

**BERKSHIRE COUNTY MOSQUITO
CONTROL PROJECT
19 HARRIS ST.
PITTSFIELD, MA. 01201**



**SERVICES PROVIDED TO THE
CITY OF PITTSFIELD
SHERWOOD GREENS ROAD
MANAGEMENT DISTRICT
AND THE TOWNS OF
CLARKSBURG, HINSDALE, OTIS,
RICHMOND, SHEFFIELD,
STOCKBRIDGE, TYRINGHAM**

2018 ANNUAL REPORT

PREFACE

The 2018 annual report of the Berkshire County Mosquito Control Project has been prepared to provide the citizens and officials of member towns with information pertaining to the project's procedures and related activities.

As you read through this report you will notice that the project is committed to an Integrated Mosquito Management Program, IMM. This approach involves intervention in each stage of the mosquito life cycle using a variety of control techniques and evaluation procedures. When these techniques are properly implemented the process is safe and scientifically proven to reduce mosquito populations before they bite humans. No control effort is undertaken before surveillance data is collected and analyzed. Control decisions are made based on the exact need that exists at each specific site. Environmental considerations are paramount when prescribing various control techniques.

The BCMCP board of commissioners is appointed to represent the interests of each community. The commissioners meet with the superintendent on a regular basis to discuss and formulate policies and to provide their expertise in the operation of the project. The commissioners welcome your input, and we encourage you to contact us or visit the project headquarters.

Copies of this report are distributed to key officials in member towns. The report is also available to the public by contacting the project offices.

Our goal is to provide effective and environmentally sound mosquito control, reducing mosquito annoyance and the potential for the transmission of mosquito borne diseases. Our staff of well- trained, competent employees are known throughout member communities as individuals who take great pride in their work.

Thank You,

Wally Terrill, Chairman

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Organizational Setup

The Berkshire County Mosquito Control Project was created under chapter 454 of the Acts of 1945 and operated under MGL chapter 252 Improvement of Lowland and Swamps.

The project is administered by the State Reclamation and Mosquito Control Board located in Boston, MA. Membership in the project is accomplished by a majority vote at either an annual or special town meeting, or by the majority vote of a city council. The project is funded by an annual assessment which is determined by a formula administered by the Division of Local Services (DOR), and is calculated by equalized valuations. An amount is withheld from the State Cherry Sheet Assessment for each member city or town each fiscal year and is placed in a trust account for the project.

The State Reclamation and Mosquito Control Board (SRMCB) is comprised of three members, one each from The Department of Environmental Protection DEP, Department of Conservation and Recreation (DCR), and the Department of Agricultural Resources (DAR). The representative appointed from the DAR is by default the chair of the SRMCB. The SRMCB is charged with the appointment of the Berkshire County Mosquito Control Project Board of Commissioners. This is a three member board that meets quarterly at the project office. SRMCB contacts all member towns in the project area when there is an opening on the commission. Commissioners are appointed after an interview with SRMCB where qualifications are reviewed. Each commissioner is appointed to a three year term. The composition of the board varies and represents a wide range of expertise. Current commissioners include members of boards of health, selectmen, former project superintendents, private citizens, mosquito control industry representatives, and DPW directors or commissioners. The quarterly meeting of the commission is an open public meeting and a notice of each meeting is sent to the office of the Secretary of State. The commission is charged with the appointment of the superintendent, who is charged with the day to day operations of the project.

At the quarterly meeting the commission approves minutes of previous meetings, employee payrolls and all other expenditures. The superintendent outlines the current status of operations at the project, and all relevant topics are brought to the attention of the commission for review, discussion and a vote if necessary. All discussions and votes are recorded in the meeting minutes and are considered the official record of the commission.

THE COMMONWEALTH OF MASSACHUSETTS
STATE RECLAMATION AND MOSQUITO CONTROL BOARD
251 CAUSEWAY ST. SUITE 500
BOSTON, MA 02114
SRMCB MEMBERS
JUAN GUTIERREZ, PROJECTS ADMINISTRATOR
TARYN LASCOLA (DAR)
GARY GONYEA (DEP)
JAMES STRAUB (DCR)
JENNIFER FORMAN-ORTH , ENVIRONMENTAL BIOLOGIST
COMMISSIONERS OF BERKSHIRE COUNTY MCP
MR. RYAN GRENNAN
PITTSFIELD, MA
MR. JAMES MCGRATH
PITTSFIELD, MA
MR. WALLY TERRILL, CHAIRMAN
OTIS, MA.
PROJECT SUPERINTENDENT
CHRISTOPHER J. HORTON

EXPENDITURES 2018

ITEM	COST
PAYROLL	\$ 103,000
COMMISSION	\$ 1,200
RENT	\$ 15,072
HEAT/ELECTRIC	\$ 3,000
HEALTH INS. / FRINGE BENEFITS	\$ 15,025
LIABILITY/VEHICLE INS.	\$ 16,500
POSTAGE	\$ 300
FUEL VEHICLES/EQUIPMENT	\$ 4,500
PESTICIDES	\$ 60,000
PROFESSIONAL ASSN.	\$ 250
PESTICIDE LICENSES	\$ 450
TRAVEL	\$ 2,350
RETIREMENT ASSESSMENT	\$ 12,000
INTERNET SERVICE/PHONE	\$ 1,100
BERK COUNTY ALARMS	\$ 300
EQUIPMENT/SUPPLIES	\$ 5,000
OFFICE SUPPLIES/PRINTING	\$ 802
DPH TESTING	\$ 11,000

