

PROPERTY OF

RECEIVED

AUG 10 1956

**Division of State Library,
Archives and History
TRENTON**

REPORT

OF

**THE MOSQUITO CONTROL STUDY COMMISSION OF THE
STATE OF NEW JERSEY**

APPENDIX
97490
M912
1956a

To the Honorable Robert B. Meyner, Governor
of the State of New Jersey, and to the Legislature
of the State of New Jersey:

Under the provisions of Senate Concurrent Resolution No. 26
of the State of New Jersey, introduced on August 29, 1955,
by Senator Farley of Atlantic County and duly passed by
the Legislature of the State of New Jersey, a Mosquito
Control Study Commission was created for the purposes as
more fully set forth in said Concurrent Resolution.

Those appointed to this Study Commission were as follows:

By the Governor:

Mrs. Eleanore Martin
43 Point O'Woods Drive
Toms River, New Jersey

Dr. William A. Loori
549 Pavenia Avenue
Jersey City, New Jersey

By the President of the Senate:

Mr. J. Edwin Sameth
Hall of Records Building
Room 554 - High Street
Newark, New Jersey

Mr. Jesse B. Leslie
210 Main Street
Hackensack, New Jersey

By the Speaker of the General Assembly:

Mr. Fred A. Reiley
5 South Virginia Avenue
Atlantic City, New Jersey

Dr. Bailey B. Pepper
New Jersey Agricultural Experiment Station
New Brunswick, New Jersey

Notification of appointment was received by the members of
the Commission on or about September 26, 1955.

The Mosquito Control Study Commission met at the State House
in Trenton, New Jersey, on October 13, 1955, and organized,
choosing Dr. Pepper as Chairman and Mr. Leslie as Secretary.

By-laws were duly adopted.

The Study Commission held further meetings on October 20, October 26, November 2, November 16, November 23, and November 30, 1955.

On November 9, 1955, a public hearing was held in the Senate Chamber, State House, Trenton, New Jersey, which hearing had been widely advertised in the newspapers of the State. At the other meetings of the Study Commission, representatives of County Mosquito Commissions, the New Jersey Agricultural Experiment Station, the New Jersey State Mosquito Extermination Association, the Boards of Freeholders, Fish and Game Council, State Department of Health, United States Department of the Interior (Fish and Wild Life Service), Audubon Society, Fish and Game Council, Department of Navigation, Planning Section of Department of Conservation and Economic Development, Army and Navy, New Jersey Highway Authority, New Jersey Highway Department, New Jersey Federation of Women's Clubs, Department of Conservation and General Ecology, American Museum of Natural History, New Jersey Health Officers Association, New Jersey State Federation of Sportsmen's Clubs, Forestry, Parks and Historic Sites Bureau, Division of Shell Fisheries, and the Water Policy and Supply Council were requested to be present in person or present their views in writing so that the Study Commission could have the benefit of their thinking relative to mosquito control as now being conducted in the State of New Jersey and ways and means of improving mosquito control in the State.

The purpose of the Study Commission in seeking these personal interviews and written reports was to get first-hand information from those actively engaged in mosquito control work and work directly or indirectly related thereto. The response was excellent and the Study Commission from these sources obtained much factual data of importance which has been fully studied and carefully correlated.

The Study Commission also obtained copies of the laws under which mosquito control is being carried on in Florida, Virginia, Massachusetts, California, Delaware, New York, Utah, and Texas and these have been studied and analyzed by the Commission.

New Jersey is apparently the pioneer state in mosquito work. The original enabling act providing for state-wide mosquito control, through county mosquito extermination commissions, having passed in 1912 and being Chapter 104, P.L. 1912, is still the basic law and has endured through the years, the only substantial amendment being the transfer of the appointive power from the Justice of the Supreme Court presiding over the courts of the county to the Board of Chosen Freeholders of the county.

Under the basic law the approval of the county budgets and general supervision of the work as a whole lay in the Director

2. That Mosquito Commissions be appointed in the counties that do not have them.

of the New Jersey Agricultural Experiment Station.

Based on the studies that we have made, we believe that this system is fundamentally sound and should be continued. We feel that over the years tremendous progress has been made and that it is as practical as any that can be devised. However, we feel that certain changes can be made to advantage to strengthen and improve the work as now being conducted in this State; primarily that there would be greater central control, more and better research, and greater power of enforcement to compel the elimination of mosquito breeding, particularly where large breeding areas are involved. We also feel that a definite effort should be made to bring into mosquito work the counties of the State not now having mosquito commissions.

We have consulted and conferred with all those actively engaged in mosquito work as now being conducted in this State and the United States Department of Agriculture, and also the United States Public Health Service. We have also examined existing publications pertaining to mosquito control in all parts of the world, and have come to the conclusion that the logical methods of mosquito control are now being generally used in the State of New Jersey, namely:

1. Permanent water management in all its phases.
2. Destruction of larvae.
3. Fogging, misting and spraying for adult control.

Our studies and investigations have indicated the following to be the chief problems confronting the State of New Jersey today:

1. There is no effective master plan for coordinated mosquito control in the State of New Jersey.
2. The failure of some counties to appoint mosquito extermination commissions has adversely affected the work being done in neighboring counties with active mosquito commissions.
3. Lack of funds for
 - (a) Research
 - (b) Adequate control

As a result of our studies and investigations, we make the following recommendations:

1. That the County Mosquito Control Commissions be retained as the core of mosquito control activities in the State of New Jersey.
2. That Mosquito Commissions be appointed in the counties that do not have them.

3. That all vacancies on County Mosquito Commissions be filled within 60 days.
4. That wherever possible in making appointments to Mosquito Commissions, consideration be given to those having special training in engineering, biology or health work.
5. That specific power to enter property to inspect for mosquito breeding nuisances be granted to County Mosquito Commissions and that they be given the right to bring an action in the local Magistrate's Court where mosquito breeding has been found and is not being abated.
6. That the mills per dollar of assessed valuations formula on which local county appropriations are based be revised so that appropriations will be permissible, commensurate with work to be done.
7. That where supplemental appropriations are requested from the Boards of Freeholders for mosquito work, it be required that they be submitted for review and approval as are the main budgets.
8. That an adequate appropriation be made to the New Jersey Agricultural Experiment Station to provide equipment, facilities and personnel for basic research in all phases of mosquito control.
That this research department shall be made available to the local County Mosquito Commission personnel and shall work in close cooperation with the county commissions in an endeavor to develop better and more effective control measures.
This Commission recommends that such appropriation be not less than \$75,000 a year for the above purposes, exclusive of providing of facilities.
9. That an adequate appropriation be made to the New Jersey Agricultural Experiment Station for the purpose of survey and inspection.
This would be for the purpose of determining where large breeding areas exist and whether proper steps are being taken to control them.
This Commission recommends that such appropriation be not less than \$25,000 a year.
10. That a permanent State Mosquito Control Commission be appointed.

- (a) That this Commission be comprised of seven members to be appointed by the Governor, one of whom shall be the Director of the New Jersey State Agricultural Experiment Station, three of whom shall be appointed upon the recommendation of the New Jersey State Mosquito Extermination Association and three of whom shall be from the State at large.
- (b) The duties of this Commission shall be:
1. To determine the amount of money necessary each year to be expended by the State for mosquito control purposes; to recommend to the Legislature that such appropriations be made; to allocate these funds for disbursement through the State Agricultural Experiment Station.
 2. To act in any case where a recommendation made by the New Jersey Agricultural Experiment Station to abate mosquito breeding in any particular area of the State is being disregarded.
 3. To recommend from time to time changes in legislation to enforce and carry out mosquito control work throughout the State.
 4. To act in an advisory capacity in all matters pertaining to mosquito control.
 5. To function in any and all matters relating to mosquito control or tending to strengthen this work in the State of New Jersey.
11. That a State Fund be established to provide matching funds to supplement county work and/or to provide for emergency relief, such program to be administered by the State Agricultural Experiment Station upon recommendation and approval of the State Mosquito Control Commission.
 12. That the State appropriations for airplane spraying in the seashore counties of the State be continued.
 13. That steps be taken to secure cooperative effort on the part of those in control of State operated and Federal lands to eliminate all mosquito breeding thereon.
 14. That the Governor of the State ask the cooperation of the Governors of neighboring states in the solution of mutual problems of mosquito control.

15. That effective legislation be introduced to implement these recommendations.

Respectfully submitted,

Bailey B. Pepper, Chairman

Eleanore Martin

William A. Loefer

J. Edwin Sameth

Fred A. Holley

Jesse B. Leslie, Secretary

Table of Contents

	Page
1. Senate Concurrent Resolution No. 26.....	1
2. By-Laws of the Mosquito Control Study Commission.....	2
3. Minutes of Meetings of Mosquito Control Study Commission	
(a) Organization meeting, October 13, 1955.....	4
(b) Second meeting, October 20, 1955.....	6
(c) Third meeting, October 26, 1955.....	9
(d) Fourth meeting, November 2, 1955.....	15
(e) Public Hearing, November 9, 1955.....	20
(f) Fifth meeting, November 9, 1955.....	24
(g) Sixth meeting, November 16, 1955.....	26
(h) Seventh meeting, November 23, 1955.....	29
4. Statement of Ordway Starnes, Assistant Director, New Jersey Agricultural Experiment Station.....	31
5. A Comprehensive Plan for Mosquito Control in New Jersey by D. M. Jobbins, New Jersey Agricultural Experiment Station.....	35
6. Sample Letter, Federal, State and County Organizations.....	44
7. Report and Recommendations - A. Heaton Underhill, Director, Division of Fish and Game, State of New Jersey Department of Conservation and Economic Development.....	45
8. Report and Recommendations from the New Jersey Mosquito Extermination Association.....	48
9. Report and Recommendations from Carl E. Weigele, State of New Jersey Department of Health.....	50
10. Letter and Report - Robert H. Johnson, U. S. Department of Interior, Fish and Wildlife Service, Washington, D. C.....	53
11. A Letter to E. F. Knipling, Entomology Research Branch, A.R.S., U.S.D.A. by the Commission (same letter sent to U.S.P.H.S.).....	56
12. A Letter to the Commission from E. F. Knipling, Entomology Research Branch, A.R.S., U.S.D.A.....	59

AP

	<u>Page</u>
13. A letter to the Commission from J. M. Henderson, U.S.P.H.S., Department of Health, Education and Welfare.....	60
14. Recommendation from R. H. Pough, the American Museum of Natural History.....	63
15. A letter to the Commission from G. C. Larcom, Jr., Division and Planning, State of New Jersey Department of Conservation and Economic Development.....	66
16. Sample letter to Boards of Chosen Freeholders.....	67
17. Report and Recommendations from Middlesex County Board of Chosen Freeholders.....	68
18. Letter from Essex County Board of Chosen Freeholders.....	69
19. Report and Recommendations of the Passaic County Commission..	70
20. Report and Recommendations from the Middlesex County Mosquito Extermination Commission.....	73
21. Report and Recommendations of the Cape May County Commission.	75
22. Report and Recommendations of the Essex County Mosquito Extermination Commission.....	78
23. Report and Recommendations of the Hudson County Mosquito Extermination Commission.....	80
24. Report and Recommendations of the Monmouth County Mosquito Extermination Commission.....	83
25. Report and Recommendations of the Atlantic County Mosquito Extermination Commission.....	84
26. Letter from Dr. Thurlow C. Nelson, Department of Conservation and Economic Development.....	86
27. Sources of Information on Mosquitoes Used in Preparing Report..	88

.....

Magnetic tape recordings of the detailed discussions of meetings and public hearings are on file with the bill drafting section at the State House in Trenton.

SENATE CONCURRENT RESOLUTION No. 26

STATE OF NEW JERSEY

INTRODUCED AUGUST 29, 1955

By Mr. FARLEY

(Without Reference)

A CONCURRENT RESOLUTION creating a commission to be known as the Mosquito Control Study Commission to study the problem of providing improved methods of mosquito control, prescribing the powers and duties of such commission, and providing for an appropriation therefor.

1 BE IT RESOLVED *by the Senate of the State of New Jersey (the General*
2 *Assembly concurring)*:

1 1. There is hereby created the Mosquito Control Study Commission.
2 The commission shall consist of 6 members, 2 of whom shall be named by the
3 Governor, 2 of whom shall be named by the President of the Senate and 2
4 of whom shall be named by the Speaker of the General Assembly. The
5 members to be named by the Governor shall be from the State at large. The
6 members to be named by the President of the Senate may be Senators or
7 from the State at large. The members to be named by the Speaker of the
8 General Assembly may be Assemblymen or from the State at large. Any
9 vacancy in the membership of the commission shall be filled by appointment
10 by the authority who named the person whose membership in the commis-
11 sion ceased and thereby created the vacancy.

1 2. The commission shall select from among its members a chairman and
2 a secretary. The commission may adopt by-laws for the purpose of faci-
3 lating it in the performance of its functions.

1 3. The commission is authorized, empowered and directed to study the
2 problem of providing improved methods of mosquito control including the
3 ascertainment of the probable cost of the installation of such improved
4 methods.

1 4. The commission shall report the result of its study, together with its
2 recommendations, including proposed legislation, to the Governor and the
3 Legislature on or before December 1, 1955.

1 5. An appropriation to defray expenses shall be made to the commission
2 by including an item therefor in any supplementary appropriation act or
3 by a direct appropriation.

1 6. This concurrent resolution shall take effect immediately.

BY-LAWS OF THE
MOSQUITO CONTROL STUDY COMMISSION

1. Title

This Commission shall be known as "Mosquito Control Study Commission of New Jersey".

2. Object

The objects of this Commission are to study the problem of providing improved methods of mosquito control including the ascertainment of the probable cost of the installation of such improved methods.

3. Meetings

The Commission shall meet once each week and oftener if necessary upon the call of the Chairman.

4. Place of Meeting

Meetings shall be held in the office of the Speaker of the House of Assembly in the State House, Trenton, New Jersey and at such other place as may be designated by the Chairman.

5. Hearings

The Commission may interview or hear representatives of any department or agency directly or indirectly interested in Mosquito Control activities and for this purpose may sit as a whole or in groups or as individual members, as the Chairman may direct. At least one public hearing shall be held before the final report is filed.

6. Officers

The officers of the Commission shall be a Chairman and a Secretary who shall be selected at the first meeting of the Commission and shall serve until the report has been filed and the Commission discharged.

7. Chairman

The Chairman shall preside at the meetings of the Commission and preserve order therein, call special meetings of the Commission at his discretion; and perform all other duties usually pertaining to his office.

8. Secretary

The Secretary shall keep accurate minutes of the meetings of the Commission and record the same in a book to be provided for this purpose and perform such other secretarial duties as may be required. He shall also prepare the report to be made to the Governor and the Legislature for approval by the Commission.

9. Compensation

No member of the Commission shall receive any compensation other than expenses necessarily incurred in attendance of meetings of the Commission or other duties performed for the Commission.

10. Reports

The Commission shall report the result of its study together with its recommendations, including proposed legislation to the Governor and the Legislature on or before 12/1/55.

11. Amendments

These By-Laws may be altered or amended at any regular meeting of the Commission by a 2/3rds vote of the members of the Commission.

MINUTES OF MEETING

MOSQUITO CONTROL STUDY COMMISSION

The organizational meeting of the Mosquito Control Study Commission of the State of New Jersey appointed under the authority of Senate Concurrent Resolution No. 26 was held in the office of the Speaker of the House of Assembly of the State of New Jersey on Thursday, October 13, at 10 a.m.

Those present were:

Dr. Bailey B. Pepper of New Brunswick, New Jersey
Mr. Jesse B. Leslie of Hackensack, New Jersey
Dr. William A. Loori of Jersey City, New Jersey
Mrs. Eleanor Martin of Toms River, New Jersey
Mr. Fred A. Reiley of Atlantic City, New Jersey
Mr. J. Edwin Sameth of Newark, New Jersey

Dr. Bailey B. Pepper was chosen as Chairman and Jesse B. Leslie was named as Secretary.

Dr. Pepper outlined the powers and duties of the Commission as he understood them from the provisions of the Concurrent Resolution.

Mr. Reiley, Mr. Leslie and Mr. Sameth spoke from experience of the conditions that had existed in their respective counties during the past summer that indicated the need of the creation of a Commission to thoroughly review mosquito control, as now being conducted in the State of New Jersey.

Dr. Pepper stated that these conditions had been pretty generally experienced over the entire state and that this had led to the introduction and passage of Senate Concurrent Resolution No. 26.

Dr. Pepper further stated that he felt that an intensive study should be made and that the Commission should seek the opinion of all parties now actively engaged in mosquito control in the state, as to what steps should be taken to improve and strengthen this work and that further the Commission should seek advice from and solicit the cooperation of all other departments and agencies whose work is or can be correlated with better mosquito control.

Dr. Pepper pointed out that as the Concurrent Resolution stipulates, that a report must be made by the Commission of the result of its studies together with its recommendations to the Governor and the Legislature on or before December 1, 1955, time for action is extremely limited and he felt, therefore, that the Commission must meet at least once a week in order to meet this deadline.

Dr. Loori said that it was difficult for him to be present on Thursdays and it was therefore decided that after the meeting already tentatively scheduled for Thursday, October 20th, meetings would be held on each Wednesday and oftener at the call of the Chairman, if such further meetings were found to be necessary or desirable.

Dr. Pepper stated that the Association of Mosquito Superintendents would be held in Lakewood, New Jersey on October 18th and he was requested to discuss the work of the Commission with them and ask each County Superintendent to submit a written report giving his views as to what steps he felt could be taken to improve the work in his county and in the state as a whole.

Mr. Leslie said that he thought that as Dr. Martin, the Director of the New Jersey Experimental Station at New Brunswick, New Jersey was the titular head of Mosquito Control in New Jersey, and the man by law designated to review and approve, in the first instance, all mosquito budgets in the State of New Jersey, it was important that Dr. Martin be requested to attend a meeting of the Commission and give his views to the Commission.

