

ACTIVITIES OF PUBLIC HEALTH INSECT CONTROL STUDY AND REPORT GROUP ON THE NEW ENGLAND- NEW YORK INTER-AGENCY COMMITTEE

FRANK R. LISCIOTTO

Communicable Disease Center, Public Health Service
U. S. Department of Health, Education, and Welfare
Boston, Massachusetts

One method of developing the country's water and land resources is on the basis of comprehensive river basin development programs. Several Federal agencies are uniting with the states concerned for the purpose of coordinating the various basin programs. In the northeastern states, this has been done through the work of the New England-New York Inter-Agency Committee. All the river basins in the six New England States and several basins in New York are under study. Long Island and three basins (the Susquehanna, Delaware, and Allegheny) in upstate New York are not included in this program. The Federal participants in this project are: the U. S. Army Corps of Engineers as Chairman Agency; the Departments of Interior, Agriculture, Commerce, and Health, Education and Welfare; the Federal Power Commission, and the State Department. Eleven study and report groups have been formed to gather data and prepare comprehensive basin reports. The Coordinator of each group is a representative from one of the above Federal agencies responsible for his agency's field of interest, for example, the recreation and fish and wildlife groups are headed by personnel from the Department of the Interior; the water pollution and water supply groups and the Public Health Insect Control Study and Report Group are headed by personnel from the Department of Health, Education, and Welfare.

A portion of the work and responsibilities of the Public Health Insect Control Study and Report Group is to determine the effects of water resources development upon biting insect incidence. It is a well known fact that severe public health insect problems may develop as a result of water

and/or land resources development work. Studies of these problems have shown that in a large measure they could have been minimized or eliminated had they been given specific consideration during the planning and construction phases of the project. The group responsible for the study of insects of public health importance, as vectors and/or as a nuisance factor, in the New England-New York Inter-Agency Committee is the Public Health Insect Control Study and Report Group. The Coordinator of the group is an officer of the Public Health Service. Other members of the group consist of representatives from the Departments of the Army, Interior, and Agriculture, and one member from each of the seven states within the New England-New York area. The objectives of the Public Health Insect Control Study and Report Group are to determine:

1. Extent of mosquito-borne diseases which have occurred or are occurring.
2. Density and prevalence of both disease transmitting and otherwise objectionable mosquitoes, blackflies, tabanids, heleids, and other biting insects, particularly those which are produced in aquatic situations.
3. Characteristics of various aquatic environments which produce diseases carrying mosquitoes and other biting insects of public health significance and the extent to which these insects will be increased or diminished as a result of the development of water and related land reservoirs.
4. Probable effect of water developments on potentialities for transmission of vector borne diseases in man.

5. Specific problems related to extent, location, and type of developmental projects and programs to be made, e.g., as they may affect concentrations of human population, recreational areas, and others.
6. Estimates as to severity of the general biting insect problem, estimated insect control costs, and monetary benefits to be derived from control work on a basin-wide basis.

Although the Public Health Service and more specifically the Communicable Disease Center had no work of this type in the New England-New York area underway until the creation of the Inter-Agency Committee, considerable basic information was available in the files of State and local health departments, agriculture departments, universities, colleges, experiment stations, and other agencies. The information was assembled by the Public Health Insect Control Study and Report Group and analyzed to determine the incidence and significance of vectors of insect-borne diseases such as malaria, eastern equine encephalitis, Rocky Mountain spotted fever, and tularemia, and the incidence of annoyance by mosquitoes and other biting flies such as blackflies, deer flies, greenhead flies, punkies, and ticks.

To supplement the data abstracted from the published and unpublished literature, field investigations were conducted to determine the distribution and prevalence of important pests and vectors of diseases. These investigations included reconnaissance of areas where basin development projects are planned and particularly of areas where no field records or reports were available.

Because of the relatively short insect season, abstracting of data and assembling and identifying specimens were confined to fall and winter months. During the spring, with the first snow melt, and in the summer all-out efforts were made to secure field data. Two temporary field entomologists were employed by the Public Health Service to gather data in New York, Vermont, northern New Hampshire, and western Massachusetts.

In addition, two full-time entomologists, also from the Service, were assigned to gather field data in Maine and in selected areas of Massachusetts, Connecticut, and Rhode Island. In addition, the latter two men carried on the laboratory and indoor work listed above during the fall and winter months. Time being a limiting factor, field activities were conducted during the first two years of the project only, that is, 1951 and 1952. It might be pointed out at this time that originally the work of the Inter-Agency Committee was scheduled to be completed by June 30, 1954, and a full combined report of its findings, conclusions, and recommendations was to be submitted to the President on that date. Because of the magnitude of the undertaking, however, this date has now been extended to June 30, 1955. At the end of the 1952 summer season, sufficient data had been compiled to prepare the first basin report of the Public Health Insect Control Study and Report Group. The reports of this group are prepared in two parts. Part I contains the introduction, summary, conclusions, and recommendations in brief form. Part II cites the present status of public health insects and their control, benefits and costs of insect control, and the effects of water resources development in greater detail.

