



Board of
Commissioners

Sarah E. Larsen
Chairman

William M. Ellis

Thomas B. Hart

George T. Mann, Jr.

Lawrence J.
Murphy,
Treasurer

Richard H.
Pritchett, III

Bruce C. Scott

Executive
Director
T. Wayne Gale



Photo courtesy of Lt. Jen Wright

2012 Annual Report

Lee County Mosquito Control District

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Board of Commissioners

Board of Commissioners



**Sarah E.
Larsen**

**Commissioner
Larsen was
elected to the
Board from
Area 2
in 2010
and served as
Vice Chair for
2011.**

Dear Residents, Colleagues, and Friends,

I have had the pleasure of serving as Chair of the Lee County Mosquito Control District for 2012 so on behalf of Board of Commissioners it is with great pleasure that we present to you our annual report. We are proud to be able to provide the opportunity for the District employees to highlight achievements during the past year.

Please feel free to contact me, any Board member or our helpful staff should you have any questions or concerns about the District's programs or services.

**Sincerely,
Sarah Larsen, Chairman
Board of Commissioners
Lee County Mosquito Control District**

Front Row

**S. Larsen,
B. Scott,
T.W. Gale
M. Ellis
G.T. Mann, Jr.
L. Murphy**

Back Row

**T. Hart
R. Pritchett**



Board of Commissioners

Board of Commissioners

The Lee County Mosquito Control District board is comprised of seven commissioners representing seven areas, and the areas shall be nearly equal in population as possible. Commissioners are elected, at large, in the General Election, by qualified electors residing within the district. This is a 4-year term, non-partisan office. A vacancy on the board shall be filled, by appointment, by the Governor, for the remainder of the unexpired term. A Lee County Mosquito Control District and Lee County Hyacinth Control District commissioner takes office the 2nd Tuesday following the General Election. Commissioners receive a \$400 a month stipend for serving on the Board.

Area 1

Lawrence J. Murphy was first elected to the Board in 2000, and has been re-elected since that time through the 2008 election.



Commissioner Ellis was first elected to the Board from Area 3 in 2004 and was then re-elected in the 2012 election.



Area 4

Richard H. Pritchett, III was first elected to the Board in 1994 and has been re-elected since that time including the 2010 election.

Area 5

George T. "Pat" Mann, Jr. was first elected to the Board in 1992 and has been re-elected since that time including the 2012 election.



Area 6

Thomas B. Hart was first elected to the Board in 1998 and has been re-elected since that time including the 2010 election.



Area 7

Bruce Scott was first elected in 2004 and was re-elected in 2012.



Executive Director

Executive Director



A Message from the Executive Director

The Lee County Mosquito Control District was established in 1958 by an act of the Florida Legislature as an independent district and has been providing uninterrupted mosquito control services to the citizens of Lee County for over fifty years. During those years the District has remained at the forefront of mosquito control, helping to develop control technologies that are effective and considerate of the natural Florida environment. Lee County's many acres of salt marsh and other wetlands are some of the most prolific mosquito breeding habitats in Florida. In order to provide a comfortable outdoor environment for Lee County citizens and reduce the threat of diseases that can be transmitted by mosquitoes, the District continually monitors these habitats and endeavors to control mosquitoes in the aquatic immature stages before they become flying and biting adult mosquitoes. Additionally, we monitor adult mosquito activity throughout Lee County each night from May through October and initiate adult control operations when surveillance thresholds are met or mosquito borne disease poses a threat to Lee County citizens.

Florida's development history is directly linked to success in controlling mosquitoes and abating the diseases they carry. Successfully controlling mosquitoes, while being sensitive to Florida's unique natural habitats and wildlife, is a demanding and important challenge. Today we work within a complex regulatory framework of federal, state and local regulations which govern to a great extent how, when and where we may conduct mosquito control operations. All of our employees are trained and certified in Public Health Pest Control and are committed to providing sound and effective mosquito control to the citizens of Lee County.

This year we were under intense scrutiny as an organization from the local legislative delegation and the Governor's office as State leaders looked into issues regarding special taxing districts. While working with the legislative delegation and representatives from the Governor's office we continued to work toward improving our abilities to control mosquitoes, reduce expenses to the tax payers and educate the public on the importance of mosquito control in relation to public health.

T. Wayne Gale,
Executive Director



Mission and Objectives

Mission Statement: Lee County Mosquito Control District is committed to improving the quality of life, facilitating outdoor activities and protecting the public health in our community by implementing environmentally sound practices that control mosquitoes throughout Lee County.



The objective of Lee County Mosquito Control District is to serve the residents and visitors of Lee County by controlling the mosquito populations through an integrated pest management approach consistent with applicable laws and justified by tenets of public health, vector control, environmental safety and fiscal responsibility. The District works to provide leadership, research, technical information, and education on mosquitoes and their control.

The District operates under Chapter 388 of the Florida Statutes. It is regulated by the Florida Department of Agriculture and Consumer Services and coordinates operations to comply with regulations established by the U.S. Environmental Protection Agency, Department of Transportation, and Federal Aviation Administration.



District Responsibilities



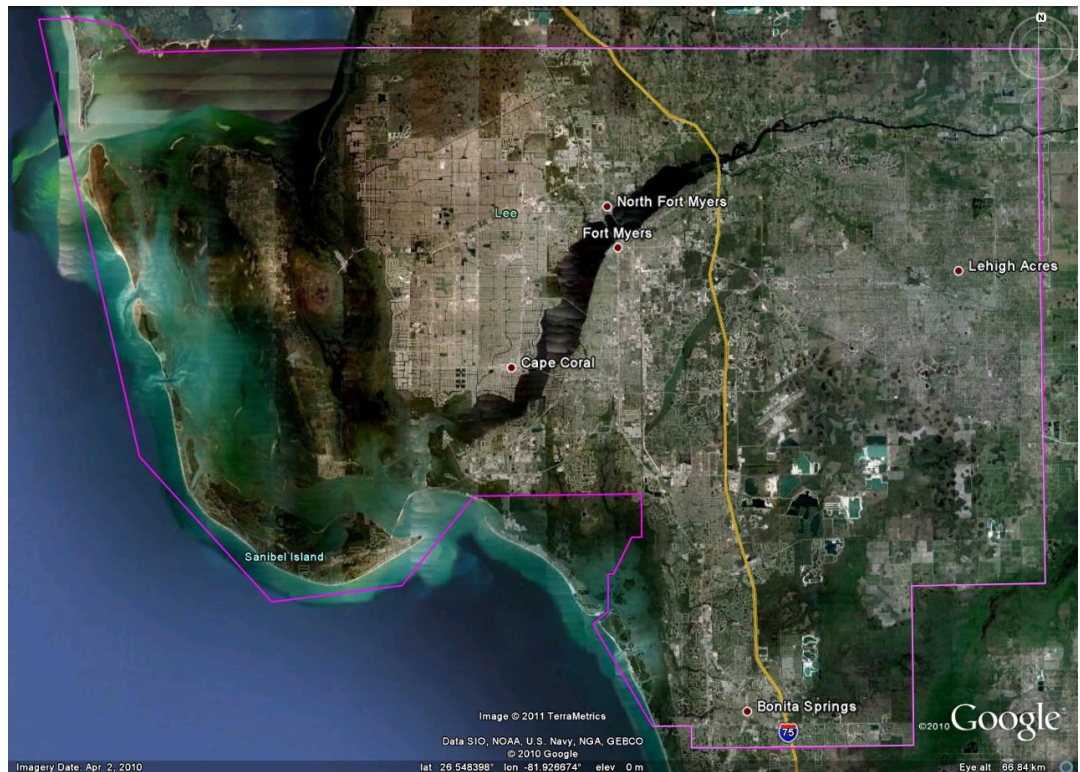
Over 53,000 acres of salt marsh habitat with many developments within close proximity to be breeding sites.



