

COMMONWEALTH OF MASSACHUSETTS
STATE RECLAMATION & MOSQUITO CONTROL BOARD

CENTRAL MASSACHUSETTS MOSQUITO CONTROL PROJECT
est. 1973



**EXECUTIVE SUMMARY
2005**

February 2006

CMMCP MISSION STATEMENT

The objective of the Central Massachusetts Mosquito Control Project (CMMCP) is to attain an efficient, economic mosquito control operation which will provide the best results possible and be consistent with all ecological aspects and the best interests of the member towns.

Our goal is to reduce mosquito exposure to the public, and the potential for disease transmission by mosquitoes, by utilizing proven, sound mosquito control techniques. CMMCP believes the best way to accomplish this task is by practicing an Integrated Pest Management (IPM) approach as it relates to mosquito control in Massachusetts. IPM utilizes a variety of control techniques and evaluation procedures. Control efforts are undertaken only after surveillance data has been collected and analyzed. Training, experience and common sense dictate our response in any given situation.

It is our desire and responsibility for this Project to have the best mosquito control for the communities that we serve.

CMMCP RESEARCH AND EFFICACY

In 2005 we dedicated a limited amount of resources for efficacy and research. One summer intern was hired to perform efficacy and resistance studies, one intern collected data for his senior thesis at college, and other full time employees performed limited research according to their busy schedules and on their own time. The results of this research are summarized below.

- ◆ Pesticide Resistance in Adult Mosquitoes – a Bottle Assay
- ◆ Satisfaction Survey of Service Requests in 2005
- ◆ 2005 Larval Control program – Product Efficacy Evaluation
- ◆ A Preliminary Study of Ovitrap in Central Mass.
- ◆ Tree Canopy Preference of *Culex* and *Culiseta* Mosquitoes

CMMCP is committed to be on the forefront of mosquito control and strives to offer the latest advances in our industry. Additional information on these studies is available on our website at <http://www.cmmcp.org/research.htm>.

INTRODUCTION:

The Central Massachusetts Mosquito Control Project currently provides its services to 36 cities and towns throughout Middlesex and Worcester Counties. The Project's headquarters is located at 111 Otis Street, Northboro, MA. Please call (508) 393-3055 during business hours for information. Seventeen (17) full time and four (4) summer interns were employed at CMMCP in 2005. This the year we received a total of seven thousand and eighty five (7,085) requests for service from residents and officials. A map of our service area is on p. 5.

EDUCATION:

The Mosquito Awareness Program which we offer to elementary schools and other civic organizations in our district has become very popular. Project staff meets with students, teachers or residents to discuss mosquito biology, mosquito habitat, and control procedures. Much of the presentation is directed towards what can be done to prevent mosquitoes from breeding around their homes. This program is tailored to meet the needs of the specific audience. One thousand, six hundred and nineteen (1,619) students and/or residents attended these programs in 2005. Educational pamphlets are available to anyone interested in learning about mosquito control and the services provided by the Project, and these items are routinely stocked in member Town/City Halls and libraries. Display boards with information on our program are rotated through area Town/City Halls throughout the year. We also have a website at www.cmmcp.org that has extensive information on mosquito biology, our control procedures, products we use, etc.

WETLAND RESTORATION:

As part of our effort to reduce the need for pesticides we continue to place great emphasis our wetlands restoration program. By cleaning clogged, degraded and overgrown waterways, mosquito breeding from that area can be reduced or eliminated and drainage areas are restored to historic conditions. Seven thousand seven hundred and thirty seven(7,737) culverts were cleaned in an attempt to eliminate unnecessary standing water and reduce mosquito breeding. This work was done in conjunction with cleaning, clearing, and digging of one hundred and sixty eight thousand, three hundred and fifty two (168,352) feet of streams, brooks and ditches. This represents almost thirty two (32) miles of waterways which were cleaned and improved by Project personnel in 2005.

ARBOVIRUS CONTROL:

As part of our West Nile Virus (WNV) prevention program, thirty two thousand, four hundred and forty four (32,444) catch basins were treated with larvicidal product to control the mosquitoes that seek out these cool dark wet areas to breed, including the *Culex* species of mosquito, a major target for West Nile Virus transmission. We identify priority areas in each town and treat the basins in these selected areas to reduce the emergence of this arbovirus. The priority areas are as follows: Prior year WNV activity; senior centers & over 55 housing developments; recreation areas; schools; neighborhoods (higher density first); industrial areas.

