AUTHURISHORT BUREAU OF INSECT PEST CONTROL 1960

Continued in its purpose of the suppression of the public nuisances contained in Chapter 132 of the General Laws. Again the two major problems encountered were the gypsy moth and the Dutch elm disease with the latter presenting by far the most difficulty.

To be allowed to run their full course with no interference from munthese two public maisances would be equally devastating as far as damage is concerned. The major difference between them is the fact that whereas the gypsy moth is relatively simple to control the Dutch elm disease is exceedingly difficult. The gypsy moth is highly susceptible to low doseges of DDF applied at almost any time during its larval stage. The beetles which spread the Dutch elm disease are very difficult to control as their only period of vulnerability is during the adult stage. Adults of almost any insect are more difficult to control then the larvae.

At almost any time during its feeding period which lasts from approximately mid-May until the latter part of June an aerial application of as little as three quarters of a pound of actual DDT per acre will very effectively control the gypsy moth. This has been proven in the past and was true again during this fiscal period, an account of which will be given later in this report.

This type of spraying considered by itself has been proven time and time again to have little or no effect on wildlife despite the claims of some. Repeated applications are not necessary when spraying to control the gypsy woth providing that the timing is correct and that the applicator followed directions carefully. These two provisions are very important and point up the fact that regulation is needed. Too often aerial apray projects are carried out with little or no thought given to the insect to be controlled or to the actual need for the control. Guesswork has no place in this type of program.

Spraying done under the direction of this Bureau for control of the gypsy moth took place in four areas within the State this year. Six hundred acres were sprayed in the Methuen-Haverhill area, six hundred acres were sprayed in the town of Truro, five hundred acres were sprayed in the town of West Barnstable, and one hundred and ten acres of an island in the Quabbin Reservoir were sprayed. All of these projects were under the supervision and technical advice of the Bureau. They were all successful. Each of these areas indicated by egg mass counts that defoliation would be medium to heavy if allowed to go unsprayed this year. They would also supply a source for new infestation if they were not checked.

At this writing those areas marked on maps by the Federal aerial survey team as being possible gypsy moth defoliated areas have not been completely checked on the ground by members of the Bureau. Only then can we be sure of what we are confronted with. This inspection work will be done later this summer and this fall. It is from this work that our recommendations for control work next year are based. At the present time it appears that the Bureau must begin preparations for control work in the spring of 1961.

It is rather difficult to assess the current Dutch elm disease situation at this time of year except as an observation. It is apparent that the count of diseased trees will be as high or higher than last year.

During the calendar year 1959 there were 12,134 new Dutch elm disease confirmations in the Commonwealth. This figure compares very closely with that of 1958 which was 12,225 and with that of 1957 which was 10,231. The one fact which is pointed out by these figures is that we are not gaining on the disease which should be the case. There are too many stumbling blocks of which lack of money is the most important.

Another hindrance is our fight against this disease and stemming for the most part from the lack of money is the reluctance of many communities to treat privately owned trees in their Dutch elm disease programs. A tree in a dead or dying condition on private land is as much a menace to the public trees as a street tree in this condition. It will breed tremendous quantities of bark beetles to further the spread of the disease. The major objective of this Bureau as well as the cities and towns should be the prompt removal and destruction of elm wood suitable for bark beetle breeding. Any tree within five hundred feet of public trees must be considered in order to protect those valuable trees.

The necessity of background such as this in this report is to point out some of the reasons for a study which was carried out this year by members of the Bureau. The study is now awaiting action by the Legislative Committee on Natural Resources. More assistance from the State level is needed if municipalities are to make any headway against the Dutch elm disease. From July 1, 1959 to June 30, 1960 the Eureau assisted 52 deserving cities and towns in the removal of 1,571 Dutch elm diseased trees. The total Bureau cost in this undertaking was \$33,886. Assistance was also given to 18 cities and towns in scouting for diseased trees at a Bureau cost of \$1,592.

This assistance is very much appreciated by those municipalities receiving it but it is far short of what is really needed to alleviate the situation.

The situation is somewhat uinque in that any estimate of need along this line cannot be based on numbers of people in a community. The estimate of need must be based on the number of elms. Within the boundaries of large cities there are generally no more elms than in a small town. The "large" and "small" in the preceeding being based on population. Theoretically then a small town should spend as much as a large city in the care of its trees. Financially this would be an impossibility. In any new line of attack on the disease this should be taken into consideration.

Another important phase of Dutch elm disease work performed by the four tree removal crews was in assistance to other State agencies. Diseased elms on State parks and State institution grounds can be a menace to the elms of the

municipality within which they are located. It has been a policy of this Bureau to assist these agencies and therefore indirectly assist the municipality involved. During fiscal year 1959 the removal crews of this Bureau assisted in the removal of 426 trees from State agencies at a Bureau cost of \$10,129. The point has been reached, however, where assistance to other agencies must be cut to a minimum. The first obligation of the Bureau is to the cities and towns. Legitimate requests for assistance have increased thus cutting down on the amount of time available for State agencies. To solve this problem the request for another tree removal crew is in the next budget. This crew would be used exclusively on State property, and would help the Commonwealth meet its obligation to the various municipalities

Another activity of the Bureau during the past fiscal year was its participation in a long range study of the effects of certain insecticides on bird population. This study is being directed by Mr. William G. Sheldon, Leader, Massachusetts Cooperative Wildlife Research Unit, University of Massachusetts.

Very close cooperation between the Entomology Department of the University, the Bureau of Insect Pest Control, and Mr. Sheldon is being maintained.

by keeping its own land free of infectious material.

