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AMUAL REPORT

BUREAU OF INSECT PEST CONTROL

1962

The fiscal year 1962, saw the population buildup of two of our more serious public nuisances - the gypsy moth and the fall cankerworm. Each of these will be treated separately later in the report. The Dutch elm disease remains our most serious shade tree pest and the total of those trees lost each year remains somewhat constant.

1962 saw the enactment of the long awaited pesticide legislation, which will directly affect the activities of this Bureau in as far as control by insecticides is concerned. If this law does nothing else it should be the means of clearing the air during some of the pesticide contraversies. It could also be an effective deterrent to those who want to spray for the sake of spraying.

For the third year the Bureau cooperated with Bill Sheldon at the University of Massachusetts in the long range study of the effects of pesticides on bird populations. Again this year the Bureau assumed the responsibility for marking and spraying the designated areas with DDT and Sevin. The results of this study will be evaluated by those at the University. These results must be weighed very carefully by those of us concerned with the various aspects of the problem. For instance, this type of spraying, with the formulation used, would never be repeated on the same area three or four years in a row in our line of work. Any adverse results, therefore, created by repeated applications could not be applied to control projects of this Bureau.

Other experimental work in progress at the time of writing of the 1961 Annual Report included the application of zinc-chloride to elms as a deterrent to the Dutch elm disease - since proven ineffective, and spraying elms with various formulations to prove or disprove the growing concern that in certain areas the elm leaf beetle is becoming resistant to formulations of DDT. Results were somewhat inconclusive but indications tended to confirm these suspicions.

Areas where this resistance appears to be showing up are in communities such as Concord where spraying with DDT has continued uninterupted for many years. The work is being done in cooperation with the University of Massachusetts Shade Tree Laboratories and is still in progress.

The fiscal year 1962, saw the gypsy moth go from known infested areas totalling approximately 2,000 acres to areas totalling approximately 60,000 acres. The problem was created in two different ways: (1) a population explosion from existing low populations on susceptible areas; and, (2) the infestation of susceptible areas by larval blow in from distant heavily populated areas. A combination of these two factors created a serious situation in western Massachusetts this year.

Starting with the known areas of infestation as recorded by the aerial survey in the summer of 1961 Bureau personnel began checking those and surrounding areas for evidence of egg mass deposition in order to get as accurate a picture as possible of expected defoliation in the following spring. Based on this information funds were requested from the Legislature to control the insect in these known areas of infestation.

Original plans were to begin spraying early in the month of May. It was felt that spraying at this time would avert much of the spread to surrounding areas. Money was not forthcoming until the latter part of May, however, upon the enactment of Chapter 492, Acts and Resolves of 1962, the sum of \$60,000 was transferred from account 8262-32 to account 8262-40 for the purpose of spraying for gyspy moth. Spraying got underway on June 1. At this time the gypsy moth larvae were in the third and fourth instars or approximately half way through the feeding period.

Spraying was done by Simsbury Flying Service using two converted Navy torpedo bombers and three Stearman bi-planes. The major insecticide used was 9% DDT solution applied at the rate of one gallon per acre. The less toxic but more expensive insecticide, Sevin, was used around critical dairy and crop farms.

Spraying was completed on 62,000 acres on June 14.

A total of 1,200 acres were sprayed in Mashpee, Falmouth and Barnstable on Cape Cod during fiscal 1962 for control of the gypsy moth. The rest of the total area sprayed was in Franklin, Hampshire, Hampden and Berkshire Counties. The cost of this project to the Commonwealth discounting the salaries of the participating Bureau personnel was \$56,517.36 or 0.911 cents per acre. A complete report on this project will be made in more detail and with a more complete breakdown of costs.

Although reasonably good control of the insect was attained as a result of the spraying, large areas in the western part of the State were partially if not completely defoliated before the spraying was completed. What should have been accomplished this year, despite the late start, was the elimination of the problem next year on those areas sprayed. It will not be until completion of the egg mass survey this coming fall and early winter that this is known, however.

Coincident with the rise in gypsy moth populations in certain area of the State has been a rise in cankerworm populations. Many of the areas of defoliation in the western part of the State attributed to the gypsy moth were in reality a combination of the gypsy moth and the cankerworms. The food preferences of both of these pests are quite similar.

In southeastern Massachusetts, where very little gypsy moth can be found, large areas of defoliation by the cankerworm alone were experienced this year.