A brief glance at the study area may make one wonder how such a limited number of personnel were able to do an adequate job of surveying the insects of New England and New York. Simply, it had to be kept in mind that the work did not include an intensive ecological study of all the species of insects within this area; rather it was intended to determine what the general effects of land or water resources development would have upon the population of the important species and on the breeding areas, and what to recommend as regards control of existing nuisance conditions. The starting point of the study was in the winter of 1951 with a scanty review of the literature to learn how much had already been done by other groups. The literature revealed that very little or no records were avail-

able for Maine and Vermont, but that many studies had been conducted by State universities and other State agencies in New York, Massachusetts, New Hampshire, Connecticut, and Rhode Island. Consequently, in the summer of 1951, activities were devoted to filling the gaps in the information from New York, Massachusetts, Connecticut, and Rhode Island and to initiating studies in Maine. In the summer of 1952, Vermont and Maine were studied, and selected areas in the other States were reviewed. Sampling techniques and equipment were those commonly employed by field entomologists. New Jersey light traps, Shannon traps, biting records, and larval collections were made regularly. With a more thorough review of the published and unpublished literature, the picture began to fill in and round itself out to the extent necessary for a basin-wide study such as that undertaken.

The introduction states the scope of the report, cites acknowledgments, and defines "public health insects." The definition of "insects of public health importance," for the purpose of this program, includes not only insect species known definitely to be potential disease vectors, such as malaria and encephalitis transmitters, but also those insects which are of importance because of their annoyance. These include pest mosquitoes, blackflies, punkies, deer flies, horseflies, and ticks. This inclusion is justified because physical efficiency and comfort, on which mental equanimity depends to a substantial degree, often may be seriously disturbed by the continuous annoyance of pestiferous insects. This principle already has been recognized by the U. S. Public Health Service. In addition, the Armed Forces have developed programs and practiced insect control for the protection and well-being of military personnel. The summary of the report is a brief account of the incidence of disease found within the basin and the incidence and prevalence of pest or noxious insects. A statement of estimated cost for insect control and an estimate of the magnitude of the insect

problem are given in the report, but the interpretation of the feasibility of a program is left to the discretion of the individual communities. It is pointed out that when deciding upon the feasibility of control measures, consideration must be given to the intensity of the problem, as well as to the type and extent of control work involved. The intensity of the pest problem is not determined solely by the number of pest insects present. It must also be determined by the number of people affected in a given area. An estimate is given, however, on average yearly costs over a period of years in centers of population and resort areas for the basin as a whole. The monetary benefits which would be derived from pest insect control are difficult to evaluate in dollars and cents because these benefits are largely intangible. However, in this report, it is estimated that an increase in recreational income, varying from 2 to 25 per cent depending upon the locality in question, can be expected as a result of insect control in resort and camp areas.

When data are available relative to proposed project or program developments at the time of the writing of each report, a summary of effects upon insect breeding areas is given. A point which is emphasized in each report is the need for specific surveys by competent personnel for the determination of necessity and type of each control program.

The basin reports, by virtue of the fact that they are written for the layman, do not have the biologies, seasonal distribution, control methods, or the bibliographies. A report entitled "Supportive Data for Basin and Subregional Reports" is being prepared to give such information and it is anticipated that several papers will be published in scientific journals as a result of these studies.

Of some interest to the reader are two tables included in the reports. The first presents insect densities based upon records compiled during this study and best judgment of those conducting the study, and the second lists the communi-

es where it is believed consideration of the feasibility of control measures is justified. The latter list is determined by the number of human population affected, insect density, and probable willingness and financial ability of a community to pay for an insect control program. In resort areas the owners are usually very much aware that their livelihood depends upon the tourist trade and are, therefore, generally receptive to promoting insect control. In many non-resort areas, pest insects are still accepted as necessary evils for which nothing can be done.

A little more should be presented about the various reports and the outcome of their distribution. There are three types of reports to be prepared. The first of these is the basin report. This is somewhat comprehensive and detailed for the specific basin. In all, 28 such reports are being written. The second type of report known as the subregional report. This is made up from a number of basin reports within a given area. For example, subregion A report is a compilation of all the basin reports of Maine including the Androscoggin River whose headwaters

are in New Hampshire. Five such subregional reports will be written. The third type of report is one which is prepared by the Inter-Agency Committee. This report contains the integrated findings, conclusions, and recommendations of all the study and report groups for a given basin. With the writing of this latter report, there will be close coordination between study and report group coordinators. It is at this time that the Public Health Insect Control Group, for example, may suggest to the Fish and Wildlife Service Group that a particular refuge area may be relocated so as not to create a mosquito breeding area near a recreation area or rural community. Conversely, the Fish and Wildlife Service Group may point out the advisability of relocation of a recreational area where some insect control would be necessary because of its greater value as a wildlife area.

The objective of all this work is the preparation of a comprehensive report for the entire area giving recommendations for the best water and land resources development for the overall greater benefit of the entire area and the nation.

More conference information from another letter from Dick Peters dated November 23: "Aside from the names of the participants in the symposia, it is possible to indicate in this writing only that invitational paper acceptances have been received from Fred V. Knipe of Rockefeller Foundation, Donald R. Johnson of Division of International Health, John M. Henderson of Communicable Disease Center, Arthur W. Lindquist, Head, Insects Affecting Man and Animals Section of the U. S. Department of Agriculture, and Cecil R. Twinn, Head, Veterinary and Medical Entomology Unit of Department of Agriculture, Canada. I am still negotiating for someone from Latin America and Dr. Stephen M. K. Hu of Hawaii. This group will be supplemented by progress reports from spokesmen for the various localities throughout the United States engaged in mosquito control."