MALARIA IN FLORIDA

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During recent years, the principal approach to malaria control and prevention in Florida has been the DDT residual spray program. Initiated in 1945, this activity was a cooperative one, with the Florida State Board of Health, local health departments, and the U. S. Public Health Service participating. The program involved spraying of walls, ceilings, porches, and privies of unscreened or poorly screened houses with DDT in those areas whose epidemiological history showed a high incidence of malaria. The effectiveness of these treatments has been determined principally by their ability to maintain houses free of the malaria vector. The tendency of malaria mosquitoes to rest and linger within houses, especially after a blood meal, has been well established and it is this characteristic which results in control by means of the interior residual spraying of homes. Evaluation of control operations was based on inspections made in both sprayed and unsprayed houses. These data, during the period control operations were conducted, showed that an average of 97 percent of the sprayed houses inspected were found to be free of *Anopheles quadriraculatus* as compared to 68 percent of the unsprayed houses inspected. Through 1950, 313,081 houses in forty counties of Florida have been treated. In addition to enhancing malaria control and prevention, these treatments have simultaneously yielded a high degree of control of other house-frequenting insects. While the concurrent control of houseflies since 1948 has been relatively poor, apparently due to resistance to DDT, there is no evidence to indicate that anophelines have developed any significant degree of resistance to this insecticide, under field conditions.

Reported cases and deaths from malaria in Florida during the period 1917 through 1949 are shown in Figure 1. The peak year of reported cases appears to have occurred during 1919, when 1,895 cases were reported. During 1929, a record 470 deaths from the disease were reported. The graphs indicate a

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1 From the Communicable Disease Center, Public Health Service, Federal Security Agency, Atlanta, Georgia.
cyclic decline, during the period observed, the exact cause or causes for which have never been clearly demonstrated. Judicious speculation may attribute this decline in malaria to a combination of factors difficult to accurately evaluate. Undoubtedly the economic status of the population has played an important role, greatly influencing the individual’s ability to purchase household insecticides, to provide screening and other protective measures, medical care, and physical resistance commensurate with the standard of living. During and following the depression years, extensive drainage projects were conducted by Federal relief agencies which resulted in a quantitative reduction of the malaria vector. Improved education and regulatory measures, pertaining to water impoundments, likewise appear to have enhanced this decline. Substantial increases in reported malaria cases during 1944 and 1946 may be attributed to “imported” malaria, principally involving armed forces personnel. The DDT residual spray program may logically be presumed to have materially assisted in preventing a resurgence of malaria during and subsequent to this period.

Due to the present low incidence of malaria in Florida, the Public Health Service has withdrawn financial support of county-wide DDT residual spray programs. To supplant this, a malaria surveillance and prevention program is contemplated for the Fiscal Year beginning July 1, 1951. In each of the thirteen Southeastern States where malaria has not been eradicated, the Communicable Disease Center of the Public Health Service proposes to organize, in cooperation with the States, federally supported malaria surveillance and prevention teams whose primary responsibilities shall be the prevention and elimination of malaria. Ideally, a team shall consist of an epidemiologist, an entomologist, and an engineer.

Responsibilities of the Epidemiologist: The epidemiologist should investigate and appraise each case of malaria in the State as soon as feasible. Cases should receive the following priority in investigation:

a. Laboratory confirmed cases.

b. Cases reported from areas known to have been previously malarious and cases reported by doctors known to have given bona fide reports in the past.

c. Rumors and unofficial reports of malaria.

d. Other malaria reports.
The determination of priority investigation in any of the above categories should be the responsibility of the state epidemiologist. If appraisal indicates the possibility of recent local transmission of malaria, immediate steps should be taken to determine the source and the extent of spread of the infection, specifically by house to house epidemiological investigation and thick film surveys. After epidemiological appraisal has located a positive or presumptive case, the epidemiologist should make available his findings and interpretations to the other members of the team for appropriate control procedures.

A continuing and primary responsibility of the epidemiologist assigned to malaria surveillance should be to assist the state epidemiologist in promoting better morbidity reporting of malaria.

A secondary responsibility of the epidemiologist, after all responsibilities on malaria appraisal and surveillance are fulfilled, should be to participate in finding, investigating, and appraising typhus fever cases. He should encourage physicians to obtain confirmation of their diagnoses by means of rickettsial complement fixation.

A tertiary responsibility of the epidemiologist should be to obtain epidemiologic information concerning other communicable diseases.

Responsibilities of the Entomologist: In the vicinity of positive or presumptive malaria cases, the entomologist should determine prevalence, abundance, and local distribution of malaria vectors. After control operations are undertaken, the entomologist should determine their effectiveness.

The secondary responsibility of the entomologist is to participate with the engineer and state epidemiologist in the planning and operation of typhus control and evaluation activities. The tertiary responsibility of the entomologist is to search for vector species where insect-borne diseases are reported, and to participate in the promotion and conduct of programs for controlling insects of public health importance.

Responsibilities of the Engineer: The engineer's primary responsibility will be to determine and conduct appropriate insect control operations around positive or presumptive malaria cases. This will include responsibility for the assignment and management of CDC equipment and materials.

The secondary responsibility of the engineer shall be the organization, operation and direction of typhus control pro-
grams within the state. The tertiary responsibility shall be the promotion and technical supervision of locally sponsored insect control activities.

The above outlined program should result in more accurate reporting of malaria, assist in economically directing the final phases of malaria eradication, and more clearly define the existing status of malaria in this nation.

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**A NEW *CULICOIDES* FROM FLORIDA**

*(DIPTERA, CERATOPOGONIDAE)*

**ELIZABETH C. BECK**

During the course of a study of the distribution of *Culicoides* in Florida, conducted from November, 1948, through September, 1950, a new species of *Culicoides* was found in light trap material and is herewith described.

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**Culicoides floridensis** n. sp.

**FEMALE:** Uniformly light golden yellow with unspotted wings, mesonotum and legs unmarked. Approximately 1.1-1.2 mm. long as compared to 1.6-1.7 mm. length in *C. melteus*. There are two spermathecae, clear, with a broad ring and rudimentary spermatheca. In *C. melteus* the spermathecae are black and there is a conspicuous rudimentary spermatheca, but no apparent ring.

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