THE TARGET PEST

All mosquitoes found within the project boundaries belong to one of two groups:

-Floodwater mosquitoes lay their eggs on dry ground in areas that are subject to flooding. These eggs lay dormant until inundation, when hatching is initiated. Hatching is synchronized and development from egg to blood-feeding adult can occur within 7 days when temperatures are high. Areas within the project that favor the development of floodwater mosquitoes include swamp and marsh margins, roadside ditches, vernal pools, and the floodplains of rivers and brooks. From a nuisance perspective, these are the most prolific and bothersome mosquitoes for member town residents.

-Permanent or semi-permanent water mosquitoes lay their eggs directly on the water surface, either singly or in a cluster called a raft. The developing population is continually being replenished resulting in the constant emergence of new adult mosquitoes. The most important species occurring in the project area are *Anopheles* and *Culex* mosquitoes, which are found in catch basins, stagnant polluted water areas that form the margins of lakes and ponds and in unmounted tires, discarded containers and plugged gutters. *Culex* mosquitoes are considered a major vector in the transmission of West Nile Virus.

THE TACTICS

Operations of the Berkshire County Mosquito Project are modeled on the principles of Integrated Pest Management. Primary emphasis is placed on the decimation of target pests when they are in their most vulnerable and concentrated stage of development. In the case of mosquitoes this is the larval stage. Principal focus is placed on periodic surveys of the project area to locate permanent and temporary mosquito sources and then to routinely inspect these areas, treating only those sources found to hold mosquitoes. Additional efforts are made to eliminate sources through water management practices whenever possible. Finally temporary relief can be provided through adult control measures in those areas where surveillance shows a need.

OPERATIONAL OVERVIEW

1. Mapping

An effective mapping system to aid personnel in locating mosquito breeding Sites sources is crucial to any mosquito abatement operation. BCMCP implemented an automated mapping system in 2012 which uses ARC Geographic Information System technology to identify, measure, and record surveillance and Treatment data using hand held devices in the field. To date, over 550 breeding locations and 7,962 catch basins are mapped in member towns. Since 2013 all surveillance and treatment data has been recorded using this system. A program in the system automatically calculates application rates for each site based on the size of the site, the product being used, and the terrain type. Reports of work progress and treatment data can easily be generated from the project office.

Another benefit to the use of this system is that schedules for inspection and records of treatment are available in the field through handheld GPS units. Multiple technicians are able to work in the same zone efficiently.

2. Larval Control

Once an accurate mapping system has been established a routine inspection and treatment program can be implemented to control mosquitoes while they are concentrated, relatively immobile and accessible in the larval stage. Larval control is a major component of the BCMCP program and requires approximately fifty percent of our manpower during the breeding season. We strive to inspect each potential breeding site on a seven to ten day interval. Only those sites found to harbor mosquito larvae are treated. All sites inspected and treated are recorded each day and are on file at the project headquarters.

3. Adult Control

To determine the necessity for adult control, the project utilizes a procedure known as the “landing count” to determine the number of adult mosquitoes present at a particular location. (Adult mosquitoes are actually counted over a fixed interval at a specific location.) Placement of mosquito traps in areas that have the potential to produce large mosquito populations provide general population trends and are also a source of species information. Service requests from residents in member towns are also a valuable tool in determining where adult mosquito control may be necessary. The decision to initiate adult control measures is based on information collected from all of these sources. Adult

mosquito control is a vital component of Integrated Mosquito Management and accounts for approximately thirty percent of our manpower during the breeding season.

When WNV or EEE are detected in a particular area, an immediate adulticide response is recommended. Follow up surveillance measures and continued adulticide applications are used to limit virus amplification and exposure of human populations to viral agents. When virus is detected landing counts are curtailed and trapping data is used to evaluate mosquito populations.

4. Source Reduction

Source reduction involves habitat manipulation to eliminate or modify places that support adult mosquitoes. When source reduction methods are used appropriately they provide the most effective and long lasting mosquito control of all methods of management. In addition, source reduction is the least expensive method in the long term despite higher initial costs because it need not be repeated frequently. Source reduction usually consists of maintenance of existing drainage systems to restore traditional flow patterns by removing accumulated debris and obstructions. All work performed for source reduction by the project is done in a manner designed to cause minimal disturbance to the existing environment. We use only hand tools and all work is done in compliance with established best management practices. Source reduction projects are usually carried out in the fall months after the mosquito breeding season has ended.