MOSQUITO SURVEILLANCE:

The Project's surveillance program monitors adult mosquito and larval population density, and is the backbone for prescribing various control techniques. Specialized mosquito traps are deployed throughout the Project's service area to sample for adult mosquitoes that may be transmitting mosquito-borne diseases. In conjunction with the Mass. Dept. of Public Health, we

sample in areas suspected of harboring WNV, EEE and other mosquito-borne viruses. One thousand, one hundred and fifty three (1,153) pools (collections) of mosquitoes totaling eleven thousand, nine hundred and twenty eight (11,928) specimens were tested for mosquito-borne viruses this year. 6 pools were confirmed with WNV and 2 pools were confirmed with EEE (one additional EEE in an MDPH trap in Holliston). Of the 6 WNV pool, 4 were in Westboro (3 *Culex* and 1 *Cs. melanura*), and one each in Holliston and Wilmington, both *Culex*. The 2 positive EEE pools were both from Westboro, in *Cs. melanura*. No WNV or EEE was reported in horses or humans in our service area in 2005. A table with the 2005 arbovirus information for our service area as well as the statewide results is included on page 5. Adult mosquito surveillance began in May and concluded in mid-October. Three (3) full time employees were hired for the summer to assist our Staff Entomologist in his duties, and one additional intern performed efficacy and resistance testing.

LARVAL MOSQUITO CONTROL:

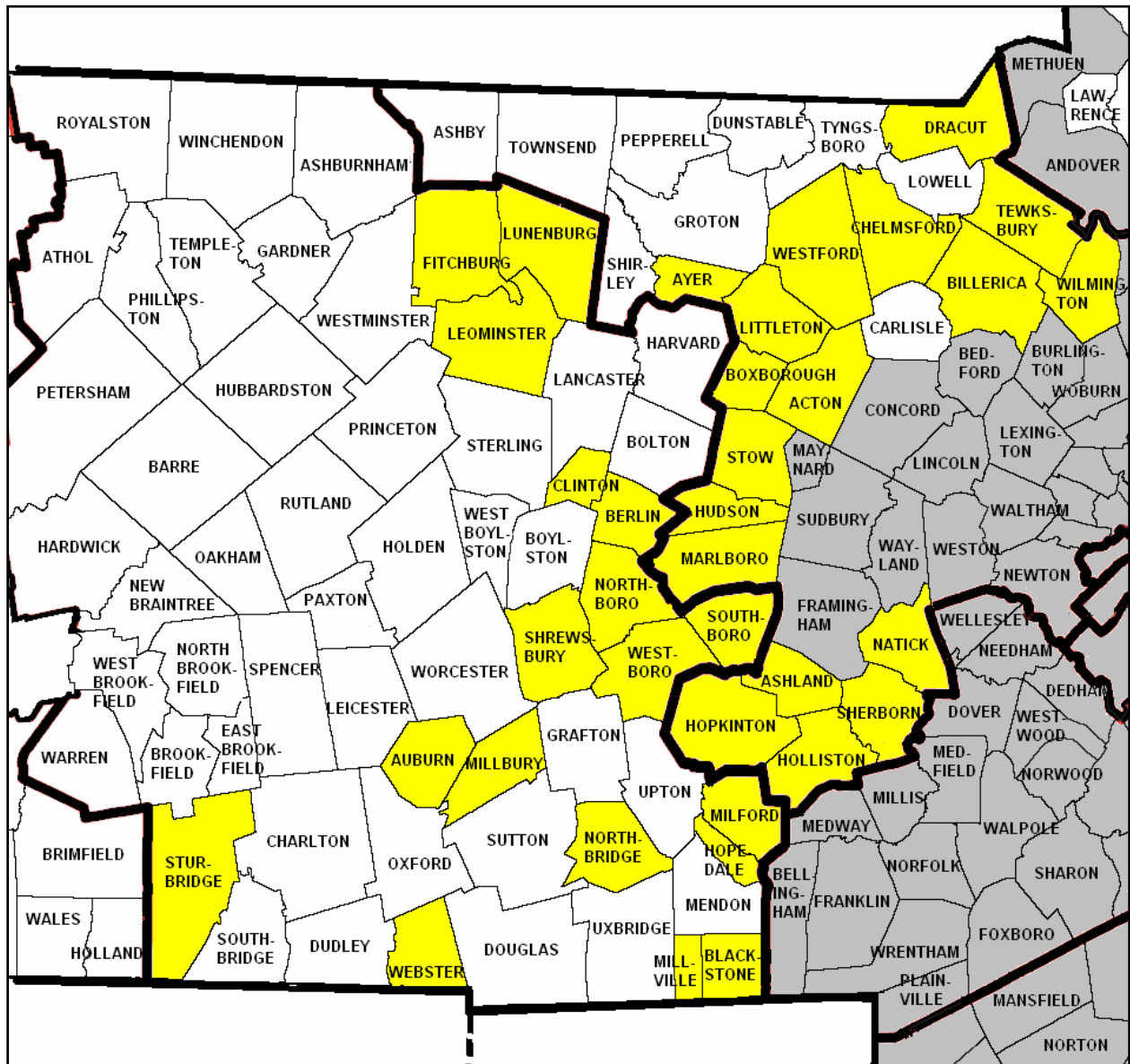
Bti (*Bacillus thuringiensis* var. *israelensis*) mosquito larvicide is a species specific, non-reproducing bacterium and is used to treat areas where mosquito larvae are found. Our field crews will investigate areas we have databased and treat the area only if surveillance gathered at the time shows an imminent threat of mosquito emergence. A total of over six thousand (6,000) pounds of Bti was applied by helicopter in 2 towns, Chelmsford & Billerica, and seven thousand, two hundred and ninety nine (7,299) pounds were applied by hand throughout our service area to area wetlands to reduce the emergence of adult mosquitoes. This represents over two thousand, six hundred and sixty (2,660) acres of wetland that was treated with this mosquito-specific product, significantly reducing adult mosquito populations in these areas. Nine hundred and seventeen (917) requests for this service were received, and we have several thousand areas catalogued that are checked and treated (as needed) on a routine basis. Larval control began in March and continued throughout the month of September.

