

COMMONWEALTH OF MASSACHUSETTS  
STATE RECLAMATION & MOSQUITO CONTROL BOARD

***CENTRAL MASSACHUSETTS MOSQUITO CONTROL PROJECT***  
*est. 1973*



**EXECUTIVE SUMMARY**  
**2006**

*February 2007*

## **CMMCP MISSION STATEMENT**

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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.

## **RESEARCH AND EFFICACY**

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While CMMCP is an agency charged with the control of mosquitoes, we strive to check for efficacy of our products and techniques, and whenever possible perform research in new or different areas of mosquito control.

Anticipated areas of research include but are not limited to:

1. Adult Mosquito Resistance to Resmethrin;
2. Adulticide Efficacy;
3. Larval Control Efficacy;
4. The Attractiveness of Ovitrap Cups;
5. Turbidity Comparison between Ditch Maintenance Projects & Natural Storm Events;
6. Species Composition and Population Dynamics of Massachusetts Retention & Detention Basins in the Central Mass. area;
7. 2006 Service Request Satisfaction Survey

With the staffing of a full-time Field Biologist, it is anticipated that this department will be running at full strength by 2007 working on research, assisting the Surveillance team and Wetland Project Coordinator, and developing our GIS capabilities. We will have annual strategy sessions in the fall/winter seasons to plan for field trials and other anticipated research for the upcoming year. CMMCP departments as determined by the Executive Director will be expected to publish annually in such journals as the Journal of the AMCA (JAMCA), the NMCA or NJMCA Proceedings, *Wing Beats*, and other publications.

## **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. Eighteen (18) full time and four (4) summer interns were employed at CMMCP in 2006. This the year we received a total of eight thousand four hundred and fifty five (8,455) 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. Two thousand, two hundred and fifty (2,250) students and/or residents attended these programs in 2006. 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. This year we developed a brochure specifically for horse owners to alert them to the dangers of mosquito-borne disease. Bookmarks with educational information have been printed and stocked in member libraries and town halls, and are used as part of the education program. We also have a website at [www.cmmcp.org](http://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 three hundred and ninety three (7,393) 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 seventy six thousand, one hundred and eighty one (176,181) feet of streams, brooks and ditches. This represents over thirty three (33) miles of waterways which were cleaned and improved by Project personnel in 2006.

## **ARBOVIRUS CONTROL:**

As part of our West Nile Virus (WNV) prevention program, thirty three thousand, nine hundred and eighteen (33,918) 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 and 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, five hundred and twenty eight (1,528) pools (collections) of mosquitoes totaling thirty thousand, five hundred and six (39,506) specimens were tested for mosquito-borne viruses this year. 2 pools were confirmed with WNV and 1 pool was confirmed with EEE. The 2 WNV pools were identified in Westboro and the positive EEE pool was found late in the season in Leominster. No WNV or EEE was reported in horses in our service area in 2006, but two humans were confirmed with WNV, one in the town of Webster and one in Billerica. Additional surveillance from these areas did not show any subsequent viral activity. A table with the 2006 arbovirus information for our service area as well as the statewide results is included on page 6. Adult mosquito surveillance began in May and concluded in late September. Three (3) full time employees were hired for the summer to assist our Staff Entomologist in his duties.

### **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 five thousand, nine hundred and fifty nine (5,959) pounds were applied by hand throughout our service area to area wetlands to reduce the emergence of adult mosquitoes. This represents over one thousand, one hundred and ninety one (1,191) acres of wetland that was treated with this mosquito-specific product, significantly reducing adult mosquito populations in these areas. Nine hundred and sixty two (962) 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. Seven thousand, four hundred and ninety three (7,493) requests for this service were responded to by CMMCP field crews for a total of ninety nine thousand, eight hundred and forty six (99,846) 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). One hundred and eighty five (185) 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.