The Lee County Mosquito Control District is responsible for mosquito control in ninety-eight percent of Lee County or approximately 1000 square miles which includes over 56,000 acres of salt marsh mosquito breeding habitat. The District covers over 590 miles of shoreline and 100 plus miles of barrier islands. After high tides or rain these coastal habitats produce large numbers of aggressive salt marsh mosquitoes that can fly up to 50 miles and literally cover the County. Most of these coastal habitats are not accessible by vehicle and inspectors must use helicopters and boats to gain access to these areas for inspection and control of immature mosquito stages. In addition, there are numerous other mosquito species in Lee County that breed in both permanent and temporary fresh water habitats, including some that can transmit mosquito borne diseases such as Saint Louis Encephalitis, Eastern Equine Encephalitis, West Nile Virus or dog heartworm.

Map of District

The map indicates the area Lee County Mosquito Control District provides mosquito control service. The area outside the pink boundary line is serviced by Ft. Myers Beach Mosquito Control District.



Comparison of Treatment Demands

What makes Lee County Mosquito Control District different from other Programs?

There are 61 Mosquito Control Programs in the State of Florida recognized and approved by the Florida Department of Agriculture. Of those 61 programs, only 20 programs have aerial larviciding programs. Lee County Mosquito Control District treats 1/3 of every aerial larvicide acre treated in Florida.

**Aerial Larviciding
Average # of acres for 2005-2009**

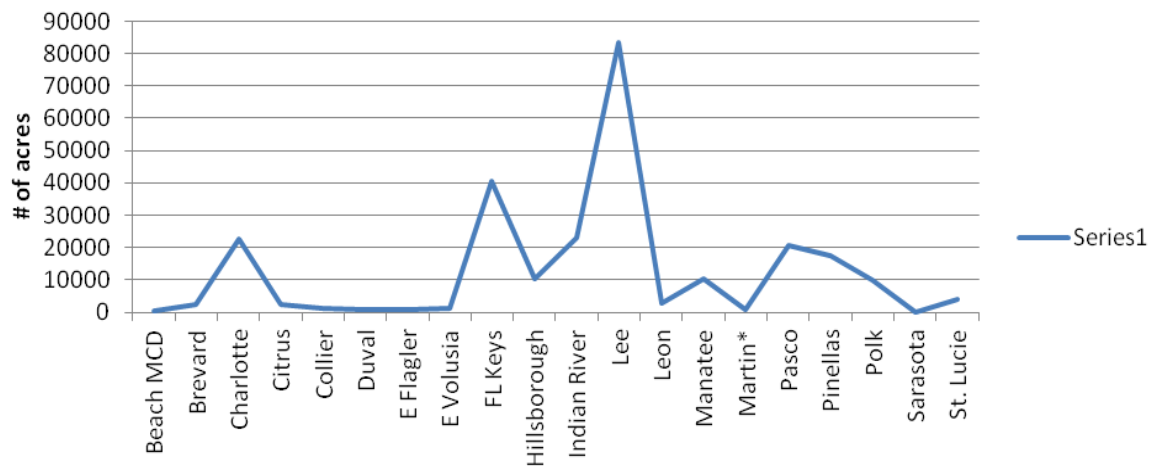
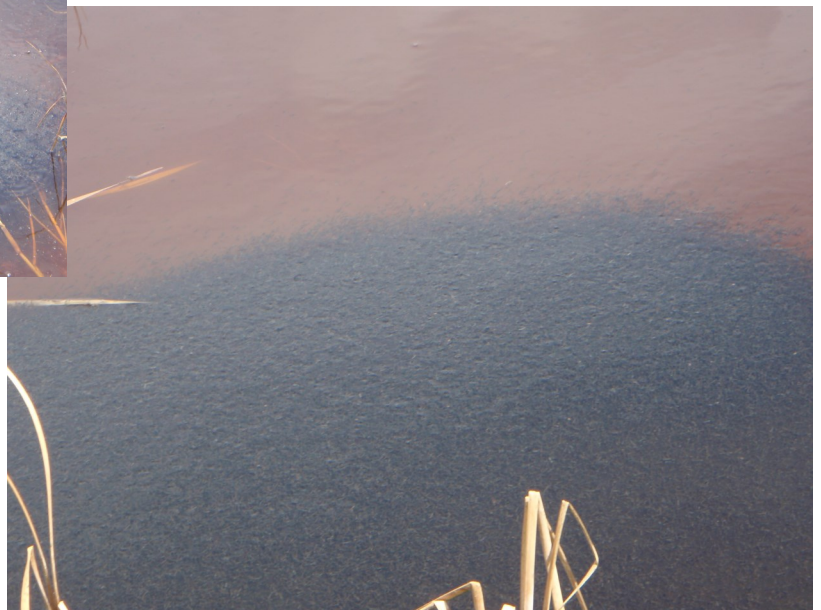


Chart information based on AES/FDACS reports.



