02	14.5	1.0	50.8	14.7	0.12	0.40	0.09	0.00	0.43	1768
Feb	23.2	0.00	9.4	1.3	45.0	18.5	0.14	0.04	0.01	0.00	2.40	3184
Mar	18.6	0.04	13.1	2.3	54.0	11.2	0.13	0.14	0.04	0.00	0.46	3320
Apr	16.5	0.05	19.5	3.7	43.7	15.0	0.07	0.60	0.40	0.03	0.50	10653
May	17.1	0.16	12.4	2.3	26.7	38.4	0.10	2.02	0.26	0.06	0.47	24358
Jun	11.8	0.20	10.3	0.9	13.6	61.0	0.19	0.50	0.59	0.11	0.95	24982
Jul	12.3	0.20	11.4	2.0	1.7	68.4	0.09	0.24	2.13	0.40	1.10	20618
Aug	12.5	0.42	9.2	1.6	0.5	70.0	0.06	0.30	3.40	0.35	1.87	21574
Sep	12.6	0.46	9.2	1.1	0.9	69.0	0.09	0.45	4.00	0.50	2.00	14440
Oct	20.7	0.38	13.0	1.3	2.9	49.7	0.18	0.70	6.90	0.70	3.50	8367
Nov	18.0	0.26	25.0	1.2	11.0	35.0	0.40	0.40	5.30	0.13	4.00	4348
Dec	21.0	0.03	24.3	1.6	36.0	15.6	0.20	0.24	0.20	0.00	1.30	1829

light traps for the 6-year period. Table 1 reflects the 6-year average of the monthly percentage of all ten common species and other miscellaneous mosquitoes taken. These data do not agree with those of Hurlbut and Nibley (1964) who suggested that the annual pattern of mosquito incidence was recurring. For instance, of the three species: *Culex tritaeniorhynchus*, *Culex quinquefasciatus*, and *Anopheles sinensis* considered collectively to equal 100 percent in the month of January from 1965 to 1970, *C. tritaeniorhynchus* varied from 8.17 percent to 38.7 percent of the catch, *C. quinquefasciatus* varied from 48.9 percent to 8.16 percent of the catch, and *An. sinensis* varied from 10.2 percent to 36.8 percent of the catch. However, Table 1 clearly indicates that for the months of January through April the bulk of the mosquitoes taken were *C. quinquefasciatus* while *C. tritaeniorhynchus* made up the bulk of mosquitoes taken from May through November. As expected, the paucity of *Aedes albopictus* taken in any month was due to their being phototaxis-

negative. Others such as *Aedes vexans* and *C. tritaeniorhynchus* are phototaxis-positive and clearly reflect an increase in numbers trapped as their numbers in nature increased.

SUMMARY. These data have clearly shown the profiles of all adult mosquitoes taken in light traps on Okinawa as well as specific profiles for the ten most common species of mosquitoes. The time span (6 years) and the numbers of specimens involved are considered to hold a high level of credibility for the respective profiles.

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Literature Cited

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