REPORT OF THE 1955 REGIONAL AERIAL SPRAY PROGRAM

With the new gypsy moth law (chapter No. 148 and amended by chapter No. 475) yet in effect, the plans were organized for the 1955 aerial spraying program on the same pattern of financing as the 1954 program. While the defoliation survey of 1954 indicated a sharp decrease from the previous summer, heavy infestations were established and widely scattered in very highly susceptable areas in the central portion of the state and also along the New York line in Berkshire County.

Following the egg deposition in 1954, manual surveys by municipal and state personnel indicated the areas of potential damage and the analysis of these various reports enabled the author to recommend the spray regions through designated channels in order to designate same and thus enable you to notify the proper officials of the municipalities involved.

As soon as this official designation was a reality, the next step was to estimate the maximum program possible, based on the liabilities of the involved towns and cities and the estimated costs. A decision was also made to pattern the application after the successful control work completed in Norfolk County in 1954 where that program required a % D.D.T. oil solution to be used and applied at the rate of two-thirds of a gallon per acre. This year the contract specifications indicated that this was to be accomplished with heavy planes flying 750 foot swaths and the light single engine planes flying 150 foot swaths in all regions of the 1955 program.

Mr. R. C. Black was again responsible for the preparation of all maps and charts required for the program and early in February a master map was completed with regions titled "Central", "Berkshire", and "Essex", with 84 towns incorporated within the three regions, the largest of these three regions being "Central" with 66 towns, and this region alone enveloped close to 700,000 acres.

In the early preparations of the maps, the entire area was laid out with pre-designated flight strips, this was a necessary detail as there was no way of knowing who the contractor might be or the aircraft equipment he planned on using.

Several alternate plans were also in readiness with areas charted out as possible locations which would be practicable for spraying by single engine craft. This was in addition to plots laid out around bodies of water for helicopter or special treatment by light aircraft.

The early estimates of the maximum gallonage were based on contract prices of 1954 and the reduced contract price of the successful bidder this year enabled an expansion of the gallonage available with the combined monies of State and munucipalities.

This expanded program allowed an increase of the maximum gallonage to the following:

Berkshire Region 85,136 gallons
Central Region 375,000
Essex Region 11,477
471,613 gallons

The cost of supplying the insecticide was again held to a minimum by
the utilization of the State mixing plant at the Stow Service Building. Contract
specifications indicated that the successful bidder was to be responsible for
the transportation of all insecticide from the Stow mixing plant to the various
airports in use and for the metering of insecticides into his spray planes.

The contractor was also responsible for the furnishing of the personnel and an approved signalling device for guiding the heavy planes on each predesignated flight strip.

The local moth superintendents were assigned to the special notifications to property owners, town officials and for the plate checking of spray applications under the supervision of the State supervisors.

A State district superintendent was assigned to head up each phase of the field operations, with one division man assigned to the airport operations with a member of our office staff in charge of records, reports and progress maps.

About one week prior to the start of the program, Mr. Stoltzfus, the successful bidder on the contract indicated his plans for using a flashing blinker light on a twenty foot mast as a flight guide. This did not seem very practicable to either Mr. Harding or my self as it would be hidden by trees except in rare instances and as a suggestion we presented some ideas that we had worked on the past year in regard to a continuing smoke signal - generated either by a portable stove or motor vehicle engine and issued through a telescope stack of required height. Mr. Stoltzfus thought enough of the suggestions to improvise a smoke signal generated by the heat of the exhaust manifold of the pickup trucks in use of each end of the spray strips. While this hurried improvision proved to be an adequate visual signal on the average seven mile spray runs, several factors could be improved through some research.

During the planning and the formulation of this year's program, Mr.

Harding worked with me in an advisory capacity and we agreed that in regard to
the program, more responsibility be delegated to the State personnel then in
the previous programs. For a program of the magnitude planned, the limited
staff created quite a problem but the final designation of the organizations
plan was much stronger than in previous years and it consolidated the entire
state program under the Bureau Chief with one of the staff as my representative
who would be available with the program at all times. This allowed for immediate
decision on any emergency deviation of pre-arranged plans and it made it
possible to assure a uniform policy of operation, spray application and reporting
in all regional areas in the State program.

