ANNUAL REPORT July 1986 - June 1987

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Aerial Survey

An aerial survey for insect defoliation was carried out in early July that covered the entire state. Defoliation by the Gypsy Moth occurred on 404,538 acres, down 225,000 acres from the preceding year. On 61,447 acres the defoliation was classified as light (0 - 30%), 114,073 were medium (31 - 60%) and 229,018 were heavy (61 - 100%). This defoliation was mainly on Cape Cod and in southern Middlesex and southeastern Worcester counties.

First generation oak leaf skeletonizer caused scatterred defoliation on 4,000 acres in central and westesn Massachusetts.

Fall cankerworm heavily defoliated 8,470 acres in the Braintree, Weymouth and Quincy area.

Dead and dying spruce were noted on 2,076 acres in western Massachusetts in Hinsdale, Peru, Windsor and Savoy. Gay Head also had dying conifers on 110 acres.

Ash leaf rust that totaled 1,091 acres in Essex County in 1986 was not found present in the 1987 survey.

Pear Thrips - Taeniothrips inconsequens

Injury and defoliation of sugar maples along route 2 from Shelburne Falls to Williamsbown was noted on 6-6-87. Several areas in Savoy and Charlemont and Hawley were ground checked on 6-10-87 by Chief Hood, Super. Haywood and I. A leaf disease was suspected as the cause and leaf and twig samples were taken and delivered to the U. S. For est Laboratory in Durham N. H. for culturing. An aerial survey was then conducted to determine the extent of the problem. A total of 108,193 acres were found to be affected. The area affected is from eastern Franklin County to the New York border and south to Pittsfield. Ground checks of small ares in Wendell, Northfield and Bernardston found the same symptoms and injury as those further west. In addition these trees were currently being attacked by an unidentified insect. Samples were again taken and delivered to the U. S. F.S. These same insects were subsequently found in

Savoy, Hawley and Charlemont. Pathologist James O'Brien, U. S. F. S. reported that no fungus had cultured and that he suspected pear thrips as the cause of the original injury noted. The non-typical aphid found has now been identified through the forest service office as Periphyllus berevspinous (no common name).

Attached is a bulletin from Cornell University describing the thrips and the life cycle.

Anastatus disparis

This gypsy moth egg parasite was released on 16 new sites on Cape Cod in July 1986. A total of 42,597 adult anastatus were reared at the Stow facility and released on Cape Cod by Supervisor Kelliher. Host egg masses were collected from these sites in January 1987 and evaluated at Stow to determine establishment of the parasite. No host egg masses were found on four sites due to population collapse from the virus. From the other 12 sites adult anastatus were reared from the egg masses. The parasite is now considered re-established in those areas.

In the late winter and early spring of 1987 this writer collected 6,039 host egg masses and reared 451,281 adult anastatus for release on Cape Cod in July 1987.

A compilation of all the known releases of parasites and predators of the gypsy moth in the Commonwealth is attached. Additional releases may have been made by others but no records are available.

Red Pine Adelgid

No new infestations of the adelgid were found up to July 1, 1987.

Oak Leaf Tier - Croesia semipurpurana

The infestation in eastern Franklin County continues to spread and intensify. The Town of Warwick is suffering the most of this increase. A total of 20,096 acres observed and recorded on a June 15, 1987 aerial survey.

On the south shore the tier is still present but the oak leaf skeletonizer and the gypsy moth mask any accurate acreage determination.

Work with the U. S. F. S. office in Durham, New Hampshire continued regarding the tier feeding on white oak in addition to the black oak family. Eggs, larvae and pupae were all found on white oak in the Wendell - Warwick area. Available literature does not indicate that white oak is a host for this insect.

In co-operation with the U. S. F. S. a trapping program of adult male tier moths was carried out in several locations across the state. These areas have a history of tier defoliation. They were located in southern Berkshire County, western Hampden County, eastern Franklin County and on the south shore. The results of this program have not been tabulated at this time. The purpose is to arrive at a means of population prediction by population monitoring rather than the current tedious, time consuming method of egg counting with a microscope.

The program will continue with the U. S. F. S. supplying the pheromone lure and traps and data compilation. The states of New Hampshire and Maine are also involved in this program.