5. Arbovirus Surveillance

The mosquito is considered the most important disease carrying vector on earth. Until the early part of the twentieth century little was known about the existence of mosquito borne diseases and their effects on human populations. Fortunately most of these diseases are not prevalent in our area. There are however two diseases that have become cause for concern in Massachusetts, and more recently in Berkshire County; West Nile Virus ,WNV and Eastern Equine Encephalitis, EEE. The Massachusetts Department of Public Health administers a statewide program to monitor mosquito populations for the presence of WNV and EEE, establish risk levels for local communities and disseminate information to the public and local boards of health concerning mosquito borne disease. The BCMCP participated in this program in 2018. The arbovirus surveillance season Began on June 11, 2018 and continued to the end of the mosquito season in Berkshire County. Each week 20 to 25 gravid mosquito traps and 10 to 12 C02 baited light traps were deployed at locations throughout member towns to collect mosquito samples that were prepared and shipped to MDPH labs for analysis. A

total of 408 samples were tested from Berkshire County in 2018. Fifty nine samples tested positive for West Nile Virus during the 2018 season. The first isolations were confirmed on 7/12/18 in the City of Pittsfield and Town of Stockbridge. WNV was detected consistently through July into early August when surveillance began to show marked increases in the number of isolations. The first week in September yielded a remarkable 11 isolations from the 24 samples submitted. These findings indicated a very high concentration of WNV in mosquito populations. Nine more isolations followed in the month of September with the last isolation confirmed on September 27th in Stockbridge. One human case of West Nile Virus was reported in the county however it was considered to be travel related. There were no mosquito isolations or human cases of Eastern Equine Encephalitis in Berkshire County in 2018.

Surveillance for 2018 showed that West Nile Virus remains present in our area and can show up at varied locations and times throughout the season. This season produced a record number of isolations of WNV in mosquito samples. It is significant to note that the number of WNV isolations was basically twice that of 2017 which was the previous record year. During the highest level of mosquito infection, almost half of the samples collected contained WNV. Continued vigilance in the areas of surveillance and response are necessary to insure that when WNV comes into the community it does not amplify which can lead to human or animal infection. Additional trapping to target *Culiseta melanura* and *Coquillettidia perturbans* became a priority in 2014 after Eastern Equine Encephalitis was found in both of these species in 2013. This is of particular concern in that EEE has been found in *C. perturbans* which is considered a bridge vector for EEE and could spread the disease to mammals (humans). Surveillance will remain a high priority for 2019 and future years in order to identify the presence of mosquito borne disease and to effectively target potential disease vectors.

6. Public Outreach

The goal of public outreach is to increase understanding and cooperation among constituents. The goal of Integrated Mosquito Management (IMM) is to improve the health and quality of life of our human community. It is important that as many people as possible know the basics of mosquito biology, the diseases that mosquitoes can potentially carry and transmit, and the methods and materials that we use to control them. Our challenge is to have the public understand that IMM is a unified process that is scientifically developed to ensure adequate results while simultaneously protecting the safety of humans and the natural world around us. We use every opportunity available, such as media interviews, public events, or even personal contacts made while in the field to describe our activities.

MOSQUITO MANAGEMENT AROUND THE HOME

There are several ways that homeowners can minimize the number of biting mosquitoes around the house. One of the easiest ways to manage mosquitoes is to eliminate standing water where mosquitoes can lay eggs.

Some common breeding sites are:

-Artificial containers (pails, paint cans, discarded tires, open cesspools or septic tanks, boats, pool covers, bird baths, and wading pools)

Without standing water mosquitoes cannot reproduce. Old containers should be disposed of or recycled. Swimming pool filter systems should be maintained and in good working order. Openings to water sources can be sealed as in rain barrels or septic tanks. Rotten tree holes or stumps should be filled with sand. Old tires should be disposed of or stacked and covered to prevent rainwater from collecting inside. Ornamental pools and aquatic gardens can also breed mosquitoes if the water is allowed to stagnate. Water should be changed regularly or an aerator should be installed. Biological control can be achieved by stocking fish that will eat mosquito larvae.

There are also ways that the homeowner can minimize the annoyance of adult mosquitoes. Mosquitoes must rest in shady calm areas and will avoid breezy or sunny locations. Removing trees and mowing tall grass will reduce the number of places where mosquitoes can rest. Mosquitoes are most active in the hours around dusk and dawn. Simply avoiding outdoor activity during these times of peak activity can minimize contact with mosquitoes.

For more information on mosquito control techniques or the products used by the Berkshire County Mosquito Control Project please call or email us.

Berkshire County Mosquito Control Project
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2018 MOSQUITO SEASON SUMMARY