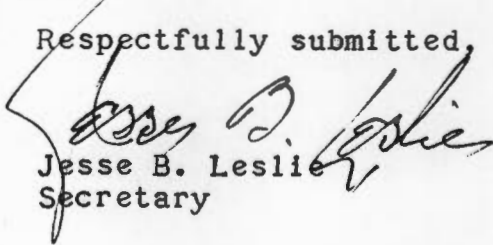
On motion Dr. Pepper was authorized to invite Dr. Martin to attend the next meeting of the Commission to be held at the State House on 10/20/55.

Dr. Pepper distributed to each member of the Commission a copy of the basic laws of the State of New Jersey pertaining to mosquito control and a mimeographed bulletin of abstracts of Chapter 26:9- 1 to 12 covering the statutory provisions of mosquito extermination under the State Experimental Station. He also distributed copies of the 1955 Proceedings of the New Jersey Mosquito Extermination Association.

Mrs. Florence J. DePativo, the secretary assigned to officially record and report the transactions of the Commission agreed to send each member of the Commission a copy of the Concurrent Resolution.

There being no further business the Commission adjourned at 12 noon to reconvene on Thursday, October 22, 1955 at the State House, Trenton, New Jersey.

Respectfully submitted,


Jesse B. Leslie
Secretary

JBL:fjd

MINUTES OF MEETING

MOSQUITO CONTROL STUDY COMMISSION

A meeting of the Mosquito Control Study Commission of New Jersey was held at the office of the Speaker of the House of Assembly in the State House, Trenton, New Jersey on Thursday, 10/20/55 at 10 a.m.

Dr. Bailey B. Pepper, Chairman presided.

On roll call the following were present:

Dr. Pepper
Mr. Jesse B. Leslie
Dr. William A. Loori
Mrs. Eleanor Martin
Mr. Fred A. Reiley
Mr. J. Edwin Sameth

Dr. Pepper stated that in accordance with instructions received at the last meeting he had invited Dr. Martin to appear before the Commission but because of ill health and increased load due to celebration of the 75th Anniversary of the Experimental Station, he had found it impossible to be present and had asked his Assistant Director, Mr. Ordway Starnes to represent him.

Dr. Starnes thereupon read a prepared statement reviewing the history of mosquito control in the state of New Jersey and the important part played by the Experimental Station in the development of mosquito control in New Jersey on a state wide basis.

This prepared statement is appended to and made a part of these minutes.

Mr. Manlon D. Jobbins supplemented this statement with a detailed account of the research and administrative work done by Dr. Lyle Hagaman and himself with the individual Mosquito Commissions to improve and strengthen the work as a whole.

Members of the Commission directed questions both to Dr. Starnes and Mr. Jobbins to clarify certain parts of this statement and report.

Mr. Leslie inquired as to whether, if the Commission should see fit to recommend it, the State Experimental Station would be in a position to assume additional duties of inter-county check inspections.

Dr. Starnes said that he felt that the primary function of the Experimental Station was research and secondly education but that if the Commission felt they should also serve as a fact finding body and assume some central co-ordination they could probably do so if adequate funds were provided for such work.

Questions were also asked as to research now being conducted and to be conducted. Mr. Leslie and Mr. Reiley both expressed the opinion that as mosquitoes had been found in large numbers, apparently far removed from any known source of

local origin, flight range research was of economic importance. Mrs. Martin felt that there should be further research as to effective larvicides and the efficiency of D.D.T.

Dr. Starnes then asked to be excused and said that Mr. Jobbins would remain if the Commission desired to have him do so. As the Commission felt that Mr. Jobbin's experience in all branches of mosquito control activities made his views and advise of value, he was requested to remain.

The Commission then discussed a tentative program for the furtherance of its studies and decided that a public hearing should be held on November 9th at which meeting all parties in interest and the general public would be asked to appear and express their views in this important matter.

It was felt that if a report is to be ready by 12/1/55 the Commission must consolidate its thoughts and prepare an initial draft of its recommendations by the November 16th meeting.

In view of the shortness of time it was felt that it would not be practical to hear personally all the departments and agencies whose viewpoint the Commission would like to have.

On motion, therefore, Dr. Pepper was requested to write to those whose names follow asking them for written statements and advising them that the Commission is meeting each Wednesday and would be glad to have them send a representative for personal conference if they could arrange to do so:

State Parks
State Forests
Fish and Game Council
Department of Navigation
Planning Section Conservation and Economic Development
State Department of Health
Representatives of Army and Navy
New Jersey Highway Authority
New Jersey Highway Department
U.S. Department of the Interior - Fish & Wild Life Service
Audubon Society
Freeholders

It was felt by the members of the Commission that it was of special importance to the Commission to hear from a representative of the Board of Freeholders of each of the Counties which have no active Mosquito Extermination Commission, particularly Cumberland, Salem, Gloucester and Camden Counties and Dr. Pepper was asked to urge such representatives to appear personally before the Commission.

The Commission also were unanimous in their views, in that, they would like if possible to have Senator Farley who fathered the Concurrent Resolution appear before the Commission so that they could learn from him what motivated this legislative action and what he personally thinks can be accomplished by this Commission. Mr. Reiley said he would interview the Senator and try to arrange for a conference.

The Commission then adjourned for noon recess.

The afternoon session was devoted to general discussion of plans and procedures and to hearing Mr. Walter Henderson, Superintendent of the Ocean County Mosquito Extermination Commission who related a number of problems peculiar to his own county and made several suggestions as to changes that he thought could be made to advantage to improve the work in his county and in the state.

As the Concurrent Resolution says the Commission may adopt by-laws, it was felt that a simple set of by-laws might be of some value, so the Chairman requested Mr. Leslie to draft such by-laws for presentation at the next meeting.

The Concurrent Resolution also provides for an appropriation to defray expenses of the Commission and it was voted that each individual member of the Commission should keep an account of expenses incurred in attendance of meetings and submit vouchers covering these at the conclusion of the sessions.

There being no further business the meeting adjourned at 3:45 to reconvene on Wednesday, 10/26/55 at the State House at 10 a.m.

Respectfully submitted,

Jesse B. Leslie
Secretary

MINUTES OF MEETING

MOSQUITO CONTROL STUDY COMMISSION

A meeting of the Mosquito Control Study Commission of New Jersey was held at the office of the Speaker of the House of Assembly in the State House, Trenton, New Jersey on Wednesday, 10/26/55 at 10:00 a.m.

Those present were:

Dr. Pepper
Mr. Leslie
Mr. Sameth
Mrs. Martin
Dr. Loori
Mr. Reiley

Dr. Pepper presided.

Dr. Pepper suggested that business matters be deferred in order to hear Mr. Vannote of Morris County who had had great experience in flood control and water course clearance, particularly in the Passaic Valley and its relationship to mosquito breeding. Mr. Vannote discussed this question thoroughly and said it was a grave problem. Suggested as solution stream cleaning accelerated runoff, pre-season treatment, airplane spraying and adult fogging and misting.

Mr. George Powers, Superintendent of Union Company Mosquito Exterminating Company said he had a similar problem in the Rahway River and Elizabeth River and felt that the methods suggested by Mr. Vannote should prove effective.

Mr. Lester Smith, Superintendent of Middlesex Company said they had a somewhat similar problem in the streams between Middlesex and Somerset County. He said stream clearance there would be extremely expensive and could not be attempted until rates increased.

Mr. Black of Mercer County reviewed stream problems in his county and said because of restricted funds stream clearance was not practical.

Mr. Harold Struckman, Assistant Superintendent of Bergen County said Bergen County had no real stream flooding problem. They do have some trouble after heavy storming in the Saddle River and Ho-ho-kus Brook areas but this is more due to flooding of the near-by sewage land than to stream blockage as such, as these rivers recede rapidly even after heavy storms.

Mr. Sameth questioned Mr. Vannote as to the 1954 storms. Mr. Vannote said good control had been obtained even with heavy rain falls but that the 1955 storms were not normal. He said a line must be drawn between flood control and mosquito control.

Mr. Leslie questioned Mr. Vannote and brought out from him the following facts. In his opinion, prehatch treatment, spraying by airplane and fogging and misting are valuable supplementary measures but will not supplant fundamental ground work and you cannot hope to get control without such basic work. A test area of prehatch treatment of some 500 to 600 acres in the Passaic Valley, an area of some 20,000 acres had proved reasonably effective and more experiments of this kind should be undertaken. Mr. Jobbins corroborated this - that fogging and misting together with airplane spraying under good working conditions would cut down mosquitoes on the wing and destroy terrific broods to an extent to give relief from unbearable conditions. Estimate cost of spraying by air at \$7.25 an acre and fogging and misting at \$10.00 per hour or 20¢ to 25¢ an acre.

Mr. Jobbins said that U.S. Public Health Service were conducting experiments in water soluble solutions for larviciding but that none were being conducted by his department in New Jersey. He said such solutions should be carefully used for the present because of danger to fish life and plant life.

Mrs. Martin asked Mr. Black about Bordentown stream clearance and ascertained that what he needed for this work was more money.

Dr. Pepper brought up the question of responsibility for stream clearance, right of the mosquito commission to enter private property, necessity for rights of way, changing of property lines by stream clearance, liability of commission to maintain.

Mr. Struckman felt that property owners should be restricted from building within 50 ft. of any sizeable running stream. Mr. Vannote felt that this could only be done through the Planning Boards and Mr. Jobbins corroborated this.

Dr. Pepper suggested that County Planning Boards be urged to include mosquito commissions as one of the agencies to be notified of any hearings concerning major land subdivisions so that they may express their views as to drainage, sanitary fields etc., in their relation to mosquito control.

Dr. Pepper then closed the discussion as to stream clearance and upland drainage and said we would now take up a discussion of salt marsh drainage.

He then called on Mr. Harold Struckman to speak as to Bergen County Commission. Mr. Struckman spoke of the No. Arl-Lyndhurst meadow and the abandonment of the dike along the Hock River after the 1950 storm. Said he felt Bergen was getting better control at less cost with the meadow open than when it was closed. Said he felt that pollution was the most serious problem in Bergen County.

George Powers of Union County says Union has 3500 acres of closed meadow in that county. Meadow is constantly shrinking and is heavily polluted - water level is maintained by pump. Hydraulic fills are being installed and within 15 years whole meadow may be filled.

Mr. Sameth spoke briefly for Essex County. Said problems were much similar to Union. Pollution is a problem.

Mr. Lester Smith of Middlesex County says they have one closed meadow which requires oiling only under extremely adverse weather conditions. Open salt marsh is cleaned by machinery. This year had to be cleaned twice because of storms; 1250 acres owned by state; 1000 acres by Government. No legal right of entry. Feels some steps should be taken to compensate for work done on this property.

Mr. Jobbins commented on Hudson County. Hudson is concerned with practically all conditions stated by preceding speakers. Since 1930s no major maintenance has been made of systems of diking and drainage put in years ago. Says present situation is serious. Spoke of problem of industrial waste. Gross pollution from slaughter houses in pig raising areas creates tremendous amount of mosquito breeding and means are being studied now to alleviate this.

Mr. Reiley and Mr. Jobbins discussed present change in tide cycles as they might affect meadow drainage and mosquito control and Mr. Reiley said these were so varied he thought this might well be a subject for research.

Dr. Pepper adjourned the morning session at 12 noon and requested the Executives present to return for the afternoon session.

The meeting reconvened at 1:15 p.m.

Dr. Pepper said he felt we could discuss the upland problem, house mosquito, woodland mosquito etc., to advantage.

Mr. Black began the discussion. Mentioned sewage control - not too much pollution from factories. Most trouble from areas that are now urban or suburban that were formerly farmland.

Mr. Lester Smith says he feels rapid growth of population is causing serious pollution and mosquito breeding. Felt there should be definite steps taken to strictly supervise septic tank installations.

Mr. Powers, Union County, says his county is strictly urban. Relies on inspection and oiling to control culex. Inspections are on 10 day cycle, oftener in polluted areas. Feels house to house inspection does not warrant its cost - 80% of mosquitoes on wing are pipiens. After heavy rains percentage will change showing larger percentage of vexans.

Mr. Vannote of Morris - Culex problem would group generally (1) polluted waters (2) man made nuisances around houses (3) street catch basins (4) unusual, cellar excavations and borrow pits in new developments.

Also felt backyard inspections were too costly and could be accomplished by enlisting cooperation of the householder by proper publicity.

Mosquitoes on wing principally pipiens with increased percentage of vexans in very wet weather. Perturbans require social treatment because they are not surface feeders. Elimination must be primarily based on drainage.

Canadensis is also a problem in spring and early summer. They are planning drainage. Are a little afraid of pre hatch treatment for canadensis until experimental data is more complete. Says Ohio is doing this quite extensively with good results. Feels Experimental Station should conduct some research in this field.

Mr. Struckman of Bergen County outlined their inspection organization and methods. Says canadensis was an early season problem and that pre hatch treatment along the Palisades had been conducted with good results. Says pipiens are major problem. 90% of night collections are of this species. This is baffling because Commission has been unable to locate any large sources to account for this influx of pipiens. Feels more research should be made to determine flight range. Also felt research should be made to determine life cycle under extreme heat. Spoke of peculiar problem created by high water in Hackensack Water Company Reservoir.

Mr. Jobbins summed up and said that there had definitely been a shift in distribution and species which must be studied so that individual counties may plan future programs. New housing developments accentuate need to study this change of species distribution.

Mr. Sameth said Essex County too had found inspection schedule must be accelerated in hot weather. Industrial plants have been found to be grave offenders in throwing off pipiens.

Dr. Loori, Hudson County, spoke for Hudson. Said Hudson County had 8 supervisors and seven workers. Needs at least 75. Commented on washed out dikes and meadow installations. Wanted more factual data before he expressed further opinion re this.

Dr. Pepper inquired as to malaria and the danger of malarial outbreak.

Mr. Smith said Middlesex County had had a serious number of carriers in Camp Kilmer during the war. They catch only an occasional quad in their traps but in his opinion the potential danger is always there.

Mr. Vannote of Morris County: In centers of population anophelles control is given first priority. Have few quads but danger is always present. Pine Bush trap showed probably largest catch in state but surrounding areas are scarcely populated so no malaria was reported but potential is there.

Mr. Powers - Union County - and Mr. Black - Mercer County - said they were finding some quads not in serious numbers; no malaria. There was a noted increase in wet weather. Mr. Struckman, Bergen County, said they did have amopheles breeding in some parts of county but not in any serious numbers and no known malaria in County.

Mr. Jobbins said that malaria per se is not now considered a major public health problem. It is known that all counties do have some quads breeding but he does not consider it a serious economic hazard.

Mrs. Martin inquired as to whether control of the amopheles mosquito required any special treatment. Mr. Vannote replied in general no, but there might be exceptional circumstances, some of which he outlined.

Mr. Sameth questioned Mr. Struckman as to his statement that D.D.T. in polluted waters was useless and wanted to know the alternative. Mr. Struckman said repeated oiling did kill. Question of potency of D.D.T. was discussed and reliability of presently marketed commercial brands of D.D.T.

Mrs. Martin inquired as to research. Should it be on national, state or county level.

Mr. Powers said he felt it should be state level but that man power should be increased to permit adequate attention to these needs.

Mr. Vannote said State Association, through its legislative Commission, was recommending additional funds for research through the State Experimental Station.

What kind of research is needed - flight range, hydraulic engineer-type of machinery - insecticides and equipment to spread insecticides, weed control and weed control equipment - basic biology of mosquitoes - influence of botany.

Mr. Vannote pointed out that not only funds but equipment, means of transportation, should be provided. California and Florida are doing excellent work, New Jersey is trailing.

Dr. Pepper thanked the Executives for their able assistance and excused them at this point.

Dr. Pepper then reported as to what had transpired since last meeting.

Letters were written as requested to Freeholders and individual mosquito commissions and will be written to other agencies as time permits.

Dr. Pepper reported that copies of mosquito laws of Utah, Texas, Delaware, Florida, New York, Massachusetts, and Virginia were received.

Dr. Pepper brought up for discussion matter of proposed public hearing. Said he had talked with Dr. Carpenter and he suggested notice of hearing be handled through news releases. Dr. Pepper had prepared statement that he would give to Dr. Carpenter if the Commission approved of it. Dr. Pepper read this proposed news release, which is appended to and made a part of these minutes. The release as read was approved.

Dr. Pepper said he had talked to Dr. Thurlow Nelson of State Water Policy Commission re cooperation. Said they were much interested and would be glad to give their views. Similarly, Dr. McNamara of Fish & Game Commission.

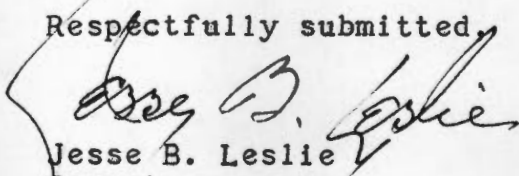
Should we try to reach State Federation of Road and Gun Clubs (Sportsmen). Mrs. Martin thought we should and the Commission agreed.

Dr. Pepper reported that he had talked to Dr. Starnes who thanked us for the opportunity given to him to appear and assured written recommendations.

Question of those we would like to appear at meeting of 11/2/55. It was suggested that we try to get representation especially Freeholder representation from the Counties not now having active mosquito control commissions, Cumberland, Salem, Gloucester, Camden, Hunterdon and Warren.

There being no further business the meeting adjourned at 3:30 p.m.

Respectfully submitted,


Jesse B. Leslie
Secretary

JBL:fjd

MINUTES OF MEETING

MOSQUITO CONTROL STUDY COMMISSION

A meeting of the Mosquito Control Study Commission was held in the Office of the Speaker of the House of Assembly November 2, 1955 at 10 A.M.