The overall plan of this study encompasses three or four years, depending upon available Federal money. The program has been set up in an effort to ascertain the year by year effects of yearly applications of insecticides under normal field conditions on bird populations within the study areas. Supplementary studies will include such things as effects of honey bees and effects on populations of other beneficial insects such as parasites and predators.

DDT was applied at the rate of one pound per acre to one of these. A relatively new insecticide, Sevin, was applied to another. The third received no spray and will be maintained as a check.

The Bureau participation in this project was to the extent of supplying the technical knowledge gathered from experience gained through past aerial spray projects and in contracting for the actual work to be done. Bureau personnel

maintained close surveillance over the loading and dispatching of the spray plane and keeping accurate records of each flight. Bureau men in the field kept a very careful check on the deposit of insecticide. Previous to the actual spraying these same men had placed markers to guide the plane to the areas. The application was very successful.

Data gathered following the spraying has not, at the time of this writing, been completely analyzed.

Another cooperative program in which the Bureau participates is the control of the white pine blister rust. The maturity value of white pine in Massachusetts is conservatively estimated to exceed 90 million dollars. It is perhaps equally valuable in its sesthetic worth and other uses. At one time blister rust seriously threatened these values but through persistent and cooperative work this threat has been greatly reduced. Every effort should be made to maintain the control of blister rust that has been established. Equally important is the need to protect newly established young stands of natural and planted white pines.

The cost for this control work is shared by the State and the Federal government. At present the Bureau's participation is in the supplying of labor. Federal participation is in the form of vehicles for transportation and field leadership in the form of an area leader.

As of September 30, 1959 the status of white pine blister rust control in Massachusetts was as follows:

Acres 01	white pine
Acres oi	control area (pine and protection zone)1,425,305
Acres of	control area initially worked
Acres of	control area on maintenance

Today control has been established on 96% of the white pine stands that are considered of sufficient value to warrant protection costs.

Until recently the only known control of the white pine blister rust has been by the removal from the vicinity of white pine of plants belonging to the genus Ribes which includes gooseberries and currents. This is still the

most practical means of control used today. There is, however, another method being tried experimentally which shows much promise.

In the past when a tree became infected with the disease nothing could be done. There is now an antibiotic treatment which will arrest the progress of the disease if applied properly. The material is known as Acti-dione.

Plots have been set up by the Federal area leader in cooperation with this Bureau to test the above mentioned material under Massachusetts conditions. Results obtained to date have not been conclusive. The experiment will continue to be carried on, however, as other parts of the country have reported very favorable results.

The remainder of this report will summarize the status of the other public nuisances listed in Section 11 of Chapter 132 of the General Laws.

Brown-tail moth - the only known infestation of this insect in Mass-achusetts was found in Truro in 1959 and sprayed that year. Examinations during this season indicate that the infestation was satisfactorily suppressed.

Tent caterpillars - light infestations of the eastern tent caterpillar were noted throughout southeastern Massachusetts. Indications are that the forest tent caterpillar may build up in the next year or two in western Massachusetts.

Cankerworm - a heavy infestation was sprayed this year on Martha's Vineyard with good control. Activity has also been noted in the town of Northampton.

Oriental hag moth - no reports of activity have been received.

in the Provincetown area. A buildup in populations has been noted this year especially in eastern Massachusetts. Control of this pest is generally handled by the local moth superintendent as the need presents itself.

Japanese beetle - there was medium to heavy activity of this pest throughout the state this year.

Saddled prominent - no reports of activity have been received.

Pine looper - indications are that this insect is beginning to build up in the Yarmouth - Barnstable - Dennis - Harwich area. Populations have been almost non existent since the pine looper control project of 1955.

this year. In the opinion of some the beetle is building up an immunity to DDT. Circumstantial evidence points to this. This thinking is based on observation and it could well be that some other factor or group of factors is involved. This makes it imperative that actual controlled studies be carried out next spring in an attempt to settle the question. The Bureau, with its own equipment, will pick out certain localities and spray at the proper time with recommended dosages and survey the area for results.

Wood ticks - heavy populations were reported throughout southeastern Massachusetts this year including both Martha's Vineyard and Nantucket.

occasionally other forest defoliators which normally cause little or no trouble build up epidemic populations in certain areas. When these are brought to the attention of the Bureau efforts to identify the pests to determine the extent of the infestation, and to recommend control measures if they are needed are expended.

One forest pest of this type defoliated many acres of woodland in the southwestern corner of the State. The insect has been determined to be a leaf-roller, Argyrotoxa semipurpurana, on oak. Spraying for control of this insect was not deemed practical. It didn't appear to be damaging the trees at this stage of the infestation and more study of the insect is needed to determine the correct timing if control is necessary in the future.

Another forest insect causing some damage this year was on an island in the Quabbin Reservoir. This pest is called the red-humped oak caterpillar. Examination of the island later in the season indicated that parasites and predators had evidently taken their toll and the island will probably be quite free of this pest next year.

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Of major importance during the past fiscal year was the introduction of legislation to regulate the use of posticides. This term posticide, includes the materials used by this Eureau in the suppression of the public muisances listed in Chapter 132, Section 11, of the General Laws. This fact makes it imperative that regulatory legislation be enacted that will not only consider the public health and the wildlife aspects of the problem but will continue to let the Eureau perform its basic function.

Considered from any viewpoint it is a very serious problem. Hurried legislation will not solve it. The experience and thinking of all who are involved is needed in order to develop the proper laws and the rules and regulations as a means of bringing order out of chaos. It is hoped that during fiscal year 1961, this will come about.