Mr. W. T. Walsh of the USDA staff was made available to work with Mr. Black in the preparation of the program maps, charts and report forms required, as the plans progressed to the field operations he was available to work with the district superintendents on surveys and the establishment of signal points for the spray lines. Mr. Walsh also conducted surveys to determine and locate restricted areas in New Hampshire and Rhode Island where the spray planes would be turning in connection with their work in Massachusetts. In connection with these surveys in states adjoining the spray areas, Dr. J. G. Conklin, Mr. A. J. Lannon and Mr. O. B. Cooke were kept informed of the plans by the state of Massachusetts and in all cases these officials were most cooperative in assisting on these surveys. When final plans were completed, Mr. C. J. Yops was furnished a map showing all of the spraying that was planned along the New York line.

The preliminary census of possible restricted spray areas was first completed by the local moth superintendent of each town and city, this was verified with spot checking by the state division superintendents, plus a check of the directories of registered mink ranch operators, fish hatcheries and stocked ponds. In the area planned for spraying in the "central region" there were twenty such rink ranches and so grouped in certain towns that the spraying of intervening areas was nearly impossible without potential hazard to the mink kits. During the 1954 aer al spraying program in this state, we worked closely with a Mr. Charles H. Low, operator of a large mink ranch located in Stoughton, Massachusetts. At his request arrangements were made in that program for the "B36" spray plane to spray his ranch property on the regular flight pattern but to use 500 feet as the minimum altitude for a half-mile radius of the ranch. The area was treated with no ill effects to the kits and with the area well wovered by check cards, the spray application at ground level proved adequate even with the plane altitude at 600 feet.

The Mr. Low referred to above proved to be the Secretary-Treasurer of the Northeastern Mink Breeders Association, and during an interview with him he invited Mr. Harding and I to their biannual meeting to be held at the Hotel Kenmore, Boston, Massachusetts on January 22. He suggested that it would be a good meeting to make this proposal, and both Mr. Harding and I appeared at the meeting which was attended by approximately 120 members from all of the New England states and New York. As a result of the meeting the members expressed their appreciation for our concern and cooperation. A later meeting was scheduled with the ranch owners involved in this year's program in this state, and at that time I presented models of suggested markers for their approval and use this year. The ultimate goal of such a plan would be for the trade to adopt a srandardized marker and in time all pilots would recognize same. The standard marker adopted for this year's trial was a brilliant orange cloth on a cylindrical frame three feet in diameter and four feet long, while this marker was visually effective when mounted on a high point, the shape of same subjected it to damage by high winds. The erection of these markers was the responsibility of the ranchers and all such points were designated on the pilot's maps. In the completion of the program this year, twenty seven ranches were treated under this plan and only two complaints of kit mortality were registered.

The following equipment was listed by the contractor as available for the program: 1 - "B17", 2700 gallon load capacity; 6 - Stearman, average load capacity of 130 gallons each; and 2 - "Bell" helicopters with a 50 gallon load capacity. All of this equipment was brought in to the Worcester Airport during the week of April 25th where the spraying equipment was checked by Mr. Francis Rhodes, aircraft and equipment mechanic for the Agriculture Research Service, U.S.D.A.

The aerial spraying program was started by the contractor on May 2nd with the converted "B17" operating out of the Beverly Airport for the area set up for the Essex Region, this comprised an area of 17,300 acres with 11,477 gallons allotted to the region. On the same date, three "Stearman" aircraft started operating out of the Worcester Airport in an area centered around Barre, these were small plots in towns adjoining the expansive area of the Central Region. Three additional "Stearman" and two "Bell" helicopters also started operating out of the Norwood Airport on May 2nd with the Stearman planes spraying areas that were not large enough to permit lengthy spray runs for the "B17", the helicopters were assigned to the spraying of five hundred foot borders around all of the restricted bodies of water, this would permit the B17 a safer margin for their shut-off points. On completing the Essex Region, the B17 for the remainder of the program operated out of the Worcester Airport which was geographically ideal for the operation and the facilities made to order for operational purposes.

On May 4th, the three "Stearman" aircraft were transferred from Worcester Airport to the Great Barrington Airport to start the program in the Berkshire Region.

On May 26th, the three-plane Stearman unit at Norwood Airport progressed along their assigned schedule and moved on to the Marlboro Airport and Berkshire Region to help that program which had been expanded from 85,000 gallons to approximately 130,000 gallons. This expansion was possible through a deficiency appropriation, the extra cost of the expansion was not to be assessed to the municipalities. This unit operated out of the Great Barrington Airport and the Pittsfield Airport.

With the magnitude of the program considered, the complaints were not above normal. A few instances of fish kill have been reported but even in those cases the amount of fish mortality has been minor and resulted from a

apprehension was voiced many times by the public in regard to damage to automobile paint, bird life and domestic animals, these points of doubt were quickly cleared up with the proper information supplied. While the organizational chart (page nine) does not include the participation of the Division of Law Enforcement, Department of Natural Resources, this unit's cooperation on the program was most valuable, all such complaints were channeled to this unit and investigations as to actual loss was made by them.