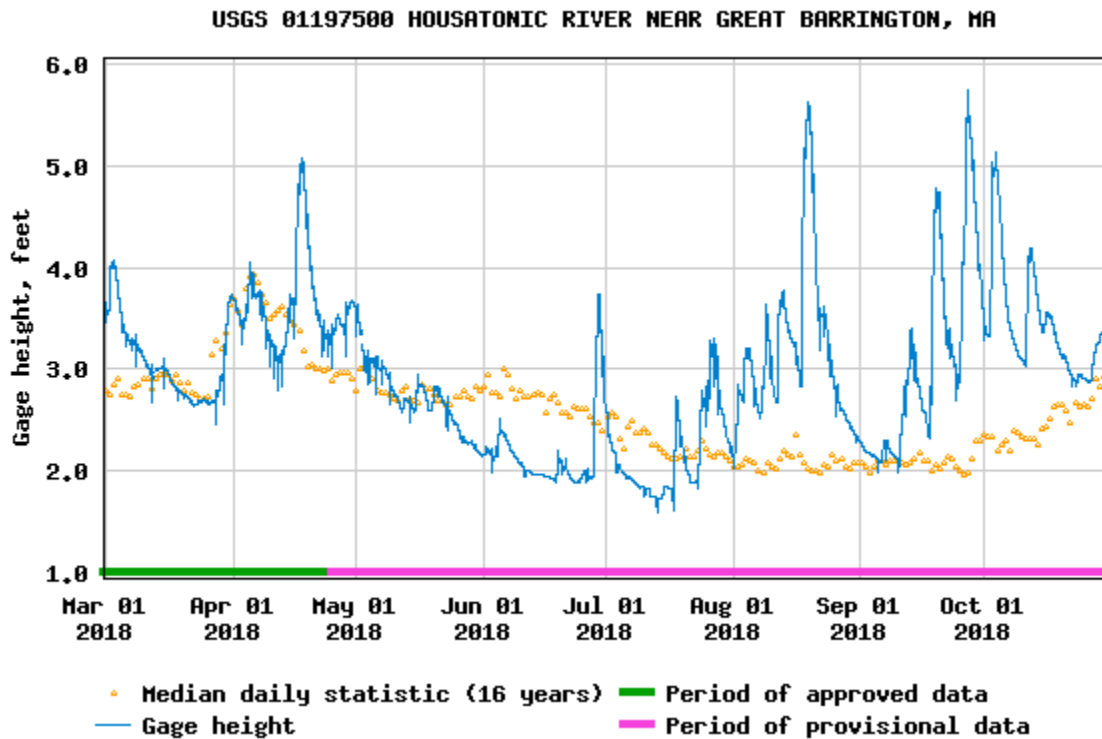


Figure 1. USGS 01197500 Housatonic River Near Great Barrington

The Berkshire County Mosquito Control Project began operations in early April 2018 with surveillance of over 500 known breeding sites in the member towns. Figure 1 clearly represents the overall pattern of precipitation for the 2018 season. (When the Gage height in Figure 1 exceeds 5 ft. the Housatonic begins to flood the low fields in Great Barrington and Sheffield.) Spring precipitation followed typical patterns with normal moisture to slightly above normal. Spring brood species were more numerous than in 2017 but in normal range. *Culex pipiens/restuans* began to increase in early June and peaked in mid-July with very large collections at certain locations. Drying conditions prevailed from late May through mid-July. The seasonal emergence of *Coquillettidia perturbans* in early July was smaller than average. A consistently wet pattern was established by early August and soil moisture began to increase. Two flooding events were observed in late August and

late September. This flooding resulted in large scale larval development in flood plain areas along the Housatonic River with two major broods consisting of *Oclerotatus trivittatus* and *Aedes vexans* emerging in late August and late September. Surveillance also indicated a significant increase in *Culiseta melanura* during this period at several locations. *Anopheles quadrimaculatus* were also observed in significant numbers. Saturated soils and abundant surface water persisted through the remainder of the season.

Total breeding habitat treated for the season totaled 363.4 acres with 2,441 lbs. of biological larvicide applied. Most of the larval treatments were done early in the season with continued applications at selected locations. After flooding events, specific sites were chosen for larval control which would have localized impact. Most floodplain was not treated due to scale, accessibility issues, and timing.

In mid June crews began larval control to treat catch basins in member towns. This year crews used an extended release BTI product that provides 90 day protection. This feature allows treatments to begin earlier and eliminates the need for retreatment. Basins treated later in the season were treated with a product that provides 30 day protection. A total of 8,787 catch basins were inspected and 5,097 catch basins were treated in June, July and August.

Surveillance trapping for West Nile Virus and Eastern Equine Encephalitis began June 13th 2018. All trap locations that have a past history of isolations for WNV or EEE are considered permanent trap locations with samples being tested weekly. Gravid traps which capture egg bearing mosquitoes are used to sample *Culex pipiens/restuans* which are vectors for WNV, while CO2 baited light traps are used in an effort to collect *Culiseta melanura* which is known to be the species responsible for EEE transmission in birds. These traps are also capable of capturing other species of mosquito that are known to be vectors of EEE. This was a record season for WNV isolations in Berkshire County with a total of 59 isolations of WNV in mosquito samples. Results from CO2 baited light traps showed a marked resurgence of *Culiseta melanura* in 2018 which is most likely due to significantly higher water tables during the later part of the 2018 season.

