ANNUAL REPORT

BUREAU OF INSECT FEST CONTROL

FY 1969

Outbreak

There is something about a full-blown insect outbreak on forest or shade trees that is awe-inspiring. Three examples of this were clearly evident during the past year. In Berkshire County, vast acreages, totalling in the vicinity of 100,000 acres of northern hard-wood stands, comprised of birch, beech, and hard maple, were stripped of all foliage by the saddled prominent. In Barnstable County, many acres of pitch pine in Barnstable, Yarmouth, Dennis, Harwich, Chatham, and Orleans have been browned, resulting in considerable mortality due to the activity of the Nantucket pine shoot moth. Also in Barnstable County, the gypsy moth populations are on the rise, causing approximately 6,000 acres of complete defoliation of oak stands.

Enormous numbers

The imagination is stretched to the limit when one tries to visualize the numbers of insects required to create the situations described above. The problems usually arise when the insects and humans come together. In the case of the saddled prominent, except for a few landowners, the hue and cry resulted from the fact that the defoliated mountains and hillsides were not aesthetically acceptable. The same problem arose due to the Nantucket pine tip moth. In the case of the gypsy moth, we have a somewhat different situation. Here we have an almost physical contact between people and the caterpillars. This is most distressing to those working, living, or playing within an outbreak area.

Policy Developed

Because of this, a new policy has evolved in the Department regarding outbreaks of the gypsy moth. There has not been developed, as yet, an insecticide equal to DDT for use against this pest, thus making an areawide control project questionable. The policy, therefore, is to advocate spraying in localized situations, such as recreation areas, housing developments, etc. The loss of trees through mortality throughout vast forest areas is such that it doesn't seem to warrant a major spray program. The trees are unsightly for a period of a few weeks, but seem to recover except for some which have been suppressed.

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Insect and Disease Highlights

Gypsy Moth

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The aerial survey, to detect current defoliation by this pest in 1969, was conducted in July. The only noticeable defoliation was noted on Cape Cod, although the whole state was surveyed. Approximately 6,000 acres were found to be moderately too heavily defoliated in the towns of Falmouth, Sandwich, Barnstable, Yarmouth, and Brewster.

In the fall of 1969, using the areas noted in the aerial survey as starting points, an egg mass survey was conducted. From this survey it was determined that somewhere in the vicinity of 20,000 acres would be defoliated in 1970. The 1970 aerial survey will determine this. The municipalities involved were alerted as to what to expect, and were advised that they should appropriate funds for control.

Of importance to the Department was the fact that a large area of Nickerson State Park in Brewster, including many camp sites, had high egg mass counts. Plans were made to spray the camping areas by means

of one of the Bureau mist blowers. This was done in the spring of 1970 with mixed results. The material used was one called Gardona, a Shell product. A problem arose in trying to reach all areas from the road. In some instances, air currents kept the spray from reaching desired distances. There the spray did reach, however, good control was accomplished. Many areas heavily used by campers were completely defoliated and overrum by caterpillars. Inasmuch as the natural parasites and predators are not expected to exert any significant effect on the populations next year, it may be wise to consider aerially spraying our own recreation area.

Dutch Elm Disease

Assistance to cities and towns in the control of this disease continues to be the major activity of the four tree removal crews. On a statewide basis, costs to communities in tree care work continues to be greatest in the problem of Dutch elm disease. Prompt removal of diseased trees, particularly along streets, is extremely expensive, and it is not something which can be ignored. If good community-wide control of the disease is desired, prompt removal is necessary. If the dead trees are allowed to remain standing, it is only a relatively short period of time before they become a hazard to life and limb and must be removed for that reason.

Figures received from the Shade Tree Laboratories at the University of Massachusetts indicate that, in the calendar year 1969, a total of 6,636 samples taken from elms, suspected of having Dutch elm disease, were confirmed by laboratory analysis as having the disease. This figure is down 1,308 trees from the previous year.

During the past fiscal year, the tree removal crews accomplished the following in Bureau efforts to assist cities and towns:

- 1. In the removal of Dutch elm diseased trees from cities and towns having requested such assistance, the crews spent days in the removal of Dutch elm diseased trees from cities and towns, at a Bureau cost of
- 2. In assistance to cities and towns in scouting and sampling for suspected Dutch elm diseased trees, the crews spent days sampling in cities and towns at a Bureau cost of

Wantucket Pine Tip Moth

Again this year, towns on the southern edge of Cape Cod experienced a severe infestation of this moth. Considerable mortality of pitch pine, particularly open growing lawn and street trees, has shown up this year. Of particular importance was the fact that studies conducted by the Shade Tree Laboratories have accurately determined the life history of this pest on Cape Cod. It was also determined what the proper materials are to use against it, and also the proper timing of the spray. This information has been disseminated to all interested individuals, giving those concerned with the problem an opportunity to do something about it.