The unified program this year afforded an opportunity for better coordination of the Berkshire Region with the remainder of the program and with Mr. Anderson's frequent contacts at the Boston office, R. C. Black was able to assist him in the preparation of his maps and at the same time it afforded an opportunity for conferences with myself and Mr. O'Doherty in regard to policies.

With the original program of 85,000 gallons in the Berkshire Region well prepared and scheduled, an extra appropriation in May made possible a maximum expansion of 50,000 gallons if it were needed to complete the over-all spraying in towns where State and towns cooperative monies were insufficient.

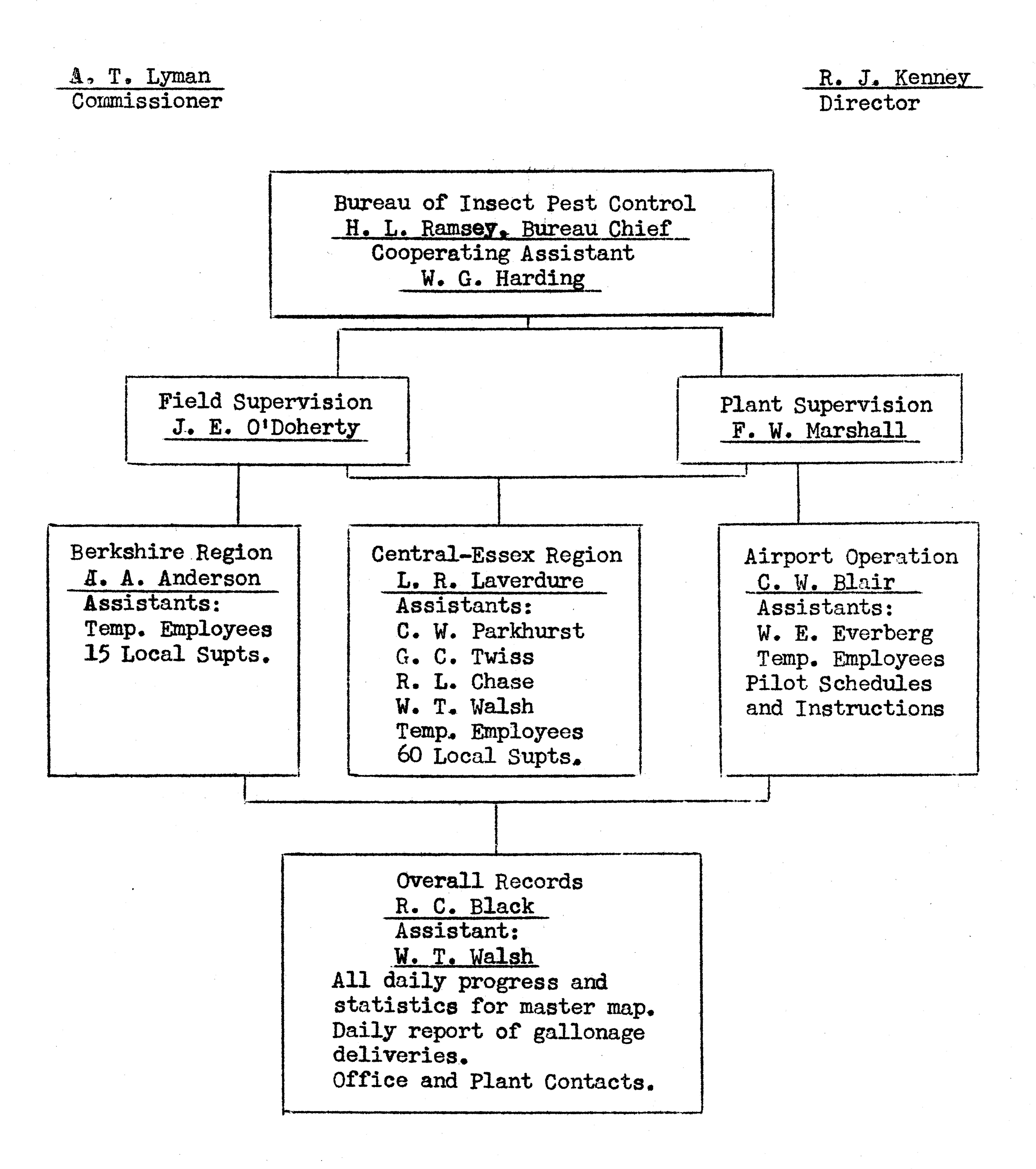
This complete coverage of sixteen towns in western Berkshire from Hancock and Pittsfield to the Connecticut line will in a large measure prevent a spread of larve into New York and Connecticut and enable the former State to profit more by their current and future spraying and thus retard a spread back to Berkshire County.