Aggregates of mosquito larvae

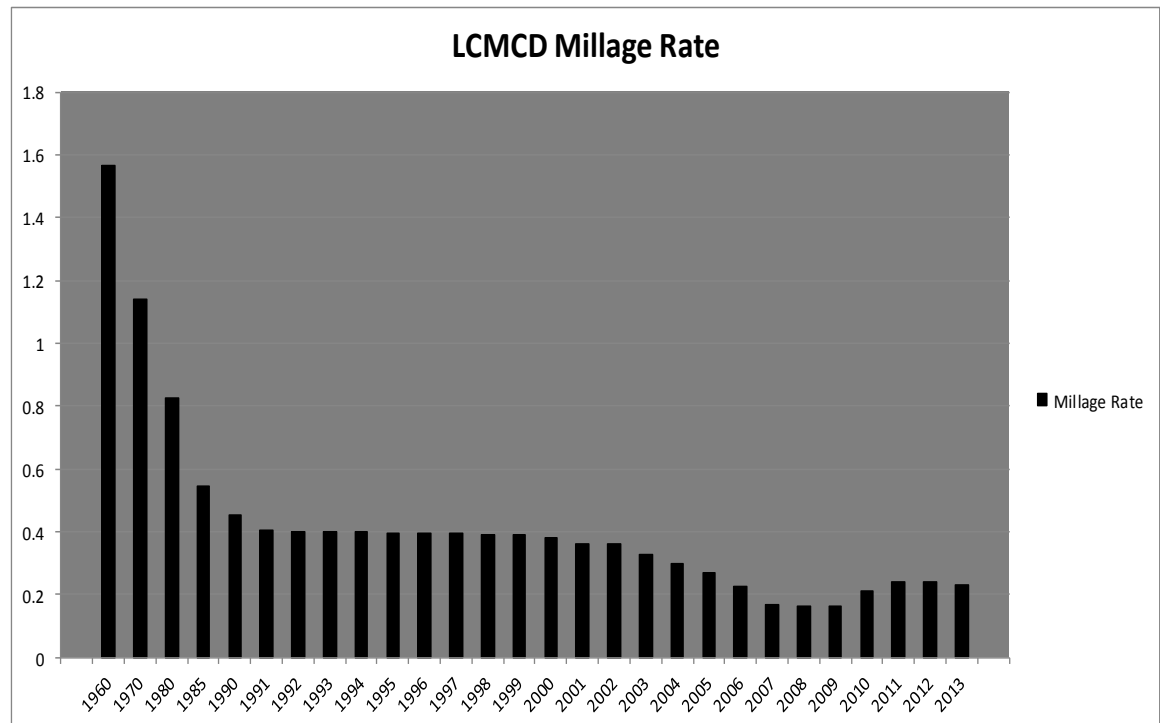


Property Taxes

Property taxes are the primary source of revenue for Lee County Mosquito Control District. General revenues come from property taxes, interest income and miscellaneous. Property taxes are levied each year, and are payable beginning November 1. The Lee County Tax Collector's office bills and collects property taxes on behalf of the Lee County Mosquito Control District. The tax rate levied upon the taxable property within the District boundaries for mosquito control for the fiscal year that ended September 30, 2012 was \$.2388 per \$1000 of assessed taxable property value. For example, a taxable property with an assessed value of \$235,000 would pay \$56.12 in taxes for mosquito control services or approximately 15 cents per day.

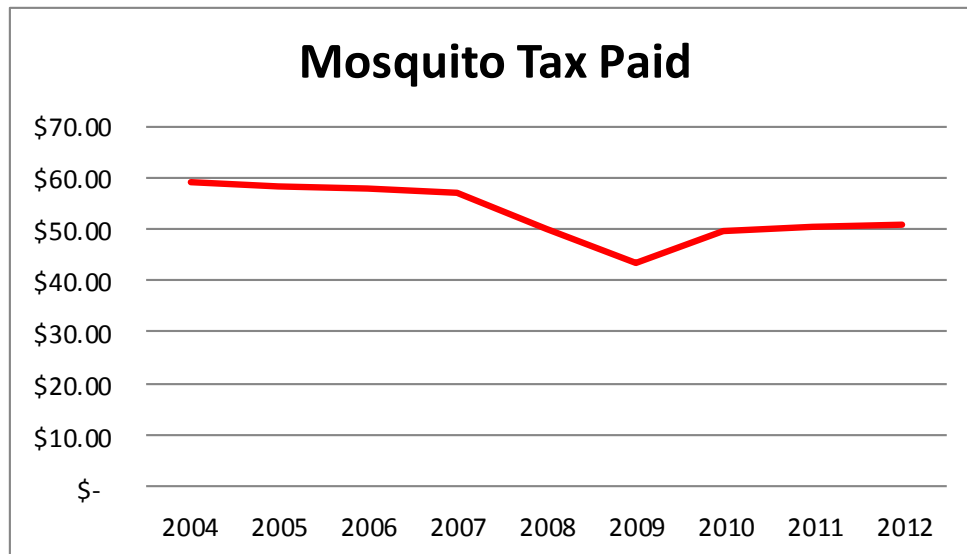
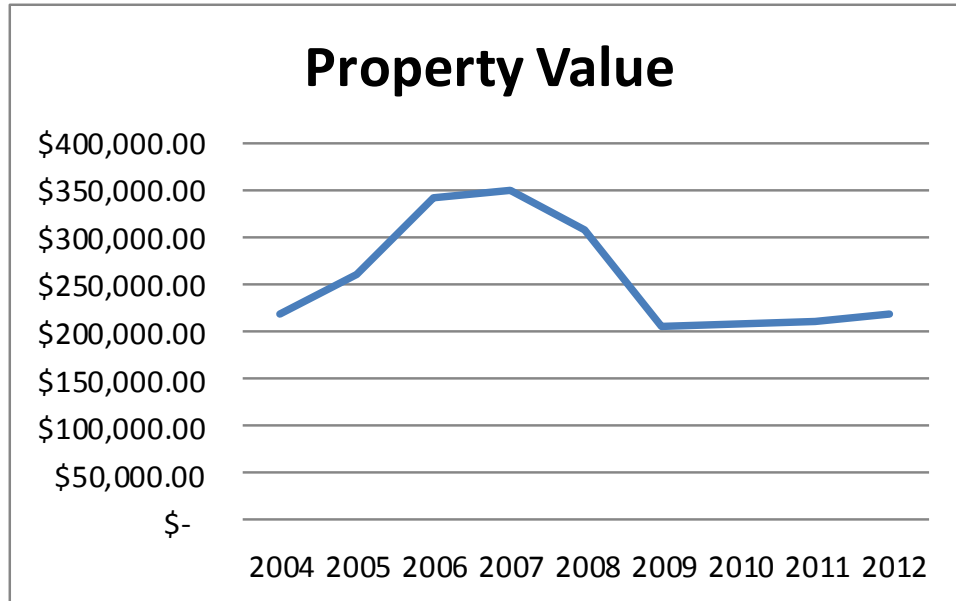
Mosquito control's area of responsibility does not change with fluctuations in property values or on the population of Lee County. The cost of doing mosquito control is not going down but up with fuel and pesticide costs continuing to rise. The District must continue to provide county-wide mosquito control services but reduce costs as well.

Revenue for the District has been declining. In 2007, total revenues were \$16,094,570. By 2012 the total revenue was \$13,186,397 challenging the District to continue to provide service with continuing reduction in revenues.