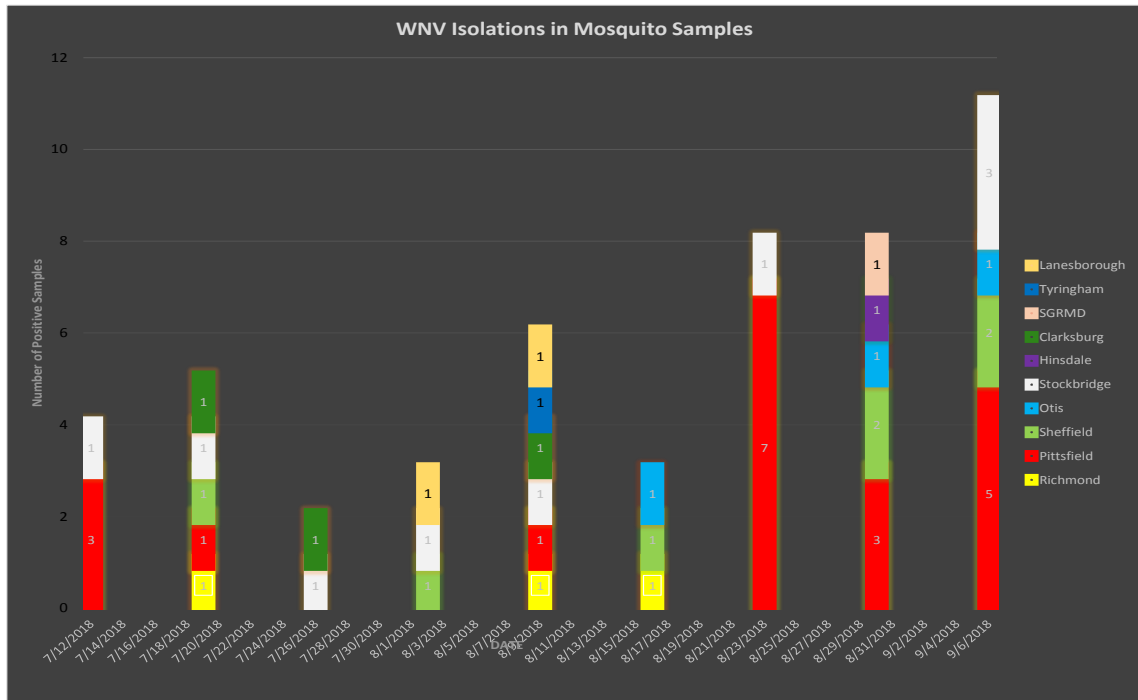
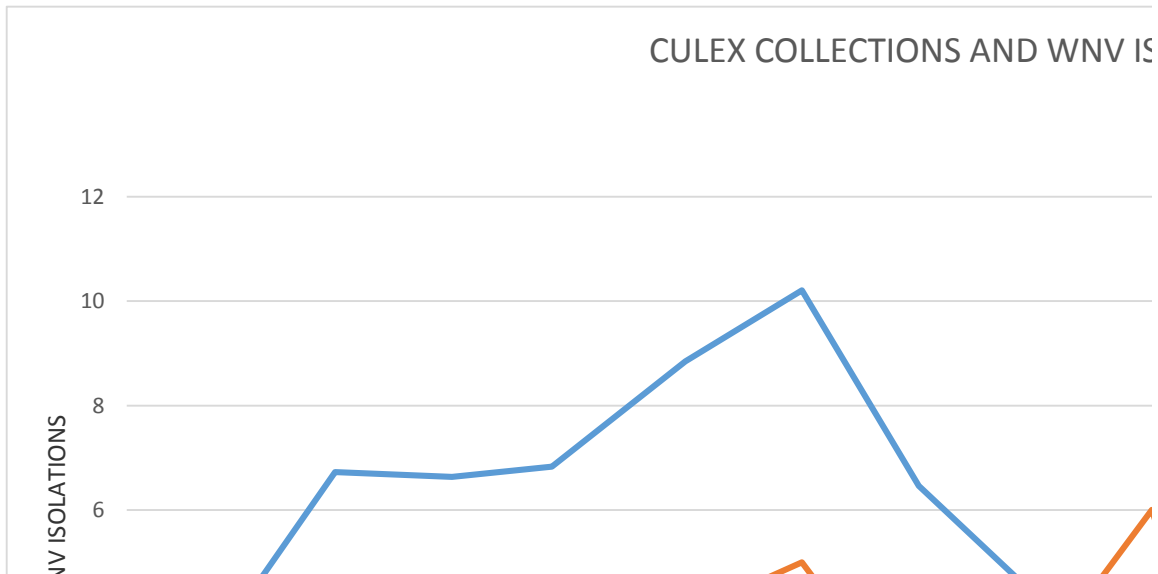
When WNV or EEE is detected in mosquito samples the first priority is to inform the public that the disease is present and then provide information on how they can protect themselves from exposure to biting mosquitoes. The immediate area where the virus was isolated is then evaluated to make sure that all possible measures have been taken to reduce mosquito populations. A recommendation is made for a rapid application of adulticide in the area in order to reduce the threat of exposure to infected mosquitoes. This process also prevents the infection of birds in the area thereby interrupting the amplification of WNV and EEE. This process is consistent with recommendations from The Centers for Disease Control and Prevention. In 2018 the product used in Berkshire County was a synthetic pyrethroid with the trade name DUET. During the 2018 season the

Berkshire County Mosquito Control Project applied 251.45 gal of Duet during 109 applications which represents adulticide treatments to 59,343 acres. The Project also answered over 223 individual requests for adulticide treatments.

Source reduction is the term used to describe work performed in wetlands and drainage systems to reduce breeding habitat for mosquitoes. The process involves cleaning and maintenance of ditches and waterways to prevent flooding and backups which would favor mosquito breeding. Mosquito control districts in the state of Massachusetts have statutory authority to work in wetland environments through exemptions granted through the Wetlands Protection Act. The Berkshire County Mosquito Control Project does however consult with the Natural Heritage and Endangered Species Program when work is performed in high priority Natural Heritage areas. All work is performed using hand tools according to accepted “best management practices “which are designed to accomplish project goals while minimizing disturbance to the environment. Berkshire County Mosquito Control Project maintains over 17,000 linear feet of drainage in member towns. The Project is also involved in mitigation projects where beaver activity had caused drainage problems by restoring beaver exclusion devices, removing debris and restoring water flow.