Those present were:

Dr. Bailey B. Pepper, Chairman
Mr. Jesse B. Leslie, Secretary
Dr. William A. Loori
Mrs. Eleanore Martin
Mr. Fred A. Reiley
Mr. J. Edwin Sameth

Dr. Bailey B. Pepper, Chairman of the Commission presided.

Dr. Pepper announced that representatives of the Boards of Freeholders in all counties in the State of New Jersey that did not have active Mosquito Extermination Commissions namely, Cumberland, Salem, Gloucester, Hunterdon and Warren Counties had been invited to be present and explained briefly why the Commission wished to discuss with these representatives the problems involved. In response to this invitation the following appeared:

Mr. Pancoast of Salem County
Mr. Leslie Richards of Gloucester County
Mr. H. E. Kelly of Gloucester County

Mr. Kelly stated that his county did not have a Mosquito Extermination Commission appointed under Chapter 104 of the Laws of 1912 but did have a Committee of Freeholders known as the Malaria Control Committee. This Commission had an annual appropriation of \$6,000 which they used for fogging and misting operations to kill adult mosquitoes on the wing. They did no permanent drainage, no inspection or oiling. Thought the work being done was worth while and would be continued. Mr. Richards added, however, that present equipment was pretty well worn out and would soon have to be replaced.

Mr. Pancoast said that Salem had been approached to form a Commission about the time of the start of the 2nd World War but the equipment suggested was considered by the Board of Freeholders to be too expensive and they were also afraid of the effect of D.D.T. on farm lands and wild life.

Mr. Leslie asked both Mr. Kelly and Mr. Pancoast if their counties would be receptive to a proposal to establish Mosquito Commissions at this time and each said he thought they would be if a proper approach were made and not too ambitious a program or a too costly one were proposed.

Mr. Sameth asked if they would expect State aid in carrying out initial programs and both gentlemen thought this would be desirable particularly if any large scale permanent projects were anticipated.

Mr. Reiley commented that in the early days of mosquito control it had been quite usual for the State to cooperate with the counties on a matching fund basis to inaugurate drainage measures.

Mr. Jobbins said that he was somewhat familiar with the mosquito problems in both of the counties concerned. Said that mosquitoes were definitely a problem along the River and in the Big Timber Creek area; said that Gibbstown had been used as a sampler and that aedes vexans (fresh water flood mosquitoes) were the prevalent species.

Dr. Pepper estimated that there were some 1800 acres of salt marsh in Gloucester County creating a source for sollicitans breeding as well as many large breeding areas in the impounded waters along the many streams in this county.

Mr. Pancoast related some personal experiences at Gandy's Beach and his own observation as to the effect of biting mosquitoes on agriculture - bean pickers, etc.

Mr. Richards said in addition to the work of the jeeps his county did endeavor to keep their dumps in good order and these were sprayed and he thought with good results.

Mrs. Martin asked whether either county had a County Planning Board.

Mr. Richards said they had a planning committee in his county but no formal board but he felt there might soon be one.

Mr. Pancoast said Salem County had no county planning Board.

Mr. Pancoast also said that although Salem County had no mosquito control on the county level, the City of Salem had been doing local work, spraying dumps, etc., and he thought they recognized the need of further work.

Mr. Leslie said that mosquito extermination since the amendment of the law (1948) was peculiarly under the control of the Boards of Freeholders, as they now had the power of appointment.

Mr. Pancoast was interested in this and asked to have a copy of the amendment which Dr. Pepper said would be furnished to him.

Dr. Pepper pointed out that mosquito control did not necessarily have to be large scale and as an example referred to Sussex County where appropriations have been less than \$6,000.00 a year.

Mr. Pancoast said he was in favor of mosquito control on a limited basis and thought his Board would be interested. In reply to inquiry from Mr. Sameth, said he thought request to form a Commission should come through the New Jersey State Experimental Station.

Mr. Pancoast said the farmers were vitally interested and he thought Cumberland County were ready to listen. Said some airplane spraying was being done there with private funds. Said Bridgeton also recognizes that it has a problem.

Mr. Pancoast asked about the drainage done during the depression with C.C.C. labor.

Mr. Jobbins said this work had been done in Alloway and Cedarhurst with remarkable results - cutting down the mosquitoes in the wing in night collections from measurement by the quart to less than a hundred.

Mrs. Martin asked Mr. Jobbins whether he could prepare a plan of action for each of the counties represented, without a formal request from the Freeholders and Mr. Jobbins said he thought he could.

Mr. Sameth expressed the thanks of the Commission to Mr. Richards, Mr. Kelly and Mr. Pancoast for taking the time to appear before the Commission and assured them that they had been most helpful.

These gentlemen then left the meeting assuring the Commission that they would discuss the question of a local Commission with their respective Boards and that they felt they could assure us of a full hearing on this subject when the time came.

It then being 12 noon the Chairman adjourned the meeting for luncheon.

The meeting reconvened at 1:30 and Dr. Pepper reported that in accordance with instructions received at the last meeting he had dispatched letters to the respective county mosquito commissions and other interested agencies and had received replies from Cape May County League of Municipalities, Ocean County Mosquito Commission, Burlington County Mosquito Commission, Essex County Board of Freeholders, Dr. Starnes, Mrs. Chas. R. Church of Parlin, Middlesex County Board of Freeholders, Somerset County Board of Freeholders and from an anonymous "taxpayer."

Also stated that Dr. Nelson of the State Water Policy and Supply Council and Mr. McNamara of the Fish & Game Council had expressed great interest and would write or appear.

Mrs. Martin said she thought it would be in order to adopt the By-Laws, copy of which had been mailed to each member of the Commission, and as there were no corrections or additions offered, the By-Laws were in motion adopted as prepared by the Secretary and will be incorporated in the official records of the Commission.

Mr. Leslie said he thought it would be advisable to adopt certain ground rules for the public hearing to be held by the Commission on 11/9/55.

On motion the following rules were approved:

- (1) Each speaker shall address the Chair. Give his name and address and organization he represents, if any.
- (2) No speaker shall speak for more than ten minutes at one time.
- (3) No speaker shall speak a second time if there are others desiring to be heard.
- (4) Prepared statements shall be delivered to the Secretary.

Mr. Sameth stated that Chas. Kientz, Health Officer of Borough of North Arlington had told him that there would be a meeting of the Meadow Land Reclamation Group in the Civic Center No. Arlington on Thursday, 11/3 and Mr. Kientz would like to have this Commission represented.

Dr. Pepper thereupon designated Mr. Sameth to represent this Commission at said meeting.

On motion the minutes of the meetings of this Commission held on 10/13, 10/20 and 10/26, as prepared by the Secretary, copies of which had been given to each member of the Commission, were approved and ordered filed.

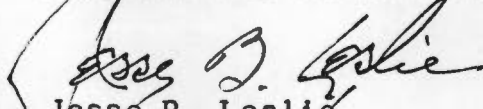
The balance of the afternoon session was given over to discussion in an endeavor to ascertain what form our recommendations were to take and what further points we wished to clear up.

It seemed to be the concensus of opinion that the State should be asked to provide an appropriation of at least \$75,000 a year to the Experimental Station for mosquito research work and an additional \$20,000 for inspection work under the direction of the Experimental Station and should consider expending \$500,000 for subvention purposes (matching funds).

Questions of necessary changes in the basic mosquito laws and the necessity for a permanent State Mosquito Control Board or some form of a Board of Arbitration were held for further study and discussion.

On motion the meeting adjourned at 4 p.m.

Respectfully submitted,


Jesse B. Leslie
Secretary

JBL:fjd

PUBLIC HEARING

NEW JERSEY MOSQUITO CONTROL STUDY COMMISSION

HELD IN SENATE CHAMBERS - STATE HOUSE

TRENTON, NEW JERSEY

WEDNESDAY, NOVEMBER 9, 1955 AT 10: A.M.

Present:

Dr. Bailey B. Pepper, Chairman
Jesse B. Leslie, Secretary
Fred A. Reiley
Dr. Loori
Edwin Sameth
Members of the Commission

Dr. Pepper - Chairman - presided.

Dr. Pepper opened the meeting with brief introductory remarks explaining the origin of the Commission and its purpose.

Leonard Barnett, Mayor of Borough of North Arlington, Borough Hall, North Arlington, New Jersey
Meadowland Development Advisory Committee, North Arlington, Rutherford, E. Rutherford, Carlstadt, Lyndhurst

County Mosquito Commission set up is wrong because jurisdiction ends at county lines - lack of coordination.

Cites washout of Hackensack River dike in 1950. Hudson and Bergen disagree as to methods. Bergen believes in open meadows, Hudson closed. Mosquito work on area wide basis, in his opinion would be more advisable. Long range program. More thought to large scale development. Engineers could set this up over course of years and develop land for industry; area wide rather than county.

Mr. Sameth wants to know whether this would be practical.

Mr. Barnett thinks it could be worked out.

Mr. Leslie inquired whether County Commission could be preserved under closer state control.

Mr. Barnett said that now the set-up is under State Experimental Station and does not work because no teeth in law. If State had power of enforcement it might work.

Dr. John H. Rehn, District Public Works, 3rd Naval District will try to cooperate and participate in any program initiated.

3rd Naval District includes areas North of Trenton, N.A.D Earl and Bayonne, being principal installations.

Richard A. Rose, Legal Advisor, Raritan Arsenal. Full whole-hearted cooperation in any program that may be designed to control mosquitoes. Anyone may come on Government property for purpose of improving mosquito control in that they should present proper credentials.

Ernest Downie, Post Engineer, Raritan Arsenal, Ammunition Depot. 70 miles of mosquito ditching. Establish definite drainage areas and flood the rest of marsh land. Have worked with Dr. Jobbins and Dr. Rehn. Have spent a lot of public money. Used as a larvicide impregnated tobacco dust in place of D.D.T.

Last year with appropriation of \$36,000 put in some good drainage. Use 6 men for mosquito work, in summer 12 and 14. Last year was bad year - hurricanes and storms. Army wants to be good neighbor and will cooperate in every way possible.

Have been working 6 years establishing main ditches to bleed laterals. Feels another \$36,000 to \$40,000 is required to complete drainage program as planned.

Mr. Irving H. Waller, 1st Army Hdq., Office of Engineer Wants to know what is being done in areas adjacent to Raritan Arsenal.

Dr. Jobbins of State Experimental Station replied that extensive drainage is being done in these meadows by Middlesex County Mosquito Exterminating Commission.

Medical Dept. by regulation makes mosquito surveillance inspections weekly.

In New Jersey have a number of small sites 50 to 200 personnel anti-aircraft and guided missiles. These have been severely troubled by mosquitoes.

Major installations - Camp Kilmer, Fort Dix, Fort Monmouth, Fort Hancock, Raritan Arsenal, Picatinny, Belle Meade, smaller ones about 20, scattered through State also Carteret and Pedrick Town.

Army is most anxious to cooperate.

Freeholder Walter H. Treen, Cape May County. Interested since 1949 county-wise. Severe problem last season. Parkway construction interfered with drainage causing lots of breeding. Because of extreme weather had no money left for spring cleaning.

First became interested in mosquito control through Wildwood Country Club. \$35,000 to \$45,000 revenue a year in greens fees now, where before spraying program was instituted golfers used to quit on 3rd or 4th hole because they couldn't stand mosquitoes.

Feels Cape May County Commission is doing a good job. With a little more help from State to bring in counties not working, more airplane spraying and stricter supervision, he feels good control could be obtained in spite of bad results last season.

1955 will appropriate about \$50,000. Thinks Boards should have the right to increase appropriations for mosquito control over the mills per valuation formula.

Dr. Pepper inquired re airplane spraying. Thinks spraying from air is effective possibly 90% to 92% but still feels adequate drainage and good ground work is definitely needed. Spray as often as twice a week. Past season only bad year since 1949.

Mr. Treen also discussed question of conflict with bee raisers and fish and game authorities. No serious trouble has developed.

Mayor Barnett spoke again. He felt permanent solution is best solution. Spraying is temporary only. Permanent measures should be the important goal.

Mr. Treen thinks fish and game resistance could be overcome by proper education.

Mr. Sameth inquired as to public relations between Army and Navy and local mosquito commissions. Captain Favorite of Medical Department of Army replied that effort is made to enter into cooperative programs, army materiel, army personnel can be contributed. Contact should be through Army Surgeon as he is in touch with engineer and can say degree of cooperation that will be afforded.

Mr. Barnett inquired re Bureau of Reclamation of Army, or Federal Government. Mr. Waller said this would come through Washington, D.C., District Engineer.

Mr. Downie spoke on question of cooperation between Raritan Arsenal and Middlesex County Mosquito Commission. Found breeding in May. Mr. Thom of M.C.M.E.C. made inspection again in July. M.C.M.E.C. has standing invitation to come in and inspect at any time. All he has to do is report to Commanding Officer.

Mr. Treen spoke of Coast Guard in Cape May. Said Cape May Commission was doing all the work of mosquito control for the Coast Guard with their material - 100% cooperation.

Dr. Rehn says as to Navy - ask for Commanding Officer and state purpose of visit and inspections can be made when desired.

No one else desiring to be heard the hearing was closed by the Chairman at 11:20.

Leslie D. Leslie
Secretary

NEW JERSEY MOSQUITO CONTROL STUDY COMMISSION

WEDNESDAY, NOVEMBER 9, 1955

AFTERNOON SESSION HELD AT OFFICE OF SPEAKER OF

ASSEMBLY - STATE HOUSE, TRENTON

CONVENED AT 1:30 P.M.

All members of Commission present except Mrs. Martin who could not be present because of important prior engagement.

Dr. Pepper delivered to Secretary reports and written statements from the following:

Monmouth County Mosquito Extermination Commission
Somerset County Mosquito Extermination Commission
Passaic County Mosquito Extermination Commission
Essex County Mosquito Extermination Commission
Ocean County Mosquito Extermination Commission
Burlington County Mosquito Extermination Commission
Bergen County Mosquito Extermination Commission
Union County Mosquito Extermination Commission
Hudson County Mosquito Extermination Commission
Cape May County Mosquito Extermination Commission
Board of Chosen Freeholders - Middlesex County
Board of Chosen Freeholders - Essex County
Mrs. Chas. R. Church of Parlin, New Jersey
Taxpayer of Mercer County

Copies of these letters were also given to each member of the Commission.

Dr. Pepper also gave to Secretary for the official record news releases and photographs relating to work in Raritan Arsenal area.

Dr. Pepper read correspondence received since the last meeting of the Commission including letters from Ralph W. Bird, Clerk, Board of Freeholders, Hunterdon County stating that his board feels that formation of mosquito commission in that county at this time would be an uneconomical move as mosquitoes are not extremely troublesome in that county. Road Department is doing some control work as required; Philip T. Carroll, Clerk, Board of Freeholders, Mercer County will have report in hands of Commission prior to 11/16; A. Heaton Underhill, Director Department of Conservation & Economic Development says Mr. McNamara, Superintendent of Wild Life Management is planning to meet with Commission for discussion of mutual problems some day this week. Harold W. West of Trenton complaining of destruction of bird life, toads, frogs and fish, nature's best exterminators by mosquito control workers; Mr. A. W. Kelly, Hightstown, New Jersey relating

his personal problems and experiences with mosquitoes; Thurlow C. Nelson, Chairman of the Council, Department of Conservation and Economic Development, State of New Jersey discussing flood control in its relation to mosquito control.

After some discussion on the question of seeking advice from national agencies Dr. Pepper said he thought it would be well to write to Dr. E. F. Knipling, Chief Entomology Branch Agricultural Research Department, U.S. Dept. of Agriculture and S. W. Simmons, Chief of Communicable Disease Center, U.S. Public Health Service and request an expression of opinion from them as to how our work could be strengthened.

Motion by Mr. Sameth that such a letter be drafted by Dr. Pepper and Mr. Jobbins and duly dispatched.

Unanimously carried.

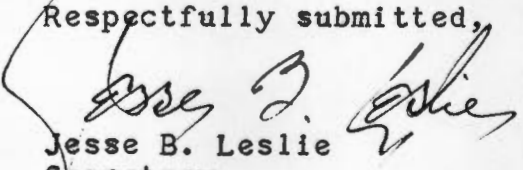
Mr. Sameth reported on the meeting that he had attended in North Arlington of the Meadow Reclamation Advisory Committee, who are making a study of the possible development of the salt marsh areas in Rutherford, East Rutherford, North Arlington, Carlstadt and Lyndhurst. Said committee had some five men and seemed to mean business. Said Mr. Conant of Bergen County had urged the Committee to seriously consider mosquito drainage in any engineering studies which the Commission is now planning to make.

Discussion ensued as to practicability of regional mosquito control authorities as opposed to control by county mosquito extermination Commissions. It was the consensus of opinion of the Commission that area or regional set-up was not the practical solution but that we should recommend that County Commissions should be retained with the New Jersey Experimental Station acting as a co-ordinator and advisor and same central agency with teeth to enforce proper enforcement if any commission should prove recalcitrant.

Further discussion followed as to possibility of forming a review board to consider and decide controversial matters, as to failure to do proper drainage, adequacy of budgets, etc.

There being no further business the Commission adjourned at 4 P.M., with the understanding that Mr. Leslie would endeavor to have a preliminary report ready for consideration of the Commission at the next meeting of November 16.

Respectfully submitted,


Jesse B. Leslie
Secretary

MINUTES OF MEETING
MOSQUITO CONTROL STUDY COMMISSION

A meeting of the Mosquito Control Study Commission was held in the Office of the Speaker of the House of Assembly November 16, 1955 at 10 A.M.

Those present were:

Dr. Bailey B. Pepper, Chairman
Jesse B. Leslie, Secretary
Mrs. Eleanore Martin
Dr. William Loori
Fred Reiley
Edwin Sameth

Dr. Pepper, Chairman of the Commission presided.