Starting at a millage rate of 1.8 mills in 1958 when the District was formed, the Board of Commissioners for LCMCD has steadily reduced millage. On Sept.13, 2012, at the Public Hearing of the Lee County Mosquito Control District (LCMCD), the Board approved a millage rate of 0.2300 for fiscal year October 1, 2012-September 30, 2013. The current millage rate was 0.2388 mills. The roll-back rate provided by the Tax Appraiser's office was 0.2408 mills. The approved rate of 0.2300 mills is a 4.5% reduction from the rollback rate and \$600,000 reduction in tax revenue.

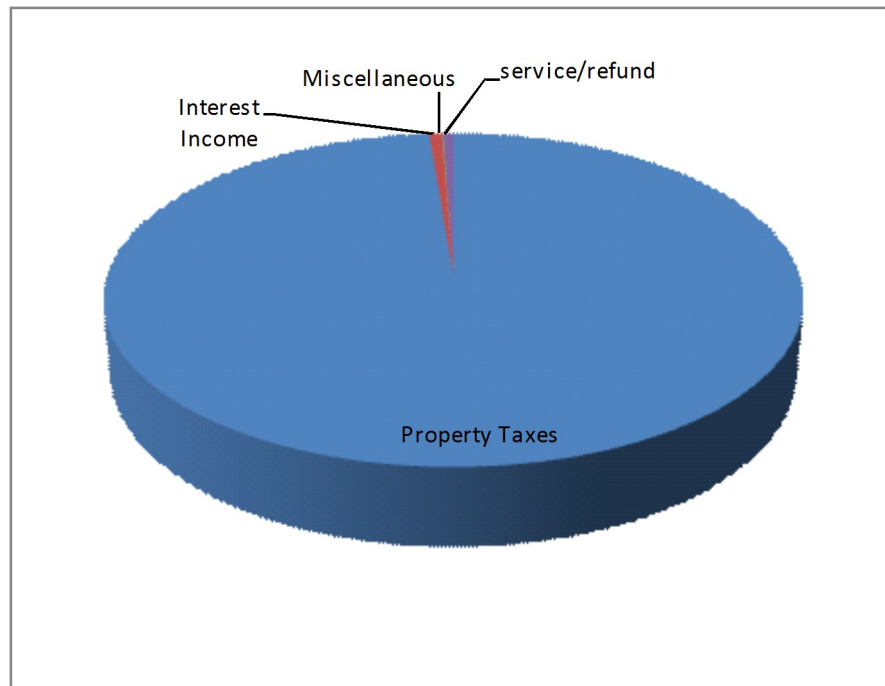




This example is for the typical homeowner. There could be some properties that did not decline in value and those properties would remain at a higher level of tax paid.

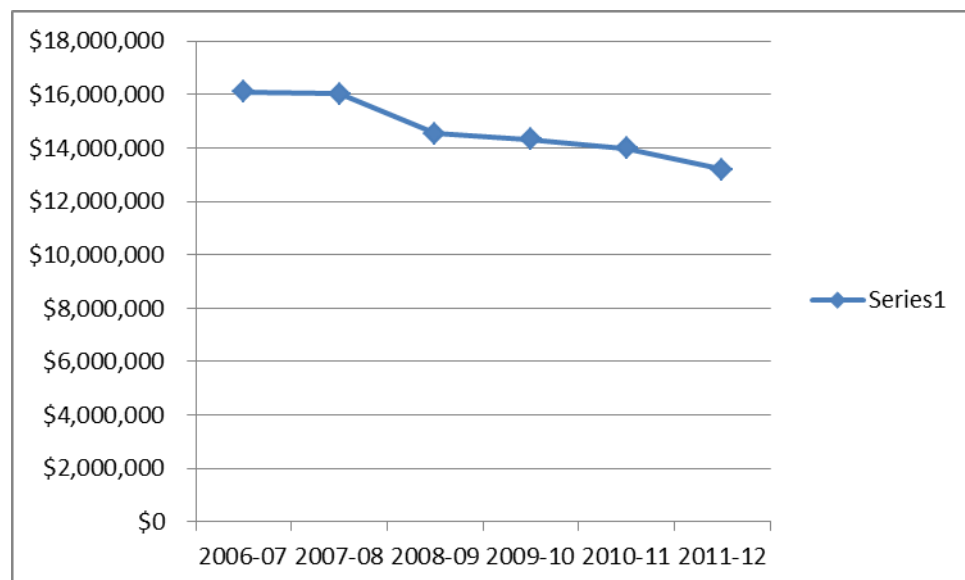


2011-12 Receipts Total \$13,186,397



During fiscal year October 2011– September 30, 2012, the District received a total of \$13,186,397. The District collected \$12,978,896 or 98.43% of its revenue from property taxes. The District earned \$90,001 or 0.68% of its revenue from interest. The District collected \$38,790 or 0.29% of its revenue from sale of equipment. The District collected \$72,536 or 0.55% of its revenue from charges for services/refunds. The majority of this income is from Fort Myers Beach Mosquito Control District for services. The last source of revenue is miscellaneous yielding \$6,174 or 0.05% of the revenue.