Education and outreach are essential to the mission of mosquito control especially when mosquito borne disease is present. Employees of the Berkshire County Mosquito Control Project are always encouraged to interact with the public whenever possible to explain our work, to describe our methods, the products we use and explain how they work. In 2018 Berkshire County Mosquito Project contributed to several local events such as Third Thursday in Pittsfield and other community events. The Project’s Educational Brochure is distributed at every opportunity.

The GIS system developed in 2012 was used to collect and record all data for the 2018 mosquito season. Larval control, adult treatments, and service requests were recorded and mapped as work was performed.



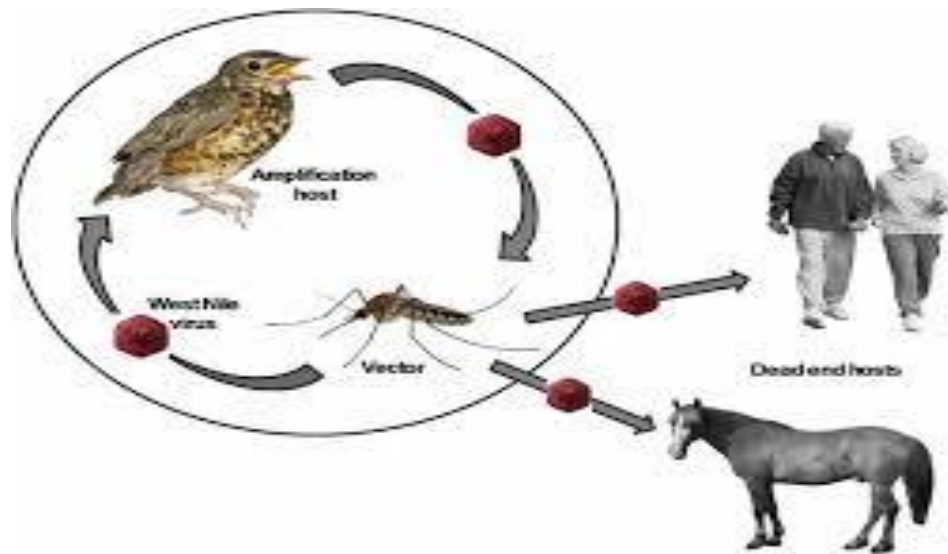
MATERIALS USED

The most effective way to deal with mosquitoes is to control the population in the larval stages, before they become flying adults that cause annoyance and can possibly spread disease. For larval control the Berkshire County Mosquito Control Project uses an organic larvicide, Vectobac which is a formulation of the bacteria *Bacillus thuringiensis* and is extremely effective against larval populations. The product is introduced directly into the water column where it is ingested by mosquito larvae. The active ingredient interrupts the gut lining of the mosquito larvae causing them to stop feeding and die within hours. This product does not affect species other than mosquitoes, black flies, and midges and does not accumulate in the environment. For catch basin larval treatments in 2018 the Project used Fourstar 90 day BTI briquettes and Vectolex WSP packets which have the bacterial active ingredient *Bacillus sphaericus*.

In 2018 the Berkshire County Mosquito Control Project applied 2,441 lbs. of Vectobac G to 363.4 acres of larval habitat in member towns. Larval control continues throughout the season and breeding areas are treated each time surveillance indicates larval development. BCMCP treated a total of 5,095 catch basins in the months of June, July, and August.

Unfortunately, all mosquito breeding sites are not able to be treated because of either size or accessibility issues. From time to time the populations of adult mosquitoes increase above tolerable levels and adult treatments become necessary. The tolerance of individuals to mosquito annoyance varies throughout the population but research has shown that if from three to five mosquitoes land on a person at a particular location over the course of one minute intervention is warranted. When surveillance indicates this condition is present, adulticide applications are in order. For adult mosquito control the Berkshire County Mosquito Control Project uses Duet which is a formulation of Prallethrin and Sumithrin which are synthetic pyrethroids. These chemicals are synthetic versions of the natural insecticides found in chrysanthemum flowers. Duet is an advanced product that has been shown to be extremely effective at controlling adult mosquito population across the globe. The combination of Prallethrin and Sumithrin cause a condition known as “benign agitation” in which mosquitoes are drawn from their resting state allowing greater control of the population. This product kills mosquitoes by interrupting neural transmissions causing paralysis. This product was chosen because it has a very low toxicity to humans and mammals and breaks down rapidly in the environment. This product does have the potential, however to impact non target organisms such as fish and honey bees. To prevent adverse effects on the environment and species other than mosquitoes, applications are made only when necessary and strictly according to label instructions prescribed by the Environmental Protection Agency. These label instructions provide wide margins of safety for humans and the environment. The project applied 251.45 gal. Duet in 2018 over an area of 59,343 acres.