Letter was received from the State Dept. of Health. (1) - 11/10/55 and signed for the State Dept. of Health by Carl E. Weigele, M.D., Assistant State Commissioner of Health. This letter containing several suggestions and recommendations is attached to and made a part of these minutes.

Mr. John Zemlansky in charge of the vector control division of the State Department of Health appeared personally and spoke on several phases of the relationship of the State Department of Health to mosquito control.

In reply to a query from Dr. Pepper as to whether he thought the State Department of Health should take over as co-ordinator of state-wide mosquito control program rather than the New Jersey State Experiment Station. Mr. Zemlansky replied that in his opinion the Experiment Station had done yeoman service to the state in this work and was fully capable of continuing to do so. He said, however, that the State Dept. of Health was ready, able and willing to offer its fullest cooperation at all times. He did say however that in his opinion that no matter who acted as coordinator adequate appropriations are essential and he urged consideration of grants-in-aid to counties, to municipalities and cooperative efforts with private capital.

Mr. Robert Vannote presented in person a letter from the Morris County Mosquito Extermination Commission containing certain recommendations for improvement which letter is attached to and made a part of these minutes.

Mr. Vannote discussed this letter and these recommendations.

Mr. Vannote also said that he had presented to Mr. Leslie as secretary, the recommendations of the New Jersey Mosquito Exterminating Association as contained in a letter signed by Theodore A. Newlin, Chairman of a special committee appointed by the State Association for this purpose. This letter is attached to and made a part of these minutes.

This letter and these recommendations were discussed in detail by the members of the Commission.

At the request of the Chairman, Mr. Leslie read a letter from A. Heaton Underhill, Director, State of New Jersey, Department of Conservation & Economic Development, Division of Fish and Game. (1) 11/14/55 - This letter is attached to and made a part of these minutes.

The letter and recommendations were discussed in detail by the members of the Commission.

Mr. Jobbins for Dr. Starnes presented for consideration of the study commission a organizational plan for State Mosquito Control. This plan is attached to and made a part of these minutes.

This plan was fully discussed by the Commission, especially the necessity for and composition of a committee of review, or advisory committee.

Adjourned for noon recess at 12:40 P.M.

Meeting reconvened at 2 P.M.

Initial draft of report of the Mosquito Control Study Commission, as prepared by Jesse B. Leslie, Secretary was presented to the Commission for discussion and criticism.

Mrs. Martin suggested that a statement of the problems before us be incorporated in this report.

Question of whether specific appropriations needed to carry out these recommendations should be included in the report stating minimums that this Commission consider necessary was raised and the consensus of opinion was that figures should be included.

Mr. Leslie said he thought that although the body of the report stated that this Commission had concluded that mosquito control through the local county mosquito extermination was sound and that those county commissions should be continued as the primary control agency, this fact should appear specifically in the recommendations.

Discussion followed as to form state aid might take; basis for appropriations which Mrs. Martin felt should be based on true values rather than assessed values.

Dr. Pepper read letters from Mercer County Mosquito Commissions and from Boards of Chosen Freeholders of Bergen County and Morris County. These letters were ordered received and placed in the official files of the Commission.

Dr. Pepper gave to each member of the Commission a copy of the letter he had written at the request of the Commission to Dr. S. W. Simmons, Communicable Disease Center, U.S. Public Health Service, P.O. Box 769, Savannah, Georgia, dated 11/14/55, also to E. F. Knipling, Chief of Entomology Research Branch, Agricultural Research Service, U.S. Department of Agriculture.

Discussion followed as to conference with Senator Farley and Mr. Reiley was delegated to endeavor to arrange an appointment with the Senator to discuss with him the form of the report and type of legislation he has in mind.

Returning to discussion of report, Mrs. Martin suggested a recommendation to establish a fellowship at Rutgers for training in mosquito control. Dr. Pepper said difficulty was encountered in placing graduates because of Civil Service restrictions as to residence.

Respectfully submitted,

Jesse B. Leslie
Secretary

JBL:fjd

MINUTES OF MEETING

MOSQUITO CONTROL STUDY COMMISSION

A meeting of the Mosquito Control Study Commission of New Jersey was held in the office of the Speaker of the General Assembly at the State House, Trenton, New Jersey, on Wednesday, November 23, 1955.

The following members were present:

Dr. Bailey B. Pepper (Chairman)
Mr. Jesse B. Leslie (Secretary)
Mrs. Eleanor Martin
Mr. J. Edwin Sameth
Mr. Fred A. Reiley
Dr. William A. Loori

Dr. Pepper presided.

The minutes of the meeting of November 16, 1955, were read and approved as written, with minor corrections which were made by the Secretary.

Dr. Pepper presented a letter from E. F. Knipling, Chief, Entomology Research Branch, United States Department of Agriculture, in which he states that he feels that the major recommendations suggested by the Mosquito Control Study Commission are sound and consistent with generally approved concepts of mosquito control. This letter is attached to and made a part of these minutes.

Dr. Pepper also presented a letter from Guy C. Larcom, Jr., Chief, Bureau of Planning, Department of Conservation and Economic Development, State of New Jersey, dated November 17, 1955, which was ordered received and filed.

Dr. Pepper also presented to each member of the Commission a Comprehensive Plan for Mosquito Control in New Jersey, Draft 1, consisting of nine pages, for consideration and analysis by the Commission.

The Commission then proceeded to a discussion of the initial draft of the final report to be made to the Governor and the Legislature.

Senator Frank S. Farley, sponsor of the Concurrent Resolution, then appeared before the Commission and personally presented his ideas as to what he thought was required of this Commission to obtain proper legislative support for an enlarged and improved state-wide mosquito control program.

Senator Farley introduced Charles DeF. Besore', Esq., Executive Director and Chief Counsel of the Law Revision and Legislative Services Commission, and with him discussed the type of bill that could be worked out to implement the recommendations of the Study Commission. Mr. Besore' agree to meet with the Commission on November 30, 1955, for further discussion of this bill.

-2-

The meeting was recessed for lunch at 12:45 and reconvened for the afternoon session at 2:00 P.M. for further discussion of the form of the final report. This report was completed in preliminary form for further revision at the meeting of November 30, 1955, with Mr. Besore'.

The meeting was adjourned at 5:00 p.m.

Respectfully submitted,

Jesse B. Leslie
Secretary

STATEMENT OF ORDWAY STARNES, Assistant Director
NEW JERSEY AGRICULTURAL EXPERIMENT STATION
BEFORE SPECIAL MOSQUITO STUDY COMMISSION

October 20, 1955

In order to establish the association of the NJAES, may I begin by saying that the initiative for mosquito control work in New Jersey originated with the Experiment Station at about the turn of the century. This, in fact, was among the first organized mosquito control work in the United States.

Early studies conducted at the Agricultural Experiment Station on the mosquitoes of New Jersey, their habits and control measures plus the interest and support of various public groups and private citizens in the problem resulted in the law of 1912 known as "The County Mosquito Extermination Commission Law." This law further delegated to the Director of the New Jersey Agricultural Experiment Station certain obligations with regards to survey, approval of plans and budgets for County Commissions, research, education and administration.

Pursuant to delegated obligations under the 1912 Law, the Agricultural Experiment Station initiated and has maintained a Mosquito Investigation Section in the Department of Entomology having two principal objectives: first, that of research and education in this subject matter field and second, that of applied mosquito control and coordination and service to the control agency.

The creditable accomplishments of this section are attested to by the quality of the present program in the state involving physical,

Special Mosquito Control Commission/2

chemical and biological control, by numerous research contributions on record and by the educational program conducted.

The progress of the program has been influenced by the economies of two major wars and a depression. Technological advances made during and immediately following World War II coupled with the advent of numerous pesticides have supplied new tools for mosquito control. These developments influenced and have been reflected in the coordination of the program. Public and private groups demanded that these new and largely unproven chemicals be used in an effort to immediately alleviate mosquito annoyance. As research had not had the necessary time to supply many of the answers needed, County Commissions were permitted to exercise considerable discretion with regards as to the control procedures to use under local conditions. This emphasis on temporary and, in some instances, control measures of questionable merit has contributed to our present situation.

Today, mosquito control programs in the majority of counties where commissions have been active for twenty years or more have achieved their major aims. They are now in a stage where maintenance of water management systems and routine insecticidal procedures constitute the larger part of the activity. Due to economic reasons, further extension of "permanent" work is retarded and, but for improved methods for temporary control by chemical treatments, the leveling-off in progress would be quite obvious.

In some counties the commissions have expanded their responsibilities through the acquisition of special projects. In these instances mosquito control benefits ^{now become} ~~are~~ secondary to county drainage improvements.

Special Mosquito Control Commission/3

In areas where mosquito control is not practical on an organized county basis, public interest in such operations has increased steadily. Additional special problems and trends which have to the fore recently include the extent to which county commissions have become engaged in programs related to mosquito control but which in many cases overshadows the primary objective of the commission, the problem of ^{discovery} aggravated by new construction or flooded land in metropolitan areas, many of which span jurisdictional boundaries and problems resulting from the rapid economic development of the state.

It can be said, based on the long experience and particular competence of the Experiment Station in this field, that the quality of the program and methods in use in New Jersey are as modern as are known. All phases of the problem are receiving attention. There are, however, serious limitations to be considered and satisfactorily resolved in arriving at a program adequate to cope with conditions in the state today. These are primarily concerned with the financial and legal aspects of implementation.

Financial support for (a) the maintenance of existing facilities and expansion of work in counties having a control program, (b) the initiation of a vigorous program in those problem counties and on public lands not presently conducting an adequate program and for (c) research, (d) education, (e) coordination and (f) administration of the program on a state-wide basis.

Legal aspects involve a redefinition of (a) existing legislation

Special Mosquito Control Commission/4

pertaining to basis for county appropriations, (b) the appointment of commissions in all counties, (c) the duties of the County Commission, (d) ^{Director} the Director of the Agricultural Experiment Station and (e) a clarification of authority at all levels. Legislative provisions need be made to cope with situations such as (a) the right of entry and control operations on public and private land, (b) ample support for mosquito control in those counties in which existing base of support is inadequate to attain present day objectives and, (c) to insure compliance with statutes.

In view of the tremendous changes in economic development of the state and demands of the public for certain types of services, it is not surprising that mosquito control operations under the basic laws of 1912 are inadequate for most effective conduct of the work in 1955. In this period also, the administration at the Agricultural Experiment Station has changed and, in keeping pace with the time, so has the philosophy of the administration. Today, we are entering into a period of greater stability in control work than we have experienced for more than a decade. It is not only appropriate but imperative that we objectively review and modernize our program and having accomplished this, adopt a policy designed to insure its proper maintenance.

The Agricultural Experiment Station, and I personally, appreciate this opportunity to appear before the Commission, to express sincere interest in the work of the Commission and to place at your disposal the resources of the Experiment Station. Accompanying me today is Mr. Daniel M. Jobbins of the Entomology Department. Mr. Jobbins is

Special Mosquito Control Commission/5

an expert in the field of Mosquito Control. I should like to delegate Mr. Jobbins as the representative of the Director of the Experiment Station in technical matters pertaining to the problems.

A COMPREHENSIVE PLAN FOR MOSQUITO CONTROL IN NEW JERSEY

Mosquito control in New Jersey has progressed with the economic development of the state during the past 50 years to a position where the general public has come to enjoy and expect a high degree of freedom from mosquito annoyance in all but the least developed areas. This has come about through the sustained use of limited county appropriations by County Mosquito Extermination Commissions whose activities have been coordinated by the New Jersey Agricultural Experiment Station. Serving as a research and educational agency, as well as a regulatory body with power to administer state funds and exercise other authority under the basic Laws of 1912, the Experiment Station has been a unique example in the field of mosquito control administration. The knowledge of a wide selection of specialists has been available to guide the practical programs, minimum control over the management of county funds has been possible and continuity of control effort has been assured throughout the years. The Proceedings of the New Jersey Mosquito Extermination Association recount in detail the history and progress of control work and the changing patterns of emphasis which have taken place. They also show that in New Jersey practically every method of mosquito control known or suggested has been evaluated for its potential application in increasing the effectiveness of operations.

In 1955, with the greater part of permanent installations for basic mosquito control installed, it is to be expected that many of the specific provisions of the Laws of 1912 are in need of re-evaluation if present day demands best be served. These demands focus attention on such matters as improved quality of mosquito control where programs are in effect and the extension of organized control work to several areas of the state where it is necessary to prevent the nullification of programs already in effect. This

-2-

would involve the establishment of commissions in all counties and the initiation of mosquito control on certain lands administered by public agencies. It will require clarification of laws and modern bases of financial support. Increased operation costs and the appearance of new problems and hazards in the intensified use of present methods emphasize the need for additional research in all aspects of the subject. Also, the further promotion of preventive mosquito control through public education is essential for the preservation of advances already made. Examination of present programs throughout the nation shows little likelihood of new spectacular methods for solving New Jersey's mosquito control problems. Pending the outcome of future research, the best route to greater effectiveness appears to be through improved organization and the filling of gaps in practical operations structure.

- Granted (a) an adequate base of support for control operations by county commissions and related agencies, plus
- (b) Intensified research and development on all phases of mosquito problems, and
- (c) A re-definition of organization and regulatory responsibilities, what form might a comprehensive operational plan take?

In the current Project Plan of the Experiment Station, the several categories of research work are well defined and most lines of endeavor are being pursued, albeit at rates slower than desirable in view of present demands. This is the result of limitations in facilities and personnel plus the diversion of effort required by problems involving administration, survey and regulation. The suggested revised organizational plans therefore anticipate not only the strengthening of present phases of activity but also the creation of certain new sections which will facilitate the administration of state-wide mosquito control.

Organizational Plan - Discussion of Diagram

1. The State Government, as supreme authority, through its chief executive and legislative action would continue to endorse
2. The New Jersey Agricultural Experiment Station as the coordinating, research and regulatory agency for mosquito control throughout the state. As under existing laws, the Director of the Agricultural Experiment Station would integrate policy matters and perform duties with respect to practical mosquito control by the County Mosquito Extermination Commissions.
3. The County Mosquito Extermination Commissions appointed by the Boards of Chosen Freeholders, and currently directing the annual expenditure of nearly \$1,500,000 of county funds for practical mosquito control in the state, would continue as the basic control agencies, with responsibilities as defined by present law. The plan envisions the creation of such commissions in all counties under conditions acceptable to the state and county governments. The New Jersey Mosquito Extermination Association, comprised of county commissioners, has long been the center for expression of public and official opinion on all matters relating to mosquitoes in the state. It is proposed to take formal recognition of the association or its executive committee as an official advisory group on administrative and regulatory matters.
4. A new feature in the suggested organizational plan is the creation of a Committee or Committees of Review. Such committee would serve:
 - a. To advise the Director on problems in controversy where the interests of various agencies and groups are to be reconciled.

- b. To evaluate evidence of departures from procedures by agencies operating under state law, review controversial plans and budgets, hear qualified public complaints, and recommend appropriate action by the Director.
- c. To establish bases for allocation of State-Aid Funds, review qualifications of recipients and evaluate accomplishments.

In its activities the Committee of Review would use personnel and facilities of the Experiment Station section on mosquito investigations and control. Appointment of members would be by the Director. The composition of the Committee of Review might follow the general pattern of the current airplane spraying program committee, a technical group. Such committee is appointed by the Director and includes representatives of the State Department of Health, Department of Conservation and Economic Development, Agricultural Experiment Station and technically qualified representatives of the counties concerned. In the case of the Committee of Review these last might be representatives of the north, central and southern portions of the State. Provision would be made for inclusion of additional members from various fields of interest on a term basis as well as legal advisers where required.

- 5. The Mosquito Investigations and Control Section of the Experiment Station would continue as the agency of the Director for research and development, coordination, education, survey and regulation. Through cooperative association with other departments of the State University it has almost unlimited sources of information, advice and material assistance.
- 6. Under the category of Research and Development, basic and applied studies on mosquito biology and ecology (10) occupy a major place in the current and proposed plan of research. Present mosquito control is based on the excellent early work done in New Jersey plus recent advances, such as life

history studies on Mansonia, the succession of mosquito species on impoundments managed for wildlife propagation and the distribution of Culex in urban areas. Among the problems foreseen in this field which are of practical significance are: (a) a complete mosquito species distribution survey for re-evaluation of mosquito flight-range and dispersion patterns. This would concern both nuisance and potential disease vector species and would be basic to knowledge of the effect of changing aquatic environments, by pollution and other means, on mosquito production; (b) further study of mosquito life history patterns for new approaches to the control of certain species; (c) mosquito behavior studies, emphasizing biting habits, larval nutrition, mating, longevity and the influence of climatic and other factors on each; (d) broad ecological studies in conjunction with specialists in wildlife and plant sciences are required to evaluate hazards and develop safe and economical procedures; (e) finally, the field of parasites, predators and other biological agents of potential use in mosquito control in an attractive and incompletely explored area.

11. Added research in chemistry and insecticides is proposed, particularly in the field of formulations for mosquito control. The effective use of presently known chemicals is greatly affected by formulation. Carriers and solvents have not been standardized and the tailoring of special formulae for residual applications, space sprays, fogs and mists of maximum usefulness under New Jersey conditions is in demand. New chemicals require study in all aspects. The search for water soluble larvicides, ovicidal chemicals and new larvicides and space sprays for winged mosquitoes is contemplated. Toxic hazards of present and new chemicals must be evaluated because of the necessity of conserving wildlife, plants and other useful living things, as well as protecting public health.

Additional technical personnel and facilities, as requested in the last research budget, are required on this phase as well as in the field of engineering.