Total Revenue

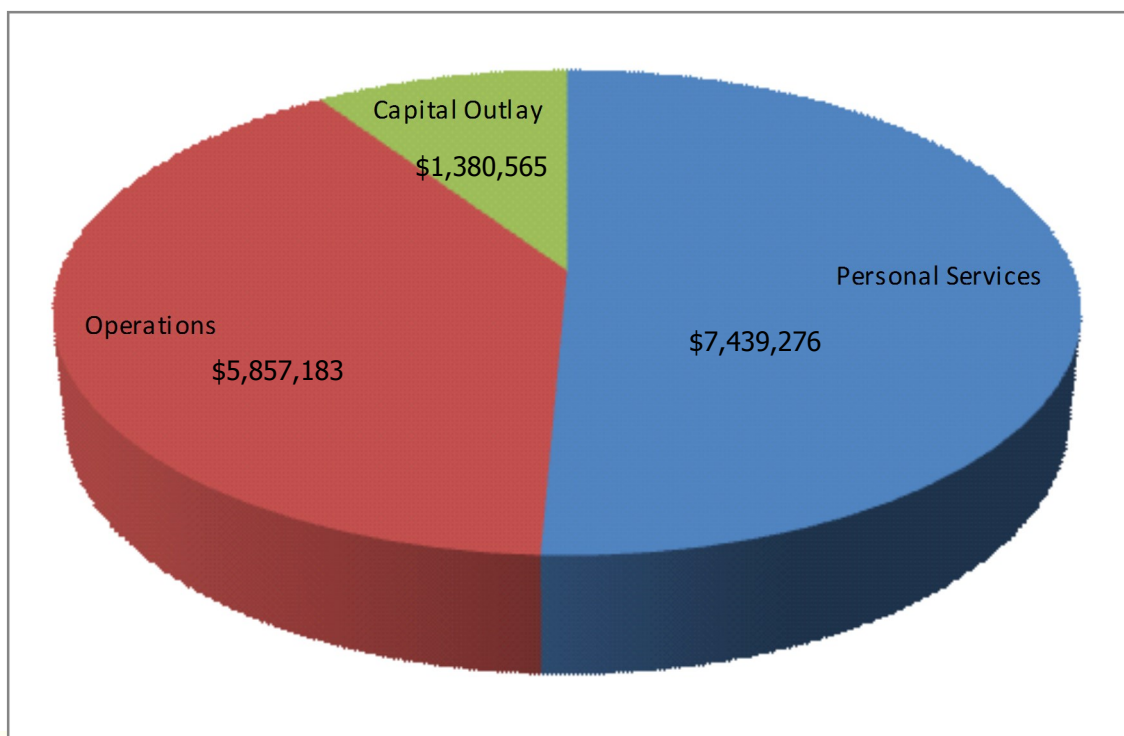


2011-12 Expenditures

Year	2009-10	2010-11	2011-12
Personal Services	8,185,872	7,829,200	7,439,276
Operating	7,480,944	4,597,489	5,857,183
Other (Capital Outlay)	1,086,759	5,074,712	1,380,565
Total	\$16,753,575	17,736,023	\$14,677,024

The District expended \$7,439,276 or 50.69% of its' expenditures on Personal Services and Benefits. It expended \$5,857,183 or 39.90 % of its' expenditures on Operations and \$1,380,565 or 9.41% on Capital Outlay.

2011-12 Expenditures Total \$14,677,024

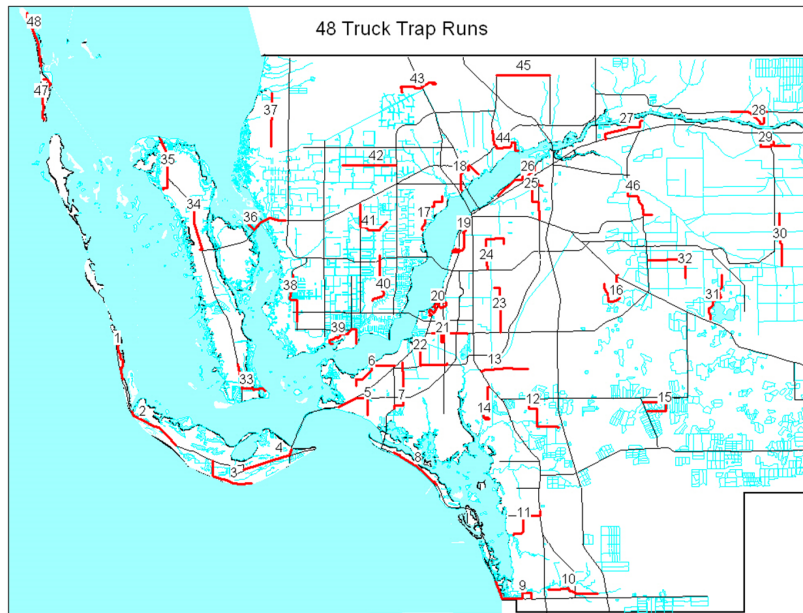


Mosquito Control and Scientific Intelligences Division

Scientific Intelligences

The Mosquito Control and Scientific Intelligences Division of the District is composed of three Sections, Scientific Intelligences, Field Validation and Mosquito Control. James Burgess manages the Scientific Intelligences Section, Katie Heggemeier manages the Mosquito Control Section and the Division Deputy Director, Jonathan Hornby, directs the Field Validation Section as well as the MCSI Division.

The Scientific Intelligences Department involves the scientific collection and analysis of data necessary for the District to control larval or adult mosquitoes in the most efficient manner with minimal impact on the environment. The main facets of the program are monitoring of environmental factors, the monitoring of adult mosquitoes, the monitoring of mosquito-borne disease transmission and the monitoring of the susceptibility of mosquitoes to larvicides and adulticides.



CDC Light Traps



Susceptibility Testing



Mosquito Control and Scientific Intelligences

Scientific Intelligences

Scientific Intelligences is also responsible for disease surveillance. This department phased out the Hemagglutination and Hemagglutination-Inhibition (HA/HI) testing and replaced it with the Enzyme Linked Immunosorbent Assay (ELISA) test. These tests are used to detect antibodies to viruses in chicken blood. There were three main reasons for the change from HA/HI to ELISA. First, the HA/HI is a very old test and some of the required items to do the test have gotten impossible to find. Second, the ELISA test is more accurate, and third, the HA/HI test took 24 to 36 hours, at its quickest, to get results. The ELISA is two hours at its quickest and six hours at its slowest to get results. Now decisions on where to treat for possible disease control will be done within hours after surveillance has been completed. The viruses tested using ELISA and rt-PCR protocols at the District are Dengue (DEN1-4), Eastern Equine Encephalitis (EEE), St. Louis Encephalitis (SLE), and West Nile Virus (WNV).