## 2006 SUMMARY TOTALS

NOTE: A full report of our work done in 2006 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
8,455	11,959	2,392	387	99,961

Mosquito Pools Sent to MDPH	Landing Counts	Culverts Cleaned	Restoration Footage	Catch Basins Treated
1,528	185	7,393	176,181	33,918

## ARBOVIRUS SUMMARY 2006

<b>WNV Surveillance Summary – <u>Statewide</u></b>	<b>2006</b>
Dead Birds Reported	4,261
Birds Submitted for Testing	320
Birds Tested	313
Birds Positive	57
Mosquito Pools Positive	43
Horses Positive	0
Humans Positive	3
<b>EEE Surveillance Summary – <u>Statewide</u></b>	<b>2006</b>
Mosquito Pools Positive	157
Horses Positive	6
Humans Positive	5
** A llama from Scituate in Plymouth County (onset 9/7/06) and a harbor seal from Fall River in Bristol County (onset 9/21/06) also tested positive for EEE virus in 2006.	
<b>CMMCP Surveillance Summary</b>	<b>2006</b>
Mosquito Pools Submitted for testing	1,276
Mosquito Pools (total)	3,594
Mosquito Pools Positive WNV	2 (both Westboro)
Horses Positive	0
Humans Positive	2 (Billerica & Webster)
Pools Positive EEE	1 (Leominster)
Horses Positive	0
Humans Positive	0

Town	Service Requests	Bti Pounds	Bti Acres	Scourge Gallons	Scourge Acres	Catch Basins	Mosquito Pools	Culverts Cleaned	Restoration Footage
Acton	275	144.5	28.9	12	3,098	830	18	271	3,170
Ashland	228	108.0	21.6	8	2,065	1,116	16	198	2,450
Auburn	64	319.8	64.0	2	516	943	27	244	4,290
Ayer	99	159.5	31.9	5.5	1,420	502	22	147	5,370
Berlin	47	146.5	29.3	4	1,033	297	28	68	4,610
Billerica	588	3,211.3	642.3	23.5	6,066	165	58	107	9,270
Blackstone	92	99.3	19.9	5	1,291	605	21	220	4,050
Boxboro	63	189.5	37.9	5.5	1,420	583	22	247	3,375
Chelmsford	450	3,289.8	658.0	16	4,130	1,242	28	158	5,170
Clinton	193	89.0	17.8	8	2,065	482	25	185	3,665
Dracut	360	160.5	32.1	18	4,646	900	38	363	5,770
Fitchburg	32	176.0	35.2	5	1,291	1,600	16	244	4,393
Holliston	305	266.0	53.2	14.25	3,678	1,144	53	191	2,975
Hopedale	66	125.5	25.1	2.25	581	601	39	162	4,995
Hopkinton	550	223.3	44.7	18	4,646	1200	89	213	2,880
Hudson	251	106.5	21.3	13.25	3,420	1,618	27	92	10,580
Leominster	71	106.0	21.2	4	1,033	2,150	35	300	6,945
Littleton	70	210.5	42.1	5	1,291	817	23	246	4,565
Lunenburg	125	162.3	32.5	10	2,581	853	20	255	3,608
Marlboro	204	117.5	23.5	7	1,807	1,225	55	344	6,399
Milford	135	116.0	23.2	5.75	1,484	1,571	14	295	2,880
Millbury	87	175.0	35.0	5	1,291	963	15	212	3,575
Millville	99	150.0	30.0	5.5	1,420	349	14	155	2,495
Natick	426	212.3	42.5	14	3,614	1,222	22	148	7,970
Northboro	247	158.0	31.6	11	2,839	1,046	13	142	6,186
Northbridge	155	147.3	29.5	6.75	1,742	1031	41	119	5,045
Sherborn	184	169.0	33.8	10.5	2,710	623	19	197	5,560
Shrewsbury	311	152.5	30.5	11.25	2,904	1,375	30	280	5,545
Southboro	225	113.0	22.6	8.75	2,259	1010	22	204	4,110
Stow	312	127.8	25.6	18	4,646	838	13	168	5,695
Sturbridge	95	51.0	10.2	5.25	1,355	404	28	175	3,575
Tewksbury	594	328.8	65.8	21.75	5,614	1,317	37	180	10,850
Webster	36	145.5	29.1	10.5	2,710	770	87	325	2,580
Westboro	264	109.5	21.9	12	3,098	400	276	128	4,355
Westford	549	249.5	49.9	27.5	7,099	913	25	253	3,850
Wilmington	602	141.8	28.4	27.5	7,099	1,213	33	157	3,380
<b>Totals</b>	<b>8,454</b>	<b>11,958</b>	<b>2,392</b>	<b>387</b>	<b>99,961</b>	<b>33,918</b>	<b>1,349</b>	<b>7,393</b>	<b>176,181</b>