12. Engineering studies have been largely by-passed during the last twenty years. The types of endeavor are contemplated under the proposed plan.

a. Water management engineering studies are essential to the completion of mosquito control work on much of the salt marsh and upland swamp areas of the state. Hydraulic analysis and design are particularly needed to solve problems in Cumberland, Cape May, Atlantic and Ocean Counties. Such studies would include major water control structures, pumps, dikes, gates and outlets to the sea and their management.

b. Equipment development is a progressive activity as demands for more effective applicators continue. Present subjects of high interest are liquid spray nozzles, dust applicators for granular insecticides, fog and vapor dispensers. High costs of hand labor for cleaning upland ditches call for development of mechanical equipment for this purpose and engineering consultation is in demand in situations where pumps, dredges and earth-moving equipment can be employed. The further development of sampling and measuring devices of many types for use in the laboratory and field is another phase requiring attention in the engineering category.

Finally, engineering services will be required in conjunction with the section on surveys and inspection.

13. The Special Project Section, as at present, will include cooperative fellowships and investigations supported by grants-in-aid or industry through the State University.

An example of this type is present research under a U. S. Public Health Service Grant for study of mosquito-borne virus diseases in birds.

7. The category Coordination and Education, at present requiring the major effort of the mosquito investigations personnel, will include the phases:
(14) Information, through publication and all usual publicity channels;
(15) contact with the County Commissions, the State Association and Associated Executives group; (16) cooperative relationships with Federal, State, private and other agencies and will administer (18) assigned programs of mosquito control financed directly by State funds. An example of State fund operations is the airplane spraying program in seashore counties. In addition it is proposed to establish: (17) a section for technical training of county commission personnel. The scope of this program would include basic mosquito biology and taxonomy equipment operation and care, insecticides and their use, hazards and general safety, records, maps and special skills useful in practical mosquito control. Such training will be essential if standards of performance are established as proposed under (23).
8. In the category Survey and Inspection it is proposed to greatly augment the service rendered county commission groups and the state as a whole in the definition mosquito problems. The central location of records, maps and other information will facilitate the work of the regulation and the correlation of evidence in controversial situations. It will conduct a routine basic checking service and make special evaluation as required. This section will serve as the fact-finding group for the Committee of Review. To accomplish minimum objectives additional personnel and facilities will be required. It is judged that for normal operations the state may be divided

into northern and southern districts each served by a full time team of two men. Each district may be divided into eastern and western sections as needed, such further subdivisions to be served by seasonal personnel unless special projects, as in Delaware River Counties, require otherwise.

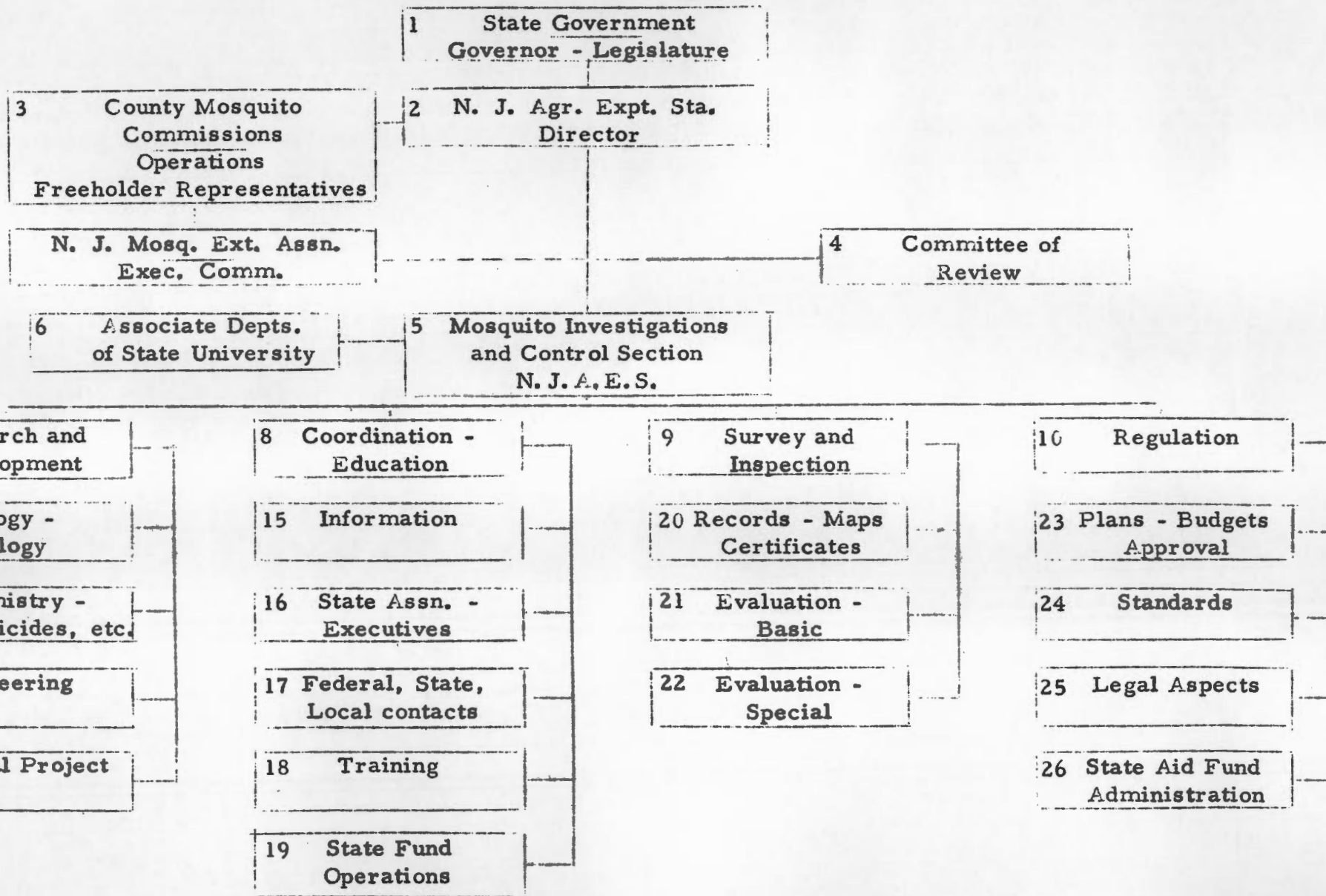
9. In the category Regulation, review of (22) Plans and Budgets as to adequacy and conformity with accepted practices will be a primary responsibility. For this purpose a set of (23) Standards will be set up principally for technical reference. These will include recommended specifications for equipment, chemicals and procedures. In the event of need for (24) legal interpretation of state laws or the drafting of a course of legal action, provision will be made for retention of counsel. Regulatory matters supported by evidence from the survey and other categories of mosquito investigations will be referred to the Director for action by way of the Committee of Review.

Should State-Aid Funds be made available for allocation to counties or for special purposes, such as mosquito control on state or government controlled lands, administrative functions would be the responsibility of this regulatory section. Allocations may be authorized by the Director with advice of the Committee of Review and in accordance with legislative directives. In like manner certification of compliance and evaluation would be required by the Director and Committee of Review through appropriate Mosquito Investigations sections.

- - - - -

The approximate annual cost of maintaining this basic organization is estimated at \$75,000, exclusive of certain capital outlay for assigned quarters. This is roughly five per cent of the current annual expenditures of the County Mosquito Extermination Commissions.

Organizational Plan for Mosquito Control



October 28, 1955

Sample letter sent to
Federal, State and County Agencies and Organizations

Dear Sir:

As you have probably read in the press, Senator Frank S. Farley, Atlantic County, sponsored Senate Concurrent Resolution 26 creating a six-member State Mosquito Control Study Commission to make a study of the problem, as well as recommendations for a more efficient mosquito control program throughout the state. It is further stipulated that the commission's report and recommendations must be in the hands of the State Legislature and the Governor on or before December 1, 1955.

To make this report as complete and as effective as possible, this commission must consider the activities and requirements of the various governmental departments in the state. We, therefore, are appealing to you for cooperation and guidance. We will recognize the relationship of civilian mosquito control to naval activities and furthermore that the mosquito control interests must not jeopardize other important items in our economic development.

The time allowed for this study is very limited and we are taking this means of soliciting the aid of your group. A written statement of your views, suggestions and recommendations would be most sincerely appreciated. If, however, you find that such a statement cannot be submitted and that representatives of your group would prefer to meet with the six-member Mosquito Control Study Commission in person for discussion, the commission will meet on November 2, 9 and 16 at 10 a.m., State House, Trenton and representatives of your group are invited to meet with us at your convenience. We appreciate the fact that with the limited time allotment we cannot devote as much time as necessary or as the commission would like for discussion with all interested groups. In order to get as broad coverage as possible of the interests of all groups we are appealing for written statements wherever possible.

Thanking you for any assistance you can give us, I am

Very truly yours,

Bailey B. Pepper
Chairman, State Mosquito
Control Study Commission

BBP:AKL

State of New Jersey
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

Joseph E. McLean, Commissioner

November 14, 1955

Dr. Bailey B. Pepper, Chairman
State Mosquito Control Study Commission
New Jersey Agricultural College
New Brunswick, New Jersey

Dear Sir:

The New Jersey Department of Conservation and Economic Development, Division of Fish and Game, is very appreciative for the opportunity of presenting what we believe to be reasonable suggestions concerning the techniques and practices of mosquito control in New Jersey. We trust that the suggestions as presented will not be interpreted as criticism of past and present mosquito control operations, but rather that they be construed to indicate that changing conditions require a greater degree of cooperation between state agencies in dealing with the wetlands of New Jersey, wherein the biological and recreational factors should be considered in conjunction with the engineering techniques and chemical controls that have been used in the past.

The Division of Fish and Game has a deep interest in all the wetlands of New Jersey. Land and water areas within this classification comprise an important ecological zone that, if properly managed, can continue to produce high recreational advantages and a substantial economic return to the citizens of New Jersey. An inventory of wetlands that was recently completed by the U. S. Department of the Interior, Fish and Wildlife Service, lists a total of 269,800 acres of wetlands for New Jersey. On the basis of waterfowl usage, this wetland area was classified as 127,500 acres of high quality, 109,100 acres of medium quality, and 32,400 acres of low quality waterfowl habitat, with 800 acres having been regarded as having a negligible value. Lands capable of supporting high waterfowl populations and producing sustained yields of muskrats have a high economic value. This high economic value is supplemented by an even higher recreational value that is receiving increased utilization by the people of this state who harvest the waterfowl, rail, fish, and fur that are present in our wetland areas. The economic and recreational potential of our wetland areas can be altered in a detrimental manner unless serious thought and planning is directed to their maintenance and improvement by those who work on and manage our wetlands. It is our suggestion that in the evolution of a new program for mosquito control on a state-wide basis that due recognition be given to our wetlands as a producer of fur, fish and wildlife and that these constitute a natural resource to be maintained and administered for the benefit of the people of New Jersey.

We believe that the committee that has been appointed by the Legislature and the Governor for the purpose of evaluating mosquito control operations within the state offers a real advantage for the development of a reasonable administration of the wetlands of New Jersey. All values can be carefully weighed and due consideration can be given to the perpetuation of those natural resources that react to the benefit of our people. In order to accomplish this benefit, it is apparent that there should be a central body or agency charged with the duty of developing, administering, and coordinating mosquito control and abatement activities throughout the state. This

November 14, 1955 46

central group, agency, or committee should carry on all experimental work relative to mosquito control and should have administrative powers of a definite nature over the several county commissions in order that efficient work be accomplished and that the perspectives and interests of state departments interested in wetlands can receive consideration and reasonable recognition. From our standpoint it seems practical and reasonable that the New Jersey Agricultural College should be the agency to be responsible for the administration, experimentation and coordination of mosquito abatement activities on a state-wide basis. The College should be staffed to a degree where efficient supervision and operation can be given to the problem and related projects.

It is further suggested and recommended that the central committee, body, or group be augmented by an advisory committee. This advisory committee is to be composed of the directors or authorized agents of all state agencies who have an interest in the lands of the state. This advisory committee should meet at specified intervals with the parent committee with the intent of furnishing information that can be helpful in coordinating mosquito control activities with the activities and interests of the several state departments. In addition, the members of the advisory committee would furnish a liaison between their respective departments or divisions and the mosquito control authorities.

In carrying out the actual work on our wetlands for the purpose of reducing mosquito breeding, we believe that more consideration should be directed toward the possibility of biological control. It is axiomatic that all life is biological and the incorporation of this principle into preliminary planning would contribute to the efficiency of subsequent engineering structures and water management. We believe this to be a modern concept in approaching the mosquito abatement problem and one that is based on the fundamental principles of modern conservation. Considerable preliminary work has been done along these lines, and additional experimental work should be planned in order that our wetlands can continue to produce recreation and economic income.

It has been reported that in certain instances and on some specific areas the technique of ditching the meadows has failed to reduce mosquito breeding. These areas should be carefully studied and other techniques or a new approach to the problem applied. In order to accomplish adequate abatement on these difficult areas, consideration should be given to state ownership and subsequent development made in cooperation with the state agency charged with the administration of the area. This would facilitate the installation of dikes, weirs, water surfaces, and other structures which under proper management can abate mosquitoes and at the same time make available public utilization of the area.

The application of insecticides to our wetlands has always caused anxiety to those of us charged with the trusteeship of our wildlife resources. Experience has shown that certain insecticides can be lethal to fish and can affect many of the lower forms of animal life adversely. Inasmuch as insecticides are not specific in their properties to kill undesirable insects, there is always the danger of removing an important food supply that is a staple for some of the vertebrates that furnish recreation or income to those who participate in their harvest. The use of insecticides seems an expensive method of control that has a temporary effect and the application of which is capable of producing damage on a large scale to desirable game and fish life. We recommend that all insecticides should be carefully tested in regard to dosage, formulation, and techniques of application in order to minimize lethal effects to those species that normally inhabit our wetlands as well as other life that lives in the streams and waters that intersperse or are adjacent to the area to be treated.

Dr. Bailey B. Pepper

-3-

November 14, 1955

In summary, we reiterate that it has been a privilege to present our views on wetland management. We recommend that in any mosquito control program, the following suggestion receive consideration:

1. The high recreational and economic value of wildlife as a natural resource should receive consideration in any and all work to be done on our wetlands.
2. That a central committee or agency be created for the purpose of developing, administering, and coordinating mosquito control on a state-wide basis.
3. That this agency or committee be the New Jersey Agricultural College and that this central agency have the services of an advisory committee composed of the directors or their authorized agents of those state departments and divisions who are interested in or are charged with land management in New Jersey.
4. That the feasibility of biological controls be considered and incorporated into mosquito control activities on a statewide basis.
5. That the use of insecticides be curtailed, these chemicals to be used only in emergencies and only after careful testing and experimentation has removed the lethal effects to desirable wildlife.
6. That certain difficult areas receive study for specific treatment and the possibility of state ownership and state participation be considered when planning the management procedures designed to reduce mosquito production.

Sincerely yours,

A. Heaton Underhill
Director

U br

NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION

NEW BRUNSWICK, N. J.

November 14, 1955.

Hon. Jesse B. Leslie, Secretary
State Mosquito Control Study Commission
Leonia, New Jersey.

Dear Sir:

The New Jersey Mosquito Extermination Association has authorized a special committee, of which I am chairman, to present to the State Mosquito Control Study Commission the general recommendations of the Association and to represent the Association should more detail information be required.

The New Jersey Mosquito Extermination Association was founded in 1913 for the purpose of advancing the program of mosquito control in New Jersey. Its membership is composed of all the County Mosquito Extermination Commission members, their Superintendents and Secretaries and residents of the State sharing an interest in mosquito control work. The objectives of the Association have been promoted by annual conventions devoted to the presentation and discussion of technical subjects, legislative matters and plans for improved service by the State and County organizations.

The Association wishes to present, for the consideration of the Study Commission, the following general recommendations:

1. The Association endorses the present method of mosquito control practice in New Jersey with the New Jersey Agricultural Experiment Station serving as the nucleus about which the County Commissions operate. This system, initiated in 1912, has proven to be the most efficient and economical method of state coordination of county control units. In practice; research, coordination and direction must be centered in one agency having the numerous facilities of an Experimental Station where specialists in every phase of mosquito control are available at all times to overcome emergency problems.

2. The Association suggests a positive recommendation for a stimulated research program involving all phases of mosquito control such as biology, insecticides, equipment, drainage, public information, etc. so that the county control agencies may proceed with the benefit of the latest control methods suitable for use in New Jersey.

JBL:TAN:2

3. It is recommended that the Study Commission stress the desirability of the revision of the basic laws applying to state and county mosquito control, particularly in the field of finance.

4. It is suggested that the Study Group recommend that the Governor urge the formulation of an active mosquito control program on Staten Island as a matter of interstate coöperation. Salt marsh mosquitoes from this source continually reduce the effectiveness of the work undertaken by several New Jersey counties adjacent to Staten Island.

5. It is recommended that the Study Group investigate the ways and means of establishing effective mosquito control on public lands over which the County Commissions have no jurisdiction.

6. The Association feels that the Study Commission has a valuable public service to perform, extending beyond the life of the present Legislature. It is, therefore, urged that the Study Commission recommend the extension of its term of operation until December 31, 1956.

7. The Association recommends that active mosquito control programs be established in all counties of the state, particularly where intercounty flights take place.