In the town of Hancock the entire acreage was treated with a 12% D.D.T. oil solution in order that the residual benefit would be adequate to prevent any build-up of the Saddled Prominent (Heterocampa guttivetta which was evident on both sides of the state line in 1954).

In the town of Ashby, the application was timed and applied to eliminate not only the gypsy moth but the heavy brown-tail moth infestations that have persisted in that town for the past six or seven years.

DEPARTMENT OF NATURAL RESOURCES REGIONAL AERIAL SPRAY PROGRAM 1955

Organizational Chart



REGIONAL PROGRAM

Cities and Towns within Regions

The statistical charts of this program will not show the gallonage or acreage separated as per townships but it is tabulated by "regions", however, the listing as follows indicated the towns and cities involved within the various regions.

CENTRAL REGION

ACTON	DOUGLAS	HOPKINTON	MEDWAY	PEPFERELL	TOWNSEND
ASHBY	DOVER	HUBBARDSTON	MENDON	PRINCETON	UPTON
ASHLAND	DUNSTABLE	HUDSON	MILFORD	RUTLAND	UXBRIDGE
AYER	FITCHBURG	LANCASTER	MILLBURY	SHERBORN	WALPOLE
BARRE	FRAMINGHAM	LEOMINSTER	MILLIS	SHIRLEY	WALTHAM
BERLIN	GRAFTON	LINCOLN	MILLVILLE	SHREWSBURY	WAYLAND
BLACKSTONE	GROTON	LITTLETON	NATICK	SOUTHBORO	W. BOYLSTON
BOLTON	HARVARD	LUNENBURG	NORTHBORO	STERLING	WESTBORO
BOXBORO	HOLDEN	MARLBORO	NORTHBRIDGE	STWO	WESTMINSTER
BOYLSTON	HOLLISTON	MAYNARD	NORWOOD	SUDBURY	WESTON
CLINTON	HOPEDALE	MEDFIELD	OAKHAM	SUTTON	WESTWOOD

ESSEX REGION

LYNNFIELD

PRARODY

BERKSHIRE REGION

ALFOED	HANCOCK	MONTEREY	RICHMOND
CHESHIRE	LANESBORO	MOUNT WASHINGTON	SHEFFIELD
EGREMONT	LEE	NEW MARLBORO	STOCKBRIDGE
GREAT BARRINGTON	IENOX	PITTSFIELD	W.STOCKERIDGE

The outline map at the close of this report indicates the portions of each township sprayed and the type of aircraft used.

SUMMARY

While this was the first season that a spray plane such as the Bl7 was ever used in a program in this State or any of the New England states, the load capacity and the performance of this plane indicated that spray runs of either seven or fourteen mile lengths are most practical for both the plane and for the ground crew in checking.

With the development and further improvement of the constant smoke signals, a third signal unit in the middle of the run is a necessity on the fourteen mile runs.

In establishing the field points for the signal units on this program it meant measuring out the seven hundred fifty foot strips on better than two hundred miles of highway. This bureau purchased and used a fifth wheel measuring device, this wheel was clamped to the rear bumper of a car with a cable to a gauge on the dash indicated the measurements in feet, this reduced the man hours for this operation to twenty-five percent of the "chain" measurements used in the past.

The use of the Law Enforcement Division of the Department of
Natural Resources saved the limited man power of the Eureau of Plant
Pest Control many hours of contacts necessitated by complaints or inquiries.

The spray check cards made up and furnished by U.A.D.A. this year with a new type of film proved to be more positive in determining the spray deposit at ground level.

The establishment of a unified program this year under a designated chain of command enabled the program to adjust itself to daily changes which inevitably result from foul weather or abnormally good weather or equipment problems.

I would suggest that the idea of a standardized marker for use at mink ranches be exploited and perfected. Working with the "North-eastern Mink Breeders Association" which envelops all of the New England States, they feel that such a standardized marker would be most helpful to them, they would assume the responsibility for the erection of same during the "whelping" season.

If some standardization were reached on a national basis, all pilots, spray, commercial and private, would readily recognize same and avoid low flying in the area.