Experimental Control of Oak Leaf Tier With Dimilin - Applied Pre-hatch

As indicated in last years report there have been reports of contact properties in the use of difloubenzuron (Dimilin). To further test the contact activity of this material against the oak leaf tier two spray plots and three check plots were established in the Warwick State Forest. Both spray plots were treated on April 27, 1987 prior to tier egg hatch. Eclosion was taking place on plot 1 and check 1 but not at the other spray site or check sites. No foliage was present at any site. The red oak buds at plot one and check one were beginning to break but tight at all other sites.

Each spray plot was treated at the rate of two ounces of actual insecticide per acre with a Bean mistblower. Weather conditions unexpectedly changed that night starting as a cold, heavy rain that turned into 15 inches of wet snow.

Ten days after spray application branches from all but the remote check area were cut and 50 buds from each examined and the larvae counted. Hatch was not yet complete at the remote check. (See chart #1) Six days later all areas were resampled and all larvae counted. A marked decrease in larvae was seen at spray plot 1 and to a lesser degree at plot 2. Larvae on fifty leaves were again counted on the 16th, 22nd and 29th days after treatment.

Excellent foliage protection was seen in both the treated areas and the larval reduction was better in plot 1 than in plot 2. Egg hatch occurred shortly after spray application in area 1 and somewhat later in area 2. The exact date of hatch is unknown due to the areas being inaccessible because of the snowfall.

It appears that the length of time available to spray for the control of this insect is greatly increased when this material is applied.

Chart #1

Plot	No. larvae per 50 leaves 10 days post spray	16 days	22 days	29 days
1 spray	189	36	23	20
1 check	394	171	221	206
2 spray	150	85	89	64
2 check	62	56	71	53
3 remote	-	192	188	344

Parasite species	Years of release	Total released
Anastatus disparis	1908 - 1927 except 1920	31,459,193
Ooencyrtus kuwanai	1909 - 1927 except 1919,20,23.	12,419,299
Compsilura concinnata	1906, 1907, 1909, 1910	?
Tachina lavarum	1906 - 1911 1925 - 1927	?
Tricholyga grandis	1906,07,09,11,24,25,27. Again 1968 -1970 (by unknown)	?
Apanteles melanoscelus	1911 - 1927 except 1914	78,447
Apanteles liparidis	1908,09,10,12,22,23.	14,170
Apanteles porthetriae	1924 - 1927 except 1926	?
Parasetigena silvestris	1910,1923,1924,1925,1926,1927.	16,122
Hyposoter disparis	1912,1929 - 1931.	14,562
Blondelia nigripes	1906,07,09,11. 1925 - 1927. 1928 - 1932.	5,000
Blepharipa pratensis	1907 - 1931	?
Palexorista inconspicua	1906,09,11, and 1923 - 1928	?
Exorista separata	1907,08,11, 25,27.	?
Theronia	?	?
Pimpla	1906, 07, 09.	?
Brachymeria intermedia	1909,1911	?
Monodontomerus aereus	1906 - 1910	?
Meteorus pulchricornis	1922	?
Meteorus japonicus	1923	?
Exorista libatrix	1906 - 1910 1927 - 1933	1,577
Blepharipa schineri	1910	700
Calosoma sycophanta	1908 - 1914	27,622

2. Parasites Received from ARS. List parasite and predator species received direct from ARS and released in the field without being reared in the laboratory. Include only those for which gypsy moth was the target host even though the species might attack gypsy moth but was in fact introduced for another pest.

PARASITE/PREDATOR SPECIES	Prior to 1972	1972	1973	1974	1975	1976
Palexorista inconspicua	?	?	?	?	?	11,500
Apanteles liparidis	?	?	?	?	?	2,000

3. Parasites Established. List those parasites or predators which have become established through artificial introduction into the environment, either on gypsy moth or alternate hosts. Understandably, this may not be easily identified in cases where natural spread could have occurred. Use your best judgement.