Respectfully submitted,



Theodore A. Newlin
Chairman

TAN:a



NOV 11 1955

State of New Jersey

DEPARTMENT OF HEALTH
TRENTON 7

OFFICE OF THE COMMISSIONER

DANIEL BERGSMAN, M.D., M.P.H.
STATE COMMISSIONER OF HEALTH

November 10, 1955

Dr. Bailey B. Pepper, Chairman
State Mosquito Control Study Commission
Rutgers University
Department of Entomology
New Brunswick, New Jersey

Dear Doctor Pepper:

Doctor Bergsma has asked me to reply to your letter dated October 25 requesting a written statement relative to the interest of the State Department of Health in the control of mosquitoes. Health officials generally recognize that the control of mosquitoes not only reduces the possibility of disease transmission but benefits our citizens by improving their comfort and general welfare. As you know, field studies are presently under way to determine the manner in which the virus of equine encephalomyelitis lives in nature and may be transmitted from its natural reservoir to humans. It is known that mosquitoes play a definite part in the transmission of this virus from horses to humans.

The following suggestions may be helpful to the State Mosquito Control Study Commission:

1. It is suggested that consideration be given to establishing a State Mosquito Extermination Commission with authority and responsibility for developing, on a State-wide basis, a positive program of mosquito control. Such a Commission might include representatives from the various departments of the State that would have an interest and a contribution to make toward an improved State-wide mosquito control program. (Possibly Conservation and Economic Development, Institutions and Agencies, Education, Health, Agriculture, and Labor and Industry as well as the Agricultural Experiment Station.)

Dr. Bailey B. Pepper
New Brunswick, New Jersey

Page 2
11/10/55

2. It is suggested that this positive program include provisions for encouraging municipalities to assume more responsibility for mosquito control within their jurisdiction. This might be done by permitting the county extermination commissions to make grants-in-aid, possibly on a matching basis, to any city in lieu of the work they now receive on a prorata basis as their part in the county-wide extermination program.
3. It is recognized that the amount of money spent in the different counties varies pretty much in relation to population and assessable values. There is very little relation in many counties to the needs and cost for adequate control. It is recommended that consideration be given to providing a new formula for computing the amount of money that counties would appropriate for mosquito extermination work. It is suggested that one criteria would be the percentage of the assessed valuation as is now done and a second criteria would be to provide for an increase in the minimum budget for those counties having greater needs in order to accomplish control.
4. The present law is limited in its granting of powers to the State Coordinating agency. It is suggested that provision be made for more positive direction and encouragement on the part of the recommended State Mosquito Extermination Commission in the planning and coordination of effort both in county programs and in the over all State-wide program.
5. It is recommended that consideration be given to providing more funds for research in order to pin-point our efforts in the most effective manner.
6. In conclusion, it is recommended that funds be provided for the suggested State Mosquito Extermination Commission to enable it to make surveys and recommendations for the establishment of County Mosquito Extermination Commissions in those counties having serious mosquito problems but not now doing any control work or not doing work commensurate with the problem. The Commission might also be authorized to engage in actual mosquito control operations to support and supplement work done in individual counties when such work is not as effective as it should be because of insufficient funds in relation to the problem or because of areas that are neglected in adjoining counties. This type of support is provided for in the present airplane spraying program which involves 5 ocean counties working under the over-all direction and coordination of the Experiment Station. This raises the question as to whether that program might be changed so that money could be spent for the most effective method of dealing with the influx of large numbers of mosquitoes which sometimes occur in spite of control efforts in these counties.

Dr. Bailey B. Pepper
New Brunswick, New Jersey

Page 3
11/10/55

I hope that the above suggestions may be of some help to the Commission.

Sincerely yours,

Carl E. Weigle

Carl E. Weigle, M. D.
Assistant State Commissioner of Health

CEW:AHF:G4

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Washington 25, D. C.

Nov. 30, 1955

Dr. Bailey B. Pepper, Chairman
New Jersey Mosquito Control Study Commission
Department of Entomology
New Jersey Agricultural Experiment Station
New Brunswick, New Jersey

Dear Dr. Pepper:

In accordance with your request of October 27 as Chairman of the New Jersey Mosquito Control Study Commission, we are sending a statement containing the viewpoint of this Service on mosquito control operations as they relate to wildlife conservation.

During the post-war years there has been a noticeable improvement in cooperation between State and Federal mosquito control agencies and wildlife agencies, particularly in field research on the biological effects of chemicals used for control and on appraising the extent of mosquito breeding in impounded and natural marsh areas. We feel this work has brought about better working relationships and has facilitated encouraging progress. Much remains to be done but a continuation of this cooperative approach should net still further gains in resolving controversial problems that arise in controlling mosquitoes on wetlands having value for wildlife.

We appreciate very much the constructive attitude which you and your study commission are taking on this difficult problem and I trust that our general policy statement will be of help to you.

Sincerely yours,

/s/ Robert H. Johnson
Assistant Director

Enclosure

MOSQUITO CONTROL AND WILDLIFE CONSERVATION

There is growing awareness that wildlife resources contribute significant economic, recreational and aesthetic values to the Nation. Each year these values are becoming increasingly more important, proportionate to the population growth and development of the country. There can be no doubt that the need for wildlife and outdoor recreational areas is much greater now than it was a quarter-century ago.

Since this Service has both national and international obligations for management of migratory gamebirds, it is directly concerned with mosquito control programs that are detrimental to waterfowl and their habitat. In instances of local conflict between mosquito control and waterfowl management, the Service believes that agencies concerned should carefully weigh the tangible and intangible values of wetlands before proceeding with control measures. To the fullest extent possible, those control methods should be selected or developed that will cause a minimum of undesirable effects.

The Service recognizes that where mosquitoes constitute a serious health or nuisance problem in heavily populated areas, public health considerations must be given appropriate attention. Conversely, the Service believes that where human populations are low and mosquito control would cause serious loss of waterfowl, fish, shellfish and fur animals, the wildlife values should be taken into account in planning mosquito control operations. However, rules and procedures to govern action in this field cannot be firmly fixed. The important thing at all times is to see that one phase of local and national interest is not overlooked or harmed needlessly while promoting another phase of public welfare.

For effective correlation of wildlife management and mosquito control operations it is essential that there be sufficient field testing of new insecticides and control procedures to determine their over-all effects on fish and wildlife. Ideally, such field testing should be done prior to general operational use. In the case of chemical controls, emphasis should be on effects from repeated rather than single applications. Unfortunately, the full effects of some currently used chemicals and procedures have not been adequately determined. The Service believes that these studies should be primarily the responsibility of the manufacturers and of the various State and Federal insect control agencies but the Fish and Wildlife Service will continue to cooperate, so far as it can, in testing those chemicals and control procedures that appear most promising for operational use.

Ditching, the most prevalent type of environmental measure for mosquito control, generally has proven detrimental to marsh wildlife. It frequently results in drying up of ponds and produces changes in vegetation which are unfavorable to wildlife. Ditching which results in a lowering of the marsh water table should be discouraged in those marshes which have considerable or high wildlife value. If it must be employed to alleviate a serious mosquito problem then some of the anticipated damage can be avoided by restricting ditching operations to only the important mosquito breeding areas. In tidal marshes, these are generally characterized by shallow, poorly drained depressions subject to intermittent flooding. Studies have shown little or no mosquito production in deep ponds and in marshes regularly flushed by tides.

Other harmful methods of environmental mosquito control are diking of marshes to prevent entry of water and filling marshes with silt to eliminate breeding areas. These practices result in complete destruction of any waterfowl values that may be present and should be employed only if no other methods of control are feasible.

In the long-range public interest, it is desirable to develop and apply, where practical, effective mosquito control methods which, at the same time, are beneficial to wildlife. Impoundments with controllable water levels and containing insectivorous fish have shown promise of contributing to this goal. Further experimental work with closed or blind ditching, sump drainage and pothole development should be encouraged. To assure progress for the future and a lessening of conflict between wildlife management and mosquito control programs, there should be more research on development of new and less harmful materials and methods.

While completely satisfactory solutions to mosquito control problems may not be obtainable in all situations, it is believed that close collaboration between wildlife agencies and mosquito control departments in research and operations will reduce the areas of conflict to a minimum. Certainly, it is only in a climate of mutual participation that the problems of each interest can be most fully appreciated and the most far-reaching results achieved.

Acting Director

11/21/55

November 11, 1955

Mr. E. F. Knipling
Entomology Research Branch
Agricultural Research Service
U. S. Department of Agriculture
Beltsville, Maryland

Dear Mr. Knipling:

In September the New Jersey State Legislature adopted a Senate Concurrent Resolution creating a six-member commission to make a study of improved methods of mosquito control. It was early October before the commission was appointed and members officially notified. This resolution stipulated that the commission should make a study and submit its report and recommendations to the Legislature and to the Governor on or before December 1, 1955.

This study commission is composed of Mr. Jesse B. Iselle, Executive Secretary of the Bergen County Mosquito Extermination Commission, Mr. J. Edwin Sameth, member of the Essex County Mosquito Extermination Commission, Mr. Fred A. Reiley, Superintendent of the Atlantic County Mosquito Extermination Commission, Dr. William Leori, an M.D. of Jersey City, and Mrs. Eleanor Martin.

We are anxious to give as broad coverage as possible to the subject within the time limit. The commission is considering every angle possible of mosquito control, including organization and administration. We believe, however, that the methods of control are the most important item on which we would appreciate your advice and guidance. The organizational and administrative phases, of course, are subject to legislative action and our commission can only recommend. However, we feel that on the technical phase of control the legislators would probably not have technical knowledge on all aspects to modify the commission's recommendations very markedly. In order to have the control recommendations as complete as possible, we are presenting below a skeleton outline of the proposed control program that the six-member study commission will include in its report. So as not to burden you with a great amount of detail, I have purposely kept this outline brief. I have attempted to include the major essential items. There might be a difference of opinion as to the sequence of the various items listed. We would appreciate, however, if you would examine this outline on mosquito control and if you can think of any additional items that should be included or should you have any suggestions for improvement or

any comments concerning the outline we would be most happy to have them.

Outline of Mosquito Control

A. Permanent measures.

1. Tidewater areas:

(a) Salt marsh ditching, (b) diking, (c) tide-gates, (d) pumping, (e) hydraulic filling, (f) other water management systems, and (g) promotion of biological agents wherever possible.

2. Upland measures.

(a) General drainage, (b) dredging, (c) filling, (d) general water course maintenance, (e) management of industrial and domestic waste.

B. Chemical Control.

1. Immature stages.

(a) Solutions, (b) emulsions, (c) suspension, (d) dry formulations (conventional dusts, pelleted or granular materials), (e) special formulations for immediate and residual effects.

2. Adult control.

(a) Space sprays (fogs, mists, aerosols, liquid sprays) applied as solutions, emulsions and suspensions.

(b) Residual applications--applied in forms similar to (a).

(c) Repellents--space and personal.

(d) Mechanical barriers, traps.

C. Preventive Control.

1. Educational.

2. Surveillance.

3. Establishment of standards.

D. Precautions and inter-relationships.

1. Recognize hazards of chemical control.

2. Relate chemical control to biological agents.

E. Coordination of control activities.

1. Federal, state and local levels.
2. Survey, inspection and training.

F. Research and development.

1. It is recognised that there is dire need for expanded research in many phases of mosquito control.

We recognise that time is of essence and I had hoped to present this material to you earlier but it was impossible to reach a final conclusion until we had discussed the matter with the various agencies, organisations and individuals interested in mosquito control or the relationship of mosquito control to other economic and social aspects.

If you could give us a reply at an early date it would be sincerely appreciated.

Very truly yours,

Bailey B. Pepper
Chairman, Mosquito Control
Study Commission

BBP:AKL

cc: A. W. Lindquist

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Entomology Research Branch
Beltsville, Maryland

Nov. 17 1955

Dr. Bailey B. Pepper, Chairman
Mosquito Control Study Commission
New Jersey Agricultural Experiment
Station
Nichol Avenue
New Brunswick, New Jersey

Dear Dr. Pepper:

Acknowledgment is made of your letter of November 11 transmitting an outline of suggested mosquito control procedures. It is our understanding that this outline was developed by the commission recently created by the New Jersey State Legislature.

Although the outline is brief, we believe the major recommendations are sound and are consistent with generally approved concepts of mosquito control. A few minor points might be suggested for inclusion. Although much is known about the biology and ecology of our important mosquitoes, there is always need to carry forward such studies under various conditions in order to obtain optimum effectiveness of control operations. You may wish to consider some studies of this nature as one aspect of a control program.

Under chemical control you may wish to name some of the insecticides currently recommended and in use for the control of both larvae and adults.

In these broad recommendations, you may wish to give consideration to observing the effects of insecticides on fish and wildlife. This item might be expanded under "D. Precautions and inter-relationships."

We are glad to learn that the New Jersey State Legislature is taking such active interest in mosquito control problems in your State and that it is encouraging a thorough study of the problem in efforts to develop improved methods. The plan submitted by you has been reviewed by specialists in our Branch, and we feel that it constitutes the basis for developing effective and sound control programs.

Very truly yours,

E. F. Knipling, Chief
Entomology Research Branch



DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

IN REPLYING, ADDRESS THE

November 23, 1955

Dr. Bailey B. Pepper
Chairman, State Mosquito
Control Study Commission
Department of Entomology
New Jersey Agricultural
Experiment Station
Rutgers University
Nichol Avenue
New Brunswick, New Jersey

Dear Dr. Pepper:

This will acknowledge receipt of your letter of 14 November 1955 addressed to Dr. S. W. Simmons. Since Dr. Simmons moved to Atlanta several years ago, I am replying in his place after consulting with our Biology Section.

In reviewing the outline, my general reaction is that it is very complete with the exception of Section C. The only addition I can suggest for preceding sections is to insert the term "grading" under Sections A. 1 and A. 2. This is in recognition of general construction practice where light earth smoothing, as by bulldozer, falls under a separate price classification and is not considered as a filling operation.

With regard to Section C, I am not sure there is need for any change from the standpoint of New Jersey needs. However, from the point of view of Western irrigated states where elements of conservation irrigation practices constitute such an important part of preventive control, I would add as separate items "Demonstration" and "Interagency Coordination." The business of interagency coordination is not alone one of coordination between federal agencies or state-federal agencies but extends into individual counties and mosquito abatement districts. In some such local areas, effective progress has been made by getting together farmer groups, irrigation district officers, county farm advisors, soil conservation district representatives, representatives of county departments of public works, local health departments, conservation clubs, and representatives of mosquito abatement districts. As regards

- 2 -

Dr. Bailey B. Pepper--11/23/55

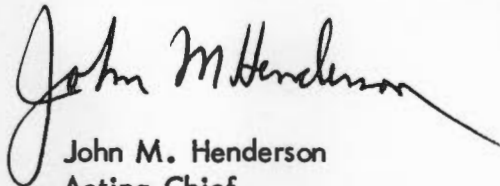
demonstration, this is an important part of preventive control where the solution is the more efficient use of irrigation water .

I am also attaching the comments of Dr. H. F. Schoof, Chief of our Biology Section, for your consideration. His suggestions are self-explanatory and do not require comment except that I do not agree with his plan of setting up Section C as "Legislative Control." I consider that the scope of preventive control is far more comprehensive than the scope of legislative control, although legislative control might be listed at some appropriate place in the outline, perhaps as an item under the heading of "Preventive Control."

Possibly the use of the term "diking" in Section A.1 requires expansion since diking fills two purposes, i.e., one is to exclude the entrance of water onto a producing area and the other is to permanently impound water on an Aedes producing area. In this connection, you might wish to add "impounding" as an item separate from "diking."

I trust these comments will be of some value to you, and I regret that absence on travel has prevented me from answering earlier.

Sincerely yours,



John M. Henderson
Acting Chief
Technical Development Laboratories

JMH/el

Enclosure

November 23, 1955

Comments by Dr. H. F. Schoof, Chief, Biology Section, Technical Development Laboratories, Technology Branch, Communicable Disease Center, Public Health Service, P.O. Box 769, Savannah, Georgia.

The outline probably covers everything if you interpret each element broadly enough. Suggest he consider the following modifications:

Change B to Temporary Control and sub-head as follows:

1. Evaluation

- (a) Inspection
- (b) Resistance levels

2. Chemical measures

- (a) Larvicides
- (b) Ovicides
- (c) Adulticides
- (d) Repellents

3. Mechanical measures

Set up as C - Legislative Control

Combine his C, D, and E and list as D.

Operational Procedures

- 1. Integration of permanent and temporary control measures
- 2. Education

THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79th STREET
NEW YORK 24, N. Y.

DEPARTMENT OF CONSERVATION AND GENERAL ECOLOGY

RICHARD H. POUGH, B.S., Chairman

AROLD E. ANTHONY, D.Sc., Honorary Curator
LARENCE L. HAY, A.M., Honorary Curator
MURRAY F. BUELL, Ph.D., Consultant in Ecology

HENRY K. SVENSON, Ph.D., Consultant in Botany
FRANK E. EGLER, Ph.D., Research Associate
RICHARDSON L. WRIGHT, M.A., Research Associate
PAUL A. ZAHL, Ph.D., Research Associate

DEAN SAGE, Field Associate
FARIDA A. WILEY, Associate
ELIZABETH A. GUTHRIE, B.A., Associate

November 22, 1955

Mr. Bailey B. Pepper
Chairman, State Mosquito Control
Study Commission
New Jersey Agricultural Experiment Station
Nichol Avenue
New Brunswick, N. J.

Dear Mr. Pepper:

Your letter of October 28 with reference to the current study being made by the State Mosquito Control Study Commission has not been an easy one to answer. I am convinced of one thing, however, that some method must be found for coping with the mosquito problem without destroying New Jersey's remaining wetlands. The United States is already, because of past drainage projects, desperately short of wetlands for its waterfowl population. New Jersey is blessed with the finest fresh, salt and brackish marshes on the east coast and they should be regarded as a precious possession.

The population of New Jersey has already reached such a high density that the game breeding capacity of the State's wild lands falls far short of what is needed to provide the average citizen with even a little upland game bird hunting. However, if New Jersey can keep its wetlands in good condition for migratory waterfowl, they can provide good rail, duck and goose hunting for large numbers of hunters. During the fall flights millions of birds that represent the breeding potential of thousands of square miles of northern marsh lands are concentrated for at least a few weeks on New Jersey's wetlands and available for harvest by New Jersey hunters.