rt-PCR Test-



Enzyme-Linked ImmunoSorbant Assay ELISA



Mosquito Control and Scientific Intelligences

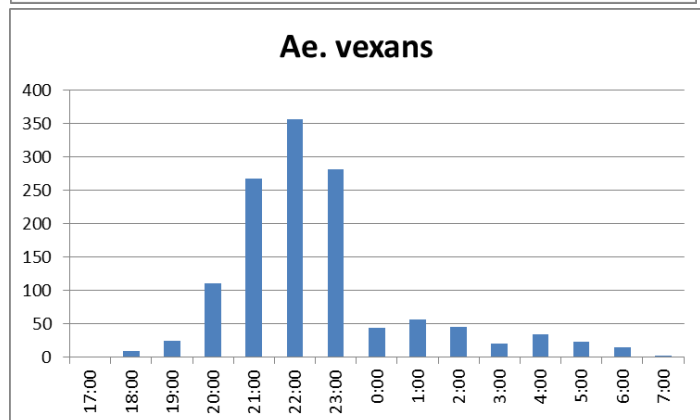
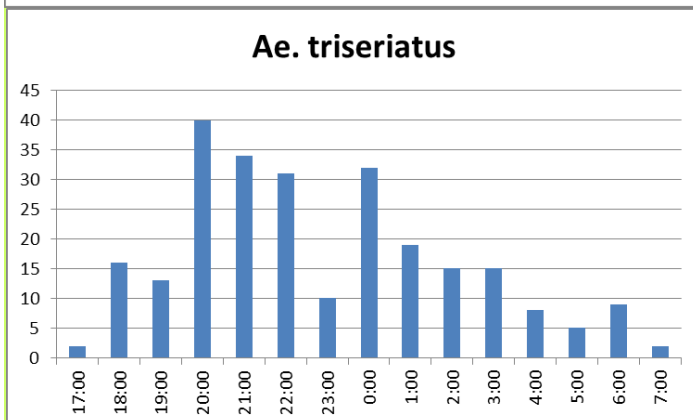
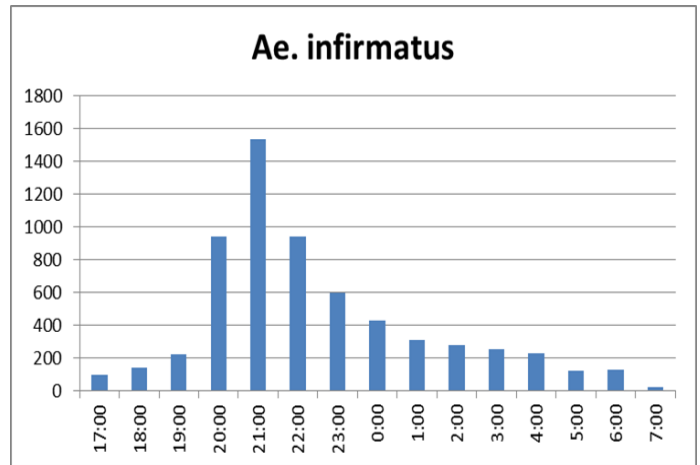
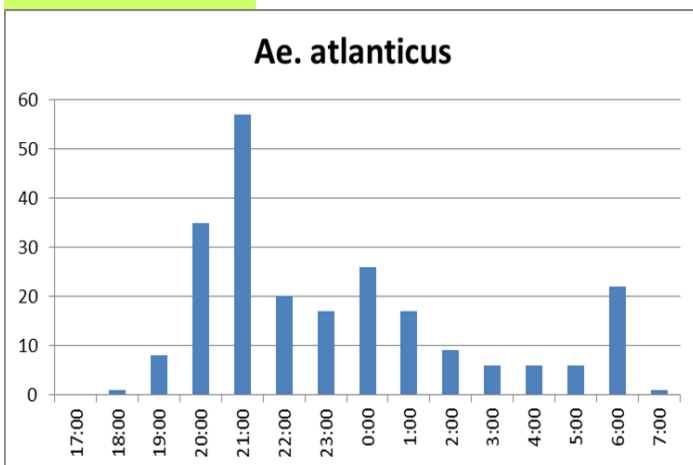
Scientific Intelligences



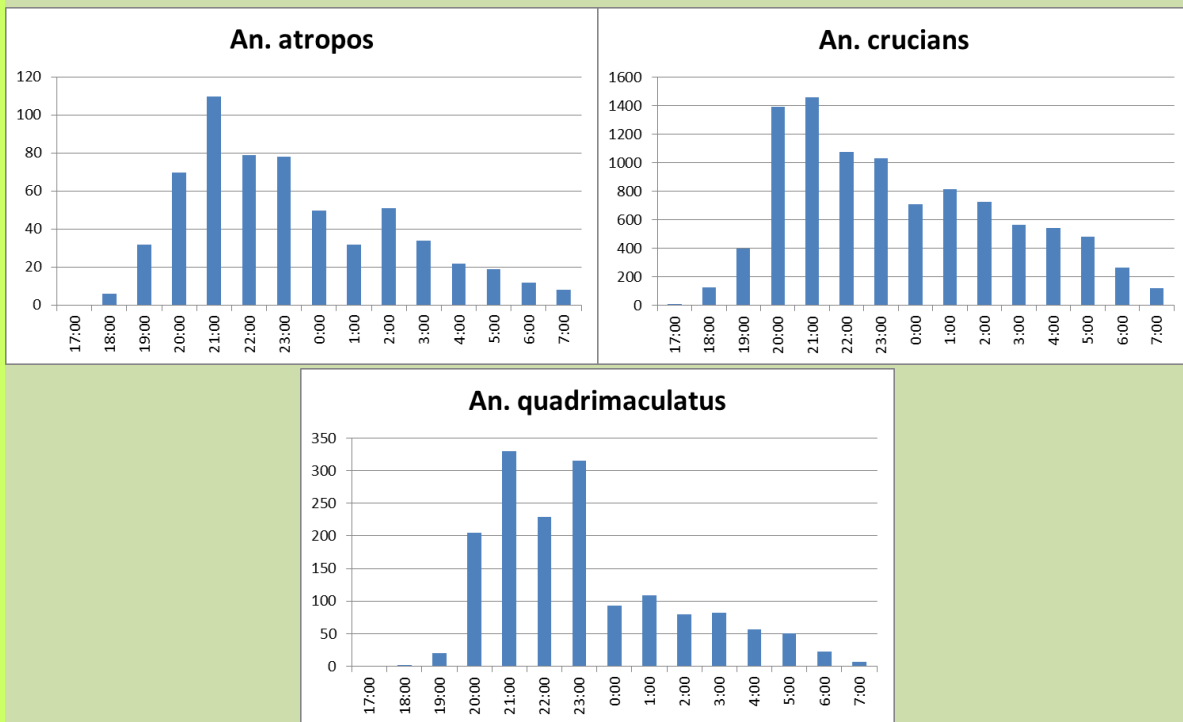
Beginning in 2009, Scientific Intelligences has been time-trapping mosquitoes to determine the peak activity times for the key species of mosquitoes found in Lee County. Previously, the Division looked at *Aedes taeniorhynchus*, *Aedes aegypti*, *Culex nigripalpus*, and *Psorophora columbiae*. This year using rotary time-trap collections, the division looked at additional species. Based on these findings, not all mosquitoes are most active during dusk and dawn. The majority of species in Lee County are most active from 8 PM to midnight.