Notable among these were approximately 5,000 acres in Quincy, mostly on the Blue Hills Reservation, 5,000 acres in Braintree, 5,000 acres in Milton, 1,000 acres in Weymouth, and 500 acres in Canton. To a lesser extent many other areas in the State experienced some defoliation by cankerworms.

Another of the public nuisances is showing signs of population increase. The pine looper, which in the past has caused severe defoliation of pitch pines on Cape Cod, is again being found in numbers which would indicate that closer surveillance is needed. At the present time the area showing the greatest build-

up in population is the town of Truro. As a large part of the area lies within the boundaries of the Cape Cod National Park is was felt that those in charge should be alerted to the problem. Bureau personnel working closely with the U.S. Forest Service and National Park personnel have determined that no control measures should be contemplated immediately and if needed in the near future it will be a cooperative effort.

Aside from those already mentioned and the Dutch elm disease which will be taken up later none of the other public nuisances listed in Chapter 132 showed any unusual trends during the past year. The white pine blister rust continues to be a problem in northern Worcester County and in Berkshire County. Expense incurred by the State in this cooperative Federal-State program is made up wholly by salaries paid to two full time and three part time men. The total cost in fiscal 1962 was \$9,429.35.

At the present time in Massachusetts we have a control area of 1,408,011 acres in which are 585,944 acres of white pine. Of the 1,408,011 acres 1,407,866 acres have been initially worked, i.e., since blister rust control work began this many acres in Massachusetts have had some control work done on them. Of this total acreage initially worked 1,378,038 acres are on maintenance and 1,043,103 acres require no further work.

Despite the fact that we are presently experiencing population increases with two of our troublesome public nuisances, gypsy moth and cankerworm, our major problem still remains the Dutch elm disease. In numbers of trees lost and in total amount expended by various private individuals, cities and towns, and State agencies due to this disease, its economic effect on the State far outweighs other tree pests and diseases.

During the past year our four tree removal crews assisted 71 cities and towns in removing and destroying 2,133 diseased elm trees at a Bureau cost of \$38,850. These same crews also assisted 68 cities and towns in sampling 2,348 trees at a Bureau cost of \$6,172.

The Bureau assisted other State agencies in the removal and disposal of 188 diseased trees at a cost of \$3,725 and assisted in the taking of 161 samples at a cost of \$727.50.

A major project undertaken by the Bureau during the past year was that of evaluating the Dutch elm disease program as carried out by the Massachusetts Department of Public Works. The survey was undertaken at the request of the Commissioner of Public Works. In his request three ideas were to be considered:

(1) whether to continue their program as practiced; (2) to revise or modify the program; (3) to abandon entirely DDT spraying along State highways. The following facts were determined by the Bureau at the completion of the survey: (1) Bureau personel travelled 2,164.4 miles of State highway; (2) it was determined that 15,331 trees should be considered in future programs; (3) it was determined that 1,661 trees should be removed; and (4) finally it was determined that of the total miles of State highway 742 miles were actually in need of control work.

Bureau recommendations to the Department of Public Works were as follows:

- 1. It is recommended that dormant spraying by any means on any tree except the elm is of no value and should be eliminated from the Department of Public Works spray program.
- 2. If not already being done a complete sampling program of suspected diseased trees should be put into operation.
- 3. A complete sanitation program be practiced. This means the complete removal and destruction of dead and dying elm wood.
- 4. Dormant spraying of certain elms along State highways may be carried out as a supplement to the rest of the program.
- 5. Each Department of Public Works district be equipped with its own spray equipment and crew.

Generally speaking the above recommendations might be considered the policy of the Bureau in regards to any State agency or municipality when the Dutch elm disease is considered.

In conclusion it might well be stated that the Fiscal year 1962 was the year of the bugs - at least the most recent year of the bugs. The gypsy moth has begun its population increase and will continue to do so for at least two more years. The fall cankerworm, following years of endemic populations and a slight buildup in 1961, also flared up in 1962. In the Town of Savoy the saddled prominent, another of the public nuisances which is a periodic forest pest, showed signs of a population buildup. The pine looper is increasing on Cape Cod and will bear careful watching during the next year or two. In this connection it should be stated that inasmuch as a substantial part of the area susceptible to this insect is to be part of the Cape Cod National Seashore Park the U. S. Forest Service and the U. S. Park Service are showing more than a casual interest in the pest.

All in all it was a busy year for the Bureau and all signs point to a continuance of this activity for the next few years.