Aside from their role as a stopping place for migratory waterfowl, New Jersey's wetlands have the highest wildlife habitat value of any lands in the State. Per unit of area, wetlands far out-produce the average upland area. Furthermore, many of the most beautiful and interesting birds found in the State, such as the snowy egret and other herons, can live only in or near extensive wetland areas.

New Jersey's wetlands play a vital role in water management. Not only do they provide recharging areas for ground water, which is under an ever increasing drain, but in many river basins they have the capacity to absorb storm runoff and thus prevent serious floods in the State's

Mr. Bailey B. Pepper

2.

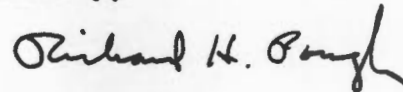
November 22, 1955

industrial towns. The enclosed article "The Lesson of the Floods" deals in detail with this aspect of wetlands.

As the State's cities and suburban communities grow, they tend to merge into one another. Most of the State lacks mountainous areas and if it were not for the breaks provided by wetlands it would be hard in many areas to find any place to escape from intensively built up areas. In my opinion, the State should make every effort to see that these precious open spaces are not lost. If they are, it will be a serious blow to the livability of New Jersey's communities in the years ahead.

In conclusion, may I express the hope that the Commission will recommend that methods other than draining or filling be found for the control of mosquitos. The loss of New Jersey's wetlands, which mean so much to the State and, in fact, to the people of the entire east coast (because of their importance as a link in the Atlantic waterfowl flyway), would be too high a price to pay for mosquito control. Every year new methods of controlling mosquitos and other insects are appearing and I trust the Commission will realize that even if methods for complete control without drainage are not yet known, they may well be just around the corner. Once a marsh is destroyed, it is seldom possible to restore it.

Sincerely,



Richard H. Pough

RHPat
Enc.

THE LESSON OF THE FLOODS

After cloudbursts such as those that hit the Northeast recently, the spotlight is on the areas that were badly damaged. More, however, can be learned about flood prevention by looking at the areas that received as much rain, but escaped. Wherein lies the difference?

All the streams that flooded badly flowed through narrow steep valleys. Nowhere along their course were there any extensive wetlands. Furthermore, because of the roughness of the topography, many communities succumbed to the temptation to build into the already narrow flood plain. Streams thus pinched by both nature and man struck back with disastrous results.

Every stream that did its job without overflowing seriously shared one outstanding characteristic. Somewhere along its course it flowed through or past extensive areas of swamp and marsh -- lowlands that played the role of a safety valve. Before such rivers could rise even a foot, they had to feed millions of gallons of water into these "natural" flood control basins. Tremendous as the rainfall and runoff were, these basins were able to absorb and store the water until the river could safely carry it off.

The U. S. Army Engineers think that about 260 million dollars worth of flood control structures are needed in the New England streams that flooded. If coupled with a return to the rivers of some of their all-too-narrow flood plains, these structures could probably control future floods.

But, what of the swamps and marshes in the valleys of the rivers that behaved themselves -- lowlands that undoubtedly saved millions of dollars worth of streamside property and many lives? Do the people of these fortunate valleys feel grateful and appreciative of the services rendered by these natural flood control areas? Are such wetlands now being jealously guarded as priceless assets and a better form of flood insurance than any the Federal Government could provide? Unfortunately, the answer is no.

On every side we see wetlands being drained for mosquito control and agriculture or filled with refuse and used for industrial sites. In their natural condition they are generally regarded as worthless. Their owners are willing to sell them cheaply and tax boards assess them for little. Yet, every day we have greater need for their water storing ability as more streets, roofs and hard-packed lawns increase the runoff to be expected after heavy rains.

Doesn't such a situation call for prompt action? Shouldn't various groups, public and private, buy these lowlands and dedicate them in perpetuity to the continued performance of the role that nature assigned to them? Much of this land is tax delinquent and needs only to be foreclosed. Much of the rest can be bought for \$5.00 or \$10.00 an acre. In fact, it is estimated that the total cost of all the wetlands along the average river in the Northeast would amount to less than the cost of even one Army flood control structure.

Besides controlling floods, these wetlands are a recreational resource of growing value. Ducks, geese and other water birds can live nowhere else. Fish use them for spawning and they provide a home for furbearers like mink, muskrat and otter. To the growing army of outdoor-minded people they provide easily accessible "little" wilderness areas where it is possible to escape for a few hours from civilization. To all they are "open lands" whose vistas can help break the deadly monotony of the ever-spreading urbanization that is slowly overwhelming the Northeast.

STATE OF NEW JERSEY
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

Division of Planning
and Development

State House Annex
Trenton 7, N.J.

November 17, 1955

Mr. Bailey B. Pepper, Chairman
State Mosquito Control Study Commission
New Jersey Agricultural Experiment Station
Nichol Avenue
New Brunswick, New Jersey

Dear Mr. Pepper:

In going over our correspondence, I do not find that a reply was written to your letter of October 24, addressed to Mr. William C. Cope, Director of the Division of Planning and Development. I gather that the hearings of your Commission on Mosquito Control have been completed. I do not know whether we can be of any assistance to you at this time, but I want you to know of the interest of this Division and its willingness to co-operate in any way it can.

The present Director of the Division is Theodore J. Langan. He has asked me to convey to you our apologies for the delay in answering your letter. I hope that you will get in touch with us if you feel that we can be of service.

Sincerely yours,

Guy C. Larcom, Jr.
Chief, Bureau of Planning

GCL:gep

October 24, 1955

Sample letter sent to
the Director, Boards Chosen Freeholders

Dear Director :

Senator Frank S. Farley introduced into the legislature Senate Concurrent Resolution 26, creating a six-member Mosquito Control Study Commission to make a study of the mosquito control problems in New Jersey and to report its findings to the State Legislature and the Governor on or before December 1, 1955. Along with this report the commission is directed to make recommendations as to how more effective mosquito control can be attained.

To make this study as complete as possible and to present sound recommendations, the six-member Mosquito Control Study Commission would appreciate the views, suggestions and recommendations of your Board concerning this matter. Since the County Board of Chosen Freeholders has had a very important part in the past program in that the said Board in most counties make the appointments to the county mosquito extermination commissions and also appropriates the funds with which the commission carries out its work, we feel that County Boards of Chosen Freeholders can supply us with valuable information for inclusion in the six-member Study Commission's report and recommendations. Since the period of time allowed to make this study is so limited, a written statement from your Board would be appreciated. If, however, you or other members of your Board would prefer to discuss these matters with the six-member Study Commission in person, the commission will meet on October 26, November 2, 9 and 16 at the State House, Trenton, New Jersey at which time we will be happy to have you appear in person.

Very truly yours,

Bailey B. Pepper
Chairman, State Mosquito
Control Study Commission

BBP:AKL

BOARD OF CHOSEN FREEHOLDERS

COUNTY OF MIDDLESEX

NEW BRUNSWICK, N. J.

W. Robert Hale
Director

October 28, 1955

Dr. Bailey Pepper
New Jersey Agricultural Experiment Station
Nichol Avenue
New Brunswick, New Jersey

Dear Dr. Pepper:

Replying to your letter of October 24, I can speak for our Middlesex County Board of Freeholders and say that our unanimous opinion is that your County Commission and staff has done a highly commendable job in this County.

We have no statistics to show exactly what has been accomplished, but we do know that your men under Mr. Smith and Mr. Thom have been on the job with their routine work, and where complaints have developed, as they invariably do, prompt attention has been given.

We have been impressed with your conservative requests for annual contributions.

We believe this is one department of our County Government that operates with a high degree of efficiency.

Sincerely,

W. Robert Hale

WRH:NCL

BOARD OF CHOSEN FREEHOLDERS, COUNTY OF ESSEX

HALL OF RECORDS, NEWARK 2, NEW JERSEY

F. M. Voorhees

October 27, 1955

Mr. Bailey B. Pepper
Chairman, State Mosquito
Control Study Commission
Rutgers University
New Brunswick, New Jersey

Dear Mr. Pepper:

Director Douglas has asked me to reply to your letter of October 24 relative to any recommendations the Board of Freeholders might care to make to your Commission.

It is Mr. Douglas' feeling that any recommendations should come from the Essex County Mosquito Commission, who, of course, are much more familiar with the mosquito control work than the members of the Board.

Inasmuch as Mr. Sameth is a member of your Commission, it was Mr. Douglas' feeling that he would adequately present any recommendations that Essex might have. As a matter of fact, the Essex Board will not have another meeting until November 10. If at that time it is felt advisable to have any further representations made to your Commission, I will so advise you.

Very truly yours,

F. M. VAN VOORHEES
Clark

FMV:c

You Are Viewing an Archived Copy from the New Jersey State Library
PASSAIC COUNTY MOSQUITO EXTERMINATION COMMISSION
Paterson 1, N. J.

October 24, 1955

Dr. Bailey B. Pepper, Chairman
Mosquito Control Study Committee
Department of Entomology
N. J. Agricultural Experiment Station
New Brunswick, N. J.

Dear Dr. Pepper:

As suggested at the recent meeting of Associated Executives of Mosquito Control Work in New Jersey at Lakewood, I am enclosing information which might be of value in the survey being made by the six man Mosquito Control Study Committee.

PASSAIC COUNTY

Although fairly satisfactory control has been obtained with the present appropriation considerable additional funds are needed to build up our equipment and man-power to a strength where we could handle most any control problem.

In Passaic County, the three main problems and their possible remedies are:

- Problem 1. Adult Culex have presented the greatest control problem in the last few years in southeastern Passaic County. From observations made during 1955 it is indicated that these broods are emanating somewhere to the east of Passaic County. Our only recourse is to fog this large area as often as possible with but two fog units.
- Remedy 1. Provide state investigation to locate breeding source (State inspectors would be useful for this type of work) and make the responsible agencies remedy this situation.
- Problem 2. Extending control to sections of the county which are developing in former rural sections.
- Remedy 2. Increase in equipment and personnel. If funds are not available from the county, then provide state aid.

Passaic County-----2.

Problem 3. Heavy flooding resulting from hurricanes or other storms causing emergence of large broods of flood-water mosquitoes.

Remedy 3. Pass legislation providing emergency funds in each county or state funds to provide for purchase of insecticides, hire of labor air spraying etc.

In addition I think that much greater sums of money should be made available to the Department of Entomology to carry on research which benefits every mosquito commission in the state.

Passaic County ----- 3.

1955 Appropriation received	\$ 60,265.00
Legal limit allowed	116,257.00

1. Present equipment owned by the Passaic County Commission:
 - 2 Trucks - 1 - 1/2 Ton - 1 - 1 ton for carrying on spraying operations
 - 1 Truck (1 1/2 ton) with Hardie sprayer for spraying large breeding areas.
 - 1 jeep with Tifa
 - 1 Willys pickup with Tifa
 - 1 Jeep with Essick sprayer for catch basin spraying
2. Additional equipment needed.
 - 1 more pickup truck for spraying operations
 - 2 more jeeps with Essick sprayers (1 for catch basin work and 1 for various spraying and inspectional work)
 - 1 mist blower for adult control
 - Additional labor
3. The additional equipment would amount to about \$10,000. dollars initial cost and labor \$10,000 to \$15,000 per year.

MIDDLESEX COUNTY MOSQUITO EXTERMINATION COMMISSION
Parsonage Road
Metuchen, N. J.

Lester W. Smith
Executive Secretary

P.O. Box 346, Metuchen, N.J.

Dr. Bailey B. Pepper, Chairman,
State Mosquito Control Study Commission
Rutgers University, New Brunswick, N. J.

Dear Dr. Pepper:

We are submitting herewith, recommendations which the Middlesex County Mosquito Extermination Commission deems essential for the betterment of Mosquito Control Work throughout New Jersey.

(1) RESEARCH:

We believe that Research is the foundation upon which good mosquito control work is built and therefore strongly recommend that it be given every consideration by your Committee, particularly in the following fields:

ENTOMOLOGICAL:

- (a) A review of the biology and habits of all species of mosquitoes.
- (b) A study of the flight range of the migratory species with reference to Inter-County Control.
- (c) A study to develop more effective control of the species *M. perturbans*.

BIOCHEMICAL:

- (a) For the development of an effective Ovicide.
- (b) For the possible sterilization of the male mosquito.
- (c) A study to improve the toxicity of larvicides within the range of safety to humans and wild life.
- (d) A study to develop a more effective adulticide with quick knock-down and longer lasting residual, stable at high temperatures for use in aerosol fogs.

MECHANICAL:

- (a) A review of all hand-spray equipment to develop a lighter, sturdier and more efficient hand-sprayer.
- (b) A study to produce a better non-clogging, adjustable nozzle for hand and power equipment.
- (c) Design of a light, portable, knock-down bridge for the passage of heavy equipment over natural streams on salt marshes.

(2)

(2) LEGISLATIVE CHANGES:

We believe that the present Laws governing Mosquito Control in this State should be modified or amended to include the following clauses;

- (a) A clause making it mandatory for Counties not now having active Mosquito Control Commissions, to appoint such a Commission with power to proceed with mosquito control work, when in the opinion of the Director of the Experiment Station, lack of control work in that County interferes with or retards mosquito control work in an adjacent County or Counties.
- (b) A clause setting up a Minimum Mill Rate per Dollar of Tax Ratables for Budgetary Expenditures, with a provision that Mill Rate may be increased by action of a Board of County Freeholders to compensate for rising costs of labor and materials.
- (c) A clause defining responsibility of the State, Counties, Municipalities and Mosquito Control Commissions for the drainage of lands and the ownership of natural streams.
- (d) A clause to provide State aid to Counties following disastrous floods, etc., to overcome emergent conditions. Also, to provide ways and means for the operation of airplanes on a Statewide basis for fogging and dusting, under the direction of the Director of the Experiment Station for the control of peak loads.
- (e) A clause making it mandatory for local Health Officers to take corrective measures when violations producing mosquito breeding are reported to them by representatives of the Mosquito Extermination Commissions and setting up ways and means for the formal transmittal of such reports.
- (f) A clause requiring that Commission Appointments be made within Thirty Days after the expiration of a Commissioner's term in Office or when a vacancy occurs.

(3) SUGGESTION:

We recommend that your Committee or one appointed by the Governor for that purpose, be authorized to confer with the Health Authorities of New York City or State regarding the establishment of an active Mosquito Control Commission on Staten Island with particular regard to the West Shore of the Island.

CAPE MAY COUNTY

MOSQUITO EXTERMINATION COMMISSION

Cape May Court House, N. J.

R. F. D.--1154

November 3, 1955

Dr. Bailey B. Pepper
Chairman, State Mosquito
Control Study Commission
Experiment Station
New Brunswick, N. J.

Gentlemen:

The Cape May County Mosquito Commission gives the new existing problems of Mosquito Control and also suggestions, in Budget form, for additional funds, to bring Mosquito Control to a higher level.

The mosquito problem for the past season was very serious, as 85% of all nuisances were salt marsh species. The fact that this County has the largest amount of salt marshes in the State, is known by all concerned in the Mosquito field. The lack of man power is very vital as funds received each year are not enough for this Commission to cover all areas in this County.

This County has 265 square miles of land plus 186 square miles of waterways. All resorts are bordered by salt marsh. Recently, the new Garden State Parkway, entered the picture and three-quarters of this highway is on the salt marsh. The drainage installed by said highway is ample for the necessary upland waters but the take-off ditches, which are twelve inch (12 inch) units are not large enough now. Therefore, the entire East Coast Marshes are in need of reconditioning and equipment of the "Dragline" status is needed.

The West Side of the County is bordered by the Delaware Bayshore Marshes. This area is a constant job in itself and a permanent crew on this area is needed year around. This Commission hopes, someday, to split the County in half and to have special crews working on both East and West Coast Salt Marshes year around. This could be done with a crew of twenty (20) laborers instead of the six that we now maintain. We are only able to ditch seven months of the year, as the remaining five months are the five summer months of spraying and larviciding.

The continuation of the State Airspray Program, is vital and additional funds for dusting and larviciding is needed in conjunction with the above mentioned program.

The need for Experimental Chemical and Biological Studies of our marshes is needed and should be done locally and not a general salt marsh survey to cover a number of Counties.

-2-

As our State grows and progresses, so should the Mosquito Commissions, but time has passed us by and with limited funds progress is slow in our field.

Attached is a list of Recommendations that we feel would help our County progress in the future.

Very truly yours,

(Signed) Boyd M. Lafferty

Executive-Secretary

BML:fk

RECOMMENDATION FOR ADDITIONAL FUNDS FOR WATER COURSE DRAINAGE ON EAST AND WEST COAST

One 1/2 yard Crane	\$15,000.00
Two O. C. 6 Oliver Tractors with Backhoe at \$7,000.00	14,000.00
Bayshore Sluice Box Installations 5 units at \$10,000.00 each	50,000.00
Heavy Equipment Operators 2 at County Pay Rate	7,440.00
Additional Laborers and Supervision	34,000.00
Insurances	5,000.00
Additional Airplane Application (Larviciding, Pre-Season Dusting, Intermittent spraying in conjunction with the State Airspray Program)	15,000.00
*Chemical and Biological Studies of Marshes	5,000.00
Salt Marsh Tank Tractors	6,000.00
Materials:	
Tractor Parts and Tools	1,000.00
Shop Supplies	1,000.00
Gas, Oil and Grease	3,000.00
Boots	100.00
Printed Supplies	500.00
	<hr/>
	\$ 157,040.00

"Stated monies could be allocated to the Experiment Station, if received.

The above Plan is based on a three year period, This period to be taken care of by State monies, less equipment expenses, would be \$78,000.00 a year or \$234,000.00.