Rotary Time Traps

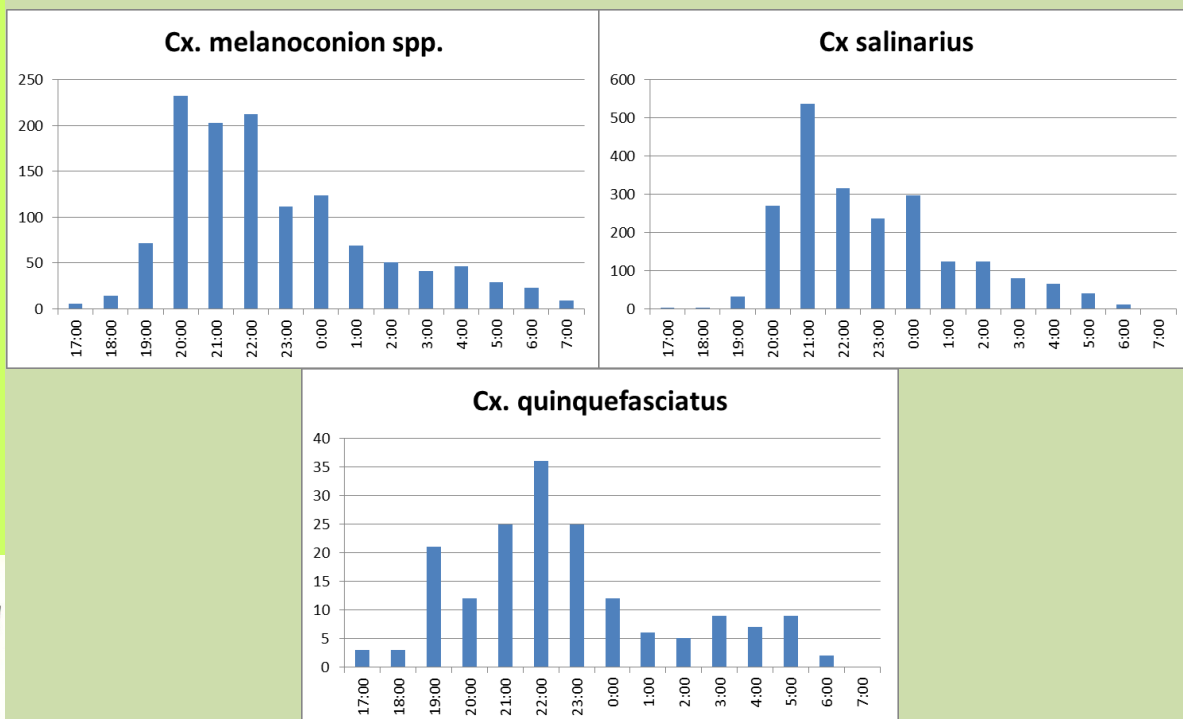
2010-2012 Other Host Seeking Female Mosquitoes In Lee County, Florida



2010-2012 Other Host Seeking Female Mosquitoes in Southwest Florida

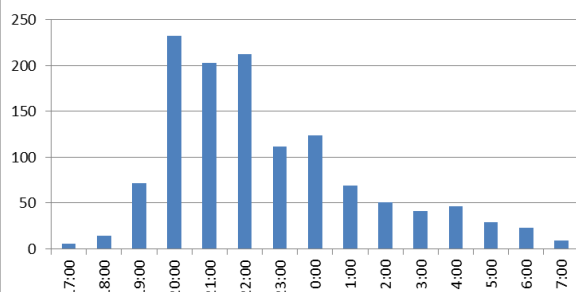


2010-2012 Other Host Seeking Female Mosquitoes in Southwest Florida

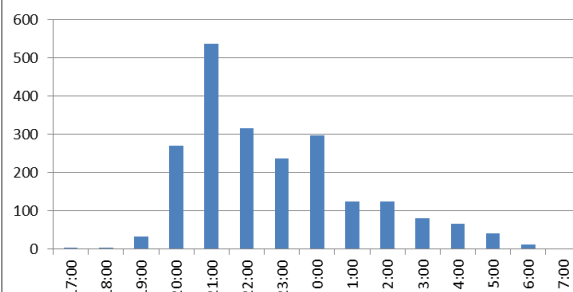


2010-2012 Other Host Seeking Female Mosquitoes in Southwest Florida

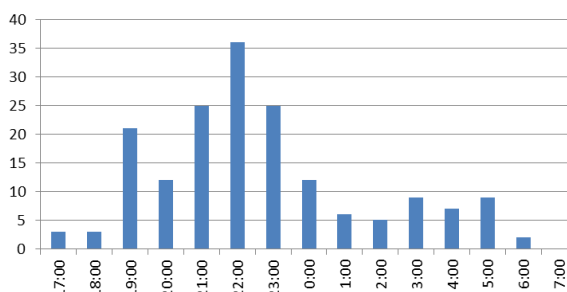
Cx. melanoconion spp.



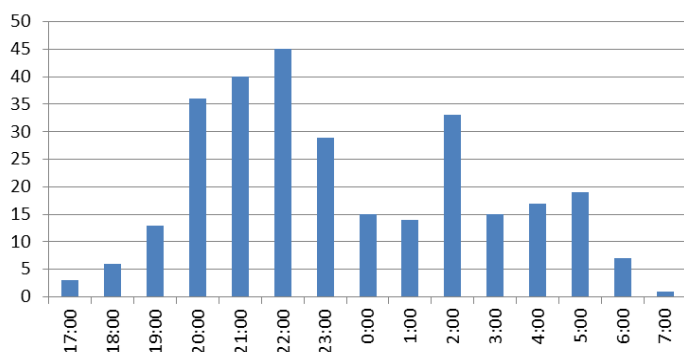
Cx. salinarius



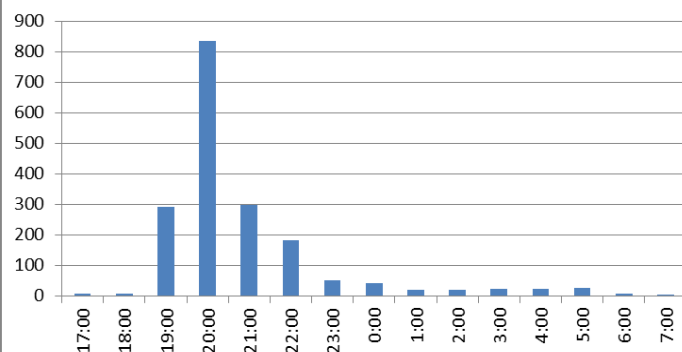
Cx. quinquefasciatus



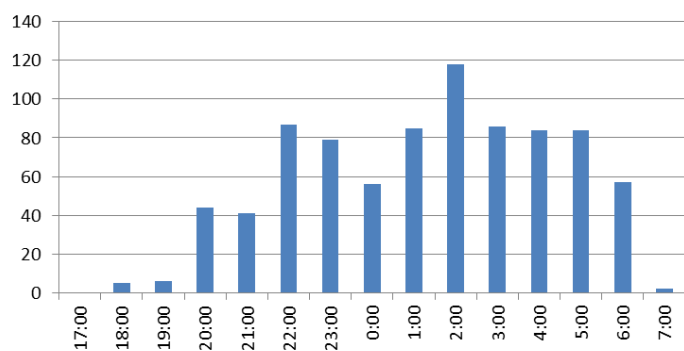
Coquillettia spp.