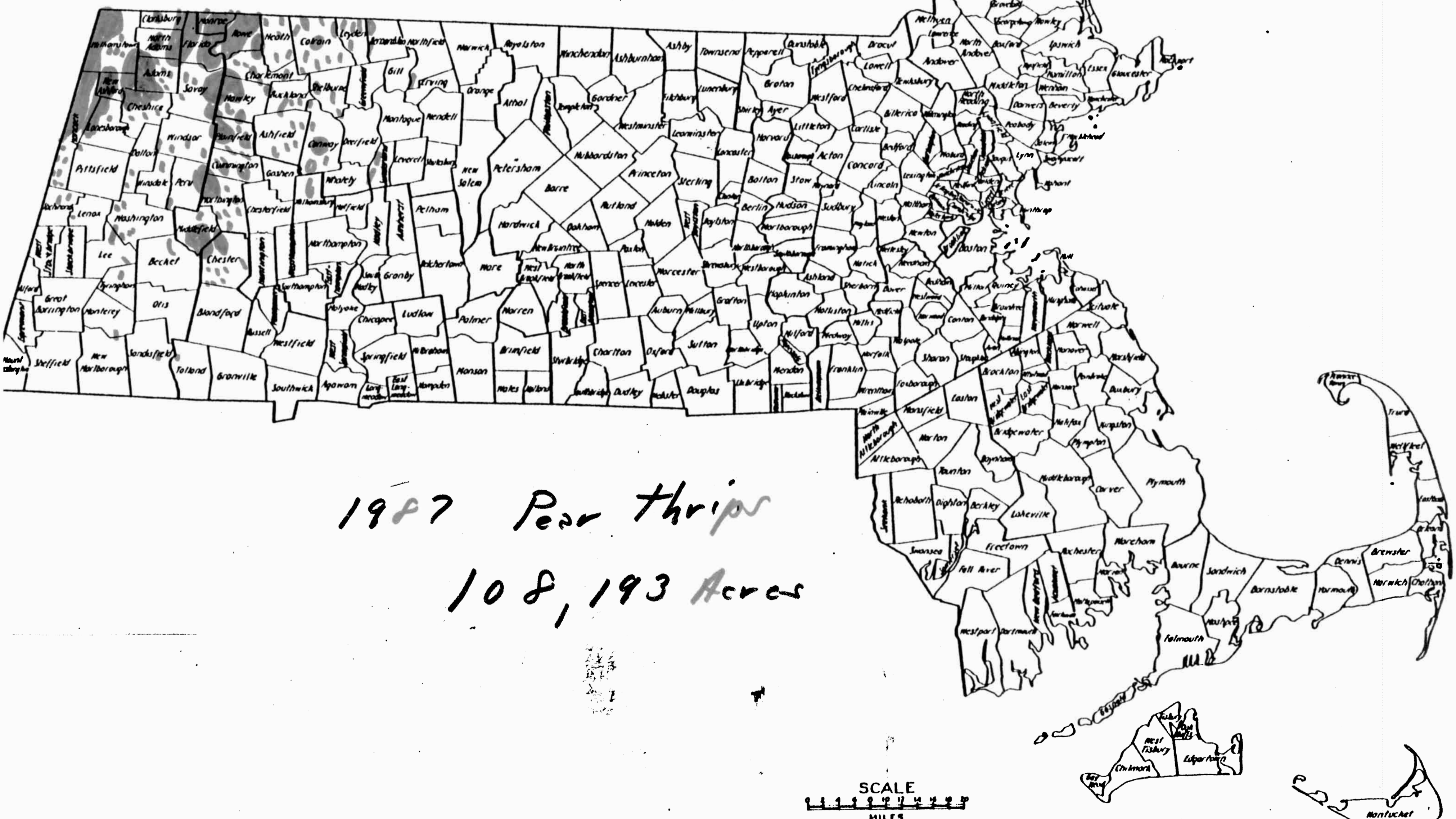
PARASITE SPECIES	HOST	Recovered within Season only?	Recovered within Following Season?
In 1972 the following were recovered from Gypsy Moth eggs, larvae or pupae. The collections were made from six widely separated locations in Mass. Last date of release or by whom unknown.			
Compsilura concinnata			
Blepharipa pratensis			
Parasetigena agilis			
Brachymeria intermedia			
Brachymeria compsilura			
Sarcophagidae			
Calosoma sycophanta			
Anastatus sp.			
Ooencyrtus kuwanai			
Apanteles sp.			

Parasites released 1976 - 1987

Species	Locations	Years released	Total released
Apanteles liparidis	Hardwick, Montague, Sturbridge	1976, 1978	3,600
Blondelia nigripes	" "	1978	1,862
Brachymeria lasus	Carlisle, Concord, Hudson, Leverett, Montgue, New Salem, Stow, Wendell	1978,79,80	14,410
Coccygomimus disparis	same as Brachymeria (above)	" " "	8,519
Exorista japonica	Hardwick, Hudson, Leverett, Montague, New Salem, Wendell	" " "	15,380
Exorista larvarum	Montague	1977	352
Palexorista inconspicua	Easton, Sturbridge	1976	11,500
Palexorista larvarum (formerly released as	Montague Sturmia inconspicua or Zygobothria gilva)	1977	400
Rogas lymantriae	Provincetown	1983	1,574
Anastatus disparis	statewide	1979 to 1987	1,267,432