ESSEX COUNTY MOSQUITO EXTERMINATION COMMISSION
Hall of Records, Room 554, High Street, Newark 2, N. J.

November 7, 1955

Dr. Bailey B. Pepper
Chairman, State Mosquito
Control Study Commission
New Jersey Agricultural Experiment Station
New Brunswick, New Jersey

Dear Sir:

In reply to your request of October 24, regarding mosquito problems as they now exist in Essex County, we wish to offer the following information.

We have several problems four of which may be considered major problems and a few minor ones. The major problems are as follows:

- 1 - The elimination of sanitary sewers that run through the Newark Meadows through open ditches maintained by the City of Newark. If this condition could be eliminated, the culex pipien problem would be much easier to control.
- 2 - Throughout the Newark Meadows there are several industrial dump areas. These industrial dumps are owned and operated by private individuals which no grading control is maintained, therefore, leaving impounded water and various containers which hold water and are prolific breeders.
- 3 - For the past several years we have had heavy infestations of adult mosquitoes during the entire summer particularly in the Nutley-Belleville areas. Although we have made an exhaustive search for breeding areas within our County borders, we have not been able to locate this source of high mosquito incidence. It is suspected that these mosquitoes fly in from the vast breeding areas to the east which are the responsibilities of other County Mosquito Commissions.
- 4- During periods of flood in the Passaic River Valley some 18,000 acres of marsh land is covered with water which is ideally suited for producing heavy broods of flight mosquitoes. Certain pre-flood control measures have been effectively used in the past on a joint program and since several counties are involved in the control of mosquitoes in this vast Passaic Valley area the effectiveness of one counties control measures can be nullified by the neglect of another County.

- 2 -

Dr. Bailey B. Pepper

November 7, 1955

If some effective means could be devised to overcome these major problems in our County we feel that the minor problems could easily be taken care of by our own efforts.

It has been suggested by a member that possibly we could improve our Commission by having a smaller Commission of three or four men who will receive a salary of perhaps \$1,000 to \$1,500 per year. It is considered that under these conditions the members would take more interest and devote more time to the work.

It was also suggested that one of the more important pieces of legislation that should be considered is a law to enforce the cooperation of counties who are offering an ineffective program.

Very truly yours,

Edward F. Coombs
President

EFC:LL

C O P Y

HUDSON COUNTY MOSQUITO EXTERMINATION COMMISSION

2857 Hudson Boulevard

Jersey City, N. J.

November 1, 1955

Dr. Bailey B. Pepper, Chairman
State Mosquito Control Study Commission
New Jersey Agricultural Experiment Station
Department of Entomology
Nichol Avenue
New Brunswick, New Jersey

Dear Dr. Pepper:

In answer to your letter of October 24, 1955, please find below various matters which are respectfully brought to the attention of your Mosquito Study Commission. Our Hudson County Commissioners feel very strongly on most of these items and we would appreciate deeply your full consideration of same.

1. N.J.S.A. 26:9-21 (d) states that a county mosquito commission has the power "*** to perform all acts which in its opinion may be necessary for the elimination of mosquito breeding areas, or which will tend to exterminate mosquitoes within the county." We would like to know what this subdivision really means. Does it mean that mosquito commissions are merely to spread insecticide and larvicide over mosquito breeding areas or are they to enter into the construction business digging ditches, building dikes, bulkheads, bridges, etc.; and owning cranes, shovels, dump trucks, etc.?

The language of sub-division (d) is very broad but there has never been a concrete, clear statement or legal decision delineating the real authority and power mosquito commissions have in this regard. We feel that your Study Commission might explore this field and make a policy statement thereon.

2. We are also of the opinion that the laws dealing with restraints and punishments for maintaining mosquito nuisances be examined thoroughly and undergo extensive legislative revisions so that violators are severely dealt with and the seriousness of the offense be brought home graphically to the general public. At the present time, the mosquito enforcement laws are weak and awkward and, in many cases, confusing.

3. It also occurred to the members of this Commission that your group might recommend that all mosquito commissions have numbered among their personnel at least one or more engineers qualified for the use of hydraulic fill and drainage construction to assist the commission in its mosquito control program. This, of course, would hinge on whether or not it is a proper function for mosquito commissions to engage in this type of work as brought out in our question 1 (supra).

4. Another important type of legislation which we feel should be

Dr. Bailey B. Pepper, Chairman

November 1, 1955

passed immediately concerns itself with persons, whether private contractors or individuals, employees of cities, counties or the state, who interfere with any mosquito ditches being maintained by a mosquito commission. This is a problem which has seriously affected our commission because of the extensive construction by various government agencies of roads, bridges, etc. in the Hudson County area. We feel there is a need for legislation requiring that all persons, whether private citizens or employees of government, be required to check with the local mosquito commission before they cut into, alter, change or otherwise interfere with any ditches being maintained by such local mosquito commission. It is felt that in this way the local commission is made aware of what is taking place and has the opportunity of repairing any extensive damage done to its drainage system and mosquito control ditches. While our Commissioners feel that roads and bridges of necessity must be built they at the same time also are of the opinion that the health and welfare of the public in a particular area must also be considered and adequately protected against pollution, pestilence and the mosquito menace.

5. Another recommendation is that numbered among the personnel of each commission should be one employee who is experienced and trained in the life and habits of mosquitoes. While it is a fact that the State Experimental Station does a good job in this field, nevertheless, the State of New Jersey is comprised of 21 counties and, unfortunately, the State Experimental Station does not have sufficient funds or personnel to do the job that it knows should be done in this respect.

Also, each county may have different types of mosquitoes and different local problems, etc., and a permanent employee would be at the local scene immediately available to offer advice and assistance as various problems arose.

6. N.J.S.A. 26:9-23, which deals with extermination budgets, should be repealed immediately because the funds provided for in this law are entirely inadequate due to the rising costs. An entirely new section should be enacted into law which substantially increases the funds available for mosquito work. The mosquito problems in New Jersey have increased tremendously since the present budget section was enacted into law. Costs of labor, materials, insecticides, pensions, etc have appreciated sharply through the years so that it is logical to assume that budgetary requirements of mosquito commissions have also increased in the same proportion.

7. We also feel that N.J.S.A. 26:9-28, which allows boards of freeholders by a resolution to issue bonds up to \$300,000, should be amended and this sum be increased to \$1,000,000. We also feel that the amendment should clearly provide that this bond issue may be voted yearly by the freeholders and is not just a solution which can be used but once. Costs have gone up in all fields, as indicated above in question 6 (supra), and the same reasons for increasing the amount to be raised by bond issue, as indicated by us in the previous question, are applicable here.

Dr. Bailey B. Pepper, Chairman

November 1, 1955

8. We also feel that it might be wise for your Study Commission to pursue the possibility of enacting laws allowing mosquito commissions to float their own bond issue as many other autonomous bodies in the State of New Jersey are empowered to do. Of course, we fully realize that there are problems of income to defray the costs of such a bond issue but perhaps something can be worked out with the various county governments underwriting the bond issue.

9. This Commission has also encountered a disturbing new trend in the construction of buildings. Some architects are designing buildings in such a way that rainfall is retained on the roofs at all times in order to keep the buildings cool. Of course, this creates many mosquito breeding areas and produces many other health problems and it is felt that some type of remedial legislation is needed to prevent the construction of such buildings. Perhaps some amendments to local and state building regulations would suffice for this or some amendments to our various state and local health laws.

We offer all of the above for the discussion and consideration of your Study Commission. If additional information is requested, please do not hesitate to contact the undersigned and our complete cooperation is herewith pledged.

May we congratulate you on the energetic start your Study Commission had made and may we further express our hopes, and those of all the New Jersey citizens, that your deliberations prove fruitful and successful.

Very truly yours,

(Signed) C. Harry Callari

Executive Secretary

CC: Mr. Robert Vannote, Chairman
Morris Co. Mosquito Exterm.
Commission

You Are Viewing an Archived Copy from the New Jersey State Library
MONMOUTH COUNTY MOSQUITO EXTERMINATION COMMISSION
54 Broad Street
Red Bank, N. J.

October 24, 1955

Bailey B. Pepper, Esq.
Chairman of N. J. Mosquito
Study Commission
Rutgers University
New Brunswick, N. J.

Dear Mr. Pepper:

The Monmouth County Mosquito Extermination Commission would like to suggest to your Board that a survey be made under State auspices of the entire County of Monmouth, this survey to show the principal areas of swamp lands that should be properly drained in order to eliminate mass breeding of mosquitoes in these low areas. We believe that such a survey would best be accomplished if made from the air at low flying level. The survey should also include complete data as to ownership of such marginal lands in order that proper notification may be given to such owners of proposed ditching work on their lands.

We believe that the air spray program has been of considerable help in mosquito control over the swamp lands of our county. However, we feel that this work should be intensified and a much more substantial appropriation be made and that county share of this appropriation should be under the direct control of the Monmouth County Mosquito Extermination Commission. Our Commission would then be responsible for the spraying at needed intervals throughout mosquito breeding season.

Our Commission further believes that there is an unfortunate lack of control in the matter of drainage in the great increasing number of property developments in many of the communities throughout the County. We have found that literally hundreds of houses have been built for instance in Middletown Township, with practically no attention being given to adequate drainage. This has resulted in literally hundreds of complaints daily throughout the mosquito breeding season.

We believe that this matter of drainage control is hardly something that can be done at the State level and it is more than possible your Board could work it out better at the Community level. We further suggest that your Board remind county officials that the present statute requires a minimum percentage of the taxes raised to be allocated for mosquito extermination work. I believe this would be helpful in supporting the budget for which we applied to the County Board of Freeholders.

Very truly yours,

WILLIAM H. HINTELMANN
President

WHH/jm

November 10, 1955

Dr. Bailey B. Pepper, Chairman
State Mosquito Control Study Commission
N. J. Agricultural Experiment Station
New Brunswick, New Jersey

Dear Dr. Pepper:

The following is a Report of the Atlantic County Mosquito Extermination Commission:

A County of 133,000 citizens and an estimated 400,000 visitors over week ends during the summer season - mosquito season.

The appropriation for this year, \$37,000.00 - the maximum under the law.

80% of our mosquitoes in 1955 was species that breed on the salt marshes of which we have over 45,000 acres. In the past we have installed about fourteen million unit feet of ditches in about 70% of our salt marshes. All must be maintained.

"Brigantine Wild Life," owned by the Federal Government claims to own 15,000 acres, part of which covers 2,968,000 unit feet of drainage ditches. "New Jersey Fish and Game Commission," owns 2,900 acres, which covers 836,000 unit feet of ditches. This leaves 10,196,000 feet that must be maintained by this Commission as well as drainage that may have to be installed for breeding control.

Our present salt marsh maintenance crew is a leader-truck driver and four men who run two of our three ditch cleaners. Should hand work be needed, the machines are stopped and crews used as hand tool men. The remaining member in the field is a truck-driver who services traps, does necessary larvaciding and fogging in the summer, and helps with salt marsh work in the winter time. This leaves no one to carry on inspection work on the salt marsh. The result - we do not know if or where breeding may be.

Less than half a million feet of ditches can be cleaned each year, and the footage should be around two million each year. This would require additional labor and equipment as follows:

New Equipment (Estimated)	\$ 13,500.00 First Year only
Maintenance	2,200.00 Each Year
Labor (12 men)	32,000.00) Each Year
1 Field Supervisor	3,000.00) First Year
Total	\$ 50,700.00 First Year

Dr. Bailey B. Pepper, Chairman -----2.

Following years (Supplemental Budget) \$37,200.00.

This does not contemplate the inspection or maintenance of the 17,968 acres of salt marsh owned by Public Agencies. Some provision must be found to force these agencies to provide mosquito control on these areas.

Research by the New Jersey Agricultural Experiment Station has been very helpful, but not to the extent we would like. With an increase in the Station Budget we believe we would receive additional research that would be of great assistance in our mosquito control efforts.

We believe the Station should have the powers and personnel to keep in line those counties that, in the past have not lived up to their plans and budgets as approved by the Station Director.

Respectfully yours,

Robert Ockenlander
President

FAR:evr

State of New Jersey
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Joseph E. McLean, Commissioner

November 2, 1955 Received

Rutgers University
New Brunswick, N. J.
October 31, 1955

Dear Bailey:

As indicated to you during our meeting on Friday afternoon, I took your letter of October 24th to Trenton with me last Thursday and presented the problem to Mr. George Shanklin and his assistant, Mr. Robert Cyphers, two of the Engineers of this Division who have devoted most of their time to a study of flood problems in our State. After some discussion it was decided that Mr. Cyphers would restudy the recommendations covering control of floods on the Passaic River in light of the requirements for mosquito control as set forth in your letter. It is planned to have a statement ready for presentation in person to the meeting of your Commission on November 9th. This will come to you as an Engineering Report hence in what follows I am speaking as a biologist and as an individual.

As you know I have been spending all my summers except for the period of the First World War on or closely adjacent to the salt marshes of our State ever since 1908. Looking back over this period I can see a very great improvement in reduction of the mosquito population. Even at their worst last summer the density of these insects could not compare with the situation which we met in 1928 in Cape May or in 1923 over much of the Delaware Bay area. From this observation I am happy to affirm my faith in the ability of you and your associates to plan and to direct measures which will result in a very considerable reduction in the present nuisance.

It is highly significant that during the last War the measures for mosquito control which were taken either by or at the instance of the military airport at Rio Grande were highly effective.

Since that time there has been serious deterioration in the control works designed to either prevent flooding of the marsh or to secure rapid drainage in case of flooding. The area adjacent to our laboratory between Dias Creek and Green Creek is an excellent example of such deterioration. There are two dilapidated tide gates which are no longer operative, in fact the one just north of our laboratory has now been practically destroyed. The one at the mouth of Green Creek has lost its gate although the crib is still intact. I am enclosing* eight copies of Reprint of my paper from the 1953 Proceedings of the Mosquito Extermination Association in which I consider some of the aspects of the problem just considered.

As a result of the building up of the immediate shore line above high water due to the catching of sand by the vegetation there, we now have along much of the Cape May Shore of the Delaware Bay the beginnings of low sand dunes. South of Green Creek these dunes have reached such a height as to confer a considerable degree of protection of the shore line against further erosion. North

*Under separate cover

of our laboratory the Bay Shore has been retreating approximately one foot per year since we began investigations there in 1928. With the rise in sea level described in the enclosed reprint plus subsidence of the land itself much of the area back of the shore line is appreciably lower than the spring high tides. With deterioration in drainage ditches these areas are now covered with water even during droughts because of the contribution every two weeks by the spring tides. I appreciate fully the pressure being brought to bear to spend the available funds for airplane spraying. I must however emphatically object to such use of public funds merely to satisfy the bulk of the crowds who come to the area during the 4th of July and the Labor Day periods. The relief secured from this source is very temporary and on the whole quite inadequate. The same amount of money put into the rehabilitation of our water level control gates plus some judicious ditching would accomplish far more and will be with proper maintenance relatively permanent. I hope therefore that your Commission will enquire into this aspect of the problem and measure the costs against the actual results obtained.

Finally as you know I have always been an enthusiastic advocate of the assistance which can be rendered in mosquito control through the activities of small fish, especially *Fundulus*. These fish now occur in large numbers in the main mosquito ditches above referred to, but they are unable to get into the upper reaches where most of the mosquito larvae breed because of obstructions. If these fish are given half an opportunity to get into the headwater areas they will even jump out onto the marsh in advance of the rising tide in order to get into pools to destroy the mosquito larvae therein.

In conclusion if there is any assistance I can render to your Commission in preparing your Report to the Governor please feel free to call upon me.

Cordially yours,

Thurlow C. Nelson, Chairman of the Council
Professor of Zoology, Rutgers, State University of New Jersey

Dr. Bailey Pepper
Department of Entomology
Rutgers University
New Brunswick, N. J.

The Mosquito Control Study Commission in its deliberations consulted all of the major sources of published information mosquitoes and their control. Prominent among these sources were:

The Proceedings of the New Jersey Mosquito Extermination Association, 42 annual issues, 1912-1955. New Brunswick, N. J.

Mosquito News, American Mosquito Control Association, including special bulletins. Albany, N. Y.

The Journal of Economic Entomology. Washington, D. C.

Publications of the U. S. Department of Agriculture on mosquito biology and control. Washington, D. C.

Journal of the National Malaria Society. Savannah, Ga.

Publications of the U. S. Public Health Service; Public Health Reports and Communicable Disease Center Bulletins. Washington, D. C.

Journal of the American Society of Tropical Medicine and Hygiene. Baltimore, Md.

Reports of the California Mosquito Control Association: California Bureau of Vector Control. Berkeley, California

Reports of the Florida Anti-Mosquito Association. Jacksonville, Florida.

Proceedings of the Utah Mosquito Abatement Association. Salt Lake City, Utah.

Reports of many county and district mosquito control organizations throughout the United States.

Experiment Station bulletins from 12 states.

The Bulletin of the Pan American Sanitary Bureau. Washington, D. C.

Publications of the United States Army, the United States Navy and Research Reports of the U. S. Fish and Wildlife Service. Washington, D. C.

Recognized textbooks and review journals, including:

Mosquitoes--Their Bionomics and Relation to Disease. Horsfall - 1955. Ronald Press, New York.

-2-

Mosquitoes of North America. Carpenter and LaCasse - 1955.
University of California Press, Berkeley.

Mosquito Control. Herma and Gray - 1944. Commonwealth Fund,
New York.

Mosquitoes of New Jersey and Their Control. T. J. Headlee - 1945.
Rutgers Press, New Brunswick, N. J.

Practical Malariology. Russell et al - 1946. W. B. Saunders Co.,
Philadelphia.

Bulletin of Entomological Research. London.

Biological Abstracts. Baltimore, Md.

Review of Applied Entomology - Series B. London.

note