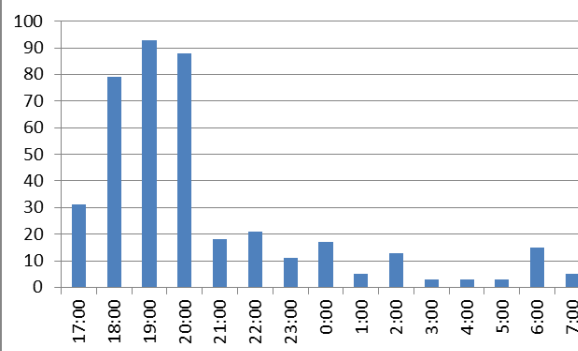
Mansonia spp.



Uranotaenia spp.



Ps. ferox



Mosquito Control and Scientific Intelligences



The Ground Larviciding Program focuses on inspecting the roadside ditches, fields and retention ponds for the presence of mosquito larvae using a standard pint-sized dipper. When mosquito larvae are found, appropriate control measures are taken to insure that the larvae or pupae do not become adults. Each of the 5 inspectors has an assigned geographic area of the county for which they are responsible to check on a regular basis.

Ground Larvicide

Total Acres Treated by Ground Larvicide by Month

Month	2005	2006	2007	2008	2009	2010	2011	2012
JAN	5	3	3	1	1	5	7	1
FEB	3	4	2	29	0	10	16	8
MAR	45	0	3	36	1	50	20	15
APR	67	1	8	59	7	178	30	16
MAY	42	6	27	34	67	56	36	68
JUN	165	170	73	198	193	152	116	163
JUL	249	464	329	540	257	360	427	354
AUG	150	310	443	471	339	518	530	539
SEP	113	452	332	494	399	378	414	371
OCT	97	6	115	161	76	26	313	267
NOV	28	8	1	3	5	17	78	11
DEC	12	0	1	12	103	0	4.2	9
Y-T-D Totals	976	1,424	1,337	2,038	1,448	1,750	1,991	1,822



The Aerial Larviciding Program focuses on inspecting the coastal areas of the County that flood from either rainfall or tide and are not accessible by ground vehicles. Aerial Inspectors use helicopters to search these areas for the presence of mosquito larvae and treat them appropriately. Each the District's five aerial inspectors are assigned specific geographical areas which allows them to become familiar with the mosquito breeding sites and the environment's response to rainfall and tide. Each inspector has an assistant which loads the helicopter with larvicide and fuel. They will also assist by inspecting areas accessible by vehicle.

Aerial Larvicide

Total Acres Treated by Aerial Larvicide by Month

Month	2005	2006	2007	2008	2009	2010	2011	2012
JAN	450		64	469			85	
FEB	2526	557	698	5880		667	1447	265
MAR	3752		120	1069	388	1136	2931	108
APR	7106		666	5513	900	4938	1668	6598
MAY	5658	179	4647	4732	7012	835	5712	6962
JUN	11276	18404	20281	19488	20667	8566	12952	14292
JUL	11795	35554	26884	33287	8519	18470	32730	10954
AUG	6872	14982	20983	11592	28612	17327	23039	13937
SEP	3615	13200	11813	13458	18663	6465	10880	2677
OCT	6639	456	2800	3959	376	697	5068	1703
NOV	132	208			55	387	1648	133
DEC	752			846	1782		46	
Y-T-D To-	60573	83540	88956	100293	86974	59488	98206	57629



Mosquito Control and Scientific Intelligences



Culex nigripalpus

A small area of infestation can be treated with Ground Adulticiding Trucks. These trucks use ULV (Ultra-Low-Volume) technology. The equipment atomizes or creates many tiny droplets which drift through the air and contact the mosquito in flight. The Ground Adulticiding Trucks achieve excellent results in areas with a good network of roads. These trucks usually begin just after sunset and treat an average of 2,000 acres per night. Lee County Mosquito Control fleet consists of 11 Ground Adulticiding Trucks.

Total Acres Treated by Ground Adulticiding by Month

Month	2005	2006	2007	2008	2009	2010	2011	2012
JAN	14,411	4,404	11,560	5,155	0	973	0	9760
FEB	6,105	77	0	3,696	0	0	11009	2865
MAR	38,963	1,322	1,167	17,801	117	27,107	6,272	3252
APR	9,696	3,035	5,262	34,961	4,287	51,420	44,440	35835
MAY	49,211	778	32,472	46,362	34,232	30,292	28,161	73186
JUN	106,212	21,445	78,709	79,490	57,689	43,245	64,207	48389
JUL	75,814	147,265	88,284	153,682	92,689	78,877	119,423	79564
AUG	34,753	78,540	92,232	80,443	86,887	60,381	104,895	68282
SEP	20,428	76,376	81,565	47,836	104,692	52,772	78,870	69842
OCT	62,576	14,518	34,136	21,984	48,969	45,136	63,540	100567
NOV	88,009	2,362	7,140	2,813	7,198	24,419		21289
DEC	18,030	0	3,891	0	12079	0		21760
Y-T-D	524,208	350,122	436,418	494,223	448,839	414,622	520,817	534,591



During periods of high adult mosquito activity, it is necessary to treat large areas of the County; this can be accomplished by using helicopters or fixed-wing aircraft. Lee County Mosquito Control District has two Turbo prop DC3's and one King Air allowing for quick coverage of the county when there is a significant mosquito problem. Equipped with the latest technologies of GPS (Global Positioning System) navigation and night vision goggles these fixed-wing adulticiding missions are conducted at night, usually between 10 p.m. and 2 a.m., when adult mosquitoes are active and more likely to be exposed to the very small droplets produced by the ULV (Ultra-Low-Volume) spray system.

Aerial Adulticide

Month	2005	2006	2007	2008	2009	2010	2011	2012
JAN	0	0	0	0	0	0	0	
FEB	0	0	0	0	0	0	0	
MAR	307	0	0	0	0	0	14,783	
APR	0	0	0	35,553	0	116,440	36,860	
MAY	2,072	0	0	71,591	12,698	0	134,648	131230
JUN	357,753	0	92,363	138,707	7,336	11,481	173,968	120355
JUL	203,982	415,238	118,692	531,803	237,874	239,074	721,915	476296
AUG	57,450	150,010	139,231	360,226	320,934	261,104	422,007	116395
SEP	0	393,937	270,246	91,764	247,388	315,730	294,449	477018
OCT	57,354	0	239,581	0	33,802	87,825	315,782	264953
NOV	200,893	0	0	0	0	25123		
DEC	34,896	0	0	0	0	0		
Y-T-D To-tals	914,707	959,185	860,113	1,229,644	860,032	1,056,777	2,114,412	1586247