At certain locations, conditions exist that provide excellent resting habitat for adult mosquito populations. Mosquitoes are soft bodied insects and weak flyers. They cannot tolerate strong sunlight or breezy conditions. Mature landscaping and shrubbery in residential areas can harbor large mosquito populations. When requested, the Berkshire County Mosquito Project may use FLIT 10EC or Mavrik to treat vegetation at the perimeter of a property forming a barrier to annoying mosquitoes. FLIT 10EC and Mavrik are applied by backpack sprayer to kill active mosquito populations and to provide residual protection of several days. The active ingredient in FLIT 10EC is Permethrin which is a synthetic pyrethroid. This product was chosen because of its low toxicity and for the fact that it does not persist in the environment or accumulate in the bodies of non-target species. The active ingredient in Mavrik is Tau-fluvalinate which is also very low toxicity and presents less risk to non-target species in certain areas. Risks to the environment or species other than the mosquito are also mitigated by applying the product only when necessary and strictly according to label instructions. The project applied 1.5 gal of FLIT 10EC in 2016 over an area of 11.3 acres and 24 oz. of Mavrik over 3 acres.



Enzootic Cycle of West Nile Virus

CLARKSBURG 2018

Crews from the Berkshire County Mosquito Control Project began surveillance in The Town of Clarksburg on 5/16/18 on the known breeding areas in the town. The first larvae were detected and treated on 5/16/18. And by the end of the season 15 sites had been treated with larvicide. A total of 83 catch basins required treatment in 2018. Treatments of catch basins were made in July. Mosquito surveillance was concluded on 9/14/18.

The following materials were used for larval control.

VECTOBAC G (BTI)	39.5 LBS.	7.5 ACRES
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FOURSTAR 90 (CATCH BASIN)	83 BRIQUETS
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Larval Control:

BREEDING SITE INSPECTIONS	77	TREATMENTS	15
CATCH BASIN INSPECTIONS	160	TREATMENTS	83

DPH Arbovirus Surveillance:

POOLS SUBMITTED	22	WNV ISOLATIONS (4)
		7/19/18, 7/26/18, 8/9/18, 9/20/18

HINSDALE 2018

Crews from the Berkshire County Mosquito Control Project began surveillance in the Town of Hinsdale on 5/11/18 on the known breeding sites in the town. The first larvae were detected and treated on 5/11/18 and by the end of the season 11 sites had been treated with larvicide. A total of 223 catch basins were treated in the month of July. Mosquito surveillance was concluded on 8/28/18

The following materials were used for larval control.

VECTOBAC G (BTI)	98 LBS.	18.2 ACRES
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FOURSTAR 90 (CATCH BASIN)	223 BRIQUETS
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Larval Control:

BREEDING SITE INSPECTIONS	38	TREATMENTS	11
CATCH BASIN INSPECTIONS	270	TREATMENTS	223

DPH Arbovirus Surveillance:

POOLS SUBMITTED	4	WNV ISOLATION 8/29/18
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The following materials were used for adult control between 6/21/18 and 8/30/18.

DUET	10.2 GAL.	2,696 ACRES
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LANESBOROUGH 2018

Crews from Berkshire County Mosquito Project began mapping and surveillance On 5/24/18. Larvae were treated as sites were mapped and by the end of the season 15 sites had been treated with larvicide. A total of 491 catch basins were mapped and treated in July and August. Mosquito surveillance was concluded on 9/5/18.

The following materials were used for larval control.

Vectobac G (BTI)	106.4 LBS.	14.3 ACRES
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FOURSTAR 90 (CATCH BASIN)	230 BRIQUETS
VECTOLEX WSP (CATCH BASIN)	227 PACKETS

Larval Control:

BREEDING SITE INSPECTIONS 53	TREATMENTS 15
CATCH BASIN INSPECTIONS 551	TREATMENTS 491

DPH Arbovirus surveillance:

POOLS SUBMITTED	19	WNV ISOLATIONS	8/2/18, 8/9/18
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The following materials were used for adult control on 8/28/18

DUET	1.4 GAL.	363 ACRES
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OTIS 2018

Crews from the Berkshire County Mosquito Control Project began surveillance on 5/17/18 of the known mosquito breeding sites in the town. The first larvae were detected and treated on 5/17/18 and by the end of the season 26 sites had been treated with larvicide. . A total of 164 catch basins were treated in the month of July. Mosquito surveillance concluded on 9/26/18.

The following materials were used for larval control.

VECTOBAC G (BTI)	124 LBS.	16.9 ACRES
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FOURSTAR 90 (CATCH BASIN)	164 BRIQUETS
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Larval Control:

BREEDING SITE INSPECTIONS 110	TREATMENTS 26
CATCH BASIN INSPECTIONS 247	TREATMENTS 164

DPH Arbovirus Surveillance:

POOLS SUBMITTTED 20	WNV ISOLATIONS (3)
	8/16/18, 8/30/18, 9/6/18

The following materials were used for adult control between 6/21/17 and 9/22/17.

DUET	31.1 GAL.	7,934 ACRES
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PITTSFIELD 2018

Crews began surveillance on the known breeding sites in the City on 4/19/18. The first larvae were detected and treated on 4/19/18 and by the end of the season 69 sites had been treated with larvicide. A total of 3,460 catch basin were treated in June and July. Mosquito surveillance was completed on 9/26/18.