MASSACHUSETTS

CITY AND TOWN LINES

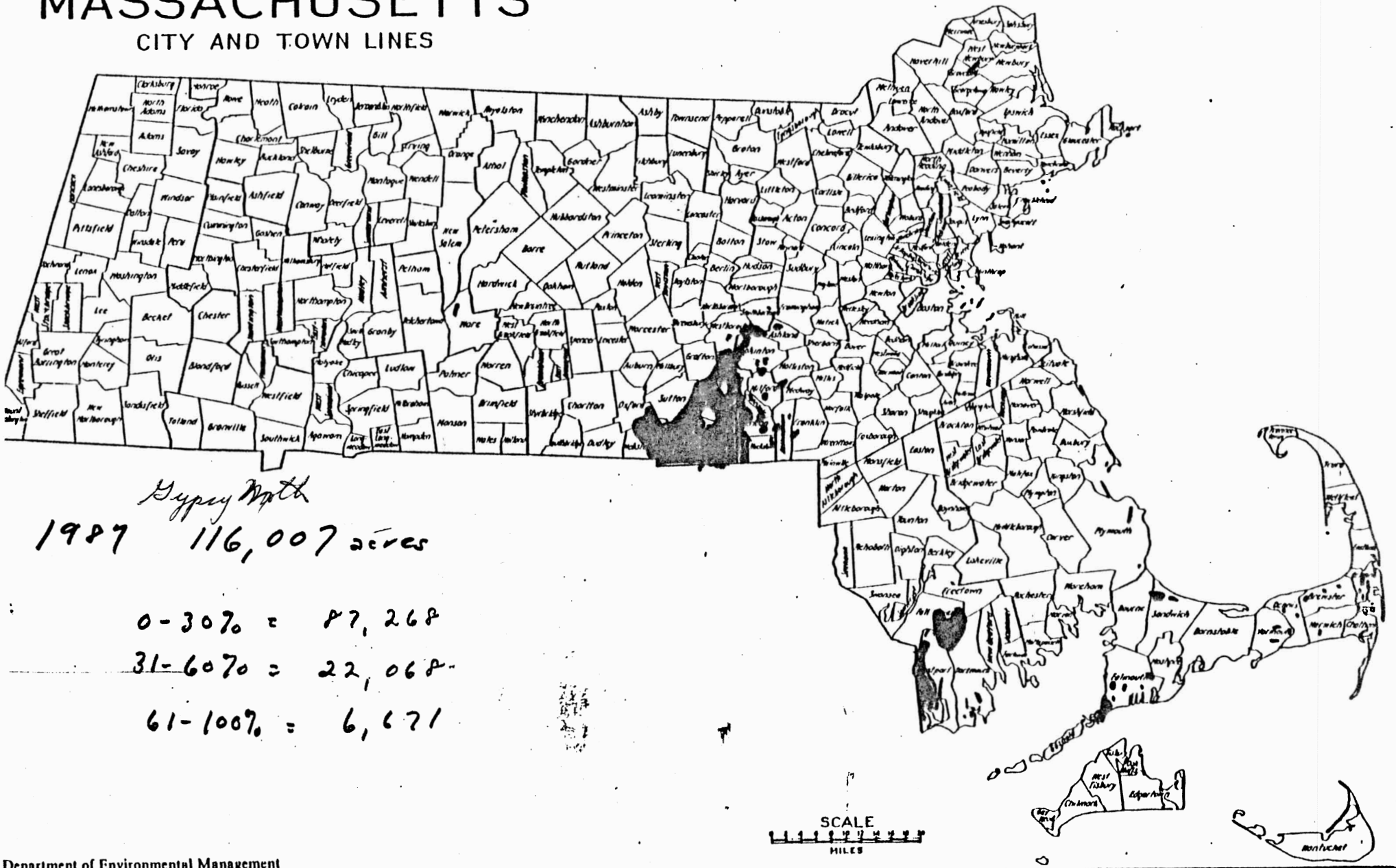


1987 Pear thrips
108,193 Acres

Department of Environmental Management

MASSACHUSETTS

CITY AND TOWN LINES



Gypsy Moth

1987 116,007 acres

0-30% = 87,268

31-60% = 22,068

61-100% = 6,671

Department of Environmental Management