Saddled Prominent

Fiscal year 1968 showed 32,000 acres defoliated in Berkshire County caused by this insect. Fiscal year 1969 showed 100,000 acres defitiated. We are still without the practical knowledge needed to combat this forest pest. We are not alone, however, and collectively those states in the northeast, experiencing the present epidemic, are working together to acquire the needed information. A meeting was held in Keene, New Hampshire, on April 13, 1970, for the purpose of coordinating efforts to better understand the insect. At the meeting were members

of this Department, along with representatives from Applied Forestry
Research Institute, New York, U.S. Forest Service, Department of Forests and Parks, Vermont, University of Massachusetts, Maine Forest Service, New York State Conservation Department, and the State of New Hampshire.

The respective states involved agreed to study certain phases of the problem. Massachusetts agreed to study pupal distribution, and the impact that an outbreak had on a forested area. Data is being gathered at the present time. At this writing, it is a little early to determine the extent and severity of the 1970 generation.

Oak Lear Skeletonizer

This is a small moth whose populations can occasionally build up to fantastic numbers. The damage it can do is completely out of proportion to its size. At the present time it has reached outbreak proportions in eastern Massachusetts, particularly eastern Middlesex and Essex Counties.

There are two generations of this pest in one growing season.

Normally the most noticeable is the second generation which feeds in late summer and fall as it did in 1969. This year, however, the first generation has created havoc. What we can expect for a second generation in 1970, then, is anyone's guess. It is a particularly hard pest for home owners to control in that most of the trees affected are large mature trees. This means that the homeowner must hire the work done. It is relatively easy to control if the foliage can be reached with the spray.

Excerpts from District Supervisor Reports

District #1

The United States Department of Agriculture, with permission from the towns of Sandwich and Barnstable, set up fifteen, 50 acre plots, to be sprayed with Bacillus thuringiensis, a pathogen, for control of the gypsy moth. The results were only fair.

A new material called Gardona was used against the gypsy moth at Nickerson State Park with good results.

Isolated infestations of brown tail moth persist in the towns of Barnstable, Dennis and Truro.

Control measures suggested by the Waltham Field Station against the Wantucket pine tip moth have been shown to work well.

All towns in Plymouth, Barnstable, Dukes, and Nantucket Counties report a heavier than usual infestation of the wood tick this year.

Numerous complaints came in about a sudden defoliation of various species of trees in Plymouth and Barnstable Counties. After observation of these areas, it was determined that it was frost damage. This occurred in June, when the temperature dipped to 19 degrees on the cranberry bogs one evening.

District #2

Oak leaf skeletonizer and elm leaf beetle were noticeable in this district.

As has been the case for the past so many years, the Dutch elm disease created a vast problem in all of the communities due to the lack of funds.

Oak anthrachose is becoming more severe, and there seems to be a build up of oak stem gall in some areas.

District #3

Dutch elm disease is still quite prevelent in most towns.

The oak leaf skeletonizer has spread all over the district.

There is a heavy infestation of fall webworm in West Newbury, and on the Newburyport line.

District #4

The pine leaf aphid problem at Pearl Hill Brook area has increased to 150 acres. All attempts by the Bureau to control it have failed thus far.

The fall webworm is heaviest in Chelmsford and Littleton.

Wood ticks appear to be increasing again.

Many calls were received for tree and shrub damage that was found to be improper use of weed and feed type fertilizers.

A tremendous increase has been noted in dying roadside sugar maples and white pine.

District is

Gypsy moths were found this year in Leicester and Webster, and the local superintendent in Sutton reported a light infestation around Lake Singletary.

Fall webworm was heavy again last October on Whittiers Hill in Sutton with 100% defoliation occurring on 8 to 10 acres.

Oak leaf skeletonizers, in their second generation, were near epidemic proportions all through South Worcester County Last September and October, and the situation looks worse this year.

Anthracnose is present again on white oaks in the Grafton, Northbridge area.

Maple decline seems to be taking a toll of street side maples

equal to the number of elms lost to Dutch elm disease.

District #6

There was heavy defoliation from the oak leaf skeletonizer throughout Northern Worcester County.