The following materials were used for Larval Control

VECTOBAC G (BTI)	1,001.2 LBS.	153.9 ACRES
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FOURSTAR 90 (CATCH BASIN)	3,460 BRIQUETS
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Larval Control:

BREEDING SITE INSPECTIONS	175	TREATMENTS	69
CATCH BASIN INSPECTIONS	6,311	TREATMENTS	3,460

DPH Arbovirus Surveillance:

POOLS SUBMITTED	171	WNV ISOLATIONS (25)
		7/12/18 (3), 7/19/18, 8/9/18
		8/23/18 (7), 8/30/18 (3), 9/6/18 (5)
		9/13/18, 9/20/18 (4)

The following materials were used for adult control between 7/16/18 and 9/25/18

DUET	50.81 GAL.	9,897.1 ACRES
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RICHMOND 2018

Berkshire County Mosquito Control Project began operations in The Town of Richmond on 4/26/18. The first larvae were detected and treated on 4/26/18. By the end of the season 12 sites had been treated with larvicide. A total of 43 catch basins were treated in the month of July. Mosquito surveillance was completed on 9/20/18.

The following materials were used for control:

VECTOBAC G (BTI)	77.8 LBS.	9.8 ACRES
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VECTOLEX WSP (CATCH BASIN)	56 PACKETS
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Larval Control:

BREEDING SITE INSPECTIONS	56	TREATMENTS 12
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CATCH BASIN INSPECTIONS	70	TREATMENTS 43
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DPH Arbovirus Surveillance:

POOLS SUBMITTED	24	WNV ISOLATIONS (4) 8/9/18, 8/16/18, 9/20/18 (2)
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The following materials were used for adult control 6/13/18 to 9/14/18.

DUET	22.5 GALS.	5,293.2 ACRES
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SHEFFIELD 2018

Crews from the Berkshire County Mosquito Control Project began surveillance in the Town of Sheffield on 4/18/18 Larvae were detected and treated on 4/18/18. By the end of the season 34 breeding locations had been treated. A total of 248 catch basins were treated in the month of July. Mosquito surveillance was completed on 9/26/18.

The following materials were used for larval control:

VECTOBAC G (BTI)	571 LBS.	82.1 ACRES
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VECTOLEX WSP	248 PACKETS
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Larval Control:

BREEDING SITE INSPECTIONS	54	TREATMENTS	34
CATCH BASIN INSPECTIONS	362	TREATMENTS	248

DPH Arbovirus Surveillance:

POOLS SUBMITTED	51	WNV ISOLATIONS (6)
		7/19/18, 8/2/18, 8/30/18(2)
		9/7/18 (2)

The following materials were used for adult control from 6/7/18 to 9/19/18.

DUET	62.6 GAL.	15,540.1 ACRES
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FLIT 10 EC	1.0 GAL	7.3 ACRES
MAVRIK	24 OZ.	3 ACRES

SHERWOOD GREENS ROAD MANAGEMENT DISTRICT 2018

Surveillance at Sherwood Greens Road Management District in Becket, MA began on 5/14/18. By the end of the season 11 breeding sites had been treated with biological larvicide. Mosquito surveillance was completed for the season on 9/12/18.

The following materials were used for larval control:

VECTOBAC G	42.7 LBS.	5.6 ACRES
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Larval control:

BREEDING SITE INSPECTIONS	36	TREATMENTS 11
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DPH Arbovirus Surveillance:

POOLS SUBMITTED	24	WNV ISOLATION 8/30/18
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STOCKBRIDGE 2018

Crews from the Berkshire County Mosquito Control Project began surveillance in the Town of Stockbridge on 4/4/18. The first larvae were detected on 4/4/18. By the end of the season 22 sites had been treated with larvicide. A total of 327 catch basins were treated in July. Mosquito surveillance was completed on 9/27/18.

The following materials were used for larval control:

VECTOBAC G (BTI)	381 LBS.	55.1 ACRES
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FOURSTAR 90 (CATCH BASIN)	289 BRIQUETS
VECTOLEX WSP	38 PACVKETS

Larval Control:

BREEDING SITE INSPECTIONS	45	TREATMENTS	22
CATCH BASIN INSPECTIONS	602	TREATMENTS	327

DPH Arbovirus Surveillance:

POOLS SUBMITTED	106	WNV ISOLATIONS (10)
		7/12/18, 7/19/18, 7/26/18,
		8/2/18, 8/9/18, 8/23/18,
		9/6/18 (3), 9/27/18

The following materials were used for adult control from 6/16/17 to 9/14/17

DUET	41.2 GAL.	8,795.1 ACRES
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FLIT 10 EC	.5 GAL.	4 ACRES
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TYRINGHAM 2018

Crews from the Berkshire County Mosquito Control Project began surveillance in the town of Tyringham on 4/6/18. Eighteen inspections of breeding sites from 4/6/18 to 9/20/18 yielded no larvae. A total of 45 catch basins were treated in the town in the month of July. Mosquito surveillance ended on 9/20/18.

The following materials were used for larval control:

VECTOLEX WSP	45 PACKETS
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Larval Control:

BREEDING SITE INSPECTIONS	18	
CATCH BASIN INSPECTIONS	54	TREATMENTS 45

DPH Arbovirus Surveillance:

POOLS SUBMITTED	20	WNV ISOLATION 8/9/18
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Adult Control:

The following materials were used for adult control:

DUET	7.4 GAL.	1,947.8 ACRES
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REFERENCES CITED

USGS (United States Geological Survey) 2014 National Water Information System: Web Interface, USGS water resources, USGS01197500 Housatonic River Near Great Barrington, MA.