ADULT MOSQUITO CONTROL:

Our goal is to manage all mosquito problems with education, wetlands restoration or larviciding, but we recognize that there are times when adult mosquito spraying is the only viable solution. In such cases specific areas are treated with either hand-held or pickup truck mounted sprayers if surveillance gathered at the time exceeds a pre-determined threshold to warrant an application. This program is offered on a **request-only** basis, and the exclusion process under CMR 10.03 (21A) allows residents and/or town officials to exclude areas under their control from this or any part of our program. Six thousand, one hundred and sixty eight (6,168) requests for this service were responded to by CMMCP field crews for a total of ninety seven thousand, three hundred and fifteen (97,315) acres treated with a low residual product called *resmethrin*. We apply this product at the lowest label rate of .001 pounds of active ingredient per acre (lb ai/A). Nine hundred and thirty two (932) landing counts were performed by Project field staff as additional surveillance or prior to the application of resmethrin to confirm that pre-determined thresholds of mosquitoes were exceeded to warrant an application. Landing rates are suspended when WNV or EEE is identified in Mass. Adult control began in early June and ended in mid-September with the onset of low nighttime temperatures, reduced service requests and low mosquito population density.

CMMCP SERVICE AREA

2005



LEGEND:
Yellow towns are in the CMMCP service area; **gray** towns are in other mosquito control districts; **white** towns do not belong to a program at this time.

No new towns joined the CMMCP service area in 2005. Inquiries from town officials regarding membership have been received and the Executive Director has attended many informational meetings on behalf of CMMCP. Since 2001 Sturbridge, Webster, Northbridge, Hopkinton, Acton, Millville and Auburn joined CMMCP.

2005 SUMMARY TOTALS

NOTE: A full report of our work done in 2005 is sent to most town Boards and Committees, and is also available on our website in its entirety.