There was light infestation of saddled prominent in the towns of Monroe and Hawley.

District #7

Saddled prominent defoliated areas were noted in the towns of Middlefield, Worthington, Cummington, Plainfield, Blandford, and Tolland. A total of approximately 10,000 acres were involved.

Approximately 8 acres of larch were defoliated by larch sawfly again this year in Belchertown.

Pine spittlebug was discovered at Granville State Forest

Other insects quite active throughout the district were the oak

leaf skeletonizer, forest tent caterpillar, leaf tiers and cankerworm.

District #8

Mortality among beeches continues high due to beech scale-nectria complex.

All expertise available including U.S. Forest Service, University of Massachusetts and our own Department predicted a collapse of the saddled prominent. It did not happen.

A rather heavy outbreak of oak leaf skeletonizer within the town of Mount Washington. Also showed up throughout the County on a lesser scale.

A good deal of activity by the maple trumpet skeletonizer from Pittsfield north.

Heavy activity of mountain ash sawfly throughout the County.

Aquatic Weed Control

Two approaches to the problem of nuisance weeds and algae in Department lakes and ponds was taken this year. As usual, certain bodies of water, following careful survey, were found to be in need of control efforts. A contract was signed and work commenced in the spring of 1970. Those bodies of water receiving treatment were Lake Cochituate, Watson Pond, Hopkinton State Park swimming area, Stearns Pond, Dean Pond, Big Bearhole Pond and Middle Pond.

The second approach looking towards a more permanent solution to the algae problem in Lake Cochituate was taken. A contract was negotiated with Allied Biological Control Corporation of Wellesley Hills to study the many aspects of the aquatic weed and algae problem in that Lake. The major purpose of the study was to determine the feasibility of a non chemical approach which might be an effective tool in terms of long-range planning.

Results of the study indicate that it may be possible by the addition of air to the bottom of the lake to so change the stratification of the water as to inhibit the growth of the problem algae. One other result was the establishment of a maximum organism count per milliliter of water. By maintaining sampling stations and by taking periodic samples, the correct time for applying chemicals for algae control can be determined before the problem becomes acute.

Pesticides

Much can be, and has been said, about this subject this year.

Pesticides are important tools of any whose major concern is the care of trees. They will remain important tools until such time as new and

completely different approaches to this tree care can be developed.

During the past fiscal year, a major development occurred in Massachusetts in the field of pesticide usage. After many months of deliberation ending in two public hearings, the Massachusetts Pesticide Board amended its rules and regulations to severely restrict the use of "hard" or persistent pesticides. As of December 31, 1969, the out-of-door use of DDT, DDD, dieldrin, aldrin, endrin, toxaphene and heptachlor has been restricted. The one exception, and this by permit only, is the use of dieldrin on certain agricultural crops where no substitute is presently available.

Pesticide Collection

With the restrictions imposed on the use of the "hard" pesticides it became evident that many people would find themselves with supplies of these chemicals on hand and with no idea of what to do with them. In order to prevent people from burying these materials, sending them to the local dump or flushing them down the drain, all of which would only compound the whole problem, the Department volunteered to act as a collecting agency.

Two formal collecting periods were set aside, and Department facilities and personnel were made available. News releases were sent out listing places and times. The response was excellent. Two of the ammunition bunkers at Wompatuck State Park were set aside to store the pesticides. All drains were plugged to retain any leakage, the steel doors were painted red with skull and crossbones and tamper proof locks were installed. At the time of this writing, and some material is still being received, there is now stored at Wompatuck approximately 73 tons of various formulations of many different pesticides.

One more step is needed to complete the operation. That is the final disposal and destruction of the pesticides. This responsibility has been assumed by the Pesticide Board. The thinking now is that this can be accomplished by high heat incineration. Hopefully, it can be done in the near future.

Summary

This has been a year of extreme insect outbreaks coupled with severe restrictions placed on the use of certain pesticides.

Gypsy moth continues to increase both in intensity and in area on Cape Cod.

The Nantucket pine tip moth appears to be easing up in intensity having left in its wake many dead and disfigured pitch pines.

Aquatic weeds and algae continue to pose maintenance problems in bodies of water controlled by the Department.

A fingers-crossed attitude is being taken at this time concerning the saddled prominent outbreak. The best we can hope for from this present outbreak is the acquiring of information needed to cope with future outbreaks which most assuredly will come.

Dutch elm disease continues to take its toll of elms.

The tree removal crews continue to render valuable assistance to cities and towns, although requests far exceed the time available to fulfill them.