OPERATIONAL AND SCIENTIFIC NOTES

SECTION MAPS AND SECTION CARDS AS AIDS TO GROUND CREWS IN A MOSQUITO CONTROL PROGRAM [1]

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Aerial photo maps and section cards have proven to be valuable aids to seasonal ground crews employed by the Metropolitan Mosquito Control District. The maps and section cards are used in locating, identifying, and recording treatments of mosquito breeding sites. The aerial maps are also of value to pilots who refer to them to locate the breeding sites to be treated. Thus the possibility of treating the wrong site is minimized. The maps show at a glance the exact location of a breeding site in a mile square area and the accompanying section card lists all pertinent information needed to treat the site.

Aerial photos can be obtained from state and local agencies in various scales. The scale of 1 in=660 ft converts well to a standard 8½ x 11 in. file system while at the same time shows sufficient detail. Copies are made of the original photos and the original is filed for reference.

The photo copies are then separated by county and township and numbered alphabetically. Each section is numbered 1–36 according to the 36 square miles in each township. When each section is identified by county, township and section number the breeding sites are located on the maps. Breeding sites are given a sequential number and color coded; *red* for sites that produce major pest (human-biting, *Aedes*) mosquitoes, *blue* for minor pest (occasional or non-human biting) mosquitoes, and *yellow* for normally dry sites or those which require special attention. All roads and landmarks are designated.

The section maps are updated annually to keep abreast of site changes and local development. Should a section require complete remapping a pantograph or shadow box is used to trace basic information from the original aerial photo and new information is drawn in.

To keep a record of site inspections and treatments M.M.C.D. devised an 8½ x 11 in. card that fits behind the section map. The section card is identified by the same county, township, and section number as the respective map. In the far left column are listed the breeding site numbers which correspond to the site numbers on the section map. Site size in acres or tenths of acres is recorded in the 2nd column. The 3rd column lists site type; #1 denotes temporary floodwater, #2 woodland site, #3 permanent water, and #4 ditch site. These numbers are written in the same color code of the site as shown on the map. The 4th column keys special treatment needs, such as, a green P for pasture, or a yellow or red S for sensitive site.

The next group of columns is used for recording site inspections and treatments. Four groups of columns are each subdivided as follows. The first column is for the date of the inspection and/or treatment, followed by % of site that is wet. The 3rd column is a divided space for recording what was found: larvae, pupae, or adults, and the number found per dip for larvae and pupae or per 5-min period for adult collections. The employee who performs the inspection and/or treatment records his employee number in the next column. The 5th column is checked if the site is treated. The last 2 columns are used to record the results of larval samples submitted for laboratory identification. This information is recorded as a check mark in one of the two columns; red for *Aedes* or blue for non-*Aedes*. Species identities are recorded for each breeding site in the District computer system.

Inspection and treatment information is also recorded on a daily work report which indicates the equipment used to make the application, type of and the amount of insecticide used. These reports are turned in to the foreman at the end of the day.

The authors hope that other districts will find this method useful in their programs and would like to hear any suggestions or alternatives you may have.

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AN INLAND MOSQUITO CONTROL PROGRAM

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Richland County, South Carolina, by nature of its topography, furnishes ideal conditions for

mosquito populations to flourish. It is supplied with four floodplains, heavy annual rainfall, and warm temperatures. The four floodplains are those of the Saluda, Broad, Congaree, and Wateree Rivers. After heavy rains, relatively large populations of floodwater mosquitoes appear, creating a nuisance problem of great concern to the citizens of the county.

The Richland County Vector Control Team first received appropriations for a full time mosquito control program in 1970. In 1972 a Leco HD Model ULV was purchased. Subsequent approval of the program led to the purchase of a second Leco ULV in 1974. The program now has an annual budget of approximately $40,000 being somewhat curtailed by an austere government.

As a result of low budgets, the mosquito control program in Richland County utilizes a balanced attack on the mosquito problem. The program has been divided into 4 large areas of responsibility: surveillance and inspection, larviciding, adulticiding, and education, with mass source reduction playing a small part due to the small budget.

There are now three full-time inspectors employed in mosquito control. Each inspector is responsible for an arbitrarily designated region of the county. The 3 regions of the county are further divided into surveillance areas. Each day during the mosquito season, landing rate counts, resting places and larval dips are made in each area. Twice a week light trap collections are made from New Jersey type light traps. Once a week oviposition paddles are collected from CDC type black jars for determining *Aedes aegypti* population densities. Citizen complaints are investigated as received. It is through citizen complaints that most source reduction is achieved.

The adult density index arrived at by the results of surveillance plus citizen requests indicates which areas need chemical treatment to reduce the population of mosquitoes.

The two types of chemical treatment employed by Richland County are larviciding with X-87 and adulticiding by ULV dispersal of malathion. Part-time summer help is utilized in chemical treatment. Larvicide crews are dispersed each day into areas known to consistently breed mosquitoes. The adulticiding crew is sent into the same area if the adult mosquito population warrants it. Adulticiding is employed only when the adult population is sufficiently numerous.

Records are kept on all activities. Daily surveillance records on landing rate and resting counts, larval dips, and larvicide spraying are kept. These are compiled into weekly and monthly averages. Daily rainfall and temperature is kept. Each night of ULV is recorded as to miles driven and malathion dispersed as well as any malfunctions of equipment and vehicle.

Light trap collections of mosquitoes are identified by the full-time employees. A monthly compilation is sent to the State of South Carolina Vector Control Division each month, along with a report of monthly averages of landing rate counts, resting stations, oviposition paddles and egg counts and light trap numbers.

HIGH QUALITY CONTROL ON A LOW BUDGET

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The Richland County, South Carolina, Mosquito Control Program, like all government agencies of recent times, has been forced to control mosquitoes to a level acceptable to the citizens of the county with a shoestring budget. In previous years, large scale adulticiding by ULV dispersal of malathion was the acceptable means of control along with the larviciding of all accessible standing water. As many as 8 part-time summer employees were utilized to treat chemically the mosquitoes of Richland County in addition to 4 full-time employees. Suddenly in the summer of 1976, the budgets were cut and large-scale spraying became a thing of the past.

The summer of 1976 saw the work force reduced to 3 full-time employees and 2½ part-time employees. The question involved was to how to furnish services to the citizens in the manner to which they were accustomed utilizing half as many people and spending half as much money. The answer was far from easy.

The first attempt in solving the program was to hire the most efficient part-time help. All applicants were interviewed and their potential carefully analyzed. One college student was hired to larvicide and one student was hired to drive the ULV truck. A third student was shared with another agency. This student was used both for larviciding and adulticiding wherever he was needed most.

Larviciding was assigned each day based on amount of standing water in the area, adult densities, and citizen complaints. Full-time employees spent most of their time gathering information on adult densities and investigating complaints. All spray requests were investigated to determine if source reduction or larviciding could accomplish the alleviation of nuisance in lieu of adulticide ULV spraying. By utilizing such an approach only one truck-mounted ULV was operated most of the summer as compared with two