Service Requests	Bti Lbs.	Bti Acres	Scourge Gallons	Scourge Acres
7,085	13,299	2,660	377	97,315

Mosquito Pools Sent to MDPH	Landing Counts	Culverts Cleaned	Restoration Footage	Catch Basins Treated
1,153	1,714	7,737	168,352	32,444

ARBOVIRUS SUMMARY 2005

WNV Surveillance Summary – <u>Statewide</u>	
Dead Birds Reported	2,493
Birds Submitted for Testing	322
Birds Tested	303
Birds Positive	83
Mosquito Pools Positive	99
Horses Positive	0
Humans Positive	6
EEE Surveillance Summary – <u>Statewide</u>	
Mosquito Pools Positive	45
Horses Positive	4
Humans Positive	4
** An emu from Athol in Worcester County tested positive for EEE in 2005.	
CMMCP Surveillance Summary	
Mosquito Pools Submitted for testing	1,192
Mosquito Pools (total)	3,607
Mosquito Pools Positive WNV	6
Horses Positive	0
Humans Positive	0
Pools Positive EEE	2
Horses Positive	0
Humans Positive	0

Town	Service Requests	Bti Pounds	Bti Acres	Scourge Gallons	Scourge Acres	Catch Basins	Mosquito Pools	Landing Counts	Culverts Cleaned	Restoration Footage
Acton	195	161.0	32.2	11	2,839	803	18	27	222	4,170
Ashland	186	211.0	42.2	8	2,065	1,042	12	26	226	4,710
Auburn	14	216.0	43.2	0.5	129	1,400	18	5	155	10,340
Ayer	56	96.5	19.3	5.25	1,355	510	18	10	101	4,970
Berlin	49	253.0	50.6	2.5	645	401	23	18	258	3,913
Billerica	630	3,401.0	680.2	29.25	7,550	0	73	77	42	9,055
Blackstone	64	190.5	38.1	4.5	1,162	583	9	4	184	2,545
Boxboro	72	165.0	33.0	8.5	2,194	505	21	16	123	5,420
Chelmsford	371	3,313.0	662.6	14.75	3,807	1,457	36	69	281	3,490
Clinton	44	122.5	24.5	2.5	645	400	14	18	226	3,090
Dracut	447	69.5	13.9	26.5	6,840	902	14	25	222	2,990
Fitchburg	14	117.5	23.5	4.5	1,162	1,193	16	8	191	3,665
Holliston	220	331.0	66.2	16.5	4,259	1,018	35	24	271	4,830
Hopedale	63	93.0	18.6	3	774	507	22	11	116	6,155
Hopkinton	390	195.5	39.1	18.25	4,711	1,444	110	30	321	3,315
Hudson	233	200.0	40.0	12.25	3,162	1,200	26	40	198	4,870
Leominster	71	135.6	27.1	4.5	1,162	1,717	28	11	218	3,935
Littleton	103	314.0	62.8	8.25	2,130	800	10	20	274	2,880
Lunenburg	84	27.5	5.5	6.5	1,678	798	19	19	148	5,475
Marlboro	109	238.5	47.7	5	1,291	1,200	49	35	446	2,965
Milford	104	265.0	53.0	6	1,549	1,513	12	16	184	2,710
Millbury	55	104.0	20.8	2.5	645	1,200	11	9	196	6,270
Millville	83	214.0	42.8	4	1,033	350	17	7	124	3,000
Natick	286	140.5	28.1	11	2,839	1,207	9	35	234	4,320
Northboro	241	377.5	75.5	11.25	2,904	1,015	14	68	170	5,280
Northbridge	51	174.5	34.9	2.5	645	1,000	24	17	179	3,590
Sherborn	116	202.0	40.4	7.5	1,936	606	11	12	223	4,535
Shrewsbury	238	362.0	72.4	8	2,065	1,234	35	36	306	5,420
Southboro	149	225.5	45.1	5.25	1,355	1,069	23	42	278	7,679
Stow	293	163.0	32.6	23.5	6,066	689	14	27	190	3,010
Sturbridge	50	172.0	34.4	3.5	903	500	17	6	341	3,305
Tewksbury	679	361.0	72.2	31.5	8,131	1,275	37	70	251	4,215
Webster	13	125.0	25.0	1	258	517	18	3	138	9,140
Westboro	227	193.0	38.6	21	5,421	50	253	24	256	5,150
Westford	542	59.5	11.9	26	6,711	903	20	36	224	5,275
Wilmington	528	239.0	47.8	22.5	5,808	1,436	67	28	220	2,670
Totals	7,070	13,229	2,646	379	97,831	32,444	1,153	929	7,737	168,352